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# TRIPsystem

## Change History

**Version 8**  
**UNIX and Windows**

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## About this Document

This document contains the change history for version 8 of TRIPsystem.

Please refer to the Release Notes for information about supported platforms and version specific information.



## Version 8.4-6

### New functionality for all platforms

#### TRIP-6270: Job ID from INDEX and LOAD(IX) batch job submissions

When submitting batch jobs for INDEX, LOAD and LOADIX operations the caller will get information about whether the submission was successful or not. Eventually the application can also obtain a completion message with a message indicating success or failure. While this works in many cases, there are situations when the application needs to more reliably be able to determine if a submitted job was successful or not.

To make this easier, a new API function `TdbSubmitBatchJob` has been created. This can be used to submit INDEX, LOAD and LOADIX jobs in a similar manner as possible via the `TdbBatchLoadIndex` API function, except for that `TdbSubmitBatchJob` will return the ID of the submitted job. This ID can be matched against job completion data returned by the new `TdbGetBatchJobResult` function. This allows applications to reliably track the status of submitted batch jobs. Note that batch job submission via CCL commands is not supported for tracking via job ID.

This behavior is also available in version 8.4-1 of TRIPjxp and TRIPnpx via the `TdbDatabaseDesign` method `submitBatchJob`, and the `TdbSession (set)JobResultSink` method/property.

#### TRIP-6262: Faster retrieval of lists of databases and clusters

The `TdbShowControl` API function now supports a new list mode `DATABASE_LIST_NOCOUNTS`. This behaves like the regular `DATABASE_LIST` mode except that “live” information of record counts and update time stamps is not included. On a system with many or large database clusters, this mode will make it noticeably faster to retrieve a list of databases and clusters.

This mode is also indirectly used from version 8.4-1 of TRIPnpx and TRIPjxp via the `TdbDatabaseList` class, by specifying the `TdbDatabaseListType.NoCounts` enum value in the `TdbDatabaseList` constructor.

### Fixes for problems on all platforms

#### TRIP-6276: Benign error starting TRIPclassic

The first time TRIPclassic is started by an OS user, an EULA message will be displayed. In some deployments (e.g. under Docker) an error message “clear: command not found” could at this time be seen. This error did not impact the further behavior of TRIPclassic.

#### TRIP-6268: Referencing a search set after deleting a record may fail

After deleting a record included in an existing search set, retrieving data from that search set could fail with an error message indicating no hits, no more data or that there is nothing to show.

#### TRIP-6266: DBCOPY fails with zero-sized database index files

If a database BIF or VIF index file exist but is zero bytes in size, DBCOPY would fail with an error message indicating failure to read header data.

## **TRIP-6259: Inconsistent DBCOPY utility behaviour with SUPERMAN**

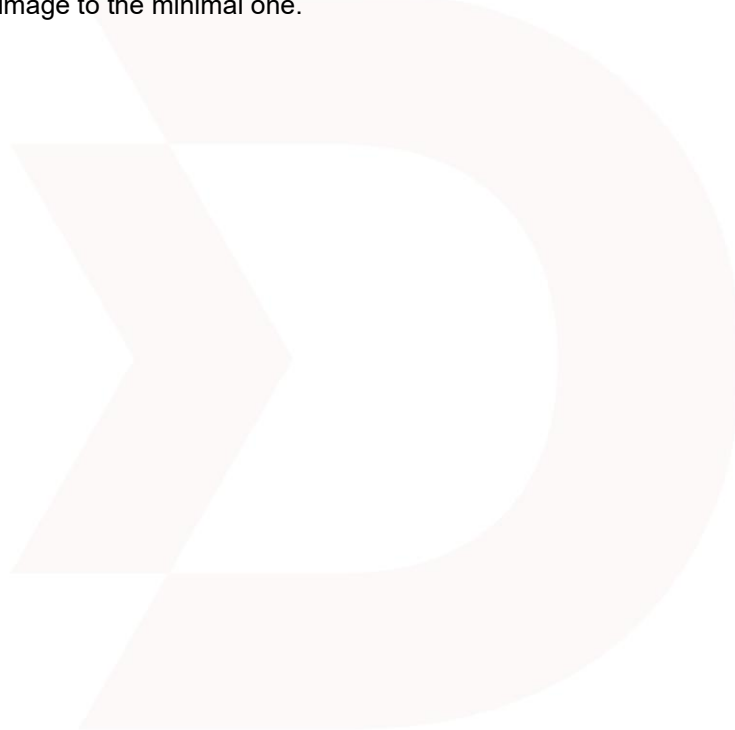
(Changed in 8.4-6:1)

When a database that the SYSTEM user has no access to is explicitly requested via the -d option, the DBCOPY utility fails as expected unless TDBS\_SUPERMAN is set to Y(es). But if the --all option was specified, such databases were copied anyway regardless of whether TDBS\_SUPERMAN was set or not. The expected behavior is that SYSTEM with SUPERMAN privileges should be able to copy all databases in both the --all and -d modes.

## **Fixes for problems on Docker only**

### **TRIP-6277: Docker image vulnerability risk reduction**

To reduce the risk for the TRIPsystem Docker image being affected by various vulnerabilities (CVEs) in system libraries, the Docker image based on RedHat Enterprise Linux 10 has been changed from the full RHEL base image to the minimal one.



## Version 8.4-5

### Fixes for problems on all platforms

#### TRIP-6265: Search in DB opened before update sometimes fails

The preconditions for this error to occur are:

- A database is opened before an update operation
- The indexing of the update operation causes a so-called overflow block in the BIF file to be used or created
- A following search operation is performed that at some point happens to require access to the aforementioned overflow block.

Similarly to TRIP-6264, the sequence results in a timestamp mismatch. A user would experience this error by getting an (incorrect) error message "Index of [1] in progress, please try again later".

#### TRIP-6264: Updating a record invalidates search set

A search set can become unusable after having updated a record that the search set contains. The condition for this error to occur is that all of the following must be true:

- The search expression uses a wildcard expression (e.g. FIND TITLE=#) or a single term (e.g. FIND abc123).
- An update must be followed by a (regular, incremental) indexing operation
- Both update and index are completed within the same second
- An additional (regular, incremental) index operation is performed

This would cause the following index operations to encounter a BIF file timestamp discrepancy, which in turn caused the (previously updated) record to not be possible to retrieve. A user would experience this as an error with message "No more data" or "There is nothing to show".

#### TRIP-6254: Deprecation of DEFINE FIND MAX

The **Find** variant of the **DEfine MAXimum** order is deprecated and marked for removal without replacement.

The **Find** variant of this CCL order has never worked entirely as originally intended, and is effectively useless with clusters. It also has a counter intuitive naming, which (contrary to the definition of this order) seems to indicate a max of records instead of a max of terms from a truncation expression (e.g. "#sys#").

The **DEfine Find MAXimum** CCL order will be removed in the next main release of TRIPsystem.

#### TRIP-6249: Cluster search may yield incomplete results

Searches in a database cluster may sometimes produce results with the results from one or more databases missing. This may happen if one of the previous clustered search operations have resulted in an error when processing one of the databases.

### **TRIP-6242: ABOUT function not thread safe**

The ABOUT function when used with a database cluster did not operate in a thread safe manner. This could cause incorrect results or cause a hanging or a crash.

### **TRIP-6241: Ranking bias for ABOUT searches**

The ranking of ABOUT search results from a cluster of databases with different structure may unfairly favour databases with larger records. Changes in term weighting have been made towards addressing this issue.

## **Fixes for problems on Unix platforms only**

### **TRIP-6251: Systemd services not upgraded during install**

Performing an upgrade installation of TRIPsystem on (non-Docker) Linux where the previous installation made use of systemd to start tripd and tripnetd would not correctly upgrade these systemd services. They would remain referencing the previous installation, resulting in a hybrid and possibly faulty installation.

## **Fixes for problems on Windows platforms only**

### **TRIP-6252: Cluster search on Windows may cause crash**

Cluster search operations on Windows could sometimes yield incorrect results or crash during moderate to high load. This issue with asynchronous I/O would compound the error described by issue TRIP-6249.

## Version 8.4-4

### New functionality for all platforms

#### TRIP-6201: Improved systemd configuration templates

On hardened Linux operating systems that use systemd, the tripd and tripnetd daemons could fail to start when using the previously distributed systemd service templates for these daemons. The systemd template configuration files for tripd and tripnetd have therefore been modified to disable the PrivateIPC and PrivateTmp settings, which, if enabled, would interfere with normal operations of tripd and tripnetd.

### Fixes for problems on all platforms

#### TRIP-6246: DEFINE TSTAMP does not work with clusters

(Changed in 8.4-4:1)

The DEFINE TSTAMP command did not apply correctly when clusters were used. In addition, there was a risk for it causing a crash regardless of used in a single database or cluster context.

#### TRIP-6237: ABOUT function hangs when used with a search set

Using the ABOUT function to find records similar to records in a previous search set would hang the TRIP kernel.

#### TRIP-6232: Risk for buffer overrun when reading from stdin

In some rare cases when TRIPsystem utilities read input from stdin, there was a risk for extremely long input causing a memory buffer overrun.

#### TRIP-6221: Various DEFINES not working with clusters

The following DEFINE statements would not have any effect if issued after having performed a search in a database cluster.

- DEFINE FIND MAX
- DEFINE DISPLAY [NO] ORIG
- DEFINE STEMMING
- DEFINE FIND [NO] FUZZ
- DEFINE DISPLAY FREQ=[NO] MERGE
- DEFINE FUZZ
- DEFINE ABOUT
- DEFINE STOP
- DEFINE TIMESTAMP [NO] UPDATE



### **TRIP-6227: Support for version 10 of RHEL, AlmaLinux and OracleLinux**

Version 10 of the Linux distributions Redhat Enterprise Linux (RHEL), AlmaLinux and OracleLinux have been added to the list of operating systems that TRIPsystem can be installed on.

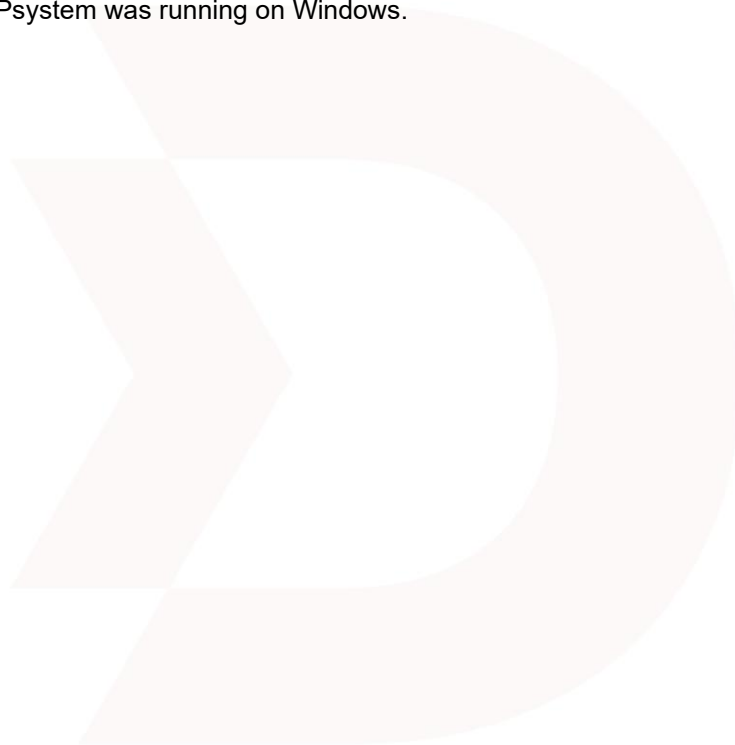
Note that the build of TRIPsystem to install must match exactly the Linux distribution version number on which installation is being made. For example, using a build for RHEL 9 is not supported nor guaranteed to work with RHEL 10, and vice versa.

### **Fixes for problems on Windows platforms only**

#### **TRIP-6247: Encrypted sessions may fail to initialize**

(Changed in 8.4-4:1)

Trying to establish an encrypted session from a networked client to older versions of TRIPsystem 8.4 could fail when TRIPsystem was running on Windows.



## Version 8.4-3

### New functionality for all platforms

#### TRIP-6123: Date field input restriction on required date components

DATE fields can now have a field restriction indicating which date components that shall be considered mandatory when storing a new or updated DATE value.

Valid restriction values are:

- **YMD**, indicating that the full date must be specified
- **YM**, to indicate that year and month are required.

Only one such restriction can be specified per DATE field (either YMD or YM). Omitting the restriction results in backward-compatible behavior, i.e. that date values are valid even if only the year is specified.

### Fixes for problems on all platforms

#### TRIP-6224: Record number search may produce wrong results

(Changed in 8.4-3:1)

Searching for record numbers could produce incorrect results in searches like the following.

```
BASE ALICE
FIND rabbit AND R=3,33,500
FIND rabbit AND R=3,33
```

The correct final result is 1 record, but the defect caused TRIP to sometimes also respond with 2 records or none at all.

#### TRIP-6219: CCL COPY between databases with different folding fails

Using the CCL COPY command to copy records between databases that have different character folding set in their designs failed although character folding isn't used at all during this operation.

#### TRIP-6216: Empty search result not shown in history

Issuing the command "DEFINE FIND MIN=0" to allow empty search sets did not have any effect for clustered search if the command was executed after the BASE command that opened the cluster.

#### TRIP-6215: CCL search step may disappear from search history

Executing search sets resulting in zero sized sets could sometimes result in the apparent vanishing of some search sets from the current search history of the session.

#### TRIP-6214: Clustered search for specific records in one database

TRIP would produce the wrong result when executing an intersection search in a database cluster where the one part of the expression selected specific records from a database (e.g.

ALICE.R=1, 2, 3) and the other part of the expression selected records from multiple databases in the cluster.

For example (search set 3 is wrong here):

```
S=1 <499> BAsE tmp=alice, carroll  
S=2 <449> Find alice  
S=3 <26> Find (ALICE.R=1, 2, 3) AND.R S=2
```

### TRIP-6210: Indexer may incorrectly use folding language for non-Boolean

The index program considers the language set in the database design to determine how it shall perform the non-Boolean processing. If the database has no language associated with it, it checked the character folding language setting of the database and uses that instead. When searching, TRIP only considered the database language. Both modes use the TDBS\_CONFLATOR\_LANG setting if neither language nor folding is set in the database design.

This meant that if the indexer used character folding and that language differs from the TDBS\_CONFLATOR\_LANG value, then searches would use a different stemming language than the indexer used. This could produce incorrect search results when using stemming (either explicitly with FUZZ and DEFINE STEMMING, or implicitly using ABOUT).

The folding language has a different semantic and is not related to non-Boolean search at all. The folding language is therefore no longer considered by the indexer in this context. Both the index and the search operations now determine the language for non-Boolean operations in the same way.

### TRIP-6202: Changing non-Boolean language may cause crash

When a database containing non-Boolean indexed fields is indexed with a stemmer and stop words for a certain language, the index program could crash if the previously created index was made with a different stemmer or stop word list.

Even with this issue fixed, it is still strongly recommended that databases with non-Boolean indexed fields are fully reindexed if the stemmer language or the stop word list is changed.

## Version 8.4-2

### Fixes for problems on all platforms

#### TRIP-6185: Long words in non-Boolean fields may cause index corruption

(Changed in 8.4-2:1)

A non-Boolean indexed field containing a word longer than 64 bytes in length will not be correctly indexed when first inserted or when reindexed. The long word will be omitted from the index although it is expected to be there. When such a record is later updated and indexed, the word omission turns into an index corruption. If the record is updated and indexed yet again, the corruption may cause the index program to fail.

This defect has been present in TRIPsystem since version 6.2-1, but did not have any visible side effects until the fix for issue TRIP-5976 was added. After the correction of TRIP-5976, the defect addressed by issue TRIP-6185 was no longer hidden, and could start manifesting with databases having words longer than 64 bytes in non-Boolean indexed fields.

After having installed the TRIPsystem version containing the correction for this issue, you must fully reindex all databases that contain non-Boolean indexed fields. This fix addresses the root cause. So, even if you have not experienced any problems with your databases, just the presence of a word longer than 64 bytes in length in a non-Boolean indexed field may cause later corruption and possible indexing crashes despite this fix if you do not fully reindex such databases.

#### TRIP-6175: Mitigation for CVE-2025-8941

The PAM configuration in the Docker image has been adjusted to no longer load the pam\_namespace module. The issue is further alleviated by the fact that a TRIP Docker container is an environment where only a single non-root user operates. This mitigates the CVE-2025-8941. A scan of the image may still show the CVE to be present, but with this mitigation it will not have any impact.

#### TRIP-6145: Timestamp API functions give inconsistent output

Since TRIPsystem version 7.0, TRIP has been using UTC time for timestamps. However, there are two public API functions that have not consistently followed this principle.

The `TdbGetTimeStamp` function returns the timestamp for a record. If the database is created or packed with TRIPsystem 7.0 or later, the returned value is correctly in UTC. For older databases, the returned value was incorrectly returned in the earlier TRIP-specific format. This function now always returns UTC timestamps.

The `TdbCreateTimeStamp` incorrectly returned a timestamp in the earlier TRIP-specific format, and not in UTC as it was supposed to as per the changes made in TRIPsystem 7.0. This function now always returns UTC timestamps.

## Fixes for problems on Unix platforms only

### TRIP-6197: Upgrade install may not shut down previous tripd process

(Changed in 8.4-2:1)

While performing an upgrade installation, shutdown of TRIPsystem processes such as tripd is executed. This is necessary in order for the new installation to be clean from processes of the old version. There was a risk that this shutdown would not work, leaving the TRIPsystem installation in a hybrid state until the server was restarted or all the older TRIPsystem processes were manually shut down.



## Version 8.4-1

### New functionality for all platforms

#### TRIP-6095: Command line tool for updating tdbb.conf

(Changed in 8.4-1:2)

The new command line tool “`tdbbconf`” can be used to assign, update and delete logical names in the `tdbb.conf` file. The tool ensures that the correct section (Privileged or NonPrivileged) is used, and that the new value looks acceptable. The tool also offers a subset of the functionality otherwise available via the “`queryrcs`” command line tool.

### New functionality on Unix platforms only

#### TRIP-6121: Oracle Linux and AlmaLinux

TRIPsystem can now be installed on the Linux distributions Oracle Linux and AlmaLinux, which are binary compatible with RedHat Enterprise Linux (RHEL). The required version for them is the same as for RHEL. Refer to the release notes for details.

#### TRIP-6116: RHEL 9.6 for Docker and Linux

The Docker image for TRIPsystem is now based on the universal base image (UBI) of version 9.6 of RedHat Enterprise Linux. This is also now the recommended RHEL version for non-Docker based Linux installations of TRIPsystem.

### New functionality on Windows platforms only

#### TRIP-6125: OpenSSL dependency upgraded to version 3.5.0

The bundled OpenSSL library dependency has been upgraded to version 3.5.0.

### Fixes for problems on all platforms

#### TRIP-6137: CONTROL not always listed for the SYSTEM user

(Changed in 8.4-1:2)

If one from TRIPnpx or TRIPjxp as SYSTEM requests a database list with the “all” flag set to false, the CONTROL database is shown in the resulting list. However, if one sets the “all” flag to true, the CONTROL database is not included. If the TDBS\_SUPERMAN logical name is set, the CONTROL is included when the “all” flag is set to true.

