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1 Cboe Silexx

Cboe Silexx OEMS (Order & Execution Management System) ("Cboe Silexx") is the premier multi-asset class, broker neutral trading platform that supports you every step of the way. Cboe Silexx is a stand-alone front-end platform easily installed and connects via internet. Its feature-rich and low latency technology supplies advanced trading analytics, real-time risk management, and global coverage.
## 2 System Requirements

To properly run Cboe Silexx, your system must meet the following minimum requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Side</th>
<th>Components</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network</strong></td>
<td></td>
<td><strong>TCP Ports</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>➢ External - 7000 &amp; 443</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>➢ Internal - 7000 &amp; 9000</td>
</tr>
</tbody>
</table>
| **Target Hosts**   |      | **Gateways: Login Address** | c-gw1-cboe.silexx.com 198.160.149.56  
c-gw2-cboe.silexx.com 198.160.149.57  
gw1-ch-cboe.silexx.com 174.136.185.21  
gw1-ny-cboe.silexx.com 198.160.149.50  
gw2-ch-cboe.silexx.com 174.136.185.22  
gw2-ny-cboe.silexx.com 198.160.149.51  
gw-ch-cboe.silexx.com 174.136.185.27  
gw-ny-cboe.silexx.com 198.160.149.53  |
|                    |      | **Update Servers: Update Address** | c-update1-cboe.silexx.com 198.160.149.56  
c-update2-cboe.silexx.com 198.160.149.57  
update1-ch-cboe.silexx.com 174.136.185.19  
update1-ny-cboe.silexx.com 198.160.149.48  
update2-ch-cboe.silexx.com 174.136.185.20  
update2-ny-cboe.silexx.com 198.160.149.49  
update-ch-cboe.silexx.com 174.136.185.28  
update-ny-cboe.silexx.com 198.160.149.52  |
|                    |      | **Subnets** | ➢ 198.160.149.0/24 (NY CERT & PROD)   
➢ 174.136.185.0/24 (CH PROD)            |
|                    |      | **Broadband Ping Times (MS rate)** | Great - 45ms  
Good - 75ms  
Bad - 100+ ms |
|                    |      | **Make** | Any modern machine                     |
|                    |      | **Display** | Any modern graphics card              |
|                    |      | **Memory** | 8GBmin preferred 16GB                 |
|                    |      | **Processor** | Intel Core i3-i7 CPU               |
|                    |      | **Operating System** | Windows 7 or higher              |
| Software           |      | **System Type** | 64bit OS                             |
|                    |      | **Developing Framework** | Microsoft. Net Framework version 4.72 |
|                    |      | **Domain/User Rules** | Local admin privileges to install only. |
3 Installation

1. To install Cboe Silexx, download the software from the following link: Silexx Install Link
2. The application does not require admin privileges.
3. Cboe Silexx must be installed in a directory to which the local user has “write” permissions.
4. If the application detects that it cannot write to the local directory, it will prompt for UAC elevation:
   a. The installation package only contains a bootstrap launcher and downloads assembly updates on demand.
   b. There is no way to tell the application to write to another folder other than the one it has been installed into.

4 Silexx Support

4.1 Contact Details

- Support Email: Silexx-Support@Cboe.com
- Support Phone: 941-870-9531
- Sales Email: Silexx-Sales@Cboe.com

4.2 CAT Support

- Cboe Silexx offers the ability to submit CAT files to Finra CAT portal on behalf of the Firm. If you are interested in beginning this service, please contact Silexx-Sales@Cboe.com.
- For existing CAT Reporting subscribers, please direct any questions to Silexx-Support@Cboe.com
5 Workspaces

Cboe Silexx allows the user to customize the workspace according to their needs. The configuration can be saved as the default workspace, as well as exported and shared. Other users can import a saved workspace instead of creating one from scratch.

A Cboe Silexx user can open an unlimited number of modules simultaneously.

- Open modules can be docked in the application tab form allowing for easy navigation across open tabs.
An individual module can also be detached from the application and viewed in a separate window.

Saved workspaces can also be accessed through the “Layout Manager” from the toolbar as shown below.

The Layout Manager allows you to quickly save a new layout as well as change the default view.
6 Cboe Silexx Modules

Cboe Silexx modules are organized into three distinct but interrelated units:

- Market
- Trade
- Firm

When starting the application, these modules can be accessed and organized via the menu bar at the top of the page.

7 Market Modules

7.1 Watchlist

The Watchlist module allows you to easily track securities. You can select for a pre-existing watchlist in the system, like the SP500 or Russell Indices, or create your own by selecting individual securities.
7.2 Charting

The Charting module conveniently visualizes the price action by plotting the historical market data of the underlying financial instrument on a graph.

- Using the toolbar, the user can customize the chart for their needs.
  - Interval—Select from multiple time intervals, e.g., Minutes, Hours or Days.
  - Chart Type—Choose from Bar, Candle, Line or Area.
  - Indicators—Apply technical studies e.g., Bollinger Bands, Stochastics, Moving Average, MACD or Parabolic SAR.
7.3 Corporate Calendar

The Corporate Calendar Module supplies details on Earnings and Dividends. Data is displayed by day for the current date through the next 30 calendar days.

The Earnings and Dividend information will also be displayed at the top of the Option Chain. Dividends will display the Ex-date, as well as the announced dividend amount. Earnings will show the date of the announcement, whether the announcement will be made before the market open (“BMO”) or after the market close (“AMC”), as well as whether the announcement has been confirmed.

