Quest™

SharePlex™ 8.6 (8.6.6)

Release Notes

Revision: 8/16/2017

About SharePlex

SharePlex provides high-speed replication from Oracle and SQL Server databases to different target databases and messaging containers on major Unix, Linux and Windows platforms.

On the Oracle platform, you can also configure SharePlex to maintain a change history database. Rather than overlaying current target data with the data that changed on the source (as in a regular replication configuration) SharePlex inserts a new row for every change to provide a chronological history of all changes that were made to the source database. Optionally, you can add metadata columns to each row to include context information about the change that was made.

For expert advice and the latest news about SharePlex, join the SharePlex Community at www.shareplex.com/community. Take advantage of our forums, blogs, videos, and more from our own experts, as well as input from our customers and partners.

New features in this release

The following new features are introduced in this release.

For more information about each of these features, see the documentation that is provided with this release.

Support for SQL Server 2016

SharePlex expands SQL Server support to include replication to a SQL Server 2016 target.

Support for all implementations of PostgreSQL

SharePlex now supports all implementations of the PostgreSQL standard. Mentions of this database type in the documentation have been changed to the generic term "PostgreSQL" unless a specific name is required. Always refer to the SharePlex *Release Notes* for the version of PostgreSQL that SharePlex supports and for any other specifics that relate to its various vendors.

Queue contention reduction

The new queue contention reduction feature preserves the performance of Post when there is a large backup of messages in the post queue. It is controlled by the following new parameters.

- SP_IMP_QUEUE_PAUSE: This parameter enables the new queue contention reduction feature. It stops Import from writing data to the post queue when that queue has a specified number of messages. Use this parameter to maintain Post performance when there is a high backlog of messages in the post queue. The use of this parameter prevents Post from running out of shared memory and incurring file IO when the system switches to disk storage.

- SP_IMP_QUEUE_RESUME: This parameter sets a value for queue backlog at, or below, which Import resumes writing to the post queue.

See the *SharePlex Reference Guide* for more information.

Logical transaction rollback

You can now configure Post to roll back and discard a transaction if it contains any out-of-sync operations. This functionality is controlled by the SP_OPO_SAVE_OOS_TRANSACTION parameter. When this parameter is set to 1 and a transaction contains any operations that generate out-of-sync errors, Post discards the entire transaction and saves all the operations of that transaction to a SQL file. You can edit this file to repair the problem with the failed SQL and then run the file to apply the transaction to the target database.

NOTE: All of the tables involved in the transaction that is being rolled back must contain only the following data types. No other data types are supported at this time.

- CHAR – US7ASCII
- VARCHAR – US7ASCII
- NUMBER
- DATE
- TIMESTAMP
- TIMESTAMP WITH TIME ZONE
- TIMESTAMP WITH LOCAL TIME ZONE
- INTERVAL
- ROWID
- RAW
- BINARY FLOAT
- BINARY DOUBLE

See the *SharePlex Reference Guide* for more information.

Improved queue indexing

The performance of the Post queue was enhanced. This feature uses improved indexing to access the subqueue structures that represent a transaction session. A message "Subqueue index enabled *queuename*" is written to the Event Log for every Post queue for which this parameter is enabled. To enable this enhancement, set the new SP_QUE_USE_SUBQUE_INDEX parameter to 1.

See the *SharePlex Reference Guide* for more information.

New hash horizontal partitioning algorithm

SharePlex offers a new option to horizontally partition a table based on the block where the row resides. To enable it, set the new SP_OCF_HASH_BY_BLOCK parameter to 1, then re-activate the configuration file to enable it. Note that activation will lock the tables that are hash partitioned so that they are not part of an open transaction when the algorithm is changed.

Delivery to multiple Kafka partitions

A new **partition** parameter has been added to the **target** command to enable posting to multiple Kafka partitions. You can set this option to one of the following:

- A fixed partition number: Directs Post to post messages only to the specified partition number. For example, setting it to 0 directs Post to post only to partition 0. This option is suitable for use in testing or if the target has multiple channels of data posting to the same Kafka topic.

- The keyword **rotate**: Directs Post to apply messages to all of the partitions of a topic in a round-robin fashion. The partition changes with each new message. For example if a topic has three partitions, the messages are posted to partitions 0,1,2,0,1,2, and so on in that order. This option is suitable if you want to replicate each table to a unique topic.

- The keyword **rotate trans**: This is similar to the **rotate** option, except that the partition is incremented with each transaction rather than with each message. For example, if a topic has three partitions, the messages are posted to partition 0 until the commit, then to partition 1 until the commit, and so on in that order. This option is suitable if you are replicating multiple tables to a single topic. It allows you to distribute data across several partitions, while still preserving all of the operations of a transaction together in a single partition. This enables a consumer that reads from a single partition to receive a stream of complete transactions.

The string in the **topic** parameter of the **target** command can now contain the special sequences **%o** or **%t**. The **%o** sequence is replaced by the owner name of the table that is being replicated. The **%t** sequence is replaced by the table name of the table that is being replicated.

The **broker** parameter of the **target** command can now specify a comma delimited list of multiple brokers.

The Kafka client parameter **request.required.acks** is now a **target** parameter.

Post to Kafka has been improved in the following ways:

- Errors are now categorized into fatal and non-fatal errors.

- For non-fatal errors. Post retries the operation if appropriate. If the retries fail, Post exits and then **sp_cop** starts a new Post, which resets the connection so that the operation can be tried again.

- Fatal errors cause Post to stop.

- If the cluster is not responding and Post has sent the maximum amount of data, it waits the number of seconds specified with the **target** parameter of **restart_timeout**. Post then exits and then **sp_cop** starts a new Post, which resets the connection so that the operation can be tried again.

See the **target** command documentation in the *SharePlex Reference Guide* for more information about these parameters.

Oneline debug

The oneline debug feature enables you to perform debugging for out-of-sync errors without consuming a large amount of the system resources. The oneline debug logs just enough information in one line to detect where in the data stream an out-of-sync condition occurred. Once oneline debug identifies the process that is causing the problem, you can then enable regular debugging for that process.

See the **SP_*process*_ONLINE_DEBUG** parameters in the *SharePlex Reference Guide* for more information.

Table to capture conflict resolutions

You can now configure SharePlex to log the results of conflict resolution to a table named **shareplex_conf_log**. The table captures information such as the type of conflict resolution that was used, the operation type, the names of the key columns, and other information about the affected row data. This feature is for use only with the prepared routines that are provided by SharePlex. It can be enabled or disabled with the new SP_OPO_ LOG_CONFLICT parameter, and is disabled by default. See the *SharePlex Administrator Guide* for more information about configuring peer-to-peer, or active-active, replication.

Replication of DDL for Triggers, Grants, and Synonyms

SharePlex can now replicate the following commands made on tables that are listed in the configuration file:

- CREATE SYNONYM and DROP SYNONYM: To enable, set the new SP_OCT_REPLICATE_SYNONYM parameter to 1.

- GRANT: To enable, set the new SP_OCT_REPLICATE_GRANT parameter to 1.

- CREATE TRIGGER and DROP TRIGGER: To enabled, set the new SP_OCT_REPLICATE_TRIGGER parameter to 1.

New Secure Mode

The SP_SYS_SECURE_MODE environment variable was added to enable compare/repair to skip the logging of SQL statements when the variable is set to 1.

See the SharePlex *Administrator Guide* for more information about environment variables.

Enhancements in this release

The following is a list of enhancements that were implemented in this release line.

8.6.6

Enhancement	Issue ID
Added auto-add support for GRANT on tables in replication. See the New Features section of these release notes for additional information.	CR112239
Added auto-add support for CREATE and DROP SYNONYM on tables in replication. See the New Features section of these release notes for additional information.	CR112245
Added auto-add support for CREATE and DROP TRIGGER on tables in replication. See the New Features section of these release notes for additional information.	CR111917
Added a table to contain the results of conflict resolution. See the New Features section of these release notes for additional information.	CR 112360 CR112439 SPO-2449
Made the use of a connection pool in Post the default. A new parameter, SP_OPO_CONNECTION_POOL, controls how Post uses the connection pool. See the SharePlex *Reference Guide* for more information about this parameter.	CR112347
SharePlex now supports Sybase bigdatetime.	CR112430
Enhanced hash-based horizontally partitioned replication to support hashing on just the file and block instead of the entire rowid. See the New Features section of these release notes for additional information.	SPO-3081
Improved Kafka support. See the New Features section of these release notes for additional information.	SPO-3180
Added the SP_SYS_SECURE_MODE environment variable to enable compare/repair to skip the logging of SQL statements when the variable is set to 1. See the SharePlex*Administrator Guide* for more information about environment variables	SPO-2441

8.6.5

Enhancement	Issue ID
Added new parameter SP_OCT_REPLICATE_MVIEW to control whether materialized views listed in the configuration file are replicated.	CR112307
Enabled the mapping of Oracle number datatype to HANA decimal.	SPO-2383 SPO-2395

8.6.4

Enhancement	Issue ID
Improved the speed of the Post process when processing CREATE/DROP TABLE.	111961

8.6.3

Enhancement	Issue ID
Enhanced oneline_debug to include odr_time	SPO-1864 CR 111893
Added a SHAREPLEX_CHANGE_ID column to **add_change_tracking_columns.sql**	CR 110763
Added the SP_OPX_REDUCED_KEY parameter.	CR 111461
Capture now can be configured to read from the archived log, rather than the online log, if it is available. The new parameter SP_OCT_PREFER_ARCHIVE enables this feature when set to 1.	CR 111182
Added new **properties** and **client_ID** properties to JMS category of the **target** command to support additional JMS targets.	CR 111387
Added new options to the **compare** and **repair** commands.	SPO-878
Added auto-add support for sequences.	SPO-915
Expanded horizontally partitioned replication to support partitioning by a hash value.	SPO-958
Open Target Post was updated with the option to remove certain headers from being sent to the JMS broker.	SPO-1286
Open Target Post was updated with the option to set a connection ID for a JMS target.	SPO-1287

8.6.2.44

None

8.6.2.48

Enhancement	Issue ID
Enhanced Capture to process higher volumes of data from Exadata in the event that a backup develops when reading the online logs. With this enhancement, Capture can read from a multiplexed archive location outside of the Exadata ASM file system. When a required log is online, Capture makes an additional check to determine whether that log has been archived. If true, then Capture reads from the archived log instead of the online log. This enhancement must be enabled by setting the SP_OCT_PREFER_ARCHIVE parameter to a value of 1. The path to the secondary archive logs must be set with the SP_OCT_ARCH_LOC parameter, and the SP_OCT_CK_LOC_FIRST parameter must be set to 1 so that Capture looks for the archive logs in the secondary location, rather than the Oracle default location.	111,182 111, 659
Suppressed Out of Sync functionality was added for DELETE operations.	111,579
Added automatic validation of the ODBC driver that SharePlex is configured to use to connect to a SQL Server target database. The correct driver is the Microsoft SQL Server ODBC Driver, not the Microsoft SQL Server Native Client driver. SharePlex will return an error when **mss_setup** is run if the correct driver is not used.	SPO-1361

8.6.2

Enhancement	Issue ID
You can now configure SharePlex to include NULL column values in INSERT statements. See the new SP_OCT_INSERT_INCLUDE_NULLS parameter in the SharePlex Reference Guide.	110658
You can now include unchanged columns in the after image for UPDATE operations. See the new SP_OCT_INCLUDE_UNCHANGED_COL parameter in the SharePlex Reference Guide.	107139
Users with **spview** authority can now run a **compare** command.	110661
A new environment variable was added to enable users to override the default umask set by SharePlex.	108810
Enhanced the handling of ASM block requests.	109632
Queue performance was enhanced.	110555
Enabled column information for one-line debug for Capture and Read to help debug out-of-sync rows.	110665

8.6.1

There are no enhancements in this version.

