SPIDERROCK

Data & Analytics

Historical Product Overview

Robust historical market data and analytics enabling our clients to gain insights and make data-driven decisions

FEATURES

- Datasets support all US-listed Equities, Futures, Equity Options, and Options on Futures
- End-of-day files, intraday snapshots as well as tick data available with corresponding reference data
- Options-specific data includes implied volatility, Greeks, surfaces, risk slides, and short-term trade performance
- Enhanced analytics used by wide range of practitioners providing insights on market trends
- Underlying prices, size, volume, prints, open interest and reference data

COMPETITIVE ADVANTAGE

Clients can focus on developing strategies by leveraging our analytics. SpiderRock is a respected brand in calculating implied volatility, greeks, risk metrics, and fitting volatility surfaces.

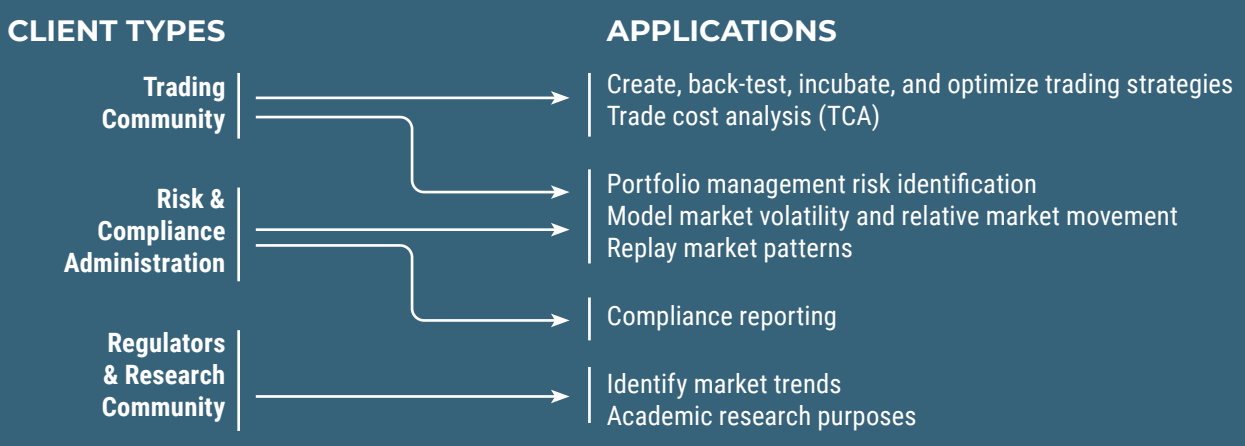
- Fast incubation of new trading strategies
- Model market volatility and relative market movement
- Assess risk and margin requirements
- Evaluate trade cost analysis (TCA)
- Run portfolio evaluation and manage end-of-day marks

QUALITY

Our historical data is derived from the live data and analytics which powers the SpiderRock trading system and ensures a high level of accuracy and consistency.

- Represents market activity at point-in-time
- Cleaned and well documented
- Evaluated for validity and accuracy to minimize errors
- Statistical analysis on our data to verify completeness

USE CASES



SPIDERROCK

SpiderRock Data Liberator API For Historical Data

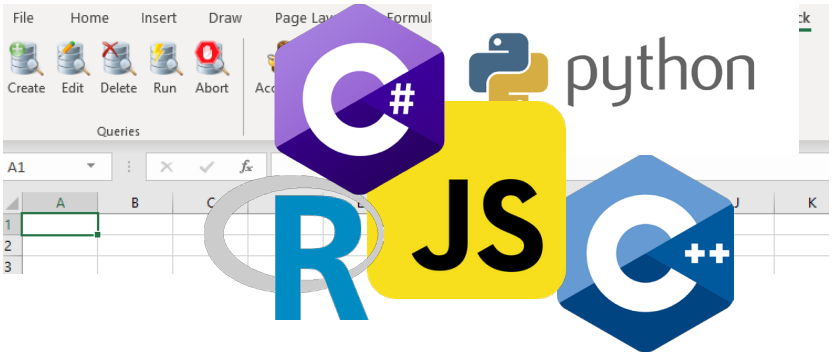
The SpiderRock Data Liberator Service provides easy access to historical datasets using a Restful API

Unlock your productivity and increase your efficiency when using historical data. Data delivery is on demand – how and when you prefer. The Liberator API allows you to select the data you need by date ranges and times, by single or groups of ticker symbols.

Using the API reduces the need to download and store large data sets during your research process and allows you to focus your efforts on performing the analysis and not managing the data. Through our Liberator API you can access SpiderRock Options, Stock and Futures data within your own applications using our cloud, compute power and pre-optimized query access for a simple monthly fee (*).

API FEATURES

- Single data access API for historical time series data; point-in-time and time series
- Datasets support all US-listed equities, options and indexes
- Historical data queries from our cloud storage
- No need to download and maintain large options market historical datasets
- Allows users to easily include data directly into algorithms
- Multiple language support / Native-language APIs and Spreadsheet plug-in



SpiderRock Liberator API comes with starter codes and notebooks for different languages that enable users to get started quickly. On-line help and security index tables allow fast look up of information.

The API is also integrated with Microsoft Excel™ for those with work processes involving downloading specific data and analyzing this data in spread sheet applications.

(*) Various data access plans; tiered based on number of queries or monthly data egress up to unlimited access. Contact SpiderRock Data Sales at gwtsales@spiderrock.net to start you free trial today.

Data Liberator functionality is provided by CloudQuant (www.cloudquant.com).

