Nimsoft® Unified Dashboards

User Documentation

Document Revision History

Document Version	Date	Changes
1.0	March 30, 2012	New dashboards documented: ■ EMC Clariion ■ EMC Celerra ■ EMC VMAX ■ IBM DS4K ■ MS Exchange 2010 ■ MS SharePoint Server Updated documentation: ■ Amazon AWS ■ MS Exchange 2007 First version of this document as separate from UMP help.

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Contents

Chapter 1: Unified Dashboards Overview

The Unified Management Portal (UMP) comes with predefined views, called Unified Dashboards. To see a Unified Dashboard, click on the Unified Dashboards tab and select the dashboard you want to view.

In any of the dashboards, click a column header to sort by that column.

Chapter 2: Update Dashboards

New Unified Dashboards are released periodically, either as part of a UMP release or as a standalone package. These updated Unified Dashboards are not applied automatically in existing UMP implementations, even if you upgrade to a newer version of UMP that contains updated Unified Dashboards. If you have an existing UMP implementation, in order to update your Unified Dashboards you must download the Unified Dashboard package from the Nimsoft support site and then manually import the dashboards into UMP.

Note: Upgrading to a newer version of UMP does *not* update Unified Dashboards in existing UMP implementations.

New installations of UMP automatically have the Unified Dashboards for that release.

All users should check the Nimsoft support site periodically for updates and follow the procedure described here to update Unified Dashboards as appropriate.

Follow these steps:

1. Download the **unified_dashboards** probe package from the **Downloads** page at Nimsoft support to your local archive.
2. Drag the **unified_dashboards** package onto a robot where the wasp probe is running.

   If the package icon turns red and you see a message stating **inst_execute failed error**, make sure wasp is running on the robot and then drag the package onto the robot again.
3. If you are running a version of UMP earlier than UMP 2.6.2, restart wasp.

   Beginning with UMP 2.6.2, it is not necessary to restart wasp.
4. Point your browser to http://<*umpServer*>[*:port*]/listdesigner/jsp/get_lar.jsp.
5. Click on the names of the Unified Dashboards you want to update. Or, click on **UnifiedDashboards.lar** to get the latest version of all Unified Dashboards.

   This prompts you to save the dashboard files to a folder on your client system.
6. Log into UMP.
7. Click **Manage**, **Control Panel** on the menu bar.
8. Click **My Pages**.
9. Click **Private Pages**.
10. Click **Export/Import**, then click **Import**.

11. Click **Browse** and choose a dashboard file.

    Note: Importing a dashboard file overwrites your existing dashboard.

12. Leave the default options selected and click **Import**.
13. Repeat the above steps to import all the downloaded dashboard files you want to update.
14. Click the **Back to My Private Pages** link at the top of the page.

Chapter 3: Datacenter

The Datacenter Unified Dashboard provides predefined list views with key performance indicators for your data center infrastructure such as server health, disk space, network response, and web sites.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

Datacenter Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the Datacenter dashboard.

Probe	QoS	Subkey/Target
cdm	QOS_CPU_USAGE	$HOST
	QOS_MEMORY_PERC_USAGE	$HOST
net_connect	QOS_NET_CONNECT	*
url_response	QOS_URL_RESPONSE	*

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Current Server Performance

Column	Description
Host	Name of the host.
CPU Usage	Percent of CPU in use. 0 to 94.99 = Green 95 to 96.99 = Yellow 97 to 98.99 = Orange 99 to 100 = Red
Memory Usage	Percent of memory in use. 0 to 69.99 = Green 70 to 89.99 = Orange 90 to 100 = Red
Alarm	Lists the alarms for the host.

Server Disk Space Usage

Column	Description
Host	Name of the host.
Disk	Name of the disk.
Percent Used	Highest percentage of disk space usage for hosts in the group for the last ten minutes.

Network Response Time

Column	Description
Monitored From	Name of host where Nimsoft Monitor is installed and monitoring response time.
Host:Port	Name and port type of the target host.
Resp Time	Time, in milliseconds, for a response to be received from the target host.
Resp Time	Gauge displaying the time, in milliseconds, for a response to be received from the target host.

URL Response Time (List)

Column	Description
Monitored From	Name of host where Nimsoft NM is installed and monitoring response time.
Monitored Site	The web site being monitored.
Resp Time	Time, in milliseconds, for a response to be received from the target URL.
Resp Time	Gauge displaying the time, in milliseconds, for a response to be received from the target URL.
Alarm	Indicates whether there is an alarm generated by the probe.

Chapter 4: Network

The Network Unified Dashboard provides predefined list views with information about your network performance.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

Network Required Data Sources

The table contains the probes and QoS metrics required for the preconfigured Network dashboard.

Probe	QoS Required
interface_traffic	QOS_INTERFACE_TRAFFIC_PERC
net_connect	QOS_NET_CONNECT
url_response	QOS_URL_RESPONSE
cisco_monitor	QOS_MEMORY_USAGE
	QOS_CPU_USAGE

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Web Site Response Time

Column	Description
Monitored From	Name of the host with the Nimsoft url_response probe that is monitoring web site response time.
Profile Name	Name of the profile configured in the url_response probes. Typically this is the name of the web site.
Resp Time	Average time, in milliseconds, to receive a response to an HTTP GET request during the last hour.
Resp Time	Graph of average time, in milliseconds, to receive a response to an HTTP GET request during the last hour.
Alarm	Alarms generated by the url_response probe, if any.

Cisco Device Health

Column	Description
Host	IP address of the Cisco device.
Memory Used	Last reported number of megabytes of memory consumed by the Cisco device.
Memory Free	Last reported number of megabytes of memory available.
CPU Usage	Last reported percent of CPU consumed by the Cisco device.

Ping Response Time

Column	Description
Monitored From Host	Name of the host with the Nimsoft net_connect probe that is monitoring ping response time.
Host:Port	Name of the host and port number that the ping request was sent to.
Response Time	Last reported time, in milliseconds, to receive a response to the ping request.

Interface Bandwidth

Column	Description
Device	Name of the device where the interface is located.
Origin	QoS data from probes is tagged with a name to identify the origin of the data. The origin name is set in the controller probe GUI. If the origin name is not set, the hub name is used.
Interface	Type of interface.
Bandwidth	Last reported percent of bandwidth consumed by traffic on the interface.

Chapter 5: Power

The Data Center Power Unified Dashboard provides predefined list views with information about power usage in your data center.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

Power Required Data Sources

The table contains the probes and QoS metrics required for the preconfigured Power dashboard.

Probe	QoS Required
power	QOS_BATTERY_TIME_REMAINING QOS_DCIE QOS_PUE QOS_VOLTS

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

UPS Battery Runtime Remaining

Column	Description
Target	DataCenter plus the IP address, name, object identifier, or description of the data center.

Battery Runtime Remaining	Expected runtime of the UPS in minutes.

Data Center Power Effectiveness

Column	Description
Target	The data center name. For the current version of the power probe this is always Data Center.
PUE Value	Measurement of the energy efficiency of a data center. Calculated by dividing the total facility power by the total IT equipment power. PUE is the inverse of DCIE.
PUE Result	Efficiency level of measured PUE.

Data Center Infrastructure Efficiency

Column	Description
Target	DataCenter plus the IP address, name, object identifier, or description of the data center.
DCIE	Measurement of the energy efficiency of a data center. DCIE is calculated by dividing the total IT equipment power by the total facility power. DCIE is the inverse of PUE.
DCIE Results	Efficiency level of measured DCIE.

UPS Input Line Voltage

Column	Description
Name	DataCenter plus the IP address, name, object identifier, or description of the data center.
Volts	Voltage of the UPS input line.
Volts	Voltage of the UPS input line, displayed as a line graph.

Chapter 6: Server

The Server Unified Dashboard provides predefined list views with information about server performance, such as CPU, memory, disk space usage, and server load.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

Server Required Data Sources

The table contains the probes and QoS metrics required for the preconfigured Server dashboard.

Probe	QoS Required
cdm	QOS_CPU_USAGE QOS_PROC_QUEUE_LEN QOS_DISK_USAGE_PERC QOS_MEMORY_PERC_USAGE

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Current Server Performance

Column	Description
Host	Name of the server.
CPU Usage Last 6hr	Percent of CPU consumed over the last 6 hours.

CPU Usage	Percent of CPU in use.
Memory Usage	Percent of memory in use.

Server Load 1 hour average

Column	Description
Host	Name of the server.
1 hr Avg CPU Usage	Average percent of CPU consumed during the past hour.
1 hr Avg Proc Queue Length	Average number of processes queued during the past hour.

Server Disk Space Usage

Column	Description
Host	Name of the server.
Disk	Disk being monitored.
Percent Used	Percent of disk space consumed.

Chapter 7: Storage

The Storage unified dashboards provide out of the box dashboards with key performance and capacity information for storage devices.

You can use this data to spot potential performance issues and get an early warning of potential capacity issues and avoid downtime. The storage dashboard provides a unified view of various types of storage devices. The storage devices supported include the following:

- EMC Celerra series
- EMC Clariion series
- EMC VNX series
- EMC VMAX/DMX series

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

Storage Required Data Sources

The table contains the probes and QoS metrics required for the preconfigured Storage dashboard.

