

Oracle® Enterprise Data Quality

Java Management Extensions Configuration

Release 11g R1 (11.1.1.7)

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Oracle Enterprise Data Quality (EDQ) provides a Java Management Extensions (JMX) interface that can be used to monitor and manage many details of its operation. By default, the JMX Beans within EDQ will bind into the EDQ internal JMX tree. This document describes how it can be configured to integrate with the Application Server's JMX tree and JMX clients, and provides an example of using the interface to monitor real-time processes.

1 JMX Binding

EDQ provides a built-in JMX Server. By default the JMX Beans within EDQ will bind into the internal JMX tree, but EDQ can also be configured to use the JMX tree associated with the application server.

If the internal JMX Server is being used, it will listen for JMX requests on the port specified by the `management.port` property, defined in the `director.properties` file. If no value is defined for this property, then it defaults to port 8090.

The `management.port` property defines where an RMI registry is running. Therefore, it controls access to both the internal JMX Server and the EDQ RMI API used by the command line tools. If `management.port` is set to zero, the RMI registry will not listen on any port. This means that the internal JMX Server will not be used *and* that the RMI API will also not be available. The command line tools will therefore not work if `management.port` is set to 0.

As well as the `management.port` property there a `management.jndiname` property that can be set. This property informs the JMX beans which JMX tree to bind to. Setting this property in `director.properties` to the following directs EDQ to use the JNDI entry to find the JMX server on the WebLogic application server. This effectively tells EDQ to bind to the Application Server JMX tree.:

```
management.jndiname = java:comp/env/jmx/runtime
```

1.1 Examples

A default installation on a UNIX platform will not need any particular properties set. It will have an RMI registry listening on port 8090, which will be used by the command line tools, as well any by JMX clients, such as Jconsole.

An installation not wishing to use the command line tools but wishing to have EDQ JMX Beans appear in the Application Server JMX tree should add the following properties to the `director.properties` file in the configuration directory:

```
management.port=0
```

```
management.jndiname=java:comp/env/jmx/runtime
```

An installation in WebLogic wishing to use the command line tools and having the EDQ JMX Beans appear in the Application Server JMX tree will add the following property to the `director.properties` file in the configuration directory:

```
management.jndiname=java:comp/env/jmx/runtime
```

2 JMX Bean Naming

The naming scheme used for the EDQ JMX Beans is designed to work well with Jconsole. However, other JMX Clients may require a modified naming scheme.

The names used for the EDQ JMX Beans can be customized by writing and placing an appropriate JavaScript or Groovy file in the configuration directory and setting the `management.namemaker.scriptfile` property in the `director.properties` to indicate its existence

2.1 Example

This example demonstrates how to modify the default EDQ JMX Bean naming scheme to add a type attribute to the end of the name. The type attribute will be based on the Java Bean class.

1. Create a file named `jmxnames.js` in the configuration directory and add the following JavaScript to it:

```
/**
 * Adds a type attribute to the name of a JMX Beans.
 *
 * @param beanclass The bean class name
 * @param domain The domain name
 * @param names The name strings
 *
 * @return The name string
 */
function objectNameFor(beanclass, domain, names)
{
  var type = beanclass == null ? "" :
  beanclass.substring(beanclass.lastIndexOf('.') + 1);
  var out;
  /*
   * The names array always has 2 elements.
   */
  out = domain + ":" + "component=" + escape(names[0]) + ",name=" +
  escape(names[1]);
  for (var i = 2; i < names.length; i++)
  {
    var index = i-1
    out += "," + "name" + index + "=" + escape(names[i]);
  }
  return out + ",type=" + type;
}
```

2. Add the following line to the `director.properties` file:

```
management.namemaker.scriptfile = jmxnames.js
```

3. Restart the EDQ application server.

The JMX Beans will now include a type qualifier at the end of their names.

3 Monitoring Real-Time Processes

EDQ is provided with a built-in JMX server that can be used to monitor many aspects of its operation. Many of the objects and resources that make up the EDQ application provide MBeans to the JMX server, including the real-time Web services.

3.1 Real-Time Web Service MBeans

Each real-time Web service registers an MBean for its reader and one for its writer in the JMX tree. Readers are registered at:

```
Runtime/Data/Buckets/Realttime/Projects/Project Name/readers/Web service name
```

Writers are registered at:

```
Runtime/Data/Buckets/Realttime/Projects/Project Name/writers/Web service name
```

In each case, the path to the MBean includes the name of the Web service that owns it, and the project that contains the Web service.

Global Web services (those deployed in a .jar file in the `oedq_local_home/webservices` directory) have a different path name. Simply replace `Projects/Project Name` in the path above with `Global`.

The port for the internal JMX server is controlled by the `management.port` property, defined in the `director.properties` file.

3.2 Monitoring The Real-Time MBeans

A general JMX console, such as JConsole, can be used to interact with MBeans. Each MBean exposes:

- Attributes, whose values can be read.
- Operations that can be invoked to perform some action with the MBean.
- An interface that allows clients to subscribe to notifications of events that occur on the MBean.

3.3 MBean Attribute

The EDQ real-time Web service MBeans expose the following attributes:

<code>closetime</code>	The time at which the bucket was last closed.
<code>concurrent</code>	The current number of synchronous requests.
<code>maxConcurrent</code>	The maximum number of concurrent synchronous requests since the bucket was opened.
<code>maxConcurrentMax</code>	The maximum number of concurrent synchronous requests since startup.
<code>messages</code>	The number of messages processed since the bucket was opened.

open	Indicates whether the bucket is open or closed.
openCount	The number of times the bucket has been opened since startup.
opentime	The time when the bucket was last opened.
processtime	The time when the last message was processed.
records	The number of records processed since the bucket was opened.
threads	The number of threads that used the bucket when it was last opened.
totalMessages	The number of messages processed since startup.
totalRecords	The number of records processed since startup.

3.4 MBean Operations

The EDQ real-time Web service MBeans exposes the following operation:

closedown	Shutdown the reader or writer using this bucket.
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- My Oracle Support (requires registration) at <https://support.oracle.com>
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5 Related Documents

For more information, see the following documents in the documentation set:

- *Oracle Enterprise Data Quality Installation Guide*
- *Oracle Enterprise Data Quality Command Line Reference Guide*

- *Oracle Enterprise Data Quality Architecture Guide*

See the latest version of this and all documents in the Oracle Enterprise Data Quality Documentation website at:

http://download.oracle.com/docs/cd/E48549_01/index.htm

Also, see the latest version of the *EDQ Online Help*, bundled with EDQ.

The JMX web site provides an introduction to, and overview of, the JMX technology and is found at

<http://java.sun.com/javase/technologies/core/mntr-mgmt/javamanagement/>

6 Documentation Accessibility

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