

FAQ for HXTT DBF Packages of type 4 JDBC Driver for dbase, Visual DBASE, Six Driver, PowerPlus, SoftC, Codebase, Clipper, Foxbase, Foxpro, and VFP

The most recent version of this document can be viewed at [here](#).

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General Questions

1. How to know the detailed version information of HXTT DBF package?

1st way: "java com.hxtt.sql.dbf.DBFDriver" will print that information.

2nd way: check that MANIFEST.MF file in jar file.

2. Can I use it in an iSeries OS/400 IBM machine that has Java 1.4 running in it?

The HXTT DBF packages can run on any platform with Java VM, which includes Microsoft Windows, Novell Netware, OS2, UNIX, and LINUX. It supports Personal Java, JDK1.0.X, JDK1.1.X, JDK1.2.X, JDK1.3.X, JDK1.4.X, JDK1.5.X, JDK1.6.X, JDK1.7.X, and JDK1.8.X. It supports JDBC1.2, JDBC2.0, JDBC3.0, JDBC4.0, JDBC4.1, and JDBC4.2 now.

3. What is difference between the HXTT DBF Package, Embedded Package, and Remote Access Package? Can I get some sample code to use the HXTT DBF?

The HXTT DBF supports Embedded and Remote Access. HXTT DBF Package includes a Database GUI manager. If you're accessing the local data, you can use the HXTT DBF Package or Embedded Package. If you're accessing the remote data, you can use the HXTT DBF Package or Remote Access Package. There is no any difference for your code to use anyone of three packages. Please download the demo package from [here](#).

4. What causes the 'No suitable driver' SQLException?

This error usually occurs during a call to DriverManager.getConnection(). The cause can be failing to load the appropriate JDBC driver before calling getConnection(), or specifying an invalid JDBC URL that isn't recognized by your JDBC driver. If you're using a trial version, you will get "No suitable driver" SQLException, and "Evaluation period over" after using about 30 days. The HXTT DBF driver's name is com.hxtt.sql.dbf.DBFDriver, and its JDBC URL:

Embedded:

`jdbc:dbf:[//][DatabasePath][?prop1=value1[:prop2=value2]]` (You can omit that "/" characters sometimes)

For example:

`"jdbc:dbf:/"`

`"jdbc:dbf:c:/data"`

`"jdbc:dbf:///usr/data"` for unix or linux:

`"jdbc:dbf:./data"`

Access by DBF Server: Skip it if you don't use TCP, RMI or JINI.

`jdbc:dbf://host:port/[DatabasePath]`

For example: `"jdbc:dbf://domain.com:3099/c:/data"` if one DBFServer is run on the 3099 port of domain.com

5. How to setup DBF url on the Novell Server?

DBF driver can run on Novell server. You can use directly access or DBFServer to visit your data on Novell server.

If your DBF files is at `sys:/java/yourdata`, the direct URL should be:

`jdbc:dbf:///sys:/java/yourdata`

or

`jdbc:dbf:///java/yourdata`

6. I got "java.io.IOException: Permission denied" sometimes for my SELECT query.

Please figure out what directory Java's java.io.tmpdir system property points to, and make sure that directory is writable by the user that runs your Java applications, otherwise you should set tmpdir property in Connection property to a writable directory. tmpdir property indicates whether set a temp directory, Default: the value of JVM's "java.io.tmpdir" property. If that value is incorrect, using the directory of JDBC url.

7. When I used jdbc:dbf:<DatabasePath>, the connection's schema was empty. "create catalog if not exists dbffiles". What is Catalog?

DBF's schema is always empty. You can use catalog to query subdirectory. Catalog means a directory, which contains some DBF files.

8. Can HXTT DBF support JDK 1.0.2?

Yeah. You need to download JDBC 1.22 from the Sun's JDBC download page and add JDBC1.22 into JDK 1.0.2. HXTT DBF hasn't be tested on JDK1.0.X since we have not received such a complement request from our users. If you meet any problem, please let us know.

Applet Questions

1. I already configured the .java.policy for my applet, but I continue with problems of "access denied".

For instance, you're using "jdbc:dbf:/C:/test", and grant codeBase "file:/C:/test" in your policy file, but your applet is running from "D:\sample\CargaStatApplet.html". You should grant codeBase "file:/D:/sample", not "file:/c:/test".

2. http://localhost:8080/jdbcapplet.html, the applet started but returns a Classnotfound com.hxtt.sql.dbf.DBFDriver error in the gui list.

Please add a codebase tag. For instance, "<applet code="jdbcapplet.class" codebase="DBF_Remote_Access_JDBC20.jar"></applet>". The DBF_Remote_Access_JDBC20.jar should be at the same directory of jdbcapplet.html.

3. I put a DBF file in the Tomcat root directory and want to access it from the client browser.

It seems that you wish to access remotely your database by applet. You need to use "[java com.hxtt.sql.admin.Admin](http://www.hxtt.com/hxtt.sql.admin.Admin)" to run a "jdbc:dbf://yourhostname:yourport/c:\apache~1.0\webapps\root\" DBFServer on your host. Then your applet should use "jdbc:dbf://yourhostname:yourport/c:\apache~1.0\webapps\root\".

