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NOTE: This softdoc covers new features and corrected problems for HP Shadowbase for Other Servers, Version 6.100. It is available as an Adobe PDF file (.PDF). Copies of the PDF file reader can be freely downloaded from www.adobe.com

NOTE: Softdoc files are named IPMnnnnx_Other_Servers (where nnnnx is the HP Shadowbase for Other Servers version number).

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    - Microsoft SQL Server database target replication (2000 through 2012).
    - Microsoft SQL Sever database source replication (2000 through 2012).
    - Sybase 12.5.x database target replication for the following platforms.
        - Windows
        - Solaris 10
        - Solaris 10 x86/64
    - Sybase 15.0.x database target replication for the following platforms.
        - Windows
        - Solaris 10
        - Solaris 10 x86/64
    - Oracle database target replication for the following versions and platforms.
        - Windows: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - Solaris 10: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - Solaris 10 x86/x64: (10gR2, 11gR2)
        - AIX5.3: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - HP-UX (Itanium2): (9iR2, 10g, 10gR2, 11g, 11gR2)
          Special Note: Support for Oracle 11gR2 on HP-UX (Itanium2) requires patch *PHCO_40381* be installed.
        - Red Hat Enterprise Linux 5 (10g, 10gR2, 11g, 11gR2)
        - SUSE Linux Enterprise Server 10 (10g, 10gR2, 11g, 11gR2)
    - Oracle database source replication for the following versions and platforms.
        - Windows: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - Solaris 10: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - Solaris 10 x86/x64: (10gR2, 11gR2)
        - AIX5.3: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - HP-UX (Itanium2): (9iR2, 10g, 10gR2, 11g, 11gR2)
          Special Note: Support for Oracle 11gR2 on HP-UX (Itanium2) requires patch *PHCO_40381* be installed.
        - Red Hat Enterprise Linux 5 (10g, 10gR2, 11g, 11gR2)
        - SUSE Linux Enterprise Server 10 (10g, 10gR2, 11g, 11gR2)
    - IBM DB2 Universal Database for Linux, UNIX, and Windows target replication.
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        - Red Hat Enterprise Linux 5 (8.2 FixPak 2 or greater)
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        - Windows
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        - Windows
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        - HP-UX (Itanium2)
        - AIX 5.3
        - Red Hat Enterprise Linux 5
        - SUSE Linux Enterprise Server 10
    - Teradata Database target replication
        - Windows
        - Solaris 10
        - Solaris 10 x86/x64
        - HP-UX (Itanium2)
        - AIX 5.3
        - Red Hat Enterprise Linux 5
        - SUSE Linux Enterprise Server 10

- HP Shadowbase for Other Servers version 6.100 is now available in 64-bit executable form and is limited to the following 64-bit environments.

    - Microsoft SQL Server database target replication (2005 through 2012).
        - Windows (Vista, 7, 2008, 2008 R2)
    - Oracle database target replication for the following versions and platforms.
        - Solaris 10 sparc: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - Solaris 10 x86/x64: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - AIX5.3: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - HP-UX (Itanium2): (9iR2, 10g, 10gR2, 11g, 11gR2)
          Special Note: Support for Oracle 11gR2 on HP-UX (Itanium2) requires patch *PHCO_40381* be installed.
        - Red Hat Enterprise Linux 5 (10g, 10gR2, 11g, 11gR2)
        - SUSE Linux Enterprise Server 10 (10g, 10gR2, 11g, 11gR2)
    - Oracle database source replication for the following versions and platforms.
        - Solaris 10 sparc: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - Solaris 10 x86/x64: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - AIX5.3: (9iR2, 10g, 10gR2, 11g, 11gR2)
        - HP-UX (Itanium2): (9iR2, 10g, 10gR2, 11g, 11gR2)
          Special Note: Support for Oracle 11gR2 on HP-UX (Itanium2) requires patch *PHCO_40381* be installed.
        - Red Hat Enterprise Linux 5 (10g, 10gR2, 11g, 11gR2)
        - SUSE Linux Enterprise Server 10 (10g, 10gR2, 11g, 11gR2)
    - Sybase 12.5.x database target replication for the following platforms.
        - Solaris 10
        - Solaris 10 x86/64
    - Sybase 15.0.x database target replication for the following platforms.

