

# Installation and Release Bulletin Real-Time Data Services 4.5

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## 1. Accessing current bulletin information

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

### ❖ Accessing release bulletins at the Sybase 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

Sybase Real-Time Data Services (RTDS) captures transactions (data changes) in an 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), or IBM WebSphere MQ.

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**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 and EAServer are both referred to in this document as JMS unless discussing TIBCO or EAServer specifically.

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

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

### 2.1 Using RTDS with Adaptive Server

You can use Adaptive Server to:

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

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

You can use RTDS version 4.5 ESD #1 with Adaptive Server for:

- New applications written on either Adaptive Server versions 12.5.4 ESD #8 or 15.0.2 ESD #3 – allows messaging services to be built into the application within transactions.

- Legacy applications – with Adaptive Server upgraded to either version 12.5.4 ESD #6 or 15.0.2 ESD #1.

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**Note** RTDS version **4.0** is not compatible with Adaptive Server 15.0.2. You must use RTDS version 4.5 to use Adaptive Server 15.0.2.

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RTDS 4.5 allows you to use Adaptive Server version 12.5.4 ESD #6 or 15.0.2 ESD #1 with messaging services functionality with one of the following:

- Replication Server version 15.0.2 ESD #1 – included with RTDS 4.5.
- EAServer version 6.0.2 Advanced Edition (except on HP-UX RISC 5.2.1) – included with RTDS 4.5 as part of RepConnector 15.0.2.

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**Note** HP-UX also supports EAServer version 5.2 (build 52026).

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- TIBCO EMS message bus system version 4.2 – Adaptive Server does not include TIBCO EMS message bus system; obtain the software separately and obtain the license from TIBCO. For more information, and to obtain TIBCO software, see the TIBCO Web site at <http://www.tibco.com>.
- MQ messaging system versions 5.3 and 6.0 in the following platforms:
  - HP-UX – HPIA64 requires version 6.0, while 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 – both 5.3 and 6.0 are supported by Windows 32-bit; Windows 64-bit supports neither.

Adaptive Server does not include IBM WebSphere MQ; 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-306.ibm.com/software/integration/wmq/>.

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**Note** RTDS 4.5 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.

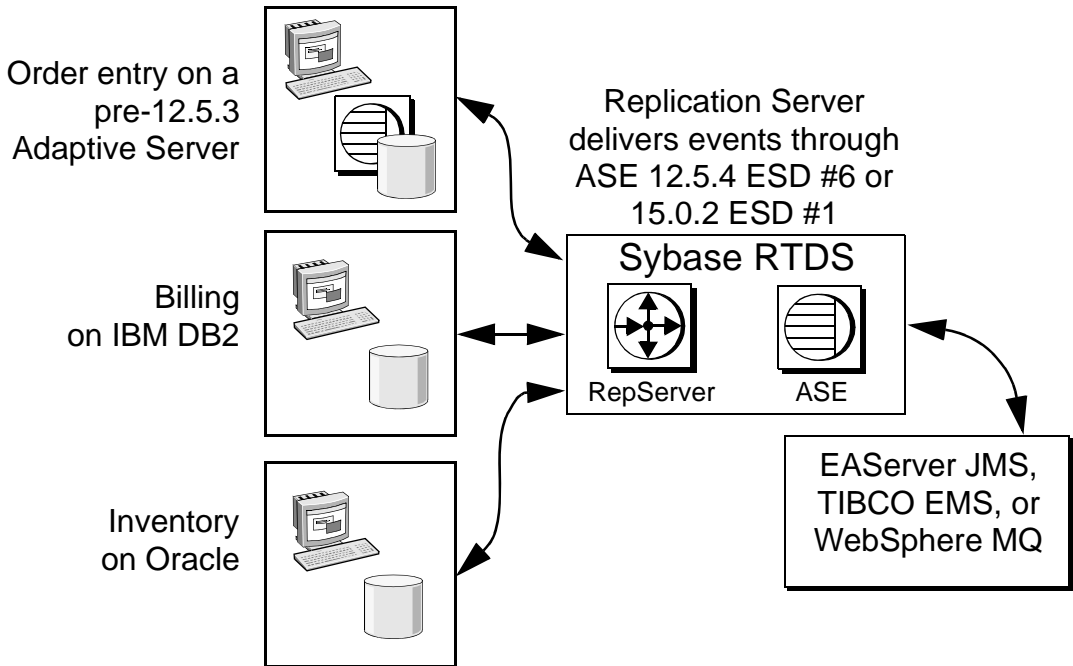
---

Using Replication Server

You can publish database events from Adaptive Servers earlier than versions 12.5.4 ESD #6 and 15.0.2 ESD #1 to the JMS or MQ messages by using Replication Server.

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

**Figure 1: Using Adaptive Server as an event hub**



Use this setup to install Replication Server, which is provided in the RTDS product bundle. In this setup:

- Replication Agents for different RDBMs publish data changes to Replication Server.
- Replication Server, through the use of replication function strings, can transform, then call the 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 9.x, and so on, to popular messaging systems such as TIBCO EMS, EAServer JMS, and IBM WebSphere MQ.

