

Information System User Manual



Intraday market - Gas



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18.9.2018	New separate application for IM
15.11.2018	VIP news update, new column for Trades overview by delivery day report
17.12.2018	Basket update, new chapter 5.5 Monitoring fulfillment of conditions regarding GMR Annex No.8, point 9 and 10
22.9.2020	Updated number of orders for (de)activation and deletion (chapter 5.2.2.2 and 5.2.4)
23.2.2021	Chapter 3.1 Basic market principles updated

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1 User interface of IM application

This document describes the basic navigation in the user environment of Intraday Market – Gas application (IM). The client's application IM is designed as a standalone application and before its first use the installation is needed. The installation program is available through the portal CS OTE.

Specific procedures used for individual processes are described in next chapters.

1.1 Initial screen of IM application

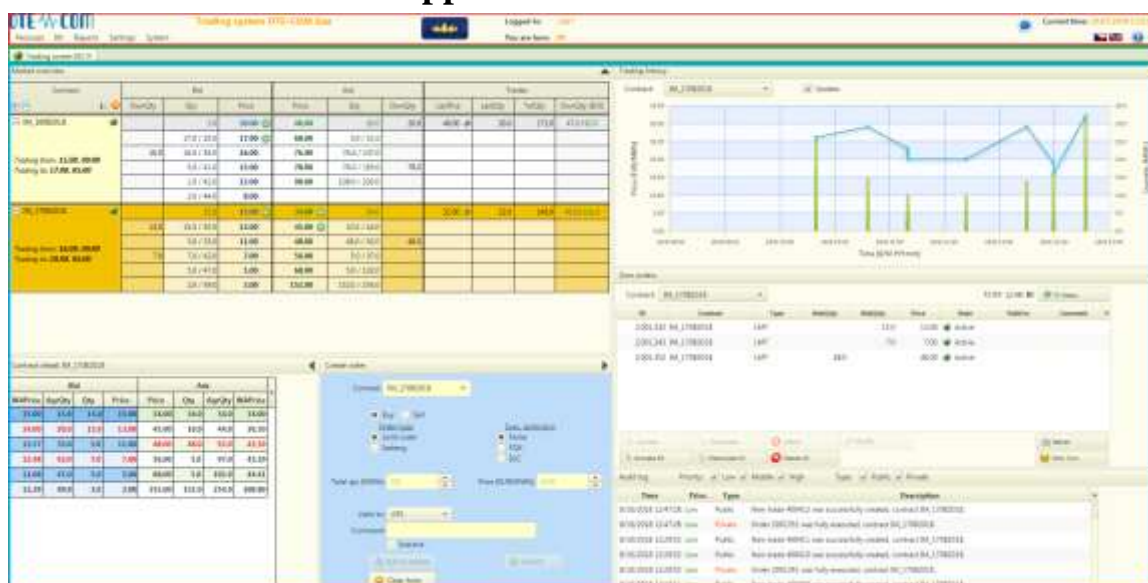


Figure 1: Application IM screen

Application consists of following sections:

- Header with information and menu
- Bookmarks
- Page contents consisting of panels

The user can adjust layout and content of individual screens according to his own needs. Sizes of each sections can be changed with the interdependence between them and that shifting the dividing lines of individual sections. This user setting can be saved and is then accessible only to specific user from the menu Personal. How to work with user screens setting describes chapter 7 *Setting the parameters of IM trading screen*.

1.1.1 Header

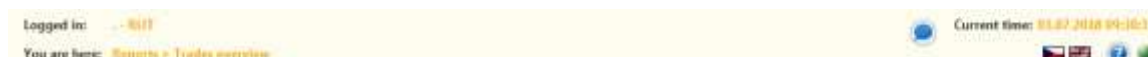


Figure 2: Header


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In header there are displayed information:

- Logged user in format „user, participant“
- Icon  to view so called News – informative reports

In the case of new news:

- The message is appeared in audit log on trading screen worded as follows „OTE news has published „*The news name*“.“
- The icon will blink ( , ) and this icon status persists until the list of news, which are not marked as read or until unread news expire (this news is automatically withdrawn)

A window with the news is appeared after pressing the icon. It contains a list of current news. New unread news are highlighted in bold text. Read valid news are visible but not highlighted in bold text any more. Read news, which will be later changed (newer version of news), will be marked as unread (highlighted in bold text). After clicking on row with the highlighted new the given new is considered as read and bold text is changed to normal.

News are ordered descend by the time of showing up (it means that the most actual are shown first).

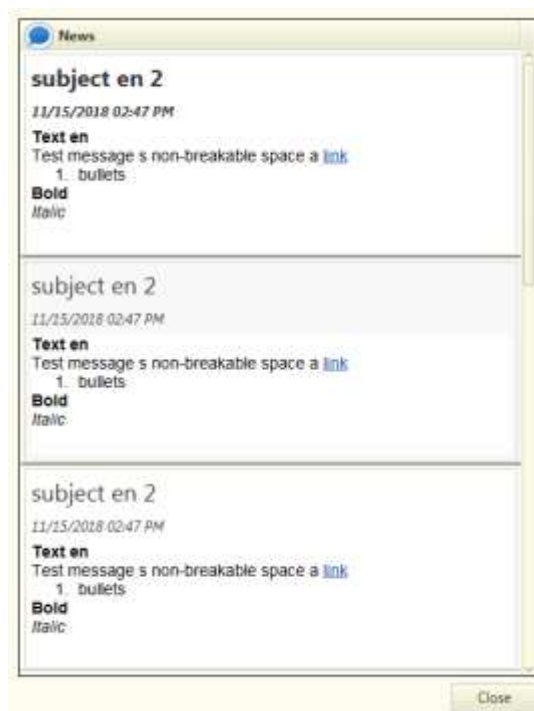


Figure 3: News




- Current server time
- Current placing in menu, where the user is currently located
- Icons   („Czech“ / „English“) for switching the application language. By clicking on the icon system will automatically choose the language in which the application IM will be visually presented. After switching the language change will be reflected in the newly opened bookmarks. In header of the application will be language switching applied immediately, see notification:



Figure 4: Switching the application language

- Link to user documentation – it has the same function as key F1 
- Communication state – represents the connection state between client station and server




Icon	Meaning description
	OK – connection established
	Warning – Temporary loss of connection, attempt to reconnect, user cannot perform any actions. In this moment is not activated possible deactivation of orders according to user manual IM.
	Error – Server connection cannot be established, user cannot perform any actions. Open windows are closed, there is displayed warning about client disconnection and offered reconnection into the application. Deactivation of orders is activated, more in user manual IM.

Table 1: Description of the meaning of icon „Communication state“

1.1.2 Menu

Menu of IM application locating in upper panel is always accessible to user regardless of where in the application the user is located. Menu has a floating character, see example below. Separate sub-menu items are described in detail in specific chapters of User and Back Office documentation.

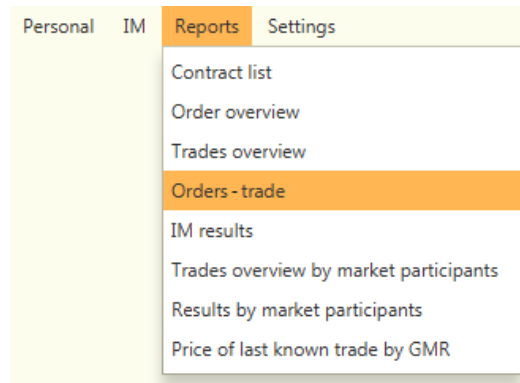


Figure 5: Floating menu

1.1.3 Bookmarks

Using the bookmarks there are displayed separate parts of the application. Using the bookmarks is described in detail in chapter 1.2.2 *Bookmark*.

1.1.4 Page content

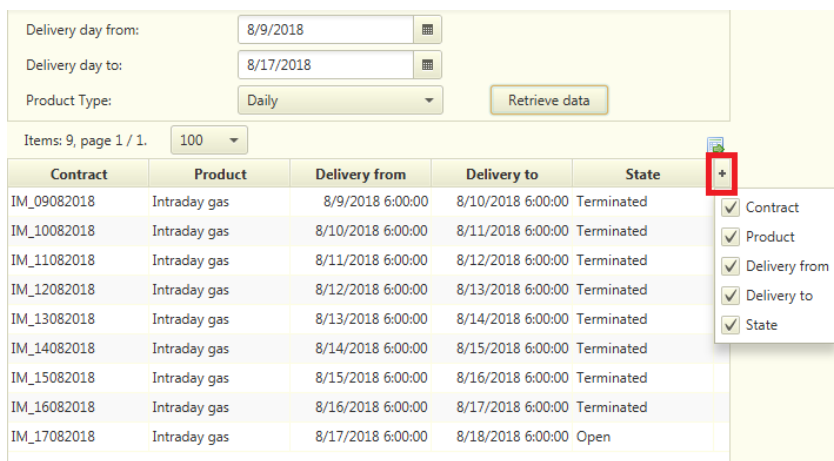
Page content is dependent on specific user option. According to the option there are displayed specific panels corresponding to the required action.

1.2 System control using the graphic elements

1.2.1 Table

Table is used for presenting data overviews with specified columns. Sorting in table is possible in ascending or descending order clicking the appropriate column header. It is possible to use multiple ordering with “CTRL + left mouse click” – after sorting according to new column remains the original column sorted against the new column.

Optionally it is possible to hide or show specific table columns after clicking on symbol „+“ in header of the table (functionality can be in specific tables turned off). The option can be saved for next use.



Contract	Product	Delivery from	Delivery to	State
IM_09082018	Intraday gas	8/9/2018 6:00:00	8/10/2018 6:00:00	Terminated
IM_10082018	Intraday gas	8/10/2018 6:00:00	8/11/2018 6:00:00	Terminated
IM_11082018	Intraday gas	8/11/2018 6:00:00	8/12/2018 6:00:00	Terminated
IM_12082018	Intraday gas	8/12/2018 6:00:00	8/13/2018 6:00:00	Terminated
IM_13082018	Intraday gas	8/13/2018 6:00:00	8/14/2018 6:00:00	Terminated
IM_14082018	Intraday gas	8/14/2018 6:00:00	8/15/2018 6:00:00	Terminated
IM_15082018	Intraday gas	8/15/2018 6:00:00	8/16/2018 6:00:00	Terminated
IM_16082018	Intraday gas	8/16/2018 6:00:00	8/17/2018 6:00:00	Terminated
IM_17082018	Intraday gas	8/17/2018 6:00:00	8/18/2018 6:00:00	Open

Figure 6: Object Tabel

1.2.2 Bookmark

Using bookmarks there are displayed separate parts of the application. User when selecting action from the menu opens new bookmark/bookmarks with required content.

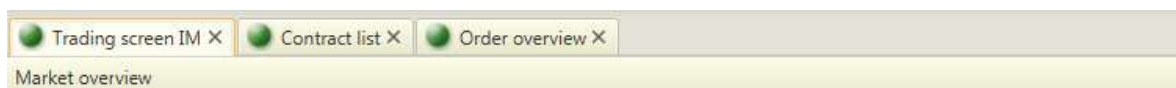


Figure 7: Object Bookmarks

Bookmarks can be shifted between them using drag&drop in the bar or completely pulled out of the application window.

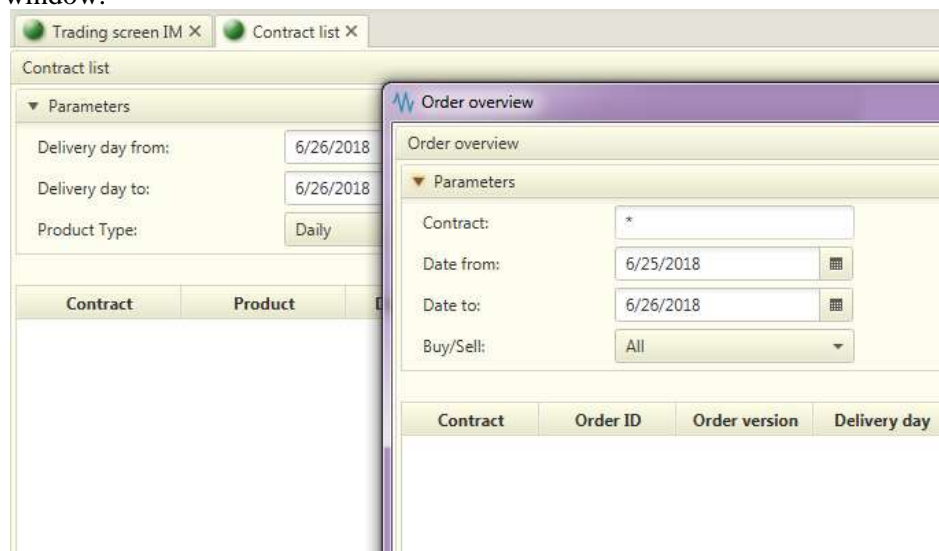


Figure 8: Pulling out the bookmark into separate window

1.2.3 Autocomplete box

Autocomplete box can be used for editing the line of the table, where is offered the list of items with large range. List is then dynamically re-read according to continuously entered text.

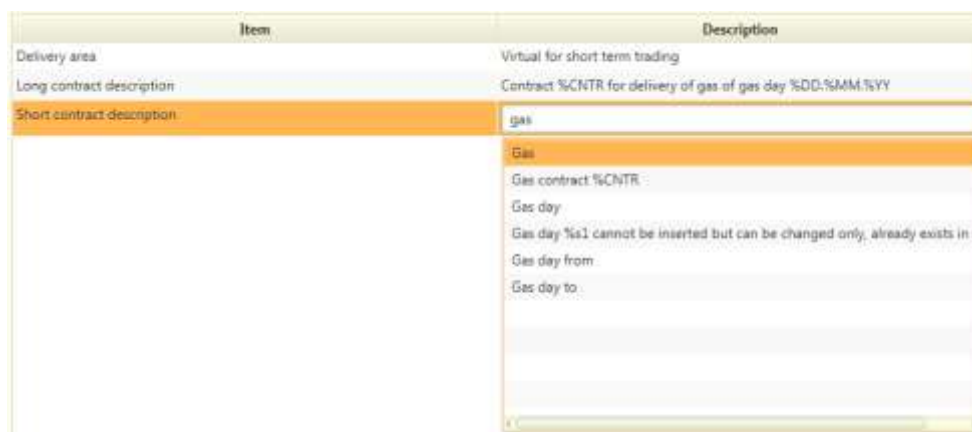


Figure 9: Autocomplete box

1.2.4 Numeric field with incrementation

It is used during editing the fields for entering the price, quantity. When using the button increase/decrease the value is enlarged/reduced by minimal tick size of the given value. For implicit configuration it is e.g. for price tick 0,01 and for quantity tick 0,1.

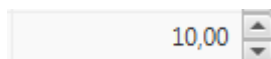
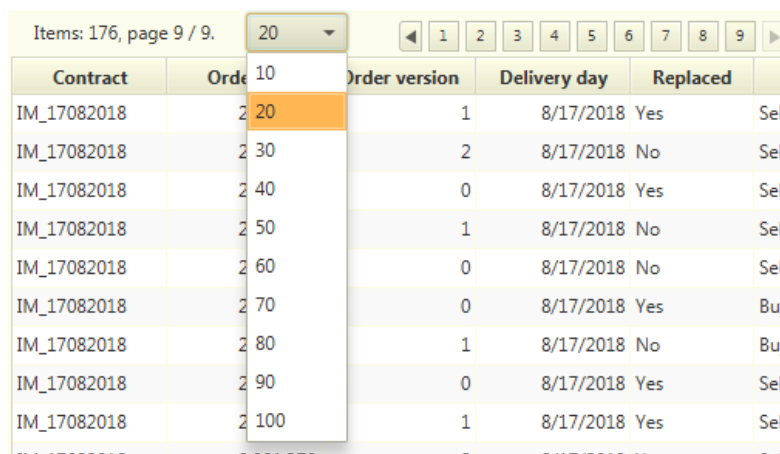


Figure 10: Object Numeric field with incrementation

1.2.5 Pagination

Pagination is used in reports in case of presentation the larger amount of data, than can be displayed on the screen. To move between individual pages is possible clicking on the page number or using the arrows.

In unrolling menu can be selected, how many lines can maximally be on one page.

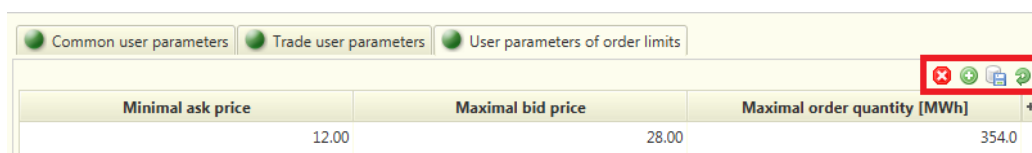


Contract	Order	Order version	Delivery day	Replaced	
IM_17082018	2 20	1	8/17/2018	Yes	Sell
IM_17082018	2 30	2	8/17/2018	No	Sell
IM_17082018	2 40	0	8/17/2018	Yes	Sell
IM_17082018	2 50	1	8/17/2018	No	Sell
IM_17082018	2 60	0	8/17/2018	No	Sell
IM_17082018	2 70	0	8/17/2018	Yes	Buy
IM_17082018	2 80	1	8/17/2018	No	Buy
IM_17082018	2 90	0	8/17/2018	Yes	Sell
IM_17082018	2 100	1	8/17/2018	Yes	Sell

Figure 11: Object Pagination

1.2.6 Toolbar

Toolbar is used to simplify access to common operations on the form such as e.g. print, data storage etc. In the form there are available only those icons (buttons), which are relevant for use in given form.



Minimal ask price	Maximal bid price	Maximal order quantity [MWh]
12.00	28.00	354.0

Figure 12: Toolbar example

General setting the form buttons:









Control element	Description
Toolbar	 Delete, enables deletion of the marked record
	 Add, enables to add new record
	 Save, enables to save data
	 Renew, enables to renew data state before saving
	 Cancel, enables to cancel the setting
	 Export, enables to export the data and opens dialog window for data export
	 Records editing, opens dialog window for editing of given record
	 Basket, opens dialog basket window

Table 2: Description of used icons

1.2.7 Data counter

This component is used in case of graphic interpretation of the state of time-consuming process (hourglass functionality in Windows).

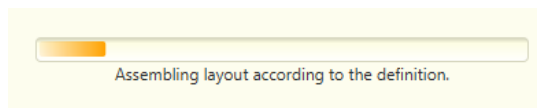


Figure 13: Object Data counter

1.2.8 Calendar

This component is used in case of requirement for data selection through calendar.

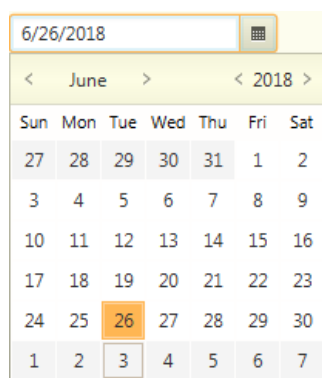


Figure 14: Object Calendar

1.3 Work with forms and data displaying

In IM application is used several basic types of forms, which can be still further combined. Below are stated basic types with brief description.

1.3.1 Forms for viewing

This type of form does not allow data editing. Data stated in the above mentioned example are illustrative.



Figure 15: Form for data viewing

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1.3.2 Forms for editing

Data in this form can be edited. Data stated in the above mentioned example are illustrative.

