

WEINTEK LABS., INC.

SQL Query Multiple Results

Demo Project

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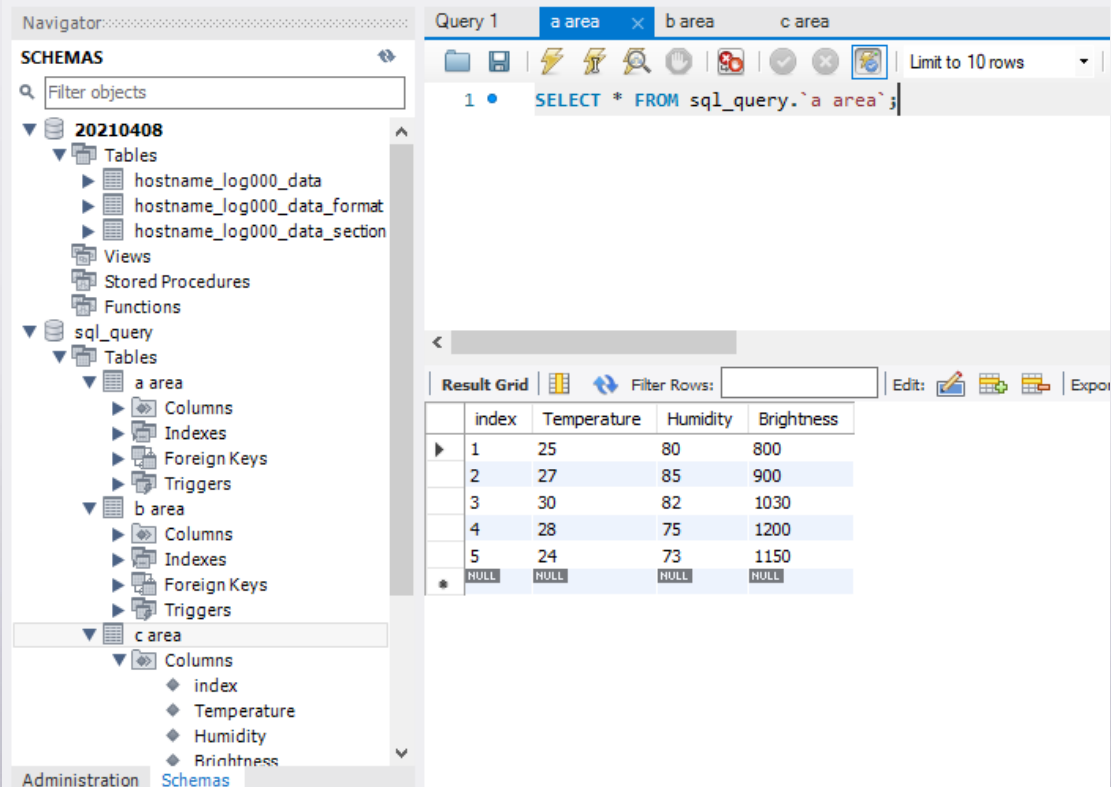
1. Overview and Operation

Overview

This demo project shows how to use SQL Query to query for multiple results and output these results to local bulk addresses, and then draw line graphs in Data Block Display objects according to the data collected from the database.

Operation

Step 1. Create a database named “sql_query” and create three tables named a area / b area / c area respectively. Each table should have 4 columns: index, Temperature, Humidity, and Brightness. Please add at least 5 records into each table.

