SAP

SAP Replication Server® Options 15.7.1 SP200

Linux, UNIX, and Microsoft Windows

Contents

Product Summary

The SAP® Replication Server® Options can be purchased separately from SAP® Replication Server®, or as part of SAP® Replication Server®, heterogeneous edition (RSHE) or SAP® Replication Server®, real-time loading edition (RTLE).

SAP Replication Server Options

Use SAP Replication Server Options with SAP Replication Server for bidirectional replication across distributed, heterogeneous systems, which allows you to perform different operational and decision-support tasks. To obtain an option, you must already have SAP Replication Server.

SAP Replication Server Options are compatible with the same platform and operating system configurations as Replication Agent™ 15.7.1 SP200, and ExpressConnect for Oracle 15.7.1 SP200. For specific hardware and software requirements, see the *Enterprise Connect Data Access Release Bulletin*, the *ExpressConnect for Oracle Configuration Guide*, and the *Replication Agent Installation Guide*.

For more general information about the heterogeneous replication capability of SAP Replication Server and Replication Server Options, see the *SAP Replication Server Heterogeneous Replication Guide*.

Version Contents
SAP Replication Server Options are available for Oracle, Microsoft SQL Server, and IBM DB2 Universal Database (UDB). Each option requires a license for accessing data only in the specified data source.

* SAP Replication Server, option for Oracle consists of:
  * ExpressConnect for Oracle – licensed for Oracle
  * Replication Agent – licensed for Oracle
* SAP Replication Server, option for Microsoft SQL Server consists of:
  * Enterprise Connect™ Data Access (ECDA) Option for ODBC – licensed for ODBC
  * Replication Agent – licensed for Microsoft SQL Server
* SAP Replication Server, option for IBM DB2 UDB consists of:
  * ECDA Option for ODBC – licensed for ODBC
  * Replication Agent – licensed for IBM DB2 UDB

See also
* *Licensing Options* on page 5

SAP Replication Server, Heterogeneous Edition

SAP Replication Server Options and SAP Replication Server are also sold together as part of the SAP Replication Server, heterogeneous edition (RSHE).

You can use RSHE to replicate between different kinds of data servers. RSHE supports SAP® Adaptive Server® Enterprise (SAP® ASE) and non-SAP data servers such as Oracle, IBM DB2 UDB, and Microsoft SQL Server.

Note: You cannot use RSHE to replicate into SAP HANA® database.

RSHE is compatible with the same platform and operating system configurations as SAP Replication Server 15.7.1 SP200, Replication Agent 15.7.1 SP200, ECDA 15.7, and ExpressConnect for Oracle 15.7.1 SP200. For specific hardware and software requirements, see the *SAP Replication Server Installation Guide*, the *Replication Agent Installation Guide*, the *Enterprise Connect Data Access Release Bulletin*, and the *ExpressConnect for Oracle Configuration Guide*.

Version Contents
RSHE consists of:

- SAP Replication Server 15.7.1 SP200
- Replication Agent 15.7.1 SP200, including:
    - Replication Agent for Oracle
    - Replication Agent for Microsoft SQL Server
    - Replication Agent for IBM DB2 UDB
- ExpressConnect for Oracle 15.7.1 SP200
- ECDA Options 15.7

    Note: In RSHE 15.7.1 SP200, ECDA is used to connect only to Microsoft SQL Server and IBM DB2 Universal Database (UDB). ECDA option for Oracle is not supported in RSHE 15.7.1 SP200.

All RSHE components except Replication Server have static licenses.

SAP Replication Server 15.7.1 SP200 can be licensed for a subset of the CPUs on which it is installed (sub-capacity licensing). See the *SAP Replication Server Installation Guide*.

RSHE on Solaris x64
RSHE on Solaris x64 is for Oracle databases only and includes Replication Agent for Oracle and ExpressConnect for Oracle.

SAP Replication Server, Real-Time Loading Edition

The SAP Replication Server, real-time loading edition (RTLE) includes components necessary to replicate to an SAP® IQ database.

RTLE enables real-time loading for replicating data from SAP Adaptive Server or Oracle to SAP IQ. Replication from Oracle requires Replication Agent for Oracle. Although real-time loading is supported on all platforms that SAP Replication Server supports, Replication Agent for Oracle is not available on Linux on POWER. However, you can run Replication Agent for Oracle on any of the supported platforms. For a list of platforms on which Replication Agent for Oracle is available, see the *Replication Agent Installation Guide*.

Replication Agent

Replication Agent extends the capabilities of SAP Replication Server by allowing non-SAP database servers to act as primary data servers in a replication system based on SAP replication technology.

For a list of platforms and operating systems on which Replication Agent is supported, see the *Replication Agent Installation Guide*.

Product Compatibility

Replication Agent is compatible with several database servers, drivers, and products.

Table 1. Compatible Databases

Database	Versions
Oracle Server	12c (12.1),11g (11.1, 11.2), 11g ASM, 11g RAC, 10g (10.2), 10g ASM, 10g RAC, 10g in 9i compatibility mode

Database	Versions
Microsoft SQL Server	2012 as the primary database , 2008 R1 Service Pack 2, and 2008 R2 – Replication Agent does not support the features and datatypes introduced in Microsoft SQL Server 2008.
	Note: Microsoft SQL Server 2005 and earlier versions are no longer supported. You must upgrade your primary database server to a supported version before migrating Replication Agent for Microsoft SQL Server instance(s). See the Certification Web site at *http://certification.sybase.com/ucr/search.do* for detailed information on the supported versions.
IBM DB2 Universal Database	Enterprise Edition 10.5, 10.1, 9.7, and 9.5

Replication Agent requires a JDBC 4.0-compliant driver for the primary data server.

Table 2. Compatible Drivers

Driver	Versions
Oracle JDBC driver	• 12.1 (12c) • 11.2.0.3 or later • 11.2 for JDK 1.6 • 11.1 for JDK 1.5
	Note: You can use either of these drivers with Oracle version 11.1 or 10.2. However, for Oracle 11.2, you must use Oracle JDBC 11.2 driver. For Oracle 12c, the JDBC driver is `ojdbc7.jar`
Microsoft SQL Server JDBC driver	4.0
DB2 Universal Database Administration Client	64-bit on Linux and UNIX platforms; 32-bit on Windows platform only. Use version: • 10.5 – for DB2 10.5 • 10.1 – for DB2 10.1 • 9.7 – for DB2 9.7 • 9.5 – for DB2 9.5

Table 3. Compatible Product

SAP Product	Version
SAP Replication Server	15.7.1 SP200
ExpressConnect for Oracle (ECO)	15.7.1 SP200
ExpressConnect for SAP HANA database (ECH)	15.7.1 SP200
ECDA Option for ODBC	15.7
SySAM	2

Licensing Options

Before installing, review the licensing options.

