Installation and Release Bulletin Adaptive Server® Enterprise Active Messaging 15.0.3

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2. Overview

The Adaptive Server Enterprise Active Messaging option captures transactions (data changes) in an Enterprise Edition or Cluster Edition Adaptive Server Enterprise database and delivers them as events to external applications in real time. These data changes—or events—are delivered to applications through a Java messaging service message bus such as TIBCO Enterprise Message System (EMS), EAServer Java Messaging Service (JMS), Progress SonicMQ, or IBM WebSphere MQ.

Note You can exchange messages between TIBCO EMS and TIBCO Rendezvous Server by using the built-in TIBCO connection bridge.

The Java messaging service for TIBCO EMS, SonicMQ, and EAServer are both referred to in this document as JMS unless TIBCO, SonicMQ, or EAServer is being specifically discussed.

2.1 Using Active Messaging with Adaptive Server

You can use Adaptive Server to:

- Publish any user-defined messages to the TIBCO EMS, EAServer JMS, SonicMQ, or WebSphere MQ messaging system
- Subscribe to (consume) events from the TIBCO EMS, EAServer JMS, SonicMQ, or WebSphere MQ messaging system

Using Active Messaging, applications can use Adaptive Server directly, taking advantage of Transact-SQL® functions to publish and subscribe messages.

Adaptive Server Active Messaging 15.0.3 allows you to use Adaptive Server version 15.0.3 ESD #2 and Adaptive Server Cluster Edition version 15.0.3 with messaging services functionality with one of the following:

- EAServer version 6.0.2 Advanced Edition (except on HP-UX RISC 5.2.1).

  Note HPUX also supports EAServer version 5.2 (build 52026).

- TIBCO EMS message bus system version 4.2 – Adaptive Server does not include the TIBCO EMS message bus system; obtain the software separately and obtain the license from TIBCO. See the TIBCO Web site at http://www.tibco.com.
- MQ messaging system versions 5.3 and 6.0 in the following platforms:

Platform	Version
HP-UX	• HPIA64 requires version 6.0 • HPPA64 supports both 5.3 and 6.0.
Linux IA-32	• Both 5.3 and 6.0 are supported.
Linux AMD 64	• Requires version 6.0.
Solaris SPARC 32 and SPARC 64	• Both 5.3 and 6.0 are supported.
Solaris AMD64	• Requires version 6.0.
Windows	• Windows 32-bit – both 5.3 and 6.0 are supported • Windows 64-bit supports neither.

Adaptive Server does not include IBM WebSphere MQ or Progress SonicMQ; obtain the software separately and obtain the license from the manufacturers. For more information, and to obtain MQ dynamic load libraries, see:

- SonicMQ – the Progress SonicMQ Web site at http://www.sonicsoftware.com/products/sonicmq/index.ssp.

- WebSphere MQ – the IBM WebSphere MQ Web site at http://www-306.ibm.com/software/integration/wmq/.

Note Active Messaging 15.0.3 does not use any of the new features or functionality specific to WebSphere MQ version 6.0, allowing Adaptive Server Enterprise to remain compatible with WebSphere MQ version 5.3.

3. Product summary

Enclosed is the Active Messaging feature, which is compatible with both the noncluster and cluster editions of Adaptive Server Enterprise version 15.0.3.

To use the messaging services feature of Adaptive Server, you must install EAServer JMS, TIBCO EMS, Progress SonicMQ or IBM WebSphere MQ on your machine.

For detailed information on the features and functions of messaging services, see the *Messaging Services Users Guide for Adaptive Server Enterprise*.

3.1 Sun JDK can expose passwords in EAServer

An issue stemming from a bug in the Sun JDK version 1.4.2 on UNIX and Linux platforms can expose passwords used in various scenarios.

EAServer Manager displays connection caches that have passwords in them. Under normal circumstances, these passwords are hidden, however, due to a security issue in JDK 1.4.2, a user with guest permission to EAServer Manager can discover the password stored in a connection cache. This password can be used to gain unauthorized access to a protected database. EAServer 5.2 and 5.3, and products that embed them, are affected by this issue.

To address this problem, download and install the appropriate Sybase EBF files listed in Table 1.

Table 1: EBF numbers for EAServer and Active Messaging

Product	Version	Platform	EBF #
EAServer	5.2	Solaris	13238
EAServer	5.2	Linux	13507
EAServer	5.2	AIX	13508
EAServer	5.2	HP-UX	13509

3.2 Platforms

ASE Active Messaging is compatible with the following platform and operating system configurations:

Platform	Operating system configurations
HP-UX	• HPIA – HP-UX B.11.23 U ia64 (td) • HP-UX (PA-RISC) 11.2 64-bit
IBM AIX	• RISC System/6000 AIX 5.1 64-bit and higher
Linux	• Linux AMD64 – 2.6.9-42.ELsmp #1 SMP x86_64 GNU/Linux • Linux IA-32
Sun Solaris	• Solaris 2.8 32-bit and higher • Solaris 2.8 64-bit and higher • Solaris 5.10 AMD 64-bit and higher – works only with Active Messaging 15.0.3
Windows	• Windows XP Pro, 2000, and 2003 • Windows NT – for JMS only • Windows 32-bit – MQ. Windows 64-bit does not support MQ.

