

# SOFTWARE RELEASE DOCUMENT (SOFTDOC)

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NOTE: This softdoc covers new features and corrected problems for HPE Shadowbase for Other Servers, Version 6.702. It is available as a PDF file (.PDF).

NOTE: **Supported Release Version Updates (RVUS):** This softdoc applies to all currently supported database and operating system versions as described by the [Shadowbase Supported Versions Cross-Reference](#). Alternatively, visit the <http://www.ShadowbaseSoftware.com> web site for the list of supported platforms and databases. Contact your reseller or Gravic if you have any questions.

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## Disclaimer

We are distributing this communication in an effort to bring important information to the attention of users of the affected products. We recommend that all users determine the applicability of this information to their individual situations and take appropriate action. We do not represent or warrant that this information is necessarily accurate or complete for all user situations and, consequently, we will not be responsible for any damages resulting from the user's use or disregard of the information provided. To the extent permitted by law, we disclaim all representations and warranties, whether express, implied, statutory, or otherwise, including the warranties of the merchantability, fitness for a particular purpose, title, and non-infringement.

We expect customers of the Shadowbase product suite to “stay current” on Shadowbase releases. This means that you, the customer, should periodically upgrade your Shadowbase software to a newer release that is under support before support ends on your current release. For most customers, this means that you will want to upgrade while your release is in ‘ACTIVE’ support. Otherwise, you run the risk of not being able to get full (or even any if the release has gone ‘OBSOLETE’ end-of-service-life) support for the version you are running.

The Shadowbase Software Policy for Software Versions is described here: <https://shadowbasesoftware.com/support/shadowbase-software-product-release-and-support-policies/>. We encourage all customers to periodically review this material and plan for periodic upgrades to their Shadowbase software. Contact Support if you need additional information.

## Note for TCDs

**TCD (Temporary Code Delivery)** – A software update delivered via an SPR downloadable from an FTP dropbox. A TCD is an early version, intended for customer testing only (not production usage). A TCD by definition is restricted to certain customers. Note that a “Gravic TCD” is delivered directly from Gravic, not via HPE, but otherwise has the same attributes.

A TCD is provided only to the specified customer for the purposes agreed between the customer and Gravic as to how it will be used. A TCD is provided subject to the following terms and conditions in addition to the existing written license governing the use of Shadowbase:

- A TCD is provided for evaluation and test purposes only for no more than ninety (90) days use, and is not to be used in production systems
- A TCD may not have been fully tested by Gravic, no warranties are implied as to its behavior
- A TCD is delivered directly from Gravic to the customer, it is not available from HPE/SCOUT
- As testing proceeds, iterative TCD deliveries may be necessary as issues are identified/resolved
- A TCD is temporary, after evaluation it is to be withdrawn from use by the customer
- After testing completes, a TCD may or may not subsequently be released as a Shadowbase TCF or otherwise be included in the Shadowbase product line

Please see <https://www.shadowbasesoftware.com/support/shadowbase-software-product-release-and-support-policies/shadowbase-software-release-glossary/> for additional information.

## Mature Features and Deprecated Features

This section provides a list of mature features (“*mature features*”) and deprecated features (“*deprecated features*”) for HPE Shadowbase for Other Servers. Gravic will continue to support *mature features* and will continue to include support for them in future releases; however, Gravic will not enhance those features further or qualify them on newer versions of operating systems and databases as they become available. If you are using a *mature feature*, Gravic highly recommends moving off the *mature feature* to the suggested replacement approach as soon as possible. New installations should avoid using *mature features*; please discuss this issue with Gravic if you feel you must use a *mature feature*.

Gravic will also continue to support *deprecated features* in the current release. However, Gravic plans to eliminate the deprecated features in a future release and *strongly* recommends that customers begin the planning and implementation to move off the feature *immediately*. Contact Gravic if you need assistance in planning your migration.

Table 1 - Mature Features in HPE Shadowbase for Other Servers, below, lists the features that are currently considered ‘mature’ by Gravic, along with the release/date where they were declared mature. Again, please note that the *mature* designation means the feature will not be enhanced and will eventually be deprecated (retired).

Table 2 - Deprecated Features in HPE Shadowbase for Other Servers, below, lists the deprecated features. The deprecated features are no longer being enhanced, and are on a schedule to be retired. The table also contains a column indicating the date of the last release that will contain the deprecated functionality (the last release before this end date will be the last release to contain this functionality). Please note that release plans are subject to change without notice and delivery dates are not guaranteed. However, Gravic currently expects that all general availability releases up to and including the date of the last release will contain the deprecated feature(s).

