Using DbVisualizer Variables

DbVisualizer variables are used to build parameterized SQL statements and let DbVisualizer prompt you for the values when the SQL is executed. This is handy if you are executing the same SQL repetitively, just wanting to pass new data in the same SQL statement.

A DbVisualizer variable that **doesn't specify a data type** will always be replaced with the **value as a literal**. This allows use of variables anywhere in an SQL statement. If a **data type is specified,** the prompted value will be bound with the SQL and variables can in this context **only be used where supported** by the target database.

DbVisualizer Variables	

`${variable\|\|value\|\|type\|\|options}$`	This is the most flexible syntax as it supports setting a name, default value, data type, and other options. Check the DbVisualizer Variables section for details.
	
	A DbVisualizer variable can be used anywhere in the SQL as the specified value replaces the variable definition as a literal (unless a data type is specified; with a data type, its behavior is exactly the same as for **Named Parameter Markers**).
	
	Example
	
	`select *`
	`from EMPLOYEE`
	`where FIRST_NAME like '${First Name\|\|Phil}$'`
	`and AGE > ${Age\|\|20}$`
	
	The variable identifiers, **${...}$** can be modified in **Tools->Tool Properties** and in the **General / Variables** category.

Variable Syntax

The variable format supports setting a default value, data type and a few options as in the following example:

```
${FullName||Andersson||String||where pk}$
```

This is the complete syntax for a DbVisualizer variable:

```
${name || value || type || options}$
```

Part	Default	Description
name	**Required**	Required. This is the name that appear in the prompt window. If multiple variables in a script have the same name, the substitution dialog shows only one and the entered value will be applied to all variables with that name
value	null	The default value for the variable
type	none (= literal)	The type of variable: String, Boolean, Integer, Float, Long, Double, BigDecimal, Date, Time and Timestamp. In addition DbVisualizer defines: BinaryData and TextData (for CLOB). This is used to determine how the data should be passed between DbVisualizer and the database server. If no type is specified, it is treated as a literal
options	none	The options part is used to express certain conditions. Separate these with a whitespace • **pk** Indicates that the variable is part of the primary key in the final SQL. Represented with a symbol in the prompt window • **where** Defines that the variable is part of the WHERE clause. A symbol indicate this condition in the prompt window • **noshow** This option define that the variable should not appear in the prompt window. A value must be set when using this option, unless it is an output variable (see **dir** below) • **nobind** Used in combination with when a **type** is set and defines that the variable should be replaced as a literal in the SQL rather than being bound as a parameter marker • **dir=in | out | inout** The direction for a variable used with the **@call** command (it is ignored for other uses). A variable assigned the return value for a function must be declared as **dir=out**, and a variable used for a procedure parameter must use a dir type matching the procedure parameter direction declaration. **in** is the default

Pre-defined Variables

A few pre-defined DbVisualizer variables can be used anywhere in the SQL. These are replaced with actual values just before the SQL is sent to the DB server.

Note that none of the pre-defined variables below will show in the prompt window.

```
${dbvis-date}$
${dbvis-time}$
${dbvis-timestamp}$
${dbvis-connection}$
${dbvis-database-type}$
```

By default, date/time variable values are formatted as defined in **Tool Properties->Data Formats**, but you can also specify a custom format for a single use of the variable, e.g.

```
${dbvis-date||||||format=[yyyyMMdd]}$
```

The following variables can be used only when monitoring a SQL statement that produce a result set and the **Allowed Row Count** for the monitor is > 0. The output format is seconds and milliseconds. Ex: 2.018

```
${dbvis-exec-time}$
${dbvis-fetch-time}$
```

The following variable holds the absolute path to the current directory, e.g. set by the `@cd` command:

```
${dbvis-pwd}$
```

In an sql script, the name on the result set produced by the next SELECT statement can be set with the `@set resultset name` command (see Using Client-Side Commands). This result set name is accessible through the variable

```
${dbvis-resultset-name}$
```

Variable Substitution in SQL statements

For variable processing to work in the SQL Commander, make sure the **SQL->Enable Parameterized SQL** main menu option is checked.

