

OSS Quality of Service API Version 1.0 Installation Guide for Reference Implementation

OSS through Java™ Initiative

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Executive Summary

This document provides the guidelines needed to the install, build and run the Quality of Service Reference Implementation. It also includes information covering integration and running with the Technology Compatibility Kit (TCK).

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Preface

Objectives

The objective of this document is to provide a set of instructions to install, build and run the Quality of Service Reference Implementation.

Audience

This document is intended for software programmers or architects who intend to install, build and run the OSS Quality of Service Reference Implementation.

It is assumed that the reader of this document has a working knowledge of OSS, J2EE™ and basic knowledge about Quality of Service (QoS). If you are new to Operation Support Systems or to the OSS/J initiative, please consult <http://java.sun.com/products/oss> first. If you are new to J2EE™, please consult <http://java.sun.com/j2ee>.

Related Information

The OSS Quality of Service API Specification and Technology Compatibility Kit (TCK) are available for download from <http://java.sun.com/products/oss> web site.

Revision History:

Date	Version	Author	State	Comments
2002-06-17	1.0	Audrey Ward, Anna Eriksson, Ali Feizabadi, Henrik Lindström, Katarina Wahlström, Hooman Tahamtani, Stefan Åberg, Vincent Perrot	Final Release	

1 Introduction

This document provides stepwise instruction on how to install, run and build the Quality of Service Reference Implementation. This document assumes that you have already downloaded and installed BEA's WebLogic Server 6.1. If you have not done so, go to <http://www.beasys.com> and download the software.

IMPORTANT: Before installing the OSS Quality of Service Reference Implementation, please read and follow the license agreement.

2 Prerequisites

2.1 Hardware Requirements

2.1.1 Hardware requirements for BEA WebLogic Server

BEA WebLogic 6.1 Server needs a certified platform. See the *Platform Support* page at <http://e-docs.bea.com/wls/platforms/index.html> for a list of supported platforms.

Windows NT (Service Pack 4) and Solaris 8 were used to test the Reference Implementation.

2.2 Software requirements

In this document, installation directory of the RI will be referenced by RI_HOME and the value 'OSS_QoS' will be used as an example.

2.2.1 General

The Reference Implementation requires the installation of the following software:

- BEA WebLogic 6.1, [R1]
- Cloudscape Database (an evaluation copy is bundled with WebLogic), [R2]
- Xerces Java Parser from Apache for parsing the XML reports. This could be downloaded from <http://xml.apache.org/>
- Jdom™ beta 8 XML builder: The jdom.jar can be downloaded from <http://www.jdom.org/>
- OSS Quality of Service API
- OSS Common API

2.2.2 Installation of BEA WebLogic Server 6.1

Download from <http://www.beasys.com> and install the evaluation copy of BEA's **WebLogic Server 6.1** if you have not already done so. The evaluation license is good for 30 days. Be sure and check the installation option that will download the examples. This will ensure that the evaluation version of Cloudscape is included. The Quality of Service Reference Implementation uses Cloudscape as its persistent data store. For NT/2000 systems, you will probably want to run the server as a service in order to facilitate the modification of the server's configuration files without restarting the OS. For simplicity's sake, it is also recommended that you retain the default "mydomain" and "myserver" in the WLS configuration. If you download the examples, you could deploy the RI in the example server, however, the following steps will cover deploying the RI in the default server.

If you do not want to configure things by editing the environment configuration files for the Reference Implementation you should use the recommended installation parameters in Table 1 when installing WebLogic.

Parameter	Windows NT	Unix
BEA Home Directory	c:\bea	/BEA
Product Directory	c:\bea\wlserver6.1	/BEA/wlserver6.1
WebLogic Admin Domain Name	mydomain	mydomain
Server Name	myserver	myserver
Listen Port	7001	7001
Secure (SSL) Listen Port	7002	7002
System User Name	system	system
System User Password	mysystem	mysystem

Table 1 Default configuration for BEA WebLogic 6.1

2.2.3 Installation of JDK 1.3

The Reference Implementation needs JDK 1.3.1 from Sun which comes bundled together with BEA WebLogic 6.1.

2.2.4 Installation of Xerces

The Reference Implementation needs Xerces Java Parser from Apache for parsing the XML documents. This could be downloaded from <http://xml.apache.org/>.

