

# Omron Sysmac NJ SQL Client

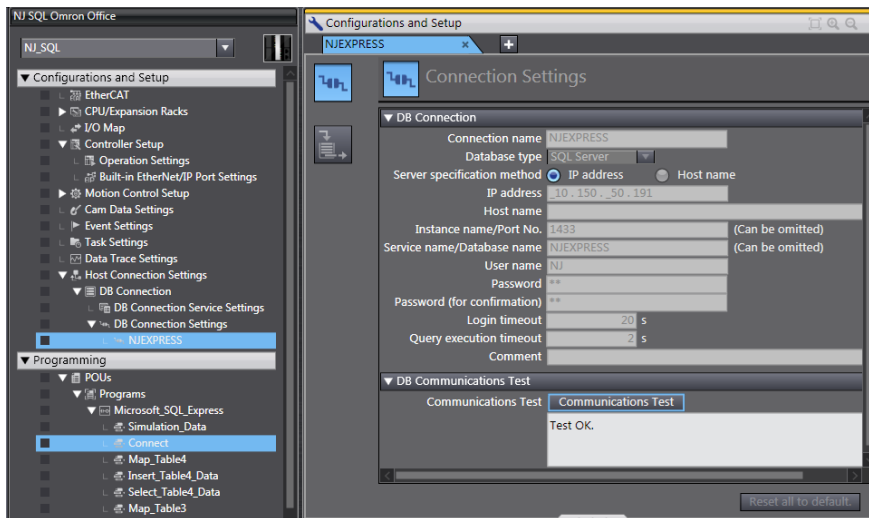


SQL Server

Part Numbers: NJ501-1320, NJ501-1420, and NJ501-1520

Omron's Sysmac NJ controller comes with built-in SQL client services to Microsoft SQL, Oracle, IBM DB2, MySQL, and Firebird. This allows a machine or system to log data directly into databases running on a server without any middleware or PC.

The Sysmac NJ controller is programmed using premade SQL function blocks, making it simple for the controls programmers to read and write data to/from the SQL database at speeds up to 20ms per transaction.



Omron's Sysmac Studio software is used to configure the connection to the SQL database. The user can configure up to 3 database connections.

Each connection simply requires:

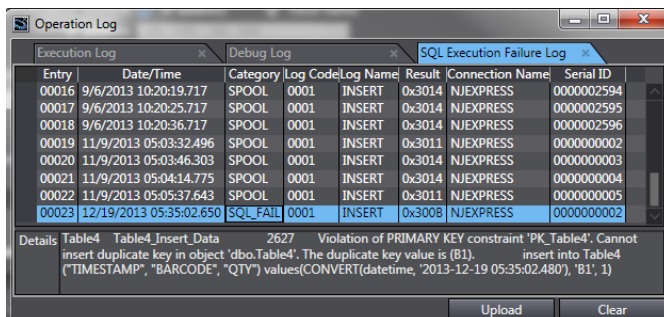
- Connection name
- Database type (Microsoft SQL, Oracle, IBM DB2, MySQL, or Firebird)
- IP address or host name of the target database
- Username and password
- Port name and service name (if not default)

After this information is entered, communication with the DB can be tested.

<http://youtu.be/ys3Mn2zP-wA>

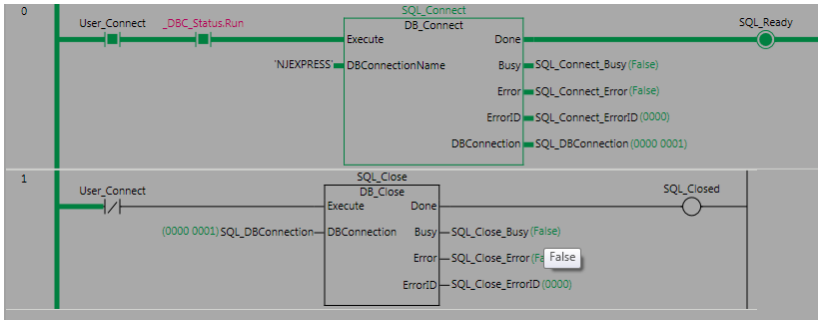


If the connection to the database is lost for whatever reason, the Sysmac NJ controller has a 1Mbyte spooling function built in. This prevents data loss or incorrect data from being logged into the database. By default this option is set to "Use", and spool data will automatically be sent to the DB when the connection is reestablished.