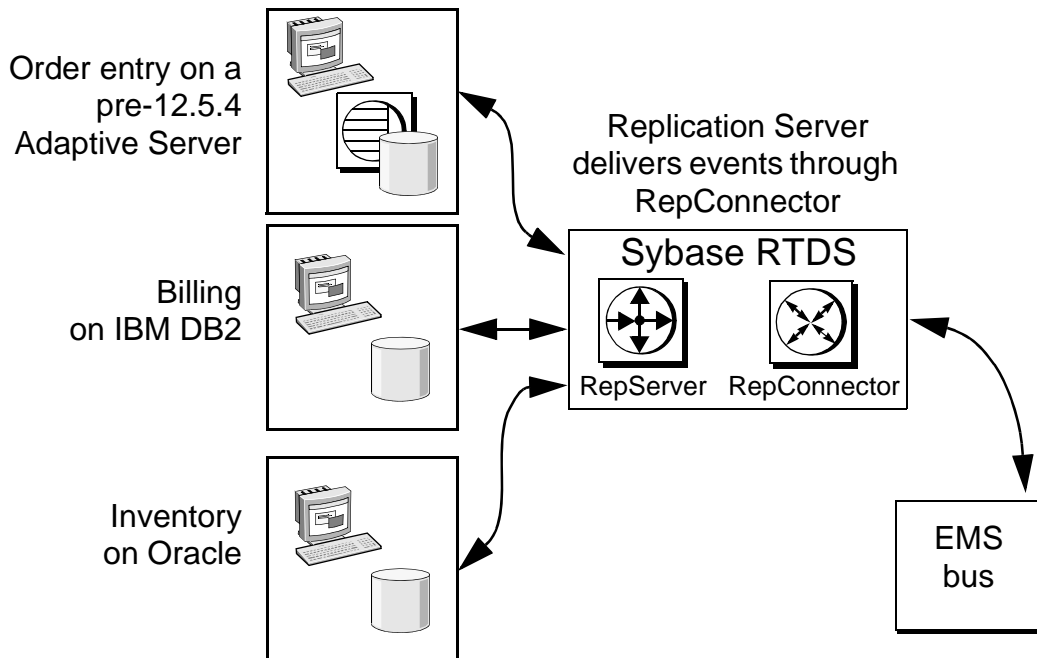
---

**Note** RepConnector is not available HP-UX 64-bit.

---

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

**Figure 2: Using RTDS with RepConnector**



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

- Replication Server
- RepConnector
- EAServer

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

## 3. Product summary

Enclosed is Real-Time Data Services version 4.5, which contains:

- Replication Server version 15.01 ESD #1.
- RepConnector version 15.0.2, including EAServer version 6.0.2 Advanced Edition. See the RepConnector documentation for a complete list of supported platforms.

The EAServer SySAM license certificate, which you need when you install EAServer, is included with your copy of EAServer. See “Pre-installation tasks for SySAM” on page 13 for instructions on how to use SySAM.

- Adaptive Server interface libraries.

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**Note** Adaptive Server Messaging Interface Dynamic Libraries require Adaptive Server version 12.5.4.

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To use the messaging services feature of Adaptive Server, you must install EAServer JMS, TIBCO EMS, or IBM 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 to risk being discovered.

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.

Download and install the appropriate Sybase EBF files listed in Table 1 to address this problem.

**Table 1: EBF numbers for EAServer and RTDS**

Product	Version	Platform	EAS version	EBF no.
EAServer	5.2	Solaris	N/A	13238
EAServer	5.2	Linux	N/A	13507
EAServer	5.2	AIX	N/A	13508
EAServer	5.2	HP-UX	N/A	13509

## 3.2 Platforms

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

- HP-UX:
    - HPIA – HP-UX B.11.23 U ia64 (td)
    - 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 64-bit and higher
  - Linux:
    - Linux AMD64 – 2.6.9-42.ELsmp #1 SMP x86\_64 GNU/Linux
    - Linux IA-32

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**Note** RepConnector is available only on Linux 3.0.

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- 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 RTDS 4.5 ESD #1
- Windows:
  - Windows XP Pro, 2000, and 2003
  - Windows NT – for JMS only

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 or 6.0 from the IBM WebSphere MQ family SupportPacs Web page at <http://www-306.ibm.com/software/integration/support/supportpacs/>, making 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	MAOC

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.

### 3.3 Documentation

Real-Time Data Services includes the following documentation:

- *Installation and Release Bulletin for Real-Time Data Services version 4.5* (this document)
- *Messaging Services Users Guide for Adaptive Server Enterprise*

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. A list of related and referenced documentation is also available in the preface of the *Messaging Services Users Guide for Adaptive Server Enterprise*. Go to the Product Manuals at <http://www.sybase.com/support/manuals/> for the most recent versions.

## 4. Installing Real-Time Data Services

This section discusses how to install Real-Time Data Services with a system using Adaptive Server. To install Real-Time Data services with a system using RepConnector, see “Installing RTDS using RepConnector” on page 35.

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

- EAServer JMS – ASE\_MESSAGING\_EASJMS
- TIBCO EMS – ASE\_MESSAGING\_TIBJMS
- IBM WebSphere MQ – ASE\_MESSAGING\_IBMMQ

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**Note** You must install Adaptive Server before you can configure RTDS.

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For information on how to install:

- EAServer and its Java messaging service – see the EAServer documentation.
- TIBCO Enterprise Message System – see the TIBCO Web site at <http://www.tibco.com>.
- IBM WebSphere MQ – see the IBM WebSphere MQ Web site at <http://www-306.ibm.com/software/integration/wmq/>.