8.6.0

Enhancement	Issue ID
Added a **nolock** option that prevents the compare process from locking the target tables during the compare phase of a compare-repair run. Normally, the tables are locked momentarily during the compare phase to get a read-consistent view, and then unlocked immediately. Target tables are always locked during the repair phase of a compare-repair run, as well as during a repair-only run. Source tables are locked momentarily during a repair to get a read-consistent view.	94322
Show capture was enhanced to make it more clear when Capture encounters a log wrap.	108715
Activation was enhanced to support escaping the underscore (_) character in a wildcarded table name.	105257
Added ora-2292 to the list of constraint errors.	109052
Expand the functionality of SP_OPO_TRACK_PREIMAGE with an additional value of 2, which provides a before image for inserts and an after image for deletes. The preimage for the insert and the after image for the delete have the key column populated and the non-keys are null.	109231
Added the ability to get the change history (formerly known as CDC) rule from a file.	109041
Compare/Repair now supports up to 1,000 key columns.	109242

Deprecations in this release

This section contains a list of SharePlex items that were deprecated in this release line.

NOTE: For a list of all deprecated parameters and commands, their replacements (if any), and the version of SharePlex in which they were deprecated, see the SharePlex Reference Guide.

8.6.6

SP_OCT_REPLICATE_DR_DDL parameter was renamed to SP_OCT_REPLICATE_TRIGGER. The old parameter is still functional for backward compatibility.

The SP_OPO_CONF_LOG parameter was renamed to SP_OPO_LOG_CONFLICT. The old parameter is still functional for backward compatibility.

The **date** and **timestamp** options were removed from the **format** category of the target command.

8.6.5

None.

8.6.4

SP_OPX_CHECKPOINT_FREQ parameter (replaced by the **commit_frequency** option of the **target** command)

8.6.3

SP_DEQ_LOG_ROW_DATA parameter
SP_COP_WALLET_PATH parameter
SP_DEQ_LOG_ROW_DATA parameter

8.6.2

SP_OPO_RESTRICT_ALL_REF_CONS (due to the support for Post to ignore ON DELETE CASCADE constraints).

8.6.1

No components were deprecated in this version.

8.6.0

Deprecated commands:

- Deprecated the -**nolockboth**, -**nolocktarget**, -**nolocksource** options of the **compare** command. These are replaced by the **nolock** option.

- The **set odbc** options of the **target** command are deprecated. The new **connection** command handles these options now. (missing or bad snippet)

Deprecated parameters:

These parameters are deprecated in 8.6 due to the enhancements in Oracle Setup.

SP_ORD_LOGIN_O

SP_ORD_OWNER_O

SP_OCT_ASM_CONNECT_DESC

SP_OCT_ASM_SID

Resolved Issues in this release

8.6.6

Resolved Issue	Issue ID
Capture generated an invalid UPDATE record by updating a column of an IOT to the same value, which resulted in an after image of NULL.	CR108024
Reduce the number of times Post connects to Oracle in certain situations.	CR110538
Compare from SharePlex 8.6 to 7.6 failed.	CR112191 SPO-3287
Open Target Post did not recognize SECUREFILE LOBS as VARRAYs.	CR112207
Bug in the conversion of Oracle exponential numbers to natural numbers when replicated to Open Target.	CR112220
COMMENT on COLUMN did not replicate correctly.	CR112244
VARRAYS stored as SECUREFILE LOBS were not being written to the correct location.	CR112319
Sp_cop was not discovering incoming messages because it was checking the status of the queues. Now sp_cop checks for the messages before scanning the queues.	CR112322
Issue with the Windows builds.	CR112360
A non-nullable column (with default value) was updated with a NULL value, which caused posting failure on target host.	CR112367
Bug in the table summary in the **analyze** command.	CR112380
Post had memory leaks.	CR112393
DDL was missed intermittently.	CR112411
SharePlex did not capture DDL on tables in replication if the DDL was issued by the SYS user.	CR112438
When the SP_SYS_HOST_NAME environment variable was set, **sp_ctrl** could not connect to SharePlex when it was running on a port other than 2100.	CR112443
If SP_SYS_HOST_NAME was set and data encryption was being used, Import could not find the encryption key.	CR112443 CR112445 SPO-3127
Bug encountered in the WHERE clause when SP_OPX_REDUCED_KEY=2 and the table did not have PK/UK in update/delete batch operations.	CR112449

Resolved Issue	Issue ID
Post did not work properly when it encountered unsupported DDL.	CR112458
Make the round robin subque assignment only happen in the lower subques and not up to the high water mark.	CR 112472
Reconcile did not process the activation marker properly if replication was to Open Target.	SPO-2039
Open Target Post failed to convert Korean characters to UTF8 when replicating from Oracle to Hana.	SPO-2102
If a table had TIMESTAMP_TZ and TIMESTAMP columns and replicated between different timezones, the data went out of sync.	SPO-2646
Remove the number sign character(**#**) from the PHONE column in the **demo_src** and **demo_ dest** demonstration tables to make them compatible with more databases. **NOTE**: The database setup programs will *not* update these tables during an upgrade if they already exist with the old column name of PHONE#.	SPO-2966.
Reduce the default values to control the size of DLOADs in HCC compressed QMIs.	SPO-3073
Bug in pg_setup for replication to PostgreSQL on RDS due to user permissions.	SPO-3089
Fix the following issues with multibyte character sets related to the conversion performed by the Oracle client on Open Target: • Korean split characters • Out of sync CLOB/NCLOB and NCHAR/CHAR	SPO-3102
If the debug setting was on to print the output SQL string, the compare/repair process failed when the string was too big for the buffer. The string size was reduced to the first 3000 bytes.	SPO-3118
sp_cop would not start after a re-set of the parameter SP_QUE_SHMSIZE.	SPO-3189
Replication from Oracle NCHAR to Fujitsu Postgres char in a batch operation resulted in the target row having no data.	SPO-3192
The SP_OCT_REDO_LOG_ENSURE parameter was ignored if it was set before configuration activation.	SPO-3194
Replication from Oracle NCLOB to Fujitsu Postgres text went out of sync.	SPO-3199
Capture incorrectly parsed a direct load record for a table with a row-dependencies clause.	SPO-3252
SharePlex was using the wrong indexes on some arrays, causing access to out of bounds memory.	SPO-3262
The replication of timestamp and daylight saving to a PostgreSQL target did not work correctly.	SPO-3264
Capture failed when it processed a LOB.	SPO-3283
Analyze did not write a report and exit if time was up but the **abort config** command did not not process.	SPO-3319

8.6.5

Resolved Issue	Issue ID
Missing values in CDC target table.	CR111353
Problems with parsing of compressed DLOAD records.	CR111725
Need to allow hidden password for **ora_cleansp**.	CR111917
Activation hung when a table is dropped and re-created .	CR112174
Need to add a warning if the **hana_setup** database setup utility is run against a non-recognized database version.	CR112189 SPO-2351
Need improvements to the debug messages.	CR112215
Issues with the Kafka library.	CR112247
Replication to JMS failed.	CR112272
Issue with dependency checking.	CR112293
Post used too much memory.	CR112293 CR111616
Bug in auto-add of materialized views.	CR112310
Compare status messages were too long.	SPO-1926
Database setup programs need to work for unsupported databases in testing.	SPO-2054
SharePlex user privileges affected replication to multiple Teradata databases.	SPO-2087
Installation failed to create an Oracle compare package. Added a message that allows the user to continue the installation.	SPO-2135
Allow the **cleansp** utilities to pause when the ksh interpreter is missing from the system, so that the user can install it. Also added ability to hide the password in debug mode.	SPO-2167
Fix hana_setup to improve the checking of the database administrator privileges. Also allow it to pause when the administrator does not have superuser role, to allow the grant to be made. Improve the interaction to allow the user to continue even though the grants to the SharePlex user failed.	SPO-2315 SPO-2316 SPO-2307
Improve the handling of system-generated partitions.	SPO-2317
Fix **td_setup** to prompt for only a DSN and disallow a connect string.	SPO-2323
Fix Teradata deadlock issue when horizontally partitioned replication was used.	SPO-2328
Fix **show post detail** for Open Target Post to Kafka.	SPO-2330
Fix **show post** for Kafka.	SPO-2330

Resolved Issue	Issue ID
Fix the code that set resources in the **target** command.	SPO-2355
Post for HANA did not direct the database to use character set UTF8.	SPO-2366
DDL that did not have database objects in the statement did not get filtered correctly.	SPO-2381
Memory corruption issue caused by DML on an out-of-row LOB insert.	SPO-2390
Conversion error for Oracle number 0.E+00.	SPO-2397
Change default value for SP_OCT_REPLICATE_CTAS from 0 to 1. Change valid settings to 1 and 2. 2 now means the same as what 0 used to mean for this parameter. For more information, see the SharePlex Reference Guide. Add error handling for cases where the old settings were used.	SPO-2399 SPO-2450
Improve Open Target Post performance when writing to the process log when debug is turned on.	SPO-2413
Bug that affected replication of batched DML from one source to multiple target tables.	SPO-2425
Bug in the processing of XML UDT VARRAY index ATTR.	SPO-2435
mss_setup errors when the database name began with an underscore or number.	SPO-2447
Make Event Log notice generated by activation to be less alarming. Now the message is written to the **conf** log.	SPO-2512
DDL skipped sometimes on RAC.	SPO-2533 CR108518

8.6.4

Resolved Issue	Issue ID
Even though the SP_OCT_LOBMAP_ENABLED parameter was off, certain maintenance operations regarding the LOB map were still happening and caused performance issues.	111375
Capture returned a false error.	111960
The Read process stopped due to an error that was not critical.	111979
Changed Capture to ignore OCT_REDUCED_KEY settings for LOB indexes to prevent sending empty columns to Post.	112048
Capture failed when processing XML.	112052
Processing operations that originated from Post caused a delay in Capture processing.	112074
If the owner and name of an object that referenced another object was dropped and a table with the same owner and name was created soon after, Capture did not capture the CREATE TABLE.	112100
SharePlex autoadd does not support capture of a table that initially did not satisfy a wildcard specification but was altered to a name that does satisfy it, but Capture did not ignore these operations and caused a corrupt object cache entry for the newly renamed table.	112102

Resolved Issue	Issue ID
SharePlex was sending inaccurate times.	112113
Capture read incomplete object caches during activation and returned an out-of-sync condition.	112138
Capture failed to process redo operations when running in an Oracle multitenant environment (container database) on a big-endian host.	112162
Post encountered an Oracle bug that caused secure file LOBs to consume extra disk space and extents in the target database.	111976
ALTER DDL that operated on two objects with different owners sometimes caused Post to use the wrong owner if the owner names were not included in the DDL.	112001
When the Post Enhanced Performance feature was enabled and an operation included a key column defined as a date, the data went out-of-sync if suplemental logging of PK/UK columns was not enabled.	112054
When SP_OPO_SKIP_FAIL_DDL_ON_RESTART was set, Post did not skip the DDL for some Oracle errors.	112055
Post wrote a ORA-1407 message to the Event Log, even though the operation was rolled back.	112058
The Post process hung when there was a deactivation after a failed DDL that was skipped after restart.	112070
An out-of-sync condition ocurred if multiple Post threads operated on the same session.	112073
Operations with a LOBINDEX or LOB data caused Post to fail.	112075
The Post process hung after a DDL change.	112078
Post encountered a deadlock when posting to Teradata.	112089
Post returned an error if the WHERE clause had NULL keys and the operation was a batch UPDATE or DELETE.	112092
Post did not support Teradata Chinese characters using Oracle convertion function.	112107
Post dependency checks caused an out-of-sync condition after a batch DELETE on a table with foreign keys.	112118
If the Post connection was idle for some time, Teradata timed out the connection, and Post terminated.	112119
Allow debug for only one Open Target Post process.	112152
Compare/Repair went into a loop when reading LOBs.	111901
The SharePlex installer failed when run as root.	112087
Repair failed when comparing tables with LONG columns.	112093
ora_cleansp failed when it encountered an ORA-28002 or ORA-28011, which are Oracle warnings that the password is about to expire. Capture now ignores these warnings.	SPO-2258
Corrected errors in the **target** command documentation, where the character that specifies the target type (such as the **r** in **r.***database*) was missing from some syntax.	N/A