This issue also affected the behaviour of the DBCOPY utility, which in some cases would not include the CONTROL database even if the “`--all`” command line option was specified.

The expected behaviour is that the CONTROL database always should be listed for the SYSTEM user.

### TRIP-6129: Crash in dbcopy when using --all

(Changed in 8.4-1:1)

The DBCOPY command line tool could crash on start or exit if the `--all` option was given to copy all user databases.

### TRIP-6128: LOAD error with long DB names and/or TDBS\_SCRATCH paths

(Changed in 8.4-1:2)

Executing a LOAD batch job via CCL or TRIPmanager failed if the database name and/or the TDBS\_SCRATCH path were long. The load job log file would contain an error message saying the restart file could not be found.

### TRIP-6117: Crash in tripd with long DB names and/or TDBS\_SCRATCH paths

The TRIPsystem tripd program could crash if the database name is very long (e.g. 64 characters) and/or the TDBS\_SCRATCH directory path is also very long. This crash happened most frequently when tripd was run with maximum logging (`-v255`).

### TRIP-6114: Index crash with long DB names and/or TDBS\_SCRATCH paths

The TRIPsystem index program could crash if the database name is very long (e.g. 64 characters) and/or the TDBS\_SCRATCH directory path is also very long.

### TRIP-6113: Crash when running macros with zero-length input

The execution of TRIP macros that read input from the console could cause TRIPclassic to crash if the input was empty (i.e. the user just presses the Enter key).

### TRIP-6107: Fatal global update errors not always reported to client

If a global UPDATE command fails such that the GLBUPD program crashes, this is sometimes reported to the client as a success (e.g. *"job updating ALICE completed successfully"*). This especially happens on fatal errors that cause the TRIP kernel to abort with console messages such as *"fmgetsvar() called with first byte zero"*.

### TRIP-6036: The last sentence of TEXT values may be truncated

The last sentence of TEXT values could sometime be truncated. This would typically only cause the punctuation mark at the end of the sentence to be omitted.

### TRIP-6031: Risk for long lock wait times

The change for TRIP-6012 in version 8.4-0:3 could in some cause a ten-fold increase of max wait time for operations such as updating, adding or deleting a record.

### TRIP-6009: Incorrect error message when field contains underscore

The underscore character is valid in field names, but when a field name with underscore is used in a search condition such that there is no such matching field, the error message stated "illegal order part" instead of "not a field identifier".

### **TRIP-6005: User profile incorrectly stored in CONTROL**

Some user profile properties as stored in the CONTROL database gets invalid values when the profile information is created or updated via the user management APIs that were introduced in TRIP 8.0. This affects users created via TRIPmanager, TRIPjxp and TRIPnxp. User profiles created in TRIPclassic gets correctly stored.

### **Fixes for problems on Unix platforms only**

#### **TRIP-6124: TRIPsystem install script might appear to hang**

The install script for TRIPsystem may appear to hang just before checking the TRIPsystem listening port number. Pressing the Enter key resolves this and the installer completes successfully.

### **Fixes for problems on Windows platforms only**

#### **TRIP-6021: High loads causes file locking errors on Windows**

A moderate to high usage load on Windows could cause more errors of the type "*Database is locked by another user, try again later*" than expected.



## Version 8.4-0

### New functionality for all platforms

#### TRIP-6020: Sentence separation with Unicode quotation marks

(Changed in 8.4-0:3)

Sentence separation now also supports sentences that starts with non-Latin-1 quotation marks such as the Unicode U+201E (double low-9 quotation mark) that is common in German text.

#### TRIP-5982: CONTROL file version check in MODCON

The MODCON utility is used to migrate the CONTROL database design to a newer version as part of an upgrade installation procedure. Downgrading is not supported. If one still attempts a downgrade, it can be dangerous as it can result in a corrupted or unusable CONTROL database. In order to catch such issues before they arise, the MODCON utility will now verify that the CONTROL database can actually be migrated during install.

For more information on MODCON, please refer to its documentation.

#### TRIP-5954: Ignorable non-existent fields in cluster search

(Changed in 8.4-0:1)

Searching in database clusters allows use of fields that exist in some but not all cluster members. Previously, using a field that does not exist at all results in an error. While remaining the default, this behaviour can now be controlled using the new environment variable `TDBS_UNKNOWN_FIELDS`.

Setting `TDBS_UNKNOWN_FIELDS` to "IGNORE" causes TRIP to completely ignore non-existent fields in CCL search conditions. The condition as executed will be as if the field was not specified to begin with.

Setting `TDBS_UNKNOWN_FIELDS` to "NOHITS", causes TRIP to evaluate the part of the CCL search condition that references the field to an empty search result. Whether the whole search condition results in hits or not depends on the parts of the condition unaffected by this variable are expressed.

This behaviour can also be controlled at runtime using the `DEFINE UNKNOWN FIELD` command. Refer to the CCL Command Reference for more information.

#### TRIP-5931: TFORM text analysis naming and default change

The naming of the "`--[no-]sentence`" argument of the TFORM load and loadix programs is unfortunate since it actually is not specifically related to sentence scanning. It is actually a flag that indicates if TRIP's text analysis (into paragraphs and sentences) should or should not be performed. For this reason, the name of this argument has been changed to "`--[no-]analyse-text`". The older naming remains supported for backward compatibility.

Also, the default of the `TDBS_LOAD_ANALYSE_TEXT` variable is now `ANALYSE`, which better conforms to backward compatibility. Set this to `CUSTOM` in order to not perform any analysis, but fully trust the paragraph and sentence markup in the TFORM file. The previous value `DEFAULT` is no longer supported, and any use of it causes TRIP to fall back on `ANALYSE`.

Installations that are configuring the `TDBS_LOAD_ANALYSE_TEXT` variable must be manually adjusted immediately after upgrade in order to ensure that the load behaviour remains as desired.

### TRIP-5921: API for cluster information

A new TRIP toolkit API function `TdbClusterInfo` is now available. It provides information on permanent clusters and partially also for runtime clusters. Information that can be obtained via this function includes fully nested member database names and count, total record count for the cluster, and date and time for the most recent update of the databases in the cluster.

The `TdbBaseStatus` TRIP toolkit API function can now also be used with clusters. The total record count and the most recent update date is returned when called with the name of a permanent cluster.

### TRIP-5881: Access tokens

An access/refresh token mechanism is now available as an alternative to login tickets. This has the benefit of being wholly persistent whereas login tickets automatically expire upon system restart. This new mechanism also has the benefit of supporting (one-time use) refresh tokens, which allows for a better control of token lifetimes and allows for faster and more convenient renewal of access tokens.

The intended use for this mechanism is the same as for the earlier login ticket feature. I.e. for use in SSO-like scenarios where TRIP is used as the identity provider, and for repeated automated jobs that otherwise would require specifying actual user credentials in plain text as part of the job configuration.

### TRIP-5873: API for listing defined VIEWS

It is now possible to programmatically list the currently defined field VIEWS instead of having to execute "DEFINE?" and parse the result. The TRIPtoolkit API function is `TdbEnumViews`.

Client-side APIs are available in version 8.3-2 of TRIPnpx and TRIPjxp. The corresponding property for TRIPnpx is `TdbSession.DefinedViews`, and the corresponding method for TRIPjxp is `TdbSession.getDefinedViews()`.

### TRIP-5858: Changed default for DEFINE THESAURUS

The default mapping for the `DEFINE THESAURUS` command is now for whole phrases, i.e. with single quotation marks around thesaurus terms. Searching for whole phrases is the most common case when using thesaurus search in phrase fields, and this new default mapping results in the search being much faster than not mapping to whole phrases would be.

It is possible to toggle the default behaviour of the default mapping for `DEFINE THESAURUS` using the new `tdbs.conf` symbol `TDBS_THESAURUS_DEFAULT`, which take value `PHRASE` for whole phrase mapping, and the value `WORD` for previous default.

## Fixes for problems on all platforms

### TRIP-6097: Crash when indexing updates to non-Boolean indexed fields

(Changed in 8.4-0:5)

Updating existing records with fields marked in the design to be non-Boolean indexed (i.e. for use with the `ABOUT` function) could generate an incorrect BIF index structure. This had a high risk of resulting in a crash (e.g. a "Memory fault" or a "Segmentation fault") or aborting the session with a message "*fmgetsvar() called with first byte zero*" only written to the server-side console.

### **TRIP-6040: Risk for crash creating records over many TdbChangeUser calls**

(Changed in 8.4-0:4)

Creating records in a session where each request to create a record is wrapped in a pair of TdbChangeUser calls, could result in a premature session termination if the BIF file for the database being updated exists but has a file size of zero bytes.

### **TRIP-6028: Upgrade from TRIPsystem 8.0 and older may fail**

(Changed in 8.4-0:3)

While upgrading TRIPsystem, the MODCON tool will check the old CONTROL database for its version number in order to ascertain than an upgrade can actually be performed. With CONTROL databases originally from versions older than 8.1, this version number information may be incorrectly detected so that the old CONTROL may appear to be from a very high version (e.g 83.89-84 or similar). This caused MODCON and the upgrade to fail.

### **TRIP-6027: Importing a DB design via XPI ignores the UNIQUE flag on fields**

(Changed in 8.4-0:3)

Using the XPI (e.g. TRIPmanager) to export a DB design with one or more UNIQUE fields, and then re-importing it under a different name ignores the UNIQUE flag. This results in a database successfully imported, but without the necessary UNIQUE field properties.

### **TRIP-6026: TFORM loading does not report errors on UNIQUE fields**

(Changed in 8.4-0:3)

Loading a TFORM file into a database having one or more fields marked as UNIQUE will report success even if the uniqueness check fails for some of the records to be loaded. The user will believe that everything went well even though it did not.

### **TRIP-6022: Sentence separation if next sentence starts with a quotation mark**

(Changed in 8.4-0:3)

When storing a value into a TEXT NO-ORIG field, sentence separation would not be correct if the following sentence begins with a quotation mark. This problem caused the quotation mark to be considered as part of the previous sentence. When retrieving such TEXT values, an extra space between the quotation mark and the first word of the sentence could be inserted, leading to minor corruption compared to the original.

### **TRIP-6016: Extra space chars at line starts of TEXT fields**

(Changed in 8.4-0:2)

TEXT values inserted via the TdbPutFieldInfo function (e.g. via TRIPcof text extraction) may have several additional white space characters following a line break when emitted via the SHOW command. This happens when the input text includes single-LF linebreaks instead of CRLF pairs.

### **TRIP-6015: Length of returned TEXT ORIG values sometimes not correct**

(Changed in 8.4-0:2)

Obtaining a value stored in a TEXT ORIG field could differ in length from the length reported by the TRIP Toolkit function TdbFieldInfo when called with FIELDINFO\_SIZE modus. This could cause secondary errors in applications depending on both lengths to be exactly identical.

### **TRIP-6013: Accounting log not closed when pausing session**

(Changed in 8.4-0:2)

Using the TdbChangeUser API function to pause a session would not close the accounting (DEBIT) log file if one was in use. Resuming the session would open it again, resulting in a file handle leak. This caused the TRIP process to run out of file handles if the session was paused and resumed close to the max file handle limit per process set by the operating system. When that happened, the process would immediately become unusable and the session had to be forcibly terminated.

### **TRIP-6008: Incorrect results from MAP search with mixed character sets**

(Changed in 8.4-0:1)

Using a MAP search with databases of different character sets (e.g. one in Latin-1 and one in UTF-8) could produce incorrect results.

### **TRIP-6003: Risk for CONTROL corruption during upgrade or container start**

(Changed in 8.4-0:1)

The CONTROL database migration as performed during container startup and during an upgrade installation may in rare cases fail due to system resource problems (e.g. out of main memory and swap). In such cases, there was a small risk for the CONTROL database to become permanently corrupted.

Additional safety checks and backup measures have been introduced to reduce the risk for permanent damage to CONTROL if an error occurs during upgrade or container startup. Should the CONTROL migration fail, a “before” and “after” copy of the CONTROL database files is automatically saved so that a “post-mortem” analysis can be performed if so desired.

### **TRIP-5989: Sorting cluster with a VIEW might cause crash**

Closing a database that is a member of a cluster and has fields in a previously defined field view would incorrectly modify the view so that TRIP might crash if the view was later used for showing records.

### **TRIP-5987: Incomplete hit highlighting when using numeric VIEWS**

If a field VIEW over numeric fields (type INTEGER, NUMBER, TIME or DATE) was used in a search, the search result would not contain the complete hit highlighting information. The search result itself would still be correct, though.

### **TRIP-5985: SHOW with a VIEW as a format name fails**

Using a defined VIEW or a field group as a format name in a SHOW command failed with an error message saying that the specified field does not exist.

### **TRIP-5984: TdbSessionInfo with SESSIONINFO\_DBS\_IN\_SEARCH**

The TdbSessionInfo function with mode SESSIONINFO\_DBS\_IN\_SEARCH provides information on what databases are included in a cluster search set. However, the output is capped at 1024, which truncates the returned list of database names if the search is made in a very large cluster.

Since the behaviour of the SESSIONINFO\_DBS\_IN\_SEARCH mode could not be corrected without breaking backward compatibility and thereby risking causing application instabilities, a new mode SEARCHINFO\_DATABASES has been added to the TdbSearchInfo function. This mode returns a list of all databases in the cluster that the current search set has at least one hit in. To get the complete list of databases in a cluster, use the TdbClusterInfo function.

### **TRIP-5983: Error deleting records in DB with field restriction**

Deleting a record in a database A with a field restriction referring a field in database B would fail with error message "No access to database B" if the current user had write access to database A, but not to database B.

### **TRIP-5981: Show procedures with truncation may result in syntax error**

TRIP would return a syntax error if the truncated procedure name coincided with the name of a field name of an opened database.

### **TRIP-5979: Crash when searching after a "missing operands" error**

A search after a missing operands error could result in a crash. For example, this sequence would trigger this crash:

```
BASE ALICE
FIND
FIND #
FIND
```

### **TRIP-5976: Subfields 2-n of UNIQUE fields not immediately indexed**

Immediately indexed fields (e.g. fields marked as UNIQUE) only got their first subfield indexed upon commit of a new or modified record. Subfields 2-n were therefore not immediately searchable as is required for such fields. This could also have resulted in inconsistent data if duplicates were added to subfield 2-n for UNIQUE fields.

### **TRIP-5972: Update of UNIQUE field retains old value in index**

Updating the value of an immediately indexed or UNIQUE field will have their new values indexed, but the old values would remain searchable via the index even though no longer present in the database.

### **TRIP-5970: Norwegian DEFINE? output with TDBS\_LANG set to GER**

A system with the TDBS\_LANG set to GER to produce TRIPsystem messages in German would receive the output from the DEFINE? command in Norwegian. This output is now using the TRIP default language (English) in this situation.

### **TRIP-5968: Error sorting search results on field views**

Sorting a search result from a cluster comprised of several databases and/or nested clusters failed when attempting to sort on a field view instead of an individual field name.

### TRIP-5967: Extra space characters added for "1\*TEXT ORIG" fields

Values stored in a TEXT field defined as "1\*TEXT ORIG" would upon retrieval get additional white space inserted after each period character followed by a white space. Storing back such values would then cause the extra space to be stored, and yet another space added for the next retrieval of the value.

### TRIP-5961: Public group procedures not shown

Procedures in the PUBLIC group would not be listed via the XPI protocol (e.g. in TRIPmanager) or via truncated expressions like `"SHOW PROC R=PUBLIC.START#"`.

### TRIP-5960: Crash after SHOW PROC R=USER.

The commands `"SHOW PROC R=USER."` and `"SHOW PROC R=."` that can be used to display all procedures of a user, caused TRIP to crash upon execution.

### TRIP-5957: Risk for crash in TdbSessionInfo with SESSIONINFO\_CLUSTER

If the comma-separated list of databases that the TdbSessionInfo function returns for the SESSIONINFO\_CLUSTER modus is longer than the buffer that the application provides, it causes a buffer overrun in the call to TdbSessionInfo.

The SESSIONINFO\_CLUSTER can now, with the stringValue parameter set to NULL on input, return the minimum required buffer size. Applications using this TdbSessionInfo mode should be adjusted to make use of this information.

### TRIP-5956: Error "index still running" despite completion of indexing

In some border cases related to index structure expansion, a subsequent search command could fail with error message "Index for [DATABASE] still running. Please try again later." even though no index job was running.

### TRIP-5953: Comforter and XPI notification memory leak

Comforter and XPI notification signals sent by TRIPsystem to clients such as TRIPnpx, TRIPjxp and TRIPmanager could leak between 1kb and 2kb of memory per round trip.

### TRIP-5951: Design bulk loading fails for non-privileged users

The API for bulk loading database designs that was introduced in TRIP 8.3-0 would fail for all unprivileged users, severely limiting its use. This has been corrected so that design-related objects such as the definition of output and entry forms will not be returned for databases that the current user is not the owner of.

### TRIP-5949: Web-style search with pipe "|" operator fails

Using the pipe operator "|" as a short form of OR in the "web-style search" that the FUZZ command support did not work as expected if the search order contained one or more expressions for search within a field. Error messages such as *'No searchable chars in the string "|'* or *'Missing operands'* would be returned.



### TRIP-5947: Reopening a permanent cluster ignores closed databases

Reopening a permanent cluster where some of its databases were explicitly closed would not reopen the explicitly closed databases. For example, if a cluster MYCLUSTER contains databases A and B, the following sequence would result in only database A being open for search at the end:

```
BASE MYCLUSTER  
CLOSE B  
BASE MYCLUSTER
```

### TRIP-5946: Misleading error message on DB namespace conflict

Opening a permanent cluster where one of the databases has a field group with the same name as one of the other databases in the same cluster would return an error indicating that the database with the field group (which could be opened in this scenario) not could be opened.

For example, if the cluster contains the ALICE and CORR databases and a field group ALICE has been created in CORR, the incorrect error message would be "1 inaccessible database(s): ALICE", even though it would be CORR that could not be opened.

### TRIP-5922: Risk for crash in tbserver if PATH is longer than 470 bytes

When tbserver logging is enabled (e.g. TBS\_LOG=3) in the tdb.conf file on a system where the PATH environment variable for the user running the tripnetd/tbserver is longer than 470 characters, the tbserver would crash immediately upon session startup.

### TRIP-5885: Focused text may truncate last word

When using hit-focused text retrieval from XPI clients (TRIPjxp and TRIPnxp), the last word in the fragment could sometimes be truncated. This would happen if the database used the LA1 encoding and the text fragment contained one or more non-English national characters.

### TRIP-5883: XPI facet request returns error if no terms are found

When the TdbFieldTermFacet class in TRIPjxp and TRIPnxp is used to get a list of terms for a field, but the given expression does not result in any terms, the error "Unknown TRIPxpi error, code 0" may incorrectly be thrown. While a DISPLAY order resulting in no terms normally is considered an error, it should not be when used in this context. This has now been corrected so that a facet request resulting in no terms is not considered an error.

