safeassign by Blackboard
(http://safeassign.blackboard.com/)

JEDEP 9 (2/2014) - PROF. UNIV. DR. MANUELA EPURE
Prof. univ. dr. Manuela Epure
on Wed, Jul 02 2014, 9:18 AM
30% match
Submission ID: 55466335

Attachments (1)

Rev_9_Radu Bucea_Manea_Tonis.pdf **30%**
Word Count: 1,351 Attachment ID: 75910071

Rev_9_Radu Bucea_Manea_Tonis.pdf

1 (ONLINE) = ISSN 2285 – 3642

ISSN-L = 2285 – 3642

2 JOURNAL OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND PEOPLE

VOLUME 3, ISSUE 2, 2014

URL:

3 HTTP://JEDEP.SPIRUHARET.ROe-mail:

office_jedep@spiruharet.ro1

4 OPEN SOURCE MYSQL BROWSER FOR OPEN INNOVATION

1 RADU BUCEA-MANEA-TONIS 1

1 mysqlbrowser.codeplex.com

Abstract.

4 OUR PURPOSE IS TO CROSS-COMPILE MYSQL DRIVER SOURCE CODE FOR LINUX ON WINDOWS ARCHITECTURE USING A TOOLCHAIN IN ORDER TO BUILD A NEUTRAL VALID GRAPHIC INTERFACE ON 32 BITS.

Once achieving this goal we could **4 SAY THAT EVERY POSSIBLE OPEN SOURCE APPLICATION CAN BE BUILT AND RUN ON WINDOWS WITH MAXIMUM EFFICIENCY**

concerning costs and resource.

This browser is an example of open innovation because its source code is freefor anybody willing to develop new software apps for business and uses only Open source tools.

Keywords:

MySQL, GCC, MinGW, GTK+, Open inovationJEL Codes:

M15 IT ManagementOpen source methodology is gaining popularity in the business processes owned by modern

companies.

The benefits derive from its free availability, low-cost implementation and rapid business valuegrowth.

Open source business model inspires small companies that have not enough funds to invest intechnology.

Even big companies like IBM base their development strategies on Open source in order toobtain feedback from every specialist around the World and to facilitate the process of open innovation.

The growing success of this paradigm explains the author's decision to develop MySQL Browser.

1.

MySQL APIThe MySQL API[2] consists of wrapping classes to Native API where the most important data structure

is st_mysql_res which points the current row and some metadata, and contains the following data fields:

Table 1.

ST_MYSQL_RES Structmy_ulonglong row_count

5 **MYSQL_FIELD * FIELDS**

MYSQL_DATA * data

MYSQL_ROWS * data_cursor

unsigned long * lengths

MYSQL * handle

MEM_ROOT field_alloc

unsigned int field_count

unsigned int current_field

MYSQL_ROW row

1 **(ONLINE) = ISSN 2285 – 3642**

ISSN-L = 2285 – 3642

2 **JOURNAL OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND PEOPLE**

VOLUME 3, ISSUE 2, 2014

URL:

3 HTTP://JEDEP.SPIRUHARET.ROe-mail:

office_jedep@spiruharet.ro2

MYSQL_ROW current_row

my_bool eof

my_bool unbuffered_fetch_cancelled

const struct st_mysql_methods * methods

Accessing rows is done iteratively, every row being linked with the next one through the following

st_mysql_rows structure:

Table 2.

ST_MYSQL_ROWS Structst_mysql_rows * next

MYSQL_ROW data

5 UNSIGNED LONG LENGTH

The standard method to get records from database is calling the next() method of the RecordSet

object, like in the following example:

res = stmt->executeQuery(str);

if(res->next())

{

if(strncmp("char",res->getString(1).c_str(),4)==0)

TypeArr[i]=G_TYPE_STRING;

.

}

This method translates itself into the following instruction:

row = result->fetch_row(), where result isa NativeResultsetWrapper instance and row has the MYSQL_ROW type, structure implemented as an array

of counted byte strings.