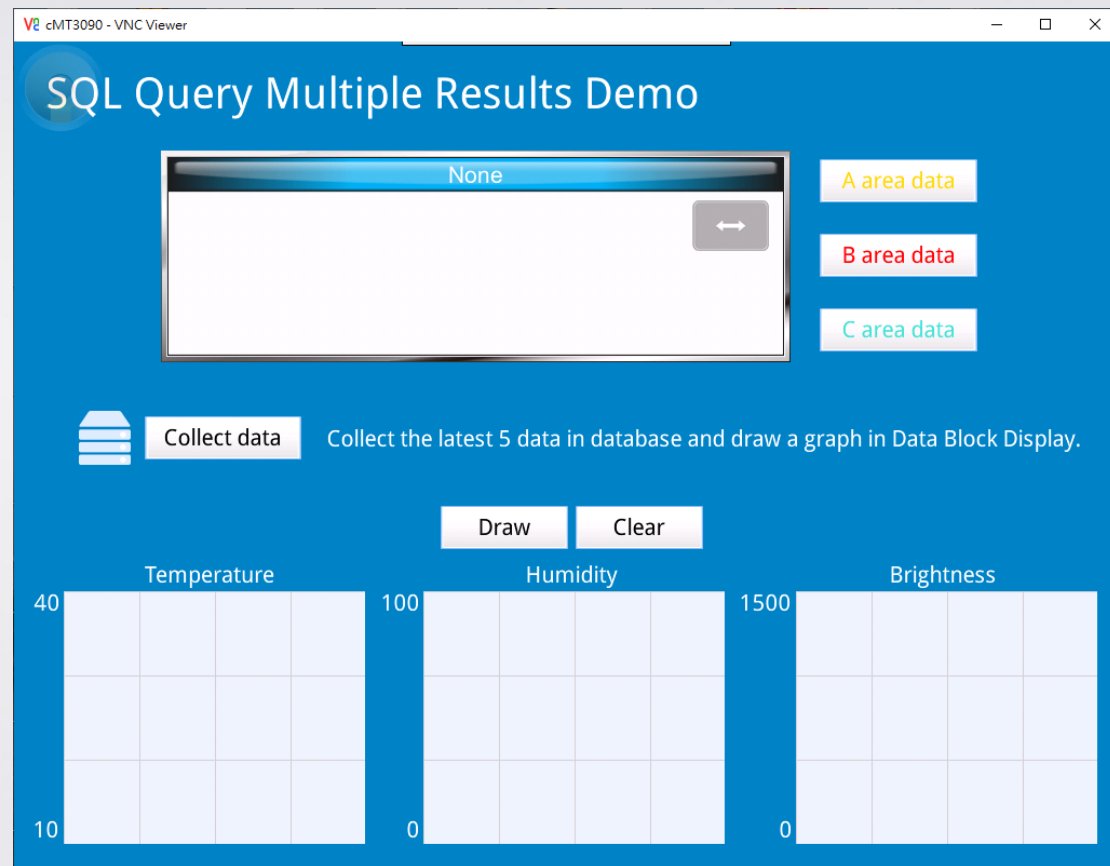


The screenshot displays a database management interface. On the left, the 'SCHEMAS' pane shows a tree view of the database structure. Under the 'sql_query' database, three tables are listed: 'a area', 'b area', and 'c area'. Each table has four columns: 'index', 'Temperature', 'Humidity', and 'Brightness'. The 'c area' table is currently selected.

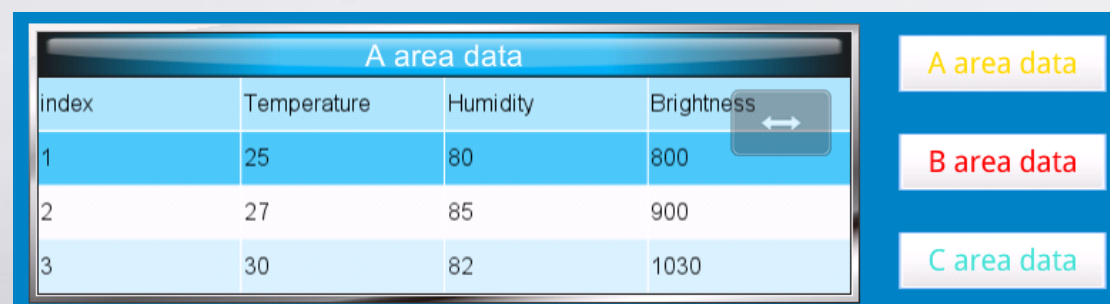
On the right, the 'Query 1' window shows a SQL query: `SELECT * FROM sql_query.`a area`;`. Below the query, the 'Result Grid' displays the results of the query. The grid has four columns: 'index', 'Temperature', 'Humidity', and 'Brightness'. The results are as follows:

index	Temperature	Humidity	Brightness
1	25	80	800
2	27	85	900
3	30	82	1030
4	28	75	1200
5	24	73	1150
*	NULL	NULL	NULL

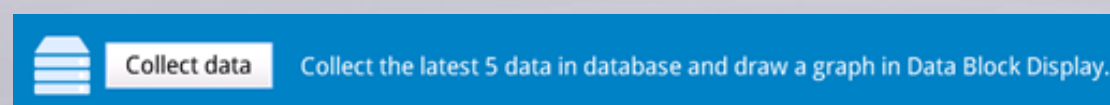
Step 2. Compile the project and then download the project to HMI.



