CA Performance Management Data Aggregator

Report Information Base API Guide

2.4.1

CA Technologies Product References

This document references the following CA Technologies products:

- CA Performance Management Data Aggregator (Data Aggregator)
- CA Performance Management Data Collector (Data Collector)
- CA Performance Center

Contact CA Technologies

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information that you need for your Home Office, Small Business, and Enterprise CA Technologies products. At http://ca.com/support, you can access the following resources:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

If you have comments or questions about CA Technologies product documentation, you can send a message to techpubs@ca.com.

To provide feedback about CA Technologies product documentation, complete our short customer survey which is available on the CA Support website at http://ca.com/docs.

Contents

Chapter 1: Using the RIB API

This section contains the following topics:

Report Information Base (RIB)

The CA Report Information Base (RIB) provides a web services interface to data stored in the Data Aggregator database. Using RIB provides high-performance access to the data without having to understand the database schema. RIB also protects your applications from changes to the underlying schema.

This guide helps you understand how to use RIB with Data Aggregator.

Note: For information about general RIB usage with CA Performance Center, see the *CA Report Information Base API Guide*. This guide can be accessed from the CA Performance Center bookshelf.

Locate Data Aggregator RIB Documents

To access the RIB documents for Data Aggregator, log in to the Data Aggregator system as a user with privileges to navigate to the following location:

`cd Data Aggregator installation directory/apache-karaf-2.3.0/ribs`

Query RIB to Report on a Self-Certification

Data Aggregator supports devices using a method called certification. Data Aggregator uses two types of certification that comprise this method: metric family and vendor certification.

When you self-certify devices in Data Aggregator by creating metric families and vendor certifications, the RIB document is automatically updated to reflect the new certifications.

To report on new metric families, create views in CA Performance Center that use the new certification data.

Note: For more information about creating views, see the *CA Performance Center Administrator Guide*.

You can self-certify devices in Data Aggregator by creating vendor certifications and adding existing metric families to these certifications. When you self-certify devices, the RIB document is automatically updated to reflect the new certifications.

You can report on new vendor certifications that have existing metric families added to them immediately.

Given an existing RIB query, you can create a self-certification report by modifying a RIB query to reference the metric family name and operational metrics.

Each RIB query is entered directly into your web browser and is preceded with the following URL:

http://*hostname:port*/rib/query/

hostname*:*port

Specifies the Data Aggregator host name and the port number.

Default port: 8581

The following example shows a RIB query:

```
SELECT .EndTime({resolution}), .{Operational Metric Name}.{Metric Field} FROM
CA.IM.DA.MF.{Metric Family Name}.{Metric Family Table Name} WHERE .PollItem.ID =
Global.Integer{itemID} AND .EndTime({resolution}) > Global.Integer{utcTimeStart}
AND .EndTime({resolution}) <=  Global.Integer{utcTimeEnd} GROUP BY
.EndTime({resolution}) ORDER BY .EndTime({resolution}) ASC
```

Operational Metric Name

Is an operational metric you want to report on.

Metric Field

The field name for the aggregated value to report. For example, the .Avg metric field returns the average value for the metric.

Metric Family Name

Is the name for the metric family.

Metric Family TableName

Is the table name for the metric family.

You can use variables, such as {utcTimeStart}, {utcTimeEnd}, and {resolution} in RIB queries, which eliminates the need to hard-code certain items. The RIB reporting engine automatically returns the appropriate value for these variables.

Note: For more information about the variables you can use in RIB queries, see the *CA Performance Center Report Information Base API Guide*.

Example:

To report on the CPU temperature and the main board temperature for a NormalizedTemperatureInfo metric family with the table name TEMPERATURE, enter the following query:

```
SELECT .EndTime({resolution}), .CPU1Temp.Avg, . MainBoardTemp.Avg FROM
CA.IM.DA.MF.NormalizedTemperatureInfo.TEMPERATURE WHERE .PollItem.ID =
Global.Integer{item_id} AND .EndTime({resolution}) > Global.Integer{utcTimeStart}
AND .EndTime({resolution}) <= Global.Integer{utcTimeEnd} GROUP BY
.EndTime({resolution}) ORDER BY .EndTime({resolution}) ASC
```

Note: For more information about self-certification, see the *Data Aggregator Self-Certification Guide*.