PRODUCT OFFERING

DATA TABLES	FREQ	HISTORY	PRICE	VOLUME	SIZE	GREEKS	IMPLIED VOL	VOL SURFACE
STOCK								
Stock Close Marks	EOD	Jan-10	X	X	X			
Stock Minute Bars	1 Min	Jan-10	X	X				
Stock Print Set	Trades	Jan-16	X	X	X			
Stock Imbalances Data	Every Tick	Feb-19	X	X				
EQUITY OPTIONS								
Options Close Marks	EOD	Jan-10	X	X	X	X	X	X
Options Price History ID	30 min	Jan-15	X	X	X	X	X	X
Options Price History HID	5 min	Jan-20	X	X	X	X	X	X
Options Minute Bars ATM	1 min	Jan-20	X				X	
Options Print Set	Trades	Jan-14	X	X	X	X	X	X
US FUTURES INDEXES, ETF, INDEX OPTIONS								
Futures Close Marks	EOD	Jan-19	X	X				
Futures Minute Bars	1 Min	Jan-16	X	X				
Futures Print Set	Trades	Jan-16	X	X	X			
Options (F) Close Marks	EOD	Jan-10	X	X		X	X	X
Options (F) Price History ID	30 min	Jan-15	X	X	X	X	X	X
Options (F) Price History HID	5 min	Jan-20	X	X	X	X	X	X
Options (F) Minute Bars ATM	1 min	Jan-20	X				X	
Options (F) Print Set	Trades	Jan-14	X	X	X	X	X	X
Option Pair Set ID ES								
OPTIONS VOLATILITY SURFACES								
Surface Curves EOD	EOD	Jan-10	X			X	X	X
Fixed Grid Surface EOD	EOD	Jan-10					X	X
Fixed Term Surface ATM EOD	EOD	Jan-10					X	X
Surface Curves ID	10 Min	Jan-19	X			X	X	X
Fixed Grid Surface ID	10 Min	Feb-19					X	X
Fixed Term Surfaces ATM ID	10 Min	Jan-18					X	X
VOL2G EQUITY OPTIONS VOLATILITY BUNDLE								
Stock Close Marks	EOD	Jan-10	X	X				
Options Close Marks	EOD	Jan-10	X	X	X	X	X	X
Options Fixed Grid Surfaces	EOD	Jan-10					X	X
Options Fixed Term Surfaces ATM	EOD	Jan-10					X	X
Volatility History Table by Ticker	EOD	Jan-10	X	X		X	X	X
Equity Reference Tables	EOD	Jan-10	X	X				
EQUITY REFERENCE TABLES								
Ticker Defintion Map (Security ID)	Daily PIT	Jan-10						
Security Price Table (Adjusted)	Daily PIT	Jan-10						
Global Rates	Daily PIT	Jan-10						
Trading Dates	Daily PIT	Jan-10						

Samples available by request. Contact gwtsales@spiderrock.net

SPIDERROCK

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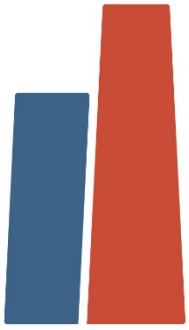


SPIDERROCK

GATEWAY

SpiderRock Historical Data Archive

Stock Hist Reference

Version 1.0

Table of Contents

Overview

Introductory Comments

This document outlines the historical data that is available from SpiderRock, what the various data tables contain, and how they can be delivered. In most cases, the data is extremely large and can take a large amount of disk space and considerable time to download.

We do offer a number of different options, including both historical and periodic updates, to deliver this data to you in the most efficient manner depending on your own individual requirements.

Available Data

Note: A version of all files also exists for major INDICES only, which include:

- Stocks/Tickers: SPY, QQQ, IWM, DIA, VXX, VIX, SPX
- Options: VXX, VIXW, VIX, SPY, SPXW, SPX, QQQ, QNE, QN4, QN3, QN2, QN1, NQ, IWM, EW4, EW3, EW2, EW1, E4C, E4A, E3C, E3A, E2C, E2A, E1C, E1A, DIA BTC, ES, EW

Post 2021-01-01, Futures data includes only CME products.

Stock (Index/Equity)

Table Name	From (Start Date)	Summary Description
Stock SR Closing Marks	1/1/2010	Stock SR Closing Mark records are created immediately after the market close, when exchanges publish official marks. These records contain closing quotes and prices.
Stock Minute Bars	8/1/2009	Stock Minute Bar records are created once per minute for each open stock and index market.
Stock Print Set	4/1/2016	Stock Print Set records are created for each print at the time of the print and updated 1 Minute and 10 Minutes after to record trade performance.

Custom

Table Name	From (Start Date)	Summary Description
NYSE Stock Exchange	2/11/2019	StockExchImbalance records contain live exchange closing auction imbalance details. Imbalance information can be available from more than one exchange for each ticker.
ARCA Stock Imbalance	2/11/2019	StockExchImbalance records contain live exchange closing auction imbalance details. Imbalance information can be available from more than one exchange for each ticker.

All of these files are available on a daily basis in the following format:

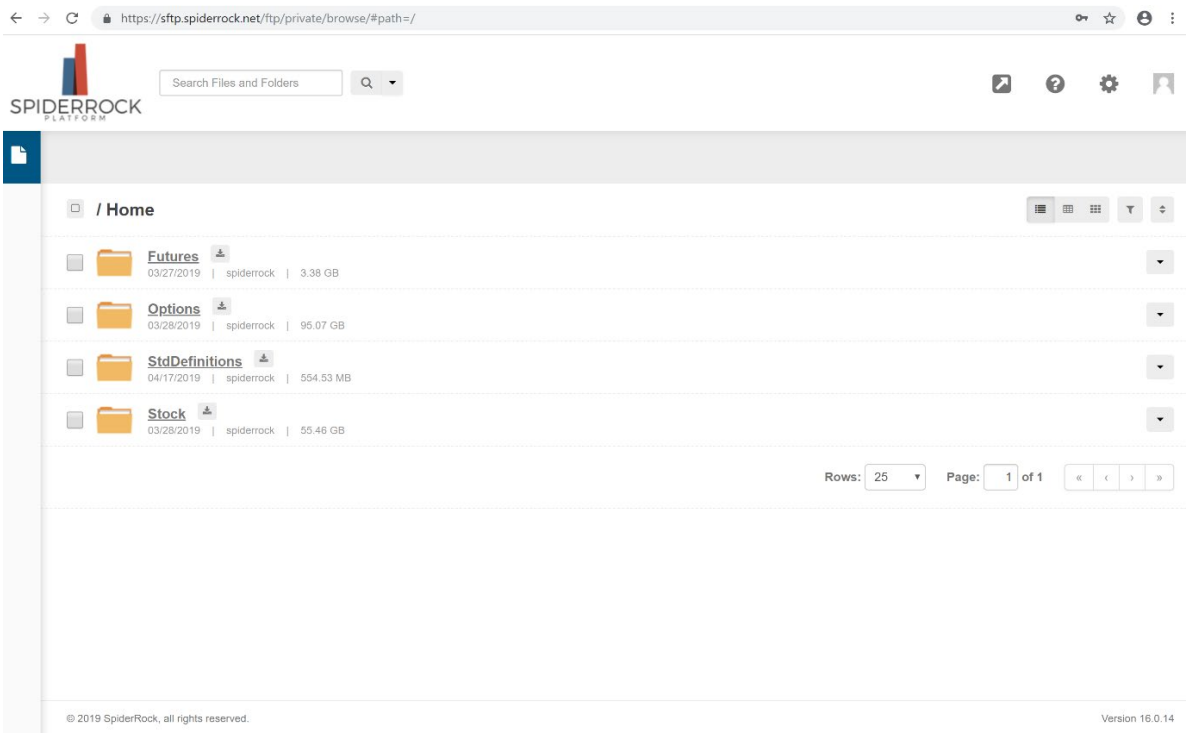
Table Name	Extension	Comments
Plain Text	.txt	This is a plain, uncompressed ASCII Text file. These are very large (e.g. stock minute bar for one day is around 124 megabytes). Therefore, it is not recommended that you download these but rather one of the files in a ZIP format