7.4 Time and Sales

The Time and Sales module supplies in-depth trade data on an instrument level. The data includes records on price, volume, and quotes on every transaction throughout the day for the selected instrument.
NOTE: The user will need to move the slider to the left to capture the pre-market / GTH trading.

Using the selection buttons at the top, the user can select from Trades or Trades & Quotes as well as selecting whether to view data for the Underlying Security, or the Option.

Option Trades can be further filtered for all Options or a specific strike.
7.5 Option Chain

The Option Chain module allows you to view underlying securities options in a highly customizable manner.

This module provides the following:

- Direct view of the underlying symbol’s market
- An overview of the listed expiration dates, that can be selected/deselected to focus on a specific date-range
- Precise control over the number of strikes shown (ATM + ‘X’ or All)
- Easy right-click access to pre-defined strategy orders
- Configurable column position, visibility, and colors. This and all other module’s settings are accessible by clicking on the gear icon in the top, right-hand corner.
7.6 Complex Order Book

The Complex Order Book (“COB”) displays all multi-legged orders resting on Cboe Options Exchange (“C1”). Additional data is available including; synthetic BBO, theo, delta...Pulling data from "C1" and “COB” serves as a repository of available pre-built complex option order strategies, e.g., spreads, straddles, strangles, etc. The module is fully customizable to the user’s needs through various filtering techniques. This and all other module’s settings are accessible by clicking on the gear icon in the top, right-hand corner.

Buttons provide quick one-click filtering, as well as showing total strategies grouped by type (Condor, etc.).

Header columns are designed to provide easy custom filtering.
7.7 FLEX Notices

The FLEX Notice’s module provides a scrolling feed of OCC FLEX Notices that are distributed via OPRA (Options Price Reporting Authority) admin messages.

7.8 VSA Viewer

The Volatility Settlement Application (“VSA”) Viewer is only accessible on VIX (Volatility Index) Settlement dates, between 8:30 a.m. ET – shortly after 9:30 a.m. ET.
The SQQ (Settlement Opening Quote) status is shown in the top right, including expected strike range.
7.9 Corporate Fundamentals

The Corporate Fundamentals module pulls in fundamental data via Cboe DataShop’s All Access API. Data includes business summaries, market cap, etc., for the selected security.
The News module allows the user to view headlines for individual symbols or the market by selecting from the drop-down.
8 Trade Modules

8.1 Order Manager

The Cboe Silexx Order Manager allows traders to review and interact with order flow that has occurred for the selected trading account, or group of trading accounts that are available to the user. As shown below, the functionality includes but is not limited to:

- Sort, filter, and expand trades to view details.
- Review and manage incoming Staged and P2P orders.
- Interact directly with an order and work the order via the convenient right-click menu options.
- Duplicate or Contra an order that has already been worked and resend it again.
- Search orders and email order history directly from the Order Manager.
- Export orders and update CAT information.

8.2 Order History

The Order History module allows the user to see the previous orders in the selected account, for the selected date. All the user’s history (back to initial account creation) is available. As shown below, orders and order details can be filtered by:

- Account
8.3 Trade Confirms

The Trade Confirm module allows the user to view execution information for orders in the selected account(s) and can be filtered by:

- Trading Firm
- Account(s)
- Date or Date Range (All the user’s history back to initial account creation is available.)
Additional filtering on an extensive list of trade confirm fields can be achieved from the Filter button on the toolbar in the upper right. (Appendix D). This and all other module’s settings are accessible by clicking on the gear icon in the top, right-hand corner.

- The user can display the Average Price of multiple fills in the same security, by highlighting the chosen fills, right-clicking and selecting ‘Average Price Summary’ from the pop-up menu.

### 8.4 Portfolio

The Portfolio module allows the user to view the current holdings in the selected account(s). P&L, Avg Cost, Market Value, and Greeks are just some of the long lists of fields that are provided.
The Portfolio Module allows for the creation of Orders in the Basket Trader directly from the module, by selecting one or more positions, right-clicking and selecting ‘Open in Basket Trader’ from the pop-up menu.
Positions in the Portfolio Module can be grouped by clicking on the icon in the upper right and select Group by. The possible grouping options are:

- Account
- Underlying
- Account & Underlying
- Expiration
- Expiration & Underlying
- Underlying & Expiration

8.5 OCC TIMS

The Theoretical Intermarket Margining System, “TIMS”, is a portfolio margining system specifically developed to handle mixed portfolios holding products like security futures, stocks, stock options, and broad-based stock index futures etc.

The system begins by organizing all securities contracts relating to the same underlying asset into “class groups”. For the underlying assets of two or more class groups that exhibit close price correlation are further organized into a larger “Product Groups.”
The daily margin requirement for class group or a product group has four components:

- *Futures Spread Margin*
- *Mark to Market Margin*
- *Premium Margin*
- *Additional Margin*

Detail calculations of the above four component is available here: [https://www.lseg.com/sites/default/files/content/documents/3.01.01.02%2520Tims%2520Manual%5B1%5D.pdf](https://www.lseg.com/sites/default/files/content/documents/3.01.01.02%2520Tims%2520Manual%5B1%5D.pdf)

SILEXX’s OCC TIMS (Theoretical Intermarket Margining System) is a new module for core clients that needs to be enabled through Support desk. The module doesn’t run these calculations but sources the margin data from Hanweck for our users to be able to access quickly than going to OCC’s Portfolio Margin Calculator platform.

Once enabled, the OCC TIMS module can the accessed through the Trade dropdown on Menu bar as “OCC TIMS”
User can select “Accounts” in the drop down to view further details in one of modes: Prior Settlement or Real Time.