The Xerces jar files, xercesImpl.jar and xmlParserAPIs.jar, shall be located in the directory %RI_HOME%\lib (\$RI_HOME/lib on unix).

2.2.5 Installation of JDOM™

The Reference Implementation needs JDOM™ beta 8 for manipulating XML documents. This could be downloaded from <http://www.jdom.org>

The JDOM™ jar file, jdom.jar, shall be located in the directory %RI_HOME%\lib (\$RI_HOME/lib on unix).

3 Installing the Reference Implementation

The reference implementation is provided including binary and source code. It can be deployed directly in the Weblogic Application Server.

In the following, the installation of Weblogic 6.1 Application Server in c:\bea (and /BEA for Unix) directory is assumed.

Note: If you are using an other root directory for the application server, you will have to update the scripts to reflect you installation directory.

3.1 Installation of Reference Implementation to local disk

1. Unzip the Reference Implementation archive to a directory of your choice e.g. c:\OSS_QoS.

The organization and contents of the Quality of Service Reference Implementation are described below:

/doc: contains all documents associated with the RI.

/lib: contains the original “shipped” jar files.

/qosericssoncom: contains common part of the Quality of Service Reference Implementation.

/qosfmri: contains the Quality of Service Alarm Monitor part of the Reference Implementation.

/qospmri: contains the Quality of Service Performance Measurement part of the Reference Implementation.

/qostmri: contains the Quality of Service Threshold Monitoring part of the Reference Implementation.

Each of these last four directories contains a number of sub directories:

/src: holds the source code for the reference implementation.

/lib: contains the original “shipped” jar files for this part of the reference implementation.

/script: contains scripts and configuration files associated with building and running the specific part of reference implementation.

2. Set the RI_HOME variable in the four setEnv.cmd (or setEnv.sh on unix) files to the directory where you have unzipped the software, e.g. c:\OSS_QoS. This directory will be referred to as %RI_HOME% (or \$RI_HOME). The files can be found under the c:\OSS_QoS\[ri part]\script (/OSS_QoS/[ri part]/script)
3. If you have changed the default location for BEA WebLogic this should also be changed the BEA_HOME variable in the setEnv.cmd (setEnv.sh) scripts.

3.2 Modifying the WebLogic StartUp Script

Before you begin modifying the startup script, make a copy of the original.

You will find this script in your /BEA installed directory

```
For Unix:
/BEA/wlserver6.1/config/mydomain/startWebLogic.sh

For NT:
C:\bea\wlserver6.1\config\mydomain\startWebLogic.cmd
```

Edit the startWebLogic script and begin at 1.

1. Set the STARTMODE variable to false to configure the application server in development mode.
2. Check the WL_HOME variable in the setEnv script of WebLogic. It must be set to the following subdirectory: “/BEA/wlserver6.1” - your BEA installation base. Make sure that this variable is set correctly in your startup file.

```
For Unix:
WL_HOME=/BEA/wlserver6.1

For NT:
set WL_HOME=c:\bea\wlserver6.1
```

3. Add the RI_HOME variables.

```
For Unix:
RI_HOME=/OSS_QoS
FMRI_HOME=$RI_HOME/qosfmri
PMRI_HOME=$RI_HOME/qospmri
TMRI_HOME=$RI_HOME/qostmri

For NT:
set RI_HOME=c:\OSS_QoS
set FMRI_HOME=%RI_HOME%\qosfmri
set PMRI_HOME=%RI_HOME%\qospmri
set TMRI_HOME=%RI_HOME%\qostmri
```

4. As a precaution make sure that the JAVA_HOME variable in the startWebLogic script points to the root directory of BEA’s JDK installation.
5. Update the CLASSPATH. You must modify the WebLogic startup script to start the Cloudscape database when the server starts. This is a requirement of the QoS Alarm Monitor Reference Implementation since it

uses Cloudscape as its persistent store.

You must also add a reference to a jar file (fmDBObj.jar) that contains the qosfmri classes that are stored in the Cloudscape database to the WebLogic CLASSPATH.

Add in CLASSPATH the **fmDBObj.jar** if you are deploying the Threshold Monitor and Performance Monitor RI beans. Otherwise, if you are using only the Fault Monitor RI beans, use the **fmDBObjImpl.jar**. Finally, you need to include a reference to the Cloudscape jar file in the CLASSPATH. Add the following variables to your WebLogic script.