Table Name	Extension	Comments
ZIP File	.zip	This is the plain text file compressed as a standard .ZIP file with medium compression. This should be compatible with most forms of compressed files. This is compressed to about 12% - 15% of the original size so the example given above compresses to approximately 20 Megabytes

Accessing the Files via the SFTP

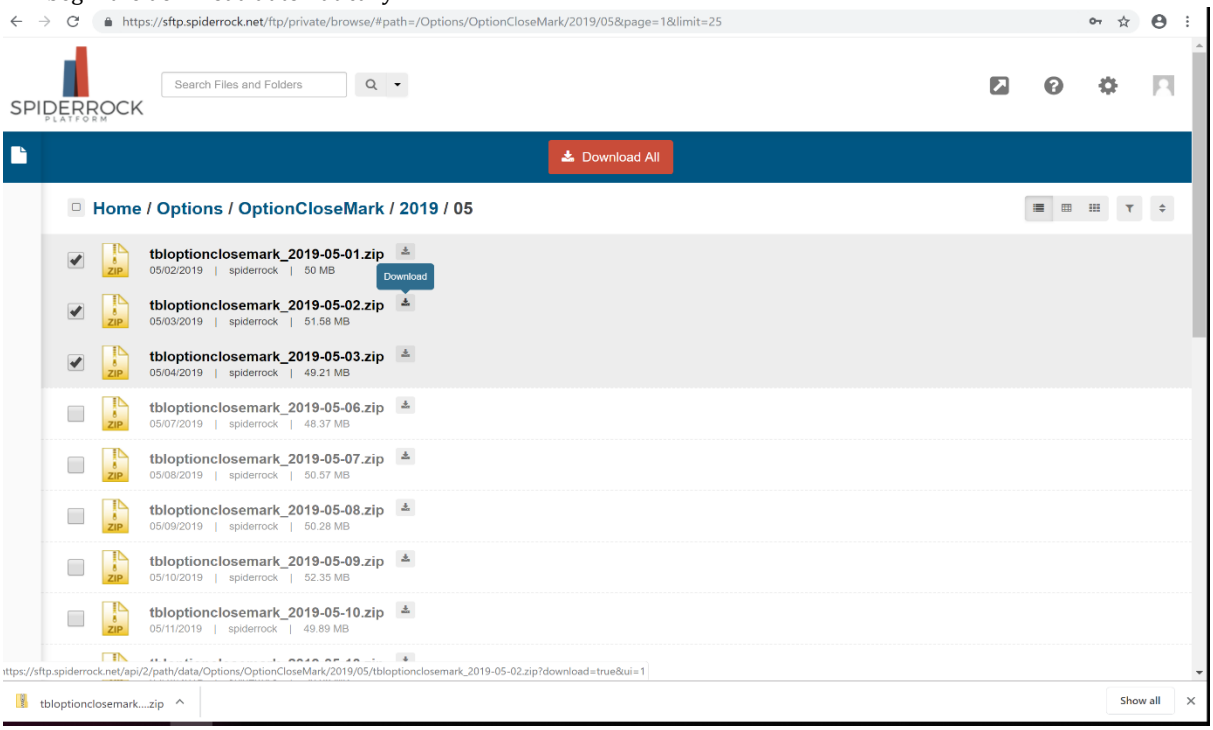
The data files can be downloaded from SpiderRock's SFTP server in compressed ZIP files. These ZIP files can then be uncompressed and transferred into a database or EXCEL workbook. To access and download the data needed, do the following:

1. On a standard browser, type "SFTP.Spiderrock.net" into the address bar
2. This goes to SpiderRock's SFTP site, where a login will be required. Type in the given SpiderRock username and corresponding password to gain access to the files.
3. The following home page should appear with folders of different assets and data:



4. Select the file you wish to open by clicking on the title (i.e. "Futures"). This should then display the different data sets available for the asset. Again, click on the title to choose which data file you wish to open based on the datatables offered.
5. Once you have opened your desired asset type and datatable, then select which date of data you wish to view. After selecting the year and month, the compressed file for each day is available.
6. The data files can be downloaded from SpiderRock's SFTP server in compressed ZIP files. These ZIP files can then be uncompressed and transferred into a database or EXCEL workbook. To access and download the data needed, do the following:

7. To download, there are a few options. You can either select multiple files to download by clicking the titles of each file or the square box next to each, then selecting the red “Download All” button at the top. If you wish to download an individual file, you can either select only the file wanted and click the red “Download” button, or you can click the download icon to the right of the title, which will begin the download automatically:

