Creating a LibreOffice Music Database

Tune Finder

LibreOffice Calc and Base are all you need to create a simple database for organizing the songs in your music collection.

BY JOHN COFIELD

MySQL is the most commonly used open source database management system. Developers often use MySQL and its cousin MariaDB to build database applications for organizing office records, managing inventories, and other common tasks. However, MySQL is often too complex and too much trouble for personal, home-office uses. LibreOffice offers a simpler alternative for users who just want to create a small, simple database to address a specific need. This article describes how to create a quick and easy database solution using LibreOffice tools. In this case, I'll show you how to set up a music database from an iTunes library.

The Plan

I'll use two tools from the LibreOffice integrated suite to create my music database: LibreOffice Calc (spreadsheet) and LibreOffice Base (database management). With these two applications plus iTunes, the general process is as follows:

1. Export library from iTunes as a tab-separated text file.
2. Import library into LibreOffice Calc for minor edits.
3. Copy modified library data into LibreOffice Base.
4. Create SQL queries.
5. Run queries and filters to display results.

Of course, you can adapt this process for other types of data. For instance, you could organize a stamp collection or track incoming invoices for this year's taxes.

Export from iTunes

The first step is to export music information from iTunes to a text file in a format that can be imported into LibreOffice. Playlists can be exported from iTunes as a table in a tab-delimited plain text file format. The comma-separated values (CSV) format is unacceptable because some data fields (such as album titles, song titles, or artist names) may contain commas or other special characters. The exported playlist may consist of some or all of the songs in the library. I use the following steps to export my playlist:

1. Select all songs in the library
2. Go to *File | Library | Export Playlist*
3. In the *File name* field, enter *Music.txt*
4. Select *Text file (*.txt)*

These steps save the playlist as a tab-separated text file, `Music.txt` (but you choose any name you want), that can be directly imported as a plain text spreadsheet.

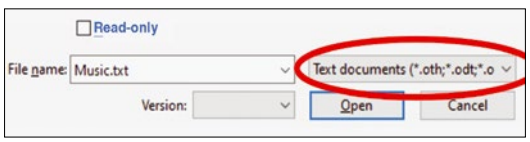


Figure 1: Select *Text documents* as the file format.

Import Text File into LibreOffice Calc

Next, I import the tab-separated file `Music.txt` into LibreOffice Calc for minor editing. When I open

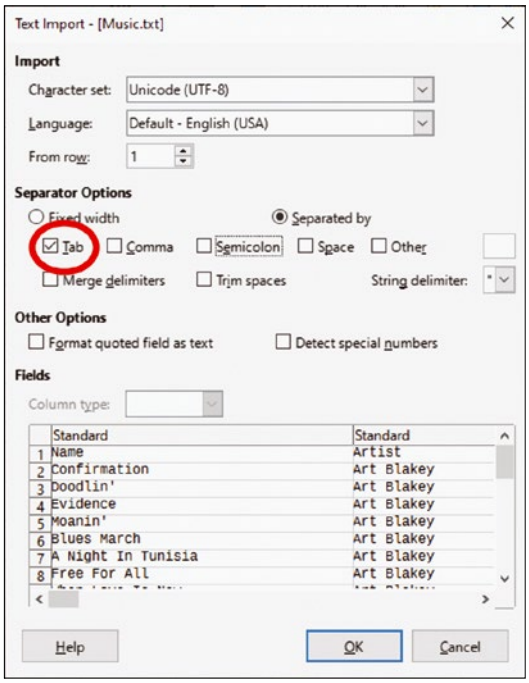


Figure 2: The Text Import dialog box.

the text file, LibreOffice Calc pops up a Text Import dialog box with the option to select or change the delimiter. To import the file into Calc:

1. Go to *File | Open*
2. Select *Text documents* from the file type drop-down menu (Figure 1)
3. Select *Music.txt*
4. Click *Open*
5. In the *Text Import* dialog box that opens, check the *Tab* option under *Separator Options* and uncheck the other options here (Figure 2)
6. Examine the preview in the *Fields* section
7. Click *OK*

iTunes exports many data fields as table columns, and some of them are not useful or wanted. Because I am only interested in *Name* (song title), *Artist*, *Album*, *Genre*, *Track Number*, and *Year*, I delete all columns except for these. I also insert an *ID* field to be used as a primary key (which I will discuss in the database section of this article.)

