New York Stock Exchange Trade and Quote Database Access

General Information

- Offered through the Applied Mathematics and Statistics Department at Stony Brook
- Over 20TB of high-frequency equity tick data is accessible, spanning the last decade
- Hands-on empirical data analysis for coursework and research projects

Requirements for Access

- Graduate Students within the AMS department
- Undergraduate Students enrolled in a quantitative finance course in the AMS department

Contact Information

- Server & Database Access and Maintenance- Victor Poon victor.poon@stonybrook.edu
- Research Supervisor- Professor Pawel Polak pawel.polak@stonybrook.edu
- General Questions - Jason Bohne jason.bohne@stonybrook.edu
- TAQ Database Group in Slack for general questions; Invite Link

Technology Required

- Bash (Shell- Scripting)
- Python Scripting
- Slack (Access to the TAQ Database Group)

Server Access

- Email Victor Poon victor.poon@stonybrook.edu with the Subject "AMS TAQ Database Access" and your **student ID** and **status (undergraduate vs. graduate)**
- CC Professor Pawel Polak pawel.polak@stonybrook.edu and Jason Bohne jason.bohne@stonybrook.edu on the above email
- You will receive access to the DBUsers group with read access to the server

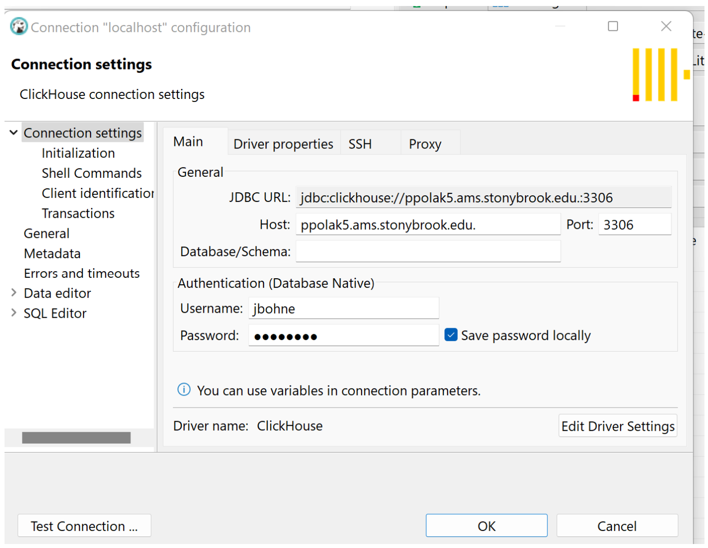
Database Access

When requesting server access, share your desired method of access (DBeaver or Advanced)

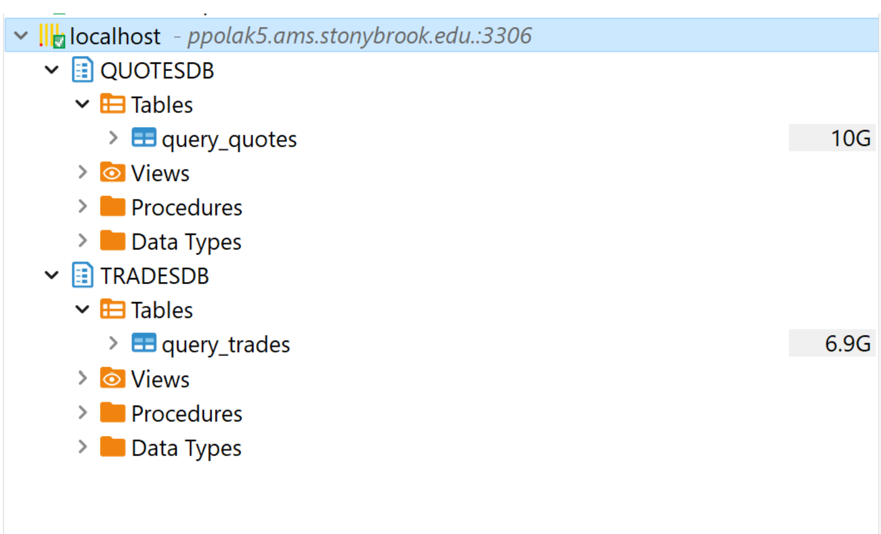
- **Advanced Access (Ph.D. Students and Faculty)**
    - Remote access with a custom python client
    - Best-suited for users that require frequent queries/large amounts of data
    - For example, working with big data architectures/ machine learning models
    - Contact jason.bohne@stonybrook.edu for more information

