SEMOpx
Auctions Training

Version 2

March 2021

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Auctions Training

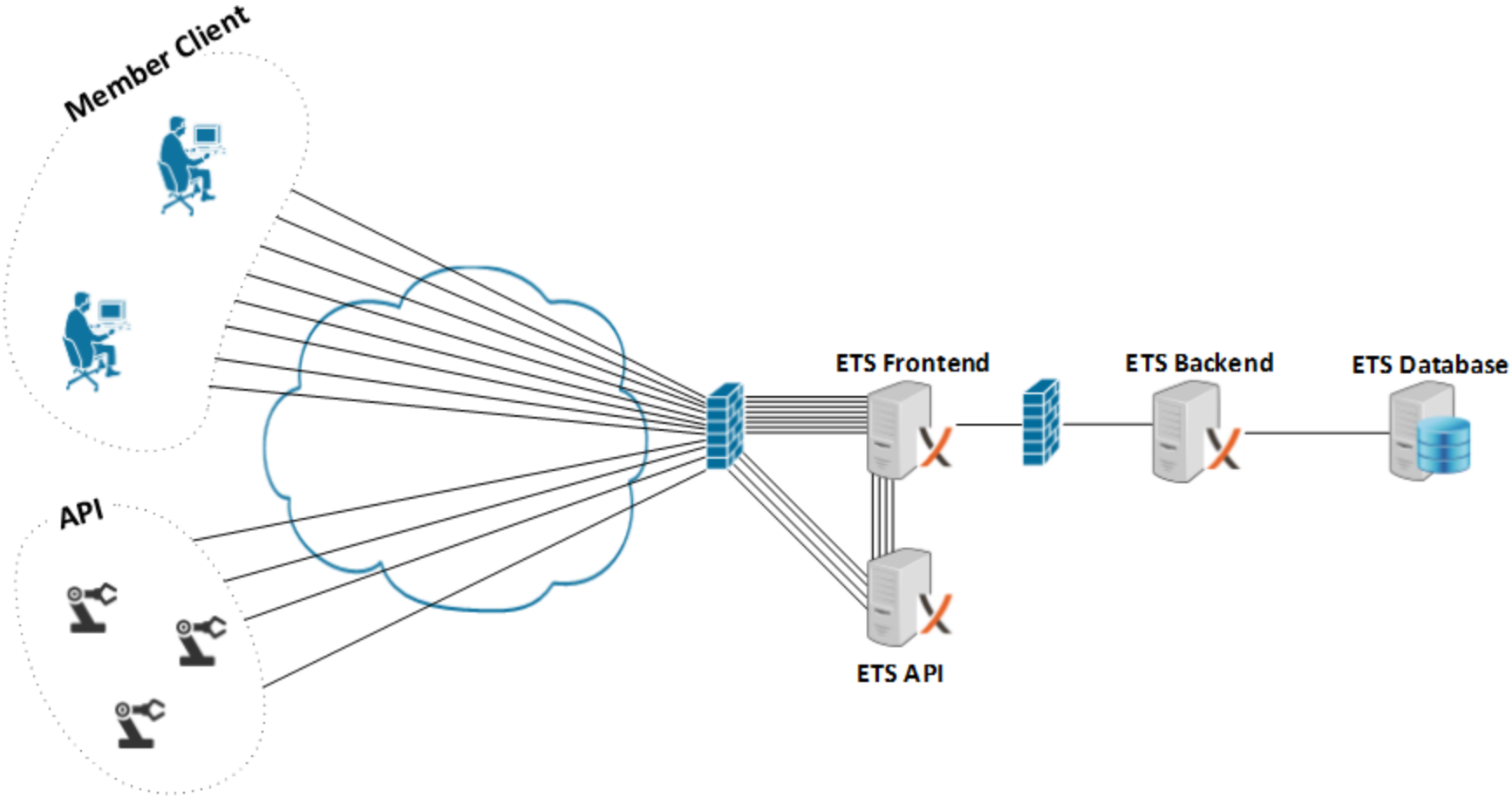
Agenda
1. ETS - General overview
2. ETS - Installation and technical requirements
3. ETS - API overview
4. ETS - Connection and security
5. ETS - Trading Functionalities
6. ETS - Trading on behalf forms (ToB)
7. ETS – Reporting capabilities

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.

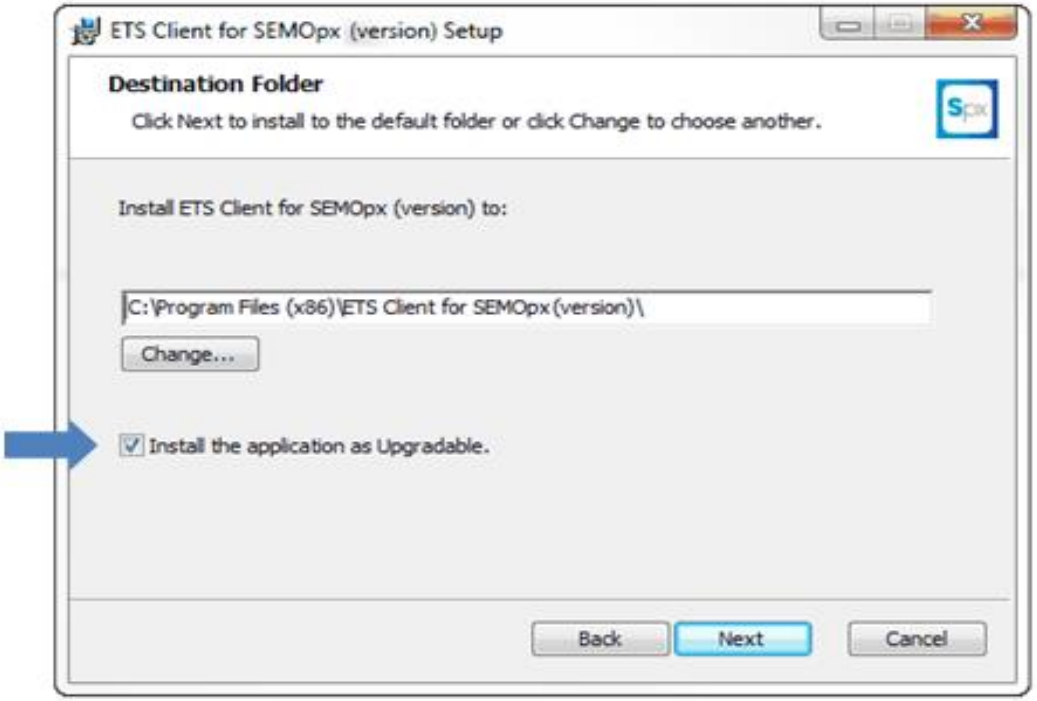
- Fixed: when there is a new version of the client, the participant will have to manually perform the upgrade.

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.

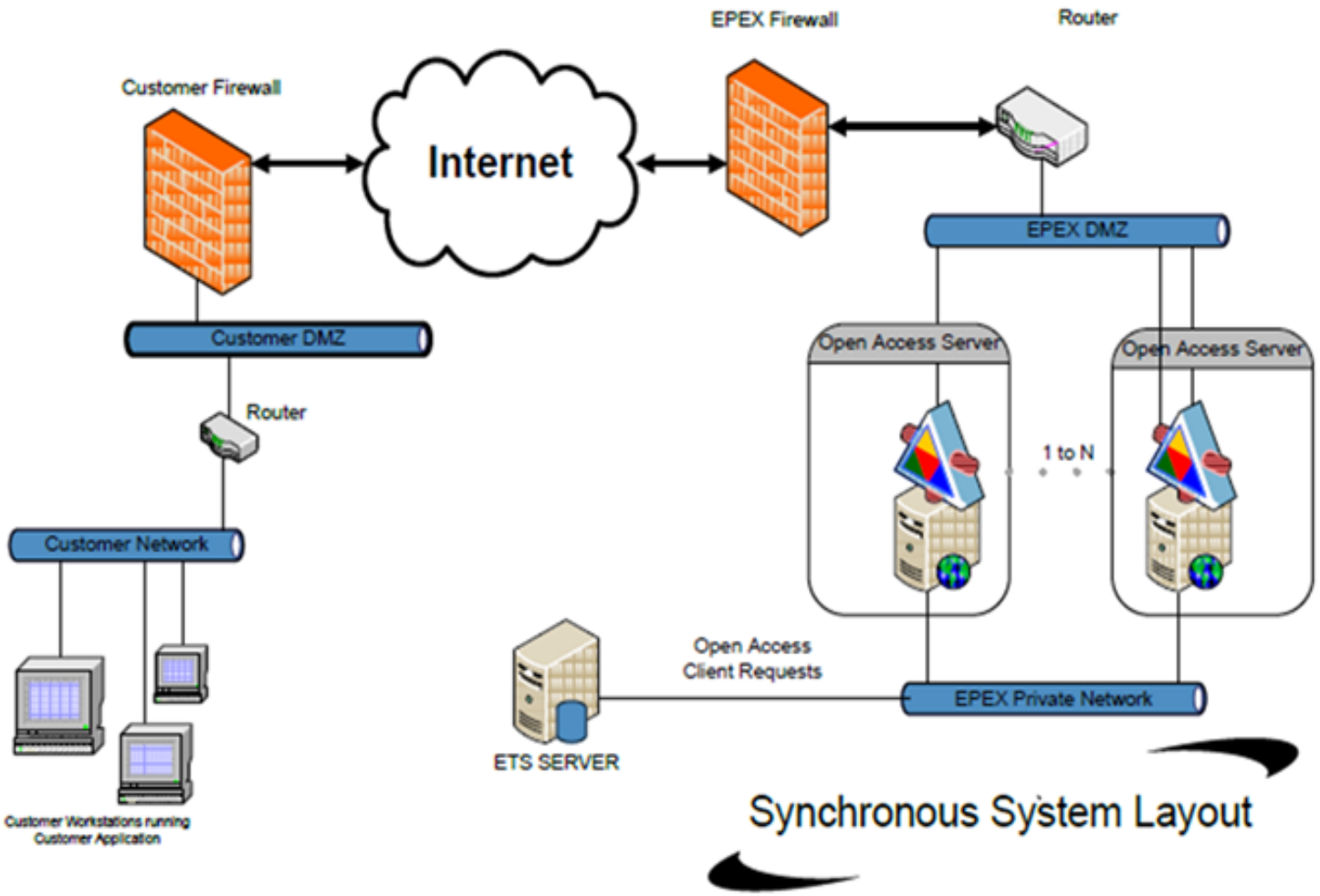
Network settings:

- 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

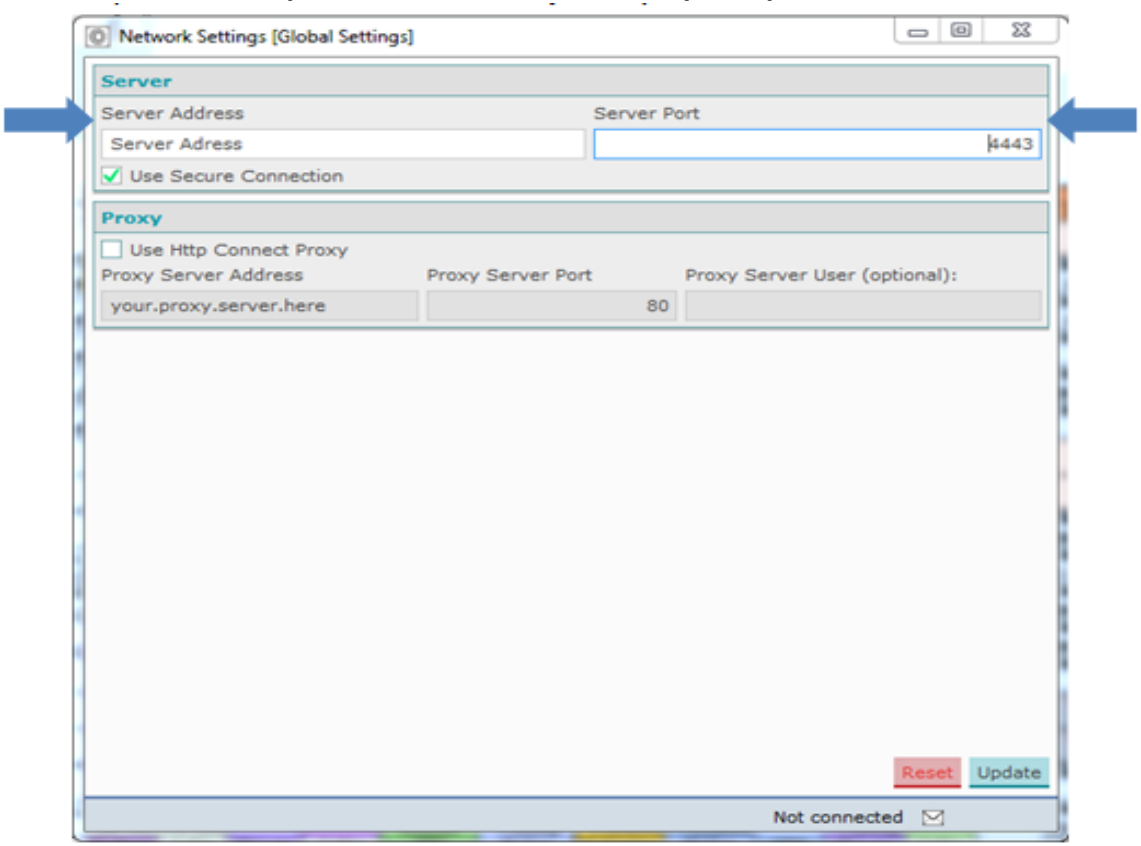
- Is a Soap Web services
- Is secured using 2 ways authentication (TLS 1.2 + Server and Client certificate)
- Require a User and password to connect
- Allow Synchronous request like
  - Send order
  - Update order
  - Delete order
  - Retrieve order
  - Retrieve Market Results

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.

Enter the network details (server address and port):



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

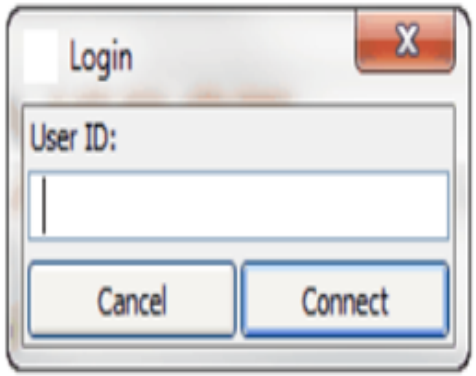
Upon request, the exchange can restrict the connection to specific IP addressed.

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.

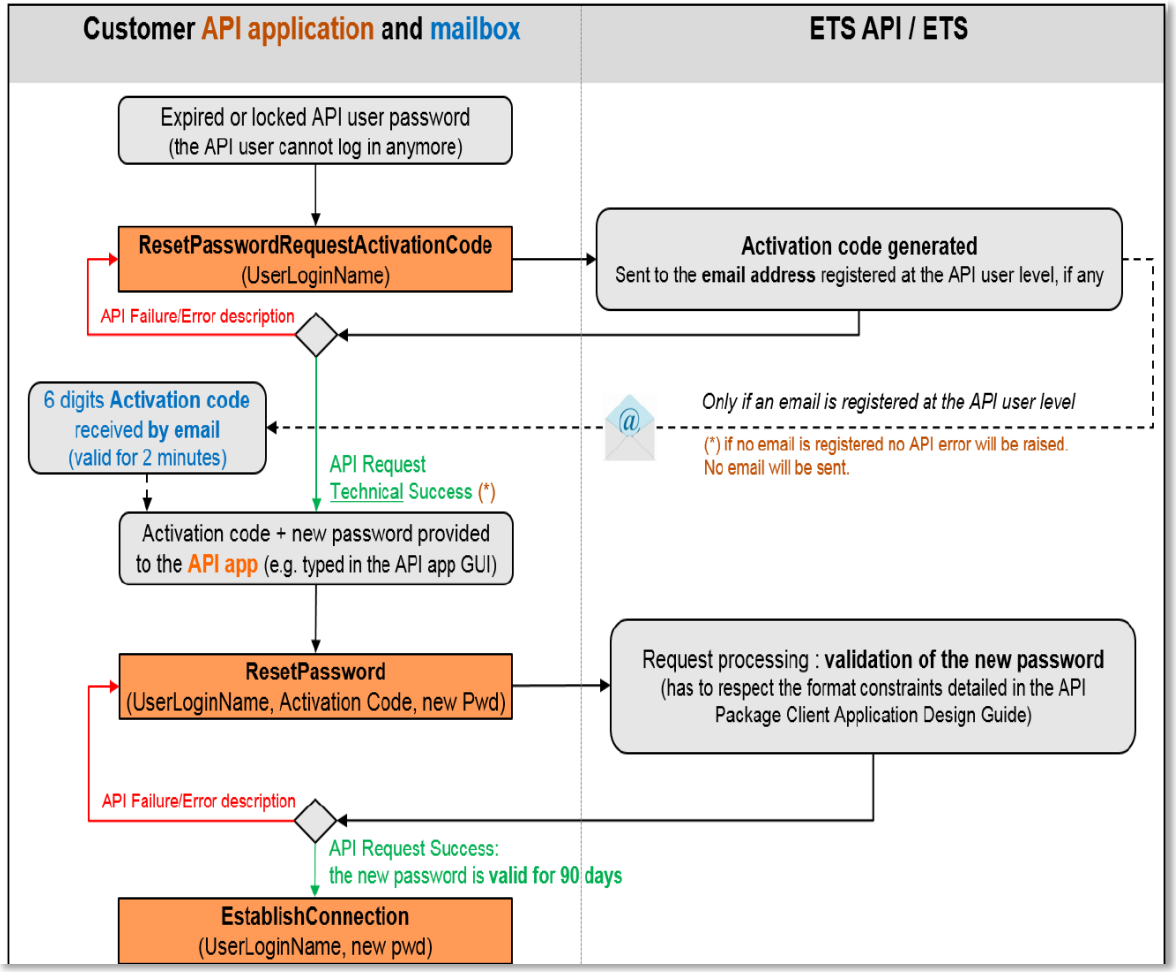


Be aware that you have a maximum of three attempts to enter a correct password.

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:

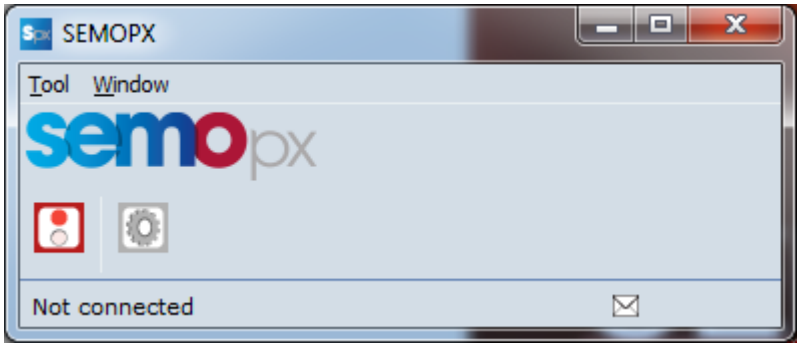
Option 1:

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.

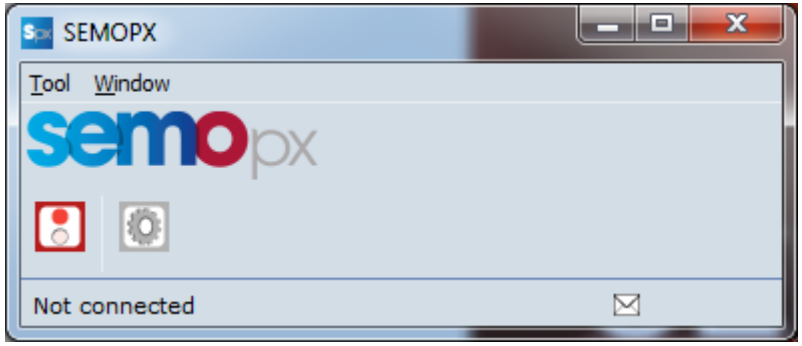
This procedure requires a restart of the Upgradable Client once to execute the update, for which you will be prompted in a dialog.

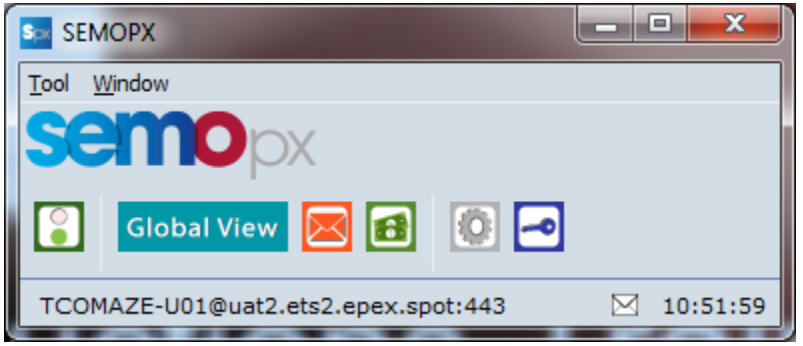
5 ETS Trading Functionalities - Topics

- **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.