Files on the installation CD

RTDS 4.5 installs the following files into the `$$SYBASE/$SYBASE_ASE/lib` directory (`%SYBASE%\%SYBASE_ASE%\bin` in Windows):

- *javax.jms.jar* – JMS only
- *jms.jar* – JMS only
- *jrtms.jar* – JMS only
- *log4j-1.2.4.jar* – JMS only
- *rtms.properties* – JMS only; 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, RTDS 4.5 also installs the following into the `$$SYBASE/$SYBASE_ASE/lib` directory on Unix and Linux platforms, however on Windows these DLLs are installed in `%$SYBASE%\$SYBASE_ASE\bin`:

- *libshmemrtds.so* (*shmemrtds.dll* on Windows, *libshmemrtds.sl* on HP-UX) – JMS only
- *libsybimmq.so* (*sybimmq.dll* on Windows, *libsybimmq.sl* on HP-UX) – MQ only

Once you have installed Adaptive Server and TIBCO EMS, EA Server, or MQ, see “Adding an RTDS license for Adaptive Server 15.0.2” on page 12.

## 4.1 Adding an RTDS license for Adaptive Server 12.5.4

Install Adaptive Server version 12.5.4 ESD #6 according to the instructions in the Adaptive Server installation guide for your platform.

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**Note** Use the Sybase License Certificate that you received with Real-Time Data Services to complete this section.

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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*.
- 2 Go to `$$SYBASE/SYSAM-1_0/bin` (`%$SYBASE%\SYSAM-1_0\bin` on Windows) on Windows and run `lmgr`. The `lmgr` program prompts, “Do you have any Sybase Software Asset Management Certificates to register?”  
Click Yes.
- 3 Enter information from the Sybase Software Asset Management Certificate for each Adaptive Server feature you have purchased. Entries are case-sensitive:

- Order Number – your Sybase order number
- Feature Name – “SY\_RTDS”
- Feature Unit – “CPU License”
- Feature Count – “1”
- Software Version – “2.0”
- Authorization Code – your 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.

## 4.2 Adding an RTDS license for Adaptive Server 15.0.2

Install Adaptive Server version 15.0.2 ESD #1 according to the instructions in the Adaptive Server installation guide for your platform.

Real-Time Data Services 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.

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**Warning!** You can use only the Sybase License Certificate enclosed with your copy of Real-Time Data Services with Adaptive Server version 12.5.4 ESD #6. Do not use the certificate if you are using Adaptive Server 15.0.2 ESD #1.

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SySAM product licensing software allows you to:

- Manage Real-Time Data Services entitlements
- Perform asset management tasks by viewing and analyzing historic use data
- Control Real-Time Data Services use within your organization

Your product package option includes the SY\_RTDS license key for Real-Time Data Services version 4.5. Use this key for version 4.5 of Real-Time Data Services.

For detailed instructions on how to use SySAM 2.0, see the *Sybase Software Asset Management Users Guide version 2.0*.

### 4.2.1 Pre-installation tasks for SySAM

Before you install Adaptive Server:

- 1 Decide which of these the SySAM license models to use:
  - The unserved license model – gets licenses directly from the license file. If you are using an unserved license, simply save the license to the machine on which you have installed RTDS.
  - The served license model – uses a license server to manage the allocation of your licenses to multiple machines. See the following steps for more information.
- 2 To use a served license, you need a license server. Decide whether it will be an existing license server or a new license server. The license server need not be on the same machine as RTDS or running on the same operating system and architecture.
  - To use an existing license server, you must know the server host name and port number.
  - To create a new license server before installing RTDS, see “Installing a new license server” on page 18.

---

**Note** You can only have one instance of a SySAM license server running on a given machine. To set up a SySAM 2.0 license server on a machine that is already running a SySAM 1.0 license server, migrate the old license server to 2.0. A migrated license server can serve licenses for products enabled for both SySAM 1.0 and 2.0.

See Appendix F of the *Sybase Software Asset Management Users Guide version 2.0* for instructions on migrating a license server.

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For information about:

- Choosing a license server host, see the “Choosing a license server host” section in Chapter 2, “Choosing a License Model” of the *Sybase Software Asset Management Users Guide version 2.0*.
  - License server administration, see Chapter 4, “License Server Administration” in the *Sybase Software Asset Management Users Guide version 2.0*.
- 3 Sybase recommends that you get your license files from the Sybase Product Download Center (SPDC) at <https://sybase.subscribenet.com> before you begin installing RTDS.

**❖ Accessing the SPDC**

Once you have purchased a Sybase product, typically, you download the product and generate its licenses from the online Web portal, the Sybase Product Download Center (SPDC).

To access the SPDC when you have purchased Sybase products from Sybase:

- 1 Once you have ordered a Sybase product, you receive a welcome e-mail message that contains a URL to the SPDC site, as well as a user name and password.

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**Note** If you have purchased your Sybase software from a Sybase reseller, you receive a Web key rather than an e-mail message.

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- 2 Click the URL, and when prompted, enter the designated user name and password. Your login is typically your e-mail address. If you have forgotten your password, use the password finder on the SPDC login page.

**❖ Getting your host ID**

- 1 Go to your *bin* subdirectory:
  - On Windows – go to `%SYBASE%\%SYBASE_SYSAM%\bin`, where:
    - `%SYBASE%` – is the Sybase installation directory.
    - `%SYBASE_SYSAM%` – is `SYSAM-2_0`.
  - On UNIX – go to `$SYBASE/$SYBASE_SYSAM/bin`, where:
    - `$SYBASE` – is the Sybase installation directory
    - `$SYBASE_SYSAM` – is `$SYSAM-2_0`

You can enter the command *hostid* from a command prompt.

