SEMOpx
Auctions Training

Version 4.2

2022

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Auctions Training

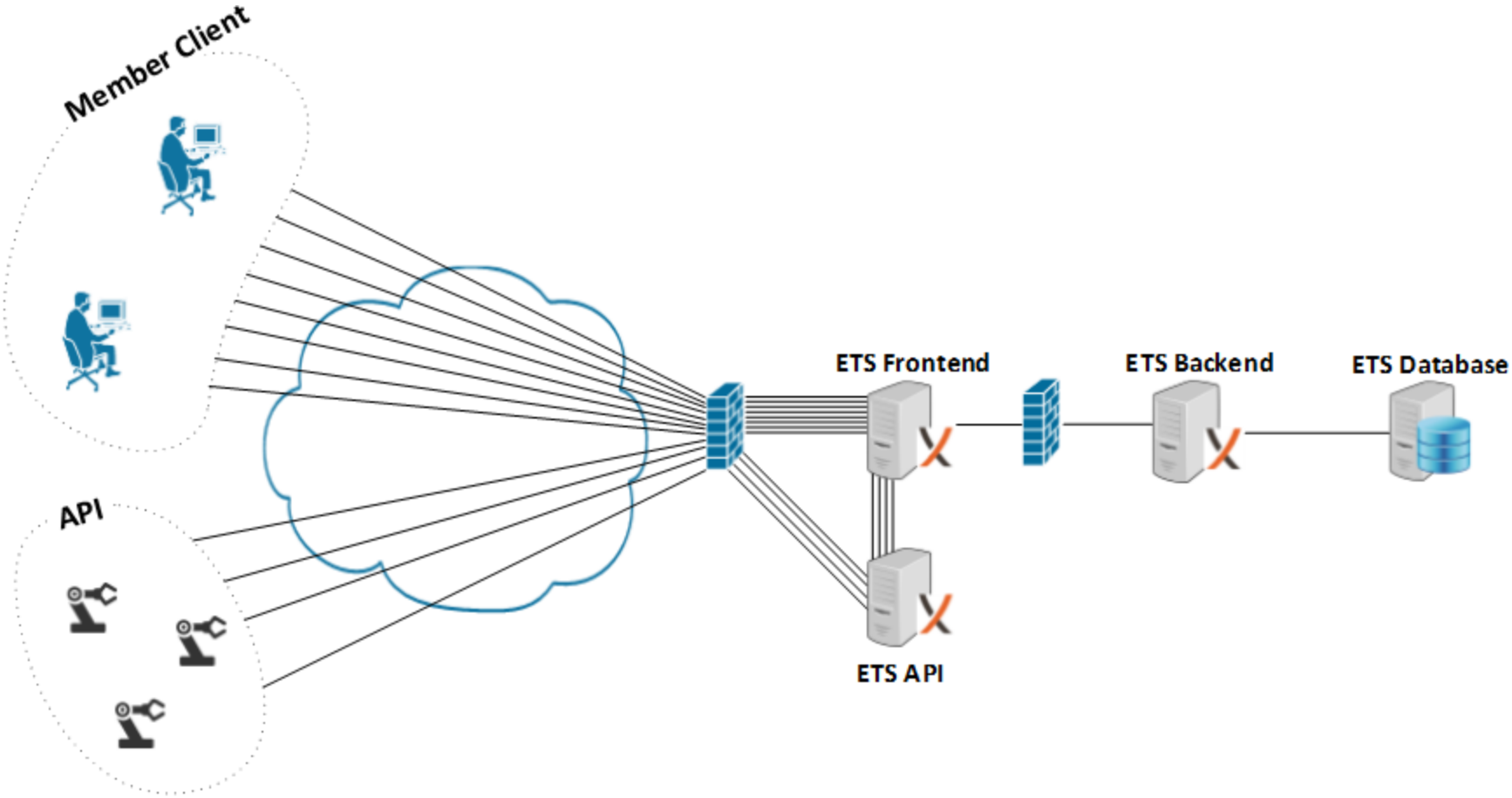
Agenda
1. ETS - General overview
2. ETS - Installation and technical requirements
3. ETS - API overview
4. ETS - Connection and security
5. ETS - Trading Functionalities
6. ETS - Trading on behalf forms (ToB)
7. ETS – Reporting capabilities

1 General Overview - *Market overview*

- **EPEX Trading System (ETS)** for Day-ahead auction and Intraday auctions

- **Portfolio will be set up and will correspond to the Unit ID**
  - Used to submit orders
  - Retrieved in the result files

General overview - *Technical overview - ETS*



2 Installation and Technical requirements

ETS - Overview of ETS Trading System

– FAT Client, executable to be installed on the PC

– Two types of clients are available with two difference installation modes:

- Upgradable per default ‘install the application as Upgradable’ is ticked.

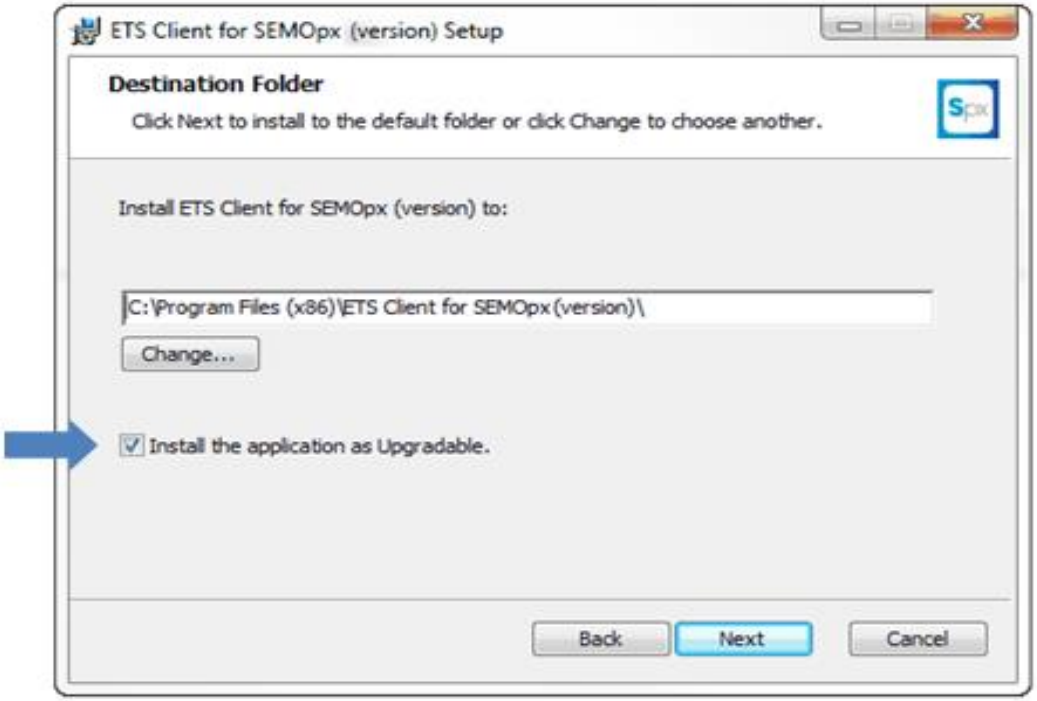
- Fixed: when there is a new version of the client, the participant will have to manually perform the upgrade.

ETS *Installation recommendation – Upgradable version*

The Upgradable Client is a full client, containing all program logic needed to perform trader actions. The Upgradable Client is able to update to the latest program logic and will automatically update itself to the latest version when such code becomes available.

This ensures the client software is always up to date without the need to manually download and install the newest version.

Please be informed that the upgradable client installation is ticked by default. In order to install the fixed version, the following option needs to be un-ticked during the installation process.



Please note that it is not possible to install both the Fixed and the Upgradable versions at the same time on the same machine.

ETS - *Minimum technical requirements for ETS client*

Recommended system requirements for the client computer:

- Intel Dual Core or equivalent processor,
- 2048 MB internal memory,
- 100 Mb of free Hard Disk space.
- Each upgradable client version collected from the exchange server is locally stored, requiring approximately an additional 15Mb per version.

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Supported operating systems:

- Windows7 Professional or Ultimate, latest service pack
- Windows8 Professional or Enterprise, latest service pack
- Windows10 Pro or Enterprise, latest service pack
- MS Excel 2010, 2013
- Please note that MS Excel Viewer is not supported.

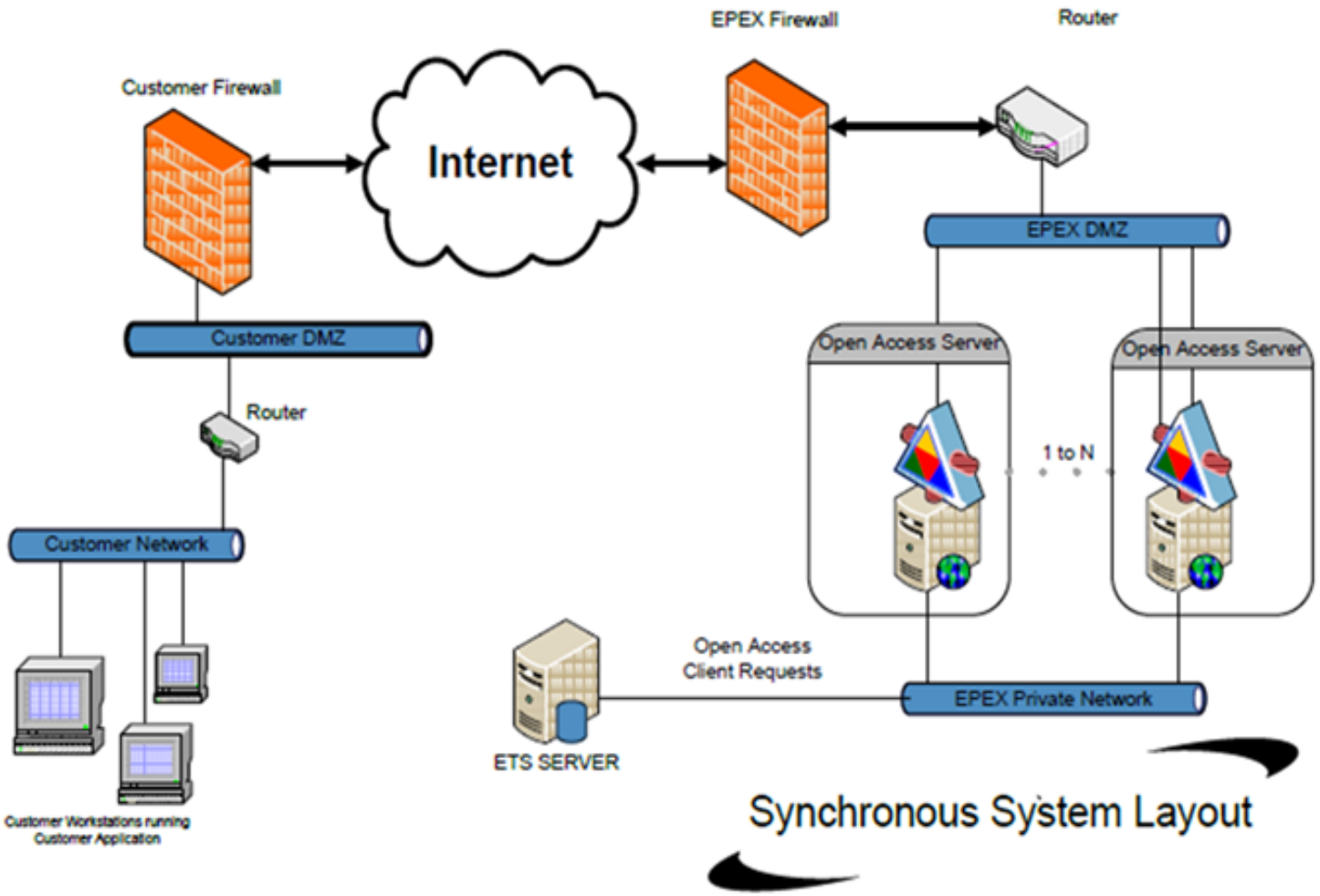
Network settings:

- EPEX Spot Trader Client requires a stable Internet connection.
- Recommended minimum connection speed is 256Kbit/s or better.
- All traffic is TLS encrypted.