Step 3. Press the three buttons on the right to check whether the data can be correctly read.

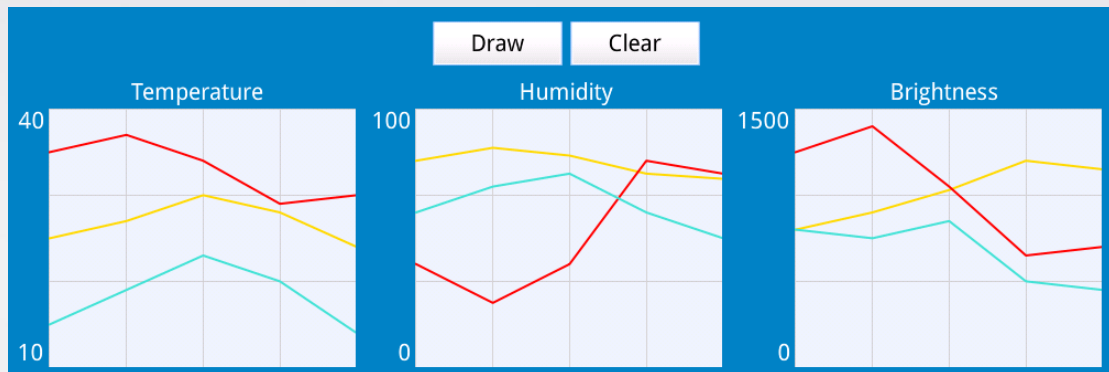


Step 4. Press [Collect data] button to send multiple results to HMI's local bulk addresses. In this demo project, the latest 5 records will be sent.



SQL Query Multiple Results

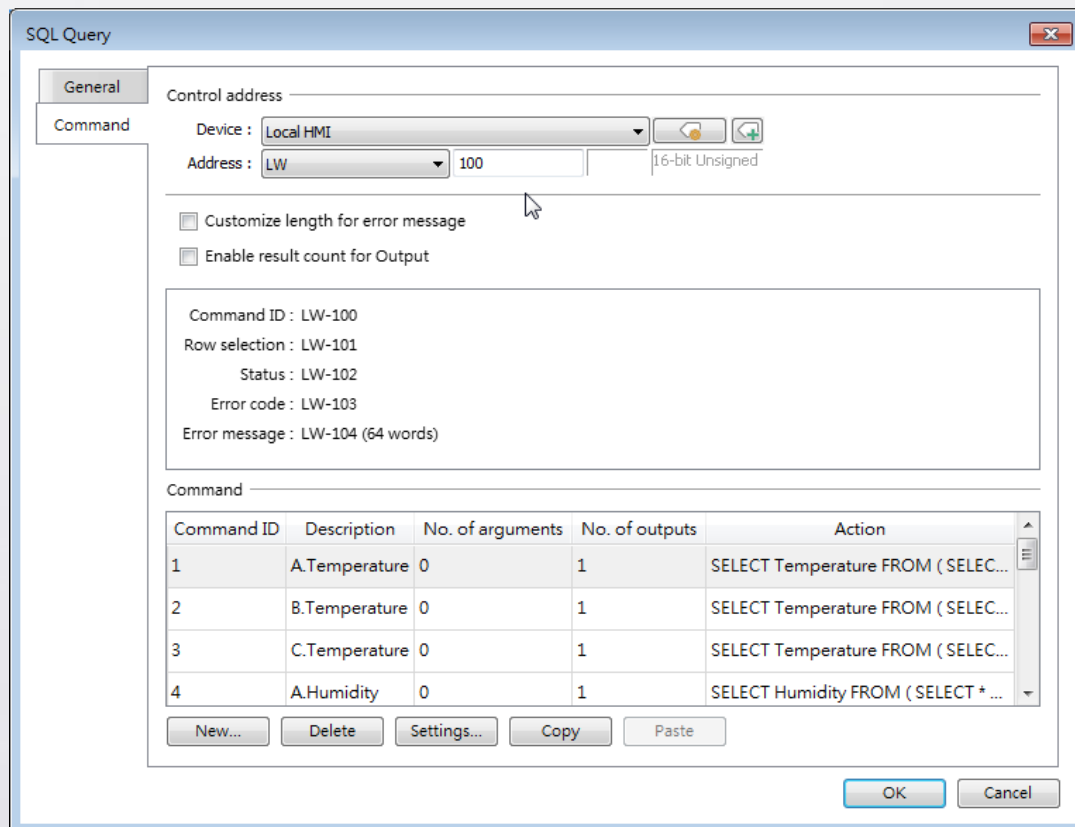
Step 5. Press [Draw] button to draw line graphs in Data Block Display objects according to the collected data.