Probe	QoS Required
clariion netapp celerra vmax ibm compellent **Note**: Not all of these probes are required. The reports look for one or more of the probes if they exist.	QOS_STORAGE_NUMBER_OF_DEVICES QOS_STORAGE_DISK_CAPACITY _STORAGE_SP_BLOCKS_READ_PER_SECOND _STORAGE_DISK_READ System Statistics.Disk Read _STORAGE_DISK_READ_KB_PER_SEC System Statistics.Disk Read _STORAGE_SP_BLOCKS_READ_PER_SECOND SP B _STORAGE_SP_BLOCKS_READ_PER_SECOND SP A _STORAGE_SP_BLOCKS_READ_PER_SECOND SP A _STORAGE_SP_BLOCKS_READ_PER_SECOND SP B _STORAGE_SP_BLOCKS_READ_PER_SECOND SP A _STORAGE_DISK_READ System Statistics.Disk Read _STORAGE_DISK_READ System Statistics.Disk Read _STORAGE_DISK_READ System Statistics.Disk Read _STORAGE_DISK_WRITE System Statistics.Disk Write _STORAGE_DISK_WRITE_KB_PER_SEC System Statistics.Disk Write

Probe	QoS Required
(*continued*)	_STORAGE_SYMM_DISK_KB_WRITE_PER_SEC _STORAGE_SYMM_DISK_KB_WRITE_PER_SEC _STORAGE_DISK_WRITE System Statistics.Disk Write _STORAGE_DISK_WRITE System Statistics.Disk Write _STORAGE_DISK_WRITE System Statistics.Disk Write _STORAGE_IOPS System Statistics.IOPS _STORAGE_SP_READ_IOPS SP A _STORAGE_SP_WRITE_IOPS SP A _STORAGE_SP_WRITE_IOPS SP A _STORAGE_SP_READ_IOPS SP A _STORAGE_SP_WRITE_IOPS SP A _STORAGE_SP_READ_IOPS SP A _STORAGE_SP_WRITE_IOPS SP B _STORAGE_SP_READ_IOPS SP B _STORAGE_SP_WRITE_IOPS SP A _STORAGE_SP_READ_IOPS SP A _STORAGE_SP_WRITE_IOPS SP B _STORAGE_SP_READ_IOPS SP B _STORAGE_SP_WRITE_IOPS Unknown _STORAGE_SP_READ_IOPS Unknown _STORAGE_SP_WRITE_IOPS SP B _STORAGE_SP_WRITE_IOPS SP A

Probe	QoS Required
(*continued*)	_STORAGE_SP_READ_IOPS SP B _STORAGE_SP_READ_IOPS SP A _STORAGE_SP_READ_IOPS SP B _STORAGE_SP_WRITE_IOPS SP B _STORAGE_SP_READ_IOPS SP A _STORAGE_SP_WRITE_IOPS SP A _STORAGE_IOPS System Statistics.IOPS _STORAGE_IOPS System Statistics.IOPS _STORAGE_IOPS System Statistics.IOPS

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Storage IOPS

This view displays the I/O performance of a storage system as the number of I/O operations per second. This performance metric is critical to understanding bottlenecks or throughput in a storage array system.

Chart	Description
Storage IOPS	This chart portrays the overall Number of I/O operations per second for every storage array.

Storage IO Data Rate

This view displays the overall data bandwidth measured as average disks read and write (I/O) data rate in kilobits (Kb) per second of all discovered storage systems.

Chart	Description
Disks Reads Kb/sec	This displays overall disk data reads in Kb per sec for each discovered and monitored storage system. This indicates storage bandwidth and speed of Data access.
Disks Writes Kb/Sec	This displays overall disk data writes in Kb per sec for each discovered and monitored storage system. This indicates storage bandwidth and speed of Data storage.

Storage Systems Status

This view displays the status of all discovered storage systems.

Column	Description
Storage Systems	This lists the host or controller IP address of host name of all discovered and monitored storage systems.
Alarm Status	This shows the Nimsoft alarms from all discovered and monitored storage systems with standard color scheme pertaining to severity.

Number of Storage Devices

This list view displays the number of storage devices in each discovered storage system.

Column	Description
Storage Systems	This lists the host name or IP address of each discovered and monitored storage system.
Storage Array	This lists the storage array names from the above storage systems.
Total Storage Devices	This lists the number of logical storage devices i.e. LUNs in the above storage systems.

Storage Systems Physical Disks

This list view displays the number of physical disks in each discovered storage system.

Columns	Description
Storage Systems	This lists the host name or IP address of each discovered and monitored storage system.
Physical Storage	This lists the storage array or chassis/enclosure name of each discovered and monitored storage system.
Total Disks Count	This lists the number of physical disks discovered in each storage array or chassis/enclosure name of each discovered and monitored storage system.

Chapter 8: Amazon AWS

The Amazon Web Services (AWS) Unified Dashboard provides predefined list views with key performance indicators for your AWS environment including individual instance performance, deployment time, file read times, and more.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

AWS Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the AWS dashboard.

Probe	QoS Required	Subkey/Target
aws	QOS_MachineDeploymentTime	Deployment Time
	QOS_FileReadTime	File Transfer Time
	QOS_FileWriteTime	File Transfer Time
	QOS_CPUUtilization	Minimum Maximum Average
	QOS_DiskReadBytes	Average
	QOS_DiskWriteBytes	Average
	QOS_DiskReadOps	Average
	QOS_DiskWriteOps	Average

Probe	QoS Required	Subkey/Target
aws	QOS_MachineDeploymentTime	Deployment Time
	QOS_FileReadTime	File Transfer Time
	QOS_NetworkIn	Average
	QOS_NetworkOut	Average

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

AWS Deployment Time

Column	Description
AWS Instance ID	The AWS instance ID provided by Amazon. Click the name of an instance to view a Performance Report of deployment time data for that instance.
Last Deployment Time	Time, in seconds, it took to deploy a new Amazon instance.
Deployment Time	Mini-graph displaying the time, in seconds, it took to deploy a new Amazon instance.

AWS Instance Overview

Column	Description
Instance ID	The AWS instance ID provided by Amazon.
Alarm	Indicates an alarm associated with the instance.
CPU Usage	Gauge displaying the percentage of allocated EC2 compute units that are currently in use on the instance. This metric identifies the processing power required to run an application upon a selected instance. 0 to 49.99 = Green 50 to 79.99 = Orange 80 to 100 = Red
Network In	Mini-graph displaying the number of bytes received on all network interfaces by the instance. This metric identifies the volume of incoming network traffic to an application on a single instance.

Network Out	Mini-graph displaying the number of bytes sent out on all network interfaces by the instance. This metric identifies the volume of outgoing network traffic to an application on a single instance.

AWS Instance CPU Usage Summary

Column	Description
AWS Instance ID	The AWS instance ID provided by Amazon.
Min CPU	Minimum percentage of CPU in use.
Max CPU	Maximum percentage of CPU in use.
Avg CPU	Average percentage of CPU in use.
Avg CPU	Mini-graph displaying the average percentage of CPU in use for the previous hour.

AWS File Read/Write Time

Column	Description
AWS Instance ID	The AWS instance ID provided by Amazon. Click the name of an instance to view a Performance Report of file read/write time data for that instance.
Read	Number of seconds to read a file from the S3 storage service to the probe.
Read	Mini-graph displaying the number of seconds to read a file from the S3 storage service to the probe for the previous two hours.
Write	Number of seconds to write a file to the S3 storage service from the probe.
Write	Mini-graph displaying the number of seconds to write a file to the S3 storage service from the probe for the previous two hours.

AWS Instance Disk Read/Write Bytes

Column	Description
AWS Instance ID	The AWS instance ID provided by Amazon.
Read Bytes	Bytes read from all disks available to the instance. This metric is used to determine the volume of the data the application reads from the hard disk of the instance. This can be used to determine the speed of the application for the customer.
Avg Read Bytes	Mini-graph displaying the average Read Byte values for the previous two hours.
Write Bytes	Bytes written to all disks available to the instance. This metric is used to determine the volume of the data the application writes onto the hard disk of the instance. This can be used to determine the speed of the application for the customer.
Avg Write Bytes	Mini-graph displaying the average Write Byte values for the previous two hours.

AWS Instance Disk Read/Write Operations

Column	Description
AWS Instance ID	The AWS instance ID provided by Amazon.
Read Ops	Completed read operations from all disks available to the instances. This metric identifies the rate at which an application reads a disk. This can be used to determine the speed at which an application reads data from a hard disk.
Avg Read Ops	Mini-graph displaying the average Read Ops values for the previous hour.
Write Ops	Completed write operations to all hard disks available to the instance. This metric identifies the rate at which an application writes to a hard disk. This can be used to determine the speed at which an application saves data to a hard disk.
Avg Write	Mini-graph displaying the average Write Ops values for the previous hour.

Chapter 9: Cisco

The Cisco Unified Dashboard provides four predefined list views with performance and status information about Cisco devices in your environment.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

Cisco Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the Cisco dashboard.

Probe	Qos Metric	SubKey/Target
cisco_monitor	QOS_CISCO_BUFFER_MISSES	Small Buffer Misses Medium Buffer Misses Big Buffer Misses Large Buffer Misses Very Large Buffer Misses Huge Buffer Misses
	QOS_CISCO_ENVIRONMENT	Fan State (0)
cdm	QOS_CPU_USAGE	CPU Last 5 sec CPU Last 1 min CPU Last 5 min

	QOS_MEMORY_USAGE	Memory Used Memory Free
	QOS_MEMORY_PERC_USAGE	Memory Percent Free

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Cisco Device CPU Performance

Column	Description
Host	IP address of the Cisco device.
Last 5 sec	Overall CPU busy percentage during the last 5-second period. 0 to 80 = Green 80 to 90 = Orange 90 to 100 = Red
Last 1 min	Overall CPU busy percentage during the last 1-minute period. 0 to 80 = Green 80 to 90 = Orange 90 to 100 = Red
Last 5 min	Overall CPU busy percentage during the last 5-minute period. 0 to 80 = Green 80 to 90 = Orange 90 to 100 = Red

Cisco Device Memory Performance

Column	Description
Host	IP address of the Cisco device.
Used	Number of megabytes of memory used during the last 5 minutes.
Free	Number of megabytes of memory available during the last 5 minutes.

Percent Free	Percent of memory available during the last 5 minutes. 20 to 100 = Green 10 to 20 = Orange 0 to 10 = Red

Cisco Device Buffer Misses

The processor memory of the Cisco device is divided into pools. Each pool contains a number of memory blocks of equal size. These memory blocks are called buffers.

There are six buffer pools:

- Small - 104-byte buffers
- Medium - 600-byte buffers
- Big - 1524-byte buffers
- Large - 4520-byte buffers
- Very Large - 5024-byte buffers
- Huge - 18024-byte buffers

Column	Description
Host	IP address of the Cisco device.
Small	Number of buffer misses for the small buffer pool during the last 5 minutes.
Medium	Number of buffer misses for the medium buffer pool during the last 5 minutes.
Big	Number of buffer misses for the big buffer pool during the last 5 minutes.
Large	Number of buffer misses for the large buffer pool during the last 5 minutes.
Very Large	Number of buffer misses for the very large buffer pool during the last 5 minutes.
Huge	Number of buffer misses for the huge buffer pool during the last 5 minutes.