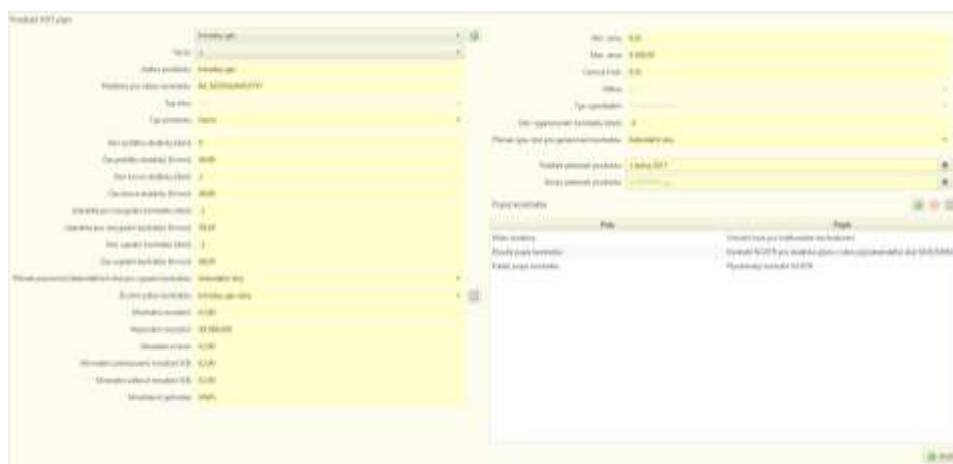





Figure 16: Form for data editing

If the editing field has defined format, or range, the given information is displayed in grey text in given field, if the item has not been filled yet.

If at selection field there is a possibility to modify the given list (dial), there is through button *Record editing*  opened pop-up window for editing the given dial.

If the form contains inserted table for editing, then adding the record is realized by using the button *Add*  and deletion of record by using the button *Delete* . Obligatory fields are tinged with light yellow color.

1.4 Work with reports

Below enclosed picture presents graphical form of the report. Data stated in the above mentioned example are illustrative.

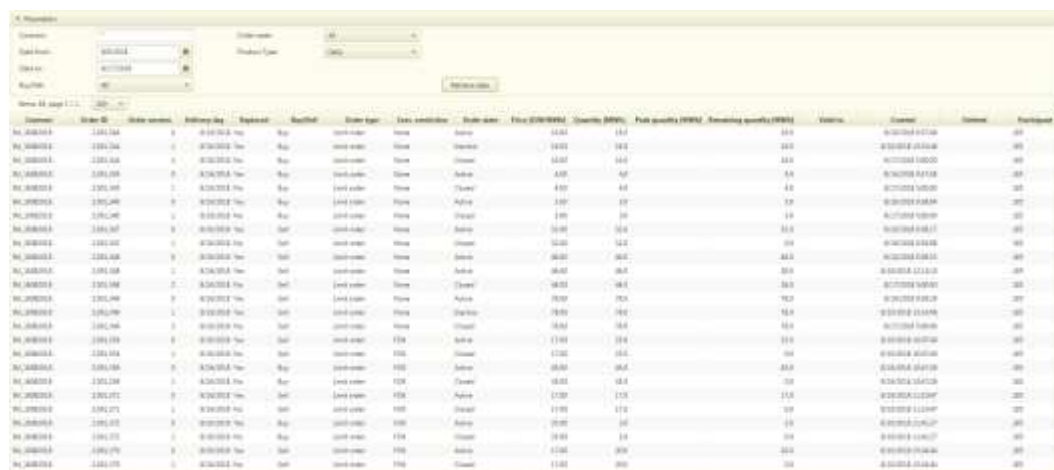
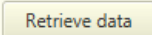



Figure 17: Presentation of sample report

Section for input parameters of the report can be rolled up to free up space for data on the screen.

The selection and display the data in report according to specified parameters is realized through the button 

After clicking on the button *Data export*  opens the dialog, through which can be data from the table exported to the file of selected format or directly opened in the default application which supports given format. Supported formats are MS Excel, PDF, TXT and XML format, as in the current system EMTAS (implicitly set the format MS Excel).

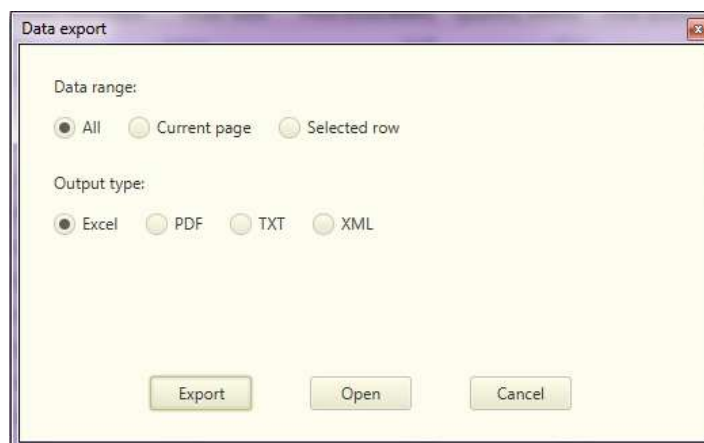






Figure 18: Export data dialog

Optionally it is possible to hide or show table columns after clicking on the **symbol „+“** in header of the table (functionality can be on specific tables turned off).

Delivery day from: 

Delivery day to: 

Product Type: 

Items: 9, page 1 / 1. 



Contract	Product	Delivery from	Delivery to	State	
IM_09082018	Intraday gas	8/9/2018 6:00:00	8/10/2018 6:00:00	Terminated	<input checked="" type="checkbox"/> Contract
IM_10082018	Intraday gas	8/10/2018 6:00:00	8/11/2018 6:00:00	Terminated	<input checked="" type="checkbox"/> Product
IM_11082018	Intraday gas	8/11/2018 6:00:00	8/12/2018 6:00:00	Terminated	<input checked="" type="checkbox"/> Delivery from
IM_12082018	Intraday gas	8/12/2018 6:00:00	8/13/2018 6:00:00	Terminated	<input checked="" type="checkbox"/> Delivery to
IM_13082018	Intraday gas	8/13/2018 6:00:00	8/14/2018 6:00:00	Terminated	<input checked="" type="checkbox"/> State
IM_14082018	Intraday gas	8/14/2018 6:00:00	8/15/2018 6:00:00	Terminated	
IM_15082018	Intraday gas	8/15/2018 6:00:00	8/16/2018 6:00:00	Terminated	
IM_16082018	Intraday gas	8/16/2018 6:00:00	8/17/2018 6:00:00	Terminated	
IM_17082018	Intraday gas	8/17/2018 6:00:00	8/18/2018 6:00:00	Open	

Figure 19: The number limit of records

All reports display a limited number of records – 2000 records. In case the limit is reached or exceeded this status will be announced by the icon  "Reached the system limit the number of records loaded".

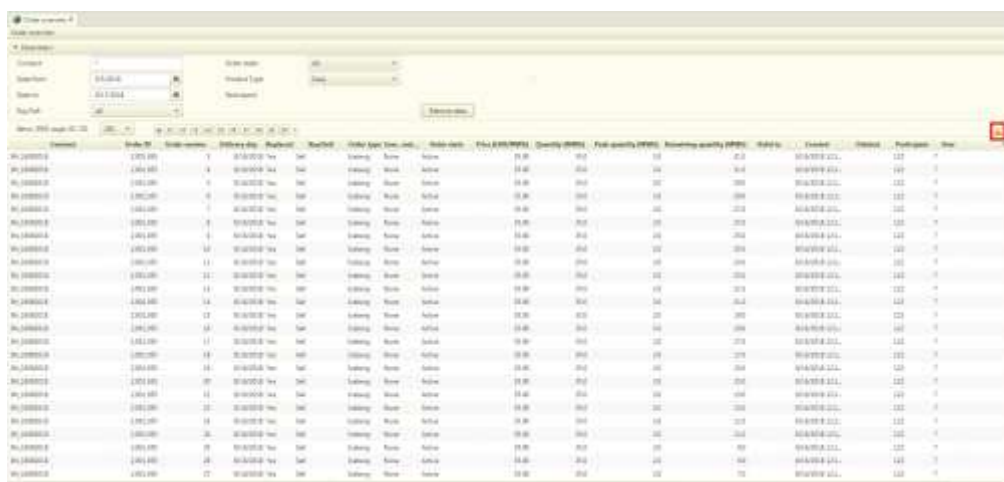


Figure 20: Limit number of records

1.5 Formatting the items

1.5.1 Font

IM application uses standard font of the operation system for control components, on which it is running. For Windows 7 and Windows 8 it is font „Segoe UI“.

1.5.2 Formatting the data in tables

Basic principles for formatting the data on the system are following:

- Header of the text in columns of the table are centered
- Header of the line is left aligned
- Pictures and icons in lines are centered

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- Checkboxes in lines are centered
- Numbers in individual lines are left aligned
- Texts in individual lines are left aligned
- Thousands are separated by space, tenths by coma (it is taken over from windows setting and the user can redefine its own format)
- Information in brackets – there are used round brackets
- Price in CZK is at 2 decimal places
- Price in EUR is at 2 decimal places
- Quantity MWh is at 1 decimal place
- Description always starts with capital letter, e.g. Export, Update etc.
- If the numeric field is filled, application will automatically convert the characters from czech keyboard ((+ až é) on numbers (1 až 0)

1.5.3 Description of currencies

Description of currencies in czech and english are following:

- In czech is stated Kč or EUR
- In english is stated CZK or EUR

1.5.4 Formatting – date

Implicit format of date items is taken from Windows setting. The user can define its own format in the application. Implicit formats are in the following format:

- For day in CZ it is in format **D.M.YYYY**, e.g. **12.5.2015**
- For day with time in CZ it is in format **DD.MM.YYYY HH:MM:SS**
- Differentiation winter/summer time in places of time closing specification **CET/CEST** in CZ and EN
- For day in EN it is in format **YYYY-MM-DD**, e.g. **2015-05-12**
- For day with time in EN it is in format **YYYY/MM/DD HH:MM:SS**
- Year is displayed in format **2015**

1.6 Graphs

In the application there are used standard graphs JavaFX technology.

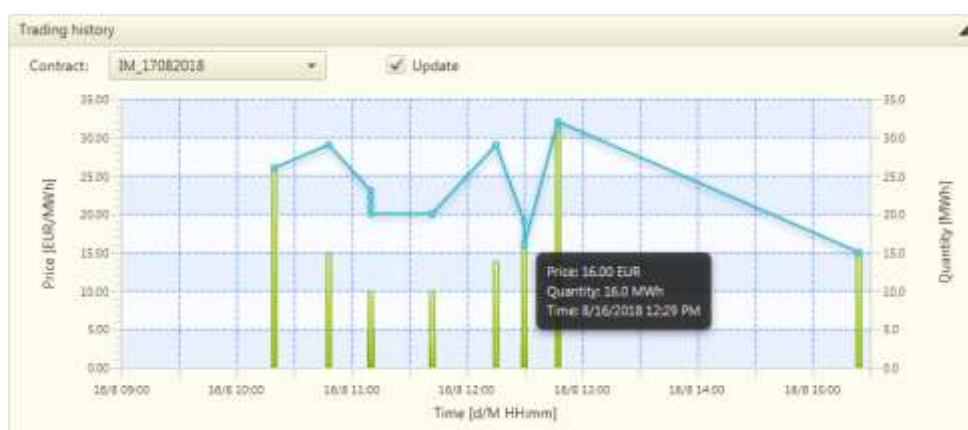


Figure 21: Demonstration of possible graph design

1.7 Keyboard shortcuts

Following table summarizes defined keyboard shortcuts for the most common activities in the application.

Function	Description	Keyboard shortcut
Menu keyboard shortcuts		
Trading screen IM	Creates new bookmarks with IM	ALT+N
Termination	Application termination	Alt+F4
Saving the setting	Saves current user screen setting	CTRL+S
Renewal the setting	Loading the original screen layout	CTRL+R
Screens draft	Opens the window for draft of user screens layout	ALT+C
Hide items description	Saving space, hide names of bookmarks	ALT+T
Help	Opening user application description	F1
Context keyboard shortcuts		
Multiple selection of individual rows in table	While holding the CTRL key and clicking on the row is carried out check/uncheck of the selection	CTRL+klik
Selecting the range of rows in table	Click on the first row marks the beginning of the selection, then the SHIFT key and click on the last row will select range	SHIFT+click
Selecting all rows in table	Click on the table and press CTRL+A	CTRL+A
Copying of selected rows	Copying of selected rows into the box	CTRL+ALT+C

Copying of all rows	Copying of all rows into the box	CTRL+C
Table content export	Table will be exported into the file according to selected type (Excel, XML, TXT, PDF)	CTRL+E
Sending the order	Sending the order on the form (order insertion panel must be active)	ENTER
Adding the order in the basket	Adding the order in the basket (order insertion panel must be active)	SHIFT+ENTER
Send the basket	Sending all orders in the basket (window with the basket must be active)	Alt Gr + ENTER nebo CTRL+ALT+ENTER
Transfer to the order insertion panel with option Sell	Transfer to the form for insertion the new order with option Sell and clearing the form (only if the form for order insertion is part of active window)	CTRL+2
Transfer to the order insertion panel with the option Buy	Transfer to the form for insertion the new order with option Buy and clearing the form (only if the form for order insertion is part of active window)	CTRL+1

Table 3: Keyboard shortcuts

2 Introduction to IM

The subject of this part of document is a detailed description of the available functions of the IM application for the intraday market orders. It also describes the automatic order matching in the continuous trading process, validation criteria, browsing options and access to data and sets.

Access to and work with these market through automatic communication is ensured through an external interface, which is described in a separate document.

In the current portal CS OTE, the current item IM is replaced with a new item IM in the menu, which displays the page, where you can find the IM application for download and subsequent installation. You can find the description of the installation in a separate document.

2.1 Terms and abbreviations

Abbreviation	Description
AC	Automated Communication
AnS	Ancillary Services
AS	Application Server
BRP	Balance responsible party
D	Delivery day
DB	Database
EIC	Energy Identification Code
FS	Financial Security
GFS	Good For Session – time restriction
GTD	Good Till Date – time restriction
HW	Hard Ware
ID	Identification number
IM	Intraday Market (it means Intraday Market – Gas in this document)
IOC	Immediate Or Cancel – execution restriction
MP	Market participant
MQ	Message Queuing
NON	None execution restriction
OTC	Over the Counter
OTE	Company OTE, a.s.
PDF	Portable Document Format
RMP	Registered Market Participant, which may be, but does not have to be a subject of settlement

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Abbreviation	Description
TXT	T ext file format
XML	(E xtensible M arkup L anguage)

3 Basic principles of trading on the IM market

This section briefly summarizes the basic principles, which manage the trading on the intraday market, the mechanism of order matching is described in separate sections. IM application is now built on a newer technology and application logic and provides trading based on the principles of continuous trading, while the making of deals is performed on a trading platform by the automatic matching of the inserted orders based on defined and implemented strategies.

The strategies for continuous trading within the IM are described in section 5.3 *Process of IM continuous trading*.

Market rules are not the subject of this document therefore these are defined here only to the extent necessary for understanding the operation of the information system.

3.1 Basic market principles

The intraday market is organized in the form of continuous market with automatic order matching. For this market following rules had been defined:

- The main goal of intraday market (IM) is an optimization of trading position beyond the OTC trades. Bidding and trades creation within continuous trading is intended for gas BRP.
- Trading on the IM is allowed for each individual gas delivery day, where each gas day is represented by a dedicated daily contract. For the IM the contracts are generated and successively opened for trading for each individual gas day based on a product definition (see section 3.2 *The description of the intraday market solution*). Contracts are generated and activated automatically by the system.
- Active orders for daily contracts of a given gas day are accepted within a time interval starting at time of opening of the respective contract for trading and ending at time the respective contract is closed for trading.
- Orders and trades are subject to financial security rules defined for IM market.
- In the process of the aggregation of the contract traded quantity after the end of trading, the financial security collaterals for a not traded quantity are disengaged.

The settlement of the IM is carried out within:

- Daily settlement of the IM (*Version 0*),
- Monthly settlement of the IM (*Version 1*),
- Final monthly settlement of IM (*Version 2*).
- The quantity traded on the IM changes the total business position of the BRP.
- Orders on the IM can be submitted with time or execution restrictions. Types of orders and their available restrictions are described in section 3.2.1 *Supported types of IM orders*.

Announcement!

There can be a small discrepancy in cents in total trade amount between the value shown in reports and the one being invoiced. The reason is specifics of trading, allowing the total trade amount having up to three decimal places and the settlement algorithm, allowing only two decimal places. Such discrepancy is redistributed among participants during the settlement process based on a defined rule.

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The following scheme presents IM trading during the time.

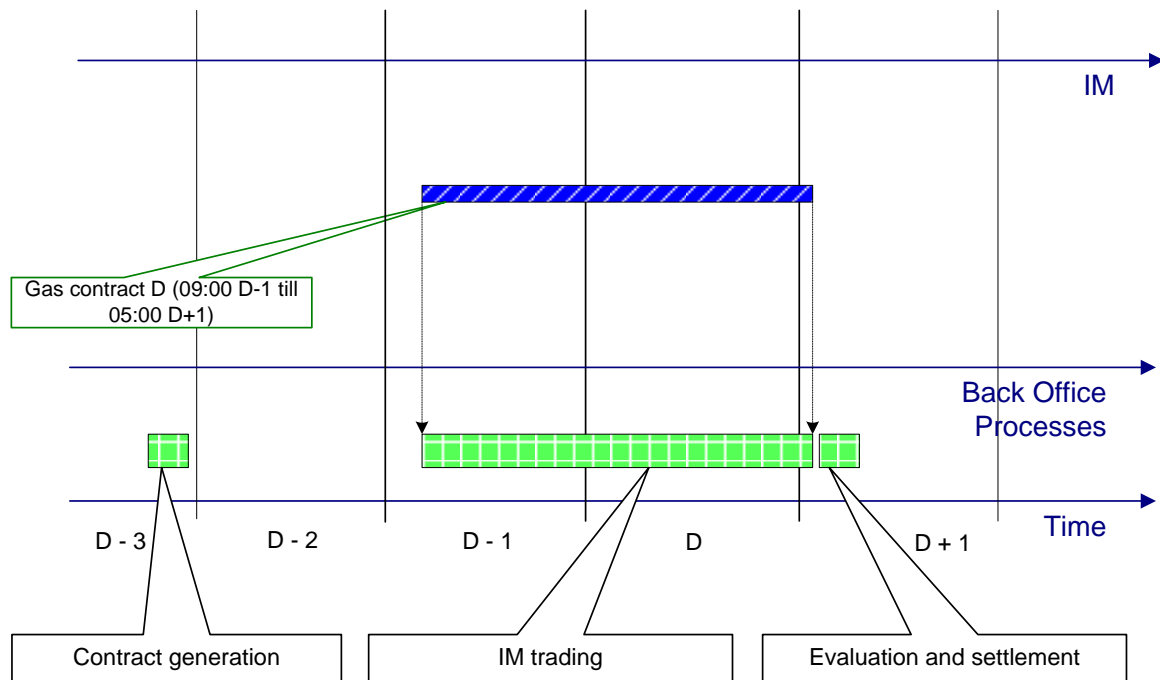


Figure 22: Schema of IM trading

3.2 The description of the intraday market solution

In the IM solution, the principle of continual trading through so called products was applied. These products contains basic parameters of trading and the individual contracts are generated and made available based on them. The description of contracts is provided by the sets – see section 5.4.1 *Contract list*.