2. Setting up the Screen

Step 1. Please find Database related manuals for more information.

Step 2. Enable database server, select Advanced Mode of SQL Query and use LW-100 as control address.



SQL Query

General

Control address

Device : Local HMI

Address : LW 100 16-bit Unsigned

☐ Customize length for error message

☐ Enable result count for Output

Command ID : LW-100
Row selection : LW-101
Status : LW-102
Error code : LW-103
Error message : LW-104 (64 words)

Command

Command ID	Description	No. of arguments	No. of outputs	Action
1	A.Temperature	0	1	SELECT Temperature FROM (SELEC...
2	B.Temperature	0	1	SELECT Temperature FROM (SELEC...
3	C.Temperature	0	1	SELECT Temperature FROM (SELEC...
4	A.Humidity	0	1	SELECT Humidity FROM (SELECT * ...

New... Delete Settings... Copy Paste

OK Cancel

Step 3. Command ID 1~9 can be used to output the temperature, humidity, and brightness data in the three tables to the local addresses. As shown in the following two screenshots, Command ID 1 is for querying the latest 5 temperature values in “a area” table. These 5 records will be sent to addresses LW-202~206. Command ID 2~9 works similarly for different data in different tables.

SQL Query Command

Query Command ID: 1

Description: A.Temperature

SQL Query: `SELECT Temperature FROM (SELECT * FROM sql_query.`a area` order by `index` DESC limit 5) temp order by `index`;`

SQL Query Command

Multiple results: ☒

Bulk address: Local HMI

Address: LW 202 16-bit Unsigned

Results: Maximum number of results: 5

* Number of words in a result: 1 words

* If the address of the output of the first result is LW-200 and the number of words in a result is OFFSET, the address of the output of the Nth result is LW-200+OFFSET*N

Show the addresses of the Nth results: 1

(The Address column of the following table shows the output address of the Nth result.)

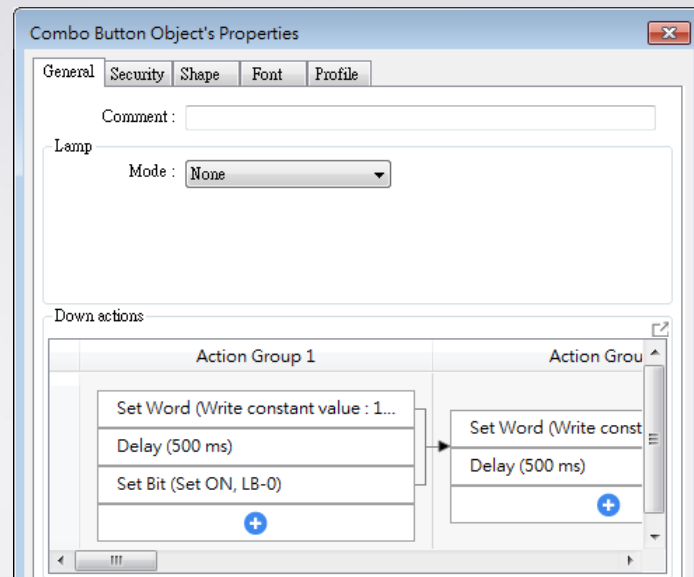
PLC name	Address	Address format	Word Length
1 Local HMI	LW-202	16-bit Unsigned	1

