

Release Bulletin

Sybase® Replication Server® 15.0 for HP-UX

Document ID: DC71746-01-1500-02

Last revised: February 20, 2006

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1. Accessing current release bulletin information

A more recent version of this 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. Product summary

Enclosed is Replication Server® version 15.0, which is compatible with the following platform and operating system configurations:

- HP-UX 11.11 – patch level B11.11.0412 (32-bit and 64-bit HP-UX)
- HP-UX 11.23 – patch level B11.23.0409 (32-bit and 64-bit HP-UX)

If your operating system requires patches, install them before you install Replication Server components.

For a complete list of patches, contact your operating system representative. 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.

2.1 Replication Server

For details about the new features in Replication Server version 15.0, see *What's New in Replication Server Version 15.0?*

2.2 Replication Manager

Replication Manager, a plug-in to Sybase Central™, Java Edition, is a component in Replication Server 15.0. For details about the new features in Replication Manager 15.0, see *What's New in Replication Server Version 15.0?*

2.3 Replication Monitoring Services

Replication Monitoring Services (RMS) is a new component in Replication Server 15.0. RMS is the new middle-management monitoring layer that replaces the existing Replication Server Manager and provides monitoring services for large and complex replication environments. For details about the new features in Replication Monitoring Services 15.0, see *What's New in Replication Server Version 15.0?*

2.4 IPv6 support

Replication Server on HP-UX 11.11 and HP-UX 11.23 supports Internet Protocol Version 6 (IPv6).

2.5 Master database replication

With Adaptive Server Enterprise version 15.0, ESD #2, the master database can now be replicated with any version of Replication Server that supports warm standby, including Replication Server version 12.0 and later. Replication of the master database is limited to system procedures and the commands used to manage logins and roles, and includes but is not limited to:

- sp_addlogin
- sp_modifylogin
- sp_droplogin
- sp_password
- create role
- alter role
- drop role
- grant role
- revoke role

2.6 Optional features

This section lists the optional features available for Replication Server. To purchase any of these licensed options, contact your Sybase sales representative.

2.6.1 Replication Agent and Enterprise Connect Data Access

Sybase Replication Agent™ and Enterprise Connect™ Data Access are available as a product called Replication Server Options, which is available separately from Replication Server. You must already have Replication Server to obtain Replication Server Options.

You can use Replication Server Options with Replication Server for bidirectional replication across distributed, heterogeneous systems to enable different operational and decision-support tasks.

The Replication Server Options are compatible with the same platform and operating system configurations with which Enterprise Connect Data Access 12.6 and Sybase Replication Agent 12.6 are compatible. For specific hardware and software requirements, see the documentation for Enterprise Connect Data Access 12.6 and Sybase Replication Agent 12.6.

There are four Replication Server Options available. Each option contains licenses for accessing data only in the specified data source: Informix, Microsoft, Oracle, or DB2 UDB.

In addition to the two components, each option contains an Adaptive Server® Enterprise (ASE) and an EBF for jConnect™ for JDBC™.

3. Special installation instructions

This section includes special installation instructions that are not in the installation guide for your platform.

3.1 Selecting an installation directory for Replication Server

You must choose carefully whether to install Replication Server in its own product directory or in a directory with your other Sybase products. In some cases, installing Replication Server on top of existing Sybase applications can adversely and irreversibly affect those applications.

3.1.1 Installing Replication Server in an existing directory

Installing Replication Server in an existing directory that contains other Sybase products may result in Replication Server and other Sybase products not working correctly. Before you install Replication Server in an existing directory, take note of the following:

- You can install Replication Server 15.0 in an existing Sybase installation directory if that directory contains Adaptive Server version 15.0 or Open Client/Server™ version 15.0. You may be asked if you want to install older *locales* or *charset* files on top of newer files. To ensure that you have the latest version of these files, select “No to all.”
- Replication Server 15.0 includes a new version of Replication Server and many of its supporting components. Other Sybase products may contain earlier versions of the same components. Installing Replication Server 15.0 into the same directory containing these existing products will not impact the products. However, installing other Sybase products on top of Replication Server 15.0 will have an adverse affect on these products.

Sybase recommends that you install Replication Server 15.0 in its own directory. For products that must be installed in the same directory as Replication Server, ensure that Replication Server 15.0 is installed last.

- You can install Replication Server 15.0 on top of Replication Server 12.6, in the same \$SYBASE directory. Installing version 15.0 on top of Replication Server 12.6 creates a duplicate entry in the interfaces file for SAMPLE_RS, which is the sample Replication Server. rs_init warns you about the duplicate entry and uses the first instance of SAMPLE_RS found in the interfaces file.

If you choose to install Replication Server 15.0 on top of Replication Server 12.6 in the same directory, you *must* install the latest Replication Server 12.6 ESD for your platform *before* you install Replication Server 15.0. Otherwise, you cannot install 15.0 into the same directory

Note During an install of Replication Server 15.0 on top of Replication Server 12.6, you may be asked if you wish to install a later version of JRE over the existing one. Select Yes at this prompt.