Cisco Device Environment Status

Column	Description
Host	IP address of the Cisco device.
Fan State	Status of the device fan during the last 5 minutes. Status is reported as normal, warning, critical, shutdown, not present, or not functioning.

Chapter 10: EMC Clariion

The EMC Clariion Unified Dashboard provides predefined list views with information about the status and capacity of the EMC Clariion storage system.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

EMC Clariion Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the EMC Clariion dashboard.

Probe	QoS	Subkey/ Target
clariion	QOS_STORAGE_RAW_TOTAL_CAPACITY	*
	QOS_STORAGE_SYS_FAULTS	*
	QOS_STORAGE_TP_AVAILABLE_CAPACITY	*
	QOS_STORAGE_TP_CONSUMED_CAPACITY	*
	QOS_STORAGE_TP_PERCENT_FULL	*
	QOS_STORAGE_TP_PERCENT_SUBSCRIBED	*
	QOS_STORAGE_SP_BLOCKS_READ_PER_SECOND	SP A SP B
	QOS_STORAGE_SP_BLOCKS_WRITTEN_PER_SECOND	SP A SP B
	QOS_STORAGE_SP_READ_IOPS	SP A SP B

Probe	QoS	Subkey/ Target
	QOS_STORAGE_SP_WRITE_IOPS	SP A SP B
	QOS_STORAGE_SP_PCT_BUSY	*
	QOS_STORAGE_SP_PCT_DIRTY	SP A SP B
	QOS_STORAGE_FAST_CACHE_PCT_DIRTY_SPA	Fast Cache
	QOS_STORAGE_FAST_CACHE_PCT_DIRTY_SPB	Fast Cache

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Storage IO Performance

Column	Description
Clariion Systems	Name of the system that hosts the Clariion server. Click the name of a Clariion System to view a Performance Report with storage IO data for that system. Enter text in the filter field in the column header to see only Clariion System names that contain that text.
SP A - Blocks Read/Sec	Number of blocks per second read by storage processor A.
SP B - Blocks Read/Sec	Number of blocks per second read by storage processor B.
SP A - Blocks Written/Sec	Number of blocks per second written by storage processor A.
SP B - Blocks Written/Sec	Number of blocks per second written by storage processor B.
SP A - Read IOPS	Number of read operations per second by storage processor A.
SP B - Read IOPS	Number of read operations per second by storage processor B.
SP A - Write IOPS	Number of write operations per second by storage processor A.
SP B - Write IOPS	Number of write operations per second by storage processor B.

Storage Processors Performance

Column	Description
Clariion Systems	Name of the system that hosts the Clariion server. Click the name of a Clariion System to view a Performance Report with storage IO data for that system. Enter text in the filter field in the column header to see only Clariion System names that contain that text.
SP A - Pct Busy	Percent of time storage processor A is busy.
SP B - Pct Busy	Percent of time storage processor B is busy.
SP A - Pct Dirty	For storage processor A, percent of data that is in DRAM cache and has not been written to disk.
SP B - Pct Dirty	For storage processor B, percent of data that is in DRAM cache and has not been written to disk.
SP A - Fast Cache Pct Dirty	For storage processor A, percent of data that is in FLASH cache and has not been written to disk.
SP B - Fast Cache Pct Dirty	For storage processor B, percent of data that is in FLASH cache and has not been written to disk.

Storage System Health

Column	Description
Clariion Systems	Name of the system that hosts the Clariion server. Click the name of a Clariion System to view a Performance Report with storage IO data for that system. Enter text in the filter field in the column header to see only Clariion System names that contain that text.
Total Capacity	Number of gigabytes in the Clariion storage system.
System Health	Number of faults for the storage system. 0 = OK (Green) 1 or more = Failed (Red)

Thin Pools Usage

Column	Description
Storage Thin Pools	Name of the thin pool. Enter text in the filter field in the column header to see only thin pool names that contain that text.
Total Capacity	Number of gigabytes available in the thin pool.
Consumed Capacity	Number of gigabytes of the thin pool used.
Percent Full	Percent of thin pool capacity consumed. 0 to 75 = Green 75 to 85 = Yellow 85 to 95 = Orange 95 to 100 = Red
Percent Subscribed	Percent of thin pool capacity subscribed. 0 to 90 = Green 90 to 120 = Yellow 121 to 200 = Orange Greater than 200 = Red

Chapter 11: EMC Celerra

The EMC Celerra Unified Dashboard provides predefined list views with information about the status and capacity of the EMC Clariion storage system.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

EMC Celerra Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the EMC Celerra dashboard.

Probe	QoS	Subkey/ Target
celerra	QOS_STORAGE_RAW_TOTAL_CAPACITY	*
	QOS_STORAGE_RAW_FREE_CAPACITY_PERCENT	*
	QOS_STORAGE_NUM_OF_DISKS	*
	QOS_STORAGE_NUM_OF_DEVICES	*
	QOS_DMFS_TOTAL_CAPACITY	*
	QOS_DMFS_USED_CAPACITY	*
	QOS_DMFS_CAPACITY_FREE_PERCENT	*
	QOS_SVG_SIZE_TOTAL	*
	QOS_SVM_SIZE_TOTAL	*

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Datamovers Capacity Usage

Column	Description
Data Movers File Systems	Name of the data mover. Enter text in the filter field in the column header to see only data mover names that contain that text.
Total Capacity in KBytes	Number of kilobytes in the data mover.
Used Capacity in KBytes	Number of kilobytes used.
Capacity Free in percent	Percent of capacity not used. 75 to 100 = Green 50 to 76 = Yellow 11 to 49 = Orange 1 to 10 = Red

Storage Groups and Volumes

Column	Description
Celerra Systems	Name of the system that hosts the Celerra server. Enter text in the filter field in the column header to see only Celerra system names that contain that text.
Celerra System Details	Name of the storage volume. Enter text in the filter field in the column header to see only storage volumes that contain that text.
Storage Group Size	Size of the storage group.
Meta Volume Size	Size of the meta volume.

Memory and CPU Performance

Column	Description
Celerra Systems	Name of the system that hosts the Celerra server. Click the name of a host to view a Performance Report with memory and CPU data for that host. Enter text in the filter field in the column header to see only host names that contain that text.
Memory Free in KBytes	Number of kilobytes free on the host system.
CPU Free in percent	Percent of CPU not used. 50 to 100 = Green 25 to 50 = Yellow 10 to 25 = Orange 1 to 10 = Red

Storage Summary

Column	Description
Celerra Systems	Name of the system that hosts the Celerra server. Click the name of a host to view a Performance Report with performance data for that host. Enter text in the filter field in the column header to see only Celerra system names that contain that text.
Total Capacity	Number of gigabytes in the Celerra system.
Free Capacity	Percent of capacity not used. 50 to 100 = Green 25 to 50 = Yellow 10 to 25 = Orange 0 to 10 = Red
Total Disks	Number of disks.
Total Devices	Number of LUNs.

Chapter 12: EMC VMAX

The EMC VMAX Unified Dashboard provides predefined list views with information about the status and capacity of the EMC VMAX storage system.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

EMC VMAX Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the EMC VMAX dashboard.

Probe	QoS	Subkey/ Target
vmax	QOS_STORAGE_SYMM_WRITE_PER_SEC	*
	QOS_STORAGE_SYMM_READ_PER_SEC	*
	QOS_STORAGE_SYMM_DIR_I_O_PER_SEC	*
	QOS_STORAGE_SYMM_WRITE_HIT_RATIO	*
	QOS_STORAGE_SYMM_READ_HIT_RATIO	*
	QOS_STORAGE_SYMM_DISK_KB_READ_PER_SEC	*
	QOS_STORAGE_SYMM_DISK_KB_WRITE_PER_SEC	*
	QOS_STORAGE_SYMM_KB_READ_PER_SEC	*
	QOS_STORAGE_SYMM_KB_WRITE_PER_SEC	*
	QOS_STORAGE_SYMM_CACHE	*
	QOS_STORAGE_SYMM_DIR_READ_WRITE_CACHE_HIT_RATIO	*

Probe	QoS	Subkey/ Target
	QOS_STORAGE_RAW_FREE_CAPACITY_PERCENT	*
	QOS_STORAGE_SYMM_PERCENT_SUBSCRIBED	*
	QOS_STORAGE_DIR_OP_STATUS	*
	QOS_STORAGE_DIR_READ_PER_SEC	*

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

System IO Performance

Column	Description
Host	Name of the system that hosts the VMAX server. Click the name of a host to view a Performance Report with IO performance data for that host. Enter text in the filter field in the column header to see only host names that contain that text.
Write/Sec	Number of write requests per second for the array.
Read/Sec	Number of read requests per second for the array.
Dir I/O per Sec	Number of IO requests per second for all directors.
Write Hit ratio	Aggregated ratio of write requests for the array found in cache, as opposed to disk. The higher this number, the better the performance.
Read Hit Ratio	Aggregated ratio of read requests for the array found in cache, as opposed to disk. The higher this number, the better the performance.

System Health

Column	Description
Host	Name of the system that hosts the VMAX server. Click the name of a host to view a Performance Report with data for that host. Enter text in the filter field in the column header to see only host names that contain that text.
Cache Size	Total cache size.
Cache Hit Ratio	Aggregated ratio of read and write requests for the array found in cache, as opposed to disk. The higher this number, the better the performance. 70 to 100 = Green 20 to 70 = Yellow 10 to 20 = Orange 0 to 10 = Red
Raw Disk Free Capacity	Total capacity of all disks. 50 to 100 = Green 30 to 50 = Yellow 5 to 30 = Orange 0 to 5 = Red
Device Pool Subscribed	Percent of total disk capacity that is subscribed. 0 to 50 = Green 50.01 to 75 = Yellow 75.01 to 90 = Orange Greater than 90 = Red

System Data Throughput

Column	Description
Host	Name of the system that hosts the VMAX server. Click the name of a host to view a Performance Report with throughput data for that host. Enter text in the filter field in the column header to see only host names that contain that text.
Disk KB Read/Sec	Read rate for all disks in kilobytes per second.
Disk KB Write/Sec	Write rate for all disks in kilobytes per second.