- 2 Obtain your host ID:
  - On HP-UX, IBM and Solaris, enter:

```
./lmutil lmhostid
```

- On Windows and Linux, enter:

```
lmutil lmhostid
```

---

**Note** On some platforms, the host ID is derived from the network adapter address. If your machine has multiple network adapters, `lmutil lmhostid` returns one host ID for each network adapter. The output may look similar to:

The FLEXlm host ID of this machine is  
 ""0013023c8251 0015c507ea90"" Only use ONE  
 from the list of hostids.

Choose **one** of these host IDs. Sybase recommends that you use the value associated with the primary wired Ethernet adapter. Do not use values associated with internal loopback adapters. If you cannot determine which host ID to use from the lmutil lmhostid output, use the native operating system command to get additional details to help make the determination. See the SPDC FAQ titled “What’s my Host ID,” or “Appendix A” of the *FLEXnet Licensing End User Guide* for the exact commands for your platform.

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- 3 Save the host ID so you can use it later at the SPDC. Your host ID is platform-specific, but may be similar to the following:
  - On IBM AIX platforms – 02765131
  - On HP-UX PA-RISC platforms – 778DA450 or #2005771344
  - On Linux platforms – 00400516E525
  - On Solaris platforms – 170a3472
  - On Windows platforms – 00B0A9DF9A32

❖ **Generating licenses for served and unserved license models at the SPDC**

- 1 At the Welcome screen at the SPDC, where you can view all of the product families to which you have access, select the product family that contains the product for which you want to generate a license.
- 2 When a list of available Sybase products displays, click the product with the appropriate edition and version. Make sure you select the product for the operating system you are using.
- 3 The license agreement displays. You must agree to the terms and conditions in the license to generate a license. To do so, click I Agree.

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**Note** The license agreement displays only the first time you attempt to download a product. Once you have agreed to the license, you will not encounter the license agreement for all subsequent downloads of that product.

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- 4 At the product download page, click the License Keys link.

- 5 From the License Information page, select the license to generate via the Generate radio button on the left side of the screen depending on the license **type** for the license you want to generate. For more information, see “License types” in Chapter 3, “Getting and Using your License,” of the *Sybase Software Asset Management Users Guide*.

If you are unsure what you have licensed, your company’s purchase order should have the product name, edition, and license type.

Scroll to the bottom of the page, and click Select to Generate.

- 6 The SySAM license generation wizard asks you to choose between a served license and an unserved license. If you choose a served license, continue with the steps in “Generating a served license” on page 16, and if you choose an unserved license, continue with the steps in “Generating an unserved license” on page 17.

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**Note** Some Sybase products or specific license types do not give you a choice of license model to use, and therefore do not display this page. If this is the case, proceed with the SySAM license generation wizard to generate your license.

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❖ **Generating a served license**

- 1 Select Served License and click Next.
- 2 Indicate the quantity of licenses you want to generate and click Next.
- 3 Enter the License Server Host ID, and optionally, the host name and port number:
  - Sybase recommends that you provide the host name here to ease future license administration.
  - A port number is not required unless you are using a three-node redundant cluster. A valid number is any unused port number between 0 and 64000. On UNIX, choose a port greater than 1024, since those less than 1024 are privileged port numbers. If no TCP/IP port number is specified, one of the default ports in the range of 27000 and 27009 is used.
  - To generate a license for a three-node redundant cluster, specify the host ID, host name, and port number for the three nodes of the cluster. The port number is not optional for this configuration and should be outside of the 27,000 to 27,009 range.



- For information about how to get the host ID, see “Getting your host ID” on page 14. You can specify redundant server information if you choose to configure your servers for three-server redundancy.
- 4 Click Generate.
  - 5 Once you have generated the license, you can:
    - Click Download License File to download the license file.
    - Click Print Friendly to print a paper copy of the license.
    - Return to the license information page to generate additional licenses.
  - 6 Once you have generated all the licenses you need, save them to the *licenses* directory in your license server installation.

---

**Note** SySAM 2.0 requires that you save your license files with a *.lic* extension.

---

Sybase recommends that you set up the license server and required licenses before you install your SySAM 2.0-enabled Sybase product.

❖ **Generating an unserved license**

- 1 Select Unserved License and click Next.
- 2 Select the number of machines you want to license and click Next. You can generate licenses for up to 10 machines at a time.
- 3 Enter the host ID, and optionally, the host name for each machine for which you want to generate a license. For information on getting your host ID and host name, see “Getting your host ID” on page 14.

For some license types, you are asked to enter the number of CPUs or licenses for the machine where this license will be used.

- 4 Click Generate.
- 5 Once you have generated the license, you can:
  - Download the license file by clicking Download License File.
  - Print a paper copy of the license by clicking the Print Friendly button.
  - Return to the license information page to generate additional licenses.

- 6 Once you have generated all the licenses you need, save them to the specific location required by your product.

---

**Note** SySAM 2.0 requires that you save your license files with a *.lic* extension.

---

❖ **Installing a new license server**

If you have selected a served license model, you must install a license server.

- 1 On HP-UX only, mount the CD, where *CDROM\_device* is the name of your CD device:

```
mount -F cdfs -o ro,rr CDROM_device /cdrom
```

- 2 Install the license server:

- a On Windows – insert the CD into the CD drive. The Installer should start automatically. If it does not, start the setup program manually by selecting Start | Run. Browse to *setup.exe*.

- b Launch the Sybase installer program:

On UNIX:

```
./setup
```

On Windows:

```
X:\setup
```

- c The Welcome Window displays. Click Next.
- d Accept the license agreement.
- e Enter or select the destination directory.
- f Select the Custom installation.
- g Select only “SySAM Network License Server” for installation.
- h Unselect other components, to install the license server only.
- i Click OK.

