Quest™

SharePlex™ 9.0.2

Preinstallation Checklist

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SharePlex Preinstallation Checklist
Updated - 12/7/2017
Version - 9.0.2

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SharePlex system requirements

Contents

Overview

This chapter contains the following:

- SharePlex-supported platforms and database types and versions
- SharePlex-supported data types, database objects, and database operations
- Supported SharePlex features, per database type

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.

Internet protocol

SharePlex supports both IPv4 and IPv6 internet protocol. The following table shows the platforms for which SharePlex was tested with IPv6.

Platform	Source	Target	SharePlex Source and Target versions	On-premise/Cloud
Linux RHEL	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
Linux RHEL	Link-Local IPV6	Link-Local IPV6	8.6.5 - 9.0	On-premise
Linux RHEL	Link-Local IPV6	Link-Local IPV6	9.0 - 8.6	On-premise
Linux Suse	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
Windows	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
Windows	Link-Local IPV6	Link-Local IPV6	9.0 - 8.6.4	On-premise
HP UA	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
HP IA	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
SUN Sprac	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
SUN Solaris	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
AIX	Link-Local IPV6	Link-Local IPV6	9.0 - 9.0	On-premise
Linux RHEL	Public IPV6	Public IPV6	9.0 - 9.0	Cloud
Windows	Public IPV6	Public IPV6	9.0 - 9.0	Cloud

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:

8.0.x

8.5.x

8.6.x

9.0.x

To support replication from a higher to a lower version, set the SP_SYS_TARGET_COMPATIBILITY parameter on the source system to the *lower* SharePlex version. If Capture is running, restart it.

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

NOTES:

- The older version of the SP_SYS_TARGET_COMPATIBILITY parameter, SP_OCT_TARGET_COMPATIBILITY, has been deprecated in version 9.0. If your source SharePlex is currently replicating to a lower SharePlex version on the target and you have SP_OCT_TARGET_COMPATIBILITY set to the

lower version, SharePlex will continue to use that value after you upgrade to version 9.0.

- If you upgrade the target to the current release at a future time, issue a reset for SP_OCT_TARGET_COMPATIBILITY on the source system to remove it from the SharePlex environment. Going forward, SharePlex will use the setting of the new SP_SYS_TARGET_COMPATIBILITY parameter, which defaults to the current version.

To reset SP_OCT_TARGET_COMPATIBILITY

1. Stop Capture.
   `sp_ctrl>`**stop capture**
2. In **sp_ctrl** on the source system, issue the following command:
   `sp_ctrl>` **reset param SP_OCT_TARGET_COMPATIBILITY**
3. Restart Capture.
   `sp_ctrl>` **start capture**

Supported datastores

Datastore	Type of Support	Version	Driver version
Apache Kafka	target	.08 and later	N/A **NOTE:** A Kafka target is supported on Red Hat Linux version 6.0 or later.
Flat file - SQL output	target	N/A	N/A
Flat file - XML output	target	N/A	N/A
JMS - ActiveMQ	target	5.8	N/A
JMS - IBM MQ	target	7.x and 8.x	N/A
Microsoft SQL Server	source and target	2012 2014 2016 **NOTE:** Supported as a source only on Windows 2012 R2.	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.
MySQL	target	5.6 and later	ODBC driver version 5.3.2 or later.
Oracle Database (64-bit only)	source and target	10g R1 and R2 11g R1 and R2 12cR1 and R2	N/A

Datastore	Type of Support	Version	Driver version
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 Adaptive Server Enterprise (ASE)	target	15.7	N/A
SAP HANA	target	1.0 SPS 11 Rev111	HDBODBC or HDBODBC32 driver provided with the HANA database installation.
Teradata	target	15.00.03.05	Teradata ODBC driver version 15.10.00.01 or later

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

Cloud support

The following shows the configurations that SharePlex supports when either the source or target, or both, are cloud-based databases.

Source	To Target
Oracle on EC2 Linux	Oracle on AWS EC2 Linux
Oracle on Azure Linux	Oracle on Azure Linux
Oracle on on-premise Linux	• Oracle on AWS RDS • Oracle on AWS EC2 • PostgreSQL (Community) on Azure Linux • PostgreSQL (Community) on AWS EC2 • PostgreSQL (Community) on AWS RDS • EDB Postgres Advanced Server on AWS EC2 • EDB Postgres Advanced Server on Azure Linux • Fujitsu Symfoware Server on AWS EC2 • Fujitsu Symfoware Server on Azure Linux • MySQL on AWS EC2 • MySQL on AWS RDS • MySQL on Azure Linux

Source	To Target
	• Aurora on AWS RDS • SQL Server on AWS EC2 • SQL Server on AWS RDS • SQL Server on Azure Windows (IaaS) • SQL Server on Azure Windows (PaaS)
SQL Server on on-premise Windows	• SQL Server on Azure Windows • SQL Server on EC2 Windows

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.

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

IMPORTANT: See also Cloud support on page 8 for cloud-hosted targets.

Platform	Oracle source or target					
	10g*	10gR2*	11g*	11gR2*	12cR1*	12cR2*
AIX 5.3	Yes	Yes	Yes	Yes	No	No
AIX 6.1	NA	Yes	Yes	Yes	Yes	No
AIX 7.1	NA	NA	NA	Yes	Yes	No
CentOS 5.10 (x64)	NA	Yes	Yes	Yes	Yes	No
CentOS 6.5 (x64)	NA	Yes	Yes	Yes	Yes	No
Debian Release 8 (Jesse and Wheezy)***	No	No	Yes	Yes	Yes	No
HP-UX 11.31 (11i v3) (PA-RISC)	Yes	Yes	Yes	Yes	NA	No
HP-UX 11.31 (11i v3) (Itanium)	Yes	Yes	Yes	Yes	Yes	No
Oracle Solaris 9	Yes	Yes	Yes	NA	NA	No
Oracle Solaris 10 (SPARC)	Yes	Yes	Yes	Yes	Yes	No
Oracle Solaris 10 (x64)	Yes	Yes	NA	Yes	Yes	No
Oracle Solaris 11 (SPARC)	NA	NA	Yes	Yes	Yes	No
Oracle Solaris 11 (x64)	NA	NA	Yes	Yes	Yes	No
Oracle Linux 4 (x64)	Yes	Yes	Yes	Yes	NA	No
Oracle Linux 5 (x64)	NA	Yes	Yes	Yes	Yes	No
Oracle Linux 6 (x64)	NA	NA	NA	Yes	Yes	Yes
Oracle Linux 7 (x64)	NA	NA	NA	Yes	Yes	Yes
Oracle Linux 5 on Exadata 2, 3, 4 (x64)	NA	NA	NA	Yes	Yes	No
Oracle Linux 5.5 on Exadata 3, 4 (x64)	NA	NA	NA	Yes	Yes	No
Oracle Linux 6.6 on Exadata 5 (x64)	NA	NA	NA	Yes	Yes	No
RHEL 4 (x64)	Yes	Yes	Yes	Yes	NA	NA
RHEL 5 (x64)	NA	Yes	Yes	Yes	Yes	No
RHEL 6 (x64)	NA	NA	NA	Yes	Yes	Yes
RHEL 7 (x64)	NA	NA	NA	Yes	Yes	Yes
SuSE SLES9 (x64)	Yes	Yes	NA	NA	NA	NA
SuSE SLES10 (x64)	NA	Yes	Yes	Yes	NA	NA
SuSE SLES11 (x64)	NA	Yes	Yes	Yes	Yes	No
SuSE SLES12 (x64)**	NA	NA	NA	Yes	Yes	Yes
Windows Server 2003 (x64)	NA	Yes	Yes	Yes	NA	NA

Platform	Oracle source or target					
	10g*	10gR2*	11g*	11gR2*	12cR1*	12cR2*
Windows Server 2008 (x64)	NA	Yes	Yes	Yes	Yes	No
Windows Server 2012	NA	Yes	Yes	Yes	Yes	Yes
Windows Server 2012R2	NA	Yes	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

IMPORTANT: See also Cloud support on page 8 for cloud-hosted targets.

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

Platform*	Can post to target on this platform (Yes/No)								
	MySQL	SAP ASE	SQL Server	PostgreSQL**	SAP HANA	Teradata	JMS	Kafka	File
Oracle Solaris 11 (x64)	NA	NA	NA	NA	NA	NA	Yes	No	Yes
Oracle Linux 4 (x64)	No	NA	NA	No	NA	NA	Yes	Yes	Yes
Oracle Linux 5 (x64)	No	NA	NA	No	NA	NA	Yes	Yes	Yes
Oracle Linux 6 (x64)	No	NA	NA	No	NA	NA	Yes	Yes	Yes
Oracle Linux 7 (x64)	No	NA	NA	NA	NA	NA	Yes	Yes	Yes
Oracle Linux 5 on Exadata 2, 3, 4 (x64)	No	NA	NA	No	NA	NA	Yes	Yes	Yes
Oracle Linux 5.5 on Exadata 3, 4 (x64)	No	NA	NA	No	NA	NA	Yes	Yes	Yes
Oracle Linux 6.6 on Exadata 5 (x64)	No	NA	NA	No	NA	NA	Yes	Yes	Yes
RHEL 4 (x64)	Yes	Yes	NA	NA	NA	NA	Yes	Yes	Yes
RHEL 5 (x64)	Yes	Yes	NA	NA	NA	NA	Yes	Yes	Yes
RHEL 6 (x64)	Yes	Yes	NA	Yes	NA	NA	Yes	Yes	Yes
RHEL 7 (x64)	Yes	Yes	NA	Yes	NA	NA	Yes	Yes	Yes
SuSE SLES9 (x64)	Yes	Yes	NA	NA	Yes	NA	NA	Yes	NA
SuSE SLES10 (x64)	Yes	Yes	NA	NA	Yes	Yes (SP3)	Yes	Yes	Yes
SuSE SLES11 (x64)	Yes	Yes	NA	Yes	Yes	Yes (SP1)	Yes	Yes	Yes
SuSE SLES12 (x64)**	Yes	Yes	NA	NA	Yes	NA	Yes	Yes	Yes
Windows 2003 (x64)	NA	NA	Yes	NA	NA	NA	Yes	No	Yes
Windows 2008 (x64)	NA	NA	Yes	No	NA	NA	Yes	No	Yes
Windows Server 2012	NA	NA	Yes	No	NA	NA	Yes	No	Yes
Windows Server 2012R2	NA	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.For more information, see Basic system requirements on page 5.

Supported data types — Oracle to Oracle

SharePlex supports the following Oracle data types for replication to Oracle targets. See the Conditions of suppport on page 14 for additional information.

