SOFTWARE RELEASE DOCUMENT (SOFTDOC)

Product:	HPE Shadowbase Compare for SQL
Release:	Gravic Version: 6.821 HPE NonStop Shadowbase: T1122L70^ABJ (SB Repl/Guardian)
Release Date:	August 26, 2025
Copyright Notice:	Copyright Gravic, Inc. 1995 – 2025 (www.gravic.com)
File Name:	IPM6821-SQL COMPARE.pdf

VERY IMPORTANT: Due to licensing changes in Version 6.700, existing Shadowbase installations running versions prior to (earlier than) 6.700 will require a new license file in order to install and run Version 6.821. This is true for any Shadowbase upgrade when the prior release is before Version 6.700 and the new release you plan to install is version 6.700 or after (more recent).

Contact the HPE License Manager to request a new license file <license.manager@hpe.com>. DO NOT INSTALL Shadowbase Version 6.700 (or later) software when upgrading from a version prior to Version 6.700 until a new license file has been received.

NOTE: This release contains updated software for HPE Shadowbase Compare for SQL for the HPE Integrity Nonstop X, Virtualized NonStop, and HPE Integrity NonStop I Servers.

NOTE: If this is a TCD delivery, please see NOTE FOR TCDS for TCD delivery information.

NOTE: This softdoc applies to the HPE Shadowbase Compare for SQL component, which is used to compare SQL/MP and SQL/MX databases. Other softdocs document the releases of the other components in T1122L70^ABJ, including:

- HPE Shadowbase Audit Reader,
- HPE NonStop Shadowbase Guardian replication, and

- HPE NonStop Shadowbase OSS replication (see T1123).

You are advised to reference those other softdocs for the changes related to those specific components of T1122L70^ABJ.

NOTE: This softdoc covers new features and corrected problems for Shadowbase Compare for HPE Integrity NonStop I servers (J06 Guardian NonStop) and HPE Integrity NonStop X/Virtualized NonStop servers (L06 Guardian NonStop).

This softdoc is available in an Adobe PDF file (.PDF). Softdoc files for SQL Compare are named IPMnnnn-SQL COMPARE.pdf (where nnnn is the Shadowbase version number).

NOTE: HPE Shadowbase Compare for SQL internally uses the nomenclature "CS-SQL-COMPARE" to reflect its original development roots. Hence, you may notice that some examples show commentary reflecting that name.

Table of Contents

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.

Special Notes for Version 6.821

1) As of Version 6.700, customers are required to update their license / SHADPASS files when upgrading from a version before 6.700 to version 6.700 or later. Shadowbase will not start if an old SHADPASS license file is used. Contact your HPE Shadowbase account representative for a renewed license.

2) The SQL Compare for MX component must be installed in a different subvolume from the SQL Compare for MX Remote Agent to avoid SQL compilation conflicts.

Changes in Release 6.821

This section summarizes the new features and problems fixed since the last General Availability release, version 6.820.

New Features

1) For SQL Compare jobs that include repair commands to make one table match the other, new settings have been added to control parallelism and transaction size when these repair operations are performed. Three new settings have been added to control this behavior:

   SET REPAIR-CONCURRENCY <number>

   Sets the maximum number of repair groups processed concurrently by different database server processes. The minimum number is 1, the maximum is 16. The default is the number of currently allowed CPUs for database servers.

   SET REPAIR-TX-SIZE <number>

   Sets the maximum number of modifying operations handled within a single transaction. If the product is configured to repair tables using ON conditions, multiple modifying operations may be packed within a "group" to improve performance. This parameter defines the maximum size for such group. The default value is 100, the maximum value is 200.

   SET REPAIR-TX-TIMEOUT <number>

   Sets the maximum time the product waits before a group of repair operations is committed. This has an impact if differences are rare in some areas of the tables. In this scenario, a few differences to be repaired may be detected and a transaction is begun internally. But if a very large number of records without differences follow, the transaction may not hit its REPAIR-TX-SIZE limit to commit the group of changes. In this case, the timer controlled by this command can decide that the group can be applied even if it is not full yet.