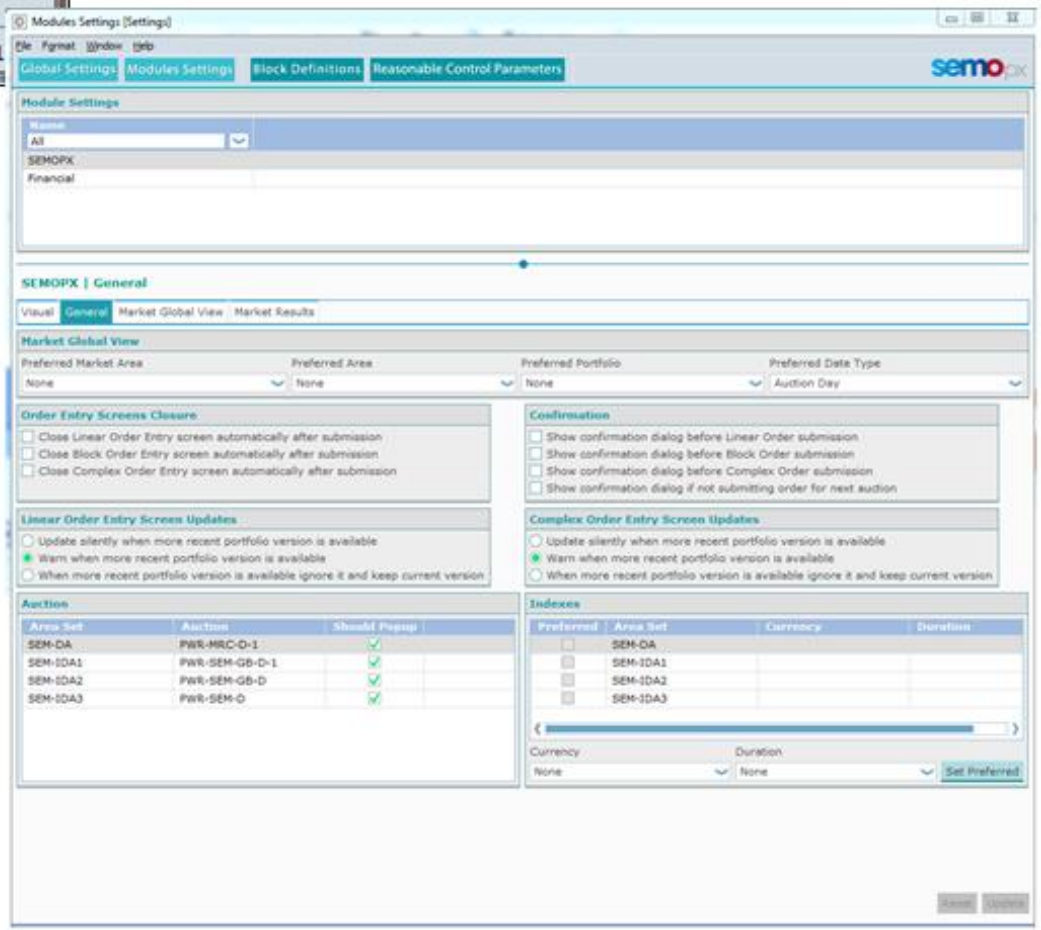
From left to right, the launcher above displays the (Dis)Connect, Global View, Client Message Book, Financial Book, Settings and Change Password icons.

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.



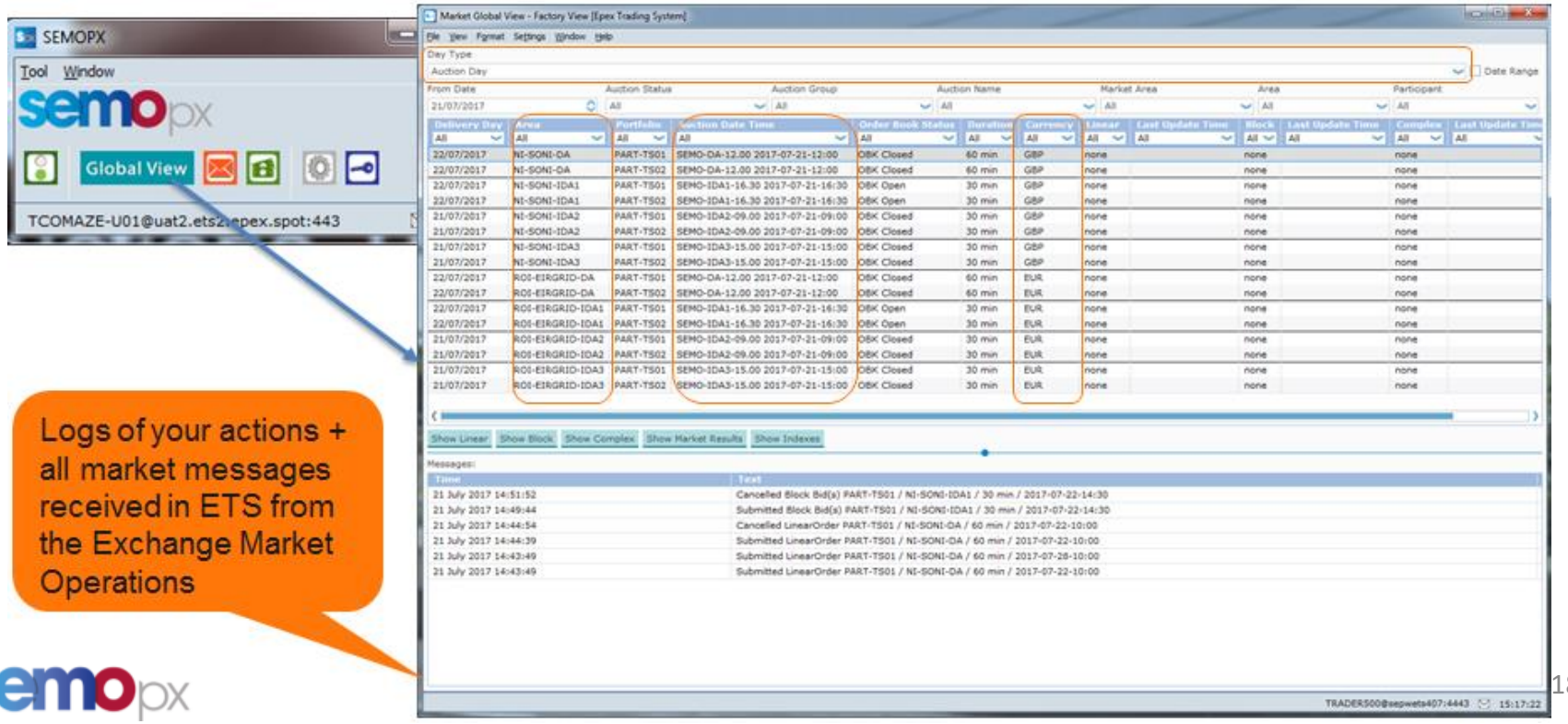
ETS *Market Global View*

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.

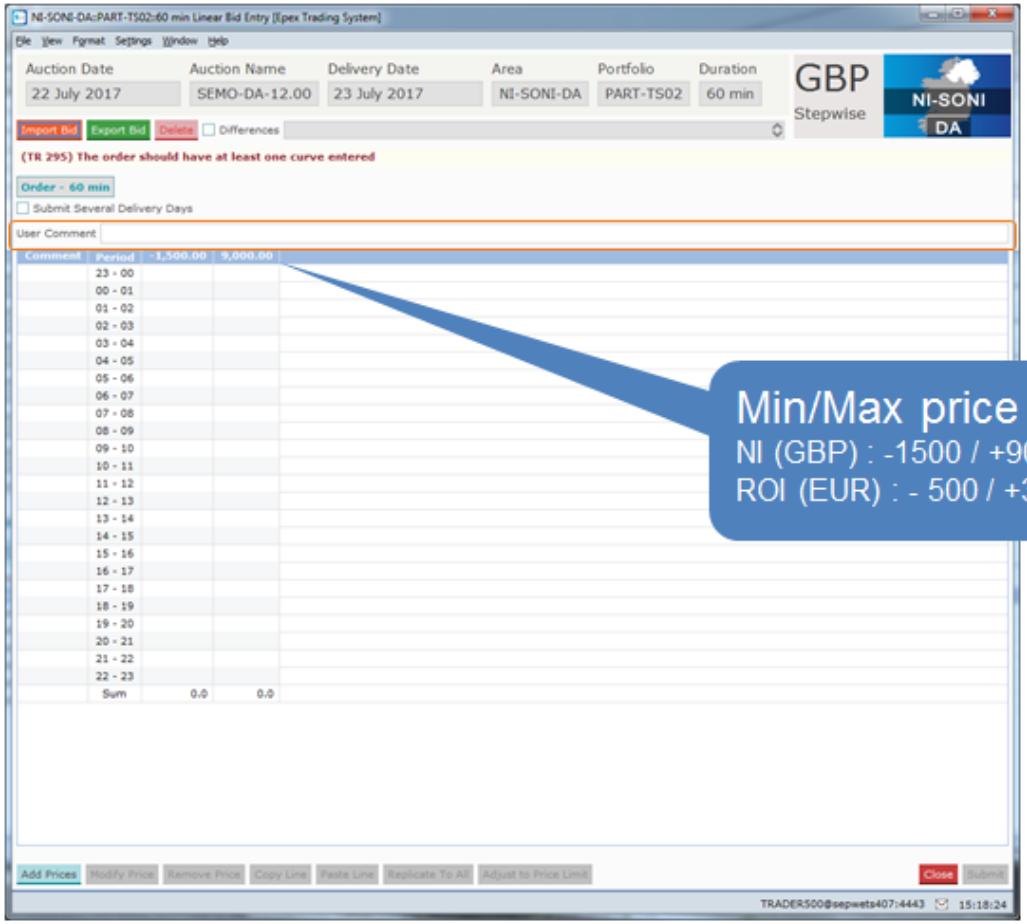
Red coloured messages indicate important information, such as Password expiry, Market Result cancellation and the reception of an exchange message.



Enter linear (Stepwise order)

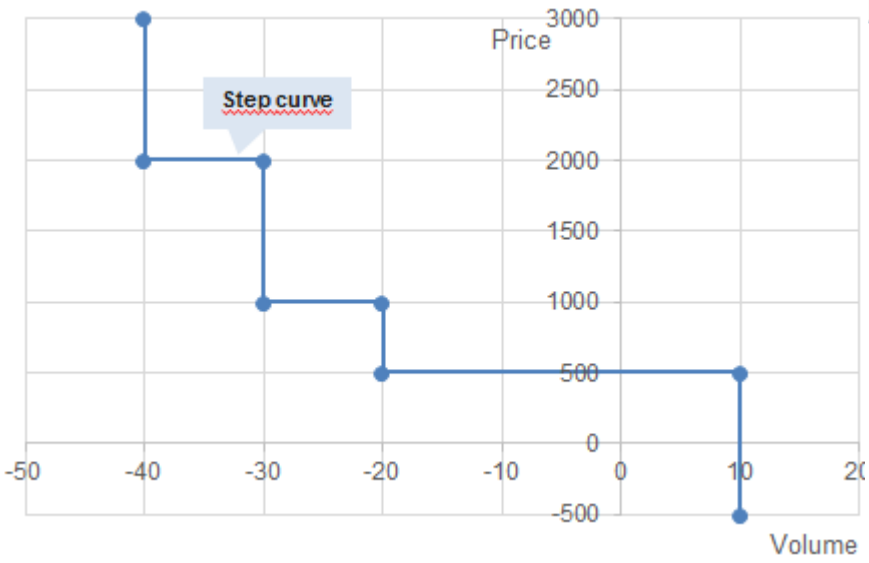
The Linear Bid Entry screen can be accessed via Market Global View under the double-click mouse action or Show Linear button of the Market Global View screen.