---

**Note** You cannot start the license server until there is at least one valid served license installed in the *licenses* directory.

---

- 3 Get the host ID for the machine on which you plan to run the license server.

- 4 Go to the Sybase Product Download Center (SPDC) at <https://sybase.subscribenet.com>.
- 5 Generate the licenses for the products you want to install.
- 6 Copy the license file in the licenses directory on the network license server machine:

On UNIX, enter: `$SYBASE/$SYBASE_SYSAM/licenses`

On Windows, enter: `%SYBASE%\%SYBASE_SYSAM%\licenses`

- 7 Refresh or restart the license server:

- a Change to:

On Unix, enter: `$SYBASE/$SYBASE_SYSAM/bin`

On Windows, enter: `%SYBASE%\%SYBASE_SYSAM%\bin`

- b If the license server is not already started, start it by entering:

```
sysam start
```

If the license server is already started, make the license server read the new license files:

```
sysam reread
```

- 8 Validate that the license daemon is running:

```
sysam status
```

On Windows, you can expect to see output for a running server that is similar to:

```
> sysam start
```

```
Starting the SYSAM service
```

```
The SYSAM service is starting.
```

```
The SYSAM service was started successfully.
```

On UNIX, you can expect to see output for a running server that is similar to:

```
lmutil - Copyright (c) 1989-2006 Macrovision Europe  
Ltd. and/or Macrovision Corporation. All Rights  
Reserved. Flexible License Manager status on Wed  
5/24/2006 15:04
```

```
License server status: 27000@mysysamserver
```

```
License file(s) on keyserver:
```

```
/opt/sybase/SYSAM_0/licenses/mysysamserver_60302031
```

5.lic

### 4.3 Installing RTDS using InstallShield

InstallShield copies the RTDS interface libraries for the current platform into `$$SYBASE/$SYBASE_ASE/lib (%SYBASE%\%SYBASE_ASE%\bin` on Windows).

At the end of the installation, you can verify the product installation. You may need to perform additional configuration procedures before you can use Real-Time Data Services.

#### ❖ Installing Real-Time Data Services

- 1 On Windows only, log in to your Windows computer using an account with Windows administrator privileges.

Closing any open applications or utilities, including currently installed Sybase products or the SySAM Manager.

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**Warning!** If any Sybase executables or DLLs are loaded into memory, and the installation program tries to overwrite any of the files that are in use, the installation program may generate an error and provide an error log.

---

- 2 Insert the Sybase Real-Time Data Services CD in the CD drive.
  - On Windows – InstallShield should start automatically. If it does not, select Start | Run, and enter the following, where *X*: is your drive:

```
X:\setup.exe
```

Click OK.

- On UNIX – mount the CD, then go to the CD directory and enter:

```
./setup
```

The UNIX install script starts.

- 3 When the license selection displays, select your location, read the license terms, click “I agree,” then click Next.

Not every country is listed; if yours is not, select the most appropriate location.

- 4 InstallShield asks for the directory you want to install the product to. Usually, this is the current SYBASE release.

- If you have defined the \$SYBASE environment variable (%SYBASE% on Windows) – its value becomes the installation directory where Real-Time Data Services and any other Sybase-required components are automatically installed. The Install Directory window does not display.

Click Next.

- If you have **not** defined the \$SYBASE environment variable (%SYBASE% on Windows) – the Install Directory window opens. The directory you enter becomes the \$SYBASE environment variable.

Enter an installation directory, then click Next.

- 5 After you enter the location for installation of RTDS, the installer searches for a valid installation of Adaptive Server with the most recent installation.

If the installer finds a valid installation, you see RTDS as an option in the installation dialog, with the check box unmarked.

Make your selections, then click Next.

- 6 The Product Selection Summary window displays the components selected for installation. Verify that you selected the correct type of installation and have enough disk space to complete the process.

Click Next.

- 7 The Install Progress window shows the installation's progress. When the installation finishes, click Next.

- 8 Click Finish.

## 4.4 Creating a properties file for Adaptive Server 12.5.4

Before starting your RTDS installation for Adaptive Server version 12.5.4 ESD #6, use one of these methods to create a file called *rtms.properties* to store your RTDS configuration information:

- Use 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* for details.
- Create a file with the following information, and save it as *rtms.properties* in your shared library directory (`$SYBASE/$SYBASE_ASE/lib` in UNIX or `%SYBASE%\%SYBASE_ASE%\lib` in Windows):

```

sample property file
=====
TIBCOQUEUEMETHOD =
    createQueueConnection(java.lang.String,java.lang.String)
TIBCOTOPICMETHOD =
    createTopicConnection(java.lang.String,java.lang.String)
TIBCOFACTORY = com.tibco.tibjms.TibjmsTopicConnectionFactory
TIBCOQFACTORY = com.tibco.tibjms.TibjmsQueueConnectionFactory
TIBCOJAR = $SYBASE/$SYBASE_ASE/lib/tibjms.jar

```

Specify the shared library directory by changing `$SYBASE/$SYBASE_ASE/lib/tibjms.jar` to the location where you installed `tibjms.jar` file (`%SYBASE%\%SYBASE_ASE%\lib\tibjms.jar` on Windows).

---

**Note** If you are using Adaptive Server version 15.0.2 or later, the `rtms.properties` file is automatically added during the RTDS installation process. See “Configuring RTDS for Adaptive Server” next, for information on how to configure the file.