If your operating system requires patches, install them before you install Active Messaging.

Contact your operating system provider for any patches recommended for your installation. Do not use a patch that is earlier than the version suggested for your operating system. Use the patch recommended by the operating system vendor, even if it supersedes the patch listed.

3.2.1 IBM WebSphere MQ family SupportPac files

Download SupportPac files for MQ version 5.3 or 6.0 from IBM at:

WebSphere MQ SupportPacs Web page at http://www-306.ibm.com/software/integration/support/supportpacs/

Make sure they contain the most recent Cumulative Service Distribution (CSD) for the SupportPac.

Table 2 lists the correct version for your platform if you are using MQ version 5.3.

Table 2: MQ version 5.3 SupportPac versions required by Adaptive Server

Platform	SupportPac name
Solaris 64-bit	MACY
Solaris 32-bit	MACR
HPUX 64-bit	MACZ
IBM RISC System/6000 AIX 64-bit	MACS
Linux 32-bit	MACU
All platforms	MA0C

If you are using MQ version 6.0 or later, use SupportPac MQC6, which contains MQ clients for all platforms.

After you download and install the SupportPac, Sybase recommends that you run some of the sample programs included with the SupportPac to make sure that the installation was successful.

Note (HP-UX) To enable Active Messaging to work with the Secured Sockets Layer (SSL) feature of WebSphere MQ, make sure the version of WebSphere MQ is 6.0.2.6 or higher.

3.3 Documentation

Active Messaging includes the following documentation:

- *Installation and Release Bulletin for Adaptive Server Enterprise Active Messaging Option version 15.0.3* (this document)
- *Adaptive Server Enterprise Active Messaging Users Guide*

In addition, the Sybase Technical Library CD includes all the necessary documentation for the products that are included with Active Messaging, such as EAServer. A list of related and referenced documentation is also available in the preface of the *Adaptive Server Enterprise Active Messaging Users Guide*. Go to the Product Manuals at http://www.sybase.com/support/manuals/ for the most recent versions.

4. Installing Active Messaging

This section discusses how to install Active Messaging with a system using Adaptive Server.

To install Adaptive Server, follow the instructions in the Adaptive Server installation guide for your platform. Include the appropriate messaging license information that Active Messaging requires:

- EAServer JMS – ASE_MESSAGING_EASJMS
- IBM WebSphere MQ – ASE_MESSAGING_IBMMQ
- TIBCO EMS – ASE_MESSAGING_TIBJMS
- Progress SonicMQ – ASE_MESSAGING_TIBJMS

Note You must install Adaptive Server before you can configure Active Messaging.

For information on how to install:

Product	See
EAServer and its Java messaging service	EAServer documentation
IBM WebSphere MQ	IBM Web site at http://www-306.ibm.com/software/integration/wmq/
SonicMQ	Progress SonicMQ documentation Web site at http://communities.progress.com/pcom/docs/DOC-16131
TIBCO Enterprise Message System	TIBCO Web site at http://www.tibco.com

Files on the installation CD

Active Messaging installs the following files into the *$SYBASE/$SYBASE_ASE/lib* directory (*%SYBASE%\%SYBASE_ASE%\bin* in Windows):

- (JMS only) *javax.jms.jar*
- (JMS only) *jms.jar*
- (JMS only) *jrtms.jar*
- (JMS only) *log4j-1.2.4.jar*
- (JMS only) *rtms.properties* – the file specifies properties for using real-time messaging services with Adaptive Server version 15.0.2 ESD #1, and is automatically added during the installation process

In addition, Active Messaging also installs the following into the *$SYBASE/$SYBASE_ASE/lib* directory on UNIX and Linux platforms, however on Windows, these DLLs are installed in *%SBYASE%\%SYBASE_ASE%\bin*:

- (JMS only) *libshmemrtds.so* (*shmemertds.dll* on Windows, *libshmemrtds.sl* on HP-UX)
- (MQ only) *libsybibmmq.so* (*sybibmmq.dll* on Windows, *libsybibmmq.sl* on HP-UX)

Once you have installed Adaptive Server and TIBCO EMS, EAServer, SonicMQ or WebSphere MQ, see "Adding an Active Messaging license for Adaptive Server" on page 8.

4.1 Adding an Active Messaging license for Adaptive Server

Install Adaptive Server version 15.0.3 according to the instructions in the Adaptive Server installation guide for your platform.

