

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](#) includes its 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"

Java Monitoring & Management Console

Connection Window Help

pid: 21510 org.codehaus.plexus.classworlds.launcher.Launcher jetty:run-war -Dfcrepo.metrics.jmx=true

Overview Memory Threads Classes VM Summary MBeans

Name	Value
50thPercentile	3.965
75thPercentile	3.965
95thPercentile	3.965
98thPercentile	3.965
999thPercentile	3.965
99thPercentile	3.965
Count	1
DurationUnit	milliseconds
FifteenMinuteRate	0.0010836790736504383
FiveMinuteRate	0.0030925140804588976
Max	3.965
Mean	3.965
MeanRate	0.005808047649408773
Min	3.965
OneMinuteRate	0.011458136074669095
RateUnit	events/second
StdDev	0.0

Refresh

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](#).