The CLASSPATH shall also include the Xerces and jdom XML parsers.

```
For Unix:
CLOUDSCAPE_HOME=$WL_HOME/samples/eval/cloudscape
CLOUDSCAPEJAR_PATH=$CLOUDSCAPE_HOME/lib/cloudscape.jar

CLASSPATH=$WL_HOME:$WL_HOME/lib/weblogic_sp.jar:$WL_HOME/lib/web
logic.jar

CLASSPATH=$RI_HOME/lib/xercesImpl.jar:$CLASSPATH
CLASSPATH=$RI_HOME/lib/xmlParserAPIs.jar:$CLASSPATH
CLASSPATH=$RI_HOME/lib/jdom.jar:$CLASSPATH
CLASSPATH=$FMRI_HOME/lib/fmDBObj.jar:$CLASSPATH
CLASSPATH=$RI_HOME/lib/COM_API_SPEC.jar:$CLASSPATH
CLASSPATH=$RI_HOME/lib/QOS_API_SPEC.jar:$CLASSPATH
CLASSPATH=$RI_HOME/lib/ericssonCommonImpl.jar:$CLASSPATH
CLASSPATH=$TMRI_HOME/lib/TMRI.jar:$CLASSPATH
CLASSPATH=$PMRI_HOME/lib/qosImpl.jar:$CLASSPATH
CLASSPATH=$CLOUDSCAPEJAR_PATH:$CLASSPATH

For NT:
set CLOUDSCAPE_HOME=C:\bea\wlserver6.1\samples\eval\cloudscape
set CLOUDSCAPEJAR_PATH=%CLOUDSCAPE_HOME%\lib\cloudscape.jar

set CLASSPATH;.\lib\weblogic_sp.jar;.\lib\weblogic.jar
set CLASSPATH=%RI_HOME%\lib\xercesImpl.jar;%CLASSPATH%

set CLASSPATH=%RI_HOME%\lib\xmlParserAPIs.jar;%CLASSPATH%
set CLASSPATH=%RI_HOME%\lib\jdom.jar;%CLASSPATH%
set CLASSPATH=%FMRI_HOME%\lib\fmDBObj.jar;%CLASSPATH%
set CLASSPATH=%RI_HOME%\lib\COM_API_SPEC.jar;%CLASSPATH%
set CLASSPATH=%RI_HOME%\lib\QOS_API_SPEC.jar;%CLASSPATH%
set CLASSPATH=%RI_HOME%\lib\ericssonCommonImpl.jar;%CLASSPATH%
set CLASSPATH=%TMRI_HOME%\lib\TMRI.jar;%CLASSPATH%
set CLASSPATH=%PMRI_HOME%\lib\qosImpl.jar;%CLASSPATH%
set CLASSPATH=%CLOUDSCAPEJAR_PATH%;%CLASSPATH%
```

6. The Server needs to know the location of the databases. This is accomplished in the qosfmri scripts by defining a CLOUSCAPEDB_PATH environment variable and adding it to a property option of the command that launches the server. The modification is shown in red. Don't forget the dash before the Dcloudscape on the preceding line.

```
For Unix:
CLOUDSCAPEDB_PATH=$CLOUDSCAPE_HOME/data

java $JAVA_OPTIONS -classpath $CLASSPATH -
Dweblogic.Domain=mydomain -Dweblogic.Name=myserver -
Dbea.home=/BEA -Dcloudscape.system.home=$CLOUDSCAPEDB_PATH -
Djava.security.policy==/BEA/wlserver6.1/lib/weblogic.policy
-Dweblogic.management.password=$WLS_PW weblogic.Server

For NT:
set CLOUDSCAPEDB_PATH=%CLOUDSCAPE_HOME%\data

"%JAVA_HOME%\bin\java" -hotspot -ms64m -mx64m -classpath
%CLASSPATH% -Dweblogic.Domain=mydomain
-Dweblogic.Name=myserver "-Dbea.home=C:\bea"
-Dcloudscape.system.home=%CLOUDSCAPEDB_PATH%
-Dweblogic.management.password=%WLS_PW%
-Dweblogic.ProductionModeEnabled=%STARTMODE% "-
Djava.security.policy=C:\bea\wlserver6.1\lib\weblogic.polic
y" weblogic.Server
```

3.2.1 Home/remote interfaces in CLASSPATH

The OSS Quality of Service API jar file (QOS_API_SPEC.jar) contains the home and remote interfaces for the reference implementation. The WebLogic application server does not recommend the jar-file be in the CLASSPATH, therefore you may see a warning while the application server is starting up. As long as the beans are not re-deployed while the server is running it is no problem.