Active Messaging version 4.5 includes a new Sybase Software Asset Management System (SySAM) implementation. SySAM configuration is no longer optional, which results in installation and configuration changes.

SySAM product licensing software allows you to:

- Manage Active Messaging entitlements
- Perform asset management tasks by viewing and analyzing historic use data
- Control Active Messaging use within your organization

Your product package option includes the SY_RTDS license key for Active Messaging version 15.0.3. Use this key for version 15.0.3 of the Active Messaging option.

For detailed instructions on how to use SySAM 2, see the *Sybase Software Asset Management Users Guide*.

4.2 Configuring Active Messaging for Adaptive Server

Before you begin configuring Active Messaging, set your Adaptive Server environment settings by sourcing:

- On UNIX – *SYBASE.sh* or *SYBASE.csh*
- On Windows – *SYBASE.bat*

In addition, if you are configuring Active Messaging 15.0.3 to work specifically with Adaptive Server version 15.0.3 or later:

- JRE – set the SYBASE_JRE_RTDS environment variable so that it points to a valid JRE location.

  Note To provide RTDS support for Internet Protocol version 6 (IPv6) on Windows, set the SYBASE_JRE_RTDS environment variable to JRE1.5 or later.

- MQ – set the RTDS_MQCLIENT_VERSION environment variable as the current MQ client version. If the MQ client is:
  - Version 6.0 or later – set the varaible as 6.0.
  - Version 5.3 – set the variable as 5.3.

The Active Messaging option, as a messaging services feature, uses these Adaptive Server sp_configure configuration parameters, which you set when you configure Adaptive Server:

- 'enable real time messaging' – configures Adaptive Server to use the Active Messaging option. Its default value is 0. To turn this parameter on, enter:

  ```
  sp_configure 'enable real time messaging', 1
  ```

  Table 3 describes the settings that must be correct for sp_configure 'enable real time messaging', 1 to succeed.

Table 3: Settings for sp_configure 'enable real time messaging', 1

Configuration	Description

LD_LIBRARY_PATH	• Located in *SYBASE.sh* on IBM AIX – the second line is for MQ only:
	`set LIBPATH $SYBASE/$SYBASE_ASE/lib`
	`set LIBPATH /usr/mqm/lib64`
	• Located in *SYBASE.sh* on Linux, Solaris, and HP-UX:
	`set LD_LIBRARY_PATH $SYBASE/$SYBASE_ASE/lib`
	• Located in *SYBASE.bat* on Windows – the last line is for MQ only:
	`set PATH %SYBASE%/%SYBASE_ASE%/bin`
	`set PATH c:\Program files\IBM\WebSphere MQ\bin`

Configuration	Description
SYBASE_JRE_RTDS	Required for all platforms if you are using Active Messaging. You must manually set this environment variable and point it to a valid JRE location before starting Adaptive Server. **Note** On Windows 64-bit, Active Messaging 15.0.3 automatically sets SYBASE_JRE_RTDS.
RTDS_MQCLIENT_VERSION	Sets the current MQ client version. If the MQ client is: • Version 6.0 or later, set the variable to 6.0. • Version 5.3, set the variable to 5.3. Manually set this environment variable.
The provider JAR libraries	Located in *rtms.properties*: • *easclient.jar* – EAServer 5 • *eas-client-14.jar* – EAServer 6.0.2 for Active Messaging 15.0.3 working with Adaptive Server 15.0.2 ESD #1. The Jar file is used while $SYBASE_JRE_RTDS points to JRE 1.4. • *eas-client-15.jar* – EAServer 6.0.2 for Active Messaging 15.0.3 working with Adaptive Server 15.0.2 ESD #1. The Jar file is used while $SYBASE_JRE_RTDS points to JRE 1.5. • *eas-client-16.jar* – EAServer 6.0.2 for Active Messaging 15.0.3 working with Adaptive Server 15.0.2 ESD #1. The Jar file is used while $SYBASE_JRE_RTDS points to JRE 1.6. **Note** If $SYBASE_JRE_RTDS points to jre1.6 on Win 32, make sure "`java.exe.manifest`" exists in your in *$SYBASE_JRE_RTDS/bin* directory. • SonicMQ client jar files – *sonic_Client.jar*, *sonic_Crypto.jar*, *sonic_Selector.jar* • TIBCO – *tibjms.jar* The files are provided by these applications.
SYBASE messaging licenses	Located in the license file under *$SYBASE/SYSAM-2_0/licenses* (*%SYBASE%\SYSAM-2_0\licenses* in Windows): • EAServer JMS – ASE_MESSAGING_EASJMS • SonicMQ – ASE_MESSAGING_TIBJMS • TIBCO EMS – ASE_MESSAGING_TIBJMS • WebSphere MQ – ASE_MESSAGING_IBMMQ
The SYBASE interface libraries from the CD	Located in: • UNIX – *$SYBASE/$SYBASE_ASE/lib* • Windows – *%SYBASE%\%SYBASE_ASE%\bin*

Configuration	Description
MQCCSID	If the Coded Character Set Identifier (CCSID) of the connected queue manager is not compatible with the locale of the Active Messaging 15.0.3 environment, set the MQCCSID environment variable accordingly. For example, when the connected queue manager's CCSID is 819 and Adaptive Server Active Messaging 15.0.3 is running on a Windows 2000 Simplified Chinese Version (CCSID 936), set $MQCCSID to 819 before you start Adaptive Server and Active Messaging 15.0.3.