---

## 4.5 Configuring RTDS for Adaptive Server

Before you begin configuring RTDS, 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 Real-Time Data Services 4.5 to work specifically with Adaptive Server version 15.0.2 ESD #1 or later:

- JRE – set the `SYBASE_JRE_RTDS` environment variable so that it points to a valid JRE location.
- 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 variable as 6.0
  - Version 5.3 – set the variable as 5.3.

Real-Time Data Services, 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 Real-Time Data Services. 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	<ul style="list-style-type: none"> <li>Located in <i>SYBASE.sh</i> on IBM AIX – the second line is for MQ only: <pre>set LIBPATH \$SYBASE/\$SYBASE_ASE/lib set LIBPATH /usr/mqm/lib64</pre> </li> <li>Located in <i>SYBASE.sh</i> on Linux, Solaris, and HP-UX: <pre>set LD_LIBRARY_PATH \$SYBASE/\$SYBASE_ASE/lib</pre> </li> <li>Located in <i>SYBASE.bat</i> on Windows – the last line is for MQ only: <pre>set PATH %SYBASE%/ %SYBASE_ASE%/bin set PATH c:\Program files\IBM\WebSphere MQ\bin</pre> </li> </ul>
SYBASE_JRE	<ul style="list-style-type: none"> <li>Located in <i>SYBASE.sh</i> on UNIX: <pre>set SYBASE_JRE \$SYBASE/shared/jre142</pre> </li> <li>Located in <i>SYBASE.bat</i> on Windows: <pre>set SYBASE_JRE %SYBASE%/shared/sun/jre142</pre> </li> </ul> <p><b>Note</b> SYBASE_JRE is not a valid environment variable for RTDS 4.5 working with Adaptive Server 15.0.2 ESD #1 or higher.</p>
SYBASE_JRE_RTDS	<p>Required for all platforms if you are running RTDS 4.5 with Adaptive Server 15.0.2 ESD #1 or higher. You must manually set this environment variable and point it to a valid JRE location.</p> <p><b>Note</b> On Windows 64-bit, RTDS 4.5 sets SYBASE_JRE_RTDS automatically.</p>
RTDS_MQCLIENT_VERSION	<p>Sets the current MQ client version. If the MQ client is:</p> <ul style="list-style-type: none"> <li>Version 6.0 or later, set the variable as 6.0</li> <li>Version 5.3, set the variable as 5.3.</li> </ul> <p>Set this environment variable manually.</p>

Configuration	Description
The provider JAR libraries	<p>Located in <i>rtms.properties</i>:</p> <ul style="list-style-type: none"> <li>• <i>easclient.jar</i> – EAServer 5</li> <li>• <i>eas-client-14.jar</i> – EAServer 6.0.2 for RTDS 4.5 working with Adaptive Server 15.0.2 ESD #1. The jar file is used while \$SYBASE_JRE_RTDS points to jre1.4.</li> <li>• <i>eas-client-15.jar</i> – EAServer 6.0.2 for RTDS 4.5 working with Adaptive Server 15.0.2esd1. The jar file is used while \$SYBASE_JRE_RTDS points to jre1.5.</li> <li>• TIBCO – <i>tibjms.jar</i></li> </ul> <p>The files are provided by these applications.</p>
SYBASE messaging licenses	<p>Located in the license file under <i>\$SYBASE/SYSAM-2_0/licenses</i> (<i>%SYBASE%\SYSAM-2_0\licenses</i> in Windows):</p> <ul style="list-style-type: none"> <li>• EAServer JMS – ASE_MESSAGING_EASJMS</li> <li>• TIBCO EMS – ASE_MESSAGING_TIBJMS</li> <li>• IBM WebSphere MQ – ASE_MESSAGING_IBMMQ</li> </ul>
The SYBASE interface libraries from the CD	<p>Located in:</p> <ul style="list-style-type: none"> <li>• UNIX – <i>\$SYBASE/\$SYBASE_ASE/lib</i></li> <li>• Windows – <i>%SYBASE%\%SYBASE_ASE%\bin</i></li> </ul>
MQCCSID	<p>If the CCSID of the connected queue manager is not compatible with the locale of the RTDS 4.5 environment, set the “MQCCSID” environment variable accordingly.</p> <p>For example, when the connected queue manager’s CCSID is 819 and the Adaptive Server RTDS 4.5 is running on a Windows 2000 Simplified Chinese Version (CCSID 936), set \$MQCCSID as 819 before you start Adaptive Server and RTDS 4.5.</p>



---

**Linux users** RTDS can hang 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. For more information about this issue, see the Sun known bugs Web page at [http://bugs.sun.com/bugdatabase/view\\_bug.do?bug\\_id=5052465](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 might not check the authentication of the Adaptive Server login, but instead check the authentication of the user who started Adaptive Server. 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 *Messaging Services Users Guide for Adaptive Server Enterprise* for detailed instructions.

- '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'. 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 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 using the information in Table 4 for your platform.