To insert the *ID* field (shown in Figure 3), follow these steps:

1. Insert a column in the first position, left of the *Name* column: *Sheet | Insert Columns | Columns Left*
2. Label the new column *ID*
3. Leave cells in the *ID* column blank (they will be automatically filled in LibreOffice Base)
4. Click *Save*
5. Optionally, leave LibreOffice Calc open to cut and paste data later.

At this point, I have the data that I need to populate the database. I need to get that spreadsheet data into a database. To create my music database, I will now use LibreOffice Base, which can create, manage, and edit flat and relational databases.

LibreOffice Base Database

LibreOffice makes use of wizards in most of its applications. I find that wizards are very helpful in LibreOffice Base, especially for users that are not expert in the SQL language. The first step is to create a new database. While LibreOffice Base is capable of importing data directly from a spreadsheet, I prefer to copy and paste the table data from Calc into a predefined template in Base using a wizard.

Create New Database

Next I create and register a new database as follows (Figure 4):

1. Open LibreOffice Base and the Database Wizard appears
2. Click *Create a new database*
3. Click *Next >*
4. Check the following options:
   - *Yes, register the database for me*
   - *Open the database for editing*
   - *Create tables using the table wizard*

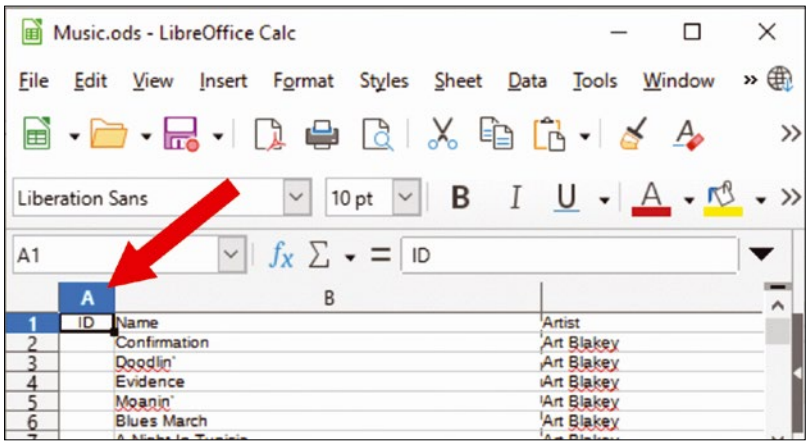


Figure 3: Inserting the *ID* column to be used as a primary key.

5. Click *Finish*
6. Click *Save As MusicLibrary.odb*

Note: Registering the database allows the database to be used by other LibreOffice components such as Writer. It is not required. You can use it at your own discretion.

Next, the Table Wizard (Figure 5) opens, prompting you to do the following steps:

1. Click on *Select fields* under *Steps*. Select *Personal* under *Category*. Then select *CD-Collection* from *Sample tables* drop-down list. Next, select and move the following fields from

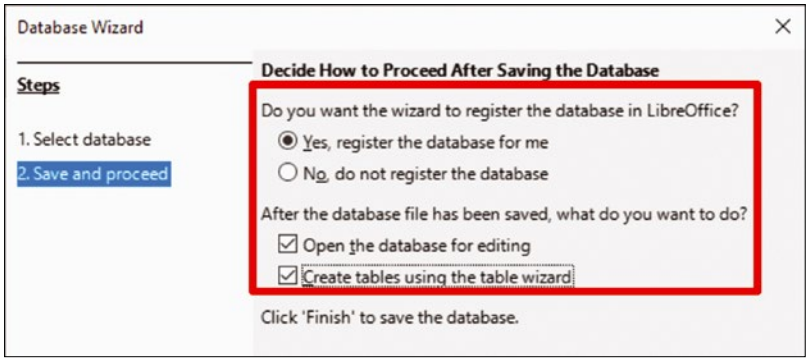
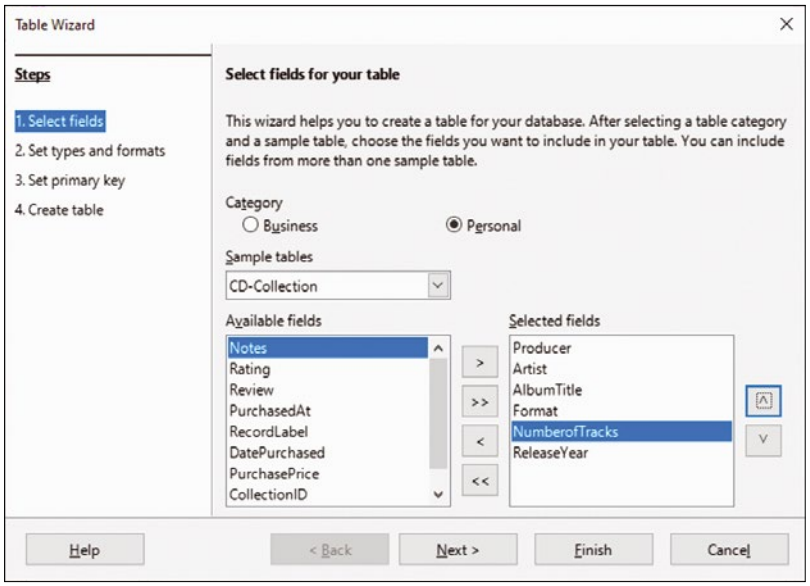