Column	Description
Device KB Read/Sec	Read rate for all logical devices in kilobytes per second.
Device KB Write/Sec	Write rate for all logical devices in kilobytes per second.

Front-End Directors Status

Column	Description
Front-End Directors	Name of the director.
Op Status	Status of the director. Online = Green Other = Red
Read IO per sec	Read rate per second for the director.

Chapter 13: IBM DS4K

The IBM DS4K Unified Dashboard provides predefined list views with information about the status and performance of the IBM DS4K disk storage system.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

IBM DS4K Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the IBM DS4K dashboard.

Probe	QoS	Subkey/ Target
ibm ds4k	QOS_STORAGE_COMPONENT_OPERATIONAL_STATUS	*
	QOS_STORAGE_SP_OPERATIONAL_STATUS	*
	QOS_STORAGE_ARRAY_TOTAL_MANAGED_SPACE	$HOST *
	QOS_STORAGE_DISK_OPERATIONAL_STATUS	*
	QOS_STORAGE_DISK_KBYTES_READ_RATE	*
	QOS_STORAGE_DISK_KBYTES_WRITTEN_RATE	*
	QOS_STORAGE_VOL_OPERATIONAL_STATUS	*
	QOS_STORAGE_PORT_OPERATIONAL_STATUS	*

Probe	QoS	Subkey/ Target
	QOS_STORAGE_ARRAY_OPERATIONAL_STATUS	$HOST
	QOS_STORAGE_ARRAY_REMAINING_MANAGED_SPACE	$HOST
	QOS_STORAGE_POOL_CAPACITY_USED_PERCENT	$HOST *
	QOS_STORAGE_ARRAY_READ_HIT_RATIO	$HOST
	QOS_STORAGE_ARRAY_WRITE_HIT_RATIO	$HOST
	QOS_STORAGE_POOL_OPERATIONAL_STATUS	*
	QOS_STORAGE_POOL_TOTAL_MANAGED_SPACE	*

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

IBM DS4K Status Definitions

The IBM DS4K Unified Dashboard displays the status of various components of the disk storage system. This table describes the possible statuses.

Color	Status	Description
Cyan	Unknown	Device status could not be determined.
Cyan	Other	Device status could not be determined.
Green	OK	Device is functioning properly.
Yellow	Degraded	Device is degraded or disabled. This usually means that device performance is not as expected.
Orange	Stressed	Device is experiencing a heavy load.
Red	Predictive failure	Device is in a failure mode that can be predicted by its parent.
Red	Error	Device is in an error state that can be identified by the device or its parent.
Red	Non-recoverable error	Device or its parent has detected an error that requires replacing the device.

Blue	Starting	Device is starting operation.
Blue	Stopping	Device is shutting down.
Blue	Stopped	Device has shut down.
Green	In service	Device is in operation.
Cyan	No contact	Client or parent device cannot contact the device.
Cyan	Lost communication	Client or parent device has lost communication with the device.
Yellow	Aborted	Device has aborted its normal operation.
Cyan	Dormant	Device is in sleep mode.
Red	Supporting entity in error	Child elements are in an error state.
Green	Completed	Device has completed operation.

Storage Array Status

Column	Description
Storage Array	Name of the storage array. Enter text in the filter field in the column header to see only storage array names that contain that text. Click the name of an array to view a Performance Report with performance data for that storage array.
Status	Status of the storage array.
Total Capacity	Total capacity of all disks in the array.
Free Capacity	Number of gigabytes of total capacity not used.
Free Capacity	Gauge displaying the percentage of total capacity not used. 5 to 100 = Green 2 to 4.99 = Orange 0 to 1.99 = Red
Read Hit Ratio	Aggregated ratio of read requests for the array found in cache, as opposed to disk. The higher this number, the better the performance. 90 to 100 = Green 50 to 89.99 = Orange 0 to 49.99 = Red

Write Hit Ratio	Aggregated ratio of write requests for the array found in cache, as opposed to disk. The higher this number, the better the performance. 90 to 100 = Green 50 to 89.99 = Orange 0 to 49.99 = Red

More information:

IBM DS4K Status Definitions (see page 52)

Disks Status

Column	Description
Storage Array	Name of the storage array. Enter text in the filter field in the column header to see only storage array names that contain that text.
Disk	Name of the disk. Enter text in the filter field in the column header to see only disk names that contain that text.
Status	Status of the disk.
Read Rate	Rate, in kilobytes per second, at which data is read from disk.
Write Rate	Rate, in kilobytes per second, at which data is written to disk.

More information:

IBM DS4K Status Definitions (see page 52)

Storage Pool Status

Column	Description
Storage Array	Name of the storage array. Enter text in the filter field in the column header to see only storage array names that contain that text.

Storage Pool	Name of storage pool. Enter text in the filter field in the column header to see only storage pool names that contain that text.
Status	Status of the storage pool.
Total Capacity	Number of gigabytes in the storage pool.
Used Capacity	Percent of total capacity of the storage pool used: 0 to 94.99 = Green 95 to 97.99 = Orange 98 to 100 = Red

More information:

IBM DS4K Status Definitions (see page 52)

Component Status

Column	Description
Storage Array	Name of the storage array. Enter text in the filter field in the column header to see only storage array names that contain that text.
Component	Name of the component. Enter text in the filter field in the column header to see only component names that contain that text.
Status	Status of the component.

More information:

IBM DS4K Status Definitions (see page 52)

Controller Status

Column	Description
Storage Array	Name of the storage array. Enter text in the filter field in the column header to see only storage array names that contain that text.

Controller	Name of the controller. Enter text in the filter field in the column header to see only controller names that contain that text.
Status	Status of the controller.

More information:

IBM DS4K Status Definitions (see page 52)

Port Status

Column	Description
Storage Array	Name of the storage array. Enter text in the filter field in the column header to see only storage array names that contain that text.
Port	Port number in the controller. Enter a number in the filter field in the column header to see only ports that contain that number.
Status	Status of the port.

More information:

IBM DS4K Status Definitions (see page 52)

LUN Status

Column	Description
Storage Array	Name of the storage array. Enter text in the filter field in the column header to see only storage array names that contain that text.
LUN	The logical unit number (LUN) identifies a logical disk created on a SAN. Enter text in the filter field in the column header to see only LUNs that contain that text.
Status	Status of the LUN.

More information:

IBM DS4K Status Definitions (see page 52)

Chapter 14: MS Exchange 2007

The MS Exchange 2007 Server Unified Dashboard provides pre-defined list views with information about your Microsoft Exchange 2003 server and Microsoft Exchange 2007 server, such as load, processor time, queues, and disk performance.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

MS Exchange Required Data Sources

The MS Exchange 2007 Unified Dashboard requires these probes:

- exchange_monitor
- exchange_monitor_backend
- perfmon
- processes
- ntevl

This table lists the QoS metrics and subkeys or targets that must be activated on the probes to populate data in the MS Exchange 2007 dashboard.

QoS Required	Subkey/Target
QOS_MEMORY_PHYSICAL	*
QOS_MEMORY_PHYSICAL_PERC	*

QoS Required	Subkey/Target
QOS_EXCHANGE_MEMORY_AVAILABLE_MEGABYTES	*
QOS_EXCHANGE_MEMORY_PAGES_PER_SECOND	*
QOS_EXCHANGE_MEMORY_PAGING_FILE_USAGE	*
QOS_%_PROCESSOR_TIME	*
QOS_%_USER_TIME	*
QOS_EXCHANGE_IS_SEND_QUEUE_SIZE_-_PUBLIC_FOLDERSQOS_%_PRIVILEGED_TIME	*
QOS_EXCHANGE_DISK_AVERAGE_DISK_QUEUE_LENGTH	*
QOS_EXCHANGE_DISK_AVERAGE_DISK_BYTES_PER_TRANSFER	*
QOS_EXCHANGE_DISK_AVERAGE_DISK_SECONDS_PER_READ	*
QOS_EXCHANGE_DISK_AVERAGE_DISK_SECONDS_PER_WRITE	*
QOS_EXCHANGE_IS_MESSAGE_OPENS_PER_SECOND_-_MAILBOXES	*
QOS_EXCHANGE_IS_MESSAGE_OPENS_PER_SECOND_-_PUBLIC_FOLDERS	*
QOS_EXCHANGE_IS_RECEIVE_QUEUE_SIZE_-_MAILBOXES	*
QOS_EXCHANGE_IS_SEND_QUEUE_SIZE_-_MAILBOXES	*
QOS_EXCHANGE_IS_RECEIVE_QUEUE_SIZE_-_PUBLIC_FOLDERS	*
QOS_EXCHANGE_IS_SEND_QUEUE_SIZE_-_PUBLIC_FOLDERS	*
QOS_EXCHANGE_SMTP_LOCAL_QUEUE_LENGTH	Local Queue Length
QOS_EXCHANGE_SMTP_REMOTE_QUEUE_LENGTH	Remote Queue Length
QOS_EXCHANGE_TRANS_ROLE_AGGREGATE_DELIVERY_QUEUE_LENGTH_(ALL_QUEUES)	Aggregate Delivery Queue Length (All Queues)
QOS_EXCHANGE_TRANS_ROLE_POISON_QUEUE_LENGTH	Poison Queue Length
QOS_EXCHANGE_TRANS_ROLE_RETRY_MAILBOX_DELIVERY_QUEUE_LENGTH	Retry Mailbox Delivery Queue Length
QOS_EXCHANGE_TRANS_ROLE_UNREACHABLE_QUEUE_LENGTH	Unreachable Queue Length

QoS Required	Subkey/Target
QOS_EXCHANGE_MTA_CONNECTION_QUEUE_LENGTH	Connection Queue Length (PendingRerouteQ)
QOS_EXCHANGE_MTA_WORK_QUEUE_LENGTH	Work Queue Length
QOS_CPU_USAGE	

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Memory Performance

Column	Description
Host	Name of the host where the Exchange server is installed.
Physical Memory	Total amount of physical memory available to Windows.
Percent Physical Memory	Percentage of total amount of physical memory available to Windows. 0 to 50.99 = Green 51 to 75.99 = Yellow 76 to 89.99 = Orange 90 to 100 = Red
Available MB	The amount of physical memory immediately available for allocation to a process or for system use.
Pages/Sec	The rate at which pages are read from or written to disk to resolve hard page faults. This counter is a primary indicator of the kinds of faults that cause system-wide delays.