**Prior Settlement:** Calculates margin based on account’s holdings and settlement prices at the close of the previous day session

**Real Time:** Includes the prior settlement holdings and the day’s trading activity

*This document will go over the data in Real Time mode*

Once the accounts are selected on the main page, the base grid of the module shows a comprehensive view of the Margin Requirements, Net Asset Value (NAV), Long Market Value (LMV), Short Market Value (SMV) along with Product Group, Class Group and total Position count. User can double click on their accounts from base grid to open new tab and expand further on their margin product data:
The expanded view also shows the comprehensive information o=from previous tab on the top next to the account name.
The following grid breaks down ‘Product Group” with each groups Margin requirements, NAV, LMV, SMV, Haircut and Haircut Min.
Haircut Min value becomes a required minimum margin if the risk margin component of a particular product group is less than a calculated minimum margin for that product group.

On double clicking each product user can get their class and position margin data:

The further the user drives into the product and class groups the more granular the information of the margin requirements. The Class group level provides details on how the required margin as the underlying security moves. This information is reflected in the columns with DNS thru UPS.

The data auto refreshes every thirty seconds. User can also add simulated position and track how will that affect their margin.
User can add position option is available on every grid by either right clicking on an existing position or clicking the ‘+’ icon from the toolbar:
Margin data for simulated positions are highlighted in purple:
8.6 Position Analyzer

The Position Analyzer offers graphical representation of positions, P&L, and Greeks. This feature-rich module includes the ability to affect underlying price, evaluation date, and to add simulated positions.

The Position Analyzer can be accessed via the Trade Menu.

- After selecting the account and underlying symbol, the following analysis factors can be chosen from the dropdown:
  - Profit/Loss
  - Delta
  - Gamma
  - Vega
  - Theta
  - Rho

- The future price of the underlying symbol that will be used in the calculations is entered next in the Price field.
- The Date to be used in the analysis is entered.

The output will be available visually in the graph, while tabular data can be viewed below.

8.7 Basket Trader

The Cboe Silexx Basket Trader allows the user to build and save trading lists, which are simply lists of orders (Baskets) that the user can compile, edit, and save. Both single and multi-leg orders are supported in the Basket Trader Module. The user can send the orders in full (entire basket) or selectively (partial basket) with ease.
The top of the window displays the Status and details of the individual orders in the basket.
The bottom of the window shows details of the highlighted order above.
This and all other module’s settings are accessible by clicking on the gear icon in the top, right-hand corner.

To load a basket of orders, click the **Load** button in the upper left, and using the **Choose File** button, find and upload the .csv file with the basket of orders. A sample .csv file can be downloaded by clicking the link.

8.8 **Order Ticket**

The Cboe Silexx Order Ticket allows the user to interact with the market and send single leg Option, Equity, and Future Orders.

- Level 1 (NBBO (National Best Bid and Offer)) data is displayed at the top of the ticket for the
chosen security.

- Level 2 (Regional BBO) data is displayed in the main window.
- The bottom of the ticket allows the user to input order specifics, i.e., Account, Route, Order Type, Qty, Price, and TIF.
8.9 Multi Order Ticket

The Cboe Silexx Multi Order Ticket allows the user to send single-leg, multi-leg, stock tied options, and Futures orders.

- Level 1 (NBBO) data is displayed at the top of the ticket for the chosen security.
- Level 2 (Regional BBO) data is displayed in the optional Quote Panel (can be opened at the bottom or right side of the ticket via the Settings panel).
- Individual legs/leg details can be added in the Leg Information panel.
- The Order Details panel allows the user to input order specifics, i.e., Account, Route, Order Type, Qty, Price, and TIF.
- When deriving and order, the Parent Order ID will be displayed at the top of the ticket.
8.10  Quick Trade Ticket
As its name suggests, the Quick Trade Ticket allows the user to quickly enter single-leg and multi-leg options orders. Frequently used tickers, trading accounts, and routes can be pre-programmed into the ticket’s buttons via the Settings menu. This and all other module’s settings are accessible by clicking on the gear icon in the top, right-hand corner.
8.11 FLEX Order Ticket

Cboe Silexx provides direct market access to trade FLEX options on Cboe. Cboe Silexx FLEX functionality supports all Cboe Options Exchange features which include the following:

- Single and multi-legged orders
- 100 legs supported
- Fully electronic order handling
  - Single-sided auctions
  - Crossing auctions
    - Automated Improvement Mechanism
    - Solicitation Auction Mechanism
- Manual order handling
  - Route to a Cboe Floor Broker using Silexx
  - Route to a PAR (Public Automated Routing) workstation for open outcry execution
- Spreadsheets import for efficiency
- Risk Administrator defined and managed risk controls

There are two editable fields – Order Type and Underlying. The Order Type has three options (refer to the Cboe US Options Auction Process for more information): FLEX, AIM, and SAM. The Underlying field is where users can input their symbol. Once the underlying symbol is provided, the other fields in the ticket become editable.
Once fields are completed, users can add Leg Information. Users can add up to 100 legs in one of two ways:

1. Legs can be added one at a time by clicking on the Add Leg button at the bottom of the Leg Information window.
2. Legs can be imported using the Import File option at the top left of the Leg Information window. Once Import File is selected, a new window will pop-up to download a “sample CSV template” and “Choose File” to import a completed template. Reference file spec.

