

Beta D-Eng 0.91 e

Database Engine

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Benefits

D-Eng supports both Btrieve and Borland Database Engine at the same time. You get the speed of Btrieve without losing the convenience of the Delphi environment. You can use TQuery components and other databases.

Computer: Pentium 100 Mhz, Novell Network, Btrieve 6.16 Net

Function	ODBC Btrieve	D-Eng
Open Database	2s 240ms	0s 270ms
Open File	1s 480ms	0s 330ms
Read 1000 Records with Grid-Display	14s 390ms	12s 850ms
Write 1000 Records with Grid-Display	1m 5s 360ms	11s 310ms
Search Record 1 of 3 500 Records	15s 0ms	0s 55ms
Jump to End 3 500 Records	10s 50ms	0s 55ms
First Record in Filter-Range when Filter in Key 1 000 Recs out of 3 500	6s 860ms	0s 55ms
Record Count in Filter 1 000 Recs out of 3 500	8s 790ms Returning Total Recs	2s 800ms Returning Recs in Filter!

The time measurements for D-Eng were done without a high-resolution timer. The shortest time is 1 tick (1/18 second, 55 ms).

D-Eng translates calls for Btrieve files to the BDE. Btrieve files are handled directly using calls to WBTRCALL.DLL and WDDLSVCS.DLL.

D-Eng supports Btrieve Data-Only Files.

Requirements/Limitations

- Btrieve Version 5.15 or above needed
You need WBTRCALL.DLL.
You can use Btrieve Version below 5.15 but the ranges will not work.
- DDF-Support is needed
You need WDDLSVCS.DLL. This DLL is loaded, when you access a TTable component.
- The unregistered version will work only while in the Delphi-IDE.
- D-Eng does not yet support creation of files at runtime.

Future Enhancements

- Remove most of the bugs
- Creation of files
- All Btrieve data types and extended types
- Debug layer switchable at runtime
- BLOBs
- Delphi 2 Support
- Support for Owners and Passwords
- TQuery component
- DDF Maintenance

Installation

D-Eng requires WBTRCALL.DLL and WDDLSVCS.DLL in either the WINDOWS directory or the WINDOWS\SYSTEM directory.

Installation Steps:

1. Make Backup

Save the following files:

LIB\DB.DCU, LIB\DBTABLES.DCU, BIN\COMPLIB.DCL

2. Copy Files

Copy DB.DCU, DBTABLES.DCU, WDDL.DCU, BDEPROCS.DCU, IDAPI.DCU, BOBASE.DCU, BOSUPP.DCU, BOFILE.DCU, TPSTRING.DCU, TPNOLLI.DCU, WINDOS.DCU to the LIB directory

3. Recompile the Component Library

INI-File BTRDDL.INI

The INI-File is needed to give a list of available Btrieve-Databases. You can access a Btrieve database directly with a TDatabase component.

Format of the INI-File is

[DENG] LANG=anii850	D-Eng Options Name of the language driver
[SECTION] Name of the database	Name conflicts with other databases are NOT checked
DDL= Path to DDF-Files	Path where FILE, FIELD, INDEX files reside
USER NAME=	Optional Username for Login-Dialog

Example INI-File:

```
[DENG]
LANG=ansii850

[BTR]
DDL=L:\BTI\WEINEXP
USER NAME=MASTER
```

The INI-File is reread every time TSESSION.GetAliasNames is called. This means the INI-File can be changed on the fly. You can supply the dictionary path at runtime see TDatabase access without BTRDDL.INI.

Functions Supported

Ranges

Keyoriented with SetRangeStart, SetRangeEnd
Any Field with SetRange

External Libraries

External libraries accessing DBIPROCS are a problem at the moment. The original DBIPROCS can not be replaced to make it seamless. For these libraries the units BDEPROCS and IDAPI are included which have the same functionality. A later version will replace DBIPROCS.