In the IM application, following products are defined for trading:

- *Daily product* - type of a product with the delivery period 1gas day from 6:00 to 6:00 next day

3.2.1 Supported types of IM orders

Within the IM application the following types of orders are supported:

- *Limit order* – this is an order with price, the aim of this order is that any quantity of order is traded for a trade price lower or equal to the order price (bid), or for a trade price higher or equal to the order price (ask).
- *Iceberg order* – the aim of this order is to publish only a defined part (so called peak quantity) of the total order quantity. As soon as the peak quantity is fully traded, another peak quantity is published automatically by the system from the remaining quantity. If, within another publishing, the remaining quantity is smaller than peak quantity, the remaining quantity is published in full range. At the same time it is valid, that the price of peak quantity can either be always the same or it can, within another

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publishing, be increased by a price delta value defined in advance, if it is an ask, or, on the contrary, decreased by this value, if it is a bid. This gradual cyclical publishing continues until trading the total order quantity, or until a given time of order validity is reached (in case of an order with GTD time restriction).

Within the IM application the following execution order restrictions are supported:

- *The FOK execution restriction*– the aim of this execution restriction is, that the total order quantity is fully traded in one moment, immediately after inserting it in the system. If this condition is not fulfilled, the whole order is withdrawn from trading by the system immediately after inserting (and after the unsuccessful performance of matching process).
- *The IOC execution restriction*– the aim of this restriction is, that any order quantity is traded in one moment immediately after inserting it in the system. If this condition is not fulfilled, the whole order is withdrawn from trading by the system immediately after inserting it (and after the unsuccessful performance of matching process).
- *No execution restriction* – an order without a defined execution restriction, the order can be traded immediately or gradually, especially compared to one or more orders when making one or more deals.

Within the IM application the following time order restrictions are supported:

- *Time restriction GFS* – it is an order time restriction which occurs, when the order validity in an order book is not limited in terms of time. Such an order stays in the order book until the end of trading of the relevant contract, or until it is fully traded or deleted by the participant.
- *Time restriction GTD* – it is an order time restriction with a defined time validity (date and time). After the expiration of this validity the order is automatically withdrawn from trading, if it was not fully traded previously.

4 The IM setting

4.1 Market parameters setting

This section defines the standard setting of intraday market and balancing market. The setting is valid from 26 September 2018.

The IM market setting:

- The time of contract issuance on the IM: **8:30 of D-1** (absolute time of issuance).
- The starting time of contract trading on the IM: **9:00 of D-1** (absolute time of the opening).
- The ending time of contract trading on the IM: **5:00 of D+1** (absolute time of the ending)
- The minimal possible quantity offered in a given contract: **0,1 MWh**.
- The maximal possible quantity offered in a given contract: **99 999 MWh**.
- Quantity tick: **0,1 MWh** (zero quantity is not allowed).
- The minimal possible price for one MWh in a given contract: **0,01 EUR**.
- The maximal possible price for one MWh in a given contract: **4000 EUR**.
- Price tick: **0,01 EUR** (the price can't be null).

4.2 User settings

Application users are allowed to set the user IM parameters. Within this functionality, a data form is displayed, in which it is possible to set and/or view the following parameters. The form is accessible to participants with access to the IM.

The form is accessible in the menu: *Settings* → *User settings*.




Figure 23: Access - User settings

Setting their own user parameters for trading on the IM is allowed by the function available to every user who has the right to submit/modify orders in the system and who has the right to trade on the IM. Each user only sees its own data. The user is identified in the system by login certificate. User with read-only right is not allowed to modify the user parameters.

User parameters can be divided into the following groups, each of which is placed on a separate tab:

- Common user parameters
- Trade user parameters
- User parameters of order limits

In general changes in user parameters shall be saved using button *Save* . In case changes are not explicitly saved by user before the form is closed, the user will be requested to confirm changes.

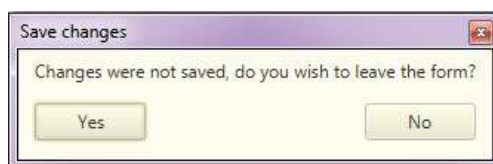


Figure 24: Confirmation of changes

4.2.1 Common user parameters

Common user parameters are grouped into panels:

Language:

- *Language* – parameter defining the language in which the IM application will be visually presented to the user. It is possible to choose Czech or English language. Implicitly, the language of the client station is set.

Number item formats:

- Parameters defining number formats of items of the IM forms according to the setting of the client station. Implicitly, the number format of the client station is set. It is possible to set the following formats of number items:
 - *Decimal symbol* (comma, point)
 - *Digit grouping symbol* (space, comma)

Date/Time item formats:

- Parameters defining the date and time format of the items on the IM forms according to the setting of client station. The chosen format has an impact on the data validation taking place in the given form. Implicitly, the date and time format of the client station is set. It is possible to set the following formats of date and time items:
 - *Short date format* (d.M.rrrr, d-M-rr, rrrr-MM-dd, rrrr-M-d, rr-M-d)
 - *Long date format* (d.MMMM.rrrr, d-MMMM-rrrr, rrrr-MMMM-dd)
 - *Short time format* (H:mm, HH:mm, H.mm aa, H.mm)
 - *Long time format* (H:mm:ss, HH:mm:ss, H.mm:ss aa, H.mm:ss)
 - *First day of a week* (Monday – Sunday)

Examples:

In this panel, examples of the set formats of dates, numbers and time are listed. They change dynamically according to set parameters.

Warning:

Implicit setting of parameters is initiated with the first login. In the next login the last user setting is applied.

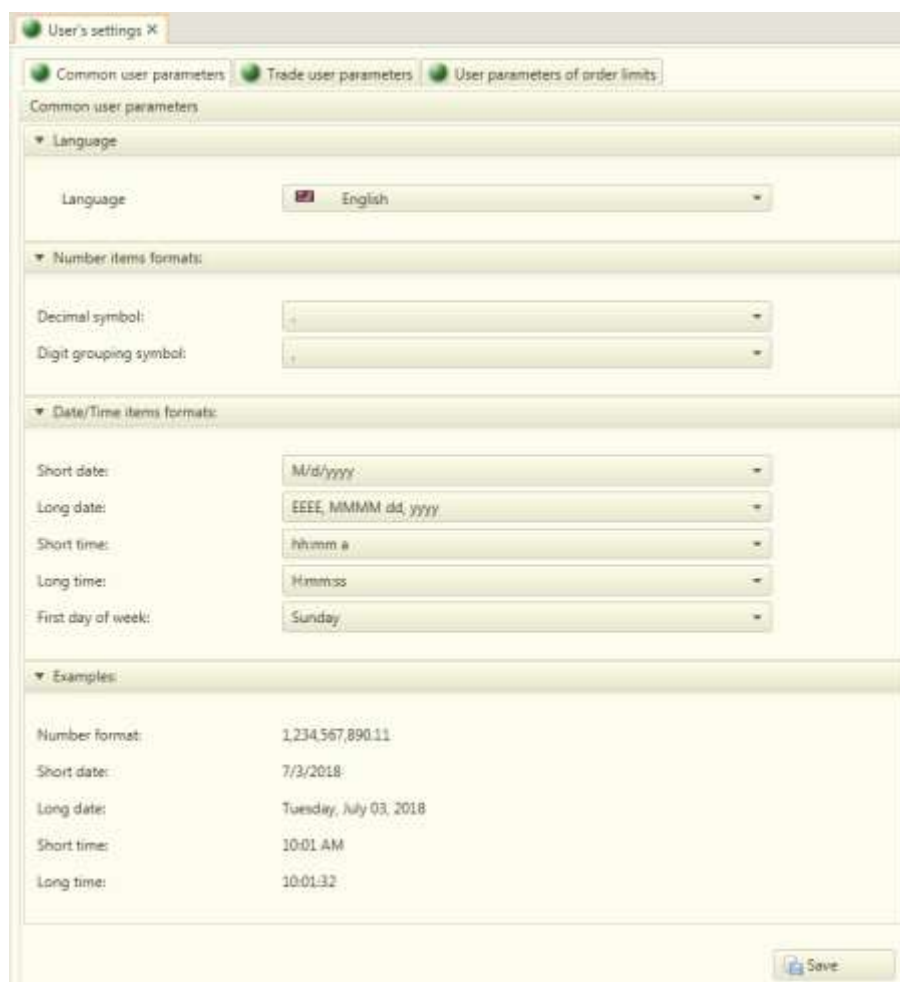


Figure 25: Common user parameters

4.2.2 Trade user parameters

In this panel these parameters can be set:

- *Action confirmation (On/Off)* – a parameter defining additional confirmation of executive actions done by the user in the IM application (e.g. in case of inserting an IM order and set confirmation, the system requires an additional confirmation of the action using a new dialog box). Implicitly, it is set to “On”. Executive actions include order insertion, order modification, order deletion, quick order acceptance, order activation/deactivation, submitting the basket, clearing the basket and moving the active order to the basket using drag and drop.
- *Autosave of the screen layout (On/Off)* – a parameter defining the automatic change saving after the screen has been adjusted by the user (see section 7 *Setting the parameters of IM trading screen*). Implicitly, it is set to “On”.
- *Bid deactivation after client disconnection (On/Off)* – a parameter defining the automatic deactivation of the active IM orders of a given user (see section 5.2.1 *IM orders entry*) when losing the connection between the client application and the server. The loss of connection means a loss of connection between the client and the MQ server at least for the minimal defined time (set to 30 seconds). Implicitly, it is set to “Off”.

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- *Order deactivation due to client inactivity (On/Off)* – a parameter defining automatic deactivation of the active IM orders of a given user (see section 5.2.1 *IM orders entry*) in case of a longer inactivity of the client application (the time is set by the user parameter to 30 minutes). Implicitly, it is set to “Off”.
- *Certificate for signing when automatically deactivating orders* – it defines user certificate for signing, which is used for automatic deactivation of active orders if the defined user is inactive for a long time, certificate can be set only if the *Order deactivation due to client inactivity* is *On*
- *Timeout for disconnection when idle [min]* – a parameter defining in minutes the time when the client is disconnected due to inactivity. Implicitly, it is set to 30 minutes. The possible parameter range is 5 – 120 minutes.
- *Sound notification of own IM trade (On/Off)* – a parameter activating or deactivating sound notification, triggered by system upon each own trade creation on the IM. The sound notification is performed only in case the IM trading screen is open. The sound itself can be selected from windows database of basic sounds within the client machine, or own proprietary sound file may be chosen. There is implicitly chosen sound “Windows Notify Email.Wav”, if it is not in the system, the implicitly sound is the first sound from the list of sounds. Implicitly, it is set to “Off”.

If the user changes setting of *Trade user parameters* it is necessary to restart the application – the user is alerted to this fact after saving of setting by information message - "Changed parameters will take effect when you restart the application. Please make a restart of the application."

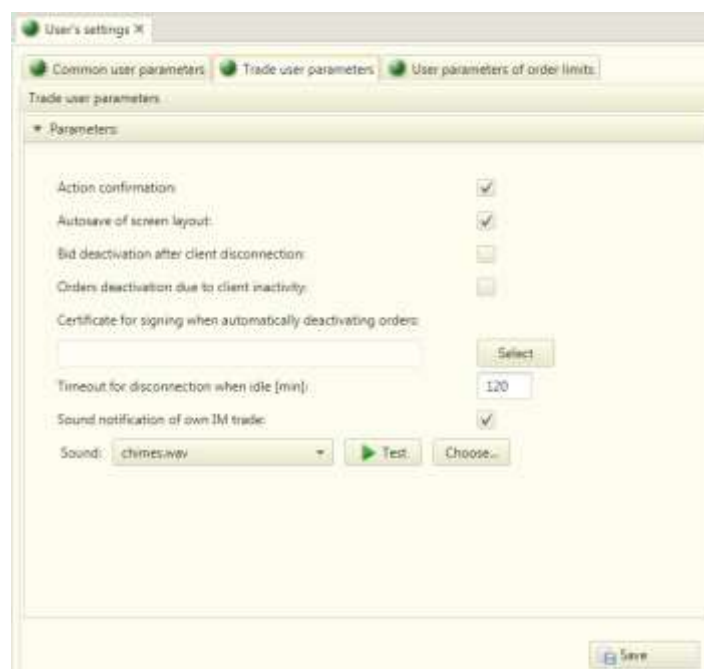





Figure 26: User parameters for trading

4.2.3 User parameters of order limits

These parameters depend on the product and they are not depending on confirmation dialog box. Settings can be done only by users with the allowed modification actions.

Implicitly no user limits are set – to insert the record, it is necessary to press the button *Add* . The line can be deleted by using the *Delete* button . To restore the state before saving the changes use the *Restore* button .

- *The minimal ask price* – a parameter defining the minimal ask price for a given user in EUR. If this parameter is set, an automatic control of the given user's minimal ask price is performed by the system within the insertion/modification of the sell order for the given product. If the value of ask price is under the defined limit, the insertion/modification of the sell order for the given product is interrupted by a warning about crossing the lower price limit with an option to continue or not. If the “No” option is selected, the user is returned to the entrance form. If the “Yes” option is selected, the process of the sell order insertion/modification continues. If the parameter is not set, no control of the minimal ask price of a given user is done by the system. Only a value with the accuracy of 2 decimal places within the interval <minimal price; maximal price> is allowed; see section 4 *The IM setting*
- In case of a mass order insertion through a basket, this control will be done for each bid separately. In the case that at least one bid on the form exceeds the set user limit, only one message about exceeding the user limit will be displayed (see also sections 5.2.5 *IM basket*).
- *The maximal bid price* – a parameter defining the maximal bid price for a given user in EUR. If this parameter is set, an automatic control of maximal bid price of a given user is done by the system within the insertion/modification of the buy order for the given product. If the bid price value exceeds the defined limit, the insertion/modification of the buy order for the given product is interrupted by a warning about exceeding the upper price limit with an option to continue or not. If the “No” option is selected, the user is returned to the entrance form. If the “Yes” option is selected, the process of the buy order insertion/modification continues further. If the parameter is not set, no control of the maximal bid price of a given user is done by the system. Only a value with the accuracy of 2 decimal places within the interval <minimal price; maximal price> is allowed; see section 4 *Market parameters setting*. In case of a mass order insertion through a basket, this control will be done for each bid separately, in the case that at least one buy order on the form exceeds the set user limit, only one message about exceeding the user limits will be displayed (see also sections 5.2.5 *IM basket*).
- *Maximal order quantity [MWh]* (for a given product) – a parameter defining the maximal order quantity for a given product in MWh by a given user. If this parameter is set, an automatic control of the set limit order quantity of the given user is done by the system within the insertion/modification of order for the given product. If the order quantity value exceeds the defined limit, the insertion/modification of the order on the given market is interrupted by a warning about exceeding the upper quantity limit with the option to continue or not. If the “No” option is selected, the user is returned to the entrance form. If the “Yes” option is selected, the process of the order insertion/modification continues further. If the parameter is not set, no control of limit order quantity of the given user is done by the system. Only a value with the accuracy of 1 decimal place in MWh within the interval <minimal quantity; maximal quantity> is allowed; see also section 4 *The IM setting*

- In case of a mass order insertion through a basket, this control will be done for each order separately, in the case that at least one order on the form exceeds the set user limit, only one message about exceeding the user limits will be displayed (see also sections 5.2.5 *IM basket*).

If some of the limit user parameters are not filled in the form, the restriction resulting from the definition of the given user parameter is not applied.

Minimal ask price	Maximal bid price	Maximal order quantity [MWh]
12.00	28.00	354.0

Figure 27: Limit user parameters

5 IM

5.1 IM trading screen

5.1.1 IM trading screen access

After login to the application participants use following main application menu:

IM →



Figure 28: Access to IM

5.1.2 IM trading screen

Trading screen allows market participants to insert, modify and delete the orders and also to monitor both the progress and the results of trading.

Trading screen consists of set of panels – screen elements – used for visualization and data entry in an application client installed at RMP site. Screen customization options are described in section 7 *Setting the parameters of IM trading screen*.

Set of panels consists of:

- *Market overview* – own summarizing screen to monitor the progress and results of trading with contracts; panel is placed up on the left.
- *Contract detail* – overview of current active orders of selected contract; panel is placed down on the left.
- *Create Order* – entry form to submit order; panel is placed down in the left middle part
- *Trading history* – graphical presentation of trading results development over time; panel is placed up on the right.
- *Own orders* – overview of orders of given market participant; panel is placed in the middle of right part.
- *Audit log* – overview of news related to the trading for given market participant; panel is placed down on the right.
- *Own trades* – tracking the progress and results of trading. **The default trading screen does not contain this panel. The user has this panel available within the definition of a custom layout of the trading screen (or screens) with its own name (using the existing Personal -> Custom Layouts option).**

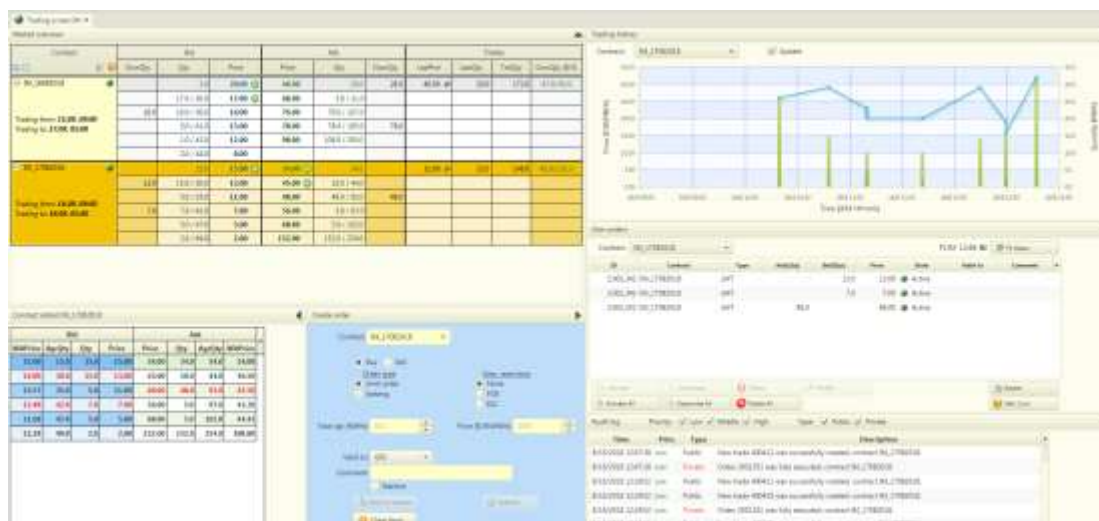


Figure 29: IM trading screen

When the IM trading screen is open (not necessarily the focus should be in), upon a new own trade creation the system may perform sound notification based on defined sound notification setup in user settings (see section 4.2.2 Trade user parameters), provided that *Sound notification of own IM trade* is set to *On*. The sound notification is repeating for each own IM trade (in case 2 own trades are created in a row in very short time, very first sound will be cut short by the second one).

5.1.2.1 Panel – Market overview

Market overview is used to display the orders and executed trades in a structure allowing to present market data per particular contract in defined depth. Data in panel *Market overview* are sorted according to ask price in ascending order (for sell orders) and according to bid price in descending order (for buy orders).