8.12 Post Trade Allocations
The Post Trade Allocation tool allows for the user to allocate trades amongst 1 or more additional accounts. Before creating an allocation, the user must identify the Trading Account and Inventory Account(s). A Trading Account is an account from which the fills will be allocated. The Trading Account(s) will need to be enabled for ‘Enable Allocation Tracking’. This can be requested from Silexx Support.

1. Average Price Trade – An average price trade is the sum of quantity of all trades within the same symbol, side (including side and OpenOrClose). The average price is calculated from all trades that make up the average price trade. By default, there is always one average price trade for each symbol/side traded. The top grid shows all the average price trades for the selected trading account. Expand an average price trade to show all the trades making up the average price trade.
A custom average price trade can be created by selecting a subset of trades with a symbol/side and creating a new average price trade, then clicking on the ‘Create Average Price Trade’ button.

The bottom grid shows all the allocations that are allocated from the selected average price trade.

2. Allocate
   a. Single Allocate – allocate one average price trade by clicking on the icon in the SINGLE ALLOCATE field to allocate on the underlying average price trade.

Single allocate supports for allocating on a total quantity or percent basis
b. Mass Allocate – allocate on more than one average price trade using the same allocation instructions.

Select one or more average price trades by checking the MASS ALLOCATE field and click on the Allocate button.
User can save the allocation instructions into a template. The user can also save a template as the default one, that is automatically loaded.

c. **Import Allocations** – Import allocations from a file by clicking on the ‘Import Allocations’ button to bring up the Import Allocations dialog.

The user can download a sample file by clicking on the ‘sample CSV template’ link. The user should prepare the file to import according to the template. Click on the ‘Select File’ button to select a file, and the grid shows all the records loaded.
If a field value is invalid, then it is displayed in red, and the status of the record is ‘Invalid’. The user can correct the data and re-import the file.

### Allocations – the bottom grid shows the allocations for the selected average price trade.

#### Removing Allocations

- a. Remove individual allocations by clicking on the Cancel (X) button in the allocation grid.
- b. Remove all allocations by clicking on the ‘Revert Allocations’ button.
8.13 Fill Notifications

The Fill Notifications module displays execution information for the user(s). The window can be configured to popup or be brought to the front of the screen upon receipt of a new execution by accessing the Notifications menu under File > Settings.

This module’s settings are available by clicking on the ‘gear’ icon in the top, right-hand corner.

8.14 Order Notifications

The Order Notifications module displays order information for the user when a Peer-to-Peer (“P2P”) order is received. The window can be configured to popup or be brought to the front of the screen upon receipt of a P2P order. Using the settings panel in the upper right corner of the module, the user can choose which account to auto-accept orders from. Preferences can be configured via the Notification menu accessed by clicking File > Settings.
9 Firm Modules

A trading firm can appoint one or more users to be permissioned as the Firm Admin. The Firm Admin can update settings for Users and trading accounts associated with the trading firm. This is carried out by accessing the Firm tab on the menu bar.

The following is a list of functions the Firm Admin can perform:

- Make updates to the Trading Firm
- Update a User’s Status
- Lockout a User
- Update User Risk Override Settings
- Configure Order limits
- Assign Trading Accounts to Users
- Update a User’s password
- Add/assign trading accounts
- Configure trading accounts
- Add/configure route assignments
- Manager restricted security lists
- Run Audit and Risk Override reports
9.1 Manage Firms

The Manage Firms module allows the Firm Admin to:

- Add/Update Bcc on Emails
- Add/Update Firm level Risk Settings

9.2 Manage Users

The Manage Users module allows the Firm Admin to:

- Add/Update User Status
- Add/Update Risk Settings
- CAT Reporter Details
- Add/Remove Trading Accounts
- Set a new password for the User
9.3 **Manage Accounts**

The Manage Account module allows the Firm Admin to:

- Add/Clone a Trading Account
- Edit a Trading Account
- Add/Remove Users to the Trading Account
- Add/remove Routing Session Groups to the Trading Account
9.4 Restricted List

Restricted List module allows the Firm Admin(s) to establish and manage a list of symbols that are restricted from trading by the firm.

![Restricted List module](image)

Use "+" to add single ticker for one firm at a time OR use the "Upload Arrow" to paste multiple tickers to add to a firm simultaneously.

![Upload Restricted Securities](image)

Select Security Type and Firm. "Ctrl+V" or use paste icon to paste all copied tickers and hit save at bottom.

9.5 Report Center

The Report Center module allows the Firm Admin to extract two types of reports related to account changes made by users – Risk Overrides and Audit Report. These reports can be selected by Trading Firm and Trade Date.
- Risk Override Report – provides detailed instances when a Firm’s user(s) have breached their risk limits and if permissioned, have selected the option to override.
- Audit Report – provides details related to account level edits made on behalf of a firm’s admin user(s).
10 Appendix A - General Settings

The Settings module can be opened by clicking File -> Settings on the Menu bar.
10.1 Order Defaults

Order defaults provides for the creation of default configurations for entering orders. The rules to be matched to are entered in the upper box. When an order is entered that meets the matching rules, the defaults in the lower box will be applied to the order.

Matching Rules are where the user can select the field values that the Order Defaults will Match on.

An order that matches the rules above will have the defaults from the lower box applied to it.
10.2 Tickets

Various ticket defaults can be activated/deactivated using the radio buttons/drop downs.
10.3 Order Defaults

Order defaults provides for the creation of default configurations for entering orders. The rules to be matched to are entered in the upper box. When an order is entered that meets the matching rules, the defaults in the lower box will be applied to the order.
10.4 Account Defaults

Trading Accounts can be configured with default values, i.e., G/U, EFID, CMTA, Range, Client ID, CAT Reporting details, etc. Once these lists are built and saved, the user can default to these values in Account Defaults.

