

tableBASE

Release Notes

Release 7.0.0



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Preface

These Release Notes provide a high-level view of the latest releases for tableBASE Version 7.

Conventions used in this guide

This guide uses conventions to differentiate code and typed commands, and to display the names of parameters.

Convention	Description
code examples and commands	Code examples and commands appear in this type of font: <code>this is an example of the font.</code>
MAXNMTAB	Names of parameters appear in upper case simply for ease of reading; actual case used is upper or lower or a mixture.
Version	Following IBM standards, the term <i>version</i> refers to a generation of a software product that has significant new code or new functionality. <i>Version</i> is a more general term than <i>release</i> . For example, <i>Version 6</i> includes <i>Release 6.1</i> and <i>Release 6.2</i> , and is equivalent to <i>Release 6.x</i> .
Release	Following IBM standards, the term <i>release</i> refers to a program or set of programs which represent a specific revision to the base version of a software product. For example, <i>Release 6.0</i> is a term that is used to identify the first release of <i>Version 6</i> . Subsequent releases made available under the Version 6 umbrella, such as <i>Release 6.1</i> , will provide additional revisions to the base product.

Modification Level	Following IBM standards, the term <i>modification level</i> refers to the application of specific program enhancements and error corrections to the release of a software product. For example, <i>Release 6.0.3</i> is at <i>modification level 3</i> , and <i>Release 6.1.0</i> is at <i>modification level 0</i> .
MVS	MVS is a generic term which is used when referring to z/OS and other related IBM operating systems.

In addition, we will be using the term "*maintenance level*" in these Notes to refer to a collection of tested fixes and enhancements made available for a specific modification level of tableBASE.

Glossary

The terms defined in the glossary will help you better understand the content of this document.

Alias name	An alternate name for a VTS-TSR that can be created, assigned, and used in lieu of the name assigned at VTS-TSR definition. This is a VTS Manager feature. See below for VTS Manager and VTS-TSR definition.
Alternate Index	An Alternate Index is an Index that may be defined for a Data Table. The Alternate Index has an Alternate Index definition (ALT-DEFINITION) that defines the key, organization, and search order. Alternate Indexes are optional, and there is no limit to the number of Alternate Indexes a Data Table may have.
Alternate Index View	A tablesONLINE Alternate Index View is identical to a View but applies to a Data Table when access is through an Alternate Index.
Catalog	A catalog contains definitions of managed items in the next tier down in the hierarchy. Definition information about the VTS Group Manager is contained in the VTS Manager catalog, and VTS-TSR definition information is contained in the VTS Group Manager catalog. The catalog is contained within the LDS associated with the VTS Manager or VTS Group Manager.
Cataloged VTS	A VTS-TSR that is managed by a user-defined VTS Group Manager under VTS Manager, as opposed to the <i>compat</i> VTS Group Manager.
<i>compat</i> VTS Group Manager	The <i>compat</i> VTS Group Manager is the default VTS Group Manager that runs under VTS Manager. See below for definition of VTS Group Manager.
Data Table	A Data Table is the actual raw data. Each Data Table has a table definition (DT-BLOCK) that is used to generate the Index for the Data Table.
DB2 SPAS, WLM-managed DB2 SPAS	DB2 Stored Procedure Address Space managed by WLM
Delivered defaults	The defaults that are delivered with the product. Also known as <i>factory defaults</i> .

Index	An Index is defined for each Data Table. A Data Table Index is generated dynamically when a table is opened or defined based on the information in the table definition (DT-BLOCK).
Installation defaults	The defaults set at installation time by an administrator, which may or may not be the same as the delivered defaults. Defined using the TBOPTGEN file. (These defaults may be overridden by an individual application using the TBOPT file.)
LDS	Linear DataSet used for VTS Manager.
Linked Table	A linked table (also known as a remote table) is created when a user issues a command to open a table that is already open in a VTS-TSR specified in the LIB-LIST. The table entry in the local TSR is linked to the existing open table in the VTS-TSR. No updates are allowed to a linked table.
Multitasking Batch	An MVS region that implements multitasking by attaching multiple Task Control Blocks (TCBs). This can include a batch job that attaches several subtasks or a transaction processing region like DB2 stored procedures that implements multitasking through multiple TCBs.
SAF interface	System Authorization Facility interface that controls resource access. Tools like ACF2, RACF and Top Secret fall into this category.
Table Expansion	Dynamic allocation of space for tables in the TSR when the initial space allocated becomes insufficient.
Temporary Table	A temporary table exists only within a TSR, and is created by the DT command (or IA). It is never stored in a library. A temporary table can be distinguished from a library table using the GD command output—if found, a temporary table will show no dataset name.
TPM	An internal DataKinetics development term which refers to the VTS Manager top tier component. It will sometimes be found in diagrams which explain the architecture and internal processes of VTS Manager. Also occasionally refers to the VTS Manager itself.
TPVM	An internal DataKinetics development term which refers to the VTS Group Manager component of the VTS Manager product. It will sometimes be found in diagrams which explain the architecture and internal processes of VTS Manager.