Table 4. Licensing Options for RSO Components

RSO Component	Licensing Options
Replication Agent	A SySAM served or unserved license obtained from the Sybase Product Download Center (SPDC) or Service Marketplace (SMP) is required. **Note:** If you purchased your product from an authorized Sybase reseller and have not been migrated to SAP Service Marketplace (SMP), go to the Sybase Product Download Center (SPDC) at *https://sybase.subscribenet.com* to generate license keys.
ECDA for ODBC	Obtain the ECDA license file from SPDC or SMP.
ECO	Obtain the ExpressConnect for Oracle license file from SPDC or SMP.

Table 5. Licensing for Replication into SAP HANA database

Component	Licensing
Replication Agent	A SySAM served or unserved license obtained from the Sybase Product Download Center (SPDC) or Service Marketplace (SMP) is required.

Component	Licensing
ECH	ExpressConnect for SAP HANA database is installed with SAP Replication Server. There is no separate installer for ExpressConnect for SAP HANA database. For replication to SAP HANA database, use the license key that you generate for your product during installation: • SAP Replication Server, option for SAP HANA, or • SAP Replication Server, SAP HANA edition See *SAP Replication Server Quick Start Guide for SAP HANA Database*.

Table 6. Licensing Options for RSHE Components

Component	Licensing Options
SAP Replication Server	A SySAM served or unserved license obtained from the the SPDC or SMP is required.
Replication Agent	Obtain the Replication Agent license file from SPDC or SMP. You can use Replication Agent only with the version of SAP Replication Server covered under the RSHE license.
ECDA	Obtain the ECDA license file from SPDC or SMP. You can use ECDA only with the version of SAP Replication Server covered under the RSHE license. **Note:** Use ECDA to connect to Microsoft SQL Server and IBM DB2 Universal Database (UDB). To connect to Oracle, use ExpressConnect for Oracle.
ECO	Obtain the ExpressConnect for Oracle license file from SPDC or SMP.

Table 7. Licensing Options for RTLE Components

RTLE Component	Licensing Options
SAP Replication Server	A SySAM served or unserved license obtained from the SMP is required. Download SAP Replication Server 15.7.1 SP200.
Replication Agent for Oracle	Obtain the Replication Agent license file from SPDC or SMP. Download Replication Agent 15.7.1 SP200. You can use Replication Agent only with SAP Replication Server covered under the RTLE license.

Installation and Upgrade

Get the latest installation and upgrade information that may have been omitted from or incorrect in your installation guide or that needs special emphasis.

Replication Server Options Licenses
Read the information about mobile licensing in the *SySAM 2 Users Guide*.

If you are using sub-capacity licensing, perform one of the following:

- Before starting your installer, set the SYBASE_SAM_CAPACITY environment variable using the **sysamcap** utility.
  Follow the instructions provided in the *SySAM Users Guide > Configuring SySAM Sub-capacity*. However, start your installer instead of starting the sub-capacity-enabled Sybase product. The installer includes the **sysamcap** utility located in `sysam_utilities/bin`.
- Select **Continue installation without a license key** in the Sybase Software Asset Management License pane during installation. After installation, copy your license key to `installed_directory/SYSAM-2_0/licenses` directory where `installed_directory` is the location in which you have installed your components into.

License Expiration
Replication Server Options, SAP Replication Server, and SAP Adaptive Server use the same registry. When the license for one of these products expires, the licenses of the other products are affected. If you are evaluating one of the Replication Server Options, request another evaluation license from SAP. Otherwise, generate your licenses at SPDC or SMP and deploy them.

Running InstallAnywhere and InstallShield Multiplatform Installers
Some of the files generated by InstallAnywhere and InstallShield Multiplatform share the same file names. This becomes an issue when you use both InstallAnywhere and InstallShield technologies to install or uninstall products in the same installation directory because files that are used by both installers are overwritten or removed without warning. SAP recommends that you do not use InstallShield and InstallAnywhere to install to or uninstall from the same installation directory.

Installing a Static License for Replication Agent

If you did not specify the static license during RSHE or RTLE installation, install the static license after the installation is complete.

1. Stop the Replication Agent instance if it is running.
2. Copy the Replication Agent static license file to:
   - *$SYBASE*/SYSAM-2_0/licenses (UNIX or Linux)
   - *%SYBASE%*\SYSAM-2_0\licenses (Windows)

   where *$SYBASE* or *%SYBASE%* is where you installed Replication Agent.
3. Restart the Replication Agent instance.
4. Check the Replication Agent log file to verify that the Replication Agent instance has started successfully:
   - *$SYBASE*/RAX-15_x/<instance_name>/log/<instance_name>.log (UNIX or Linux)
   - *%SYBASE%*\RAX-15_x\<instance_name>\log \<instance_name>.log (Windows)

Installing Static Licenses for ECDA in RSO and RSHE

Install the static SySAM license files to use ECDA in Replication Server Option for Microsoft SQL Server and IBM DB2 UDB, and ECDA in RSHE.

1. Stop the ECDA instance if it is running.
2. Copy the ECDA static license file to:
   - *$SYBASE*/SYSAM-2_0/licenses (UNIX or Linux)
   - *%SYBASE%*\SYSAM-2_0\licenses (Windows)

   where *$SYBASE* or *%SYBASE%* is where you installed ECDA.
3. Restart the ECDA instance.
4. Check the ECDA instance log file to verify that the ECDA instance has started successfully:
   - *$SYBASE*/DC-15_0/servers/<servername>/log/ <servername>.log (UNIX or Linux)
   - *%SYBASE%*\DC-15_0\servers\<servername>\log \<servername>.log (Windows)

   where *$SYBASE* or *%SYBASE%* is where you installed ECDA.

Replication Agent Special Installation Instructions

Learn about additional installation requirements for this version of Replication Agent.

See *Upgrading and Downgrading Replication Agent* in the *Replication Agent Primary Database Guide* to upgrade and downgrade Replication Agent.

Visual C++ 2005 Runtime Components

When installing on Microsoft Windows, the Replication Agent 15.6 installation program requires components of the Microsoft Visual C++ 2005 libraries. If these libraries are not installed, the Replication Agent installer stops responding without issuing a warning or error message.

To check if the Microsoft Visual C++ 2005 Redistributable package is already installed, go to **Start > Control Panel > Add or Remove Programs**, and look for Microsoft Visual C++ 2005 Redistributable.

You can download Visual C++ 2005 from the *Microsoft Visual C++ 2005 SP1 Redistributable Package (x86) page*. Run `vcredist_x86.exe` to install the Visual C++ runtime components on Microsoft Windows 32-bit or 64-bit machines.