Paging File Usage	The percentage of a Page File instance in use. 0 to 50.99 = Green 51 to 59.99 = Yellow 60 to 74.99 = Orange 75 to 100 = Red

Processor Utilization

Column	Description
Host	Name of the host where the Exchange server is installed.
Perc Processor Time	The percentage of elapsed time that the processor spends to execute a non-idle thread of the process. 0 to 74.99 = Green 75 to 100 = Red
Perc User Time	The percentage of processor time spent in user mode. 0 to 74.99 = Green 75 to 100 = Red
Perc Privileged Time	The percentage of processor time spent in privileged mode. 0 to 74.99 = Green 75 to 100 = Red

Disk Performance

Column	Description
Host	Name of the host where the Exchange server is installed.
Average Disk Queue Length	The average number of both read and write requests that were queued for the selected disk during the sample interval.
Average Disk Bytes/Transfer	The average number of bytes transferred to or from the disk during write or read operations.
Average Disk Seconds/Read	The average time to read data from the disk.
Average Disk Seconds/Write	The average time to write data to the disk.

IS Queues Msg Opens/Sec

Column	Description
Host	Name of the host where the Exchange server is installed.
Mailboxes 1 hr avg	This will show how often your users are opening messages within mailboxes. Peak load may show this coinciding with other system behavior.
Public Folders 1 hr avg	This will show how often your users are opening messages within public folders. Peak load may show this coinciding with other system behavior.

IS Send/Receive Queue Size

Column	Description
Host	Name of the host where the Exchange server is installed.
Mailbox Receive Queue Size	Number of messages received in mail boxes.
Mailbox Send Queue Size	Number of messages sent from mail boxes.
Public Folders Receive Queue Size	Number of messages received in public folders.
Public Folders Send Queue Size	Number of messages sent from public folders.

Exchange SMTP Queues

Column	Description
Host	Name of the host where the Exchange server is installed.
Local	Number of messages in the local SMTP queue.
Remote	Number of messages in remote SMTP queue.

Note: Data in this portlet will show up only for Exchange 2003 server setup.

Exchange Transport Role Queues

Column	Description
Host	Name of the host where the Exchange server is installed.
Messages	Aggregate Delivery Queue Length (All Queues) is the number of items queued for delivery in all queues.
Poison	The number of items in the poison queue.
Retry Mailbox Delivery	The number of items in the retry mailbox queues.
Unreachable	The number of items in the unreachable queues.

Exchange MTA Queues

Column	Description
Host	Name of the host where the Exchange server is installed.
Connection 1hr avg	Average MTA connection queue length during the last hour.
Work 1hr avg	Average MTA work queue length during the last hour.

Note: Data in this portlet will show up only for Exchange 2003 server setup.

Exchange Server Load

Column	Description
Host	Name of the host where the Exchange server is installed.
Processor Queue Length 1 hr	Number of processes queued for the Exchange server in the past hour.
Current CPU Usage	Percent of CPU consumed by the Exchange server. 0 to 80 = Green 80 to 90 = Orange 90 to 100 = Red

Chapter 15: MS Exchange 2010

The MS Exchange Server 2010 Unified Dashboard provides pre-defined list views with information about your Microsoft Exchange server 2010, such as processor, memory performance, transport queues, domain controllers, .Net framework, and network counters.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

MS Exchange 2010 Required Data Sources

The MS Exchange 2007 Unified Dashboard requires these probes:

- exchange_monitor
- exchange_monitor_backend
- perfmon
- processes
- ntevl

This table lists the QoS metrics and subkeys or targets that must be activated to populate data in the MS Exchange 2010 dashboard.

QoS Required	**Subkey/ Target**
QOS_EXCHANGE_PROCESSOR_USER_TIME	User Time
QOS_EXCHANGE_PROCESSOR_PRIVILEGED_TIME	Privileged Time
QOS_EXCHANGE_PROCESSOR_PROCESSOR_QUEUE_LENGTH	
QOS_EXCHANGE_PROCESSOR_PROCESSOR_TIME	Processor Time
QOS_EXCHANGE_PROCESSOR_PROCESSOR_TIME_INSTANCE	Processor Time Instance (processes)

QoS Required	Subkey/ Target
QOS_EXCHANGE_PROCESSOR_USER_TIME	User Time
QOS_EXCHANGE_PROCESSOR_PRIVILEGED_TIME	Privileged Time
QOS_EXCHANGE_MEMORY_AVAILABLE_MBYTES	
QOS_EXCHANGE_MEMORY_POOL_PAGED_BYTES	Pool Paged Bytes
QOS_EXCHANGE_MEMORY_POOL_NONPAGED_MEGABYTES	Pool Nonpaged Megabytes
QOS_EXCHANGE_MEMORY_CACHE_BYTES	Cache Bytes
QOS_EXCHANGE_MEMORY_PRIVATE_BYTES	Private Bytes
QOS_EXCHANGE_MEMORY_VIRTUAL_BYTES	Virtual Bytes
QOS_EXCHANGE_TRANS_ROLE_AGGREGATE_DELIVERY_QUEUE_LENGTH_(ALL_QUEUES)-TRANSPORT	Aggregate Delivery Queue Length (All Queues) - Transport
QOS_EXCHANGE_TRANS_ROLE_ACTIVE_MAILBOX_DELIVERY_QUEUE_LENGTH-TRANSPORT	Active Mailbox Delivery Queue Length - Transport
QOS_EXCHANGE_TRANS_ROLE_RETRY_MAILBOX_DELIVERY_QUEUE_LENGTH-TRANSPORT	Retry Mailbox Delivery Queue Length - Transport
QOS_EXCHANGE_TRANS_ROLE_UNREACHABLE_QUEUE_LENGTH-TRANSPORT	Unreachable Queue Length - Transport
QOS_EXCHANGE_TRANS_ROLE_POISON_QUEUE_LENGTH-TRANSPORT	Poison Queue Length - Transport

QoS Required	Subkey/ Target
QOS_EXCHANGE_PROCESSOR_USER_TIME	User Time
QOS_EXCHANGE_PROCESSOR_PRIVILEGED_TIME	Privileged Time
QOS_EXCHANGE_TRANS_ROLE_MESSAGES_SUBMITTED_PER_SECOND	Messages Submitted Per Second
QOS_EXCHANGE_TRANS_ROLE_MESSAGES_COMPLETED_DELIVERY_PER_SECOND	Messages Completed Delivery Per Second
QOS_EXCHANGE_MSEXCHANGE_LDAP_SEARCHES_PER_SECOND	LDAP Searches Per Second(0)
QOS_EXCHANGE_MSEXCHANGE_LDAP_READ_TIME_PROCESSES	LDAP Read Time Processes
QOS_EXCHANGE_MSEXCHANGE_LDAP_SEARCH_TIME_PROCESSES	LDAP Search Time Processes
QOS_EXCHANGE_MSEXCHANGE_LDAP_SEARCHES_TIMED_OUT_PER_MINUTE	LDAP Searches Timed Out Per Minute
QOS_EXCHANGE_MSEXCHANGE_LONG_RUNNING_LDAP_OPERATIONS_PER_MINUTE	Long Running LDAP Operations Per Minute
QOS_EXCHANGE_MEMORY_DOTNET - TIME_IN_GC	DOTNET Time in GC
QOS_EXCHANGE_MEMORY_DOTNET - EXCEPTION_THROWN_PER_SEC	Dotnet - Exception Thrown Per Sec
QOS_EXCHANGE_MEMORY_DOTNET - BYTES_IN_ALL_HEAPS	DOTNET - Bytes In All Heaps
QOS_EXCHANGE_NETWORK_KILOBYTES_TOTAL_PER_SECOND	$HOST
QOS_EXCHANGE_NETWORK_PACKETS_OUTBOUND_ERRORS	Packet Outbound Errors
QOS_EXCHANGE_NETWORK_TCPV4_CONNECTIONS_ESTABLISHED	TCPv4 Connections Established
QOS_EXCHANGE_NETWORK_TCPV6_CONNECTION_FAILURES	TCPv6 Connection Failures

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Processor Counters Exchange 2010

Column	Description
Host	Name of the host where the Exchange server is installed.
Processor User Time	Percentage of processor time spent in user mode. User mode is a restricted processing mode designed for applications, environment subsystems, and integral subsystems. 0 to 74.99 = Green 75 = Red
Processor Privileged Time	Percentage of processor time spent in privileged mode.Privileged mode is a processing mode designed for operating system components and hardware-manipulating drivers. It allows direct access to hardware and all memory. 0 to 74.99 = Green 75 = Red
Processor Queue Length	Number of threads each processor is servicing. Processor queue length can be used to identify whether processor contention or high CPU utilization is caused by the processor capacity being insufficient to handle the workload assigned to it. Processor Queue Length shows the number of threads that are delayed in the Processor Ready Queue and are waiting to be scheduled for execution. The listed value is the last observed value at the time the measurement was taken. 0 to 2.99 = Green 3.00 to 4.99 = Orange 5.00 = Red
Processor Time Instance	Percentage of time that the processor is executing application or operating system processes.This is when the processor is not idle.

Memory Performance Exchange 2010

Column	Description
Host	Name of the host where the Exchange server is installed.
Available Megabytes	Amount of physical memory immediately available for allocation to a process or for system use. 0 to 49.99 = Red 50 to 75.99 = Orange 76 to 99.99 = Yellow 100 = Green
Pool Paged Bytes	The portion of shared system memory that can be paged to the disk paging file.
Pool Nonpaged Bytes	System virtual addresses guaranteed to be resident in physical memory at all times and can thus be accessed from any address space without incurring paging input/output (I/O).
Cache Bytes	Size, in bytes, of the file system cache.