TSR, Local TSR	Table Space Region. A data space of up to 2G is used by tableBASE to house tables. The data space is owned by an application in the associated address space. The application uses tableBASE to access data within the tables.
TSR of record	If there is no VTS name in the TB-SUBSYSTEM field of the TB-PARM when a command is being executed, the TSR of record is the local TSR, otherwise it is the VTS-TSR that has its name in the TB-PARM.
View	A tablesONLINE View provides the field, edit and display attributes for a Data Table with its Index. Previous to Version 5, the View was referred to as a Field Definition Table (FDT).
VTS, DataKinetics VTS	Virtual Table Share. The term “VTS” may be used to refer to the DataKinetics VTS product, which permits TSRs to be shared among applications. These shared TSRs are called VTS-TSRs.
VTS-TSR, Shared TSR	A Virtual Table Share (VTS) Table Space Region (TSR) is a shared TSR, and resides in a shared data space. Applications can access tables within a VTS-TSR, and use the information as if it were within their local TSRs.
VTS Agent	The DK1VAGNT program, which initializes VTS-TSRs in tableBASE, and then sits idle until the VTS-TSR is to be terminated. If VTS Manager is installed, VTS-TSRs are managed by VTS Group Managers, and the VTS Agent is not required, but is still available for transition purposes.
VTS Gate	The product that provides enhanced security for the shared VTS-TSR capability.
VTS Group Manager	The middle tier of VTS Manager which manages VTS-TSRs.
VTS Manager	A DataKinetics Ltd. product that extends the functionality of the VTS shared TSR capabilities.
VTS switch	The action of switching an alias name from one VTS-TSR to another. This is a feature of VTS Manager.

1

Introduction

The purpose of this document is to describe the enhancements and changes in functionality provided in tableBASE Version 7 as well as the maintenance releases of Version 7. The latest release is Release 7.0.0.

Version 7 offers significant enhancements and improvements. A major enhancement in Version 7 is the new VTS Gate interface. VTS Gate provides added security for VTS-TSRs using SAF interface security tools (like ACF2, RACF and Top Secret) and hardware key-protection. Read-only VTS-TSRs are also available with VTS Gate.

tableBASE Version 7 operates with z/OS, and is compatible with CICS TS, IMS TM, WLM-managed DB2 SPAS and batch. The IBM VSE operating system is not supported with this version.

A summary of the major enhancements and changes for each of the release levels of Version 7, starting with Release 7.0.0, is provided in subsequent chapters.

Users who are already on prior versions of tableBASE should also review the release notes from prior versions to fully understand all the changes in all release levels between the release they are upgrading from to the Version 7 release they are upgrading to.

Note that the information provided for older releases is superseded by the information provided for more recent releases.

Systems Requirements

Version 7 requires z/OS running on 64-bit hardware which supports the General-Instructions-Extension Facility (GIEF), the Long-Displacement Facility, the Extended-Immediate Facility and the Execute-Extensions Facility. These are provided with the z10 EC processor or higher.

Version 7 does not support the following:

- calls from 64-bit applications

- IBM's use of the XPLINK interface in all higher level 31-bit or 64-bit applications.

Any requirement to run tableBASE from 64-bit applications or using XPLINK should be communicated to DataKinetics.

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Release Notes for Release 7.0.0

This section covers the changes to tableBASE between Release 6.1.1 and Release 7.0.0. The major components of this release are:

- VTS Gate, a new interface which provides enhanced protection for VTS-TSRs using SAF interface security tools, hardware key protection as well as the ability to restrict VTS-TSR access to read-only
- new run-time option for VTS-TSR strobe reporting using minute intervals
- addition of a new field in the COMMAND-AREA which will allow long running tasks to continue accessing a VTS-TSR that has been restarted
- fix to handle VTS-TSR strobe reporting file overflow
- larger fields for tableBASE strobe reports and the LT command
- addition of the USER-COMMENTS field from the DEFINITION-BLOCK parameter to certain TBEXEC commands
- a new run-time option to specify checking for SAF interface protected tableBASE libraries
- GD, OR and OW command behaviour changes
- improved error handling and recovery for WLM-managed DB2 SPAS

Notes:

1. There have been no upgrades to either tablesONLINE/CICS or tablesONLINE/ISPF for Release 7.0.0. The loads and tablesONLINE libraries provided for these products, with Release 7.0.0, will be at the Release 6.1.1 level.
 - a. The Release 6.1.1 versions of the software for tBOL/CICS and tBOL/ISPF have been tested to work with the base product for Release 7.0.0. Older releases of the

software for tBOL/CICS and tBOL/ISPF have not been tested with Release 7.0.0; these may have issues working with the base product for Release 7.0.0.

- b. If you are upgrading from Release 6.1.1 to Release 7.0.0 and you have either or both of the tablesONLINE products, you should bypass the installation for these products.
2. Fixes which were applied to previous releases of Version 6 are automatically carried forward to Version 7.

New Features and Enhancements

All Interfaces

Strobe report accommodates larger fields (ref: TB-2109)

Strobe intermediate data is now stored in double words (8 bytes). The strobe report for this release displays larger fields for the call count, table length, table read, table update and total table access values. This change is especially relevant for TSRs which contain very large tables, have very heavy usage and/or have been running for a long time.

For details on the length of each field, refer to the *tableBASE Administration Guide*.

Batch and CICS Driver LV command displays new fields (ref: TB-3316)

The LV command now displays new fields that have been added to the VTS-DATA parameter for Version 7. These new fields provide more information on a VTS-TSR which are related to the implementation of VTS Gate. They are only displayed if the name of the running VTS is placed in the TB-SUBSYSTEM field of the TB-PARM, using the SS command, before executing the LV command.