After calling the executeQuery() method upon a NativeStatementWrapper object, the get_resultset()

method is called and assigns the use_result()/store_result() return value - called upon a

NativeConnectionWrapper proxy object - to a result instance.

store_result() translates into a lower levelmethod to obtain a Recordset by executing the following line:

::st_mysql_res * raw= api->store_result(mysql), where the st_mysql_res object is initialized.

2.

Building libmysqlcppconn library from scratchAfter install, mingw toolchain[3] will contain GCC compiler, linker and make tools.

CMake[4] islaunched to generate a valid Makefile, after extracting MySQL driver archive

into a folder.

It will ask for 1 **(ONLINE) = ISSN 2285 – 3642**

ISSN-L = 2285 – 3642

2 **JOURNAL OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND PEOPLE**

VOLUME 3, ISSUE 2, 2014

URL:

3 **HTTP://JEDEP.SPIRUHARET.RO**e-mail:

office_jedep@spiruharet.ro3

valid paths to gcc and g++ compilers, linker and MySQL Server include and lib folders.

For higher versions ofmysql driver, it will ask for Boost library path but unfortunately this is poorly compatible with our shipped

version of GCC compiler(4.6.2).

Fig.

1. CMake configure windowMake command is launched to build the project and raised errors will be treated appropriately.

Thereare two types of errors encountered, one type concerning data definitions redundancy in header files

(macro's, functions, and managed data types), and another, dealing with templates occurrences in extern C

context.

If the build succeeds, both static (libmysqlcppconn.dll.a) and dynamic (libmysqlcppconn.dll)libraries are created.

1 **(ONLINE) = ISSN 2285 – 3642**

ISSN-L = 2285 – 3642

2 **JOURNAL OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND PEOPLE**

VOLUME 3, ISSUE 2, 2014

URL:

3 **HTTP://JEDEP.SPIRUHARET.RO**e-mail:

office_jedep@spiruharet.ro4

3.

Creating a GUI for MySQL driverGTK+[5] is a multi-platform toolkit for creating graphical user interfaces.

Offering a complete set ofwidgets in combination with the Glade GUI builder, it provides an effective method of rapid application

development.

We create a My_GUI class with the methods described in the class diagram below: Fig.

2. My_GUI Class diagramAfter calling the gtk_init() method that initializes the library for use, sets up default signal handlers,

and checks the arguments passed to the application on the command line, we create the main window,

fallowing the steps:

6 **WINDOW = GTK_WINDOW_NEW (GTK_WINDOW_TOPLEVEL);**

GTK_WINDOW_SET_TITLE (GTK_WINDOW (WINDOW), "MYSQLBROWSER");

GTK_CONTAINER_SET_BORDER_WIDTH (GTK_CONTAINER (WINDOW), 5);

then add the window to the container and set its size:

6 **GTK_CONTAINER_ADD (GTK_CONTAINER (WINDOW), VBOX);**

GTK_WINDOW_SET_DEFAULT_SIZE (GTK_WINDOW (WINDOW), 320, 200);

We call then the gtk_main() that runs the main loop.

It will not return until gtk_main_quit() is called. For showing the results in a grid form we use a tree view GtkWidget that connects to the real data through

a GtkTreeModel object initialized before by calling create_items_model method.

After adding the menubar and a couple of modal dialog windows, we get the next picture:

1 **(ONLINE) = ISSN 2285 – 3642**

ISSN-L = 2285 – 3642

2 **JOURNAL OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND PEOPLE**

VOLUME 3, ISSUE 2, 2014

URL:

3 **HTTP://JEDEP.SPIRUHARET.RO**e-mail:

office_jedep@spiruharet.ro5

Fig.

3. 4 **MYSQL BROWSER FOR WINDOWS**The overall dependencies graph of the main classes (MySQL and MyGUI) and the environment types is

shown below:

Fig.

4. Dependencies graph generated with Doxygen[7]It is worth mentioning that GTK libs use UTF-8 international encoding standard, resulting back and

forth conversions between back-end (MySQL Server) and front-end (GTK interface).