Linux users Active Messaging may stop responding on some Linux machines if your $SYBASE_JRE or $SYBASE_JRE_RTDS points to JRE 1.4. This is a known JRE issue. To avoid this, use JRE 1.5. See the Sun known bugs Web page at http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=5052465.

Omitting alter_user=yes When you send a message to the remote cluster queue without using alter_user=yes, MQ may check the authentication of the user who started Adaptive Server, instead of checking the authentication of the Adaptive Server login. This is a known issue with IBM (PMR #31913,756), and is expected to be fixed in MQ version 6.0.2.2.

See the *Active Messagging Users Guide* for detailed instructions on how to use alter_user=yes.

- 'messaging memory' – specifies the number of memory pages set for messaging. The default value for this parameter is 400 2K pages, and its minimum value is 60 2K pages. For example, to set this parameter to 800, enter:

  ```
  sp_configure 'messaging memory', 800
  ```

- 'max online Q engines' – required for MQ. Specifies the maximum number of Q engines you can have online. You may need to increase 'max online engines' to accommodate the number of 'max online Q engines'. Restart Adaptive Server for 'max online Q engines' to take effect.

  You can use a Q engine only on a multiple-CPU configuration (at least two), and the total number of "regular" engines and Q engines cannot be greater than the number of CPUs on the system.

- 'number of Q engines at startup' – required for MQ. Specifies the number of Q engines that are online when the server starts. You may need to increase 'max online engines' to accommodate the number of 'max online Q engines'. You must restart Adaptive Server for 'number of Q engines at startup' to take effect.

This example assumes that current 'max online engines' is 4.

```
-- Add 2 more to 'max online engines'.
sp_configure 'max online engines', 6
go
sp_configure 'max online Q engines', 2
go
sp_configure 'number of Q engines at startup, 2
go
```

(MQ only) Set the path for the MQ client shared libraries to the dynamic linker's search path for your platform using the information in Table 4.

Table 4: MQ client shared libraries and their paths

Platform	Path
Solaris 64-bit	*/opt/mqm/lib64*
Solaris 32-bit	*/opt/mqm/lib*
Solaris AMD 64-bit	*/opt/mqm/lib64*
Linux 32-bit	*/opt/mqm/lib*
HPUX 64-bit	*/opt/mqm/lib64*
AIX 64-bit	*/usr/mqm/lib64*
Windows	*c:\Program files\IBM\WebSphere MQ\bin*
HPIA 64-bit	*/opt/mqm/lib64*
Linux AMD 64-bit	*/opt/mqm/lib64*

Note (UNIX) Your MQ client shared library path must be correct before you start Adaptive Server. Windows automatically sets the PATH when you install IBM MQ, even if you install the client shared libraries in other locations.

❖ **Configuring your installation**

1 Install system stored procedures for real-time messaging services:

```
isql -Usa -Psa_password -Sserver_name
    -i$SYBASE/$SYBASE_ASE/scripts/installmsgsvss
    -ooutput_file
```

2 Add your local server:

```
sp_addserver, <local server name>
```

3 Shut down your server.

4 Set the SYBASE_JRE variable to point to *$SYBASE/shared/jre142_013* (*%SYBASE%\Shared\Sun\jre142_013* on Windows), so that the JVM can start when you enable real-time messaging:

```
SYBASE_JRE = $SYBASE/shared/jre142
```

Note If you are running Active Messaging 15.0.3 with Adaptive Server 15.0.2 ESD #1 or later, the environment variable is SYBASE_JRE_RTDS. Do not use SYBASE_JRE.

5 Restart your server.

6 *Adaptive Server version 15.0.3 or later only* – when you install the Active Messaging option, the properties file is copied into the Adaptive Server shared libraries directory.

   a After you have installed Active Messaging, verify that the properties file is its default location:

      - (UNIX) In the shared libraries directory in *$SYBASE/$SYBASE_ASE/lib/rtms.properties*.
      - (Windows) In the binary directory in *%SYBASE%\%SYBASE_ASE%\lib\rtms.properties*.

   b To save the properties file to other locations, specify the new location with the sp_msgadmin 'config', 'jvmpropertyfile', '*new location of rtms.properties*' stored procedure. See the reference pages for sp_msgadmin in the *Messaging Services Users Guide for Adaptive Server Enterprise*.