Transport Queues Exchange 2010

Column	Description
Host	Name of the host where the Exchange server is installed.
Aggregate Delivery Queue Length	Total number of items queued for delivery in all queues. 0.00 to 1500.99 = Green 1501.00 to 3000.99 = Yellow 3001.00 to 4000.99 = Orange 4001.00 to 5000 = Red
Active Mailbox Delivery Queue Length	Number of items in the active mailbox queues. 0 to 100 = Green 101 to 200 = Yellow 201 to 249 = Orange 250 = Red

Retry Mailbox Delivery	Number of items in the retry mailbox queues. 0 to 50 = Green 51 to 74 = Yellow 75 to 99 = Orange 100 = Red
Unreachable Queue Length	Number of items in the unreachable queues. 0 to 49 = Green 50 to 74 = Yellow 75 to 99 = Orange 100 = Red
Poison Queue Length	Number of items in the poison queue. 0.00 to 0.00 = Green 0.01 = Red
Messages Submitted per Second	Rate that messages are submitted by clients.
Messages Completed Delivery/Sec	Rate that messages are delivered to all recipients.

Exchange 2010 Domain Controllers Connectivity Counters

Column	Description
Host	Name of the host where the Exchange server is installed.
Searches/Second	Number of LDAP search requests issued per second.
Searches Timed Out/Minute	Number of LDAP searches that returned LDAP_Timeout during the last minute. 0 to 2.99 = Green 3 to 6.99 = Yellow 7 to 9.99 = Orange 10 = Red

Long Running LDAP Operations/Minute	Number of LDAP operations on this domain controller that took longer than the specified threshold per minute. 0 to 14.99 = Green 15 to 24.99 = Yellow 25 to 49.99 = Orange 50 = Red

Network Counters Exchange 2010

Column	Description
Host	Name of the host where the Exchange server is installed.
TCPv4 Connections Established	Number of TCP connections for which the state is either ESTABLISHED or CLOSE-WAIT. The number of TCP connections is constrained by the size of the nonpaged pool. When the nonpaged pool is depleted, no new connections can be established.
TCPv6 Connection Failures	Number of TCP connections for which the state is either ESTABLISHED or CLOSE-WAIT. The number of TCP connections is constrained by the size of the nonpaged pool. When the nonpaged pool is depleted, no new connections can be established.

Read Time Processes

Column	Description
Host	Name of the host where the Exchange server is installed.
Process	Target that is being monitored.
Read Time	Time to send an LDAP read request to the specified domain controller and receive a response.

Search Time Processes

Column	Description
Host	Name of the host where the Exchange server is installed.
Process	Target that is being monitored.
Search Time	Time to send an LDAP search request and receive a response.

.NET time in GC

Column	Description
Host	Name of the host where the Exchange server is installed.
Process	Target that is being monitored.
Time	When garbage collection has occurred. When the counter exceeds the threshold, the CPU is cleaning up and is not being used efficiently for load. Adding memory to the server would improve this situation.

.NET Exceptions Per Second

Column	Description
Host	Name of the host where the Exchange server is installed.
Process	Target that is being monitored.
Exceptions/sec	Number of exceptions thrown per second. These include both .NET framework exceptions and unmanaged exceptions that are converted into .NET framework exceptions.

.NET Bytes in All Heaps

Column	Description
Host	Name of the host where the Exchange server is installed.
Process	Target that is being monitored.

Bytes	Memory allocated in bytes on the GC heaps.

Chapter 16: MS SharePoint Server

The SharePoint Unified Dashboard provides predefined list views with information about your SharePoint server, such as CPU Performance and Memory usage, network utilization, disk usage and performance, and SQL server statistics.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

SharePoint Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the SharePoint dashboard.

Probe	QoS Required	Subkey/Target
sharepoint	QOS_%_PROCESSOR_TIME	MOSS2007 - CPU Total Processor Time_%Processor Time
	QOS_PROCESSOR_QUEUE_LENGTH	MOSS2007 - Processor Queue Length_Processor Queue Length
	QOS_BYTES_TOTAL/SEC	MOSS2007 - Network Interface - Total Bytes_Bytes Total/sec
	QOS_BYTES_SENT/SEC	MOSS2007 - Network Interface - Bytes Sent_Bytes sent/sec

Probe	QoS Required	Subkey/Target
sharepoint	QOS_%_PROCESSOR_TIME	MOSS2007 - CPU Total Processor Time_%Processor Time
	QOS_PROCESSOR_QUEUE_LENGTH	MOSS2007 - Processor Queue Length_Processor Queue Length
	QOS_BYTES_RECEIVED/SEC	MOSS2007 - Network Interface - Bytes Received_Bytes Received/sec
	QOS_PACKETS_OUTBOUND_ERRORS	MOSS2007 - Network Interface - Packets Outbound errors_Packets Outbound Errors
	QOS_%_USAGE	MOSS2007 - Paging File: %Usage_%Usage
	QOS_%_USAGE_PEAK	MOSS2007 - Paging File: %Usage Peak_%Usage Peak
	QOS_AVAILABLE_MBYTES	MOSS2007 - Availability of Memory in Bytes_Available
	QOS_PAGES/SEC	MOSS2007 - Memory_Pages Per Second_Pages/sec
	QOS_CACHE_FAULTS/SEC	MOSS2007 - Cache Faults Per Sec_Cache Faults/sec
	QOS_PAGE_FAULTS/SEC	MOSS2007 - Page Faults Per Second_Page Faults/sec
	QOS_BUFFER_CACHE_HIT_RATIO	MOSS2007 - SQL Server: Buffer Manager - Buffer Cache Hit Ratio_Buffer cache hit ratio
	QOS_CACHE_HIT_RATIO	MOSS2007 - SQL Server: Cache Hit Ratio_Cache Hit Ratio
	QOS_LATCH_WAITS/SEC	MOSS2007 - SQL Server: Latch Waits/sec_Latch Waits/sec
	QOS_NUMBER_OF_DEADLOCKS/SEC	MOSS2007 - SQL Server: Number of Deadlocks/sec_Number of Deadlocks/sec
	QOS_USER_CONNECTIONS	MOSS2007 - SQL Server: User Connections_User Connections
	QOS_BYTES_SENT/SEC	MOSS2007 - Web Service - Bytes Sent Per Second_Bytes Sent/sec

Probe	QoS Required	Subkey/Target
sharepoint	QOS_%_PROCESSOR_TIME	MOSS2007 - CPU Total Processor Time_%Processor Time
	QOS_PROCESSOR_QUEUE_LENGTH	MOSS2007 - Processor Queue Length_Processor Queue Length
	QOS_CURRENT_CONNECTIONS	MOSS2007 - Web Service_Current Connections
	QOS_CONNECTION_ATTEMPTS/SEC	MOSS 2007 - Web Service Connection Attempts_Connection Attempts/sec
	QOS_%_PROCESSOR_TIME	MOSS2007 - Process - W3WP Processor Time_%Processor Time
	QOS_WORKING_SET	MOSS2007 - Process - W3WP Working Set_Working Set
	QOS_REQUESTS_EXECUTING	MOSS2007 - ASP.NET Applications - Requests Executing_Requests Executing
	QOS_REQUEST_WAIT_TIME	MOSS2007 - ASP.NET Applications - Requests Wait Time_Request Wait Time
	QOS_REQUESTS/SEC	MOSS2007 - ASP.NET Applications_Requests/sec
	QOS_REQUESTS_REJECTED	MOSS2007 - ASP.NET Applications - Requests Rejected_requests Rejected

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

CPU Performance

Column	Description
Host	Name of the host where the SharePoint server is installed.
Processor Time Perc	Percentage of elapsed time the processor spends to execute a non-idle thread. 0 to 70 = Green 71 to 79 = Yellow 80 to 100 = Red
Processor Queue Length	If the threshold of this rule is exceeded, the processor is not fast enough.

Memory Usage and Performance

Column	Description
Host	Name of the host where the SharePoint server is installed.
Paging File Perc Usage and Perc used Peak	The server paging file, sometimes called the swap file, holds virtual memory addresses on disk. Page faults occur when a process has to stop and wait while required virtual resources are retrieved from disk into memory. Page faults are more frequent if physical memory is inadequate.
Avail MB	Amount of physical memory, in megabytes, immediately available for allocation to a process or for system use. Insufficient memory leads to excessive use of the page file and an increase in the number of page faults per second.
Pages/sec	Rate at which the pages are read from or written to disk to resolve hard page faults. A large number indicates system-wide performance problems. 0 to 7 = Green 8 to 9 = Yellow 10 = Red

Cache Faults/sec	Rate at which faults occur when a page is sought in the file system cache and is not found. This may be a soft fault when the page is found in memory or a hard fault when the page is on the disk. 0.0 to 0.99 = Green 1.0 = Red
Page Faults/sec	Number of times data was not found in memory. It measures the average number of pages faulted per second.

ASP.NET

Column	Description
Host	Name of the host where the SharePoint server is installed.
Requests Executing	Number of requests currently executing.
Request Wait Time	Number of milliseconds that the most recent request waited in the queue for processing. As the number of wait events increases, users experience degraded page-rendering performance.
Requests/sec	Number of requests executed per second. This represents the current throughput of the application. Under constant load, this number should remain within a certain range, barring other server work (such as garbage collection, cache cleanup thread, external server tools, and so on).
Req Queued	Number of requests waiting to be processed. 0 to 300 = Green 301 to 500 = Yellow 501 = Red
Requests Rejected	Total number of requests not executed because of insufficient server resources to process them. This counter represents the number of requests that return a 503 HTTP status code, indicating the server is too busy.

Network Utilization

Column	Description
Host	Name of the host where the SharePoint server is installed.

Bytes Total/sec	Rate at which the data is sent and received via the Network Interface Card. 0 to 39.9 = Green 40.0 to 49.9 = Yellow 50.0 = Red
Bytes Recd/sec	Rate at which data bytes are received by the web service.
Bytes Sent/sec	Rate at which data bytes are sent by the web service.
Packet Outbound Errors	Number of outbound packets that could not be transmitted because of errors.