SySAM Server's Internet Protocol Configuration

SySAM supports Internet Protocol versions 6 and 4 (IPv6 and IPv4, respectively), however, Replication Agent supports only IPv4. The SySAM server that is installed by the Replication Agent installation program is configured to use IPv4. It is recommended that you maintain this configuration. However, if you must use IPv6, license Replication Agent using an unserved license.

SySAM Subcapcity Licensing

If you are using subcapacity licensing, perform one of the following:

* Before starting your installer, set the SYBASE_SAM_CAPACITY environment variable using the **sysamcap** utility.
  Follow the instructions provided in the *SySAM Users Guide > Configuring SySAM Sub-capacity*. However, start your installer instead of starting the sub-capacity-enabled SAP product. The installer includes the **sysamcap** utility located in `sysam_utilities/bin`.
* Select the **Continue installation without a license key** in the SySAM License pane during installation. After installation, copy your license key to *installed_directory*/SYSAM-2_0/licenses directory where *installed_directory* is the location in which you have installed your components into.

ExpressConnect for Oracle Special Installation Instructions

ExpressConnect for Oracle 15.7.1 SP200 is installed with SAP Replication Server 15.7.1 SP200. ExpressConnect for Oracle is not installed as a standalone product.

ExpressConnect for Oracle (ECO) does not include the Oracle client libraries, which are required to run ECO. You must download and install these libraries separately. See the *General Information and Technical Notes* section of the ECO cover letter for information on correct version and platform of Oracle client libraries, and installation instructions. If the cover letter is not available, see *Installing Oracle Instant Client Libraries* in the *ExpressConnect for Oracle Configuration Guide*.

Upgrading Replication Agent to Version 15.7.1 SP120 or SP200

Special Instructions to upgrade the Replication Agent to version 15.7.1 SP120 or SP200.

As of 15.7.1 SP120 and later version, Replication Agent does not include the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files for maximum strength (256-bit) password encryption. By default, Replication Agent 15.7.1 SP120 and later version defaults to 128-bit password encryption.

1. Upgrade the Replication Agent instance using these options:

Upgrading instances within the same product installation	• To upgrade a specific Replication Agent instance in the Replication Agent installation directory, at the command prompt, run:
	
	`./ra_admin.sh -u instance=<instance_name>`
	
	• To upgrade all Replication Agent instances in the Replication Agent installation directory, at the command prompt, run:
	
	`./ra_admin.sh -u all`

Upgrading instances in a separate product installation	• To upgrade a specific Replication Agent instance in the specified source instance directory from the current product installation directory, run:
	
	`./ra_admin.sh -u <source_instance_directory>`
	
	• To upgrade all Replication Agent instances in the specified source installation directory from the current product installation directory, at the command prompt, run:
	
	`./ra_admin.sh -u`
	`<source_installation_directory>`

2. To use the maximum strength (256-bit) password encryption, install the Java Cryptography extension (JCE) Unlimited Strengh Jurisdiction Policy Files:

    a) Download the JCE Unlimited Strength Jurisdiction Policy Files 7 from the Oracle Website.

    b) Extract the `UnlimitedJCEPolicyJDK7.zip` and copy the content of the Zip file in the Replication Agent installation directory.

       • On Windows – `%SYBASE%\RAX-15_5\JRE7\lib\security`

       • On UNIX – `$SYBASE/RAX-15_5/JRE7/lib/security`

3. To use the default strength (128-bit) password encryption, you must delete the existing passwords and reset the passwords.

    a) Delete the existing password encryption string:

```
ra_admin -k <instance>
```

where *instance* is the name of your Replication Agent instance.

> **Note:** Deleting the existing passwords will delete the Replication Agent system administrator, primary data server (PDS), SAP Replication Server and Replication Server System Database (RSS) user passwords and if you are replicating data definition language (DDL), the DDL user password is also deleted.

    b) Reset the Replication Agent system administrator password by issuing:

```
ra_admin -reset <instance>
```

4. Restart the Replication Agent instance.

5. If you using the default strength password encryption, reset the password for PDS, SAP Replication Server, RSSD, and DDL user by issuing:

```
ra_config pds_password, <password>
```

```
ra_config rs_password, <password>
```

```
ra_config rssd_password, <password>
```

```
ra_config ddl_password, <password>
```

where *password* is the new password value.

6. Log in to Replication Agent instance and migrate the Replication Agent metadata by issuing:

```
ra_migrate
```

> **Note:** You can use the **ra_finalize_upgrade** command to manually force upgrade finalization of an instance from a previous version and prevent downgrade to the previous version. You must finalize the upgrade to enable any new functionality. See **ra_finalize_upgrade** in the *Replication Agent Reference Manual*.

7. Resume replication.

```
resume
```

Known Issues

Review known issues and workarounds, listed by Change Request (CR) number.

For known issues concerning Enterprise Connect Data Access (ECDA), see:

- *Enterprise Connect Data Access Release Bulletin* for Microsoft Windows
- *Enterprise Connect Data Access Release Bulletin* for Linux and UNIX
- *Replication Server Release Bulletin* for your platform

The known issues for the Replication Server Options are in addition to those described in the individual product release bulletins.

Note:

If you have a Sybase® support contract, you can search the Sybase Web site for solved cases. Choose **Support > Solved Cases** or go to *http://search.sybase.com/search/simple.do? mode=sc*. You need a MySybase account to view solved cases in the archive.

If you have an SAP® support contract, use the Sybase xSearch to search for knowledge-based articles and solved cases. Go to the SAP Support Portal at *http://service.sap.com/sybase/ support*, log in, and select **KBAs & Solved cases** to start the xSearch.

Key to issue types:

- **RTC –** SAP® Release to Customer tracking number.
- **CSN –** SAP Customer Services Network tracking number.
- **CR –** Sybase® Change Request number.
- **AG –** Agentry® tracking number.
- **N/A –** No tracking number.

Known Issues for ExpressConnect for Oracle

Learn about known issues and workarounds for ExpressConnect for Oracle.

Table 8. Known Issues for ExpressConnect for Oracle

CR#	Description
708792	**Replication Server fails to load the ExpressConnect for Oracle (ECO) library files on Windows x86 32-bit system due to missing Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package MFC security update.** **Workaround:** Download and install the Microsoft Visual C++ 2005 security update: *http://www.microsoft.com/en-us/download/details.aspx?id=26347*
626715	**ExpressConnect for Oracle fails when bulk copy is enabled and the bulk copy threshold is set to 1.** ExpressConnect for Oracle fails when you set **dsi_bulk_copy** to on and **dsi_bulk_threshold** to 1. Setting **dsi_bulk_threshold** to 1 deteriorates and suspends the Data Server Interface (DSI). **Workaround**: Set **dsi_bulk_threshold** to 2 or higher.

