

# Metrics Reporting

Fedora 4 is instrumented using [Metrics](#). These metrics are exposed via [JMX](#) and an HTTP API. All REST API operations track timing and histogram information. Key internal API methods are also included. [Modeshape](#) and [Infinispan](#) include their own metrics reporting over JMX.

Here is an example metrics block:

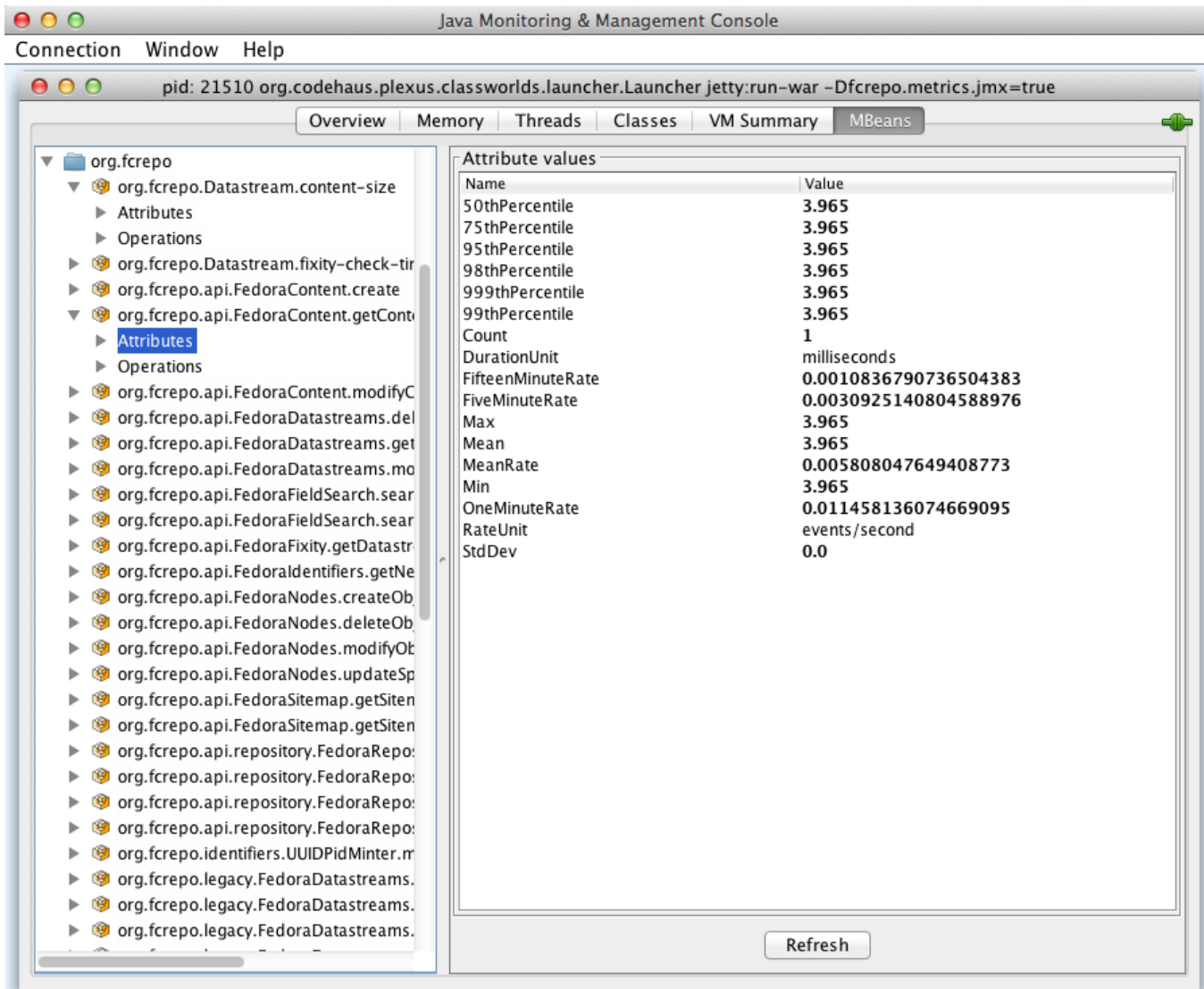
```
"org.fcrepo.api.FedoraLdp.createObject" : {
  "count" : 0,
  "max" : 0.0,
  "mean" : 0.0,
  "min" : 0.0,
  "p50" : 0.0,
  "p75" : 0.0,
  "p95" : 0.0,
  "p98" : 0.0,
  "p99" : 0.0,
  "p999" : 0.0,
  "stddev" : 0.0,
  "m15_rate" : 0.0,
  "m1_rate" : 0.0,
  "m5_rate" : 0.0,
  "mean_rate" : 0.0,
  "duration_units" : "seconds",
  "rate_units" : "calls/second"
},
```

To enable Metrics reporting to JMX, add the following System Properties to your container startup script/command:

```
-Dcom.sun.management.jmxremote -Dspring.profiles.active=metrics.jmx
```

To inspect the metrics published to JMX,

1. start [jconsole](#),
2. connect to the container process,
3. then select the MBeans tab and navigate to "org.fcrepo"



The Metrics reporter can also be configured to report to [Ganglia](#) or [Graphite](#) to track and store data points over time. Fedora 4 ships with an [example Graphite integration](#). See the documentation for setting up a [Graphite locally](#) or on [Amazon EC2](#).