Proxy support

- The EPEX Spot Trader Client does support connecting to an exchange using HTTP CONNECT proxy servers.

3 API Overview - *ETS API*



ETS API

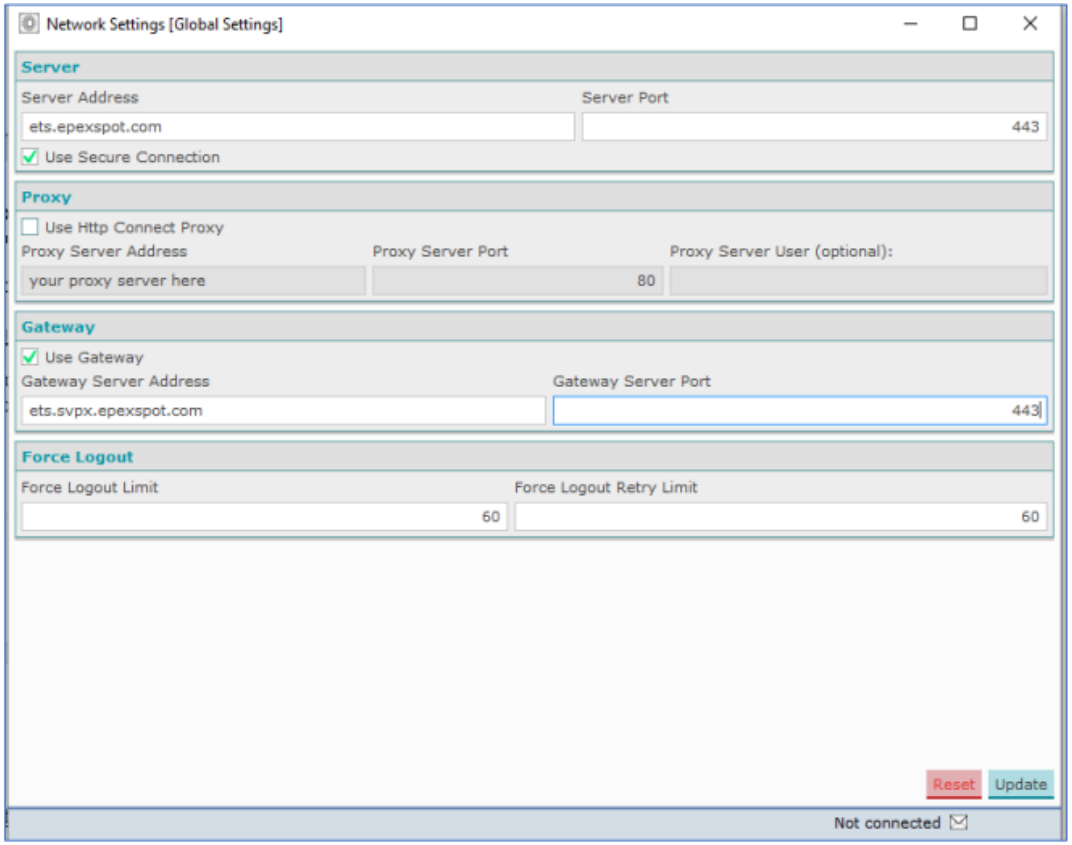
- Is a Soap Web services
- Is secured using 2 ways authentication (TLS 1.2 + Server and Client certificate)
- Require a User and password to connect
- Allow Synchronous request like
  - Send order
  - Update order
  - Delete order
  - Retrieve order
  - Retrieve Market Results

4 Connection and Security - *Starting the ETS the first time*

Before a connection can be made to the servers, the Network Settings need to be defined.

After installation, the default Server Address and Server Port require modification into the settings provided by the exchange. For more information, please see latest release here.

Enter the network details (server address, port and gateway):



ETS Secure connection

Default secure connection

The Trader Client connects using TLS 1.2 with the Exchange server. Default this is set to enabled.

Proxy connection

The Trader Client can connect over a proxy server that needs authentication and supports the use of HTTP CONNECT proxy.

The authentication protocol that is supported is the 'http basic authentication' standard, no other authentication protocols are currently implemented.

More technically: The proxy protocol used is the 'http CONNECT tunnel' standard.

When the Trader Client connects to the proxy server it will pop-up a dialog box that requests the user name and password for proxy server access.

It is possible to fill in the user name in the ETS trade client settings panel, so that the proxy user name does not need to be typed into the dialog every time a trader logs in.

In order to activate HTTP CONNECT Proxy Settings, enable the corresponding checkbox in the Global Settings.

Limit the IP address

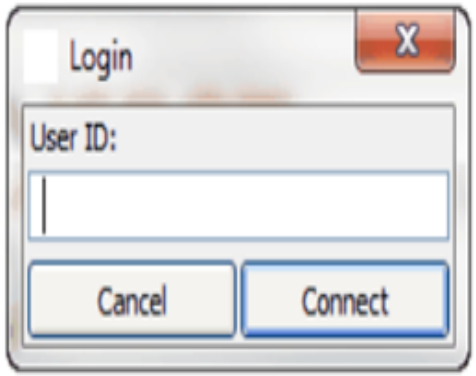
Upon request, the exchange can restrict the connection to specific IP addressed.

Firewall configuration

If your firewall implements packet inspection, you may need to disable this functionality for ETS. Some packet inspection system don’t support the ETS implementation of TLS 1.2.

ETS - *Users and passwords*

- **User IDs (logins) and passwords are not linked to traders.** A User ID can be shared among several traders of a company (but not at the same time). It is the company's responsibility to decide if the password of a User ID can be shared among several traders or if a User ID is to be used only by one of them.
- Initial passwords are valid 7 days and they must be changed in order to extend their validity to 3 months.
- There is a specific login for the production environment and another one for the simulation environment.

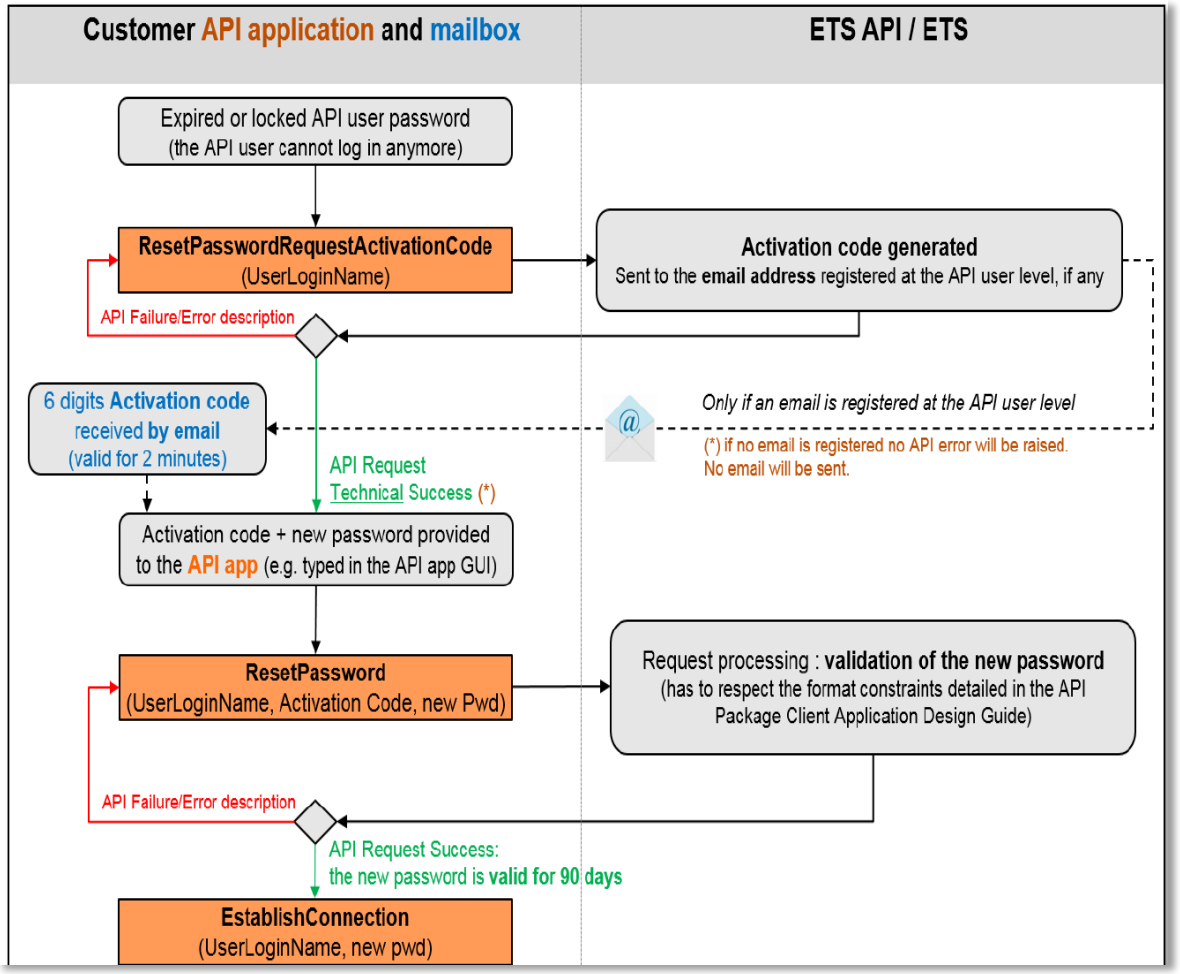


Be aware that you have a maximum of three attempts to enter a correct password.

After the third invalid attempt, your User ID will be blocked from access until the exchange operator resets your User ID.

Upon written request (email), the exchange can either reset the tries left (so the current password remains valid) or provide a new password by email.
The request should come only from an authorized trader.

ETS – *Password reset*



Users are also able to change forgotten, expired or locked passwords through the client. From the main welcome screen, select 'change password' feature and user will get a validation code via email to enter the new password.

Users can then handle their password reset autonomously without contacting SEMOpx Market Operations. In order to activate this functionality, please make sure to provide Market Operations with the email address(es) to be associated with your respective ETS user(s).

ETS *Connection to the upgradable client*

Once you enter your User ID, click on the Connect button or press ENTER.

The Upgradable Client will perform a version check.

One of two things can happen, depending on the availability of newer versions:

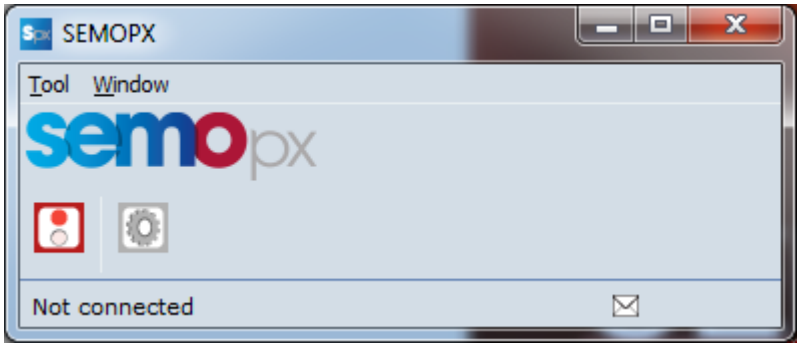
Option 1:

If no newer version is detected, the login sequence will proceed after which the Main Tool will be presented.

Option 2:

If a newer version is detected, the newer version is automatically fetched from the exchange server.

This is indicated with the 'Fetching update for' message.



The newest version will be downloaded automatically, and installed. Depending on the internet speed and size of the download, this process can take a short while.