## Fixes for problems on Unix platforms only

### TRIP-6014: Risk for crash in thread synchronization setup

(Changed in 8.4-0:2)

Common functionality for initializing thread synchronization shared by TRIP components such as TRIPcof could cause a SIGSEGV fault, crashing the process. This could manifest on Linux and Solaris when using TRIPcof to extract text from a document.

## **TRIP-6012: Existing tokens not found during higher loads**

(Changed in 8.4-0:3)

A database locking race caused problems with access and refresh token validation as well as for record updates when the system was under moderate to high loads. The error would manifest in the tokens being incorrectly reported as invalid and that update requests would ask the application to try again later with a frequency higher than otherwise would be expected.

## **Fixes for problems on Windows platforms only**

### **TRIP-6018: Crash on Windows when connected to from JXP or NXP**

(Changed in 8.4-0:2)

Connecting to TRIPsystem 8.4 from version 8.4 of TRIPjxp or TRIPnpx caused TRIPsystem to crash if running on Windows.





## Version 8.3-0

### New functionality for all platforms

#### TRIP-5942: Logical name TDBS\_XPI\_LOGLEVEL

(Changed in 8.3-0:5)

The TDBS\_XPI\_LOGLEVEL logical name can now be set in the tdbbs.conf configuration file in order to have TRIP emit a log file for the high-level so-called “XPI calls” invoked from TRIPmanager, TRIPjxp and TRIPnpx. Refer to the TRIPsystem Environment document for details.

#### TRIP-5886: Required Linux distribution and version is now RHEL9

All TRIP platform components for Linux now require version 9 of RedHat Enterprise Linux. This also applies to the Docker image, which is now based on the RHEL 9 universal base image.

#### TRIP-5841: New CCL function TODAY()

The CCL function TODAY() can be used with the FIND, FUZZ and DISPLAY commands where a DATE literal normally would be used. Without arguments, this function evaluates to the current date. It also takes up to two arguments that specify a positive or negative date offset that will yield a different date depending on specified offset.

There is also a new DEFINE TODAY [NO] EXPAND command that controls how a CCL expression with TODAY() is represented in the search history; exactly as specified (default) or translated to the resulting date literal. Using the date literal representation is strongly recommended when used in TRIP procedures and for automated jobs, so that any execution log that contains the search history shows what TODAY() actually evaluated to.

Refer to the CCL Command Reference document for information on the syntax of this function and the corresponding DEFINE.

#### TRIP-5837: Bulk retrieval of DB designs via XPI

When using the CONTROL object cache mechanism provided in version 8.2-3 and later of the XPI based clients TRIPjxp and TRIPnpx, the TRIPsystem server will now be able to transmit database design information for all accessible database in one single XPI request/response transaction. This will result in a small extra performance boost for TRIPjxp and TRIPnpx based applications that use CONTROL object caching.

#### TRIP-5819: Session-specific API and XPI logging

The XPI based clients (TRIPmanager, TRIPjxp and TRIPnpx) can now enable and access TRIP kernel API logging and server-side XPI logging for one particular session only. Enabling and accessing logs this way is recommended in environments where globally enabled logs either impact operations too much or when generated logs for other reasons are hard to access.

#### TRIP-5683: Analysis option for incomplete TFORM sentence/paragraph markup

A TFORM file produced by a non-TRIP generator can contain text values explicitly marked up to contain a single very large paragraph value. Such values should ideally not be marked up with paragraphs at all in the TFORM, allowing TRIP to optimize the storage and indexing of such values.

Even with incomplete markup, such as a single ^P paragraph marker at the beginning of a TEXT field value, TRIP will assume that since markup exists, it should not do any sort of analysis itself. This behaviour is by design, but can will incomplete markup result in text with a single big paragraph for the entire value and/or no sentence analysed (resulting in some search features not working with this data).

To allow the control of this behaviour, TRIPsystem now supports a new configuration setting `TDBS_LOAD_ANALYSE_TEXT`, which can have the values `ANALYSE` or `DEFAULT`. If set to `ANALYSE`, TRIP will always analyse TFORM text values even if marked up. Using the `ANALYSE` option for this configuration setting guarantees that text is always analysed for paragraphs and sentences, regardless of how it is marked up in the TFORM.

## Fixes for problems on all platforms

### TRIP-5943: Crash on database / field group naming conflict

(Changed in 8.3-0:5)

The TRIP kernel would crash when opening a database whose design included a field group with a name identical to the name of an already opened database.

To emphasise the risks with naming conflicts, a section “Single Namespace” has been added to chapter 2 of the TRIPmanager and TRIPclassic Administration Guide documents.

### TRIP-5938: Crash on DISPLAY BASE after CLOSE

(Changed in 8.3-0:5)

The TRIP kernel would crash when executing a `DISPLAY BASE` when no databases were open for search, like can happen after having executed the `CLOSE` command.

### TRIP-5937: FROM TODAY() expression within parenthesis causes error

(Changed in 8.3-0:5)

Executing a search expression like `"FUZZ (DAY=FROM TODAY(-40YDD))"` caused an "unbalanced parenthesis" error, whereas omitting the outer parenthesis pair or space-padding each parenthesis would work fine.

### TRIP-5934: Invalid FUZZ expression in cluster may cause crash

(Changed in 8.3-0:6)

TRIP could crash when executing a search using the `FUZZ` command against a cluster if the expression contained a `"BASE="` argument and the following token was not the name of a database.

### TRIP-5930: No hits with both read scope and restriction set in OR operation

(Changed in 8.3-0:4)

No records would be found when using a combination of a read scope and a search command with an `AND` restriction of an expression with `OR` operands. Additionally, there must exist some zero hit search sets before the failing search.

The problem can be illustrated with the ALICE demo database. Prior to this correction, the following sequence would not yield any hits for the last `FIND` expression:

```
BASE ALICE
DEFINE FIND MIN=0
```

```
FIND qqg  
FIND qqg  
FIND qqg  
FIND rabbit  
DEFINE SCOPE S=0  
FIND white AND the  
FIND S=0 AND (pool OR tears)
```

### TRIP-5927: Internal transaction sets from previously opened clusters

(Changed in 8.3-0:4)

A transaction set related to a previously opened database cluster would not yield any hits.

### TRIP-5926: Broken compress operation via XPI still callable

(Changed in 8.3-0:4)

The Compress operation callable via the XPI (e.g from TRIPmanager) was originally meant to enable the DBA to perform the remote equivalent of PACKIT instead of having to do it on the server. This never worked fully and was deemed too broken to be useful. Unfortunately, the Compress operation was still possible to call via XPI clients such as TRIPmanager, which would result in corrupted or otherwise unusable results.

This has been addressed by having TRIPsystem return an error indicating that the requested functionality is not available whenever an attempt to call the broken compress operation is detected.

### TRIP-5925: Memory leaks when closing and reopening kernel windows

(Changed in 8.3-0:4)

A sequence like the one below executed in TRIPmanager would cause TRIPsystem to leak 4kb of memory per iteration of the sequence:

1. Open the CCL command window
2. Execute a search in a LA1 database
3. SHOW some of the results
4. Close the CCL command window

### TRIP-5920: Memory leaks when closing and reopening databases

(Changed in 8.3-0:4)

Closing and reopening databases in a session where either the session or one of the databases was using UTF-8 as character set could leak up to 200kb of memory per database.

### TRIP-5916: Incomplete index using both immediate and standard indexing

(Changed in 8.3-0:3)

When using immediate indexing (such as used when setting the indexOnCommit property to true in TRIPnpx and TRIPjxp), a subsequent standard index run (via the INDEX CCL command or using the index or loadix command line tools) could result in some changes not be properly reflected in the index. In databases in which this has occurred, a full re-index run is needed to repair the index.

### **TRIP-5913: Risk for crash when using multiple kernel history windows**

(Changed in 8.3-0:2)

TRIP could crash when XPI applications, such as ones using TRIPjxp or TRIPnxp, declare and use multiple instances of the TRIPsystem history kernel window (as is the case when using multiple instances of the classes TdbCclCommand or TdbSearch in the same session).

### **TRIP-5903: Risk for crash with session pause/resume and debit logging**

(Changed in 8.3-0:1)

Using the the TdbChangeUser API function while debit logging was enabled could cause the TRIP kernel to crash if done in a "stateless" fashion by wrapping the calls (to TdbExecuteCcl, etc) with a TdbSaveStatus/TdbLoadStatus pair. This would happen when clusters were not used.

### **TRIP-5902: Clustered search crash after session pause/resume**

(Changed in 8.3-0:1)

Performing clustered search in a session after it has been paused and resumed using the TdbChangeUser API function caused the TRIP kernel to crash if done in a "stateless" fashion by wrapping the calls (to TdbExecuteCcl, etc) with a TdbSaveStatus/TdbLoadStatus pair.

### **TRIP-5882: Procedure run via XPI may not send history changes back to client**

Running a procedure from a network client (i.e., from TRIPmanager, TRIPnxp or TRIPjxp) such that among the first things the procedure does is to execute a DELETE S=ALL would, when the procedure was executed a second time, not result in any search history information sent back to the client (e.g., TRIPmanager). For the client it would look as if the second call did not do anything at all.

### **TRIP-5864: Intermittent crash when producing an output format report**

Requesting an output format report may in rare, data-dependent cases cause the TRIP kernel to crash in the boundary between two "kernel window" pages.

### **TRIP-5855: Thesaurus search not correct with mixed normalization**

Using a thesaurus with a database where the database declares a different character set and/or searchable characters than the thesaurus would cause thesaurus lookup to incorrectly use the text normalization of the database. This could cause incorrect search results.

### **TRIP-5845: Doctor/Tracer may incorrectly report NULL bytes in data**

The TRIP utilities Doctor and Tracer would only in some rare cases incorrectly report that TEXT and PHRASE values contained NULL bytes and terminate.

### **TRIP-5843: Doctor/Tracer rejects analysis of thesauri**

The TRIP utilities Doctor and Tracer would only accept regular databases as input, not thesauri. This has now been rectified.

## Fixes for problems on Solaris only

### TRIP-5912: Log timestamp wraparound

(Changed in 8.3-0:2)

Millisecond timestamps for the API and XPI logs on Solaris wrapped around in February 2024, leading to all parts of the logged timestamps to be incorrect (e.g. with date in 1970 instead of in the present day).

## Fixes for problems on Windows platforms only

### TRIP-5911: Crash with XPI logging enabled

(Changed in 8.3-0:2)

The TRIPsystem tbserver process could crash upon startup when serving an XPI client (TRIPnpx, TRIPjxp or TRIPmanager) if XPI logging was enabled in tdbb.conf via the XPI\_LOG\_LEVEL symbol.

## Version 8.2-3

### New functionality for all platforms

#### TRIP-5821: Baseline termsets on numeric fields in clusters fail to update

Creating a baseline termset (via TRIPjxp or TRIPnpx) on a numeric field based on a search set from a database cluster, and later updating that termset, the operation is likely to return the error message stating "updating an existing term set with new terms is not allowed", even if the update set contains fewer terms.

#### TRIP-5811: History deltas for XPI when using RUN and FIND SAVE

A TRIP procedure can, when executed, result in many search sets being generated. However, only the last one is generally returned in the response. To address this issue, a new "history delta" concept has been implemented. This allows commands that executes procedures via the XPI to obtain all resulting search sets instead of only the latest one.

The old behavior is retained as default for backward compatibility. To retrieve all sets via TRIPjxp or TRIPnpx, the history delta behavior must be explicitly enabled from the client side in application code. Refer to the documentation sets for version 8.2-2 of TRIPjxp and TRIPnpx for details. The history delta behavior is enabled in TRIPmanager from version 8.2-2.

#### TRIP-5789: DOCTOR utility phrase field NULL byte detection

PHRASE fields are textual and must not contain NULL bytes. The presence of such bytes is an indicator of data corruption. The DOCTOR utility program can now detect and report such errors.

#### TRIP-5785: Display old timestamps in TRACER

The TRACER utility program can now show timestamps for old record versions, adding to the help this tool can provide when analyzing the database file structure.

### New functionality for Solaris only

#### TRIP-5820: Allow gethw to run before installing TRIPsystem

The gethw tool for an as yet uninstalled version of TRIPsystem can now be executed without the corresponding TRIPsystem version having been fully installed first. This allows the system administrator to request a license prior to a main version upgrade instead of having to request and wait for a new license during the actual upgrade.

## Fixes for problems on all platforms

### TRIP-5895: Exact match search with internal transaction sets

(Changed in 8.2-3:6)

Using exact match search with internal transaction sets does not work if the internal transaction set is from a database not currently open for search and where the name of the transaction set field does not occur in any of the currently open databases.

### TRIP-5877: Executing procedures via XPI may produce incorrect results

(Changed in 8.2-3:5)

Executing a procedure via XPI (from TRIPmanager, TRIPjxp, or TRIPnxp) could result in incorrect results or a crash if any of the commands exceeded 252 characters.

### TRIP-5875: CCL command DEFINE EFORM may cause crash

(Changed in 8.2-3:4)

An entry form in a database imported via TRIPmanager would cause TRIP to crash when defined in TRIPclassic TTY mode without first being opened and saved in TRIPclassic's entry form editor.

### TRIP-5874: The search operator NOT might return an incorrect result

(Changed in 8.2-3:4)

There was a risk that the search operator NOT in rare and intermittent cases would produce incorrect results.

### TRIP-5872: Risk for crash during search with scope

(Changed in 8.2-3:4)

Repeatedly performing searches like "find a b#" would cause the TRIP kernel to crash if a search scope also was active and if the scope size (record count) was less than the size of any of the terms found via truncation.

### TRIP-5840: PRINT jobs may hang for very long terms

(Changed in 8.2-3:3)

A term longer than the kernel window line length (normally 80 characters), could cause the output formatter to hang. This could fill up remaining space on the file system if left unchecked. This especially occurred with XML output formats using the <ENTITIFY> and <NOLF> filters.

### TRIP-5834: Insufficient wait for index lock to be released

(Changed in 8.2-3:1)

TRIP acquires an exclusive lock on database indices when indexing is run. So, for use of the database index such as for indexing and global updates, TRIP will attempt to re-acquire access a small number of times. This re-acquisition time could in some cases be insufficient, resulting in the error "Index of DATABASE in progress, please try again later," even in cases where such indexing seemingly should already have been completed.



### **TRIP-5831: Uniqueness flag incorrectly checked for record name fields**

(Changed in 8.2-3:1)

Updating a database design via TRIPmanager can result in the unique flag redundantly be set for record name fields. Since record name fields are unique per definition, this is not strictly an error and can indeed be expected. The error was an overly zealous field specification validation that resulted in an error indicating that uniqueness cannot be changed whenever the design update was attempted.

### **TRIP-5830: No message for error nr 796**

(Changed in 8.2-3:1)

The error nr 796 had no message associated with it, resulting in a somewhat cryptic fallback message "TDBS ERROR: 796". This error has now the message "Field uniqueness cannot be changed for non-empty databases".

### **TRIP-5822: Procedures possible to create in non-owned group**

Only the owner of a group is the only one who has the right to create procedures in it. Despite this, it was erroneously possible for group members to create procedures in a group they are not the owner of. Procedures created this way would still only be possible to delete by the group owner, effectively resulting in write-only procedures for non-owners.

This only happened if TDBS\_RO\_USER\_PROCEDURES was set to Y in tdbbs.conf

### **TRIP-5817: Risk for crash in search with many search steps**

Executing a complex search over multiple steps containing several OR operators could cause a crash.

### **TRIP-5818: Confusing error message on database/field name conflict**

(Changed in 8.2-3:2)

Opening two databases, where the second has the same name as a field in the first correctly causes an error. However, that error message was misleading, saying "FIELDNAME is not a field descriptor". The error messages for such naming conflicts have been improved to more clearly indicate the nature of the error.

### **TRIP-5815: Crash with external transaction sets**

Executing a search with external transaction sets (e.g. "FIND myfield=FILE(myfile.txt)") could cause the server-side process hosting the TRIP session to crash.

### **TRIP-5813: Incorrect command status from FIND SAVE**

The FIND SAVE command is used to execute a search-oriented procedure, typically one created using the SAVE command. When executing such a procedure, it was incorrectly reported as a FIND command, not a FIND SAVE command. This resulted in only one (the last) search history entry being reported to applications even if the procedure successfully executed multiple searches.

### **TRIP-5810: Record number fields incorrectly handled in TFORM buffer APIs**

Using the TRIP Toolkit API functions TdbGetRecordBuffer and TdbPutRecordBuffer is a way to, among other things, handle single-record TFORM based data export/import and -copying from a server-side C program or ASE library.



If the database has a record number field, its value would incorrectly be included in the TFORM data generated by TdbGetRecordBuffer. When this data is imported to a database with an identical design (using TdbPutRecordBuffer), it failed with error message "No write access to field".

### **TRIP-5809: Crash in XPI library for cluster search with multiple words**

Executing a search with multiple search terms in a database cluster could cause a crash when data from such a search was retrieved. This happened when the client requested hit focused extracts from fields in the records of the search set.



## Version 8.2-2

### New functionality for all platforms

#### TRIP-5788: Unicode UTF-8 sessions for TRIPclassic TTY mode

TRIPclassic can now be started using Unicode UTF-8 as session character set when running in TTY mode. The new command line option `-E / --uicharset` controls the session character set, and is supported for use as long as TTY mode (option `-t tty`) is used. For example:

```
trip -t tty -E utf
```

or

```
trip -t tty --uicharset=utf
```

#### TRIP-5787: Information from TFORM loader about erroneous lines

The TFORM load program will now show information about the line at which a structural TFORM error was found that caused failure to load some of the data in the TFORM file.

### Fixes for problems on all platforms

#### TRIP-5793: Focused retrieval via XPI may hang if index not updated

Retrieving hit-focused text fragments (so-called "teasers") via the XPI protocol from clients TRIPjxp and TRIPnpx could cause the TRIP kernel to hang if the records from which focused text was being retrieved had been updated but not indexed since the update.

#### TRIP-5791: Text field incomplete after update

Updating a text field could result in data missing from the stored value. Such updates would appear to complete successfully with no error message returned.

#### TRIP-5782: Redirecting DBCOPY console output results in garbled text

When running the `dbcopy` tool in a script for backup automation purposes it is likely that its console output is redirected to a log file. In this case, the output that works when used interactively (by often redrawing the current line) instead results in a messy and hard to read file.

#### TRIP-5781: DBCOPY returns 0 (zero) for in some failure scenarios

When `dbcopy` fails to copy a single, specified database, the program would still exit with return code 0 (zero), something normally reserved for success status. When used via scripts (e.g. for automation purposes) the `dbcopy` error state could therefore not be properly detected.

#### TRIP-5780: Zero-sized BAF fails with DBCOPY

Attempting to run `dbcopy` on an empty (zero-sized) database resulted in the error message "ERROR reading BAF header data: truncated read 0/2048 bytes".

**TRIP-5779: SCP password argument for DBCOPY not working properly**

The `dbcopy` option `-P` (remote password) did not work properly. The error message "Password authentication failed" was repeatedly returned even if the password was specified correctly.

**TRIP-5777: No message from DBCOPY on DB without access rights**

Running `dbcopy` on a database to which the specified user has no access did not provide any information about that.

**TRIP-5776: DBCOPY console output may sometimes get garbled**

When running `dbcopy` interactively and not redirecting its output, the status printout messages could in some cases become garbled in which the previous version of a status message line would still be partially visible if the new version of the status message was shorter.