A simple variable may look like this:

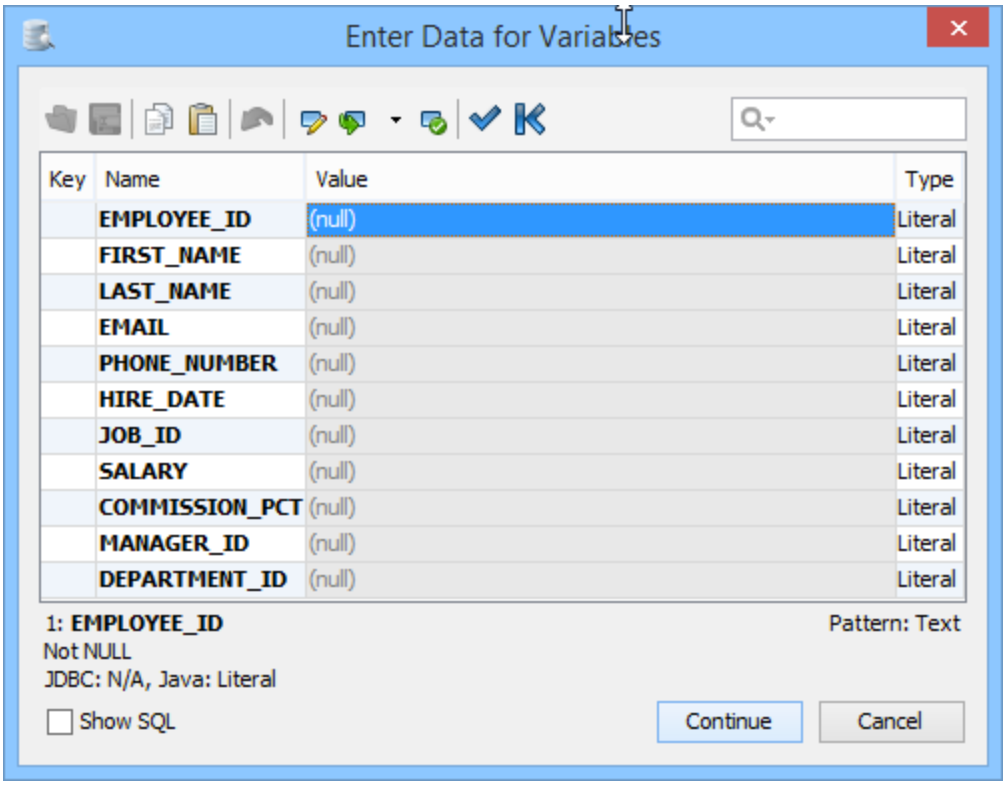
```
${FullName}$
```

A variable is identified by the start and end sequences, `${...}$`. (These can be re-defined in **Tool Properties**). During execution, the SQL Commander searches for variables and displays the prompt window with the name of each variable and an input (value) field. Enter the value for each variable and then press **Execute**. This will then replace the variable with the value as a literal and finally let the database execute the statement.

Consider the following SQL statement with variables. It is the simplest use of variables since it only contains the variable names. In this case it is also necessary to enclose text values with quotes since the prompt window cannot determine the actual data type for the variables.

```
INSERT
INTO
    EMPLOYEES
    (
        EMPLOYEE_ID,
        FIRST_NAME,
        LAST_NAME,
        EMAIL,
        PHONE_NUMBER,
        HIRE_DATE,
        JOB_ID,
        SALARY,
        COMMISSION_PCT,
        MANAGER_ID,
        DEPARTMENT_ID
    )
    VALUES
    (
        ${EMPLOYEE_ID}$,
        ${FIRST_NAME}$,
        ${LAST_NAME}$,
        ${EMAIL}$,
        ${PHONE_NUMBER}$,
        ${HIRE_DATE}$,
        ${JOB_ID}$,
        ${SALARY}$,
        ${COMMISSION_PCT}$,
        ${MANAGER_ID}$,
        ${DEPARTMENT_ID}$
    )
```

Executing the above SQL will result in the following prompt window:



Using variables with no data type defined shows these as **Literal**. This means that the specified value will replace the variable as-is in the SQL statement.

The prompt window has the same look and functionality as the Form Data Editor, i.e. you can sort, filter, insert pre-defined data, copy, paste and edit cells in the multi line editor, plus a lot of other things. In addition the prompt window adds two new commands (leftmost in the toolbar and in the form right-click menu).

