DBGET

INTRINSIC NUMBER 405

Provides eight different methods for accessing the entries of a data set.

OPENTURBO vs TurboIMAGE Difference

100%

OPENTURBO Performance Enhancements

Bulk fetch option supports one direction chain get DBGET(5 or 6) after a DBFIND, which is either forward chain get or backward chain get, but not both forward and backward in the same chain. This option triggers OpenTURBO BULK-FETCH and PRE-FETCH mode.
Bulk fetch option also improves DBGET(2/3) serial get performance significantly, it triggers not only OpenTURBO BULK-FTECH and PRE-FETCH feature, it also triggers ORACLE pre-fetch between its client and server communication, with proper memory allocation, the performance can be improved by over 10 times.

- Mode = 78 (Free form WHRERE condition in ARGUMENT for Manual Master)
- ARGUMENT contains the WHERE condition clause, but 'WHERE' itself is not included.
  - All operators must be UPPER CASE and must be surrounded by BLANKS
  - Allowed operators are =, >, <, >=, <=, <>, LIKE, AND, OR
  - ORDER BY is also supported; the ' ORDER BY ' must be UPPER CASE and must be at the last of the WHERE clause.
  - No special characters are allowed in the STRING literal
  - Use ORACLE column name, not TurboIMAGE field name; OpenTURBO doesn't parse nor translate them, simply attach it to the WHERE clause
  - Example: **FLIGHT_KEY LIKE '20030915%' OR FLIGHT_KEY LIKE '20030914%'** => FLIGHT_KEY is the column name, not the TurboIMAGE item name FILGHT-KEY, the FLIGHT_KEY must be an INDEX for table COUPON, using LIKE is much faster than SUBSTRING() aggregate function.

The entire ARGUMENT must be terminated by a NULL char which is HEX 0, '\0' for C/C++ or X"00" for COBOL.

OPENTURBO Additional Features

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Syntax

DBGET, base, dset, mode, status, list, buffer, argument

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 base ID.)

`dset` is the name of an array containing the left-justified name of the data set to be read, 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` contains an integer between 1 and 8, inclusive, which indicates the reading method. The methods are:

Mode **Method**

Re-read. Read the entry at the internally maintained current record number (*argument* parameter is ignored).

Serial Read. Read the first entry whose record number is greater than the internally maintained current number (*argument* parameter is ignored).

Backward Serial Read. Read the first entry whose record number is less than the internally maintained current number (*argument* parameter is ignored).

Directed Read. Read the entry, if it exists, at the record number specified in the *argument* parameter (*argument* is treated as a 32-bit record number).

5 **Chained Read or Next Qualified Entry Read**. Read the next entry in the current chain, or read the next qualified entry for a B-Tree `DBFIND`. This is the entry referenced by the internally maintained forward pointer (*argument* parameter is ignored). Super-chains are traversed for detail data sets.

If your database is enabled for third-party indexing (TPI), refer to your vendor documentation for additional information.

6 **Backward Chained Read**. Read the previous entry in the current chain, or the previous qualified entry for a B-Tree `DBFIND`. This is the entry referenced by the internally maintained backward pointer (*argument* parameter is ignored). Super-chains are traversed for detail data sets.

If your database is enabled for third-party indexing (TPI), refer to your vendor documentation for additional information.

7 **Calculated Read.** (Master data sets only.) Read the entry with a key item value that matches the value specified in *argument*. The entry is in the master data set specified by *dset*.

8 **Primary Calculated Read.** (Master data sets only.) Read the entry occupying the primary address of a synonym chain using the key item value specified in *argument* to locate the entry. The key item value returned is always that of the primary entry and might not match the value pecified in *argument*. (Refer to chapter 10 for synonym chain description.)

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

`status` is the name of a 10-halfword array 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 5-12. describes the contents of element 1 when the procedure does not succeed.
2	Length of the logical entry read into the buffer array in halfwords.
3-4	Word record number of the data entry read.
5-6	Word zero, unless the entry read is a primary entry in which case it is the number of entries in the synonym chain.
7-8	Word record number of the preceding entry in the chain of the current path for the detail data sets. Zeroes for master data sets.
9-10	Word record number of the next entry in the chain of the current path for the detail data sets. Zeroes for master data sets.