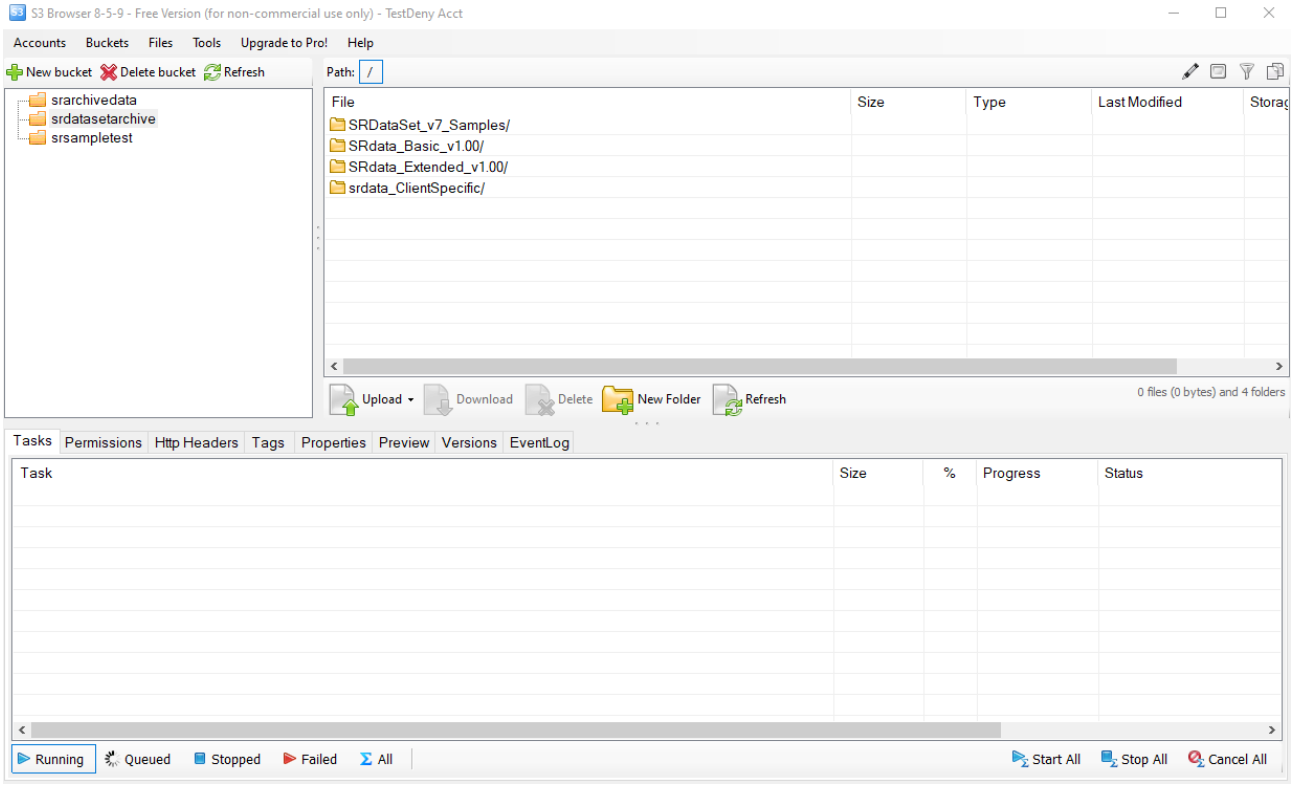


8. Name the ZIP file, and subsequently the data will begin to download. Once finished downloading, move the file to where you wish to store the data.
9. Double-click to open the ZIP file to see the data you downloaded. Ensure that the data is uncompressed before beginning to transfer it to another database or format.

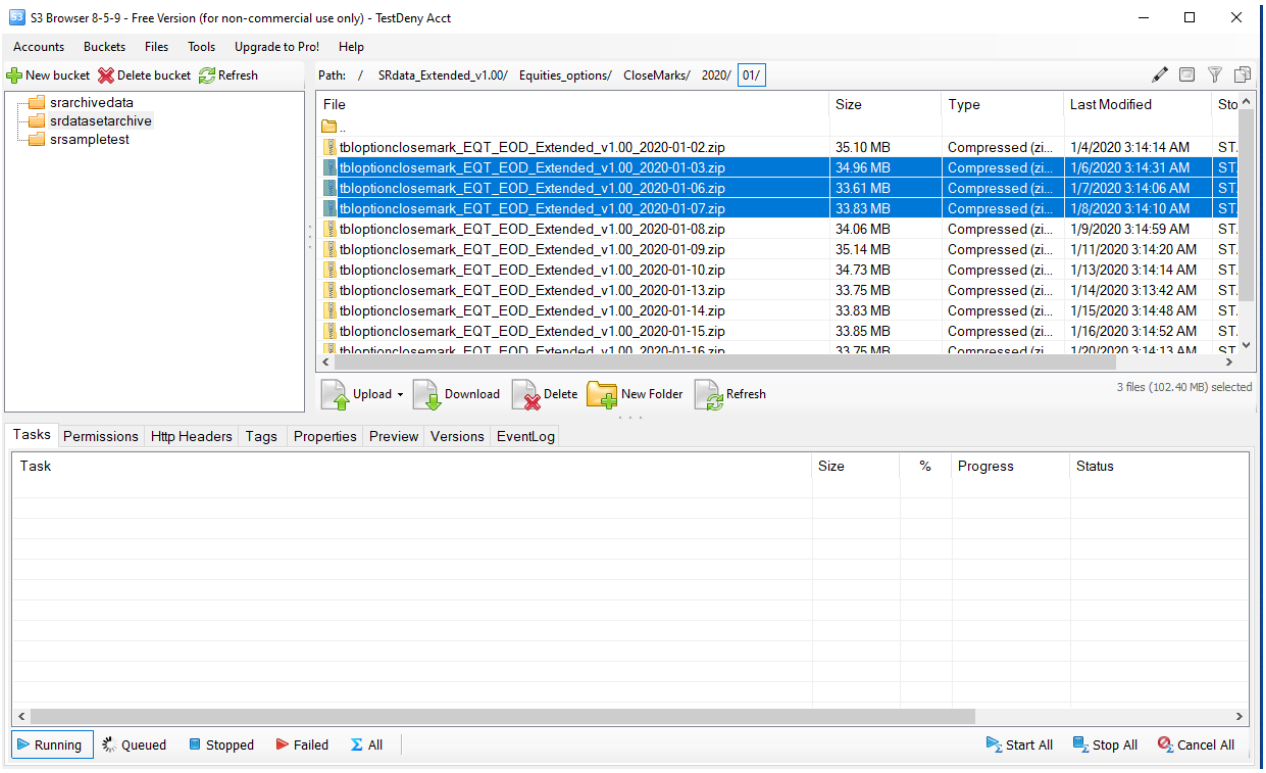
Accessing the Files via Amazon Web Services S3

The data files can be downloaded from SpiderRock's AWS S3 server in compressed ZIP files. These ZIP files can then be uncompressed and transferred into a database or EXCEL workbook. To access and download the data needed, do the following:

1. On a standard browser, type "https://s3browser.com/download.aspx" into the address bar and download the browser
2. Once downloaded, a login will be required, this consists of an ACCESS KEY and SECRET ACCESS KEY. Type in the given SpiderRock Access key and Secret Access key to gain access to the files.
3. The following home page should appear with folders of different assets and data:



4. You will be permissioned for the bucket **srdatasetarchivehist,** which includes the latest version of our data.
5. Select the file you wish to open by clicking on the title (i.e. "SRdata_hist"). This should then display the different data sets available for the dateset. Again, click on the title to choose which data file you wish to open based on the datatables offered.
6. Once you have opened your desired asset type and datatable, then select which date of data you wish to view. After selecting the year and month, the compressed file for each day is available.
7. The data files can be downloaded from SpiderRock's S3 server in compressed ZIP files. These ZIP files can then be uncompressed and transferred into a database or EXCEL workbook. To access and download the data needed, do the following:
8. To download, there are a few options. You can either select multiple files to download by clicking the titles of each file, then selecting the "Download" button at the bottom of the folder list. If you wish to download an individual file, you can either select only the file wanted and click the "Download" button. You are able to, if permissioned for the entire underlying data, download higher in the path (ie. At the monthly, yearly, or database file level).