Please see [Shadowbase Software Product Release and Support Policies](http://www.shadowbasesoftware.com) on [www.shadowbasesoftware.com](http://www.shadowbasesoftware.com) for additional information regarding the Shadowbase Software Support Policy.

**Table 1 - Mature Features in HPE Shadowbase for Other Servers**

Feature	Description	Mature Release
<b>Oracle Trigger Source</b>	Oracle trigger source collectors (OPCOL) are being replaced by the Oracle log source collector (SBORLOG).	OSB 6.300 May, 2017

**Table 2 - Deprecated Features in HPE Shadowbase for Other Servers**

Feature	Description	Deprecated Release	Last Release Date
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<b>Execute Immediate Objects</b>	<p>The execute immediate (EI) mode of functions is deprecated and the execute immediate objects will be removed in a future release. Customers should take the announcement period to migrate their configurations to the Shadowbase cached objects that replace and supersede the EI functionality. The list of Shadowbase executable programs that use EI functionality are:</p> <ol style="list-style-type: none"> <li>1. sbocons</li> <li>2. sbmspre</li> <li>3. sborapre</li> <li>4. sbsypre</li> <li>5. sbigdir</li> <li>6. sbmswrt</li> <li>7. sborcol</li> <li>8. sbsywrt</li> <li>9. sbigwrt</li> <li>10. sborcol</li> </ol> <p>If you are using any of these executable programs (configured by SBMON), they will be retired on the date listed above.</p>	OSB 6.300 May, 2017	May, 2019
<b>SBDOCR</b>	<p>The functionality in SBDOCR has been replaced by SBFILE. SBDOCR only supports execute immediate DOCs, which are also deprecated.</p> <p>Gravic supplied the source code for SBDOCR to our customers for custom applications. If you are currently using SBDOCR in a custom application, please contact Shadowbase Support for assistance migrating the application.</p>	OSB 6.300 May, 2017	May, 2019
<b>SQL92</b>	<p>The SQL database format SQL92 is deprecated and will be removed in a future update. This option is superseded by SQLSBV1 for DOC Writers and Direct Writers. SQL92 remains a current option for Open Collectors and Transaction Replay Servers in this release, but is expected to be deprecated for those objects as well in a future release.</p>	OSB 6.600 April, 2020	April, 2022
<b>UserExit Eclipse projects</b>	<p>The UserExit Eclipse projects have been deprecated in favor of the Makefiles shipped with the product for every platform but HPE OSS. If you are an existing customer that uses the Eclipse project please contact Support for assistance in migrating to a Makefile based workflow.</p>	OSB 6.300 May, 2017	May, 2019

## Supported Database and Operating System Versions

The database and operating systems versions supported by HPE Shadowbase can be found on the Gravic Shadowbase website. Please see [Supported Databases and Platforms](#) on [www.shadowbasesoftware.com](http://www.shadowbasesoftware.com) for additional information regarding Shadowbase support for databases and operating systems.

## Important Note about Licenses to run Shadowbase

### **WARNING:**

When moving from a version of Shadowbase for Other Servers software earlier than 6.700 to version 6.702, a new license file is required. Note that current license terms are still valid and remain in force. Contact the HPE License Manager ([license.manager@hpe.com](mailto:license.manager@hpe.com)) or your local sales representative to request a new license file. **DO NOT INSTALL** Shadowbase for Other Servers software version 6.702 until a new license file has been obtained if you are upgrading from a version of Shadowbase for Other Servers software earlier than 6.700.



