Installation and Release Bulletin Sybase® Real-Time Data Services Version 3.0

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1. Accessing current bulletin information

A more recent version of this installation and release bulletin may be available on the Web. To check for critical product or document information added after the release of the product CD, use the Sybase[®] Technical Library Product Manuals Web site.

Accessing release bulletins at the Technical Library Product Manuals Web site

- 1 Go to Product Manuals at http://www.sybase.com/support/manuals/.
- 2 Follow the links to the appropriate Sybase product.
- 3 Select the Release Bulletins link.
- 4 Select the Sybase product version from the Release Bulletins list.
- 5 From the list of individual documents, select the link to the release bulletin for your platform. You can either download the PDF version or browse the document online.

2. Overview

Real-Time Data Services (RTDS) provide a way to capture transactions (data changes) in an Adaptive Server[®] Enterprise database and deliver them as events to external applications in real time. These data changes—or events—are delivered to applications through a JMS message bus such as TIBCO Enterprise Messaging Service (EMS) or IBM Websphere MQ.

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

There are two ways to use the components in the RTDS product bundle:

- Using Adaptive Server Enterprise, with a licensed feature that provides messaging-services capability
- Using RepConnector, along with Replication Server

2.1 Using RTDS with Adaptive Server Enterprise

You can use Adaptive Server Enterprise to:

- Publish any user-defined messages to the TIBCO EMS or MQSeries messaging system.
- Subscribe to (consume) events from the TIBCO EMS or MQSeries messaging system.

In this mode, applications can use Adaptive Server Enterprise directly, taking advantage of Transact-SQL® functions to publish and subscribe messages.

You can use RTDS with Adaptive Server Enterprise for:

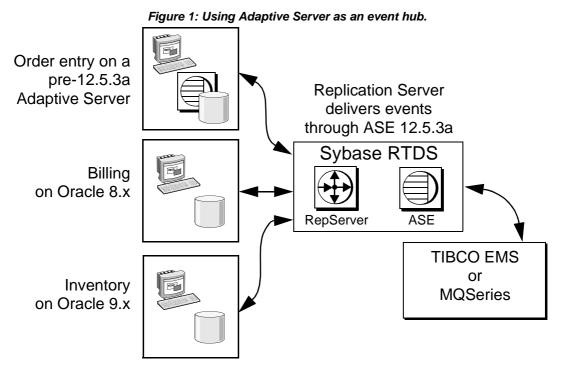
- New applications written on Adaptive Server version 12.5.3 (or higher) allows messaging services to be build into the application within transactions.
- Legacy applications, with Adaptive Server upgraded to version 12.5.3 (or higher)

To do so, you must install Adaptive Server Enterprise version 12.5.3 and (or higher) with messaging services functionality and either of the following software components provided in the product bundle:

- TIBCO EMS Message Bus system version 4.2 for more information, see the TIBCO Web site at http://www.tibco.com.
- MQSeries messaging system version 5.3 Adaptive Server does not include IBM WebSphere MQ Series; you must obtain the software separately and obtain the license from IBM. For more information, and to obtain MQ dynamic load libraries, see the IBM WebSphere MQ Web site at http://www.ibm.com/software/ts/mqseries.

Using Replication Server You can publish database events from Adaptive Servers earlier than version 12.5.3a to the TIBCO EMS or MQSeries messages by using Replication Server.

Figure 1 shows this set-up, where Adaptive Server acts as an event hub for heterogeneous applications, with Replication Server delivering events through Adaptive Server.



To do so, you must also install Replication Server®, which is provided in the RTDS product bundle. In this form of usage:

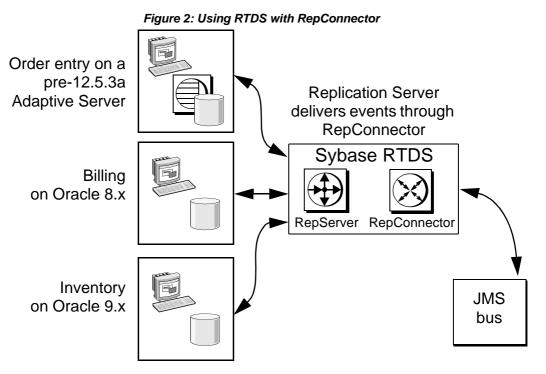
- Replication Agent for different RDBMs publish data changes to Replication Server
- Replication Server, through the use of replication function strings, can transform, then call appropriate Adaptive Server messaging function for Adaptive Server to publish the message to the message bus.

