

JDBC Form Binder

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Prevent SQL Injection

When using [Hash Variable](#) that uses URL parameter or user-inputted value in the SQL query, ensure that these hash variable(s) are **escaped** in the query!

Make use of hash variable escape keywords, see [Hash Variable - Escaping the Resultant Hash Variable](#).

Example of VULNERABLE query:

```
SELECT * FROM app_fd_sample_table WHERE c_value = '#requestParam.id#'
```

To fix this, use `?sql` hash variable escape:

```
SELECT * FROM app_fd_sample_table WHERE c_value = '#requestParam.id?sql#'
```

Introduction

JDBC Form Binder allows you to use custom SQL statements to retrieve and load records into your form fields. Similarly, you can write SQL statements to save the records in your form field into a database table.

JDBC form binders settings are located in the form PROPERTIES tab under "Advanced > Data Binder > Load Binder & Store Binder". JDBC form binders replaces the standard Workflow Form Binder.

In a **load** binder, you only need to configure the datasource and SELECT query. In a **store** binder, you will need to write SQL statements for SELECT, INSERT, UPDATE, and DELETE database actions.

JDBC form binders have the following exception where this binder cannot be used (revert back to Workflow Form Binder):

- Use of form element workflow variables. JDBC form binders will not populate or update the workflow variables.
- Use of file and image attachment field elements. JDBC form binders will not handle the file retrieval or file transfer into Joget file storage.

JDBC Binders comes standard in Joget v6 and DX. If you are using Joget v5, you can download the JDBC Binders from [Joget Marketplace](#).

DESIGN FORM

PROPERTIES

PREVIEW

SAVE

GENERATE APP

Advanced

Edit Form > Advanced > Load Binder (JDBC Binder) > Store Binder (JDBC Binder)

Data Binder

Load Binder

JDBC Binder

X

▼

Store Binder

JDBC Binder

X

▼

Permission

Permission

▼

Unauthorized Message

//

Post Form Submission Processing

Run a tool after a form is submitted. Only applicable for primary form, in form grid, and list grid.



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Figure 1: JDBC Binder selected as Load & Save Binder

JDBC Binder Properties

Configure JDBC Load Binder

<p>SQL SELECT Query for Load Binder</p>	<p>The SQL query specific to your database type (MySQL, MSSQL, Oracle, etc.). Use question mark ? in your query to represent the primary key or foreign key.</p> <div> <p>Example</p> <pre>SELECT * FROM app_fd_table WHERE id = ?</pre> </div> <div> <p> If a column name contains reserved keywords, do ensure it is encapsulated properly.</p> <p>For example for MySQL, if the column identifier itself contains a dot symbol (.), it should be encapsulated like this:</p> <pre>SELECT `myAppName.myColumn` FROM app_fd_myTable;</pre> </div> <div> <p> Table & Column Naming</p> <ul style="list-style-type: none"> For database tables created by Joget Forms, Joget adds a "c_" in front of table column names (or "t_" if your column name starts with a number) and "app_fd_" in front of database table names. If you use environment hash variables to store SQL query strings, use "noescape" to escape SQL query strings in JDBC binders to prevent the "<>" "not equal" operator from being converted, i.e. disables XSS prevention checking. Read here for more information. </div>
<p>Handling for field workflow variable?</p>	<p>Click to select if you are using workflow variables mapping in your form elements. Not applicable for grid elements.</p>
<p>Handling for uploaded files? Form to store uploaded files</p>	<p>Click to select if you are using file or image attachments in your form elements. Select form to store uploaded files only if you are using form grid or spreadsheet.</p>

Configure JDBC Store Binder

DESIGN FORM

PROPERTIES

PREVIEW

SAVE

GENERATE APP

Configure JDBC Binder ?

Edit Form > Advanced > Load Binder (JDBC Binder) > Configure JDBC Binder

Datasource

Default Datasource

SQL SELECT Query *

1 SELECT * FROM app_fd_table WHERE id = '#requestParam.id#'

SQL INSERT Query *

1 INSERT app_fd_table
2 (id,
3 c_name,
4 c_emailaddress,
5 c_contacttel)
6 VALUES ({id},
7 {name},
8 {emailAddress},
9 {contactTel})

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Figure 3: Configure Store JDBC Binder


!

If a column name contains reserved keywords, do ensure it is encapsulated properly.

For example for MySQL, if the column identifier itself contains a dot symbol (.), it should be encapsulated like this:

SELECT `myAppName.myColumn` FROM app_fd_myTable;

Name	Description
Store Binder	JDBC Binder selected (See Figure 1).
Datasource	<ul style="list-style-type: none">Custom Datasource - setup to connect to an external database, has additional configuration.Default Datasource - connect to the Joget database. <p>By selecting Default Datasource, the database your Joget is currently using will be selected. (See Figure 3).</p>
Custom JDBC Driver	Custom JDBC Driver. This field is required when Custom Datasource is selected in Datasource above. Example: <code>com.mysql.jdbc.Driver</code>
Custom JDBC URL	Custom JDBC URL. This field is required when Custom Datasource is selected in Datasource above. Example: <code>jdbc:mysql://localhost:3307/jwdb?characterEncoding=UTF8&useSSL=false</code>
Custom JDBC Username	Custom JDBC Username. This field is required when Custom Datasource is selected in Datasource above.