   The unit for this value is 1/100 seconds. The default value is 100 (1 second).

2) A new DEFAULT command was added to allow users to specify a default SQL/MX catalog or schema for either the source or target environment. This feature may be necessary if the CATALOG.SCHEMA.TABLE name is too long to fit on a single command line.

   Syntax:

   DEFAULT SOURCE CATALOG {<node>.}<catalog name>
   DEFAULT TARGET CATALOG {<node>.}<catalog name>
   DEFAULT SOURCE SCHEMA <schema name>
   DEFAULT TARGET SCHEMA <schema name>

Using these commands, you can set a default catalog and default schema to be used for SQL/MX table names. For example, if the following two commands are in effect:

DEFAULT SOURCE CATALOG SRCCAT
DEFAULT SOURCE SCHEMA SRCSCH

Then the command SOURCE SRCTAB will set the source MX table to SRCCAT.SRCSCH.SRCTAB.

If an explicit catalog and/or schema is included on the SOURCE/TARGET command while a DEFAULT is in effect, it will use the values supplied in the SOURCE/TARGET command rather than the DEFAULT. The default values are only used if no explicit catalog/schema are provided on the SOURCE/TARGET command.

An Expand node name can also be optionally supplied with a default catalog. In that case the source or target using that node name will be searched on the node given using a local DBSRV process on that node.

3) If the system is busy while attempting to run a SQL Compare job, it may timeout with an error 40 while attempting one of its operations. The amount of time that SQL Compare will wait for the operation to complete is now adjustable with the TACL param STIMEOUT which specifies the number of 1/100ths of a second to wait before timing out. The default is 4 minutes (24000).

4) The REPORT LEVEL NO-ITERATIONS option now takes effect for any Compare job that has ITERATIONS enabled. Previously, this setting would only apply to jobs with STOP <n> PERMANENT MESSAGES set.

5) When errors are encountered while attempting to output EXPLAIN data to the log file, new logging has been added to help troubleshooting the root cause of these errors.

Problems Fixed

1) When running Compare to automatically make the target table match the source with ON commands, a memory leak was discovered for tables involving millions of mismatched rows. This has been fixed.

2) SQL/MX tables with fully-qualified names longer than 40 characters would encounter errors when attempting to compare them. This limitation has been addressed so they can now be successfully compared.

3) Certain partitioned tables with long CHAR columns in the key caused SQL errors when attempting to compare them. This issue has been fixed.

4) If SQL Compare hit an error 48 while attempting to open a file, it failed without providing information about the filename. This message has been enhanced to include the name of the file that hit the error.

5) When using the WHERE command to only compare a subset of the rows in the tables, the "Number of source/target records read" value could be misleading. This has been fixed so that it is always accurate.

6) Running the REPORT command returned empty results when it should have shown significant output instead. This has been fixed so that reports are now accurate.

7) Certain SQLWHERE clauses resulted in SQL errors depending on where the newline was specified in the clause. This has been fixed so that the position of the newline does not impact the SQLWHERE condition.

8) The EXPLAIN output did not include the CONTROL commands in effect when the SQL command was eventually run. This has been fixed so that now the EXPLAIN output has these CONTROL commands enabled.

9) Under certain conditions, the CPULIMIT might be ignored during DBSRV/DBSRVMP operations. This has been fixed so that CPULIMIT will always be in effect.

Upgrade Considerations for Version 6.821 from 6.820

There are no special considerations for upgrading from version 6.820 to version 6.821.

Validating Downloaded Files

Gravic provides an SHA1 checksum and the size of the release package (file) in bytes. The purpose of this is so that the user can confirm that the release package they downloaded is valid and free from corruption/tampering.

- For HPE Shadowbase releases, this information is published in the HPE SOFTDOC that corresponds with the specific SPR version of the software. The HPE SOFTDOC for a specific SPR version is available on the HPE SCOUT portal. This information can also be found on the Gravic Shadowbase website here (https://www.shadowbasesoftware.com/releases).
- For non-HPE Shadowbase releases, for example Shadowbase releases obtained directly from Gravic (regardless if an HPE TCD release or a direct Gravic licensee release), this information is included in the body of the Gravic email that provides the link to download the software. This information can also be found on

the Gravic Shadowbase website here (https://www.shadowbasesoftware.com/releases/gravic).