3.3 Change default security for WebLogic

The communication between the Application Server (WebLogic) and one of the reference implementation component (EIS Simulator) is based on RMI. To allow the communication with the Simulator you need to replace the content of the weblogic.policy file in e.g. the directory c:\bea\wlserver6.1\lib with contents of the rmi.policy file in the directory
%RI_HOME%\qospmri\lib\com.ericsson.oss.ri.pm.measurement.eis.
(\$RI_HOME/qospmri/lib/ com.ericsson.oss.ri.pm.measurement.eis)

WARNING! The new weblogic.policy file will turn off security for the JVM and should not be used as is in a production system.

3.4 On Unix only, automatic RI installation

Scripts named “install.sh” for the automated installation and configuration of the RI on Unix-based platforms are available in the ‘script’ subdirectory of each part of the RI installation. These scripts are to be executed from each

directories and take care of coping files, creating the database schema, creating the connections and topics and deploying the application (as described in the following sections) according to the context set in the setEnv.sh scripts.

If all the scripts complete successfully you proceed to chapter “Start WebLogic Application Server”. On Windows platforms or in case you encounter any errors, these steps need to be performed manually.

Note: before running the install.sh script, edit the setEnv.sh script and verify that the root directories for the RI and Weblogic application server are reflecting your installation.

```
For Unix:
cd /OSS_QoS/qosfmri/script
chmod a+x *.sh
install.sh
cd /OSS_QoS/qospmri/script
chmod a+x *.sh
install.sh
cd /OSS_QoS/qostmri/script
chmod a+x *.sh
install.sh
```

3.5 MeasDataCollection.dtd file

The MeasDataCollection.dtd DTD file must be available for the Threshold Monitor EJB in order to process incoming performance data events from the Performance Monitor. The DTD file is defined by 3GPP [R3].

Copy the file from the %RI_HOME%\qostmri\src (\$RI_HOME/qostmri/src) directory to the %WL_HOME% (\$WL_HOME) location (for instance c:\bea\wlserver6.1).

3.6 XML schema files

The XML schema files (*.xsd) must be available for the OSS Quality of Service Message Driven Bean (MDB) in order to process incoming XML requests and to generate XML responses. Copy the file from the %RI_HOME%\lib (\$RI_HOME/lib) directory to the %WL_HOME% (\$WL_HOME) location (for instance C:\bea\wlserver6.1).

3.7 MDB properties

Copy the %RI_HOME%\lib\ApplicationConnector.properties (\$RI_HOME/lib/ApplicationConnector.properties) file into %WL_HOME% (\$WL_HOME).

3.8 Modify BEA WebLogic 6.1 configuration file

Some additional configuration is required in WebLogic to allow the Quality of Service Reference Implementation to work. This can be accomplished by copying the content in the three `config_Modifications6_1.xml` files found in the `%RI_HOME%\[ri part]\script ($RI_HOME/[ri part]/script)` directory into the `config.xml` file for WebLogic. The `config.xml` file is found in `%WL_HOME%\config\mydomain ($WL_HOME/config/mydomain)` directory.

WARNING: Do not edit the `config.xml` file when the server is running.

You can paste the entire contents of `config_Modifications6_1.xml` files on a new line in the `config.xml` file before the line containing:

`</Domain>`.

3.9 Deploying the RI application.

The WebLogic server will automatically deploy the Quality of Service Reference Implementation if the `jar` files are located in the `%WL_HOME%\config\mydomain\applications ($WL_HOME/config/mydomain/applications)` (the default server) directory and the server is running in development mode (`STARTMODE` variable in the `startWebLogic` script is set to `false`).

You will find a pre-built copy of these `jar` files in your `%RI_HOME%\[ri part]\lib ($RI_HOME/[ri part]/lib)` directories. You can copy these files to the `%WL_HOME%\config\mydomain\applications` directory. The file names are:

- `AlarmMonitor_depl.ear`
- `PerformanceMonitor_depl.ear`
- `ThresholdMonitor_depl.ear`

It is important that the `ThresholdMonitor` beans are deployed after the `AlarmMonitor` and `PerformanceMonitor` beans. Do this by starting the WebLogic, see chapter “3.12 Start WebLogic Application Server” and then change the deployment order of the `ThresholdMonitor` beans.