## Version 8.2-1

### New functionality for all platforms

#### TRIP-5742: Third party OpenSSL library upgraded

The third-party library OpenSSL has been upgraded to version 1.1.1s in TRIPsystem distributions for Windows and Solaris. This does not apply to Linux distributions of TRIP since they use the operating system provided version of this library instead.

#### TRIP-5632: DBCOPY tool for “hot backup” scenarios

(Changed in 8.2-1:4)

As a systems administrator, it is desirable to be able to lock databases against modification for purposes such as backup/restore without having to take all of TRIP offline. Such locking ensures that the backups are in consistent state. Until now, the only way to guarantee such consistency has been to stop all server-side processes including the daemons. This is, however, not ideal for deployments requiring 24/7 uptime.

The new DBCOPY utility program addresses this need by providing a database file copying mechanism that acquires an exclusive TRIP write lock on the database for the duration it takes to make the copy. The target location for the copies can either be a file on the server file system or a remote server via SCP/SFTP.

Please refer to the DBCOPY manual (DBCOPY.pdf) in the TRIPsystem documentation set for more information on how to use this new utility.

### Fixes for problems on all platforms

#### TRIP-5772: Non-eq operators not working for DISPLAY on numerical fields

(Changed in 8.2-1:3)

Using a numerical field such as INTEGER or DATE in a DISPLAY expression with a non-eq operator (“>”, “<”, “>=” or “<=”) returned an error indicating an invalid value (e.g. “Invalid INTEGER value”).

#### TRIP-5768: Corrupted TFORM export+import of XML database records

(Changed in 8.2-1:3)

When printing XML database records to TFORM and subsequently re-importing them by loading that TFORM file into another XML database, the resulting record would not be correct.

#### TRIP-5767: Server add-on config files not properly read

(Changed in 8.2-1:3)

Incorrect server-side add-on configuration files could in some cases be read by the tripctrl\_core library support routines that TRIPsystem provides to other parts of the server-side TRIP platform software. This primarily affected TRIPcof, in which case there was a risk that the file filter adapter properties were not read from the actual configuration files but other files that contain “.conf” in their name at another place than the very end.

### TRIP-5764: Large text or phrase values may cause server to hang

(Changed in 8.2-1:2)

Passing large values (about 10MB or larger) to text or phrase fields when inserting or updating a record could in some circumstances cause the server-side XPI library to hang indefinitely, with the server process (tbserver) consuming a large amount of CPU.

### TRIP-5760: Valid field restriction pattern does not match

(Changed in 8.2-1:1)

Field value restriction patterns would, even if valid and compared to a matching data value, fail the matching with an error message such as "The phrase does not match the specified pattern."

### TRIP-5759: Numeric expressions in CCL sometimes fail to parse

(Changed in 8.2-1:1)

Numeric expressions, such as a date (e.g., `FIND DAY=02/07/1985`) sometimes failed to parse, resulting in error messages such as "The selection number nn does not exist".

### TRIP-5758: Indirect search in more than one field causes crash

(Changed in 8.2-1:1)

Performing an indirect search caused a crash a short time into the processing if the condition contained more than one indirect part. For example, using the ALICE database:

```
BASE ALICE
FIND SPEAKER=1.SPEAKER AND CHAPTNR=1.CHAPTNR
```

### TRIP-5755: Crash in TRIPxml if fragment set expression results in no hits

Requesting a fragment set from a JSON/XML database could cause the server-side process to crash if the XPath expression that defines the fragment set did not match data in any records.

### TRIP-5754: Invalid output for TRIPxml highlight in fragments

(Changed in 8.2-1:3)

Requesting highlighting when retrieving in TRIPxml documents as a fragment set would not mark up the hits. Instead, all text nodes of the documents was emitted in place of the actual, single text node of each requested element.

### TRIP-5753: The <nolf> filter is ignored when used with virtual fields

The <nolf> filter in an output format used as a virtual field definition was silently ignored. This caused occasional additional linefeeds to be emitted.

### TRIP-5752: For-loop in output format may hang w/o loop variable use

A for-loop used in an output format without referring to the loop variable was likely to cause the output formatter not to exit. This would, especially when used with virtual fields, eventually cause a crash due to an out-of-memory condition. When used with the PRINT command, this error would instead cause the file to be written until there is no more space on the device.

### **TRIP-5751: Hard line breaks not handled by virtual fields**

(Changed in 8.2-1:2)

Hard line break characters produced as needed by the output formatter were not processed when generating values for virtual fields; such characters were instead included as character hex 1F in the resulting report.

### **TRIP-5750: End of long text inserts in output formats replaced by blanks**

A text-insert longer than twice the TRIP kernel window buffer size was emitted in its entirety. Anything not fitting on two kernel window buffer pages was emitted as blank characters instead.

### **TRIP-5749: JSON file import hangs or causes error**

Attempting to import a JSON document into a JSON/XML database had a high likelihood of causing the server-side process to either hang or return an error with the message "No JSON document supplied".

### **TRIP-5748: Importing DB design with field value default may cause crash**

(Changed in 8.2-1:2)

Importing a database design where there is at least one field for which a default value is specified was likely to cause a crash, terminating the session prematurely. When running in Classic, an error message containing the text "buffer overflow detected" could also be printed by the operating system at program termination.

### **TRIP-5745: Storage of TEXT with short paragraphs wastes space in BAF**

The smallest BAF space allocation increment is 64 bytes for any record type larger than 512 bytes. However, for short records and TEXT paragraphs the smallest space allocation was 512 bytes even if the size of the stored value was much shorter. This resulted in a significant amount of wasted space in the BAF data blocks.

For existing databases that use TEXT fields with many short paragraphs, running PACKIT should be considered as it will decrease the BAF file size noticeably.

### **TRIP-5739: XML output format reports may include invalid character hex 1F**

The XML output format (as generated by TRIPmanager) normally converts reserved XML characters into character entities. If there is no space left in the TRIP kernel output formatter line buffer for such an entity the internal line break marker could become duplicated, leaving a hex 1F character included in the resulting XML document report, making it invalid XML.

### **TRIP-5738: Global update of database with record name field may fail**

A database design having a record name field and created by TRIPmanager would cause global updates to incorrectly fail with the error message "Value already exists in unique field".

### **TRIP-5737: Poor performance storing a large number of TEXT paragraphs**

When storing a TEXT field with a very large number of paragraphs into TRIP via TRIPnpx or TRIPjxp, TRIP took a very long time to insert the data into the database and commit the record. The session would technically not hang, but given the time taken to complete such operations, it was generally perceived to do so by the end user.

### **TRIP-5733: Conflator library path incorrectly reset during upgrade**

The value of the TDBS\_CONFLATORS library was incorrectly configured in the tdb.conf file as updated by the TRIPsystem install script as well as in the Docker initialization. The value was set to a the pre-8.1 "\$TDBS\_HOME/bin/tripstem.so", although the value "\$TDBS\_HOME/lib/libtripstem.so" is required for this to work with TRIP 8.2. This resulted in index failures for databases that makes use of "non-Boolean" functionality.

### **TRIP-5731: Negative numbers not possible to insert via SQL**

Attempting to insert a negative integer value into an INTEGER field in a TRIP database using SQL would fail with a syntax error.

### **TRIP-5568: CCL query with many elements may fail**

The error message "The order consists of too many order parts" could be returned on CCL queries whose TRIP-internal parsed form would contain more than 512 elements, where an element can be a word, an operand, a parenthesis or any other separable item. This internal form could in many cases have more such elements than the original, external CCL statement.

This limit has now been removed, allowing for CCL statements of arbitrary long length when used in TRIP sessions started via TRIPmanager, TRIPjxp or TRIPnpx, or in server-side programs that use the TdbStartTrip function to start TRIP sessions. This improvement does not apply to TRIPclassic, in which CCL statements cannot be longer than 400 bytes.

### **TRIP-5525: Improved JXTOOL documentation**

The documentation for TRIPxml, i.e. JSON/XML databases (JSON\_and\_XML\_Databases.pdf) has been extended with a new appendix describing the use of the server-side JXTOOL utility program.

## **Fixes for problems on Unix platforms only**

### **TRIP-5756: Old tripd may not be stopped during upgrade on Solaris**

The install script will, as part of performing an upgrade installation, shut down a running tripd process from the installation being upgraded. This could have, if the process information for than one process contained the word "triped", resulted in the wrong process being terminated. The consequence could be that the other software for which the process was killed would become unstable and/or that the upgraded tripd would be unable to start due to an already running old version.

## Version 8.2-0

### New functionality for all platforms

#### TRIP-5662: Blank as date format separator

The space character can now be used as date format separator. In order to specify this, use the caret character (^) in the specification instead of actual spaces.

#### TRIP-5646: Allow whitespace sequences in <nolf> filter text inserts

(Changed in 8.2-0:3)

When using the <nolf> output format filter, a sequence of multiple whitespace characters in text inserts was compressed into a single whitespace. Such sequences are now kept as is. If such sequences are not desired, one can use the <noorig> filter to accomplish the whitespace compression previously done by default.

#### TRIP-5673: Store accounting log with default name in TDBS\_ACCDIR

The accounting log can now be stored in the directory specified by the TDBS\_ACCDIR privileged logical name in tdb.conf such that the default file name (DEBIT.LOG) can be used. In order to do this, add bit 8 (value 256) to the the bitmask value for the TDBS\_ACCFLG logical name in tdb.conf.

#### TRIP-5638: Output format filter for session character set

(Changed in 8.2-0:4)

The output format filter <charset> has been added. When used, it will emit the standardized name of the session character set. This is "UTF-8" for Unicode UTF-8 sessions and "windows-1252" for sessions using LA1.

This filter should be used in output formats that generate XML documents, in which the XML declaration instruction specifies the document's encoding. So, instead of hard coding the encoding in the output format, the correct encoding will always be specified when this filter is used thusly.

#### TRIP-5636: Default file directory for CCL commands

(Changed in 8.2-0:4)

When using the CCL commands EXPORT, PRINT LOAD and IMPORT from a networked client (TRIPxp, TRIPnxp or TRIPmanager), the caller have previously had to know a fully qualified path on the server. Using an unqualified filename without a directory path would read or write the file in the current directory of the tbserver process, which typically isn't where one wants such files.

To make the networked use of these commands more convenient, the two new tdb.conf logical names TBS\_CCL\_FILE\_DIR and TBS\_CCL\_NO\_RELATIVE can be set to define a default server-side directory for the files read and written by the EXPORT, PRINT and LOAD and IMPORT commands instead of having them be emitted to an unsuitable location.

Refer to the "TRIPsystem Environment" document for more information about the new logical names TBS\_CCL\_FILE\_DIR and TBS\_CCL\_NO\_RELATIVE.



## TRIP-5581: Efficiency improvements for term lists from clusters

(Changed in 8.2-0:4)

When display lists from database clusters are created, terms from all databases must be merged to present a common result. The efficiency of this merge process has been improved for situations where the cluster has many member databases and the display list contains many terms.

## TRIP-5580: Efficiency improvements for indirect searches

The efficiency of search and display orders using internal transaction sets and the MAP function has been improved by removing the need to use the BAF file as part of the query processing. This change will result in a noticeable performance improvement compared to previous versions of TRIP.

## TRIP-5579: Efficiency improvements for queries resulting in many terms

The efficiency of search orders and to some degree display orders resulting in hitting a large number of terms has been improved. While heavily dependent on the data being used, this can produce a noticeable improvement compared to previous versions of TRIP.

## TRIP-5573: Store accounting log with default name in TDBS\_ACCDIR

(Changed in 8.2-0:4)

The accounting log can now be stored in the directory specified by the TDBS\_ACCDIR privileged logical name in tdbb.conf such that the default file name (DEBIT.LOG) can be used. In order to do this, add bit 10 (value 1024) to the the bitmask value for the TDBS\_ACCFLG logical name in tdbb.conf.

## TRIP-5367: Improved network session encryption

The tbserver now negotiates a session-specific AES key when used from version 8.2 or later of TRIPmanager, TRIPjxp and TRIPnpx. This results in enhanced security and improved performance. The change is backward compatible with older clients that still uses a negotiated 3DES key.

## New functionality for Linux/UNIX platforms only

### TRIP-5215: Packaging enhancements for installation on Linux/UNIX

Several changes have been made with regard to how TRIPsystem is installed on Linux and Solaris:

- All SO library files are now located in the lib directory under the TRIPsystem installation. This also has impact on linking ASEs and other TRIPtoolkit based programs. For more details, see section “*Configuration of runtime linker path*” in the TRIPsystem Installation Guide for UNIX.
- Programs that normally require privileged (root) access are placed in the new/sbin directory under the TRIPsystem installation. This primarily involves scripts for installing and uninstalling TRIPsystem, but also hosts various support scripts like chkinst for installation health check and the new migrate\_control script for CONTROL database migration.
- The “script” directory under the TRIPsystem installation has been removed as the files therein have either been removed or relocated to different directories.
- The installation script defaults the values for TDBS\_LOG, TDBS\_SCRATCH and TDBS\_SIF to a location outside the software installation tree itself. This is expected to be /var/lib/trip/ctl on Linux and /var/trip/ctl on Solaris. If, during upgrade install, these variables are already set in tdbb.conf to a non-installation directory, the previous values will be kept.

- The installation script defaults the value for `TDBS_BASES` to `/var/lib/trip/db` on Linux and `/var/trip/db` on Solaris. If, during upgrade install, this variable is already set in `tdbs.conf`, the previous value will be kept.
- Linux only: Improved check of software prerequisites by the installation script. The script can also, if the administrator so chooses, install the dependencies. The dependency check script is available for separate use in the `sbin` directory under the TRIPsystem installation.
- Linux only: Several third-party libraries that previously were bundled with TRIPsystem are now software prerequisites instead. This makes possible to address security vulnerabilities in such libraries without having to upgrade TRIPsystem itself.
- Linux only: The installation script offers an option to configure `tripd` and `tripnetd` for automatic launch via `systemd` when deployed on a machine on which `systemd` is in use.

For more information about how TRIPsystem installs on Linux and Solaris, please refer to the document “Installing TRIP on UNIX”, provided as the file `TRIPsystem_Installation_Guide_Unix.pdf` in documentation set.

### TRIP-5635: Log file maintenance tool

A new utility program “logmaint” is now available for TRIP on Linux and Solaris. It is used to remove old log files from `tbserver`, Toolkit API, Kernel and XPI, as well as session index files (SIF) and `tripd` batch job logs for `PRINT`, `UPDATE`, `INDEX`, `LOAD` and `LOADIX` tasks.

The new `tdbs.conf` logical names `TDBS_LOGPRUNE_INTERVAL`, `TDBS_LOGPRUNE_MAX_LOGS`, `TDBS_LOGPRUNE_MAXAGE` and `TDBS_LOGPRUNE_MAXAGE_BATCH` control the default behavior of `logmaint`.

The Docker image for TRIP is configured to automatically use of this tool in order to keep the amount of log files down to a manageable amount.

For non-Docker deployments, `logmaint` is not run automatically. If you wish to start using this tool, consider configuring it to run regularly via `cron` (using the `--once` option to `logmaint`) or put into the background (via `&` as it will not turn itself into a daemon).

### New functionality for the Docker distribution only

#### TRIP-5685: Licenses now installable via Docker secrets

The TRIP Docker image now supports installation of the TRIP license via a Docker secret. This allows for better automation of container deployments and provides an alternative to the manual use of `TRIPmanager` for license installation. Refer to the “TRIP on Docker” document for more information about this feature.

#### TRIP-5665: Docker image based on RHEL8 UBI

The Docker image for TRIP 8.2 is based on the Universal Base Image (UBI) for version 8 of the RedHat Enterprise Linux distribution.

## Fixes for problems on all platforms

### TRIP-5725: Wrong result from TdbGetRecord

(Changed in 8.2-0:4)

Calling the TRIPtoolkit function TdbGetRecord with mode RECORD\_FROM\_BASE is expected to result in a behavior identical to what the older TdbGetRecordInBase function provides, but it always returned the first record in the database regardless of what record ID was specified as input.

### TRIP-5723: Crash deleting an FM user that owns databases

(Changed in 8.2-0:4)

Attempting to delete a TRIP user with file manager privileges such that the user still owns databases at the time of the deletion attempt would cause a crash.

### TRIP-5722: Creating DB design via copy may silently fail

(Changed in 8.2-0:4)

On a system where the number of registered user databases are at or over the max number of registered databases defined by the license, an operation to create a database or copy an existing one into a new one appeared to succeed while it actually would fail. If done via TRIPmanager, this could cause anomalous behavior listing and viewing database objects for the duration of the session.

### TRIP-5720: Broken output format links in CONTROL disrupts listing via XPI

(Changed in 8.2-0:4)

If the CONTROL database has become inconsistent such that the link between a database entry and an output format entry associated with that database is broken (e.g., if the output format record no longer exists), the format listing requested by the XPI client (TRIPmanager, TRIPjxp or TRIPnxp) was prematurely terminated and resulted in an invalid XML response document.

### TRIP-5719: TdbBaseInfo returns error for the BASEINFO\_DBDESC mode

(Changed in 8.2-0:4)

Sever-side applications or ASE routines calling the TRIPtoolkit function TdbBaseInfo with the mode argument set to BASEINFO\_DBDESC would receive error "Unrecognised option: 14" if the database is open or previously has been opened in the current session.

### TRIP-5710: Failure to open cluster might produce incorrect error message

(Changed in 8.2-0:3)

Under certain conditions, opening a database cluster would fail with the error message "command aborted" without the user having taken any action to abort the operation. This happened when all the following conditions applied:

- A database within the cluster had an index file (BIF) from an aborted or on-going index process.
- The index crash/update must have happened near the end of the update of entry blocks.
- There were at least one more database within the cluster that lacked an index file or access rights.

- At least one of the non-indexed/accessible databases must, in the cluster definition, appear before the one with the aborted/on-going index.

When this situation now occurs, the correct error message "Index of DBNAME in progress, please try again later" will be shown.

### **TRIP-5706: Database design with field groups fails to import**

(Changed in 8.2-0:3)

Design files for databases in the TRIPclassic DEF format and the TRIPmanager XML format would fail to import if they contained field groups.

### **TRIP-5671: Batch jobs failing w/o correct TDBS\_SCRATCH in network sessions**

(Changed in 8.2-0:3)

For networked sessions (i.e., from TRIPmanager, TRIPjxp or TRIPnpx), issued print, update and index jobs would fail if TDBS\_SCRATCH was incorrectly defined. Print and update jobs will now attempt to use TDBS\_LOG as a fallback location. Because indexing can produce very large temporary files, such jobs will return an error if TDBS\_SCRATCH is not defined in order to avoid risk filling up the file system.

### **TRIP-5670: Keep hit locations for record after update via XPI**

When using TRIPjxp or TRIPnpx to update a record in a search set, followed up the repeated retrieval of the record, the returned data for the record would not include any hit information for updated TEXT fields.

### **TRIP-5669: The Doctor tool is slow for large databases**

The Doctor tool, used for problem diagnosis of databases, performed poorly when asked to analyze large databases. The optimizations made to address this problem should improve the performance up to an order of magnitude.