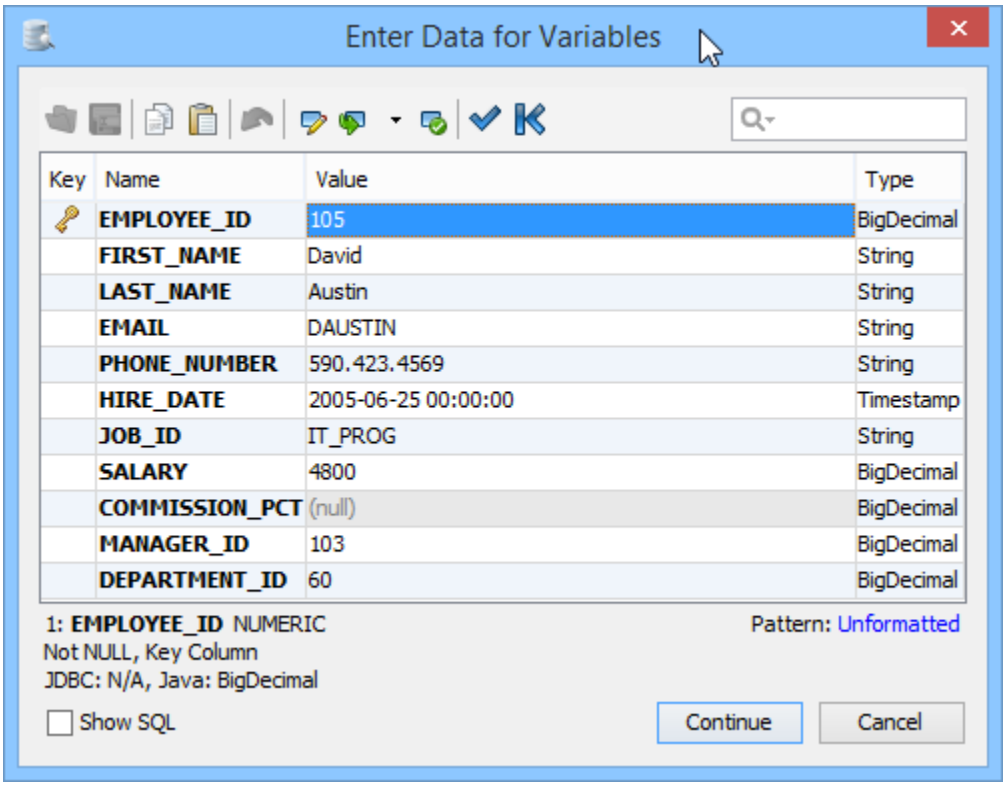
Set Default Values	This will set each value to the default value for the variable. If a default value was not specified in the variable, **(null)** will shown
Set Previously Used Values	Set the value for each variable to the values (matched by name) that was used in the previous run (if there are no values from a previous run, this button is disabled)

The **SQL Preview** area shows the statement with all variables replaced with the values.

Here is an example of a more complex use of variables utilizing default value, data type and options:

```
INSERT
INTO
    EMPLOYEES
    (
        EMPLOYEE_ID,
        FIRST_NAME,
        LAST_NAME,
        EMAIL,
        PHONE_NUMBER,
        HIRE_DATE,
        JOB_ID,
        SALARY,
        COMMISSION_PCT,
        MANAGER_ID,
        DEPARTMENT_ID
    )
    VALUES
    (
        ${EMPLOYEE_ID||105||BigDecimal||pk ds=7 dt=NUMERIC}$,
        ${FIRST_NAME||David||String||nullable ds=20 dt=VARCHAR}$,
        ${LAST_NAME||Austin||String||ds=25 dt=VARCHAR}$,
        ${EMAIL||DAUSTIN||String||ds=25 dt=VARCHAR}$,
        ${PHONE_NUMBER||590.423.4569||String||nullable ds=20 dt=VARCHAR}$,
        ${HIRE_DATE||2005-06-25 00:00:00||Timestamp||ds=7 dt=TIMESTAMP}$,
        ${JOB_ID||IT_PROG||String||ds=10 dt=VARCHAR}$,
        ${SALARY||4800||BigDecimal||nullable ds=10 dt=NUMERIC}$,
        ${COMMISSION_PCT||(null)||BigDecimal||nullable ds=4 dt=NUMERIC}$,
        ${MANAGER_ID||103||BigDecimal||nullable ds=7 dt=NUMERIC}$,
        ${DEPARTMENT_ID||60||BigDecimal||nullable ds=5 dt=NUMERIC}$
    )
```

This example use the full capabilities of variables. This example is generated by the **Script to SQL Commander->INSERT COPY INTO TABLE** right click menu choice in the **Data** tab grid. By default it generates variables representing the actual values and the characteristics of the columns.



To highlight that a variable is part of the **WHERE** clause in the final SQL, it is represented with a green symbol in front of the name.

When executing an SQL statement that consist of variables, DbVisualizer replaces each variable with either the value as a literal or as a parameter marker. Using parameter markers to pass data with a statement is more reliable than literals. DbVisualizer will automatically generate a parameter marker if the variable has the data type set and if there is no **nobind** option specified.

The following will be replaced with a parameter marker:

```
${Name||rolle||String}$
```

These will be replaced with the value as a literal in the final SQL:

```
${Name||rolle}$
${Name||rolle||String||nobind}$
```

Variables in DbVisualizer may be used anywhere in a statement as long as there is no data type specified.

Changing the Delimiter Characters

You can change which identifiers should be used as the prefix, suffix and part delimiter in a variable expression in **Tools->Tool Properties**, in the **General / Variables** category.