- ANYDATA [1]
- B-FILE
- BINARY DOUBLE
- BINARY FLOAT
- BLOB [2]
- CHAR
- CLOB [2]
- DATE
- INTERVAL
- LONG RAW
- LONG [2]
- NCHAR
- NCLOB [3]
- NUMBER
- NVARCHAR2[6]
- RAW[6]
- ROWID
- SDO_GEOMETRY
- TIMESTAMP
- TIMESTAMP WITH LOCAL TIME ZONE
- TIMESTAMP WITH TIME ZONE
- UDT (User Defined Type)
- VARCHAR
- VARCHAR2[6]
- VARRAY collectors [4]
- XMLTYPE [5]

Conditions of suppport

1. 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.

2. Conditions of support - LONG and LOB (BLOB, CLOB)

- 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.
- 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 - 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)

5. 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.

6. Conditions of support - 12c Extended datatypes

With the introduction of Extended Data Types, Oracle 12c provides the option to increase the maximum sizes of the following data types:

- VARCHAR2 up to 32767 bytes
- NVARCHAR2 up to 32767 bytes
- RAW up to 32767 bytes

SharePlex does not support the 12c Extended Data Type sizes. SharePlex supports the affected data types, but only up to the former 4000-byte limit for VARCHAR2 and NVARCHAR2 and up to the former 2000-byte limit for RAW — regardless of the character semantics used. Therefore, the total number of *characters* that are supported depends on the character set that is being used. For example, if your character set can reach 4 bytes per character (the limit is based on the potential, not actual, size of the data) then the maximum supported VARCHAR2 is 1000 characters.

7. Conditions of support - general

- 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.

Supported data types — Oracle to Open Target

This section shows the following:

- The Oracle data types that SharePlex replicates to each supported Open Target target.
- The default mapping of those Oracle data types to their corresponding data types in the given target, for the purpose of establishing column definitions for replicated ADD COLUMN operations.

NOTES ABOUT OPEN TARGET DATA TYPE SUPPORT:

- For replicated DML, SharePlex queries the target database to determine the appropriate data type to use.
- 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.
- To view the DDL operations that SharePlex supports per database, see Supported Oracle DDL operations on page 23

Oracle to HANA supported data types

Oracle Data Type	Default mapping to HANA Data Type for DDL operations
BINARY_DOUBLE	double
BINARY_FLOAT	double
BLOB	blob
CHAR	char
CLOB	clob
DATE	date
LONG	clob
LONGRAW	blob
NCHAR	nchar
NCLOB	nclob
NUMBER	decimal
NVARCHAR	nvarchar
RAW	varbinary
TIMESTAMP	timestamp
VARCHAR/VARCHAR2	varchar

Conditions of support

1. 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.
2. See Supported data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Oracle to MySQL supported data types

Oracle Data Type	Default mapping to MySQL Data Type for DDL operations
BINARY_DOUBLE[2]	double

Oracle Data Type	Default mapping to MySQL Data Type for DDL operations
BINARY_FLOAT	double
BLOB	longblob
CHAR	char
CLOB	longtext
DATE	datetime
LONG	text
LONGRAW	blob
NUMBER	numeric
RAW	varbinary
TIMESTAMP[1]	datetime
VARCHAR(2)	varchar

Conditions of support

1. If the MySQL target database is earlier than version 5.6.4, the fractional seconds will be truncated. Earlier versions did not support fractional seconds.
2. Because Oracle and MySQL handle this data type differently, there may be a very small difference in precision between the value of the source and the value of the target row. You may see the difference when viewing the data from SQL*Plus or other utility, but SharePlex will not report this difference as an out-of-sync condition.
3. See Supported data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Oracle to PostgreSQL supported data types

Oracle Data Type	Default mapping to PostgreSQL Data Type for DDL operations
BINARY_DOUBLE	double precision
BINARY_FLOAT [1]	double precision
CHAR	char
CLOB	text
DATE	date
LONG	text
NCHAR	char
NCLOB	text
NUMBER	numeric

Oracle Data Type	Default mapping to PostgreSQL Data Type for DDL operations
NVARCHAR	varchar
TIMESTAMP	timestamp
VARCHAR(2)	varchar

Conditions of support

1. 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.
2. See Supported data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Oracle to SAP ASE supported data types

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 data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Oracle to SQL Server supported data types

Oracle Data Type	Default mapping to SQL Server Data Type for DDL operations
ANYDATA	sql_variant
BINARY_DOUBLE	float

Oracle Data Type	Default mapping to SQL Server Data Type for DDL operations
BINARY_FLOAT	float
BLOB	image
CHAR	char
CLOB	text
DATE	datetime2
LONG	text
LONGRAW	image
NCHAR	nchar
NCLOB	ntext
NUMBER	numeric
NVARCHAR	nvarchar
RAW	varbinary
TIMESTAMP WITH TIME ZONE	datetimeoffset
TIMESTAMP	datetime2
VARCHAR(2)	varchar

Conditions of support

See Supported data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Oracle to Sybase supported data types

Oracle Data Type	Default mapping to Sybase Data Type for DDL operations
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 data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Oracle to Teradata supported data types

Oracle Data Type	Default mapping to Teradata Data Type for DDL operations
CHAR	char
DATE	timestamp
NUMBER	number
VARCHAR/VARCHAR2	varchar

Conditions of support

See Supported data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Oracle to XML supported data types

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

- File in XML format
- JMS
- Kafka

Oracle Data Type	Default mapping to XML Data Type for DDL operations
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

Oracle Data Type	Default mapping to XML Data Type for DDL operations
NVARCHAR2	string
RAW	base64Binary
ROWID	string
TIMESTAMP	dateTime
TIMESTAMP WITH TIME ZONE	dateTimeStamp
TIMESTAMP WITH LOCAL TIME ZONE	dateTimeStamp
VARCHAR2	string
VARRAY [1]	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. 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)
2. See Supported data types — Oracle to Oracle on page 13 for additional conditions of support for Oracle source data types.

Supported Oracle DML operations and objects

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
  - views
  - materialized views.
- Oracle sequences can be replicated from Oracle to Oracle. Replication of sequences is not supported to a non-Oracle target. **IMPORTANT!** To replicate sequences, the supplemental logging of primary and unique keys must be enabled at the database level, or you must enable supplemental logging for primary keys on the **sys.seq$** table.

- 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.

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 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 Oracle 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]

Supported object	Supported Operation
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. If the database is earlier than Oracle 12.2, 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. This is not required for Oracle 12.2 or later and any setting is ignored.

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 default 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[2]
	Alter table drop column

1. Conditions of support - TRUNCATE TABLE

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

2. Conditions of support - data type mappings

The default mappings of Oracle data types to their Open Target counterpart for replicated ALTER TABLE ADD COLUMN DDL is shown in Supported data types — Oracle to Oracle on page 13. 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.

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_SYS_TARGET_COMPATIBILITY=8.6.2 or higher

Sequences:

SP_OCT_AUTOADD_ENABLE=1 and

SP_OCT_AUTOADD_SEQ=1 and

SP_SYS_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.
- To replicate sequences, the supplemental logging of primary and unique keys must be enabled at the database level, or you must enable supplemental logging for primary keys on the **sys.seq$** table.

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
Index	Create
	Alter
	Drop

Supported object	Supported Operation
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

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.) Replication of Identity columns
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

Object/operation/feature	Not supported
dbms_lob operations to non-Oracle targets	Replication of LOB operations generated by **dbms_lob** are not supported when replicating to non-Oracle targets.
dbms_scheduler.create_job	This object is not supported.
Flashback	SharePlex does not support the Oracle Flashback Table feature. If the SP_REPLICATE_ALL_DDL parameter is enabled (value of 1), SharePlex may try to replicate the flashback DDL, which will return an error. To perform Flashback Table on a table that is in replication, use the following procedures to work around this issue: 1. Remove source objects from replication 2. Perform the flashback 3. Add or change objects in an active configuration
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
Named queues	X	
Commit Reduction (feature of Post Enhanced Performance)	X	
Dependency Checking (feature of Post Enhanced Performance)		X

SharePlex feature	Supported for Open Target	Not Supported for Open Target
Transformation		X
Conflict resolution		X
Peer-to-peer replication (bi-directional)		X
Consolidated replication (many to one)	X	
Broadcast replication (one to many)	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 transactions		X

System Requirements — SQL Server Capture

This section contains information about SharePlex support for capture from a SQL Server source database and replication to supported targets.

SharePlex support for SQL Server as a target for Oracle data is documented in System Requirements — Oracle on page 9.

Supported versions and targets

SharePlex supports Capture for SQL Server versions 2012, 2014, and 2016 on Windows 2012 R2.

Source	Target - Platform/Database
Windows 2012 R2 on-premise	**Windows 2012 R2 on-premise**
SQL Server 2012	SQL Server 2012
SQL Server 2014	SQL Server 2014
SQL Server 2016	SQL Server 2016
	Oracle 11.2
	Oracle 12.1
	Linux RHEL 5.5 on-premise
	Oracle 11.2
	Linux RHEL 6.3 on-premise
	Oracle 12.1
	Solaris SPARC 11 on-premise
	Oracle 11.2
	Azure Windows 2012 R2 (IaaS)
	SQL Server 2012
	SQL Server 2014
	SQL Server 2016
	Azure SQL Database (PaaS)
	SQL Server 2012
	SQL Server 2014
	AWS Linux EC2 (IaaS)
	SQL Server
	Oracle
	AWS Linux RDS (PaaS)
	SQL Server
	Oracle

Conditions of support

This section shows the limitations of capturing from a SQL Server source.

- SQL Server native replication and SharePlex replication cannot be used at the same time for the same database.
- All SQL Server tables in the SharePlex replication configuration must be defined in the database with a primary key. A SharePlex key definition is not sufficient, nor can SharePlex use all columns as a key. You can use SharePlex filtering features in the configuration file to omit tables that do not have a primary key.
- A transaction must COMMIT to the SQL Server source before it can be captured by SharePlex.
- See the SharePlex Installation Guide for additional requirements and setup information.

Supported DML operations

SharePlex supports INSERT, UPDATE, and DELETE operations between SQL Server source tables and Oracle or SQL Server target tables.

Any SQL Server table can be replicated to an Oracle or SQL Server target if the target supports all of the column types that are being replicated.

NOTES:

SharePlex only replicates DML changes that are made to SQL Server source objects that are listed in the configuration file.

SharePlex requires SQL Server Replication to be installed on the source system. See the *SharePlex Installation Guide* for more information.

Supported DDL operations

SharePlex does not support the replication of SQL Server DDL operations.

Supported data types

SharePlex supports DML operations that contain the following SQL Server data types:

- int
- numeric
- smallint
- tinyint
- float
- real
- date
- datetime
- datetime2

- datetimeoffset
- smalldatetime
- time
- char
- text
- varchar
- nchar
- ntext
- nvarchar
- binary
- varbinary
- image
- identity

Supported SharePlex features — SQL Server to supported target

The following table shows whether or not SharePlex features are supported when SQL Server is the source.