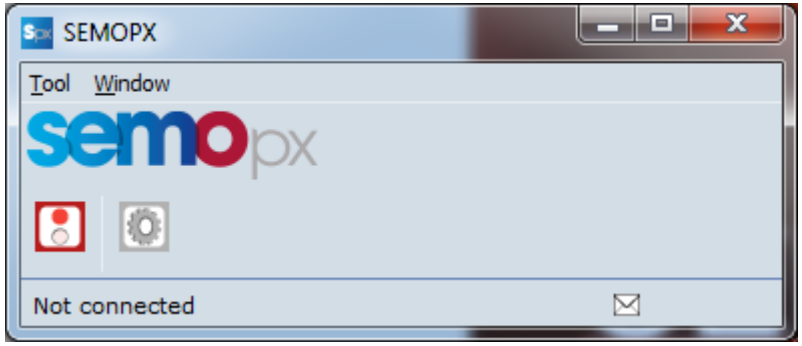
This procedure requires a restart of the Upgradable Client once to execute the update, for which you will be prompted in a dialog.

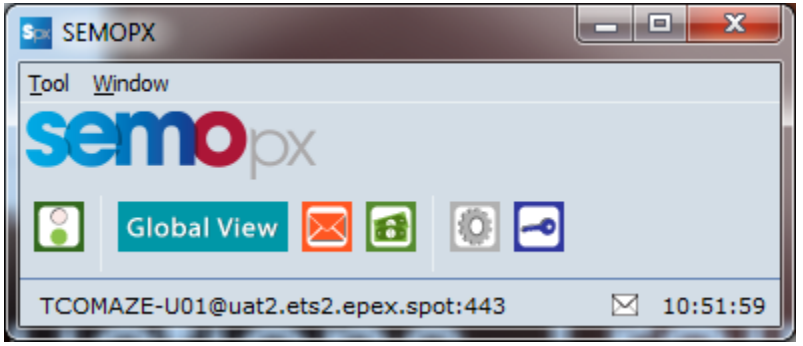
5 ETS Trading Functionalities - Topics

- **General**
  - Welcome screen
  - ETS General Settings
  - ETS Trader Client Settings
- **ETS Market Global View**
- **Order management**
  - Enter linear (stepwise) order
  - Enter linear orders for several days at a time
  - Modify order and check for differences
  - Cancel Linear Order
  - Enter Complex Order
  - Modify Complex Order
  - Cancel Complex Order
- **Define Reasonable Control Parameters**
- **Check Trading Limits**

ETS Welcome Screen

The Trader Client is the trading interface screen of the exchange environment. The Trader Client displays the modules that are available to the user that is logged in.





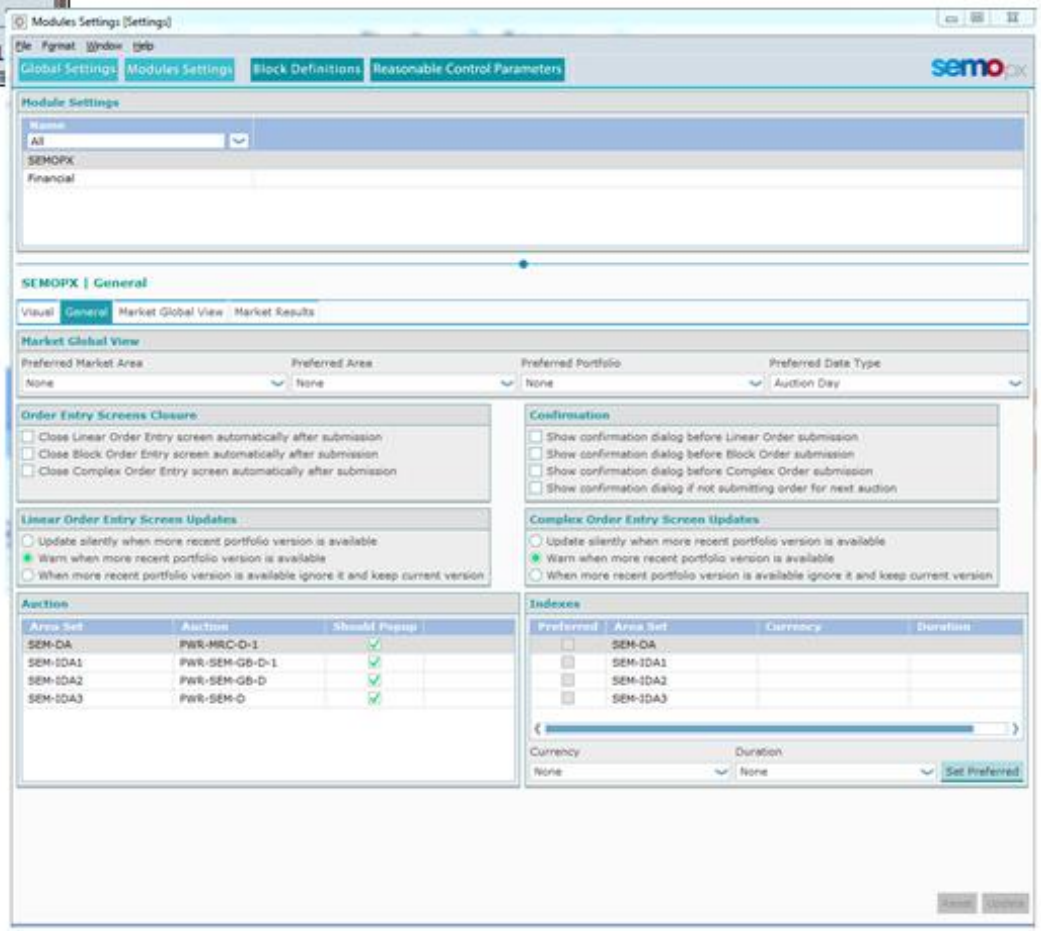
From left to right, the launcher above displays the (Dis)Connect, Global View, Client Message Book, Financial Book, Settings and Change Password icons.

The connection state bar at the bottom of the launcher indicates you are logged in and to which server-environment.

The clock to the right displays the exchange server time, modified to your local time setting. This clock will not necessarily be identical to the time of your local computer. The clock settings can be configured in the Time Zone settings.

ETS General Settings

The Settings Book is the screen where you can define custom display and behaviour settings.



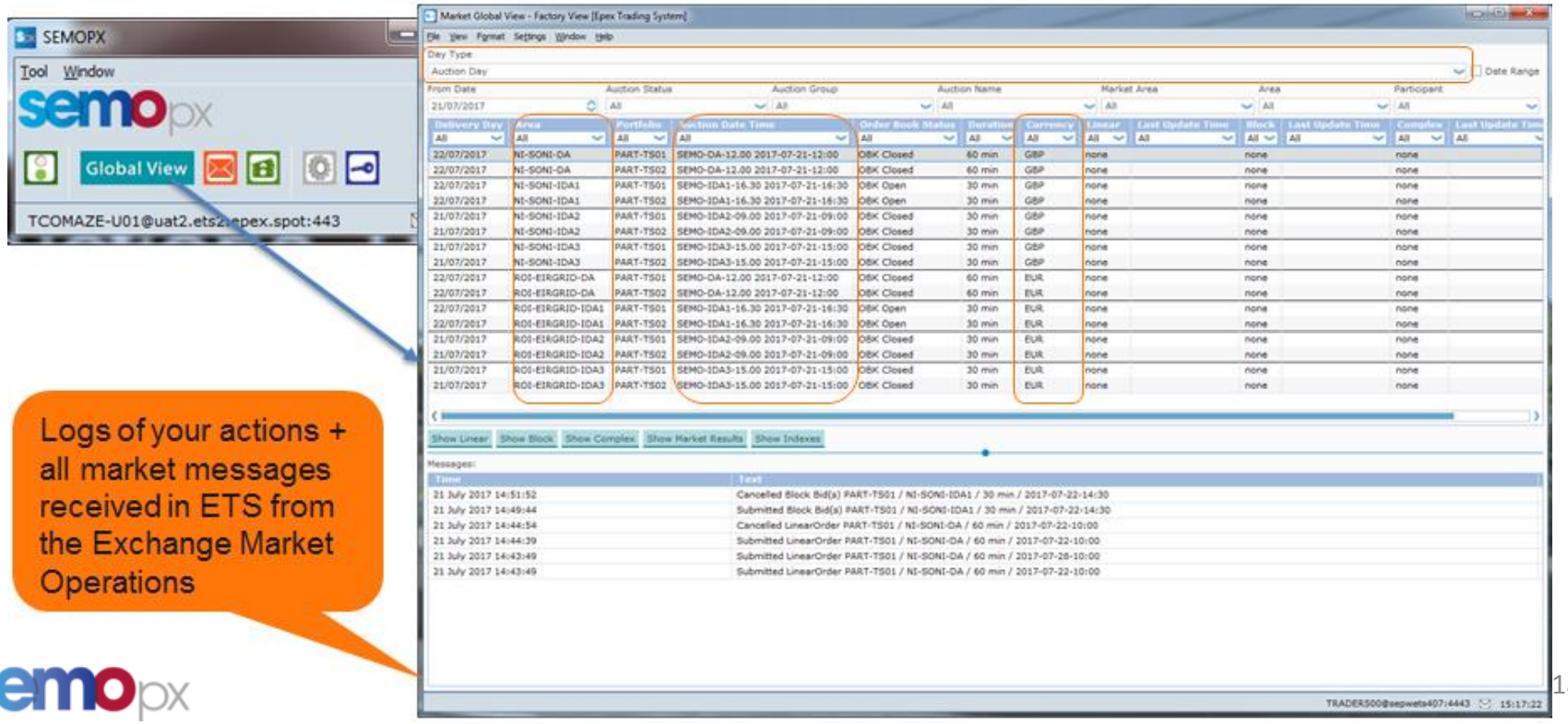
ETS *Market Global View*

The Market Global View is the main trading interface.

In the upper pane of this screen a user has overview of outstanding bids, and can access bid submission screens.

In the lower pane, under Messages: an overview is given of bid submissions and other bid status change messages, as well as the titles of operator messages.

Red coloured messages indicate important information, such as Password expiry, Market Result cancellation and the reception of an exchange message.



Order Descriptions

Linear order description

A linear order is a set of linear curves. A linear curve is a set of (price, quantity) combinations defined for a (period, area) combination. For each of these periods, the linear order is related to a curve which defines for each price between the minimum price (Pmin) and maximum price (Pmax) of the market willingness to buy or sell a certain amount.

- the price is defined in settlement currency
- Pmin and Pmax are specific to the area for which the order is submitted

Stepwise linear orders

Definition: A stepwise order is defined by n (price, quantity) couples between the minimum price (Pmin) and the maximum price (Pmax): [(Pmin,Q1), …, (Pmax, Qn)]

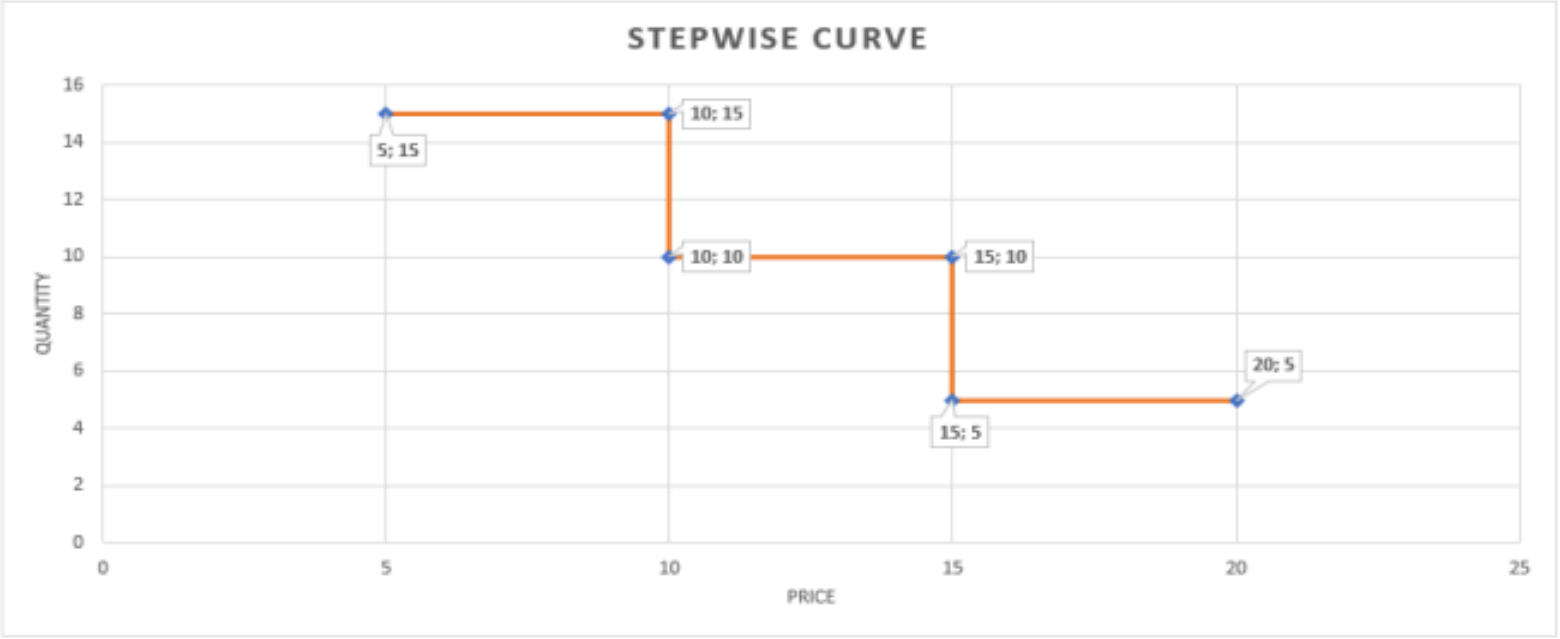
- For any couple (Pi,Qi), (Pi+1,Qi+1) within this list we have either: o Pi < Pi+1 and Qi = Qi+1 or o Pi = Pi+1 and Qi > Qi+1 excluding Pmin, Pmax Purchase quantities are indicated with positive values (Q>0). Sale quantities are indicated with negative values (Q<0).

