Collecting Critical Application Information via Logs

Module Objectives

In this module, you will learn how to:

- Create log messages in your Applications
- Two methods for viewing log messages
- Downloading log messages using REST
- Viewing messages through the Reactor Dashboard

Logging

- The Reactor supports logging through standard **SLF4J (Simple Logging Facade for Java)** APIs
- API described at http://www.slf4j.org/manual.html

In a Flowlet you can write:

```
private static Logger LOG = LoggerFactory.getLogger(WordCounter.class);

// ...
@ProcessInput
public void process(String line) {
  LOG.info(this.getContext().getName() + ": Received line " + line);

  // ... processing
  LOG.info(this.getContext().getName() + ": Emitting count " + wordCount);
  output.emit(wordCount);
}
```

Viewing Log Messages

Log messages emitted by Application code can be viewed in two different ways

1. Using the Continuuity Reactor **HTTP REST interface**
   - The REST interface details the available contexts that can be called to retrieve log messages
   - Available for *Flows*, *MapReduce* jobs or *Procedures*
2. Using The Continuuity Reactor **Dashboard**
   - All log messages of an Application can be viewed in the Continuuity Reactor Dashboard by clicking the *Logs* button in the Flow, MapReduce or Procedure screens
   - This launches the Log Explorer for the Flow, MapReduce job or Procedure

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Downloading Logs using REST

Logs that are emitted by any of the *Flows*, *MapReduce* jobs or *Procedures* running in the Continuuity Reactor can be downloaded using REST

Send an HTTP GET request:

```
GET <base-url>/apps/<app-id>/<element-type>/<element-id>/logs?start=<ts>&stop=<ts>
```

Parameter

`<app-id>`

Description

Name of the Application being called

Parameter

`<element-type>`

Description

One of `flows`, `mapreduce`, or `procedures`

Parameter

`<element-id>`

Description

Name of the element (*Flow*, *MapReduce*, or *Procedure*) being called

Parameter

`<ts>`

Description

Start and *stop* time, given as seconds since the start of the Epoch

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Example of Downloading Logs using REST

Return the logs for all the events from the Flow *CountTokensFlow* of the *CountTokens* Application, beginning `Thu, 24 Oct 2013 01:00:00 GMT` and ending `Thu, 24 Oct 2013 01:05:00 GMT` (five minutes later)

```
GET <base-url>/apps/CountTokens/flows/CountTokensFlow/
    logs?start=1382576400&stop=1382576700
```

Example Log Output

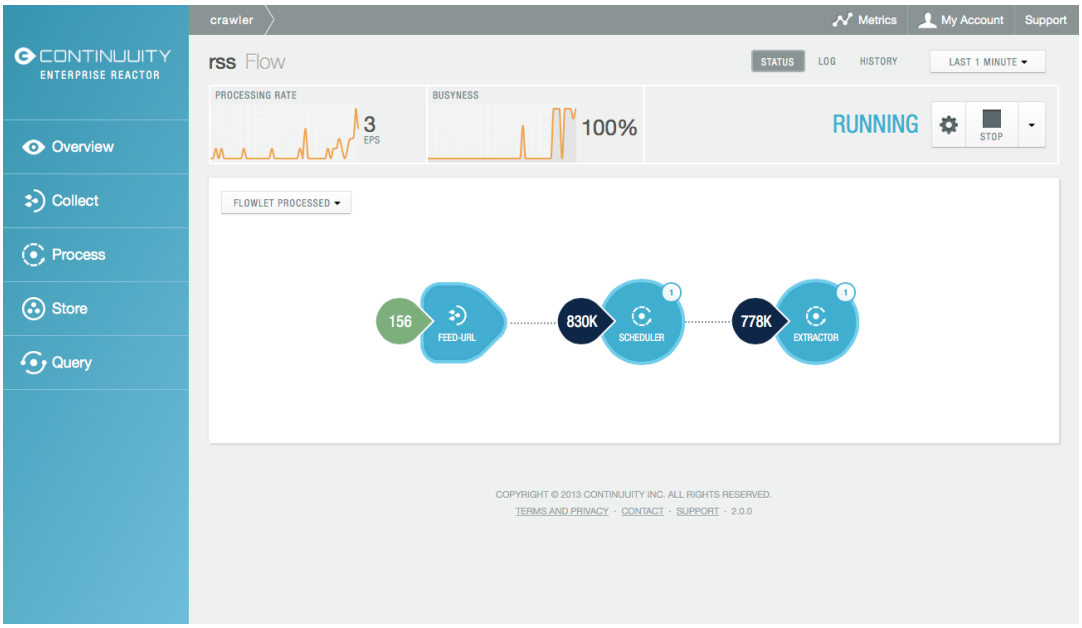
A line of the log may look like this:

```
2013-10-23 18:03:09,793 - INFO [FlowletProcessDriver-source-0-
executor:c.c.e.c.StreamSource@-1] – source: Emitting line: this is an &amp;amp; character
```