## Special Notes for Version 6.702

1. Version 6.702 is a “general availability” (non-restricted TCF) release. The previous non-restricted TCF release is version 6.700, which corresponds to HPE version AAE for HP-UX and IBM AIX, Oracle Solaris, and Oracle Solaris x86 systems, version AAF for Microsoft Windows Server and Red Hat Enterprise Linux (RHEL) systems, version AAG for SUSE Linux Enterprise Server (SLES) systems, and version AAI for HPE OSS systems.
2. This document describes the changes since Version 6.700. If you are upgrading from a version of Shadowbase for Other Servers prior to that, please first see the version 6.700 software release document, IPM6700\_other\_servers, for a list of the changes in that version.
3. Immediately after installing, sbmon should be opened and the LICENSE command should be run. This will perform some simple verification that the license file is valid for this version of HPE Shadowbase.
4. **For Shadowbase on OSS, a special file called “shadtype” will be provided along with each license file. This file should be placed in the \$SHAD\_BASE/data directory just like the shadpass.ini file. This file’s name should remain “shadtype” (all lowercase, no file extension.) This file is used to validate new NonStop system types that are newer than the Shadowbase release to ensure that the license is validated in order to allow replication to run properly.**
5. As of version 6.600, SAP Sybase ASE databases are supported as a target using ODBC for cached statements only. Execute Immediate (EI) statements for Sybase are no longer supported. If you are using EI for Sybase, you cannot upgrade to version 6.600 or later without converting to using cached statements. Contact Support for consultation if this pertains to you.
6. HPE Shadowbase for Other Servers now obfuscates configuration data (in particular the passwords) for objects when it is stored in the COLLCONFIG data file. Version 6.702 can read the configuration records created by prior releases and will automatically store the information in obfuscated format when the record is saved. Once the information has been obfuscated, the record is no longer usable in prior versions of Shadowbase. If you are upgrading from a version prior to 6.300 and you want to maintain the ability to fall back to a prior release, you must keep a copy of the collconfig.dat and collconfig.idx files for the prior release.

You can, for example, install the release in a new directory and copy the data directory from the old directory to upgrade. This will maintain both the binaries and the configuration files for the old release.

If you do need to recreate an obfuscated configuration with a prior release, you will need to drop and re-add the objects using the prior version of SBMON.

7. For Oracle databases, the SHAD\_SQL\_ERROR\_\* error processing parameters do not apply to database errors that occur while trying to read the table's schema to retrieve column related information. Instead, the SHAD\_OCI\_INCOMPLETE\_SCHEMA specifies the action the Shadowbase process will take if it cannot read the table's schema. If, for example, you specify an error to skip using the SHAD\_SQL\_ERROR\_EXCLUDE parameter, and that error occurs while reading schema, the SHAD\_OCI\_INCOMPLETE\_SCHEMA will take precedence. If SHAD\_OCI\_INCOMPLETE\_SCHEMA is set to SHUTDOWN, the process will stop even though the error is specified to be skipped.
8. The UserExit Eclipse projects have been deprecated in favor of the Makefiles shipped with the product for every platform but HPE OSS. If you are an existing customer that uses the Eclipse project please contact Support for assistance in migrating to a Makefile based workflow.
9. When building User Exits on Linux for x86\_64, only binutils version 2.27 and later and GCC version 5 or later are supported due to an x86\_64 psABI change that effected relocation information.

## **New Features, Problems Corrected, and Other Changes in Version 6.702 (since Version 6.700)**

### ***New Features in Version 6.702***

This section provides a summary of the features added to HPE Shadowbase for Other Servers products since the previous general availability release (V6.700).

1. ODBC target support has been enhanced to be able to connect and replicate to Oracle target databases.

***Problems Corrected in Version 6.702***

This section provides a summary of the problems corrected in HPE Shadowbase for Other Servers products since the previous general availability release (V6.700).

1. The license processing was improved to handle system names longer than 32 characters long. Previously a system name longer than 32 characters would result in a validation failure.
2. A minor typo was corrected in the LICENSE output in sbmon
3. The replication of Sequence Object Generator events from SQL/MP to SQL/MX was previously incompatible with SQL/MX schema versions above 3700. It has now been made compatible with future non-breaking SQL/MX schema versions.
4. There was an issue in 6.700 that caused INF statements being replicated into Oracle target databases on Windows to be malformed. This has been resolved, and INF statements will now work as expected on Windows.

## Known Problems Remaining in Version 6.702

1. There is a one-to-many relationship between the SSQD000.dat file and the series of SSTMNCxxx.dat files within a given cached SQL statement DOC database. If the SSQD000.dat or SSQD000.idx files are deleted or otherwise modified, replication may fail. If the SSQD000.dat file becomes unusable or is accidentally removed, contact support for assistance and resolution to this issue.

**Note:** The above condition causes replication to the target database to fail. However, the target database is not adversely affected; target database corruption does not occur.