Stepwise Orders

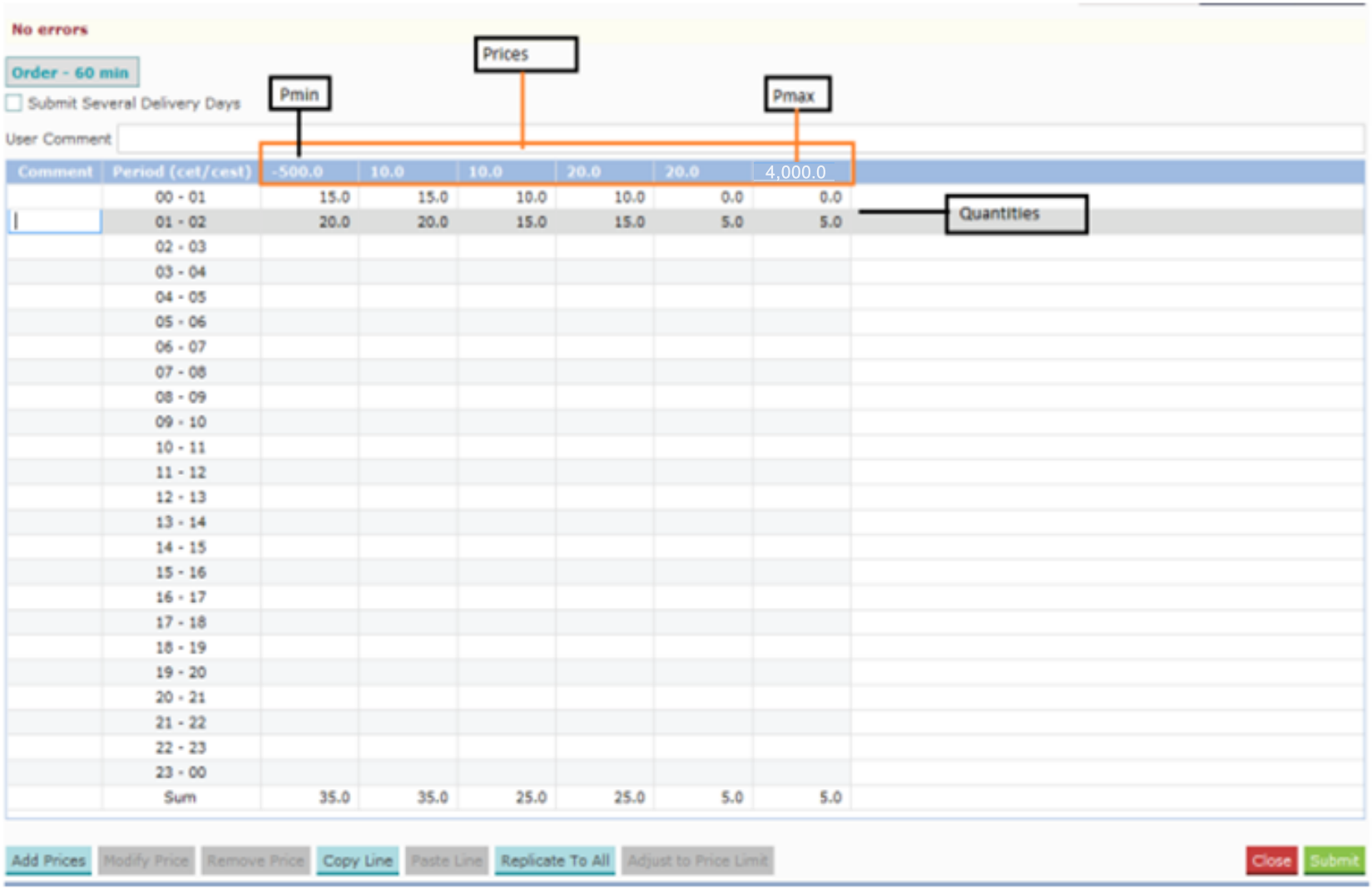
Illustration

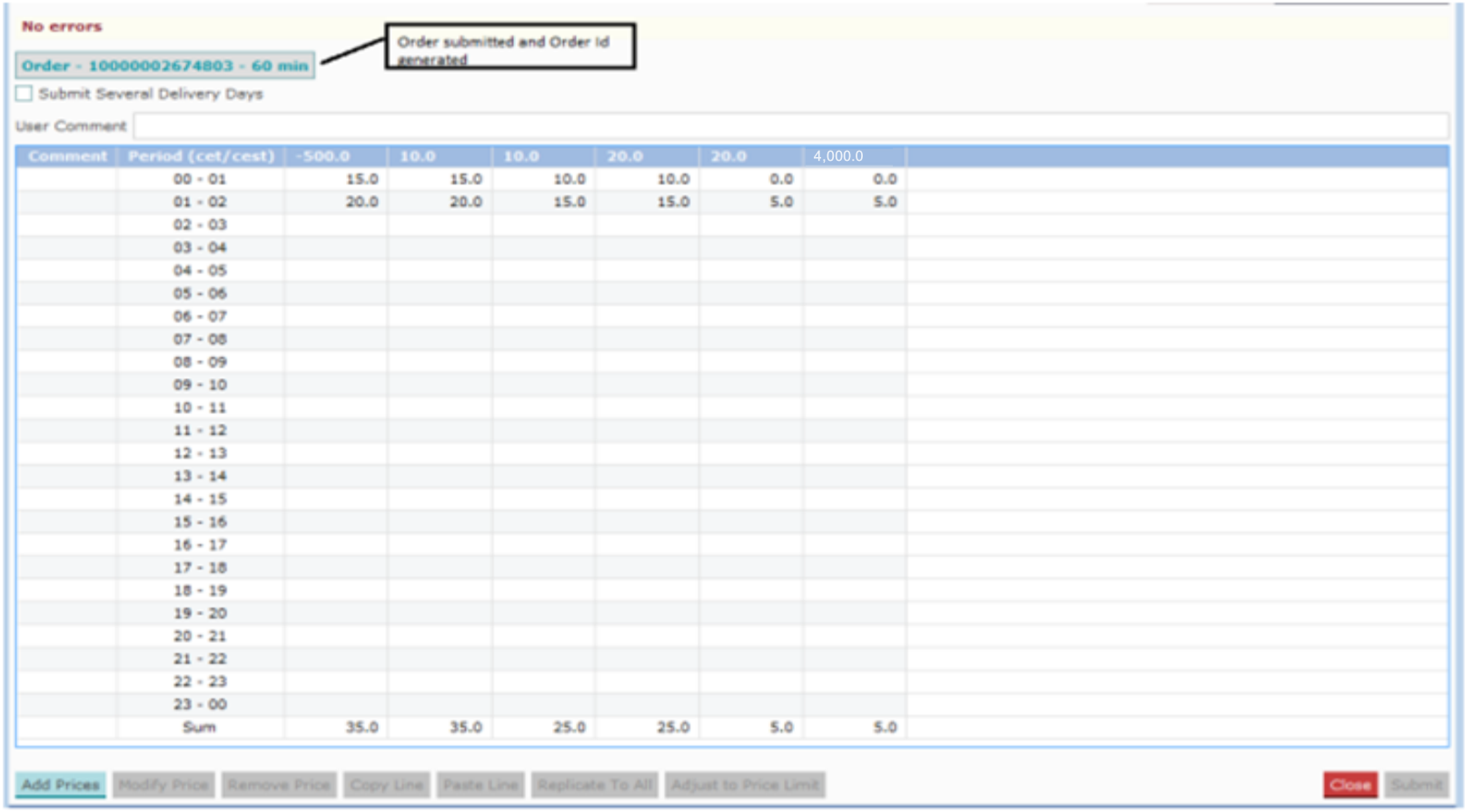
The below example illustrates the stepwise curve for an Area = X, Portfolio = P1, and Period = 1:

PRICE	5	10	10	15	15	20
QUANTITY	15	15	10	10	5	5



Stepwise linear order submission





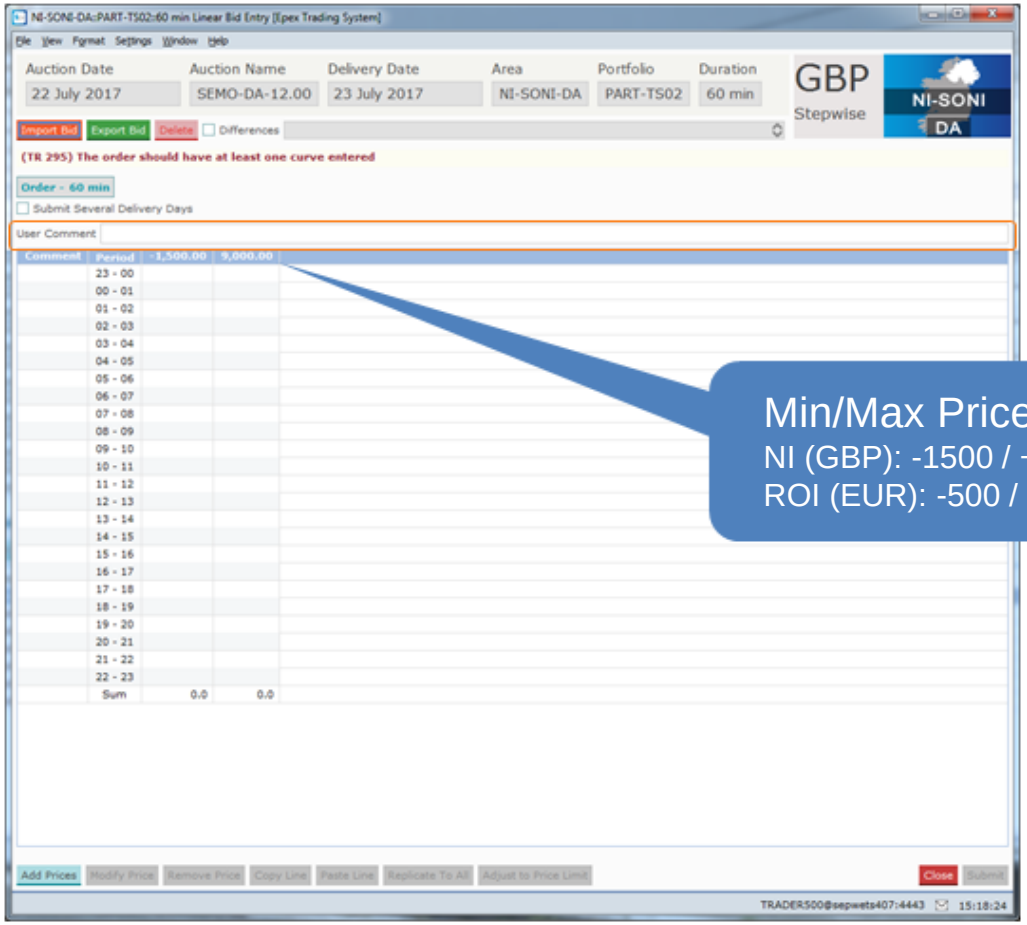
ETS API

The ETS API enables to handle linear orders (stepwise): submit, modify, retrieve, or cancel orders. Please contact SEMOpx market operation or check the ETS API package for further information.