8.6.3

Resolved Issue	Issue ID
The **splex_add_key** utility did not work correctly during an upgrade if there obsolete parameters in the **paramdb**.	SPO-1424
Replaced **iwsnmptrap** with **Net-SNMP snmptrap** and allow configurable trap OID.	CR 103829
Fixed cause of "Could not create subqueue" error in provision utility.	CR 109899
Added the **provision** utility to the Windows builds.	CR 110220
Activation failed to build a correct entry for an index of an IOT if the table had a primary key constraint with the same name as the table.	CR 110713
Change the SP_SYS_SPM_UNIX_TIME param from "live" to "restart process"	CR 110986
Queue reads returned NODATA when the queue performance enhancement feature was enabled.	CR 111108
Fixed bug in queue performance logic.	CR 111135
Fixed Export so that it fails if the target does not support encryption.	CR 111169
Use UNIX timezone to calculate GMT on Oracle redo time instead of using Oracle timezone.	CR 111214
Changes made in 8.6.2 caused activation to fail a route because the queue name was erroneously reported as too long.	CR 111217
Repaired problems with the UNIX builds.	CR 111330
The **set param** command issued without any parameters crashed **sp_ctrl**.	CR 111876
The **host** field in the **show capture detail** output was too short.	SPO-706
Added a message that Import cannot be started when **sp_cop** is in silent mode.	SPO-998
Updated **ora_setup** so that it fails if ASM setup fails.	SPO-1182
Made changes to ASM prompts in **ora_setup** to make them more clear and consistent.	SPO-1183
Fixed an issue with the queue code that caused "que_BAD_SQUEID" error.	SPO-1254
Update the **ora_setup** documentation to state that sysdba is needed for 12c installation.	
The **sp_ctrl** command **hostinfo** did not work on the new Exadata machines.	CR 111192
Corrected issues that occurred when horizontally partitioned and vertically partitioned replication were being used.	CR 111742 CR 111745 CR 111726
Fixed detection that target is non-oracle when route is HP.	CR 111785
Resolved queue issue that caused an ORA-12154 error.	CR 105585
In **sp_client** on Windows, users could not create a new document or edit the configuration.	CR 107881
Addressed an issue with the queue code which could cause **sp_cop** to dump core.	CR 108163
Display the system time in the **show capture detail** command output.	CR 111184

Resolved Issue	Issue ID
Updated the copyright year in **sp_cop** and **sp_ctrl** banners.	CR 111197
The "number of kilobytes read" displayed in the **show capture detail** output was wrong	CR 111209
Changed **sp_cop** to validate the name of the program it is being requested to start, so that only SharePlex processes can be started with a run string.	CR 111210
Fixed bug where **sp_ctrl** could only be run by an **sp_admin** user.	CR 111350
The primary key was not being used in change history tracking for update operations after SharePlex was upgraded.	CR 111353
The **analyze config** command with **seqno** or **scn** did not work properly.	CR 111536
Dropped objects caused a process failure.	CR 111878
The **show post** command caused a process failure.	CR 107728
Added conflict resolution for host priority.	CR 111417
Added conflict resolution for Inserts to replace the existing record and ignore missing records for deletes. Handle inserts and deletes respectively.	CR 111336
Added conflict resolution for least recent record.	CR 111430
Added conflict resolution for most recent record.	CR 111426
Capture included a non-NULL column as NULL when SP_OCT_REDUCED_KEY=0	SPO-1826
A bug in the connections logic caused the ORACLE_SID environment variable not to be set.	CR 111154
Fixed bug with auto-add of materialized views with a LOB storage clause.	CR 111202
Fixed a bug in the function that returns the ASM tns_alias.	CR 111632
Fixed a bug in the parsing logic for processing XML text in Binary XML format.	CR 111994
Capture failed to parse a compressed direct load record.	CR 111725
Resolve latency issue by minimizing sleep when there is no data.	CR 105241
Changed queries that affected database performance.	CR 107966 CR 110711
Issuing CREATE TABLE DDL from external sources (like Oracle Data Pump) caused processing inaccuracies.	CR 110706
Fixed a problem with processing an HCC DLoad record that contained multiple Compression Units.	CR 110972
Fixed a problem where Read core dumped.	CR 110978
Restore ASM query timers.	CR 111046
Discard a message if Read fails to find the object in the object cache to prevent errors down the line.	CR 111342
Change the query for converting data objects on direct loads if SharePlex is not replicating IOTs.	CR 111354
Resolve an issue where logs were skipped.	CR 111433
Addressed an uncheckpoint issue that could cause messages to get thrown away after	CR 111446

Resolved Issue	Issue ID
restarting Capture.	
Fixed issue that caused out-of-sync rows because some transactions got discarded	CR 111471
Handle TNS error 12152 so that Read exits and **sp_cop** restarts the process instead of suspending Read.	CR 111474
ALTER INDEX was not being replicated for indexes on replicated tables.	CR 108196
Resolved an issue relating to chained rows.	CR 110838
Capture failed while processing Binary XML.	CR 110981
Capture had a memory leak while processing Binary XML.	CR 111338
Fixed a problem with Capture that caused it to fail when it processed BinaryXML text that contained a big embedded BinaryData item.	CR 111370
Handle white spaces in CREATE TABLE AS SELECT.	CR 111962
Fixed a problem that generated invalid UPDATE messages which caused an out-of-sync condition when the UPDATE was posted on the target.	CR 109589
Fixed the cause of ORA-1740 due to missing double quotes around the trigger name in an ALTER TRIGGER to disable DDL.	CR 110267
Implement a locking mechanism to prevent corruption of the target configuration and **connections.yaml**.	CR 110902
Fixed Post performance so that Post does not allocate a table for LONGs until a record has them in it.	CR 111110
Decompressing of compressed securefile LOB data caused Post to fail if a block of compressed data was followed by pieces of compressed LOB data.	CR 111171
Fixed bug that caused incomplete LOB data and added new a parameter SP_OPX_DISABLE_ OBJECT_NUM.	CR 111126
Fixed a slowdown in the PEP feature.	CR 111230
Added a new SP_OPX_DISABLE_OBJ_NUM parameter that prevents Post from posting replicated DML and DDL operations to the target, based on the object ID of the source table.	CR 111408
Fixed the cause of errors when a SQL Server column name was a SQL Server keyword.	CR 111407
ON DELETE CASCADE operations went out of sync if there was a foreign key that referenced the same row in the same table.	CR 111409
Resolved the cause of Post error "ORA-00904 invalid identifier" when querying LOB IDs from the database.	CR 111429
Fixed a bug in dependency checking.	CR 111653
Fixed a bug in the Post Enhanced Performance feature that caused Post to fail.	CR 111689
Post sometimes restarted right away after stopping.	CR 111918
Out-of-sync for an update on just a LOB did not behave the same as an out-of-sync for other types of messages.	CR 111582
Allow the key cache to be disabled and SQL Cache to be disabled during batch operations.	CR 111629
SharePlex open target post now does not split a transaction.	CR 107532

Resolved Issue	Issue ID
Fixed some issues where Post stopped on a specific error.	CR 107601
Fixed how the queue is read/released.	CR 107602
There were missing transaction sequence numbers when posting to a file.	CR 107664
The EOF line count was not always correct.	CR 107674
Fixed an issue with missing NULL value in updates in Open Target transactions.	CR 107708
Fixed an issue with post to a file target where the files did not switch correctly when the **switch** command was issued.	CR 107715
Open target queue read/release sometimes caused a Post failure.	CR 107770
Fixed a processing problem with cases where there were single quotes in any CHAR, VARCHAR, or CLOB types.	CR 107812
Fixed a case of a missing **.jar** file when posting to a file target.	CR 107974
INSERTs caused false out-of-sync messages with an ORA-01403 error.	CR 110069
Post failed on batch operations due to memory issues.	CR 110747
Out-of-sync columns caused errors.	CR 110928
The processing of UPDATE operations did not work when the table contained UDT column(s) when SP_OCT_USE_SUPP_KEYS was enabled.	CR 111044
Post had a memory leak when performing a full rollback.	CR 111177
The processing of NULL operations in a rollback of an array insert caused a delay in processing.	CR 111188
Updated the Post SQL to prevent ORA-1722 error.	CR 111191
Fixed invalid UPDATE SQL for out-of-row LOB in a change tracking (CDC) configuration.	CR 111334
Fixed a Post core dump issue.	CR 111337
False out-of-syncs occurred after an INSERT was rolled back with a DELETE.	CR 111435
Fixed a problem with missing single quotes for NUMBER data types when the data split onto a new line.	CR 108221
Suppressed out-of-sync functionality was not being called for DELETEs.	CR 111579
Post had memory leaks when there were partial rollbacks in batch operations.	CR 111616
Fixed a memory leak.	CR 110963
Removed the check for **nrow > 1** in the rule/filter logic.	CR 111043
Debug information was logged even though debugging was not enabled.	CR 111109
Post failed to decomrpess a securefile LOB.	CR 111894
Fixed a bug where special characters such as returns and line feeds caused incorrect formatting in a SQL file target.	CR 108374
Fixed a bug where messages that had NULLable key columns got discarded if the SP_SYS_IN_SYNC parameter was enabled.	CR 109551
Post core dumped while resolving a block and the connection because the session had been	CR 109939

Resolved Issue	Issue ID
committed and moved by the connection pool.	
Short rollbacks were slowing down Post.	CR 111205
The **port**number option was added back to the **compare** and **repair** commands and now is reflected in the **sp_ctrl** help.	SPO-1817
Prevented **compare** or **copy** of a table that is horizontally partitioned by HASH. Allow if the **force** option is used.	CR 110799
Fixed the **compare** command to eliminate errors on XMLTYPE, CLOB, and BLOB datatypes	CR 110911
Fixed a bug in the **copy** command.	CR 110974
The compare server core dumped due to incorrect debug logging arguments.	CR 111138
Repair did not clear out-of-sync messages for horizontally partitioned tables.	CR 111216
The compare client failed with ORA-12801.	CR 111218
Added a message to the compare SQL file stating that it is for information only and not for fixing out of sync rows.	SPO-963
When repairing horizontally partitioned tables or when repairing with an explicit WHERE clause, OOS messages were not cleared.	CR 103813
A comparison run with SSH enabled failed on Windows.	CR 110520
Repairs did not log DELETE row information to the SQL log.	CR 111156
Comparisons failed when the source and target character sets were different.	CR 111385
A comparison job failed to cancel on user request.	CR 111386
Added handling of Oracle bug 10428450 where versions 11.1.0.6 to 11.2.0.2 do not support SELECT with a parallel hint.	CR 111421
Comparisons were slow on XML tables.	CR 109930
The **compare** and **repair** commands failed due to ORA-00600.	CR 110397
Comparisons failed when SP_DEQ_LOG_ROW_DATA was enabled.	CR 110826
The **compare** command missed the user provided hint clause when formatting the SQL statement.	CR 110914
Installation of the **compare**/**repair** SQL package failed.	CR 111347
Repairs caused a core dump.	CR 111649
Changed the way that hints are used in the SELECT clause of the repair process.	CR 111178
Corrected issues that occurred when horizontally partitioned and vertically partitioned replication were being used.	CR 111742 CR 111745 CR 111726
Fixed detection that the target is non-Oracle when horizontally partitioned replication is being used.	CR 111785
Fixed queue problems that occurred when horizontally partitioned replication was defined for a JMS target.	CR 111875