2. Audit Log: The Audit Log image column SHAD\_EVENT\_TIMESTAMP reflects the wall clock time in which the Shadowbase NonStop Consumer process replicated the event to the HPE Shadowbase for Other Servers DOC database. This column is meant to reflect the NonStop audit trail event timestamp. That is, this timestamp does not represent the events source database activity time, but rather the time the event was replicated to the Open Server DOC database. This issue will be changed in an upcoming Shadowbase NonStop release, such that the SHAD\_EVENT\_TIMESTAMP column will contain the time the event was recorded in the HPE NonStop system audit trail.
3. DOC Writer and Source Collector restarts the TRS/TFS even if the TRS/TFS was stopped by SBMON. When enabled, the DOC Writer and the Source Collector will monitor and restart TRS/TFS if it stops running. If a TRS/TFS was manually stopped by an SBMON STOP command (normal shutdown), the DOC Writer and or Source Collector will continue to restart the TRS/TFS instead of leaving it in a stopped state.
4. ***The SBMON ROLL command must not be used on actively replicating objects or DOC corruption may result.*** DOC rolls generated internally by the DOCW or collector object are handled correctly. However, there is a risk that a DOC roll triggered by a user issuing the ROLL command may do so while the replication object is in a critical state. If a manual SBMON ROLL command is required, shut down the relevant DOC writing replication object(s) (e.g., OPCOL, DOC Writer) and all database user sessions for source collection objects prior to issuing the ROLL command.
5. Use of Reserved Words as target SQL Table Column Names. In particular, the following reserved words are not supported for HPE Shadowbase for Other Servers target replication:

AND  
WHERE  
VALUES

6. The HPE Shadowbase for Other Servers, Oracle Log Based Source Collector (*sborrow*) has the following limitations:
- a. HPE Shadowbase Log Source for Oracle does not support replication of tables with the following column types:  
  
BLOB  
CLOB  
NCLOB  
BFILE
  - b. Selection criteria for the source collection is limited to including/excluding table names and users. These selections can be combined to select all but a specified set of tables for a user (specify the user and the set of tables to exclude), all tables for all users except for a specified set of users (specify the tables to be included and the user or users to exclude), and a subset users and tables (specifying both the tables and users). However, more complex selections may require multiple SBORLOG processes to be configured. If, for example, Users 1 and 2 both have tables named A and B, and you want to collect data from User 1's table A and User 2's table B, you will need to configure two SBORLOG processes.
  - c. Shadowbase Log Source for Oracle currently only collects DML events (Inserts, Updates, and Deletes).
  - d. HPE Shadowbase Log Source for Oracle does not support collecting tables with table names that are reserved words.
  - e. Detailed collection stats are not supported (shadparm.ini parameter SHAD\_OPCOLLECT\_LOG\_STATS=3). If you specify SHAD\_OPCOLLECT\_LOG\_STATS=3, no statistics will be collected.
7. When configuring triggered-based replication for Microsoft SQL Server on a Windows 2008 R2 or later server, the generated trigger scripts may not be written to the Shadowbase data directory due to permissions problems. SQL Server writes the trigger scripts to the directory. If the SQL Server user does not have the correct permissions, the configuration will fail. The SQL Server user also needs execute access to the bin directory within the installation to collect data.

SQL Server needs Full Access (F), Object Inherit (OI) and Container Inherit (CI) permissions to the Shadowbase data and bin directories. If you set the permissions on the installation directory (%shad\_base%), both directories will inherit the permissions. You can check and set these permissions logged on as an administrator by using *icacls* in the command prompt. To check permissions on the Shadowbase installation directory:

```
CD %shad_base%  
icacls *
```

and look for the SQL Server owner. If needed, grant the correct permissions on the Shadowbase base directory before configuring triggered based replication:

```
CD %shad_base%  
icacls /grant:R <user>:(OI)(CI)F /T
```

8. Under certain transaction profiles when replicating from Other Servers to HPE NonStop Guardian, the Consumer will stop with an EMS message error message (#2017):

```
SBOS-TO-NSK COVERSION BUFFER OVERRUN, SET  
SHAD_REMOTE_MAX_EVENTS BETWEEN 100 TO 400  
IN SHADPARM.INI
```

This typically occurs if there are many empty transactions (transactions with no associated database modifications) sent to the NonStop Consumer. If this occurs, set the SHAD\_REMOTE\_MAX\_EVENTS parameter in SHADPARM.INI to between 100 to 400 events, e.g.:

```
SHAD_REMOTE_MAX_EVENTS=200
```