   c Before you run Active Messaging, modify its contents so that the *rtms.properties* file points to the correct location of the messaging provider's client JAR file. The contents of *rtms.properties* should look similar to:

```
TIBCOQUEUEMETHOD =
    createQueueConnection(java.lang.String,java.lang.String)
TIBCOTOPICMETHOD =
    createTopicConnection(java.lang.String,java.lang.String)
TIBCOTFACTORY = com.tibco.tibjms.TibjmsTopicConnectionFactory
TIBCOQFACTORY = com.tibco.tibjms.TibjmsQueueConnectionFactory
TIBCOJAR = $SYBASE/$SYBASE_ASE/lib/tibjms.jar
EASQUEUEMETHOD = com.sybase.jms.InitialContextFactory
```

```
EASTOPICMETHOD = com.sybase.jms.InitialContextFactory
EASTFACTORY = javax.jms.TopicConnectionFactory
EASQFACTORY = javax.jms.QueueConnectionFactory
EASJAR = $SYBASE/$SYBASE_ASE/lib/easclient.jar
SONICQUEUEMETHOD =
    createQueueConnection(java.lang.String,java.lang.String)
SONICTOPICMETHOD =
    createTopicConnection(java.lang.String,java.lang.String)
SONICTFACTORY = progress.message.jclient.TopicConnectionFactory
SONICQFACTORY = progress.message.jclient.QueueConnectionFactory
SONICJAR =
    $SYBASE/$SYBASE_ASE/lib/sonic_Client.jar;
    $SYBASE/$SYBASE_ASE/lib/sonic_Crypto.jar;
    $SYBASE/$SYBASE_ASE/lib/sonic_Selector.jar
```

Adjust the values in your *rtms.properties* file based on Table 5.

Table 5: Values in the rtms.properties file based on application

Application	Property type	Value
EAServer 5.x and earlier	EASQUEUEMETHOD	com.sybase.jms.InitialContextFactory
	EASTOPICMETHOD	com.sybase.jms.InitialContextFactory
	EASJAR	The path name to the *easclient.jar* file, such as *$SYBASE/$SYBASE_ASE/lib/easclient.jar* (*%SYBASE%\%SYBASE_ASE%\lib\easclient.jar* on Windows).
EA Server version 6.0.2 and later working with Adaptive Server version 15.0.2 ESD #1 or later	EASQUEUEMETHOD	com.sybase.jms.client.InitialContextFactory
	EASTOPICMETHOD	com.sybase.jms.client.InitialContextFactory
	EASJAR	The path name to either the *eas-client-14.jar* or *eas-client-15.jar* file, such as *$SYBASE/$SYBASE_ASE/lib/eas-client-14.jar* (*%SYBASE%/%SYBASE_ASE%/lib/eas-client-14.jar* on Windows).
	EASHOME	Any directory you specify, as long as the user who starts Adaptive Server has write permission to access it.
TIBCO	TIBCOJAR	Change the value of *$SYBASE/$SYBASE_ASE/lib/tibjms.jar* (*%SYBASE%\%SYBASE_ASE%\lib\tibjms.jar* on Windows) to the location where you installed *tibjms.jar*.

Note Messaging operations such as msgsend and msgrecv fail if Adaptive Server cannot access the JAR file.

7 For the new configuration to take effect, restart the Java Active Messaging JVM server by disabling real-time messaging:

```
sp_configure 'enable real time messaging',0
```

8 Reenable real-time messaging:

```
sp_configure 'enable real time messaging',1
```

9 Assign messaging_role permissions to users:

```
grant role messaging_role to <login>
```

❖ **Setting up MQ**

1 Create and start a queue manager. In this example, the queue manager is called QM1:

```
% crtmqm QM1

WebSphere MQ queue manager created.
Creating or replacing default objects for QM1.
Default objects statistics : 31 created. 0 replaced.
0 failed.
Completing setup.
Setup completed.

% strmqm QM1

WebSphere MQ queue manager 'QM1' started.
```

2 Use the MQSC tool to create a queue. This example creates a queue called Q1 on the QM1 queue manager:

```
% runmqsc QM1

5724-B41 (C) Copyright IBM Corp. 1994, 2002. ALL RIGHTS RESERVED.
Starting WebSphere MQ script Commands.
define qlocal(Q1)
       1 : define qlocal(Q1)
AMQ8006: WebSphere MQ queue created.
end
       2 : end
No MQSC commands read.
No commands have a syntax error.
All valid MQSC commands were processed.
```

3 Use the MQSC tool to define a server channel in the queue manager. This example defines a channel called CH1 on QM1:

```
% runmqsc QM1

5724-B41 (C) Copyright IBM Corp. 1994, 2002. ALL RIGHTS RESERVED.
Starting WebSphere MQ script Commands.
define channel(CH1) chltype(SVRCONN)
       1 : define channel(CH1) chltype(SVRCONN)
```

```
AMQ8014: WebSphere MQ channel created.
end
       2 : end
No MQSC commands read.
No commands have a syntax error.
All valid MQSC commands were processed.
```