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Resolved Issue	Issue ID
Out-of-sync during recovery due to logs being skipped.	111,433
The Capture column cache was corrupted when a "Transaction begins with rollback" error is encountered.	111,471
Valid messages got discarded after restarting Capture.	111,446
SharePlex incorrectly discarded some messages after a Capture restart, causing an out-of-sync condition.	111,583
Capture could not recover after a failure.	111,560
Post had a memory leak when performing a full rollback.	110,963 111,177 111,561
Post had a memory leak when processing batch operations with a partial rollback.	111,616
False out-of-sync reported after an insert was rolled back then followed with a delete.	111,435
Post failed while cleaning up after a session in which the Post Enhanced Performance (PEP) feature was enabled.	111,611
The commit reduction option of the Post Enhanced Performance (PEP) feature was not working properly	111,572

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Resolved Issue	Issue ID
Capture got stuck after an upgrade if the redo log was on a raw device.	111351
Post missed the key in a change-history configuration after an upgrade.	111353

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Resolved Issue	Issue ID
Bug in user validation when running sp_ctrl.	109979
On Windows, Export could not connect through an SSH tunnel.	110040
sp_ctrl displayed the username/password when the **qstatus** command was issued from a script that included the username/password.	110528

Resolved Issue	Issue ID
"Oracle RedoLog compatibility" messages printed to the log more times than necessary.	109228
The SharePlex wallet was not able to find some of the functions in the Oracle client library on AIX with Oracle 11.2.0.1.	109053
Column names with non-ASCII characters did not get retrieved from Oracle correctly.	109617
Activation failed to build the correct entry for the index of an IOT if the table had a primary key constraint with the same name as the table.	110713
When auto-add was enabled, the target table was not dropped when the associated materialized view was dropped.	110777
When activating to an SCN, the first valid message that matched the SCN was discarded.	110807
Wildcard resolution did not properly handle the underscore character in all cases.	110926
Format timestamps correctly.	108159
Fix SP_OCT_LOG_MEMBER to support ASM.	108392
When a row was deleted after a new column with a default value was added by an ALTER TABLE, there was an out-of-sync condition (row not found).	109206
Capture did not properly process the dropping of a primary key on a table if the primary key was added using a unique index.	109218
When reading from the archive logs, Capture read incomplete logs.	109631
Capture suspended when there was a log wrap.	109921
DDL was sent when SP_OCT_REPLICATE_DDL was set to 0.	109945
Thread IDs were not increasing.	109997
Avoid printing debug messages.	110654
Fixes to XML support.	110740
A securefile LOB operation (Load Data) on a system table caused Capture to fail.	110800
Capture checkpointed on DDL unnecessarily.	110824
Chained rows were not being processed correctly.	110838
Capture failed to parse certain DLOAD records with compressed data.	110848
Certain XML contructs caused out-of-sync rows when stored as Binary XML.	110511
Capture should stop when it receives an error related to establishing a TDE connection.	108812
Certain UPDATE operations that contained multiple LMN records could cause Capture to loop.	109968
Compare failed when the Oracle SID contained a hyphen, for example "splex-db."	109575
Read failed in some cases when the table had horizontal partitioning.	89601
Post failed when posting to an ODBC target that did not have a key.	107712
Post failed on DDL that had a default date value that did not match the SharePlex date format.	107834
There was a memory leak in Post.	107856
JMS posting used too much memory.	107888

Resolved Issue	Issue ID
Queries were blocked too long.	108325
Post returned ora-01410 when processing a LOB	108531
After an ALTER TABLE to DROP COLUMN, the column was not removed from the object cache.	108981
Poster got duplicate columns when posting before and after images of UPDATES to a CDC target.	109036
There was a memory leak in Post.	109335
Columns were missing in transformation.	109977
Query to find blocking sessions did not find all blocks.	110228
Transformation did not run due to an incorrect value in the object cache.	110264
SP_CR.COL_DEF_TABTYP was not declared in transformation after an ALTER TABLE DDL.	110444
The operation was skipped after resolving a blocking situation.	110533
Post slowed down when it queried the SHAREPLEX_TRANS table.	110538
The **show post** command with the **detail** option showed the SID and instance columns as sid/serial.	110656
Post with Post Enhanced Performance enabled could not apply data that had a foreign key constraint.	110745
Post processed DML before the associated CREATE TABLE when replicating CREATE MATERIALIZED VIEW.	110772
Generic ODBC Post required NOT NULL on key columns to post CREATE TABLE statements.	110774
Post failed on partial rollback.	110778
Post violated a unique constraint when refreshing materialized views.	110780
Post did not post ON DELETE CASCADE messages if SP_OPO_RESTRICT_ALL_REF_CONS was set to 1.	110789
Post performed dependency checking when dependency checking was disabled, causing Post to hang.	110798
Post failed on CREATE MATERIALIZED VIEW if the CREATE TABLE contained an ANYDATA column.	110810
Post performance degraded when checking dependencies.	110829
Post failed on SDO_GEOMETRY types in VARRAY code.	110906
Open Post did not show up in the task tab in SpUtils.	110605
Post returned ORA-1740 due to a missing double qoute around the trigger name.	110267
The Post object cache was updated before DDL was successful.	109562
An invalid thread message repeated in the Post log.	109404
Improve access to the object cache.	108482
Avoid duplicate messages in the JMS queue.	107954
The **show post** command failed.	107728

Resolved Issue	Issue ID
Remove the 'return rowid' from a DELETE batch operation to improve performance.	105255
Restart post on ORA-12536 errors.	104721
Post did not update the object cache when DDL failed.	103440
NCLOB data was not posted as UTF16 Big Endian.	110618
Post got ORA-00026 on Oracle 10g due to invalid internal ALTER SYSTEM KILL SESSION.	110530
DDL to create a unique index caused Post to fail if the index name contained a schema name and the target table was mapped to a different schema.	109405
Truncates did not cascade when SP_OCT_REPLICATE_POSTER was set.	109196
The consolidated target column source id was set on an UPDATE even though it did not change.	108735
Post received duplicate messages when Export/Import were in recovery mode.	108633
The **qview** command with **fixup** caused problems if the table was configured with horizontal partitioning and the logical and physical release points did not coincide.	85006
qview did not get the port number from the command line on Windows.	109925
The **provision** utility did not work across systems with different byte ordering.	108933
Problem with Post queue.	110114
There was queue corruption when SP_QUE_SHMDBUF was set to 8MB.	110116
Compare needs to export NLS_LANG before logging into Oracle.	109615, 109883
Could not compare 7.6.1 or lower to 8.x.x	110512
Fix an issue with compare when it reads multi-byte CLOB data.	110664
Compare put the hint clause in the wrong position.	110874
ora_setup failed to load the Compare SQL package on Windows.	110891
The **compare** command with the **key** option sent incorrect compare status back to the compare server.	110546
The compare server failed when SP_DEQ_SKIP_LOB was set to 1.	108914
The **compare status** command did not close its Oracle cursor after it queried a table.	110660
sp_nt_mon did not connect to **sp_cop** on Windows.	110606
ora_setup failed to recognize second ORACLE_HOMEs.	110746
ora_setup failed when there were two Oracle instances running against the same Oracle home on a Windows system.	110746
There was a bug in the scripts that prevent triggers in the target database from being fired by the post process.	110752

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Resolved Issue	Issue ID
ASM user/password could get truncated if the lengths were over 8 characters.	110623
There was a problem with the latency value reported in trace command output.	110621
Regression was caused by not querying for sys.enc$ object_id when encryption was not present, which caused a performance issue on RAC installs.	110601
The ASM SID was not retrieved from the local connection if it was not in the oratab file.	110640
Added the parameter SP_OCT_MIN_SESSIONS to allow increasing the number of subqueues for Capture sessions to support improved Post performance.	110509
Certain XML caused an out-of-sync condition when stored as Binary XML.	110511
The **compare status** command did not close its Oracle cursor after it queried a table.	110660
NCLOB data was not posted as UTF16 Big Endian.	110618
Post got ORA-00026 on Oracle 10g due to invalid internal ALTER SYSTEM KILL SESSION.	110530
Post connection logic did not support database servers that do not support the "use *database*" sql.	110594

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Resolved Issue	Issue ID
The SharePlex wallet was not able to find some of the functions in the Oracle client library on AIX with Oracle 11.2.0.1.	109053
ORA-28002 error message (password will expire) prevented ora_cleansp from completing its tasks.	109071
The rowid no longer appeared in the OOS message in the event log.	109217
Update operations that had NULLable key columns got discarded when SP_SYS_IN_SYNC parameter was enabled.	109551
"Oracle RedoLog compatibility" messages printed to the log more times than necessary.	109228
The qstatus command displayed negative values.	109885
The show capture command did not clearly indicate the status when Capture encountered a log wrap.	108715
Activation skipped a table that contained a SecureFile LOB column with deduplication, but the warning message stated it was skipped because compression is not supported.	109361
Post failed when the SQL contained an empty column.	109195
Commits were skipped when the transaction contained no messages.	109093

Resolved Issue	Issue ID
The consolidated target column source id was set on an UPDATE even though it doesn't change.	108735
Post stalled waiting while resolving a blocking situation.	109003
ALTER TABLE operations that involved more than one object failed.	109429
Inappropriate file switches occurred when posting to a file target.	109479
"thread invalid" messages repeated unnecessarily in the log.	109404
When Post processed an ALTER TABLE to DROP COLUMN, Post updated its object cache (record of current table metadata) before getting confirmation that the operation succeeded.	109562
Duplicate messages were generated in the JMS queue.	107954
ALTER SYSTEM KILL SESSION failed with ORA-00026: missing or invalid session ID.	109693
Post failed while posting to a SQL file when the data contained special characters.	108374
Post received duplicate messages when export/import were in recovery mode.	108633
Post validated the column type for syntax that did not evaluate the actual column value.	108200
Reverted performance changes that introduced issues in the handling of subqueues.	110026
Post did not support multibyte characters when posting to an ODBC-compliant database. (missing or bad snippet)	107933
Only fail a queue name if the Post user name does not fit in the queue user.	108626
Deleting rows after adding a new column with default/not-null caused Capture to generate DELETE records that did not have the value of the newly added column, causing an out-of-sync condition.	109206
Capture failed while trying to make a connection when TDE was enabled.	108812
Removed the call 'Grant Select on sys.user$' and added an error to use a sysdba user or to manually issue the grant to Capture.	109192
Certain XML syntax was not replicated properly when the XML data was loaded to a Binary XML column.	109931
Capture failed to ignore error messages for an XML system table that is not present.	109578
DDL to create a unique index caused Post to fail if the index name contained a schema name and the target table was mapped to a different schema.	109405
Overwritten chained rows resulted in an invalid UPDATE record.	109589
Capture failed while processing DROP TABLE with FK constraints.	109762
Allow capture threads to query RAC nodes separately.	101933
ora_setup failed to install packages required for compare of VARRAY datatypes.	109343
The provision utility failed.	109773
Provision failed with "que_SQUE_CRE: Could not create subqueue".	109899
Licensing failed when the host ID changed.	109620
Compare server failed when set param SP_DEQ_SKIP_LOB 1	108914

Resolved Issue	Issue ID
Compare failed due to the use of shared memory to store compare statistics.	109101
Repair failed to report an error when the compare client could not delete a row due to a child row constraint.	109384
Compare failed when the Oracle SID contained a hyphen, for example "splex-db."	109575
Repair failed when there were LOB columns inside a UDT.	109776
Compare sql package installation failed on Windows.	109756
Compare failed to allocate a buffer due to miscalculation of the batch size.	109796
The compare hash logic did not work when the table included a long column and reverted to using all columns.	109946

Basic system requirements

Before installing SharePlex, ensure that your system meets the minimum hardware and software requirements.