    - Solaris 10
    - Solaris 10 x86/64
  - IBM DB2 UDB database target replication for the following versions and platforms.
    - AIX 5.3
    - Windows
    - Red Hat Enterprise Linux 5
  - MySQL target replication
    - Windows
    - Solaris 10
    - Solaris 10 x86/x64
    - HP-UX (Itanium2)
    - AIX 5.3
    - Red Hat Enterprise Linux 5
    - SUSE Linux Enterprise Server 10
  - Teradata Database target
    - Windows
    - Solaris 10
    - Solaris 10 x86/x64
    - HP-UX (Itanium2)
    - AIX 5.3
    - Red Hat Enterprise Linux 5
    - SUSE Linux Enterprise Server 10

> **Note**: If you require a version of HP Shadowbase for Other Servers for an environment not listed above, inquire with your HP NonStop Sales and Support team. Additional platforms and databases not on the HP price book are typically available on a custom Statement of Work (SOW) basis.

- Due to licensing changes, existing installations will require a new password file prior to upgrading.

New Features (since version 6.000A) in version 6.100

HP Shadowbase for Other Servers, version 6.100 contains the following new/enhanced features and functionality.

- HP Shadowbase for Other Servers Licensing
- HP Shadowbase for Other Servers Version Identification

HP Shadowbase for Other Servers Licensing

HP Shadowbase for Other Servers has adopted an enhanced licensing scheme. Licenses (shadpass.ini) are now checked for Operating System/Platform, RDBMS, and for allowed feature and functionality. Specific licensing of the HP Shadowbase for Other Servers product is now required.

With the release of HP Shadowbase for Other Servers v6100, the following features/attributes are now part of the licensing verification and validation process.

- Operating System/Platform
- RDBMS
- Production or Non-Production System
- Bi-Directional Replication
- Shadowbase Audit Log Replication
- Source Collection Replication
- Target Replication
- Number of cpu's and number of cores (or "logical cpu's assigned" for virtual machine environments)

The following table expresses the distinct HP Shadowbase for Other Servers licensable features/attributes.

License Feature/Attribute	Description
OPEN_SOURCE	Support for operating Source Collection replication objects
OPEN_TARGET	Support for operating Target replication objects
SEM_LISTENER	Support for operating a Listener object in support of operating Shadowbase Enterprise Manager
BIDIR	Support for operating Shadowbase in a Bi-Directional fashion
OPEN_SAL	Support for operating Shadowbase replication objects with the Audit Log feature enabled
PROD_SYSTEM	Support for operating Shadowbase replication objects passed the license expiration date
DB_SYBASE	Support for operating Shadowbase replication objects against a Sybase RDBMS
DB_SQLSERVER	Support for operating Shadowbase replication objects against a Microsoft SQL Server RDBMS
DB_ORACLE	Support for operating Shadowbase replication objects against a Oracle RDBMS
DB_MYSQL	Support for operating Shadowbase replication objects against a MySQL RDBMS