### **TRIP-5608: Invalid session status when tripd is not running**

(Changed in 8.2-0:3)

Calling the TdbStartTrip function without username and password to initialize the TRIP kernel normally results in the TdbSessionInfo function returning status 1 (kernel is initialized, but user is not logged in). However, if tripd is not running, the status information from TdbSessionInfo is instead 4 (user has been temporarily logged out w/o any saved session state).

This caused applications that rely on the TdbSessionInfo function to determine if either the TdbChangeUser function or the TdbStartTrip function should be called when logging on a user to incorrectly use the TdbChangeUser function, which resulted in a TRIP kernel crash.

### **TRIP-5585: Risk for crash in accounting with large clusters**

When having accounting logging enabled when using a database cluster with more than 250 databases displaying data from the cluster (e.g., with SHOW REVERSE) could cause a crash or error messages written to the accounting log file.

## TRIP-5415: Long integers truncated in SQL engine

(Changed in 8.2-0:4)

Integer fields with long values would get truncated to their signed 32-bit max value when inserted or selected via SQL expressions in TRIPsql.

## Fixes for problems on Unix platforms only

### TRIP-5702: RHEL fapolicyd blocks TRIPsystem binaries

(Changed in 8.2-0:2)

A Linux system where the fapolicyd service is in use will normally behave so that any shared object libraries not located in whitelisted directories will not be loaded by the operating system's dynamic loader. In addition, fapolicyd will normally also block access to binaries explicitly not whitelisted. This resulted in "operation not permitted" or "file not found" errors when trying to access any TRIPsystem program or shared object library.

This also affected the installation script, which would not perform correctly (albeit it would claim to be successful). Attempting to use any TRIP program or a program that uses the TRIP shared object libraries would fail with an error message about not being able to load libtdbs.so or libtripcrt\_core.so.

The installer script will now update the fapolicyd database by whitelisting the TRIPsystem lib, bin and sbin directories. Similarly, the uninstall script will remove the TRIPsystem lib, bin and sbin directories from the whitelist. The fapolicyd adjustment is managed by the new `sbin/chfapolicy_sys` script.

### TRIP-5645: False positive initgroups error message from tripd

When running batch jobs, tripd tries to match the user and primary group of the OS user that submitted it. When running tripd as a non-root user, this operation would fail with error message such as "spawnit: initgroups for user tripd failed, errno 1", indicating a permission error.

This personalization behavior is not required when tripd is running as the same operating system user as the session processes (e.g., tbserver) are running as. In that situation, the impersonation behavior is now skipped.

The behavior remains in use if tripd is running as a different user than the session process submitting a job. In this case tripd should either be run as root, or the database file permissions should be set so that all operating system users who need to have write access to them.

## Version 8.1-3

### New functionality for all platforms

No new functionality has been added in this release.

### Fixes for problems on all platforms

#### TRIP-5690: Session character set choice ignored for networked clients

(Changed in 8.1-3:4)

Non-XPI network clients choose the session character set when establishing the session. This choice was ignored, causing non-English characters to be incorrectly represented when reading or writing data unless the session character set chosen was UTF-8.

#### TRIP-5686: Database read scope may cause crash or zero hits

(Changed in 8.1-3:3)

A database with a read scope for a user or group could cause a crash or zero hits when opening the database after a new record was added and indexed.

#### TRIP-5679: A TFORM load might crash if database restrictions fail

(Changed in 8.1-3:2)

A database with field value restrictions could cause a crash when loading TFORM data. If a restriction is violated by a record, this record will be written out in an error log file. This process would cause a subsequent TFORM record to incorrectly fail and/or cause a crash.

#### TRIP-5676: Output format filter with text variable does not repeat

(Changed in 8.1-3:2)

Using an output format filter that is referencing a field inside a text variable would incorrectly make usage of the text variable to work only for the very first time in the output.

#### TRIP-5674: Read scope not properly reset after adding new record

(Changed in 8.1-3:2)

A new record added to a database with a read scope where the added data did not fulfil the scope condition, the record would - contrary to the scope's definition - still be available after reindexing.

#### TRIP-5660: Very long words in text field disrupts the print command

A sequence of characters without whitespace forming a "word" would cause the PRINT command to loop, generating very large output files, potentially filling up the file system.

### TRIP-5658: Incorrect cluster search results using the FILE function

Using the FILE function in a CCL order to search in a database cluster caused a thread race if TDBS\_MAX\_THREADS is set to a non-zero value. This thread race was likely to cause the search result to be incorrect.

### TRIP-5654: Occasional invalid output with XML output formats

Output formats rendering data in an XML format would occasionally produce unterminated or duplicated element start tags.

### TRIP-5653: Missing whitespace before umlaut with <nolf>

Using the <nolf> output format filter, whitespaces were missing before words starting with an umlaut and also not fitting completely on the current line being formatted.

### TRIP-5630: Crash when saving a record when there is a read scope

Adding a record to a database with a scope defined would cause TRIP to crash.

### TRIP-5629: Thread race during cluster search

When performing clustered search or display operations with the files for the databases in the clusters having different owner groups, there was a small risk for unexpected results. The cause was that the group impersonation behavior utilized operating system functionality not compatible with multi-threaded processes.

Since no suitable thread-safe impersonation alternative exists, the correction for this involved the deactivation of the group impersonation. This means that in order for TRIP to operate correctly, database file permissions must be consistent. **All TRIP database files must be assigned to an OS group that the OS user who the TRIP processes run as is a member of**, or be owned by that OS user. If there are database files owned by other OS users and groups, then TRIP may encounter file access permission issues when attempting to use those databases.

Traditional, backward-compatible group impersonation behavior can be enabled by setting the TDBS\_IMPERSONATE\_GROUP symbol in tdb.conf to TRUE. If this is done and you are expecting to use database clusters, you should also set the TDBS\_MAX\_THREADS value to 0 (zero) in order to avoid problems. This may impact the performance of search and display operations, however.

### TRIP-5617: Text variables and case function in output formats

Text variables could not be used with the <case> output format filter. This has now been remedied.

### TRIP-5614: Crash when importing DB design with field groups

Importing a database design with field groups via Classic or via XPI (TRIPmanager, TRIPnpx or TRIPjxp) would cause the TRIP session to crash.

### TRIP-5613: Error modifying DB design with more than one field group via XPI

Changing any aspect of a database design using TRIPmanager, TRIPjxp or TRIPnpx would fail with an error message "Unknown TRIPxpi error, code 0" if the database design contained more than one field group.



### **TRIP-5610: Procedure in group with long name may not be runnable**

Having a procedure in a group with a very long name can be run successfully if using the RUN command, but when executed directly (without RUN), TRIP would instead return an error saying that "... is no recognized macro".

## **Fixes for problems on Unix platforms only**

### **TRIP-5657: TDBS\_SIF defaults to /tmp in Docker**

When deploying TRIP as a container, the TDBS\_SIF property in tdbb.conf was initialized to /tmp. This could cause operational issues such as inability to start sessions if no space was left on the file system on which /tmp is located.

### **TRIP-5652: Some tdbb.conf values reset during container restart**

With TRIP deployed as a Docker container, some of the properties in tdbb.conf were always reset to their default values whenever the container was restarted. These included TDBS\_SIF, TDBS\_LOG, TDBS\_APILOG, TDBS\_SCRATCH and TDBS\_ACCDIR. A change to any of these will now be retained across container restarts unless the new value is set to an invalid path.

## **Fixes for problems on Windows platforms only**

### **TRIP-5688: Crash when using a traditional tripnet client**

(Changed in 8.1-3:4)

There was a high risk for the TRIP session to crash when the server was accessed from a legacy networked application not utilizing the XPI protocol.

### **TRIP-5672: Hanging when entering Classic entry forms**

(Changed in 8.1-3:1)

Entering a TRIPclassic entry form (e.g., by using the EDIT command), could cause the process to hang and consume a significant amount of primary memory. This issue affected only the Windows build of TRIPsystem.



## Version 8.1-2

### New functionality for all platforms

No new functionality has been added in this release.

### Fixes for problems on all platforms

#### TRIP-5650: No space after entity replacement at eol and at end of page

(Changed in 8.1-2:4)

In a report using the `<entitify>` filter, a character entity replacement (e.g. “&amp;”) would, when emitted at the very end of a TRIP kernel window row (page) would omit any whitespace after the character entity and the following word in the report. In addition, if a word was emitted at the very end of the page, any whitespace between the word and the word on the following page would not be emitted. This could result in errors such as the phrase “you & me” being emitted as “you &me” and the phrase “United Kingdom” being emitted as “UnitedKingdom”.

#### TRIP-5631: Occasional omitted white space with the `<nolf>` filter

(Changed in 8.1-2:2 and 8.1-2:3)

Output formats using the `<nolf>` (“no line feed”) filter in order to avoid artificial line breaks in the data would sometimes result in no white space at all being omitted between word pairs (e.g. “wordpair” instead of “word pair”).

#### TRIP-5616: Occasional invalid output with XML output formats

(Changed in 8.1-2:2)

Output formats rendering data in an XML format would occasionally produce unterminated or duplicated element start tags.

#### TRIP-5616: Occasional invalid output with XML output formats

(Changed in 8.1-2:2)

Output formats rendering data in an XML format would occasionally produce unterminated or duplicated element start tags.

#### TRIP-5615: Fewer hits due to incorrect term fragment indexing

(Changed in 8.1-2:1)

The term fragment index file (VIF) would for some term fragments have an invalid structure. This led to dropped hits for some truncated searches. To see if your VIF files have this kind of error, run the `exif` command line tool on the TRIP server. The error is present if its report contains output like this:

```
**** Pointer domain error: BN=123(205957-3305224) --> BN=19212(0-201791)
P6 7
```

If such output is reported by `exif`, you will have to re-index the associated databases after having upgraded to this version of TRIPsystem.

### TRIP-5611: No data when fetching sorted search set via XPI

(Changed in 8.1-2:1)

Fetching sorted data could result in no data being retrieved for request 2 and onwards if using `TdbRecordSet` classes in `TRIPjxp` or `TRIPnxp` to execute and retrieve a search in a “stateless” fashion without retaining the search set number.

### TRIP-5609: Index process crashes or stops with error message

(Changed in 8.1-2:1)

The index process could in rare circumstances crash or stop with an obscure error message such as “`fmgetsvr()` called with first byte zero!”. The problem could occur when all following conditions are met:

1. Large databases and index files
2. A large number of new records to be indexed.
3. The total size of the data to be indexed must cause sub-files to be generated during indexing.

### TRIP-5592: Database clusters with unavailable databases causes problems

A database cluster in which the data files of one or more databases being unavailable in the file system caused premature end of processing the request in the following cases:

- Global Copy
- Indirect search
- Define output format
- Use of the API functions `TdbSortRecords()` and `TdbSortRecordsEx()`
- Show records from a search set and the very first database in the cluster is unavailable

### TRIP-5591: Not possible to fully close a thesaurus

A thesaurus opened in a session was not closed even after the following commands were executed:

```
CLOSE THESAURUSNAME  
DEFINE THES=
```

Trying to delete the thesaurus database files with the TRIP session still active was not possible even after closing the thesaurus in the above manner. The error message “Cannot complete the action because the file is open in <programname>” was returned (on Windows).

### TRIP-5590: Merge applied to fetch of cluster sorted records via XPI

(Changed in 8.1-1:3)

When the `TRIPjxp` and `TRIPnxp` classes `TdbRecordSet` or `TdbSearchSet` were used to perform a query on a database cluster and fetch the result as sorted, the TRIPsystem XPI library would automatically and unconditionally do a `DEFINE MERGE`. The merge sort definition would not be restored to its prior value either.

To address this problem, a new TRIPtoolkit API function `TdbSortRecordsEx` has been added that allows a more fine-grained control over sort merge behavior. The XPI library has been adapted to make use of it.

For applications to benefit from this, version 8.1-2 of TRIPjxp or TRIPnxp must be used. Explicitly set sort merge behavior using the property SortMerge that this version adds to the TdSearchSet and TdbRecordSet classes.

### **TRIP-5589: Manager rights cannot be set in TRIPclassic**

When trying to set manager rights (FM/UM) for a TRIP user in TRIPclassic, the error message "No such user as nn" was returned (with the username "nn" being garbled). When run from TRIPmanager, the operation worked as expected.

### **TRIP-5588: Change manager for all owned users fails in TRIPclassic**

In TRIPclassic when trying to change the manager for all users owned by a UM user to another in TRIPclassic, the error message "No such user as ." was returned. When run from TRIPmanager, the operation worked as expected.

### **TRIP-5578: Some terms not shown in DISPLAY lists**

Fields marked as "Unique" or participating in a "Referential Integrity" relation would have their contents partially indexed (only the complete phrase) immediately when a record is added/modified. When later performing an index operation, phrase and word fragments would not be added to the VIF index file, causing DISPLAY lists to not show all terms.

To benefit from this correction, databases with Unique or Referential Integrity fields must be re-indexed.

### **TRIP-5577: TdbDeleteBaseFieldGroup not clearing handle as documented**

According to the documentation, the TdbDeleteBaseFieldGroup TRIPtoolkit API function will upon successful completion set the handle parameter to NULL. This was not the case; the pointer would instead end up being "wild". An application that trusts the documentation to be correct would therefore crash if accessing this pointer.

### **TRIP-5576: Omitting username at login may give incorrect error message**

If the login ticket subsystem was not enabled and a login was made with password only (without username), the incorrect error message "Login ticket subsystem not enabled" was returned. The expected error message in this case is "No access, username and password not entered."

### **TRIP-5570: Changing owner for all a user's objects fails**

When trying to change the FM rights of all a user's databases (using the "\*" wildcard for database name), the error message "Missing database name" would be returned from TRIPclassic, and the error message "Invalid arguments passed to function" would be returned from TRIPmanager.

### **TRIP-5569: Function TdbGetGroup always return "no such group" error**

The TdbGetGroup TRIPtoolkit API function always returned error code 9698 ("no such group"), even for existing groups. This would cripple custom server-side programs using this function for TRIP group administration purposes.

### TRIP-5564: Incomplete documentation of TdbShellDefDateform

The `TdbShellDefDateform` TRIPtoolkit API function can be used in two modes; to obtain an example date formatted according to a specified date format, or to change the date format for the current session. The documentation only reflected the first case.

### TRIP-5563: Retrieval of procedures with total name length > 64 bytes

Retrieval via the XPI (from TRIPmanger, TRIPjxp or TRIPnxp) of procedures whose total name length (name of the owner group or user plus the name of the procedure itself) exceeded 64 bytes would result in an error message "string too long".

### TRIP-5548: Changing currently logged in user removes external user info

Changing the currently logged in user (using the `TdbChangeUser` TRIPtoolkit function) would not correctly assign external user and group information (e.g. from an LDAP login). The external user would instead be set to the TRIP user and the list of external groups be emptied.

### TRIP-5546: Changing date format returns example with trailing garbage

Changing the date format in the current session using the `TdbShellDefDateform` TRIPtoolkit function will upon success return an example date formatted in the specified date form. This example was not properly null-terminated, resulting in trailing garbage characters and a small risk for application instability.

### TRIP-5545: SYSTEM cannot change to other user with its login ticket

When using the `TdbChangeUser` API function to change the currently logged-on user from SYSTEM to another user, the function login fails if using the other user's login ticket instead of its username and password.

### TRIP-5520: Crash in SHOW when DEBIT log is used

TRIP would crash when the following kind of command sequence was executed with DEBIT logging enabled:

```
BASE ALICE
FIND KING
BASE CORR
SHOW S=2 SORT=CHAPTNR
```

## Version 8.1-1

### New functionality for all platforms

#### TRIP-5516: Consistent beginning of output format reports from clusters

A new output format filter `<at_begin>` has been introduced as a cluster-compatible alternative to the pre-existing `<once>` filter. This new filter corresponds to `<at_end>` where both act on the entire set being printed.

The same box with `<at_begin>` and `<at_end>` must be used in all output formats that are used in the cluster-printout.

### Fixes for problems on all platforms

#### TRIP-5561: Extracting text from empty file via XPI causes crash

(Changed in 8.1-1:2)

Passing a zero-length file as input for text extraction from TRIPjxp or TRIPnpx would cause a crash in the XPI library prior to calling the TRIPcof text extraction routines.

#### TRIP-5554: Batch job log files may be empty after crash

(Changed in 8.1-1:1)

Log files from batch jobs (such as index, load, global update or print) that fail by crashing or looping could due to I/O buffering not contain everything actually logged. Such logs could also in this circumstance be totally empty.

#### TRIP-5549: Error importing procedure to user or group with long name

(Changed in 8.1-1:1)

Attempting to import a procedure definition to a user or group with a very long name would fail with the error message "unexpected error".

#### TRIP-5544: Extra blanks in comments importing procedure or form

(Changed in 8.1-1:1)

When importing a procedure, entry form, search form or output format, the comment text of the database would get extra trailing and leading blank characters when stored.

#### TRIP-5542: Managing procedures in Classic could fail

Editing, copying or deleting procedures in TRIPclassic could fail incorrectly with an error message about max length of user/group and procedure names.

### **TRIP-5541: Risk for crash when importing procedure**

Importing a procedure from file that lacked a linefeed character at the end would risk causing the kernel to crash.

### **TRIP-5540: Long CCL commands in procedures get truncated**

(Changed in 8.1-1:1)

A procedure containing a CCL command longer than 1024 characters would get cut off at around position 1024 when executed, exported or retrieved for editing.

### **TRIP-5538: System mode login may fail**

A SYSTEM password created or changed in a TRIPclassic session would not work in a Unicode session (e.g. from TRIPmanager or TRIPjxp) and vice versa when using the TdbSystemMode function. This error would manifest if the password contained national characters such as umlauts.

### **TRIP-5536: Changing database owner does not work**

(Changed in 8.1-1:1)

Any attempt to change the owner (file manager) of a database did not work. This affects all TRIPsystem 8.1 releases up to version 8.1-1:0.

### **TRIP-5534: Incomplete CONTROL file migration when upgrading**

Upgrading to version 8.1-0 would only use the CONTROL.BAF from the old installation, and fully regenerate the index files. This unfortunately resulted in upgrade errors if the CONTROL database was originally created with a very old version of TRIP or if the CONTROL design for some reason did not match the expected one.

### **TRIP-5533: CONTROL database not listed for SYSTEM when SUPERMAN**

If the "SUPERMAN" privilege was been enabled for SYSTEM in the tdb.conf privileged section, any listing of available databases would not include CONTROL.

### **TRIP-5532: CONTROL indexing may not have any effect**

The design of the CONTROL is such that it must not be altered in any manner. If this nevertheless was done, e.g. such that the database file paths would not use the TDBS\_CTL logical name, any index operations on CONTROL on such a system would not necessarily index the CONTROL database files in use.

This issue has been addressed as follows:

- The CONTROL database design can no longer be modified by SYSTEM, even if the SUPERMAN setting is enabled in tdb.conf.
- TRIP will now always use the logical name TDBS\_CTL to reference the CONTROL database files, regardless of what is stated in CONTROL's design in the CONTROL database itself.

See also issue TRIP-5531.