- SharePlex processes are all 64-bit and can exceed 4 GB.

- Per process memory of greater than or equal to 256 MB is required.

- See the Preinstallation Checklist in the SharePlex Installation Guide for additional system and/or database requirements.

Interoperability between versions

Refer to the following guidelines if the system where you are installing the current version of SharePlex is in a configuration where one or more other systems will continue to use an older version. An example would be where you are installing or upgrading SharePlex on a target, but the source will continue to use SharePlex 8.5 or earlier.

Versions with full interoperability

The following SharePlex versions are fully interoperable, including the Compare/Repair feature:

7.6.3

8.0.x

8.5.x

8.6.x

To support replication from a higher to a lower version, set the SP_OCT_TARGET_COMPATIBILITY parameter to the *lower* SharePlex version.

IMPORTANT:

- If you are running a version earlier than 7.6.3, you can replicate between the older version and the current version. However, the Compare/Repair feature is not supported between these versions.

- Downgrading from a higher to a lower version of SharePlex is not supported.

Supported data stores

NOTE: See the data-store specific setup documentation in the SharePlex Administrator Guide.

Data Store	Type of Support	Version	Driver version
Oracle Database (64-bit only)	source and target	10 10gR2 11g 11gR2 12cR1	N/A
Microsoft SQL Server	target	2008 R2 2012 2014 2016	Microsoft SQL Server ODBC Driver Do *not* use the **Microsoft SQL Server Native Client**. SharePlex will return an error during setup if the correct driver is not used. To tell the difference between the two: • The Microsoft SQL Server ODBC Driver has versions such as 06.02.9200. • The Microsoft SQL Server Native Client has versions such as 11.00.3513.
PostgreSQL* (Symfoware Server, EDB Postgres Advanced Server, others)	target	9.4 and later*	Use the driver version that is recommended by the vendor of the PostgreSQL implementation that you are using.
SAP HANA	target	1.0 SPS 11 Rev111	HDBODBC or HDBODBC32 driver provided with the HANA database installation.
SAP Adaptive Server Enterprise (ASE)	target	15.7	N/A
Teradata	target	15.00.03.05	Teradata ODBC driver version 15.10.00.01 or later
JMS - ActiveMQ	target	5.8	N/A
JMS - IBM MQ	target	7.x and 8.x	N/A
Apache Kafka	target	.08 and later	N/A
Flat file - XML output	target	N/A	N/A
Flat file - SQL output	target	N/A	N/A

* SharePlex supports all implementations of the PostgreSQL open source object-relational database system.

Cloud support

The following table lists the current SharePlex support for cloud-based database deployments.

Data Store	AWS RDS	AWS EC2	Azure Marketplace	Azure SQLService
Oracle	target	source and target	source and target	--
SQL Server	target	target	target	target
PostgreSQL (Community Edition)	target	target	target	--
EDB Postgres Advanced Server	--	target	target	--
Fujitsu Symfoware Server	--	target	target	--

System Requirements — Oracle

This section contains information about SharePlex support for capture from an Oracle source database and replication to supported targets.

Basic requirements

- SQL*Plus must be installed for any source or target Oracle Database.
- (Linux and Unix) Quest recommends setting the hard-limit of the system file descriptors to a minimum of 1024 or higher, as the system permits.
- A source Oracle database must have at least the minimum level of supplemental logging enabled. Some datatype or operational support may require PK/UK supplemental logging to be enabled.
- See the Preinstallation Checklist in the *SharePlex Installation Guide* for additional system and/or database requirements.

Supported platforms

This section shows the SharePlex support for replication from source Oracle database-platform combinations to target database-platform combinations, both Oracle and Open Target.

NOTES:

- Unless specified, Oracle, RAC, and ASM are supported for the same version.
- SharePlex supports only 64-bit Oracle Database.

Supported platforms — Oracle source to Oracle target

	Oracle source or target				
Platform	**10g***	**10gR2***	**11g***	**11gR2***	**12cR1***
AIX 5.3	**Yes**	**Yes**	**Yes**	**Yes**	No
AIX 6.1	NA	**Yes**	**Yes**	**Yes**	**Yes**

Platform	Oracle source or target				
	10g*	10gR2*	11g*	11gR2*	12cR1*
AIX 7.1	NA	NA	NA	**Yes**	**Yes**
CentOS 5.10 (x64)	NA	**Yes**	**Yes**	**Yes**	**Yes**
CentOS 6.5 (x64)	NA	**Yes**	**Yes**	**Yes**	**Yes**
Debian Release 8 (Jesse and Wheezy)***	No	No	**Yes**	**Yes**	**Yes**
HP-UX 11.31 (11i v3) (PA-RISC)	**Yes**	**Yes**	**Yes**	**Yes**	NA
HP-UX 11.31 (11i v3) (Itanium)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Oracle Solaris 9	**Yes**	**Yes**	**Yes**	NA	NA
Oracle Solaris 10 (SPARC)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Oracle Solaris 10 (x64)	**Yes**	**Yes**	NA	**Yes**	**Yes**
Oracle Solaris 11 (SPARC)	NA	NA	**Yes**	**Yes**	**Yes**
Oracle Solaris 11 (x64)	NA	NA	**Yes**	**Yes**	**Yes**
Oracle Linux 4 (x64)	**Yes**	**Yes**	**Yes**	**Yes**	NA
Oracle Linux 5 (x64)	NA	**Yes**	**Yes**	**Yes**	**Yes**
Oracle Linux 6 (x64)	NA	NA	NA	**Yes**	**Yes**
Oracle Linux 7 (x64)	NA	NA	NA	**Yes**	**Yes**
Oracle Linux 5 on Exadata 2, 3, 4 (x64)	NA	NA	NA	**Yes**	**Yes**
Oracle Linux 5.5 on Exadata 3, 4 (x64)	NA	NA	NA	**Yes**	**Yes**
Oracle Linux 6.6 on Exadata 5 (x64)	NA	NA	NA	**Yes**	**Yes**
RHEL 4 (x64)	**Yes**	**Yes**	**Yes**	**Yes**	NA
RHEL 5 (x64)	NA	**Yes**	**Yes**	**Yes**	**Yes**
RHEL 6 (x64)	NA	NA	NA	**Yes**	**Yes**
RHEL 7 (x64)	NA	NA	NA	**Yes**	**Yes**
SuSE SLES9 (x64)	**Yes**	**Yes**	NA	NA	NA
SuSE SLES10 (x64)	NA	**Yes**	**Yes**	**Yes**	NA
SuSE SLES11 (x64)	NA	**Yes**	**Yes**	**Yes**	**Yes**
SuSE SLES12 (x64)**	NA	NA	NA	**Yes**	**Yes**
Windows Server 2003 (x64)	NA	**Yes**	**Yes**	**Yes**	NA
Windows Server 2008 (x64)	NA	**Yes**	**Yes**	**Yes**	**Yes**
Windows Server 2012	NA	**Yes**	**Yes**	**Yes**	**Yes**
Windows Server 2012R2	NA	**Yes**	**Yes**	**Yes**	**Yes**

NA: Not applicable: not supported by the database type or version.

X: Not yet tested.

* SharePlex only supports 64-bit Oracle Database. Linux running Oracle 11g must be running on Oracle 11.1.0.6.0+ or you must apply the one-off provided for Oracle Bug 6598432.

** At the time of this writing, Oracle's published documentation did not indicate support of SuSE SLES12. Basic testing of SharePlex has been done on SuSE SLES12. Quest will provide best effort support but cannot resolve specific Oracle issues on this platform until Oracle adds official support.

*** Oracle does not officially support Debian Linux.

Supported platforms — Oracle source to Open Target

Platform*	Can post to target on this platform (Yes/No)							
	SAP ASE	SQL Server	PostgreSQL**	Teradata	SAP HANA	JMS	Kafka	File
AIX 5.3	NA	NA	NA	NA	NA	No	No	**Yes**
AIX 6.1	NA	NA	NA	NA	NA	**Yes**	No	**Yes**
AIX 7.1	NA	NA	NA	NA	NA	**Yes**	No	**Yes**
CentOS 5.10 (x64)	**Yes**	NA	NA	NA	NA	**Yes**	**Yes**	**Yes**
CentOS 6.5 (x64)	**Yes**	NA	**Yes**	NA	NA	**Yes**	**Yes**	**Yes**
Debian Release 8 (Jesse and Wheezy)	**Yes**	NA	**Yes**	NA	NA	**Yes**	**Yes**	**Yes**
HP-UX 11.31 (11i v3) (PA-RISC)	No	NA	NA	NA	NA	No	No	No
HP-UX 11.31 (11i v3) (Itanium)	No	NA	NA	NA	NA	No	No	No
Oracle Solaris 9	NA	NA	NA	NA	NA	NA	NA	NA
Oracle Solaris 10 (SPARC)	NA	NA	NA	NA	NA	**Yes**	No	**Yes**
Oracle Solaris 10 (x64)	NA	NA	NA	NA	NA	**Yes**	No	**Yes**
Oracle Solaris 11 (SPARC)	NA	NA	NA	NA	NA	**Yes**	No	**Yes**
Oracle Solaris 11 (x64)	NA	NA	NA	NA	NA	**Yes**	No	**Yes**
Oracle Linux 4 (x64)	NA	NA	No	NA	NA	**Yes**	**Yes**	**Yes**
Oracle Linux 5 (x64)	NA	NA	No	NA	NA	**Yes**	**Yes**	**Yes**
Oracle Linux 6 (x64)	NA	NA	No	NA	NA	**Yes**	**Yes**	**Yes**
Oracle Linux 7 (x64)	NA	NA	NA	NA	NA	**Yes**	**Yes**	**Yes**
Oracle Linux 5 on Exadata 2, 3, 4 (x64)	NA	NA	No	NA	NA	**Yes**	**Yes**	**Yes**

Platform*	Can post to target on this platform (Yes/No)							
	SAP ASE	SQL Server	PostgreSQL**	Teradata	SAP HANA	JMS	Kafka	File
Oracle Linux 5.5 on Exadata 3, 4 (x64)	NA	NA	No	NA	NA	Yes	Yes	Yes
Oracle Linux 6.6 on Exadata 5 (x64)	NA	NA	No	NA	NA	Yes	Yes	Yes
RHEL 4 (x64)	Yes	NA	NA	NA	NA	Yes	Yes	Yes
RHEL 5 (x64)	Yes	NA	NA	NA	NA	Yes	Yes	Yes
RHEL 6 (x64)	Yes	NA	Yes	NA	NA	Yes	Yes	Yes
RHEL 7 (x64)	Yes	NA	Yes	NA	NA	Yes	Yes	Yes
SuSE SLES9 (x64)	Yes	NA	NA	NA	Yes	NA	Yes	NA
SuSE SLES10 (x64)	Yes	NA	NA	Yes (SP3)	Yes	Yes	Yes	Yes
SuSE SLES11 (x64)	Yes	NA	Yes	Yes (SP1)	Yes	Yes	Yes	Yes
SuSE SLES12 (x64)**	Yes	NA	NA	NA	Yes	Yes	Yes	Yes
Windows 2003 (x64)	NA	Yes	NA	NA	NA	Yes	No	Yes
Windows 2008 (x64)	NA	Yes	No	NA	NA	Yes	No	Yes
Windows Server 2012	NA	Yes	No	NA	NA	Yes	No	Yes
Windows Server 2012R2	NA	Yes	No	NA	NA	Yes	No	Yes

* If a platform is not supported by a target type, it is not supported by SharePlex for that target type. For example, only R2 of Windows 2008 is supported by EDB Postgres Advanced Server, and therefore only by SharePlex.