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
00 - 01	10.0	10.0	-20.0	-20.0	-30.0	-30.0	-40.0	-40.0

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
1	-500	500	500	1000	1000	2000	2000	3000
2	10	10	-20	-20	-30	-30	-40	-40

Negative volume is a sell order at that point

ETS - *Stepwise orders entry example*

OK

Except for min and max prices, each price must be inserted twice to allow a step curve.

Comment	Period	-500.0	30.0	30.0	3,000.0
	00 - 01	50.0	50.0	40.0	40.0
	01 - 02				
	02 - 03				
	03 - 04				
	04 - 05				
	05 - 06				
	06 - 07				
	07 - 08				
	08 - 09				
	09 - 10				
	10 - 11				
	11 - 12				

NOK

If one « double » price is missing, an error message appears

Comment	Period	-500.0	30.0	30.0	3,000.0
	00 - 01	50.0	40.0		40.0
	01 - 02				
	02 - 03				
	03 - 04				
	04 - 05				
	05 - 06				
	06 - 07				
	07 - 08				
	08 - 09				
	09 - 10				
	10 - 11				
	11 - 12				
	21 - 22				
	22 - 23				
	23 - 24				
	Sum	50.0	40.0	0.0	40.0

The order must build a step curve. Quantities must be replicated to create vertical segments. Here the « 40 » is different from « 50 » on the left and this creates an error as well.

(TR 114) Illogical bid for hour: 00 - 01

Example: Demand order

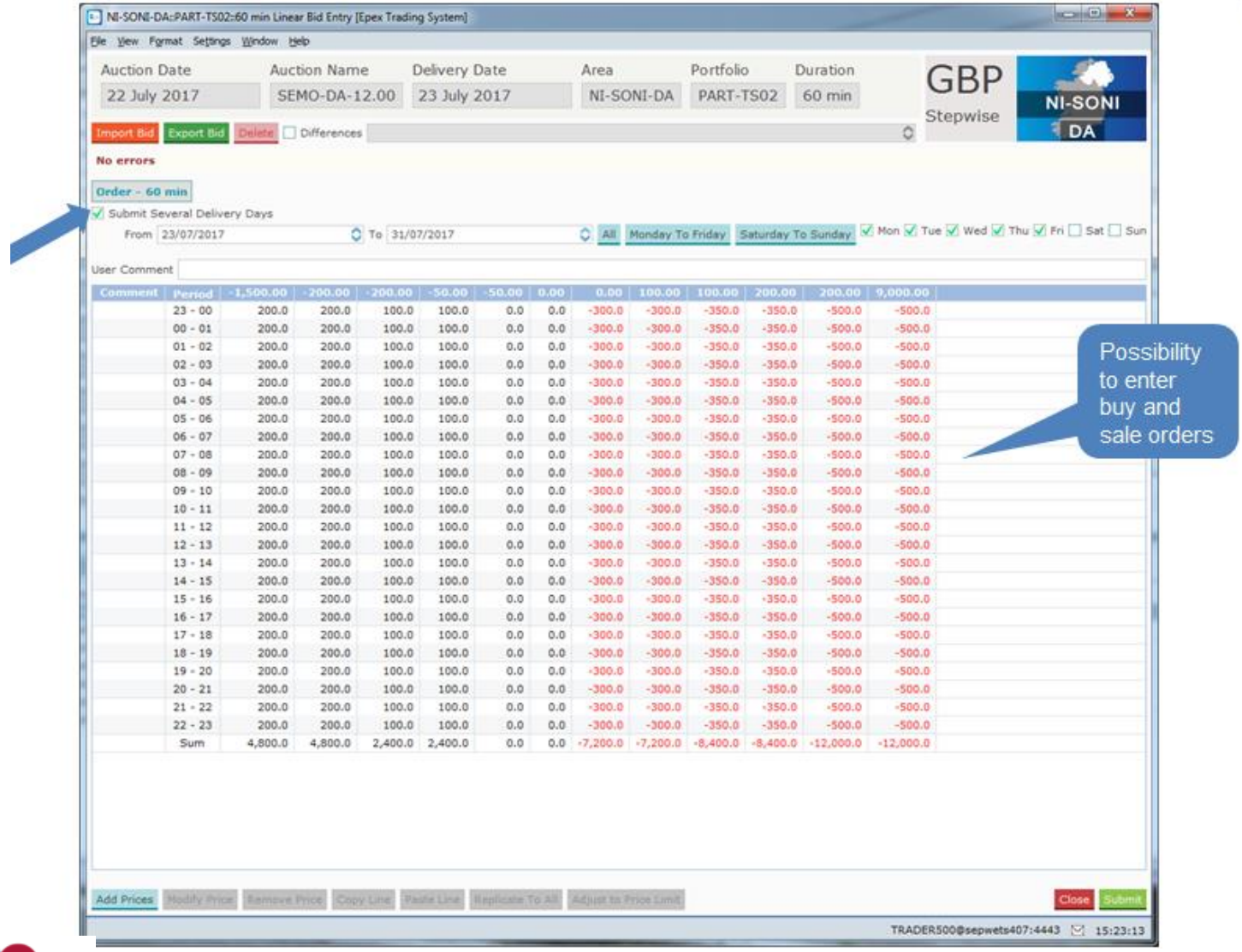
	-500	10	10	100	100	3000
1	30	30	20	20	10	10
2						
3						

- 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 & 3000 I want to buy 10
- At price 3000 I want to buy 10, in case of curtailment the qty can be between 0 and 10

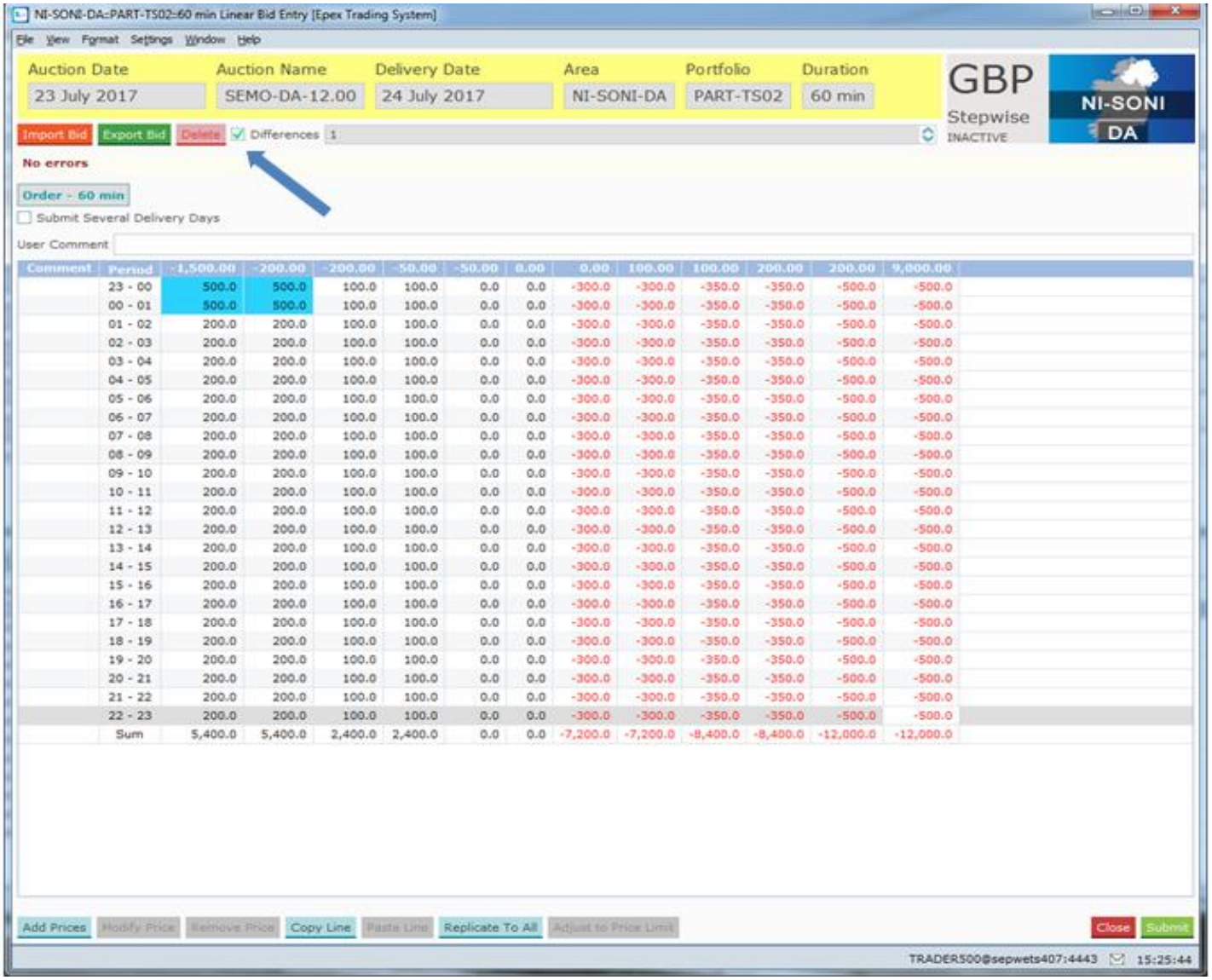
The quantity that will be allocated depending on the price in both cases is:

- At price 3000 the qty is between 0 & 10
- For a price between 3000 & 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