Figure 4: Options for saving a database.

Figure 5: The Table Wizard shows the steps for setting up a table.



John, In the "In the Tables section" paragraph, at "Click Next > (Assign columns window)", does this mean that clicking Next takes you to/opens the Assign columns window? Ok as corrected? AV

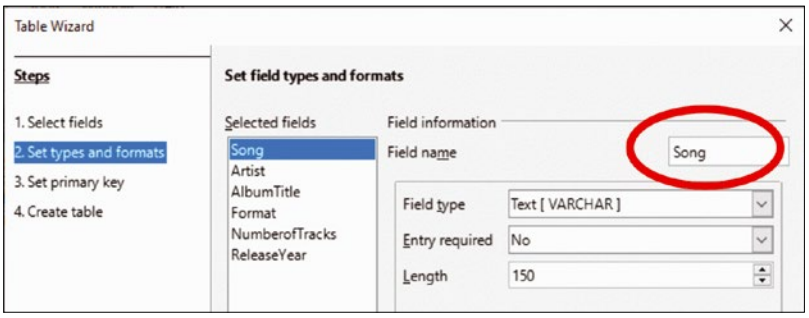


Figure 6: Setting field types and formats in the Table Wizard.

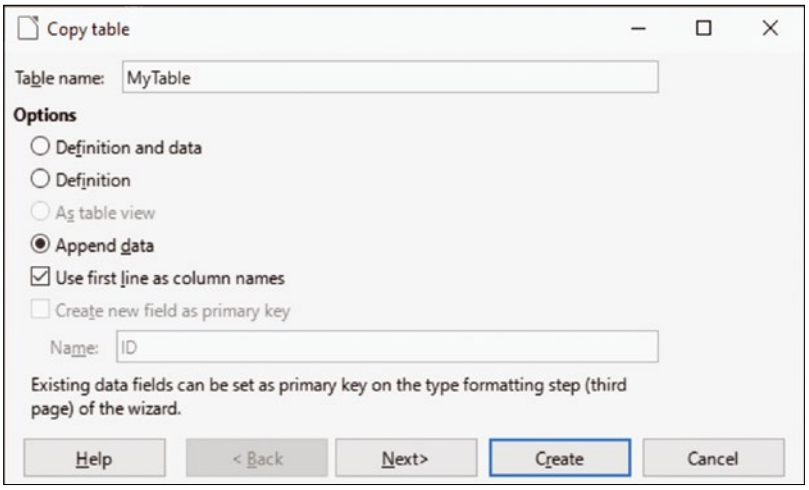
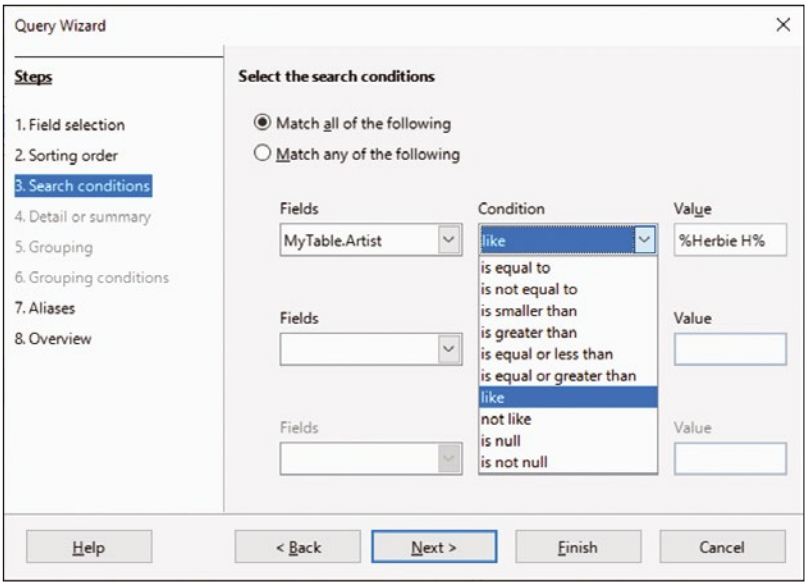