You may also be asked if you wish to install older *locales* files on top of newer ones. Select “No to all” at this prompt.

- If you have installed Replication Server 12.6 and Replication Server 15.0 in the same directory, Sybase recommends that you do not uninstall either version from this common directory.

Note If you choose to uninstall either version, you may be asked if you wish to delete files that have been modified since installation. Select “No to all” at this prompt.

- *Do not* install Replication Server 15.0 in an existing Sybase installation directory if that directory contains these Sybase products:
 - Replication Server version 12.5 or earlier
 - Adaptive Server version 12.5.0.x or earlier
 - Open Client/Server version 12.5.0 or earlier
 - OpenSwitch version 12.5 or earlier
 - DirectConnect™ version 12.5 or earlier

Warning! Installing Replication Server 15.0 on top of any of these products incapacitates older versions of these products, and can also adversely affect other Sybase products. You cannot reverse this with an uninstallation.

3.1.2 Installing Replication Server in a unique directory

You can install Replication Server in a unique directory without affecting existing Sybase environment variables. Follow the standard installation instructions in the *Replication Server Installation Guide for UNIX*.

Note When you install Replication Server in a unique installation directory, you must maintain two interfaces files—one interfaces file for Replication Server components and another for your other Sybase applications.

3.2 Installing Replication Server on 64-bit machines

On 64-bit machines, you cannot install Replication Server version 15.0 in the same directory structure as Adaptive Server.

3.3 Co-existing with earlier versions of SySAM

Replication Server version 15.0 uses a newer version of the Sybase Software Asset Management System (SySAM) licensing technology and an updated license format. On any machine, you can have only one instance of a license server running. You must make some adjustments to use earlier versions of Sybase products with Replication Server 15.0. To make these adjustments, see “Co-existing with earlier versions of SySAM,” in Chapter 1, “Before You Begin” in the *Replication Server Installation Guide for UNIX*.

3.4 Enabling asynchronous disk I/O

To enable asynchronous I/O, install the HP asynchronous I/O driver from the SAM Kernel Configuration menu:

- 1 Shut down Replication Server.
- 2 Choose Drivers and set the Pending State for asyncdisk to In.
- 3 From the Actions menu, rebuild the kernel, and restart the system.
- 4 At the UNIX command prompt, execute the following statements as “root”. The user who is starting Replication Server should be either the owner of the `/dev/async` directory, or have write permission on the directory.

```
/etc/mknod /dev/async c 101 4
chmod 0660 /dev/async
```

```
chown sybase /dev/async
```

Contact your operating system administrator or HP technical support for help with installing this driver.

3.5 Other sources of installation information

This section describes Replication Server installation and configuration issues. For more information, see:

- *Replication Server Installation Guide for UNIX*, which contains instructions for installing Replication Server version 15.0.

If you are using Adaptive Server Enterprise, see the sections of *Adaptive Server Enterprise Installation Guide for UNIX Platforms* that are related to using Replication Server and to upgrading replicated databases.

- *Replication Server Configuration Guide for UNIX*, which contains general information about installing Replication Server and instructions for using `rs_init` to configure Replication Server.

If you are using a pre-11.5 version of Adaptive Server Enterprise, see its installation and configuration documentation regarding upgrading replicated databases.

4. Special upgrade and downgrade instructions

The *Replication Server Configuration Guide for UNIX* contains detailed upgrade and downgrade instructions. Sybase strongly recommends that you read this information before you upgrade or downgrade Replication Server.

This section documents special upgrade and downgrade instructions in Replication Server version 15.0.

4.1 Preparing to upgrade

For upgrading, the Replication Server version should be 12.0 or later and the Adaptive Server containing the RSSD should be 12.5 or later. Upgrading from any earlier version requires an intermediate upgrade.

4.2 Upgrading route versions

If you have a primary Replication Server version 12.0 or 12.1 that you plan to upgrade to version 15.0 and you have a replicate Replication Server already upgraded to version 15.0, use the Upgrade Route option in Replication Manager instead of the `rs_fast_route_upgrade` stored procedure to upgrade the related route to the replicate Replication Server.

In Replication Manager, right-click on the Replication Server object containing the route to be upgraded, select the Upgrade Route option, select the route to be upgraded from the dialog box that appears, and select Upgrade.

A route version should reflect the lower value between the site version of your primary Replication Server and the site version of your replicate Replication Server. For example, if the site version of your primary Replication Server is 12.1 and the site version of your replicate Replication Server is 12.0, the route version should be 1200.

However, the version of `rs_fast_route_upgrade` provided in Replication Server version 12.1 and earlier erroneously sets the route version to the higher value. For this reason, the earlier version of `rs_fast_route_upgrade` automatically upgrades the route version to 1500 even if your primary Replication Server has not yet been upgraded to version 15.0.

If this applies to your replication system and you are upgrading to Replication Server version 15.0, the upgrade script stops and tells you to fix the route version before upgrading to version 15.0.