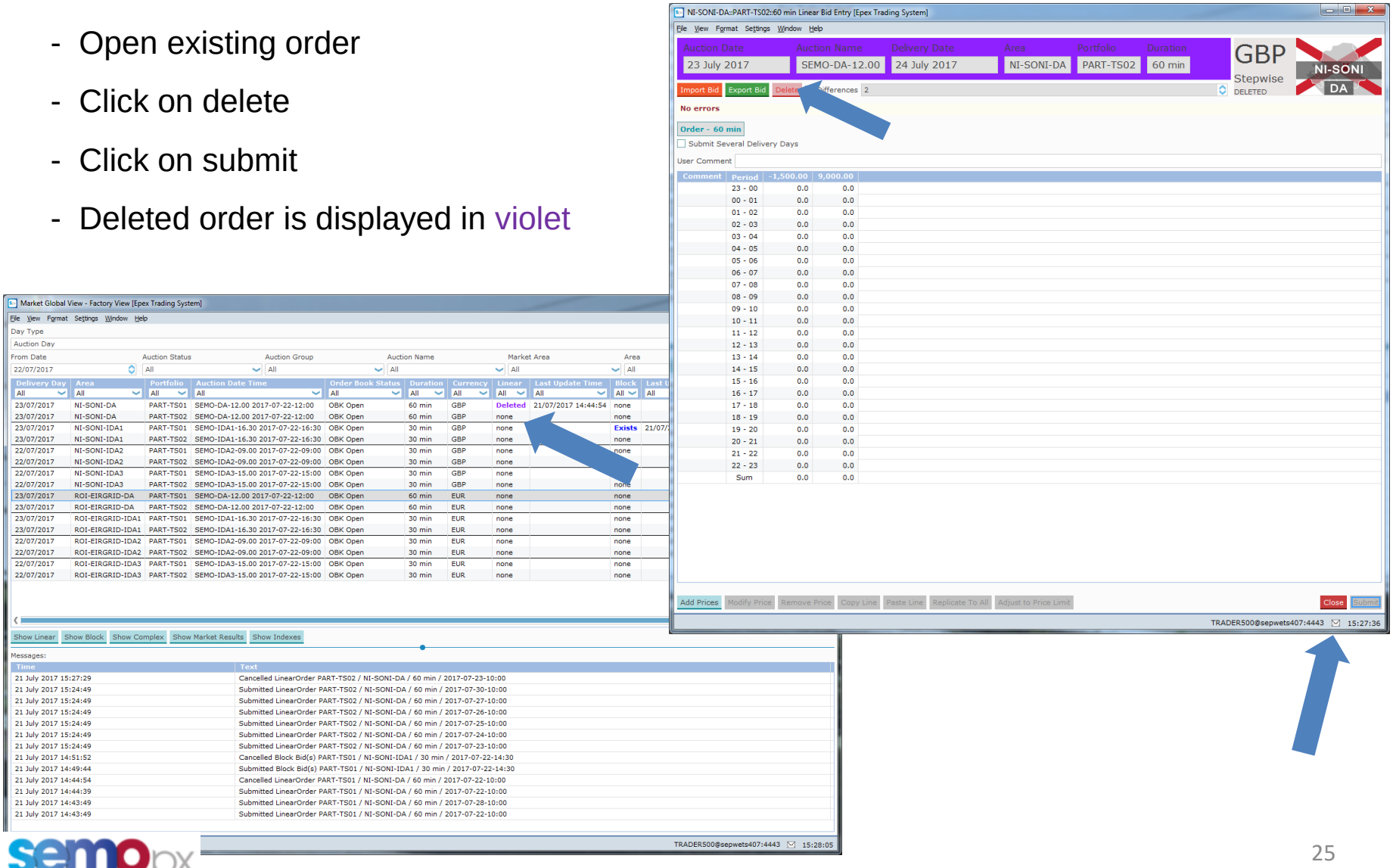


Modify order and check for differences

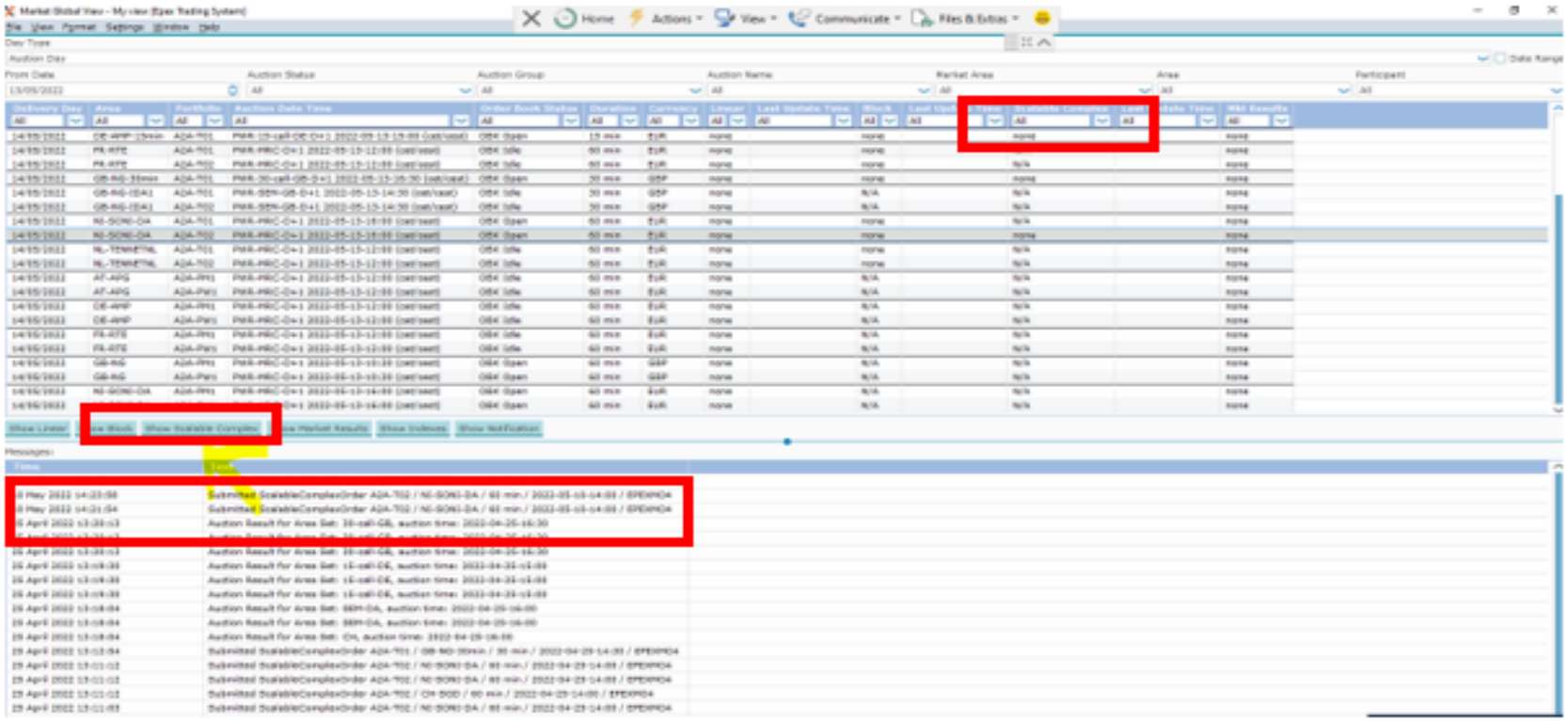


Cancel Linear Order

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



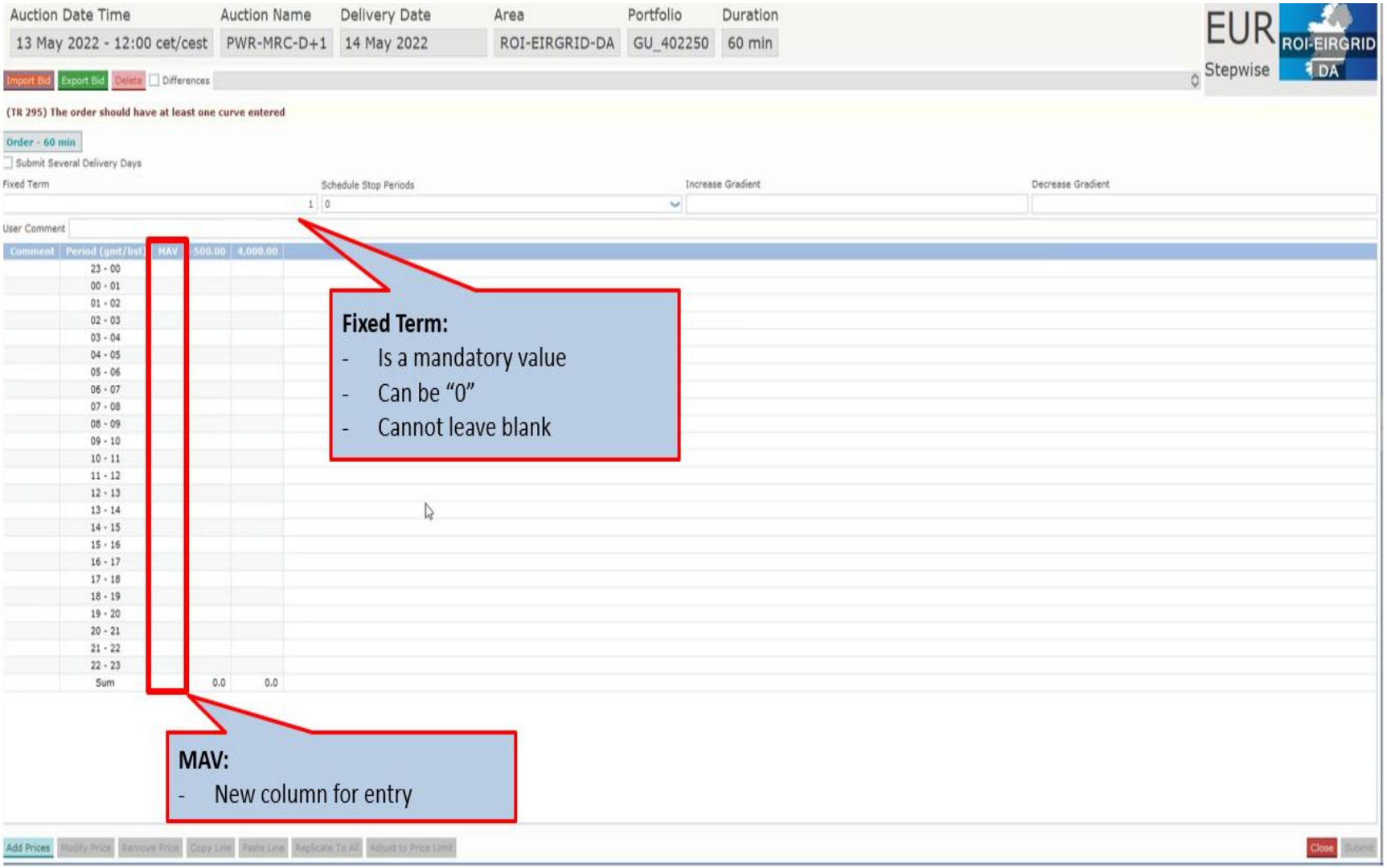
Enter Scalable Complex Orders



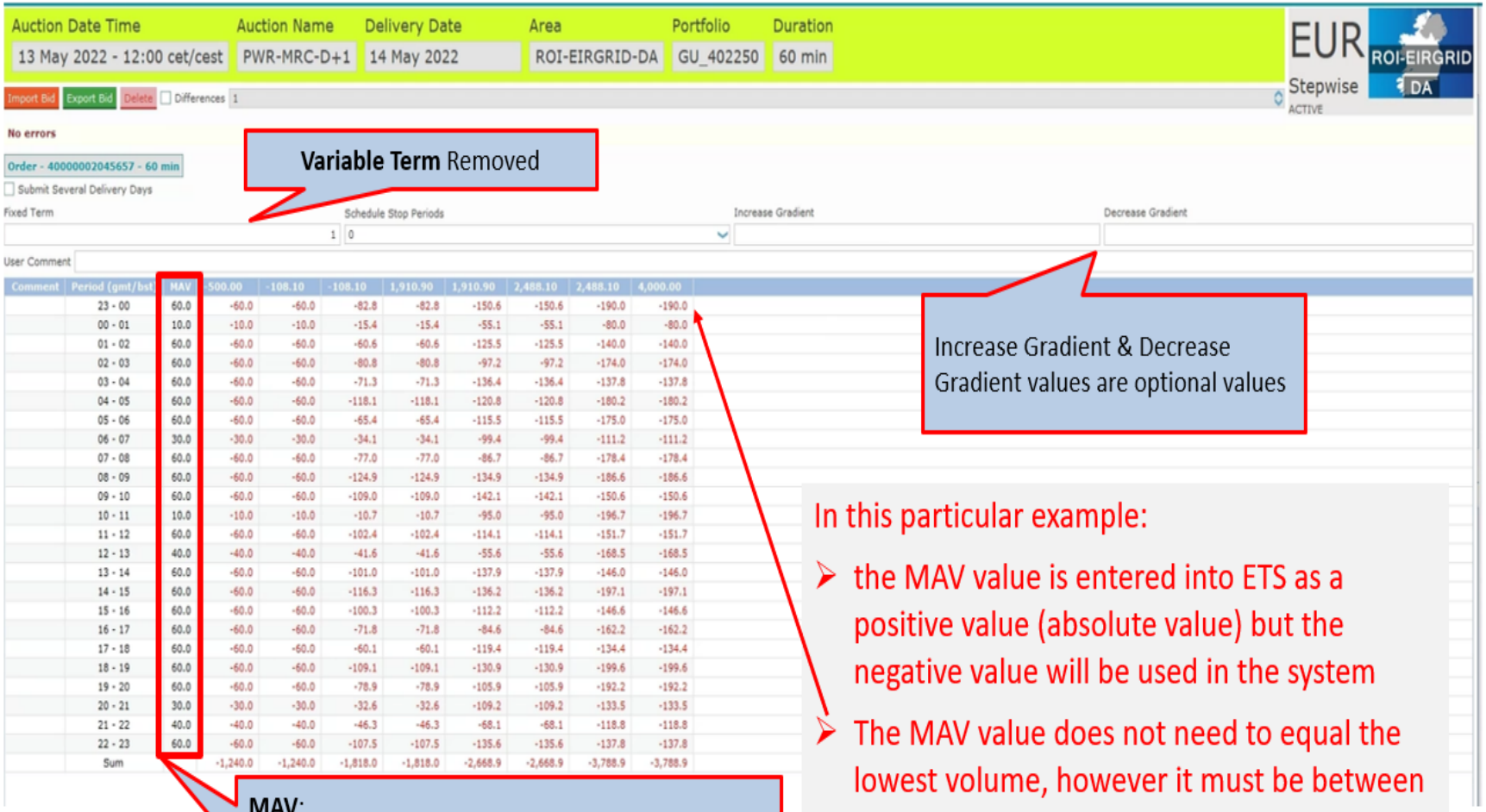
The Scalable Complex Bid Entry screen can be aacess via Market Global View under the double-click mouse action or “Show Scalable Complex” of the Market Global View screen.

Alternatively, double-click the “Scalable complex” field that you wish to open a Scalable Complex bid screen for.