Known Issues for Replication Agent

Learn about known issues and workarounds.

Known Issues for the Replication Agent Installer

Learn about known issues and workarounds for the Replication Agent installer.

Table 9. Replication Agent Installer Issues

CR#	Description
594586	**Inaccurate disk space information.** The installation program displays inaccurate disk space requirement. **Workaround**: Refer to the *Replication Agent Installation Guide* for the correct disk space requirement for your platform.

Known Issues for All Database Targets

Learn about known issues and workarounds for Replication Agent that are not specific to a particular environment or data server type.

Table 10. Issues for All Database Targets

CR#	Description
754206	**When you execute the quiesce command while Replication Agent is restoring a connection to SAP Replication Server, the command waits forever.** **Workaround:** Execute the **suspend** command instead of **quiesce**.
628568	**Replication Agent initialization may fail when tables are automatically marked for replication.** The **pdb_xlog init** command may fail when **pdb_automark_tables** is set to true. **Workaround**: Set the **pdb_automark_tables** to false before you issue **pdb_xlog init**. You can set **pdb_automark_tables** to true after Replication Agent has been initialized.
624714	**Limitation of running Replication Agent as a Windows service on a Microsoft Windows 64-bit platform.** Currently, you cannot use the Microsoft Windows Services utility to start, stop, remove, or install a Microsoft Windows service instance of Replication Agent. **Workaround**: Use **agt_service.bat** to start, stop, remove, or install a Replication Agent instance.

Known Issues for Oracle

Learn about known issues and workarounds for Replication Agent that are specific to Oracle.

Table 11. Replication Agent for Oracle Issues

CR#	Description
759152	**When you execute the DROP TYPE Oracle DDL command at the primary database, the status of Replication Agent for Oracle changes to Replication Down state with a Java.lang.IllegalStateException: no type for attribute.** ```E. 2014/02/21 11:11:20.968 ERROR com.sybase.ra.lr.oracle.RAOTranReader java.lang.IllegalStateException: no type for attribute:``` **Workaround:** None.
758661	**When you execute the alter table shrink space command at the primary Oracle database, the status of Replication Agent for Oracle changes to Replication Down state with a NullPointerException.** **Workaround:** Skip the **alter table** operations by enabling **skip_lr_errors** parameter: ```ra_config skip_lr_errors, true` `go` `resume` `go```

CR#	Description
757888 744733	**Replication Agent for Oracle cannot replicate `XMLType` column with `binary` storage.** The Replication Agent Log Reader has does not capture data manipulation language (DML) statements issued against an Oracle table `XMLType` column with binary storage. Replication Agent for Oracle supports `XMLType` with `CLOB` storage. However, `CLOB` storage is a deprecated feature in Oracle 12c. **Workaround:** None.
754777	**Replication Agent for Oracle with XStream APIs Log Reader component does not replicate data definition language (DDL) statements from Oracle 12.1.0.1 database.** **Workaround:** Upgrade to Oracle database version 12.1.0.2.

754600
749246
	Large Oracle transactions generate the XStream internal error `OCI-21500`:
	
	`OCI-21500: internal error code, arguments: [knclprstr:str], [0], [stmt_knglxr], [], [], [], [], []`
	
	An Oracle transaction size is considered to be large if it has more than 10000 rows or if it has 5000 rows and includes large object (LOB) columns.
	
	Workaround: Upgrade to Oracle database version 12.1.0.2 or increase the **TXN_LCR_SPILL_THRESHOLD** parameter value at runtime:
	
	`select apply_name from dba_apply`
	`begin`
	`dbms_apply_adm.set_parameter( apply_name => 'QAXXOUT_',`
	`                              parameter =>`
	`'TXN_LCR_SPILL_THRESHOLD',`
	`                              VALUE    => '50000');`
	`end;`
	`/`
	
	If increasing the **TXN_LCR_SPILL_THRESHOLD** parameter value, does not resolve this issue, please contact SAP Product Support for assistance.

CR#	Description
754017	**In an Oracle-to-SAP HANA database replication environment, direct load materialization fails due to check subscription error.** On Linux platforms, if the Oracle database and the Oracle JDBC driver version are both 11.1, when you execute the **pdb_execute_sql** command or once the direct load materialization is triggered. An error exception is logged in the Replication Agent log to indicate that **pdb_execute_sql** command failed to execute because: ```while trying to read the field 'lastRowProcessed' of a null object loaded from an array (which itself was loaded from field oracle.jdbc.driver.T4C8Oall.definesAccessors of an object) with an index loaded from a constant``` **Workaround:** Download the Oracle JDBC driver 11.2 version from the Oracle Web site.

752473	**In an Oracle-to-SAP HANA replication environment, replication fails when the Replication Agent Java Virtual Machine (JVM) stops responding.**
	
	When you resume a Replication Agent, the Replication Agent JVM crashes causing the replication definition failure.
	
	You can find the information about the JVM failure in the `hs_error_pid.log` file, where *pid* is your JVM system process ID:
	
	```Java frames: (J=compiled Java code, j=interpreted, V=VM code (C/C++), v=VM code (generated))\nJ oracle.streams.XStreamOut.XStreamOutReceiveLCRNative(JJI)Ljava/util/ArrayList; (sp=0x00007f4503c44500) (pc=0x00007f45199f24f4)\nJ oracle.streams.XStreamOut.receiveLCR(I)Loracle/streams/LCR; (sp=0x00007f4503c44550) (pc=0x00007f4519adeef8)\nJ com.sybase.ds.oracle.xstream.XStreamOutBound.receiveLCR(I)Loracle/streams/LCR; (sp=0x00007f4503c445a0) (pc=0x00007f45199bf894)```
	
	Workaround: Include additional JVM options by executing:
	
	```$JRE $JVM_DATA_MODEL -server $MAX_MEMORY_POOL $FILENC "-Dinstall.root=$RAX_DIR" "-DSYSAM_LICDIR=$SYSAM/licenses" -XX:CompileCommand=exclude,oracle/streams/XStreamOut,XStreamOutReceiveLCRNative -XX:CompileCommand=exclude,oracle/streams/XStreamOut, receiveLCR -XX:CompileCommand=exclude,com/sybase/ds/oracle/xstream/XStreamOutBound,receiveLCR -XX:CompileCommand=exclude,com/sybase/ds/oracle/xstream/XStreamScanner, run -classpath "$RAX_JARS:$JCONN_CLASSES/jconn4.jar:$JCONN_CLASSES/jTDS3.jar:$JHOME/lib/charsets.jar:$RAX_DIR/classes/sylapi.jar:$RAX_DIR/classes/xstream.jar:$CLASSPATH" com.sybase.ra.RepAgent "$@"```