The new fields displayed are:

- **TSRACCESS:** R/W (R if this VTS is available for tableBASE read commands only; W if update commands are also allowed)
- **SECURITY:** Y/N (Y if this VTS is SAF interface protected i.e. protected with security tools using the SAF interface like ACF2, RACF and Top Secret; N if there is no SAF interface protection)
- **KEY-PROTECTION:** 0/1/2/3/4/5/6/7 (1 to 7 if this VTS is hardware key protected; 0 if there is no hardware key protection)
- **TSR-Generation:** nnnnn where nnnnn represents the generation number of the VTS. This value is incremented each time a VTS-TSR is shut down and restarted or if it is switched from a read-only to a read-write state and vice versa.

Please refer to the *tableBASE Programming Guide* for the layout of the new VTSDATA fields.

Batch Interface

User comment parameter added for some TBEXEC commands (ref: TB-3362)

The DEFINITION-BLOCK parameter which defines the characteristics of a table contains a 16 byte USER-COMMENTS field. A new parameter, UCOMMENT, has been added to TBEXEC to allow for the definition and modification of the USER-COMMENTS field.

The new parameter can be supplied to the DEFINE TBL command when defining a table and to the CHANGE TBL command when changing a table definition. The details of the user comments will also be displayed with the PRINT LIB command when DETAIL=YES is specified.

More details on the rules and usage for the new parameter can be found in the *tableBASE Batch Utilities Guide*.

VTS Gate Interface

VTS Gate is new with Version 7 and is an optional interface. VTS Gate provides additional security for a VTS-TSR, specifically, Read-only, SAF interface protection and hardware key protection.

With the introduction of VTS Gate, a VTS-TSR now has a generation number. This information and that on the security status of a VTS have been added to the VTS-DATA parameter. VTS-DATA values can be obtained using the LV command.

For the purpose of implementing VTS Gate, tableBASE commands have been classified into three groups: (a) those that read from a TSR, (b) those that write to a TSR and (c) those that do not access a TSR.

Details on the layout of the new VTS-DATA fields as well as information on whether each tableBASE command is classified as read or write can be found in the *tableBASE Programming Guide*

Notes:

1. Accessing a SAF interface protected or hardware key protected VTS-TSR with the tableBASE Version 4 TBASEV or TBCALLV APIs i.e. by setting the VTS name using the VTSNAME parameter of TBOPT, or through the VS command, is not supported and will produce unpredictable results. Please contact DataKinetics if this restriction affects you.
2. tablesONLINE/CICS has not been upgraded to work with VTS Gate, so if a secure VTS is used with this interface, some errors may not be properly displayed. If you would like to use VTS Gate with tablesONLINE/CICS, please contact DataKinetics.

Read-only VTS-TSRs (**TB-3286**)

Read-only VTS-TSRs are new with Version 7. Although this feature has been introduced for the implementation of hardware key protected VTS-TSRs, it can be used standalone. It can also be used in combination with SAF interface protected VTS-TSRs.

This type of VTS-TSR allows user applications to only read from the VTS. Version 5 and 6 VTS-TSRs always allowed users to read from and write to the VTS.

The run time option, TSRACCESS, applicable only to the VTS Agent start up, specifies whether a VTS is a Read-only (RO) or Read-write (RW) TSR.

When TSRACCESS is set to RO for a VTS, tableBASE commands that read from the VTS (group a) and those that do not access the VTS (group c) are allowed. tableBASE update commands (group b) on a read-only VTS-TSR will return error 13-06. When TSRACCESS is set to RW (the default) for a VTS, all tableBASE commands are allowed on the VTS, as with Version 6.

In order for tableBASE update commands, including those for loading the VTS-TSR, to execute successfully on a read-only VTS-TSR, the VTS must first be switched to read-write mode. This is discussed in more detail under [“Switching and accessing a Read-only VTS-TSR \(TB-2988\)”](#) on page 18.

Protecting VTS-TSRs using the SAF interface (TB-2997, TB-3285)

With this enhancement, SAF interface security tools (for example ACF2, RACF and Top Secret) can be used to control access to tables in a VTS-TSR. SAF protected VTS-TSRs can be started up as Read-write or Read-only (see [“Read-only VTS-TSRs \(TB-3286\)”](#) on page 16). This feature can also be used in combination with hardware key protection.

A new run time option, RACF_VTS (Y or N), applicable only to the VTS Agent start up, specifies whether the access to a VTS-TSR is SAF interface protected.

When RACF_VTS is set to Y for a VTS, users must be granted the required authorization, using an SAF interface tool, in order to start up, shut down, read from or update the VTS. When a VTS is SAF protected, tableBASE verifies access to the VTS against the authorization granted and the type of operation or tableBASE command being invoked. Commands that do not access a TSR do not require any authorization to the VTS in order to execute.

More information on setting up and accessing an SAF protected VTS-TSR can be found in the *tableBASE Administration Guide* and *tableBASE Programming Guide*.

Protecting VTS-TSRs using a hardware key (TB-3286)

With this enhancement, a VTS-TSR can be built in a hardware key protected dataspace which can only be updated by MVS-authorized programs running in supervisor state and key 0. Hardware key protected VTS-TSRs are automatically started up in Read-only mode. This feature can also be used in combination with SAF protection.

Three run time options, TSR_KEY_PROTECT, TSRACCESS and STROBEMETHOD allow for the implementation of hardware key protected VTS-TSRs.