10.5 Frequent Traders

Click the green ‘+’ sign to add Traders that the user will interact with frequently.
10.6 Manage Client IDs

Click the green '+' sign to add Client Id.

10.7 Manage Emails

Click the green '+' sign to add an Email.

10.8 Manage Billing Codes

Click to add and maintain a list of Billing Codes that will be available for order entry.
10.9 Notifications

Fill Notifications Settings allow the user to configure if popups are displayed for executions.

P2P Notifications can be configured here. Popups can be enabled as well as Auto-accept on an account basis.
10.10 Colors
Customization of the color schemes can be configured here.

10.11 Sounds
Customization of the Sounds used in notifications can be configured here.
11 Appendix B - Symbol Reference Guide

The Watchlist module has an improved Symbol Chooser that provides a better search experience. The Symbol Chooser is launched by clicking on the ‘+’ sign in the upper left of the Watchlist Module.

Begin by typing the symbol or description. Securities are listed in the following order:

- The securities whose symbol exactly match the search text.
- The securities whose symbol starts with the search text.
- The securities whose description contains the search text.

When Enter key is pressed:

- If there are selected securities, then the selected securities are added
- If there are not selected securities
  o If there is only one security in the list, then it is added.
  o If there is more than one security in the list, then
    - If there is a security symbol that exactly matches the input, then it is added.
    - If there is not an exact match security and the input is a valid symbol, then no security is added
- If the list is empty and the input is a valid symbol, then it is added.
11.1 Cash Settled indices

Cboe Silexx OEMS Symbol = $+Index Symbol

<table>
<thead>
<tr>
<th>Examples of Common Indices</th>
</tr>
</thead>
<tbody>
<tr>
<td>$SPX</td>
</tr>
<tr>
<td>$VIX</td>
</tr>
<tr>
<td>$DJI</td>
</tr>
<tr>
<td>$DJX</td>
</tr>
<tr>
<td>$NDX</td>
</tr>
<tr>
<td>$OEX</td>
</tr>
<tr>
<td>$RUT</td>
</tr>
</tbody>
</table>

11.2 Futures

Cboe Silexx OEMS Symbol = Symbol+/+MonthCode+YearCode

Example: VX/M21 = Cboe Volatility Index June 2021

<table>
<thead>
<tr>
<th>Code</th>
<th>Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>January</td>
</tr>
<tr>
<td>G</td>
<td>February</td>
</tr>
<tr>
<td>H</td>
<td>March</td>
</tr>
<tr>
<td>J</td>
<td>April</td>
</tr>
<tr>
<td>K</td>
<td>May</td>
</tr>
<tr>
<td>M</td>
<td>June</td>
</tr>
<tr>
<td>N</td>
<td>July</td>
</tr>
<tr>
<td>Q</td>
<td>August</td>
</tr>
<tr>
<td>U</td>
<td>September</td>
</tr>
<tr>
<td>V</td>
<td>October</td>
</tr>
<tr>
<td>X</td>
<td>November</td>
</tr>
<tr>
<td>Z</td>
<td>December</td>
</tr>
</tbody>
</table>

11.3 Equities

Cboe Silexx OEMS Symbol = Symbol+Suffix

<table>
<thead>
<tr>
<th>Issue</th>
<th>Suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class “A”</td>
<td>.A</td>
</tr>
<tr>
<td>Class “B”</td>
<td>.B</td>
</tr>
</tbody>
</table>
12 Appendix C – Order Entry

12.1 FLEX Order Entry:

Overview

Cboe Silexx (“Silexx”) provides direct market access to trade FLEX options on Cboe. And FLEX functionality is free on the Cboe Silexx front-end platform. Silexx FLEX functionality supports all Cboe Options Exchange features including:

- Single and multi-legged orders
- 100 legs supported
- Fully electronic order handling
  - Single-sided auctions
  - Crossing auctions
    - Automated Improvement Mechanism
    - Solicitation Auction Mechanism
- Manual order handling
  - Route to a Cboe Floor Broker using Silexx
  - Route to a PAR workstation for open outcry execution
- Spreadsheets import for efficiency
- Risk Administrator defined and managed risk controls

There are three ways to open a FLEX ticket within Cboe Silexx: 1) selecting FLEX Order Ticket under Trade when a user opens Silexx; 2) selecting FLEX Order Ticket under the Trade tab at the top of the screen; or 3) selecting the FLEX Option button at the top of the screen.
This is the FLEX Ticket within Silexx. There are two editable fields – Order Type and Underlying. The Order Type has three options (refer to the Cboe US Options Auction Process for more information): FLEX, AIM, and SAM. The Underlying field is where users can input their symbol. Once the underlying symbol is provided, the other fields in the ticket become editable.
**Regular FLEX Option Order**

12.1.1

Using SPX as an example underlying, now other fields have been enabled: Price Type, Route, Pre-Facil Price, Settlement, Expiration, Product Type, Creation Date, Observation Date, CAP (Certified Analytics Professional) %, Strategy ID, and Hedge Information. This is where the user can customize the FLEX order to specify key contract terms, including exercise prices, exercise styles, and expirations, on major stock indexes as well as individual equities.
Once fields are completed, now users can add Leg Information. Users can add up to 100 legs and can do so in one of two ways:

1. Legs can be added one at a time by clicking on the + Add Leg at the bottom of the Leg Information window.
2. Legs can be imported using the Import File option at the top left of the Leg Information window.
3. Once Import File is selected, a new window will pop-up to download a “sample CSV template” and “Choose File” to import a completed template.