4.3 Updating LTL version

When the RepAgent connects to the Replication Server, it returns a Log Transfer Language (LTL) version.

When you upgrade to Replication Server version 15.0, the RepAgents are still connected to Replication Server using the older negotiated LTL version. Restart the RepAgents to use the new LTL version.

5. New and changed functionality

For detailed descriptions of the new features and functionality in Replication Server 15.0, see *What's New in Replication Server Version 15.0?*

6. Known problems

This section documents known problems in Replication Server version 15.0. 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 Problem report location

This section identifies where problem reports are located.

Replication Server

Open and fixed problem reports for Replication Server software are in the `$$SYBASE/$SYBASE_REP/install/SPR` directory. The following files contain problem reports for Replication Server version 15.0:

- `spr_rs` – open problem reports
- `cpr_rs` – closed problem reports

Replication Manager plug-in

Open and fixed problem reports for the Replication Manager plug-in are in the `$$SYBASE/RMP-15_0/install/SPR` directory.

The following files contain problem reports for this version of the Replication Manager plug-in for Sybase Central:

- `spr_rmp` – open problem reports
- `cpr_rmp` – closed problem reports

Replication Monitoring Services

Open problem reports for the Replication Monitoring Services that interfaces with the Replication Manager plug-in are in the `$$SYBASE/ua/plugins/com.sybase.rms/install/SPR` directory. The following file contains the problem reports for RMS:

- `spr_rms` – open problem reports

6.2 Highlighted problems with Replication Server

This section describes problems with Replication Server.

6.2.1 *delete* command for multiple rows may not replicate correctly

[CR #203009] A delete command that affects multiple rows at the primary database may not replicate successfully at the replicate database if the primary database contains self-referential foreign-key constraints.

Workaround: Use any one of the following workarounds:

- Use stored procedure replication.
- Drop the constraint on the replicate table.
- Do not use bulk deletes on tables with self-referential foreign-key constraints.

6.2.2 DSI shuts down

[CR #215616] Replication Server reports an error and the DSI shuts down when:

- A transaction involving the update of the text columns is replicated.
- One table with text columns has multiple replication definitions.
- Replication definitions are subscribed to by multiple tables in the same replicate database.

Workaround: None.

6.2.3 DSI shuts down if transaction owner and standby maintenance user have same name

[CR #219525] In a warm standby configuration, the Replication Server shuts down the Data Server Interface (DSI) with an error if the data definition language (DDL) transaction owner and warm standby maintenance user have the same name.

Workaround: When you are configuring a warm standby replication environment, do not create the standby database maintenance user with the same user name as the DDL transaction owner.

6.2.4 Warm standby replication definition not recognized for non-database owner qualified table with more than 128 columns

[CR #227308] Replication Server reports an error after creating a warm standby replication definition for a non-database owner qualified table with more than 128 columns.

Workaround: Re-create table as database owner.

6.2.5 Decimal with exponent incorrectly translated

[CR #233839] When using a user-defined datatype that defines a decimal type, if the decimal data contains an exponent, when replicating that column to a column of integer type, it may be incorrectly translated. For example, 5.62E3 is translated to 6 instead of 5620.

Workaround: None.

6.2.6 Effects of *alter replication definition* not immediate

[CR #235302] If rows are inserted too quickly after an *alter replication definition* command completes, the first few rows may not recognize the changes made by the *alter replication definition* command.

Workaround: Before inserting rows, wait at least 60 seconds after an *alter replication definition* command completes.

6.2.7 DSI error 5147 for replication definitions with several text columns if replication definitions do not allow NULL

[CR #270741] If you create a replication definition with three or more text columns that does not allow the NULL value, the DSI stops responding, and generates error 5147 if you replicate a row from a table that allows the NULL value.

Workaround: None.

6.2.8 Adaptive Server row-level locking may cause System Table Services cache problems

[CR #276758] When using Adaptive Server row-level locking for System Table Services (STS) tables, Replication Server can report that an STS object does not exist when in fact it does exist in the RSSD. This happens because with Adaptive Server row-level locking, when there are two concurrent transactions, one transaction deletes and then inserts a row, while the other transaction tries to select the same row. When this occurs, the *select* command fails to retrieve the row.

Workaround: You can either restart Replication Server, or use the following command for the appropriate table when it has a row that exists in the RSSD but is missing from the cache:

```
sysadmin stscache, fillcache, tablename
```

6.2.9 Replication Server does not preprocess table names qualified with database name

[CR #332068] When you use the Adaptive Server plug-in to issue data definition language (DDL), the plug-in uses fully a qualified identifier in the DDL. If you use multisite availability (MSA) to replicate this DDL, and the replicate database does not have the same name as the primary database, MSA cannot apply the DDL, and Data Server Interface is suspended.

Workaround: Do not use the Adaptive Server plug-in for Sybase Central to create tables for use in this environment, and do not use fully qualified table names when using MSA to replicate DDL.