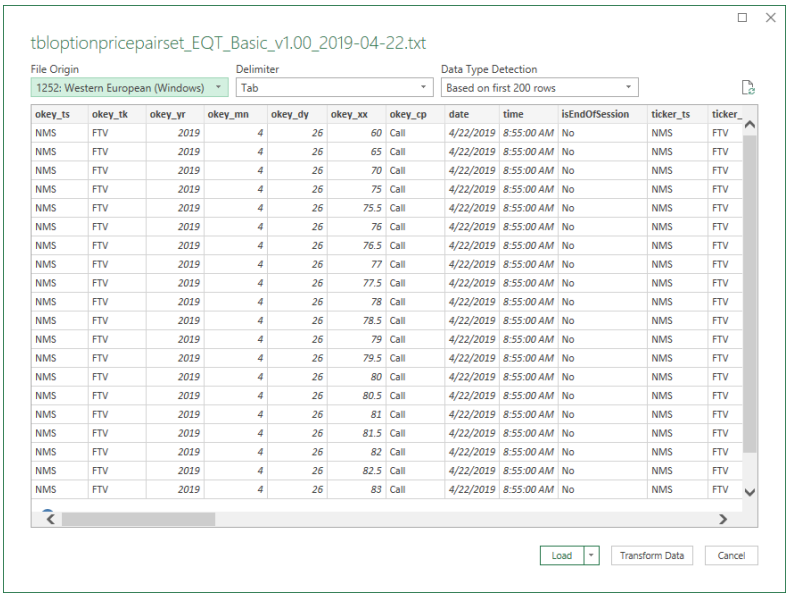


9. Choose the output folder where you want the data downloaded on your instance.
10. Name the ZIP file, and subsequently the data will begin to download. Once finished downloading, move the file to where you wish to store the data.
11. Double-click to open the ZIP file to see the data you downloaded. Ensure that the data is uncompressed before beginning to transfer it to another database or format.

Field Delimiters

These files have all been created as data exported directly from our underlying MySQL database tables. These are exported in ASCII formatted files with a TAB (\t or HEX 09) as the field delimiter. Therefore, these uncompressed files (subject to size limitations of your installation of EXCEL) can be opened by EXCEL as follows:

1. Start EXCEL and open a new workbook
2. Select “Data” on the ribbon, and then select “From Text/CSV”
3. Make sure that the filter is set to “All Files”
4. Navigate to where you downloaded and “unzipped” the file (**note you MUST open the uncompressed** version of the file, so if you downloaded the compressed version you must first uncompress it into an uncompressed format using either WINZIP or a similar tool).
5. Select the text file you want to open and press import. You will then be presented with a window which is similar to the following:



okey_ts	okey_tk	okey_yr	okey_mn	okey_dy	okey_xx	okey_cp	date	time	isEndOfSession	ticker_ts	ticker_
NMS	FTV	2019	4	26	60	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	65	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	70	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	75	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	75.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	76	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	76.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	77	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	77.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	78	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	78.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	79	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	79.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	80	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	80.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	81	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	81.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	82	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	82.5	Call	4/22/2019	8:55:00 AM	No	NMS	FTV
NMS	FTV	2019	4	26	83	Call	4/22/2019	8:55:00 AM	No	NMS	FTV

6. On this screen make sure you select the Delimiter as "Tab" and start import at Row 1 (as this data **DOES HAVE column headers** – so make sure you check the option 'Use First Row as Headers' in the 'Transfrom Data' window) and then select "Load". The rows will then start loading, which may take some time.

If desired, select "Transform Data" and on the next window you can apply any specific formatting required.

Please note that EXCEL does have limitations on the number of rows and columns. Depending on your installation, it may not be possible for EXCEL to load the entire file. For example, you will not be able to load all the data in excel for Live Surface Grids, Option Price Pair sets, Stock Minute Bars, and all Print sets. EXCEL will notify you if it cannot fit all of the data into a workbook.

File Naming conventions and Updates

All data is kept in separate files (in each of the above named formats) for every trading day from the starting date shown. For example, the stock Minute bar for the trading day of March 31st 2019 can be found at:

Sub Folder	File Name	Size	File Type
/StockMinuteBars	/tblstockminutebarhist_2019-03-31.txt	125,117KB	Uncompressed text version * *see note below – re text files*
/StockMinuteBars	/tblstockminutebarhist_2019-03-31.zip	20,649KB	Compressed ZIP file

All Data is updated in batch processes that typically run overnight. This means that another "days" activity is added to these tables once a day and at the completion of a month and the data is not changed again.

The exceptions to this rule are

- tblTradingDate which rarely changes and the ZIP file remains static.

By 7:00am on each trading day, the previous trading day's data should be completely loaded and ready for downloading.

Plain Text Files

Please note at the time of publishing this document the plain text files are not available (simply due to disk space considerations) and only the ZIP files are available which are an exact representation of the text files but compressed using standard ZIP formatting with the "optimal" flag set.

File headers

All of these text files contain a header (each column is delimited by a TAB – i.e. exactly the same as the data). Therefore, the very first record for each file contains the data name for each column. For example, if you were to load the file into EXCEL, row 1 would contain a header line.