** SharePlex supports all implementations of the PostgreSQL open source object-relational database system. See the Basic system requirements for additional information.

Supported Oracle data types

This section provides an overview of the Oracle data and object types that SharePlex supports and whether they can be replicated to a given supported target. To view Open Target supported data types, see Supported Open Target data types and DDL mappings in these requirements.

NOTES:

- When replicating DML operations to an Open Target database, SharePlex queries the target database to determine the target column definition before posting the data.

- If the precision or size of the target datatype is not large enough for the data being replicated, the data may be truncated or rounded by the database when applied.

- See the conditions of support following this table.

Supported Oracle datatype	Can be replicated to this target (Yes/No)						
NOTE: All listed Oracle data types can be replicated between supported Oracle versions if the target Oracle version supports the replicated data type.	SAP ASE	SQL Server	PostgreSQL	Teradata	SAP HANA	JMS, Kafka, or XML File	SQL File
CHAR	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VARCHAR	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VARCHAR2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NUMBER	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DATE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TIMESTAMP	No	Yes	Yes	No	Yes	Yes	No
TIMESTAMP WITH TIME ZONE	No	Yes	No	No	No	Yes	No
TIMESTAMP WITH LOCAL TIME ZONE	No	No	No	No	No	Yes	No
INTERVAL	No	No	No	No	No	Yes	No
LONG[5]	Yes	Yes	Yes	No	Yes	Yes	No
LONG RAW	Yes	Yes	No	No	Yes	No	No
ROWID	No	No	No	No	No	Yes	No
RAW	Yes	Yes	No	No	Yes	Yes	No
B-FILE	No	No	No	No	No	No	No
XMLTYPE[1]	No	No	No	No	No	No	No
XMLTYPE stored as binary[1]	No	No	No	No	No	No	No
BINARY FLOAT	No	No	No	No	No	Yes	No
BINARY DOUBLE	No	No	No	No	No	Yes	No
NCHAR	No	Yes	Yes	No	Yes	Yes	No
NVARCHAR2	No	Yes	Yes	No	Yes	Yes	No
UDT (User Defined Type)	No	No	No	No	No	No	No
VARRAY collectors[6]	No	No	No	No	No	Yes	No
Simple BLOB and CLOB[5]	Yes	Yes	No	No	Yes	Yes	No
BLOB and CLOB stored in SecureFiles[2]	Yes	Yes	No	No	Yes	Yes	No
BLOB and CLOB stored in SecureFiles with compression (high or medium only)[2]	Yes	Yes	No	No	Yes	Yes	No
NCLOB[3]	No	Yes	Yes	No	Yes	Yes	No
ANYDATA[4]	No	Yes	No	No	No	No	No
SDO_GEOMETRY	No	No	No	No	No	No	No

1. Conditions of support - XMLTYPE

SharePlex supports the replication of XMLTYPE stored as CLOB and BINARY. SharePlex does not support XMLTYPE stored as OBJECT RELATIONAL. Additionally, the following applies:

- XMLTYPE stored as BINARY is not supported when storage is defined as SecureFile LOB with compression. SecureFile LOB without compression is supported.
- Binary XMLTypes are not supported by Compare/Repair when source and target character sets are different and require character set conversion.
- Compare/Repair does not support comparison of XMLTYPE when source and target have different storage clauses. Compare/Repair only supports compare/repair when source and target are both stored as BINARY or both are stored as CLOB.

2. Conditions of support - SecureFile LOBs

Replication of SecureFile LOBs (compressed high or medium, or uncompressed) is supported as follows:

- Not supported if the storage specification includes encryption, and/or deduplication.
- Logging must be enabled.
- Replication to non-Oracle databases is supported except if the storage specification includes any level of compression, encryption, and/or deduplication. Logging must be enabled.

3. Conditions of support - NCLOB

NCLOBs are not supported by Compare/Repair if the source and target have different character sets.

4. Conditions of support - ANYDATA

- Replication of ANYDATA is supported, except when it contains a UDT or the storage is defined as SecureFile LOB with compression. SecureFile LOB without compression is supported. Only the following datatypes within ANYDATA are supported by SharePlex:
  - CHAR
  - DATE
  - NUMBER
  - RAW
  - VARCHAR
  - VARCHAR2
  - TIMESTAMP
- A datatype within an ANYDATA type must be in-row (inside the column data). Oracle encapsulates the ANYDATA type as an in-row securefile LOB. If the encapsulated data is longer than the length allowed for an in-row LOB, that data appears as out-of-row LOB data. SharePlex assumes that the encapsulated data always appears as in-row LOB.

5. Conditions of support - LONG and LOB columns

Any table that contains a LOB or LONG should have a primary key or unique key defined on it. If a table does not have a key, SharePlex builds its own key from all of the columns except LONGs or LOBs. If a LOB or LONG is the only difference between two rows that otherwise satisfy the Post WHERE clause, SharePlex cannot guarantee that the correct row will be updated.

6. Conditions of support - VARRAYS

Only the following data types in a VARRAY are supported by SharePlex when replicating to XML output:

- BINARY_FLOAT
- VARCHAR2
- BINARY_DOUBLE
- NUMBER
- TIMESTAMP (This is converted to a DATE data type without microseconds in XML output)
- DATE
- UDT (only if it contains one of the data types in this list)

Supported Oracle DML operations

SharePlex supports DML replication from the following Oracle objects:

- Any table can be replicated to an Oracle or non-Oracle target if the target supports all of the column types that are being replicated. This includes index-organized tables, partitioned tables, and materialized views.
- Oracle sequences can be replicated from Oracle to Oracle. Replication of sequences is not supported to a non-Oracle target.
- Replication to targets with a different character set is supported, with limitations. When posting to Open Target databases, XML files and JMS, SharePlex supports only UNICODE and US7ASCII on the target, but conversion can be performed by an Oracle client installed on the target system. For full details, see the Database section of the Preinstallation Checklist in the SharePlex Installation and Setup Guide. See also Supported Oracle data types for additional restrictions.

NOTES:

- SharePlex only replicates DML changes that are made to Oracle source objects that are listed in the configuration file.
- SharePlex replicates changes to those objects only when they appear in Oracle redo log files.

The following table summarizes SharePlex DML support.

DML support	Supported for
INSERT, UPDATE, DELETE, COMMIT, ROLLBACK on tables	All target types
Direct-path loads (SQL*Loader) (INSERT AND FULL ROLLBACK)	All target types
DML on tables encrypted by Oracle Obfuscation Toolkit	All target types
DML on tables with TDE encryption[1]	All target types except Oracle 10g and 11gR1
DML on Oracle Label Security (OLS)[2]	All target types

DML support	Supported for
DML on compressed objects: Basic, OLTP, HCC[3]	All target types
Direct Load (DLOAD) on compressed objects: Basic, OLTP, HCC[3]	All target types

1. Conditions of support - TDE

- SharePlex supports Tablespace Encryption and Column Encryption for Oracle 11g R2 and later versions, both source and target.

- The SharePlex **copy/append** command does not support TDE.

2. Conditions of support - OLS

By default, SharePlex cannot process rows that are protected by OLS because users granted DBA privileges (like SharePlex) do not have enough privileges to access those rows. However, if privilege is granted from the OLSSYS user, SharePlex can support OLS. SharePlex was tested under the following OLS configuration:

- The SharePlex user was granted full privilege to the objects in replication.

- Test tables with OLS security were created.

- Data was replicated using INSERT/UPDATE/DELETE/ROLLBACK/TRUNCATE, and ALTER TABLE to add and drop columns.

NOTE: If the OLS policy data label column is defined as hidden, the data in that column cannot be replicated by SharePlex.

3. Conditions of support - compression

Under certain conditions, Oracle does not provide enough information in the redo log for SharePlex to replicate a DML operation on a compressed object.

Supported DDL operations

SharePlex provides default and optional DDL support.
NOTES:

- SharePlex supports DDL on compressed objects only for Oracle 11gR2 and later source databases.

- ALTER TABLE to ADD COLUMN and ALTER TABLE to DROP COLUMN are supported on compressed source objects (Basic, OLTP, HCC) for all Oracle and Open Target targets.

- All other DDL on compressed source objects is supported ONLY for Oracle 11g and later targets.

- Any object or operation not listed in one of the tables in this section is not supported for that feature.

Default DDL support for objects in replication

This section shows the default DDL support for objects that are *included in the active replication configuration* either explicitly or with a wildcard.

Oracle-to-Oracle default DDL support

The default Oracle-to-Oracle DDL configuration is controlled by the following parameter settings:

SP_OCT_REPLICATE_DDL=3 and

SP_OCT_AUTOADD_ENABLE=1 and

SP_OCT_REPLICATE_ALL_DDL=0

Supported object	Supported Operation
Table and IOT	Create table[1]
	Create table as select[1, 4]
	Drop table[1]
	Create index[1]
	Drop index[1]
	Truncate[2]
	Alter table add column[2]
	Alter table drop column [2]
	Comment on table[2]
	Comment on columns[2]
	Associate Statistics[2]
	Disassociate Statistics[2]
Partition/ Subpartition[2, 3]	Add
	Split
	Merge
	Drop
	Modify
	Coalesce
	Exchange
	Move
	Truncate
	Rename
	Set
Index[1]	Create
	Alter
	Drop

Conditions of support

1. Enabled by default through SP_OCT_AUTOADD_ENABLE=1. Auto-Add automatically adds an object to replication if the name satisfies a wildcard in the active replication configuration.

2. Enabled by default through SP_OCT_REPLICATE_DDL=3. This is the default DDL support for objects that are listed in the active configuration.

3. The full default DDL support applies to user-named interval partitions/subpartitions. For system-named (system generated) interval partitions/subpartitions, SharePlex supports only ALTER TABLE to DROP and TRUNCATE the system-named partitions. To enable support for DROP and TRUNCATE of system-named partitions, set the SP_OCT_TRUNC_PARTITION_BY_ID parameter to 1, and ensure that both source and target are updated to SharePlex version 8.6.4 or later.

NOTE: SharePlex does not support TRUNCATE of a system-generated sub-partition if the sub-partition is empty, and Post stops with error SP-OPO01002. To configure Post to ignore this error, set the SP_OPO_ CONT_ON_ERR parameter to 1 and add error number SP-OPO01002 to the top of the **oramsglist** file, before you restart Post.

4. For CREATE TABLE AS SELECT, SharePlex supports the following datatypes: LONG, DATE, RAW, LONG RAW, ROWID, LONG VARCHAR, CHAR, CLOB, BLOB, CFILE, BFILE, TIMESTAMP, INTERVAL YEAR TO MONTH, INTERVAL DAY TO SECOND and ANYDATA.

Oracle-to-Open Target DDL support

This section shows the default DDL support for Oracle objects when replicated to an Open Target, when the objects are *included in the active replication configuration* either explicitly or with a wildcard.

SharePlex only supports replication of TRUNCATE TABLE and ALTER TABLE to ADD COLUMN or DROP COLUMN to an Open Target database, file, or message container. No other DDL is supported to Open Target.

The default Oracle to Open Target configuration is controlled by the following parameters:

      SP_OCT_REPLICATE_DDL=3 and

      SP_OCT_AUTOADD_ENABLE=1 and

      SP_OCT_REPLICATE_ALL_DDL=0

Supported object	Supported Operation
Table and IOT	Truncate[1]
	Alter table add column
	Alter table drop column

1. Conditions of support

TRUNCATE TABLE is not supported from Oracle compressed objects to Open Target targets.