- **DBeaver (Undergraduate and Master Students)**

- ○ Download [DBeaver]
- ○ Create New Database Connection with host: `ppolak5.ams.stonybrook.edu.` on port `3306` with **your** username and password



- You should see query_trades and query_quotes tables respectively within the trade and quote databases



- Click on these tables to see a snapshot. You can query via SQL expressions in the filter bar or via SQL script. See here for SQL tutorials

Notes

- You can query trades and quotes directly from the filter bar
- Find the Database Schema within the table Properties -> DDL
- You can export data via CSV for a more thorough statistical analysis via File -> Export

Example Trade Queries

Query by Symbol:

SELECT x. FROM TRADESDB.query_trades x WHERE Symbol='AAPL'*

Query by Symbol and Single Date

SELECT x. FROM TRADESDB.query_trades x WHERE Symbol='AAPL' AND Date ='2020-01-07'*

Query by Symbol and Multiple Dates

SELECT x. FROM TRADESDB.query_trades x WHERE Symbol='AAPL' AND Date >='2020-01-07' and `Date` <'2020-01-11'*

Example Quote Queries

Query by Symbol:

SELECT x. FROM QUOTESDB.query_quotes x WHERE Symbol='AAPL'*

Query by Symbol and Single Date

SELECT x. FROM QUOTESDB.query_quotes x WHERE Symbol='AAPL' AND Effective_Date ='2020-01-07'*

Query by Symbol and Multiple Dates

SELECT x. FROM QUOTESDB.query_quotes x WHERE Symbol='AAPL' AND Effective_Date >='2020-01-07' AND Effective_Date <'2020-01-11'*

Full Trade Table Schema

```
  `Time` DateTime64(9,
'America/New_York'),

  `Exchange` Nullable(String),

  `Symbol` Nullable(String),

  `Sale_Condition` Nullable(String),

  `Trade_Volume` Nullable(UInt64),

  `Trade_Price` Nullable(Float64),

  `Trade_Stop_Stock_Indicator` Nullable(String),

  `Trade_Correction_Indicator` Nullable(UInt8),

  `Sequence_Number` Nullable(UInt64),

  `Trade_Id` Nullable(UInt64),

  `Source_of_Trade` Nullable(String),

  `Trade_Reporting_Facility` Nullable(String),

  `Participant_Timestamp` Nullable(UInt64),

  `Trade_Reporting_Facility_TRF_Timestamp` Nullable(UInt64),

  `Trade_Through_Exempt_Indicator` Nullable(UInt64),

  `Date` Date,

  `YearMonth` String
```

Full Quote Table Schema

```
`Time` String,
   `Exchange` String,
   `Symbol` String,
   `Bid_Price` Float64,
   `Bid_Size` Float64,
   `Offer_Price` Float64,
   `Offer_Size` Float64,
   `Quote_Condition` String,
   `Sequence_Number` UInt8,
   `FINRA_BBO_Indicator` String,
   `FINRA_ADF_MPID_Indicator` String,
   `Source_Of_Quote` String,
   `Best Bid Quote Condition` String,
   `Best_Bid_Exchange` String,
   `Best_Bid_Price` Float64,
   `Best_Bid_Size` Float64,
   `Best_Bid_FINRA_Market_Maker_ID` String,
   `Best_Offer_Quote_Condition` String,
   `Best_Offer_Exchange` String,
   `Best_Offer_Price` Float64,
   `Best_Offer_Size` Float64,
   `Best_Offer_FINRA_Market_Maker_ID` String,
   `LULD_Indicator` String,
   `LULD_NBBO_Indicator` String,
   `SIP_Generated_Message_Identifier` String,
   `Participant_Timestamp` UInt32,
   `FINRA_ADF_Timestamp` UInt32,
   `Security_Status_Indicator` String,
   `National_BBO_Ind` String,
   `Quote_Cancel_Correction` String,
   `Effective_Date` DateTime
```