### **TRIP-5531: CONTROL indexing may fail for old CONTROLs**

Some older CONTROL databases may have records of the CONTROL database design and other objects that may not be stored in the records they normally expected to be located in. For such

systems this would result in program failures, caused by the index program not being able to properly locate the CONTROL database design, and that that various system objects (such as the login screen) could not be found.

### **TRIP-5527: Risk for crash in the TdbGetConf function**

(Changed in 8.1-0:9)

The TdbGetConf function could crash when called to look up the value of a non-existent variable and NULL was specified as default.

### **TRIP-5526: Crash when running the PACKIT tool**

(Changed in 8.1-0:9)

The PACKIT tool could crash shortly after started. On Windows, it would exit abruptly without an error message, but the ERRORLEVEL variable indicated error 0xC0000005, a memory access violation. On Linux, the error message "Segmentation fault" was emitted.

### **TRIP-5524: Using <dateform> with <curdate> in output formats**

(Changed in 8.1-0:9)

No date was emitted when <dateform> was used with <curdate> in output formats.

### **TRIP-5521: Risk for crash during login**

(Changed in 8.1-0:8)

Logging in as a user that has group memberships in addition to PUBLIC could cause a crash.

### **TRIP-5518: Changes to tdbb.conf may not be detected by tbserver**

When TRIPsystem is configured to be started by tripnetd (mandatory on Windows, optional on other operating systems), any change to the tdbb.conf configuration file made after the tripnetd program had started would not be detected by tbserver, even for such tbserver started after the change was made. Restarting tripnetd would resolve the matter temporarily.

### **TRIP-5517: Crash when closing databases**

(Changed in 8.1-0:7)

TRIP could stop running abruptly without the normal signs of a crash when a database or database cluster was closed. Especially if no other databases were open before the cluster or database being closed. This particularly affected searching via XPI (i.e. from TRIPmanager, TRIPxp or TRIPnpx).

### **TRIP-5513: Sorting records might return an incorrect error message**

(Changed in 8.1-0:6)

Sorting on a non-textual field could fail with the misleading error message "index of [DATABASE] in progress, please try again later". A scenario leading up to this error would typically involve save/load status calls or sorting a search set from a database previously opened for searching but not set as current.



### TRIP-5492: Printed TFORM file may get incorrect character set

(Changed in 8.1-0:5)

If a printer definition file with a character set specification was used to set up a printer in TRIP, a subsequent TFORM print order would incorrectly use that definition of character set when printing the TFORM file.

### TRIP-5489: Inconsistent hard/soft line break handling with the NOLF filter

(Changed in 8.1-0:4)

Two inconsistencies in the output format filter <nolf> (used to turn off soft line breaks and keep hard ones) have been fixed:

1. If a word is ending at the very end of the defined line an extra blank character was incorrectly inserted.
2. Hard line breaks, either pre-existing in the text or inserted by use of formatting features (e.g. headers, trailers, separators or text inserts) were not always replaced by an LF (line break) character.

### TRIP-5488: Formats with the NOLF filter not properly handled via XPI

(Changed in 8.1-0:4)

Reports using an output format with the <nolf> filter will be rendered without TRIP doing any sort of line planning. This did not have any effect for SHOW orders executed via the XPI (from TRIPmanager, TRIPjxp or TRIPnpx).

### TRIP-5486: The NOLF does not get turned off at format change

(Changed in 8.1-0:4)

Displaying data from a database cluster where the format in use has a <nolf> filter for some of the participating databases but not for others, **would** results in that once the <nolf> filter **gets** turned on for the output it does not get turned off even when output is subsequently made from a database whose output format in use does not contain <nolf>.

### TRIP-5485: Error listing Search Forms via XPI when SUPERMAN is set

(Changed in 8.1-0:4)

If logged in as SYSTEM and TDBS\_SUPERMAN is set in tdb.conf, listing search forms via XPI (typically in TRIPmanager) would fail with the error message *"the ALL argument must not be used with name arguments"*.

### TRIP-5480: jxtool input parameter supplied via prompting may become garbled

(Changed in 8.1-0:3)

Supplying an input parameter to jxtool, such as the name of an XML file to import, worked when passed on the command line, but when jxtool prompted for the parameter value, the resulting data could become incorrectly read. When applied to the file to import, one would typically get the error message "XML Parsing Error at line 0: unable to open primary document entity", followed by a garbled file name.



### TRIP-5477: EXIF reports incorrect detailed values of NUMBER values

(Changed in 8.1-0:2)

Running the index file analyze utility EXIF on a BIF file containing NUMBER fields will get the NUMBER values incorrectly shown.

### TRIP-5476: Incorrect search result in NUMBER fields

(Changed in 8.1-0:2)

Adding and indexing a record containing a value in a NUMBER field caused a subsequent search for this value to fail. Only after re-indexing the database, the record could be found when searching for the NUMBER field content.

### TRIP-5469: Risk for crash when executing searches with long CCL orders

(Changed in 8.1-0:2)

Executing a search whose CCL order is close to 1000 characters or longer could cause the XPI library to crash when generating an alternative did-you-mean based CCL order.

### TRIP-5468: VMS style symbols in DB location names via SQL

(Changed in 8.1-0:1)

Creating a database using the SQL interface and the CREATE TABLE statement caused the chosen location name to have its first underscore replaced by a dollar sign, as per the norm for the VMS operating system. E.g. "TDBS\$BASES" instead of "TDBS\_BASES". This is not technically wrong in TRIP, but as it is an obsolete form of syntax for TRIP logical names, this translation was removed.

### TRIP-5460: Global update restricts INTEGERS TO MAXINT

(Changed in 8.1-0:1)

Using the UPDATE command to modify an INTEGER field with a value larger than what fits in a signed 32-bit integer would result in the field getting the value 2147483647.

### TRIP-5451: Indirect search referencing search set would fail

A search such as the following would result in the error "Non-existing search number":

```
BASE ALICE
FIND RABBIT
FIND 2.SPEAKER AND S=1
```

### TRIP-5450: Indirect full phrase search causes crash

A search such as the following would result in a TRIP kernel crash:

```
BASE ALICE
FIND RABBIT
FIND 2.'SPEAKER'
```

### TRIP-5425: Removal of users with broken references to databases

A CONTROL database in a slightly corrupted state such that file manager users are registered to own databases of which there is no record of in CONTROL would result in that such users file manager could not be removed.

## Fixes for problems on Unix platforms only

### TRIP-5487: Extra newline at beginning of line in Classic output format

(Changed in 8.1-0:4)

Extra newline characters at the beginning of a line could cause the resulting output format report to become slightly corrupted when shown in TRIPclassic on other platforms than Windows.

### TRIP-5455: Console mode tripnetd still turns into daemon

(Changed in 8.1-0:1)

The TRIP network access daemon tripnetd per default turns itself into a daemon. This is the standard behavior, but tripnetd also has an option "console" that allows it to be run in console mode (i.e. without it turning itself into a daemon). This option did not fully work on Linux and Solaris; tripnetd would still turn into a daemon, but log output would be emitted to the console.

## Fixes for problems on Windows platforms only

### TRIP-5553: The TRIP API log grows explosively under TRIPclassic

(Changed in 8.1-1:1)

While the TRIP API log (using the TDBS\_APILOG variable in tdbbs.conf) is enabled on Windows, any use of TRIPclassic will result in a log that grows extremely fast, risking filling up the file system if the session is left running for a significant time.

## Version 8.1-0

### New functionality for all platforms

#### TRIP-5430: Allow XPI DB design retrieval in write mode

Allow applications using TRIPnpx or TRIPjxp to retrieve the default database design properties as part of the process to create a new database. This reduces the need for such applications to explicitly specify mandatory parameters for which default values exist.

To use this behavior version 8.1-0 or later of TRIPjxp or TRIPnpx is required, and is done using the method `get(string,boolean)` of the `TdbDatabaseDesign` class.

#### TRIP-5423: Updated Third-party Libraries

The third-party libraries ICU, Xerces-C, Expat and OpenSSL have been updated to the following versions:

- Expat: updated to version 2.2.10 on all platforms
- OpenSSL: updated to version 1.1.1k on all platforms
- ICU: updated to version 68.2 on Windows.
- Xerces-C: updated to version 3.2.3 on Linux on Solaris.

#### TRIP-5353: Retrieve field design by number

The new database design TRIP Toolkit APIs that were introduced in TRIP 8.0 allow for the retrieval of a database field design by the field name or the ordinal number of the field in the database. However, there was no convenient means of retrieving the design for a database field by using its field number as is possible with the older database design APIs.

To address this omission, the function `TdbGetBaseFieldByNumber` has been added to the TRIP Toolkit API.

#### TRIP-5341: License features for creation of specific database types

The TRIP license now controls what database types can be created. Normal databases, graph databases, connector databases, JSON/XML databases and thesauri are all separately controlled in the license.

#### TRIP-5256: Long names for databases and fields

The maximum length for databases, clusters and fields have been increased to 64 bytes.

Databases, clusters and fields with long names can be fully managed via TRIPmanager version 8.1, and programmatically via TRIPjxp and TRIPnpx.

For older interfaces such as TRIPclassic, TRIPclient or TRIPjtk, the longer names are not supported. Even if found to be working in some cases, they must not be relied upon for production use via such interfaces.

## TRIP-5255: Long names for users and groups

The maximum length for users and groups have been increased to 128 bytes.

Users and groups with long names and database fields with long names can be fully managed via TRIPmanager version 8.1, and programmatically via TRIPjxp and TRIPnxp.

For older interfaces such as TRIPclassic, TRIPclient or TRIPjtk, the longer names are not supported. Even if found to be working in some cases, they must not be relied upon for production use via such interfaces.

## TRIP-5254: External user and group names

Logging in via LDAP now retains the user's LDAP user name as an "external user name" such that it will resolve in the `USER()` function in addition to the TRIP user. Use `USER(EXTERNAL)` to match the external user name in CCL.

Logging in via LDAP now retains the LDAP user's group affiliations as "external group names". Such names will resolve in the `GROUP()` function in addition to the TRIP user's TRIP groups. Use `GROUP(EXTERNAL)` to match the external group names in CCL.

External names can be used as an alternate security mechanism with read/write scopes. For example, when importing external data using TRIPcof connectors such that the imported data includes access control lists naming the users and groups who do (or do not) have access to the imported item.

## TRIP-5008: Increased file block size

The database file block size can now be adjusted. It can be set to either 2048 bytes or 4096 bytes. By setting the block size to 4096, the number of required file I/O requests are reduced which results in improved efficiency for I/O intensive operations. The 2048 byte size is still default for backward compatibility reasons. Should you wish to use the 4096 byte block size for new databases and indexes (where the files did not previously exist), set the `TDBS_BLOCK_SIZE` logical name in `tdbs.conf` to 4096.

Existing database files remains at a 2048-byte block size until they are processed using PAKCKIT while `TDBS_BLOCK_SIZE` is set to 4096. Note that changing the indexes of a database to a 4096 byte block size will only work if you before re-indexing totally remove the BIF and VIF files.

The EXIF tool will now display the block size of the analyzed index file. The TRACER tool displays the block size of the BAF file for the analyzed database.

For more information, refer to the "TRIP 8 New Features" document.

## Fixes for problems on all platforms

### TRIP-5441: DISPLAY memory leak when used in clusters

The DISPLAY command leaked a small amount of memory every time a DISPLAY order was issued against a database cluster. For applications using a large amount of DISPLAY orders resulting in long term lists, this could lead to significant leaks in long-lived sessions.

### TRIP-5421: Risk for crash when using formatted values (virtual fields)

Actual hit locations can sometimes exceed the search hit occurrences, e.g. with hyphenated words. This would cause the rendering of output from formatted values (a.k.a. virtual fields) to crash.

**TRIP-5351: Risk for crash when executing XPath query**

There was a small risk for a crash when executing an XPath based query statement against a JSON/XML database.

**TRIP-5364: AND between NUMBER, TIME and DATE may yield incorrect results**

A search condition with an AND operator between a number, time and date field could yield incorrect results.

**TRIP-5352: Interval search with large integers does not work**

Attempting to perform an interval search in an integer field using a large integer interval (where the values are larger than 2147483648) would produce no hits even if such values exist.

**TRIP-5349: Enabling logging for JSON/XML may cause a crash**

Enabling logging for JSON/XML processing using the tdb.conf logical name XML\_LOG could cause TRIP to crash.

**Fixes for problems on Unix platforms only****TRIP-5350: XML parsing error may cause crash**

When importing an invalid XML document or an XML document referencing resources that cannot be resolved, the handling of the error state could cause TRIP to crash on non-Windows platforms.

## Version 8.0-10

### New functionality for all platforms

#### TRIP-5416: Login procedure for automatic LDAP user import

Automatic LDAP user import now supports setting a login procedure (a.k.a. start procedure) to execute automatically every time the user successfully logs in.

To use this feature, set the `tdbs.conf` logical name `TDBS_LDAP_AUTOUSER_LOGINPROC` in the privileged section to the name of the start procedure to run. For more details about this setting, refer to the TRIPsystem Environment Configuration Setup manual ([TRIPsystem\\_Environment.pdf](#)).

### Fixes for problems on all platforms

#### TRIP-5411: Databases sometimes open incorrectly

Starting with the sixth database opened in a session, and then every 8th new database not previously opened will not be correct. This error manifested though the associated search set being identical to the previous search set, resulting in a duplicate set number, and with record count, hit count and database name being that of the previous search set.

#### TRIP-5410: Referencing many search orders in CCL would cause crash

CCL expressions that reference more than 127 previous search orders would cause TRIP to crash. Also likely to cause a crash was when more than 255 search orders were executed against a database cluster, regardless of whether the license permitted more or not.

#### TRIP-5372: Crash when using databases created or indexed with TRIP 8.1

Using databases created or indexed with TRIPsystem 8.1 or later with an older version of TRIP would cause the older version to crash if their file block size were configured to any other value than 2048, the block size always used by TRIP 8.0 and older.

Note that using databases from newer versions of TRIP with older versions is not recommended, even if it often works fine. However, this correction results in such use failing gracefully in the described scenario rather than causing a crash.

Attempts to use a database with a larger block size than 2048 will now result in the following behavior:

Operation	BAF block size	BIF block size	Effect
Open single database for search	> 2048	> 2048	The BIF file could not be opened. TRIP treats the database as if it is not indexed. The resulting search set is empty. Data cannot be retrieved.  A warning message is returned when the database is opened.
Open single database for search	> 2048	2048	Database is successfully opened for search. Any attempt to retrieve data from it will fail with

Operation	BAF block size	BIF block size	Effect
			an error.
Open single database for search	2048	> 2048	<p>The BIF files could not be opened. TRIP treats the database as if it is not indexed. The resulting search set is empty. A warning message is returned when the database is opened.</p> <p>Search sets using record numbers (e.g. "FIND R=42") works normally, as does the retrieval of data from such searches.</p>
A cluster with mixed block sizes is opened	Mixed	mixed	<p>The resulting search set will only include records from databases with a BIF block size of 2048.</p> <p>Attempting to retrieve data from databases BAF block size larger than 2048 will fail with an error.</p>

### TRIP-5365: Incomplete feature set assigned for some licenses

(Changed in 8.0-9:1)

Licenses of type Small, Medium, Large or Enterprise may not assign all requisite features. Products may be missing, as may capability to create databases and modify data.

Custom licenses are not affected.

The license type can be found in the license file to the right of the label "License type". If it states anything other than "Custom commercial license, revision A", a new license must be requested in order to ensure proper functionality.

### TRIP-5363: DB name in XPI field fetch specification is case sensitive

(Changed in 8.0-9:1)

Explicitly specifying the database name for a particular field to fetch in an XPI fetch request (i.e. by using the TdbFieldTemplate class in TRIPjxp or TRIPnxp), will result in the field not being fetched at all if the database name is not represented in the same case (all upper) as TRIP expects.

### TRIP-5362: Importing a DB design via XPI does not honor unset charset

Older databases did not necessarily have a character set associated with them. Such databases use the TDBS\_CHARS as the implicit character set. If such a database is exported via XPI (TRIPmgr, TRIPjxp or TRIPnxp), the resulting XML file will not contain any character set information. When such designs (with no explicit character set) were imported via the XPI, the resulting database would be assigned UTF-8 as character set regardless of what character set the original data was in.

### TRIP-5361: Empty virtual field result may cause XPI data fetch to fail

(Changed in 8.0-9:1)

If a virtual field results in no output from one of the records fetched via the XPI from TRIPjxp or TRIPnxp, the entire fetch operation will fail with the error message "empty output result".

## TRIP-5360: Listing forms via XPI could cause DISPLAY orders to crash

(Changed in 8.0-9:1)

Listing control objects such as forms via the XPI can interfere with a subsequent DISPLAY order, leading to a buffer overrun. This would result in either an immediate crash or the introduction of an instability with increased risk for undefined behavior or a crash later on.

## TRIP-5359: Invalid result when listing cluster members

(Changed in 8.0-9:1 and 8.0-9:2)

There was a risk for invalid output from the TdbBaseInfo kernel API function when using the BASEINFO\_CLUSTERBASES mode to list the databases in the cluster. Applications written in TRIPjxp or TRIPnpx could experience this when requesting cluster membership information. The error could also manifest in TRIPjxp and TRIPnpx as an invalid database type for a search set.

## TRIP-5358: Risk for undefined behavior when reading XPI requests

(Changed in 8.0-9:1)

There was a risk for undefined behavior in the XPI library when reading requests. This would sometimes manifest via TRIPmanager, TRIPjxp or TRIPnpx where an attempt to create or inspect a database cluster would occasionally either not result in anything at all or a cluster appearing to contain way too many objects.

## TRIP-5357: Argument error when manipulating cluster design via XPI

(Changed in 8.0-9:1)

There was a risk for an error saying "invalid arguments passed to function" returned from the XPI library to TRIPjxp and TRIPnpx when operating on a database cluster (e.g. when listing the databases in it or when modifying its design).

## TRIP-5356: Risk for buffer overrun in the XPI

(Changed in 8.0-9:1)

Fixed several issues related to risks for buffer overrun errors in the XPI library (used implicitly via TRIPjxp and TRIPnpx). Situations that were affected include retrieval of the output of a thesaurus display order, reading information on various control objects such as forms and procedures, and the retrieval of hit-focused text fragments.

## Fixes for problems on Unix platforms only

### TRIP-5389: XPI sessions may fail due to missing OS dependencies

Starting TRIP sessions from TRIPmanager, TRIPjxp or TRIPnpx could fail due to broken dependencies in the xpi library in TRIPsystem. A typical missing dependency on newer Linux distributions such as CentOS 7 or 8 is libnsl. The installer script will now detect such missing dependencies and, if found, list them and exit with an error.



## Version 8.0-9

### New functionality for all platforms

#### TRIP-5347: More informative LDAP error messages

Error messages from the LDAP integration will now provide additional details, especially when errors are related to `tdbs.conf` configuration issues.

The `TDBS_LDAP_ERRORLOG` `tdbs.conf` logical name now also accepts `DEBUG` as a value, which will produce additional logging to aid the analysis of LDAP configuration issues for which the regular logging mode `TRUE` will not suffice. Note that the debug mode should never be used in production.

A troubleshooting chapter has been added to the “TRIP LDAP Authentication” white paper (in file `UsingLDAPwithTRIP.pdf`).