Longer Startup of Delphi

When Delphi is started the COMPLIB.DCL is loaded and ist Units are initialized. D-Eng checks if Btrieve is available. Depending on what kind of driver you are using - Real mode or Windows - startup may take slightly longer. If Btrieve is not available you will get a message when accessing a database or a file.

Too Many Active Drivers or Object not Found

If you get this error when you want to access a table or database, then you should check the path to the DDL files.

Complib not loaded

If you get this error when starting delphi or after installing D-Eng you should check that WBTRCALL.DLL and WDDLVSVC.DLL are in your path.

Memory Tracking

While in Beta Memory Tracking is active. When at the End of the program there is still allocated memory a Messagebox is displayed:

```
!Memory-Heap <Bytes>
```

I would be obliged if you told me of these errors.

TDatabase access without BTRDDL.INI

```
Database1 : TDATABASE;  
Is : TStringList  
  
Is := TStringList.Create;  
Is.Add ('DDL=<Path>');  
with Database1 do begin  
    DriverName := 'BTRIEVE';  
    LoginPrompt := False;  
    Params := Is;  
end;  
Is.Free  
Database1.Connected := true;
```

Translation

If translation is giving you problems you can call up the field editor and insert all fields. For each field you do not wish to be translated set the TRANSLITERATE to FALSE.

DBI-Functions translated

The translated DBI-Functions support only the functionality required by the Delphi's database abstraction layer. Btrieve errors are translated to their DBIERR equivalent if applicable.

To open a data dictionary and its associated files you need at least read-rights in this directory.

Error Handling and Translation

```
DBIAnsiToNative  
DBIGetErrorEntry  
DBIGetErrorString  
DBIInit  
DBINativeToAnsi
```

Database- and File access

```
DBIAcqTableLock  
DBIAddPassword  
DBIAddIndex  
DBIAppendRecord  
DBIBeginTran  
DBICloseCursor  
DBICloseDatabase  
*DBIDeleteIndex
```

DBIDeleteRecord
 DBIDeleteTable
 DBIEmptyTable
 DBIEndTran
 DBIExit
 *DBIForceReread
 DBIGetBookmark
 DBIGetCursorProps
 DBIGetDatabaseDesc
 *DBIGetField
 DBIGetFieldDescs
 DBIGetIndexDesc
 DBIGetLdNameFromDB
 DBIGetLdObj
 DBIGetNextRecord
 DBIGetPriorRecord
 DBIGetProp
 DBIGetRecord
 DBIGetRecordCount
 DBIGetRecordForKey
 DBIInitRecord
 DBIInsertRecord
 DBIModifyRecord
 DBIOpenCfgInfoList
 DBIOpenDatabase
 'DBIOpenDatabaseList
 DBIOpenFieldList
 DBIOpenIndexList
 *DBIOpenTable
 Returns DBIERR_ObjectNotFound, when the physical file associated
 with the table cannot be found or you do not have enough network-
 rights.
 DBIOpenTableList
 DBIPutField
 DBIRelRecordLock
 DBIRelTableLock
 DBIRenameTable
 DBISetProp
 *DBISetRange
 Ranges are set with SetRangeStart, SetRangeEnd and ApplyRange.
 The DB-Unit uses Ranges for Master-Detail relationships. If you use
 DBGrids to display the Detail be careful of how many rows are
 displayed. The DB-Unit tries a read for every row in the grid. If your grid
 has three rows and you have only one matching record there are 2
 reads to eof. These may take a long time.
 *DBIResetRange
 DBISetToBegin
 DBISetToBookmark
 DBISetToCursor
 DBISetToEnd
 DBISetToKey