Market overview									
Contract	Bid			Ask			Trades		
	OwnQty	Qty	Price	Price	Qty	OwnQty	LastPce	LastQty	OwnQty (B/S)
IM_16082018 Trading from: 15.08.09:00 Trading to: 17.08.05:00		3.0	20.00	46.00	26.0	26.0	46.00	20.0	172.0 / 47.0 / 92.0
		17.0 / 20.0	17.00	68.00	5.0 / 31.0				
	16.0	16.0 / 36.0	16.00	76.00	76.0 / 107.0				
		5.0 / 41.0	15.00	78.00	78.0 / 185.0	78.0			
		1.0 / 42.0	12.00	98.00	106.0 / 293.0				
		2.0 / 44.0	8.00						
IM_17082018 Trading from: 16.08.09:00 Trading to: 18.08.05:00		13.0	15.00	34.00	34.0		32.00	32.0	146.0 / 43.0 / 101.0
		13.0	15.0 / 30.0	13.00	45.00	10.0 / 44.0			
		5.0 / 35.0	11.00	48.00	48.0 / 92.0	48.0			
	7.0	7.0 / 42.0	7.00	56.00	5.0 / 97.0				
		5.0 / 47.0	5.00	68.00	5.0 / 102.0				
		2.0 / 49.0	2.00	152.00	152.0 / 254.0				

Figure 30: Market overview











The base of the screen is a grid containing columns listed in a following table:

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Header I. level	Header II. level	Description	Icons	Control elements
Contract		Specifies a name of contract, the orders and trades data in form relates to. After expanding the contract line there is also date and time of both start and end of contract trading specified.	Contract state: <i>Generated</i> – not visualized <i>Issued</i> – not visualized <i>Open</i> – Green <i>Terminated</i> – not visualized <i>Closed</i> – not visualized <i>Not issued</i> – not visualized <i>Inactive</i> – Orange <i>Placed in grid cell</i>	- Expand all  - Collapse all  - Contract selection  - Show all contracts  <i>Placed in header</i> - Expand contract  - Collapse contract  <i>Placed in grid cell</i>
Bid	OwnQty	The quantity requested by given MP (own bid). Column is highlighted in colour.		
	Qty	The quantity requested by all MPs in a structure: bid quantity for a given price / aggregated quantity of all bids with equal and higher price		
	Price	Maximal bid price		- Quick accept  <i>Placed in grid cell</i>
Ask	Price	Minimal ask price		- Quick accept  <i>Placed in grid cell</i>
	Qty	The quantity offered by all MPs in a structure: ask quantity for a given price/ aggregated quantity of all asks with equal and lower price		
	OwnQty	The quantity offered by given MP (own ask) for a given price. Column is highlighted in colour.		
Trades	LastPce	The price of the last trade in the corresponding contract	Trend indication: - Increasing  - Decreasing  - Unchanged	

	LastQty	The quantity of last trade in the corresponding contract		
	TotQty	The total quantity of all trades executed within the trading session in the corresponding contract		
	OwnQty(B/S)	<p>The own qty (with 1 decimal precision) of executed trades of a given MP with buy/sell distinction including font coloring:</p> <ul style="list-style-type: none"> - own buy qty is before slash in blue color - own sell qty is after slash in green color - in case no trades are executed for the specific contract the column is empty - in case only buy or only sell trades are executed, zero value is used before or after slash <p>Column is highlighted in colour.</p>		

Table 4: Intraday market – Market overview – list of columns

Trading data of a given selected contract are displayed in one main line, which specifies order data with the lowest ask price and the highest bid price and further the trading results. When expanding the contract, there are displayed six asks with the lowest ask price and six bids with the highest bid price.

The main line of collapsed contract is an active grid's element. If it is selected by the user, then it is highlighted in colour. The selected contract may be expanded to show individual lines. Once the given contract is selected at the same time there are data in panels *Contract detail*, *Trades*, *Trading history* and *Create order* displayed.


Option *Quick accept*  allows quick reaction to the current limit or iceberg orders visible at the market overview. Using this option a dialog with pre-filled values to submit counter order is displayed. Pre-filled price and quantity is a price and an aggregated quantity of the row the option *Quick accept* was selected from, whereas limit order side (buy/sell) is an opposite one. The execution restrictions of the counter order is always "FOK" and can't be modified. Both the price and the quantity are editable. If the option *Quick accept* is not displayed at any of rows in the market overview, the order data in such rows are related to the own participant's order.



Figure 31: Quick accept order

Option *Contract selection* in a header of contracts column displays a pop-up window with option to filter hourly contracts visible at market overview. There is an option to make contracts selection/deselection on delivery day level or on individual contracts level. Final result of both actions is identical.

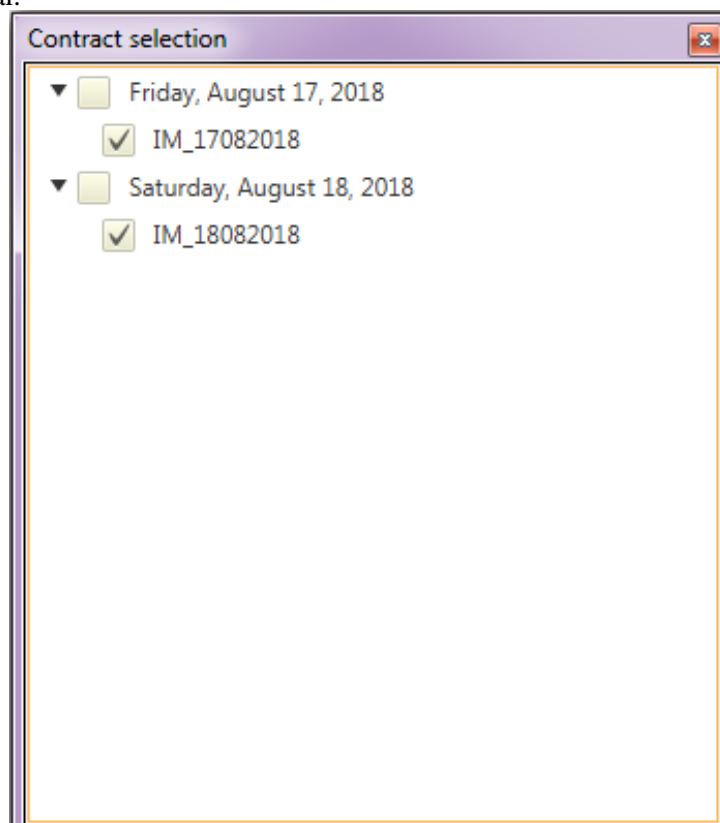


Figure 32: Contract selection

5.1.2.2 Panel – Contract detail

Contract detail lists all orders related to the contract selected in either *Market overview* panel. Orders data are presented in a grid with following structure:

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Column		Description
Bid	WAPrice	The weighted price average of all bids with equal or higher price (EUR/MWh)
	AgrQty	The quantity aggregated for all bids with equal and higher price (MWh)
	Qty	The quantity of given bid (MWh)
	Price	The price of given bid (EUR/MWh)
Ask	Price	The price of given ask (EUR/MWh)
	Qty	The quantity of given ask (MWh)
	AgrQty	The quantity aggregated for all asks with equal or lower price (MWh)
	WAPrice	The weighted price average of all asks with equal or higher price (EUR/MWh)

Table 5: Intraday market – Contract detail – list of columns

Sell orders (part Ask) are sorted by in ascending order and buy orders (part Bid) are sorted by price in descending order. Own orders of the logged in MP are distinguished by font color (red). First line with most advantageous orders is highlighted with darker background.

Contract detail: G-DD180710							
Bid				Ask			
WAPrice	AgrQty	Qty	Price	Price	Qty	AgrQty	WAPrice
11.25	43.0	43.0	11.25	18.28	86.2	86.2	18.28
9.61	95.0	52.0	8.25	19.23	5.2	91.4	18.33
5.57	223.0	128.0	2.58	23.28	16.2	107.6	19.08
4.76	275.0	52.0	1.25	75.58	43.2	150.8	35.26

Figure 33: Contract detail

5.1.2.3 Panel – Create order

Create order is a form used to enter order data and submit order to the market. Overview of order attributes is listed in following table:

Attribute	Description	Item type	Display
Contract	Selection contract from preloaded list of contracts (implicitly blank)	List box	
Buy/Sell	Selection of order side: Buy/Sell (implicitly Buy)	Radio button	
Order type	Selection order type within values <i>Limit order/Iceberg</i> (implicitly Limit order)	Radio button	
Exec. restriction	Selection of order execution restriction within values <i>None/FOK/IOC</i> (implicitly None)	Radio button	
Total qty [MWh]	Manual number value insertion	A number field with buttons to increase/decrease values according to defined quantity tick	
Peak qty [MWh]	Manual number value insertion	A number field with buttons to	Available only for Iceberg order

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Attribute	Description	Item type	Display
		increase/decrease values according to defined quantity tick	
Price [EUR/MWh]	Manual number value insertion	The number field with buttons to increase/decrease values according to defined price tick	
Price delta [EUR/MWh]	Manual number value insertion	A number field with buttons to increase/decrease values according to defined price tick	Available only for Iceberg order
Valid to	Type of time restriction (GFS, GTD) (implicitly GFS)	Selective box	For restrictions FOK and IOC is permanently set as GFS
	Manual data and time insertion	Format Date and time Item	Available only for option GTD, prefilled with a trading end time of the selected contract.
Comment	Manual text insertion	Text field	
Inactive	Selection to indicate, whether order should be inserted as <i>Inactive</i> or not	Checkbox	Implicitly set to „No“

Table 6: Intraday market – Overview of attributes for order creation

The form operating controls are:

- Button *Add to basket* – to add the order to the basket (will not be submitted to the market)
- Button *Submit* – to confirm filled in data and submit the order into the market
- Button *Clear form* – to clear the form making all the fields empty for a new entry of input order data, except of item Contract, which remains untouched if already filled in.

Moving over the form controls using the keyboard:

Basic movement between the items and controls of the form is ensured by standard *TAB* key. A fast entry functionality to submit a new GFS limit order with no execution restriction is in disposal using sequence of predefined keyboard shortcuts and user actions as follows:

- *CTRL+1* – the system clears the panel for limit order creation, set the order side to Buy and moves cursor to the item Total qty,
- *CTRL+2* – the system clears the panel for limit order creation, set the order side to Sell and moves cursor to the item Total qty,
- Quantity insertion by the user,
- *ENTER* (at field Total qty) – the cursor moves to the item Price, if the total quantity is not filled in, the cursor remains at the item Total qty,
- Price insertion by the user
- *ENTER* (at field Price) – the cursor moves to the button *Submit*, if the price is not prefilled, the cursor remains at item Price,
- *ENTER* on the button *Submit* – submitting the order into the system.

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Contract: IM_17082018

Buy ☒ Sell ☐

Order type: Limit order ☒ Iceberg ☐

Exec. restriction: None ☒ FOK ☐ IOC ☐

Total qty [MWh]: 89.0 Price [EUR/MWh]: 56.00

Valid to: GTD 8/18/2018 05:00 AM

Comment: limit 1

☐ Inactive

Add to basket Submit Clear form

Figure 34: Form for Limit order creation

Contract: IM_17082018

Buy ☐ Sell ☐

Order type: Limit order ☐ Iceberg ☒

Exec. restriction: None ☒

Total qty [MWh]: 45.0 Price [EUR/MWh]: 89.00

Peak qty [MWh]: 12.0 Price delta [EUR/MWh]: -23.00

Valid to: GTD 8/18/2018 03:00 AM

Comment: iceberg 1

☐ Inactive

Add to basket Submit Clear form

Figure 35: Form for Iceberg order creation

5.1.2.4 Panel – Trading history

A panel of trading history is used to graphically display the trading activity, i.e. the course of trade prices and trade quantities over the time for a specific contract selected by the user in either *Market overview* panel of the IM trading screen. If the user wants to display a trading history chart for different contract than the one selected at *Market overview*, then the user may do so using the list box with the list of contracts in the header of the panel. At opening of the trading screen the panel *Trading history* is empty as there is no contract selected by default at *Market overview*. Trades prices and trades quantities are combined in one chart using column chart for quantities and line chart for process. When placing the cursor over any point in the graph there is displayed the label with data details.

Automatic chart update is activated by option “*Update*” (implicitly active). Automatic update will be done always upon each trade creation.

Width of graph (X axis) implicitly (and in the mode of automatic update) respects the time period from start of the trading of the respective contract until end of the hour of the current time, maximally it can be zoomed out till the end of trading with the given contract:

- As a trading period of each product in IM is different, the scale of X axis for individual contracts differs
- User can use ZOOM IN function to get more detailed preview on trades in selected area of graph (using a mouse click and drag to select the ZOOM IN area)
- When the automatic graph update is set on (option *Update* is checked) and graph is ZOOMED IN then upon a trade creation this is reflected in the graph within currently the ZOOMED area. If the actual time will overstep the time span of the ZOOMED area, the graph become static and ZOOMED area is not updated.
- When changing automatic graph update setup from off to on whereas the graph is ZOOMED IN, the graph returns to the implicit scale (maximal ZOOM OUT).
- The ZOOM IN/OUT functionality is also available through the keys + / -.

In case the graph does not display the whole trading period of the selected contract (after ZOOM IN) user can scroll the chart values to the left and back to the right using the keys left / right.

When the cursor is put over the column with a quantity or break point of the curve with a price the system displays in a bubble the trade price and quantity and also a time of the trade creation.

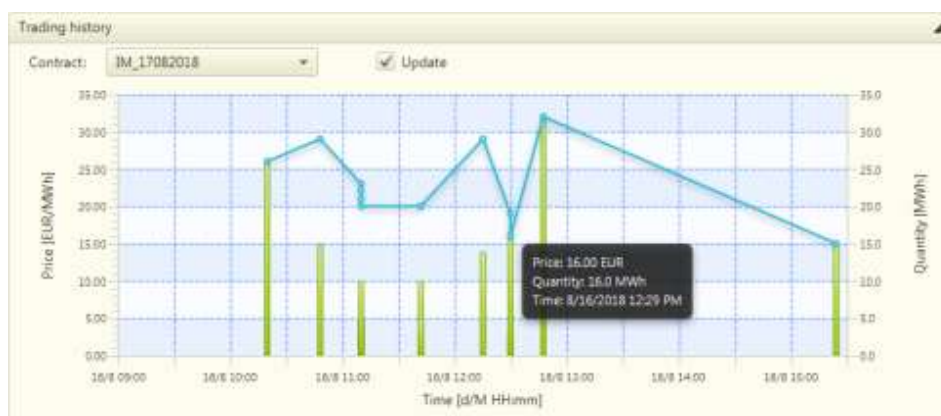


Figure 36: Trading history

5.1.2.5 Panel – Own orders

Own orders offer overview of all orders inserted by logged-in participant of the market with respect to the selected contract (if any). Overview is displayed in a grid control with following columns:

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Column	Description	Icons
ID	Unique order identification	
Contract	Unique contract identification	
Type	Order type (LMT, ICB)	
Ask (Qty)	Total ask quantity (in case of an Iceberg order the item contains Peak quantity)/Total remaining quantity.	
Bid (Qty)	Total bid quantity (in case of an Iceberg order the item contains Peak quantity)/Total remaining quantity.	
Price	Minimal ask price or maximal bid price (in case of an Iceberg order the price for currently disclosed slice)	
State	Order state	Order state: Active - Green  Inactive - Yellow  <i>Placed in a grid cell</i>
Valid to	Date and time of an order expiry	
Comment	Text inserted by the market participant	

Table 7: Intraday market – Own orders – list of columns

The data displayed may be filtered out for the specific contract only using dedicated list box placed in upper panel bar. By default data of all contracts are displayed.

Any order in the list can be modified. Order modification is initiated by double-click at the respective row or by selecting the respective row and pressing the button *Modify*. The modal pop-up window is opened then, where the user can modify or delete the order (see also sections 5.2.2 *IM order modification* and 5.2.4 *IM orders deletion*).

In the upper panel bar there are following controls in disposal:

- *FS status* – enables detection of current free means of IM limit of financial security (FS) in CZK or EUR, which is then displayed in CZK next to the button together with time of the last FS status update (in a format HH:MM). Upon opening of the trading screen, the detection and display of the current free means of FS IM limit is done automatically by the system.

When the cursor is placed over the text with current FS status in CZK, the corresponding value in EUR is displayed in a tooltip.

In a bottom part of the panel there are placed following control buttons:

- *Activate* – performs an activation of the selected order
- *Activate all* – performs an activation of all inactive orders in the list
- *Deactivate* – performs a deactivation of the selected order
- *Deactivate all* – performs a deactivation of all active orders in the list
- *Delete* – delete selected orders, see section 5.2.4 *IM orders deletion*

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- *Delete all* – delete all active and inactive orders in the list
- *Modify* – performs a modification of the selected order, see section 5.2.2 *IM order modification*
- *Basket* – opens window for mass order maintenance, see section 5.2.5 *IM basket*
- *Settl. Curr.* – enables settlement currency setting, see section 5.2.6 *Setting of IM settlement currency*.

For actions activate, deactivate or delete it is possible to select one or more orders from the list.



Figure 37: Own orders

5.1.2.6 Panel – Audit log

Panel *Audit log* displays messages, by which the market informs the market participant about events occurred in course of the trading. Messages are displayed through a grid with following columns:

Column	Description
Time	Date and time of the message creation
Prior.	Specifies the message priority (Low/Medium/High) – priorities are differentiated by colour.
Type	Specifies the message visibility (Public/Private) – options are differentiated by colour
Description	Message content

Table 8: Intraday market – Audit log – list of columns

The list of audit log messages is, by default, sorted by time in descending order, only last 100 records are displayed. In case default sorting is changed by the user, this new sorting would remain applicable even in case new event is logged into audit log. Thereby due to limit of number of records displayed and non-default sorting new audit log entries may not be spotted by the user.

In upper panel bar there are placed checkboxes to filter the messages displayed in the list for desired priority or type – all are ticked, so implicitly there are displayed all audit log messages up to the specified limits of 20 rows:

- Priority:
 - Low priority - green
 - Medium priority - blue
 - High priority - red
- Message type:
 - Public message - black
 - Private message – orange

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Time	Prior.	Type	Description
8/16/2018 12:47:28	Low	Public	New trade 400412 was successfully created, contract IM_17082018.
8/16/2018 12:47:28	Low	Private	Order 2001351 was fully executed, contract IM_17082018.
8/16/2018 12:29:52	Low	Public	New trade 400411 was successfully created, contract IM_17082018.
8/16/2018 12:29:52	Low	Public	New trade 400410 was successfully created, contract IM_17082018.
8/16/2018 12:29:52	Low	Private	Order 2001341 was fully executed, contract IM_17082018.
8/16/2018 12:15:11	Low	Public	New trade 400409 was successfully created, contract IM_17082018.