Fields highlighted in red will need to be completed to submit the order. When a leg is added, the user can update the Side, Type, Expiration, Strike, O/C, AM/PM, Ration, Quantity, and Price. If a leg is added using the + Add Leg, you will notice the Strick and Price fields are highlighted in red (because both need to be greater than 0). The user can hover over the red field and a description of the required action is provided.

Once the leg(s) is in the ticket, the user must now complete the Clearing Details window. Users can select the Account, Give-Up, CMTA, Range, Freq Trader ID, Optional Data, Client ID, and the Auction Timer. These fields can be set up and defaulted at onboarding.
Once the Clearing Details are provided and there are no other fields in red, the user can now Submit the order by clicking Submit at the bottom right.

Once the user selects Submit, a Confirm Order window will appear to the user. Once the user clicks Send, the order is routed to the C1 Matching Engine.
12.1.2 AIM Flex Option Order

This is the ticket for an AIM FLEX Option order ticket. A key change from the regular ticket is the addition of a Contra Matching drop down at the bottom of the Leg Information window. This dropdown will dictate the aggressiveness of participation of the contra parties. There are three options (refer to the Cboe US Options Auction Process for more information): Default Matching, Auto-Match LMT, and Last Priority.

Once the legs are in the ticket, the Contra Matching option is selected, and the Agency account information is selected, the user must add the contra parties. There can be up to 10 contra parties for each ticket. Fields for each Contra Party are the same as the Agency account fields, with the addition of a Quantity field. This Quantity will dictate the allocation of the quantity of the legs.
Once the Quantity has been allocated amongst contra parties and there are no other red fields, the Submit button will become enabled in the bottom right.

A pop-up window will appear to confirm the order, including the allocation of the contra parties. Once the user clicks Send, the order is routed to the C1 Matching Engine.
12.1.3 SAM Flex Option Order

This is the ticket for a SAM FLEX Option order ticket. SAM is like the AIM auction strategy, but the contra party’s allocation is considered “all-or-none” (refer to the Cboe US Options Auction Process for more information), therefore there is no Contra Matching option.
**12. DAC Flex Option Order**

DAC orders are limit orders for FLEX options that execute intraday and receive a delta-adjusted price based on that day’s official closing price of the underlying security or index value. Both simple and complex FLEX DAC orders are supported.
12.2 Crossing Orders

The Cboe Options Crossing Guide is available here.

12.2.1 Qualified Contingent Cross ("QCC") Orders

A qualified contingent cross (QCC) is a type of block trade facility. The orders are multi-leg trades that involve both stocks and options. The QCC allows institutional brokers to cross these orders electronically without exposing them to the market. The order must be priced at or better than the best bid or offer.

A FLEX Option can be created as well, and the order can be entered as a QCC with all the appropriate fields for FLEX order entry.

The requirements for this order type are:

1. The quantity must be 1,000 minimum.
2. Must be at or within the NBBO and must improve customer order on Cboe Book.
3. Must be fully hedged with stock, either included in the order, or traded separately.
   a. If trading the stock leg separately, details of the transaction are required in the EqTrade Details box
b. The **Trade Venue** must be populated with a value from the list below:

A = NYSE American
B = NASDAQ BX
C = NYSE National
I = Investors Exchange
H = MIAX Pearl
J = EDGA
K = EDGX
L = Long Term Stock Exchange
M = CHX
N = NYSE
P = NYSE Arca
Q = NASDAQ
U = MEMX
X = NASDAQ PSX
Y = BYX
Z = BZX

### 12.3 Trading Sessions

**GTH (Global Trading Hours)** + - means orders participate in GTH, RTH (Regular Trading Hours) and Curb

**RTH** - means orders participate in RTH only

**RTH+** - means orders participate in RTH and Curb
13 Appendix D - Risk Settings

All Silexx users can view their limits, however only designated firm Risk Administrators, entitled by Silexx Support, can edit limits set on Users and Accounts. Silexx Support can set Risk Settings on the backend as default for all FIRM users as part of Cboe Silexx firm setup procedure. Note these Risk Settings are subject to change without official notice. Updates to Risk Settings are instantaneous; logout/login is not required.

13.1 Risk Settings Accessible on Silexx OEMS

Warning Limits are considered “warnings” that users can click through, while Max Limits are “hard rejects” users cannot breach unless the designated firm Risk Administrator allows the user to override. Warnings and hard rejects can be set at both Account and User levels. Firm level settings result in hard rejects. Designated firm Risk Administrators determine if a user has the right to override hard rejects with the Allow Risk Override risk setting.

