



New Features Bulletin

Replication Server[®] Options

15.6

Linux, Microsoft Windows, and UNIX

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Sybase, Inc., One Sybase Drive, Dublin, CA 94568.

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New Features

Learn about the new features of Replication Server® Options 15.6 when Replication Agent™, Enterprise Connect™ Data Access (ECDA), and ExpressConnect for Oracle (ECO) are used with Replication Server for heterogeneous replication.

For information about the new features of the Replication Server Options components, see:

- *Replication Agent New Features Bulletin*
- *Enterprise Connect Data Access New Features Guide*
- *ExpressConnect for Oracle Installation and Configuration Guide*

ExpressConnect for Oracle

ExpressConnect for Oracle (ECO), a component of Replication Server Options, provides direct communication between a Replication Server and a replicate Oracle data server. ECO has replaced the ECDA Option for Oracle in Replication Server Options 15.5.

You can use ECO if you have a licensed Replication Server and have purchased Replication Server Options for Oracle. If you have upgraded Replication Server to version 15.6, you must install ECO 15.5 ESD #1, which is included in Replication Server Options for Oracle 15.6.

See *ExpressConnect for Oracle Installation and Configuration Guide*.

SySAM Sub-capacity Licensing

Sybase® offers sub-capacity licensing options for Replication Agent and ExpressConnect for Oracle (ECO), allowing you to license a Sybase product on a subset of the total number of CPUs available on a physical machine.

For information about sub-capacity licensing for Replication Agent and ECO, see the *Replication Agent Installation Guide* and the *Replication Server Installation Guide*.

Oracle 11g Release 2

Replication Server Options supports Oracle 11g Release 2 at the same functional level as Oracle 11g Release 1.

Replication Server Options also supports some new Oracle 11g Release 2 features, including:

- Use of the **FORCE** option with the **CREATE OR REPLACE TYPE** command on types that do not have table dependencies

- Replication of DDL for tables on which the Flashback Data Archive has been enabled
- All Oracle time zone file formats

Supported and Unsupported Datatypes

Learn about the datatypes supported and not supported by Replication Server Options 15.6.

Datatypes for Oracle Replication

Learn about the datatypes supported and unsupported for replicating into and out of Oracle.

Replicating Datatypes into Oracle

These Sybase datatypes are supported or unsupported by ExpressConnect for Oracle for replicating into Oracle.

Table 1. ExpressConnect Supported and Unsupported Sybase Datatypes

Datatype	Supported	Unsupported
Sybase	bigint	bigdatetime
	integer	bigtime
	smallint	
	tinyint	
	decimal	
	numeric	
	unsigned bigint	
	unsigned integer	
	unsigned smallint	
	unsigned tinyint	
	unichar	
	univarchar	
	unitext	
	float	
double		

Datatype	Supported	Unsupported
	real	
	money	
	smallmoney	
	date	
	time	
	datetime	
	smalldatetime	
	timestamp	
	char	
	nchar	
	varchar	
	nvarchar	
	text	
	binary	
	varbinary	
	image	
	bit	
	sysname (same as varchar(30))	
	longsysname (same as varchar(255))	
	user-defined datatypes (as underlying type)	

These Oracle datatypes are supported or unsupported by ExpressConnect for Oracle for replicating into Oracle.

Table 2. ExpressConnect Supported and Unsupported Oracle Datatypes

Datatype	Supported	Unsupported
Oracle	anydata (limited support)	associative array
	bfile (only for replication not gateway)	mlslabel
	binary_double	nested tables
	binary_float	Oracle-supplied datatypes
	blob	partial large object (LOB) updates
	char	ref
	clob	user-defined datatypes (UDDs) containing LOBs
	date	UDDs that are not final
	interval day to second	urwid
	interval year to month	varray
	long	SecureFile LOBs
	long raw	Oracle 11g xmltype
	nchar	
	nclob	
	number	
	nvarchar2	
	raw	
	rowid	
	simple_integer	
	timestamp	
timestamp with [local] time zone		
UDD object type (only for replication not gateway)		

Datatype	Supported	Unsupported
	varchar2	
	Oracle 10g xmltype (limited support, handled as clob)	

Replicating Datatypes out of Oracle

These Oracle datatypes are supported or unsupported by Replication Agent for replicating out of Oracle.

Table 3. Replication Agent Supported and Unsupported Oracle Datatypes

Datatype	Supported	Unsupported
Oracle	anydata (limited support)	associative array
	bfile	mlslabel
	binary_double	nested tables
	binary_float	Oracle-supplied datatypes
	blob	partial LOB updates
	char	ref
	clob	UDDs containing LOB
	date	UDDs that are not final
	interval day to second	SecureFile LOBs
	interval year to month	urowid
	long	varray
	long raw	11g xmltype
	nchar	
	nclob	
	number	
	nvarchar2	
	raw	
rowid		

Datatype	Supported	Unsupported
	simple_integer	
	timestamp	
	timestamp with [local] time zone	
	UDD object type	
	varchar2	
	10g xmltype (limited support, handled as clob)	