**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** On UNIX platforms, your MQ client shared library path must be correct before you start Adaptive Server. Windows sets the PATH automatically 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 (%SYBASE%\Shared\Sun\jre142 on Windows), so that the JVM can start when you enable real-time messaging:

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

**Note** If you are running RTDS 4.5 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 15.0.2 or later only* – when you install Real-Time Data Services, the properties file is copied into the Adaptive Server shared libraries directory.
- a After you have installed RTDS, verify that the properties file is its default location:
    - On UNIX – in the shared libraries directory in `$$SYBASE/$SYBASE_ASE/lib/rtms.properties`.
    - On 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* for details.
  - c Before you run RTDS, 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)
TIBCOFACTORY = 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
```

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

**Table 5: Values in the `rtms.properties` file based on product**

Application	Property type	Value
EAServer 5.x and earlier	EASQUEUEMETHOD	com.sybase.jms.InitialContextFactory
	EASTOPICMETHOD	com.sybase.jms.InitialContextFactory
	EASJAR	The pathname to the <code>easclient.jar</code> file, such as <code>\$\$SYBASE/\$SYBASE_ASE/lib/easclient.jar</code> ( <code>%SYBASE%\%SYBASE_ASE%\lib\</code> <code>easclient.jar</code> on Windows)

Application	Property type	Value
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 pathname to either the <i>eas-client-14.jar</i> or <i>eas-client-15.jar</i> file, such as <i>\$\$SYBASE/\$SYBASE_ASE/lib/eas-client-14.jar</i> ( <i>%SYBASE%%/SYBASE_ASE/lib/eas-client-14.jar</i> 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 <i>\$\$SYBASE/\$SYBASE_ASE/lib/tibjms.jar</i> ( <i>%SYBASE%%/SYBASE_ASE/lib/tibjms.jar</i> on Windows) to the location where you installed <i>tibjms.jar</i> .

---

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

---

- For the new configuration to take effect, restart the Java Real-Time Data Services JVM server by disabling real-time messaging:

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

- Reenable real-time messaging:

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

- Assign `messaging_role` permissions to users:

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

#### ❖ Setting up MQ

- 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 ASE 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:

```
% runmqclsr -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
```

## 4.6 Configuring Adaptive Server for MQ

A Q engine uses 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 engines online.

### 4.6.1 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*.

#### max online Q engines

You can 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 online database management systems 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.

## 4.7 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 the `tibrv_transports` parameter:

```
tibrv_transports = enabled
```

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

- `RV` – is the name of the RV transport.
- `type` – is the type of external messaging system. Options are `tibrv` or `tibrvcn`.
- `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
```

## 4.8 Error messages

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

**Table 6: RTDS error messages**

Message	Description	What to do
5629	You have not defined your local server.	Define your local server.
15104	<ul style="list-style-type: none"> <li>• You do not have an RTDS license, or</li> <li>• You have not configured Adaptive Server for RTDS</li> </ul>	Obtain an RTDS license, or configure Adaptive Server for RTDS. See “Adding an RTDS license for Adaptive Server 15.0.2” on page 12 for instructions.
15123	<ul style="list-style-type: none"> <li>• You have not SYB_RTMS defined in the <code>syssservers</code> database, or</li> <li>• You have not run <code>installmsgvss</code>.</li> </ul>	<ul style="list-style-type: none"> <li>• Define SYB_RTMS in, or</li> <li>• Run <code>installmsgvss</code>.</li> </ul>
15146	You have not configured 'number of Q engines at startup' and 'max online Q engines'.	The number of Q engines at startup should be at least 1. See “Configuring your installation” on page 26 for details.

Message	Description	What to do
15147	MQ only – RTDS cannot dynamically load MQ libraries.	<p>Verify the path to the libraries by checking the setting of LD_LIBRARY_PATH:</p> <ul style="list-style-type: none"> <li>Linux and Solaris – confirm that <i>libsybibmmq.so</i> is in <code>\$\$SYBASE/\$\$SYBASE_ASE/lib/</code>.</li> <li>HP-UX – confirm that <i>libsybibmmq.sl</i> is in <code>\$\$SYBASE/\$\$SYBASE_ASE/lib/</code>.</li> <li>IBM AIX – confirm that <i>libsybibmmq.so</i> is in <code>\$\$SYBASE/\$\$SYBASE_ASE/lib/</code>, and that both <code>\$\$SYBASE/\$\$SYBASE_ASE/lib/</code> and <code>/usr/mqm/lib64</code> are in <code>\$LIBPATH</code>.</li> <li>Windows – confirm that <i>sybibmmq.so</i> is in <code>%SYBASE%\%SYBASE_ASE%\bin/</code>, and that both <code>%SYBASE%\%SYBASE_ASE%\bin/</code> and <code>c:\Program files\IBM\WebSphere MQ\bin</code> are in <code>%PATH%</code>.</li> </ul>
15150	RTDS cannot retrieve the SYBASE_JRE environment variable.	Set SYBASE_JRE to <code>\$\$SYBASE/shared/jre142</code> ( <code>%SYBASE%\shared\Sun\jre142</code> on Windows).
	RTDS cannot retrieve the SYBASE_JRE_RTDS environment variable.	This message appears if you are using RTDS 4.5 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	RTDS cannot retrieve the SYBASE_ASE environment variable.	<p>Set SYBASE_ASE to:</p> <ul style="list-style-type: none"> <li>ASE-15_0 for Adaptive Server 15.x.</li> <li>ASE-12_5 for Adaptive Server 12.5.x.</li> </ul>
15152	RTDS cannot retrieve the SYBASE environment variable.	Set SYBASE to correct directory where ASE 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”	<ul style="list-style-type: none"> <li>You are missing some libraries, or</li> <li>There is an error with spawning the Java program.</li> </ul>	Reinstall RTDS.

## 5. Installing RTDS using RepConnector

This section discusses how to install and configure Real-Time Data Services with a system using RepConnector.

---

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

---

### 5.1 Installing RepConnector for RTDS

Before you install RepConnector 15.0.1, you must have, on your local machine:

- EAServer version 5.2 Advanced Edition
- BEA WebLogic version 8.1

In addition, you must have Adaptive Server installed on either a local or remote machine.

