Set up a connection between a Unified Manager server and an external data provider

Active IQ Unified Manager

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Set up a connection between a Unified Manager server and an external data provider

Set up a connection between Active IQ Unified Manager and an external data provider

A connection between a Unified Manager server and an external data provider enables you to send cluster performance data to an external server so that storage managers can chart the performance metrics using third-party software.

A connection between a Unified Manager server and an external data provider is established through the menu option labeled “External Data Provider” in the maintenance console.

Send Active IQ Unified Manager performance data to an external server

Unified Manager collects a variety of performance data from all the clusters that it is monitoring. You can send specific groups of data to an external server.

Depending on the performance data that you want to chart, you can choose to send one of the following groups of statistics:

Statistics group	Data included	Details
Performance Monitor	High-level performance statistics for the following objects: • LUNs • Volumes	This group provides total IOPS or latency for all LUNs and volumes in all monitored clusters. This group provides the smallest number of statistics.
Resource Utilization	Resource utilization statistics for the following objects: • Nodes • Aggregates	This group provides utilization statistics for the node and aggregate physical resources in all monitored clusters. It also provides the statistics collected in the Performance Monitor group.

Statistics group	Data included	Details
Drill Down	Low-level read/write and per-protocol statistics for all tracked objects: • Nodes • Aggregates • LUNs • Volumes • Disks • LIFs • Ports/NICs	This group provides read/write and per-protocol breakdowns for all seven tracked object types in all monitored clusters. It also provides the statistics collected in the Performance Monitor group and in the Resource Utilization group. This group provides the largest number of statistics.

If the name of a cluster, or cluster object, is changed on the storage system, both the old and the new objects will contain performance data on the external server (called the “metric_path”). The two objects are not correlated as the same object. For example, if you change the name of a volume from “volume1_acct” to “acct_vol1”, you will see old performance data for the old volume, and new performance data for the new volume.

See Knowledge Base article 30096 for the list of all performance counters that can be sent to an external data provider.

Unified Manager performance counters that can be exported to an External Data Provider

Set up Graphite to receive performance data from Active IQ Unified Manager

Graphite is an open software tool for gathering and graphing performance data from computer systems. Your Graphite server and software must be configured correctly to receive statistical data from Unified Manager.

NetApp does not test or verify specific versions of Graphite or other third-party tools.

The Graphite server does not receive performance data for Volumes from Unified Manager.

After you have installed Graphite according to the installation instructions, you need to make the following changes to support statistical data transfer from Unified Manager:

- In the `/opt/graphite/conf/carbon.conf` file, the maximum number of files that can be created on the Graphite server per minute must be set to *200* (**`MAX_CREATES_PER_MINUTE = 200`**).

  Depending on the number of clusters in your configuration and the statistics objects you have selected to send, there might be thousands of new files that need to be created initially. At 200 files per minute it might take 15 minutes or longer before all metric files are initially created. After all the unique metric files have been created, this parameter is no longer relevant.

- If you are running Graphite on a server deployed using an IPv6 address, the value for LINE_RECEIVER_INTERFACE in the `/opt/graphite/conf/carbon.conf` file must be changed from

“0.0.0.0” to “::” (**`LINE_RECEIVER_INTERFACE = ::`**)

- In the `/opt/graphite/conf/storage-schemas.conf` file, the `retentions` parameter must be used to set the frequency to 5 minutes and the retention period to the number of days that is relevant for your environment.

  The retention period can be as long as what your environment allows, but the frequency value must be set to 5 minutes for at least one retention setting. In the following example, a section is defined for Unified Manager using the `pattern` parameter, and the values set the initial frequency to 5 minutes and the retention period to 100 days: **`[OPM]`**

  ```
  pattern = ^netapp-performance\..

  retentions = 5m:100d
  ```

  If the default vendor tag is changed from “netapp-performance” to something different, that change must be reflected in the `pattern` parameter as well.

If the Graphite server is unavailable when the Unified Manager server is attempting to send performance data, the data is not sent and there will be a gap in collected data.

Configure a connection between Active IQ Unified Manager and an external data provider

Unified Manager can send cluster performance data to an external server. You can specify the type of statistical data that is sent, and the interval at which data is sent.

Before you begin

- You must have a user ID authorized to log in to the maintenance console of the Unified Manager server.
- You must have the following information about the external data provider:
  - Server name or IP address (IPv4 or IPv6)
  - Server default port (if not using default port 2003)
- You must have configured the remote server and third-party software so that it can receive statistical data from the Unified Manager server.
- You must know which group of statistics you want to send:
  - PERFORMANCE_INDICATOR: Performance monitor statistics
  - RESOURCE_UTILIZATION: Resource utilization and Performance monitor statistics
  - DRILL_DOWN: All statistics
- You must know the time interval at which you want to transmit statistics: 5, 10, or 15 minutes

  By default, Unified Manager collects statistics at 5-minute intervals. If you set the transmit interval to 10 (or 15) minutes, the amount of data that is sent during each transmission is two (or three) times larger than when using the default 5-minute interval.

  If you change the Unified Manager performance collection interval to 10 or 15 minutes, you must change the transmit interval so that it is equal to, or larger, than the Unified Manager collection interval.

You can configure a connection between one Unified Manager server and one external data provider server.

Steps

1. Log in as the maintenance user to the maintenance console of the Unified Manager server.

   The Unified Manager maintenance console prompts are displayed.

2. In the maintenance console, type the number of the **External Data Provider** menu option.

   The External Server Connection menu is displayed.

3. Type the number of the **Add/Modify Server Connection** menu option.

   The current server connection information is displayed.

4. When prompted, type `y` to continue.
5. When prompted, enter the IP address or name of the destination server and the server port information (if different from the default port 2003).
6. When prompted, type `y` to verify that the information you entered is correct.
7. Press any key to return to the External Server Connection menu.
8. Type the number of the **Modify Server Configuration** menu option.

   The current server configuration information is displayed.

9. When prompted, type `y` to continue.
10. When prompted, enter the type of statistics to send, the time interval at which the statistics are sent, and whether you want to enable the transmission of statistics now:

For..	Enter…
Statistics group ID	`0` - PERFORMANCE_INDICATOR (default) `1` - RESOURCE_UTILIZATION `2` - DRILL_DOWN
Vendor tag	A descriptive name for the folder where the statistics will be stored on the external server. “netapp-performance” is the default name, but you can enter another value. By using dotted notation you can define a hierarchical folder structure. For example, by entering `stats.performance.netapp` the statistics will be located in **stats** > **performance** > **netapp**.
Transmit interval	`5` (default), `10`, or `15` minutes
Enable/disable	`0` - Disable `1` - Enable (default)

11. When prompted, type **y** to verify that the information you entered is correct.
12. Press any key to return to the External Server Connection menu.
13. Type **x** to exit the maintenance console.

After you have configured the connection, the selected performance data is sent to the destination server at the time interval you specified. It takes a few minutes before the metrics start to appear in the external tool. You might need to refresh your browser to see the new metrics in the metric hierarchy.

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