Enter linear (Stepwise order)

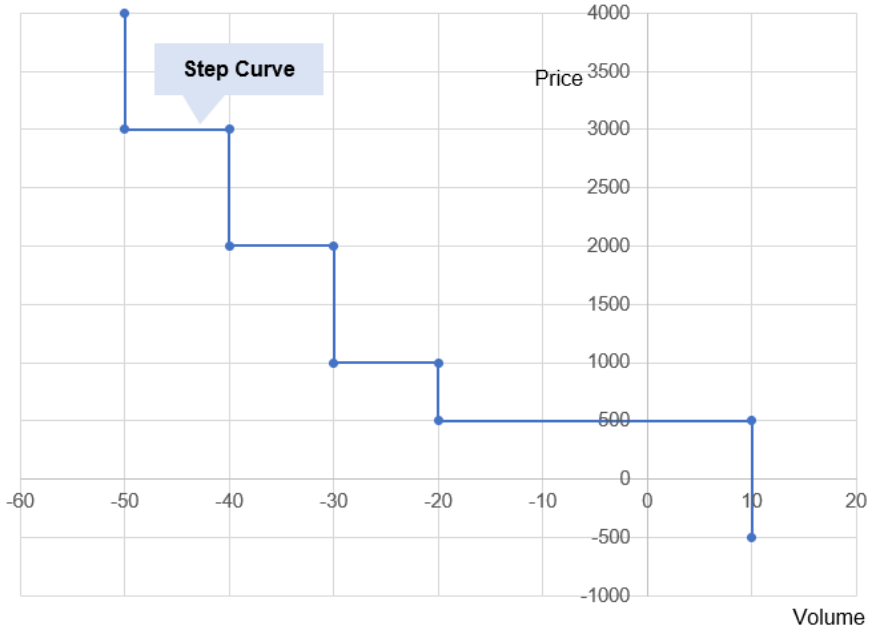
The Linear Bid Entry screen can be accessed via Market Global View under the double-click mouse action or Show Linear button of the Market Global View screen.

Alternatively, double-click the “Linear” or “Linear last update time” field if you wish to open a Linear Bid screen.



ETS Stepwise Orders > order entry

- Minimum 2 (Price; Quantity) combinations per order
- A quantity (positive, negative or zero) must be entered at the price limits
- Positive: you buy
- Negative: you sell
- Zero: no action
- Orders are linear interpolated curves: The member's interest is assumed linear between two price/quantity combinations



Stepwise order grid in ETS

Period	-500.0	500.0	500.0	1,000.0	1,000.0	2,000.0	2,000.0	3,000.0	3,000.0	4,000.
00 - 01	10.0	10.0	-20.0	-20.0	-30.0	-30.0	-40.0	-40.0	-50.0	-50

For each price you need to have 2 couples (price; quantity). For min and max price, this is not needed because implicitly the other (price;quantity) couple contains the same price and quantity at 0.

Corresponding excel copy/paste

	A	B	C	D	E	F	G	H	I	J
1	-500	500	500	1000	1000	2000	2000	3000	3000	4000
2	10	10	-20	-20	-30	-30	-40	-40	-50	-50

Negative volume is a sell order at that point

ETS - *Stepwise orders entry example*

Example: Demand order

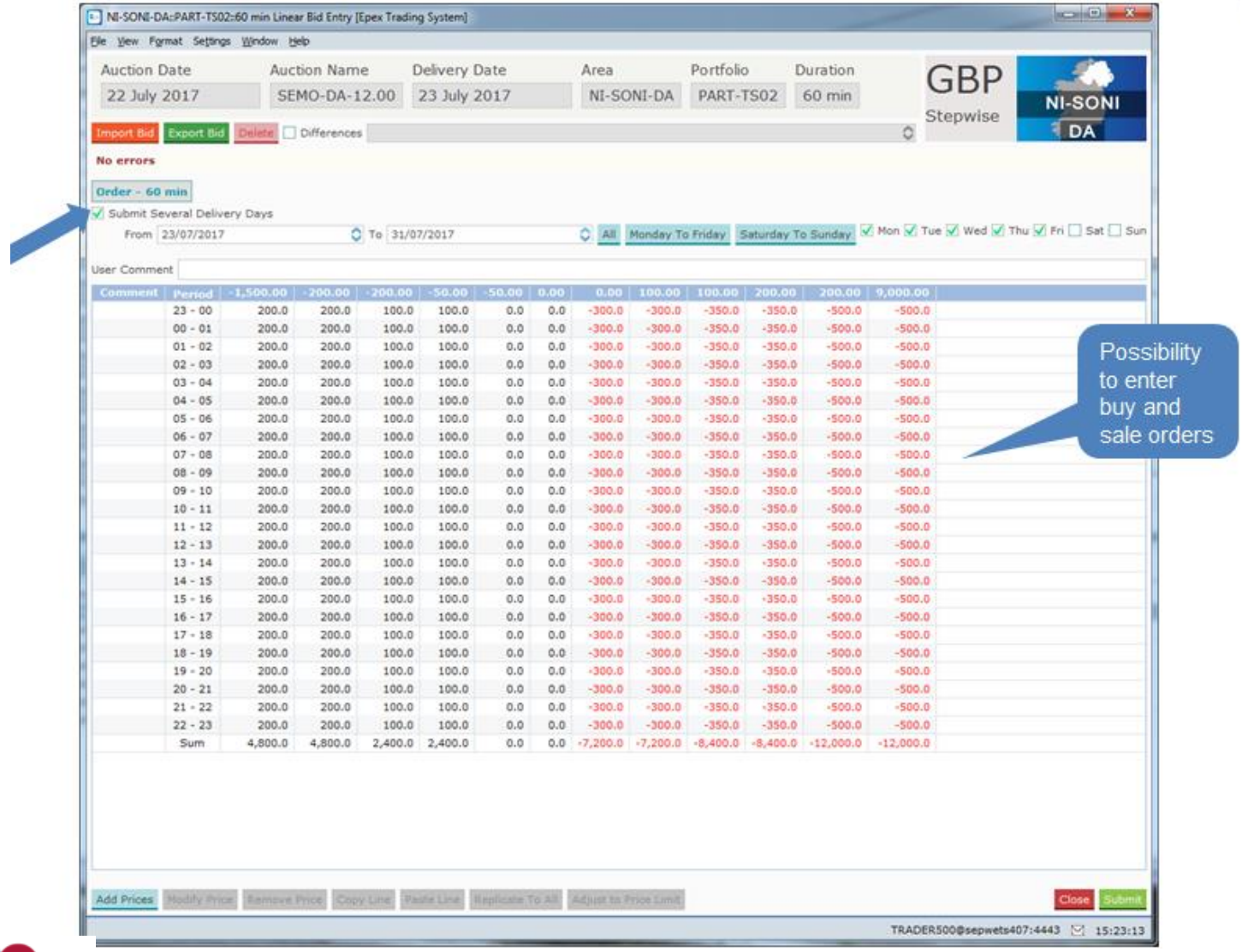
	-500	10	10	100	100	4000
1	30	30	20	20	10	10
2						
3						

- At a price of -500 I want to buy 30
- Between price -500 & 10 I want to buy 30
- At price 10 I want to buy between 30 & 20
- Between price 10 & 100 I want to buy 20
- At price 100 I want to buy between 20 & 10
- Between price 100 & 4000 I want to buy 10
- At price 4000 I want to buy 10, in case of curtailment the qty can be between 0 and 10

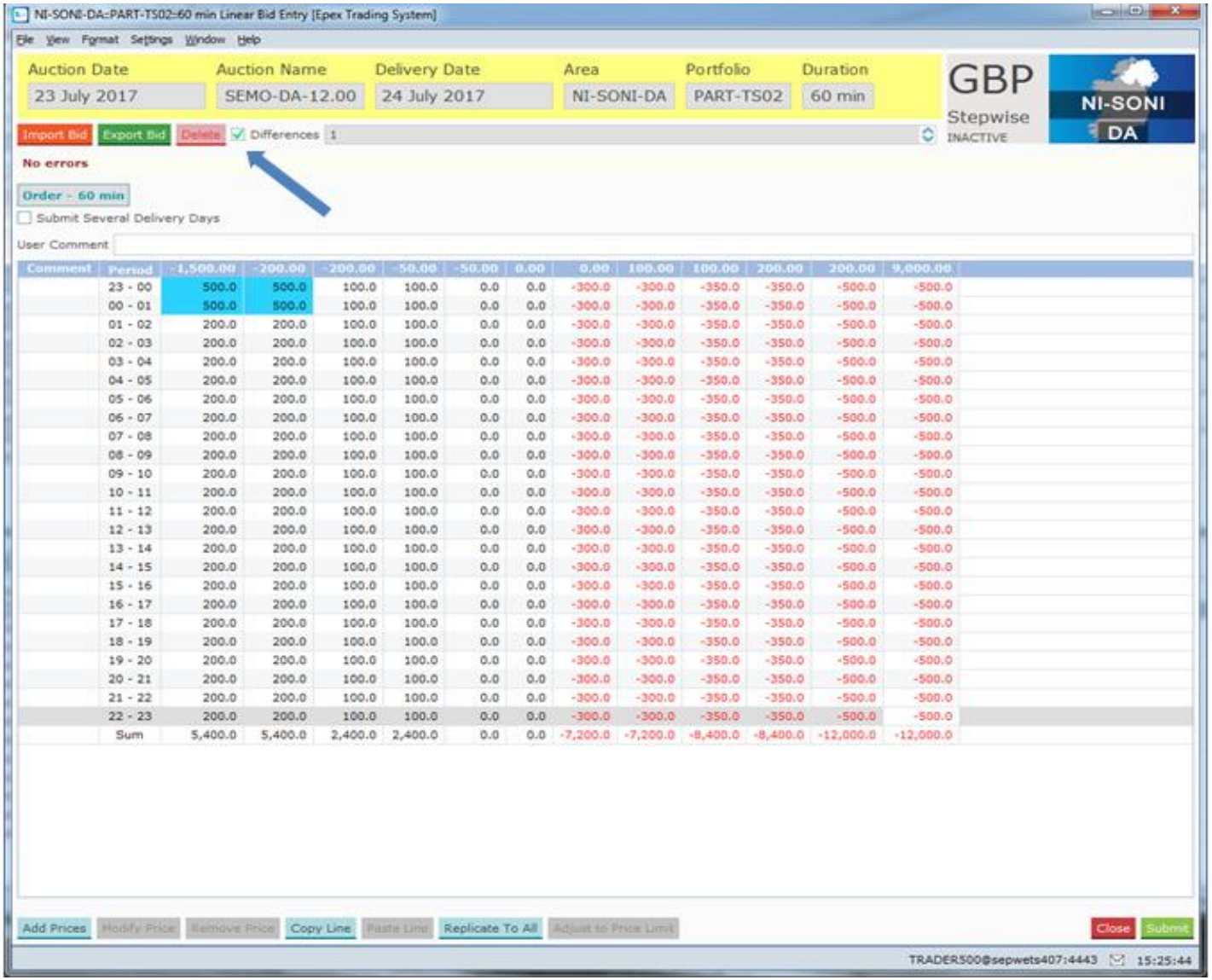
The quantity that will be allocated depending on the price in both cases is:

- At price 4000 the qty is between 0 & 10
- For a price between 4000 & 100 the qty can only be 10
- At a price 100 the qty is between 10 & 20
- For a price between 100 & 10 the qty can only be 20
- At a price 10 the qty is between 20 & 30
- For a price below 10 the qty is 30

Enter linear orders for several days



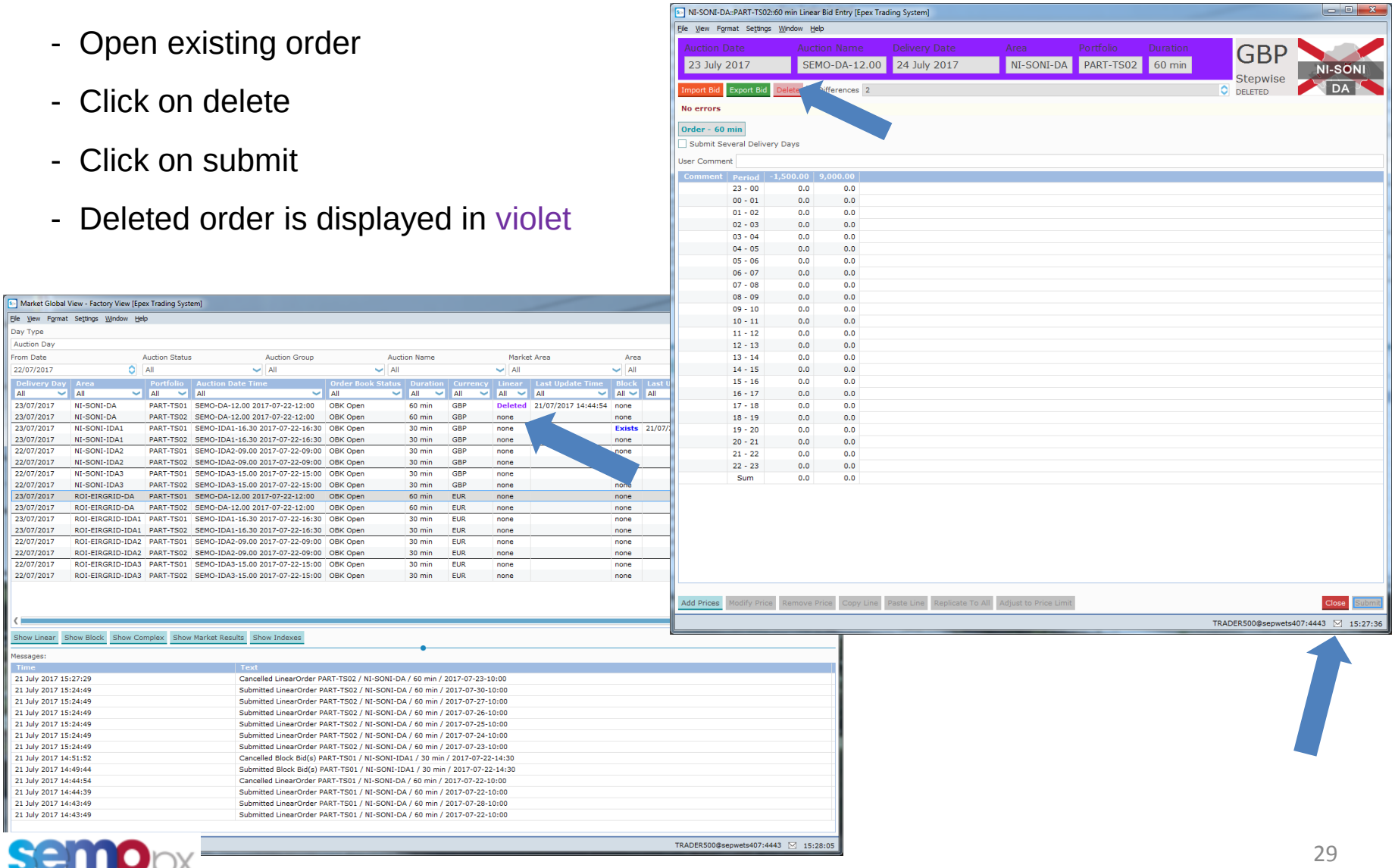
Modify order and check for differences



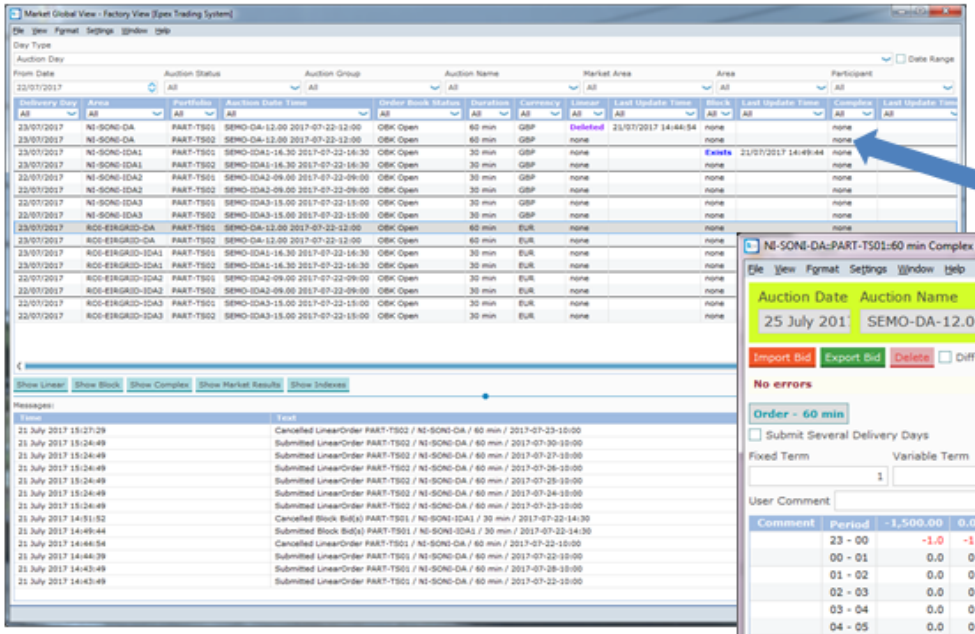
Comment	Period	-1,500.00	-200.00	-200.00	-50.00	-50.00	0.00	0.00	100.00	100.00	200.00	200.00	9,000.00
	23 - 00	500.0	500.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	00 - 01	500.0	500.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	01 - 02	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	02 - 03	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	03 - 04	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	04 - 05	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	05 - 06	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	06 - 07	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	07 - 08	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	08 - 09	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	09 - 10	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	10 - 11	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	11 - 12	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	12 - 13	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	13 - 14	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	14 - 15	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	15 - 16	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	16 - 17	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	17 - 18	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	18 - 19	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	19 - 20	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	20 - 21	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	21 - 22	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	22 - 23	200.0	200.0	100.0	100.0	0.0	0.0	-300.0	-300.0	-350.0	-350.0	-500.0	-500.0
	Sum	5,400.0	5,400.0	2,400.0	2,400.0	0.0	0.0	-7,200.0	-7,200.0	-8,400.0	-8,400.0	-12,000.0	-12,000.0

Cancel Linear Order

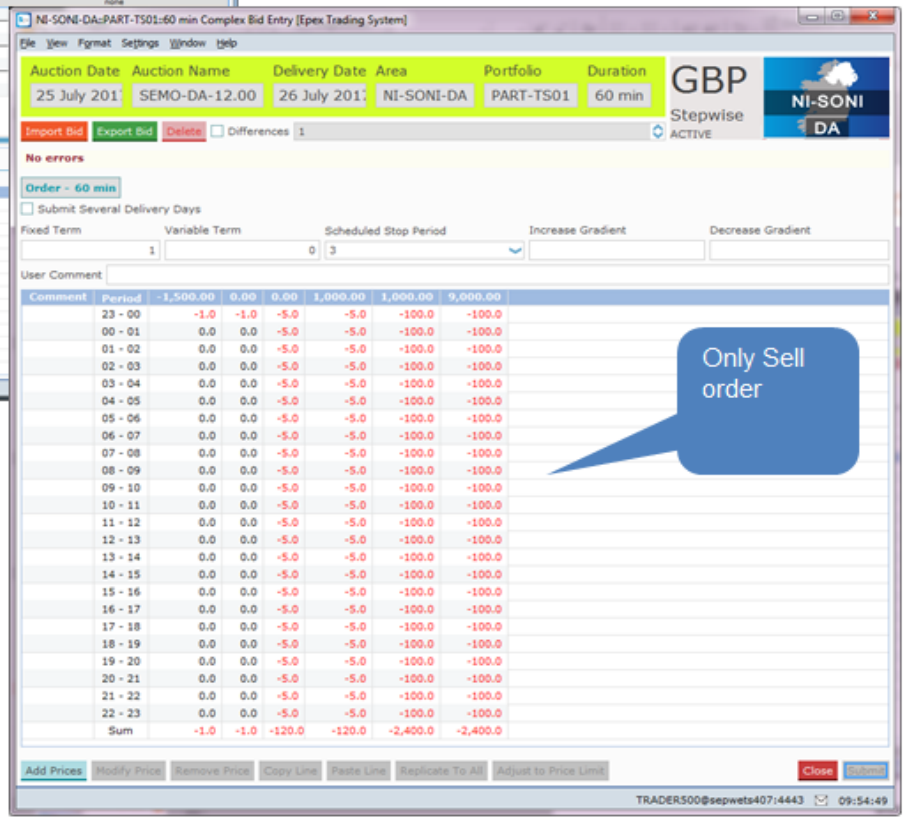
- Open existing order
- Click on delete
- Click on submit
- Deleted order is displayed in violet



Enter Complex Orders



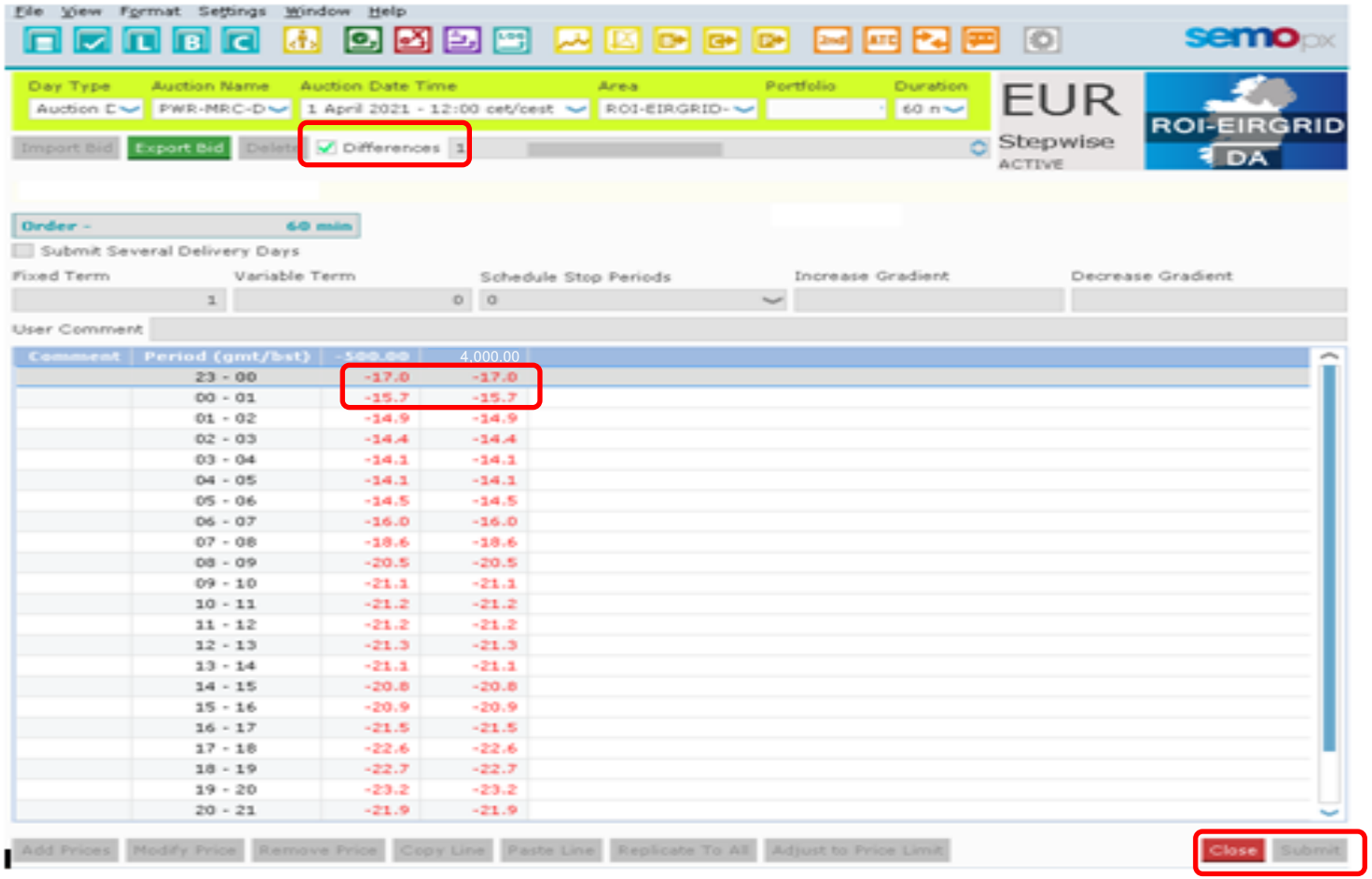
Complex orders are not available for Intraday auctions



The Complex Bid Entry screen can be accessed via Market Global View under the double-click mouse action or Show Complex button of the Market Global View screen.