New... Delete Settings... OK Cancel

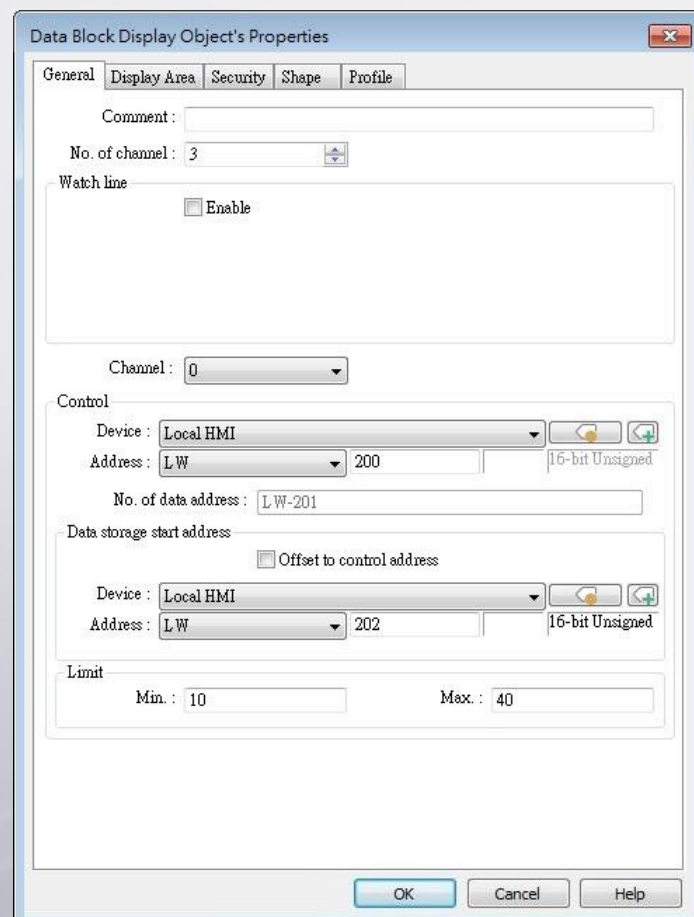
Step 4. Command ID 10~12 are for querying all the data in the three tables.

Command ID	Description	No. of arguments	No. of outputs	Action
9	C.Brightness	0	1	SELECT Brightness FROM (SELECT *...
10	A area data	0	0	SELECT * FROM sql_query.`a area`;
11	B area data	0	0	SELECT * FROM sql_query.`b area`;
12	C area data	0	0	SELECT * FROM sql_query.`c area`;

Step 5. Create a Combo Button to execute Command ID 1~9.



Step 6. Create three Data Block Display objects for Temperature, Humidity, and Brightness. Set no. of channel to 3 in each Data Block Display object for the three tables.



3. Addresses

The addresses of key objects used in this demonstration are listed below, please adjust as necessary.

Object	Address	Object ID	Description
Window 10			
Database Server	LW-0~55		Status / Control Addresses
Set Word	LW-100	SW_0	Executes Command ID 10
Set Word	LW-100	SW_1	Executes Command ID 11
Set Word	LW-100	SW_2	Executes Command ID 12
Bit Lamp	LB-0	BL_0	Turns ON when collecting data.
Combo Button	LW-100	CB_0	Executes Command ID 1~9
SQL Query	LW-100~167		Status / Control Addresses
Set Word	LW-200	SW_3	Draws line graphs in Data Block Display objects.
Set Word	LW-200	SW_5	Clears the line graphs in Data Block Display objects.
Set Word	LW-201	SW_4	Sets the number of records to be displayed.
Data Block Display	LW-200~201	BD_0	Displays line graphs according to the collected data.
	LW-202~231	BD_1	
	LW-302~331	BD_2	
	LW-402~431		