Loading these files in a database

Loading files into a database is often the most practical way to import this data and most relational databases contain some type of functionality that will allow you to import external file directly into a database table. For example, MySQL has a standard import function and the command to import the stock minute bar would be:

```
load data local infile 'c:/ExternalData/tblstockminutebarhist_2019-06-29.txt' into table
tblstockminutebar_2019_06
fields terminated by '\t'
lines terminated by '\r\n'
ignore 1 lines
(date,time,skey_tk,skey_ts,skey_at,pOpen,pHigh,pLow,pLast,pVwap,pVlm,pCount,qOpen,qHigh,qLow,qLast,qCount,bid
,ask,qTwap,bsz,asz,width);
```

Notes:

1. This assumes you have unzipped the file to a folder on your C: drive called ExternalData. The convention for MySQL is to use the forward slash (/) as the directory separator as opposed to the backslash.
2. This assumes you have created a table in the target schema called tblStockMinuteBar_2019_06 and its columns are identical to that of the input file.
3. Ignore 1 lines is the instruction to ignore the 1st line of the data (i.e. the header line).
4. This example has explicitly laid out the columns to be imported – this specifies the "target" columns and NOT the source columns, but the order of these columns shown in this statement MUST be the order of the data in the source text file.

Concatenating Files

Should you wish to combine multiple input files into a single output text file you can achieve this with your operating systems concatenate functionality.

For example, in Windows the procedure would be:

1. Download the multiple files into a single folder (e.g. **`c:\Downloaded`**) and giving them different names
2. Create an output folder (e.g. **`c:\Output`**)
3. Once that is completed then issue the following command line command:
   `Type c:\Downloaded\*.txt >> c:\Output\MergedData.txt`

This will then create a single merged file of the multiple input files. Please note the following:

1. Make sure that the output folder exists and is EMPTY
2. Make sure you only merge together "like" data – in other words do not merge together different types of files
3. All of these files **have headers** so you should try and exclude the very 1st record of each data file if you want data only.
4. Over a period of time these files change (i.e. columns get added and/or removed). Therefore, if combining files over a period of time, you must be aware of this fact and ensure you are merging like data.

Detailed Data Explanation

Overview

This section explains in detail the columns that are available in each table. In the following tables, we show the columns that are included in these data fields and are shown in "ordinal order" i.e. the order in which the data appears in the file from left to right as indicated by the "Order" column in the following tables.

These files are all plain ASCII text files so the data types we have provided are the same as the source data type and the shown data would be compatible with that data type.

Stock Data Files – Overview

Recap the day's trading activity in the underlying security. Delisted stocks included for accuracy. Shows open and close, high/ low, volume and values data for Stocks, ETFs, and Indexes from US exchanges. There are three files that contain stock data: Closing Marks, Minute Bars, and Print Set.

Stock SR Closing Marks

Stock SR Closing Mark records are created immediately after the market close, when exchanges publish official marks. These records contain closing quotes and prices.

Order	Field	Data Type	Comment
1	ticker_at	enum('None','EQT','IDX','BND','CUR','COM','FUT','SYN','WAR','FLX','MUT','SPD','MM','MF','COIN','TOKEN')	Symbol Asset Type
2	ticker_ts	enum('None','SR','NMS','CME','ICE','CFE','CBOT','TD','NYMEX','COMEX','RUT','CBOE','ISE','ARCA','NYSE','OTC','GDAX','BSTAMP','KRAKEN','TST','USR1','USR2','USR3','NSDQ','MFQS','PHLX','MIAX','TSE')	
3	ticker_tk	varchar(12)	Asset Symbol
4	tradingDate	datetime	Trading Date
5	tradingSession	enum('None','RegularMkt','PreMkt','PostMkt','PostMktETF','NextDay')	Trading Session: ('None','RegularMkt','PreMkt','PostMkt','PostMktETF','NextDay')
6	clsMarkState	enum('None','LastPrt','SRClose','ExchClose','Final')	close mark state. None; LastPrt; SRClose; ExchClose; Final
7	opnPrc	float	open price
8	minPrc	float	Low price
9	maxPrc	float	High price
10	sharesOutstanding	int(11)	shares outstanding
11	prtCount	int(11)	print count
12	prtVolume	int(11)	print volume
13	realizedVol	float	realized vol
14	avgMktSize	float	average market size
15	avgMktWidth	float	average market width
16	bidPrc	float	bid price (close - 1min)
17	askPrc	float	ask price (close - 1min)
18	srClsPrc	float	SR close mark (close - 1min)

19	closePrc	float	official exchange closing mark (last print;then official close)
20	incEarnings	enum('None','PrevDay','Today','NextDay')	this trading period includes an earnings announcement
21	divStatus	enum('None','DivPaying','NoDividends')	('None','DivPaying','NoDividends')
22	priorDate	datetime	Prior Trading Date
23	priorTicker_tk	varchar(12)	prior period stock key (same as ticker on most days)
24	prcAdjValue	float	corp action adjustment value (0.0 on most days) currentPrice = priorPrice * factor + value
25	prcAdjRatio	float	corp action adjustment factor (1.0 on most days)
26	priorSRClsPrc	float	values archive in the previous trading period
27	priorClosePrc	float	Prior Trading Date Close Price
28	timestamp	datetime	

Data Updates/Fixes/Problems

Stock Minute Bars

Stock Minute Bar records are created once per minute for each open stock and index market. Data included in this set includes high/low values, spread data, print information, and bid/ask data.

Order	Field	Type	Comment
1	ticker_at	enum('None','EQT','IDX','BND','CUR','COM','FUT','SYN','WAR','FLX','MUT','SPD','MM','MF','COIN','TOKEN')	
2	ticker_ts	enum('None','SR','NMS','CME','ICE','CFE','CBOT','TD','NYMEX','COMEX','RUT','CBOE','ISE','ARCA','NYSE','OTC','GDAX','BSTAMP','KRAKEN','TST','USR1','USR2','USR3','NSDQ','MFQS','PHLX','MIAX','TSE','DJI')	
3	ticker_tk	varchar(12)	
4	date	datetime(6)	
5	tradingDate	date	
6	tradingSession	enum('None','RegularMkt','PreMkt','PostMkt','PostMktETF','NextDay')	
7	prtOpen	double	Open Print
8	prtHigh	double	High Print
9	prtLow	double	Low Print
10	prtLast	double	Last Print
11	prtVWap	double	VWap (print)
12	prtVolume	int	Print volume
13	prtCount	int	Print count
14	qteHiBid	double	Quote high bid
15	qteLoAsk	double	Quote low ask
16	qteTwap	double	Quote TWap
17	qteCount	int	Quote count
18	bid	double	Bid
19	ask	double	Ask
20	bidSz	int	Bid size

21	askSz	int	Ask size
22	width	float	Bid/ask spread
23	isEOB	enum('None','Yes','No')	is end-of-bar (every 10 minutes)
24	isEOH	enum('None','Yes','No')	is end-of-hour
25	timestamp	datetime(6)	same as date + time
26	securityID	bigint	

Data Updates/Fixes/Problems

Stock Print Set

Stock Print Set records are created for each print at the time of the print and updated 1Minute and 10 Minutes after to record trade performance.