9. On Windows, when configured to “roll on size”, the DOC will not always roll at the correct size and can exceed the specified roll size significantly. This is related to a file system size reporting issue. Hence, you may need to set the roll size tens of MB’s less than you otherwise would.
10. Due to limitations in configuration record sizes, DNS names cannot be longer than 20 characters. If the DNS name exceeds 20 characters, use the dotted IP address instead.
11. When replicating from the NonStop in a multi-ported DOC environment, the SUSPENDUPD/RESUMEUPD command *cannot be used* if the SHAD\_TRANS\_EXPECTED\_ENDS parameter is set to a value greater than 1. The SHAD\_TRANS\_EXPECTED\_ENDS parameter is not required in configurations where the NonStop Shadowbase is sending to a single multi-ported DOC Writer. If the configuration includes multiple DOC Writers and Direct Writers, SHAD\_TRANS\_EXPECTED\_ENDS is a required parameter.

Only one commit is sent for a SUSPENDUPD command. If SHAD\_TRANS\_EXPECTED\_ENDS is greater than 1, the DOC Writer will leave the SUSPENDUPD command in an uncommitted state, preventing the DOC files from being removed by the DOC cleaner.

12. Due to shell incompatibilities, the configuration scripts for HPE Shadowbase Log Source for Oracle do not work on Solaris 10 and AIX. If you need to configure HPE Shadowbase Log Source for Oracle for Solaris 10 or AIX, please contact Shadowbase Support.
13. If the SQL Server Native Client version 10.0 is installed on Windows 2008, the TRS and Direct Writer will fail as they cannot load the SQL Server client DLLs. This issue is still under investigation. Two work-arounds exist: either install a different version of the SQL Server Native Client, such as version 11.0, or use set up an ODBC DSN (data source name) and use the generic Shadowbase ODBC process.
14. We have seen the Oracle database driver process's memory use grow over time for certain configurations of HPE Shadowbase Log Source for Oracle when using Oracle 11 and 12 databases. This issue seems to be tied to certain Oracle patch levels. If this occurs in your configuration, report the instance to Shadowbase Support; you may need to apply some Oracle patches. Note that there is a workaround using the SHAD\_OPCOLLECT\_RECYCLE\_CONNECTION and the SHAD\_OPCOLLECT\_QUERY\_EXECUTION\_LIMIT parameters. Enabling the SHAD\_OPCOLLECT\_RECYCLE\_CONNECTION will cause the database connection to Oracle to be closed and reopened after SHAD\_OPCOLLECT\_QUERY\_EXECUTION\_LIMIT queries. This also causes the Oracle database driver process to restart, releasing the memory.

Setting SHAD\_OPCOLLECT\_RECYCLE\_CONNECTION will enable the connection recycling. SHAD\_OPCOLLECT\_QUERY\_EXECUTION\_LIMIT defaults to 250 queries before the connection is recycled, you can reduce it (resulting in less memory usage but poorer throughput) or increase it (resulting in better throughput but more memory usage) as your needs dictate.

15. Shadowbase connects to Microsoft SQL Server databases using the default setting for the AutoTranslate ODBC parameter, which is on. If Shadowbase is running on a different server from the SQL Server database and the two servers are using different ANSI code pages, character data stored in char, varchar, and text fields will automatically be converted by the ODBC driver. The ODBC driver performs the conversion by converting the data to UNICODE based upon the Shadowbase server's ANSI code page and then back to character fields from UNICODE using the SQL Server database's code page.

If you want to disable the conversion, you need to setup an ODBC database source connection (DSN) with AutoTranslate configured off and to configure Shadowbase to use the DSN instead of connecting directly.

16. On Solaris servers, you may have to specify the LD\_LIBRARY\_PATH in your environment to have Shadowbase start correctly. If Shadowbase fails to start and logs a message in the error log similar to:

```
2015-05-06 14:41:45 -[14406] Critical Error: Cannot load library
```



```
(libOCIEIDLL.so) - ld.so.1: shadowbase: fatal: libclntsh.so.11.1: open
failed: No such file or directory
```

you will need to set the LD\_LIBRARY\_PATH environmental variable to either \$SHAD\_BASE/lib or \$ORACLE\_HOME/lib.