Figure 7: Copying a table from Calc into Base.

Available fields to *Selected fields*: *Producer*, *Artist*, *AlbumTitle*, *Format*, *NumberofTracks*, *ReleaseYear*. (Note: Some of these field names will be modified.) Finally, click *Next >*.

2. Click on *Set types and formats*. First, change the *Field name* but keep the corresponding *Field type*. For the *Song*, *Artist*, and *Album* fields, set *Length* to *150* (Figure 6). Next change the *Field name* of the following fields: *Producer* to *Song*, *AlbumTitle* to *Album*, *Format* to *Genre*, *NumberofTracks* to *Track*, and *ReleaseYear* to *Year*. Then, click *Next >*.

Figure 9: Selecting the search conditions for a query.



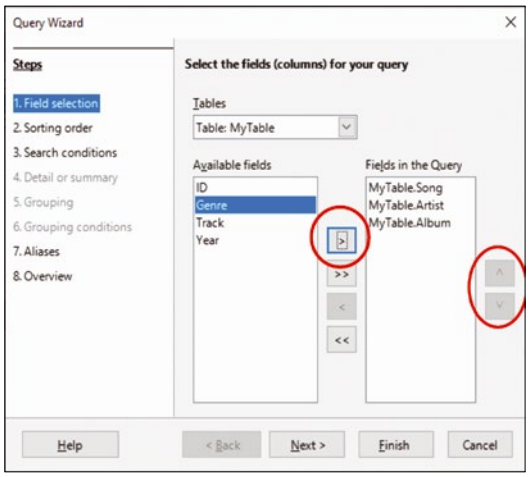


Figure 8: Setting up a query in the Query Wizard.

3. Click on *Set the primary key*. Check the *Create a primary key* box if not marked already. Select options: *Create a primary key*, *Automatically add a primary key*, and *Auto value*. Click *Next >*.
4. Click on *Create a table*. First change the name to *MyTable*, and then select the option *Insert data immediately*. Click *Finish*.

(The Table Wizard now closes and Table Data View opens. Confirm column labels and close the window. The LibreOffice Base window appears with *Database*, *Tasks*, and *Tables* sections visible.)

Once the table is created in Base, open the `Music.txt` spreadsheet in LibreOffice Calc. Select and copy all data cells from *A1* through the last cell (that includes column label cells).

Now, switch back to Base to paste the copied table data into MyTable in Base.

In the *Tables* section, select *MyTable*. Right-click and choose *paste* from the drop-down menu (the Copy table dialog opens, see Figure 7). Select *Append data*, check *Use first line as column names*, and click *Next >* (which will take you to the Assign columns dialog). Review to confirm that the Source table data aligns with the destination table labels, and then click *Create*.

Double-click *MyTable* to open the Table Data View dialog and confirm that the data copied correctly. Set the width of the columns (the width of the query result field is determined by the width of the table fields.) Uncheck *Automatic*.

Set Up and Run Query

I now have the database ready to run SQL queries to find songs, artists, and album information from my music library. The next step is to set up and run queries on the database.

LibreOffice Base provides three methods to create SQL queries: *Create Query in Design View*, *Use Wizard to Create Query*, or *Create Query in SQL View*. I use the *Use Wizard to Create Query* method to set up and run a query. As an

example, I first set up a query search for all songs by a particular artist. Then, I use the *Standard Filter* on the query results to refine my searches.

