Release Bulletin Sybase® Replication Agent™ Version 15.0 for Linux, Microsoft Windows, and UNIX

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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 release of the product CD, use the Sybase® Technical Library Product Manuals Web site.

To access release bulletins at the Technical Library Product Manuals Web site

- 1 Go to Product Manuals at http://www.sybase.com/support/manuals/.
- 2 Follow the links to the appropriate Sybase product.
- 3 Select the Release Bulletins link.
- 4 Select the Sybase product version from the Release Bulletins list.
- 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

Replication AgentTM extends the capabilities of Replication Server[®] by allowing non-Sybase database servers to act as primary data servers in a replication system based on Sybase replication technology.

Sybase Replication Agent 15.0 runs on the platform and operating system configurations listed in Table 1.

Table 1: Platform and operating system requirements

Platform	Operating system version
HP 9000(8xx)	HP-UX 11i, 11iR2
IBM RISC System/6000	IBM AIX 5.2, 5.3
Linux/Intel x86	Red Hat Enterprise Linux 3.0
	Kernel version 2.4.9-e.27 or later
	Red Hat Enterprise Linux 4.0
	Kernel version 2.6.9-22.EL
	• SuSE Linux Enterprise Server 9:
	Kernel version 2.6.5-7.191 or later
Microsoft Windows 2000	Windows 2000 v. 5.0.2195
Microsoft Windows Server 2003	Windows Server 2003 v. 5.2.3790
Sun Solaris (SPARC) system	Sun Solaris 8, 9, 10

Replication Agent version 15.0 supports the database servers and versions listed in Table 2.

Table 2: Databases compatible with Replication Agent

Database	Versions
IBM DB2 Universal Database	Enterprise Edition 8.2.2
Oracle Server	9i (9.2.0), 10g (10.1, 10.2)
Microsoft SQL Server	2000, 2005

Sybase Replication Agent 15.0 is compatible with the other Sybase products listed in Table 3.

Table 3: Replication Agent 15.0 compatibility

Sybase product	Version
Replication Server	12.5, 12.6, 15.x
Sybase Software Asset Management (SySAM)	2.0

Sybase Replication Agent 15.0 requires a JDBC 2.0-compliant driver to communicate with the primary data server. Table 4 lists the JDBC drivers that are compatible with Sybase Replication Agent 15.0.

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Driver	Versions	
DB2 Universal Database Administration Client	8.1, 8.2 (32-bit)	
Oracle JDBC driver	10.2 for JDK 1.4	
Microsoft SQL Server JDBC driver	1.1	

Table 4: Drivers compatible with Replication Agent

3. Special installation instructions

This section documents installation issues not covered in the Replication Agent *Installation Guide*.

3.1 Empty directories after uninstalling

After uninstalling Sybase Replication Agent software, some empty directories might be left. You can safely remove these directories. To remove them, go to the installation directory and delete the Replication Agent directory (*RAX-15_0*) and all its subdirectories and their contents.

3.2 Operating system patch requirements

Sybase Replication Agent 15.0 is compatible with Microsoft Windows 2000 and 2003, as well as several UNIX operating systems. See "Product summary" on page 2 for more information on operating system versions supported by Replication Agent 15.0.

There might be Java-related patches for the Solaris, HP-UX, and AIX operating systems that you should install before installing the Java Runtime Environment (JRE) 1.4.2 (32-bit) included with Replication Agent. The following sections describe how to find any operating system patches that might be required for Sybase Replication Agent 15.0.

See the Web site for your operating system to verify that the patches for your database server are current.

3.2.1 HP-UX

HP-UX PA-RISC patches can be found at the following URL:

http://www.hp.com/products1/unix/java/patches/index.html

3.2.2 Solaris

Solaris SPARC patches can be found at the following URL:

http://java.sun.com/j2se/1.4.2/download.html

3.2.3 IBM AIX

AIX patches can be found at the following URL:

http://www.ibm.com/developerworks/java/jdk/aix/service.html

4. Special upgrade instructions

Customers using Replication Agent version 12.5 or 12.6 can migrate to Replication Agent 15.0 by following the migration instructions in Appendix A of the Replication Agent *Primary Database Guide*.