17. HPE Shadowbase Log Source for Oracle does not detect schema changes to replicated tables and may use an incorrect schema if the table is updated while Shadowbase is running. Added columns may not be picked up, and deleted columns may result in Shadowbase stopping.
18. When DBS Mapping is enabled, the TFS is not sending fully qualified datetime data to the NonStop for UPDATE statements, which can result in conversion errors on the NonStop.
19. Internal testing uncovered a number of limitations on the size of columns, tables, and statements:
  - a. There is a limit to the size of a row in the DOC database which limits the size of statements (for EI Docs), cached statements (for cached DOCS) and statement data (for cached DOCS) to approximately 56K bytes.
  - b. Table names are limited to 80 characters.
  - c. Column names are limited to 74 characters.
20. There is an issue configuring HPE Shadowbase Log Source for Oracle collection using the shadconfig configuration script if you enter an incorrect username/name/Oracle SID combination when specifying the connection information using Option 1. If you do not exit the script but instead correct the connection information, subsequent entries made to the SHAD\_USERS\_INCLUDE, SHAD\_TABLES\_INCLUDE, SHAD\_USERS\_EXCLUDE, and SHAD\_TABLES\_EXCLUDE table entries will include a trailing space for the name, which will cause the data selection criteria to be incorrect.

If you suspect that the criteria may be incorrect, you can issue the following select command against the appropriate table:

```
SELECT * FROM SHAD_TABLES_INCLUDE
WHERE TABLE_NAME LIKE '% \';
```

```
SELECT * FROM SHAD_TABLES_EXCLUDE
WHERE TABLE_NAME LIKE '% \';
```

```
SELECT * FROM SHAD_USERS_INCLUDE
WHERE USERNAME LIKE '% ';
```

```
SELECT * FROM SHAD_USERS_EXCLUDE
WHERE USERNAME LIKE '% ';
```

The select should return no rows. You can correct the issue using the following update command against the appropriate table:

```
UPDATE SHAD_TABLES_INCLUDE
SET TABLE_NAME=RTRIM(TABLE_NAME)
WHERE TABLE_NAME LIKE '% ';
```

```
UPDATE SHAD_TABLES_EXCLUDE
SET TABLE_NAME=RTRIM(TABLE_NAME)
WHERE TABLE_NAME LIKE '% ';
```

```
UPDATE SHAD_USERS_INCLUDE
SET USERNAME=RTRIM(USERNAME)
WHERE USERNAME LIKE '% ';
```

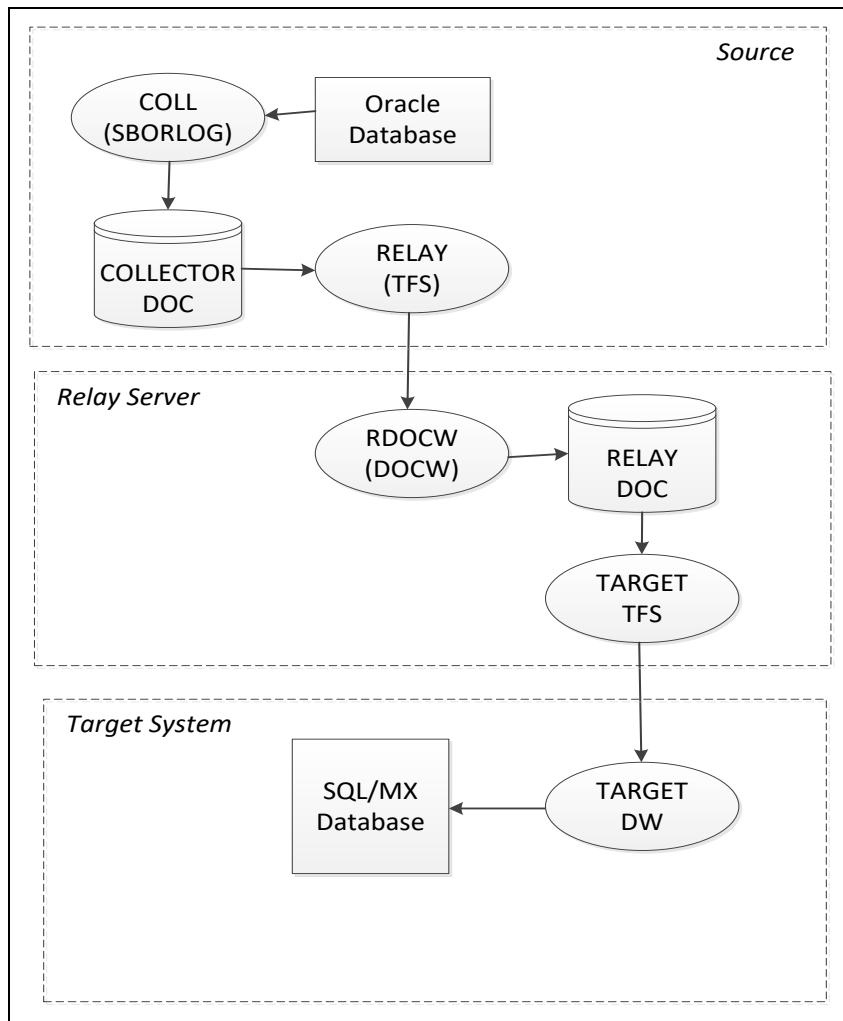
```
UPDATE SHAD_USERS_EXCLUDE
SET USERNAME=RTRIM(USERNAME)
WHERE USERNAME LIKE '% ';
```