To begin, click on the *Queries* icon in the Database section. Then click on *Use Wizard to Create Query*, and complete the following steps in the Query Wizard:

1. Click on *Field selection* in the Query Wizard: Select *Song*, *Artist*, and *Album* in the *Available fields* window, and then move them to the *Fields in the Query* window. Use the up and down arrows to change the order if necessary (Figure 8).
2. Click on *Sorting order*: Sort in ascending order by *Artist* first, then *Album*, and then *Song*.
3. Click on *Search conditions*: Select *MyTable.Artist* in the *Fields* drop-down list (Figure 9). Select *like* from the *Condition* drop-down list and enter *%Herbie H%* in the *Value* field.
   Note: In SQL, the % sign is used as a wildcard character. The *like* condition matches string patterns. The SQL view shows the SQL statement as:

```
SELECT "Artist" AS "Artist", "Song" ➥
FROM "MyTable" WHERE "Artist" ➥
LIKE '%Herbie H%'
```

   (Skip the *Grouping* and *Grouping conditions* steps in the Query Wizard because grouping will not be used for this project.)
4. Click on *Aliases* (listed at Step 7 in the Query Wizard). The alias for *MyTable.Artist* defaults to *Artist*, and the alias for *MyTable.Song* defaults to *Song*. I use the defaults (as shown in Figure 10).
5. Click on *Overview*. In the *Name of the query* field, I change the default name *Query_MyTable* to *Query_ArtistsAndSongs*. Next review the contents in the *Overview* window. Use the default *Display Query* option.

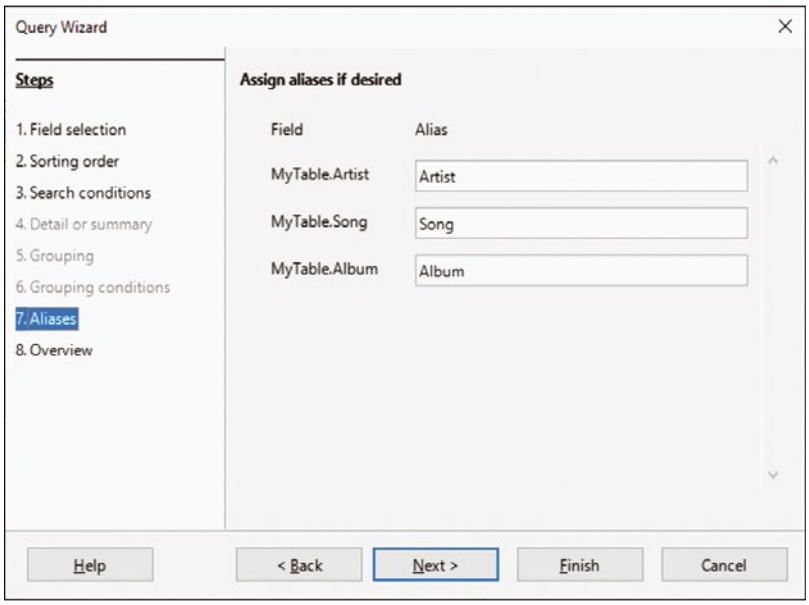


Figure 10: Assigning aliases.

Set Up and Run the Filter

The results that appear in the Table Data View list all songs and albums by Herbie Hancock in my music library. To narrow my search down to just songs in one of the three albums, I could create another query by repeating the five steps above, but there is an easier way. I use the *Standard Filter* in the Table Data View from this query result.

If the Table Data View is not already open, I can click on the *Queries* icon in the *Database* section Next I double-click *Query_MyTable*, and the Table Data View opens (Figure 11).

From there, I click on the *Standard Filter icon* in toolbar (Figure 12). In the Standard Filter dialog that opens, I select *Album* from the *Field name* drop-down list and *like* from the *Condition* drop-down list. Note: Using the *like* condition allows the use of wildcards to match partial strings in the *Value* field.

Next I enter the artist name in the *Value* text

Figure 11: The Table Data View dialog.