Figure 38: Audit logs

Following events lead to a message insertion into the Audit log:

- *Order receipt*: a message about successful/unsuccessful create order (see section 5.2.1 *IM orders*), **private** message with **low/medium** priority (successful/unsuccessful action),
- *Order modification*: a message about successful/unsuccessful order modification (see section 5.2.2 *IM order modification*), **private** message with **low/medium** priority (successful/unsuccessful action),
- *Order deletion*: a message about successful/unsuccessful order deletion (see section 5.2.4 *IM orders deletion*), **private** message with **low/medium** priority (successful/unsuccessful action),
- *Order activation*: a message about successful/unsuccessful order modification (see section 5.2.2.2 *Order activation and deactivation*), **private** message with **low/medium** priority (successful/unsuccessful action),
- *Order deactivation*: a message about successful/unsuccessful order deactivation (see section 5.2.2.2 *Order activation and deactivation*), **private** message with **low/medium** priority (successful/unsuccessful action),
- *Publishing of next peak quantity of an Iceberg order*: a message about successful/unsuccessful publishing of next peak quantity of an Iceberg order (see section 5.3 *Process of IM continuous trading*), **private** message with **low/medium** priority (successful/unsuccessful action),
- *Order trading*: a message about full/partial order execution (see section 5.3 *Process of IM continuous trading*), **private** message with **low/medium** priority (successful/unsuccessful action)
- *Trade creation*: a message about successful trade creation (see section 5.3 *Process of IM continuous trading*), public message with **low** priority,
- *Contract state change*: a message about contract issuance/non issuance, opening, closing and evaluation, public message with **low/medium** priority (contract issuance, opening, closure and termination/non-issuance),
- *Change of flag of contract deactivation*: a message about successful activation/deactivation of the contract, public message with **high** priority,
- *Market setting modification*: a message about activation/deactivation of the market, public message with **high** priority.

5.1.2.7 Panel – Own trades

A panel “Own trades” is not displayed in the default IM trading screen. The user can add the panel “Own trades” between the panels on the trading screen only within the custom definition of the trading screen panel layout with own name (using the current option *Personal* → *Custom layouts* – see also section 7 *Setting the parameters of IM trading screen*).

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The panel “Own trades” is used to monitoring the progress and results of trading, where the participant sees only the trades that he transacted alone.

Each contract shows up in the moment of starting continuous trading. In the moment when contracts show up, the fields with data are filled with zero. Data are updated automatically in the moments of creating trades. Trading data are available on the panel immediately after the trade is created. When the contract is ended for trading, its line disappear from the panel.

Each row with contract can be expanded (and collapsed) by the “-” and “+” icons. In the individual rows are created trades. Row with one trade consists trade ID, buy/sell quantity, buy/sell Price. Field “Saldo” is always empty. Data are shown only in fields for buy or sell, it depends on the user, if he is seller or buyer in this case.

Messages are displayed through a grid with following columns:

Column	Description
Contract/ Trade	For an aggregated line: Traded IM contract For a line of trade: Trade identification in EMTAS <i>It is shown after contract is expanded.</i>
Balance [MWh]	Difference between total sales and total purchase in the given contract, expressed in MWh.
Buy total [MWh]	For an aggregated hourly line: Total purchased quantity calculated as the sum of the traded volume of all closed trades for a given contract related to the given hour where the participant acts on the purchasing side, expressed in MWh. For a line of trade: Traded volume in a given trade where the participant performs on the purchasing side expressed in MWh. This will appear after unpacking the delivery hour.
Sell total [MWh]	For an aggregated hourly line: Total sales quantity calculated as the sum of the traded volume of all closed trades for a given contract related to the given hour where the participant acts on the sale side, expressed in MWh. For a line of trade: Traded volume in a given trade where the participant performs on the sale side expressed in MWh. This will appear after unpacking the delivery day.
WA buy price [EUR/MWh]	For an aggregated hourly line: Weighted average of price of all realized trades for given contract, where the participant acts on the purchasing side, For a line of trade: Trading price determined according to trading rules. This will appear after unpacking the contract.
WA sell price [EUR/MWh]	For an aggregated hourly line: Weighted average of price of all realized trades for given contract, where the participant acts on the sale side,

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Order type	Execution restrictions			Time restrictions	
	NON	FOK	IOC	GFS	GTD
Limit order	X	X	X	X	X
Iceberg	X			X	X

Time restriction is allowed
Time restriction is not allowed
Not supported combination

Table 10: Execution and time restrictions for IM order types

Quantity insertion according to order type:

- For **Limit order** the participant fills in item *Total qty*
- For **Iceberg** order the participant fills in items *Total qty* and *Peak qty*

Price insertion according to order type:

- For **Limit order** the participant fills in item *Price*.
- For **Iceberg** order the participant fills in items *Price* and *Price delta*¹

In a matching process, for a bid the price of created trade cannot be higher than the bid price, for an ask the price of created trade cannot be lower than the ask price. During the matching process for submitted bid there is (one or more) ask with the lowest price selected to match the orders (if any) and for submitted ask there is (one or more) bid with the highest price selected to match the orders (if any).

The system assigns unique numeric ID code and version (starting with 0) to each new order. In case of the order rejection (e.g. due to insufficient FS² or unsuccessful validation) **no order data are stored in the system for such order**.

The system allows submitting inactive orders also for contracts, which are just issued but not yet open for trading. Inactive orders submitted before the issued contract is open are not financially secured. Once the contract is open for trading and user activate the order (if wished), the order is financially secured within the process of order activation – in case of insufficient FS the activation of order is rejected, the order remains in the system in inactive state. Automatic order activation upon a contract trading periods start is not supported.

¹ This parameter is optional, if it is not set, system works with zero price delta.

² It is necessary to set financial security limits before first trade, details about this problematic are included in document Risk management

5.2.2 IM order modification

The system enables user to perform modification of active/inactive orders (including already partially traded ones) from the list of own orders. Modification means an adjustment of existing order identified by the code and order version. Modification can be performed only for tradeable contracts. Within modification of order there is created always new version of original order (version is increased by 1).

Within the order modification following order attributes cannot be changed:

- Order type
- Buy/Sell
- Contract
- Order ID
- Execution restriction (in case of Iceberg)

Order cannot be modified, if:

- is deleted,
- is withdrawn from trading (the order time validity has passed).

If within order modification are changed the **order attributes, which may affect the determination of priorities in the process of matching** the orders, there is within this order modification created new version of the order with **new time stamp**. Below is stated list of order attributes, whose change leads to update of time stamp of the order:

- Modification based on instruction of market participant:
 - Change of price,
 - Increase of the quantity³ (in case of Iceberg orders increasing of total remaining quantity),
 - Increase of peak quantity (only for Iceberg orders),
 - Change of execution restriction (only in case of Limit orders),
 - Order activation.
- Modification performed by the system automatically:
 - Change of price within publication of another peak quantity (valid only for Iceberg orders).
- Within form for order modification, the user can perform own customization of the order (option „*Modify*“) or can delete the order (option „*Delete*“).
- In case of Limit or Iceberg order modification following form is displayed:

³ In case of reducing the quantity of order the time stamp is not changed

Modify order - Sell

Order ID: 2,001,352 Order version: 0

Contract: IM_17082018

☐ Buy ☒ Sell

Order type: ☒ Limit order Exec. restriction: ☒ None

☐ Iceberg ☐ FOK ☐ IOC

Total qty [MWh]: 48.0 Price [EUR/MWh]: 48.00

Valid to: GFS

Comment:

☐ Inactive

Figure 40: IM orders modification

5.2.2.1 IM order life cycle

Within its life cycle the order can regain these states:

- *Active* – order was successfully validated, is active and is proposed for trading; after partial trading the order remains in active state,
- *Closed* – order is fully traded or expired the validity period or was closed business session of given contract; order is not proposed for trading,
- *Inactive* – order was deactivated by the user or by the system and is not proposed for trading,
- *Deleted* – order was deleted by the user (or by the system during system deletion).

Figure below represents life cycle of IM order:

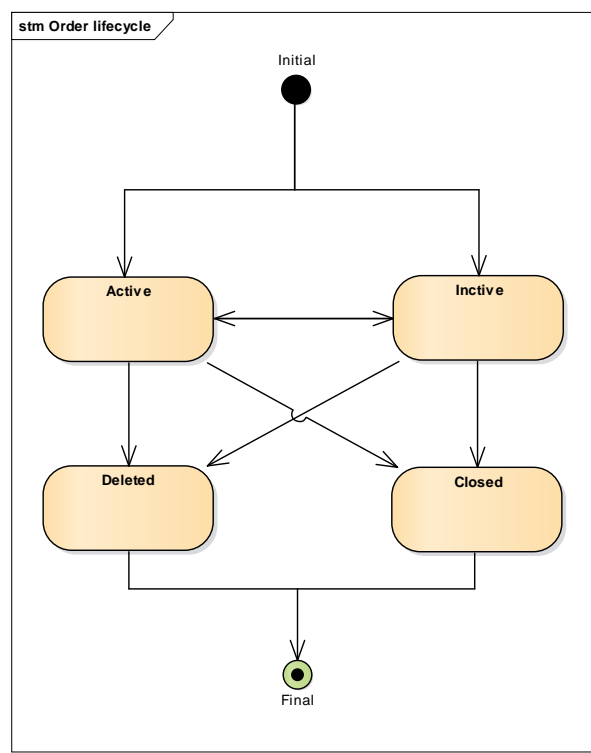


Figure 41: Life cycle of order on IM

During creation/modification of orders **the users must be aware of the fact, that they work above the transaction on-line system**, in which run parallel processes and depending on these processes are updated all data. This may mean, that in the moment of order receipt created by the participant, who responds to another previously created order, this may not already exist in the system (the remaining quantity of the order is zero, therefore the order was either traded or deleted).

5.2.2.2 Order activation and deactivation

Order activation in panel *Own orders*:

- Inactive orders can be activated by user either by using the button *Activate* (only selected orders will be activated – maximum 25 together) or all at once by using the button *Activate all*. Within order activation the original inactive orders are automatically modified and there is created new version of the order with new time stamp and with status *Active*. About successful order activation is the user informed by displaying the message about order activation in panel *Audit log* on trading screen (see section 5.1.2.6 *Panel – Audit log*). From a procedural perspective, the order activation is seen as modification of order which corresponds to the message displayed.

Order deactivation in panel *Own orders*:

- Active orders can be deactivated by user either by using the button *Deactivate* (only selected orders will be deactivated – maximum 25 together) or all at once by using the button *Deactivate all*. Within a deactivation process the state of order/orders is changed to *Inactive*. The user is informed about successful order deactivation by a message about

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order deactivation in panel *Audit log* within trading screen (see section 5.1.2.6 *Panel – Audit log*). During deactivation a version of the given order is increased.

5.2.3 IM data validation

The function performs all necessary validations with the aim to ensure the fulfilment the conditions of the market defined for order creation for individual contracts, in compliance with market definition and market and contract parameters.

Validation is performed in two phases. **First phase** is performed *on the side of client application* and concerns mainly data formats verification and their validity in individual items.

The list of checks is following:

- Formal check of filled items of the form (e.g. Total qty/Qty, Peak qty, Price, Valid to).
- Check of user parameters of order limits (see section 4.2.3 *User parameters of order limits*):
 - Minimal bid price for given market, Maximal ask price for given market:
 - Price defined in buy order must not exceed user parameter *Minimal bid price* for given market of given user. If the user parameter is not set, the system in term of this parameter does not perform any check. If the check is not successful, the operation is interrupted with warning on exceeding **bottom price limit** with an option to continue, or not. Text of warning:
“The user-defined limit for minimal bid price exceeded. Allowed limit is %minimal price%. Do you want to continue?”
 - Price defined in sell order must not exceed user parameter *Maximal ask price* for given market of given user. If the user parameter is not set, the system in term of this parameter does not perform any check. If the check is not successful, the operation is interrupted with warning on exceeding **upper price limit** with an option to continue, or not. Text of warning:
“The user-defined limit for minimal ask price exceeded. Allowed limit is %maximal price%. Do you want to continue?”
 - Maximal order quantity for given market:
 - For Limit or Iceberg order following rules apply:
Order quantity must not exceed the user limit *Maximal order quantity* for given market. If the user parameter is not set, the system in term of this parameter does not perform any check. If the check is not successful, the operation is interrupted with warning on exceeding **quantity limit** with option to continue, or not. Text of warning:
“The user-defined limit for maximal order quantity exceeded. Allowed limit is %maximal quantity%. Do you want to continue?”

Second validation phase is performed on the side of *application server*, identically for orders created through AC and also trading screen. There is performed check of correctness of registration of the user and market participant a there is verified the correctness of inserted data in comparison with other values in database (registration data of the participant, information

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about tradeable contract, information about market parameters, as they are generated in compliance with setting of the IM contract parameters).

List of checks is following:

- Check of participant:
 - The participant must be valid BRP for contract delivery day.
 - The participant inserting the order on IM must have access right on IM for contract delivery day.
 - The participant modifying orders on IM must have modification right on IM for contract delivery day.
- Check of contract:
 - Check of contract deactivation – check, whether the contract is active (contract activation/deactivation is reserved to the system administrator only)
 - Contract identification check – specified contract exists.
 - In case of active order the check, whether the contract is in period when it is possible to do trading with it (it is in state *Open*).
 - In case of inactive order the check, whether the contract is issued or is in period, when it is possible to do trading with it (it is in state *Issued* or *Open*).
- Check of financial security:
 - for active orders always
 - for inactive orders on tradable contract (inactive orders on issued contract are checked in the moment of activation by user)
- Check of order type and restriction (see section 3.2.1 *Supported types of IM orders*):
 - Type of created/modified order must correspond with supported type of IM order defined in valid IM market definition.
 - Execution and time restriction must correspond with supported restriction for given order type defined in valid IM market definition.
 - Time restriction GTD and GFS is not permitted together with execution restriction FOK, IOC.
 - Date and time of the order withdrawal (in case of time restriction GTD) must be in period, when the contract is tradeable and must be higher than current time.
- Price check:
 - Price defined in bid/ask of contract must correspond with the parameters of the product (Minimal price, Maximal price and Price tick). Price must be stated in order (see section 4.1 *The IM setting*)
 - Check of item *Price delta* – is performed only for Iceberg type of orders. In case of bid there is allowed only negative value including zero, in case of ask only positive value including zero.
- Quantity check:

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- Quantity defined in ask/bid of contract must correspond with parameters of product (Minimal quantity, Maximal quantity and Quantity tick). Quantity must be stated in order (see section 4.1 *Market parameters setting*). The IM setting
 - Check of item *Peak quantity* is performed only for Iceberg type of orders. Value must not exceed total order quantity.
 - Minimal quantity defined in ask/bid of Iceberg order for given contract must be equal to parameter *Minimal total quantity of iceberg*.
 - Minimal displayed quantity defined in iceberg ask/bid order must be equal to parameter *Minimal display quantity of iceberg*.
- Check upon modification:
- it is not allowed to change following order attributes: *Order Type, Buy/Sell, Contract, Order ID*.
 - modification is not allowed if the order:
 - is deleted or
 - is withdrawn from trading (order validity period is over)
 - provided Order ID is invalid (not existing order)
 - provided order version does not match the very last version number of the being modified order in the system

Based on result of the check the bid/ask of IM contract is classified as follows:

Successful bid/ask of contract: it is bid/ask of contract, which **successfully passed the validation process**. Result of order creation/modification is announced to participant through message in audit log (see section 5.1.2.6 *Panel –*). To the order is assigned a unique identifier and version 0 (when creating new order), or is increased the version of the order (when modifying the order). According to entered flag *Inactive* the order can be created in the system as *Active/Inactive* with appropriate state.

Unsuccessful bid/ask of contract: it is bid/ask, which **did not pass the validation process**. The result of order creation/modification is announced to participant through message in audit log with the error specification (see section 5.1.2.6 *Panel –*). **The order is rejected and is not inserted into the system.**

After successful end of validation and insertion of order into the system the management is handed over to the process of continuous trading (see section 5.3 *Process of IM continuous trading*).

Successful active orders are displayed on the trading screen (see section 5.1 *IM trading screen*).

5.2.4 IM orders deletion

The purpose of this functionality is to perform deletion of IM order on instruction of the market participant.

The participant of the market can for deletion choose one particular order or more orders (maximum 25 together) chosen on the basis of selected filters to display the orders. Selection of the order/orders and following instruction performs the participant through application.

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Subsequently the system performs validation of selected records of orders – there are implemented these checks:

- Check of participant:
 - The market participant must have a right of access to the IM for the delivery day of the given contract.
 - The market participant must have a right to modify for the delivery day of the contract.
 - The market participant (RMP) must be owner of the order.
 - The participant of the market must be valid BRP for the delivery day of the given contract.
- Check of order:
 - There exist the order with given ID registered in AS.
 - The moment of deletion of the Limit or Iceberg order must be within period, for which is given contract opened for trading or issued.
 - Version of the order specified in the instruction for deletion must be identical with maximal version of this order registered in AS.
 - It must be an order which was not deleted (is in state *Deleted*), or is fully traded or withdrawn from trading (is in state *Closed*).

If the validation will be performed in at least one case with negative result, the deletion is not performed and the process is ended with an error message.

If all validation will perform with positive result, the system will change the valid order into deleted order (with the state *Deleted*). The order is not displayed in any panel on the trading screen.

During deletion of the orders in state *Active* there is released appropriate level of financial security (check for IM limit of FS).

System informs the participant of the market about the result of deletion by audit log message (see section 5.1.2.6 *Panel –*).

- in case of successful deletion by message about successful deletion of the order,
- in case of unsuccessful deletion by message about unsuccessful deletion including the reason.

5.2.5 IM basket

Basic trading screen on IM enables to the participant quick reaction on current situation on the market through the quick creation/modification of only one order in given moment. Screen *Basket* complements the functionality of trading screens described in previous section in such a way that enables the participants the preparation of new set of orders alternatively editing of already existing orders out of the system. Time of insertion of prepared set of orders into the system then determines the participant himself by pressing appropriate button *Submit Basket*.

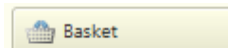
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The functionality is accessible from the trading screen by using the button



Separate window with form Basket is opened:

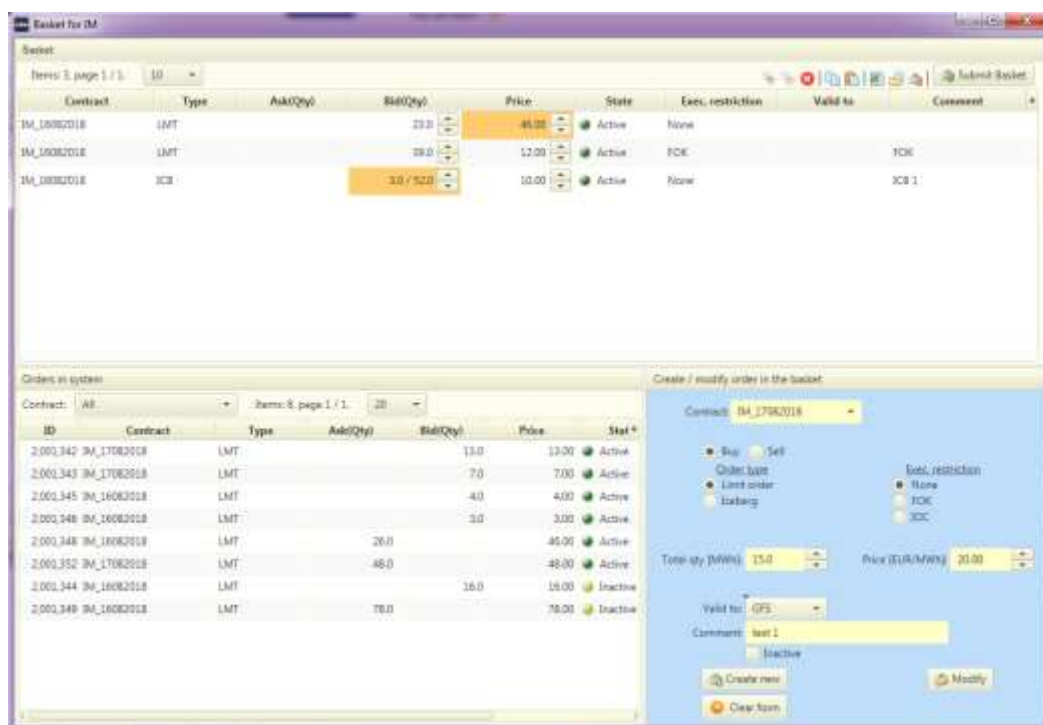


Figure 42: Basket

The form *Basket* is formed by this set of panels:

- *Basket* – set of orders, which the participant edits/creates,
- *Orders in system* – overview of active and inactive orders of given market participant,
- *Create / modify order in the basket* – the form for creation of new or modification of selected orders in the basket.