SharePlex feature	Supported with SQL Server Target	Supported with Oracle Target
Replication between tables in same database	No	No
Replication between tables in different databases in the same or another SQL Server instance	Yes	Yes
Replication from SQL Server tables to any target where the version of SharePlex is earlier than 9.0.	No	No
Auto-add of new tables that satisfy a wildcard	No	No
flush command	Yes	Yes
reconcile command (target instantiation)	Yes	Yes
compare/compare using and **repair/repair using** commands	No	No
copy/copy using and **append/append using** commands	No	No
Hash horizontally partitioned replication	No	No
Column-based horizontally partitioned replication	No	No

SharePlex feature	Supported with SQL Server Target	Supported with Oracle Target
Vertically partitioned replication	Yes	Yes
Column mapping	Yes	Yes
Key definition (SQL Server tables must have a defined key)	No	No
Build configuration with scripts	No	No
Named queues	Yes	Yes
Post Enhanced Performance	No	No
Transformation	No	Yes
Conflict resolution	No	Yes
Peer-to-peer replication (bi-directional)	No	No
Consolidated replication (many to one)	Yes	Yes
Broadcast replication (one to many)	Yes	Yes
Cascading replication (source-intermediary-target)	Yes	Yes
High availability replication (active/passive bi-directional)	No	No
Change history target (CDC)	No	Yes
Data encryption	No	No
Data compression	No	No
SSH	No	No
auth_hosts file	No	No
Monitoring scripts	No	No
SNMP monitoring	No	No
Continue posting on error (SP_OPX_CONT_ON_ERR)	Yes	Yes
Suspend on out of sync errors (SP_OPX_OUT_OF_SYNC_SUSPEND)	Yes	Yes
Reduced key (SP_OPX_REDUCED_KEY)	Yes	Yes
sp_ctrl commands	See the command documentation in the Reference Guide.	See the command documentation in the Reference Guide.
Logical Transaction Rollback on out-of-sync transactions	No	Yes

SharePlex preinstallation checklist

Contents

Overview

Review and satisfy all of the requirements in this checklist before installing SharePlex or before your SharePlex consultant arrives, if you have contracted with our Professional Services team.

NOTE: The requirements in this checklist apply to all source and target systems where SharePlex will be installed unless otherwise noted.

Network checklist

Requirement	Completed? (Y/N)
Add SharePlex users and groups to the nameserver. If you are installing SharePlex in a network managed by a nameserver such as NIS or NISPLUS, do the following before you install SharePlex:	

Requirement	Completed? (Y/N)
• Add SharePlex users to the nameserver. • Add the SharePlex groups to the nameserver. The SharePlex security groups **spadmin** (administrator), **spopr** (operator), and **spview** (viewer) control access to SharePlex processes. Add each SharePlex user to one of these groups on the nameserver. For more information, see Assign SharePlex users to security groups on page 69. To add the user groups: 1. For NIS add the groups to the **group.byname** and **group.bygid** maps. For NISPLUS, add them to the **group.org_dir** table. 2. Add the SharePlex Administrator user to the **spadmin** group on the nameserver. 3. Create the **spadmin** group in the **/etc/group file** (on Unix and Linux) or the **User Accounts** control panel (Windows), and then add the SharePlex Administrator user to the group. To add SharePlex groups to the local system after you install SharePlex, see Assign SharePlex users to security groups on page 69.	

Ensure that SharePlex can resolve host names.
If you find that SharePlex cannot connect to a host, try mapping the host name to an alphanumeric alias in the following locations:
 	
• Network: The NIS and DNS servers
• Unix and Linux: Local **/etc/hosts** file
• Windows: Local **hosts** file
 	
In these files, put each entry on an individual line. The following is an example, where **sysA** and **sysB** are aliases:
 	
`111.22.33.44  sysA.company.com  sysA  # source system`
`55.66.77.88  sysB.company.com  sysB  # target system`	

Resolve to the right network card If you have multiple network cards on Windows, you must set the SP_SYS_HOST_NAME environment variable to the network card name or IP address that you want SharePlex to use as the local host. Otherwise, if the server reboots after the SharePlex configuration is activated, the IP address may bind to a different network card from the one that is bound in the replication configuration. For more information about SharePlex environment parameters and how to set them, see the SharePlex Reference Guide.	
(PostgreSQL) Add a source entry to the PostgreSQL pg_hba.conf file For a PostgreSQL target (non-cloud), make certain that the PostgreSQL **pg_hba.conf** file has an entry for the SharePlex source server IP address, which gives that server access to PostgreSQL target server and its databases.	

Requirement	Completed? (Y/N)
Example entry: `host all all sourceip md5`	
(Oracle) Allow access to Amazon EC2 instance For an EC2 instance, make certain that the appropriate network group is set up to allow access to EC2 instances.	
Verify the SharePlex port number. By default SharePlex uses the port number 2100 (hex equivalent is 834) for both TCP/IP and UDP. If port 2100 is available to SharePlex, no further action is needed. You will need to enter the SharePlex port number during the installation procedure, at which time you can specify a different port number if needed. **IMPORTANT!** The SharePlex port number must be the same one on all machines in the replication configuration so that they can communicate through TCP/IP connections. Make certain the SharePlex port number is open for both TCP/IP and UDP on the firewall.	
Verify TCP/IP settings SharePlex replicates over any TCP/IP network connection. Typically, if all of the tables in a database are being replicated, SharePlex replicates about 33 percent of the redo log volume, the remainder being mostly maintenance data used by the Oracle software. The following is a formula for determining bandwidth. (*size of a redo log*) x (*number of log switches in 1 hour*) x 1/3 = *volume of data per hour* For example, if the redo logs are 20 MB in size, and they switch six times an hour, SharePlex will replicate approximately 40 MB each hour: 20 x 6 x 1/3 = 40 MB/hour	
VerifyTCP protocol SharePlex has been tested on IP v6 networks, but it is impossible to test all scenarios. See the System Requirements in the SharePlex Release Notes for more informationon.	

Installer checklist

Requirement	Completed? (Y/N)
Assign a directory to store the downloaded SharePlex installation package. This directory requires approximately the following disk space: • Unix and Linux: 200 MB • Windows: 60 MB plus 400 MB of temporary disk space	

Requirement	Completed? (Y/N)
It can be removed after SharePlex is installed.	
Plan the SharePlex product directory. You can create a directory for the SharePlex software files or let the SharePlex installer create it. This directory requires approximately the following disk space: • Unix and Linux: 120 MB • Windows: 600 MB plus 20 MB for the MKS Toolkit® Install this directory on the following: • Unix and Linux: a separate filesystem from the one that contains the source Oracle instance or (if a target) the target database. • Windows: a separate internal hard drive or partition from the one that contains the Oracle instance or (if a target) the target database. Do not install SharePlex on a raw device.	
Plan the SharePlex variable-data (working) directory. This directory is installed by the SharePlex installer with a name of your choosing. It contains the working data and varies greatly in size in correlation to the size of the redo data being generated. Install this directory on a separate filesystem from the one that contains the Oracle instance (or the target database, if this is a target) but not on a raw device. To estimate the required disk space: 1. Estimate the longest time that a replication outage can be tolerated. 2. Use the following formula to estimate the amount of data SharePlex would replicate during that amount of time. [*size of a redo log*] x [*number of log switches per hour*] x .333 x [*number of hours downtime*] = required disk space For example: [500 MB redo log] x [5 switches per hour] x [.333] x [8 hours] = 6.5 GB disk space To replicate data from more than one database or Oracle instance on a system, use a variable-data directory for each one. Ideally they should be on different filesystems. Do not install the variable-data directory within the SharePlex product directory. Both directories contain identically named files, and SharePlex utilities that clean up the environment (if this becomes necessary) could remove the wrong files. You can install both directories under one parent directory if desired. **NOTE**: Always monitor disk usage when there is an active SharePlex configuration, especially when there are unexpected peaks in user activity.	
Install in a cluster (including Oracle RAC) Most shared storage solutions can be used to house SharePlex. Such file systems include, but are not limited to:	

Requirement	Completed? (Y/N)
• Oracle Cluster File System (OCFS2) • Oracle Automatic Storage Management (ASM) Cluster File System (ACFS) • Oracle DataBase File System (DBFS) • OCFS2 **NOTE**: This file system must be mounted **nointr**. Both SharePlex and Oracle report interrupt errors if **nointr** is not specified. • Most general purpose cluster file systems See Installation and setup for Oracle cluster on page 55 for SharePlex installation requirements in a cluster. Many of those steps must be performed before you install SharePlex, while others are performed after installation.	
Create the SharePlex security groups. SharePlex provides three security groups to enable access control through **sp_ctrl**. On Unix and Linux, unless you install SharePlex as a root user, the SharePlex Administrator user and the SharePlex **admin** group must exist prior to installation. For more information, see Assign SharePlex users to security groups on page 69. **NOTE:** If you install as root, you are prompted by the installer to create these groups.	
Choose a DBA-privileged operating system group to own SharePlex. The SharePlex Administrator user must be in the Oracle **dba** group. For Oracle RAC and ASM 11*g*R2 and above, the user must also be in the Oracle Inventory group. For example: **$ useradd –g spadmin –G dba,oinstall**. The membership in Oracle Inventory group must be listed explicitly in the **etc/group** file.	
Get a valid SharePlex license key. You must have a valid permanent or trial license key from Quest to run SharePlex. The installer prompts for the license key and the text string in the Site Message that Quest Software provides with the license. 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.	

Unix and Linux system checklist

Requirement	Completed? (Y/N)
Confirm that the platform is supported. For more information, see Basic system requirements on page 5.	

Requirement	Completed? (Y/N)
Allocate at least 4 GB of memory for SharePlex processes. Plan for per-process memory up to 256 MB. This recommendation enables the Post and Read processes to allocate larger sets of memory when necessary.	
Disable the disk cache option. (Source system) Place the redo logs, archive logs, and SharePlex files on a file system that does not have a cache option. Disk caching may interfere with the capture process. For more information, see the SharePlex Knowledge Base article 30895.	
Set the number of semaphores per process. Semaphores help ensure the stability of the SharePlex processes. The required SharePlex settings depend on the platform, as follows: HP-UX: • semmnu: 255 • shmmax: 60 MB Oracle Solaris: • semmni: 70 • semmns: 255 • semmnu: 255 • semmsl: 128 • semume: 255 • shmmax: 60 MB • shmmni: 100 Red Hat Linux: • semmni*: 70 • semmns*: 255 • semmnu: 255 • semmsl: 128 • semopm: 64 • semume: 255 • shmmax: 60 MB • shmmin: 1MB • shmmni: 100 • shmseg: 26 *These are additive. Add the Oracle minimum values to the SharePlex minimum values to determine the correct setting.	