<table>
<thead>
<tr>
<th>Risk Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Quantity Per Order (Order Qty)</td>
<td>Maximum quantity per order</td>
</tr>
<tr>
<td></td>
<td>Formula(s): Qty. &gt; Limit</td>
</tr>
<tr>
<td></td>
<td>• Options: Quantity</td>
</tr>
<tr>
<td></td>
<td>• Complex: Largest of total option buy leg qty OR total option sell leg qty</td>
</tr>
<tr>
<td>Max Notional(^2) Per Order (Order Notional)</td>
<td>Maximum $ amount per order.</td>
</tr>
<tr>
<td></td>
<td>Formula(s): Notional &gt; Limit</td>
</tr>
<tr>
<td></td>
<td>• Options: Qty * contract size * price</td>
</tr>
<tr>
<td></td>
<td>• Complex-option only: (Sum ([Buy side leg] Qty * Price (leg offer quote) * contract size)) - (Sum ([Sell side leg] Qty * Price (leg bid quote) * contract size))</td>
</tr>
<tr>
<td>Max Net Quantity – Day (Net Qty Day)</td>
<td>The net quantity of buys and sells for an entire trading day.</td>
</tr>
<tr>
<td></td>
<td>Formula(s): Abs (Daily Buy Qty. – Daily Sell Qty.) &gt; Limit</td>
</tr>
<tr>
<td></td>
<td>• Options: Buy option qty + net option qty OR net option qty - sell option qty. (daily qty bought + outstanding buy leaves) - (daily qty sold + outstanding sell leaves)</td>
</tr>
<tr>
<td></td>
<td>• Complex: Net option qty + total option buy leg qty - total option sell leg qty</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Max Gross Quantity – Day</td>
<td>The aggregate quantity of buys and sells for an entire trading day.</td>
</tr>
<tr>
<td>(Gross Qty Day)</td>
<td><em>Formula(s):</em> Daily Buy Qty. + Daily Sell Qty. &gt; Limit</td>
</tr>
<tr>
<td></td>
<td>• Gross Option = (daily qty bought + outstanding buy leaves) +</td>
</tr>
<tr>
<td></td>
<td>(daily qty sold + outstanding sell leaves)</td>
</tr>
<tr>
<td></td>
<td>• <strong>Options:</strong> Qty + gross option qty</td>
</tr>
<tr>
<td></td>
<td>• <strong>Complex:</strong> Total buy leg qty + total sell leg qty + gross option qty</td>
</tr>
<tr>
<td>Max Gross Notional – Day</td>
<td>The aggregate value of buys and sells for an entire trading day.</td>
</tr>
<tr>
<td>(Gross Notional Day)</td>
<td><em>Formula(s):</em> Daily Buy Notional + Daily Sell Notional &gt; Limit</td>
</tr>
<tr>
<td></td>
<td>• (Order qty * limit price * contract size) + gross option value</td>
</tr>
<tr>
<td></td>
<td>• Gross Option Value = ((options bought * fill price * contract size) +</td>
</tr>
<tr>
<td></td>
<td>(buy lvs * limit price * contract size)) + ((options sold * fill price *</td>
</tr>
<tr>
<td></td>
<td>contract size) + (sell lvs * limit price * contract size))</td>
</tr>
<tr>
<td></td>
<td>• <strong>Complex</strong> is based on sum of all legs + gross option value</td>
</tr>
<tr>
<td>Net Position</td>
<td>The maximum allowed position</td>
</tr>
<tr>
<td>Allow Market Order</td>
<td>Market orders will be rejected if this is not enabled</td>
</tr>
<tr>
<td>Allow Cancel Order</td>
<td>Allows orders to be cancelled</td>
</tr>
<tr>
<td>Allow GTC Order</td>
<td>Allows Good-Until-Cancelled orders</td>
</tr>
<tr>
<td>Allow Order Modify</td>
<td>Allows for Order Modifications</td>
</tr>
<tr>
<td>Allow Staged Child Orders</td>
<td>Allows intermediate staged child orders (a large block of shares that can</td>
</tr>
<tr>
<td></td>
<td>be sliced by dividing it into smaller lots in execution of a transaction).</td>
</tr>
<tr>
<td>Max Loss</td>
<td>The trigger amount for Max Loss Action</td>
</tr>
<tr>
<td>Max Loss Action</td>
<td>Action taken when Max Loss is breached</td>
</tr>
<tr>
<td>Allow Sell to Open</td>
<td>Allows user to Sell Options to open a position</td>
</tr>
<tr>
<td>Process Option Open/Close</td>
<td>Process Option Open/Close as entered</td>
</tr>
<tr>
<td>Allow Long Sale</td>
<td>There is no long position required to sell if this is enabled</td>
</tr>
<tr>
<td>Check Open Orders for Allow</td>
<td>Include open buy orders as long volume when allowing Sell Short.</td>
</tr>
<tr>
<td>EqOrderLongSale</td>
<td></td>
</tr>
<tr>
<td>Exempt from Hard-to-Borrow⁴</td>
<td>When enabled, there is no restriction to Sell Short</td>
</tr>
</tbody>
</table>

¹ Designated firm Risk Administrators can permission individual traders to override the maximum limit, which typically disallows orders past a certain amount. This breach is only available to users with Allow Risk Override enabled, allowing these users to click through this alert. Reports are available showing overridden orders.

² Notional: Refers to the total $ amount bought and sold. Notional price is checked on a market order using Bid/Ask.

³ Gross: Refers to the total amount of shares/contracts bought and sold.

⁴ Hard to Borrow: List of stocks that are difficult to borrow for short sale transactions, provided by the broker and/or clearing firms.
13.2 Process to Edit User / Account Risk Settings

Update User/Account Risk Settings:

- Select the Manage Users (or Manage Accounts) under Firm in the main Cboe Silexx window.

- Right-click on the user/account and click Edit.

- Adjust risk parameters in the Settings tab.
- Click **Save**.
Appendix E - P&L

The Cboe Silexx OEMS provides five methods of calculated Profit & Loss ("P&L").