TSR_KEY_PROTECT specifies the hardware key (0-7) for the key protected VTS-TSR. TSRACCESS must RO and has been discussed under [“Read-only VTS-TSRs \(TB-3286\)”](#) on page 16.

For hardware key protected VTS-TSRs, STROBEMETHOD must be set to 3 to signify that a special dataspace will be acquired for the purpose of updating tableBASE statistics. Both tableBASE strobe and LT command processing will access this special area for these statistics. More information for STROBEMETHOD can be found under “STROBEMETHOD (TB-3287)” on page 19.

Since a hardware key protected VTS-TSR normally runs in read-only mode, the VTS must first be switched to read-write mode in order for tableBASE update commands, including those for loading the VTS, to execute successfully.

Switching and accessing a Read-only VTS-TSR (TB-2988)

VV Command

Switching for a VTS-TSR is only applicable if the VTS-TSR has been started up with the TSRACCESS option set to RO i.e. the VTS runs normally in read-only mode. In order to perform updates, such as opening tables into a Read-only VTS, the VTS must first be switched to a read-write state. A new command, VV, has been introduced to allow for this switching.

The VV command can only be run from a batch program linked with the linkage editor input, SETCODE AC(1), and then run from an authorized library. If the VTS is RACF protected, the userid executing this command must have a minimum of CONTROL access to the VTS.

The VV command must operate with the VTS name in the TB-SUBSYSTEM field of the TB-PARM parameter and a request id in the FUNCTION-ID field of the COMMAND-AREA parameter.

While a VTS is switched to read-write mode, it is locked for update and not accessible by any other user application while in this mode. Only the batch program that switched it to read-write is able to access it. Once the updates complete and the VTS is switched back to read-only mode, the read-write lock is released and user applications can once again access the VTS.

Further details on the VV command can be found in the *tableBASE Programming Guide*.

Start new unit of work for a VTS-TSR (START-TBUOW)

With the introduction of VTS Gate, a VTS-TSR now has a generation number associated with it. Each time a VTS is restarted or switched from one mode to another, the generation number for the VTS increases by 1. When the generation number of a VTS changes while an application is accessing it, that application will no longer be able to access that VTS after the change in generation number.

A new field, START-TBUOW, in the COMMAND-AREA parameter, has been introduced for accessing a VTS after its generation number has changed. A value of S in this field indicates that the new generation of the VTS should be accessed.

This field is only applicable for VTS access where the VTS name is in the TB-SUBSYSTEM field of the TB-PARM parameter or where the VTS name is used as a linked list. It is not supported for VTS access where the VTS name is placed in the VTSNAME parameter.

Both the tableBASE batch driver (DK1TDRV/TBDriver) and CICS driver (DK1TDRVC/TBDR) have been modified to accept a new parameter, S, for the SP command. This command will place an S in the START-TBUOW field of the COMMAND-AREA for the execution of the next tableBASE command.

More information on this new feature can be found in the *tableBASE Programming Guide*.

STROBEMETHOD (TB-3287)

STROBEMETHOD is a new tableBASE run time option for VTS-TSRs. It specifies whether tableBASE strobe reporting should be triggered by time interval (in minutes) or by call count. It is used in conjunction with the existing run time option, STROBE.

With STROBEMETHOD=3, strobe reporting will be triggered using the time interval setting in the STROBE option. Although STROBEMETHOD=3 was initially designed for hardware key protected VTS-TSRs, it can also be used for a VTS without any VTS Gate features.

When STROBEMETHOD is not specified (default 0) or is 1 or 2, the traditional strobe reporting method, where STROBE specifies the number of calls will occur.

For STROBEMETHOD of 0, 1 or 2, strobe processing has been improved so that tableBASE processing is prevented from waiting for the strobe report. If the number of calls in the STROBE option is set to a small value and tableBASE calls are made more frequently than strobe reports can be produced, the frequency of reports may change due to strobe reports being bypassed.

There is no change to the format of the strobe report. More information on this run time option can be found in the *tableBASE Programming Guide*.

Licensing for VTS Gate (TB-3291)

If you are licensed for VTS Gate, additional messages will now be displayed in the JESMSLG of the tableBASE PC Server task. An informational message, specifying the customer name that the product is licensed to, will be displayed when the PC Server is first started up. Warning messages may be displayed under the following situations:

- if your license has an expiry date and it is nearing the expiry
- if the license has expired and is running in the grace period, if a grace period exists
- if the license has expired and the product has stopped working.

If your VTS Gate license has expired and the product has stopped working, starting up a new VTS Agent task using any of the VTS Gate options will fail with an error message. Existing VTS Agents that are already running with VTS Gate options will remain running until they are brought down.

Checking for a valid VTS Gate license will occur when the tableBASE PC Server is first started up and then every day at midnight.

Please refer to “[New messages](#)” on page 26 for further details on the text of the messages.

Functionality and Operational Changes

All Interfaces

Bypass S0C4 in IGZEBST with COOL:Gen (TB-3046)

A S0C4 can occur in IGZEBST when tableBASE is called by applications created using an older version of a software engineering tool called COOL:Gen.

Analysis indicates that COOL:Gen may have created a bad pointer in one of the save-area chain entries, which is saved by tableBASE as part of MVS coding conventions.

With this release, the saving of this pointer is bypassed as it is currently not required by tableBASE.

