SQream Native Python Connector

SQream Technologies

Version 2.1.1

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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: 7

API Reference

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

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()
```

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()
```

High level protocol functions

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

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

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

Function	Description
is_null(String col_name)	Check whether the value in column named col_name is a null
get_bool(String col_name)	Get Boolean value from column named col_name at the current row
get_ubyte(String col_name)	Get UByte value from column named col_name at the current row
get_short(String col_name)	Get Short value from column named col_name at the current row
get_int(String col_name)	Get Int value from column named col_name at the current row
get_long(String	Get Long value from column named col_name

Function	Description
col_name)	at the current row
get_float(String col_name)	Get Float value from column named col_name at the current row
get_double(String col_name)	Get Double value from column named col_name at the current row
get_date(String col_name)	Get Date value from column named col_name at the current row
get_datetime(String col_name)	Get Datetime value from column named col_name at the current row
get_varchar(String col_name)	Get Varchar value from column named col_name at the current row
get_nvarchar(String col_name)	Get Nvarchar value from column named col_name at the current row

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

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

Code Samples

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()
```

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()
```

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()
```