Query RIB to Return a Table Report

You can query RIB to return data that supports trend reports on Data Aggregator data. RIB queries can be entered directly into a web browser or they can be entered into view definitions.

Precede RIB queries that are entered directly into a web browser with the following information:

http://*hostname:port*/rib/query/

hostname*:*port

Specifies the Data Aggregator host name and the port number.

Default port: 8581

A sample query is:

```
http://hostname:port/rib/query/SELECT .PollItem.ID, .Item.Name, .DiscardsIn.Avg,
.DiscardsOut.Avg FROM CA.IM.DA.MF.NormalizedPortInfo.IFSTATS WHERE
.PollItem.DeviceID = (478) AND .EndTime(300) > 1320692340 AND .EndTime(300) <=
1320695940 GROUP BY .PollItem.ID ORDER BY .DiscardsIn.Avg DESC LIMIT 10
```

View definitions provide a number of built-in variables that are automatically replaced by the reporting framework with context-sensitive information. These variables make it possible to create pages that adapt to your interests. As you adjust the time range or navigate to different items, the views display appropriate data.

To query for a Top Interface Discards table report, enter the following commands:

```
SELECT .PollItem.ID, .Item.Name, .DiscardsIn.Avg, .DiscardsOut.Avg FROM
CA.IM.DA.MF.NormalizedPortInfo.IFSTATS WHERE .PollItem.DeviceID = {itemId} AND
.EndTime({resolution}) > {utcTimeStart} AND .EndTime({resolution}) < {utcTimeEnd}
GROUP BY .PollItem.ID ORDER BY .DiscardsIn.Avg DESC LIMIT 10
```

You can use variables, such as {utcTimeStart}, {utcTimeEnd}, and {resolution} in RIB queries, which eliminates the need to hard-code certain items. The RIB reporting engine automatically returns the appropriate value for these variables.

Note: For more information about the variables you can use in RIB queries, see the *CA Performance Center Report Information Base API Guide*.

Query RIB to Return a Gauge Report

You can query RIB to return data that supports trend reports on Data Aggregator data. RIB queries can be entered directly into a web browser or they can be entered into view definitions.

Precede RIB queries that are entered directly into a web browser with the following information:

http://*hostname:port*/rib/query/

hostname*:*port

Specifies the Data Aggregator host name and the port number.

Default port: 8581

A sample query is:

```
http://hostname:port/rib/query/SELECT .Utilization.Avg, .Utilization.Min,
.Utilization.Max FROM CA.IM.DA.MF.NormalizedMemoryInfo.PHYSICAL_MEMSTATS WHERE
.PollItem.DeviceID = 478 AND .EndTime(300) > 1320691620 AND .EndTime(300) <=
1320695220 GROUP BY .PollItem.DeviceID
```

View definitions provide a number of built-in variables that are automatically replaced by the reporting framework with context-sensitive information. These variables make it possible to create pages that adapt to your interests. As you adjust the time range or navigate to different items, the views display appropriate data.

To query for a CPU utilization gauge report, enter the following commands:

```
SELECT .Utilization.Avg, .Utilization.Min, .Utilization.Max FROM
CA.IM.DA.MF.NormalizedCPUInfo.NRM_CPUSTATS WHERE .PollItem.DeviceID = {itemId} AND
.EndTime({resolution}) > {utcTimeStart} AND .EndTime({resolution}) <= {utcTimeEnd}
GROUP BY .PollItem.DeviceID
```

{resolution}

Is a positive number. If the resolution value is less than or equal to 3600, then a 30-day baseline is used. If the resolution value is greater than 3600, then a 90-day baseline is used.

You can use variables, such as {utcTimeStart}, {utcTimeEnd}, and {resolution} in RIB queries, which eliminates the need to hard-code certain items. The RIB reporting engine automatically returns the appropriate value for these variables.

Note: For more information about the variables you can use in RIB queries, see the *CA Performance Center Report Information Base API Guide*.

Query RIB to Return a Trend Report

You can query RIB to return data that supports trend reports on Data Aggregator data. RIB queries can be entered directly into a web browser or they can be entered into view definitions.

Precede RIB queries that are entered directly into a web browser with the following information:

http://*hostname:port*/rib/query/

hostname*:*port

Specifies the Data Aggregator host name and the port number.