6.2.10 Memory leak occurs with constant login and logout activity

[CR #322305] If Replication Server experiences constant and frequent connect and disconnect activity, memory leaks may occur, but at a very slow rate. This may cause Replication Server to terminate abnormally.

Workaround: None.

6.2.11 Dropping a subscription that has failed causes a stack trace

[CR #327316] Dropping a failed subscription causes a stack trace and immediately terminates Replication Server.

Workaround: Restart Replication Server.

6.2.12 Turning on hibernation mode may cause a stack trace

[CR #376110] Turning on hibernation mode in Replication Server with the sysadmin hibernate_on command may result in a stack trace and cause Replication Server to terminate.

Workaround: None.

6.2.13 Language modules not listed

[CR #419838] When you select Full Install, the French, Chinese, and Japanese language modules are not shown in the list of Replication Server language modules. These languages are installed as part of a Full Install even though they are not listed by InstallShield.

Workaround: None.

6.2.14 Cannot start Replication Server without -S flag

[CR #65722] You cannot use the DSLISTEN environment variable to specify the Replication Server name. Replication Server stops responding after it prints the message “Contacting the idserver for a siteid.”

Workaround: You must specify the Replication Server name with the -S flag on the repserver command line.

6.3 Replication Manager problems

This section discusses problems with the Replication Manager.

6.3.1 New active connection suspends when created

[CR #336879] When you create a logical connection from an existing physical connection, the Replication Agent on the active connection becomes suspended, and you see an error in the Replication Server’s log that the -W warm standby option must be set in the active database’s Replication Agent.

Workaround: The plug-in correctly configures the Replication Agent properties for the database, but you must manually resume the active connection after creating the logical connection.

6.3.2 Plug-in must be unregistered after uninstallation

[CR #337408] The uninstallation process for the Replication Manager plug-in does not unregister the plug-in from Sybase Central. When you log in to Sybase Central and unregister the plug-in, Sybase Central displays an error when you restart your machine that says it cannot find the Replication Manager plug-in.

Workaround: You can ignore the message. Start Sybase Central and unregister the Replication Manager plug-in.

6.3.3 Configure Replication wizard may not work under certain circumstances

[CR# 371403] Using the Configure Replication wizard to set up a replicate database where the primary database is an existing warm-standby logical connection does not result in a working replication environment.

Workaround: Use Replication Manager to create each individual component in the replication environment such as the connection, the database replication definition, and the database subscription.

6.3.4 Cannot specify owner and password when creating subscriptions

[CR# 386456] When you create a subscription, Replication Manager does not allow you to specify a login and password. You have to use the same "sa" login and password that Replication Manager uses for adding servers to the replication environment.

If you are using atomic materialization, the "sa" login and password must be the same as that used on the Adaptive Server data server, or atomic materialization will not work. This restriction does not apply when you create a database subscription as it does not include the atomic materialization option.

Workaround: Use the same "sa" login and password for creating subscriptions in Replication Manager that you use for adding servers, and that you use for the Adaptive Server.

6.3.5 Status not updated when monitoring is turned on

[CR #402702] When you enable monitoring in Replication Manager, the status of active and standby logical connections is not updated automatically in the Details pane of the Sybase Central window.

Workaround: Perform a manual refresh to update the status. Do this from the Sybase Central main menu, selecting either View | Refresh Folder or View | Refresh All.

6.3.6 RM does not report a failure

[CR #415765] When you attempt to add a server to a three-tier management environment and the server is not added successfully, Replication Manager does not report this failure.

Workaround: Check the log files for the components that are involved, to determine the reason for the failure to add the server. When you have resolved the problem, try adding the server to the environment again.

6.3.7 RM does not report reason for a secondary RMS with SUSPECT state

[CR #418026] When you add a secondary Replication Monitoring Services (RMS) under a primary RMS, and the secondary RMS status is reported as SUSPECT, Replication Manager does not immediately report any information about this in the Reason column of the List view or in the Details pane of the suspect RMS.

Workaround:

- In the Details pane, right-click the suspect RMS and select Properties. The reason for the SUSPECT state displays.
- Wait for the duration of the Monitoring Interval and navigate out of and then back into the Details pane. The Reason column is now populated with information. The default Monitoring Interval is 60 seconds.

6.3.8 RM may not accurately reflect status in a three-tier environment

[CR #418128] When the Adaptive Server in a three-tier management environment is in a SUSPECT state, it is not reflected in the Tree view and Details view of Replication Manager. In the Properties dialog of the Details view, the status of the Adaptive Server displays as ACTIVE.

Workaround: None.

6.4 Replication Monitoring Services problems

This section discusses problems with Replication Monitoring Services (RMS).

6.4.1 RMS cannot start RepAgent if *sp_addserver* is not run on Adaptive Server

[CR #404196] RMS cannot start RepAgent if you have not already defined the name of the Adaptive Server with the *sp_addserver* system procedure.

Workaround: Before you use RMS to start RepAgent, run *sp_addserver* on Adaptive Server to define the name of the local server:

```
sp_addserver pds01, local
```

where *pds01* is the name of the Adaptive Server on which you want to run RepAgent and *local* is the class parameter value, since the Adaptive Server is the local server. See Chapter 1, “System Procedures,” in the *Adaptive Server Reference Manual: Procedures* for more information on *sp_addserver*.