Order	Field	Type	Comment
1	ticker_at	enum('None','EQT','IDX','BND','CUR','COM','FUT','SYN','WAR','FLX','MUT','SPD','MM','MF','COIN','TOKEN')	
2	ticker_ts	enum('None','SR','NMS','CME','ICE','CFE','CBOT','TD','NYMEX','COMEX','RUT','CBOE','ISE','ARCA','NYSE','OTC','GDAX','BSTAMP','KRAKEN','TST','USR1','USR2','USR3','NSDQ','MFQS','PHLX','MIAX','TSE','DJI')	
3	ticker_tk	varchar(12)	
4	timestamp	datetime(6)	
5	prtNumber	bigint	Unique print set identifier, will increment but not guaranteed to be sequential
6	tradingDate	date	
7	tradingSession	enum('None','RegularMkt','PreMkt','PostMkt','PostMktETF','NextDay')	
8	prtExch	varchar(15)	print exch
9	prtSize	int	print size
10	prtPrice	float	print price level
11	prtClusterNum	int	incremental print cluster counter (one counter per ticker; used to group prints into clusters)
12	prtClusterSize	int	cumulative size of prints in this sequence (prints @ same or more aggressive price with less than 25 ms elapsing since first print; can span exchanges)
13	prtVolume	int	cumulative print size today
14	mrkPrice	float	last regular market print price
15	prtType	tinyint unsigned	OPRA message type (from OPRA spec)
16	prtCond1	tinyint unsigned	print condition
17	prtCond2	tinyint unsigned	print condition
18	prtCond3	tinyint unsigned	print condition
19	prtCond4	tinyint unsigned	print condition
20	prtSide	enum('None','Mid','Bid','Ask')	Print side: None; Mid; Bid; Ask
21	prtTimestamp	bigint	exchange high precision timestamp (if available)
22	netTimestamp	bigint	inbound print packet PTP timestamp from SR gateway switch;usually syncronized with facility grandfather clock

23	bidPrice	float	nbbo bid @ print arrival time
24	askPrice	float	nbbo ask @ print arrival time
25	bidSize	int	nbbo best bid size
26	askSize	int	nbbo best ask size
27	bidPrice2	float	nbbo 2nd best bid @ print arrival time
28	askPrice2	float	nbbo 2nd best ask @ print arrival time
29	bidSize2	int	nbbo 2nd best bid size
30	askSize2	int	nbbo 2nd best ask size
31	prtProbability	float	probability that buying prtSize shares @ prtPrice will have positive m1 pnl (prtPriceM1 >= prtPrice) [recorded at time of print]
32	bidPriceM1	float	Bid price +1 minute
33	askPriceM1	float	Ask price +1 minute
34	prtPriceM1	float	market price +1 minute [mid-quote if not intervening prints;most recent print otherwise]
35	pnlM1	float	pnl after 1 minute
36	pnlM1Err	enum('None','Yes','No')	
37	bidPriceM10	float	Bid price +10 minutes
38	askPriceM10	float	Ask price +10 minutes
39	prtPriceM10	float	market price +10 minutes [most recent print (if any) otherwise mid-quote]
40	pnlM10	float	pnl after 10 minutes
41	pnlM10Err	enum('None','Yes','No')	
42	securityID	bigint	

Data Updates/Fixes/Problems

Notes: (put basic notes for every database)

1. In some cases, the “quote” data fields were not available. In these cases, the Bid size and Ask size will BOTH be zeroes and the “quote” fields will be identical to the “Print figures”.
2. Time is always central standard time (CST).
3. This file is always “ordered” based on the time. This means that the file physically starts at 8:30:00 am and ends at 15:00:00.

Support Files Overview

Ensure the data provided is accurate and well supported with reference data such as definitions, trading dates, volatility history, and exchange imbalance details.

SpiderRock reference data incorporates all earnings and dividends data.

This includes:

- Earning Dates
- Earnings Counts
- Earnings Forecasts
- Dividend Forecasts
- Corporate Action Price Adjustments
- Security ID

Ticker Definition Hist Map

Order	Field Name	Data Type	Comment
1	ticker_at	enum('None','EQT','IDX','BND','CUR','COM','FUT','SYN','WAR','FLX','MUT','SPD','MM','MF','COIN','TOKEN')	Asset type
2	ticker_ts	enum('None','SR','NMS','CME','ICE','CFE','CBOT','TD','NYMEX','COMEX','RUT','CBOE','ISE','ARCA','NYSE','OTC','GDAX','BSTAMP','KRAKEN','TST','USR1','USR2','USR3','NSDQ','MFQS','PHLX','MIAX','TSE','DJI')	Source
4	ticker_tk	varchar(60)	traded ticker
5	securityDesc	varchar(70)	Security Name
9	tradingDate	date	reference date
10	securityID	varchar(12)	SecurityID (EDI, global)
13	openPrice	double	Open
14	High	double	High
15	Low	double	Low
16	closePrice	float	Close (SR)
19	Currency	varchar(3)	Currency (price)

20	Volume	int	Daily Volume (SR)
22	SharesOutstanding	int	self-explanatory (SR)
23	primaryExch	varchar(6)	primary exchange (SR)
26	securityType	varchar(3)	Security Type (EDI)
28	SIC	varchar(10)	Standard Industrial Classification
29	ISIN	varchar(12)	ISIN
30	GICS	varchar(8)	Global Industry Classification Standard
31	CntryofIncorp	varchar(2)	Country of Incorporation
32	ExchgCD	varchar(6)	Exchange Code
33	ExchgCntry	varchar(2)	Exchange Country
34	BbgCompositeGlobalID	varchar(12)	Bloomberg CompositeID
35	BbgCompositeTicker	varchar(40)	Bloomberg Comp Ticker
36	BbgExchangeTicker	varchar(40)	Bloomberg Exch Ticker

37	Mic	varchar(4)	Market Id Code (EDI)
38	timestamp	datetime	last updated

Ticker History

Order	Field Name	Data Type	Comment
1	date	datetime	trade date
2	securityID	bigint	securityID (EDI)
3	dn	int	trading date cardinal (1 = '1996-01-01')
4	ticker	varchar(12)	ticker
5	open	float	
6	high	float	
7	low	float	
8	close	float	
9	closePr	double	previous close (adjusted div, splits, ...)
10	volume	int	daily traded volume
11	shares	int	shares outstanding
12	ccVar	double	Close-Close daily variance
13	hlVar	double	High-Low daily variance (High, Low including `closePr`)