Default port: 8581

A sample query is:

```
http://hostname:port/rib/query/SELECT .EndTime(300), .UtilizationIn.Avg,
.UtilizationOut.Avg FROM CA.IM.DA.MF.NormalizedPortInfo.IFSTATS WHERE .PollItem.ID
= (1234) AND .EndTime(300) > 1306964260 AND .EndTime(300) <= 1306967860 GROUP BY
.EndTime(300) ORDER BY .EndTime(300) ASC
```

View definitions provide a number of built-in variables that are automatically replaced by the reporting framework with context-sensitive information. These variables make it possible to create pages that adapt to your interests. As you adjust the time range or navigate to different items, the views display appropriate data.

To query for an interface statistics trend report, enter the following text:

```
SELECT .EndTime({resolution}), .UtilizationIn.Avg, .UtilizationOut.Avg FROM
CA.IM.DA.MF.NormalizedPortInfo.IFSTATS WHERE .PollItem.ID = {item_id} AND
.EndTime({resolution}) > {utcTimeStart} AND .EndTime({resolution}) <= {utcTimeEnd}
GROUP BY .EndTime({resolution}) ORDER BY .EndTime({resolution}) ASC
```

You can use variables, such as {utcTimeStart}, {utcTimeEnd}, and {resolution} in RIB queries, which eliminates the need to hard-code certain items. The RIB reporting engine automatically returns the appropriate value for these variables.

Note: For more information about the variables you can use in RIB queries, see the *CA Performance Center Report Information Base API Guide*.

To query for baseline interface statistics to layer on the trend report, enter the following commands:

```
SELECT .EndTime({resolution}), .UtilizationIn.MeanValue,
.UtilizationIn.StddevValue, .UtilizationOut.MeanValue, .UtilizationOut.StddevValue
FROM CA.IM.DA.MF.NormalizedPortInfo.IFSTATS_METRICS  WHERE .PollItem.ID = {item_id}
AND .EndTime({resolution}) > {utcTimeStart} AND .EndTime({resolution}) <=
{utcTimeEnd} GROUP BY .EndTime({resolution}) ORDER BY .EndTime({resolution}) ASC
```

{resolution}

Is a positive number. If the resolution value is less than or equal to 3600, then a 30-day baseline is used. If the resolution value is greater than 3600, then a 90-day baseline is used.

.Utilization.MeanValue

Is the 30 day or 90-day mean value that is calculated for the Utilization operational metric.

.Utilization.StddevValue

Is the 30-day or 90 day standard deviation value that is calculated for the Utilization operational metric.

NormalizedPortInfo

Is the name of the metric family that holds the baseline data.

IFSTATS_METRICS

Is the name of the table that holds the baseline data for the metric family.

To query for a CPU statistics trend report, enter the following commands:

```
SELECT .EndTime({resolution}), .Utilization.MeanValue, .Utilization.StddevValue
FROM CA.IM.DA.MF.NormalizedCPUInfo.NRM_CPUSTATS_METRICS  WHERE .PollItem.ID =
{item_id} AND .EndTime({resolution}) > {utcTimeStart} AND .EndTime({resolution}) <
{utcTimeEnd} GROUP BY .EndTime({resolution}) ORDER BY .EndTime({resolution}) ASC
```

{resolution}

Is a positive number. If the resolution value is less than or equal to 3600, then a 30-day baseline is used. If the resolution value is greater than 3600, then a 90-day baseline is used.

.Utilization.MeanValue

Is the 30 day or 90-day mean value that is calculated for the Utilization operational metric.

.Utilization.StddevValue

Is the 30-day or 90 day standard deviation value that is calculated for the Utilization operational metric.

NormalizedCPUInfo

Is the name of the metric family that holds the baseline data.

NRM_CPUSTATS_METRICS

Is the name of the table that holds the baseline data for the metric family.

To query for a memory statistics trend report, enter the following commands:

```
SELECT .EndTime({resolution}), .Utilization.MeanValue, .Utilization.StddevValue
FROM CA.IM.DA.MF.NormalizedMemoryInfo.PHYSICAL_MEMSTATS_METRICS WHERE .PollItem.ID
= {item_id} AND .EndTime({resolution}) > {utcTimeStart} AND .EndTime({resolution})
<= {utcTimeEnd} GROUP BY .EndTime({resolution}) ORDER BY .EndTime({resolution}) ASC
```

{resolution}

Is a positive number. If the resolution value is less than or equal to 3600, then a 30-day baseline is used. If the resolution value is greater than 3600, then a 90-day baseline is used.