Oracle-Supplied Datatype Limitations

Replication Agent cannot replicate these Oracle-supplied datatypes:

- “ANY” types (SYS.ANYTYPE, SYS.ANYDATASET), except for SYS.ANYDATA
- All Oracle 11g XMLTypes (XMLType, URIType, DBURIType, XDBURIType, HTTPURIType) as well as Oracle 10g XML Types stored as XML Types (not as CLOB)
- Spatial Types (MDSYS.SDO_GEOMETRY, SDO_TOPO_GEOMETRY, SDO_GEORASTER)
- Media Types (ORDSYS.ORDAudio, ORDSYS.ORDImage, ORDSYS.ORDImageSignature, ORDSYS.ORDVideo, ORDSYS.ORDDoc, SI_StillImage, SI_Color, SI_AverageColor, SI_ColorHistogram, SI_PositionalColor, SI_Texture, SI_FeatureList)
- Expression filter type
- Replication from an ANYDATA column to a non-ANYDATA column
- ANYDATA size exceeding 16KB, which is the size constraint of the Replication Server OPAQUE datatype
- Bfile, UROWID, REF, NESTED TABLE, and VARRAY datatypes stored in the ANYDATA column
- XMLType not stored as CLOB

Note: XMLType stored as CLOB can be replicated to Oracle and to Adaptive Server® Enterprise. When replicating to Oracle, use ExpressConnect for Oracle since this datatype is not supported by ECDA for Oracle.

- Replication of data stored in Oracle XML DB repository using standard protocols such as FTP and HTTP(S) or WebDAV, and other Oracle XML DB API
- Marking procedures that use PLS_INTEGER PL/SQL type or any of its other subtypes; however, Replication Agent does support marking procedures that use SIMPLE_INTEGER PL/SQL type.

Datatypes for Microsoft SQL Server Replication

Learn about the datatypes supported and unsupported for replicating into and out of Microsoft SQL Server.

Replicating Datatypes into Microsoft SQL Server

These Sybase datatypes are supported or unsupported by ECDA 15.0 ESD #3 and later for replicating into Microsoft SQL Server.

Table 4. ECDA Supported and Unsupported Sybase Datatypes

Datatype	Supported	Unsupported
Sybase	bigint	bigdatetime
	integer	bigtime
	smallint	
	tinyint	
	decimal	
	numeric	
	unsigned bigint	
	unsigned integer	
	unsigned smallint	
	unsigned tinyint	
	unichar	
	univarchar	
	unitext	
	float	
	double	
	real	
	money	
	smallmoney	
date		

Datatype	Supported	Unsupported
	time	
	datetime	
	smalldatetime	
	timestamp	
	char	
	nchar	
	varchar	
	nvarchar	
	text	
	binary	
	varbinary	
	image	
	bit	
	sysname (same as varchar(30))	
	longsysname (same as varchar(255))	
	UDDs (as underlying type)	

These Microsoft SQL Server datatypes are supported or unsupported by ECDA 15.0 ESD #3 and later for replicating into Microsoft SQL Server.

Table 5. ECDA Supported and Unsupported Microsoft SQL Server Datatypes

Datatypes	Supported	Unsupported
Microsoft SQL Server	bigint	cursor
	nchar	date
	nvarchar	datetime2
	ntext	datetimeoffset

Datatypes	Supported	Unsupported
	varchar (max) (only for replication not gateway)	filestream
	nvarchar (max) (only for replication not gateway)	geography
	sql_variant	geometry
	binary	hierarchyid
	bit	large UDDs
	char	table
	datetime	time
	decimal	xml
	float	
	image	
	integer	
	money	
	numeric	
	real	
	smalldatetime	
	smallint	
	smallmoney	
	text	
	timestamp	
	tinyint	
	uniqueidentifier	
	varbinary	
	varbinary (max) (only for replication not gateway)	

Datatypes	Supported	Unsupported
	varchar	

Note: The varbinary(max), varchar(max), nvarchar(max), and sql_variant datatypes are supported only in a replication environment (not for gateway or any other ECDA use) and only to a replicate Microsoft SQL Server database.

Replicating Datatypes out of Microsoft SQL Server

These Microsoft SQL Server datatypes are supported or unsupported by Replication Agent for replicating out of Microsoft SQL Server.

Table 6. Replication Agent Supported and Unsupported Microsoft SQL Server Datatypes

Datatypes	Supported	Unsupported
Microsoft SQL Server	bigint	cursor
	nchar	date
	nvarchar	datetime2
	ntext	datetimeoffset
	varchar(max) (replicate must be Microsoft SQL Server)	filestream
	nvarchar(max) (replicate must be Microsoft SQL Server)	geography
	sql_variant	geometry
	binary	hierarchyid
	bit	large UDDs
	char	table
	datetime	time
	decimal	xml
	float	
	image	
integer		

Datatypes	Supported	Unsupported
	money	
	numeric	
	real	
	smalldatetime	
	smallint	
	smallmoney	
	text	
	timestamp	
	tinyint	
	uniqueidentifier	
	varbinary	
	varbinary(max) (replicate must be Microsoft SQL Server)	
	varchar	

Datatypes for IBM DB2 UDB Replication

Learn about the datatypes supported and unsupported for replicating into and out of IBM DB2 UDB.