CR#	Description

752457	**Upgrading with ra_migrate fails on AIX platform with this error message:**
	
	``ra_migrate
	go
	
	Command failed - XLog could not be migrated in database
	<(primary db name)>
	because: Could not set upgrade finalization status on pri-
	mary database
	<(primary db name)> because: Could not upgrade system re-
	pository database <> from
	vesrion <(version number)> to version <(version number)>
	because: Could not start database
	<(path to database file)>.```
	
	Workaround:
	
	1. Shut down Replication Agent.
	2. Change the `asa_install_dir` to `asa_bin` directory to a later version of Replication Agent.
	3. Change the **asa_engine** to the latest version.
	   The `asa_bin` and **asa_engine** details are in the `$SYBASE/RAX-15_5/bin/ra_admin.sh` file.
	   For example, `$SYBASE/RAX-15_5/SQLANY16/bin` and **dbeng6**.
	4. Restart Replication Agent.
	
	Once Replication Agent has started, you can replicate data to the target database.

752165	**Replication Agent for Oracle with XStream APIs Log Reader component fails to replicate an Oracle table created with CREATE TABLE... AS SELECT statement.** If you create a table with **CREATE TABLE... AS SELECT** statement at the primary database, the Replication Agent for Oracle changes to Replication Down state because of this error exception: ```com.sybase.ds.oracle.OracleLogRecordProcessingException: A DDL operation arises in a DML transaction on user table, which is not supported.``` **Workaround:** Skip the error message and resume the Replication Agent.

CR#	Description
751548	**In an Oracle-to-SAP HANA database replication environment, if you try to replicate wide tables, replication fails because of an Oracle XStream (`ORA-26813`) error:** ``` E. 2013/11/20 23:48:13.651 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner XStream Out bound server failed to be detached because: ORA-03127: no new operations allowed until the active op- eration ends E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner Log scanner <QA0XOUT_> stopped because of error: XStreamOut AddCo- lumnValues: failed to get RowLCR col info. E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner ORA-26813: The value for argument "ARRAY_SIZE" is too small E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner java.lang.Exception: Log scanner <QA0XOUT_> stopped because of error: XStream- Out AddColumnValues: failed to get RowLCR col info. E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner ORA-26813: The value for argument "ARRAY_SIZE" is too small E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner com.sybase.ds.ora- cle.xstream.XStreamScanner.run(XStreamScanner.java:411) E. 2013/11/20 23:48:13.653 ERROR com.sybase.ds.ora- cle.xstream.XStreamScanner java.lang.Thread.run(Thread.java:791) ``` **Workaround:** None.
751174	**Replication Agent for Oracle does not support dynamic SQL replication with update statements when the source table has more than one LOB column.** This is a limitation of dynamic SQL when you use Oracle primary database in a replication environment. **Workaround:** Create a table replication definition with the source table.

CR#	Description
743792	**Replication Agent for Oracle instance does not start when you use a resource file for initilization.** When you use a resource file with start_instance = yes and initial-ize_instance = yes settings, Replication Agent for Oracle does not start. You see an error exception similar to: ``` Waiting for ASA <dbspawn> process to complete. ASA <dbspawn> process succeeded. Processing... Generating a random key automatically. ERROR: Encountered an exception <Instance <rao1571> failed to start because: <Cannot run program "/work/rax1571sp102/RAX-15_5/bin/ ra.sh -i rao1571 > /work/rax1571sp102/RAX-15_5/rao1571/log/error.log 2>&1": error=2, No such file or directory>> initializing an instance created from the resource file <myrao1571.rs>. Please check the log file for a reason, correct the error, and re-run pdb_xlog init command. Resource-file processing completed. The log file for this session is: /work/rax1571sp102/ RAX-15_5/admin_logs/admin7192013_162126.log ``` The contents of the log file shows: ``` INFORMATION: Generating a random key automatically. Jul 19, 2013 4:21:40 PM com.sybase.ra.RepAgentAdmin crea- teInstanceFromResponseFile ERROR: Encountered an exception <Instance <rao1571> failed to start because: <Cannot run program "/work/rax1571sp102/RAX-15_5/bin/ ra.sh -i rao1571 > /work/rax1571sp102/RAX-15_5/rao1571/log/error.log 2>&1": error=2, No such file or directory>> initializing an instance created from the resource file <myrao1571.rs>. Please check the log file for a reason, correct the error, and re-run pdb_xlog init command. Jul 19, 2013 4:21:40 PM com.sybase.ra.admin.CommandLine doAdmin INFORMATION: Resource-file processing completed. ra.sh -i i error=2 No such file or directory ``` **Workaround:** None.
738185	**Random rollbacks on index-ordered tables may fail to replicate.** A random rollback executed in parallel on an index-ordered table may fail to replicate. **Workaround:** None.

CR#	Description
735422	**Replication failure for stored procedures with CHAR or NCHAR parameters** Replication Agent for Oracle may fail to replicate stored procedures that have parameters of type CHAR or NCHAR. **Workaround:** If you manually create the replication definition in Replication Server for such a stored procedure, use varchar for parameters of type CHAR and NCHAR.
732183	**Replication of update and delete operations on NUMBER data fail** After direct load materialization, replication of **update** and **delete** operations on Oracle NUMBER data may fail if the NUMBER value is in a searchable column or is more than 36 digits in length. **Workaround:** For Oracle 11.2.0.3 on Linux, you can install an Oracle patch for p14020842. For other versions, there is no workaround.
723789	**Resource file verification fails** Verification of the resource file fails with this parameter setting: `pds_sa_useranme=SYS AS SYSDBA` **Workaround:** Do not use the SYSDBA role in **pds_sa_username**.
722324	**Replication Agent for Oracle does not support the replication of DDL operations executed by Oracle system users, such as SYS or SYSDBA.** **Workaround:** Make sure a non-system user performs all DDL operations that you want to replicate.
722089	**Login to Oracle fails with pds_username and ddl_username due to case-sensitivity.** The Replication Agent **pds_username** and **ddl_user** configuration parameters are not case-sensitive. In Replication Agent for Oracle, these parameters are case-insensitive, which can result in login failure. **Workaround:** None.
713588	**Replication Agent for Oracle goes to Replication Down state due to Oracle trigger problem.** When you create a new trigger on a table in Oracle 11.2.0.1, the trigger is disabled by default. Subsequent triggers created on the table are enabled by default. **Workaround:** After you create a new trigger on a table in Oracle 11.2.0.1, explicitly enable the trigger state using the Oracle command: `ALTER TRIGGER <trigger_name> ENABLE` where *<trigger_name>* is the name of the new trigger. Alternately, you can use the **ENABLE ALL TRIGGERS** clause of Oracle **ALTER TABLE** command to enable all triggers defined for the table.