This was encountered at a client site for the IMS interface but can possibly occur in the Batch and DB2 SPAS interfaces as well.

Fixed Blocked BDAM library support (ref: TB-3218)

With Version 6, accessing a tableBASE BDAM library with RECFM=FB would return error 61-9 regardless of the other DCB characteristics of the library.

With this release, accessing a tableBASE BDAM library with RECFM=FB will be allowed if the LRECL and the BLKSIZE of the library are equal.

Note that error 61-9 will still be returned if an attempt is made to initialize a tableBASE BDAM library with RECFM=FB using the DL (Define Library) command. Only BDAM libraries with RECFM=F can be initialized by tableBASE.

Bypassing library security checks and messages

With Release 6.1.1 a new feature was introduced (ref: TB-3041) where an attempt to update a BDAM or VSAM tableBASE library protected with security tools using the SAF interface (for example RACF, ACF2 and Top Secret) in the **tableBASE Batch or IMS**

interfaces would return an error code of 61-12 instead of abending with a S913-38 or U301, if the user does not have update access to the library.

Since tableBASE always opens a library for update, this change also triggered the display of authorization failure messages, even when a library is only being read. At some customer sites, this led to the revocation of the userid as it was interpreted as an illegal update attempt.

Two changes have been added to alleviate and correct this situation. These changes are described below.

By using LABEL=(,,IN) in the DD statement for the library (ref: TB-3250)

In Version 6, if customers wished to prevent updates to a tableBASE library, they could do so by using parameter, LABEL=(,,IN), on the DD statement for that library. Any attempts to update the library would be checked by tableBASE and fail with error 61-11.

When the new feature (ref: TB-3041) was introduced in Release 6.1.1, this caused libraries that had the LABEL=(,,IN) parameter to also go through the RACF authorization check instead of failing with an error code of 61-11.

The RACF check for libraries with this parameter in the DD statement was an unintended behavior change and the original behavior has been reinstated.

By using a TBOPT parameter (ref: TB-3256)

A new TBOPT parameter, RACF_LIBACCESS has been introduced for specifying whether tableBASE should check for SAF interface protection of tableBASE libraries in the **tableBASE Batch and IMS interfaces**.

When RACF_LIBACCESS is set to Y, tableBASE will perform checks on whether a library is protected. However, any update attempts by a user application without update access to the library will no longer produce any authorization failure messages. These attempts will only fail with error code 61-12.

When RACF_LIBACCESS is set to N, tableBASE will not perform any checks on whether a library is protected. If a user application without update access attempts to update a library, it will fail with a S913-38 for tableBASE BDAM libraries and a U301 for tableBASE VSAM libraries. RACF_LIBACCESS=N basically reverts the behavior to pre-Release 6.1.1, prior to the implementation of TB-3041.

The delivered default for this parameter is N.

Release 6.1.1 API requires its PC Server to always be running (ref: TB-3306)

The Release 6.1.1 version of DK1TCALL always requires the Release 6.1.1 PC Server to be running.

If your application has been statically linked with the Release 6.1.1 version of DK1TCALL, and the Release 6.1.1 PC Server is brought down when the application is running with loads from the latest Version 7 release of tableBASE, the application will abend with the following error messages:

```
DK100211I Unable to locate tableBASE GCA.  
DK100201S tableBASE PC Server unavailable.  
DK100400E tableBASE User Error Abend 0201, TBLBASE Initializing
```

This problem has been fixed in Release 7.0.0.

To benefit from this change, any applications which have the Release 6.1.1 version of DK1TCALL statically linked in must be relinked with the version of DK1TCALL from the current release.

In order to identify whether your application loads have the Release 6.1.1 version of DK1TCALL linked in, you can scan for the following string in the loads:

```
DK1TCALLV611 PT2938          08/01/12 09.51
```

If these applications are not re-linked, you can bypass this problem as long as the Release 6.1.1 PC Server remains running.

Batch and CICS Driver LT command changes

Larger fields for CALLS, UPDATES and TSR COUNT (ref: TB-3294)

The LT command in the previous versions of the Batch and CICS Driver command processors, DK1TDRV and DK1TDRVC respectively, only allowed up to 10 digits for the display of the CALLS, UPDATES and TSR COUNT fields, although the internal field sizes had been changed to accommodate double-words. This can lead to the truncation of the fields displayed when LT is used on a TSR that has processed a large number of calls.

With Version 7, LT now displays up to 15 digits for the CALLS and UPDATES fields and up to 18 digits for the TSR COUNT field.

TSR COUNT value displayed by default (ref: TB-3322)

The new version of the drivers will always display the value of the TSR COUNT field for the LT command. In the previous release, this field would only be displayed if the LT command was preceded by the SP command supplying a function id of 16 i.e. SP,16.

GD (DD), OR (OW) command behaviour changes (ref: TB-3341)

For the following descriptions, the TSR of record is the local TSR if there is no VTSname in the TB-PARM, otherwise it is the VTS with its name in the TB-PARM.