Remote Access Questions and Client/Server Mode Questions

1. Client/Server mode question: The data directory is not in the IBM machine where the Java program should run, but instead those DBF files are in another machine with Windows operating system.

com.hxtt.sql.admin.Admin provides a GUI manger for [DBF server](#). For instance, you wish to provide JDBC3.0 remote data access. Please use "java -cp yourdirectory/DBF_JDBC30.jar com.hxtt.sql.admin.Admin" to start GUI manager, and add a url setting of "'jdbc:dbf://10.32.90.48:' + 8029 +'/' + databaseDirectory'" on your host of 10.32.90.48(just an IP sample), then click Start button. Third, you can use 'String url = "jdbc:dbf://10.32.90.48:' + 8029 +'/' + databaseDirectory;' to visit your DBF database from your IBM machine. If you're running that GUI manager on "yourNT.com" host to visit "c:/database" directory, you can use "jdbc:dbf://yourNT.com:8029/c:/database" on your web application. jdbc:dbf://yourNT.com:8029/c:/database?user=oneuser&password=onpassword can provide a simply user/password verification for client/server mode. If you wish to write a secure DBF server for some sensitive information, embedded encrypt/decrypt functions can help you.

2. Remote access through map network drive question: How to remote access DBF data without DBFServer?

You can share your remote directory which contains your data files, then map it to a local driver. For Windows: You can connect remote DBF database by sharing the directory and map it to local drive. You should disable the OPLOCKS of your Samba/NT/2000 server. How to turn off opportunistic locking in windows on client and on server side? This is done by manipulating the following registry key:

```
For client side: oplocks.reg file
REGEDIT4
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\MRXSmb\Parameters]
"OplocksDisabled"=dword:00000001
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\LanmanWorkstation\Parameters]
"UseOpportunisticLocking"=dword:00000000
```

For server side: oplocksServer.reg

REGEDIT4

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\LanmanServer\Parameters]
"EnableOplocks"=dword:00000000
```

You should put additional registry entry like e.g.

The following registry entries disable opportunistic locking and caching:

HKey_Local_Machine \ System \ CurrentControlSet \ Services \ LanmanServer \ Parameters \ EnableOpLocks must be set to 0.

HKey_Local_Machine \ System \ CurrentControlSet \ Services \ LanmanServer \ Parameters \ CachedOpenLimit must be set to 0.

HKey_Local_Machine \ System \ CurrentControlSet \ Services \ LanmanWorkStation \ Parameters \ UseOpportunisticLocking must be set to 0.

HKey_Local_Machine \ System \ CurrentControlSet \ Services \ LanmanWorkStation \ Parameters \ UtilizeNtCaching must be set to 0.

For Linux: You can use mounting. One user uses Samba to map NTFS partitions in Linux servers, and DBF driver works normally like mapping any mount point in Linux.

For Novell: You can map NCP directory as driver or mount NCP directory.

3. Remote access through UNC path question: Can I setup only one datasource to access four servers for my Cold Fusion?

To access one unc path, you can use jdbc:dbf:\PC17\c\$\values or jdbc:dbf:\PC17\val.

To access four unc pathes in the same connection, you need to use a free JDBC url, "jdbc:dbf:/" or "jdbc:dbf:///".

Then you can use some full UNC path names in SQL to visit your four servers where your Java VM has right to access.. For instance:

```
select * from \\amd2500\e$\dbffiles\test;
select * from "\\amd2500\d$\dbfiles".test;
select * from ".".test;
```

4. Remote access through http/https/ftp protocol question: How to let my program to fetch data daily from our web host?

You need to use [url database](#), which supports http protocol, https protocol, ftp protocol, and sftp protocol.

5. Remote access through SAMBA protocol question: How to let my servlet on Linux to access over 300 hundred shared folders that all are on Windows boxes

You need to use [SAMBA table](#), which needn't to map or mount driver.

6. I can't get the [com.hxtt.sql.admin.Admin](#) running for internet --> intranet

HXTT DBF supports port mapping and NAT route. Let HXTT DBF listening a port on the database server, and modify your route table or NAT table to map an external port to that internal port. You can use "start java -Djava.security.policy=policy com.hxtt.sql.admin.Admin" to start GUI manager. You should add a remote url, for instance, jdbc:dbf://localhost:8029/d:/dbffiles, and click Start button to start that server. Then on your internet client side, you can use jdbc:dbf://externalIP:8029/d:/dbffiles to access your intranet host. externalIP means an external IP or domain name address of your gateway or database server.

BTW, except for TCPServer protocol, HXTT DBF can use also RMIServer protocol. For instance, you have used "start rmi registry 1099 -J-Djava.security.policy=yourPolicyFile" to startup your rmi service. Then you can use jdbc:dbf://localhost:1099/d:/dbffiles?serverType=RMIServer to let HXTT DBF bind remote service in registry. The key is use "java -Djava.security.policy=policy -Djava.rmi.server.hostname=externalIP com.hxtt.sql.admin.Admin RMISERVER 8029" to start your server. RMIServer protocol is slower much than the default TCPServer protocol.

7. I would like to start a server (TCP) from our application, instead of [DBAdmin](#). I need to be able to programmatically tell the application which profile to start.

Please read [Start/Stop Server Programmatically](#).

8. Is there a way to specify a file path in the url that will connect to a mapped drive in Windows 2000. ie drive \gomer\pyle\db which is mapped to f drive on the server.

DBF driver can work with mapped driver, and you should use "jdbc:dbf:/f:" to access your data.

Note: If you're using a database file through a UNC path or a mapped drive of Windows, there is a Windows Security restriction. If you run ColdFusion (Tomcat, or tanuki sw wrapper) as a service on Windows, it operates by

default as System, and cannot access directories on a remote system or mapped drive; to resolve this issue, do not run ColdFusion (Tomcat, or tanuki sw wrapper) using the local system account.

9. When I click Start button to start a remote service, I get a security exception: access denied (java.net.SocketPermission 127.0.0.1:8029 connect,resolve)

You have to enable java.net.SocketPermission right in your policy file if you run a DBF server. Please read

file:///yourdriver/jdk1.2/docs/guide/security/PolicyFiles.html for more information about policy file. It is unnecessary to know the specific content of a policy file, since you can use policy tool to create and maintain your policy files. Please read

file:///yourdriver/jdk1.2/docs/tooldocs/win32/policytool.html for policy tool.

10. How to start remote service as MS Windows service and Linux(Solaris) Daemon?

Please read [Run HXTT DBFServer as Windows Service or Linux\(Solaris\) Daemon](#).

11. How to start remote control when DBFServer is running as Windows service or Linux(Solaris) Daemon?

You can use "java com.hxtt.sql.admin.Admin TCPCLIENT [host:]port [remoteControlPassword]" to start your remote control.

SQL Questions

1. I need to use tables stored in a subdirectory.

table-name: [catalog.]tableName

For instance, you have many DBF files on c:\data. You can use "jdbc:dbf:c:/data" as JDBC url. Then you can use "select * from subdirectory1.table1" to visit table1 file at subdirectory1. For instance, "select tableAlias.* from "sales/2004/04".sale as tableAlias" can access sale table at "c:\data\sales\2004\04".

2. I can't use "select RIGHT from deldob"

RIGHT is a reserved SQL keyword. "variableName", [variableName] or {v 'variableName'} is used to quote those columns which use reserved keyword, so that you should use "RIGHT" or {v 'RIGHT'} to quote the RIGHT field, for instance, *select {v 'RIGHT'}, 'other' from states where "RIGHT"=32*. HXTT DBF supports using DATE, TIME, TIMESTAMP, GROUP, ORDER, KEY, DESC, UPDATE directly in SQL, although they're reserved words too.

3. Can I get an example on how to do a query involving a boolean value. eg. " Select * from tableName where exported = true", where exported is a boolean column in a DBF file.

Supports. You can use "select * from tableName where exported" too. All of NOT, AND, and OR operation are supported.

4. How to specify dates?

Please use SQL Escape Syntax, a date is specified in a JDBC SQL statement with the syntax {d `yyyy-mm-dd`} where yyyy-mm-dd provides the year, month, and date, e.g. 1996-02-28. There are analogous escape clauses for TIME and TIMESTAMP type: {t `hh:mm:ss`} and {ts `yyyy-mm-dd hh:mm:ss.f...`}. The fractional seconds (.f...) portion of the TIMESTAMP can be omitted. For instance, {d '1999-11-01'} and {ts '3999-03-24 00:59:23.22222'}. You can use PreparedStatement.setDate to set date columns too.

5. How to handle date range selection, e.g. SELECT * FROM CALLS WHERE START >= '2001-01-01' AND END <= '2002-01-01'

Although the HXTT DBF supports "SELECT * FROM CALLS WHERE START >= '2001-01-01' AND END <= '2002-01-01'", but that sql syntax is unadvisable. Please use SQL Escape Syntax, {d `yyyy-mm-dd`} and {ts `yyyy-mm-dd hh:mm:ss.f...`}, for Date and timestamp type according to JDBC standard. You can learn more about Escape Syntax at file:///yourdriver/jdk1.2/docs/guide/jdbc/spec/jdbc-spec.frame11.html . You should use "select * from calls where start>={d '2001-01-01'} and end <={d '2002-01-01'}".

6. Can {d '2999-11-21'}={ts '2999-11-21 23:22:20.3335'} and {t '23:22:20'}={ts '1999-01-01 23:22:20.333'}?

Supports.

7. I think this one is for use functions {fn abs(TEST.int1)}

You can use abs(TEST.int1) too. HXTT DBF supports more than 230 functions.

8. Update table_name set (fieldname1=X, fieldname2=X2,) where primary_index='blah' throws a parse exception.

You should use "update table_name set fieldname1=X, fieldname2=X2, where primary_index='blah'".

9. How to delete all deleted records permanently?

"PACK TABLE [IF EXISTS] table_name" will pack database.

"TRUNCATE TABLE [IF EXISTS] table-name" will zap database.

"update tableName set _DeletedFlag=false[, column-identifier = {expression | NULL}]... [WHERE search-condition]" will unmarks records marked for deletion in the selected table.

With deletesAreBlank=true connection, DELETE sql will convert the destination data row into the deleted blank row.

10. How can i access to a information_schema of a subdirectory. ?

For instance, SELECT * FROM INFORMATION_SCHEMA.TABLES WHERE TABLE_TYPE='TABLE' and TABLE_CAT='Northwind';

SELECT column_name,data_type FROM INFORMATION_SCHEMA.COLUMNS WHERE table_name='Klanten' and TABLE_CAT='DATA002.012'

11. How to see those deleted records without pack?

You can use deletesAreVisible property to indicate whether the resultSet include deleted records. Default:false
properties.setProperty("deletesAreVisible","true");//Includes deleted records.

Connection con = DriverManager.getConnection(url,properties);

ResultSet rs=stmt.executeQuery(sql);

Then you can use "ResultSet.rowDeleted()" to see whether a row is a deleted row.

If you set deletesAreVisible to true, you can use the sql sample code to query data:

```
select deleted(),* from test
```

```
select * from test where not deleted()
```

```
select deleted(),* from test where deleted()
```

```
select * from test where deleted()
```

```
select sum(int1),max(dec1),min(double1) from test where deleted()
```

12. I'm searching for a JAVA tool that can add a field to dbase-table. ALTER TABLE Add Field ...

For instance, alter table Backup_of_UNIFIN_PreSort drop UNIFIN_PRES;

alter table Backup_of_UNIFIN_PreSort add UNIFIN_DM numeric(12,3),add UNIFIN_CAT varchar(20), add UNIFIN_DENS varchar(10);.

Index Questions

1. How to rebuilding index in case of corrupted index?