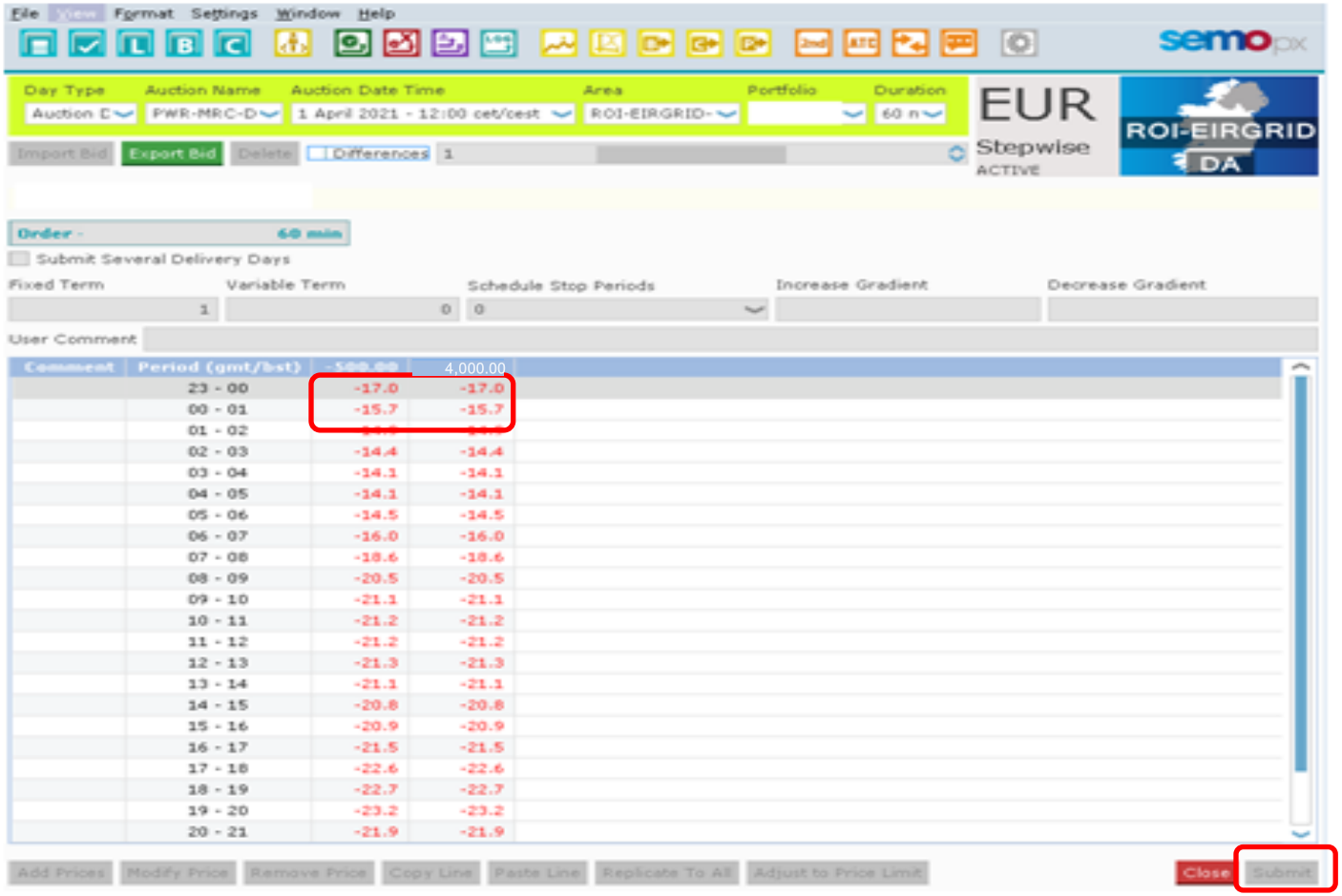
Alternatively, double-click the “Complex” or “Complex last update time” field you wish to open a Complex Bid screen for.

Modify Complex Orders



Following on from instructions on slide 26, choose complex order you wish to modify. Update the trading periods volumes/prices you wish to modify within the cell/s. Select “Differences” and then select “Submit”.

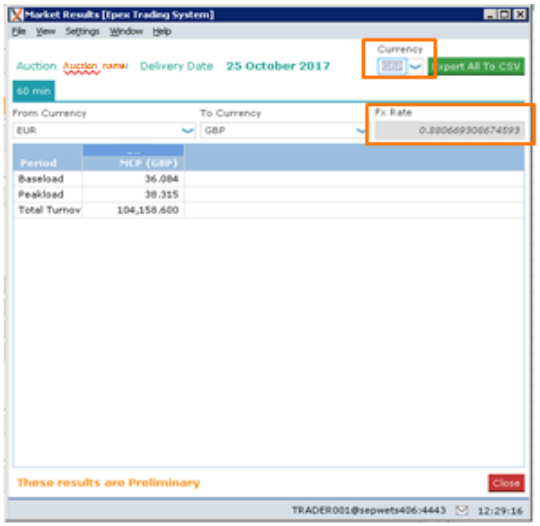
Cancel Complex Orders

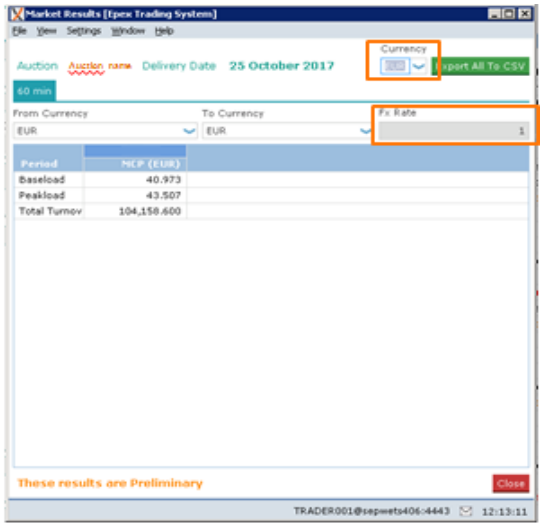


Following on from instructions on slide 26, choose the complex order you wish to delete. Select “Delete” and then select “Submit”.

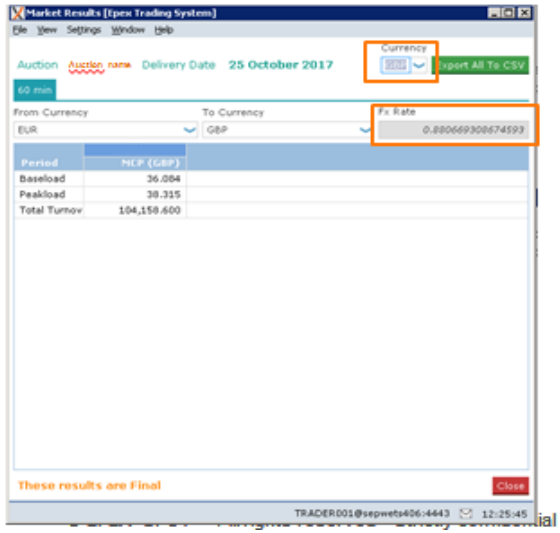
Market Results pop-up

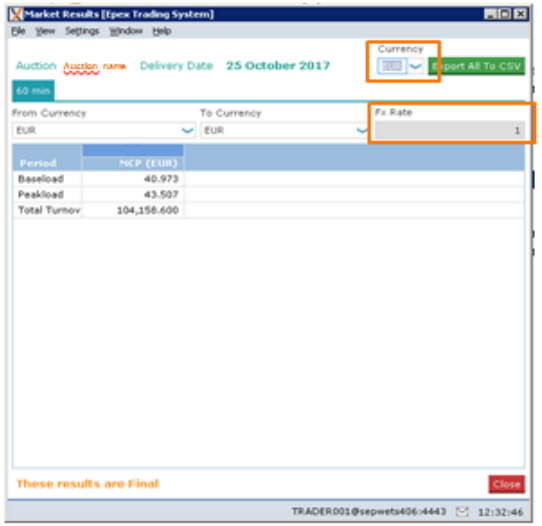
- Preliminary results *(for coupled auctions only)*