2.2 Using RTDS with RepConnector

You can use RepConnector to publish database events from Adaptive Server and other databases such as Oracle 8.x and 9.x, and so on, to popular messaging systems such as TIBCO EMS, and MQSeries.

Note RepConnector is not available on Linux and HP-UX 64-bit.

In the set-up shown in Figure 2, transactions are captured through Replication Server, and delivered as events through RepConnector.



To use RepConnector, you must install the following software components from the product bundle:

- Replication Server
- RepConnector
- EAServer

The rest of this document is structured along these two major usages, of using RTDS with Adaptive Server, or with RepConnector.

3. Product summary

Enclosed is Real-Time Data Services version 3.0, which contains the following software components:

- Adaptive Server Enterprise version 12.5.3a with messaging functionality
- Replication Server version 12.6

RepConnector version 2.5, including EAServer version 5.0

Note RepConnector is not available for Linux or HP-UX platforms.

• TIBCO Enterprise Messaging Service version 4.2

Note Adaptive Server does not include IBM WebSphere MQ Series; you must obtain the software separately and obtain the license from IBM.

To use the messaging services feature of Adaptive Server, you must install Adaptive Server Enterprise and TIBCO EMS or IBM MQSeries on your machine.

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

3.1 License key

Your product package option includes the SY_RTDS license key for Real-Time Data Services version 2. Use this key for version 3 of Real-Time Data Services.

3.2 Platforms

Real-Time Data Services is compatible with the following platform and operating system configurations:

HP-UX (PA-RISC) 11.2 64-bit

Note RepConnector is not available on HP-UX 64-bit

- IBM RISC System/6000 AIX 5.1 and higher
- Linux 2.4 kernel 2.4.6 and higher, glibc 2.2.4 and higher

Note RepConnector is not available on Linux.

• Solaris 2.8 and higher 32-bit and 64-bit

• Windows 2000 – for TIBCO EMS

Note Adaptive Server does not support messaging services using MQSeries on Windows 2000.

If your operating system requires patches, install them before you install Real-Time Data Services.

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 from the IBM WebSphere MQ family SupportPacs Web page at

http://www.ibm.com/software/integration/support/supportpacs, making sure they contain the most recent Cumulative Service Distribution (CSD) for the SupportPac. See Table 1 for the correct version for your platform.

Table 1: 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

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.

3.3 Documentation

Real-Time Data Services includes the following documentation:

- Installation and Release Bulletin for Real-Time Data Services version 3.0 (this document)
- Adaptive Server Enterprise Messaging Services User's Guide

In addition, the Sybase Technical Library CD includes all the necessary documentation for the products that are included with Real-Time Data Services, such as RepConnector and EAServer.

4. Real-Time Data Services using Adaptive Server

This section discusses how to intall Real-Time Data Services with a system using Adaptive Server Enterprise.

4.1 Installing Real-Time Data Services with Adaptive Server

If you are installing Real-Time Data Services as a licensed feature of Adaptive Server Enterprise, you already have TIBCO for EMS and Adaptive Server Enterprise on your machine.

To install Adaptive Server Enterprise, follow the instructions in the *Adaptive Server Enterprise Installation Guide* for your platform.

For information on how to install TIBCO EMS, see its CD, which includes the *README* file, the *TIBCO Enterprise Messaging Service User's Guide* for your platform, and the *TIBCO Enterprise Messaging Service Release Notes*, which provides information about new features, migrating from an earlier version, and closed and known issues.

For information on how to install IBM WebSphere MQ Series, see the IBM WebSphere MQ Web site at http://www.ibm.com/software/ts/mqseries.

Once you have installed Adaptive Server and TIBCO EMS or MQSeries, see "Configuring Real-Time Data Services" on page 9.

4.2 Adding the license for Real-Time Data Services

Install Adaptive Server according to the instructions in the *Adaptive Server Enterprise Installation Guide* for your platform.