The system requirements for development are as follows:

• MySQL driver source code (ex.

mysql-connector-c++-1.1.3.tar.gz)• GTK+ project (ex.

gtk+-bundle_2.24.10-20120208_win32.zip)• mingw toolchain (ex.

mingw-get-inst-20120426.exe) 1 **(ONLINE) = ISSN 2285 – 3642**

ISSN-L = 2285 – 3642

2 **JOURNAL OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND PEOPLE**

VOLUME 3, ISSUE 2, 2014

URL:

3 **HTTP://JEDEP.SPIRUHARET.RO**e-mail:

office_jedep@spiruharet.ro6

• Boost C++libraries[6] (ex.

boost_1_55_0.zip)• Makefile CMake builder(ex.

cmake-2.8.11.2-win32-x86.exe)Most of the .dll's are easy to find in MinGW\bin and GTK+\bin folders.

Others are free to download(libmysql.dll) in case some have limited privileges on the computer (and have XAMPP installed).

4.

ConclusionsThis paper proves the effectiveness of complementary Open source tools in developing useful apps to

improve business value and competitiveness.

The project have been implemented and shared on theMicrosoft Codeplex Open source website [1] where is browsed and downloaded by numerous developers.

5.

References 4 **[1] OPEN SOURCE MYSQL BROWSER FOR WINDOWS, HTTP://MYSQLBROWSER.CODEPLEX.COM/**

[2] C API Data Structures, http://dev.mysql.com/doc/refman/5.0/en/c-api-data-structures.html

[3] Minimalist GNU for Windows(MinGW), http://www.mingw.org/

[4] CMake cross-platform open-source build system, http://www.cmake.org/

[5] GTK+ the GIMP Toolkit, http://www.gtk.org/

[6] Boost C++libraries, http://www.boost.org/

[7] Doxygen Generate documentation from source code, http://www.stack.nl/~dimitri/doxygen/

Citations (6/6)

1 http://cercetare.spiruharet.ro/ojs/index.php/jedep/index

2 http://econpapers.repec.org/article/sphrjedep/

3 http://ideas.repec.org/s/sph/rjedep.html

4 http://mysqlbrowser.codeplex.com/

5 http://dev.mysql.com/doc/refman/5.0/en/c-api-data-structures.html

6 http://www.gtk.org/tutorial1.2/gtk_tut-10.html

Matched Text

Suspected Entry: **67% match**

Uploaded - Rev_9_Radu Bucea_Manea_Tonis.pdf

(ONLINE) = ISSN 2285 – 3642

Source - http://cercetare.spiruharet.ro/ojs/index.php/jedep/index

2285-3642 ISSN-L

Suspected Entry: **100% match**

Uploaded - Rev_9_Radu Bucea_Manea_Tonis.pdf

JOURNAL OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND PEOPLE

Source - http://econpapers.repec.org/article/sphrjedep/

Journal of Economic Development, Environment

and People

Suspected Entry: **86% match**

Uploaded - Rev_9_Radu Bucea_Manea_Tonis.pdf

HTTP://JEDEP.SPIRUHARET.RO

Source - http://ideas.repec.org/s/sph/rjedep.html

http://jedep.spiruharet.ro/ Editor

Suspected Entry: **73% match**

Uploaded - Rev_9_Radu Bucea_Manea_Tonis.pdf

OPEN SOURCE MYSQL BROWSER FOR OPEN INNOVATION

Source - http://mysqlbrowser.codeplex.com/

Open source MySQL Browser for Windows

Suspected Entry: **62% match**

Uploaded - Rev_9_Radu Bucea_Manea_Tonis.pdf

MYSQL_FIELD * FIELDS

Source - http://dev.mysql.com/doc/refman/5.0/en/c-api-data-structures.html

MYSQL_FIELD_OFFSET

Suspected Entry: **100% match**

Uploaded - Rev_9_Radu Bucea_Manea_Tonis.pdf

WINDOW = GTK_WINDOW_NEW (GTK_WINDOW_TOPLEVEL)

Source - http://www.gtk.org/tutorial1.2/gtk_tut-10.html

window = gtk_window_new (GTK_WINDOW_TOPLEVEL)