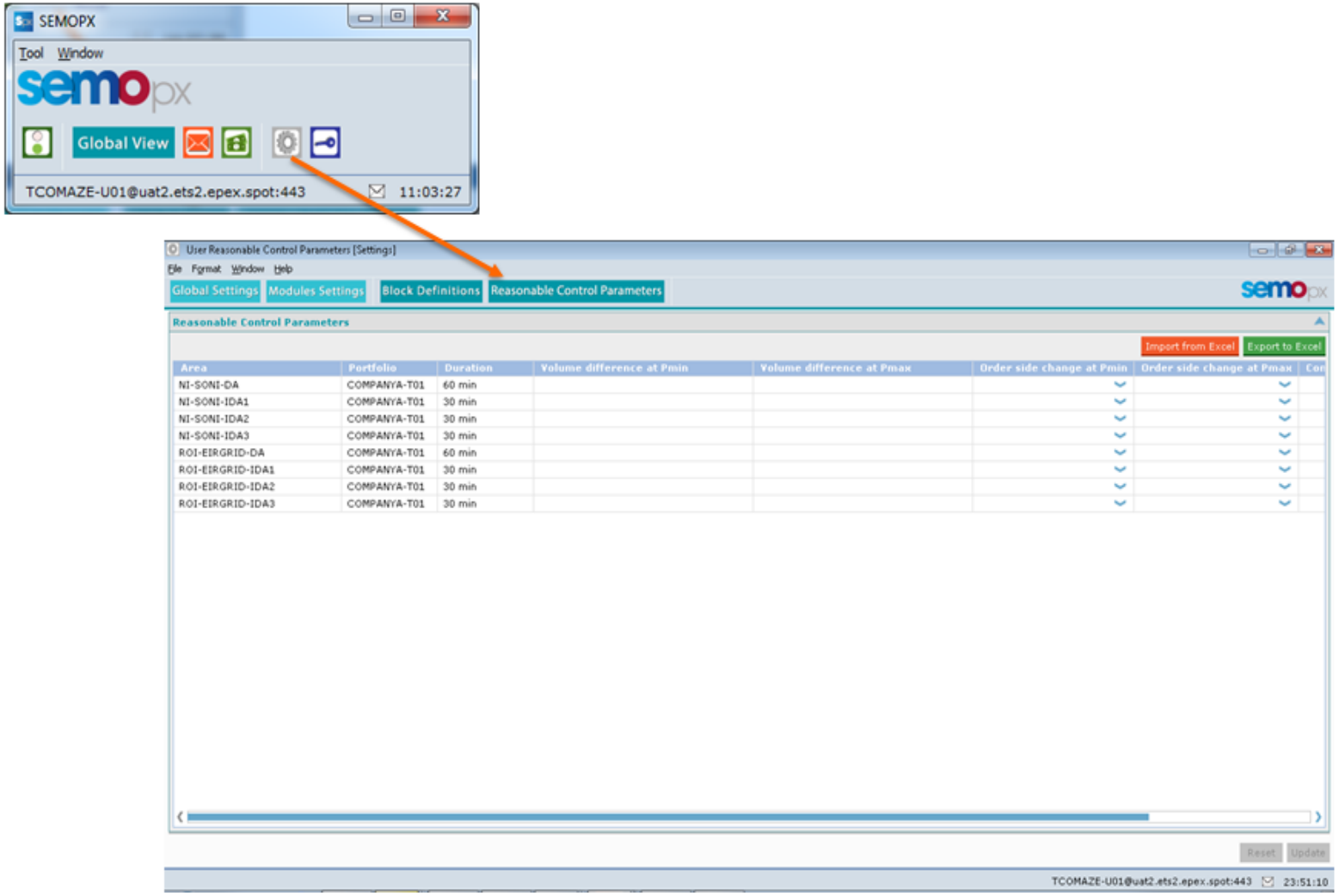


- Final results *(for both coupled and local auctions)*

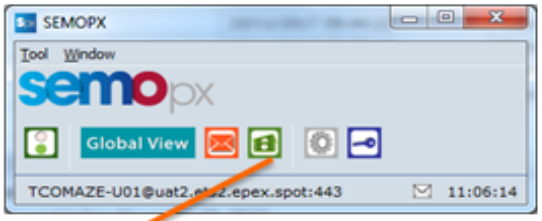


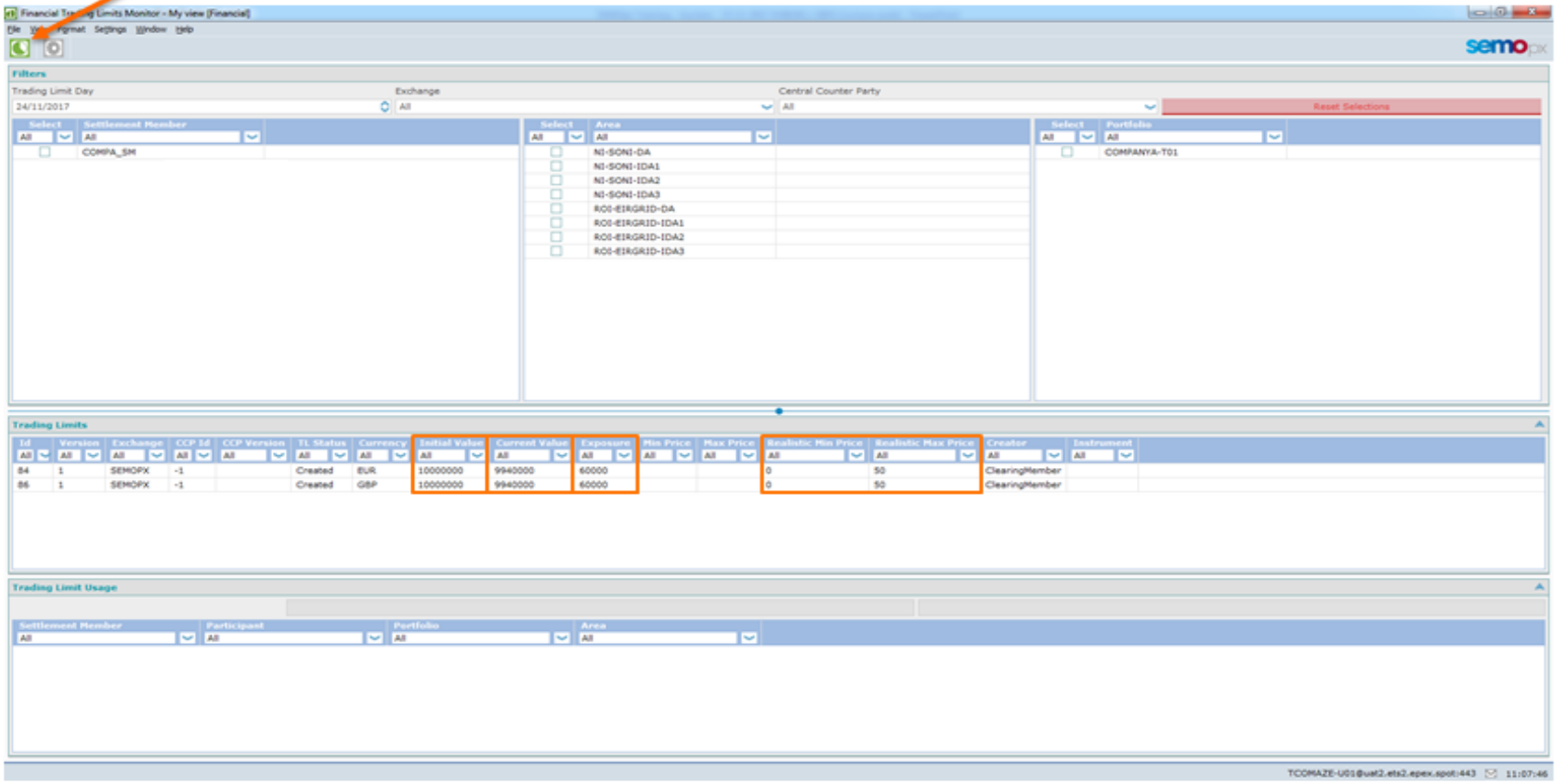


Define Reasonable Control Parameters



Check Trading Limits





SEMOpx - Trading on Behalf (ToB)

Trading of Behalf process allows SEMOpx members a fall back process to continue trading in the DAM and Intraday Auctions if their connection to the trading system (ETS) fails or the member experiences a technical problem that prevents them from placing orders.

In case of such issues, Excel backup forms are available here on the SEMOpx website.

Trading on behalf process

Process	DAM	IDA1	IDA2	IDA3
1. Complete the required excel form	DAM bidding NI DAM complex NI DAM bidding ROI DAM complex ROI	IDA1 bidding NI & ROI IDA1 complex NI & ROI	IDA2 bidding NI & ROI IDA2 complex NI & ROI	IDA3 bidding NI & ROI IDA3 complex NI & ROI
2. Email the completed form to*: marketops@ops.semopx.com.				
3. You should immediately contact the Market Operation here by telephone, selecting option 1.				
** Orders will be entered on members' behalf, on a best efforts' basis.*				

- *SOBT: Submission on Behalf of Trading Tool was decommissioned on the 14th September 2021. For further information please see market message here.*

SEMOpx - Trading on Behalf (ToB)

The following provides instructions on how to fill in the TOB forms:

1. Select the correct form based on the impacted auction (SEM-DA / SEM GB IDA1/SEM GB IDA2/SEM IDA3), per area NI/ROI, 25-Hours for Long Day DST or the ones for normal day.

- The ones for the normal day should be used for Short Day DST without filing in the impacted periods.

2. Fill in the trader name (**only authorized traders** are permitted to send a ToB form and request its submission) and the respective portfolio as well as the type of the order (new, modification of existing one or cancellation of existing one)) of an existing one)

FROM COMPANY	
Trader Name	
ETS Portfolio name to be used	

NEW BID	☐
MODIFY BID	☐
CANCEL BID	☐

3. Ensure that the auction (and area), the trading and delivery days are correct.

Area	SEM-GB-IDA1-ROI

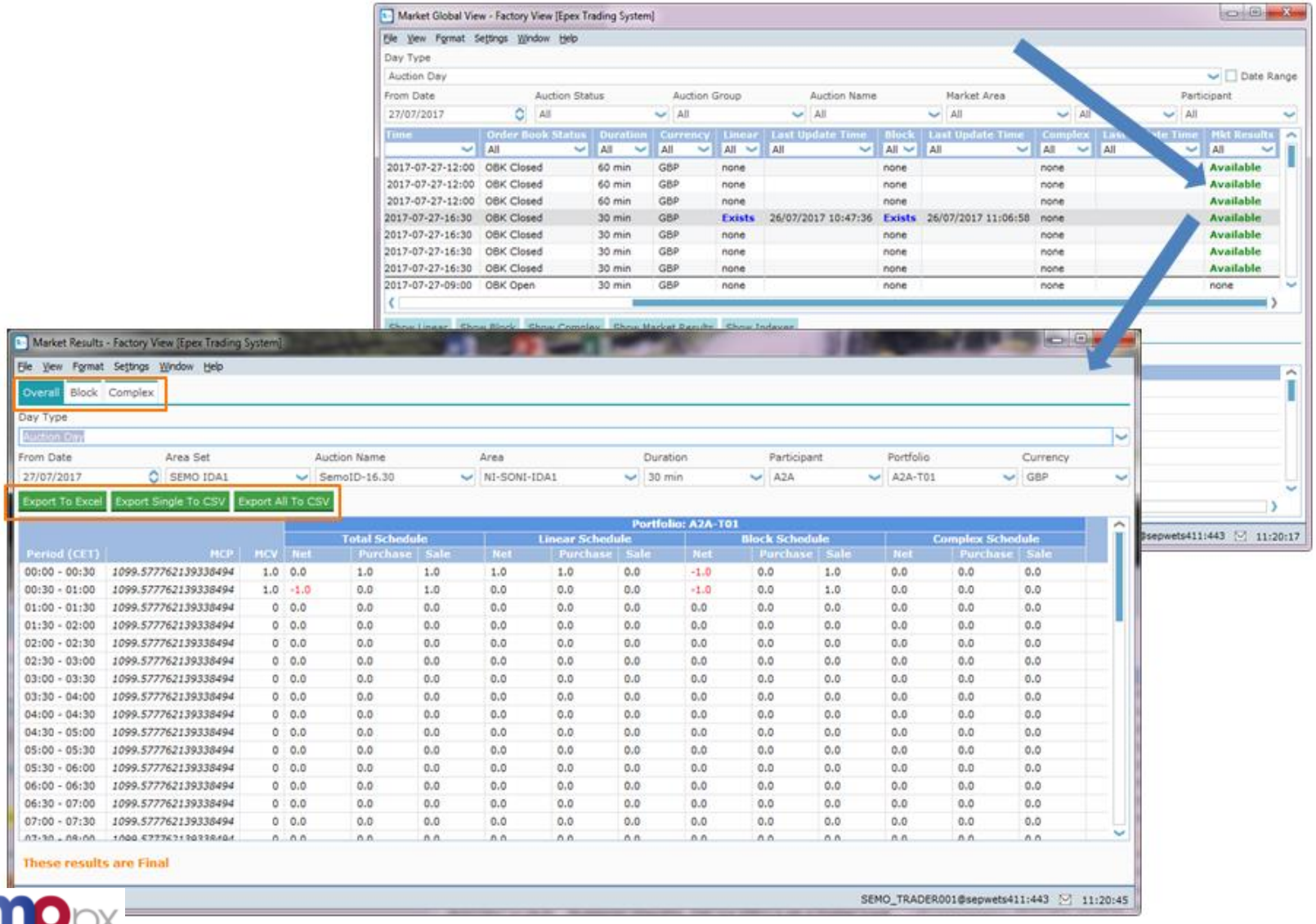
Trading day
4 February 2022

Delivery day
5 February 2022

4. Add prices and volumes carefully

	PRICES in EUROS (with 1 decimals) / VOLUMES in MW (with 1 decimal)											
PERIOD	-150,0	3000,0										
23:00-23:30												
23:30-00:00												
00:00-00:30												
00:30-01:00												
01:00-01:30												
01:30-02:00												
02:00-02:30												

- For Complex Orders (CO), please fill in the additional below fields:

Fixed Term	Variable Term	Schedule Stop Periods	Increase Gradient	Decrease Gradient	Comment

7 ETS Reporting capabilities