Disk Usage and Performance

Column	Description
Host	Name of the host where the SharePoint server is installed.
Writes/sec	Number of writes to disk per second.
Reads/sec	Number of reads to disk per second.
Perc Idle Time	Percentage of time the disk system was not processing requests and no work was queued.
Avg Write Q Length	Average number of write requests that are queued.
Avg Read Q Length	Average number of read requests that are queued.
Avg Disk sec/Transfer	Number of read and writes completed per second, regardless of how much data they involve.

SQL Server Statistics

Column	Description
Host	Name of the host where the SharePoint server is installed.

Buffer Cache Hit Ratio	Percentage of pages found in the buffer cache without having to read from disk. The ratio is the total number of cache hits divided by the total number of cache lookups since an instance of SQL Server was started. 0.0 to 60.9 = Red 61.0 to 89.0 = Yellow 90.0 = Green
Cache Hit Ratio	Ratio between cache hits and lookups for plans.
Latch Waits/sec	Number of latch requests per second that could not be granted immediately.
Deadlocks/sec	Number of deadlocks on the SQL Server per second.
User Connections	Number of user connections on your instance of SQL Server.

W3WP Process

Column	Description
Host	Name of the host where the SharePoint server is installed.
Proc Time Perc	Percent of elapsed time that all process threads use the processor. 0.0 to 49.0 = Green 49.1 to 74.9 = Yellow 75.0 = Red
Working Set	The set of memory pages recently touched by the threads in the process. 0 to 79.0 = Green 80.0 = Red

Web Front End Server

Column	Description
Host	Name of the host where the SharePoint server is installed.
Bytes Sent/sec	Rate at which data bytes are sent by the web service.
Current Connections	Monitors current IIS connections.

Connection Attempts	Rate at which connections to the web service are attempted.

Chapter 17: MS SQL Server

The MS SQL Server Unified Dashboard provides predefined list views with information about your MS SQL server, such as load, locks, performance reports and list designer, server processes, database performance and user statistics.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

MS SQL Server Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the IBM DS4K dashboard.

Probe	QoS	Subkey/Target
sqlserver	QOS_SQLSERVER_LOGIN_COUNT	*
	QOS_SQLSERVER_CHECK_DBALIVE	*
	QOS_SQLSERVER_TRANSACTIONS	*
	QOS_SQLSERVER_BUF_CACHEHIT_RATIO	*
	QOS_SQLSERVER_LOCK_WAITS	*
	QOS_SQLSERVER_LOCK_REQUESTS	*
	QOS_SQLSERVER_LOCK_TIMEOUTS	*
	QOS_SQLSERVER_ACTIVE_USERS	*
	QOS_SQLSERVER_BLOCKED_USERS	*
	QOS_SQLSERVER_SERVER_STARTUP	*

Probe	QoS	Subkey/Target
cdm	QOS_CPU_USAGE	*
processes	QOS_PROCESS_CPU	*
	QOS_PROCESS_MEMORY	*
	QOS_PROC_QUEUE_LEN	*

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Performance Reports Designer

This view allows you to see a visual representation of QoS data. You select the host, QoS measurement, target, and time range, and the data is displayed as a chart. You can display multiple measurements on a single chart, and can view multiple charts at a time. You can drag charts between rows or drag a data series from one chart to another. You can choose the chart format (line, area, or column chart), and the Filters tab allows you to plot only the data that matches specified filters on the chart. You can easily change the source (host or target) of the data by using the Choose Source menu. You can save a set of charts as a report to print or to view later. The import and export features allow you to share charts with other users.

Server Load

Column	Description
Host	Name of the host where the SQL server is installed.
Processor Queue Length 1 hr	Average number of processes queued for the SQL server during the past hour.
Current CPU Usage	Percent CPU used on the server. 0 to 80 = Green 80 to 90 = Orange 90 to 100 = Red

Locks

Column	Description
Host	Name of the host where the SQL server is installed.
Lock Waits	Monitors number of lock waits per second.
Lock Requests	Monitors number of lock requests per second.
Lock Timeouts	Monitors number of lock-timeouts per second. 0 to .79 = Green .8 to .99 = Yellow 1 and greater = Red

MS SQL Server Processes

Column	Description
Server	Name of the host where the SQL server is installed.
Process Name	Name of the SQL server process.
CPU	Percent of CPU consumed by the SQL process.
Memory	Number of kilobytes of memory consumed by the SQL process.

Note: To monitor data in the Server Processes view, you need to create a profile in the processes probe and configure it to monitor CPU and Memory QoS values.

Database Performance

Column	Description
Host	Name of the host where the SQL server is installed.
Status	Monitors connectivity to the database instance. Connection Up = Green Connection Down = Red
Transactions	Monitors the number of transactions per second.

Buffer Cache Hit Ratio	Monitors the buffer cache-hit ratio. 0 to 50.99 = Green 51 to 74.99 = Yellow 75 to 84.99 = Orange 85 to 100 = Red
Uptime	Monitors the uptime (in days) of the database server.

User Statistics

Column	**Description**
Host	Name of the host where the SQL server is installed.
Login Count	Monitors the number of users currently logged into the server.
Active Users	Monitors the number of active user per database.
Blocked Users	Monitors the number of users blocked.

Chapter 18: Vblock

The Vblock Unified Dashboard provides six predefined list views with performance and status information about Vblock Infrastructure Platforms.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

Vblock Required Data Sources

The table contains the probes and QoS metrics required for the preconfigured Vblock dashboard.

Probe	QoS Required
vmware clariion cisco_ucs interface_traffic **Note**: Not all of these probes are required. The reports look for one or more of the probes if they exist.	QOS_INTERFACE_TRAFFIC IN-Vethernet1Nexus 1K IN-Vethernet2Nexus 1K IN-Vethernet3Nexus 1K IN-Vethernet4Nexus 1K IN-Vethernet5Nexus 1K IN-Vethernet6Nexus 1K IN-Vethernet7Nexus 1K IN-Vethernet8Nexus 1K IN-Vethernet9Nexus 1K IN-Vethernet10Nexus 1K IN-Vethernet12Nexus 1K IN-Vethernet15Nexus 1K IN-Vethernet17Nexus 1K IN-Vethernet18Nexus 1K IN-Vethernet19Nexus 1K IN-Vethernet20Nexus 1K

Probe	QoS Required
(*continued*)	QOS_INTERFACE_TRAFFIC OUT-Vethernet1Nexus 1K OUT-Vethernet2Nexus 1K OUT-Vethernet3Nexus 1K OUT-Vethernet4Nexus 1K OUT-Vethernet5Nexus 1K OUT-Vethernet6Nexus 1K OUT-Vethernet7Nexus 1K OUT-Vethernet8Nexus 1K OUT-Vethernet9Nexus 1K OUT-Vethernet10Nexus 1K OUT-Vethernet12Nexus 1K OUT-Vethernet15Nexus 1K OUT-Vethernet17Nexus 1K OUT-Vethernet18Nexus 1K OUT-Vethernet19Nexus 1K OUT-Vethernet20 QOS_STORAGE_SP_PCT_BUSY SP A SP B

Probe	QoS Required
(*continued*)	QOS_STORAGE_FAST_CACHE_PCT_DIRTY_SPA FAST Cache QOS_STORAGE_FAST_CACHE_PCT_DIRTY_SPB FAST Cache QOS_STORAGE_SP_PCT_DIRTY SP A QOS_STORAGE_FAST_CACHE_PCT_DIRTY_SPB FAST Cache QOS_STORAGE_FAST_CACHE_PCT_DIRTY_SPA FAST Cache QOS_STORAGE_TP_PERCENT_SUBSCRIBED DQA-FC-01 DQA-GP-01 Prod-GP-01 Test_Pool QOS_STORAGE_TP_PERCENT_AVAILABLE DQA-FC-01 DQA-GP-01 Prod-GP-01 Test_Pool QOS_STORAGE_TP_PERCENT_FULL DQA-FC-01 DQA-GP-01 Prod-GP-01 Test_Pool QOS_STORAGE_TP_SUBSCRIBED_CAPACITY DQA-FC-01 QOS_STORAGE_TP_AVAILABLE_CAPACITY DQA-FC-01 DQA-GP-01 Prod-GP-01 Test_Pool

Probe	QoS Required
(*continued*)	QOS_STORAGE_TP_SUBSCRIBED_CAPACITY DQA-GP-01 Prod-GP-01 Test_Pool QOS_STORAGE_TP_CONSUMED_CAPACITY DQA-FC-01 DQA-GP-01 Prod-GP-01 Test_Pool QOS_STORAGE_TP_USER_CAPACITY DQA-FC-01 DQA-GP-01 Prod-GP-01 Test_Pool QOS_UCS_POWER Consumed Power (sys/chassis-1/blade-1/board/power-stats) Consumed Power (sys/chassis-1/blade-6/board/power-stats) Consumed Power (sys/chassis-1/blade-5/board/power-stats) Consumed Power (sys/chassis-1/blade-7/board/power-stats) Consumed Power (sys/chassis-1/blade-8/board/power-stats) QOS_UCS_POWER Consumed Power (sys/chassis-2/blade-1/board/power-stats) Consumed Power (sys/chassis-2/blade-2/board/power-stats) Consumed Power (sys/chassis-2/blade-3/board/power-stats) Consumed Power (sys/chassis-2/blade-4/board/power-stats) Consumed Power (sys/chassis-2/blade-5/board/power-stats) Consumed Power (sys/chassis-2/blade-6/board/power-stats) Consumed Power (sys/chassis-2/blade-7/board/power-stats) Consumed Power (sys/chassis-2/blade-8/board/power-stats)
	QOS_UCS_POWER Consumed Power (sys/chassis-3/blade-6/board/power-stats) Consumed Power (sys/chassis-3/blade-7/board/power-stats)

Probe	QoS Required
(*continued*)	QOS_UCS_PERFORMANCE Available Memory (sys/switch-A/sysstats) QOS_UCS_PERFORMANCE Available Memory (sys/switch-B/sysstats)VSC101F140 QOS_UCS_PERFORMANCE Available Memory (sys/switch-A/sysstats)VSC101F140 QOS_UCS_PERFORMANCE Available Memory (sys/switch-B/sysstats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-1/fan-2/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-2/fan-2/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-3/fan-1/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-3/fan-2/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-1/fan-1/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-1/fan-2/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-2/fan-2/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-3/fan-1/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-3/fan-2/stats) QOS_UCS_FAN_SPEED Speed (sys/chassis-2/fan-module-1-1/fan-1/stats)