If you are rebuilding the Reference Implementation make sure that you update these `jar` files.

3.10 Creating the Database

The Quality of Service Reference Implementation uses Cloudscape as its persistent store. It contains two databases, one for threshold monitoring and one for fault monitoring. The creation of these databases are described below.

3.10.1 Fault Monitoring

The fault monitor requires one database table for storing the alarm information.

In order to create the FMRIDB database and its ALARMVALUE table, you must perform the following steps:

1. cd to the %RI_HOME%\qosfmri\script directory that pertains to your platform
2. Edit the setEnv script. Check the BEA_HOME environment variable to point the top-level directory of your BEA installation and check the RI_HOME environment variable to point to the top-level directory of your qosfmri installation.

```
For Unix setEnv.sh:  
BEA_HOME=/BEA  
RI_HOME=/OSS_QoS  
  
For NT setEnv.cmd:  
set BEA_HOME=C:\bea  
set RI_HOME=C:\OSS_QoS
```

3. Run the createDB script.

Note: The server must be down before running this script.

```
For Unix:  
createDB.sh  
  
For NT:  
CreateDB.cmd
```

For more information on using the Cloudscape Database with the WebLogic Server, consult the following html file:
%WL_HOME%\samples\eval\cloudscape\cloudscape.html.

3.10.2 Threshold Monitoring

Repeat the previous operations to create the TMRIDB database from the %RI_HOME%\qostmri\script directory.

The cloudscape_viewer.cmd(cloudscape_viewer.sh) script can be used to verify the database.

It is possible to re-create the database by running the createDB.cmd again. All current data will then be destroyed and the database table re-created.

3.11 Configuration of performance measurement simulator

To allow that the Performance Monitor and Threshold Monitor will work you need to configure the simulator (EisSimulator) that generate measurement data. For configuring the EisSimulator, edit the file:
%RI_HOME%\qospmri\lib\com.ericsson.oss.ri.pm.measurement.eis\eis.properties.

The following points should be noted:

1. The property PM_DATA_PATH has to be set to the path of the location where the reports should be published.
2. FTP_URL should be set to the ftp address of the location above.
3. By setting the property PM_PROPERTY_MODE to true or false, you can choose to create or not create an application context object for each measurement job. The default value for this property is true.
4. The property NETWORK_MODEL should point to the file Network.xml and the property NETWORK_MODEL_DATA_DIR should point to the demo directory. These files are included in the RI in the network_model directory.
5. The property TIME_SPEEDUP_FACTOR could be changed to speed up the report generation in demo situations.

3.12 Start WebLogic Application Server

The Application server can now be started and the deployed application can be verified.

For Unix:

```
cd / BEA/wlserver6.1/config/mydomain
startWebLogic.sh
```

For NT:

```
cd c:\bea\wlserver6.1\config\mydomain
StartWebLogic.cmd
```

After the Application server came up, open the admin console by directing your browser to <http://127.0.0.1:7001/console> assuming that the server runs on your local machine and you are using the default port 7001. You will be asked for a username, which is "system", and a password. This is the password you supplied during install of Weblogic.

After that you will see the administration console of Weblogic.

In the tree on the left side, you will find all configurations you made in the file "config.xml" under the nodes "mydomain⇒Services⇒JMS⇒ConnectionFactory". The "QoSFM RI Topic Connection Factory" and "QoS XML Queue Connection Factory" shall be listed.

Another way to access to the deployed EJB is to browse the JNDI tree:
In the tree on the left side, right-click on the
"mydomain⇒Servers⇒myserver" and choose the "View JNDI tree" menu. A
new window will be opened. In the tree on the left side, select
"myserver⇒System⇒DFW⇒ApplicationType⇒QoS⇒AlarmMonitor⇒Appl
ication⇒1-0;1-0;JSR90FMRI⇒Comp".

The RI can now be started. You can jump to chapter "5 Running the
Reference Implementation" .

4 Building the Reference Implementation

4.1 Before Running the Build

The Quality of Service reference implementation provides a number of scripts that build the reference implementation. The build scripts are located in your %RI_HOME%\[ri part]\script directory. Before running the scripts, you need to have modified the setEnv script to reflect your BEA and Quality of Service RI installation.