DBISwitchToIndex

Error Translation

Description	Btrieve Status	Translated DBIERR
No error	00	DBIERR_None
Invalid operation	01	DBIERR_NA
I/O error	02	DBIERR_SysFileIO
File not open	03	DBIERR_FileNoAccess
Key value not found	04	DBIERR_RecNotFound
Duplicate key value	05	DBIERR_KeyViol
Invalid key number	06	DBIERR_InvalidIndexName
Different key number	07	DBIERR_KeyViol
Invalid positioning	08	BTRStatus
End of file	09	DBIERR_EOF
Non-modifiable key value	10	DBIERR_IndexReadOnly
Invalid file name	11	DBIERR_OSENOENT
File not found	12	DBIERR_NoSuchFile
Extended file error	13	DBIERR_OSENOENT
Pre-image open error	14	DBIERR_VALFileCorrupt
Pre-image I/O error	15	DBIERR_ValFileCorrupt
Expansion error	16	DBIERR_SYSFileIO
Close error	1	DBIERR_CannotClose
Disk full	18	DBIERR_NoDiskSpace
Unrecoverable error	19	DBIERR_SYSCorrupt
Record manager inactive	20	DBIERR_SYSCorrupt
Insufficient memory	21	DBIERR_NoMemory
Data buffer too short	22	DBIERR_InternalLimit No Error on file with variable length if the data buffer can hold the fixed part of the record.
Position buffer length wrong	23	DBIERR_InternalLimit
Page size error	24	DBIERR_InternalLimit
Create I/O error	25	DBIERR_SysFileIO
Number of keys error	26	DBIERR_IndexLimit
Invalid key position	27	DBIERR_KeyViol
Invalid record length	28	DBIERR_NA
Invalid key length	29	DBIERR_KeyViol
Not a Btrieve file	30	DBIERR_UnknownFile
File already extended	31	DBIERR_FileExists
Extend I/O error	32	DBIERR_ReadErr
Invalid extension name	34	DBIERR_OSENOENT
Directory error	35	DBIERR_DirNoAccess
Transaction error	36	DBIERR_NoActiveTran
Transaction already active	37	DBIERR_ActiveTran
Transaction control file I/O error	38	DBIERR_CorruptLockFile
End/Abort transaction error	39	DBIERR_NoActiveTran
Transaction max files exceeded	40	DBIERR_InternalLimit

Operation not allowed	41	DBIERR_NA
Incomplete accelerated access	42	DBIERR_NA
Invalid record address	43	DBIERR_NA
Null key path	44	DBIERR_NA
Inconsistent key flags	45	DBIERR_NA
Access to file denied	46	DBIERR_FileNoAccess
Cache buffer max exceeded	47	DBIERR_NoMemory
Invalid alternate sequence	48	DBIERR_NA
Key type error	49	DBIERR_KeyViol
Owner already set	50	DBIERR_NotSuffSQLRights
Invalid owner	51	DBIERR_NotSuffSQLRights
Cache write I/O error	52	DBIERR_InternalLimit
Invalid interface	53	DBIERR_InternalLimit
Variable page error	54	DBIERR_InternalLimit
Autoincrement error	55	DBIERR_NA
Incomplete index	56	DBIERR_KeyViol
Expanded memory error	57	DBIERR_InternalLimit
Compression buffer too short	58	DBIERR_InternalLimit
File already exists	59	DBIERR_FileExists
Reject count reached	60	DBIERR_InternalLimit
Work space too small	61	DBIERR_InternalLimit
Invalid extended descriptor	62	DBIERR_NA
Invalid extended insert buffer	63	DBIERR_NA
Filter limit reached	64	DBIERR_DriverLimit
Incorrect field offset	65	DBIERR_NA
Automatic transaction abort	74	DBIERR_NoActiveTran
Deadlock detected	78	DBIERR_DeadLock
Update/Delete conflict	80	DBIERR_NoCurrRec
Lock error	81	DBIERR_RecLockFailed
Lost position	82	DBIERR_NA
Read outside transaction	83	DBIERR_NoActiveTran
Record locked	84	DBIERR_Locked
File in Use	85	DBIERR_FileBusy
File table full	86	DBIERR_OpenTblLimit
Handle table full	87	DBIERR_DBLimit
Incompatible mode error	88	DBIERR_NA
Redirected device table full	90	DBIERR_DBLimit
Server error	91	DBIERR_SysCorrupt
Transaction table full	92	DBIERR_DriverLimit
Incompatible lock type	93	DBIERR_RecLockFailed
Permission error	94	DBIERR_NotSuffSQLRights
Session no longer valid	95	DBIERR_NotCurSession
Communications environment error	96	DBIERR_OSEINVENV
Data message too small	97	DBIERR_RecTooBig
Internal transaction error	98	DBIERR_NoActiveTran