4 Add authorizations for the SYBASE user login and Adaptive Server logins. In this example, Adaptive Server runs as user “sybase,” the Adaptive Server messaging user is “login1”, and the queue is “Q1”:

```
% setmqaut -m QM1 -t qmgr -p sybase +connect +altusr +inq +setid
% setmqaut -m QM1 -t q -n Q1 -p login1 +inq +get +browse +put
```

5 Start an MQ listener. This example starts a listener on port 8765:

```
% runmqlsr -t tcp -p 8765 -m QM1 &
```

The following shows the endpoint URL for the objects created in these examples, with “myhost” as the host name:

```
ibm_mq:CH1/tcp/myhost(8765)?qmgr=QM1,queue=Q1
```

4.3 Configuring Adaptive Server for MQ

Q engines use the same amount of memory resources that Adaptive Server engines use. Messaging operations fail if you do not have enough Q engines. You cannot run any Adaptive Server sessions on the Q engine.

Q engines appear in sysengines, with a “_q” appended to their status:

- online_q – engine is online.
- offline_q – engine is offline.
- dormant_q – engine is dormant.

To bring a Q engine online, use the sp_engine stored procedure; an existing sp_engine works on Q engines. Use sp_configure "max online Q engines" to specify the maximum number of online engines.

4.3.1 Using *sp_config* to configure the Q engine

You can configure the Q engine using sp_config and the parameters discussed in this section. For more information about using sp_config, see *Adaptive Server Enterprise Reference Manual: Procedures*.

Note A Q engine can be used only on a multiple-CPU configuration (at least two), and the total number of "regular" engines and Q engines cannot be greater than the number of CPUs on the system.

max online Q engines

Use the max online Q engines parameter with sp_config to control the maximum the number of Adaptive Server Q engines. For example:

```
sp_configure "max online Q engines", 4
```

Valid values are:

- Minimum value – 0.
- Default value – 0.
- Maximum value – depends on the settings using sp_configure "max online engines".

The restrictions are:

- max online Q engines cannot be greater than max online engines minus number of engines at startup.
- The command fails if there is already an engine group referencing an engine in the range max online engines minus max online Q engines to max online engines minus 1.

  For instance, if max online engines is 10 and you attempt to set max online Q engines to 4, an error is returned if there is an engine group bound to engines 6, 7, 8, or 9.
- max online Q engines cannot be greater than max online engines.

Setting max online Q engines reserves the high range of max online engines for Q engines. Once you set max online Q engines, Adaptive Server engines cannot use the engines in the range that is reserved for Q engines. For example, if you set max online engines to 10, and set max online Q engines to 4, not only can Adaptive Server not use engines 6, 7, 8, and 9, but subsequent attempts to change number of engines at startup to 7, 8, or 9 fail, as do attempts to add engines 6, 7, 8, or 9 to an engine group.

Note Setting max online Q engines can affect existing production environments. For this reason, Sybase recommends that you increase max online engines by the same value as you set max online Q engines. For example, to set max online Q engines to 4, increase max online engines by 4 also.

number of Q engines at startup

This is an integer option that controls the number of Adaptive Server Q engines that are automatically started when Adaptive Server starts. For example:

```
sp_configure "number of Q engines at startup", 4
```

Valid values are:

- Minimum value is 0
- Default value is 0
- Maximum value must be less than max online Q engines

max native threads per engine

A Q engine uses operating system native threads. The max native threads per engine configuration parameter controls the maximum number of native threads that a Q engine uses. In this example, the procedure limits every Q engine to a maximum of 100 native threads:

```
sp_configure "max native threads per engine", 100
```

The parameter has the following values:

- Minimum value is 50
- Maximum value is 1000
- Default value is 50

If there are more messaging sessions than there are native threads configured, the messaging operation blocks and waits until a native thread is released.

Online engines and number of CPUs

The total number of “regular” engines and Q engines cannot be greater than the number of CPUs on the system.

You cannot use msgsend and msgrecv if the values of max online Q engines or number of Q engines at startup are 0.

4.4 Configuring Adaptive Server to communicate with TIBCO Rendezvous Server

If you are running TIBCO Rendezvous Server and you want it to communicate with Adaptive Server, you must configure a connection bridge between the two so that Adaptive Server can read messages from and write messages to Rendezvous Server.

❖ **Creating a connection bridge between Adaptive Server and TIBCO Rendezvous Server**

1 In the *tibems.conf* file, enable:

```
tibrv_transports = enabled
```

2 Add the transport in *transports.conf* file, where:

- RV – is the name of the Rendezvous transport.
- type – is the type of external messaging system. Options are tibrv or tibrvcm.
- service – is the RV service port. The default is 7500.
- network – is the subnet for the host.
- daemon – is the default daemon for Rendezvous Server.