Execution Logs are automatically stored in the included SD memory card to help with system debugging. For example, if a data insert operation failed because the record was a duplicate with another bar code already in the database, notice that both the SQL command and response are saved in the details. These items are necessary for advanced troubleshooting.

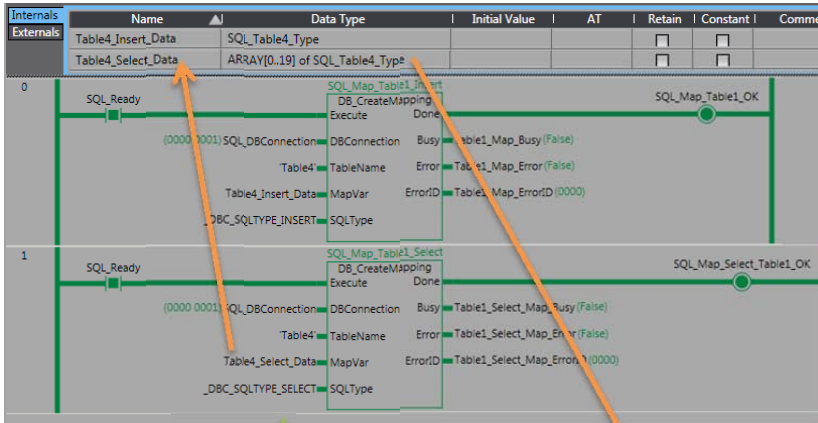
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The controls programmer does not need to learn how SQL databases work. They simply implement the SQL Function Blocks in Ladder or ST.

DB\_Connect and DB\_Close open and close the 3 connections by specifying the Connection Name from the Configuration area of Sysmac Studio.

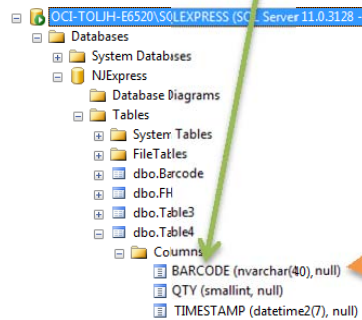
<http://youtu.be/3Ccdj-800A>



DB\_CreateMapping creates a map from a DB Map Variable to a DB table by specifying the Connection Name, Table Name, the variable to be mapped to the fields, and if this variable is to be an insert (\_DBC\_SQLTYPE\_INSERT), select (\_DBC\_SQLTYPE\_SELECT), update or delete.

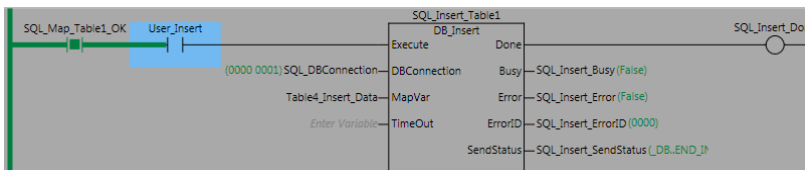
Specify the table name

Create a structure containing variables that matches the field names of the table (Up to 1000 fields).



Structures	Name	Base Type	
Union	SQL_Table4_Type	STRUCT	NJ
Enumerated	TIMESTAMP	DATE_AND_TIME	
	BARCODE	STRING[41]	
	QTY	INT	

You do not have to specify all the fields in the table – just the ones you want to access. The Select statement uses an array variable for the multiple records expected in the response.



Use the DB\_Insert, DB\_Select, DB\_Delete, or DB\_Update instructions to append, read, delete, or overwrite data to the database.

<http://youtu.be/O9NI4TK-mRw>

## Notes:

- The SQL\_DBConnection output from the DB\_Connect Function Block is used with all the other SQL Function Blocks as an input – indicating which database connection it is communicating with.
- Up to 32 instances of the instructions above can be used simultaneously, allowing communication with many DB tables at once.