

DBDELETE

INTRINSIC NUMBER 408

Deletes the current entry from a manual master or detail data set. The database must be opened in access mode 1, 3, or 4.

OPENTURBO vs. TurboIMAGE Difference

100%

OPENTURBO Performance Enhancements

Elimination of AUTOMATIC Dataset.

OPENTURBO Additional Features

N/A.

DBDELETE is mapped to ORACLE DELETE:

You may not delete a Manual entry, unless its foreign constrains are all eliminated.

The Automatic entry is not deleted automatically, you need to run otCLEAN for clean-up. The Automatic tables have no value to OPENTURBO, since all Automatic datasets have already mapped to ORACLE indexes for each Detail table. In most cases, Automatic tables are not migrated, hence OPENTURBO does not spend extra performance cost for deleting entry from Automatic table when the entry has no foreign constrains attached to it.

All rules for INSERT, DELETE and UPDATE, such as triggers, primary and foreign constrains, unique constrain and path control, are also applied to native ORACLE applications.

Proper locks must be provided before updates, refer to HP TurboIMAGE/XL Database Management System Reference Manual.

Syntax

DBDELETE, base,dset,mode,status

Parameters

base is the name of the array used as the *base* parameter when opening the database. The first element of the array must contain the base ID returned by DBOPEN. (Refer to DBOPEN for more information about the base ID.)

dset is the name of an array containing the left-justified name of the data set from which the entry is to be deleted, or is an integer referencing the data set by number. The data set name can be up to 16 characters long. If shorter, it must be terminated by a semicolon or a blank.

`mode` must be an integer equal to 1.

If your database is enabled for third-party indexing (TPI), refer to your vendor documentation for additional DBDELETE mode information. The section on DBUTIL in chapter 8 of this book has a brief description of the TPI option.

`status` is the name of an array of 10 halfwords in which TurboIMAGE/XL returns status information about the procedure. If the procedure executes successfully, the status array contents are:

Element	Contents
1	If the procedure succeeds, the return status is 0. Table 5-8. describes the contents of element 1 when the procedure does not succeed.
2	Zero.
3-4	Unchanged current record number.
5-6	Number of entries in a chain. If master data set, the number is zero unless the deleted entry was a primary entry with synonyms. In this case, the number is one less than its previous value. If detail data set, the number is unchanged from the preceding procedure call.
7-10	Unchanged preceding and succeeding record numbers of a chain. If master data set and the new synonym chain count is greater than zero, the numbers reference the last and first synonym chain entries, respectively.

Discussion

When deleting entries from *detail* data sets, and if the database is open in access mode 1, you must establish a lock covering the data entry to be deleted, the data set, or the database.

When deleting entries from *master* data sets, the following rules apply:

- All pointer information for chains indexed by the entry must indicate that the chains are empty. In other words, there cannot be any detail entries on the paths defined by the master which have the same search item value as the key item in the master entry to be deleted.
- If the database is open in access mode 1, a lock must be in effect on the data set or the whole database.

DBDELETE to an indexed master triggers a similar operation to the indexed master's B-Tree file and is considered atomic with the DBDELETE intrinsic.

Because of the way TurboIMAGE/XL handles synonym chains, it is possible to write a routine to read and delete all the entries in a master data set and still leave some entries in the set. If the deleted entry is a primary with synonyms, TurboIMAGE/XL moves the first synonym in the chain to the deleted primary's

location. A subsequent DBGET mode 3 will read the next sequential entry, leaving an entry (the new primary) in the previous location.

A solution to this problem is to check elements 5 and 6 of the status parameter following each DBDELETE call. If the synonym count in these elements is not zero, reread the location (using DBGET, mode 1) and call DBDELETE again. Repeat the reread and DBDELETE until the count is zero, then continue reading and deleting in a serial manner. (Refer to chapter 4 for a discussion of serial access and to chapter 10 for a discussion of synonym chains.)

TurboIMAGE/XL performs the required changes to chain linkages and other chain information, including the chain heads in related master data sets. If the last member of each detail chain linked to the same automatic master entry has been deleted, DBDELETE also deletes the master entry containing the chain heads.

If a primary data entry with synonyms is deleted from a master data set and a secondary migrates, the backward and forward pointers reflect the new primary. In all other cases, the backward and forward pointers are unchanged when an entry is deleted.

The execution of a call to DBDELETE could require extensive resources depending on the amount of chain maintenance required. For example, when an entry is deleted from a detail data set, the links connecting that entry to all other related entries with the same key values and to all other related master entries are eliminated. This operation could involve many blocks of data. TurboIMAGE/XL prevents data block access conflicts with all other users and ensures data integrity by applying a temporary lock against other processes until the call to DBDELETE completes. The timing of this temporary lock can be controlled with the PREFETCH option of DBUTIL. Refer to “Coordinating Deletions to a Database” in chapter 4 for what to consider when enabling or disabling this option. If the process is logging, a call to DBDELETE causes a log record to be written with such information as the time, date, user identification number, and a copy of the record to be deleted. In a dynamic transaction, DBDELETE causes a log record to be written after the physical transaction has been successfully completed. If DBDELETE cannot complete within a dynamic transaction, an error is returned. This error condition must be checked, and you must decide to use DBXUNDO, DBXEND, or continue with the remainder of the dynamic transaction. DBXUNDO will abort the entire transaction. DBXEND will terminate the dynamic transaction; the modifications completed thus far within the transaction will remain in the database.

Table 5-8. DBDELETE Return Status Values

File System, Memory Management, and Transaction Management Failures:	-1	FOPEN failure.
	-3	FREADDIR failure.
	-4	FREADLABEL failure.
	-5	FWRITEDIR failure.
	-6	FWRITELABEL failure.
	-167	Cannot begin MPE XL XM transaction: XM error <i>nn</i> .
	-168	Cannot attach <i>n</i> to MPE XL XM: file system error <i>nn</i> .
	-169	Invalid mode for XM attach options.
	-175	Cannot attach <i>n</i> to MPE XL XM: XM error <i>nn</i> .
	-176	Cannot detach <i>n</i> from MPE XL XM: XM error <i>nn</i> .
	-178	Cannot detach <i>n</i> from MPE XL XM: file system error <i>nn</i> .
	-199	Cannot end MPE XL XM transaction: XM error <i>nn</i> .
	-209	Invalid mode for XM detach options.
	-209	The XM transaction size (28 MB) limit has been reached, only DBXEND or DBXUNDO are allowed.

Calling Errors:	- 11	Bad database reference.
	- 12	No lock covers the data entry to be deleted. (Occurs only if database open in access mode 1.)
	- 14	Illegal intrinsic in current access mode.
	- 21	Bad data set reference.
	- 23	Data set not writable.
	- 24	DBDelete not allowed on Auto Master.
	- 31	Bad mode.
	- 222	Only DBXUNDO allowed when a dynamic transaction encounters an error.
Communications Errors:	- 102	DSWRITE failure.
	- 106	Remote 3000 data inconsistent.
	- 107	NS 3000 or DS 3000 system error.
Logging System Failures:	- 111	WRITELOG failure.
Exceptional Conditions:	- 193	DBU control block is full.
	- 196	DBB control block is full.
	- 264	Error while writing to TPI files.
	- 3nn	Internal error.
	- 314	Error while obtaining patch information for set.
	- 322	Error while validating qualifier parameter.
	- 332	Error in QLOCK table operations.
	17	No entry.
	44	Can't delete master entry with non-empty detail chains.
	63	DBG disabled; potential damage; only DBCLOSE allowed.

Consult appendix A for more information about these conditions.