> **Note** You must include the path to Rendezvous Server in the PATH variable before you restart tibjmsd, the server processes that run the TIBCO messaging server.

In this example, the RV transport called RV1 is an external messaging system type tibrv that uses service port 7500 on subnet 10.22.102.0. Its daemon *tcp:bigcrunch:7223*, and its entry in the *transports.conf* file is:

```
[RV1]
type = tibrv
service = 7500
network = 10.22.102.0
daemon = tcp:bigcrunch:7223
```

3 Restart tibjmsd.

4 Add an import or export property to the create topic command. In this example, messages published to *topic.rv1* are automatically sent to the RV subject named *topic.rv1*, and messages sent to through RV to the RV subject named *topic.rv1* can be read from topic *topic.rv1*:

```
create topic topic.rv1 import=rv1,export=rv1
```

5 Add the import property to create queue command. In this example, messages sent to through RV to the RV subject named *queue.rv1* can be read from queue *queue.rv1*:

```
create queue queue.rv1 import=rv1
```

4.5 Error messages

Table 6 describes error messages you may see in Active Messaging, and what you can do.

Table 6: Active Messaging error messages

Message	Description	What to do
5629	You have not defined your local server.	Define your local server.
15104	• You do not have an Active Messaging license, or • You have not configured Adaptive Server for Active Messaging	Obtain an Active Messaging license, or configure Adaptive Server for Active Messaging. See “Adding an Active Messaging license for Adaptive Server” on page 8.
15123	• You have not SYB_RTMS defined in the sysservers database, or • You have not run installmsgsvss.	• Define SYB_RTMS in sysservers, or • Run installmsgsvss.
15146	You have not configured 'number of Q engines at startup' and 'max online Q engines'.	The number of Q engines at start-up should be at least 1. See “Configuring your installation” on page 12.
15147	MQ only – Active Messaging cannot dynamically load MQ libraries.	Verify the path to the libraries by checking the setting of LD_LIBRARY_PATH: • Linux and Solaris – confirm that *libsybibmmq.so* is in *$SYBASE/$SYBASE_ASE/lib/*. • HP-UX – confirm that *libsybibmmq.sl* is in *$SYBASE/$SYBASE_ASE/lib/*. • IBM AIX – confirm that *libsybibmmq.so* is in *$SYBASE/$SYBASE_ASE/lib/*, and that both *$SYBASE/$SYBASE_ASE/lib/* and */usr/mqm/lib64* are in *$LIBPATH*. • Windows – confirm that *sybibmmq.so* is in *%SYBASE%/%SYBASE_ASE%/bin/*, and that both *%SYBASE%/%SYBASE_ASE%/bin/* and *c:\Program files\IBM\WebSphere MQ\bin* are in *%PATH%*.

Message	Description	What to do
15150	Active Messaging cannot retrieve the SYBASE_JRE environment variable.	Set SYBASE_JRE to *$SYBASE/shared/jre142_013* (*%SYBASE%/shared/Sun/jre142_013* on Windows).
	Active Messaging cannot retrieve the SYBASE_JRE_RTDS environment variable.	This message appears if you are using Active Messaging 15.0.3 with Adaptive Server 15.0.2, and you set SYBASE_JRE, used in earlier versions. Make sure you use SYBASE_JRE_RTDS, and set it to your valid JRE location.
15151	Active Messaging cannot retrieve the SYBASE_ASE environment variable.	Set SYBASE_ASE to ASE-15_0 for Adaptive Server 15.x.
15152	Active Messaging cannot retrieve the SYBASE environment variable.	Set SYBASE to correct directory where Adaptive Server is installed.
15157	There is an error with spawning the Java Real-Time Messaging Service JVM server.	Check that all libraries are in the correct location.
"Kernel IBM MQ dynamic libraries failed to load"	• You are missing some libraries, or • There is an error with spawning the Java program.	Reinstall Active Messaging.

5. Known problems

This section documents known problems that affect Active Messaging 15.0.3. Where available, these problems are identified with Change Request (CR) numbers, to which you can refer when contacting Sybase Technical Support. Workarounds are provided where available.

Table 7: Known problems for ASE Active Messaging

CR number	Description
487909	**Active Messaging continues to put messages in original destination even after the register provider has been changed.** When you change a register provider in Active Messaging, the change does not immediately take effect in the same session. **Workaround:** After changing the register provider, log out from, and back in to Adaptive Server.

CR number	Description
486928	**Cannot reconnect the messaging provider when the connection breaks.** You cannot reconnect to a message provider after the connection between Active Messaging and the message provider breaks. **Workaround:** After you recover the connection between Active Messaging and the message provider, log in to Adaptive Server again.