DB_SQLMX	Support for operating Shadowbase replication objects against a HP NonStop SQL/MX RDBMS
DB_OTHER	Support for operating Shadowbase replication objects against a RDBMS not explicitly supported by Shadowbase, but is accessible via ODBC
OS_AIX	Support for operating Shadowbase replication objects within an AIX operating system environment
OS_RHEL	Support for operating Shadowbase replication objects within an Red Hat Enterprise Linux operating system environment
OS_SUSE	Support for operating Shadowbase replication objects within an Suse Linux Enterprise Server operating system environment
OS_SOLARIS	Support for operating Shadowbase replication objects within an Oracle Solaris operating system environment operating on a sparc platform
OS_SOLARISX86	Support for operating Shadowbase replication objects within an Oracle Solaris operating system environment operating on a Intel or AMD platform
OS_OSS	Support for operating Shadowbase replication objects within an HP NonStop Open System Services operating system environment operating on a HP NonStop Integrity platform
OS_HPUX	Support for operating Shadowbase replication objects within an HP-UX 11i operating system environment
OS_WINDOWS	Support for operating Shadowbase replication objects within an Windows operating system environment

Figure 1 – HP Shadowbase for Other Servers License Feature Tokens

The following table shows HP Shadowbase for Other Servers replication objects and their required licensing features/ attributes for proper operation.

Replication Object	Configured Use	Required License Attribute(s)
DOC Writer	STP replication feed	OPEN_TARGET 'OS' attribute corresponding to operating system environment of execution.
DOC Writer	STP replication feed with support for Audit Log replay	OPEN_TARGET OPEN_SAL 'OS' attribute corresponding to operating system environment of execution.
Direct Writer	STP replication feed	OPEN_TARGET 'OS' attribute corresponding to operating system environment of execution. 'DB' attribute corresponding to targeted RDBMS.
Transaction Replay Server (TRS)	Targeted RDBMS	OPEN_TARGET 'OS' attribute corresponding to operating system environment of execution. 'DB' attribute corresponding to targeted RDBMS.
Transaction Replay Server (TRS)	Targeted RDBMS Configured for Audit Log replay	OPEN_TARGET OPEN_SAL 'OS' attribute corresponding to operating system environment of execution.

		'DB' attribute corresponding to targeted RDBMS.
Transaction Replay Server (TRS)	Targeted RDBMS Configured for Bi-Directional replication support	OPEN_TARGET BIDIR 'OS' attribute corresponding to operating system environment of execution. 'DB' attribute corresponding to targeted RDBMS.
Transaction Replay Server (TRS)	Targeted RDBMS Configured for Consumptive Processing	OPEN_TARGET 'OS' attribute corresponding to operating system environment of execution.
Transaction Forward Server (TFS)	Forwarding to NonStop	OPEN_TARGET 'OS' attribute corresponding to operating system environment of execution.
Transaction Forward Server (TFS)	Forwarding to NonStop configured for Bi-Directional support	OPEN_TARGET BIDIR 'OS' attribute corresponding to operating system environment of execution.
Transaction Forward Server (TFS)	Forwarding via STP	OPEN_TARGET 'OS' attribute corresponding to operating system environment of execution.
Transaction Forward Server (TFS)	Forwarding via STP with Bi-Directional support	OPEN_TARGET BIDIR 'OS' attribute corresponding to operating system environment of execution.
Transaction Forward Server (TFS)	Configured for Consumptive Processing	OPEN_TARGET 'OS' attribute corresponding to operating system environment of execution.
Source Collector	Targeted RDBMS Change Data Collection	OPEN_SOURCE 'OS' attribute corresponding to operating system environment of execution. 'DB' attribute corresponding to targeted RDBMS.
Source Collector	Targeted RDBMS Change Data Collection Configured for Bi-Directional support	OPEN_SOURCE BIDIR 'OS' attribute corresponding to operating system environment of execution. 'DB' attribute corresponding to targeted RDBMS.
Listener	All configurations	OPEN_TARGET SEM_LISTENER 'OS' attribute corresponding to operating system environment of execution.
DOC Cleaner	All configurations	OPEN_TARGET 'OS' attribute corresponding to

		operating system environment of execution.

Figure 2 – HP Shadowbase for Other Servers Licensing Requirements

HP Shadowbase for Other Servers License Compatibility

HP Shadowbase for Other Servers v6100 is not compatible with licenses issued with prior releases. A version 6.100 compatible shadpass.ini file must be used with HP Shadowbase for Other Servers release v6100.