5.2.5.1 Panel – Basket

This panel contains the list of orders with which in given moment the participant works within the basket. The option to edit/create orders belonging to different contracts under the same market is not limited.

The work with already existing order (change of state, etc.) is described in section 5.2.5.2 *Panel – Orders in system*.

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Contract	Type	Ask(Qty)	Bid(Qty)	Price	State	Exec. restriction	Valid to	Comment
IM_16082018	LMT	23.0	23.0	45.00	Active	None		
IM_16082018	LMT	39.0	39.0	12.00	Active	FOR		FOR
IM_16082018	ICB	3.0 / 32.0	3.0 / 32.0	50.00	Active	None		ICB 1

Figure 43: Panel Basket

Selection of line with the order causes its reading into the panel *Create / modify order in the basket*. In case there is order selected in the Basket and its price or quantity is changed by the quick increase or decrease, the same changes are shown in the *Create / modify order in the basket* panel. This changes are working only one way. If the changes of quantity or price are made in *Create / modify order in the basket* panel, it doesn't change values in basket. It is because of creating new orders to the basket. Values inserted out of limit defined in section 4.2.3 *User parameters of order limits* are coloured in orange.

Panel contains these columns:

Column	Description	Ikons	Control elements
Contract	Unique identification of contract in the system		
Type	Order type (LMT)		
Ask (MWh)	Displays quantity at asks		<ul style="list-style-type: none"> - Quick decrease of quantity by defined tick - Quick increase of quantity by defined tick <p>Placed in grid cell</p>
Bid (MWh)	Displays quantity at bids		<ul style="list-style-type: none"> - Quick decrease of quantity by defined tick - Quick increase of quantity by defined tick <p>Placed in grid cell</p>
Price	Order price		<ul style="list-style-type: none"> - Quick decrease of price by defined tick - Quick increase of price by defined tick <p>Placed in grid cell</p>
State	Current order state in the system	Order state: Active - Green Inactive - Yellow Placed in grid cell	

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Exec. restriction	Identification of execution restriction (None, FOK, IOC)		
Valid to	Timestamp of order validity		
Comment	Comment of the order		

Table 11: Panel Basket – list of columns

In grid header there are available these controlling elements:

- Button *Activate*  – set state of selected orders as *Active*
- Button *Deactivate*  – set state of selected orders as *Inactive*.
- Button *Delete*  – delete selected order from basket (does not make a deletion from the system!).
- Button *Copy*  – insert selected orders into clipboard and enables to insert them, e.g. to Excel
- Button *Paste from clipboard*  – enable to insert order/orders to the basket, e.g. from Excel through clipboard, list and order of items must be identical as above mentioned list of columns of this grid. Imported items are added to already existing ones in the basket.
- Button *Export to Excel*  – enables to export the content of basket to the file in Excel format.
- Button *Upload*  – enables to import orders into basket from file in CSV format, list and order of items of input file must be identical to above mentioned list of columns of this grid. Imported items are added to already existing ones in the basket.
- Button *Clear basket*  – delete all orders from the basket (does not make a deletion from the system!).
- Button *Submit Basket*  – send the whole content of the basket to the system for processing, successful sending empties the basket. Orders sent from the basket are inserted into the system with current new timestamp. In case that at least one order on the form exceed set user limit, there is displayed a message: “*Exceeded the defined user limit for quantity and/or price of some orders. Do you want to continue?*” and the user chooses whether he really wants to send the basket. When the basket is successfully sent, the systems announces to the participant, that orders were created for processing, their successful/unsuccessful creation can track in audit log on the trading screen.

Thanks to functionality Copy/Paste from clipboard/Export to Excel/Import from file it is possible to easily do the mass insertion, modification of the orders with using e.g. Excel or CSV file.

The copied area can be including header or without header. If the first copied item is filled with text “Contract”, the first line is ignored and considered as header. The order and number of columns is firmly defined and must be identical with the specified pattern.

List of columns:

1. column – **Contract**, full identification of the contract’s name.
2. column – Order **type**, possible options *LMT* – Limit order, *ICB* – Iceberg.

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- column – **Ask (qty)**, size of order in case of ask. If it is ICB order, then is stated the value in x/y format, where x means *Peak qty* and y *Total qty*. Decimal places separator must be identical with application user setting of given user. Number of decimal places must not exceed setting of product.
- column – **Bid (qty)**, size of order in case of bid. If it is ICB order, then is stated the value in x/y format, where x means *Peak qty* and y *Total qty*. Decimal places separator must be identical with application user setting of given user. Number of decimal places must not exceed setting of product.
- column – **Price**, states order price. If it is ICB order, then can be stated also price change during publishing of new peak quantity in x/y format, where x states *Price* and y *Price delta*. Decimal places separator must be identical with application user setting of given user. Number of decimal places must not exceed setting of product.
- column – Order **State**, possible states A – active and N – Inactive.
- column – **Exec. restriction**, possible states *FOK*, *IOC*, *AON*. If no restriction is set, the item is empty.
- column – **Valid to**, optionally specifies time validity of the order. Data and time format must be identical with user setting of the application of given user.
- column – **Comment**, optional comment to the order.

Example of the format of data copied from Excel through clipboard:

Contract	Type	Sell (qty)	Buy (qty)	Price	State	Exec. restr.	Valid to	Comment
IM_30102018	LMT	15		12,3	A	FOK		Order 4
IM_30102018	ICB		5/20	12,3	A		29.10.2017 18:35	
IM_30102018	ICB		3/18,5	15/0,5	N			
IM_31102018	LMT		15	12,3	A		30.10.2017 19:10	Order 5
IM_31102018	LMT	15		12,3	A	IOC		

Table 12: Example of the Excel data format to copy into the IM Basket from clipboard

Example of input files in CSV format for function *Upload* (data represent the same orders as for example for Excel). First line with header is optional:

```
Contract;Type;Sell(qty);Buy (qty);Price;State;Exec. restr.;Valid to;Comment
IM_30102018;LMT;15;;12,3;A;FOK;;Order 4
IM_30102018;ICB;;5/20;12,3;A;;29.10.2018 18:35;
IM_30102018;ICB;;3/18,5;15/0,5;N;;;
IM_31102018;LMT;;15;12,3;A;;30.10.2018 19:10;Order 5
IM_31102018;LMT;15;;12,3;A;IOC;;
```

Figure 44: Input CSV file content example

5.2.5.2 Panel – Orders in system

Panel contains grid, which displays current list of orders registered by the system for logged-in participant. Displayed data contain **only active and inactive orders**. Deleted (in state *Deleted*) and fully agreed orders (in state *Closed*) are from this list excluded. In the list can be displayed orders for all contracts of given market and also by using filter placed in header of the grid to narrow selection of orders only on particular contract.

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Orders in system						
Contract: All		Items: 8, page 1 / 1.		20		
ID	Contract	Type	Ask(Qty)	Bid(Qty)	Price	Stat *
2,001,342	IM_17082018	LMT		13.0	13.00	Active
2,001,343	IM_17082018	LMT		7.0	7.00	Active
2,001,345	IM_16082018	LMT		4.0	4.00	Active
2,001,346	IM_16082018	LMT		3.0	3.00	Active
2,001,348	IM_16082018	LMT	26.0		46.00	Active
2,001,352	IM_17082018	LMT	48.0		48.00	Active
2,001,344	IM_16082018	LMT		16.0	16.00	Inactive
2,001,349	IM_16082018	LMT	78.0		78.00	Inactive

Figure 45: Panel Orders in system

This grid does not enable direct editing of the orders, but using *drag and drop* functionality it is possible to move selected order to the panel *Basket* for consequent editing. **By moving the order into the basket the source order is automatically deleted from the order book in the system (it is withdrawn from trading; change is irreversible also in case of later deletion of the basket content)!** In the *Basket* new order is created, which is a copy of the state of original order.

Panel contains these columns:



Column	Description	Ikons	Control elements
ID	Unique identification of order in the system		
Contract	Unique identification of contract in the system		
Type	Order type		
Ask (Qty)	Displays quantity at asks		
Bid (Qty)	Displays quantity at bids		
Price	Order price		
State	Current order state in the system	Order state: Active - Green  Inactive - Yellow  <i>Placed in grid cell</i>	
Create Timestamp	Date and time of order creation in the system		

Table 13: Panel Orders in system – list of columns

5.2.5.3 Panel – Create / modify order in the basket

Panel enables editing of already existing order in the basket, or creation of new order in the basket.

The screenshot shows a web form titled "Create / modify order in the basket". It contains several input fields and buttons. At the top, there's a "Contract" dropdown menu showing "IM_17082018". Below it are radio buttons for "Buy" (selected) and "Sell". Then, there are radio buttons for "Order type" with "Limit order" (selected) and "Iceberg". To the right, there are radio buttons for "Exec. restriction" with "None" (selected), "FOK", and "IOC". Below these are two numeric input fields: "Total qty [MWh]" with the value "13.0" and "Price [EUR/MWh]" with the value "20.00". Further down is a "Valid to" dropdown menu showing "GFS", a "Comment" text input field containing "test 1", and an "Inactive" checkbox which is unchecked. At the bottom, there are three buttons: "Create new" (with a plus icon), "Modify" (with a pencil icon), and "Clear form" (with a trash icon).

Figure 46: Form layout to create / modify Limit or Iceberg order in the basket

Operating items of the form consist of:

- Button *Create new* causes that according to current data in the form will be in the basket created new order. This button is not used then for update of edited order, but to create new order according to the current one. It enables creation of quick copies of the orders, which differ e.g. only in price – participant chooses the order, edits the price, creates from data a new order, edits again the price and create another one.
- Button *Modify* modifies data of already existing order in the basket according to current data in the form.
- Button *Clear form* set data in the form into initial values:
 - Selected *contract remains*
 - Order side will be set to *Buy*
 - Order type will be set to *Limit order*
 - Execution restriction will be set to *None*
 - Time restriction will be set till the end of trading session, i.e. to *GFS*
 - Item *Inactive* will be unchecked
 - All remaining fields will be set to empty value.

Availability of buttons will be ensured in these cases:

- *Create new* – form contains correct data for order creation (all obligatory items are filled).
- *Modify* – the form contains correct data for order modification.
- *Clear form* – this option is always available.

On order entry or modification within the *Basket* the system automatically checks orders duplicity in the basket. If orders with identical contract, order side, order type, quantity and price are found, following warning is displayed:



Figure 47: IM Basket – duplicity warning

To create and modify orders in the basket is possible without limitation – orders remain in *Basket* also after closure of the form by the participant, so that it is possible to return to it anytime and continue in editing. Orders do not exist in the system until they are not sent for processing (using the button *Send basket* in panel *Basket*). After successful sending the panel *Basket* become empty – successfully created orders will appear in panel *Own orders*.

5.2.6 Setting of IM settlement currency

Setting of IM settlement currency is enabled to user on independent form, in which he can choose the settlement currency. If there is not performed the option of settlement currency by the user, then within the aggregation process will be used default settlement currency of the participant on IM, which is set for him within registration module.

The user has option to set the settlement currency of IM market for delivery days, at which has not started the trading on IM yet, up to 10 minutes before trading started. Therefore it is not possible to change this setting retrospectively.

The same form is also used by the user to display the overview of IM settlement currencies for period specified by the range of delivery days. Data are recorded during each aggregation.

The functionality is accessible from trading screen using button




Report has these parameters:

- *Gas day from* – specification of start of interval
- *Gas day to* – specification of end of interval

Report contains these columns:

- *Gas day* – identifies day, in which is realized the physical delivery of the commodity
- *Settlement currency code* - by using this item the user specifies the currency, in which will be the trades settled (orders are always created – traded in the currency defined in IM product, settlement currency can be changed). Admissible values are in CZK/EUR, which can be selected from the list.
- *Implicit settlement currency code* – item is only informative – cannot be edited. The system fills this automatically according to default settlement currency, which has the user set in master data of registration module for given delivery day and IM market.
- *Participant* - EIC participant's code; after holding the cursor on EIC participant's code a label with his name is displayed
- *User* – identification of user, who performed last update of settlement currency
- *Timestamp* – date and time of last currency update

Report contains these control elements:


- *Save*  – saving of set settlement currency

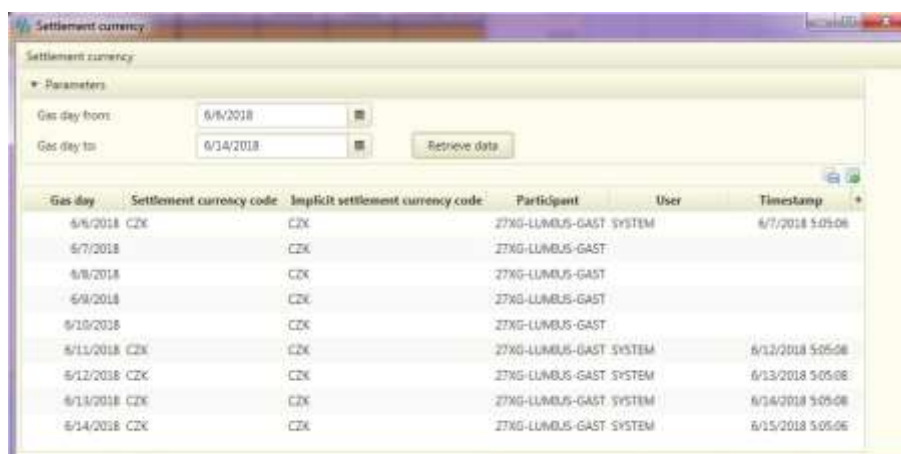
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- **Data export**  – export of set data to selected format



Gas day	Settlement currency code	Implicit settlement currency code	Participant	User	Timestamp
6/6/2018	CZK	CZK	27XG-LUMBUS-GAST	SYSTEM	6/7/2018 5:05:08
6/7/2018	CZK	CZK	27XG-LUMBUS-GAST		
6/8/2018	CZK	CZK	27XG-LUMBUS-GAST		
6/9/2018	CZK	CZK	27XG-LUMBUS-GAST		
6/10/2018	CZK	CZK	27XG-LUMBUS-GAST		
6/11/2018	CZK	CZK	27XG-LUMBUS-GAST	SYSTEM	6/12/2018 5:05:08
6/12/2018	CZK	CZK	27XG-LUMBUS-GAST	SYSTEM	6/13/2018 5:05:08
6/13/2018	CZK	CZK	27XG-LUMBUS-GAST	SYSTEM	6/14/2018 5:05:08
6/14/2018	CZK	CZK	27XG-LUMBUS-GAST	SYSTEM	6/15/2018 5:05:06

Figure 48: Report IM settlement currency

5.3 Process of IM continuous trading

Process of orders matching is activated in case of successful insertion of a new active order, provided that given contract is open for continuous trading and given contract is not deactivated (about contract deactivation see section 5.2.3 *IM data validation*).

Matching with own order is not allowed - if an order is given that would cause the creation of trade, the user is notified by an error message and the order is not created. The same restriction is used in case of modification or activation an order.

5.3.1 Orders matching

- Limit and Iceberg orders are matched under following conditions:
 - Entering Limit/Iceberg sell order, which has lower or equal price than already existing active buy order.
 - Entering Limit/Iceberg buy order, which has higher or equal price than already existing active sell order.
- At matching have the priority active bid with the highest price and active ask with the lowest price. If two or more active bids or asks have equal price then the priority has the previously inserted active order, i.e. order with lower timestamp of creation in the system (date and time of order creation).
- At matching of active orders the **trade price is price of already existing active order in the opposite position, i.e. at matching active bids the trade price is price of already existing active ask and the other way round.** If happens matching of more orders with different prices, for each matched pair arises individual price. This price is for each trade determined independently based on the already existing active order.

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5.3.2 Application of execution restrictions within matching process

Orders with execution restriction FOK must be fully matched (it means in the amount of total order quantity), where orders with execution restriction NON and IOC can be matched partially (see section 3.2.1 *Supported types of IM orders*). Order with execution restriction FOK or IOC passes after completed matching process automatically to the state *Closed* (see section 5.2.2.1 *IM order life cycle*).

If successfully matched, the remaining quantity at matched orders decreases (at fully matched orders on zero). In case, that is matched all peak quantity of Iceberg order, there is published another peak quantity of Iceberg order with modified price, if in the order was set attribute *Price delta* (see section 5.2.1 *IM orders entry*), there is performed automatic modification of Iceberg order with a new timestamp (see section 5.2.2 *IM order modification*) and new peak quantity of Iceberg order then again enters into the matching with the lowest time priority (ranks for matching at the end of possible orders with same price).

Consequently there is done a record in trade table with price set according to the above mentioned principle.

After successful matching (trade creation) the system passes for each created trade the trade data and also information about both trade parties to the risk management module to perform financial security recalculation. This is an asynchronous processing, system does not wait for the result of being performed financial security check, in other words the system only “informs” risk management module about created trade.

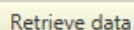
On IM market the system works in transaction on-line regime, so that following situations can happen during sending bid or ask by the user to the database:


- there no longer exists original bid/ask, displayed on the trading screen, on which the participant reacts with his bid/ask (was deleted or deactivated by the owner, or deleted by the system due to insufficient FS),
- original bid/ask, displayed on the trading screen, on which reacts the participant with his bid/ask, was already traded – it was paired with bid/ask, which was received for processing earlier,
- price or quantity of original order changes, so the conditions for pairing with newly created order are already different than at its insertion.

5.4 IM reports

The option enables to view contracts data, own orders and trades on intraday market, also provides statistics on the trading results for delivery day and results of trading for given market participant.

Data of selected set are displayed after entering parameters and pressing the button

 Retrieve data

Content of sets is possible to export to the file in selected format (types of output are Excel, PDF, TXT and XML) after reading the data and pressign the button *Data export* .

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The option is accessible from main application menu:

Reports →

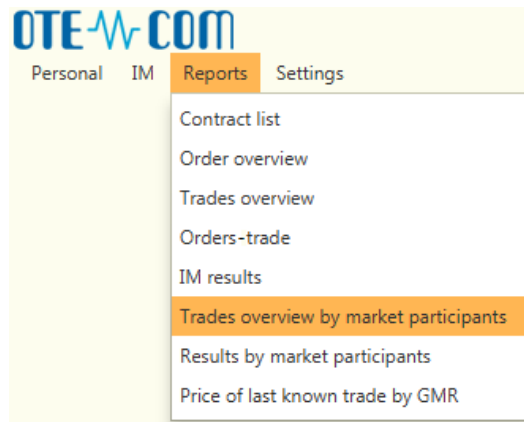


Figure 49: Access to IM reports

5.4.1 Contract list

Report displays overview of generated IM contracts in defined period.