GD (DD) command behaviour changes

The following issues for the GD (and DD) command have been fixed in Release 7.0:

- In previous releases, if a VTSname is specified in the TB-PARM, it is not possible to also specify a VTSname in the library list (LIB_LIST) since this will lead to error 97-8 as soon as the VTSname on the library list is encountered. This restriction has been removed in Release 7.0. However, it should be noted that when there is a VTSname in the TB-PARM, all VTSnames in the library list are bypassed when the library list is being checked for the table name. The following behaviour changes are a consequence of this fix:
 - In previous releases, when the TSR of record is a VTS-TSR and the table (with correct or incorrect generation number) only resides on a linked VTS, GD returns error code 97-8 and found code of N. In Release 7.0, GD returns error code 0 and found code of N.
 - In previous releases, when the TSR of record is a VTS-TSR and the table only resides on a regular library which occurs on the library list after a linked VTS, GD without a generation number fails with error 97-8, found code N. In Release 7.0, this has been fixed so that GD is successful and returns the definition from the regular library. This is consistent with OR behaviour from previous releases.
 - In previous releases, when the TSR of record is a VTS-TSR and the correct generation of the table only resides on a regular library which occurs on the library list after a linked VTS, OR successfully opens the correct generation of the table from the regular library but GD fails with error 97-8, found code N. In Release 7.0, this has been fixed so that GD returns code 0 with found code of Y and successfully returns the definition for the correct generation of the table from the regular library.
 - In previous releases, when the TSR of record is a VTS-TSR, where the generation of a table requested by OR or GD does not exist, but a wrong generation exists only on a regular library which occurs on the library list after a linked VTS, OR fails with error 8, found code N but GD fails with error 97-8, found code N. In Release 7.0, GD has been changed to return error 8.
 - In previous releases, when the TSR of record is a VTS-TSR when performing OR or GD with a generation number and a wrong generation of the table resides on a linked VTS that occurs first on the library list while the correct generation of the table resides on a regular library later in the library list, OR opens the table from the regular library with the correct gen# and GD returns error 97-8 and found code N. This has been fixed in Release 7.0 so that both OR and GD uses the correct generation of the table from the regular library.
- In previous releases, GD with a generation number always attempts to check for the table in the TSR even though the definition is always returned from the library list. This redundant check has been removed in Release 7.0.

OR (OW) command behaviour changes

In previous releases, when the TSR of record is a VTS-TSR and a wrong generation of the table resides on a linked VTS that occurs first on the library list while the correct generation of the table resides on a regular library later in the library list, OR opens the table from the linked VTS with the wrong gen# and GD returns error 97-8 and found

code N. This has been fixed in Release 7.0 so that both OR and GD uses the correct generation of the table from the regular library.

Library update commands to check that table is closed in local TSR (TB-3355)

For library update commands, CG, DG, RN and XT, the following changes have been made to further ensure that the link between the table that is open in the TSR to that in the library is not lost:

1. If the table is open for read in the local TSR and the commands are being operated on while the TSR of record is a VTS-TSR, i.e. the VTS name is in the TB-SUBSYSTEM field of the TB-PARM parameter, these commands will now fail with error 3-10. In previous releases, these commands were allowed to complete successfully.
2. If the table is open for write in the local TSR and the commands are being operated on while the TSR of record is a VTS-TSR, these commands will now fail with error 3-10. In previous releases, these commands would return error 72 if the 'Wait for Enqueued Table' SWITCHES setting is set to N and wait indefinitely if the 'Wait for Enqueued Table' SWITCHES setting is set to Y.

Preserving Access Registers and high halves of General Registers (TB-3376)

Previous versions of tableBASE did not preserve the contents of access registers or the high-halves of general registers from a calling application. Version 7 will preserve the contents of access registers 2 through 13 and the contents of the high-halves of registers 2 through 14. On returning control to the calling application, the contents of access registers 0, 1, 14 and 15 and the high halves of general registers 0, 1 and 15 are not predictable.

Batch Interface

Batch Driver AR command opens renamed tables incorrectly (ref: TB-3254)

In some releases of Version 6, a problem exists in the AR command of the Batch Driver command processor, DK1TDRV, which affects the opening of renamed tables. This problem has existed since Release 6.0.2, Maintenance Level 5 and may occur when a table has been renamed using either the CN or RN commands.

The following is a description of a couple of symptoms of the problem:

- when a base table has been renamed, an AR of the renamed base table fails to open the renamed table
- when a base table has been renamed and a new base table created with the old table name, an AR of the new table (with the old table name) opens the renamed table instead of the new table.

This problem has been fixed in Release 7.0.0.

Some other changes introduced with this fix are:

- an AR of an alternate index will now fail with a error code of 80; previously, nothing was opened but no error was returned
- some other error codes and error sub-codes returned for the AR and OA commands are different from those in previous releases, although results in terms of which tables are opened will remain the same
- an additional temporary table LD#xxxx! will be visible in the TSR from the execution of the AR and OA commands; xxxx is a time-stamp.

DB2 Stored Procedures

Improved error handling and recovery for DB2 SPAS (ref: TB-3281)

In some previous releases, when a task accessing tableBASE in a WLM-managed DB2 SPAS (Stored Procedure Address Space) abended, it could potentially affect other tasks using tableBASE in that SPAS. Release 7.0.0 code greatly improves how tableBASE recovers from task abends.

To benefit from this change, Stored Procedures need to be run with the Release 7.0.0 version of DK1TCALL. If DK1TCALL is statically linked into any existing Stored Procedures, then these Stored Procedures will have to be re-linked with the new DK1TCALL.

IMS Interface

Final strobe report not produced for an IMS MPR (ref: TB-3351)

With Version 6, when an IMS Message Processing Region (MPR) terminates normally or abnormally, no final strobe report is produced even when the STROBE parameter is specified and the TBTSRPT DD statement is present.