```
REINDEX {ALL | indexFileName[,indexfileName2,...]} ON table-name
```

2. I receive 1 record back, however there should be 8 records returned.My SQL is "SELECT * FROM Schshift@brian WHERE PSCHED='0001092478'"

You should have a UNIQUE index restriction on your PSCHED column in your index file. You should use "CREATE INDEX PSCHED on Schshift (PSCHED)", not "CREATE INDEX PSCHED on Schshift (PSCHED UNIQUE)". Then you can get all ten records. DBF driver will use index to speed up the query which contains some index expressions.

3. We tried to set a PRIMARY KEY constraint with: create unique index PROVA on PROVA (COD)

You should try "CREATE INDEX prova ON prova (cod PRIMARY KEY).

4. I have a table that lists an index using: STR(ClassLink,4,0)+STR(StuLink,5,0) as the column_name. I want to join it to another table that has an index that uses the same columns... What should the join statement look like in order to take advantage of the indexes?

For instance, you can use "select * from ACLS3295,AGRD3295 where

STR(ACLS3295.ClassLink,4,0)+STR(ACLS3295.StuLink,5,0)='1234abcde' and

STR(AGRD3295.ClassLink,4,0)+STR(AGRD3295.StuLink,5,0)='5678abcde'", or "select * from ACLS3295 as

a,AGRD3295 as b where STR(a.ClassLink,4,0)+STR(a.StuLink,5,0)='1234abcde' and STR(b.ClassLink,4,0)+STR(b.StuLink,5,0)='5678abcde'".

5. How can I specify the indexes which have to be used for clipper files? Does it recognize a cgp files? (as used by codebase, this file just lists the names of the index files).

Clipper's CGP file has been supported.

6. The ntx can't be updated when I update the DBF file.

DBF driver will use index to speed up the query which contains some index expressions. Clipper's CGP file has been supported. You can use a text editor to browse and modify CGP file. If a table has a structural .CDX or .IDX file, the file is opened automatically when the table is opened. For the nonstructural index file which hasn't the same file name as its table name and is created by other xbase applications, you can:

1. [add an existed index file to the CGP file Programmatically](#)

or

2. run the DBFIndex once to supply the necessary index file information. You can use "java com.hxtt.sql.dbf.DBFIndex" to find out how to supply existent index files. Usage: java com.hxtt.sql.dbf.DBFIndex dbfTablePath tableName indexFileFullName1 [indexFileFullName2 ...]. For instance, you have a legacy 'product.dbf' file with prodname.idx, prodprice.idx and orderdate.idx on "c:\prouduct\data" directory, you can run "java com.hxtt.sql.dbf.DBFIndex c:\prouduct\data product prodname.idx prodprice.idx orderdate.idx" once.

Then DBF will create a special table.CGP file and maintain the index files automatically. Then DBF will create a special product.CGP file and maintain the index files automatically. All operations of update, insert and delete will update the .IDX files that are related to the DBF file. DBF doesn't index all deleted records except for setting deletesAreVisible connection property to true.

7. Failed to use "create index No, VALUES of 1216.cdx 'product' No UNIQUE, VALUES)"

You should use "create index No, 'VALUES' of '1216.cdx' on '1216.dbf'(product, { v 'VALUES'})" since VALUES is a reserved word and 1216 is a number.

Performance Questions

1. What is the most efficient method to insert records in a table, to use an updatable RecordSet or to use a PreparedStatement?

PreparedStatement is smally quicker than updatable RecordSet. An updatable RecordSet is quicker than PreparedStatement if you insert into more than 200 columns with constant values. It can only cope with constant values. PreparedStatement can cope with complicated expressions so that you can insert timestamp, function, ResultSet, and so on. One user reported that he uses DBF to transfer daily more than 500MB data between two oracle databases and Clipper's database.

2. "select count(*) from table" are worked a long time for large tables.

You should use "select reccount() from table" to get the number of records. Count(*) sums always up all records except deleted row.

3. Are there any data row count, data volume, memory minimums, maximums imposed when using the HXTT DBF?

No limitation. The HXTT DBF supports to join query big databases with DISTINCT, GROUP BY, and ORDER BY.

4. > Is there a scenario possible where we store frequently accessed temporary data in memory-only tables (as a cache) and use these for query's*_mixed_*with real HXTT DBF tables?

`_memory_` is a speical catalog name for memory-only database. Through `_memory_` catalog, memory-only database is visible for all applications in the same JVM. For instance, in an embedded connection, you can use create table `_memory_.abc` (a char(10));insert into `_memory_.abc` values(333);select * from `_memory_.abc`, test where `abc.a=test.b`;drop table `_memory_.abc`; to do the same things.

Concurrency Questions

1. Does HXTT DBF support multi-user access?

The HXTT DBF supports multi-user access, record lock, and table lock.

2. Is there any way to lock/unlock record programmatically.

We have provided a `_LockFlag_` virtual column as row lock flag. You can know it from [Set Record Lock Manually](#).

3. Does that Xbase compatible lock work also with Linux ? I mean a DLL under Linux

Yeah. DBF provides Xbase compatible lock work for Windows, Linux, and OS2.

4. When my program is inserting a record to DataBase using your DBF Driver, another C program reads the data from the DBF file, Can it read the record data that my program is inserting? In other words, Does the driver use records level lock?

DBF driver supports Xbase's record lock. You can download the JNIFile.dll (or libJNIFile.so) from [here](#), and add the JNIFile.dll (or libJNIFile.so) into your library path. For instance, your JNIFile.dll (or libJNIFile.so) is on lib directory, you can use 'java -classpath lib/DBF_JDBC30.jar:./classes -Djava.library.path=lib testSQL "jdbc:dbf:./sql.txt'. Note: If you are using JDBC4.2, JDBC4.1, JDBC4.0 or JDBC3.0 package with JVM1.4.X, JVM1.5.X, JVM1.6.X, JVM1.7.X, or JVM1.8.X, you needn't that library.

If you wish to use Xbase compatible lock under Tomcat, you should copy the JNIFile library file to one a directory of java.library.path java enviroment parameter. You can get the value of java.library.path java enviroment parameter by System.getProperty("java.library.path") code ,or in windows, which is \$PATH, in solaris or linux, which is \$LD_LIBRARY_PATH, in hp-unix, which is SHLIB_PATH.

Then please use lockType property to enable Xbase compatible lock:

```
Properties prop=new Properties();
prop.setProperty( "lockType", "CLIPPER" );//DBASE, DBASE4BDE, DBASEIII, DBASEIV, CLIPPER,
CLIPPER5.3, PowerPlus, Alaska, SoftC, FOXBASE, FOXPRO, FOXPRO4UNIX, FOXPRO4BDE, and VFP.
Connection conn=DriverManager.getConnection( url,prop );
```

DBF driver will lock and unlock automatically when you execute SQL through DBF driver.

ROWLOCKED([nWorkArea | cTableAlias]) function indicates whether the current row has been locked by other process or application. For instance, "SELECT rowlocked() from test where recno()=1000", and "SELECT rowlocked('test'),* from test".

5. There are some errors when I use com.hxtt.sql.dbf.DBFDriver to access a DBF file which may be modified by other application at the same time.

DBF driver can see other application's lock, and lock only records when it read/updates them. Please use lock property to enable Xbase compatible lock:

```
Properties prop=new Properties();
prop.setProperty( "lockType", "VFP" );//DBASE, DBASE4BDE, DBASEIII, DBASEIV, CLIPPER, CLIPPER5.3,
PowerPlus, FOXBASE, FOXPRO, FOXPRO4UNIX, FOXPRO4BDE, and VFP.
Connection conn=DriverManager.getConnection( url,prop );
```

You need download the JNIFile.dll (or libJNIFile.so) from [here](#), and add the JNIFile.dll (or libJNIFile.so) into your library path. DBF driver will lock and unlock automatically when you execute SQL through DBF driver. Note: If you are using JDBC4.2, JDBC4.1, JDBC4.0 or JDBC3.0 package with JVM1.4.X, JVM1.5.X, JVM1.6.X, JVM1.7.X, or JVM1.8.X, you needn't that library.

Internationalization Questions

1. Can the HXTT DBF support Czech MS - DOS 895?

The HXTT DBF supports all codepage, multilingual collation sequence, and unicode character set. Cp895(Czech MS - DOS 895), Cp620(Polish MS - DOS 620) and Mazovia are extra supported although JVM doesn't support those.

2. Do you have a solution for character translation to the right encoding?

The HXTT DBF supports CharacterEncoding. Please use charSet property.

```
//Default: null
//You can find a Supported Encodings list of files:///yourdriver/jdk1.2/docs/guide/internat/encoding.doc.html
//Extra supports:
// Cp895 is supported by HXTT DBF driver. //Czech MS - DOS 895
// Cp620 is supported by HXTT DBF driver. //Polish MS - DOS 620
// Mazovia is supported by HXTT DBF driver. //Polish
Properties properties=new Properties();
properties.setProperty("charSet","sv_SE");
Connection con = DriverManager.getConnection(url,properties);
```

3. While reading encrypted data in a DBF file using u'r parser in java. The data retrieved is different from the data in the DBF file, certain characters are read as ? marks.(the encryption is done using ASCII values).

You can use `ResultSet.getBytes(int columnIndex)`, not `ResultSet.getString(int columnIndex)` and `ResultSet.getObject(int columnIndex)`, to get your encrypted data, since your encrypted data is binary stream.

4. When they insert accented characters, it comes out different at the Java end. There seem to be some character set conversion problems. Is there a way to solve that?

You can use `ResultSet.getBytes()` and `ResultSet.setBytes()` to avoid `CharacterEncoding`.

5. The charSet's default should be "auto", which means that it will extract the codepage from the DBF header field?

The default is "null". If there isn't charSet property, DBF will try to use the codepage flag in DBF header field. If the codepage flag in DBF header field is empty too, DBF will try to use the Java platform's default charset.

6. My DBF file has Chinese column names.

DBF driver supports Chinese, ant other two bytes languages.

Interoperability Questions

1. How to set up HXTT DBF with Tomcat4.1 as PoolableConnection?

This sample shows three PoolableConnections ways through Database Connection Pool (DBCP) Configurations and JNDI Resources(You should read [JNDI Datasource HOW-TO](#) and [JNDLResources HOW-TO](#) also.):

In server.xml:

```
<Context path="" docBase="ROOT" debug="5" reloadable="true" crossContext="true">
  <Resource name="jdbc/testdbfPool1" auth="Container" type="javax.sql.DataSource"/>
    <parameter>
      <name>factory</name>
      <value>org.apache.commons.dbcp.BasicDataSourceFactory</value>
    </parameter>
    <parameter>
      <name>maxActive</name>
      <value>50</value>
    </parameter>
    <parameter>
      <name>maxIdle</name>
      <value>10</value>
    </parameter>
    <parameter>
      <name>maxWait</name>
      <value>10000</value>
    </parameter>
    <parameter>
      <name>username</name>
      <value></value>
    </parameter>
    <parameter>
      <name>password</name>
      <value></value>
    </parameter>
    <parameter>
      <name>driverClassName</name>
      <value>com.hxtt.sql.dbf.DBFDriver</value>
    </parameter>
    <parameter>
      <name>url</name>
      <value>jdbc:dbf:///d:/dbffiles</value>
    </parameter>
  </Resource>
  <ResourceParams name="jdbc/testDBFPool1">
  </ResourceParams>
</Context>
```