Optional DDL support for objects in replication

Valid only for Oracle-to_Oracle replication

You can enable the replication of the following DDL with parameter settings *when it is issued on objects that are in the configuration file*.

DDL command	Parameter
CREATE / DROP TRIGGER	SP_OCT_REPLICATE_TRIGGER=1
CREATE / DROP SYNONYM	SP_OCT_REPLICATE_SYNONYM=1
GRANT	SP_OCT_REPLICATE_GRANT=1

Optional Auto-Add support for objects in replication

Valid only for Oracle-to_Oracle replication

Optional Auto-Add support enables newly created **materialized views** and **sequences** to be added to replication automatically if the name of the object satisfies a wildcard *in the active configuration file*. It is configured as follows:

Materialized Views:

SP_OCT_AUTOADD_ENABLE=1 and

SP_OCT_AUTOADD_MV=1 and

SP_OCT_TARGET_COMPATIBILITY=8.6.2 or higher

Sequences:

SP_OCT_AUTOADD_ENABLE=1 and

SP_OCT_AUTOADD_SEQ=1 and

SP_OCT_TARGET_COMPATIBILITY=8.6.3 or higher

NOTES:

- Not supported for Open Target.

- For CREATE MATERIALIZED VIEW, SharePlex supports the following datatypes: LONG, DATE, RAW, LONG RAW, ROWID, LONG VARCHAR, CHAR, CLOB, BLOB, CFILE, BFILE, TIMESTAMP, INTERVAL YEAR TO MONTH, INTERVAL DAY TO SECOND and ANYDATA. SharePlex does not support ALTER MATERIALIZE VIEW.

- SharePlex does not replicate materialized views to materialized views. SharePlex converts a CREATE MATERIALIZED VIEW to a CREATE TABLE, applies the CREATE TABLE to the target, and then replicates the DML that populates the view.

Expanded DDL support for objects not in replication

DDL support for objects *not listed in the configuration file* is valid only for Oracle-to-Oracle replication. SharePlex replicates the DDL statements, but does not replicate any data change operations made to the objects because they are not part of active replication. The expanded DDL configuration is controlled by the following parameter setting:

SP_OCT_REPLICATE_ALL_DDL=1

NOTES:

- Any object or operation not listed is not supported.

- Expanded DDL replication supports not only tables and sequences but also a wide range of other objects such as procedures, functions, users, and views, which are not part of replication. Some of these objects may have underlying objects that *are in replication*. In those cases, Expanded DDL replication applies to the underlying objects in replication, as well as to the object that is not in replication.

Supported object	Supported Operation
Table and IOT	Create table
	Create table as select
	Alter table add column
	Alter table drop column
	Drop table
	Truncate
	Comment on table
	Comment on columns
	Associate Statistics
	Disassociate Statistics
Cluster	Create cluster
	Crop cluster
Sequence	Create
	Drop
	Alter
Partition/ Subpartition	Add
	Split
	Merge
	Drop
	Modify
	Coalesce
	Exchange
	Move
	Truncate
	Rename
	Set

Supported object	Supported Operation
Index	Create
	Alter
	Drop
View	Create
	Alter
	Drop
	Comment on view
Synonym	Create
	Drop
Directory	Create
	Drop
User-defined type	Create type
	Alter type
	Drop type
	Create type body
	Drop type body
Stored procedure	Create
	Alter
	Drop
Stored function	Create
	Alter
	Drop
Package	Create package
	Create package body
	Alter package
	Alter package body
	Drop package
	Drop package body
User	Create user
	Alter user
	Drop user
	Grant
	Revoke

Supported object	Supported Operation
Role	Create role
	Alter role
	Drop role
	Grant
	Revoke

Supported Open Target data types and DDL mappings

This section shows the following:

- The supported data types for each Open Target database and XML-based output (file or message container) that SharePlex supports.

- The default mappings of those data types to their Oracle counterpart, which SharePlex uses for replicated ALTER TABLE ADD COLUMN DDL. When SharePlex adds the column, it defines it with the default data type. This mapping applies to the entire configuration (not per table).
  NOTE: These mappings are only used to establish column definitions for replicated ADD COLUMN operations. For replicated DML, SharePlex queries the target database to determine the appropriate data type to use.

To view the default datatype mapping, use the **target** command with the **show datatype** option in **sp_ctrl**.

To modify a mapping, use the **target** command with the **set datatype** option. SharePlex does not validate the accuracy of a custom mapping and Quest cannot be held responsible for any inaccuracies resulting from custom mappings. For syntax, use the **help** command in **sp_ctrl** or see the **target** command in the SharePlex Reference Guide.

Oracle to HANA

Oracle Data Type	Mapped to HANA Data Type
BINARY_DOUBLE	double
BINARY_FLOAT	double
BLOB	blob
CHAR	char
CLOB	clob
DATE	date
LONG	clob
LONGRAW	blob

Oracle Data Type	Mapped to HANA Data Type
NCHAR	nchar
NCLOB	nclob
NUMBER	decimal
NVARCHAR	nvarchar
RAW	varbinary
TIMESTAMP	timestamp
VARCHAR/VARCHAR2	varchar

Conditions of support

See Supported Oracle data types for the conditions of support for Oracle source data types.

Oracle to PostgreSQL

Oracle Data Type	Mapped to PostgreSQL Data Type
BINARY_DOUBLE	double precision
BINARY_FLOAT[2]	double precision
CHAR	char
CLOB	text
DATE	date
LONG	text
NCHAR	char
NCLOB	text
NUMBER	numeric
NVARCHAR	varchar
TIMESTAMP	timestamp
VARCHAR(2)	varchar

Conditions of support

1. See Supported Oracle data types for the conditions of support for Oracle source data types.

2. The Oracle BINARY_FLOAT and PostgreSQL double precision data types have different precision. Make certain the source and target lengths are compatible. Numbers of 18801973500000000000 or larger can result in out-of-sync errors.

Oracle to SAP ASE

Oracle Data Type	Mapped to SAP ASE Data Type
BINARY_DOUBLE	float
BINARY_FLOAT	float
BLOB	image
CHAR	char
CLOB	text
DATE	datetime
LONG	text
LONGRAW	image
NUMBER	numeric
RAW	varbinary
VARCHAR(2)	varchar

Conditions of support

See Supported Oracle data types for the conditions of support for Oracle source data types.

Oracle to SQL Server

Oracle Data Type	Mapped to SQL Server Data Type
ANYDATA	sql_variant
BINARY_DOUBLE	float
BINARY_FLOAT	float
BLOB	image
CHAR	char
CLOB	text
DATE	datetime2
LONG	text
LONGRAW	image
NCHAR	nchar
NCLOB	ntext

Oracle Data Type	Mapped to SQL Server Data Type
NUMBER	numeric
NVARCHAR	nvarchar
RAW	varbinary
TIMESTAMP WITH TIME ZONE	datetimeoffset
TIMESTAMP	datetime2
VARCHAR(2)	varchar

Conditions of support

See Supported Oracle data types for the conditions of support for Oracle source data types.

Oracle to Sybase

Oracle Data Type	Mapped to Sybase Data Type
BINARY_DOUBLE	float
BINARY_FLOAT	float
BLOB	image
CHAR	char
CLOB	text
DATE	datetime
LONG	text
LONGRAW	image
NUMBER	numeric
RAW	varbinary
VARCHAR(2)	varchar

Conditions of support

See Supported Oracle data types for the conditions of support for Oracle source data types.

Oracle to Teradata

Oracle Data Type	Mapped to Teradata Data Type
CHAR	char

Oracle Data Type	Mapped to Teradata Data Type
DATE	timestamp
NUMBER	number
VARCHAR/VARCHAR2	varchar

Conditions of support

See Supported Oracle data types for the conditions of support for Oracle source data types.

Oracle to XML

This mapping applies to all targets that receive messages as XML:

- File in XML format
- JMS
- Kafka

Oracle Data Type	Mapped to XML Data Type
BLOB	base64Binary
CHAR	string
CLOB	string
DATE	dateTime
BINARY_FLOAT	decimal
BINARY_DOUBLE	decimal
INTERVAL DAY TO SECOND	dayTimeDuration
INTERVAL YEAR TO MONTH	yearMonthDuration
LONG	string
NCHAR	string
NCLOB	string
NUMBER	decimal
NVARCHAR2	string
RAW	base64Binary
ROWID	string
TIMESTAMP	dateTime
TIMESTAMP WITH TIME ZONE	dateTimeStamp
TIMESTAMP WITH LOCAL TIME ZONE	dateTimeStamp

Oracle Data Type	Mapped to XML Data Type
VARCHAR2	string
VARRAY[2]	Post maps the data types in the source VARRAY to the appropriate XML data types. Only certain data types in a VARRAY are supported. See the conditions of support.

Conditions of support

1. See Supported Oracle data types for the conditions of support for Oracle source data types.

2. Only the following data types in a VARRAY are supported by SharePlex when replicating to XML output:

   - BINARY_FLOAT
   - VARCHAR2
   - BINARY_DOUBLE
   - NUMBER
   - TIMESTAMP (This is converted to a DATE data type without microseconds in XML output)
   - DATE
   - UDT (only if it contains one of the data types in this list)

Non-supported items for Oracle Database

This is a list of commonly used Oracle components that SharePlex does not replicate. Since both Oracle and SharePlex continually change and improve, this list of exclusions cannot be considered complete. Unless explicitly stated that an item is supported, you should assume that SharePlex does not replicate it.

Object/operation/feature	Not supported
Tables and Objects	Replication of nested tables
	Replication of clustered tables
	Replication of Index-Organized Tables with any of the following: - LOB columns - VARRAY columns
	Replication from a Non-IOT to an IOT table
	Replication from materialized views to materialized views. (However, SharePlex replicates the underlying table of a materialized view to a target table.)

Object/operation/feature	Not supported
DDL operations	ANALYZE TABLE and ANALYZE INDEX
	DDL operation performed by a SharePlex Oracle user, if SP_OCT_REPLICATE_ ALL_DDL is set to **1**
	DDL to ALTER TABLE ADD OVERFLOW to an IOT in replication
Oracle operations	Operations that do not appear in the redo logs. This includes any DML or DDL not in the redo logs, and also PL/SQL packages which do not write results to the redo logs, for example, dbms_shared_pool.keep and related packages.
	Replication of partial rollbacks of DLOADs
	Rows changed by 'UPDATE WITH CASE' syntax
SharePlex transformation and conflict resolution	LONG and LONG_RAW datatypes in a configuration where transformation or conflict resolution are performed
	Abstract datatypes and VARRAYs in a configuration where conflict resolution is performed
SharePlex horizontal partitioning	SharePlex horizontal partitioning of index-organized tables
dbms_lob operations to non-Oracle targets	Replication of LOB operations generated by **dbms_lob** are not supported when replicating to non-Oracle targets.
Other	Replication of rows in which data exceeds 319 KB in size, excluding LOB and LONG columns

Supported SharePlex featues — Oracle to Open Target

The following table shows whether specific SharePlex features are supported for Open Target targets.

SharePlex feature	Supported for Open Target	Not Supported for Open Target
reconcile command (target instantiation)	X	
compare/compare using and **repair/repair using** commands		X
copy/copy using and **append/append using** commands		X
Hash horizontally partitioned replication		X
Column-based horizontally partitioned replication	X (except Teradata)	
Vertically partitioned replication	X	
Column mapping	X	
Key definition	X	
Build configuration with scripts		X

SharePlex feature	Supported for Open Target	Not Supported for Open Target
Named queues	X	
Commit Reduction (feature of Post Enhanced Performance)	X	
Dependency Checking (feature of Post Enhanced Performance)		X
Transformation		X
Conflict resolution		X
Peer-to-peer replication (bi-directional)		X
Consolidated replication (many to one)	X	
Broadcast replication (one to many)	X	
Cascading replication (source-intermediary-target)		X
High availability replication (active/passive bi-directional)		X
Change tracking target (CDC)		X
Data encryption	X	
Data compression	X	
SSH	X	
auth_hosts file	X	
Monitoring scripts	X	
SNMP monitoring	X	
Continue posting on error (SP_OPX_CONT_ON_ERR)	X	
Suspend on out of sync errors (SP_OPX_OUT_OF_ SYNC_SUSPEND)	X	
Reduced key (SP_OPX_REDUCED_KEY)	X	
Logical Transaction Rollback on Out Of Sync		X

Known issues in this release

The following is a list of issues, including those attributed to third-party products, known to exist at the time of release.