5. Known problems

This section describes known problems in Sybase Replication Agent 15.0 at the time of release. These problems are identified with Change Request (CR) numbers, to which you can refer when contacting Sybase Technical Support. Workarounds are provided where available.

5.1 Known issues for the Sybase Installer

This section describes known issues with the Sybase Installer that are not specific to a particular data server type.

5.1.1 Cannot view text fields properly when using a Hummingbird Exceed client

If you use Hummingbird Exceed from a Windows work station to install Replication Agent on a UNIX host, you might not be able to view all of the text fields on the Sybase Installer screens.

Workaround: Use a native X-Windows session to run the Sybase Installer, or run the Sybase Installer in console or silent mode. See the Replication Agent *Installation Guide* for details.

5.1.2 Sybase Central fails to open after Replication Agent uninstallation

[CR# 399954] After the uninstallation of Replication Agent, the SYBASE system environment variable is removed and Sybase Central does not open.

Workaround: Redefine the SYBASE system environment variable.

5.2 Known generic issues for Replication Agent 15.0

This section describes known issues in Sybase Replication Agent 15.0 that are not specific to a particular environment or data server type.

5.2.1 Edits on pending property changes

[CR#211427] Validation of changes made to Replication Agent configuration parameters might not occur until the Replication Agent instance is restarted. If you enter an invalid configuration parameter value, an error might not be returned until the Replication Agent instance is restarted.

Workaround: Restart the Replication Agent instance immediately after you change a configuration parameter that requires a restart to take effect.

5.2.2 New implementation of JISAutoDetect

The following JREs that have the Daylight Saving Time fix also have a bug associated with the use of the JISAutoDetect character set:

Solaris SPARC, Linux, Windows: 1.4.2_12, HP PA-RISC: 1.4.2_11

Replication Agent currently does not support this character set. The JISAutoDetect character set "Detects and converts from Shift-JIS, EUC-JP, ISO 2022 JP (conversion to Unicode only)."

5.3 Known issues for IBM DB2 UDB

This section describes known issues in Replication Agent version 15.0 that are specific to the IBM DB2 UDB.

5.3.1 NoClassDefFoundError if library path contains two colons

On HP, if the SHLIB_PATH contains two colons (::) with no intervening directory, when you resume the Replication Agent you get the following error message:

```
java.lang.NoClassDefFoundError
```

Workaround: Add a line to the \$SYBASE/RAX-15_0/bin/ra.sh script to source your UDB instance's db2profile (which does not have the same problem as the db2cshrc). For example, if your UDB instance directory is "/home/db2inst1", edit your Replication Agent script as follows:

Before:

5.4 Known issues for Microsoft SQL Server

This section describes known issues in Replication Agent version 15.0 that are specific to the Microsoft SQL Server data server.

5.4.1 Microsoft isql tool

The interactive query tool provided with Microsoft SQL Server is Microsoft isql. You must use Microsoft isql (or a compatible tool) to access the Microsoft SQL Server database to execute some of the test scripts documented in the Replication Agent *Primary Database Guide*.

Note Although the name of the Microsoft isql tool is the same as the Sybase tool called isql, the Sybase and Microsoft tools are not compatible. For example, you cannot use the Sybase isql tool to access the Microsoft SQL Server data server, and you cannot use the Microsoft isql tool to access the Replication Agent administration port.

If you have both Sybase and Microsoft isql tools loaded on the same machine, you might need to change an environment variable (possibly the PATH variable) to avoid problems when you invoke one of the isql tools.

5.5 Known issues for Oracle

This section describes known issues in Replication Agent version 15.0 that are specific to the Oracle data server.

5.5.1 rasd_database and rasd_tran_log commands fail with default value

[CR# 386246] When you use the rasd_database and rasd_tran_log properties with the default value, the commands fail.

Workaround: Supply a specific value.

5.5.2 Oracle-to-Oracle LOB replication fails

[CR# 400077] Replicating large-object data in an Oracle-to-Oracle environment fails.

Workaround: Download Enterprise Connect Data Access Option for Oracle version 12.5.7 or 12.6.1. See "Sybase EBFs and software maintenance" on page 15 for details on downloading.