HP Shadowbase for Other Servers v6100 for HP NonStop Open System Services now supports Node and System Serial Number licensing. The shadparm.ini parameter SHAD_SYSTEM_NAME no longer applies to HP NonStop Open System Services (OSS) releases (meaning Shadowbase for use with HP NonStop sql/mx). A shadpass.ini file, to be used with an HP NonStop Open System Services release of HP Shadowbase for Other Servers v6100, must be generated for the specific System Serial Number of the HP NonStop system on which it will be operated. All other licensing feature/attribute requirements still apply.

HP Shadowbase for Other Servers Version Identification

HP Shadowbase for Other Servers v6100 now has the ability to report its version without having to execute a configured replication object. The *Shadowbase* binary executable file can be run from the command run with –v, -V, or –version to display version information.. The version information will display the following information:

T- number	A HP product identifier
Release Version	The product version
Binary Architecture	The binary architecture of product (32-bit or 64-bit)
Release Date	The product release date (DDMONYY)
Operating System	The targeted operating system of the release

The form of the version identification string is the following. Please provide this information when submitting support calls.

```
Shadowbase Server Version <T-Number> - <Release Version>(<Binary
Architecture) - (Release Date) - (<Operating System>)
```

Figure 3 - Version Identification String Format

The following are examples of the use of the version command line option and version identification string produced.

```
> shadowbase --version
```

```
Shadowbase Server Version T1123 - V6100(32) - (11JUL14) - (HP NonStop
OSS)
```

```
C:\SHAD_BASE\bin>shadowbase -v
Shadowbase Server Version T1129 - V6100(32) - (15JUL14) - (WIN32)
```

```
$ shadowbase -v
Shadowbase Server Version T1128 - V6100(64) - (27JUN14) - (SPARC)
```

```
[bin]$ shadowbase -V
Shadowbase Server Version T1125,T1126 - V6100(64) - (11JUL14) - (LINUX)
```

Figure 4 - Example Version Identification Strings

New/Modified shadparm.ini Parameters

None.

Problems Corrected (since version 6.000A) in version 6.100

1. When using INF processing mode with a Cache TRS a C++ Exception may be thrown. When occurring, the effected replication object halts replication. This exception manifests with errlog logged messaging similar to the following.

   2014-07-29 08:48:10 -[2112] Critical Error: Exception caught
   2014-07-29 08:48:10 -[2112] Critical Error: invalid vector<T> subscript

   This issue has been corrected.

2. The HP Shadowbase for Other Servers Log Server (DOC) feature failed when the SQL statement or error message exceeded the maximum size of the target's varchar field. This issue can prevent the successful application of the Log Server (DOC) data to the target DBMS table.

   In order to prevent this type of issue from arising, the TRS and TFS HP Shadowbase for Other Servers v6100 replication objects now truncate long strings, limiting their length to 2,000 bytes.

Known Problems Remaining in version 6.100

1.) The cached SQL statement TRS will halt replication under the following condition.

- The SSQLD000.dat/.idx files are deleted and recreated with SSTMNCxxx.dat/.idx data file(s) remaining from a previous replication session.

  There is a one-to-many relationship between the SSQLD000.dat file and the series of SSTMNCxxx.dat files within a given cached SQL statement DOC database. If the SSQLD000.dat file becomes unusable, or is accidentally removed, contact Shadowbase support for assistance and resolution to this issue.

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

2.) Audit Log; SHAD_EVENT_TIMESTAMP column contents.

- 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 HP 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 corrected in an upcoming Shadowbase NonStop release, such that the SHAD_EVENT_TIMESTAMP column will contain the time the event was recorded in the HP NonStop system audit trail.