6.4.2 RMS executes event triggers on start-up

[CR #406620] Event triggers that you create are executed by RMS on startup, which should not happen.

Workaround: None.

6.4.3 Event triggers are not executed if RM is not connected to RMS

[CR #408485] Event triggers that you create are executed only if Replication Manager (RM) is connected to RMS. Event triggers should execute regardless of whether RM is connected to RMS.

Workaround: None.

6.4.4 RMS is not updating client applications when its status changes

[CR #418136] RMS is not sending updates on changes to its own status to other client applications

Workaround: None.

6.5 Sybase Central problems

This section discusses problems with Sybase Central.

6.5.1 Users must have write privileges to home directory

[CR# 343973] Sybase Central writes a registry file in the user's home directory, and uses this registry file to store environment information from the Replication Manager. Users must have write privileges on their home directory, or Sybase Central cannot save the environment information.

Workaround: Ensure that each user has write privileges to his or her home directory.

6.5.2 Sybase Central stops responding when command log fills up

[CR #387922] Sybase Central provides a central log where each plug-in can write error messages and details about its execution. The Replication Manager (RM) plug-in uses this Sybase Central command logging feature to provide a log of all commands sent by RM to managed servers.

If command logging is turned on, commands at every monitoring interval are written to the Sybase Central log. Sybase Central does not limit the number of entries in the log, the log can fill up and cause Sybase Central to stop responding.

Workaround: Monitor the log closely. You may archive the log or delete entries in the log to clear the memory.

6.6 Highlighted *rs_init* problems

This section discusses problems with *rs_init*, the Replication Server configuration utility.

6.6.1 *rs_init* does not update interfaces file automatically

[CR #171729] When attempting to add a Replication Server entry to the interfaces file through *rs_init* using a resource file, a message displays indicating that the interfaces file has been updated. However, the file is not updated, and Replication Server does not start.

Workaround: Create the entry in the interfaces file manually before using *rs_init* with the resource file.

6.6.2 Cannot use korean/eucksc character set to configure Replication Server with us_english/iso_1

[CR #415971] Replication Server does not start if you use korean with the euckcs character set on the *rs_init* command line, `rs_init -l korean -c euckcs`, to configure us_english with the iso_1 character set for Replication Server.

Workaround: Use korean with the euckcs character set on the *rs_init* command line and configure Replication Server for korean and euckcs.

6.6.3 *rs_init* does not support the mac character set

[CR #419737] You cannot use *rs_init* to configuration Replication Server if you use the mac character set and the configured Replication Server character set is defined to mac. A syntax error is reported by *rs_init* and the Replication Server does not start.

Workaround: Use any character set other than mac when starting *rs_init*.

6.6.4 Default size for the RSSD log device is too small

[CR #420216] The *rs_init* default RSSD log device size of 16MB is too small when you are using an Adaptive Server 15.0 for the RSSD database. The *rs_init* process fills the RSSD log device before the RSSD is created, and *rs_init* reports the following message from the Adaptive Server hosting the RSSD:

```
SQL Server message: msg 7415, level 10, state 1 "The
transaction log in database RSSD Database is almost
full. Your transaction is being suspended until space
```

is made available in the log."

Workaround: If this situation occurs, you must expand the RSSD log device before `rs_init` can continue. Use:

```
1> disk resize name='RSSD log device', size = '25M'
2> go

1> alter database RSSD Database log on RSSD log device = '25M'
2> go
```

After the additional log space is provided, `rs_init` completes the initialization of the RSSD and Replication Server will function correctly. Avoid this problem by creating the RSSD log device with a size of 25MB or larger.

6.6.5 Incompatible character set specification using `rs_init`

[CR #68642] `rs_init` does not prevent you from creating a configuration file using an `RS_charset` parameter that is incompatible with the character set defined in the `CONFIG_charset` parameter. For example, if the configuration file defines an English character set but the `CONFIG_charset` parameter is set to a Japanese character set, the installation proceeds but behaves unpredictably.

Workaround: Use compatible character sets.

6.6.6 `rs_init` does not correct run files

[CR #79366] `rs_init` does not correct previously generated run files as part of upgrades and downgrades.

Workaround: Edit the run files manually.

6.7 Unsupported operations

The following Adaptive Server operations may cause incorrect replicated data:

- Using the `truncate table` command on a primary table does not truncate replicated tables, because the operation is not logged.
- Disabling the secondary truncation point with the `dbcc settrunc` command and then truncating the log can result in lost transactions at replicate databases.
- Replication Server does not support nested transactions within replicated stored procedures.

When replication is enabled for a stored procedure using `sp_setrepproc` or `sp_setreplicate`, Adaptive Server always executes the stored procedure within a transaction. If you have not explicitly executed the replicated stored procedure within a transaction, Adaptive Server places an implicit begin transaction at the start of the procedure.