All Shadowbase releases are provided as Windows format download files. The user should validate the downloaded release file size by comparing it with the published release file size.

In order to validate the SHA1 checksum of the downloaded file, users can run the following command on a Windows system where the file was downloaded in order to generate the checksum in their own environment:

```
certutil -hashfile <downloaded filename> SHA1
```

Users can compare the certutil-generated checksum value against the published checksum value to make sure they match. Note that any other SHA1 generation tool can also be used to create the checksum value on the downloaded file. The certutil method is just one available option for Windows environments, and is included as part of Certificate Services.

Installation Instructions (Shadowbase Compare for SQL)

1) Transfer the HPE Shadowbase Compare for SQL installation files to the host system using FTP or any other file transfer product capable of transferring ASCII and binary files. Binary transfer the SQLCMPR file from your PC (if you obtained the files from a Gravic FTP site) or DVD. Then ASCII transfer the RINSTARX, RINSTALL, RINSTLMX, and RINSTLRA files from the same location.

2) To begin the installation process, run the RINSTARX, RINSTALL, RINSTLMX, and RINSTLRA files to unpack the installation files for the desired HPE Shadowbase Compare for SQL component(s):

RUN RINSTARX to unpack the installation components for the SQL/MX Remote Agent.

RUN RINSTALL to unpack the installation components for the SQL/MP Compare program, SQLCMPE.

RUN RINSTLMX to unpack the installation components for the SQL/MX Compare program, SQLCMPMX.

RUN RINSTLRA to unpack the installation components for the SQL/MP Remote Agent.

3) Follow instructions in the Installation section of the ***HPE Shadowbase Compare for SQL Manual***. Each component has an installation INI file that must be edited with the desired system specific settings before the corresponding installation program is run.

HPE Release File Structure

If this release is obtained through HPE Scout, the downloaded file is a single self-extracting zip file that is intended to be run on a Windows PC. When the zip file has extracted itself, it will create a folder structure on the PC with all of the various pieces of Shadowbase in appropriate folders. This folder structure is as follows:

CONTENTS
Each component's installation files are in a separate directory in the self-extracting ZIP file or on the product DVD under the directory \T1122H06-<SPR ID>. This file set contains the following files:

File or Directory	Description
\readme.txt	This file.
\SBEnterpriseManager	Directory containing the files required to install SEM on a PC.
\TNS-E	Directory containing the installation files for the HPE Integrity NonStop i versions of NS Repl, SAR, and Compare.
SBAuditReader	Directory containing the installation files for SAR.
SBCompare	Directory containing the installation files for Compare.
SBReplication	Directory containing the installation files for NonStop Guardian replication.
\TNS-X	Directory containing the installation files for the HPE Integrity NonStop X versions of NS Repl, SAR, and Compare.
SBAuditReader	Directory containing the installation files for SAR.
SBCompare	Directory containing the installation files for Compare.
SBReplication	Directory containing the installation files for NonStop Guardian replication.

Known Problems Remaining

1) Since the TCP/IP remote agent relies on the NonStop LISTNER program to establish connections between the client and server processes, certain settings such as TRGCPUS and CPULIMIT are ignored since LISTNER controls them. It is being investigated that a future version of SQL Compare may employ a custom listener program which will be able to assist in controlling these settings.

2) For long SQL/MX floating point column values, the precise values of the last digits are unpredictable when being inserted or selected from a table (generally, due to rounding by the file system/SQL engine). If SQL Compare attempts to compare these values, it may result in unexpected behavior depending on how the MX engine provides the values to SQL Compare. Hence, compares of high-precision floating point columns may yield differing results across runs. A case has been opened with HPE regarding this issue.

3) If two tables being compared contain matching columns with different scales such as DECIMAL (10,3) and DECIMAL (10,5), ON commands to make one table match the other cannot be configured.