5.5.3 pdb_setrepddl enable fails when use_rssd is set to false

[CR# 404985] If you are using a database replication definition and use_rssd is set to false, the pdb_setrepddl enable command fails.

Workaround: Set use_rssd to true.

5.5.4 Viewing trace log in vi returns error

[CR# 404994] Viewing a trace log in vi may return a "line too long" error.

Workaround: View the trace log using a different editor.

5.5.5 alter type DDL command has limited support

[CR# 405206] During replication of the alter type command, the type change does not propagate to the dependents of the type.

Workaround: The Replication Agent must be re-initialized to recognize the changed type.

5.5.6 create table DDL has limited support for UDD object types

[CR# 405207] UDD object types with nested object types are not supported for create table DDL commands.

Workaround: The Replication Agent must be re-initialized to recognize the new table.

5.5.7 *pdb_setreptable* may fail for a table that contains a column with a new UDD object type

[CR# 405269] The pdb_setreptable command may fail for a table that contains a column with a UDD object type that has been created after initialization and before resuming replication.

Workaround: Resume replication, wait, and mark the table again.

5.5.8 Disabling the recyclebin in Oracle 10.1

The Oracle "recyclebin" configuration property was not added until Oracle 10.2. To disable the recycle bin in Oracle 10.1, you must set the Oracle hidden property:

ALTER SYSTEM SET " recyclebin"=FALSE SCOPE = BOTH;

6. Documentation updates and clarifications

This section describes changes made to the Replication Agent documentation.

6.1 Replication Agent Primary Database Guide

(This additional information applies only to Oracle.) Similar to the support for table and procedure replication, Oracle Sequences are individually marked for replication using the new Replication Agent pdb_setrepseq command. For a description of the pdb_setrepseq command, refer to the Sybase Replication Agent *Reference Guide*.

6.1.1 Chapter 3, Replication for Oracle

The following information for the "Understanding Oracle Sequence replication" section needs to be added.

Logging of Oracle Sequence information

Individual sequence changes are not logged in the Oracle database *log* file; however, changes to Oracle Sequences do impact (update) the Oracle sys.seq\$ table. These changes do not occur with each new sequence value generated. Instead, the sys.seq\$ table is updated periodically, based on sequence caching refresh activity or other system changes. The value stored in the sys.seq\$ table for a sequence is the "next" value to be assigned "after" the existing cache of values has been exhausted.

For example, a newly created sequence starts with a value of 1, increments by 1, and has a cache value of 20. (These are all default values and can be customized.) The value stored in the sys.seq\$ record for this new sequence is 21. This indicates that the "next" value to be used by the sequence, after the existing cache of 20 numbers is used, is 21. The record in sys.seq\$ does not change until the sequence value hits 21. At that time, Oracle will cache the next 20 values for the sequence, and the sys.seq\$ record will be updated to 41. It is this value (41), recorded in change to the sequences sys.seq\$ record, that will be used for replication. The key point is to recognize that not every individual sequence update is recorded in the log and therefore is not available for replication.

Replicating sequence changes

When a sequence is marked for replication, changes to that sequence against sys.seq\$ are captured and sent to Replication Server in the form of parameters passed to a procedure. The procedure (rs_update_sequence) must be installed at the standby site as part of system setup, as well as a function replication definition for that procedure. At the standby site, an implementation of rs_update_sequence will increment a same-named sequence until its value is equal to the value at the primary site. Scripts are provided with installation to create the rs_update_sequence stored procedure and function replication definition and are located as follows:

```
$SYBASE/RAX-15_0/scripts/
oracle_create_replicate_sequence_proc.sql
$SYBASE/RAX-15_0/scripts/
oracle create rs sequence repdef.sql
```

Performance considerations

Compared to the performance of incrementing a sequence at the primary database, particularly where sequence values are cached, the effort to increment the same sequence at the standby site may be less efficient. The stored procedure must dynamically determine the sequence to increment and must loop internally, incrementing the sequence until the primary value has been reached. The loop is required because there is no way to assign a specific value to a sequence.

Because the name of the sequence is passed as a parameter, Oracle cannot precompile the procedure for efficiency. With the addition of the looping activity required to properly increment the sequence, the performance of the solution may impact some environments where a large number of highly used sequences is the norm.