Requirement	Completed? (Y/N)
An alternative is to set the value to the number of queues you will be using plus 2. For more information about SharePlex queues, see the SharePlex Administrator Guide.	
Set the ulimit (number of system file descriptors) to as close to 1024 as possible. The ulimit can be set either as a system *hard limit* or a session-based *soft limit*, as follows: • Set a hard limit: (Recommended) A root user and system restart are required to change the hard limit, but the value remains fixed at the correct level to support SharePlex. Consult your System Administrator for assistance. • Set a soft limit: A soft limit setting stays in effect only for the duration of the **sp_cop** session for which it was set, and then it reverts back to a default value that may be lower than the hard limit and too low for SharePlex.	
Set soft and hard limits for the SharePlex user Set a soft limit and a hard limit for **nproc** and **nofile** for the SharePlex O/S user in the **/etc/security/limits.conf** file. • **shareplex O/S user soft nproc 2048** • **shareplex O/S user hard nproc 16384 '** • **shareplex O/S user soft nofile 1024** • **shareplex O/S user hard nofile 65536** As an alternative, you can simply use the setting for the Oracle O/S user.	
Set core file parameters. • Set the system core dump block size as large as system resources can accommodate, at minimum 1.5 million blocks. The default is usually 0. Core files help Quest support representatives resolve SharePlex support cases. Higher size settings ensure that enough data is captured to be useful. • Set the core file output location to the **dump** sub-directory of the SharePlex variable-data directory. • Set the naming convention of core files to either **core** or **core.***pid*. NOTE: SharePlex renames all core files named **core** to **core.***pid*, except for those generated by **sp_cop**. If these requirements are not met, the SharePlex event log might report that a core file was not generated, even though a file exists.	
Install the ksh shell. Install the **ksh** shell before you install SharePlex. The SharePlex monitoring scripts and other features required this shell. A version of **ksh** called **pdksh** is included with the Red Hat Linux builds. Refer to the Red Hat Linux documentation for more information.	

Requirement	Completed? (Y/N)
Install Native POSIX Threading Library (NPTL) Quest recommends using the Native POSIX Threading Library (NPTL) on Linux. NPTL is faster and behaves more like other Unix operating systems than LinuxThreads. Although LinuxThreads can be enabled per process by using the LD_ASSUME_KERNEL environment variable, setting that variable adversely affects the performance of SharePlex. If LD_ASSUME_KERNEL is employed, use a setting of 2.4.21.	
Set the UNIX account that installs SharePlex to -rwsr-s--x using set-user-id. The value of **-rwsr-s--x** enables the Database Setup utility to connect to an Oracle database through SQL*Plus to install the SharePlex database account and objects during installation. The UNIX account that installs SharePlex owns this program.	
(Debian Linux) **Create a symbolic link to the /lib64/libc.so.6 library path.** On Debian Linux, the **/libc.so.6** library files are not in the **/lib64/libc.so.6** location that SharePlex expects. Before installing SharePlex on Debian Linux, create a symbolic link to **/lib64/libc.so.6**.	
(Oracle Database) Configure the oratab file. Make sure that the correct ORACLE_SID and ORACLE_HOME values are explicitly listed in the **oratab** file. SharePlex refers to this file to set its environment. On Sun machines, SharePlex only uses the **oratab** file that is in the **/var/opt/oracle** directory. If there is a copy of the **oratab** file in the **/etc** directory ensure that this file is identical to the one in the **/var/opt/oracle** directory.	

Windows system checklist

Requirement	Completed? (Y/N)
Confirm that the Windows version is supported. For more information, see Basic system requirements on page 5.	
Address FAT security issues. The SharePlex user groups determine who can control the SharePlex processes. These groups only function as designed on an NTFS partition. A FAT partition lacks file security, and any user who logs onto a FAT partition has full control of SharePlex. If SharePlex must be installed on a FAT partition, allow the SharePlex **admin** group to log in locally, and allow the **spopr** and **spview** groups to log in remotely *only*. Remote logins to a FAT partition preserve group assignments. For more information, see Assign SharePlex users to security groups on page 69.	

Requirement	Completed? (Y/N)
Be prepared to restart the system. On the Windows platform, SharePlex installs the MKS Toolkit® operating environment from Parametric Technology Corporation (PTC). The default folder for the MKS Toolkit® is **C:\Program Files\MKS Toolkit**. Set system permissions so that the MKS Toolkit files cannot be moved or removed after they are installed. If this is a first-time MKS Toolkit installation, you will be prompted to restart the system.	
Adjust the page size. SharePlex needs an additional 200 MB of page file size if more than 80 percent of the current total page file size is being used. Greater page size enables SharePlex to process large transactions more quickly.	
Assign a user who will own the SharePlex directories. Assign a member of the Windows Administrator group to own the SharePlex installation and variable-data directories. This user must exist before you run the SharePlex installer and must have system privileges to read the Oracle redo logs.	
(Oracle Database) Verify the Oracle Registry entries. (Test machines only) On machines where Oracle has been installed and uninstalled many times, the Oracle entries in the Registry may be corrupted. Before you install SharePlex on a test machine, uninstall all Oracle software and delete all Oracle Registry entries. Then, re-install Oracle by using the Oracle installation program, which creates Registry entries correctly. SharePlex relies on these entries to obtain database environment information.	
(Oracle Database) Set ORACLE_HOME as the first entry in the PATH variable. SharePlex expects the path to the Oracle binaries to be the first entry in the Windows PATH system variable. Change the variable, if needed, and verify that the path is correct.	

Oracle checklist

Requirement	Completed? (Y/N)
Perform any required database upgrades. Perform any required database upgrades before you install SharePlex. This ensures that SharePlex gets the most current object definitions when you run Database setup during the installation and setup steps.	
Confirm the Oracle release version and processor type.	

Requirement	Completed? (Y/N)
(source and target databases) Verify that the Oracle release version is supported by SharePlex. For more information, see Basic system requirements on page 5. **NOTE:** SharePlex does not support 32-bit Oracle versions.	
Set up Oracle online and archive logging. (**source databases**) • Enable archive logging to avoid the need to resynchronize data after a log wrap. • Enable minimum supplemental logging. • Enable supplemental logging of primary and unique keys. • Configure the logs to support replication. For more information, see the SharePlex Installation Guide. For more information, see Set up Oracle logging to support SharePlex on page 1.	
Set up database objects to support replication. (**source and target databases**) Set up Oracle objects to support replication properly, including: • Log primary and unique keys. • Handle tables that do not have keys. • Handle indexes, triggers, constraints, and sequences. For more information, see the SharePlex Installation Guide. For more information, see Set up Oracle database objects for replication on page 1.	
Configure database properties to support replication (**source databases**) Make the recommended database settings to support SharePlex processes: • Verify character sets are compatible with SharePlex. • Adjust log buffer size. • Adjust open cursors and processes parameters. • Adjust **initrans** setting of SHAREPLEX_TRANS table. For more information, see the SharePlex Installation Guide. For more information, see Set up an Oracle database to support SharePlex on page 1.	
Set privileges to capture TDE-protected data. (**source databases**) To decrypt TDE-protected data from the redo log, the SharePlex Administrator must open	

Requirement	Completed? (Y/N)
the Oracle Wallet with the wallet password. By default, only the Oracle Wallet owner-user has read and write permissions for this file. To enable SharePlex to open the wallet, you can either of the following: Grant read permission to the wallet file to the **dba** group, because the SharePlex Administrator user is a member of that group. Or... Have the owner of the wallet start SharePlex. For more information, see the SharePlex Installation Guide. For more information, see Set up TDE Support on page 1.	

Plan the SharePlex Oracle account.
(**source and target databases**)
During SharePlex installation, you will run the Database Setup utility to create a database account (user and schema) for SharePlex. The following is a list of privileges required for the database user who runs the this utility:
 	
Non-multitenant (standard) database
The user who runs the setup utility must have DBA privileges, but if support for TDE is required, then this user must have SYSDBA privileges.
 	
Multitenant database
The user who runs the setup utility should have SYSDBA privileges (recommended), but at minimum the user should be a DBA user with privileges for **sys.users$** and **sys.enc$**. The minimum following grants are required for the SharePlex user:
`create user c##sp_admin identified by sp_admin;`
`grant dba to c##sp_admin container=ALL;`
`grant select on sys.user$ to c##sp_admin with grant option container=ALL;`
If TDE support is required for the CDB, then the following *additional* priviledge is required:
`grant select on sys.enc$ to c##sp_admin with grant option container=ALL;`	

Plan the SharePlex objects tablespace. (**source and target databases**) The Database Setup utility installs some tables into a tablespace of your choosing. All but the SHAREPLEX_LOBMAP table use the default storage settings of the tablespace. The SHAREPLEX_LOBMAP table contains entries for LOBs stored out-of-row. It is created with a 1 MB INITIAL extent, 1 MB NEXT extent, and PCTINCREASE of 10. The MAXEXTENTS is 120, allowing the table to grow to 120 MB. **Preferred action**: If you enable supplemental logging for primary and unique keys, you	

Requirement	Completed? (Y/N)
can set the SP_OCT_ENABLE_LOBMAP parameter to 0, and nothing will be stored in the SHAREPLEX_LOBMAP table. In this case, you do not have to consider its size growth. It is recommended that you enable supplemental logging for primary and unique keys to maximize the performance of the Read process. **Alternate action**: The default storage usually is sufficient for SHAREPLEX_LOBMAP, permitting more than 4 million LOB entries. If the Oracle tables to be replicated have numerous LOB columns that are inserted or updated frequently, consider increasing the size the SharePlex tablespace accordingly. Take into account that this table shares the tablespace with other SharePlex tables. If the database uses the cost-based optimizer (CBO) and the tables that SharePlex processes include numerous LOBs, incorporate the SHAREPLEX_LOBMAP table into the analysis schedule. **NOTE:** A new installation of SharePlex does not change storage parameters from a previous installation.	
Plan the SharePlex temporary tablespace. (**source and target databases**) The Database Setup utility prompts for a temporary tablespace for SharePlex to use for sorts and other operations, including sorts performed by the **compare** commands. The default temporary tablespace is the one where the SharePlex objects are installed. If you plan to use the **compare** commands to compare large tables, especially those without a primary or unique key, specify a dedicated temporary tablespace for SharePlex.	
Plan for theSharePlexindex tablespace. (**source and target databases**) The Database Setup utility prompts for a tablespace to store the indexes for the SharePlex tables. The default index tablespace is the one where the SharePlex objects are installed. To minimize I/O contention, specify a different index tablespace from the one where the tables are installed. **NOTE:** If indexes from a previous version of SharePlex are installed in the SharePlex objects tablespace, you can move them to a different tablespace and then specify that tablespace when you run the setup utility.	
Install the Oracle client. (**source and target databases**) The Oracle client libraries are needed both for installation and setup as well as for the operation of SharePlex.	
Consider Case if replicating to an Open Target database To support replication between a source of one database type and a target of another type, the letter case of the names of the source and target columns must be the same, for example the column names on both sides in lower case or both sides in upper case. If the case differs between the source and target column names, use the column mapping feature to map the column names in the configuration file.	

