Introduction to the Continuuity Reactor REST API

Module Objectives

In this module, you will look at the basic elements of Continuuity Reactor through its REST API:

- REST API Conventions
- Streams
- Flows
- DataSets
- Procedures
- Reactor Applications and Lifecycle Management
- Logs
- Metrics

Continuuity REST API

The Continuuity Reactor has an HTTP interface for:

- **Streams:** sending data events to a Stream, or to inspect the contents of a Stream
- **Flows:** query and setting number of instances
- **DataSets:** interacting with DataSets (currently limited to Tables)
- **Procedures:** sending queries to a Procedure
- **Reactor:** deploying and managing Applications
- **Logs:** retrieving Application logs
- **Metrics:** retrieving metrics for system and user Applications (user-defined metrics)

Note: The HTTP interface binds to port `10000`

Continuuity Reactor REST API Conventions

All URLs referenced in the API have this base URL:

```
http://<gateway>:10000/v2
```

where <gateway> is the URL of the Continuuity Reactor. The base URL is represented as:

```
<base-url>
```

For example:

```
PUT <base-url>/streams/<new-stream-id>
```

means

```
PUT http://<gateway>:10000/v2/streams/<new-stream-id>
```

Streams and Flows

Stream API supports:

- Creating Streams
- Sending events to a Stream
- Reading single events from a Stream
- Streams may have multiple consumers (e.g., multiple Flows), each of which may be a group of different agents (e.g., multiple Flowlet instances)
- To read events from a Stream, client application must first obtain a consumer (group) id, which is passed to subsequent read requests

Flows API supports:

- Query and set the number of instances executing a given Flowlet

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DataSets

The Data API allows you to interact with Continuuity Reactor Tables (the core DataSets) through HTTP:

- Create Tables
- Read data
- Write data
- Modify data
- Delete data

Note: Deleting or dropping tables is not possible through this API, though you can truncate the DataSet using this API

Procedures

The REST API supports sending queries to the methods of an Application's procedures:

- Send the method name as part of the request URL
- Send the arguments as a JSON string in the body of the request
- Used to retrieve results from the Reactor

Reactor Applications and Lifecycle Management

Use the Reactor Client HTTP API to:

- Deploy or delete Applications
- Manage the life cycle of Flows, Procedures and MapReduce Jobs

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Logs

You can download the logs that are emitted by any of the elements running in the Continuuity Reactor

Logs are emitted by:

- Flows
- Procedures
- MapReduce Jobs
- WorkFlows

Metrics

As Applications process data, the Continuuity Reactor collects metrics about the Application's behavior and performance

Some Metrics are the same for every Application and are called **System** or **Reactor** metrics:

- How many events are processed
- How many data operations are performed
- etc.

Metrics: User-defined

Other metrics are **User-defined** and differ from Application to Application:

- Embed user-defined metrics in the methods defining the elements of your application
- They will then emit their metrics
- Retrieve them using the Continuuity Reactor's REST interfaces

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Module Summary

You should now be familiar with:

- Reactor REST API Convention
- Streams and Flows
- DataSets
- Procedures
- Reactor Applications and Lifecycle Management
- Logs
- Metrics

Module Completed

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