## 21. HPE Shadowbase Log Source for Oracle may incorrectly stop with the following messages:

```
*** Potential Data Loss Detected
*** SQL_REDO for last event processed in previous query does not match
current query
*** SCN [<scn>]
*** RBASQN [<rbasqn>]
*** RBABLK [<rbablk>]
*** RBABYTE [<byte>]
*** SSN [<ssn>]
*** Previous SQL_REDO[<sql statement>]
*** Current SQL_REDO[<sql statement>]
*** SHAD_OPCOLLECT_RESET_SCN is DISABLED, stopping
*** Enable SHAD_OPCOLLECT_RESET_SCN to continue processing prior to restart
Performing shutdown
```

This can occur if your text columns have binary 0 (ASCII NUL) characters in them. To continue past this error, set the SHAD\_OPCOLLECT\_RESET\_SCN=1 parameter in the SHADPARM.ini file.

## 22. Special considerations are required when using a TFS as a relay server. The figure below shows a sample configuration where a TFS is used as relay server. Events are replicated from the source Oracle database into a DOC using the log source collector. They are read from the DOC and send to a second DOC via the relay TFS and DOCW. Finally, they were read from the relay DOC and applied in SQL/MX using another TFS and a Direct Writer.



**Figure 1 - Sample Relay Server Configuration**

In a configuration such as this one, the relay TFS restarts must be coordinated with the collector restarts. Whenever the collector is restarted, the relay TFS should also be restarted to prevent duplicate data from being replayed.

23. There remains an issue with target replication into SAP HANA columns with the BOOLEAN data type. SAP HANA itself can accept literal string “TRUE” and “FALSE” values which it converts and stores as TINYINT, however HPE Shadowbase target replication currently only supports replicating numeric values into HANA BOOLEAN columns.
24. The new format DOC, which eliminates the TRANS DOC, is not compatible with Pulse processing. If you are planning on using Pulse processing, continue to use the old format DOC with trans processing enabled.
25. When replicating to MySQL, the ODBC library looks in /tmp by default for mysql.sock. Set the socket attribute in the odbc.ini section to the desired location, such as in the example below:

```
[myodbc64]
Description      = ODBC for MySQL
Driver           = /usr/lib64/libmyodbc5.so
Setup            = /usr/lib64/libodbcmyS.so
FileUsage        = 1
socket           = /var/lib/mysql/mysql.sock
```

Alternatively, make sure that the mysql.sock file is either located in, or is symlinked to /tmp/mysql.sock. Due to limitations of UnixODBC, the ODBC library that HPE Shadowbase uses to interface with ODBC databases on linux systems, the socket file must reside in the /tmp directory. You can find out the current location of the mysql.sock file by running `mysqladmin -p -u <user-name> variables` and finding the output under the 'socket' column. The socket file can then be symlinked to the /tmp directory with some version of the command `ln -s /var/lib/mysql/mysql.sock /tmp/mysql.sock`. The symlink may have to be recreated every time the system is rebooted or whenever the system cleans out the /tmp directory.

