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Links and References

BetaBeans / Betasoft – Shareware and Freeware for Delphi™ and the Java™ platform

<http://www55.pair.com/betasoft/> - <http://www.betabeans.de/>

Introduction

What is MetaBeans?

With MetaBeans and Borland® DataExpress, access to database metadata is as easy as displaying an ordinary database table. Just connect Borland dbSwing GUI controls to a TableMetaData dataset and they will display table metadata information, even at design time.

Included JavaBeans

- TableMetaData, ProcedureMetaData and ColumnMetaData: these beans provide metadata information about database tables, procedures and columns, switching between all available information types is possible using a simple property
- TableNames, ViewNames and ProcedureNames: lists database tables, views, procedures and other available database objects

Included example application

MetaBeans includes MetaDataBrowser, a demo application which allows to list database tables and to open table property windows, displaying columns, primary keys, indexes, exported keys, imported keys, and table privileges. MetaDataBrowser has been tested with InterBase 6.5, it does not yet support navigation in database catalogs and schemas.

Included source code

- MetaBeans library source code

Included libraries

- MetaBeans library for easy installation in JBuilder

Included documentation

- API description (JavaDoc)
- short manual in PDF format with code examples

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- GNU Public License (GPL)
- commercial license

Example application

Screenshot

This screenshot shows a table metadata frame for the Interbase example database "Employee". The lower part of the screen displays column references for the currently selected column EMP_NO, which is the primary key of the EMPLOYEE table.

EMPLOYEE							
Close							
Columns	Privileges	Primary Keys	Indexes	Exported Keys	Imported Keys	Dependencies	
	PK	FK	Column name	Type name	Column size	Decimal digits	Nullable
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EMP_NO	SMALLINT	5	0	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	FIRST_NAME	VARCHAR	15	0	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	LAST_NAME	VARCHAR	20	0	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	PHONE_EXT	VARCHAR	4	0	<input checked="" type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	HIRE_DATE	DATE	19	0	<input type="checkbox"/>
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DEPT_NO	CHAR	3	0	<input type="checkbox"/>
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	JOB_CODE	VARCHAR	5	0	<input type="checkbox"/>
8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	JOB_GRADE	SMALLINT	5	0	<input type="checkbox"/>
9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	JOB_COUNTRY	VARCHAR	15	0	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	SALARY	NUMERIC	15	2	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>	FULL_NAME	VARCHAR	37	0	<input checked="" type="checkbox"/>

Column Dependencies				
	Object name	Object type	Dependency type	Column name
1	DEPARTMENT	TABLE	Exported key	MNGR_NO
2	EMPLOYEE_PROJECT	TABLE	Exported key	EMP_NO
3	PROJECT	TABLE	Exported key	TEAM_LEADER
4	SALARY_HISTORY	TABLE	Exported key	EMP_NO
5	SALES	TABLE	Exported key	SALES_REP

Installation

To install MetaDataBrowser,

- copy the necessary DataExpress and dbSwing JAR files, dx.jar and dbswing.jar, from the JBuilder lib folder to \$INSTALL/bin/jar
- edit \$INSTALL/bin/go.sh to add the JDBC driver name to class path; Windows users edit and run the batch file go.bat
- edit \$INSTALL/bin/default.db, edit JDBC connection parameters: driver name, database URL, user name and password
- make \$INSTALL/bin/go.sh executable and launch it

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Documentation

JavaDoc documentation

The JavaDoc documentation is located in the folder \$INSTALL/docs/api.

Open Source License

MetaBeans

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Commercial license

The commercial license for MetaBeans gives access to

- the full source code of the MetaDataBrowser application
- unlimited free updates for all minor and major versions
- unlimited and royalty free distribution rights for your applications which have been written using MetaBeans

If you would like to purchase a commercial license of the MetaBeans collection, please visit the Betabeans homepage (<http://www.betabeans.de>).

Installation

Software requirements

All necessary files (except JDBC drivers) are included in Borland® JBuilder® Foundation.

Install MetaBeans in JBuilder

1. create a new library with the name "MetaBeans" and add the file \$INSTALL/lib/metabeans-2.4.jar
2. choose "Tools|Configure palette..." and click on "Add..." to create a new palette page
3. enter the name "MetaBeans" for the new palette page
4. switch to the "Add components" page and click on "Select library..."
5. select the "MetaBeans" library and choose "Component filtering: JavaBeans in jar manifest only"
6. click on "Add from Selected Library..."

Beans overview

Dataset beans

Database object lists

These dataset beans will provide a list of database objects.

<i>Dataset</i>	<i>Description</i>
TableNames	Provides a list of database tables. A String array property, "MetaDataTableTypes", allows to include system tables or temporary tables in the list. See example 1.
ViewNames	Provides a list of database views.
ProcedureNames	Provides a list of procedures.

Database object properties

These dataset beans will provide detailed information about a selected database object.

<i>Dataset</i>	<i>Description</i>
TableMetaData	Provides metadata informations about a database table (columns, index definitions, primary keys, privileges, exported keys and imported keys). See example 2.
ColumnMetaData	Provides informations about a table column.
ProcedureMetaData	Provides metadata informations about a database procedure.

Writing applications with MetaBeans

Example 1: display a list of table names

To configure a TableNames dataset to display all tables:

1. add a datamodule to your application
2. add a DataExpress Database and a TableNames dataset

```
Database databasel = new Database();  
TableNames tableNames1 = new TableNames();
```

2. set the Database property

```
tableNames1.setDatabase(databasel);
```

3. choose the table types using the MetaDataTableTypes property

```
tableNames1.setMetaDataTableTypes(new String[] { "TABLE" });
```

4. use a JdbTable to display the TableNames data

Note: the MetaDataTableTypes array may contain one or more valid values, for example "VIEW" or "SYSTEM TABLE".

Example 2: display table column descriptions

To configure a TableMetaData to display table metadata for the table FOO:

1. add a DataExpress Database and a TableMetaData

```
Database databasel = new Database();  
TableMetaData tableMetaData1 = new TableMetaData();
```

2. set the Database property

```
tableMetaData1.setDatabase(databasel);
```

3. set the MetaDataTableName property

```
tableMetaData1.setMetaDataTableName("FOO");
```

4. set the MetaDataInfo property to TableMetaData.TABLE_COLUMNS. A list of values for the MetaDataInfo property are defined in TableMetaData.java. If the database connection parameters are valid (including user name and password), setting this property at design time in JBuilders visual editor will open the dataset. In design mode, this allows to modify all metadata column properties (width, caption etc.).

```
tableMetaData1.setMetaDataInfo(TableMetaData.TABLE_COLUMNS);
```

5. use a JdbTable to display the TableMetaData data

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