

SQream Connector Native Python 2.1.2

SQream Technologies

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The SQream Native Python Connector - Overview

- This guide describes the implementation of the SQream Native Python connector and is designed for SQream DB administrators and developers.
- The SQream Native Python connector gives structures to initialize a connection, run SQL queries through the connection (statements), and enables network streaming (insert, select).
- SQream connector protocol version: 6

1. API Reference

All functions are accessed through the Connector class imported from `SQream_python_connector.py`

1.1. Initialization - Termination

```
import SQream_python_connector
con = SQream_python_connector.Connector()

# arg types are: string, integer, string, string, string, boolean, integer,
string(optional)
con.connect(ip, port, database, username, password, clustered, timeout, service)

# closes the statement (to do after execute + necessary fetch/put to close the
statement and be able to open another one through prepare())
con.close()

# closes the connection completely, destructing the socket, a call to "connect(..)"
needs to be done do continue
con.close_connection()
```

1.2. Statement

```
con.prepare(statement) #string of the query to run
con.execute()

# if the statement is an insert it produces a put and for select it produces a fetch,
rows are incremented through that function (see Usage example)
con.next_row()
```

1.3. High level protocol functions

Table 1. Retrieve results from a select query by column index

Function	Description
<code>is_null(int col_id)</code>	Check whether the value in column index <code>col_id</code> is a null
<code>get_bool(int col_id)</code>	Get Boolean value from column index <code>col_id</code> at the current row
<code>get_ubyte(int col_id)</code>	Get UByte value from column index <code>col_id</code> at the current row
<code>get_short(int col_id)</code>	Get Short value from column index <code>col_id</code> at the current row
<code>get_int(int col_id)</code>	Get Int value from column index <code>col_id</code> at the current row
<code>get_long(int col_id)</code>	Get Long value from column index <code>col_id</code> at the current row
<code>get_float(int col_id)</code>	Get Float value from column index <code>col_id</code> at the current row
<code>get_double(int col_id)</code>	Get Double value from column index <code>col_id</code> at the current row
<code>get_date(int col_id)</code>	Get Date value from column index <code>col_id</code> at the current row
<code>get_datetime(int col_id)</code>	Get Datetime value from column index <code>col_id</code> at the current row
<code>get_varchar(int col_id)</code>	Get Varchar value from column index <code>col_id</code> at the current row
<code>get_nvarchar(int col_id)</code>	Get Nvarchar value from column index <code>col_id</code> at the current row

Table 2. Retrieve results from a select query by column name

Function	Description
<code>is_null(String col_name)</code>	Check whether the value in column named <code>col_name</code> is a null
<code>get_bool(String col_name)</code>	Get Boolean value from column named <code>col_name</code> at the current row
<code>get_ubyte(String col_name)</code>	Get UByte value from column named <code>col_name</code> at the current row
<code>get_short(String col_name)</code>	Get Short value from column named <code>col_name</code> at the current row
<code>get_int(String col_name)</code>	Get Int value from column named <code>col_name</code> at the current row
<code>get_long(String col_name)</code>	Get Long value from column named <code>col_name</code> at the current row
<code>get_float(String col_name)</code>	Get Float value from column named <code>col_name</code> at the current row
<code>get_double(String col_name)</code>	Get Double value from column named <code>col_name</code> at the current row
<code>get_date(String col_name)</code>	Get Date value from column named <code>col_name</code> at the current row
<code>get_datetime(String col_name)</code>	Get Datetime value from column named <code>col_name</code> at the current row
<code>get_varchar(String col_name)</code>	Get Varchar value from column named <code>col_name</code> at the current row
<code>get_nvarchar(String col_name)</code>	Get Nvarchar value from column named <code>col_name</code> at the current row

Table 3. Set data by index following a bulk insert query

Function	Description
<code>set_null(int col)</code>	Set column at index <code>col</code> in the current row to null
<code>set_bool(int col, boolean val)</code>	Set column at index <code>col</code> of type Boolean in the current row

Function	Description
<code>set_ubyte(int col, byte val)</code>	Set column at index col of type UByte in the current row - unsigned bytes only
<code>set_short(int col, short val)</code>	Set column at index col of type Short in the current row
<code>set_int(int col, int val)</code>	Set column at index col of type Int in the current row
<code>set_long(int col, long val)</code>	Set column at index col of type Long in the current row
<code>set_float(int col, float val)</code>	Set column at index col of type Float in the current row
<code>set_double(int col, double val)</code>	Set column at index col of type Double in the current row
<code>set_date(int col, Date val)</code>	Set column at index col of type Date in the current row
<code>set_datetime(int col, Timestamp val)</code>	Set column at index col of type Datetime in the current row
<code>set_varchar(int col, String val)</code>	Set column at index col of type Varchar in the current row
<code>set_nvarchar(int col, String val)</code>	Set column at index col of type Nvarchar in the current row

2. Code Samples

2.1. Import and establish a connection, run a query

Example

```
## Import and establish a connection
# -----
import SQream_python_connector

# version information
print SQream_python_connector.version_info()

con = SQream_python_connector.Connector()
# Connection parameters: IP, Port, Database, Username, Password, Clustered,
# Timeout(sec), Service(optional)
sqream_connection_params = '127.0.0.1', 5000, 'master', 'sqream', 'sqream', False, 30,
'sqream'
con.connect(*sqream_connection_params)

## Run queries using the API
# -----
# Create a table
statement = 'create or replace table table_name (int_column int)'
con.prepare(statement)
con.execute()
con.close()

# Insert sample data
statement = 'insert into table_name(int_column) values (5), (6)'
con.prepare(statement)
con.execute()
con.close()

# Retrieve data
statement = 'select int_column from table_name'
con.prepare(statement)
con.execute()
con.next_row()

# Pull out the actual data
first_row_int = con.get_int(1)
con.next_row()
second_row_int = con.get_int(1)
con.next_row()
print (first_row_int, second_row_int)
con.close()

## After running all statements
# -----
con.close_connection()
```

2.2. Example of classic Get data loop

Example

```
# Here we create the according table by
# executing a "create or replace table table_name (int_column int, varchar_column
varchar(10))" statement

row1 = []
row2 = []

statement = 'select int_column, varchar_column from table_name'
con.prepare(statement)
con.execute()

while con.next_row():
    row1.append(con.get_int(1))
    row2.append(con.get_string(2))

con.close()
con.close_connection()
```

2.3. Example of classic Set data loop, using network streaming (also called Network Insert)

Example

```
# here we create the according table by executing a
# "create or replace table table_name (int_column int, varchar_column varchar(10))"
statement

row1 = [1,2,3]
row2 = ["s1","s2","s3"]
length_of_arrays = 3

# each interrogation symbol represent a column to which the network insertion can push
statement = 'insert into table_name(int_column, varchar_column) values(?, ?)'
con.prepare(statement)
con.execute()

for idx in range(length_of_arrays):
    con.set_int(1, row1[idx])    # we put a value at column 1 of the table
    con.set_varchar(2, row2[idx]) # we put a value at column 2 of the table
    con.next_row()              # move to setting a new row

con.close()
con.close_connection()
```

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