If the replicated stored procedure contains nested transaction commands, such as `begin transaction`, `commit transaction`, or `rollback transaction`, errors may result when you execute the procedure. For example, a `rollback transaction` command rolls back to the start of the stored procedure, rather than to the nested `begin transaction` command that was the intended rollback point.

- Data inserted into a primary table using an unlogged bulk copy is not replicated.
- In a database you cannot replicate multiple tables that have the same name but different owners. For example, if a database contains two tables, `dbo.authors` and `user3.authors`, Replication Server can distribute only one of them.
- Sybase recommends that you make the database owner own all tables in the primary database, and that you make the database owner or maintenance user own all tables in the replicate database. If the database owner or maintenance user does not own the table in the replicate database, use user-defined function strings for insert, update, and delete operations.
- To use the atomic method of subscription materialization:
 - The user who enters the `create subscription` command or the database owner must own the primary table, or you must use user-defined function strings for select operations at the primary database.
 - If the database owner or maintenance user does not own the replicate table, use user-defined function strings for select operations at the replicate database. If the owner of the replicate table is different from the owner of the primary table, create a unique function-string by using a distinct function string class.
- Client applications should not update the primary-key columns in multiple rows of a replicated table in such a way that a key can duplicate the key of another row. This may result in duplicate rows or errors at replicate databases.

For example, if `pcol` is the primary key for the `reptbl` table, the following command may cause errors or incorrect data at the replicate database:

```
update reptbl
  set pcol = pcol + 1
```

The following table shows before and after values for pcol at the primary database if reptbl has three rows with pcol values 1, 2, and 3.

Before	After
1	2
2	3
3	4

RepAgent retrieves the log records and submits to Replication Server commands equivalent to the following:

```
update reptbl
  set pcol = 2 where pcol = 1
update reptbl
  set pcol = 3 where pcol = 2
update reptbl
  set pcol = 4 where pcol = 3
```

Replication Server treats each row as an independent update so that the first and second rows are updated three and two times, respectively. If there is a unique index on the table, the additional updates cause errors at the replicate databases. If there is no unique index on the replicate table, duplicate rows result, as shown below.

Before	After
1	4
2	4
3	4

7. Product compatibilities

This section contains information about products that are compatible with Replication Server version 15.0.

7.1 Adaptive Server

Replication Server version 15.0 is fully compatible with both 32-bit and 64-bit versions of Adaptive Server Enterprise version 12.0 and later.

See the documentation for Adaptive Server version 12.0 and later for more information on product requirements.

A replication system can include Adaptive Servers, Replication Servers, DirectConnect products, and RepAgents on multiple platforms.

Note SQL Server versions 11.0.x and earlier are no longer supported.

7.2 Interoperability of Adaptive Server, Open Client/Server, and Replication Server

Table 1 shows the interoperability of Adaptive Server, Open Client/Server products, and Replication Server across versions.

Table 1: Interoperability between Adaptive Server, Open Client/Server, and Replication Server

Adaptive Server 15.0	Adaptive Server 12.5.1	Open Client/Server 15.0	Open Client/Server 12.5.1	Replication Server 15.0	Replication Server 12.6
HP-UX 11.11 and 11.23	X	X	X	X	X
IBM RS/6000 AIX 5.2	X	X	X	X	X
Linux Red Hat 3.0	X	X	X	X	X
Sun Solaris 8 and 9	X	X	X	X	X
Microsoft Windows 2000 and 2003	X	X	X	X	X

Legend

X = compatibility

Replication Server is a 32-bit application and it has been certified on both the 32-bit and 64-bit versions of the HP-UX, IBM AIX, and Sun Solaris operating systems listed in Table 1.

Even though two or more products may be interoperable, new features introduced in a newer version of a product are not likely to be supported by older versions of the same products.

For the latest information on the interoperability of these product and other compatibility reports, see the Interoperability Matrix Technote at <http://www.sybase.com/detail?id=1026087>.

8. Documentation updates and clarifications

This section contains updates and clarifications to the Replication Server documentation.

8.1 Replication Manager online help

This section describe updates to the Replication Manager online help.

8.1.1 Corrections to the *Using the Interface* book

In the *Using the Interface* book, the last topic listed in the left pane, “Using the stored procedure replication interface,” is incomplete and contains inaccurate information. The updated information is below:

Managing stored procedure replication

Replication Manager lets you manage stored procedure replication. The replication definition for stored procedure replication is called a “function replication definition,” or a “function rep def.” Replication Server limits you to one function replication definition per stored procedure. Stored procedure subscriptions are supported.

You can find function replication definition in the Function Replication Definitions folder under the individual stored procedure, which is in the Stored Procedures folder. For example, to find the function replication definition mySP_repef for stored procedure mySP, navigate through Sybase Central by selecting Stored Procedures | mySP | Function Replication Definitions | mySP_repdef.