Amazon EC2 checklist

Requirement	Completed? (Y/N)
Install on multiple EBS volumes • Install the database and SharePlex on Amazon Elastic Block Storage (EBS). An EBS volume is persistent storage, whereas the default Amazon storage is non-persistent and data is lost when the instance shuts down. EBS volumes also provide better performance. Minimum size for a volume is 1GB. • To optimize disk performance, create multiple EBS volumes and combine them by using software RAID. According to benchmarks, the optimal number of EBS volumes is 8.	
Assign Elastic IP addresses Amazon Elastic IP addresses are static, which satisfy SharePlex requirements. An Elastic IP must be created and assigned to both the source and target machines that will be used with SharePlex.	

SQL Server source checklist

Requirement	Completed? (Y/N)
Confirm database ownership Make certain that the SQL Server source databases that you will be replicating are owned by a SQL Server user, not a domain user.	
Configure a Data Source Name Create a System (not User) Data Source Name (DSN) for the SQL Server database on the Windows system. The DSN can use either **Windows NT authentication** or **SQL Server authentication**. If you configure the DSN to use **NT authentication** and are using SQL Server 2012 or later, grant the **NTAuthority\SYSTEM** user the **sysadmin** fixed server role. (For earlier versions of SQL Server, **sysadmin** is granted to the **NT Authority\SYSTEM** user by default.) Test connection to the database through this DSN. If SharePlex will be replicating data from, or to, databases that are in different SQL Server instances on the same system, each of those databases must have a unique name. Because SharePlex identifies a database by its name, if two or more databases have the same name, SharePlex will only connect to one of them. If databases in different SQL Server instances have the same name but you are only using SharePlex for one of them, the names can remain identical without causing connection conflicts.	

Requirement	Completed? (Y/N)
Install SQL Server Replication Components SharePlex Capture makes use of the underlying components of the native SQL Server replication components. SQL Server Replication must be installed before you install and set up SharePlex, and then the SharePlex Database Setup utility must be run to configure a local Distribution Agent. This utility is typically run as part of the SharePlex installation procedure.	
Be ready to quiesce the source database Before you activate a configuration to capture from a SQL Server source, you must quiesce the tables that are in that configuration. The tables must remain quiesced for the entire activation process.	

Satisfy requirements for database naming
These use cases can cause connection problems for SharePlex unless resolved as recommended.
Names of replication databases are identical among local instances
If SharePlex will be replicating data from, or to, databases that are in different SQL Server instances on the same system, each of those databases must have a unique name. Because SharePlex identifies a database by its name, if two or more databases have the same name, SharePlex will only connect to one of them.
If databases in different SQL Server instances have the same name but you are only using SharePlex for one of them, the names can remain identical without causing connection conflicts.
Source and target have the same name, but different case
SQL Server source and target databases that have the same name but different case collation can cause connection problems for SharePlex. If you cannot either change the case of the databases to be identical, or rename one of them to a different name, you can use the following workaround after you install SharePlex and run the **mss_setup** utility.
Workaround:
1. On the target system, open the **connections.yaml** file in the SharePlex variable-data directory.
2. Copy the entire set of parameters, but do not delete the original set.
3. Paste the copied set of parameters after the original set.
4. In the pasted set of parameters, change the case of the **r.***database* parameter to match the case of the source database.
Example:
`r.my_database:`
`  database: MY_DATABASE`
`  dsn: my_sp1`
`  dstype: sqlserver`
`  password: 558ec793ac`
`  plugin: sqlserver`
`  plugin_direction: target`	

Requirement	Completed? (Y/N)

<pre> plugin_version: 1
  user: qarun
r.MY_DATABASE:
  database: MY_DATABASE
  dsn: my_sp1
  dstype: sqlserver
  password: 558ec793ac
  plugin: sqlserver
  plugin_direction: target
  plugin_version: 1
  user: qarun</pre>	

Considerations if replicating to Oracle These use cases apply only if you are replicating from SQL Server to an Oracle target. **Character column definitions:** SQL Server defines CHAR and VARCHAR data in bytes, whereas Oracle can define it in bytes or characters depending on the semantics definition of the database or the specific table. Additionally, SQL Server allows larger maximum column sizes than Oracle. To allow for these differences in column length, adjustments must be made to the Oracle target table definitions as follows to ensure that the target columns can fit all of the data: • For SQL Server char and varchar columns **less than or equal to 1000 bytes** in length, define the Oracle columns as CHAR and VARCHAR, and specify the length (semantics) as **character**. • For SQL Server char and varchar columns **greater than 1000 bytes** in length, define the Oracle columns as CLOB. • For SQL Server nchar columns **less than or equal to 1000 characters** in length, define the Oracle columns as NCHAR equal in size or greater than the SQL Server ones. • For SQL Server nchar columns **greater than 1000 characters** in length, define the Oracle columns as NCLOB. • For SQL Server nvarchar columns **less than or equal to 2000 characters** in length, define the Oracle columns as NVARCHAR equal in size or greater than the SQL Server ones. • For SQL Server nvarchar columns **greater than 2000 characters** in length, define the Oracle columns as NCLOB. • For SQL Server binary and varbinary columns **less than or equal to 2000 bytes** in length, define the Oracle columns as RAW equal or greater than the SQL Server ones. • For SQL Server binary and varbinary columns **greater than 2000 bytes** in length, define the Oracle columns as BLOB. To view a table representing these relationships, see Set up replication from SQL Server to Oracle in the SharePlex Installation and Setup Guide. **Letter Case:** To support replication between a source of one database type and a target of another type,	

Requirement	Completed? (Y/N)
the letter case of the names of the source and target columns must be the same, for example the column names on both sides in lower case or both sides in upper case. If the case differs between the source and target column names, use the column mapping feature to map the column names in the configuration file.	
Ensure varchar(max) length compatibility If replicating varchar(max) data to a SQL Server target, make certain that the data size does not exceed 1GB in length. Although SQL Server supports varchar(max) data of up to 2 GB in length, the Windows ODBC driver supports VARCHAR(max) data of up to 1 GB in length. Sample ODBC error message, which is included in the Post error message: `[ODBC SQL Server Driver]Invalid precision value`.	

Open Target checklist

Requirement	Completed? (Y/N)
Perform any required database upgrades. Perform any required database upgrades before you install SharePlex. This ensures that SharePlex gets the most current object definitions when you run Database setup during the installation and setup steps.	
Confirm the database release version. Verify that the release version of the database is supported by SharePlex. For more information, see Basic system requirements on page 5.	
Consider character sets When replicating to an Open Target target (non-Oracle target), SharePlex supports replication from any Oracle Unicode character set and the US7ASCII character set. SharePlex posts data to Open Target in the Unicode character set, and therefore if the source data is Unicode or US7ASCII, no conversion on the target is required. However, if the following are true, conversion is required on the target: • If the character set of the source data is anything other than Oracle Unicode or US7ASCII, you must install an Oracle client on the target to perform the conversion to Unicode for posting to the target. • If the data must be posted to the target database in any character set other than Unicode, you must install an Oracle client on the target to perform the conversion and use the **target** command to identify the target character set for Post to use. • If you are replicating LOB data, conversion is required regardless of what the source character set is.	

Requirement	Completed? (Y/N)
To perform conversion with an Oracle client on Linux 1. Install an Oracle *Administrator* client on the target system. The client must be the Administrator installation type. The Instant Client and Runtime installation types are not supported. 2. Set ORACLE_HOME to the client installation. Set ORACLE_SID to an alias or a non-existing SID. SharePlex does not use them and a database does not have to be running. 3. Download the *Oracle-based SharePlex installer*, rather than the Open Target installer, to install SharePlex on the target system. The Oracle-based installer includes functionality that directs Post to use the conversion functions from the Oracle client library to convert the data before posting to the target database. 4. Follow the instructions for installing SharePlex *for Oracle* (not the ones for installing on Open Target). 5. Make certain the SP_OPX_NLS_CONVERSION parameter is set to the default of 1. ***To perform conversion with an Oracle client on Windows*** 1. Install an Oracle *Administrator* client on the target system. The client must be the Administrator installation type. The Instant Client and Runtime installation types are not supported. 2. In the SharePlex Registry key **\HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\QuestSoftware\SharePlex***port_number*, set ORACLE_HOME to the Oracle client installation location, and set ORACLE_SID to an alias or a non-existing SID. No Oracle database is required. SharePlex only needs to use the client libraries. 3. Install SharePlex using the Windows installer. 4. Make certain the SP_OPX_NLS_CONVERSION parameter is set to the default of 1. ***To apply Unicode and US7ASCII data without conversion*** If the source data is Unicode or US7ASCII and you are not replicating LOB data, no conversion or Oracle client is needed. Set the SP_OPX_NLS_CONVERSION parameter to 0 to disable conversion, and then restart Post if it is running.	
Consider Case To support replication between a source of one database type and a target of another type, the letter case of the names of the source and target columns must be the same, for example the column names on both sides in lower case or both sides in upper case. If the case differs between the source and target column names, use the column mapping feature to map the column names in the configuration file.	
Install the appropriate ODBC driver. Verify that the appropriate ODBC driver is installed for your target, and install one if there is not one present.	

Requirement	Completed? (Y/N)
For Microsoft SQL Server, make certain to do the following: Install the **Microsoft SQL Server ODBC Driver**. It must be that driver, *not* the **Microsoft SQL Server Native Client**, or SharePlex will return an error when you run the Database Setup utility to configure Post to connect to the database. To tell the difference between the two drivers: • 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. To test a driver with SharePlex you can use the OTS utility. You can use a standalone version of this utility before you install SharePlex, or you can run the utility from the installation directory after you install SharePlex. See the OTS documentation in the SharePlex Reference Guide for more information. **NOTE**: SharePlex is already certified to work through ODBC with SQL Server, PostgreSQL, and Sybase targets.	

Enable case sensitivity on key columns
Enable case-sensitivity for the data of any character-based primary key columns or columns that form a unique index. This ensures that Post compares the correct source and target key values so that it updates the correct target row and prevents unique constraint errors. Unless the key values are case sensitive, cases like the following can happen:
`Create table Sales (CustName varchar(20) primary key);`
`insert into Sales values ('abc company');`
(Succeeds)
`insert into Sales values ('ABC Company');`
(Fails with unique constraint violation error)	

Disable triggers, cascade deletes, and foreign keys on the target tables. Triggers, cascaded DELETES, and foreign keys must be disabled on Open Target tables. DML changes resulting from triggers, cascaded DELETES, and foreign keys on the source system enter the transaction log and are replicated to the target database by SharePlex. If the same mechanisms are allowed to occur on the target parent table, they initiate changes to the child tables that are duplicated through replication. These duplicate operations cause out-of-sync errors. All tables with foreign keys to one another must all be included in the replication configuration for accurate replication of the source foreign key results. All tables with referential constraints must exist in the target database. If you leave one or more out, the referential integrity could become corrupted.	
To get additional information Additional post-installation setup steps are required to support Open Target database targets. For more information, see Set up replication between different database types on page 1 of the SharePlex Installation Guide.	