### Fixes for problems on all platforms

#### TRIP-5346: LDAP over TLS and over SSL (LDAPS) not fully working

SSL and TLS connections would only work if certificate validation was disabled.

As part of this correction, the following `tdbs.conf` logical names for TLS and SSL certificate configuration have been obsoleted and replaced with names common for both modes:

- `TDBS_LDAP_CERT_DIR`
  - Obsoletes `TDBS_LDAP_TLS_CERT_DIR` and `TDBS_LDAP_SSL_CERTDIR`
- `TDBS_LDAP_CACERT`
  - Obsoletes `TDBS_LDAP_TLS_CACERT`
- `TDBS_LDAP_CERT_TRUSTALL`
  - Obsoletes `TDBS_LDAP_SSL_TRUSTALL` and `TDBS_LDAP_TLS_TRUSTALL`

The old names are still checked, but any instances of their use should be updated to use the new names instead. See the “TRIPsystem Environment Configuration Setup” manual for more details on these logical names.

The “TRIP LDAP Authentication” white paper (in file `UsingLDAPwithTRIP.pdf`) has been updated. Its encryption chapters now provide additional information on SSL and TLS configuration.

#### TRIP-5345: Fields of special database types not modifiable

Changing properties such as data type and part record status for a custom field in a database of type XML, graph or connector could result in an error message if using `TRIPjxp`, `TRIPnxp` or `TRIPmanager`, or any the newer database design APIs in the TRIP toolkit.

#### TRIP-5338: `TdbGetConf` function not returning any values

The TRIP toolkit API function `TdbGetConf` would in some circumstances not return the value of a `tdbs.conf` logical name even if such a name existed.

**TRIP-5337: Crash when starting session from TRIPjtk or TRIPclient**

(Changed in 8.0-8:1)

Several of the changes made to correct issue TRIP-5308 in version 8.0-7 required a valid session state. This requirement was, however, not fully satisfied when starting sessions from applications using the legacy APIs TRIPjtk or TRIPclient / TRIPcom.



## Version 8.0-8

### New functionality for all platforms

#### TRIP-5321: Option to use reverse sorting for DISPLAY output

The DISPLAY command can now output term list sorted in ascending frequency order, and descending text order by using the "**SORT**" argument which will accept "**REVerse**" as well, either on its own or in combination with "**TEXT**" or "**FREQ**".

For usage examples and more information on this variant of the DISPLAY command, refer to the "CCL Command Reference" manual.

#### TRIP-5314: Error logging for LDAP

An error logging facility is now available for the LDAP integration. This can be enabled via the tdbb.conf file.

If TDBS\_LDAP\_ERRORLOG is set to TRUE or YES in the privileged section of the tdbb.conf file, any errors that occur during LDAP authentication in any TRIP process will be logged to the ldap\_error.log file located in the TDBS\_LOG directory.

This error log should normally be disabled. Enable it when your TRIP support contact instructs it in order to help with problem analysis in LDAP login scenarios.

### New functionality on Windows platforms only

#### TRIP-5246: Default database storage location

(Modification of feature originally introduced in version 8.0-0)

The default storage location for new and imported databases is defined by TDBS\_BASES. If not previously set in tdbb.conf, this will now be set by the Windows installer to:

```
C:\Program Files\Smaser\TRIP Databases
```

### Fixes for problems on all platforms

#### TRIP-5332: Tracer does not handle 64-bit integers and numbers

The Tracer utility would show incorrect values for integer and number fields if the stored value exceeded what could be stored in 32 bits.

#### TRIP-5331: Tracer may not show the last record / block

The Tracer utility would not show the last record / block if all records / blocks (in a database) were selected.

For example, the demo database ALICE has 475 records. When using Tracer to show all records or blocks the last one would be omitted.

### **TRIP-5330: Tracer unable to handle 1\*TEXT (single paragraph) fields**

Single paragraph (1\*TEXT) fields could not be handled by the Tracer utility.

For example, in the demo database ALICE the field "verse" is of type 1\*TEXT. Several records have content in this field, for instance number 475. When using Tracer to show record 475, nothing would be shown from the field "verse".

### **TRIP-5326: Absent or high frequency comforter signals**

When searching in a database cluster, comforter messages ("Searching...") were on Unix platforms likely to appear in a much higher frequency than normal. These messages should normally be sent once every 5 seconds during a search, but instead would come several times per second.

On Windows, comforter and tripd messages, on the other hand, would not appear at all, even for operations on a single, un-clustered database.

### **TRIP-5325: TRIP may hang when cancelling a clustered search or display order**

Cancelling a long-running search or display order could cause TRIP to hang. The TRIP process would, if hanged, never exit the search or display operation and had to be killed manually from the outside.

### **TRIP-5322: Opening a large cluster slower than normal**

Opening a large cluster would take a significantly longer time unless threading was explicitly disabled. The threading setting (TDBS\_MAX\_THREADS) now has no effect on the performance of opening a cluster. Such operations now work with the same speed regardless of threading being used or not.

### **TRIP-5320: Passwords with national characters**

Passwords with national characters created in TRIPmanager, TRIPjxp or TRIPnxp would not work for login in TRIPclassic, and vice versa.

### **TRIP-5319: Invalid character set in LDAP authentication**

LDAP authentication uses the LDAPv3 API which always uses UTF-8 as encoding. The TRIP LDAP integration therefore has to convert the username and password to UTF-8 if the session character set is different. However, this check was made against the TDBS\_CHARS value and not the actual session character set defined when initializing the session.

This caused passwords containing characters outside the 7-bit ASCII range in Unicode sessions to be corrupted, causing a failure to log in with the error message "Invalid LDAP username or password".

### **TRIP-5318: Incorrect sorting of SHOW forms with '\_' in name**

Using SHOW for entry forms, search forms or output formats would result in an incorrect sort order if a name contained an underscore.

### **TRIP-5317: The CCL HELP command might cause a crash**

Help texts longer than 1K would cause TRIP to crash when using the CCL HELP command.

### TRIP-5316: Term list requests may hang

If a term list is requested during an on-going index process which is updating the VIF file, a looping condition could occur if the VIF updating triggered a reorganization of the file.

### TRIP-5315: Garbled terms in DISPLAY lists

DISPLAY list terms from a database cluster with mixed character sets will get garbled terms if:

1. The terms contain non-ascii characters.
2. The TRIP session is running in Unicode mode, which always is the case for TRIPjxp, TRIPnxp and TRIPmanager.

### TRIP-5309: Error encrypting passwords and tickets

(Additional fix for this issue – see also version 8.0-6)

A feature of the XPI library to support TRIPmanager local (“My Computer”) sessions did not behave as designed. This caused some passwords sent from TRIPmanager to be incorrectly decrypted. This problem did not affect network sessions.

## Fixes for problems on Unix platforms only

### TRIP-5328: tripd may stop executing batch jobs

In rare cases, tripd could enter an anomalous state in which it would stop executing batch jobs for one or more databases. This error, once occurred for a database, persisted until tripd was restarted. A printout of “tripd -j” would, when this error had occurred, show for one or more databases a list of jobs where one appears to be running and several that are pending. Inspecting the process list (e.g. using the “ps” command) showed that there was no corresponding process for the job reported as running.

## Fixes for problems on Windows platforms only

### TRIP-5327: Cancelling a search/display in Classic on Windows not possible

A long running search or display order is cancelable in TRIPclassic by pressing Ctrl-C. This did not work at all on Windows, nor did the “Cancel” message appear at the bottom of the screen.

### TRIP-5324: Using national characters in Classic tty mode on Windows

Running TRIPclassic in non-windowed (“tty”) mode would cause national characters not to be displayed correctly unless the console code page was set to 1252 (for TDBS\_CHARS set to LA1 or MUL).

National characters are now rendered correctly also for other OEM code pages such as 850 and 858. Note that if TRIPclassic in tty mode is automated to run from a Windows CMD script, the script must be run using a code page as close as possible to the TRIP character set defined in TDBS\_CHARS. If TDBS\_CHARS is LA1 or MUL, the console code page should be set to 1252 to ensure that for national characters are correctly represented in the captured output.

## Version 8.0-7

### Fixes for problems on all platforms

#### TRIP-5313: Sentence search not always working

The CCL parser reported expressions as invalid if an AND.S or NOT.S operator was used such that it is within parentheses or preceded by a truncation wildcard character such as '#'

#### TRIP-5312: Using INI files may cause tbserver to crash

Lines only ending with <LF> instead of <CR><LF> could cause the tbserver to crash when parsing the specified INI file.

#### TRIP-5311: Facet sorting only works in some directions

Requesting the sort order for facets via XPI clients (TRIPjxp or TRIPnxp) only worked for text ascending and frequency descending. A request for the reverse of these sorting orders (text descending and frequency ascending) had no effect.

The fix for this issue also involves corrections to TRIPnxp and TRIPjxp. Applications using facets with sorting should therefore not use an older version than 8.0-7 of both TRIPsystem and TRIPjxp/TRIPnxp

#### TRIP-5308: High CPU consumption with clustered search/display

Once having executed a clustered search or display order and the TDBS\_MAX\_THREAD was either unset or set to a non-zero value, the TRIP process would consume some CPU even when otherwise doing nothing.

With many concurrent sessions using clusters, this risked affecting the overall performance of the TRIP server.

## Version 8.0-6

### Fixes for problems on all platforms

#### TRIP-5309: Error encrypting passwords and tickets

In rare cases a user would not be able to log in via TRIPmanager, TRIPnxp or TRIPjxp even though the password was correctly specified. The same problem could also occur when logging in using a ticket instead of username and password.

The correction of this issue involves changes to both TRIPsystem and the XPI clients (TRIPnxp, TRIPjxp and TRIPmanager). Therefore, to ensure that applications do not run into this issue in the future, ensure that the following minimum versions of aforementioned products are used:

- TRIPsystem: 8.0-6
- TRIPjxp: 8.0-6
- TRIPnxp: 8.0-6
- TRIPmanager: 8.0-2

Using an older version of a client with a newer version of TRIPsystem or vice versa will work, although the risk for encountering this issue will remain in such cases.

## Version 8.0-5

### Fixes for problems on all platforms

#### TRIP-5307: Crash when closing database

(Changed in 8.0-5:1)

TRIP would crash when closing a database after having used the SHOW command such that the associated TRIP kernel window was deleted prior to the closing of the database. This would primarily affect TRIPmanager, TRIPnpx and TRIPjxp.

#### TRIP-5306: Crash when searching by TSTAMP in a cluster

(Changed in 8.0-5:1)

There was a high risk for a crash when executing a search by timestamp in a database cluster. Deactivating threaded processing of clusters could be used as a workaround, but result in lower performance.

#### TRIP-5305: Crash when opening a cyclical database cluster

Using the BASE command to open a database cluster that nests other clusters such that at some point the cluster will effectively cluster itself would cause the TRIP kernel to crash.

#### TRIP-5304: Invalid XML from XPI with partial phrase values

Using TRIPjxp or TRIPnpx to retrieve data such that there would be at least one phrase field value with partial output would result in an invalid XML document returned from TRIP server.

#### TRIP-5303: XPI memory leaks retrieving data and listing databases

(Changed in 8.0-5:1)

Memory leaks have been fixed when retrieving database lists and when retrieving data from search results. The latter case could cause significant memory leaks, especially when hit focused data was requested.

#### TRIP-5302: Risk for crash when retrieving data via the XPI

Using TRIPjxp or TRIPnpx to retrieve data from search sets and rendered output formats (kernel windows) could cause memory access violations. The risk for this was centered around the retrieval of TEXT field values from records in a search set, and when retrieving output format results.

#### TRIP-5301: Commands longer than 2 Kb may result in crash

A command longer than 2 Kb executed via the DAO syntax would cause a buffer overrun in the TRIP kernel. The DAO syntax is used primarily by the XPI library, but may also be used by older (legacy) applications.



**TRIP-5300: Update of baselined facet may fail**

Updating a baselined facet set could fail with the error "updating an existing term set with new terms is not allowed" even if the update correctly was a subset of the baseline. This would typically happen when executed in a database cluster.

**TRIP-5298: Incorrect DISPLAY sorting in mixed character set clusters**

Executing a DISPLAY order sorted on frequency in a cluster with mixed character sets (e.g. LA1 and UTF-8) would not result in the correct term ordering.

**TRIP-5297: Default stemming library not configured**

The default stemming library (TDBS\_CONFLATORS) was not added to tdb.conf by the installation script for Linux/UNIX.

**TRIP-5296: Classic may self-terminate shortly after started**

On some Linux distributions, TRIP Classic could shut itself down shortly after starting. This could happen already in the login screen while waiting for user input, or shortly thereafter while navigating menus or waiting for input in the CCL command window.

**TRIP-5295: DISPLAY on numeric fields may yield corrupt results**

Executing DISPLAY on a numeric field (e.g. INTEGER) was likely to cause the result to be prefixed by one or more garbage characters when executed in a mixed character set cluster (e.g. with databases in LA1 and UTF-8).

## Version 8.0-4

### New functionality for all platforms

#### TRIP-5293: Ticket subsystem enable indicator in XPI

As part of the session capabilities information set, the XPI library now returns a flag that indicates if the login ticket subsystem is enabled. This information is available via TRIPjxp and TRIPnxp version 8.0-4.

#### TRIP-5292: Ticket revocation function in XPI

The XPI library now exposes a method that allows the revocation of the login ticket for the current user. The SYSTEM user can use this method to revoke the login ticket for any user. This method is available via TRIPjxp and TRIPnxp version 8.0-4.

#### TRIP-5289: Automatic LDAP user import

Users authenticated via LDAP that do not have a corresponding TRIP user account can now be assigned one automatically provided that the licensed max registered users limit allows for it. This feature can be used as an alternative to the guest user, and to reduce the workload for maintaining parallel user accounts in TRIP.

This feature is disabled by default. For details on how to enable and use this feature, refer to the document "Using LDAP with TRIP".

### Fixes for problems on all platforms

#### TRIP-5294: Ticket login fails when LDAP is enabled

Logging in with a previously obtained and valid ticket will fail with an error indicating that invalid password was supplied if LDAP authentication is enabled.

#### TRIP-5291: Invalid error message for ticket use violation

Attempting to request a ticket for the SYSTEM user returned an error message "Invalid LDAP username or password". This has been replaced with "User SYSTEM cannot request login tickets".

#### TRIP-5290: Crash when logging in with an invalid ticket

If the login ticket subsystem is enabled, logging in with a ticket that is either non-existent or otherwise not valid caused crashes in the TRIP kernel and in the TRIP daemon.

#### TRIP-5288: XPI retrieval of graph edge records may fail

Retrieving graph edge records from a search set using TRIPnxp or TRIPjxp could fail with an error message in the style *"the record at index NNN is not a graph record"*.

## Version 8.0-3

### Fixes for problems on all platforms

#### TRIP-5286: JSON number type incorrectly handled

(Changed in 8.0-3:1)

Numerical values exceeding  $2^{31}$  (2147483648) and double-precision floating point values were not correctly handled for JSON data. This would cause documents containing such values to either fail to parse during import into a JSON database, or to be incorrectly imported.

#### TRIP-5285: Crash when updating baseline termset

(Changed in 8.0-3:1)

Updating a baseline termset with terms from a search set such that one or more terms are not present in the baseline would cause the kernel to crash. Baseline termsets can only be updated with search sets that refine the search that the baseline was created against. An attempt to perform an incorrect update of said type will now return an error message.

#### TRIP-5284: Imported procedures may fail with “illegal character” error

(Changed in 8.0-3:1)

A procedure imported via the XPI would result in an “illegal character” error if the procedure specification contained extraneous newlines for one or more command in the procedure.

To correct existing procedures malfunctioning in this manner, either re-import the procedure, or edit the procedure (in TRIPclassic or in TRIPmanager) by removing the initial and trailing whitespace for each line in the procedure.

#### TRIP-5283: Partial TEXT field retrieval not always flagged as such

(Changed in 8.0-3:1)

Focused retrieval of TEXT field values via the XPI (TRIPjxp or TRIPnxp) would sometimes result in the partial flag not being properly set even if the returned value was in fact partial. This would typically happen for multi-paragraph values when the hit location was found in either the first or the last paragraph.

#### TRIP-5282: Incorrect data and highlights in formatted values

(Changed in 8.0-3:1)

If the size of the data returned for a formatted value was larger than 1600 bytes, the output and highlighted words would be incorrect.

#### TRIP-5281: Formatted value retrieval may fail with error

(Changed in 8.0-3:1)

Retrieval of a formatted value would sometimes fail with an error message “Non-existing field number” followed by a very large negative integer value.

### **TRIP-5279: Formatted values with data from part records**

(Changed in 8.0-3:1)

Formatted values did not work properly if the underlying output format included retrieval of data from part records.

### **TRIP-5278: Multiple formatted value fields**

(Changed in 8.0-3:1)

Requesting more than one formatted value field per record does not work as expected. This could cause incorrect highlighting, error messages while fetching formatted values, or crash the TRIP process.

### **TRIP-5277: Use of formatted values disrupts highlighting (XPI)**

The use of formatted values (the use of an output format as a "virtual" field) when requesting data from a TRIP search set via the XPI would cause incorrect highlighting and possibly repeated values in values of other fields (requested normally) when retrieved via the XPI.

### **TRIP-5276: XPI request for DB design in partial-access cluster**

Using TRIPjxp or TRIPnjp to request a list of the designs of the databases in a cluster would fail with an incorrectly formatted XML response if the current user had no access to one or more of the databases in the cluster.

### **TRIP-5275: Global deletes not honoring SUPERMAN setting**

Having the SUPERMAN variable set and performing a global update as SYSTEM would not work if SYSTEM did not otherwise have full write access to the database.

### **TRIP-5274: TRIPview-C not recognized in license**

A license for TRIP 8.0 that included TRIPview-C would not be recognized as including TRIPview-C when queried by TRIPview-C during its startup.

### **TRIP-5273: TdbLoadStatus may keep database status**

Reverting to a session snapshot (using the TdbLoadStatus function) could in some cases restore the incorrect database as current.

This problem would only occur when all of the following conditions were true:

- More than 7 databases have been activated (by a CCL BASE command or by a call to the API function TdbSetBase).
- The currently open database is opened as number 6 or higher.
- A snapshot is taken (TdbSaveStatus)
- A new database or a previously opened database with ordinal number above 6, is opened.
- Revert to the previous state (TdbLoadStatus(3), where the number 3 indicates that searches done will be deleted and that the previous database statues shall be restored)
- All searches will now incorrectly be done in the wrong database.

**TRIP-5270: Mandatory field value checks may fail**

(Changed in 8.0-2:1 and 8.0-3:1)

Check for mandatory values would fail for TIME, INTEGER and NUMBER fields containing only empty sub-fields. That can happen if the field is part of a field tuple in which all fields must have the same number of sub-fields regardless of having contents or not.



## Version 8.0-2

### New functionality for all platforms

#### TRIP-5267: Info on current thesaurus via XPI

The name and definition of the currently defined thesaurus is now available to XPI clients (TRIPnpx and TRIPjxp) after the execution of a CCL command that has changed the thesaurus definition or resulted in a search set. Refer to the documentation for version 8.0-2 or later of TRIPnpx and TRIPjxp for more information.