<table>
<thead>
<tr>
<th>Heading</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P&amp;L Day</td>
<td>Based on the current position from the Previous Close to the Mark (for options this is the BidxAsk average/midpoint.)</td>
</tr>
<tr>
<td></td>
<td>(Mark - Prev Close) * Opening Qty * Contract Size - Trading P&amp;L</td>
</tr>
<tr>
<td>Trading P&amp;L</td>
<td>Based on intra-day activity.</td>
</tr>
<tr>
<td></td>
<td>(Mark - Trading Avg $) * Trading Qty * Contract Size</td>
</tr>
<tr>
<td>Realized P&amp;L</td>
<td>Based on Positions that have been closed.</td>
</tr>
<tr>
<td></td>
<td>(Trading Avg Cost - Cost Basis) * Trading Qty * Contract Size</td>
</tr>
<tr>
<td>Unrealized P&amp;L</td>
<td>Based on current positions that have yet to be closed.</td>
</tr>
<tr>
<td></td>
<td>(Mark - Cost Basis) * (Current) Qty * Contract Size</td>
</tr>
<tr>
<td>P&amp;L Net</td>
<td>Based on Realized P&amp;L plus Unrealized P&amp;L.</td>
</tr>
<tr>
<td></td>
<td>Realized + Unrealized</td>
</tr>
</tbody>
</table>

Regarding the Mark

Before the market opens, Options are calculated at the BidxAsk average/midpoint. This price is available in the PrevClose Column.

The PrevClose column is populated by Silexx by taking an Average of the Bid and Ask Prices from the Pico (Spryware) Data feed from the Previous Day.

On competitor’s systems the Previous Close is often stored from the Last Day that the Option traded; making Silexx P&L Day much more accurate Day to Day.
For **Equities**, the calculation is from the **Last** Column, which is the last trade as reported by the Exchange; pre-open this same price is also available in the **PrevClose** Column.

### A Note Regarding Equities Before the Market Open

P&L for Equities are calculated from the **Last Trade** from the **Prev Close**.

### 14.1 Calculations

**Simple**

P&L Net is calculated using the position cost basis and the current mark.

P&L Day is calculated using the previous day close and the current mark.

**Trading AvgCost vs. Cost Basis**

Trading Average Cost calculates using all transactions throughout the trading day and returns an average value based on that activity. It does not consider realized P&L from closing positions.

Cost Basis calculates the running cost basis for the position in a FIFO (first in, first out) style accounting. Where traders may have sold x number of shares to open, bought some back to close, then sold more to open. The Cost Basis diverges from the TradingAvgCost because of the Realized P&L that was introduced when traders bought the shares back. This removes x shares from Cost Basis calculation which remain in the TradingAvgCost calculation.
The **Price used in the following formulas changes based on the security type.**

For options, the mark is used, calculated from the average of the bid and ask.

For equities, the last price is used.

If Marked Cost is set, it is used in place of the Previous Close.

Previous Close is calculated differently for international products, involving thorough custom logic to achieve an accurate result.

The following formulas are simplified forms of code logic.

### 14.2 Realized P&L

\[(\text{Trading Sell Quantity} \times \text{Trading Sell Avg} – \text{Trading Buy Quantity} \times \text{Trading Buy Avg}) \times \text{Lot Size}\]

### 14.3 Unrealized P&L

\[(\text{Price} – \text{Cost Basis}) \times \text{Qty} \times \text{Lot Size}\]

### 14.4 P&L Day

\[\left(\left(\text{NetQty} \times \text{MarketPrice}\right) – \left(\text{OpeningQty} \times (\text{MarkedCost} == 0? \text{Security.Trade.PrevClose} : \text{MarkedCost})\right) – \left(\text{TradingBuyAvgPrice} \times \text{TradingBuyQty} – \text{TradingSellAvgPrice} \times \text{TradingSellQty}\right)\right) \times \text{Security.Multiplier}\]

### 14.5 Trading P&L

\[\left(\left(\text{Trading Buy Quantity} – \text{Trading Sell Quantity}\right) \times \text{Price} – \left(\text{Trading Buy Average Price} \times \text{Trading Buy Quantity} – \text{Trading Sell Average Price} \times \text{Trading Sell Quantity}\right)\right) \times \text{Lot Size}\]

### 14.6 P&L Net

Realized P&L + Unrealized P&L

**Additional Information**

Trading Average Cost is calculated throughout the day from all transactions.

Cost Basis calculates running cost with first in, first out accounting.

The two differ when positions are opened and closed throughout the day.

*Cost Basis keeps track of the current quantity.

*Trading Average Cost accounts for all transactions.
## Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td></td>
<td>Initial draft version.</td>
</tr>
<tr>
<td>1.0</td>
<td></td>
<td>Release 1.0 distributed.</td>
</tr>
<tr>
<td>1.0.1</td>
<td>11/02/2021</td>
<td>Final release for distribution</td>
</tr>
<tr>
<td>1.0.2</td>
<td>1/14/2022</td>
<td>Added P&amp;L and Trading Session data</td>
</tr>
<tr>
<td>1.0.3</td>
<td>2/24/22</td>
<td>Updated to include Corporate Calendar module</td>
</tr>
<tr>
<td>1.0.4</td>
<td>5/2/2022</td>
<td>Updated Ticket settings</td>
</tr>
<tr>
<td>1.0.5</td>
<td>8/2/2022</td>
<td>Add OCC TIMS, Position Analyzer, Allocation Ticket. Update T&amp;S</td>
</tr>
<tr>
<td>1.0.6</td>
<td>12/12/2022</td>
<td>Updated Watchlist and Portfolio Modules</td>
</tr>
<tr>
<td>1.0.7</td>
<td>3/2/2023</td>
<td>Updated for recent enhancements</td>
</tr>
</tbody>
</table>