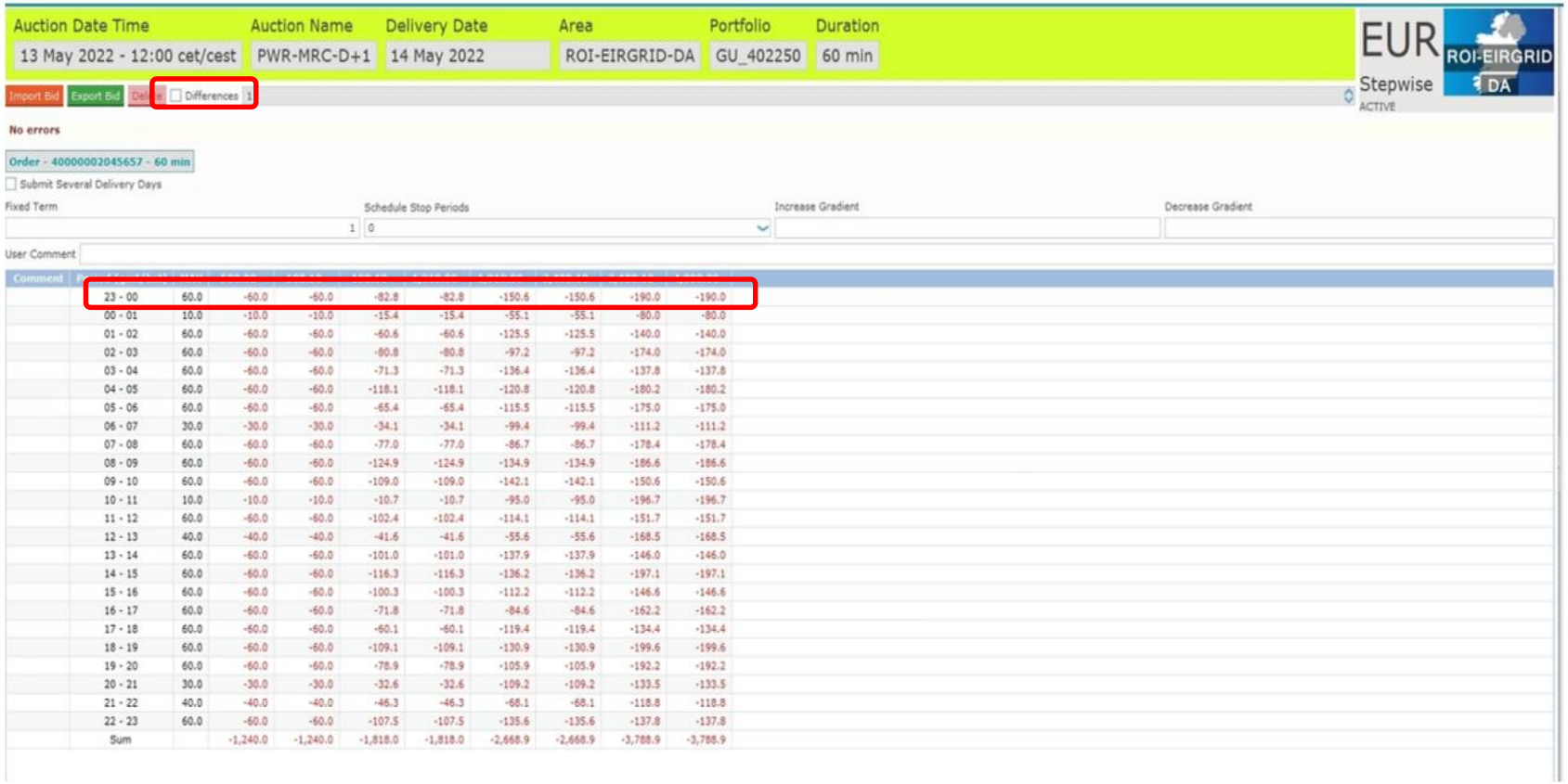
Enter Scalable Complex Orders



Enter Scalable Complex Orders



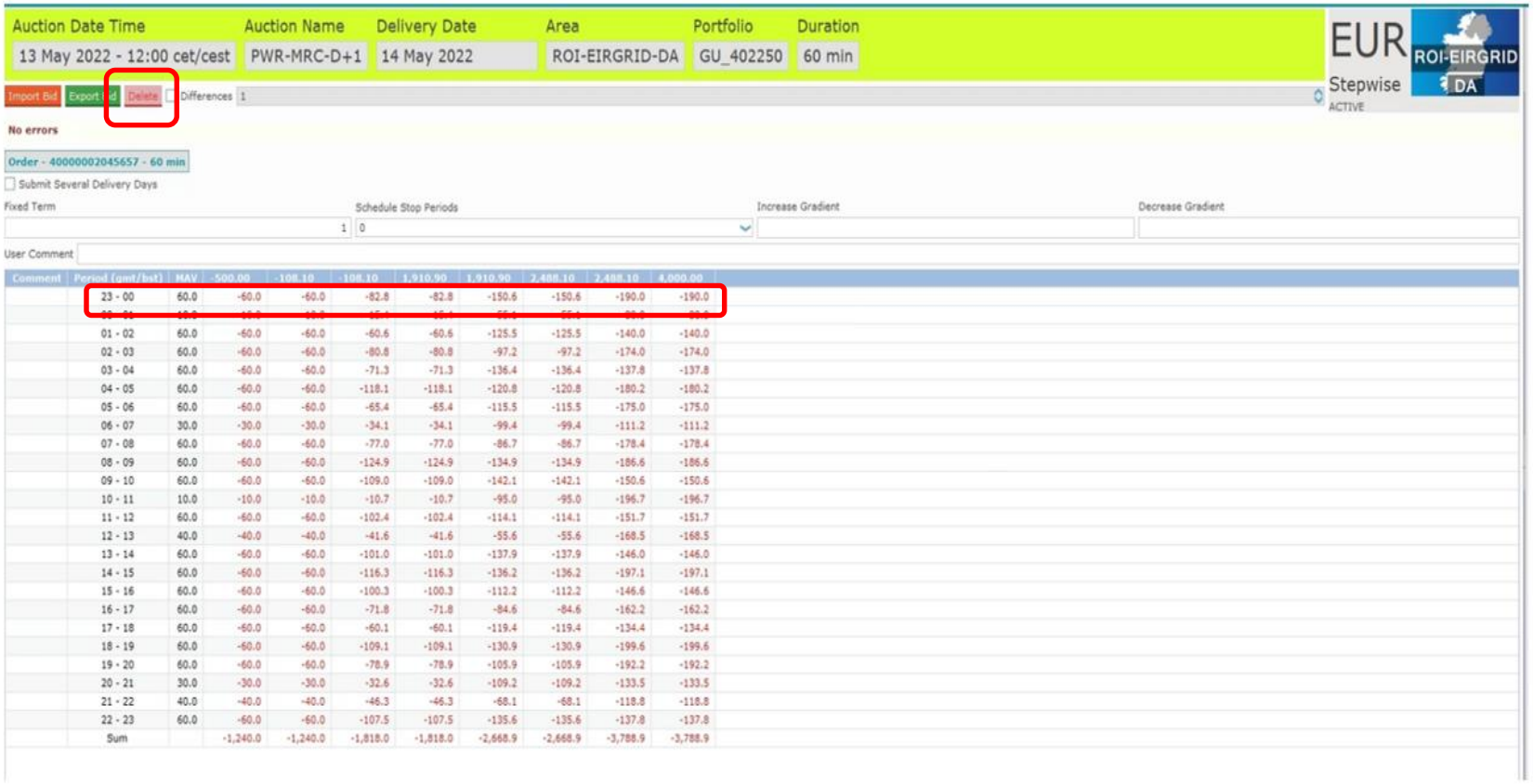
Modify Scalable Complex Orders



Comment										
	23 - 00	60.0	-60.0	-60.0	-82.8	-82.8	-150.6	-150.6	-190.0	-190.0
	00 - 01	10.0	-10.0	-10.0	-15.4	-15.4	-55.1	-55.1	-80.0	-80.0
	01 - 02	60.0	-60.0	-60.0	-60.6	-60.6	-125.5	-125.5	-140.0	-140.0
	02 - 03	60.0	-60.0	-60.0	-80.8	-80.8	-97.2	-97.2	-174.0	-174.0
	03 - 04	60.0	-60.0	-60.0	-71.3	-71.3	-136.4	-136.4	-137.8	-137.8
	04 - 05	60.0	-60.0	-60.0	-118.1	-118.1	-120.8	-120.8	-180.2	-180.2
	05 - 06	60.0	-60.0	-60.0	-65.4	-65.4	-115.5	-115.5	-175.0	-175.0
	06 - 07	30.0	-30.0	-30.0	-34.1	-34.1	-99.4	-99.4	-111.2	-111.2
	07 - 08	60.0	-60.0	-60.0	-77.0	-77.0	-86.7	-86.7	-178.4	-178.4
	08 - 09	60.0	-60.0	-60.0	-124.9	-124.9	-134.9	-134.9	-186.6	-186.6
	09 - 10	60.0	-60.0	-60.0	-109.0	-109.0	-142.1	-142.1	-150.6	-150.6
	10 - 11	10.0	-10.0	-10.0	-10.7	-10.7	-95.0	-95.0	-196.7	-196.7
	11 - 12	60.0	-60.0	-60.0	-102.4	-102.4	-114.1	-114.1	-151.7	-151.7
	12 - 13	40.0	-40.0	-40.0	-41.6	-41.6	-55.6	-55.6	-168.5	-168.5
	13 - 14	60.0	-60.0	-60.0	-101.0	-101.0	-137.9	-137.9	-146.0	-146.0
	14 - 15	60.0	-60.0	-60.0	-116.3	-116.3	-136.2	-136.2	-197.1	-197.1
	15 - 16	60.0	-60.0	-60.0	-100.3	-100.3	-112.2	-112.2	-146.6	-146.6
	16 - 17	60.0	-60.0	-60.0	-71.8	-71.8	-84.6	-84.6	-162.2	-162.2
	17 - 18	60.0	-60.0	-60.0	-60.1	-60.1	-119.4	-119.4	-134.4	-134.4
	18 - 19	60.0	-60.0	-60.0	-109.1	-109.1	-130.9	-130.9	-199.6	-199.6
	19 - 20	60.0	-60.0	-60.0	-78.9	-78.9	-105.9	-105.9	-192.2	-192.2
	20 - 21	30.0	-30.0	-30.0	-32.6	-32.6	-109.2	-109.2	-133.5	-133.5
	21 - 22	40.0	-40.0	-40.0	-46.3	-46.3	-68.1	-68.1	-118.8	-118.8
	22 - 23	60.0	-60.0	-60.0	-107.5	-107.5	-135.6	-135.6	-137.8	-137.8
	Sum		-1,240.0	-1,240.0	-1,818.0	-1,818.0	-2,668.9	-2,668.9	-3,788.9	-3,788.9

Following on from instructions on slide 28, 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 Scalable Complex Orders

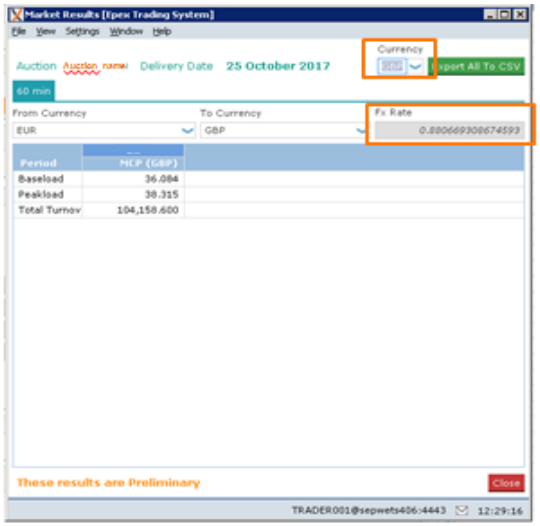