### Fixes for problems on all platforms

#### TRIP-5272: Crash reopening closed cluster with > 128 databases

(Changed in 8.0-2:1)

There was a risk for a crash when reopening a closed cluster having more than 128 databases.

#### TRIP-5271: Storing empty NUMBER sub-fields via TFORM

(Changed in 8.0-2:1)

When storing empty NUMBER sub-fields via TFORM, TRIP would incorrectly assign a very high value instead of an empty one.

#### TRIP-5270: Mandatory field value checks may fail

(Changed in 8.0-2:1)

Check for mandatory values would fail for TIME fields containing only empty sub-fields. That can happen if the field is part of a field tuple in which all fields must have the same number of sub-fields regardless of having contents or not.

#### TRIP-5269: Reopening a single DB cluster may revert to DB

(Changed in 8.0-2:1)

A single database cluster (having just one database, or several databases of which just one is accessible) would be regarded as a single database if reopened.

Searching would still work correctly, but information on what the database or cluster is associated with a particular search set would be incorrect (the name of a database instead of the name of the cluster).

#### TRIP-5268: TdbLoadStatus may deactivate the wrong databases

The API functions TdbSaveStatus and TdbLoadStatus are extensively used by the XPI library that serves TRIPnpx and TRIPjxp. When multiple databases are opened for search, there was a risk that the TdbLoadStatus call would incorrectly close databases that were open at the time of the checkpoint set by TdbSaveStatus. This would result in an error when the application, assuming that the current database is already open for search, would try to execute a query.

**TRIP-5266: Login ticket ID incorrectly assembled**

The login ticket ID string contained an incorrect byte duplication. The login ticket would still work, but was not assembled according to its design.



## Version 8.0-1

### New functionality for all platforms

#### TRIP-5261: Baseline facet update count value

The count of values with a non-zero record count for facets that use baselines is now available to the XPI based APIs TRIPnpx and TRIPjxp via the UpdateValueCount property of the TdbFacet class

#### TRIP-5247: Connector databases

(Changed in 8.0-0:5)

A database type for TRIPcof import connectors has been added. Databases of this kind can be created using the server-side C API and version 8.0 or later of TRIPmanager, TRIPnpx and TRIPjxp.

#### TRIP-5240: Change logged on user

(Changed in 8.0-0:5)

Server-side applications can now call the TdbChangeUser function to change the currently logged on user to another without stopping the process and starting a new one. This eliminates the overhead for starting a new session. Any state (search history, etc) held by the previous user is erased, effectively giving the new user a new, clean session.

### Fixes for problems on all platforms

#### TRIP-5265: No paragraph markers in text EXTRACT retrieval w/o partial

When retrieving a TEXT value via the XPI using the EXTRACT option to get a fragment of the text, and the resulting fragment included all the text from the field, the returned value would be marked as a single paragraph even if it had more than one as stored.

As such responses will not be marked as "partial", the returned value from the EXTRACT request will now be exactly identical to what one gets when retrieving the value normally (without FOCUS or EXTRACT), with all paragraphs properly marked in the response.

#### TRIP-5264: Ellipsis between paragraphs in text EXTRACT retrieval

When retrieving a TEXT value via the XPI using the EXTRACT option to get a fragment of the text, the ellipsis (...) would be inserted between paragraphs if at least two paragraphs were included in the returned fragment.

#### TRIP-5263: Ellipsis for text EXTRACT retrieval not always included

When retrieving a TEXT value via the XPI using the EXTRACT option to get a fragment of the text, the ellipsis (...) would not be appended if the text had a single paragraph and at least two sentences.

#### TRIP-5262: Crash retrieving member designs for cyclical cluster

The tbserver process would hang and eventually crash when using the XPI based APIs TRIPnpx and TRIPjxp to retrieve the database designs for member databases of a cluster where the cluster is defined as a cyclical cluster of clusters (a cluster that ends up clustering itself).



### **TRIP-5260: Retrieval of common cluster fields hangs**

Using the XPI based APIs TRIPnpx and TRIPjxp to retrieve a list of fields common to all databases in a cluster would hang the tbserver process. Such processes would become unresponsive and had to be killed on the server.

### **TRIP-5253: Numeric searches may not perform at optimum**

(Changed in 8.0-0:6)

Depending on the values of a numeric field, the speed of search may not reach its optimum for large databases with the range checking activated (default for version 8). This happened only if the field also contained negative values and zeroes.

This problem only affected performance. The search result would still be correct.

### **TRIP-5252: Numeric value searches may return no hits**

(Changed in 8.0-0:6)

Executing a search with a numeric value and an intersection with another search expression may incorrectly return no hits.

This problem happened only if the database had a numeric field with many occurrences and the environment variable TDBS\_RANGE\_CHECK was set to "Y". The default setting used to be "N" but with TRIP 8 it is changed to "Y" in order to speed up numeric searches.

A possible temporary workaround for this problem is to define TDBS\_RANGE\_CHECK=N. Using the workaround will however lead to somewhat slower numeric searches.

### **TRIP-5251: Indexing a DB with a lot of term occurrences**

(Changed in 8.0-0:5)

The default setting for the term limit during the record scan phase of the indexing procedure was too low. This limit controls how many terms can be kept in memory before a temporary file must be used. This limit being too low caused more temporary files to be created and thereby a slower indexing operation.

The term limit is guided by the TDBS\_TERMLM environment variable. Its default value was raised from 512K to its maximum, 131072K. The trigger for the creation of temporary files during indexing will therefore primarily be based on memory capacity, or by the environment variable TDBS\_MAX\_ALLO\_MEM, with a default of 1GB.

### **TRIP-5250: Indexing a DB with a lot of phrase occurrences**

(Changed in 8.0-0:5)

Indexing for the first time or re-indexing a database with many records having PHRASE field occurrences exceeding the integer maximum causes would cause the estimate of the required index file structure size to become too low. This had the effect that the index file needed to be reorganized many times, resulting in an index which might be slower to query and requiring more disk space than necessary.

### **TRIP-5248: Restricted-use names exposed as database locations**

(Changed in 8.0-0:5)

The XPI exposed several restricted-use logical names from the tdb.conf as potentially valid database file locations. These included TDBS\_HOME, TDBS\_SIF and several others. Such locations should not

be used for database file storage, and are therefore no longer available to TRIPmanager, TRIPjxp and TRIPnpx for such use.

### **TRIP-5245: Risk for crash in DISPLAY with clusters**

(Changed in 8.0-0:5)

Using the DISPLAY command with a database cluster could cause a kernel crash when running in threaded mode.

### **TRIP-5244: Risk for crash when retrieving term set terms**

(Changed in 8.0-0:5)

There was a risk for a crash when retrieving terms from a term set, such that an incorrect term set number or term number was specified.

### **TRIP-5236: Risk for invalid character set when printing**

(Changed in 8.0-0:1)

Printing (to paper) could result in national characters not to be properly represented if the printer definition and the session character set did not match.

## Version 8.0-0

### New functionality for all platforms

#### TRIP-5249: TLS replacing SSL for encrypted LDAP

TLS has replaced SSL as the way to communicate securely with the LDAP server. This is because SSL has been deprecated by IETF and because of the various vulnerabilities that have been discovered in the SSL protocol over the years.

Please refer to the document “Using LDAP with TRIP” for more information.

#### TRIP-5246: Default database storage location

The default storage location for new and imported databases is TDBS\_BASES, if this logical name is defined in tdbb.conf and refers to a writable directory.

If not previously set, TDBS\_BASES is set by the installation program to /usr/local/trip/data on Unix/Linux systems and to “C:\Program Files\infinIT Services\TRIP Databases” on Windows. The installer creates this directory if needed.

TDBS\_BASES will be used as location for all new databases if defined and no other location is explicitly set when creating the database. This default behavior is used for all new databases.

#### TRIP-5234: Facet baseline count reset

The baseline record counts of XPI facets can now be reset so that the most recent record counts for the specified facet to be copied to the baseline, overwriting the previous baseline counts. This operation will keep the previous facet values, even values that have a baseline count of zero.

#### TRIP-5227: Improved performance for numeric searches

When searching in numeric fields (Integer, Number, Date and Time) TRIP now makes better use of the range values stored in the index, giving a performance boost to such searches.

This behavior is enabled by default. If, for some reason, the old less efficient behavior is wanted, the new behavior can be disabled by setting this value in the tdbb.conf configuration file:

```
TDBS_RANGE_CHECK=N
```

#### TRIP-5225: New search function GROUP()

GROUP() is a new CCL function that resolves to a list of all the groups the currently logged on user is member of. This function can be used in read and write scopes to match group names in records.

For example:

```
FIND GROUP_ACCESS=GROUP()
```

This would match records having at least one of the groups that the current user is a member of stored in the GROUP\_ACCESS field.

#### TRIP-5219: Facet baselines with TRIP kernel support

XPI facets (as exposed by TRIPjxp and TRIPnpx) that use baselines will now benefit from added performance and added features such as the option to have baseline values in-line with the regular

values, access of baselined facets without needing to perform a refinement, and access to any facet value without having to explicitly fetch ranges of values from the server.

Please refer to the documentation for TRIPjxp and TRIPnxp for more information.

### TRIP-5212: Re-Sorting Term Lists

A term list that has been produced with the DISPLAY command can now be re-sorted using CCL:

```
DISPLAY SORT=TEXT
```

or

```
DISPLAY SORT=FREQ
```

Programmatic re-sorting of term sets as well as of regular term lists is supported via the new C API function `TdbSortDisplay`. Refer to the TRIPtoolkit reference manual for more information on this function.

### TRIP-5203: Formatted values

Output-format based reports can now be requested for each record in a search set as so-called “formatted values”. These values are exposed by the TRIPjxp and TRIPnxp APIs as a form of virtual field, where a field template is used to specify the name of an output format instead of a regular field, which results in the formatted result to be returned to the application from each record via a `TdbTextField` instance.

### TRIP-5191: Indicator for returned partial value via XPI

An indicator for a returned partial TEXT and PHRASE field values have been added to the XPI fetch response. Such values are typically returned from the XPI to TRIPjxp and TRIPnxp when one of the Focus field fetch options have been specified. Refer to the documentation for TRIPjxp and TRIPnxp for more details.

### TRIP-5184: Adjusted defaults for indexing options

Some of the configuration options that control the index program have been adjusted to make better use of modern hardware.

### TRIP-5183: Improved BAF space release function

As part of the index program functionality, it will release old versions of the records. This step has been improved with regard to performance. The effects will be noticeable on large databases.

### TRIP-5182: Login tickets

The login ticket feature helps applications expose an SSO-like behavior where users only log in once to the application using their TRIP usernames, and thereafter do not have to explicitly log in again for continued use.

This feature is not enabled per default. To enable it, the `TDBS_LOGIN_TICKETS` configuration symbol must be set to Y in the privileged section in the `tdbs.conf` file.

To obtain a login ticket, an application will have to request a ticket to be created when the user is first logging in. Once a ticket has been obtained, it can be stored by the application (e.g. using a cookie) and used automatically instead of username and password until it times out or the TRIP server is restarted. Login tickets will by default time out after a period of inactivity, which is 30 days by default.

Refer to the “TRIP8 New Features” document for more information.

### TRIP-5135: Field Groups

Field groups allow the grouping of fields in a database under a common name. A field group can be used like a VIEW (search in all fields in the group by specifying its name instead of a field name), and optionally be used to enforce a tuple structure.

A tuple field group will validate the data in the fields, ascertaining that all included fields have the same number of values when records are being stored. The tuple-related APIs in TRIPnpx and TRIPjxp have been adapted to work with tuple field groups.

Refer to the “TRIP8 New Features” document for more information.

### TRIP-5134: New XML Database Design

The XML database design has been modified to use less disk space and to allow the storage of JSON documents in the same structure. This database design requires the built-in XML and JSON functionality in TRIP 8, and is incompatible with the older TRIPxml add-on product.

Users of TRIPxml can continue to use their applications without any need for migration, as the integrated XML database functionality also supports using older XML databases as created in TRIPxml v2.x and v3.x. Any new XML database created will use the new design.

### TRIP-5133: API Overhaul

Several new C API functions, primarily for database and cluster design, have been added. The new design APIs do not utilize the structures (e.g. `base_spec_rec`, etc) that the former and now deprecated database design API functions used, but instead work via opaque handles and property getters/setters. The old versions of these API functions are marked as deprecated and will generate compiler warnings when used. Other API functions that have been added include functions for license information and for user state change.

As part of this API overhaul, the character set for new databases is now set to the session character set per default. This means that a new database created in TRIPclassic will get the character set that `TDBS_CHARS` indicates, and a new database created in TRIPmanager, TRIPnpx or TRIPjxp will get Unicode UTF-8 unless otherwise specified.

Refer to the reference manual for the TRIPtoolkit C API for more information.

The “TRIP8 New Features” document contains a list of the new APIs and what APIs they deprecate.

### TRIP-5131: Integrated SQL and XML functionality

The functionality that previously was available as the separately installed TRIPxml and TRIPsql add-on products is now available in the TRIPsystem product. Components for these feature sets are included in the TRIPsystem installation, but need to be enabled in the license in order to be used.

When upgrading from an older version of TRIP, any TRIPxml and TRIPsql installations present will be disabled and cannot be used even if configured – the functionality provided with this version of TRIPsystem overrides the old versions.

Refer to the documentation set for more information on how to use XML databases and how to use SQL with TRIP.

### TRIP-5090: Max record number increased to $2^{31}$

The maximum value for record numbers has been increased from  $2^{30}$  to  $2^{31}$ , i.e. from 1073741824 to 2147483648.

## TRIP-5012: Storing and searching in JSON documents

XML databases now support the storage of JSON documents.

Both JSON and XML documents can be stored in XML databases as per TRIP 8. They can be queried using CCL or (preferably) the XPath based query language, and be retrieved as either XML or JSON (regardless of the original document format).

The XPI library has been extended to provide this functionality to version 8 of TRIPjxp and TRIPnpx.

## TRIP-5004: Search set size limit

The record count and hit count values for search sets are now available as 64-bit integer values. This allows for hit and record counts larger than INT\_MAX (2147483647). New APIs have been added (to the C toolkit, TRIPjxp and TRIPnpx) that expose these counts as signed 64-bit integer values. The older APIs are still available, and will for values larger than INT\_MAX truncate the value to INT\_MAX before returning it.

This feature is not available via TRIPclassic as it utilizes the older 32-bit integer APIs.

## TRIP-5003: 64-bit integers and numbers

The INTEGER type now supports the storage of signed 64-bit integers. Similarly increased to 64-bit is the NUMBER data type, giving it a higher precision. No special action has to be made to start using this feature.

**NOTE:** If a database populated in TRIP 8 with numeric values larger than would fit into a signed 32-bit value, such databases cannot be used with older versions of TRIP without risking system stability.

## New functionality on Unix platforms only

### TRIP-5216: LDAP support libraries changed on Linux and Solaris

The LDAP functionality in TRIP when running on Linux and Solaris are now using OpenLDAP instead of the Mozilla LDAP libraries. The OpenLDAP libraries are not provided as part of the TRIP installation, but must be available on the TRIP server if LDAP functionality is to be used.

This change partially affects how LDAP configuration in TRIP is done on Linux and Solaris. Please refer to the documents “TRIP8 New Features” and “Using LDAP with TRIP” for more information.

## Fixes for problems on all platforms

### TRIP-5232: Retrieval of sorted search results may fail

Retrieval of data from a sorted search set failed if the database associated with the search set was not the currently active one open for search. For instance, performing a search against ALICE, opening CORR, then retrieving data from the ALICE search in specified sort order.

### TRIP-5224: VIF file reorganization not working for large databases

The index program would not reorganize the VIF file for very large databases having BIF index files with maximum bucket size. This resulted in reduced performance for truncated searches in large databases.

**TRIP-5223: Crash opening a cluster if max DB limit is exceeded**

The TRIP process would crash if the limit of max allowed open databases as specified in the license was exceeded during the opening of a cluster.

**TRIP-5222: Entry forms imported via TRIPmanager not checked**

When using TRIPmanager to import a database design with entry forms, the entry forms would be marked as having errors. The workaround was to manually open the form in the entry form editor (e.g. in TRIPclassic) and saving it again. This has now been fixed so that entry forms are properly checked upon import and the error flag is not set unless the form actually contains errors.

**TRIP-5221: Incorrect log file name for “PRINT NO HOLD”**

Printing a single database (not a database cluster) and using the NO HOLD option would create a log file that was not database-specific.

**TRIP-5220: Temporary files not removed for failed PRINT or UPDATE job**

If a print or global update job would fail, a temporary file starting with “pritmp” or “glbtmp” would remain in the home directory if TRIP is not set up for sending mails (which is default).

**TRIP-5217: Invalid characters in focus requests via XPI**

Requesting hit-focused output of various kinds via TRIPjxp and TRIPnxp could in some cases return invalid representations of national characters. This affected non-Unicode databases only.

**TRIP-5208: SQL SELECT DISTINCT does not work in Unicode**

The SQL SELECT DISTINCT command would only produce at most one row when used in a Unicode session, even if the search produced multiple rows. When used in a Latin-1 session, it worked as expected.

**TRIP-5201: Operator AND.W could return incorrect results**

The AND.W operator, indicating an AND within the same word, could in some cases return incorrect results.

**TRIP-5187: Indent in output formats may cause incorrect line planning**

An output format box with the <indent> filter might not always insert a line break within a word instead of before it.

**TRIP-5186: Search after immediate index of more than 255 records**

When adding and indexing records one by one using the TdbIndex function or via TRIPnxp or TRIPjxp by setting the IndexOnCommit property to true, a subsequent search may fail with “No hits”. If, however, the search is preceded by a “BASE” command or if the search is done again, it will succeed.



### **TRIP-5181: Incorrect separation of TEXT fields**

When storing data into a TEXT fields using either TFORM load or the API functions, the paragraph/sentence separation would always be applied, even if sentence and paragraph numbers explicitly were given.

### **TRIP-5180: KVP display does not work for part fields**

Using key/value-pair defined part record fields in a DISPLAY order would not produce any terms.

## **Fixes for problems on Unix platforms only**

### **TRIP-5211: Intermittent crashes in tripd**

The TRIP Daemon program (triped) could sometimes exit prematurely due to anomalous conditions caused by circumstances such as completed batch jobs for already exited sessions.

### **TRIP-5138: Missing prerequisites cause the install script to fail**

The install script depends on various commonly available tools such as awk, sed and strings. These were assumed to always exist. If one or more of them was missing, the installation would fail with more or less cryptic error messages.

The install script will now check for the presence of prerequisite software before launching into the installation proper.

## **Fixes for problems on Windows platforms only**

### **TRIP-5218: Encrypted sessions fail to start**

Attempting to start an encrypted network session via tbserver (e.g. from TRIPmanager or one of the XPI based APIs TRIPnpx or TRIPjxp) would fail with an error message saying that a library could not be loaded.

### **TRIP-5214: Print NOW jobs may not be not completed**

If a TRIP session having running PRINT NOW jobs exited before the jobs were done, the jobs would be terminated before their completion.

### **TRIP-5052: Records stay locked**

Record locks held by sessions that exits without logging out or by crashing would remain in place. The locks would remain until the limit of max concurrent number of users had been reached and at least one user login was rejected because of this, or until tripd was restarted.