Probe	QoS Required
(*continued*)	QOS_UCS_FAN_SPEED Speed (sys/chassis-1/fan-module-1-1/fan-1/stats) QOS_MEMORY_PERC_USAGE Resources.MemoryOverallUsage (% of MemoryMaxUsage) QOS_CPU_USAGE Resources.CPUOverallUsage (% of CPUMaxUsage) QOS_MEMORY_PERC_USAGE Memory Usage QOS_CPU_USAGE CPU Usage (Average/Rate) QOS_NETWORK_BYTES_RECEIVED_PER_SECOND Network Data Receive Rate QOS_NETWORK_BYTES_SENT_PER_SECOND Network Data Transmit Rate QOS_DISK_READ_REQUEST Disk Read Requests QOS_DISK_WRITE_REQUEST Disk Write Requests QOS_DISK_READ Disk Read Rate QOS_DISK_WRITE Disk Write Rate QOS_DISK_LATENCY Disk Latency

Probe	QoS Required
(*continued*)	QOS_DS_DISK_FREE QOS_VMWARE_VARIABLE PowerState QOS_MEMORY_PERC_USAGE GuestMemoryUsage (in % of Memory) QOS_MEMORY_PERC_USAGE HostMemoryUsage (in % of Memory) QOS_COUNTER VMCountActive VMCount QOS_MEMORY_PERC_USAGE Memory Usage

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

Vblock Storage Performance

This view displays health and thin pool usage information for the EMC Clariion Storage component of the Vblock Infrastructure Platform.

Chart	Description
Storage Processors (SP) Utilization in %	Percent of SP A and SP B utilization for the entire Vblock Infrastructure Platform storage processed through SP A and SP B.
Dirty Cache % (Fast Cache)	Dirty cache as a percent of total for each storage processor in the Clariion component of the Vblock Infrastructure Platform.
Thin Pool Usage %	Percent of allocated thin pool that is subscribed for each thin pool in the Clariion component of the Vblock Infrastructure Platform.
Thin Pool Capacity in GB	Thin pool capacity, in GB, for subscribed and available capacities for each thin pool in the Clariion component of the Vblock Infrastructure Platform.

Vblock UCS Performance

This view displays environment and power information for the Cisco Unified Computing System (UCS) component of the Vblock Infrastructure Platform.

Chart	Description
Consumed Power	Number of watts of consumed power for each blade server in each UCS chassis.
Temperature	Ambient temperature in Celsius for each blade server in each UCS chassis.
Fabric Interconnect - Available Memory	Number of megabytes of available memory for each UCS Fabric Interconnect in the Vblock Infrastructure Platform.
Fan Speed	Fan speed, in RPM, for each fan in each fan module of each UCS chassis.

Vblock Nexus Switch Performance

This view displays network throughput information for the Cisco Nexus Virtual Switch component of the Vblock Infrastructure Platform.

Chart	Description
Network Traffic Incoming	Number of incoming bytes per second for each virtual Ethernet port in the Nexus Virtual Switch.
Network Trafffic Outgoing	Number of outgoing bytes per second for each virtual Ethernet port in the Nexus Virtual Switch.

Vblock Host Summary

This view displays performance information about virtual hosts resources.

Column	Description
VMware Host	Name of the host in the Vblock Infrastructure Platform.
VM Count Active	Number of virtual machines active on the host.
VM Count	Number of virtual machines configured on the host.

CPU Usage	Percent of CPU in use. 0 to 94.99 = Green 95 to 96.99 = Yellow 97 to 98.99 = Orange 99 to 100 = Red
Memory Usage	Percent of memory in use. 0 to 69.99 = Green 70 to 89.99 = Yellow 90 to 100 = Red

Vblock Datastore Freespace

This view displays performance and status information about virtual datastore resources.

Column	Description
Host	The host where the datastore resides in the Vblock Infrastructure Platform.
Datastore Name	The name of the datastore.
Free Space	Percent of free disk space available.
Datastore Status	Amount of free space in the datastore. ■ Very low = 0-2% ■ Low = 2.1-5% ■ OK = 5.1-100%

Vblock Guest Summary

This view displays performance and status information about virtual guest resources.

Column	Description
Guest	Lists the virtual machines (guests) configured in your Vblock Infrastructure Platform environment.
Power Status	Whether the guest is powered on, off, or on standby.
CPU Usage	Number of megahertz of CPU consumed by the guest.

Memory Usage	Percent of memory consumed on the guest. This could exceed 100 percent if additional resources are consumed.
Host Memory Usage	Percent of memory consumed on the host.
Alarm	Lists alarms for the guest.

Chapter 19: VMware

The VMware Unified Dashboard provides predefined list views with performance and alarm data about VMware hosts and virtual machines in your environment.

Note: If your Unified Dashboard is not populating with data, make sure all required data sources for the Unified Dashboard are enabled. The required probe must be deployed and must be configured so that required QoS metrics and subkeys or targets are activated. For more information, see the help topic on required data sources for the Unified Dashboard.

This section contains the following topics:

VMware Required Data Sources

This table lists the probes, QoS metrics, and subkeys or targets that must be activated to populate data in the VMware dashboard.

Probe	QoS	Subkey/Target
vmware	QOS_MEMORY_PERC_USAGE	Memory Granted (% of MemorySize) Memory Reserved Capacity (% of MemorySize) Resources.MemoryOverallUsage (% of MemoryMaxUsage) Memory Usage GuestMemoryUsage (in % of Memory) HostMemoryUsage (in % of Memory) Memory Balloon (% of MemorySize)
	QOS_DS_DISK_FREE	*

Probe	QoS	Subkey/Target
	QOS_CPU_USAGE	Resources.CPUOverallUsage (% of CPUMaxUsage) CPU Reserved Capacity (% of mhz*NumCpuCores) CPU Usage (Average/Rate) CPU Used (% of available)
	QOS_COUNTER	VMCount VMCountActive
	QOS_VMWARE_VARIABLE	PowerState

An asterisk (*) means that the value for the first entry for the QoS is used. The asterisk should only be used when the QoS metric for a probe is known to return only one value.

For more information on configuring probes, see the documentation for each probe. This is available from the Nimsoft Product Information Library at http://docs.nimsoft.com.

VMware Guest Summary

Column	Description
Guest	Lists the virtual machines (guests) configured in your environment.
Power Status	Whether the guest is powered on, off, or on standby. Red = Power Off Cyan = Suspended Green = Power On
CPU Usage	Percent of megahertz of CPU consumed by the guest. 0 to 94.99 = Green 95 to 96.99 = Yellow 97 to 98.99 = Orange 99 to 100 = Red
Memory Usage	Percent of memory consumed on the guest. This could exceed 100 percent if additional resources are consumed. 0 to 69.99 = Green 70 to 89.99 = Orange 90 or greater = Red

Host Memory Usage	Percent of memory consumed on the host. 0 to 79.99 = Green 80 to 89.99 = Yellow 90 to 109.99 = Orange 110 or greater = Red
Alarm	Lists alarms for the guest.

VMware Host VM Count

Column	Description
VMware Host	Lists the VMware hosts in your environment. Click the name of a host to view a Performance Report of performance data for that host.
VM Count Active	Number of virtual machines active on the host.
VM Count	Number of virtual machines configured on the host.
CPU Usage	Percent of CPU in use. 0 to 94.99 = Green 95 to 96.99 = Yellow 97 to 98.99 = Orange 99 to 100 = Red
Memory Usage	Percent of memory in use. 0 to 69.99 = Green 70 to 89.99 = Yellow 90 to 100 = Red

VMware Datastore Free Space

Column	Description
Host	The host where the datastore resides.
Datastore Name	The name of the datastore.
Free Space	Percent of free disk space available. 0 to 1.99 = Red 2 to 4.99 = Orange 5 to 100 = Green

Status	Amount of free space in the datastore: ■ Very low = 0-2% (Red) ■ Low = 2.1-5% (Orange) ■ OK = 5.1-100% (Green)

VMware Host Resource CPU

Column	Description
Host	Lists the hosts (not the virtual machines) in your environment. Click the name of a host to view a Performance Report of performance data for that host.
Average Usage	Average CPU usage. 0 to 94.99 = Green 95 to 96.99 = Yellow 97 to 98.99 = Orange 99 to 100 = Red
Overall Usage	Percent of CPU Max used. 0 to 94.99 = Green 95 to 96.99 = Yellow 97 to 98.99 = Orange 99 to 100 = Red
Reserved Capacity	Percent of reserved capacity in use. Calculated as percent of megahertz times the number of CPU cores.

VMware Host Resource Memory

Column	Description
Host	Name of the host. Click the name of a host to view a Performance Report of performance data for that host.
Used	Percent of memory used on host. 0 to 69.99 = Green 70 to 89.99 = Yellow 90 to 100 = Red

Granted	Percent of total memory of all types in use. 0 to 79.99 = Green 80 to 89.99 = Yellow 90 to 109.00 = Orange 110 or greater = Red
Reserved Capacity	Percent of reserved memory capacity in use. 0 to 89.99 = Green 90 to 100 = Red
Balloon	Percent of memory balloon in use. The memory balloon is memory allotted for the host to expand to if needed. 0 to 89.99 = Green 90 to 100 = Red

VMware Resource Pool Usage

Column	Description
Host	The hosts (not the virtual machines) in your environment that contain resource pools. Click the name of a host to view a Performance Report of resource pool data for that host.
Overall Memory	Close to real-time resource usage of all running child virtual machines, including virtual machines in child resource pools. Expressed as a percent of current upper bound on usage. 0 to 69.99 = Green 70 to 89.99 = Orange 90 to 100 = Red
Overall CPU	Close to real-time resource usage of all running child virtual machines, including virtual machines in child resource pools. Expressed as a percent of current upper bound on usage. 0 to 94.99 = Green 95 to 96.99 = Yellow 97 to 98.99 = Orange 99 to 100 = Red