3.) DOC Writer and Source Collector restarts of TRS/TFS ignore if the TRS/TFS was stopped by SBMON

- When enabled, the DOC Writer and Source Collector will monitor and restart TRS/TFS when a non-running condition has been detected. If a TRS/TFS was manually stopped by an SBMON STOP command (normal shutdown), the DOC Writer and or Source Collector will continue to perform restarts of the TRS/TFS. This will be addressed in an upcoming release.

4.) Restricted SBMON ROLL command usage.

- The SBMON ROLL command must not be used on actively replicating objects or DOC corruption may result. A DOC roll is properly handled when internally triggered by the replication object itself. However, there is a risk, which will be mitigated in the future, 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 use of the SBMON ROLL command is deemed necessary, 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. Contact Shadowbase support for more information.

5.) Data Loss Potential when system clock not *drifted* (i.e., when a "hard reset" of the system clock is done whereby the time is moved backwards (earlier) in time). System clock changes whereby the clock is drifted will not suffer the following potential data loss issue (hence, always drift your system clock).

- The potential exists for data loss when the following conditions occur sub-second.

  Oracle Source Collection:
  - A negative system clock adjustment is performed; and
  - Within *less than the clock adjustment period*: 1) a 32-bit Oracle source collector restart happens due to a shutdown to return resources, or 2) a 64-bit Oracle source collector restart due to a processing or system fault, or 3) with either 32 or 64-bit executable, the negative time adjustment is done precisely before a DOC roll occurs; and
  - The source collection DOC data is being forwarded to another DOC database via the Shadowbase Transaction Forwarding Server (TFS) and the TFS is caught up.

  NonStop to DOC Writer:
  - Negative NonStop system clock adjustment is performed; and
  - A NonStop Shadowbase process restart in less than the clock adjustment period due to a processing or system fault; and
  - The DOC database is being forwarded to another DOC database via the Shadowbase Transaction Forwarding Server (TFS).

  The above conditions must all be true for the potential of data loss to exist. *No data loss will occur if this clock is drifted, only if it is hard reset backwards to a specific time or by a specific amount*.

  NOTE: To avoid these situations, drift your clocks to arrive at the correct time instead of forcing them to specific times in the past.

  For example, use the following commands:

  A. UNIX: *ntpdate* with "*–B*" option. Network Time Protocol with "-B" option always drifts the clock, rather than using *settimeofday* when the system time is >128ms out of sync. Also, set your crontab job to frequently call *ntpdate*, say once per hour, to reduce the odds of a large correction being needed.

  B. WINDOWS: Set the Windows Time Service "MaxAllowedPhaseOffset" to a large value to guard against immediate clock resets. Use the following link for more specific information on the Windows Time Service.

  http://www.microsoft.com/technet/prodtechnol/windowsserver2003/technologies/security/ws03mngd/26_s3wts.mspx

6.) Use of Reserved Words as target SQL Table Column Names. In particular, the following Reserved Words are not supported for HP Shadowbase for Other Servers target replication.

- AND
- WHERE
- VALUES

New User Error Messages (since version 6.000A) in version 6.100:

Checking shadpass.ini license for system [<name>]

Cause: (informational)

Effect: None.

Recovery: None

YYYY-MM-DD hh:mm:ss --[] Password feature licensing for [<system name>] will expire within 7 days on YYYY-MM-DD

Cause: License validation detected pending license expiration.

Effect: None (Informational)

Recovery: None at the time message was generated. However, a new license file (shadpass.ini) will be required. Contact Shadowbase Support.

LICENSE for [<system name>]: <feature token>…<feature token>, expiration YYYY-MM-DD

Cause: Message generated by SBMON LICENSE command.

Effect: The expression provides the specifically licensed feature(s) enabled by the license file (shadpass.ini)

Recovery: None. (Informational)

Original Password feature licensing for [<system name>] EXPIRED YYYY-MM-DD, operating within EXTENDED two week period

Cause: License validation detected an expired license.