Follow these steps if you did not specify the Adaptive Server messaging feature license in SySAM during your Adaptive Server installation:

- 1 Source SYBASE.csh.
- Go to \$SYBASE/SYSAM-1_0/bin (%SYBASE%\SYSAM-1_0\bin on Windows and run lmgr. The lmgr program prompts, "Do you have any Sybase Software Asset Management Certificates to register?"

- 3 Enter information from the Sybase License Certificate for each Adaptive Server feature you have purchased. Entries are case sensitive.
 - Order Number enter your Sybase order number.
 - Feature Name enter "ASE_Messaging", the name of the Adaptive Server messaging feature.
 - Feature Count enter your license count number.
 - Software Version enter the Adaptive Server software version.
 - Authorization Code enter the license key for the purchased feature.

The lmgr program records the information for the current feature in the license file and prompts you to enter information for an additional feature.

4 After entering the license key information, lmgr automatically stops and then restarts the license daemon.

4.3 Configuring Real-Time Data Services

Configuring your installation

1 Run the installmsgsvss script to install system stored procedures for real-time messaging services:

```
isql -Usa -Psa_password -Sserver_name -n
    -i$SYBASE/$SYBASE_ASE/scripts/installmsgsvss
    -ooutput file
```

2 Add your local server:

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

- 3 Restart your server.
- 4 Assign messaging_role permissions to users. For example:

```
grant role messaging role to <login>
```

- 5 Real-Time Data Services, as a messaging services feature, uses these Adaptive Server configuration parameters. Set these when you configure Adaptive Server:
 - 'enable real time messaging' configures Adaptive Server to use Real Time Data Services. Its default value is 0. To turn this parameter on, enter:

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

 'messaging memory' – specifies the number of memory pages set for messaging. Its default value 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'. You must restart Adaptive Server for 'max online Q engines' to take effect.
- 'number of Q engines at startup' required for MQ specifies the number of Q engines that are online at 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
```

MQSeries only – set the path for the MQ client shared libraries to the dynamic linker's search path using the information in Table 2 for your platform.

Table 2: MQ client shared libraries and their paths

Platform	Environment variable	Path
Solaris 64-bit	LD_LIBRARY_PATH	/opt/mqm/lib64
Solaris 32-bit	LD_LIBRARY_PATH	/opt/mqm/lib
Linux 32-bit	LD_LIBRARY_PATH	/opt/mqm/lib
HPUX 64-bit	SHLIB or LD_LIBRARY_PATH	/opt/mqm/lib64
AIX 64-bit	LIBPATH	/usr/mqm/lib64

Note Your MQ client shared library path must be correct before you start Adaptive Server.

❖ Setting up MQ

1 Create a Queue Manager and start it up. 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 on the QM1 Queue Manager called Q1:

```
% 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 on QM1 called CH1:

```
% 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 ASE logins. In this example, Adaptive Server runs as user "sybase," and 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 QM2 &
```

The following shows endpoint URL for the objects created in these examples, with "myhost" as the hostname:

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

4.4 Known problems with RTDS using Adaptive Server

This section documents known problems that affect Real-Time Data Service version 3.0 when used with Adaptive Server. 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.

4.4.1 installmaster uses incorrect configuration numbers

[CR# 397260] Configuration numbers for 'max online Q engines' and 'number of Q engines at startup' are not installed correctly.

Workaround: After running installmaster, a user with system administrator permissions must manually update Adaptive Server with the following:

4.4.2 RTMS_MSGBODY_FORMAT and RTMS_MSGBODY_SCHEMA named incorrecity in sent messages

[CR #351152] Solaris, Linux, Windows NT (for TIBCO EMS) and IBM – when you use real-time messaging functions such as msgsend or msgconsume to send messages, the RTMS_MSGBODY_FORMAT and RTMS_MSGBODY_SCHEMA properties are named incorrectly in the sent messages.

Workaround: Do not refer to RTMS_MSGBODY_FORMAT or RTMS_MSGBODY_SCHEMA in your application.

4.4.3 Using for xml clause can cause an overflow

[CR #348124] 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 your for xml query.