4.2 Modifying the Environment Entries

The ejb-jar file (%RI_HOME%\qosfmri\src\com\Motorola\fmri\ejb-jar.xml) contains two environment entries in the descriptor for the JVTAlarmMonitorSession and BackEndAlarmMessageBean1 beans that affect the behavior of the reference implementation.

- **IncludeApplicationInfo:** this Boolean allows the reduction of the size of the event and alarm value content. It adds or removes the ApplicationContext and ApplicationDomain information from alarm keys and events.
- **DebugLogEnabled:** this boolean turns on or off the display of debug traces.

Both of these flags are set to true by default. Use a text or an XML editor to modify the flag values in each bean's section if desired.

Note: The administration console can also be used using the "Edit EJB descriptor" link in the selected EJB page.

4.3 Running the Build Script

It is important that you build the different parts of the reference implementation in the correct order which is showed below.

Run the commands listed below to build the RI.

Each part of the RI contains a build.cmd (build.sh) script :

```
For Unix:
cd $RI_HOME/qosericssoncom/script
build.sh
cd $RI_HOME/qospmri/script
build.sh
cd $RI_HOME/qosfmri/script
build.sh
cd $RI_HOME/qostmri/script
build.sh

For NT:
cd %RI_HOME%\qosericssoncom\script
```

```
build.cmd
cd %RI_HOME%\qospmri\script
build.cmd
cd %RI_HOME%\qosfmri\script
build.cmd
cd %RI_HOME%\qostmri\script
build.cmd
```

There should not be any compile or build errors from any of these steps. If there is any typing or parsing errors found in the deployment descriptors these need to be corrected and the steps needs to be done again.

4.4 After Running the Build

After you have build the new jar files you must do redeploy the new generated applications (see section “3.9 Deploying the RI application.”).

5 Running the Reference Implementation

To run the Quality of service reference implementation you need to do four steps:

1. Start the WebLogic application server (with deployed beans).
2. Start the Performance Monitor RI simulator. Execute the %RI_HOME%\qospmri\script\start_pm_simulator.cmd script to start the simulator.
3. Populate the alarm list with at least one alarm. Execute the %RI_HOME%\qosfmri\script\start_fm_simulator.cmd script to start the alarm simulator.
4. Start the TCK or the Threshold Monitor Client.

5.1 Simulators

The Quality of service Reference Implementation includes two simulators pm_simulator and fm_simulator that provide the functionality to simulate measurement and alarms data. The reference implementation will not work without using these two simulators. The two simulators does the following:

- pm_simulator simulates measurements jobs, generates measurement data and generate performance measurement events.
- fm_simulator generates alarm events and allows alarms in the alarm list to exhibit the following states: new, cleared, and changed severity. It also provides a mechanism to trigger a NotifyAlarmListRebuiltEvent.

5.1.1 Starting the pm_simulator

The simulator shall be started using the start_pm_simulator.cmd (start_pm_simulator.sh) script after the application server with the QoS RIs deployed and that you have updated the property file of the simulator with your environment settings. The property file can be found at %RI_HOME%\qospmri\lib\com.ericsson.oss.ri.pm.measurement.eis\eis.properties.

```
For Unix:
cd $RI_HOME/qospmri/script
start_pm_simulator.sh

For NT:
cd %RI_HOME%\qospmri\script
start_pm_simulator.cmd
```

5.1.2 Starting the fm_simulator

The simulator shall be started using the `start_fm_simulator.cmd` (`start_fm_simulator.sh`) script after the application server with the QoS RIs deployed.

```
For Unix:
cd $RI_HOME/qosfmri/script
start_fm_simulator.sh
or as example
start_fm_simulator.sh t3://10.3.4.73:7001

For NT:
cd %RI_HOME%\qosfmri\script
start_fm_simulator.cmd
or as example
start_fm_simulator.cmd t3://10.3.4.73:7001
```

The script takes an optional argument that specifies the machine location and the listening port of the WebLogic server. If none is provided, t3 as protocol, 127.0.0.1 as IP address and 7001 as port number of the application server is assumed.

Then, follow instructions provided by the script to create and generate alarms.

5.2 Running with the TCK

The installation of the reference implementation can be verified with the Technology Compatibility Kit (TCK) for OSS Quality of Service API. Follow the instructions and information pertaining to the installation and configuration of the TCK for running the test on the RI.