Effect: Due to the 'extend two weeks' license type, Shadowbase will continue to function over the two week period starting from the date expressed.

Recovery: None at the time message was generated. However, a new license file (shadpass.ini) will be required. Contact Shadowbase Support.

Original Password feature licensing for [<system name>] EXPIRED YYYY-MM-DD, operating because PRODUCTION_SYSTEM

Cause: License validation detected an expired license.

Effect: Due to the 'extend two weeks' license type, Shadowbase will continue to function over the two week period starting from the date expressed.

Recovery: None at the time message was generated. However, a new license file (shadpass.ini) will be required. Contact Shadowbase Support.

License fault [-5]; Invalid System Name; License is not valid for this system

Cause: License validation detected an invalid and or incompatible license.

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) will be required. Contact Shadowbase Support.

License fault [-4]; File Open Failure; [<qualified path>shadpass.ini] not found

Cause: License validation was unable to find/open the license file.

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) or the relocation of a valid license file (shadpass.ini) will be required.

License fault [-3]; Feature [<feature token>] Not Licensed, but is required

Cause: License validation failed for <feature token>.

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) will be required. Contact Shadowbase Support.

License fault [-2]; License is Expired

Cause: The license has expired

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) will be required. Contact Shadowbase Support.

License fault [-1]; Failure, performing Feature [<feature token>] validation

Cause: An internal error has occurred while performing license validation

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) may be required. Contact Shadowbase Support.

License fault [1]; Critical, performing Feature [<feature token>] validation

Cause: An internal error has occurred while performing license validation

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) may be required. Contact Shadowbase Support.

License fault [n]; Unknown Error, performing Feature [<feature token>] validation

Cause: An internal error has occurred while performing license validation

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) may be required. Report this issue to Shadowbase Support.

The following Messages will only be generated by an HP NonStop Open System Services version of HP Shadowbase for Other Servers.

Checking shadpass.ini license for Node [<node name>], Serial Number [<system serial number>]

Cause: (informational)

Effect: None.

Recovery: None

YYYY-MM-DD hh:mm:ss --[] Password feature licensing for [<system serial number>] will expire within 7 days on YYYY-MM-DD

Cause: License validation detected pending license expiration.

Effect: None (Informational)

Recovery: None at the time message was generated. However, a new license file (shadpass.ini) will be required. Contact Shadowbase Support.

LICENSE for [<system serial number>]: <feature token>…<feature token>, expiration YYYY-MM-DD

Cause: Message generated by SBMON LICENSE command.

Effect: The expression provides the specifically licensed feature(s) enabled by the license file (shadpass.ini)

Recovery: None. (Informational)

Original Password feature licensing for [<system serial number>] EXPIRED YYYY-MM-DD, operating within EXTENDED two week period

Cause: License validation detected an expired license.

Effect: Due to the 'extend two weeks' license type, Shadowbase will continue to function over the two week period starting from the date expressed.

Recovery: None at the time message was generated. However, a new license file (shadpass.ini) will be required. Contact Shadowbase Support.

Original Password feature licensing for [<system serial number>] EXPIRED YYYY-MM-DD, operating because PRODUCTION_SYSTEM

Cause: License validation detected an expired license.

Effect: Due to the 'extend two weeks' license type, Shadowbase will continue to function over the two week period starting from the date expressed.

Recovery: None at the time message was generated. However, a new license file (shadpass.ini) will be required. Contact Shadowbase Support.

License fault [6]; License Update Required, performing Feature [<feature token>] validation

Cause: A prior release license file (shadpass.ini) is being used for license validation

Effect: HP Shadowbase for Other Servers replication object experiencing the error will not operate.

Recovery: A new license file (shadpass.ini) will be required. Contact Shadowbase Support.

Installation Instructions (optional "other" servers)

Please follow the installation instructions included in the README.<platform>.<version>.TXT file that accompanies this release.

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