Replicating Datatypes into IBM DB2 UDB

These Sybase datatypes are supported or unsupported by ECDA 15.0 ESD #3 for replicating into IBM DB2 UDB.

Table 7. ECDA Supported and Unsupported Sybase Datatypes

Datatype	Supported	Unsupported
Sybase	bigint	bigdatetime
	integer	bigtime
	smallint	image
	tinyint	text

Datatype	Supported	Unsupported
	decimal	unitext
	numeric	
	unsigned bigint	
	unsigned integer	
	unsigned smallint	
	unsigned tinyint	
	unichar	
	univarchar	
	float	
	double	
	real	
	money	
	smallmoney	
	date	
	time	
	datetime	
	smalldatetime	
	timestamp	
	char	
	nchar	
	varchar	
	nvarchar	
	binary	
	varbinary	
	bit	

Datatype	Supported	Unsupported
	sysname (same as varchar(30))	
	longsysname (same as varchar(255))	
	UDDs (as underlying type)	

These IBM DB2 UDB datatypes are supported or unsupported by ECDA 15.0 ESD #3 for replicating into IBM DB2 UDB.

Table 8. ECDA Supported and Unsupported IBM DB2 UDB Datatypes

Datatypes	Supported	Unsupported
IBM DB2 UDB	bigint	blob
	graphic	clob
	vargraphic	dbclob
	decfloat (for replication only, not gateway)	long varchar
	smallint	long vargraphic
	float	ROWID
	integer	long varchar for bit data
	decimal	xml
	real	UDDs
	double	
	time	
	timestamp	
	date	
	char	
	varchar	
char for bit data		
varchar for bit data		

Note: The `decfloat` datatype is supported only in a replication environment (not for gateway or any other ECDA use).

Replicating Datatypes out of IBM DB2 UDB

These IBM DB2 UDB datatypes are supported or unsupported by Replication Agent for replicating out of IBM DB2 UDB.

Table 9. Replication Agent Supported and Unsupported IBM DB2 UDB Datatypes

Datatypes	Supported	Unsupported
IBM DB2 UDB	<code>bigint</code>	<code>ROWID</code>
	<code>char</code>	<code>UDDs</code>
	<code>char for bit data</code>	<code>xml</code>
	<code>blob</code>	
	<code>clob</code>	
	<code>date</code>	
	<code>dbclob</code>	
	<code>decfloat</code>	
	<code>decimal</code>	
	<code>double</code>	
	<code>float</code>	
	<code>graphic</code>	
	<code>integer</code>	
	<code>long varchar</code>	
	<code>long varchar for bit data</code>	
	<code>long vargraphic</code>	
	<code>real</code>	
<code>smallint</code>		
<code>time</code>		

Datatypes	Supported	Unsupported
	timestamp	
	varchar	
	varchar for bit data	
	vargraphic	

IBM DB2 UDB 9.5 Support Limitations

Replication Agent does not support these features of IBM DB2 UDB 9.5:

- Replication of XML datatype

Note: Since Replication Agent does not support replicating XML, restrictions have been imposed on marking a table containing XML columns. Replication Agent generates an error message each time an attempt is made to mark a table with XML columns. To replicate all but the XML columns of a table, use the **force** option when marking the table for replication.

- When replicating DECFLOAT columns from UDB to other back ends that do not support DECFLOAT or an equivalent datatype, DECFLOAT is mapped to FLOAT, which may cause a loss of precision.
- Replication Agent does not support replication of DECFLOAT special values such as positive and negative INFINITY, NAN, and SNAN. Replication Agent replicates these values to NULL if the column is nullable, or 0.0 if the column is not nullable.

Unsupported Features

Learn about the features that are not supported by Replication Server Options 15.6.

- Oracle-packaged stored procedures and functions (standalone procedures and functions are supported)
- Oracle virtual columns
- Oracle encrypted columns
- Oracle encrypted partitions
- Oracle label security
- Oracle schema objects in encrypted tablespaces
- IPv6-formatted addresses
- 4KB-sector disk drives
- IBM DB2 Universal Database data definition language (DDL) commands
- IBM DB2 Universal Database stored procedures
- IBM DB2 Universal Database row compression

New Features

- Replication Agent does not support these features of Microsoft SQL Server 2008:
 - Transparent data encryption (TDE)
 - Procedures with table-valued parameters (TVPs)
 - Sparse column and column set
 - MERGE SQL statement
- Replication Server parallel DSI (for non-ASE databases)
- Replication Server **rs_init** utility (for non-ASE databases)
- Replication Server **rs_subcomp** utility (for non-ASE databases)
- Replication Server automatic materialization (for non-ASE databases)
- Replication Server when replicating in an environment where other vendors are replicating (for non-ASE databases)
- Microsoft SQL Server Cluster
- Microsoft SQL Server virtual computed columns

Note: Only features and functionality covered in the Replication Server Options documentation are supported for that solution. If a feature or type of functionality is not documented, it is not supported.