```

    </parameter>
</ResourceParams>
<Resource name="jdbc/testDBFPool2" auth="Container" type="com.hxtt.sql.HxttConnectionPoolDataSource"/>
  <ResourceParams name="jdbc/testDBFPool2">
    <parameter>
      <name>factory</name>
      <value>org.apache.naming.factory.BeanFactory</value>
    </parameter>

    <parameter>
      <name>url</name>
      <value>jdbc:dbf:///d:/dbffiles</value>
    </parameter>

    <parameter><name>username</name><value></value></parameter>
    <parameter><name>password</name><value></value></parameter>
    <parameter><name>host</name><value></value></parameter>
    <parameter><name>port</name><value>8029</value></parameter>
  </ResourceParams>

<Resource name="jdbc/testDBFPool3" auth="Container" type="com.hxtt.sql.HxttConnectionPoolDataSource"/>
  <ResourceParams name="jdbc/testDBFPool3">
    <parameter>
      <name>factory</name>
      <value>com.hxtt.sql.HxttObjectFactory</value>
    </parameter>
    <parameter>
      <name>url</name>
      <value>jdbc:dbf:///d:/dbffiles</value>
    </parameter>

    <parameter><name>username</name><value></value></parameter>
    <parameter><name>password</name><value></value></parameter>
    <parameter><name>host</name><value></value></parameter>
    <parameter><name>port</name><value>8029</value></parameter>
  </ResourceParams>
</Context>

```

Then you can use the below code to test those PoolableConnections:

```

Context initContext = new InitialContext();
Context envContext = (Context)initContext.lookup("java:/comp/env");

DataSource ds1 = (DataSource)envContext.lookup("jdbc/testDBFPool1");
Connection conn1 = ds1.getConnection();
out.println("testDBFPool1 OK:<br/>");
Statement stmt1 = conn1.createStatement();
ResultSet rs1 = stmt1.executeQuery("select * from test");
if(rs1.next())
  out.println(rs1.getString(1)+":<br/>");
rs1.close();
stmt1.close();
conn1.close();

DataSource ds2 = (DataSource)envContext.lookup("jdbc/testDBFPool2");
Connection conn2 = ds2.getConnection();
out.println("testDBFPool2 OK:<br/>");
Statement stmt2 = conn2.createStatement();
ResultSet rs2 = stmt2.executeQuery("select * from test");
if(rs2.next())
  out.println(rs2.getString(1)+":<br/>");
rs2.close();
stmt2.close();
conn2.close();

DataSource ds3 = (DataSource)envContext.lookup("jdbc/testDBFPool3");
Connection conn3 = ds3.getConnection();
out.println("testDBFPool3 OK:<br/>");
Statement stmt3 = conn3.createStatement();
ResultSet rs3 = stmt3.executeQuery("select * from test");
if(rs3.next())
  out.println(rs3.getString(1)+":<br/>");
rs3.close();
stmt3.close();
conn3.close();

```

If you use org.apache.commons.dbcp.BasicDataSource, but get "Cannot create PoolableConnectionFactory" Error, you should check your commons-pool-1.x.jar and commons-dbcp-1.*.jar file in \$TOMCAT/common/lib directory

to see whether two files have the same version. DBCP v1.2 requires Pool v1.2 so that you should update Pool v1.1 from the tomcat website.

If you wish to add more Connection property, you should use connectionProperties, for instance:

```
<parameter>
<name>connectionProperties</name>
<value>charSet=Cp737</value>
</parameter>
```

2. How to set up HXTT DBF with vqServer 1.9.55 as web server?

The key is to use an absolute path as Java libraries' location, and restart vqServer after modified Java libraries. For instance, your vqServer is installed at C:\vqServer\.

1. Please use <http://yourhost:9090/> to visit your administration server.
2. Click on Java libraries in the vqServer control centre menu (<http://yourhost:9090/admin?action=libraries&serial=14>)
- 3 Click New library (http://yourhost:9090/admin?lib=New_library&action=edit)
4. Enter C:\vqServer\classes\DBF_JDBC20.jar as location value, DBF Driver as Description value, then click OK button.
5. Please copy DBF_JDBC20.jar into C:\vqServer\classes directory.
6. Please copy ex01.class into C:\vqServer\servlets\servlets
7. Stop and restart vqServer
8. Please use <http://yourhost/servlet/yourServlets> to get your result.

3. How to set up HXTT DBF with Coldfusion MX 6.1 Application Server?

For instance, your Coldfusion MX is installed at C:\CFusionMX\, and wish to use DBF_JDBC30.jar.

1. Please copy DBF_JDBC30.jar into C:\CFusionMX\wwwroot\WEB-INF\classes/.
2. Use <http://yourhost:8500/CFIDE/administrator/index.cfm> to enter the CFMX Administrator.
3. Go to the "Java and JVM" of Server Settings, <http://yourhost:8500/CFIDE/administrator/settings/jvm.cfm> page, and enter the full path, C:\CFusionMX\wwwroot\WEB-INF\classes\DBF_JDBC30.jar, in the Class Path. Then, click "Submit Changes".
4. Restart the CFMX Service.
5. Please go back to the administrator page, and go to the "Data Sources" of Data & Services, <http://yourhost:8500/CFIDE/administrator/datasources/index.cfm> page, and enter the name for the new datasource, for instance "DBFTest", and select "Other" for the driver. Then Click "Add".
6. Enter the datasource information. JDBC URL is always in the format jdbc:dbf:[/[host:port]]/[DatabasePath], for instance jdbc:dbf:/c:/data. You can set more connection properties in your JDBC URL, for instance: jdbc:dbf:/c:/data?delayedClose=15;maxCacheSize=6144;lockTimeout=2000; . Driver class is always com.hxtt.sql.dbf.DBFDriver. Driver name is used to identify the driver in the datasources view, and you can use DBF. Username and password are not required. They can also be specified in the cfquery tag (but datasource verification will fail if you don't enter them). Description is not required.
7. Lastly, please press "Submit" to finalize the entered data.
8. You can find edit.cfm and edit_action.cfm sample in demo package.

4. HXTT DBF with If you run ColdFusion (Tomcat, or alexandria sw and tanuki sw wrapper) on Windows 2000 and Windows XP Pro does not work on mapped drives.

Note: If you're using a database file through a UNC path or a mapped drive of Windows, there is a Windows Security restriction. If you run ColdFusion (Tomcat, or tanuki sw wrapper) as a service on Windows, it operates by default as System, and cannot access directories on a remote system or mapped drive; to resolve this issue, do not run ColdFusion (Tomcat, or tanuki sw wrapper) using the local system account.

The service(For instance, ColdFusion MX Application Server, ColdFusion MX 7 Application Server, or Apache Tomcat) built by ColdFusion (Tomcat, or tanuki sw wrapper) can not access the share directory at other machine by default. But you can do as follows to solve this problem:

1. Right click the service built by ColdFusion (Tomcat, or tanuki sw wrapper) in service manager, and click the property menu.
2. On the open window, select the login tab, click this account radio box, and click the browse button.

3. Select the administrator account(it seems that you should select the administrator account), input the correct password in the password textbox and confirm password textbox.
4. Restart this service, you can find this service can access the share directory at other machine.

5. How to resolve 'DataSet has no unique row identifiers.' issue in JBuilder's QueryDataSet?

You can use `_rowid_`, a virtual column to avoid that issue, For instance:

```
//...
queryDataSet = new QueryDataSet();
//...
queryDataSet.setMetaDataUpdate(MetaDataUpdate.ALL-MetaDataUpdate.ROWID-MetaDataUpdate.TABLENAME);

queryDataSet.setQuery(new QueryDescriptor(database, "select _rowid_,* from test", null, true,
Load.ALL));
queryDataSet.open();

queryDataSet.setTableName("test");
queryDataSet.setRowId("_rowid_", true);
//...
```

6. How to set HXTT DBF with WebSphere Application Server?

You can download a pdf guide from [here](#).

7. How to set HXTT DBF with Hibernate?

You should download support package and sample from [here](#).

8. How to set HXTT DBF Data Source with Oracle Application Server 10G?

You should read guide at [Oracle Application Server 10G\(v10.1.3\)](#) and [Oracle Application Server 10G\(v10.1.2.02\)](#).

9. How to set HXTT DBF Data Source with JBoss AS 7.0.2?

After downloading HXTT DBF driver jar file. just move the HXTT DBF driver jar file into Jboss 7 installation directory under standalone/deployments (jboss-as-web-7.0.2.Final/standalone/deployments).

Restart your jboss server

Then go to the url and type `http://localhost:8080/`

click Administration console.

In Jboss Administration console you can press Add button of Datasource Configurations. step 1/3 Datasource Attributes: enter datasource name(testdbf) and jndi name(testdbf) then click Next button. step 2/3 JDBC Driver: select HXTT DBF driver jar file. click Next Nutton. Step 3 Connection Settings: enter connection URL (jdbc:dbf:///data) , Username(null) and Password(null). finally click Done button.

10. How to set HXTT DBF Data Source with Railo 3.3.1 Express?

After downloading HXTT DBF driver jar file. just move the HXTT DBF driver jar file into Railo 3 installation directory under /lib/ext/railo-server/context/library (railo-3.3.1.000/lib/ext/railo-server/context/library).

Restart your Railo server

Then go to the url and type `http://localhost:8888/`

click Railo Server Administrator (or type `http://localhost:8888/railo-context/admin/server.cfm`).

In Services - Datasource of Railo Server Administrator console, you can Create new datasource: step 1/2 Name: enter datasource name(testdbf) and Type(Other - JDBC driver) then click create button. step 2/2 enter Class(com.hxtt.sql.dbf.DBFDriver), DSN(jdbc:dbf:///data), Username(null) and Password(null). finally click create button.

11. Where's JDBC Connection Pool Templates for GlassFish?

MS Access template is at http://www.hxtt.com/test/microsoft_access_type4_datasource.xml

Cobol data file template is at http://www.hxtt.com/test/microsoft_access_type4_datasource.xml

MS Excel template is at http://www.hxtt.com/test/microsoft_excel_type4_datasource.xml

Corel Paradox template is at http://www.hxtt.com/test/paradox_type4_datasource.xml

Xbase template is at http://www.hxtt.com/test/dbf_type4_datasource.xml

CSV template is at http://www.hxtt.com/test/csv_type4_datasource.xml

Text template is at http://www.hxtt.com/test/text_type4_datasource.xml

XML template is at http://www.hxtt.com/test/text_type4_datasource.xml

12. Where's the support package for MySQL Migration?

The support package for MySQL GUI Tools 5.0 is at http://www.hxtt.com/test/mysql_migration.zip.

The support package for MySQL Migration Toolkit v1.0.21 is at

http://www.hxtt.com/test/mysql_migration1.0.21.zip.

The support package for MySQL Migration Toolkit v1.0.20 is at

http://www.hxtt.com/test/mysql_migration1.0.20.zip.

13. How to set HXTT DBF with Apache EmpireDB?

You should download support package from [here](#).

13. Does HXTT DBF driver support XA connections ?

It provides an experimental com.hxtt.sql.HxttXADataSource .

14. How to set HXTT DBF into my projects maven pom.xml.?

For instance,

Once you've downloaded the JAR just add it to your computer repository with:

```
mvn install:install-file -DgroupId=com.hxtt.sql.dbf -DartifactId=dbfjdbc4 \
```