This problem has been fixed in Release 7.0.0. With this fix, a final strobe report will be produced for every end of task in an IMS MPR, including soft abends which do not bring down the MPR. Since tableBASE re-initializes after a soft abend in an IMS MPR, this will allow the statistics from the previous TSR to be captured in the strobe.

VTS Interface

Strobe reporting file overflow in VTS-TSR causes abend (ref: TB-2943)

When a VTS-TSR is run with the TBOPT option, STROBE, not equal to 0 and the strobe file, TBTSRPT, fills up and overflows, this could cause both the job executing on the VTS-TSR as well as the VTS-TSR regions to abend with a S067 and D37 respectively.

This problem has been fixed in Release 7.0.0. The fix allows the job running on the VTS-TSR to run successfully to completion and the VTS-TSR being accessed to remain running. This is achieved by suppressing the addition of any further strobe records into the strobe reporting file, TBTSRPT, when the overflow condition is encountered.

The following error messages will be displayed in the JESMSG LG of the VTS-TSR when strobe reporting has been suppressed due to file overflow:

```
DK100280E QSAM ERROR: Function=PUT QSAM,File=TBTSRPT
DK100281E Strobe output suppressed
```

Inapplicable TBOPT options removed from VTS-TSR display (ref: TB-3215)

The options DATERTNX, FGDELIM and SWITCHES which are not applicable to a VTS-TSR are no longer displayed in the JESMSG LG of the VTS-TSR task.

In previous releases, these options were allowed in the TBOPT DD input for a VTS-TSR region. As of this release they can no longer be provided as TBOPT input parameters for a VTS-TSR region. Providing these options in the TBOPT for a VTS-TSR region would cause the VTS start up to fail with the following error:

```
DK100236E - Keyword not allowed in this environment
```

New and changed messages

The following sections describe some of the new messages as well as the major changes in messages. For a complete list of all messages and a detailed description of each message, see Appendix E in the *tableBASE Programming Guide*.

New messages

DK100608E

```
Not authorized to start VTS resource: DK1.VTS.lparname.vtsname
```

The userid did not have sufficient authorization to start up an SAF protected VTS Agent.

DK100637W

```
TSRACCESS=RW forced RO for locking-<xxxxxxxx>
```

Warning that the TSR access mode has been force switched to read only.

DK100639E

```
Not authorized to stop VTS resource: DK1.VTS.lparname.vtsname
```

The userid did not have sufficient authorization to shut down an SAF protected VTS Agent.

DK100701S

tableBASE PC Server unavailable, required for license options

The tableBASE PC Server must be running.

DK100708I

StrobeMethod 3 allowed only for VTS

STROBEMETHOD=3 is only applicable for a VTS-TSR.

DK100709E

StrobeMethod 3 required for VTS with nonzero TSR_KEY_PROTECT

STROBEMETHOD=3 must be specified as a run time option in order to start up a hardware key protected VTS.

DK100710W

TSRACCESS forced to RO: TSR_KEY_PROTECT

At VTS startup, a hardware key protected VTS did not specify TSRACCESS=RO and has been forced to RO (read only).

DK100804S

System must support 64-bit architecture

Version 7.0 requires z/OS running on 64-bit hardware which supports the General Instructions Extension Facility (GEIF), the Long Displacement Facility, the Extended-immediate Facility and the Execute-extensions Facility. These are provided with the Z10-EC processor or higher.

DK100826W

<pppppppp> license expired <yyyy-mm-dd>; in grace period

The license for the optional product specified has expired on the date specified and it is running in its grace period.

DK100827W

<pppppppp> license expired <yyyy-mm-dd>

The license for the optional product specified has expired on the date specified and the product has stopped working.

DK100828W

<pppppppp> license will expire <yyyy-mm-dd>

The license for the optional product specified will expire on the date specified.

DK100829W

<pppppppp> license expires today <yyyy-mm-dd>

The license for the optional product specified will expire after midnight today.

DK100830W

<pppppppp> license module DK1xBASE missing

The license module for the named product is missing.

DK100833I

<pppppppp> licensed to <customer name>

The customer specified is licensed for the optional product specified.

DK100901S

Not licensed for VTS Gate options

Your installation is not licensed for the optional VTS Gate product options.

Changed messages

DK100243E

Option supported only in TBOPTGEN

This is a revised message that indicates that the parameter must be entered in the distributed source for DK1V1134 or DK1Txx34 and rebuilt. It cannot be entered in the input for the TBOPT DD card.

DK100550I

tableBASE 7 - Resource manager initializing

The message text has been revised.

DK100551I

tableBASE Resource manager initialized

The version number has been removed from the message text.

DK100552E

tableBASE Initialization Error

The version number has been removed from the message text.

DK100553E

tableBASE Initialization Failed

The version number has been removed from the message text.

DK100554I

tableBASE Starting tblBASE

The message text has been revised.

DK100555I

tableBASE tblBASE started

The message text has been revised.

DK100556I

tableBASE Deactivating

The version number has been removed from the message text.

DK100557I

tableBASE Deactivated

The version number has been removed from the message text.

DK100558E

tableBASE Deactivation Error

The version number has been removed from the message text.

DK100559I

tableBASE Deactivation Failed

The version number has been removed from the message text.

DK100560I

tableBASE Restarting

The version number has been removed from the message text.