Requirement	Completed? (Y/N)
(SQL Server target) Configure a System Data Source Name Create a System (not User) Data Source Name (DSN) for the SQL Server database on the Windows system. The DSN can use either **Windows NT authentication** or **SQL Server authentication**. If you configure the DSN to use **NT authentication** and are using SQL Server 2012 or later, grant the **NTAuthority\SYSTEM** user the **sysadmin** fixed server role. (For earlier versions of SQL Server, **sysadmin** is granted to the **NT Authority\SYSTEM** user by default.) Test connection to the database through this DSN. **IMPORTANT!** If SharePlex will be replicating data from, or to, databases that are in different SQL Server instances on the same system, each of those databases must have a unique name. Because SharePlex identifies a database by its name, if two or more databases have the same name, SharePlex will only connect to one of them. If databases in different SQL Server instances have the same name but you are only using SharePlex for one of them, the names can remain identical without causing connection conflicts.	

3

Installation and setup for Oracle cluster

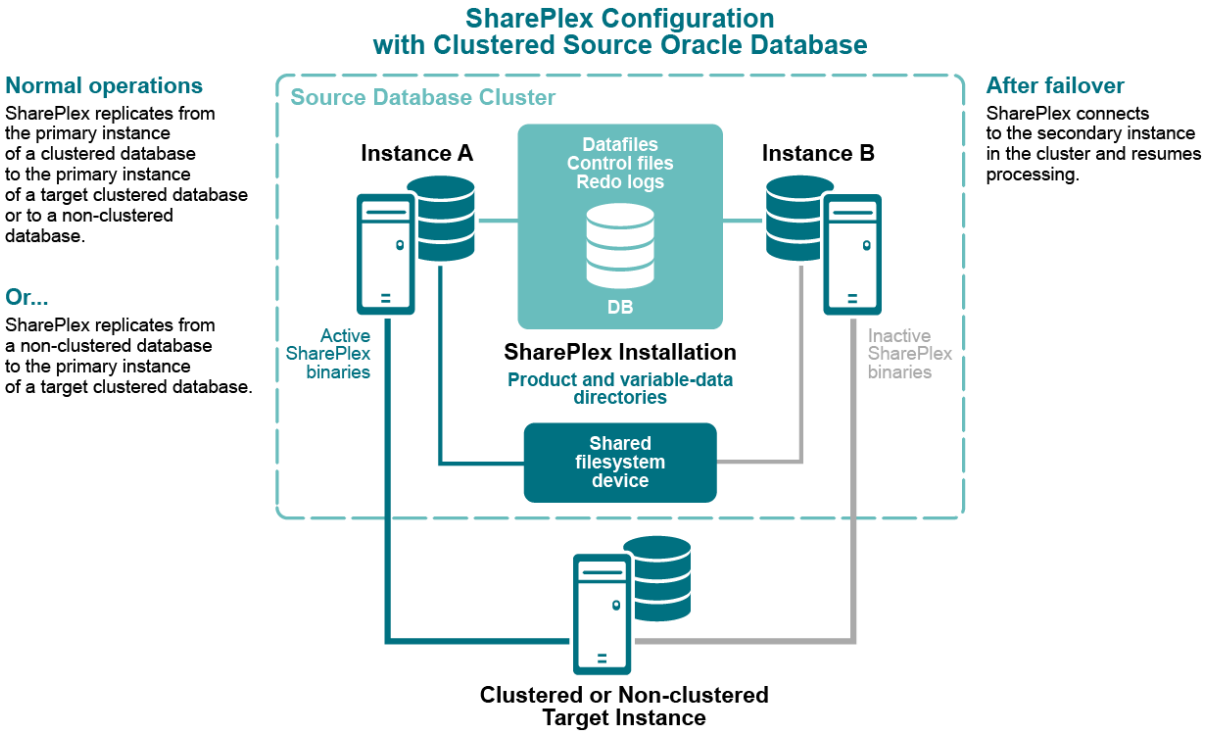
Contents

Overview of SharePlex Oracle cluster support

SharePlex integrates with Oracle Clusterware cluster hardware and software to maintain the high availability of data capture and uninterrupted replication to your targets. If the node where SharePlex is running fails or must be taken out of the cluster for maintenance, SharePlex can be started on another server by the cluster software. SharePlex start and stop is controlled through the cluster.

These instructions assume that the cluster solution is already installed according to the cluster documentation, tested, and is functioning, and they are not a substitute for the documentation. Additional steps that are specific to your cluster installation may be required.

The following diagram shows SharePlex installed into an Oracle RAC cluster:



Set up SharePlex in an Oracle cluster

These instructions are for setting up SharePlex in an Oracle cluster. The setup is similar for the Windows and UNIX or Linux platforms. Differences are noted. UNIX is used in the examples.

IMPORTANT! These instructions cover the parts of installing and setting up a cluster that pertain to the setup of SharePlex in the cluster. See the Oracle documentation for complete instructions for the platform that you are using.

The setup has the following phases:

- Configure the cluster
- Install SharePlex on the cluster
- Run Database Setup
- Persist the SharePlex licenses
- Set the SharePlex environment parameters
- Configure SharePlex
- Activate replication
- Add SharePlex to the cluster software
- System maintenance

Configure the cluster

Perform these steps on a source cluster and a target cluster, if applicable.

1. On one node of the cluster, create a static application Virtual IP (VIP) address for SharePlex. This VIP must point to the node where SharePlex will run and fail over to the secondary node if the primary node fails.

   NOTES:

   See the Oracle documentation for more information about creating a Virtual IP address on your specific platform.

   The VIP establishes a consistent host name across all nodes.

   The cluster software maps the VIP to the SharePlex server and migrates it during a failover.

   Alternatively, this mapping can be done as a host alias in the **/etc/hosts** file (on Unix and Linux) or the **hosts** file (on Windows) on both nodes. The alias is exported in the SharePlex user profile and used in the SharePlex configuration parameters.

   Example:

   ```
   123.456.0.78 splex
   ```

2. Create a **tns_alias** for SharePlex to use to connect to the database on each node. **Use the same alias on each node of a cluster.** Set load balance to **off** and set failover to **on**. For example:

   Node 1:

   ```
   ora_a_sp  =
               (DESCRIPTION  =
               (ADDRESS_LIST  =
                 (ADDRESS  =  (PROTOCOL  =  TCP)(HOST  =  RAC1)(PORT  =  1521))
                 (ADDRESS  =  (PROTOCOL  =  TCP)(HOST  =  RAC2)(PORT  =  1521))
               )
               (LOAD_BALANCE  =  OFF)
               (FAILOVER  =  ON)
                  (CONNECT_DATA  =
              (SERVER  =  DEDICATED)
                  (SERVICE_NAME  =  ora_a)
              (INSTANCE_NAME  =  ora_a1)
                  )
          )
   ```

   Node 2:

   ```
   ora_a_sp  =
               (DESCRIPTION  =
               (ADDRESS_LIST  =
                 (ADDRESS  =  (PROTOCOL  =  TCP)(HOST  =  RAC2)(PORT  =  1521))
                 (ADDRESS  =  (PROTOCOL  =  TCP)(HOST  =  RAC1)(PORT  =  1521))
               )
               (LOAD_BALANCE  =  OFF)
               (FAILOVER  =  ON)
                  (CONNECT_DATA  =
              (SERVER  =  DEDICATED)
                  (SERVICE_NAME  =  ora_a)
              (INSTANCE_NAME  =  ora_a2)
                  )
          )
   ```

NOTE: A **tns_alias** establishes global connection information that supercedes local instance names and enables SharePlex to connect to the failover instance without requiring a configuration reactivation. SharePlex identifies the correct Oracle instance from the configuration file.

3. (UNIX and Linux only) Add the **tns_alias** to the **oratab** file on each node that SharePlex is expected to start on during a failover.

   Example (all nodes):

   ```
   ora_a:/u01/app/oracle/product/11.2.0/dbhome_1:N
   ora_a_sp:/u01/app/oracle/product/11.2.0/dbhome_1:N
   ```

4. If the Oracle instances in the cluster have different ORACLE_HOMEs, edit the **oratab** file on each node and on the DNS nameserver, if applicable, to use a symbolic link in place of the actual ORACLE_HOME path:

   SID:/*path_to_symbolic_link*:N

Install SharePlex on the cluster

In a cluster, SharePlex is installed differently on Unix and Linux versus Windows.

To install on Unix and Linux

On Linux and Unix, the best practice is to install both the SharePlex variable-data and product directories on a shared drive, rather than on each node. This configuration enables more efficient failover and faster upgrades of SharePlex. If you do install these directories locally on both nodes of the cluster, do the following:

- Install each SharePlex instance on the same port number, with identical path names. When installing on the secondary node, specify a temporary variable-data directory and then remove it after installation. Alternatively, you can use a shared drive for the variable-data directory, and then specify that directory when installing SharePlex on each node. You will configure SharePlex to use the correct variable-data directory in this procedure.
- When prompted by the installer for the ORACLE_SID, specify the **tns_alias** .
- For more information, see Install SharePlex on Linux/Unix for Oracle Database on page 1.

To install on Windows

- On Windows, you must install the SharePlex product directory on each node of the cluster in order to make the binaries and the required MKS Toolkit components available to all nodes, and to establish Registry entries. Install each SharePlex instance on the same port number, with identical path names.
- It is best practice to install the SharePlex variable-data directory on a shared drive to enable more efficient failover. If you do install this directory locally on both nodes of the cluster, specify a temporary variable-data directory on the secondary node and remove it after installation. You will configure SharePlex to use the correct variable-data directory in this procedure.
- For more information, see Install SharePlex on Windows on page 1.

Run Database Setup

After you install SharePlex, run the Database Setup utility. The following applies in a cluster:

- **Source cluster:** Run Database Setup and specify the **tns_alias** as the connection type.
- **Target system or target cluster:**Run Database Setup and specify the **tns_alias** as the connection type, *except if you are populating the target with a hot backup*. If you are populating the target with a hot backup, *do not* run Database Setup now. You will run Database Setup during the activation procedure.
- For more information, see Database Setup for Oracle on page 1.

Persist the SharePlex licenses

Perform these steps on a source cluster and on a target cluster, if applicable.

SharePlex will not run without a license key for each node of the cluster. This license key must be persisted in the SharePlex environment.

To add licenses on Unix and Linux

1. On the secondary node, determine the host ID of the secondary node of the cluster by running the following command from the **util** subdirectory of the SharePlex product directory.

   ```
   /home/shareplex/util/splex_uname
   ```

   Look for the HostID line and record the value:

   ```
   HostID = 1234567890
   ```

2. On the primary node, run the **splex_add_key** utility from the **install** sub-directory of the SharePlex product directory.

   ```
   /home/shareplex/install/splex_add_key
   ```

3. Select **3) Add license key for alternate host**.
4. Enter the machine ID of the secondary host that you recorded from the **splex_uname** output.
5. Select **2) Enter license key manually**.
6. Enter the license key exactly as you received it from Quest, including the **SPLEXKEY=** string if one prepends the key, any spaces, and any capitalization. Press **Enter** when finished typing the key.
7. Enter the customer name text string that is provided with the license key.
8. Quit the license utility.
9. Repeat the licensing steps for any additional secondary nodes in the cluster.