Custom JDBC Password	<p>Custom JDBC Password. This field is required when Custom Datasource is selected in Datasource above.</p> <div>  Test the connection parameters Click on the "Test Connection" button at the bottom of the page to quickly test out your configurations. </div>
SQL SELECT Query for store binder	<p>The SQL query specific to your database type (MySQL, MSSQL, Oracle, etc.). Use syntax like {field_id} in query to inject submitted form data.</p> <div> <p>Example</p> <pre> SELECT * FROM app_fd_table WHERE id = {id} </pre> </div> <p>Note: If you use JDBC in a form grid or spreadsheet for load or save binder, be advised the SQL syntax is different from form load or save binder. Kindly download and view the sample app for J DBC in a form grid or spreadsheet.</p>
SQL INSERT Query	<p>Use syntax like curly brackets {field_id} in query to inject submitted form data.</p> <div> <p>Example</p> <pre> INSERT app_fd_table (id, c_name, c_emailaddress) VALUES ({id}, {name}, {emailAddress}) </pre> </div> <p>You can use {uuid} to tell Joget to create a random unique id or a "Universally unique identifier". Example:</p> <div> <p>Example</p> <pre> INSERT app_fd_table (id, c_name, c_emailAddress VALUES ({uuid}, {name}, {emailAddress}) </pre> </div> <p>For JDBC SQL INSERT in a grid, use "{foreignKey}" syntax to populate the parent id into the child table foreign key value, as follows:</p> <div> <pre> INSERT app_fd_table_child (id, c_name, c_fk) VALUES ({uuid}, {name}, {foreignKey}) </pre> </div>

SQL UPDATE Query	<p>Use syntax like curly brackets {field_id} in query to inject submitted form data.</p> <div> <div>Example</div> <pre> UPDATE app_fd_table SET id = {id}, c_name = {name}, c_emailaddress = {emailAddress}, c_contacttel = {contactTel} WHERE id = {id} </pre> </div>
SQL DELETE Query	<p>SQL statement to delete form data records in Datalist/Grid element. Use syntax like curly brackets {id} in query to inject form data primary key value.</p> <div> <div>Example</div> <pre> DELETE FROM app_fd_table WHERE id = {id} </pre> </div>
Handling for field workflow variable?	Click the checkbox if you are using workflow variables mapping in your form elements. The JDBC binder will copy the field value to the workflow variable when you submit the form if the form is mapped to a process. Not applicable to grid elements.
Handling for uploaded files? Form to store uploaded files	Click the checkbox if you are using file or image attachments in your form elements. The JDBC binder will save your file or image attachment into the ".wflow" folder when you save the form. Select form to store uploaded files only if you are using a form grid or spreadsheet.

Understanding JDBC Errors

Error Messages	Causes And Solutions
Message on screen: Record cannot be found	There is a JDBC configuration error. Check the Joget.log file for more information.
The rest of the error messages below are found in the %apache-tomcat-xx.xx\logs\joget.log file.	
ERROR org.joget.plugin.enterprise.JdbcLoadBinder - org.apache.commons.dbcp. SQLNestedException : Cannot load JDBC driver class	The property Custom JDBC Driver is incorrect
ERROR org.joget.plugin.enterprise.JdbcLoadBinder - org.apache.commons.dbcp. SQLNestedException : Cannot create PoolableConnectionFactory (Could not connect to address=(host=localhost)(port=3306)(type=master) : Socket fail to connect to host:localhost, port:3306. Connection refused: connect)	The property Custom JDBC URL is incorrect
ERROR org.joget.plugin.enterprise.JdbcLoadBinder - org.apache.commons.dbcp. SQLNestedException : Cannot create PoolableConnectionFactory (Could not connect to address=(host=localhost)(port=3307)(type=master) : Access denied for user 'xxx'@'localhost' (using password: YES)	The property Custom JDBC Username or Custom JDBC Password is incorrect.
ERROR org.joget.plugin.enterprise.JdbcLoadBinder - java.sql. SQLException : SQLSyntaxErrorException :	The property SQL SELECT Query is incorrect. Do also check the SQL lower or upper case spelling on table and column names, especially if you are running a database on a Linux OS which is case sensitive.
ERROR org.joget.plugin.enterprise.JdbcLoadBinder - java.sql.SQLException : Could not set parameter at position 1 (values was '?') Query - conn:506(M) - SELECT * FROM app_fd_table WHERE id = "?"	Do not enclosed the ? in single or double quotation marks. Correct syntax is: SELECT * FROM app_fd_table WHERE id = ?
ERROR org.joget.tutorial.JdbcOptionsBinder - com.microsoft.sqlserver.jdbc. SQLException : The value is not set for the parameter number 2	DB error on JDBC Options with "Field ID to control available options based on Grouping". You can only pass one ? parameter in the SQL.

Related JDBC Binders

- [JDBC Options Binder](#)

- [JDBC Datalist Action](#)
- [JDBC Datalist Database Binder](#)

Download Demo Apps

- Demo app using JDBC Form Binders for MySQL database: [APP_jdbc_load_store_form_binder_dx_kb.jwa](#)
- Demo app using JDBC Form Grid Binders for MySQL database: [APP_form_grid_with_jdbc_binder.jwa](#)
- Demo app using JDBC in List Grid for MySQL database: [APP_list_grid_multirow_jdbc_dx_kb.jwa](#)
- Demo app using JDBC Form Binders for Oracle database: [APP_example_form_jdbc_on_oracle_v6.jwa](#)
- Demo app using JDBC Form Grid Binders for Oracle database: [APP_jdbc_form_grid_oracle_dx_kb.jwa](#)