Stored Procedure Properties dialog box

When you right-click a Stored Procedure, and select Properties from the Stored Procedures context menu, the Stored Procedures Properties dialog box opens. From the Stored Procedures Properties dialog box, you have access to the following tabs:

- General – lets you view stored procedure information, and mark it for replication.
- Parameters – lets you view parameters for the stored procedure, if applicable.

Adding a function replication definition

The Add New Function Replication Definition dialog box enables you to create a new replication definition for the selected stored procedures, displaying several tabs:

- General – view and edit general information about the replication definition.

- Parameters – view and edit parameters in the replication definition.
 - Advanced – view and change information for advanced features.
- ❖ **Adding a function replication definition**
- 1 In the left pane, navigate to Stored Procedures, select the stored procedure you want, and expand its directory.
 - 2 In the right pane, double-click Add Function Replication Definition.
 - 3 Complete the General, Parameters, and Advanced tabs.
 - 4 Click OK. The function replication definition displays in the right pane.

Using the Function Replication Definition context menu

Right-click the function replication definition to access the Function Replication Definition context menu, which gives you access to the following commands:

- Delete – deletes the replication definition.
- Properties – displays the Stored Procedures Properties dialog box, which enables you to modify the replication definition.

Adding a subscription

You must create a function replication definition before you can subscribe to it. Typically, you create the function replication definition for a stored procedure under its primary database, and subscribe to the function replication definition under its replicate database.

The Add New Subscription dialog box enables you to create a new subscription for the selected stored procedures, displaying several tabs:

- General – view and edit general information about the subscription.
- Where Clause – create a qualifier for the subscription; for example, create a SQL statement to limit the subscription to a specific range of records.

❖ **Adding a subscription**

- 1 In the left pane, navigate to Stored Procedures under the replicate database, select the stored procedure you want, and expand its directory.
- 2 In the right pane, double-click Add Subscription.
- 3 Complete the General and Where Clause tabs.
- 4 Click OK. The subscription displays in the right pane.

Using the Subscription context menu

Right-click the subscription to access the Subscription context menu, which gives you access to the following commands:

- Delete – deletes the subscription.
- Properties – displays the Subscription Properties dialog box, which enables you to modify the subscription.

8.2 Administration Guide

This section describes updates to the *Replication Server Administration Guide*.

8.2.1 startup delay configuration parameter

With Adaptive Server Enterprise version 15.0, ESD #2, the startup delay configuration parameter is added to the list of configuration parameters for the sp_config_rep_agent system procedure in “Table 5-1: Configuration parameters affecting RepAgent,” in Chapter 5, “Setting Up and Managing RepAgent” in the *Replication Server Administration Guide: Volume 1*.

Configuration parameter	Description
startup delay	Controls when a specific RepAgent is started during Adaptive Server start-up. This delays the RepAgent startup by a specified duration to allow Replication Server to be running before RepAgent attempts to connect to Replication Server. By default, RepAgent starts without any delay during automatic start-up. Setting a value in seconds results in a delay in RepAgent start-up by the specified number of seconds. Default: 0 (zero) seconds.

For example, to delay RepAgent start-up by 50 seconds, enter:

```
sp_config_rep_agent dbname, 'startup delay', '50'
```

8.3 Reference Manual

This section describes updates to the *Replication Server Reference Manual*.

8.3.1 *startup delay* configuration parameter

With Adaptive Server Enterprise version 15.0, ESD #2, the startup delay configuration parameter is added to the list of configuration parameters for the `sp_config_rep_agent` system procedure in Chapter 5, “Adaptive Server Commands and System Procedures” in the *Reference Manual*.

Configuration parameter	Description
startup delay	Controls when a specific RepAgent is started during Adaptive Server start-up. This delays the automatic startup of RepAgent by a specified duration to allow Replication Server to be running before RepAgent attempts to connect to Replication Server. By default, RepAgent starts without any delay during automatic start-up. Setting a value in seconds results in a delay in RepAgent start-up by the specified number of seconds. Default: 0 (zero) seconds.

For example, to delay RepAgent start-up by 50 seconds, enter:

```
sp_config_rep_agent dbname, 'startup delay', '50'
```

8.3.2 *recovery_foreground* configuration parameter

With Adaptive Server Enterprise version 15.0, ESD #2, the `recovery_foreground` configuration parameter is added to the list of parameters for the `sp_start_rep_agent` system procedure in Chapter 5, “Adaptive Server Commands and System Procedures” in the *Reference Manual*.

Configuration parameter	Description
recovery_foreground	Starts a RepAgent in recovery mode and displays the recovery progress information on screen without the user having to check the Adaptive Server error log file for the recovery progress. The recovery is complete once the recovery progress information display ends and the command prompt displays.

For example, to display the recovery progress information for database `dbname` for which you want to start a RepAgent, where `connect_dataserver` is the data server used to recover offline logs and `connect_database` is the database used to recover offline logs, enter:

```
sp_start_rep_agent dbname, 'recovery_foreground',
'connect_dataserver', 'connect_database'
```

8.4 Troubleshooting Guide

This section describes updates to the *Replication Server Troubleshooting Guide*.