26. There is an issue in Shadowbase Doc Writer and Direct Writer support for SAP ASE target, also known as Sybase, such that users should discontinue use of SQL92 as the source SQL type and instead switch to SQLSBV1.
27. There is an issue with the Shadowbase Transaction Replay Server where a single TRS can only apply to a single database if the target database is MySQL. If you need to replicate into multiple MySQL databases you will need multiple TRS objects.
28. We have reports of a potential CTREE UpdateTrans error 101 occurring in a DOC Writer which causes a disconnection with the upstream consumer. In this situation, the Consumer and DOC Writer may continue to connect and disconnect. In this case, the workaround is to stop and restart the DOC Writer to get replication to continue as usual.
29. There is an issue on Windows 2016 where a TRS stopping can have Critical Errors that may cause problems upon the TRS restarting. This is caused by an issue between Shadowbase and Windows Services. The workaround for this is to set the Windows Service handling the TRS to restart itself after an error which will bring the TRS back up even if there were critical errors
30. There is an issue relating to the maximum statement cache depth of OSB Log Source objects where each Log Source Collector is limited to 1000 unique statements. A workaround to collect more than 1000 statements is to configure multiple Log Source collectors to keep each one under 1000 statements.
31. There are certain cases where when running a TRS or other HPE Shadowbase object from a service on Microsoft Windows Server 2019 or 2022, the errlog will be empty, however the object will be running fine. This problem is intermittent and nondeterministic. Restarting the object will correct the problem and cause the errlog to be recorded as expected.

32. There is an issue when running from an OPLOG to a TRS on the same system with high cache invalidation. This causes the TRS to abend once it has processed around 32 thousand transactions. The workarounds for this are to set SHAD\_MAX\_CURSORS to a higher value that prevents the need to remove and re-add cached statements (i.e. enough to hold all of the statements used by the TRS in cache), or to go from a source into a DOC then from the DOC to a TRS.
33. There is an issue attempting to configure a DB2 source collector on a Windows system to connect to an MQ Queue Manager on a remote server. This issue prevents the collector from establishing a connection to the Queue Manager. The workaround is to configure the DB2 source collector locally on the server where the MQ Queue Manager is configured.
34. Replication to DB2 columns with data types of BINARY, VARBINARY, and BLOB is not currently supported.
35. There is a constraint for Microsoft SQL Server tables called IGNORE\_DUP\_KEY that causes the database to suppress duplicate primary key errors. Avoid setting this constraint to `ON` for target replication to SQL Server as it can cause target replication objects to fail without a descriptive error message.
36. There is an issue with updates when replicating Oracle data of type LONG RAW. Inserts using that data work correctly but updating any data will result in any columns of LONG RAW type in that row to be cleared.
37. There remains an issue with the replication of MySQL columns with the type of BLOB. It is recommended that the target column type be changed to TEXT or another supported target character data type.
38. There is an issue with the replication of PostgreSQL columns with the type of BYTEA. It is recommended that an alternative target column type be chosen instead.
39. Pulse events do not currently function using DOC Blocking Level 2 due to a fault when inserting the event which causes the Pulse to be ignored. The workaround for this is to use DOC Blocking Level 1 or no DOC Blocking when Pulse events are required.
40. The Microsoft SQL Server 'SQL\_VARIANT' data type has limited support and has not been fully tested.
41. There is an issue with the Visual Studio project files that are intended to be used for building custom user exits on Windows. They will load in Visual Studio properly but for building the dll files you will need to run nmake using the CustomUE-MakeFile.mak file from an Administrator Command Prompt. Using Visual Studio to

build will create the files but result in an error at runtime stating that the entry point for USRXDLLINIT is missing.

## Installation Instructions

To install Shadowbase, new steps have been added at the beginning to ensure that users acknowledge the license format change since the previous version. To start the installation, use the following instructions:

1. Copy the .zip file containing the software release onto the server where Shadowbase will be installed. If using FTP to move the files onto the server, be sure to use “binary” mode.
2. Unzip the .zip file on the server.
  - a. Alternatively, unzip the .zip file on a PC first, then binary FTP all the contents to the server where Shadowbase will be installed.
3. Run the ``run_first`` script on the Shadowbase server.
  - a. On Linux/Unix/OSS, run `` . run_first`` from a command prompt.
  - b. On Windows, run ``run_first.bat`` from a command prompt.
4. The script will prompt for an acknowledgement of the license format change in this version. Say ``Y`` to the prompt to continue. If anything other than ``Y`` is entered, the `run_first` script will need to be run again.

After the license format change has been acknowledged, the installation can proceed using the normal instructions. To complete the installation and configuration of Shadowbase please see the HPE Shadowbase Other Servers Target Installation and Configuration Manual (for replication target installations) and the HPE Shadowbase Other Servers Source Installation and Configuration Manual (for replication source installations).

\*\*\*\*\* End of Document \*\*\*\*\*