General known issues

Known Issue	Issue ID
The reported core file was not generated on systems running Oracle 11g on the SunOS, AIX, HP-UX (PA-RISC and IA64), and Linux platforms.	66306
If the customer issues an "ALTER TABLE ... MOVE COMPRESS" DDL command against a table in replication, SharePlex will replicate the DDL to the target by default. After post issues the DDL, if the target table had indexes, they are now unusable and post will subsequently fail trying to apply changes to the table. If post gets an error on the table such as "ORA-01502: index XXX or partition of such index is in unusable state" , the user must rebuild any indexes the table may have before restarting post in order to rectify the situation.	N/A

Install Upgrade known issues

Known Issue	Issue ID
A memory fault (core dump) was encountered during the "Setting file ownerships" section of the SharePlex installation on HP-UX PA-RISC.	71355

Windows known issues

Known Issue	Issue ID
On Windows systems, the uninstaller does not prompt for the version of SharePlex to be removed from a system. When there are multiple versions of SharePlex installed on a system, it removes only the first installation.	N/A
In the Windows environment, always run sp_ctrl from the same drive on which you have installed SharePlex. If you run sp_ctrl from another drive, you will be prompted for a login ID and password. After you provide the login ID and password, sp_ctrl will run normally.	N/A
If the user wants to change the installation directory for a given port, the user must first uninstall from the previous location. Note that if the user wants to keep the previous VARDIR it should be copied to the new location prior to the uninstall.	62620

ASM known issues

Known Issue	Issue ID
If the redo_log or archive_log that SharePlex is currently reading is involved in "rebalancing" due to the removal of a disc group, the Capture process will pause until the rebalance procedure for that file is complete.	N/A
On raw device ASM systems, the sp_desvr may get stuck and the process can not be killed even when kill -9 is issued; users must reboot the system to recover from it.	61713

Startup known issues

Known Issue	Issue ID

If you have SharePlex configured to start from a startup script and it returns an error similar to: System call error: sp_cnc (connecting from cdrpx.mcit.med.umich.edu) Bad file number Can't dup2 stderr try adding nohup to your script. The nohup command directs a command (in this case the startup of SharePlex) to continue in the background after the current user (the script) logs out. The syntax is:
 	
`cd /product_directory/bin`
 	
`nohup ./sp_cop &`
	N/A

Character Sets known issues

Known Issue	Issue ID
Avoid replicating NCHAR datatypes using different character sets such as AL16UTF16 on the source machine and UTF8 on the target due to byte size limitations. Oracle stores NCHAR data with a maximum limit of 2000 bytes. A fixed length NCHAR character set such as AL16UTF16 has a different maximum number of characters than a variable length NCHAR character set such as UTF8. For the fixed length AL16UTF16 character set, each character is stored as 2 bytes; thus, the maximum number of characters is 1000 for NCHAR data. For the variable length UTF8 character set, the maximum number of characters a column can accommodate depends on how many bytes each character requires. If you replicate 1000 3-byte characters from a source machine using the AL16UTF16 character set to a target machine set to UTF8, you will get the following Oracle error message on the target, since it needs 3000 bytes: `ORA-01461 can bind a LONG value only for insert into a LONG column`	35198

copy/append known issues

Known Issue	Issue ID
If you need to copy a materialized view to a table, you should drop the target table before copying. Please be aware that the new target table created by copy will have an additional column named M_ROW$$ which does not exist on the source. The use of append on a materialized view to a table is not supported.	41679

Conflict Resolution known issues

Known Issue	Issue ID
The !ControlExtendedCharSet prepared conflict resolution routine and the !DEFAULT parameter currently cannot be used for generic conflict resolution.	N/A

Partitioned Replication known issues

Known Issue	Issue ID
A 30-character partition name in the PARTITION_SCHEME column of the SHAREPLEX_ PARTITION table causes the activate config command to fail, even though the column definition allows 30 characters.	N/A
When using a compound routing map in a placeholder route in the configuration file, do not use spaces between each routing component. For example, sysb@o.orab+sysc@o.oraC is correct because there are no spaces before or after the + symbol.	N/A

Vertical and Horizontal Partitioning known issues

Known Issue	Issue ID
When using horizontal partition replication with DATE datatype in the column condition, the DATE needs to follow the SP date string format, 'MMDDSYYYYHH24MISS'. Otherwise, the Read and Compare processes are not able to process it.	55268

LOBs, VARRAYs, and XML known issues

Known Issue	Issue ID
Users may encounter an out-of-sync condition when an UPDATE occurs on a table that contains a UDT with a VARRAY column, and there is no KEY on the table. This issue is specific to Solaris x86 platforms.	29650

DDL Replication known issues

Known Issue	Issue ID
Replicating CREATE ROLE (set param SP_OCT_REPLICATE_ALL_DDL 1) is changing the grantee name on the target to the name of the SharePlex Administrator.	2242
If the Capture process is behind in reading the Oracle redo or archive logs when the SP_OCT_REPLICATE_ALL_DDL parameter is enabled it will replicate DDLs whose time stamps precede this event.	56957

Partition DDL known issues

Known Issue	Issue ID
If separate SQL statements for partition DDL and index rebuild are run on the source, SharePlex only replicates the partition DDL and leaves target global index unusable. This is because ALTER INDEX is not supported by SharePlex. The recommended work around is that all partition DDLs which mark global indexes as unusable should be run with an appending clause UPDATE GLOBAL INDEXES to the ALTER TABLE SQL statements. The alternative is to manually rebuild the global indexes on target.	57939

ora_cleansp known issues

Known Issue	Issue ID
On HP-Itanium systems, you might see the following warning when running ora_cleansp: `Warning: Ignoring setuid/setgid bit on "./ora_cleansp" as the system tunable "secure_sid_scripts" is set.` This occurs when ora_cleansp is run by a user who is not the owner of ora_cleansp and when secure_sid_scripts, a system tunable parameter, is set. This condition is harmless to ora_cleansp and you should ignore the warning.	NA

Function based index known issues

Known Issue	Issue ID
If there is more than one function defined in the index, SharePlex will choose the first. SharePlex cannot support multiple functions.	92931

Post to JMS known issues

Known Issue	Issue ID
If the post process that is writing to JMS is not on the same machine as the source database, and if the two machines are of different endianness, NCHAR data will not be written to JMS correctly.	107471

Hybrid Columnnar Compression known issues

Known Issue	Issue ID
Activation will not fail if a table with "COMPRESS FOR QUERY LOW" compression is activated. Capture will log a message indicating that "COMPRESS FOR QUERY LOW" is not supported	107487

Third-party known issues

Third-party known issues: Linux

Known Issue	Issue ID
RHEL with Oracle 10g or 11g may encounter issues when producing core files. To work around this issue users will need to change the parameter "core_pattern" in the /proc/sys/kernel/core_pattern file. The following command enables core files: sysctl -w kernel.core_pattern=core. The original setting is: /corefiles/core. In this state, the system looks for a directory named /corefiles, which does not exist, therefore a core file could not be created.	54799

Third-party known issues: Oracle

Known Issue	Issue ID
Oracle may allow an invalid date, such as year 0000, to be inserted as the key value of a table without generating an error. This causes SharePlex to return an "Invalid DATE format detected in record with rowid" error when trying to insert the record to the target.	SPO-1368
There might be an issue when replicating VARRAYs with FLOAT(n) type to a target machine running Oracle 10g, due to the way that Oracle handles Float(n) types. Float is not an Oracle type; it is a SQL-92 type and Oracle is not consistent in the way that it handles the float type. This is a known Oracle bug. See Oracle bug report 4266304.	125639
Users wishing to employ IOTs with overflow need to be running Oracle 10.2.0.3 or higher. This is a known Oracle issue addressed under Oracle Bug 4627859.	44626
There is a known issue with INSERT DIRECT LOAD VALUES (IDLV) in Oracle 11g that prevents the reading or modification of an object after modifying it in parallel. Oracle has provided three (3) solutions for addressing this issue. They can be found in the Oracle update	53701

Known Issue	Issue ID
of SR6849411.993 dated 05-07-2008. This issue was fixed by Oracle in 11gR2	
Oracle versions 10.2.0.1 through 11.1.0.6 on AIX 5.3 (64 bit), members of SharePlex Admin group, other than the installation user, cannot run ora_setup or start SharePlex. This is an Oracle issue. Please refer to Oracle Bug# 6800649 and apply Patch 6800649.	59258
On Windows systems, the Post process May exit when it encounters an "ORA-07445: exception encountered: core dump" error. Please refer to Oracle Bug 6658912 for more information and the Oracle provided work around.	67441
Oracle 11gR2 - During a SYNC job, the copy of a new table (without data) failed at " EXP-00011: table does not exist" . The table that failed is a new table without any data. The EXP-00011 is caused by 11gR2 new feature "Deferred Segment Creation" that is controlled by the initialization parameter DEFERRED_SEGMENT_CREATION. The default is ON. To avoid this error, disable the parameter. A tar has been opened with Oracle and Oracle created a note 960216.1 Original Export Raises EXP-11 Table Does Not Exist.	75179
OLTP compression with supplemental logging enabled may corrupt the Oracle Undo block, so Oracle suggests disabling supplemental logging when running OLTP compression. However, SharePlex requires supplemental logging to be enabled, so you may encounter this bug. This affects Oracle versions 11.2.0.2, 11.2.0.1 and 11.1.0.7. See Metalink ID 1191474.1.	92152
Sometimes the Post process will hang updating a SecureFile LOB. For more information please refer to Oracle tar SR 3-2898230851: OCILobWrite hangs at the OCI_LAST_PIECE for securefile LOB.	N/A
There is an Oracle bug that can cause the database to crash when supplemental logging is enabled and transactions involving tables in a compressed tablespace are rolled back. Please refer to Oracle bug 8331063 for more information.	N/A
A known issue in PL/SQL prevents the SharePlex conflict resolution logic from compiling the PL/SQL for tables whose names are the same as their owners. Oracle has stated that the issue will not be fixed. See Oracle TAR 2577886.996 for more information. This issue does not affect replication; SharePlex supports tables with identical owner and table names.	N/A

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The current license model for SharePlex is to license for a specific host which, depending on edition, is licensed by core(s) or socket(s) and specific message repository (i.e. database, JMS/text files) etc. Specifics of license terms should be obtained from your account manager.

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1. Run the SharePlex command:

   ./splex_add_key

   ```
   SharePlex License Utility
   1) Read license key from file
   2) Enter license key manually
   3) Add license key for alternate host
   q) Quit License Utility
   Enter option:
   ```

2. Enter option 2.

3. Enter the key provided in the email from Quest Licensing.

4. For the customer name, enter: Trial Version.

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1. Run the SharePlex command:

   ./splex_add_key

   ```
   SharePlex License Utility
   1) Read license key from file
   2) Enter license key manually
   3) Add license key for alternate host
   q) Quit License Utility
   Enter option:
   ```

2. Enter option 2.

3. Enter the key provided in the email from Quest Licensing.

4. Enter the customer name provided in that email.

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ActiveMQ-CPP 3	Apache License
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