`list` is the name of an array containing an ordered set of data item identifiers, either names or numbers. The values for these data items are placed in the array specified by the buffer parameter in the same order as they appear in the *list* array.

The *list* array can contain a left-justified set of data item names, separated by commas and terminated by a semicolon or blank. No embedded blanks are allowed and no name can appear more than once.

When referencing by number, the first element of the list array is an integer *n* which is followed by *n* unique data item numbers (one-halfword positive integers).

The *list* not only specifies the data items to be retrieved immediately but is saved internally by TurboIMAGE/XL as the *current list* for this data set. The current list is unchanged until a different list is specified in a subsequent call to DBGET, DBPUT, or DBUPDATE for the same access path and data set.

Some special list constructs are allowed. These are described in Table 5-20. with the DBPUT procedure. List processing is a relatively high overhead operation which can be shortened in subsequent calls by using the asterisk construct to specify that the **current list** is to be used. Use of this construct can save considerable processing time. However, be sure a current list exists before using the asterisk or TurboIMAGE/XL will assume a null list. If a DBCLOSE mode 2 is used after DBGET, using the asterisk construct, TurboIMAGE/XL uses the previously defined item list.

buffer is the name of the array to which the values of data items specified in the list array are moved. The values are placed in the same order as specified in the list array. The number of elements occupied by each value corresponds to the number required for each data type multiplied by the sub-item count.

argument is ignored except when *mode* equals 4, 7, or 8.

If *mode* is 4, *argument* contains a word record number of the entry to be read.

If *mode* is 7 or 8, *argument* contains a key item value for the master data set referenced by *dset*.

Discussion

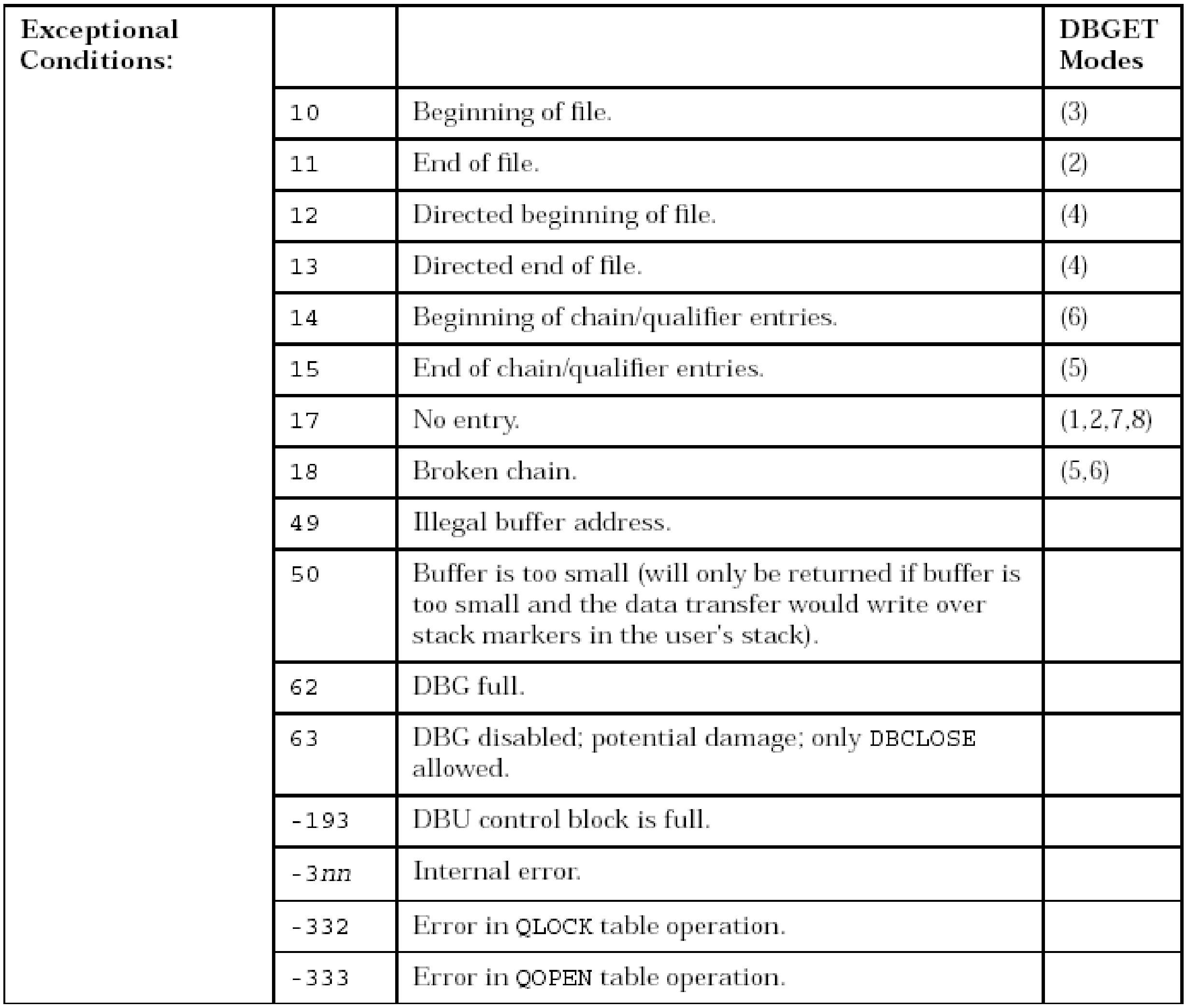
The internal backward and forward pointers for the data set are replaced by the current path's chain pointers from the entry just read. If the data set is a master, and not a B-Tree index, they are synonym chain pointers (refer to chapter 10). If it is a detail with at least one path, the current path is the one established by the last successful call to DBFIND; or, if no call has been made, it is the primary path. If there are no paths defined, the internal pointers are set to zeros.