- The context of the log line shows the name of the Flowlet (*source*), its instance number (0) as well as the original line in the Application code
- The output is formatted as HTML-embeddable text
- Characters that have a special meaning in HTML will be escaped
- The character *&* is escaped as `&`; turn off escaping by adding the parameter `&escape=false` to the request URL

Launching The Dashboard's *Log Explorer*

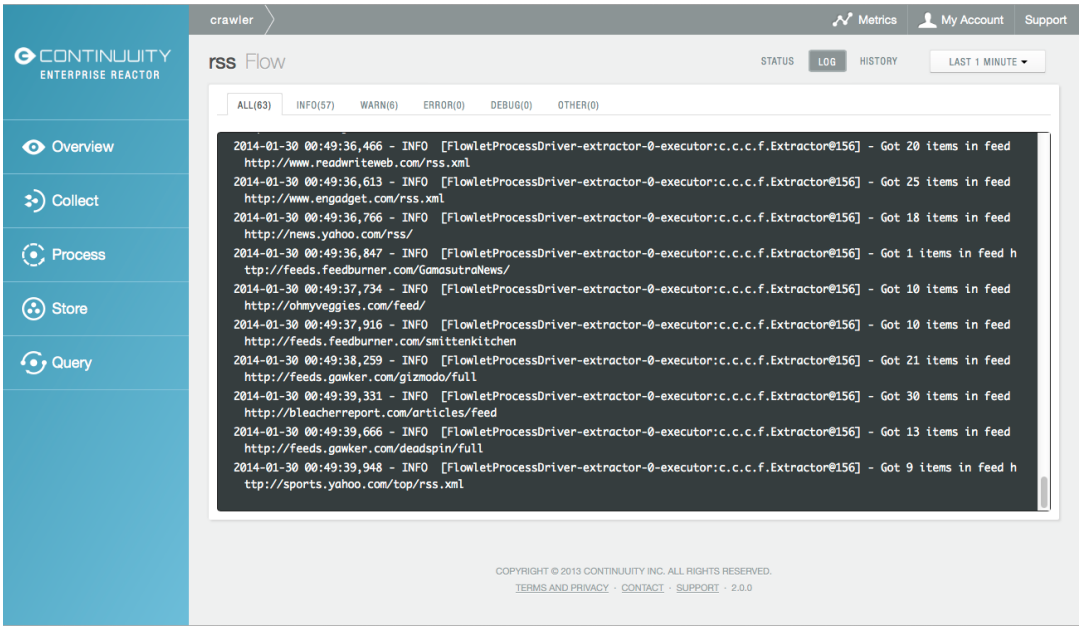
To launch, visit the element (*Flow*, *Procedure*, *MapReduce*) of interest:



Use the *Log* button in the upper right to launch the *Log Explorer*

Using The Dashboard's *Log Explorer*

The *Log Explorer* pane shows a sample from the logs, with filters for a standard set of filters: *Info*, *Warn*, *Error*, *Debug*, and *Other:*



Module Summary

You should now be able to:

- Create log messages in your Applications
- Download log messages using REST
- View messages using the Reactor Dashboard

Module Completed