



IBM Software Group

IBM WebSphere MQ V6.0

MQ as an XA TM/RM

WebSphere software



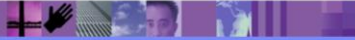
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This presentation will cover WebSphere MQ® V6.0 as an XA compliant Transaction Manager or Resource Manager.

What is an XA TM/RM

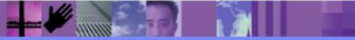
- The XA Open Standard is a standard used by many products to do units of work with a two phase commit scheme.
- The XA Open Standard is a set of 'C' function calls between an XA compliant Transaction Manager (TM) and an XA compliant Resource Manager (RM)
- MQ can act as an XA compliant TM, coordinating products such as DB2® or Informix
- MQ can act as an XA compliant RM, being coordinated by such products as CICS or Tuxedo



XA is a common standard used by many products as a method of communication consisting of a set of C function calls between an XA compliant Transaction Manager and an XA compliant Resource Manager. All these calls contain the XA_ prefix. WebSphere MQ can act as an XA compliant TM, coordinating database products such as DB2, Informix, or Oracle, or it can act as an XA compliant RM, being coordinated by products such as CICS or Tuxedo.

64-bit Implications for MQ as an XA™

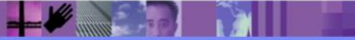
- On platforms where MQ is now 64-bit, a version of the product containing a 64-bit XA interface is required.
 - This is usually the 64-bit version of the product
 - Note all the 64-bit databases provide 32-bit interfaces
- On platforms where MQ is 64-bit, the MQ sample makefile for the XA switch load file, produces two switch load files:
 - A 32-bit one, which it puts in /var/mqm/exits
 - A 64-bit one, which it puts in /var/mqm/exits64
- The XAResourceManager stanza SwitchFile, should not contain a path, MQ will look in the appropriate exit directory
- Due to a limitation in DB2 introduced in V8.1 FixPac 7, only 64-bit instances can be used on platforms where MQ is 64-bit



While it is not expected that you will see any problems using 32-bit instances with 64-bit MQ prior to DB2® V8.1 FixPac 7, the official support statement from DB2 is that this is an unsupported configuration. Long term, DB2 will follow the MQ model and only have a 64-bit engine on the Unix® platforms, which support 64-bit. The best practice is to drop 32-bit instances now, as they will disappear in the not too distant future. DB2 provides migration from 32-bit instances to 64-bit instances.

Informix®

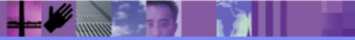
- Informix now supported on all platforms
 - At the time of writing there was some confusion as MQ only supports Linux s390 (31-bit) whereas the Informix server only supports Linux® zOS (64-bit)
- The library containing the XA interface, needed for communication, is only provided with the Informix Client SDK
- On platforms where MQ is 64-bit, the MQ sample makefile for the XA switch load file, assumes the informix product is installed in /informix/32-bit and /informix/64-bit
- On AIX® libciesshr.o (it is a shared library) must be used instead of the usual Informix libraries
- There have been problems with Informix using a threaded model, so the recommendation is to use the setting ThreadOfControl=PROCESS



Informix is now supported on all platforms. Due to the limitations outlined above, Informix on Linux s390 is not currently supported. You will have to install the Informix client SDK to enable WebSphere MQ and Informix to interface. It is also recommended that you configure Informix to use TCP as the communications protocol. When using Informix on AIX® platforms, you must link with the libciesshr.o library, and not the normal libraries, even though they are provided. It is also recommended that you use the ThreadOfControl=PROCESS with Informix to treat information as a process rather than a thread.

Sybase®

- Due to security issues, Sybase recommend ASE 12.5.3 ESD#1
- On platforms where MQ is 64-bit, a version of the product containing a 64-bit XA interface is required
 - The minimum supported level is Sybase SDK 12.5.1 ESD#7
- Customers must bring up their Sybase ASE to 12.5.3 ESD#1 then install Sybase SDK 12.5.1 ESD#7
 - This is not a mistake, while the ASE product has moved onto 12.5.3, the SDK product is still using 12.5.1
 - This combination is the minimum support level on all platforms



Due to security issues, in order to configure Sybase® with WebSphere MQ V6.0, you must first install Sybase ASE 12.5.3 ESD#1 and then install Sybase SDK 12.5.1 ESD#7. This is the minimum supported level for Sybase on all platforms.

Sample

- The DB2 database sample `amqsxas0.sqc` is now available in the following form:

`/ amqsxas0.ec` - Informix

`/ amqsxas0.cp` - Sybase

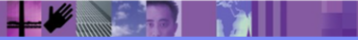
`/ amqsxas0.pc` - Oracle



Samples for all four supported databases are now supplied, enabling you to verify that your configuration is working properly. The samples can also be used as a model for your own implementations.

Isolated Bindings

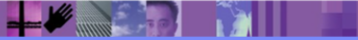
- Isolated bindings are now supported when MQ is acting as an XA TM



Isolated bindings, which did not work with Transaction Managers prior to WebSphere MQ Version 6.0, are now fully supported.

64-bit Implications for MQ as an XA RM

- On platforms where MQ is now 64-bit, we now provide support for 32-bit and 64-bit XA TMs
 - Note – a choice of 2 different 64 bit libraries is supplied, depending on the transaction manager being used



Support is provided for both 32-bit and 64-bit XA Transaction Managers.

ETC features now on the MQ Server

- When MQ is acting as an XA RM, the `xa_open ax_info` string passed to MQ supports the enhancements first introduced by the Extended Transactional Client (ETC):

- `/QMNAME`

- `/TPM`

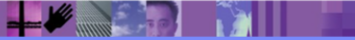
- `/AXLIB`

- A Generic library containing the XA switch is now used for all TMs:

- `/mqmxa`

- This is now a shared library, not an archive library as it was before

- Note the ETC version of this library, `mqcxa` is now a shared library as well



To guarantee that the correct TMs XA AX entry points (`ax_reg` and `ax_unreg`) are located, the ETC uses two `xa_open` string parameters: `TPM` and `AXLIB`. These allow you to tell MQ the TM name by using the `TPM` parameter (for example 'CICS' or the actual library name in the TM) where the XA AX EPs are located, by using the `AXLIB` parameter. This technique and the names are modelled exactly on what DB2 does. Currently, MQ supports an `xa_open` string of a blank string, which means the default queue manager or a single entry which is the queue manager name. This will continue to be supported. However if either of the new parameters is used, if the non-default queue manager is being used, it must be specified with the `QMNAME` parameter as used by the ETC.

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