Report has these parameters:

- *Delivery day from* – defines start date of delivery for data selection, mandatory, implicitly set on current calendar day,
- *Delivery day to* – defines end date of delivery for data selection mandatory, implicitly set on current calendar day,
- *Product Type* – daily (implicitly set value, mandatory).

Report is divided into several panels – bookmarks:

- *Main bookmark* – contains total overview of contracts according to selected criteria,
- *Detail* – contains detailed information of particular contract, which is displayed after selection of contract in main bookmark (marking line by the mouse click).

IM contract list contains these columns:

- *Contract* – short name of contract (e.g. IM_18082018),
- *Product* – name of product based on which was the given contract generated,
- *Delivery from* – identifies start day and time, in which happens delivery of the commodity, which can be traded in this contract
- *Delivery to* – identifies end day and time, in which happens delivery of the commodity, which can be traded in this contract
- *State* – state of contract from the list of defined states:
 - Generated,
 - Issued,
 - Open,
 - Terminated,
 - Closed,
 - Not issued.

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Bookmark *Detail* has form of the form with non-editable items. These items are grouped into units according to the importance of contained data.

- General contract data:
 - *Contract* – short name of the contract,
 - *State* – current state of given contract (list of states is mentioned above),
 - *Inactive* – flag of contract deactivation *Yes/No*,
 - *Delivery from* – start date and time of commodity delivery of given contract,
 - *Delivery to* – end date and time of commodity delivery of given contract.
- Contract quantity setting:
 - *Quantity unit* – constant „MW“,
 - *Quantity tick* – minimal increment allowed for entering quantity for given contract,
 - *Minimal quantity* – minimal quantity defined within the contract,
 - *Maximal quantity* – maximal quantity defined within contract.
 - *Minimal peak quantity ICB* – minimal quantity of ICB slice which is possible add to the trading system
 - *Minimal total quantity ICB* - minimal total quantity of ICB which is possible add to the trading system
- Contract price setting:
 - *Currency* – contract currency,
 - *Currency tick* – numerical order in which is possible to set the price in the order,
 - *Min. price* – lower limit price set in the order,
 - *Max. price* - upper limit price set in the order.

Contract description:

- *Delivery area* - constant „Virtual point for short term trading“,
- *Long contract description* – long text contract description,
- *Short contract description* – short text contract description.

Contract time events:

- *Lifecycle template* – name of template of life cycle of given contract and underneath the list of time events of life cycle of given contract in columns:
 - *Name* – name of given event,
 - *Date and time of event activation* – date and time of event activation,
 - *Event state* – current state of given event.

The screenshot displays the 'IM contract list' report in a web application. At the top, there's a search filter with fields for 'Delivery day from', 'Delivery day to', and 'Product type'. Below the filter is a table of contracts. The table has columns: 'Contract', 'Product', 'Delivery from', 'Delivery to', and 'State'. The table lists several contracts with their respective details. Below the table, there are sections for 'Contract details', 'Contract security settings', and 'Contract price setting'.

Figure 50: Reports – IM contract list

5.4.2 Order overview

This report displays list of all own orders in all states for set range of delivery days for IM.

The report has these parameters:

- *Contract* – name of contract, optional parameter, it is possible to use * convention,
- *Delivery day from* – defines start delivery day for data selection, mandatory, implicitly set on day before current calendar day
- *Delivery day to* – defines end delivery day for data selection, mandatory, implicitly set on current calendar day
- *Buy/Sell* – selection according to order site:
 - o *All* – implicitly set,
 - o *Buy*,
 - o *Sell*.
- *Order state* – selection according to order state:
 - o *All* – implicitly set,
 - o *Active*,
 - o *Inactive*,
 - o *Closed*,
 - o *Deleted*.
- *Product type* – daily (implicitly set value),

Report contains these columns:

- *Contract* – name of contract, based on which was the order created,
- *Order ID* - order identification,
- *Order version* – version of the order,
- *Delivery day* – date of delivery day,
- *Replaced* – sign defining whether it is replaced order version (*Yes/No*); last version of the order is not replaced,
- *Buy/Sell* – states whether it is buy order (bid) or sell order (ask),
- *Order type* – type of order (*Limit order, Iceberg*),
- *Exec. restriction* – execution restriction (*None, FOK, IOC*)
- *Order state* – current order state (*Active, Inactive, Closed, Deleted*),

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- *Price [Eur/MWh]* – price stated in inserted order,
- *Quantity [MWh]* – quantity stated in inserted order in MWh units,
- *Peak quantity [MWh]* – quantity specified for display on the trading screen (only for Iceberg orders),
- *Remaining quantity [MWh]* – current difference between total quantity in order and so far traded quantity,
- *Valid to-* date and time of order validity,
- *Created* – create timestamp,
- *Deleted* – timestamp of order deletion,
- *Participant* - ID RMP (EIC); after holding the cursor on EIC a label with his name is displayed,
- *User* – user ID,
- *Comment* – short comment of the bid.

Contract	Order ID	Order status	Delivery day	Participant	Buy/Sell	Order type	Price	Quantity	Peak quantity	Remaining quantity	Valid to
OTL200000	200000001	0	8/17/2008	Yes	Buy	Limit order	None	10.00	10.00	10.00	8/17/2008
OTL200000	200000002	1	8/17/2008	Yes	Buy	Limit order	None	20.00	10.00	10.00	8/17/2008
OTL200000	200000003	0	8/17/2008	Yes	Buy	Limit order	None	30.00	10.00	10.00	8/17/2008
OTL200000	200000004	1	8/17/2008	Yes	Buy	Limit order	None	10.00	10.00	10.00	8/17/2008
OTL200000	200000005	0	8/17/2008	Yes	Buy	Limit order	None	10.00	10.00	10.00	8/17/2008
OTL200000	200000006	1	8/17/2008	Yes	Buy	Limit order	None	10.00	10.00	10.00	8/17/2008
OTL200000	200000007	0	8/17/2008	Yes	Sell	Limit order	None	20.00	20.00	20.00	8/17/2008
OTL200000	200000008	1	8/17/2008	Yes	Sell	Limit order	None	20.00	20.00	20.00	8/17/2008
OTL200000	200000009	2	8/17/2008	Yes	Sell	Limit order	None	20.00	20.00	20.00	8/17/2008
OTL200000	200000010	0	8/17/2008	Yes	Sell	Limit order	None	30.00	30.00	30.00	8/17/2008
OTL200000	200000011	1	8/17/2008	Yes	Sell	Limit order	None	30.00	30.00	30.00	8/17/2008
OTL200000	200000012	0	8/17/2008	Yes	Sell	Limit order	None	40.00	40.00	40.00	8/17/2008
OTL200000	200000013	1	8/17/2008	Yes	Sell	Limit order	None	40.00	40.00	40.00	8/17/2008
OTL200000	200000014	0	8/17/2008	Yes	Buy	Limit order	None	20.00	20.00	20.00	8/17/2008
OTL200000	200000015	1	8/17/2008	Yes	Buy	Limit order	None	20.00	20.00	20.00	8/17/2008

Figure 51: Reports – Orders overview

5.4.3 Trades overview by delivery day

It shows list of trades for signed user in selected time period and contract. Data is displayed in the moment of new trade is realised.

The report has these parameters

- *Contract* – identification of contract, where the trade belongs
- *Delivery day from* – defines start delivery day for data selection, mandatory, implicitly set on day before current calendar day
- *Delivery day to* – defines end delivery day for data selection, mandatory, implicitly set on current calendar day,

Report contains these columns:

- *Contract* – name of contract, based on which was the order created,
- *Trade ID* – trade identification,
- *Buy/Sell* – side of trade, which was the initiator of the trade. An aggressor is an offer that enters the trade as the 2nd order and initiates a trade. Values: Buy/Sell.*Price [EUR/MWh]* – trade price set according to trading rules; is stated in contract currency,
- *Quantity [MW]* – traded quantity in MW

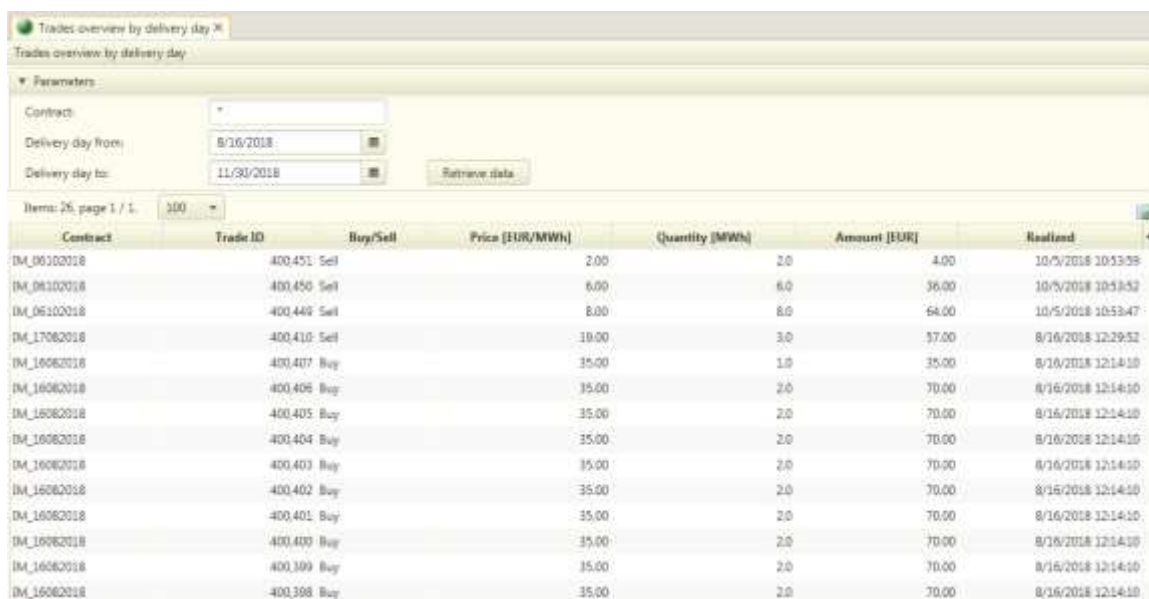
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- *Amount [EUR]* – total amount of realized trade (calculated as a product of quantity and price),
- *Created* – timestamp of trade creation,



Contract	Trade ID	Buy/Sell	Price [EUR/MWh]	Quantity [MWh]	Amount [EUR]	Realized
DM_06102018	400,451	Sell	2.00	2.0	4.00	10/5/2018 10:13:38
DM_06102018	400,450	Sell	6.00	6.0	36.00	10/5/2018 10:13:52
DM_06102018	400,449	Sell	8.00	8.0	64.00	10/5/2018 10:13:47
DM_17062018	400,410	Sell	19.00	3.0	57.00	8/16/2018 12:14:10
DM_16062018	400,407	Buy	35.00	1.0	35.00	8/16/2018 12:14:10
DM_16062018	400,406	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,405	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,404	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,403	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,402	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,401	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,400	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,399	Buy	35.00	2.0	70.00	8/16/2018 12:14:10
DM_16062018	400,398	Buy	35.00	2.0	70.00	8/16/2018 12:14:10

Figure 52: Reports – Trades overview by delivery day

5.4.4 Orders - Trades

This report displays overview of all own orders and trades on IM in defined period. If there is no trade for the order, right side of the table is empty – no trade exists. If there is more than one trade for the order data in left side repeats itself for every trade connected with it.

The report has these parameters:

- *Contract* - name of contract, optional parameter, it is possible to use * convention, implicitly empty
- *Delivery day from* – defines start delivery day for data selection, mandatory, implicitly set on day before current calendar day
- *Delivery day to* – defines end delivery day for data selection, mandatory, implicitly set on current calendar day

Report contains these columns:

- Order:
 - *Contract* – name of contract, based on which was the order created,
 - *Order ID* – order identification,
 - *Order version* – version of the order,
 - *Delivery day* – date of delivery,
 - *Buy/sell* - states whether it is buy order (bid) or sell order (ask),
 - *Order type* - type of order (*Limit order*, *Iceberg*),
 - *Exec. restriction* - execution restriction (*None*, *FOK*, *IOC*)
 - *Order state* - current order state (*Active*, *Inactive*, *Closed*, *Deleted*),

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- *Price [EUR/MWh]* – price stated in inserted order,
- *Quantity [MWh]* – quantity stated in inserted order in MWh units,
- *Created* – timestamp of order creation.
- *Participant*

- Trade:

- *Trade ID* – trade identification,
- *Price [EUR/MWh]* – trade price set according to trading rules; is stated in contract currency,
- *Quantity [MWh]* – traded quantity in MWh,
- *Amount [EUR]* – total amount of realized trade (calculated as a product of quantity and price),
- *Created* – timestamp of trade creation.

Figure 53: Reports – Orders - Trades

5.4.5 IM results

Report displays overview of aggregated trading results with contracts on IM. Aggregated results are available after the results aggregation of the respective day (thereby after the contract trading end).

The report has these parameters:

- *Contract* – name of the contract, optional parameter, it is possible to use * convention, implicitly empty
- *Delivery day from* – defines start delivery day for data selection, mandatory, implicitly set on day before current calendar day
- *Delivery day to* – defines end delivery day for data selection, mandatory, implicitly set on current calendar day.

Set contains these columns:

- *Contract* – the name of the contract on the basis of which the transaction originated.
- *Delivery day* – date of delivery day (gas day),
- *Prices*
 - *Min. price [EUR/MWh]* – minimal price from all trades on chosen contract
 - *Max. price [EUR/MWh]* – maximal price from all trades on chosen contract
 - *Last trade price [EUR/MWh]* – price of absolutely last trade on chosen contract

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- *Weighted average [EUR/MWh]* – weight average of all trades on chosen contract
- *Average price [EUR/MWh]* - average price of all trades on chosen contract
- *Total traded quantity [MWh]* – total traded quantity of chosen contract in MWh,
- *Traded amount [EUR]* – total amount counted as suma of all amount for all trades on chosen contract,
- *Index OTE* – index POTE of IM market for delivery day

Contract	Delivery day	Min price [EUR/MWh]	Max price [EUR/MWh]	Last trade price [EUR/MWh]	Weighted average [EUR/MWh]	Average price [EUR/MWh]	Total traded quantity [MWh]	Traded amount [EUR]	Index OTE
IM_0000000	9/5/2018	31.00	35.00	33.00	33.00	41.87	124.0	411790.00	85.482
IM_0000000	9/10/2018	30.00	30.00	27.00	27.18	22.23	101.0	845700.00	87.181
IM_0000000	9/11/2018	0.01	0.01	0.01	0.01	0.01	0.0	0.00	87.181
IM_0000000	9/12/2018	0.00	0.00	0.00	0.00	0.00	0.0	0.00	87.181
IM_0000000	9/13/2018	0.00	0.000.00	0.000.00	0.000.00	0.000.00	7.890.0	147.188.002779.00	2.000.000
IM_0400000	9/18/2018	1.00	1.00	1.00	1.00	1.00	280.0	86.000.00	2.025
IM_0100000	9/11/2018	7.00	7.00	7.00	7.00	7.00	18.0	2.670.00	0.702.818
IM_0000000	9/30/2018	17.00	49.00	27.00	23.40	21.61	100.0	480.040.00	21.008
IM_0700000	9/17/2018								

Figure 54: Reports – IM results

5.4.6 Trades overview by market participants

Report displays anonymized list of all IM trades. Trade data is visible in report in the moment, when trade is realized. One line of report presents one trade. Each trade has indication if it is users trade or not.

Report has there parameters:

- *Contract* – name of the contract, optional parameter, it si possible to use * covention, implicitly empty
- *Delivery day from* – defines start delivery day for data selection, mandatory, implicitly set on day before current calendar day

Delivery day to – defines end delivery day for data selection, mandatory, implicitly set on current calendar Set contains these columns:

- *Contract* – the name of the contract on the basis of which the transaction originated,
- *Delivery day from* – defines start delivery day and time
- *Delivery day to* – defines end delivery day and time
- *Aggressor (B/S)* – side of trade (Purchase / Sales), which was the initiator of the trade. An aggressor is an offer that enters the trade as the 2nd order and initiates a trade. Values: Buy/Sell.
- *Quantity [MWh]* – traded quantity in MWh,
- *Price [EUR/MWh]* – the trade price determined according to trading rules expressed in the currency specified in the contract.
- *Amount [EUR]* – total amount of realized trade (calculated as a product of quantity and price).
- *Realized* – date and time of the realized trade
- *Own trades* – indication of own trades for user (Yes/No)

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Contract	Delivery day from	Delivery day to	Aggressor (BVD)	Quantity (MWh)	Price (EUR/MWh)	Amount (EUR)	Realized	Own trades
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Buy	25.0	26.00	650.00	8/18/2018 10:34:2	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Buy	15.0	29.00	435.00	8/18/2018 10:48:03	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	3.0	21.00	63.00	8/18/2018 11:09:57	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	5.0	22.00	110.00	8/18/2018 11:09:57	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	5.0	23.00	115.00	8/18/2018 11:09:57	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	20.0	20.00	400.00	8/18/2018 11:09:57	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	20.0	20.00	400.00	8/18/2018 11:45:54	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	5.0	20.00	100.00	8/18/2018 11:45:54	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Buy	10.0	29.00	290.00	8/18/2018 12:01:13	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	3.0	19.00	57.00	8/18/2018 12:29:52	No
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	10.0	16.00	160.00	8/18/2018 12:29:52	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Buy	10.0	32.00	320.00	8/18/2018 12:47:06	Yes
IM_17982018	8/17/2018 00:00	8/18/2018 00:00	Sell	15.0	15.00	225.00	8/18/2018 13:54:12	Yes
IM_20982018	8/20/2018 00:00	8/21/2018 00:00	Sell	2.0	2.00	4.00	8/20/2018 10:38:18	No
IM_23982018	8/23/2018 00:00	8/24/2018 00:00	Sell	100.0	10.00	1,000.00	8/23/2018 13:06:17	No
IM_23982018	8/23/2018 00:00	8/24/2018 00:00	Buy	1.0	1.00	1.00	8/23/2018 18:08:21	No
IM_23982018	8/23/2018 00:00	8/24/2018 00:00	Buy	3.0	3.00	9.00	8/23/2018 18:59:21	No
IM_23982018	8/23/2018 00:00	8/24/2018 00:00	Sell	9,998.0	4,000.00	39,992,000.00	8/23/2018 17:02:19	No

Figure 55: Reports – Trades overview by market participants

5.4.7 Results by market participants

This report displays overview of aggregated trading results contracts on IM for logged-in market participant. Actual results are available in this report already during trading before the contract is closed, i.e. immediately upon the trade execution.

The set has these parameters:

- *Contract* – name of the contract, optional parameter, it is possible to use * convention, implicitly empty
- *Delivery day from* – defines start delivery day for data selection, mandatory, implicitly set on day before current calendar day
- *Delivery day to* – defines end delivery day for data selection, mandatory, implicitly set on current calendar day.