.Utilization.MeanValue

Is the 30 day or 90-day mean value that is calculated for the Utilization operational metric.

.Utilization.StddevValue

Is the 30-day or 90 day standard deviation value that is calculated for the Utilization operational metric.

NormalizedMemoryInfo

Is the name of the metric family that holds the baseline data.

PHYSICAL_MEMSTATS_METRICS

Is the name of the table that holds the baseline data for the metric family.

Query RIB for Baseline Metrics

You can query RIB to return baseline metrics on Data Aggregator data. RIB queries can be entered directly into a web browser or they can be entered into Data Aggregator view definitions.

Precede RIB queries that are entered directly into a web browser with the following URL:

http://*hostname:port*/rib/query/

hostname*:*port

Specifies the Data Aggregator host name and the port number.

Default port: 8581

A sample query is:

```
http://hostname:port/rib/query/SELECT .PollItem.ID, .Utilization_in.MeanValue,
.Utilization_out.StddevValue FROM CA.IM.DA.MF.NormalizedPortInfo.IFSTATS_METRICS
WHERE .PollItem.ID = 55 AND .EndTime(300) > 1306904400 AND .EndTime(300) <= 1306990800
GROUP BY .PollItem.ID
```

View definitions provide a number of built-in variables that are automatically replaced by the reporting framework with context-sensitive information. These variables make it possible to create pages that adapt to your interests. As you adjust the time range or navigate to different items, the views display appropriate data.

To query interface statistics for baseline data, enter the following query:

```
SELECT .PollItem.ID, .Utilization_in.MeanValue .Utilization_out.StddevValue FROM
CA.IM.DA.MF.NormalizedPortInfo.IFSTATS_METRICS WHERE .PollItem.ID = 55 AND
.EndTime({resolution}) > {startTime} AND .EndTime({resolution}) <= {EndTime} GROUP
BY .PollItem.ID
```

Chapter 2: Troubleshooting

This section contains the following topics:

Cannot Find the Data Aggregator RIB Document

Symptom:

I cannot locate the Data Aggregator RIB document.

Solution:

Do the following steps to locate the Data Aggregator RIB document:

1. Verify that Data Aggregator has been successfully added to CA Performance Center.

   Note: For more information about verifying data sources in CA Performance Center, see the *CA Performance Center Administrator Guide*.

2. Verify that the RIB web service for Data Aggregator is running.

   Note: For more information about verifying RIB web services in data sources, see the *CA Performance Center Report Information Base Guide*.

3. Verify that the RIB web service for Data Aggregator is publishing the RIB document:

   a. Use the Data Source's RIB web service to request the list of RIB documents available.

      Example:

      `http://hostname:port/rib/doclist`

      hostname*:*port

      Specifies the Data Aggregator host name and the port number.

      Default: 8581

   b. If you know the document ID, check the document:

      `http://hostname:port/rib/doc/docId`

      Example:

      `http://dahost:8581/rib/doc/CA.IM.DA.NormalizedPortInfo`

Glossary

metric family

A *metric family* defines the set of values to collect and report on for a given technology. These values are normalized so that reporting is uniform regardless of the data source. When included in a monitoring profile, metric families determine which values to collect for the devices that are associated with that monitoring profile.

metric field

A *metric field* is the field name for the aggregated value to report. For example, the .Avg metric field returns the average value for the metric.

operational metric

An *operational metric* is a value that a metric family collects, which describes the state of an item at a particular point in time. Typically, the system polls for this value at regular intervals. Operational metrics can provide baselines, and you can set threshold values against them. For example, CPU utilization is an operational metric.

RIB

The *RIB* (Report Information Base) interface is a system of web services and XML documents that lets you access data that is collected from various sources.

RIB document

A *RIB document* is an XML document that describes the capabilities of a data source. The RIB document also defines all of the valid ways of querying a particular RIB source.

RIB engine

The *RIB engine* is an application-facing web service that accepts queries, distributes them among RIB sources, and combines results for return.

RIB sources

RIB sources are RESTful web services that encapsulate the details of exposing data from a particular source. Virtually any source of data can be packaged as a RIB source.