Data-Types Supported

Btrieve-Type	BDE-Type
String	fldZString
Integer	fldINT16 fldINT32
IEEEFloat	fldFLOAT
BtrieveDate	Not supported
BtrieveTime	Not supported
CobolComp3	Not supported
CobolMoney	Not supported
Logical	fldBOOL
CobolNumeric	fldFLOAT
BasicBFloat	Not supported
PascalString	fldZString
CZString	fldZString
VarLenNote	fldBlob, fldstMemo
VarLenLVar	fldBlob, fldstMemo
BinaryUnsign	fldUINT16
AutoInc	Not supported
Bit	Not supported
CobolNumericSTS	Not supported
CobolNumericSA	Not supported

Registration

This software is shareware.

As this is a Beta-Version no registration fee is required. However your contribution in any form will be appreciated.

The registration fee of the completed D-Eng after a test period of 30 days will be about US\$150.

Beta-Testers are welcome and will receive a discount.

Registration Address:

Arnim Noeldechen
Merkurstr. 4
D-76476 Bischweier
Germany

Support

Support of D-Eng is by CompuServe Mail or fax.

To diagnose your problem the following information will be needed:

Btrieve Version
BREQUEST.EXE or

BTRIEVE.EXE
WBTRCALL.DLL Size & Time Stamp
WDDLSVCS.DLL Size & Time Stamp
Btrieve Configuration - BTI.INI or NOVDB.INI File
Your LAN Configuration if applicable.
The problem you are having in as much detail as possible.
Best would be a fragment of your code.

Compuserve:

My Compuserve ID is 100016,2771

FIDO:

My Fido Point ID is 2:2476/425.2

Fax:

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49-7222 - 94 98 06

History & Changes

Version 091a 24.9.

Changes to documentation
Missing Units TPString, TPNolli and WINDOS included
Sorry for the inconvenience
Activated Function DBIOpenIndexList
Activated Function DBISetRange, DBIResetRange
Btrieve DDFs do not support Validity Check
Message deactivated
Fixed GPF when accessing first Table in Dictionary

Version 091b 26.9.

Changes to documentation
Fixed GPF in DBIOpenDatabaseList
Fixed GPF when accessing a Multisegment Index repeatedly
Fixed Error when trying to access missing file
Added language-driver support

Version 0.91c 27.9.

Changes to documentation
Improved Btrieve access for local or network files

Version 0.91d 03.10.

Changes to documentation
Improved Record Conversion time
Fixed IndexCount in GetCursorProps
The index display was correct
Fixed Access to fixed part of variable length file

Fixed Error-Message when accessing the wrong path to DDF files
It now tells OBJECT NOT FOUND instead of TOO MANY DRIVERS
ACTIVE.
Fixed Access to 1 Byte Integers

Version 0.91e 21.10

Changes to documentation
Fixed GPF when accessing TTable.IndexFieldNames in the Objectinspector
with a live dataset.
Fixed Deletion of Records in variable length files
Fixed Startup when Btrieve was not available
Fixed DBIForceReread for variable length files
New Units BDEPROCS, IDAPI for integration into external libraries
the original DBIPROCS will be replaced shortly to make it seamless
Fixed DBIDeleteIndex for closed Tables
Fixed DBIGetField for Fieldtype Logical
Added DBIAddIndex