Maximo Integration Framework – A Practical Approach

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Agenda

- Preparing the system for Integration
- Test Case - Inbound and Outbound Integration
- Maximo Interface Rules
- XSL Transformation & Tools
- Web services
- Questions
Basic Set Up & Configuration

Check-List

• Is Maximo Version 7 or higher?

• Have access to WebLogic / WebSphere Server Console?

• Have access to the machine that hosts WebLogic / WebSphere Server?

• Have access to Windows Machine to build Maximo EAR?
Basic Set Up & Configuration

Check-List
Have Security Rights in Maximo for following applications?

Platform Configuration Applications
  • Cron Tasks Setup
  • System Properties
  • Database Configuration

Integration Related Applications
  • External System
  • Object Structure
  • Publish Channel
  • Enterprise Service
  • End Points
  • Message Tracking
  • Message Reprocessing
  • Web Services
Basic Set Up & Configuration

Components for Application Server – IBM WebSphere

Create the following components

• Bus
• Bus Destinations - CQINBD, CQINERRBD, SQOUTBD and SQINBD
• JMS Connection Factory
• Queues – CQIN, CQINERR, SQOUT and SQIN
• JMS Activations Specification(s) for CQIN (and) CQINERR
Basic Set Up & Configuration

Components for Application Server – BEA WebLogic

Create the following components

• File Stores – sqinstore, sqoutstore and cqinstore
• JMS Servers – sqinserver, sqoutserver and cqinserver
• JMS Module & Queues – sqin, sqout and cqin
• JMS Connection Factory
Basic Set Up & Configuration

Edit the following files in Maximo Folder to enable the Continuous Inbound Queue

• ejb-jar.xml  (WebSphere / WebLogic)

• ibm-ejb-jar-bnd.xmi  (WebSphere)

• weblogic-ejb-jar.xml  (WebLogic)
1. Re-build Maximo EAR file
2. Re-deploy the Maximo EAR file to the APP Server
3. Restart the Application Server
Basic Set Up & Configuration

Maximo Application - Cron Task Setup

JMSQSEQCONSUMER
Activate the out of box instances SEQQIN and SEQQOUT
Basic Set Up & Configuration

Maximo Application - System Properties

mxe.int.globa1dir - Specify a folder to store the transactions, WSDL files and other schema files

mxe.int.webappurl - Specify an URL
http://<MaximoHostServer>:port/meaweb
Simple Outbound and Inbound Tests

Outbound

Use Maximo’s out of box External System – EXTSYS1

• Enable EXTSYS1 in External System Configuration

• Choose any associated Publish Channel such as MXPERSONInterface

• Make sure that Message Tracking is enabled for the selected Publish Channel so that the transaction is logged in Message Tracking Application when data is sent out

• Export data out using “Data Export” button
Simple Outbound and Inbound Tests

Inbound

• Choose any associated Enterprise Service such as MXPERSONInterface

• Make sure that Message Tracking is enabled for the selected Enterprise Service so that the transaction is logged in “Message Tracking” Application when data is received

• Create a valid XML file for inbound

• Receive / Import the data in using “Data Import” button
Message Tracking and XPATH Query

Messages flowing through the queues can be tracked and displayed in Message Tracking Application

• Switch for turning ON Message Tracking is at the interface level   Select Action -> Message Tracking -> Message Tracking Settings Dialog Box -> Enable Message Tracking? Checkbox

• Having a XPATH Query in “External Message ID” to find and store values from XML such as workorder #, po #, or personid is recommended.
Interface Rules

Publish Channel Processing Rules

1. Skip
2. Skip Children
3. Skip Record
4. Stop
5. Set
6. Split
7. Combine
8. Replace
Interface Rules

Enterprise Service – Processing Rules

1. Skip
2. Stop
3. Set
4. Split
5. Combine
6. Replace
Interface Rules

Publish Channel – Processing Rules Demo

Skip Rule  - Skips the message after evaluating user-defined conditions
- Deletes the message from the queue and hence will not be in Message Tracking Application

• Used to implement Trigger Control
• Used to skip when a particular condition is met
• Used to skip when a particular condition on a related Object is satisfied
Interface Rules

Publish Channel – Processing Rules Demo

Skip Children  - Defined at Parent level. Skips all the child record(s) data after evaluating user-defined conditions
Interface Rules

Publish Channel – Processing Rules Demo

Skip Record - A combination of SKIP and SKIP Children
- Defined at the same level where skip needs to occur
- Skips the particular record data after evaluating user-defined condition(s) and also skips any child records
Publish Channel – Processing Rules Demo

Stop Rule:  - This rule skips the message and stops the event from happening in case of Outbound (Example PO save will be rolled back and error is displayed on the screen)

- Message is not deleted from the queue unlike SKIP rule. The message status will be shown as ERROR (In case of Inbound)
Interface Rules

Publish Channel – Processing Rules Demo

Set Rule: - Sets a value in the outbound message (not reflected in database)

- Can also be configured to set values based on conditions
XSL Transformation & Tools

XSL Transformation

• Transforming an xml from one schema to another by creating a translation file (.xsl)

• Very useful when there are no middleware (like Oracle Fusion Middleware) to translate the message according to the target system’s needs

• Provides space for adding additional user defined logic for interface requirements. Level of complexity can be as high if you have advanced skills with XSL

• Advantage – The translation file (.xsl) need not be part of Maximo EAR file – Can add the file and update the file without a need for Maximo Restart
XSL Transformation & Tools

XSL file can be created in the following ways

- Write the XSL code manually in notepad and save it as .xsl file
- Purchase tools such as Altova Mapforce or Stylus Studio. These tools help in creating the mapping file .xsl by simply drawing lines between the two xml files
Web Service

Outbound Web Service Components

• Publish Channel (Asynchronous Communication – Using Queues only)
• Web Service Handler based End Points
• WSDL and other schema files
Web Service

Inbound Web Service - Components
For Enterprise Service based services – Can be Synchronous or Asynchronous communication

• Enterprise Service
• Web Services Library
• WSDL and other schema files
• System Properties
  • mxe.int.containerdeploy
  • mxe.int.webappurl
  • mxe.int.resolveschema
  • mxe.int.wsdlincludesschema
  • mxe.int.wsdllcurrentschema
Web Service - Error Handling

Synchronous Communication

- No queues are used and hence no messages in Message Tracking application
- Integration related errors are sent back to the Sender as acknowledgment

Asynchronous Communication

- Queues are used and hence messages are tracked in Message Tracking Application
- Integration related error are tracked in Message Tracking but Sender receives positive acknowledgment
Web Service Tool – Soap UI

Soap UI tool

• Can be used as a Sender to send inbound messages to Maximo’s web service for testing purposes

• Also displays the acknowledgment received from Maximo for the request
Questions

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THANK YOU !!!!