484419	**Specifying varbinary in msgrecv returns incorrect results for il8n characters.**
	When you use msgsend to send a message containing representations of internationalized (il8n) characters, then use msgrecv specifying a varbinary datatype, msgrecv incorrectly returns the wrong results.
	Workaround: When you issue msgrecv for internationalized characters, specify var, char, or text as your datatype. For example:
	`1> select msgsend((select convert(varchar(4),0x9577))+(select convert(varchar(4),0x9666)),'tibco_jms:tcp://linuxtea2:11331?queue=queue.test.failsafe,user=loginsa,password=abcdef123456')`
	`2> go`
	`----------`
	` ID:EMS-SERVER.5409472AFA133:3`
	
	`(1 row affected)`
	`1> select msgrecv`
	`('tibco_jms:tcp://linuxtea2:11331?queue=queue.test.failsafe,`
	`user=loginsa,password=abcdf123456',`
	`option 'timeout=30000',returns image)`
	`2> go`
	`----------`
	` 0x95779666`
	
	`(1 row affected)`

468691	**MQ RFH command has character set limitations.** In Active Messaging , when you send a message to an MQ bus, the properties in the MQ RFH command cannot contain characters that are not in the ISO-1 character set. **Workaround**: None.
441614	**msgunsubscribe does not unsubscribe topics in EAServer.** (EAServer only) The msgconsume(*subscription_name*) function does not work if you use msgunsubscribe on a durable subscription for a topic using: `select msgunsubscribe('subscription_1' WITH REMOVE)` **Workaround**: Instead of using the msgunsubscribe command, use a different subscription name to subscribe to the same topic with different clients.

CR number	Description
400506 and 400508	**Cannot install Replication Server 12.6 on top of Adaptive Server 15.0.** Installing Replication Server version 12.6 on top of Adaptive Server version 15.0 causes Replication Server to fail. **Workaround**: Install either: • Replication Server version 12.6 into a separate directory than Adaptive Server, or • Replication Server version 15.0.
348124	**Using for xml clause in Adaptive Server 15.0 can cause an overflow.** A message using the for xml clause may cause an overflow. **Workaround**: Increase your stack size. The amount you need to increase your stack size depends on the configuration of your site and the for xml query.

6. Technical support

Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you have any questions about this installation or if you need assistance during the installation process, ask the designated person to contact Sybase Technical Support or the Sybase subsidiary in your area.

7. Other sources of information

Use the Sybase Getting Started CD, the SyBooks CD, and the Sybase Product Manuals Web site to learn more about your product:

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.

  Some documentation may be provided in PDF format, which you can access through the PDF directory on the SyBooks CD. To read or print the PDF files, you need Adobe Acrobat Reader.

Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.

- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

  To access the Sybase Product Manuals Web site, go to Product Manuals at http://www.sybase.com/support/manuals/.

7.1 Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

❖ **Finding the latest information on product certifications**

1 Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.

2 Select Products from the navigation bar on the left.

3 Select a product name from the product list and click Go.

4 Select the Certification Report filter, specify a time frame, and click Go.

5 Click a Certification Report title to display the report.

❖ **Finding the latest information on component certifications**

1 Point your Web browser to Availability and Certification Reports at http://certification.sybase.com/.

2 Either select the product family and product under Search by Product; or select the platform and product under Search by Platform.

3 Select Search to display the availability and certification report for the selection.

❖ **Creating a personalized view of the Sybase Web site (including support pages)**

Set up a MySybase profile. MySybase is a free service that allows you to create a personalized view of Sybase Web pages.

1 Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.

2 Click MySybase and create a MySybase profile.

7.2 Sybase EBFs and software maintenance

❖ **Finding the latest information on EBFs and software maintenance**

1 Point your Web browser to the Sybase Support Page at http://www.sybase.com/support.

2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.

3 Select a product.

4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as a Technical Support Contact. If you have not registered, but have valid information provided by your Sybase representative or through your support contract, click Edit Roles to add the "Technical Support Contact" role to your MySybase profile.

5 Click the Info icon to display the EBF/Maintenance report, or click the product description to download the software.

8. Accessibility features

This document is available in an HTML version that is specialized for accessibility. You can navigate the HTML with an adaptive technology such as a screen reader, or view it with a screen enlarger.

Active Messaging HTML documentation has been tested for compliance with U.S. government Section 508 Accessibility requirements. Documents that comply with Section 508 generally also meet non-U.S. accessibility guidelines, such as the World Wide Web Consortium (W3C) guidelines for Web sites.

Note You might need to configure your accessibility tool for optimal use. Some screen readers pronounce text based on its case; for example, they pronounce ALL UPPERCASE TEXT as initials, and MixedCase Text as words. You might find it helpful to configure your tool to announce syntax conventions. Consult the documentation for your tool.

For information about how Sybase supports accessibility, see Sybase Accessibility at http://www.sybase.com/accessibility. The Sybase Accessibility site includes links to information on Section 508 and W3C standards.