To add licenses on Windows

Run the license utility on each node of the cluster.

1. Log on to Windows as the SharePlex Administrator.
2. If SharePlex is running, do the following:
   a. Select the **SharePlex Services** tab.
   b. Select the port number of the SharePlex instance for which you want to add a license key.
   c. Click **Stop**.
   d. Wait for **Current State** to display a message that the service stopped.

3. Select the **License Keys** tab.
4. Select the SharePlex port number from the **Port** list.
5. Click **Add License**, then type or paste the information exactly as you received it from Quest, as follows:
    a. **License Key**: The license key, including any spaces. The key is case-sensitive.
    b. **Customer Name**: The text string that was included with the license. The name is case-sensitive.
6. (Windows Cluster) To add a license for another node in a cluster, select the **Add Alternate Host Id** check box, then select the machine ID from the CPU ID list box. Repeat this step to add a license to all secondary nodes in the cluster.
7. Click **OK to close the utility.**
8. To start SharePlex, do the following:
    a. Select the **SharePlex Services** tab.
    b. Select the port number of the SharePlex instance that you licensed.
    c. Click **Start**.
    d. Wait for **Current State** to display a message that the service started.

Set the SharePlex environment parameters

Perform these steps on a source cluster and on a target cluster, if applicable.

Set the SharePlex environment to point to the VIP alias and SharePlex variable-data directory.

- SP_SYS_HOST_NAME directs SharePlex to use the VIP alias when any of its processes issues a name lookup, superseding the local system name. It ensures that **sp_ctrl** commands are directed to the correct host, in this case the cluster name, and it enables SharePlex to migrate properly during failover.
- SP_SYS_VARDIR points to the variable-data directory that you installed on the shared disk. This is the active variable-data directory. Setting SP_SYS_VARDIR ensures that the current replication environment continues to be used by SharePlex after failover.

To set the environment on UNIX and Linux

EXPORT SP_SYS_HOST_NAME="splex"
SP_SYS_PRODDIR=/home/shareplex
SP_SYS_VARDIR="/app/shareplex/vardir"

To set the environment on Windows

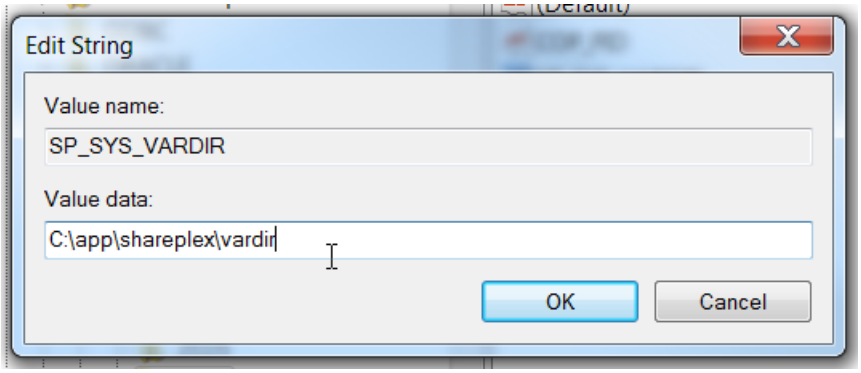
IMPORTANT! Do not set these parameters as environment variables, and do not set them on any systems outside the cluster, even if those systems are running SharePlex.

1. On the primary node of the cluster, run the **regedit** program.
2. Locate the following SharePlex entry:

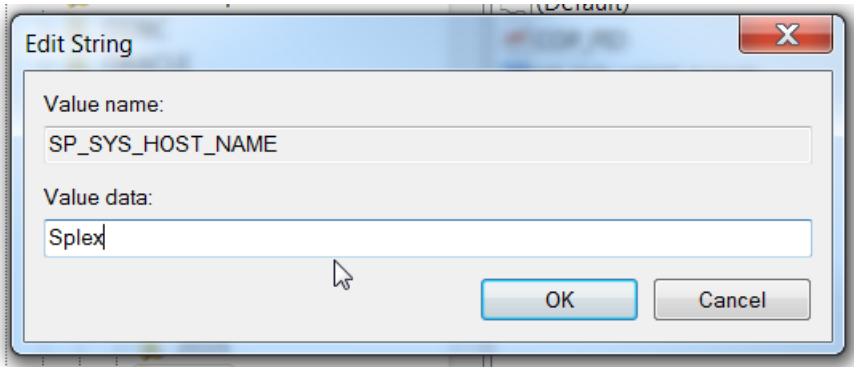
    `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\QuestSoftware\SharePlex.`

3. Expand the **SharePlex** node, then highlight the port number of the SharePlex instance you are configuring.

4. In the **Name** column in the pane to the right, right-click the SP_SYS_VARDIR variable, then select **Modify**.
5. Type the full path name of the shared variable-data directory in the **Value Data** field, then click **OK**.



6. Right click the SharePlex port number, then click **New** and select **String Value**.
7. Rename the new string to **SP_SYS_HOST_NAME**. Use all capital letters.
8. Click outside the name box to set the new name of **SP_SYS_HOST_NAME**.
9. Right-click **SP_SYS_HOST_NAME**, then select **Modify**.
10. Type the VIP alias in the **Value Data** field, then click **OK**.



11. Close the Registry Editor.
12. Restart the SharePlex service for the changes to take effect.

Configure SharePlex

When you create the configuration file that directs SharePlex replication, you specify the **tns_alias** rather than an actual ORACLE_SID, as follows.

To capture from a source cluster

Specify the **tns_alias** on the **o.***datasource* line of the file. This is the first line of the configuration file.

For example:

```
datasource:o.ora_a_sp
```

To post to a target cluster

Specify the **tns_alias** as the destination in the routing map.

For example (assumes the use of wildcards to specify objects):

```
expand hr.%     hr.%    inst_c@ora_b_sp
```

Activate replication

Once a source and target cluster (if applicable) are configured, you can populate a standalone or clustered target with a copy of the source data, while replication keeps track of transactional changes made by users on the source database. Use any of the Oracle-specific copy methods for activating replication from an active source. See the procedures listed in Activate replication in your production environment in the SharePlex Administration Guide for more information.

Add SharePlex to the cluster software

Incorporate SharePlex as a resource in the cluster software, and include it in the cluster failover routines so that it migrates with the other applications during failover. This ensures that the **sp_cop** process is started on the adoptive node by the cluster software. At minimum, this includes creating a startup script for SharePlex and a cluster script for SharePlex to handle failover. **Note the following**:

- The **sp_cop** program is the *only* process that the cluster software should start. The **sp_cop** process must be allowed to start the other SharePlex processes. All SharePlex processes, except **sp_cop**, can be controlled through the **sp_ctrl** interface.
- Do not attempt to start or stop **sp_cop** yourself through the command interface; otherwise the cluster software will attempt to restart it. If you need to stop **sp_cop**, use the cluster software commands.
- If possible, configure SharePlex and Oracle into a single global cluster package. The combination of SharePlex and Oracle in the same package allows the cluster software to start and stop SharePlex and Oracle in the proper sequence if any component of the package fails. Configure Oracle to start before SharePlex.
- Assistance for creating startup and cluster scripts is available through SharePlex Professional (PSO) Services.

System maintenance

Make certain your systems administrators understand that any changes or upgrades they perform to the operating system on any node in the cluster must be implemented on all nodes in the cluster so that SharePlex fails over to an identical environment.

4

Installation and setup for cloud-hosted databases

Contents

Overview of SharePlex setup on cloud databases

SharePlex supports databases installed as services of Amazon Web Services (AWS) and Microsoft Azure. To view the cloud databases that SharePlex supports, see Cloud support on page 8.

There are some differences in the way that SharePlex installs in an IaaS cloud environment and a PaaS cloud environment. These differences are only in the installation and configuration of SharePlex. Once installed and configured, SharePlex operates in the cloud the same way that it operates in on-premise installations.

Installation in an IaaS (accessible) environment

If your cloud database service is a true IaaS virtual computing environment, you can install and run a custom application environment, access the operating system, and manage access permissions and storage. In this environment, SharePlex is installed directly on the cloud server just as you would install it locally, without any special setup requirements.

In this environment, the following applies:

- SharePlex can capture from an Oracle source database in an IaaS cloud.
- SharePlex can Post to any supported target database in an IaaS cloud.

- You can proceed to the standard installation instructions in this manual.
  Install SharePlex on Linux/Unix for Oracle Database
  Install SharePlex on Linux/Unix for Open Target Databases
  Install SharePlex on Windows

Installation in a PaaS (non-accessible) environment

If your cloud database is installed in a true PaaS environment, you do not have access to the underlying operating system, and you must install SharePlex on a server that is external to the cloud deployment. You then configure SharePlex to interact with the target database through a remote connection.

SharePlex can post to a supported target database in a PaaS environment, but it cannot perform capture functions because the binaries cannot be installed on the cloud server nor granted the appropriate privileges.

You can install SharePlex for a PaaS target in one of the following ways:

- You can use your on-premise production source server to run all of the SharePlex replication components. In this setup, both source *and* target replication processes (and their queues) are installed on one server. The SharePlex Post process connects through a remote connection to the target cloud database.
  For more information, see Post to PaaS cloud from the source system on page 1.
  NOTE: In a high-volume transactional environment, the buildup of data in the post queues and the presence of multiple Post processes may generate unacceptable overhead for a production system. In that case, you should use an intermediary server.
- You can use an on-premise intermediary server to run the Import and Post components (and the post queues). Post connects to the cloud target through a remote connection. This method removes most of the replication overhead from the source server. For more information, see Post to PaaS cloud from an intermediary server on page 66.

Post to PaaS cloud from the source server

These instructions help you set up SharePlex to replicate to a target cloud database directly from the source server. All of the SharePlex processes will run on this server. In a high-volume transactional environment, this may generate unacceptable overhead on the production system. In that case, you should use an intermediary server.

See also:

Post to PaaS cloud from an intermediary server on page 66
Overview of SharePlex setup on cloud databases on page 63

Source Oracle to cloud Oracle

All steps are performed on the source server.

1. Complete the SharePlex preinstallation checklist on page 36.
2. Install SharePlex. See Install SharePlex on Linux/Unix for Oracle Database on page 1.

3. Run **ora_setup** to establish connection information for the source Oracle database. See Database Setup for Oracle on page 1. **IMPORTANT:**
    a. When asked if the current SID will be used as a source, enter **Y**.
    b. When asked whether this is a bequeath connection, enter **Y**, unless this system is RAC.
4. Add an entry in the local **tnsnames.ora** file that points to the target cloud database. This enables you to query the target database from the source server.
5. Run **ora_setup** to establish connection information for the target cloud database. Run the utility as the master user that was created when the service was created. This user has the required DBA privileges. **IMPORTANT:**
    a. When asked whether this is a bequeath connection, enter **N**. This directs SharePlex to use TNS to connect to the target cloud database.
    b. When prompted to specify the tns_alias, specify the one that you created for the target cloud database.
    c. When asked if the current SID will be used as a source, enter **N**.
6. Specify the following in the routing map of the SharePlex configuration file:
    - The name of the source host to specify the target system.
    - The ORACLE_SID of the target cloud database.