```
-Dversion=v5.1 -Dpackaging=jar -Dfile=DBF_JDBC40.jar -DgeneratePom=true
```

The last parameter for generating a POM will save you from pom.xml warnings.

Include the new dependency by modifying your project's pom.xml. Add the following dependency:

```
<dependency>
  <groupId>com.hxtt.sql.dbf</groupId>
  <artifactId>dbfjdbc4</artifactId>
  <version>v5.1</version>
</dependency>
```

Save the pom.xml file and build the project to make sure no errors exist.

15. How to set HXTT DBF Data Source with JBoss Application Server 4.0.1?

For instance,

```
<datasources>
  <local-tx-datasource>
    <jndi-name>TestData</jndi-name>
    <connection-url>jdbc:dbf:///data</connection-url>
    <driver-class>com.hxtt.sql.dbf.DBFDriver</driver-class>
    <connection-property name="delayedClose">-1</connection-property>
    <user-name/>
    <password/>
    <min-pool-size>5</min-pool-size>
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>5</idle-timeout-minutes>
  </local-tx-datasource>
</datasources>
```

16. How to set HXTT DBF database dialect with EclipseLink of Glassfish?

You should download support package and sample from [here](#).

17. How to set HXTT DBF database dialect with TopLink of Glassfish?

You should download support package and sample from [here](#).

Compatible Questions

1. Does DBF support Clipper?

HXTT DBF supports dbase, Visual DBASE, Sx Driver, Clipper, Foxbase, Foxpro and VFP. It supports IDX, CDX, NDX, MDX, NTX, and CGP. It supports DBF, DBC, DCT, DCX, DBT, FPT, SMT, and user-defined extensions. It supports Multi-user Access and Xbase applications' compatible lock.

2. VFP's max column number is 255, and max column name length is 10.

DBF driver supports more than 8000 column, and the max length of column name is 11. The max column size of varchar is 65535. A DB2K table supports at most 32 characters as column name.

3. I can create a dbf file with 3 char column and other programs can read it; however, I ran into trouble with I add an integer column.

DBF driver supports many Xbase format files, such as Clipper, DbaseIII, Dbase IV, Visual Dbase 5, Foxbase2.1, and VFP. It's normal that your other program can't read integer column, since integer column doesn't be supported

by some Xbase programs. You can try decimal or numeric column.

4. How can I connect to a VFP container (e.g. <dbase>.DBC)? Specifically, what URL format is needed?

DBF supports VFP container(a kind of database file). For instance, your dbcsample1.DBC is at c:/dbc". You can use "jdbc:dbf:/c:/dbc" as URL, then you can use "select yourColumn from dbcsample1.yourTable". If you have defined a long column name in your dbc, DBF will support that long column name automatically in your sql. For instance, you have a table1.dbf in dbc1.dbc container, you can use "select * from table1", or "select * from dbc1.table1". If a "column1" column of table1.dbf has a long "goodColumnName" definition in dbc1.dbc container. You can use "select column1 from table1", or "select goodColumnName from table1".

5. I would like that you help me with a driver for connect databases .dbc of Visual Fox Pro.

DBF supports DBC, DCT, and DCX files. You can use "select yourColumn from yourDbc.yourTable" . If you wish to do more for your DBC files, you can use "OtherExtensions" property (Default:false) to indicate whether DBF driver supports other extensions except for '.DBF'. Please use "properties.setProperty("OtherExtensions","true");" for "DriverManager.getConnection(url,properties);". Then you can use "select * from 'yourdatabase.dbc'", "update 'your.dbc' set ...", and so on.

6. I have a program that works with data bases of dBase, but these have extension .DEC and the index .INC instead of .DBF and .NTX.

Please use

```
"properties.setProperty("DefaultExtension","DEC");properties.setProperty("DefaultNTXExtension","INC");" for "DriverManager.getConnection(url,properties);".
```

7. One new problem that I have is how to access dbf files that have a numeric extension. My files are not a.dbf or b.dbf they are like a.001 b.017.

Please use "properties.setProperty("OtherExtensions","true");" for "DriverManager.getConnection(url,properties);". Then you can use "select * from 'a.001'", "update 'b.017' set ...", and so on.

8. Is there a way to create the table so that FoxPro 2.5 (DOS) can open the table.

When create connection by using "DriverManager.getConnection(url, properties);", you can use a "versionNumber" property (default value:30) to hint DBF the format. DBF will try to use that version when it creates new table. For instance:

```
properties.setProperty("versionNumber", "03");
```

The versionNumber value list:

02 FoxBase

03 dBASE III

04 dBASE IV

05 dBASE V

F5 FoxPro

30 Visual FoxPro

DB2K dbase2k, a variable of 04

DBF won't change the format of dbase 4, 5, or 2k when it edits those tables.

9. How to works simultaneously with BDE's DBASE and FOXPRO driver.

First of all, please use BDE Administrator to set LOCAL SHARE =TRUE on the INIT Definitions of System page in the BDE Configuration utility.

Secondly, you need to download the JNIFile.dll (or libJNIFile.so) from [here](#), and add the JNIFile.dll (or libJNIFile.so) into your library path.

Then, please use lockType property to enable Xbase compatible lock:

```
Properties prop=new Properties();
```

```
prop.setProperty( "lockType", "DBASE4BDE" );//DBASE4BDE or FOXPRO4BDE.
```

```
Connection conn=DriverManager.getConnection( url,prop );
```

10. I need to read an update variables stored in one .mem file used by one third party application. Is there a

way to do this in Java?

memoryFile connection property can be used to load a memory file.

For instance:

```
jdbc:dbf:/c:/dbfdata/?memoryFile=yf.MEM
```

Then all variables in yf.MEM are visible.

For instance,

slect abc; will return abc.

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