Sequence replication alternatives

If the performance of sequence replication is a concern, other alternatives to replication are available that support primary and standby use of the same sequence. These alternatives are currently suggested by Oracle and others interested in providing sequence coordination between multiple sites:

- Assuming that the sequence is being used to generate primary key values,
 the sequence at each site can be concatenated with something unique to the
 site. For example, use a sequence number concatenated with the database
 name, site name, or something similar. This technique allows each site to
 maintain a unique "range" of sequence of numbers. If each site has a
 unique range, there is no reason in sending (replicating) changes of one
 site's range to another site.
- Similar to concatenating, each site can obtain a different range of numbers by having different starting points, or increment values, for the same sequence. For example, the sequence at one site can start at 1 and increment by 2 to generate odd numbers (1, 3, 5), while the other site starts at 2 and generates even numbers (2, 4, 6). Again, by having a unique range, each site would avoid any need for replication.

• A third option is available to standby solutions, where the standby site is for read-only and does not access the sequence value until failover. Rather than continually replicating a sequence's value, the value of the sequence at the standby site can be updated as part of the failover tasks. After failover and before the standby allows connection to client applications, a script or procedure can query the last-used sequence value (based on the last table to use it for a primary key) and update or redefine the sequence once, based on that calculated value.

Replication Agent permissions (Oracle only)

Replication Agent for Oracle uses the pds_username command to connect to Oracle. You must grant the Oracle permissions that are currently identified in the Sybase Replication Agent *Primary Database Guide*, including the addition of the following:

- · create sequence
- select on sys.cdef\$
- select on sys.con\$
- select on sys.user\$
- select on sys.coltype\$
- select on sys.seq\$

Flashback enhancements (replace this section with the following)

Oracle's new flashback feature available in Oracle version 10g is not supported in Replication Agent for Oracle. Because flashback is not supported, it requires that you disable the recycle bin:

 To disable the recycle bin which was added in Oracle 10.2 (which requires sysdba privileges):

```
purge dba_recyclebin;
ALTER SYSTEM SET recyclebin = OFF;
```

• To disable the recycle bin in Oracle 10.1, you must set the Oracle hidden property:

```
ALTER SYSTEM SET "_recyclebin"=FALSE SCOPE = BOTH;
```

In Oracle 10.2, to view the contents of the recycle bin:

```
select * from dba recyclebin;
```

In Oracle 10.2, to view the current recycle bin configuration:

select value from v\$parameter where name = "recyclebin";

6.2 Sybase Replication Agent Reference Manual

The following is a correction to the existing documentation.

6.2.1 Chapter 1, Command Reference

The following correction specifies the use of the command pdb_setreptable using the keyword owner.

Specifying the owner of a table in a replication definition

Table-marking behavior has changed when you specify the owner of a table in a replication definition. Now, you must always use the owner keyword if you want to enable the SEND OWNER mode. When marking, if you do not specify the replicate owner, it defaults to the primary owner.

In the following examples, the leading letter indicates either primary (p) or replicate (r):

• Example 1:

```
pdb setreptable ptable, rtable, mark, owner
```

The table in the replication definition will be:

```
powner.rtable
```

• Example 2:

```
pdb setreptable ptable, rowner.rtable, mark,owner
```

The table in the replication definition will be:

```
rowner.rtable
```

• Example 3:

```
pdb_setreptable ptable, rowner.rtable, mark
```

The table in the replication definition will not be owner-qualified:

rtable

7. Technical support

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

8. Other sources of information

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

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.
 - Some documentation may be provided in PDF format, which you can access through the PDF directory on the SyBooks CD. To read or print the PDF files, you need Adobe Acrobat Reader.
 - Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.
- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

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

8.1 Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

To find the latest information on product certifications

- 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.

❖ To find the latest information on component certifications

- 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.

To create a personalized view of the Sybase Web site (including support pages)

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

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

8.2 Sybase EBFs and software maintenance

To find the latest information on EBFs and software maintenance

- 1 Point your Web browser to the Sybase Support Page at http://www.sybase.com/support.
- 2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.
- 3 Select a product.
- 4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

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

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

9. Accessibility features

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

Sybase Replication Agent 15.0 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.