CR#	Description
713300	**Replication Agent for Oracle replicates LOB of incorrect size due to LogMiner error.** Oracle LogMiner occasionally indicates and provides Replication Agent for Oracle with LOB data that is longer than the correct length. **Workaround:** None.
709173	**When the Replication Agent processes records with LOB for tables with partition by hash on Oracle 11.1 for HPIA64 and Windows platforms, this exception error is encountered:** ``` Could not mine or match a RAW LogMiner record for record <...Operation <UNSUPPORTED> ... SQL Redo <Un- supported> > from SCN [<xxx>, <xxx>].> ``` **Workaround:** None.
707428	**OracleLogRecordProcessingException error is encountered in Oracle version 11.1.0.6.** When you alter a table with truncate partition in the primary database, where the table is a partitioned table with LOB and sub-partitions, an OracleLogRecordProcessingException error is encountered. This is encountered only in Oracle version 11.1.0.6. **Workaround:** You can either: • Use this command: ``` ra_config skip_lr_errors, true go resume go ``` or, • Upgrade to Oracle 11.1.0.7 or later.
706919	**Oracle LogMiner produces invalid results for `FLOAT` data with precision greater than 36.** This behavior occurs in Oracle 10g Release 2 through Oracle 11g Release 2. **Workaround:** For Oracle 11g Release 2 Linux-x86-64 platforms, install the Oracle patch for bug #14020842.
705702	**The DDL commands that SYS user executes are not filtered.** **Workaround:** Add SYS user to DDL filters: ``` pdb_setrepddl user, sys, disable go ```

CR#	Description
702924	**The alter table DDL command fails in Replication Agent.** In Oracle 10g, when a new column is added to a table with **not null** and default value, Oracle also updates the existing rows with the default column value. When the update to the existing rows is performed, an exception shows up since Replication Agent has not processed the alter table DDL yet, which means it has not updated the article to add the new column. Replication Agent has no way to determine whether this is a normal user table update or an internal update that is generated by DDL transaction. **Workaround:** Use **pdb_skip_op** command to skip the internal update DML log record in the alter table DDL transaction. 1. Locate the internal update DML log record in the Replication Agent error log with LRTRACE set to on. Example: ``` T. 2012/03/25 20:27:12.293 LRTRACE com.sybase.ds.ora- cle.logmnr.OracleOperationPr Processing LogMiner Re- cord <OPID <0x0000.00bab3a6.0000:0001.00000be3.000000bf. 00f0>, Timestamp <2012-03-25 20:27:12.0>, XID <0x0004.002b.00000c39>, Serial# <7528>, Session# <133>, Session Info <log- in_username=QAMUSER client_info= OS_username=wliao Machine_name=rqavmrh1 OS_terminal= OS_process_id=31314 OS_program_name=dcoracle@rqavmrh1 (TNS V1-V3)>, User Name <QAMUSER>, Object ID <93318>, REL_FILE# <5>, DATA_BLK# <893>, DA- TA_OBJD#<93318>, Operation <UPDATE>, Op Code <3> Roll- back <0> SSN <0> CSF <0> SQL Redo <update "QAMUSER"."QAM_INT" set "FEE_SUB_MNEM_CD" = ' ' where "FEE_MNEM_CD" = 'SYB' and "FEE_TYP_DESC" = 'UNWIRED ENTERPRISE ' and "LST_UPDT_DTTI" = TO_TIMESTAMP('01/02/2009 00:00:00.000000000') and "LST_UPDI_USER_ID" IS NULL and "FEE_SUB_MNEM_CD" IS NULL;> >. ``` 2. Collect SCN, THREAD, and RBA of that update log record, and use **pdb_skip_op** command to skip it. ``` pdb_skip_op add, SCN, THREAD, RBA ``` 3. Resume Replication Agent.
702863	**Oracle does not support tables and tablespaces compressed for OLTP.** Oracle LogMiner for Oracle 11g Release 2 does not support tables and tablespaces compressed for online transaction processing (OLTP). **Workaround:** If you want to replicate tables compressed for OLTP, apply Oracle patch #129050503.

CR#	Description
702654	**Replication Agent aborts with LTI formatting error.** The Replication Agent is aborted with LTI formatting error on a locator value due to Oracle LogMiner limitation on decimal precision support. **Workaround:** None. Please contact SAP Product Support.
691433	**Oracle LogMiner zeroes out fractional second on timestamp columns.** Replication of millisecond section of `timestamp` datatype column fails if the primary Oracle version is earlier or equal to 10.2.0.4. **Workaround:** You can either: • Upgrade to Oracle 10.2.0.5 or 11g. This issue has been fixed in these versions. Or, • Apply Oracle patch 4727401, if available for your platform and Oracle version. **Note:** Replicating these tables is not supported in Oracle 10.2 due to lost part of a millisecond: • Tables created with PARTITION BY HASH (`timestamp_col`). • Tables with `timestamp` columns as primary key or unique index.
663726	**rasd_restore does not shutdown Replication Agent instance when run with a parameter.** **Workaround:** Run **rasd_restore** without specifying a parameter.
645980	**Exadata Hybrid Columnar Compression (EHCC) not supported.** Replication Agent for Oracle does not support the replication of "columnar compressed data because Replication Agent for Oracle does not support Exadata. Do not use the **compress for query** clause or the **compress for archive** clause in an Oracle table definition because these clauses are intended only for EHCC data. **Workaround**: None.
641011	**DDL statements introduced in Oracle 11g cannot be filtered.** **pdb_setrepddl** does not filter these DDL statements introduced in Oracle 11g: • Oracle 11.1 – **create flashback archive**, **alter flashback archive**, and **drop flashback archive**. • Oracle 11.2 – **alter database link**, **create edition**, and **drop edition**. **Workaround**: None.

CR#	Description
619663	**Replication Agent reports an incorrect number of RMAN-deleted archive redo log files when RMAN utility locale is not English.** Replication Agent searches for the word "Deleted" when counting the number of deleted archive redo log files that have been truncated by the Oracle Recovery Manager (RMAN) utility. For language modules other than English, the count fails because Replication Agent cannot find the word "Deleted." **Workaround**: Specify the locale behavior of your Oracle software by setting the NLS_LANG Oracle environment parameter to a supported English character set such as american_america.zhs16gbk. For example: • On Windows: `set nls_lang=american_america.zhs16gbk` • On UNIX: `setenv NLS_LANG american_america.zhs16gbk`
615023	**Replication definition is not created when table owner is not specified and recycle bin is enabled.** When your primary database is Oracle and the recycle bin is enabled, **rs_create_repdef** cannot create a replication definition for marked tables unless you specify a table owner. **Workaround**: Specify a table owner in the **rs_create_repdef** syntax. For example: `rs_create_repdef qaxuser.qax_tab1` where *qaxuser* is the table owner.