5.2.1 Clean-up between runs

The databases used by the Quality of Service reference implementation should be emptied between different TCK runs. Otherwise you might experience that test cases fails the second time they are ran.

5.3 Threshold Monitor Client

The Quality of Service reference implementation comes with a simple threshold monitor client. From the client it is possible to create and remove a single threshold monitor and to view the various performance monitor data events and alarm monitor events that are published.

The client does not use all the features in the implementation, it is just an example on how to interact with the threshold monitor reference implementation.

5.3.1 Configure the client environment properties

The start script `runClient.cmd` (`runClient.sh`) is configured to start the client using the RI. If you would like to run the client with your own implementation of the QOS Apis, the script needs to be updated with paths for

your implementation. Update the PMRI_CLSPATH and the AMRI_CLSPATH environment settings.

5.3.2 Run the client

The client is started with the `runClient.cmd` (`runClient.sh`) script. You must start the reference implementation (including the alarm monitor and performance monitor) before running the client. The client will fail to start if it can not find all its needed resources.

Threshold Monitor Client

File Help

Monitored object

Observable Object Class: G3SubNetwork

Observable Object: G3SubNetwork=Sweden

Observable Object Attribute: [statusinspection, type=INTEGER, collection method=SI]

Threshold

Name: test-threshold

Value: 50

Offset: 10

Granularity: 300 (seconds)

Schedule: ALWAYS (Can be configured)

Alarm Config: QUALITY OF SERVICE ALARM, minor severity. (Can be configured)

Direction: ☒ Rising ☐ Falling

Create Remove

Performance Monitor Events

Time	Object	Measurement
Tue Dec 11 13:00:10 CET 2001	b5c62a7d968458cd001ec4ed64aca034	85
Tue Dec 11 13:00:16 CET 2001	b5c64214968458cd004be2cc70a28633	87

Alarm Monitor Events

Severity	Time	Object	Alarm
MINOR	Tue Dec 11 13:00:16 CET 2001	b5c64214968458cd004be2cc70...	QualityOfServiceAlarm