4.5 Error messages

- 5629 you have not defined your local server. See "Adding the license for Real-Time Data Services" on page 8.
- 15104 either you do not have an RTDS license, or you have not configured Adaptive Server for RTDS.
- 15123 either SYB_RTMS is not defined in the sysservers database, or you have not run installmsgsvss. For information on this command, see the *Adaptive Server Reference Manual*.
- 15146 Verify that 'number of Q engines at startup' and 'max online Q engines' are configured correctly.
- 15147 Cannot load WebSphere MQ dynamic load libraries. Verify the path to the libraries.

5. Real-Time Data Services using RepConnector

This section discusses installing and configuring Real-Time Data Services with a system using RepConnector.

Note This option is not available for Linux or HP-UX 64-bit.

5.1 Installing RepConnector for Real-Time Data Services

You must install EAServer on your machine before you install RepConnector.

Follow the instructions in the *RepConnector 2.5 Installation Guide* to install RepConnector on the existing EAServer installation on your machine.

5.2 Configuring RepConnector

Use the RepConnector Manager to configure the RepConnector connections. See the *RepConnector Configuration and User's Guide* for detailed information about RepConnector Manager, and configuration of the RepConnector connections for TIBCO EMS.

Table 3 shows the parameters for configuring RepConnector to connect with Replication Server.

Table 3: Configuring RepConnector for Replication Server

Property name	Description
Inbound Type	The inbound message type. Set as REPLICATION.
Outbound Type	The outbound message type. Specify as JMS.
DSI Name	The name of your Data Server Interface (DSI) connection, defined in the interface file for your RepConnector connection.
DSI Port	The port number of your DSI connection, defined in the interface file for your RepConnector connection.
DSI User Name and Password	The user name and password, defined for the replication connection configured with your Replication Server.
RSSD URL	The URL of the RSSD database.
RSSD User Name and Password	The user name and password to access to the RSSD database.
Required Group	Select one of the following:
	• "Individual" – to route a single event in a transaction.
	• "Group" – to route multiple events in a transaction.

Table 4 shows the parameters for configuring RepConnector to connect with TIBCO EMS.

Table 4: Configuring RepConnector for TIBCO EMS

Property name	Description
Inbound Type	Specify one of the following:
	• "JMS" – for routing the events from the JMS to the target database.
	• "REPLICATION" – to route the replication event to the JMS queue or topic.

Property name	Description
Outbound Type	Specify one of the following:
	• "JMS" – for routing the events to route the replication event to the JMS queue or topic.
	• "DATABASE" – to route the SQL commands to the target database.
Destination Type	Select one of the following:
	• "Queue" – if you are using a queue configured with the TIBCO EMS.
	• "Topic" – if you are using a topic.
JDBC Provider URL	The URL of the TIBCO EMS. The default is tcp://localhost:7222.
Initial Naming	The class of Naming Context Factory of TIBCO.
Context Factory	EMS. Select com.tibco.tibjms.naming.TibjmsInitialContextFactory.
Connection Factory	The name of the JMS connection factory. Select:
	"Queue" destination type: com.tibco.tibjms.TibjmsQueueConnectionFactory
	"Topic" destination type: or com.tibco.tibjms.TibjmsTopicConnectionFactory
Destination Name	The name of the destination queue or topic.
User Name and Password	The user name and password defined for the queue or topic configuration.
Topic Subscribers	The preregistered subscribers for the topic.
Status Destination	The queue or topic for storing the error message if the SQL command failed to be delivered to the target database.

Table 5 shows the parameters for configuring RepConnector to connect with your target database.

Table 5: Configuring RepConnector for the target database

Property name	Description
Outbound Type	Specify "DATABASE"
JDBC Connection URL	The JDBC URL to connect to the target database
Driver Class	Specify com.sybase.jdbc2.jdbc.SybDriver
User Name and Password	The user name and password to connect to the target database

6. Documentation updates and clarifications

This section includes updates and clarifications for documents related to this product.

6.1 Messaging Services User's Guide

The *Messaging Services User's Guide* for Adaptive Server version 12.5.3a refers to TIBCO Enterprise Messaging Service (EMS) as TIBCO Enterprise for Java Messaging Service, the product's former name.

7. 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.

8. 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/.

8.1 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.

- Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.
- 2 Click MySybase and create a MySybase profile.

8.2 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.

9. 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.

Adaptive Server 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.