14	rvVar	decimal(2,1)	N.A for now
15	earnFlag	varchar(2)	earning Date flag: '0' = is earning date, '-1/1' = before/after earning date
16	expiryCount	tinyint unsigned	number of expiries
17	hEMove	float	historical realized average earnings move
18	iEMove	float	forward implied volatility based earning move
19	atmCenI_decay	float	*** all fields here and below extracted from SurfaceFixedTermHist table (see for docs).
20	atmCenI_st	float	
21	atmCenI_lt	float	
22	atmCenI_5d	float	

23	atmCenI_21d	float	
24	atmCenI_42d	float	
25	atmCenI_63d	float	
26	atmCenI_84d	float	
27	atmCenI_105d	float	
28	atmCenI_126d	float	
29	atmCenI_189d	float	
30	atmCenI_252d	float	
31	atmCenI_378d	float	
32	atmCenI_504d	float	
33	atmCenH_st	float	
34	atmCenH_lt	float	
35	atmCenH_decay	float	
36	atmCenH_5d	float	
37	atmCenH_21d	float	
38	atmCenH_42d	float	
39	atmCenH_63d	float	
40	atmCenH_84d	float	
41	atmCenH_105d	float	
42	atmCenH_126d	float	
43	atmCenH_189d	float	
44	atmCenH_252d	float	

45	atmCenH_378d	float	
46	atmCenH_504d	float	
47	nEarnCnt	int	
48	nEarnCnt_5d	int	
49	nEarnCnt_21d	int	
50	nEarnCnt_42d	int	
51	nEarnCnt_63d	int	
52	nEarnCnt_84d	int	
53	nEarnCnt_105d	int	
54	nEarnCnt_126d	int	
55	nEarnCnt_189d	int	
56	nEarnCnt_252d	int	
57	nEarnCnt_378d	int	
58	nEarnCnt_504d	int	
59	totalReturn	double	daily return adjusted for corporate actions

Custom

Tblstockexchimbalance_ARCA

Tblstockexchimbalance_NYSE

Stock Exchange Imbalance records contain live exchange closing auction imbalance details. Imbalance information can be available from more than one exchange for each ticker. This data is available for both the NYSE and ARCA.

Order	Data Name	Description	Data Type	Comments
1	ticker_at*	Asset Type	enum	('None','EQT','IDX','BND','CUR','COM','FUT','SYN','WAR','FLX','MUT','SPD','MM','MF','COIN','TOKEN')
2	ticker_ts*	Ticker Source	enum	('None','EQT','IDX','BND','CUR','COM','FUT','SYN','WAR','FLX','MUT','SPD','MM','MF','COIN','TOKEN')
3	ticker_tk*	Underlying Ticker	varchar(12)	
4	auctionTime*	Projected Auction Time (hh:mm)	datetime	
5	auctionTime_us*	Projected US Auction Time (hh:mm)	int	
6	auctionType*	'O' – Early Opening Auction/ 'M' – Core Opening Auction / 'H' – Reopening Auction (Halt resume) / 'C' – Closing Auction	enum	('None','Open','Market','Halt','Closing','RegulatoryImbalance')
7	referencePx*	For Pillar-powered markets, the number of shares paired off at the Indicative Match Price	float	For non-NYSE markets, the Reference Price is used to calculate the Indicative Match Price.
8	pairedQty*	For Pillar-powered markets, the number of shares paired off at the Indicative Match Price	int	For NYSE, the number of shares paired off at the Reference Price.
9	totalImbalanceQty*	The total imbalance quantity at the Indicative Match Price. If the value is negative, the imbalance is on the Sell side, otherwise, the Buy side	int	
10	marketImbalanceQty*	The total market order imbalance quantity at the Indicative Match Price. If the value is negative, the imbalance is on the Sell side, otherwise, the Buy side	int	For NYSE, unused and defaulted to 0.
11	imbalanceSide*	The side of the TotalImbalanceQty	enum	('None','Buy','Sell','NoImbalance','InsufOrdsToCalc')
12	continuousBookClrPx*	For Pillar-powered markets, the price at which all interest on the book can trade, including auction and imbalance offset interest, and disregarding auction collars	float	For NYSE, the price closest to the reference price where the imbalance is 0. For regulatory imbalances, or if a continuous book clearing price is not reached, this field is defaulted to 0.
13	closingOnlyClrPx*	For Pillar-powered markets, the price at which all eligible auction-only interest would trade, subject to auction collars	float	
14	ssrFillingPx*	For Pillar-powered markets, not supported and defaulted to 0	float	For NYSE non-Regulatory imbalances, if a Sell Short Restriction is ineffect, the price at which Sell Short interest will be filed.

Order	Data Name	Description	Data Type	Comments
15	indicativeMatchPx*	The best price at which the maximum volume of shares is executable in the applicable auction, subject to Auction Collars. It includes the nondisplayed quantity of Reserve Orders	float	ForNYSE, set to 0.
16	upperCollar*	If the IndicativeMatchPrice is not strictly between the UpperCollar and the LowerCollar, special auction rules apply. See Rule 7.35P for details	float	ForNYSE, set to 0.
17	lowerCollar*	If the IndicativeMatchPrice is not strictly between the UpperCollar and the LowerCollar, special auction rules apply. See Rule 7.35P for details	float	ForNYSE, set to 0.
18	auctionStatus*	Indicates whether the auction will run	enum	('None','WillRunOpenAndClose','WillRunInterest','WillNotRunImbalance','WillNotRunClsAuction')
19	freezeStatus*	('None','Yes','No')	enum	
20	numExtensions*	Number of times the halt period has been extended.	tinyint unsigned	ForNYSE, set to 0.
21	sourceTime*	The time when this msg was generated in the order book, in seconds.	datetime	
22	sourceTime_us*	Source time	int	
23	netTimestamp*	PTP timestamp	begint	

Data Updates/Fixes/Problems

Exchange Codes

The following table identifies the exchange codes used

Code	Description
A	AMEX
B	BOX
C	CBOE
H	GMNI
I	ISE
J	MERCURY
M	MIAX
N	NYSE
Q	NASDAQ
T	NQBX
W	C2
X	PHLX
Z	BATS