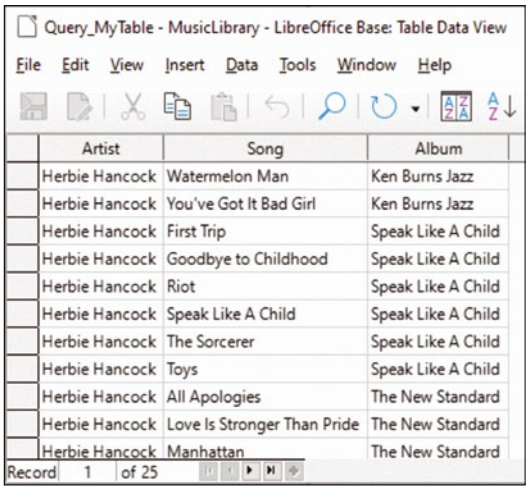
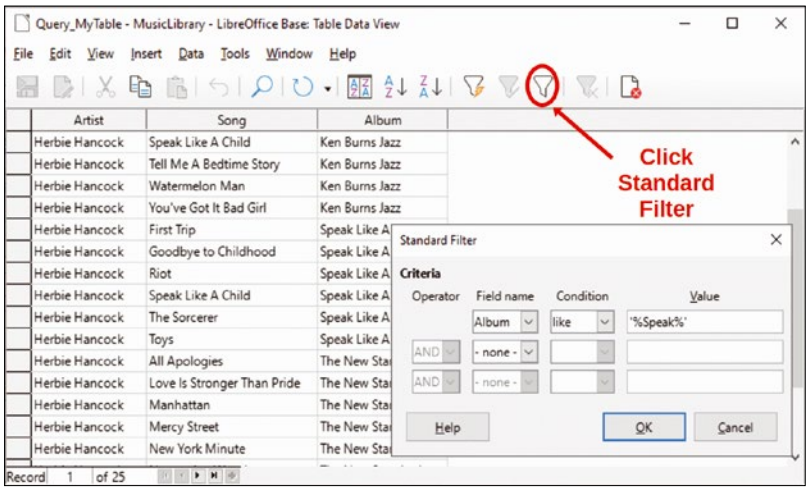


Figure 12: Selecting filter criteria in the Standard Filter dialog.



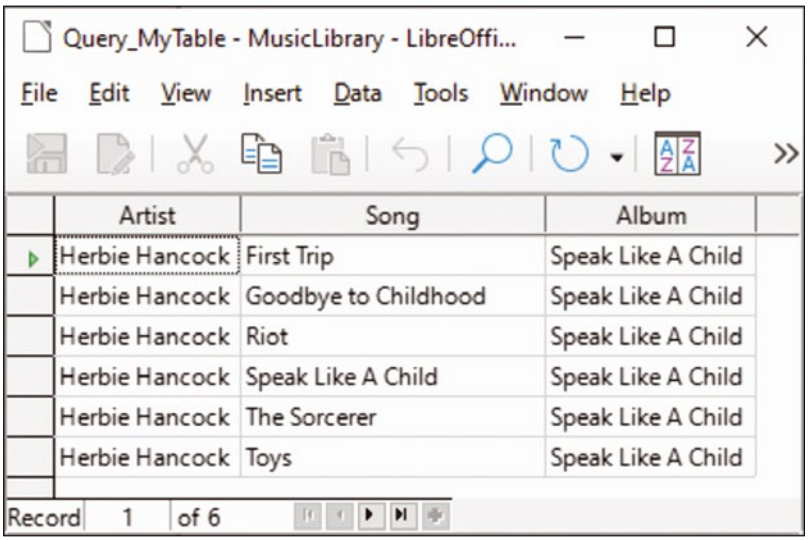


Figure 13: Using the standard filter to narrow results down to one album.

box. The *Value* string is case sensitive and requires exact spelling. Again I use the SQL wildcard percent (%) character (e.g., *%Speak%)*, in place of the full album name *Speak Like A Child*. Other filter conditions can be applied to either the *Artist*, *Song*, or *Album* fields.

Filter Result

As shown from the six song tracks in Figure 13, the standard filter narrowed the album information to one album, *Speak Like A Child*.

This was a simple example to illustrate that by following the process I've described, LibreOffice can easily be used to migrate music information from iTunes into a searchable database and perform simple to moderately complex database queries.

Summary

To facilitate the database creation and query process for users that may have minimal familiarity with SQL, I used wizards to create a database table and SQL query. More sophisticated SQL users could write more complex queries and table relationships. Those features are available in LibreOffice Base.

Although I used the LibreOffice Base embedded database engine HSQLDB, Base can also connect to other popular SQL databases such as MySQL, MariaDB, and PostgreSQL, to name a few.

For users who need to create and manage one or more databases for personal, educational, or home office use, LibreOffice is faster to implement, simpler, and has a built-in user interface. LibreOffice achieves the same goals as the more complicated MySQL for simple to moderately complex database queries. ■■■

The Author

John Cofield is a retired software marketing manager in Northern California. His training is in electrical engineering, and he has worked at multiple Silicon Valley semiconductor and software companies. His non-technical interests include Jazz music, ranging from Modal to Fusion.