Follow the instructions in the *RepConnector 15.0.1 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 Users Guide* for detailed information about RepConnector Manager, and configuration of the RepConnector connections for EAServer JMS, TIBCO EMS, and IBM WebSphere MQ.

Table 7 shows the parameters for configuring RepConnector to connect with Replication Server.

**Table 7: 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 interfaces file for your RepConnector connection.
DSI Port	The port number of your DSI connection, defined in the interfaces 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.

Property name	Description
RSSD User Name and Password	The user name and password to access to the RSSD database.
Required Group	Select one: <ul style="list-style-type: none"> <li>• Individual – to route a single event in a transaction.</li> <li>• Group – to route multiple events in a transaction.</li> </ul>

Table 8 shows the parameters for configuring RepConnector to connect with TIBCO EMS.

**Table 8: Configuring RepConnector for TIBCO EMS**

Property name	Description
Inbound Type	Specify one: <ul style="list-style-type: none"> <li>• JMS – for routing the events from the EMS to the target database.</li> <li>• REPLICATION – to route the replication event to the EMS queue or topic.</li> </ul>
Outbound Type	Specify one: <ul style="list-style-type: none"> <li>• JMS – for routing the events to route the replication event to the EMS queue or topic.</li> <li>• DATABASE – to route the SQL commands to the target database.</li> </ul>
Destination Type	Select one: <ul style="list-style-type: none"> <li>• Queue – if you are using a queue configured with the TIBCO EMS.</li> <li>• Topic – if you are using a topic.</li> </ul>
JDBC Provider URL	The URL of the TIBCO EMS. The default is <code>tcp://localhost:7222</code> .
Initial Naming	The class of the naming context factory for TIBCO.
Context Factory	EMS. Select <code>com.tibco.tibjms.naming.TibjmsInitialContextFactory</code> .
Connection Factory	The name of the EMS connection factory. Select either: <ul style="list-style-type: none"> <li>• Queue destination type – <code>com.tibco.tibjms.TibjmsQueueConnectionFactory</code></li> <li>• Topic destination type – <code>com.tibco.tibjms.TibjmsTopicConnectionFactory</code></li> </ul>
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 9 shows the parameters for configuring RepConnector to connect with your target database.

**Table 9: 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.

Property name	Description
Driver Class	Specify com.sybase.jdbc3.jdbc.SybDriver.
User Name and Password	The user name and password to connect to the target database.

## 6. Known problems

This section documents known problems that affect Real-Time Data Service version 4.5. 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.

### 6.1 RTDS continues to put messages in original destination even after changing the register provider

**[CR #487909]** When you change a register provider in RTDS, the change does not immediately take effect in the same session.

**Workaround:** After changing the register provider, relog in to Adaptive Server.

### 6.2 Cannot reconnect the messaging provider when the connection breaks

**[CR #486928]** You cannot reconnect to a message provider after the connection between RTDS and the message provider breaks.

**Workaround:** After you recover the connection between RTDS and the message provider, relog in to Adaptive Server.

### 6.3 Specifying *varbinary* in *msgrecv* returns incorrect results for *il8n* characters

**[CR #484419]** 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.fail-safe,  
    user=loginsa,password=abcdef123456',option 'timeout=30000',returns image)
```

```
2> go
```

```
-----  
0x95779666
```

```
(1 row affected)
```

## 6.4 WebSphere MQ does not recognize Adaptive Server admin login

**[CR #478698]** *Windows only* – If you are logged into Adaptive Server as “administrator,” WebSphere 6.0 does not recognize the user, and you cannot send any messages.

**Workaround:** Log in to Adaptive Server using a valid user from the group “mqm”.

## 6.5 JMS messages cannot receive messages larger than 1Mb

**[CR #476122]** RTDS enabled with Tibco JMS or EA Server JMS cannot receive message that are larger than 1 Mb.

**Workaround:** There is no workaround for this CR.

## 6.6 MQ RFH command has character set limitations

**[CR #468691]** In RTDS version 4.5, 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:** There is no workaround for this CR.

## 6.7 *msgunsubscribe* does not unsubscribe topics in EAServer

**[CR #441614]** *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.

## 6.8 Cannot install Replication Server 12.6 on top of Adaptive Server 15.0

**[CRs #400506 and #400508]** Installing Replication Server version 12.6 on top of Adaptive Server version 15.0 causes Replication Server to fail.

**Workaround:** Install either of the following:

- Replication Server version 12.6 into a separate directory than Adaptive Server, or
- Replication Server version 15.0.

## 6.9 Using *for xml* clause in Adaptive Server 15.0 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.

# 7. Product compatibilities

Real-Time Data Services version 4.0 is compatible with the following products:

- Adaptive Server Enterprise versions 12.5.4 ESD #6 and higher

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**Note** RTDS 4.0 does not work with versions of Adaptive Server below 12.5.4 ESD #6.

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- Adaptive Server Enterprise version 15.0.2.

- Adaptive Server Enterprise versions 15.0.2 ESD #1 and higher

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**Note** RTDS 4.0 does not work with Adaptive Server version 15.0.2 GA.

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- Replication Server version 15.0
- RepConnector version 15.0.1
- EAServer Message Bus system version 5.2 and 6.0.2
- IBM WebSphere MQ messaging system version 5.3 and 6.0

## 8. 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.

## 9. 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/>.

## 9.1 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.

## 9.2 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.

## 10. 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.

Real-Time Data Services 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.

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**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.

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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.

