# hsqldb-ber User Guide

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# Purpose of hsqldb-ber

HSQLDB can be used with Perl via the DBI and DBD::JDBC modules, without this hsqldb-ber product. You don't need hsqldb-ber to access a fantastic database by coding perl to the DBI API. The purpose of hsqldb-ber is to add the following important features.

### Unique features of hsqldb-ber

Ready-to-run yet Ultimately Extensible
: You get a fully functional SQL database ready-to-run out of the box. Just extract the distribution zip file, run one command to start the preconfigured database server, and one command to run the sample perl script. The, if you wish, you can then customize the database all you want (changing persistence methods, importing data, serving different protocols, embedding other applications, etc.), and write all of the perl scripts you want (perhaps starting with the supplied sample perl script as a template).

No Prosy Server to Configure
: You get the most inuitive-to-configure SQL database in existence (for anybody who isn't afraid to edit a couple configuration files), without needing to configure and run any proxy server (which is otherwise required by DBD::JDBC).

No Proxy Server to Detract from Performance and Resources
: HSQLDB is already known for being the fastest of the fast databases. Now you can access HSQLDB directly from your perl scripts.

The HSQLDB "BerServer" that this product runs is administered exactly the same way as a traditional

HSQLDB "Server", and the same HSQLDB JVM can serve the normal "hsql" protocol, the "ber" protocol for Perl clients, "hsqls", "http", "https", etc., all at the same time. This package comes with utilities which make it easy to run any of these combinations and to embed your own Java applications if you wish.

The auto-of-the-box configuration runs one Java JVM that serves both "hsql" JDBC requests, and "ber" perl requests. Client perl code just uses DBI with a connect string containing "ber:hsqldb:*". Java client code just uses JDBC with a JDBC URLs containing "jdbc:hsqldb:hsql:*".

# License and Documentation

This project may be distributed according to the terms of the GNU GPL or the Perl Artistic License, with some portions also being covered by the HSQLDB license. The text of both licenses reside in distributed with hsqldb-ber in the same directory as this file.

This project needs little documentation, since the primary installation and maintenance tasks are those for installing and maintaining the HSQLDB Server and the DBD::JDBC Perl Module, both of which have their own documentation. Most of the text in the document you are reading can be found in the `README.txt` in the `doc` subdirectory of the hsqldb-ber distribution.

# Chapter 2. How to Install and Run the sample HSQLDB Server and Perl Script

Download the binary distribution with name like `hsqldb-ber-0.1a.zip` to the computer to house your database server. Unzip the zip file to any directory. Everything will expand into a new directory named something like `hsqldb-ber-0.1a`. We hereafter call this the hsqldb-ber *installation directory*.

You need to have Perl and some specific Perl modules installed on the servers that will execute your perl scripts. If this is your first install, then I suggest that you hold off on that and install Perl and the Perl modules on the database server computer. This makes it extremely easy to run the sample configuration and give yourself a warm fuzzy.

On the computers to host your Perl scripts, install the Perl modules DBI, Convert::BER, and DBD::JDBC if any of them are not already installed.

### Tip

Before you run make for DBD::JDBC, edit the file JDBC.pm and comment out the two lines containing "SQL_BIGINT". These lines are obsolete and will cause things to fail.

I recommend that you don't bother running the supplied tests. The results aren't worth the entire pain-in-the-ass to get the test itself to run. When I have time, I'll try to track down the author of DBD::JDBC and get the SQL_BIGINT problem taken care of at the source.

The documentation of DBD::JDBC will say that the module is for use with a Java proxy server. Disregard that-- It is true when using the DBD::JDBC-supplied proxy-server, but you will be using a direct HSQLDB database server (which the main point of hsqldb-ber product).

There will be a subdirectory of your hsqldb-ber installation directory named `samples`. Cd into that directory and run

**Example 2.1. Running a HSQLDB Server + BerServer**

```
java -jar ../hsqldb-ber.jar org.hsqldb.Server org.hsqldb.BerServer
```

This will start a "hsql" protocol JDBC Server, and a BER protocol Server which are serving two memory-only database instances. If you want to run only a BER Server, then just run

```
java -cp path/to/hsqldb-ber.jar:path/to/hsqldb.jar:path/to/dbd_jdbc.jar \
    org.hsqldb.BerServer
```

(Windows users user ";" in place of ":"). Let the Server continue to run. Put it in the background or get another shell so you can run the sample perl script against this Server. (It is incredibly easy to change the database instances to be persistent. The only reason I don't have it persisting by default is so that this distribution can be run from read-only media like CDs. Just change the occurrences of `mem:` in the `server.properties` and `berserver.properties` to `file:`.)

Once again, cd to the samples directory under your hsqld-ber installation diretory. Execute the perl script "sample.pl". (You can make this script "executable". It is only delivered non-executable due to a portability constraint of the build tool which we use).

You can manage your database on the command-line by running

### Example 2.2. Managing HSQLDB with SqlTool

```
    java -jar ../hsqldb.jar --rcfile sqltool.rc playdb-hsql
```

from the same directory; or

### Example 2.3. Managing HSQLDB with DatabaseManager

```
java -cp ../hsqldb.jar --rcfile sqltool.rc org.hsqldb.util.DatabaseManagerSwing pl
```

for a GUI.

# Chapter 3. Using hsqldb-ber

## Using Java JDBC clients

Use a JDBC URL like jdbc:hsqldb:hsql://localhost:9010/play, as determined by the settings in your `server.properties` file. If you want a command-line tool, then I recommend SqlTool, as documented in the HSQLDB User Guide.

## Using Perl scripts

Use DBI/DBD::JDBC according to the POD/man-page documentation, except in place of a JDBC url", use a HSQLDB BER connect string beginning with `ber:hsqldb:`, like

**Example 3.1. Sample HSQLDB BER connect string**

```
dbi:JDBC:hostname=localhost:9111;url=ber:hsqldb:play
```

The connect string must consist of `ber:hsldb:` + the *dbname* specified in your `berserver.properties` file. For the sample configuration, the `berserver.properties` file contains the line

```
server.dbname.0     play
```