596321
 	
596320
	SAP Replication Server does not support specifying owner information of stored procedures in the function replication definition for Oracle.
	
	Therefore, Replication Agent cannot send that information to SAP Replication Server. Because the owner information is not available, the replicated stored procedure fails to execute at the Oracle standby database.
	
	Workaround: For each stored procedure that is replicated from an active to a standby database, create a corresponding function string. Specify owner information in the target stored procedure.
	
	To customize the function-string class of the standby connection, which is inherited from **rs_oracle_function_class**, enter:
	
	`alter connection to eco2stb.ordb (standby connection)`
	`set function string class to my_oracle_function_class`
	`go`

CR#	Description
585513	**Initialization failure when isolation level is set to serializable in an Oracle RAC environment.** In an Oracle Real Application Clusters (RAC) environment, Replication Agent may fail during initialization when you set the isolation level to **serializable**. This failure is due to an internal Oracle error. **Workaround**: Install the Oracle Clusterware Release 2 (10.2.0.4) patch set for Oracle Database 10g Release 2 or upgrade to Oracle Database 11g Release 1.
563912	**Incorrect lr_ntext_byte_order command default value in the output display.** The **ra_config lr_ntext_byte_order** command output incorrectly displays the default value as "<not_configured>" instead of big. **Workaround:** See the *Replication Agent Reference Manual* for the correct information on this command.
405207	**create table DDL has limited support for UDD object types.** Replication of a **create table** DDL command is not supported for tables with UDDs, when a UDD has a nested object type. **Workaround**: Reinitialize the Replication Agent.
405206	**alter type DDL command has limited support.** During replication of the **alter type** command, the type change does not propagate to the dependents of the type. **Workaround**: Reinitialize the Replication Agent.

<u>Known Issues for Microsoft SQL Server</u>

Learn about known issues and workarounds for Replication Agent that are specific to Microsoft SQL Server.

Table 12. Replication Agent for Microsoft SQL Server Issues

CR#	Description
755511	**Replication Agent for Microsoft SQL Server does not support truncation of tables that are marked for replication.**
	Workaround: Execute the **sp_SybTruncateTable** stored procedure to truncate tables that are marked for replication.
	sp_SybTruncateTable temporarily turns off the replication flag for the marked tables, issues the **truncate table** command, and then turns on the replication flag.
	If you are replicating data from SAP Business Suite, please download the latest patch of the SAP kernel that uses the **sp_SybTruncateTable** stored procedure. See *SAP Note 1972365 – Retry on error 4711* at: *https://css.wdf.sap.corp/sap/support/notes/1972365* .
738326	**Data inconsistency with ltl_send_only_primary_keys enabled and custom function strings.**
	If you have **ltl_send_only_primary_keys** set to true and are using custom function strings on table columns other than text or image columns, data in the replicate database may be inconsistent with data in the primary database.
	Workaround: Set **ltl_send_only_primary_keys** to false.
709113	**Cannot use a database replication definition and database subscription with dsi_alt_writetext set to dcany.**
	Workaround: Use table replication definition and table subscriptions.

CR#	Description
623810	**pdb_xlog init fails when Microsoft SQL Server 2008 is upgraded to the developer version.** **pdb_xlog init** fails when a SQL Server instance is upgraded from Microsoft SQL Server 2008 standard version to the developer version. This is a limitation of Microsoft SQL Server—during SQL Server upgrading, the "Agent XPs" component is turned off, which prevents **pdb_xlog init** from succeeding. **Workaround**: 1. Run these scripts using SQL Server Management Studio or SQLCMD to enable the SQL Server Agent extended stored procedures: ``` sp_configure 'show advanced options', 1; GO RECONFIGURE; GO sp_configure 'Agent XPs', 1; GO RECONFIGURE GO ``` 2. Run **pdb_xlog** init to reinitialize Replication Agent.

CR#	Description

583437	**Incorrect LTL generated.**
	
	Incorrect LTL may be generated in a partition schema for an update transaction that affects the primary-key column of a table referenced by the cascading foreign-key column of another table. For example, two tables are created, one with a primary-key column referenced by the foreign-key column of the other table. This causes updates to cascade to the primary-key column of the first table:
	
	`create table table1 (id int constraint PK_1 PRIMARY KEY`
	`CLUSTERED WITH FILLFACTOR=90 on myRangePS1(id),`
	`value1 varchar(8) null);`
	
	`create table table2 (id int constraint FK_1 FOREIGN KEY`
	`REFERENCES table1(id) ON UPDATE CASCADE,`
	`value1 varchar(8) null);`
	
	Data is inserted into both tables:
	`insert into table1 values(3,'aaa');`
	`insert into table2 values(3,'aaa');`
	
	The primary-key column of the first table is subsequently updated:
	`update table1 set id =4`
	
	The resulting update transaction results in the following logged commands:
	`LOP_BEGIN_XACT NULL`
	`LOP_BEGIN_UPDATE NULL`
	`LOP_DELETE_ROWS dbo.table1.PK_1`
	`LOP_INSERT_ROWS dbo.table1.PK_1`
	`LOP_DELETE_ROWS dbo.table2`
	`LOP_INSERT_ROWS dbo.table2`
	`LOP_END_UPDATE NULL`
	`LOP_COMMIT_XACT NULL`
	
	The LTL generated for this transaction does not identify that the delete operations are grouped with insert operations as part of an overall update operation. Consequently, Replication Server is suspended.
	
	Workaround: Drop the foreign key constraint in your replicate database. This will not result in data loss because both the original delete and the cascade delete commands are sent to the replicate database.

CR#	Description

569586	**An error occurs when applying service patch.**
	
	When you run the SQL Server 2008 service patch, the Replication Agent system tables *sys.sp_SybSetLogforLOBCol* and *sys.sp_SybSetLogforReplTable* are deleted from the resource database, triggering error 29537:
	
	`MSP Error: 29537 SQL Server Setup has encountered the`
	`following problem: [Microsoft][SQL Native Client]`
	`[SQL Server]Could not find stored procedure 'sys.sp_Syb-`
	`SetLogforLOBCol'.. To continue, correct the`
	`problem, and then run SQL Server Setup again.`
	
	Workaround: Before you apply the service patch, disable the database triggers that Replication Agent created:
	
	1. Log in to the primary database.
	2. Disable the automark trigger if it is enabled. For example:
	`DISABLE TRIGGER ra_createtable_trig_ ON DATABASE`
	
	where **ra_createtable_trig_** is the automark trigger created by Replication Agent.
	3. Disable the data definition language (DDL) trigger. For example:
	`DISABLE TRIGGER ra_ddl_trig_ ON DATABASE`
	
	where **ra_ddl_trig_** is the DDL trigger created by Replication Agent.