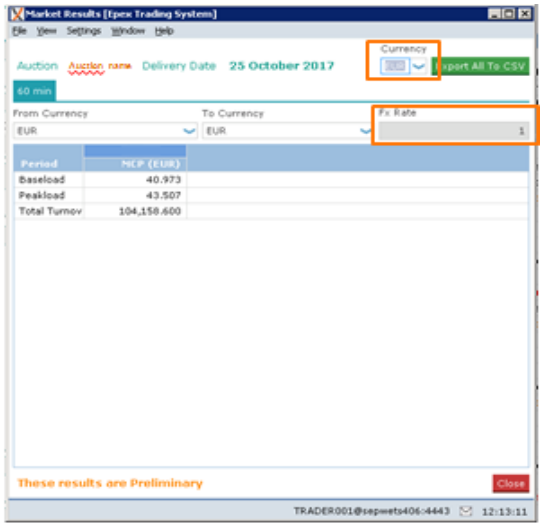
Comment	Period (qmt/hst)	MAV	-500.00	-108.10	-108.10	1,910.90	1,910.90	2,488.10	2,488.10	4,000.00
	23 - 00	60.0	-60.0	-60.0	-82.8	-82.8	-150.6	-150.6	-190.0	-190.0
	01 - 02	60.0	-60.0	-60.0	-60.6	-60.6	-125.5	-125.5	-140.0	-140.0
	02 - 03	60.0	-60.0	-60.0	-80.8	-80.8	-97.2	-97.2	-174.0	-174.0
	03 - 04	60.0	-60.0	-60.0	-71.3	-71.3	-136.4	-136.4	-137.8	-137.8
	04 - 05	60.0	-60.0	-60.0	-118.1	-118.1	-120.8	-120.8	-180.2	-180.2
	05 - 06	60.0	-60.0	-60.0	-65.4	-65.4	-115.5	-115.5	-175.0	-175.0
	06 - 07	30.0	-30.0	-30.0	-34.1	-34.1	-99.4	-99.4	-111.2	-111.2
	07 - 08	60.0	-60.0	-60.0	-77.0	-77.0	-86.7	-86.7	-178.4	-178.4
	08 - 09	60.0	-60.0	-60.0	-124.9	-124.9	-134.9	-134.9	-186.6	-186.6
	09 - 10	60.0	-60.0	-60.0	-109.0	-109.0	-142.1	-142.1	-150.6	-150.6
	10 - 11	10.0	-10.0	-10.0	-10.7	-10.7	-95.0	-95.0	-196.7	-196.7
	11 - 12	60.0	-60.0	-60.0	-102.4	-102.4	-114.1	-114.1	-151.7	-151.7
	12 - 13	40.0	-40.0	-40.0	-41.6	-41.6	-55.6	-55.6	-168.5	-168.5
	13 - 14	60.0	-60.0	-60.0	-101.0	-101.0	-137.9	-137.9	-146.0	-146.0
	14 - 15	60.0	-60.0	-60.0	-116.3	-116.3	-136.2	-136.2	-197.1	-197.1
	15 - 16	60.0	-60.0	-60.0	-100.3	-100.3	-112.2	-112.2	-146.6	-146.6
	16 - 17	60.0	-60.0	-60.0	-71.8	-71.8	-84.6	-84.6	-162.2	-162.2
	17 - 18	60.0	-60.0	-60.0	-60.1	-60.1	-119.4	-119.4	-134.4	-134.4
	18 - 19	60.0	-60.0	-60.0	-109.1	-109.1	-130.9	-130.9	-199.6	-199.6
	19 - 20	60.0	-60.0	-60.0	-78.9	-78.9	-105.9	-105.9	-192.2	-192.2
	20 - 21	30.0	-30.0	-30.0	-32.6	-32.6	-109.2	-109.2	-133.5	-133.5
	21 - 22	40.0	-40.0	-40.0	-46.3	-46.3	-68.1	-68.1	-118.8	-118.8
	22 - 23	60.0	-60.0	-60.0	-107.5	-107.5	-135.6	-135.6	-137.8	-137.8
	Sum		-1,240.0	-1,240.0	-1,818.0	-1,818.0	-2,668.9	-2,668.9	-3,788.9	-3,788.9

Following on from instructions on slide 28, choose the complex order you wish to delete. Select “Delete” and then select “Submit”.

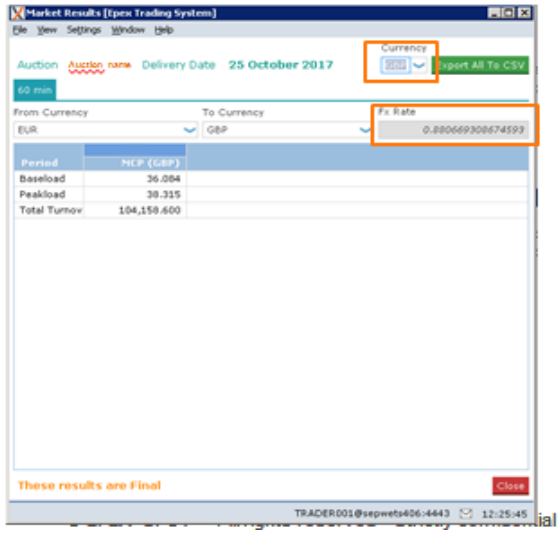
Market Results pop-up

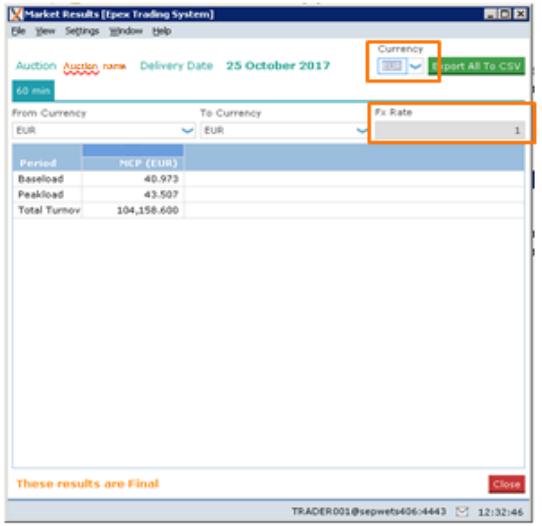
- Preliminary results *(for coupled auctions only)*