The location of the entry just read becomes the current record for the data set. DBGET mode 5 or 6 will reread the current record and will try to continue the chain read if it encounters a broken chain.

NOTE A call to DBOPEN does not open individual data sets. Thus, a call to DBGET (or DBFIND) that accesses a data set for the first time (or after the data set has been closed), must open the data set as well as jumbo files and B-Tree index files. This causes extra overhead not incurred by subsequent calls to the same data set by DBFIND or DBGET.

Table 5-13. DBGET Return Status Values

File System, Memory Management, and Transaction Management Failures:	-1	FOPEN failure.
	-3	FREADDIR failure.
	-4	FREADLABEL failure.
	-168	Cannot attach *n* to MPE XL XM: file system error *nn*.
	-169	Invalid mode for XM attach options.
	-175	Cannot attach *n* to MPE XL XM: XM error *nn*.
	-176	Cannot detach *n* from MPE XL XM: XM error *nn*.
	-178	Cannot detach *n* from MPE XL XM: file system error *nn*.
	-209	Invalid mode for XM detach options.
Calling Errors:	-11	Bad database reference.
	-21	Bad data set reference.
	-31	Bad mode.
	-51	Bad list length.
	-52	Bad list or bad item.
	-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.



Exceptional Conditions:			**DBGET Modes**
	`10`	Beginning of file.	(3)
	`11`	End of file.	(2)
	`12`	Directed beginning of file.	(4)
	`13`	Directed end of file.	(4)
	`14`	Beginning of chain/qualifier entries.	(6)
	`15`	End of chain/qualifier entries.	(5)
	`17`	No entry.	(1,2,7,8)
	`18`	Broken chain.	(5,6)
	`49`	Illegal buffer address.	
	`50`	Buffer is too small (will only be returned if buffer is too small and the data transfer would write over stack markers in the user's stack).	
	`62`	DBG full.	
	`63`	DBG disabled; potential damage; only `DBCLOSE` allowed.	
	`-193`	DBU control block is full.	
	`-3`*nn*	Internal error.	
	`-332`	Error in `QLOCK` table operation.	
	`-333`	Error in `QOPEN` table operation.	

Consult appendix A for more information about these conditions.