Known Issues for IBM DB2 UDB

Learn about known issues and workarounds for Replication Agent that are specific to IBM DB2 Universal Database (UDB).

Table 13. Replication Agent for IBM DB2 UDB Issues

CR#	Description
737314	**Direct load materialization is not supported between tables with different names.** Replication Server direct load materialization is not supported for replication definitions in which the primary table has been marked for replication with a replicate table name that is different than the primary table name. **Workaround:** None.

Known Issues for SAP Business Suite to SAP HANA Database

The known issues and workarounds that are specific to replicating data from SAP Business Suite to SAP HANA database.

See *SAP Replication Server Release Bulletin > Known Issues Known Issues for Replicating to SAP HANA Database > Replicating from SAP Business Suite to SAP HANA Database Issues*.

Document Updates and Clarifications

Read about updates, corrections, and clarifications to the documentation released with Replication Server Options.

ECDA Documentation Changes

Read about updates, corrections, and clarifications to released documentation for ECDA.

As of Replication Server Options 15.5, the ECDA Option for Oracle has been replaced by ExpressConnect for Oracle, though ECDA manuals continue to mention the ECDA Option for Oracle. For information on ExpressConnect for Oracle, see the *ExpressConnect for Oracle Configuration Guide* and the *Replication Server Options Overview Guide*.

No Support for Oracle to Oracle Reference Implementation

You cannot use the Reference Implementation for Oracle to Oracle Replication.

Disregard *Reference Implementation for Oracle to Oracle Replication* in the *Heterogeneous Replication Guide*.

Changes to Installing Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 7

Disregard the Installing Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy File 7 task in the *Replication Agent Administration Guide*.

Use these steps to install the JCE Unlimited Strength Jurisdiction Policy Files 7:

1. Follow the intsructions in the *Replication Agent Installation Guide* to install the Replication Agent.

As of 15.7.1 SP120 and later version, Replication Agent does not include the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files for maximum strength (256-bit) password encryption. By default, Replication Agent 15.7.1 SP120 and later version defaults to 128-bit password encryption.

2. Download the JCE Unlimited Strength Jurisdiction Policy Files 7 from the Oracle Website.

3. Extract the `UnlimitedJCEPolicyJDK7.zip` and copy the content of the zip file in the Replication Agent installation directory.
   - On Windows – `%SYBASE%\RAX-15_5\JRE7\lib\security`
   - On UNIX – `$SYBASE/RAX-15_5/JRE7/lib/security`

   Note: If you choose to use the default strength (128-bit) password encryption, you must delete the existing passwords and reset them.

   a) Delete the existing password encryption string:
   ```
   ra_admin -k <instance>
   ```
   where *instance* is the name of your Replication Agent instance.

   Note: Deleting the existing passwords will delete the Replication Agent system administrator, primary data server (PDS), SAP Replication Server and Replication Server System Database (RSS) user passwords and if you are replicating data definition language (DDL), the DDL user password is also deleted.

   b) Reset the Replication Agent system administrator password by issuing:
   ```
   ra_admin -reset <instance>
   ```
   c) Restart the Replication Agent instance.
   d) Reset the password for PDS, SAP Replication Server, RSSD, and DDL user by issuing:
   ```
   ra_config pds_password, <password>
   ```
   ```
   ra_config rs_password, <password>
   ```
   ```
   ra_config rssd_password, <password>
   ```
   ```
   ra_config ddl_password, <password>
   ```
   where *password* is the new password value.

4. Resume replication.
   ```
   resume
   ```

Obtaining Help and Additional Information

Use the Product Documentation site and online help to learn more about this product release.

- Product Documentation at *http://sybooks.sybase.com/* – online documentation that you can access using a standard Web browser. You can browse documents online, or download

them as PDFs. The Web site also has links to other resources, such as white papers, community forums, maintenance releases, and support content.

- Online help in the product, if available.

To read or print PDF documents, you need Adobe Acrobat Reader, which is available as a free download from the *Adobe* Web site.

Note: A more recent release bulletin, with critical product or document information added after the product release, may be available from the Product Documentation Web site.

Technical Support

Get support for SAP® products.

If your organization has purchased a support contract for this product, then one or more of your colleagues is designated as an authorized support contact. If you have any questions, or if you need assistance during the installation process, ask a designated person to contact Technical Support as specified in your contract:

- Sybase Technical Support or the Sybase subsidiary in your area
- SAP Technical Support

Customers with an SAP support contract can obtain support for this product at the SAP support site, *http://service.sap.com/sybase/support*.

You can also find information about Sybase support migration at this location (login may be required).

Customers with a Sybase support contract can obtain support for this product at *http://www.sybase.com/support* (login required).

Downloading Product Updates

Get maintenance releases, support packages and patches, and related information.

- If you purchased the product directly from Sybase or from an authorized Sybase reseller:
  a) Go to *http://www.sybase.com/support*.
  b) Select **Support > EBFs/Maintenance**.
  c) If prompted, enter your MySybase user name and password.
  d) (Optional) Select a filter, a time frame, or both, and click **Go**.
  e) Select a product.

  Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as an authorized support contact. If you have not registered, but have valid information provided by your Sybase

representative or through your support contract, click **My Account** to add the "Technical Support Contact" role to your MySybase profile.

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

- If you ordered your product under an SAP contract:

   a) Go to *http://service.sap.com/swdc* and log in if prompted.

   b) Select **Search for Software Downloads** and enter the name of your product. Click **Search**.

Product and Component Certifications

Certification reports verify Sybase product performance on a particular platform.

To find the latest information about certifications:

- For partner product certifications, go to *http://www.sybase.com/detail_list?id=9784*
- For platform certifications, go to *http://certification.sybase.com/ucr/search.do*

Accessibility Features

Accessibility ensures access to electronic information for all users, including those with disabilities.

Documentation for this product is available in an HTML version that is designed for accessibility.

Vision impaired users can navigate through the online document with an adaptive technology such as a screen reader, or view it with a screen enlarger.

HTML documentation has been tested for compliance with accessibility requirements of Section 508 of the U.S Rehabilitation Act. 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 may 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 the Sybase Accessibility site: *http://www.sybase.com/products/accessibility*. The site includes links to information about Section 508 and W3C standards.

You may find additional information about accessibility features in the product documentation.