ERICSSON

Figure 1, threshold monitor client interface

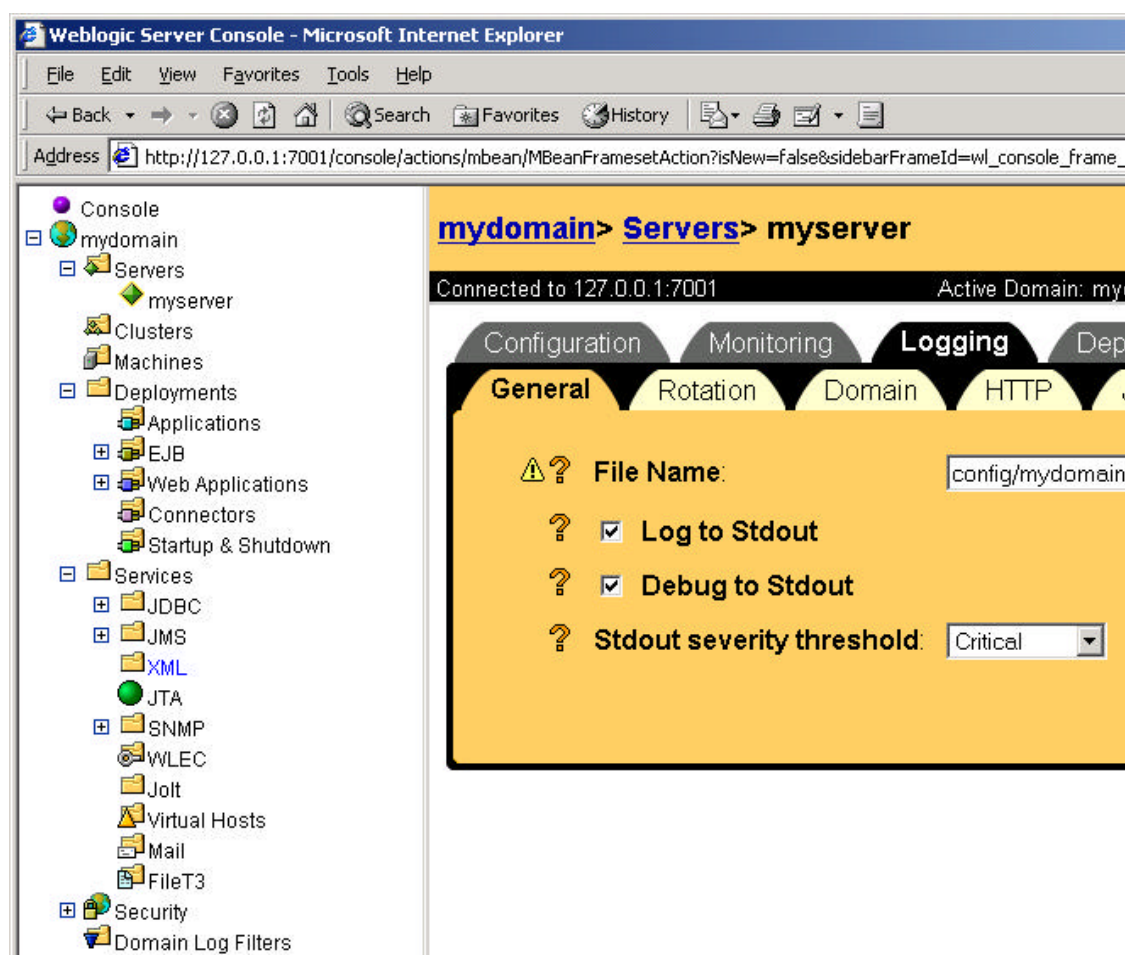
5.4 Problems

5.4.1 Logging and Debug

The Reference Implementation provides a lot of information about what it is doing. It tells about detailed information of the API and RI usage.

Additionally it informs the user about which Exception.

Depending on the Application Server configuration you use, the logging information is either written to the standard output stream, or an internal logging mechanism as provided by the Application Server. In case of Weblogic Server this is why you will not see anything by default but have to enable the output.



Note that the log file might increase in size quite fast. Be sure to check it now and then. It is maintained by WebLogic and can be found in `%WL_HOME%\config\mydomain\logs`.

5.4.2 Common problem

The most common problem has to do with the integration and specifically with the class paths and the JNDI names defined in the XML descriptor files (and the *.properties files). Be sure to check all of these carefully so that there is no typing errors.

5.4.3 Database problems

If the database can not be created or the application server do not find it. Please check the environment configuration in the setEnv.cmd and the startWebLogic.cmd files.

You might need to re-create the databases if you re-compile or change anything in the reference implementation. This is because the classes might not be compatible (Serialization/Deserialization problem).

5.4.4 BEA WebLogic

For some reason the TopicConnectionFactory (the name might be different) for the performance monitor data events is sometimes not found from external listeners (outside WebLogic). The reason is unknown. A work-around is to start the WebLogic console and select the Services/JMS/ConnectionFactory/TopicConnectionFactory. Then select the Targets tab. First remove the connection factory, click the apply button. Then add it again and click the apply button again. Then it should be possible to connect to the factory from outside.

5.4.5 Deserialization errors

Problems with de-serialization of JMS messages or data in the databases are commonly due to problems with the CLASSPATH and possibly also because different parts of the reference implementations might be using different sets of classes.

Check the CLASSPATH and any used environment variables to ensure that all paths defined are actually found and correct.

Check that the reference implementations are using the same set and versions of all common classes.

5.4.6 Problems with the client

It is only possible to start the client after the threshold monitor, alarm monitor and performance monitor is running (including any resources or simulators those reference implementations might need). Check that everything is running.

Do not forget to compile the client classes before running the client. Also make sure the clients CLASSPATH is correct.

Appendix A: Glossary and References

Glossary

EJB	Enterprise JavaBeans
FMRIDB	Alarm Monitor Reference Implementation Database
IRP	Integration Reference Point
J2EEä	Java 2 Enterprise Edition technology
JCPSM	Java Community Process
JSR	Java Specification Request
OSS	Operations and Support System
OSS/J	OSS through Java™ Initiative
RI	Reference Implementation
TCK	Technology Compatibility Kit

References

- [R1] *BEA WebLogic 6.1*, <http://www.bea.com>
- [R2] *Cloudscape database*, <http://www.cloudscape.com>
- [R3] *3GPP*, <http://www.3gpp.org/>
- [R4] *QoS API TCK Test Specification*
- [R5] *QoS API TCK User's Guide*