Set contains these columns:

- *Participant* – EIC of the market participant; in case of record type „WA price [EUR/MWh]“ the item is not filled; after holding the cursor on EIC participant's code a label with his name is displayed,
- *Contract* – name of the contract
- *Delivery day* – date of delivery day (gas day),
- *Type* – record type specification, can have these values:
 - o *WA price [EUR/MWh]*
 - o *Buy [MWh]*
 - o *Sell [MWh]*
 - o *WA buy price [EUR/MWh]*
 - o *WA sell price [EUR/MWh]*
- *Description* - for the record type „WA price [EUR/MWh]“ the item is empty, for other record types the item contains name of the participant,
- *Value* – values for contract of given delivery day, content varies according to record type:
 - o *WA price [EUR/MWh]* – weighted average of price set on the basis of all realized trades of all market participants for a given contract,

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- *Buy [MWh]* – purchased quantity calculated as a sum of traded quantity of all realized trades for given contract, where given participant represents the bid party,
- *Sell [MWh]* – sold quantity calculated as a sum of traded quantity of all realized trades for given contract, where given participant represents the ask party
- *WA buy price [EUR/MWh]* – weighted average of price set on the basis of all realized trades for given contract, where given participant represents the bid party,
- *WA sell price [EUR/MWh]* – weighted average of price set on the basis of all realized trades for given contract, where given participant represents the ask party.

Participant	Contract	Delivery day	Type	Description	Value
	IM_16062018	8/16/2018	WA price [EUR/MWh]		33.06
27XG-LUMBUS-GAST	IM_16082018	8/16/2018	Buy [MWh]	185	47.00
27XG-LUMBUS-GAST	IM_16082018	8/16/2018	Sell [MWh]	185	112.00
27XG-LUMBUS-GAST	IM_16082018	8/16/2018	WA buy price [EUR/MWh]	185	44.57
27XG-LUMBUS-GAST	IM_16082018	8/16/2018	WA sell price [EUR/MWh]	185	28.23
	IM_17082018	8/17/2018	WA price [EUR/MWh]		24.38
27XG-LUMBUS-GAST	IM_17082018	8/17/2018	Buy [MWh]	185	42.00
27XG-LUMBUS-GAST	IM_17082018	8/17/2018	Sell [MWh]	185	116.00
27XG-LUMBUS-GAST	IM_17082018	8/17/2018	WA buy price [EUR/MWh]	185	22.19
27XG-LUMBUS-GAST	IM_17082018	8/17/2018	WA sell price [EUR/MWh]	185	25.17

Figure 56: Reports – IM results by market participant

5.4.8 Price of last known trade by GMR

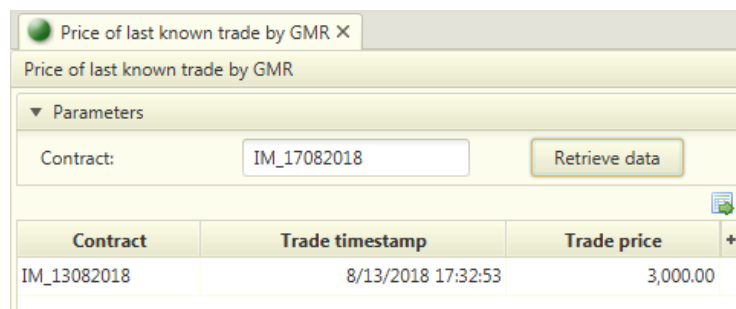
It is used for showing last known price of trade on chosen contract. Trade had to be done before end of last hour and it has to be minimal 50 MWh quantities. If there is no trade like this (on chosen contract), it shows last known price of trade in the same rules at all.

The report has these parameters:

- *Contract* – name of the contract, optional parameter, implicitly filled with name of actual open contract, if there is more than one open contract, it is filled with the contract with earlier end time of trading.

Set contains these columns:

- *Contract* – the name of the contract the last price is checking for,
- *Trade time stamp* – date and time of the last trade
- *Trade price* – price of the last trade in EUR/MWh



Contract	Trade timestamp	Trade price
IM_13082018	8/13/2018 17:32:53	3,000.00

Figure 57: Reports – Price of last known trade by GMR

5.5 Monitoring fulfillment of conditions regarding GMR Annex No. 8, point 9 and 10

From 1 January 2019, the IM system will automatically monitor the fulfillment of conditions regarding GMR, Annex 8, point 9 or 10, in first minute of each hour of trading on the gas contract (except the first trading hour) for every open gas contract. The evaluation of the fulfillment of the aforementioned conditions is carried out from the beginning of the trading until the end of the hour proceeding the last trading hours of the gas contract.

In the case of fulfillment / non-fulfillment of the conditions regarding GMR, Annex 8, point 9 or 10, the AMQP notification message NtfRprt is sent to the transmission system operator (N4G). Notification of compliance with these conditions is displayed for the N4G on the Trading screen in the Audit log panel and to all participants via VIP news.

The N4G has been allowed to query the NtfReq report for notification reports that have been generated in the past business system.

6 IM contract events management

This section describes details related to contracts lifecycle. Contracts based on their scheduled events are changing their statuses in course of the time. In general the contract events are defined on product level for IM. The lifecycle process of each contract may be tracked through reports IM Contract list (see section 5.4.1).

Each contract depending on its position at its lifecycle may come into following statuses:

- *Generated* – the contract is successfully generated based on the respective product definition, the contract is not tradable yet (is not visible at trading screen). This status is the initial one assigned to the contract merely by the back office process responsible for contracts generation.
- *Issued* - the contract is issued and become visible on trading screen. The contract comes into this state upon the scheduled *Contract issuance* event (see also events description below) occurrence. Inactive bids may be submitted already for such contract.
- *Unissued* – the contract is not issued, it is neither visible on trading screen nor tradable. This state is one of the final lifecycle states (beside *Terminated*). The contract comes into this state upon the scheduled *Contract non issuance* event (see also events description below) occurrence.
- *Open* – the contract is open for trading; active bids may be submitted for such contract. The contract comes into this state upon the scheduled *Start of continuous trading* event (see also events description below) occurrence.
- *Closed* – the contract is closed and is not tradable any more, but it is still visible at the trading screen. The contract comes into this state upon the scheduled *End of continuous trading* event (see also events description below) occurrence.
- *Terminated* – the contract is terminated and not visible at the trading screen, an aggregation of all trades of the contract is finished as well as the contract trading evaluation. This state is one of the final lifecycle states (beside *Unissued*). The contract comes into this state upon the scheduled *Publication of evaluation of trading* event (see also events description below) occurrence. Withal the trading results for the respective contract are published at public web portal of OTE.

The state transition diagram bellow shows the contract lifecycle for both IM and BalM:

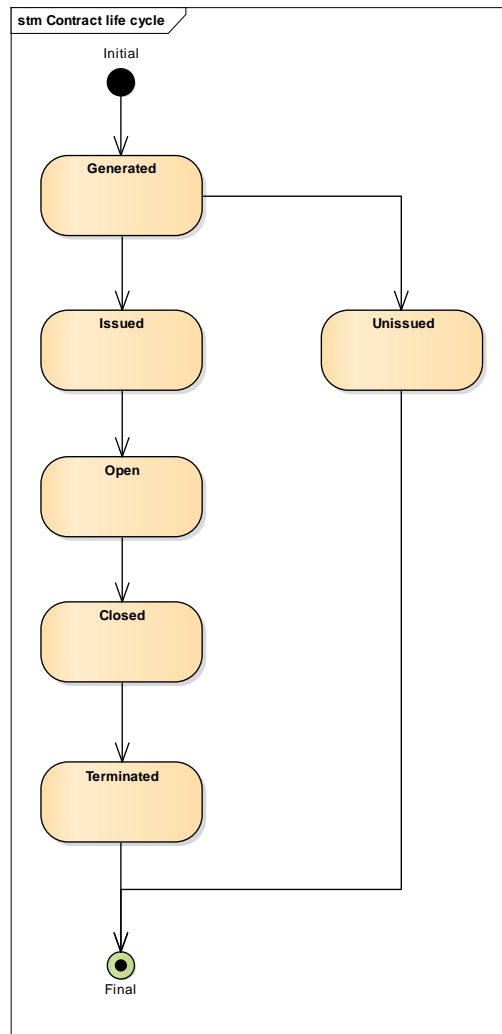


Figure 58: IM contracts life cycle

Nota: Contract can change status from unissued to issued only by manually started generating process (only system administrator can do this).

Each contract has a bundle of scheduled events assigned, and each event is initially waiting (in state *Waiting*) for its processing. Once scheduled time of the event expires, the event is being processed (a set of actions defined for the event is performed) and finally event state is changed to *Finished*. A repeated processing of the finished event is not allowed.

Event „Contract non issuance“:

When processing this event the system will:

- change the contract state to *Unissued*,
- submit a message informing about the contract non issuance into the audit log (see section 5.1.2.6 Panel – Audit log),

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- change the event state to *Finished*.

Event „Contract issuance“:

When processing this event the system will:

- change the contract state to *Issued* and display the contract at the trading screen as issued,
- submit message about the contract issuance into the audit log (see section 5.1.2.6 *Panel – Audit log*),
- change the event state to *Finished*.

Note: for the contract in state Issued only inactive orders can be submitted, as soon as the contract is open for trading the submission of active orders is allowed as well as the activation of inactive orders.

Event „Start of continuous trading“:

When processing this event the system will:

- change the contract state to *Open* and display the contract at the trading screen as open; the contract become tradable,
- submit message about the contract opening into the audit log (see section 5.1.2.6 *Panel – Audit log*),
- change the event state to *Finished*.

Event „End of continuous trading“:

When processing this event the system will:

- change the contract state to *Closed* and display the contract at the trading screen as closed; the contract become untradeable,
- submit message about the contract evaluation into the audit log (see section 5.1.2.6 *Panel – Audit log*),
- change the event state to *Finished*.

Event „Quantity aggregation“:

When processing this event the system will:

- aggregate (sum up) the quantity of all trades of the given contract,
- change the event state to *Finished*.

Event „Publication of evaluation of trading“:

When processing this event the system will:

- change the contract state to *Terminated* and withdraw the contract from the trading screen,
- submit message about the contract termination into the audit log (see section 5.1.2.6 *Panel – Audit log*),
- change the event state to *Finished*.

7 Setting the parameters of IM trading screen

This section describes how to define and adjust a layout of IM application screens according to users' needs.

7.1 User defined custom layouts

Every logged in user is allowed to define content and layout of its own screens. User defined screens are accessible only for the respective user from dedicated menu option:

Personal → *Custom layouts* →

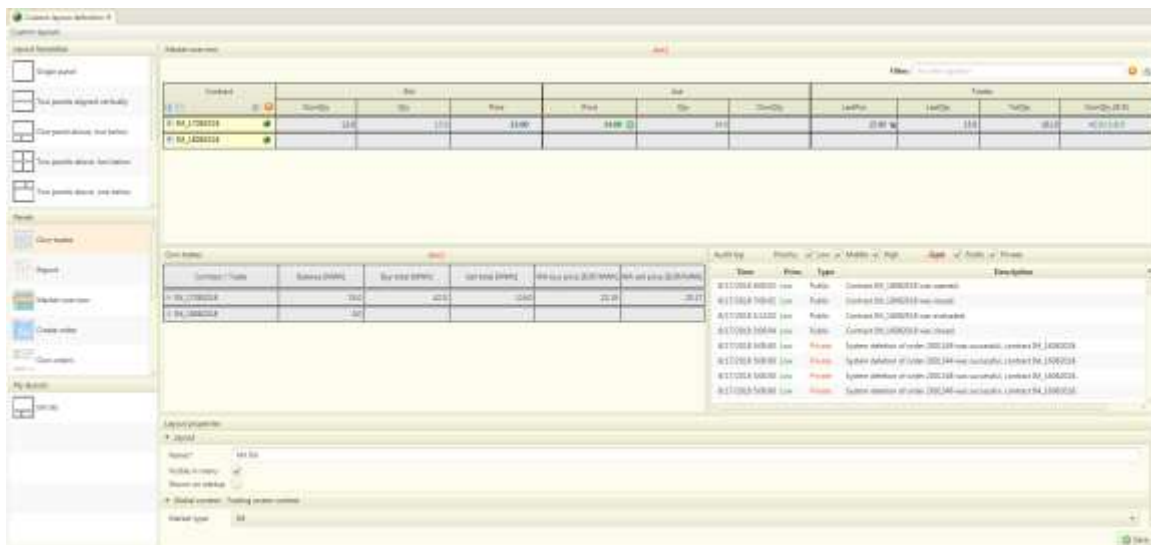


Figure 59: User defined custom layouts screen

The screen dedicated for custom layouts design is divided into following base sections:

- **Left section** – contains following selection lists to define and maintain custom layouts:
 - *Layout templates* – contains a list of supported panel layout templates, i.e. each item represents combination of number of plane slots and their position within the screen,
 - *Panels* – contains a list of concrete panels which can be assigned to the slots of chosen layout template,
 - *My layouts* – lists already created and saved own custom layout definitions of the logged in user.
- **Upper right section** – contains preview of being created or selected custom layout definition.
- **Bottom right section:**
 - *Layout properties* – allows to specify overall context of the screen and also properties of particular panels of selected custom layout (where applicable).

Description of a procedure to setup new custom layout:

1. Layout template selection: in *Layout templates* section user can select required screen layout (e.g. 2 slots for panels and their position). Selection is done by double-clicking on required

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layout icon in the list, upon which the preview of selected layout with empty slots is displayed in section with layout preview alongside.

2. Assigning panels: repeatedly for each empty slot user drags a concrete panel from the *Panels* section and drops it into the chosen empty slot at the layout preview. User may also move the panels between the slots using drag and drop.
3. Overall custom layout properties: in *Layout properties* section, user setups main properties of the custom layout like its name (i.e. name, under which the custom layout will be uniquely identified in the system for the user), whether the custom layout shall be available under the menu item *Custom layout* and whether a screen with the custom layout shall be automatically displayed on application start-up.
4. Properties setup for concrete panels: selecting a concrete slot with a panel within the custom layout preview, the *Layout properties* section displays parameters to be setup for the chosen panel. The list of parameters depends on the type of each particular panel assigned to the selected slot; most of them have no parameters to be defined at all. Parameters configuration is to be mainly done for panels of type *Report*, where a concrete report need to be selected in item *Grid id* and optionally *Header visibility* and *Column visibility* can be set, eventually hiding of panel can be activated with the possibility of giving direction hide in *Collapsible panel*. In the case that the individual slots screens are data-connected to each other, the user need to choose the slots in *Output panel* to which the output from the currently selected slot to be send (e.g. selected Contract from the Market overview to appear in the Contract detail panel).
5. Adjusting a size of each slot: by moving the dividing lines (borders) between the slots in custom layout preview section user can change size proportion of the slots within the custom layout.
6. Save: custom layout definition may be finally saved using *Save* button.

Description of a procedure to modify existing custom layout:

A procedure for custom layout modification is very similar like in case of new custom layout definition. The only difference is in the first step of the procedure, where user double-clicks on chosen existing custom layout in *My layout* section and then may modify it as needed. In case of saving changes of any of existing custom layout user is asked whether a current setup shall be replaced by a new one considering the changes done.

An existing custom layout may be open for modification also using context menu (using right mouse click) over the chosen custom layout in the *My layouts* section. Within the context menu there are two actions available, *Edit layout* and *Remove layout*.

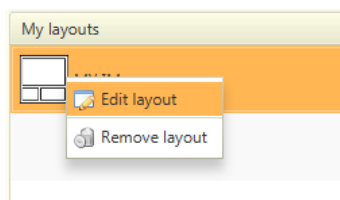


Figure 60: Modification/Removal of the custom layout

7.2 Adjusting screens by user

Changes described here may be applied both on standard screens pre-defined within the system and on screens with user defined custom layouts.

7.2.1 Adjusting panels proportion

When dragging and moving any border between the panels user may change a proportion of panels' size within the screen. After moving the border each adjacent panel tries to adapt its content optimally to the new size. However if a new size of any of panel is too small in vertical and/or horizontal direction, scrollbars are displayed and user must scroll horizontally and/or vertically to see full content of the panel. The size of the font remains always unchanged.



Figure 61: Adjusting panels' width/height

7.2.2 Hiding panels

User may hide any of screens panel minimizing it to its bookmark clicking on arrow in the corner of the panel. An empty place after the hidden panel is immediately filled in by neighbouring panel adjoining from a direction the hidden panel was minimized from. To show back the minimized panel user clicks again the arrow on the bookmark of the minimized panel. Hiding and showing of any panel is always done in a direction the arrow is pointing to.



Figure 62: Hiding and showing panels

7.2.3 Adjusting columns in a grid

Actions available for grid adjustment are as follows:

1. Sorting of grid data by a desired column in ascending or descending order may be done by clicking in the header of such column.
2. Functionality of multicolumn sorting is available through SHIFT+ click on desired columns one by one. Grid sorting is done upon each new column selection for multicolumn sorting and an actual sorting criterion is defined by all selected columns

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and their chosen ascending or descending order respecting the sequence in which the columns were selected.

3. Optionally user can hide or show columns in a grid. Clicking on option “+“ at the end of a grid header, a popup comprising list of column names with checkboxes is shown and user may select the columns to hide or show.
4. Width of columns in a grid may be changed.
5. Order of columns in a grid may be changed using drag and drop.

Some of the above listed actions might be disabled for some grids in sake of ensuring correct and logical data retrieval and display (e.g. market overview panel at trading screen).

[illegible]

Figure 63: Available options to adjust grids

The screenshot shows a web application titled "Orders" with a search bar and a "Retrieve data" button. Below the button is a table with the following columns: "Buy/Sell", "Order type", "Exec. restriction", "Order state", "Price (EUR/MWh)", "Quantity (MWh)", "Peak quantity (MWh)", and "Remarks". The table contains 11 rows of order data.

Buy/Sell	Order type	Exec. restriction	Order state	Price (EUR/MWh)	Quantity (MWh)	Peak quantity (MWh)	Remarks
	Limit order	None	Inactive	455.05	12.0		
	Limit order	None	Deleted	455.05	12.0		
	Limit order	FOK	Active	35.00	100.0		
	Limit order	FOK	Closed	35.00	100.0		
	Limit order	None	Active	4.50	20.0		
	Limit order	None	Closed	4.50	20.0		
	Limit order	None	Active	4.50	20.0		
	Limit order	None	Deleted	4.50	20.0		
	Limit order	None	Active	15.01	10.1		
	Limit order	None	Active	15.01	10.1		
	Limit order	None	Deleted	15.01	10.1		

Figure 64: Changing order of columns in the grid

7.3 Saving user defined screen layout changes

Changes made by user when adjusting the screen layouts can be automatically saved to always get last layout definition upon the screen re-opening. Availability of layout adjustments automated saving feature is driven by flag *Autosave of screen layout* which can be setup under user settings.

If user set up this flag to “Yes”, then when re-opening a screen its layout is respecting the last layout changes made for the respective screen. If the flag is setup to “No”, then the changes are not saved automatically. However the layout definition may be saved manually via a context menu displayed on right mouse click over the screen’s tab bookmark, using menu option *Save screen layout* or via the hotkey CTRL+S.

In case user would like to remove saved screens layout and restore its default initial layout, then it can be done via the context menu displayed on right mouse click over the screen’s tab bookmark, using menu option *Restore screen layout* or via the hotkey CTRL+R



Figure 65: Save/Restore screen layout