DK100561I

tableBASE Verifying

The version number has been removed from the message text.

DK100562I

tableBASE Verify completed

The message text has been revised.

DK100563I

tableBASE - Error Info: Func(<functionname>/<subfunctionname>) Resp(<responsecode>)
Resp2(<responsecode>)

The version number has been removed from the message text.

DK100578I

tableBASE - Shutdown Completed

The version number has been removed from the message text.

DK100579I

tableBASE - Shutdown Aborted: Internal Resource Anchor Block (RCABLK) not found.

The version number has been removed from the message text.

DK100580I

tableBASE - Shutdown Aborted: TRUE TBASECRM not enabled.

The version number has been removed from the message text.

DK100607S

PC Server V611 can't get memory for GCAX

This message has been removed; it is not in use.

DK100632W

REFRESH not supported in tableBASE V7 VTS

The version number in the message text has been revised for Version 7.

DK100800I

tableBASE PC Server V700 available

The version number in the message text has been revised for Release 7.0.

Modules that can reside in the Link Pack Area (LPA)

The following tableBASE modules are eligible and recommended to be in LPA for the Batch, DB2 and IMS interfaces:

DK1TCALL, DK1TNAME, DK1TNUCL, DK1TROT

If using systems or user exits, the following modules are recommended to be in LPA:

DK1TX071 and DK1TX072.

Note: When running CICS applications, tableBASE modules **cannot** reside in LPA.

Enhancements and Fixes by Interface

Enhancements and Fixes Affecting all Interfaces

ID	Description
TB-2109	Strobe report displays larger fields for call count, table length, table read, update and access values
TB-3046	Bypass S0C4 in IGZEBST with COOL:Gen (Batch, DB2 SPAS and IMS Interfaces)
TB-3218	Allow access of tableBASE BDAM libraries with RECFM=FB if LRECL=BLKSIZE
TB-3306	Release 6.1.1 DK1TCALL requires Release 6.1.1 PC Server to always be running
TB-3341	GD (DD), OR (OW) Command Behaviour Changes
TB-3355	Library update commands to check that table closed in local TSR
TB-3376	Preserving Access Registers and high halves of General Registers

Batch Interface Enhancements and Fixes

ID	Description
TB-3250	Bypass checks and messages for SAF interface protected libraries with LABEL=(,,IN) in DD statement
TB-3254	TBDRIVER AR command opens renamed tables incorrectly
TB-3256	Authorization messages for update attempts suppressed for SAF interface protected libraries; new TBOPT parameter for bypassing checks
TB-3294	Batch and CICS Driver: LT command displays larger fields
TB-3316	Batch and CICS Driver: LV command displays new VTS-DATA fields
TB-3322	Batch and CICS Driver: LT command always displays TSR COUNT value
TB-3362	User comment parameter added for some TBEXEC commands

CICS Interface Enhancements and Fixes

ID	Description
TB-3294	Batch and CICS Driver: LT command displays larger fields
TB-3316	Batch and CICS Driver: LV command displays new VTS-DATA fields
TB-3322	Batch and CICS Driver: LT command always displays TSR COUNT value

DB2 SPAS Interface Enhancements and Fixes

ID	Description
TB-3281	Improved error handling and recovery for DB2 SPAS

IMS/TM Interface Enhancements and Fixes

ID	Description
TB-3250	Bypass checks and messages for SAF interface protected libraries with LABEL=(,,IN) in DD statement
TB-3256	Authorization messages for update attempts suppressed for SAF interface protected libraries; new TBOPT parameter for bypassing checks
TB-3351	Final strobe report not produced for an IMS MPR

VTS Interface Enhancements and Fixes

ID	Description
TB-2943	Fix abends caused by VTS-TSR strobe reporting file overflow
TB-3215	Remove inapplicable TBOPT options from VTS-TSR JESMSGGLG display

VTS Gate Interface Enhancements

ID	Description
TB-2988	Dynamically switch a VTS-TSR from RO to RW and vice versa
TB-2997, TB-3285	Protecting VTS-TSRs with security tools using the SAF interface
TB-3286	Implement hardware key protection for VTS-TSRs
TB-3287	Maintain tableBASE statistics for hardware key protected VTS-TSRs
TB-3291	License checking for secure VTS

Known issues in Release 7.0.0.

1. The library conversion process does not diagnose corrupted paged tables in all cases.
2. The RF command is not supported in the TBDR transaction provided with tableBASE/CICS. It is still displayed on the TBDR help screen.
3. If a job that accesses tableBASE is canceled or abnormally terminates during tableBASE processing, a table may remain locked in the TSR. The subsequent attempts to access the table may result in loops. Recycle the TSR (local region for a local TSR or the VTSAGENT for a VTS-TSR) to alleviate the problem.
4. For Change Name (CN command) with LOCK-LATCH key (*ref: TB-3299*):
 - When a table has been previously opened for write with a LOCK-LATCH key, a CN on the table without the LOCK-LATCH key (that the table was opened with) will work causing the table to be renamed in memory. However, the LOCK-LATCH from the original OW will be required when updates on the new table name are attempted.
 - When a table has been previously opened for write without a LOCK-LATCH key, a CN command with a LOCK-LATCH key supplied will work, but the LOCK-LATCH supplied with the CN command is currently ignored for any update attempts on the new table name.
 - In cases where the table was not previously opened or is opened only for read, the LOCK-LATCH on the CN command is effective on the new table name.