    In the following example, **source1** is the source system and **orcldb1** is the tns_alias of the target cloud database.

```
datasource:o.orcldbprim

#source tables                  target tables                  routing map

splex.demo_src                  splex.demo_dest                source1@r.orcldb1
```

For more information, see Configure SharePlex to replicate data in the SharePlex Administration Guide.

Source Oracle or SQL Server to cloud Open Target

All steps are performed on the source server.

1. Complete the SharePlex preinstallation checklist on page 36.
2. Install SharePlex. See:
    - Install SharePlex on Linux/Unix for Oracle Database on page 1
    - Install SharePlex on Windows on page 1
3. Run the appropriate database setup utility for the source database. See:
    - Database Setup for Oracle on page 1
    - Database Setup for SQL Server on page 1

    IMPORTANT:

a. (Oracle setup only) When asked whether this is a bequeath connection, enter **Y** to use bequeath, unless this system is RAC.

b. Reply **Y** when asked if the database or SID will be used as a source.

4. Install the appropriate ODBC client of the target cloud database.

5. Run the appropriate database setup utility for the target cloud database. See Database Setup Utilities on page 1.

   IMPORTANT:

   - If the target is Aurora, use the **mysql_setup** utility.
   - If the target is SQL Server cloud, when asked if the database will be used as a source, enter **N**.
   - (All cloud targets) Specify the full target database name when prompted for the connection string.

6. Specify the following in the routing map of the SharePlex configuration file:

   a. the name of the **source** server as the target host.

   b. the name of the **cloud database** as the target database.

   In the following example using a MySQL target, **source3** is the source system and **sptest3** is the target database.

```
datasource:o.orcldbprim
#source tables          target tables              routing map
HR.EMP                  "sptest3"."emp"            source3@r.sptest3
```

For more information about how to specify configuration components, see Configure SharePlex to replicate data in the SharePlex Administration Guide.

Post to PaaS cloud from an intermediary server

These instructions help you set up SharePlex to replicate to a target cloud database from an intermediary server that runs the SharePlex Import and Post components.

See also:

Post to PaaS cloud from the source server on page 64

Overview of SharePlex setup on cloud databases on page 63

Source Oracle to cloud Oracle

1. Complete the SharePlex preinstallation checklist on page 36.

2. On the source server, install SharePlex for the source database. See:

   - Install SharePlex on Linux/Unix for Oracle Database on page 1
   - Install SharePlex on Windows on page 1

3. On the source server, run **ora_setup** to establish connection information for the source database. See Database Setup for Oracle on page 1. **IMPORTANT:**
    a. When asked whether this is a bequeath connection, enter **Y**, unless this system is RAC.
    b. When asked if the current SID will be used as a source, enter **Y**.
4. On the intermediary server, install the Oracle binaries. Do not create an Oracle instance.
5. On the intermediary server, add an entry in the **oratab** file that points to the local Oracle home, and create a dummy entry for the ORACLE_SID. Make certain to specify **N** so that the startup scripts do not attempt to start the dummy instance.

    ```
    orcldb:/u01/app/oracle/product/12.1.0/dbhome_1:N
    ```
6. On the intermediary server, add an entry in the **tnsnames.ora** file that points to the target cloud database.
7. On the intermediary server, install SharePlex for the target cloud database. When prompted for the ORACLE_SID, specify the tns_alias that you created for the target cloud database. See:
    - Install SharePlex on Linux/Unix for Oracle Database on page 1
    - Install SharePlex on Windows on page 1
8. On the intermediary server, run **ora_setup** to establish connection information for the target cloud database. Run it as the master user that was created when the cloud service was created. This user has the required DBA privileges to establish connection information for the target database. **IMPORTANT:**
    a. When asked whether this is a bequeath connection, enter **N**. This directs SharePlex to use TNS to connect to the target cloud database.
    b. When prompted to specify the tns_alias, specify the one that you created for the target cloud database.
    c. When asked if the current SID will be used as a source, enter **N**.
9. Specify the following in the routing map of the SharePlex configuration file:
    - the name of the intermediary server as the target host.
    - the ORACLE_SID of the target cloud database.

    In the following example, **intermediary1** is the intermediary server and **orcldb1** is the tns_alias of the target cloud database.

    ```
    datasource:o.orcldbprim

    #source tables              target tables              routing map

    splex.demo_src              splex.demo_dest            intermediary1@o.orcldb1
    ```

For more information, see Configure SharePlex to replicate data in the SharePlex Administration Guide.

Source Oracle or SQL Server to cloud Open Target

1. Complete the SharePlex preinstallation checklist on page 36.
2. On the source server, install SharePlex for the source database. See:
   - Install SharePlex on Linux/Unix for Oracle Database on page 1
   - Install SharePlex on Windows on page 1
3. On the source server, run the appropriate database setup utility for the source database. See:
   - Database Setup for Oracle on page 1
   - Database Setup for SQL Server on page 1

   IMPORTANT:

   a. (Oracle setup only) When asked whether this is a bequeath connection, enter **Y** to use bequeath, unless this system is RAC.

   b. Reply **Y** when asked if the database or SID will be used as a source.
4. On the intermediary server, install the appropriate ODBC client of the target cloud database.
5. On the intermediary server, install SharePlex for the target cloud database. See:
   - Install SharePlex on Linux/Unix for Oracle Database on page 1
   - Install SharePlex on Windows on page 1
6. On the intermediary server, run the appropriate database setup utility for the target cloud database. See Database Setup Utilities on page 1.

   IMPORTANT:

   - If the target is Aurora, use the **mysql_setup** utility.
   - If the target is SQL Server, reply **N** when asked if this database will be used as a source.
   - (All targets) Specify the full target database name when prompted for the connection string.
7. Specify the following in the routing map of the SharePlex configuration file:

   a. the name of the intermediary server as the target host.

   b. the name of the cloud database as the target database.

   In the following example using a MySQL target, **intermediary3** is the intermediary system and **sptest3** is the target cloud database.

```
datasource:o.orcldbprim
#source tables          target tables              routing map
HR.EMP                  "sptest3"."emp"            intermediary3@r.sptest3
```

For more information, see Configure SharePlex to replicate data in the SharePlex Administration Guide.

5

Assign SharePlex users to security groups

Contents

Overview

The SharePlex security groups provide access control to the SharePlex command and control system. Without proper configuration of these groups, anyone with permissions on the system can use the commands that view, configure, and control data replication.

Overview of SharePlex security groups

To monitor, control, or change SharePlex replication, a person must be assigned to one of the SharePlex security groups on the systems where he or she will be issuing commands. Each group corresponds to an authorization level, which determines which SharePlex commands a person can issue. To execute a command, a user must have that command's authorization level or higher.

Use the **authlevel** command to determine your authorization level for issuing SharePlex commands on a system.

Description of the SharePlex security groups

Refer to the following table to determine the group and authorization level that you want to grant each SharePlex user.

User Authorization Levels and Roles

Auth level	User type	User group	User roles
1	Administration	spadmin*	You need at least one user with Administrator rights on each source and target system. Can issue all SharePlex commands. Commands that can *only* be issued by a SharePlex Administrator are: • **startup, shutdown** • all configuration commands relating to an active configuration • all parameter commands except **list param** • **start capture** • **stop capture** • **abort capture** • **truncate log** The SharePlex Administrator user must be in the Oracle **dba** group. For Oracle RAC and ASM 11*g*R2 and above, the user must also be in the Oracle Inventory group. For example: **$ useradd –g spadmin –G dba,oinstall**. The membership in Oracle Inventory group must be listed explicitly in the **etc/group** file. On Unix and Linux, unless you install SharePlex as a root user, the SharePlex Administrator user and the SharePlex **admin** group must exist prior to installation.
2	Operator	spopr	Can issue all SharePlex commands except those listed above.
3	Viewer	spview	Can view lists, status screens, and logs to monitor replication only.

NOTE: The default name for the SharePlex administrator group is **spadmin**, but you can designate any group or specify any name for that group during installation.

Create and populate SharePlex groups on Unix and Linux

Where and when to create the SharePlex groups on Unix and Linux depends on whether you install SharePlex as a root or non-root user.

- If you install as non-root, create the groups in the **/etc/group** file before you run the SharePlex installer. In a cluster, create them on all nodes.*
- If you install SharePlex as a root user, you can direct the installer to create the groups in the **/etc/group** file. If you install in a cluster, the installer creates the groups on the primary node, but you must create them yourself on the other nodes.

* The groups must exist because the installer adds the SharePlex Administrator user to the **spadmin** group during the installation process. In a cluster, this user is only added to the primary node. You must add the SharePlex Administrator user to the other nodes.

To create the groups in /etc/group

 # groupadd spadmin

 # groupadd spopr

 # groupadd spview

To assign a user to a group

1. Open the **/etc/group** file.
2. Add the Unix or Linux user name to the appropriate group. To assign a list of user names to a group, use a comma-separated list (see the following example).

   ```
   spadmin:*:102:spadmin,root,jim,jane,joyce,jerry
   ```

   If the password field is null, no password is associated with the group. In the example, the asterisk (*) represents the password, “102” represents the numerical group ID, and **spadmin** is the group. The group ID must be unique.
3. Save the file.

Users can verify their authorization levels by issuing the **authlevel** command in **sp_ctrl**.

Create and populate SharePlex groups on Windows

On Windows, the SharePlex groups are created in the Windows **User Accounts** control panel by the SharePlex installer. To assign users to these groups, use that control panel after you install SharePlex.

Users can verify their authorization levels by issuing the **authlevel** command in **sp_ctrl**.

6

About us

We are more than just a name

We are on a quest to make your information technology work harder for you. That is why we build community-driven software solutions that help you spend less time on IT administration and more time on business innovation. We help you modernize your data center, get you to the cloud quicker and provide the expertise, security and accessibility you need to grow your data-driven business. Combined with Quest's invitation to the global community to be a part of its innovation, and our firm commitment to ensuring customer satisfaction, we continue to deliver solutions that have a real impact on our customers today and leave a legacy we are proud of. We are challenging the status quo by transforming into a new software company. And as your partner, we work tirelessly to make sure your information technology is designed for you and by you. This is our mission, and we are in this together. Welcome to a new Quest. You are invited to Join the Innovation™.

Our brand, our vision. Together.

Our logo reflects our story: innovation, community and support. An important part of this story begins with the letter Q. It is a perfect circle, representing our commitment to technological precision and strength. The space in the Q itself symbolizes our need to add the missing piece — you — to the community, to the new Quest.

Contacting Quest

For sales or other inquiries, visit www.quest.com/contact.

Technical support resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at https://support.quest.com.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product