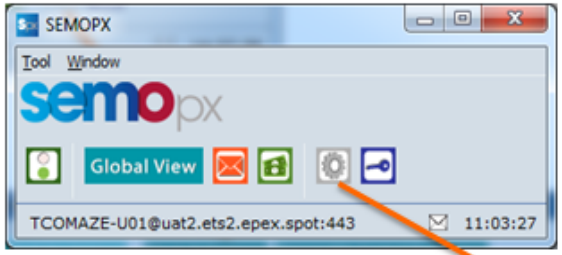


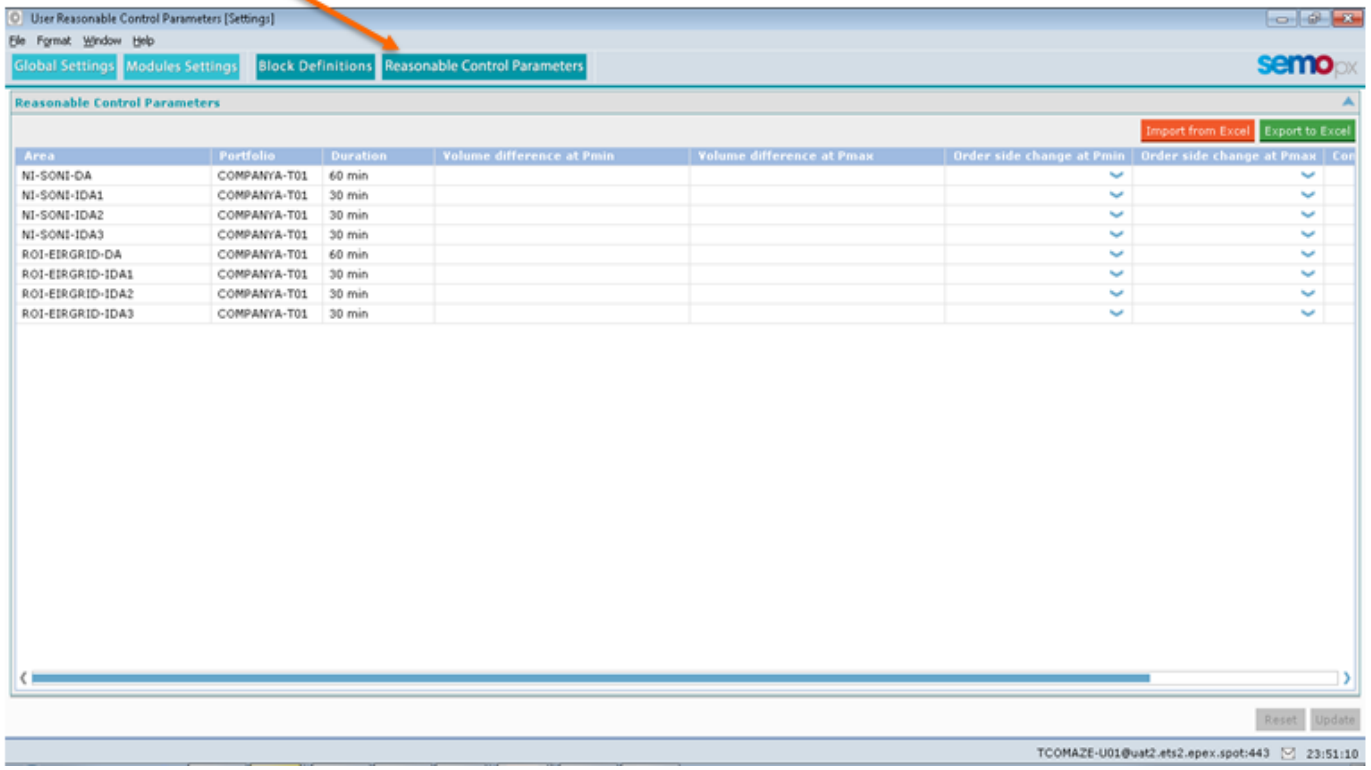
- Final results *(for both coupled and local auctions)*



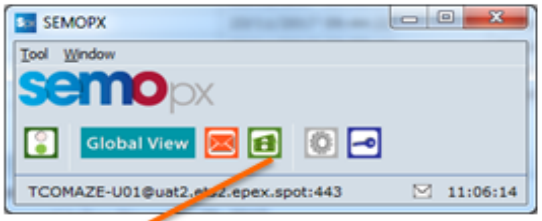


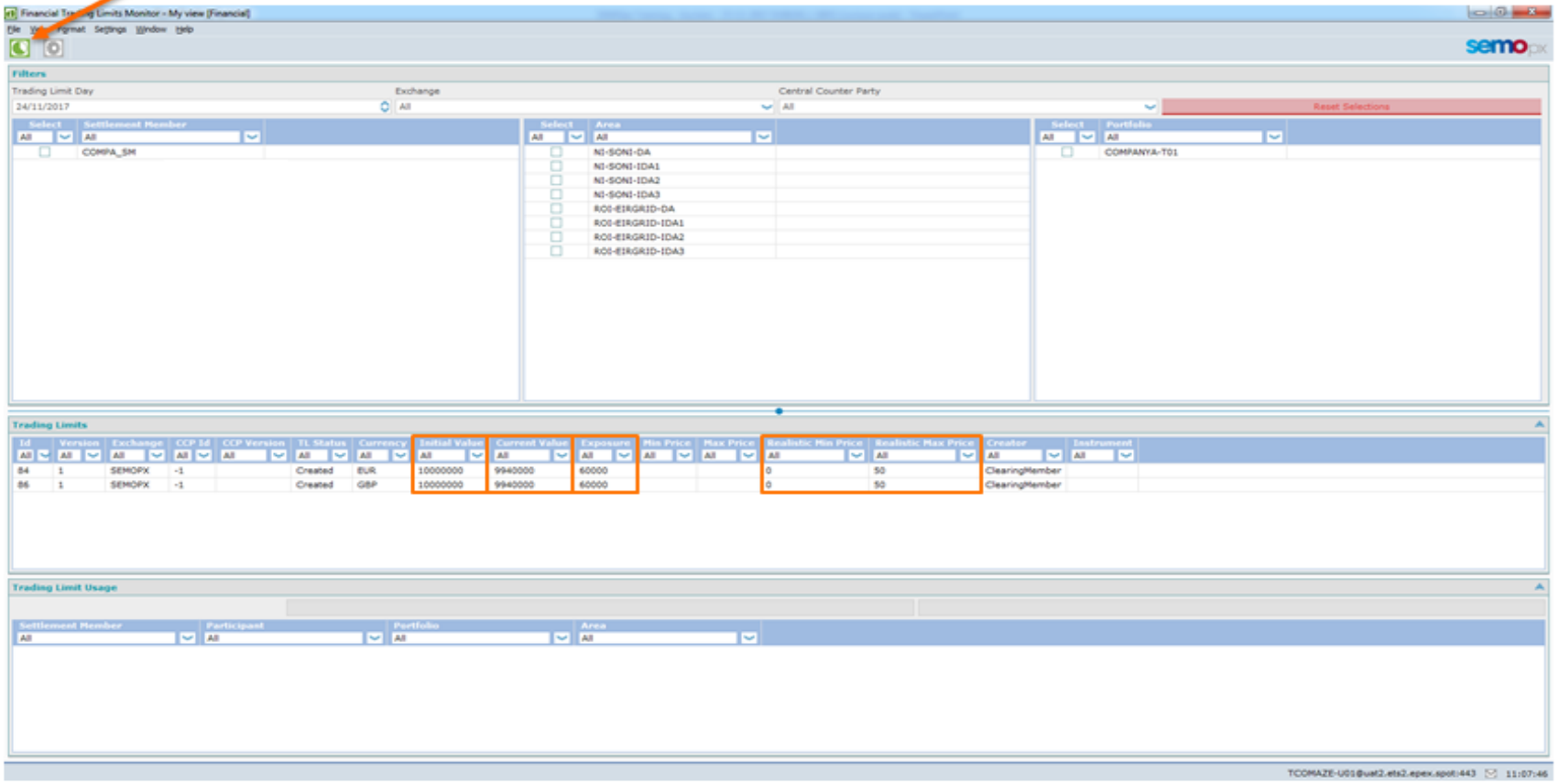
Define Reasonable Control Parameters





Check Trading Limits

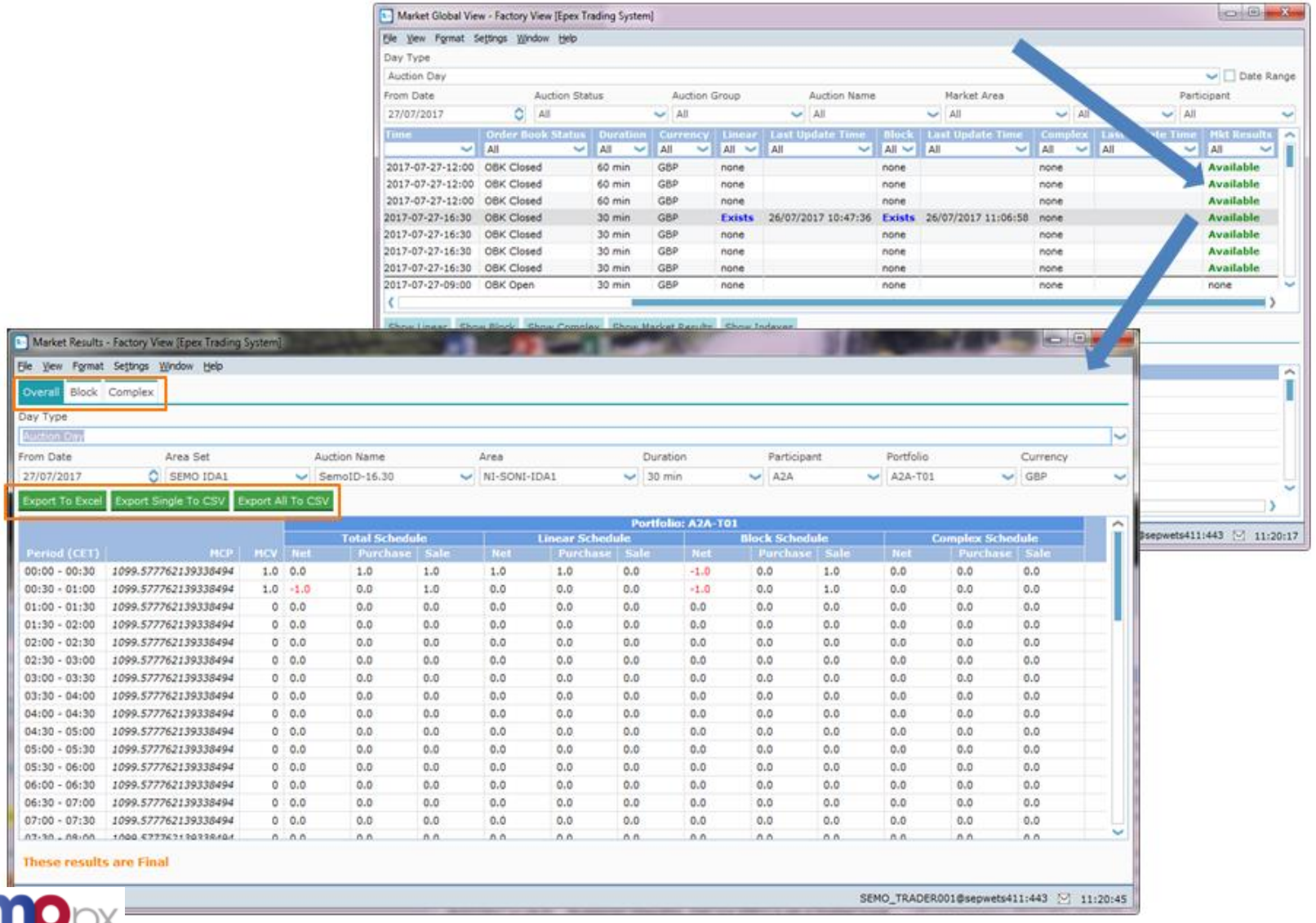




6 Trading on behalf forms (ToB)/Submission On Behalf Tool (SOBT)

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

- **ToB :** Excel backup forms are available here on the website to be sent back by email in case of connection issues **on member side**. The ToB service is available for the DAM, IDA1, IDA2 and IDA3. Orders are entered on the member's behalf, *on a best efforts basis*.

- Further information on ToB please see market message here

7 ETS Reporting capabilities