Note The *Replication Server Troubleshooting Guide*, part of the Sybase Replication Server documentation set, has not been updated for Replication Server version 15.0.

8.4.1 Error message changes

Add the following step to the procedure for fixing error messages.

9202: Nested stored procedures not allowed (LTM 1033)

6.5 Nested Replicated Stored Procedure

Symptoms

The Adaptive Server error log displays these error messages:

```
96/03/04 14:01:53.34 RepAgent (10) Error: 9202,
Severity: EX_CMDFATAL, State: 1
Nested replicated stored procedure detected.
Transaction log may be corrupt. Please contact SYBASE
Technical Support.
```

```
W. 96/03/04 14:01:53. WARNING #1033 logscan
thread(NYDS.nydb1) - /ltmscan.c(4689) Nested replicated
stored procedure is not allowed. The procedure name =
'south_nested', pid = '456', rid = '2'.
```

Explanation

A nested stored procedure is called from within another stored procedure. The stored procedure that calls the nested stored procedure is called the outer stored procedure.

If stored procedures with nested stored procedures are marked for replication with `sp_setrepproc`:

- The RepAgent shuts down,
- The RepAgent forwards only the outer stored procedure call to the Replication Server, and

Solution

- An error message is displayed in the Adaptive Server error log.

Do not use nested replicated stored procedures.

❖ **Solving the problem**

1 Skip the nested stored procedure transaction:

a Find the page of the secondary truncation point by executing:

```
dbcc gettrunc
```

b Find a valid page after the nested stored procedure transaction by executing the following command, where *pageid* is the ID for the page you received by executing `dbcc gettrunc` in step a:

```
dbcc traceon(3604)
dbcc pglinkage(dbid, pageid, 0,2,0,1)
```

c Set a new secondary truncation point on a valid page after the nested stored procedure transaction by executing the following command, where *pageid* is the ID for the page *after* the current page you retrieved using `dbcc pglinkage` in step b:

```
dbcc settrunc ('ltm', 'pageid', pageid)
```

d Reset the locator by executing:

```
rs_zeroltm
```

2 Reapply only the nested stored procedure transaction.

3 Restart RepAgent.

Note This procedure can also cause data loss because manually setting the secondary truncation point to a later page in the log skips any begin transaction statements on skipped pages. Those transactions do not replicate.

9. Language and globalization issues

This section describes language and globalization issues for Replication Server.

9.1 Hankaku Katakana conversion

In general, Japanese character sets are compatible. However, Hankaku Katakana characters, although they exist in both the eucjis and sjis character sets, cannot be converted. Converting data that contains Hankaku Katakana characters between eucjis and sjis will not work. This conversion problem occurs with character datatypes and the text datatype. It is documented in Chapter 20, “Configuring Client/Server Character Set Conversions,” of the *Adaptive Server Enterprise System Administration Guide*.

This conversion problem affects both Adaptive Server and the Sybase Open Client/Open Server libraries. Because Replication Server uses these libraries for all conversions, this problem also affects Replication Server.

In Replication Server, this type of failure is treated in the same way as is the case of a single character missing from the target character set. The remainder of the conversion succeeds and replication proceeds, and problem characters are replaced by question marks in the target data area. There is currently no way to escape this restriction with the Sybase connectivity libraries. However, in Adaptive Server, if you turn on trace flag number 2402, you can remove this restriction.

9.1.1 Using trace flag 2402

Generally, Sybase recommends that you set up your replication system so that Replication Server handles all character set conversions at the replicate Replication Server and prevents the replicate data server from performing any conversions. In this case, you can work around the Hankaku Katakana restriction if you set up your system so that the replicate data server performs the conversion.

The following table shows how this might look if the primary data server used the sjis character set and the replicate data server used eucjis. Communication in this system is between each data server and its Replication Server and between the two Replication Servers.

Primary Replication Server	sjis
Replicate Replication Server	sjis
Primary data server	sjis
Replicate data server	eucjis

The primary and replicate Replication Servers are configured to use the same character set as the primary data server. (If only one Replication Server manages the primary and replicate data servers, configure it with the character set of the primary data server.)

In this configuration, when the replicate Replication Server connects to the replicate data server with character set sjis, the replicate data server detects this condition and converts data into its own character set, eucjis. If trace flag 2402 is activated in the replicate data server, then the conversion includes the Hankaku Katakana characters.

❖ **Setting up this workaround**

- 1 Configure your system as suggested.
- 2 Turn on trace flag 2402 in the replicate data server (Adaptive Server) by including -T2402 on the command line when you start Adaptive Server.

9.2 Changing default date format for a language

If you modify the *common.loc* file to change the default date format for a given language, make the corresponding change to the *syslanguages* table on all affected Adaptive Servers.

10. 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.

11. 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/>.

11.1 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 Click Certification Report.
- 3 In the Certification Report filter select a product, platform, and timeframe and then click Go.
- 4 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 Base 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.

11.2 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.

12. 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.

Replication Server and the HTML documentation have 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.

