Plaza-2 gateway for IQS of Derivatives Market

version 1.0

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Date	Changes
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1. Introduction

1. Document purpose

The document describes various information, and aimed to help clients in architecting and developing software application to access the Indicative Quote System of the Derivatives Market via the Plaza-II gateway. The document contains a brief overview of the IQS of the Derivatives Market, as well as detailed description of transmitted data (i.e. replication streams and tables) and directive commands.

For more information about configuration, operation, installation and setup of the Plaza-II software, please apply to **p2gate_en.pdf** [ftp://ftp.moex.com/pub/FORTS/Plaza2/docs/]. Also, you can find CGate API operation details described in **cgate_en.pdf** [ftp://ftp.moex.com/pub/FORTS/Plaza2/docs/].

2. Target group

This document is intended for business-analysts, system architects and developers, taking part in architecting and developing software for accessing the IQS of the Derivatives market using the Plaza-2 gateway.

3. Terms and definitions

This document contains the following terms, definitions and acronyms:

Term	Definition
IQS (Indicative Quote System)	Indicative Quote System of the Derivatives Market
Order	A trading instruction added into the SPECTRA trading system
Indicative Quote (or simply quote)	A trading instruction added into the IQS without collateral verification
Indicative trade	A trade performed as a result of matching indicative quotes within IQS.
Trade	A trade performed as a result of matching orders within SPECTRA trading system.

2. A brief overview of IQS

2.1. System purpose

Indicative Quote System (IQS) is a new service provided by Moscow Exchange, which allows trade participants to view and take actions with indicative quotes on the Derivatives Market instruments. An Indicative quote here stands for the buy (or sell) price indicating a trade participant's intention to perform a trade, without any obligation to do that (which means that no collateral will be pledged to cover the trades). Therefore, a trade participant is able to indicate their trading interest in a wide range of instruments, without having any financial expenses.

Indicative quotes can be added on all types of the instruments traded on the Derivatives Market, in accordance with the rights granted by the trading administrator. The following instrument types are supported:

- Futures;

- Options;

- Multi-leg instruments (calendar spreads).

The instruments allowed for trading within IQS are marked with the flag 0x800 000 in tables fut_sess_contents and opt_sess_contents (field 'signs')

2.2. Supported operations

The following operations are available for clients within IQS:

- Adding indicative quotes.

- Changing indicative quotes.

- Deleting indicative quotes.

2.2.1. Adding indicative quotes

Indicative quotes can be added on all types of the trading instruments, in accordance with the rights granted by the trading administrator. Once a login has rights to add orders into the trading system on behalf of a 7-digit section, it also has rights to add indicative quotes into IQS on behalf of the same section.

Each adding transaction must consists of 1 or 2 quotes. An adding transaction of 2 quotes must contain one buy and one sell quote on the same instrument, where buy price must exceed the sell one. Also, the quotes may be of different volume.

When adding quotes on futures and calendar spreads, the given price is verified to match the price fluctuation limits. Please note, that quotes are allowed to be added only during trading sessions, in accordance with the trading schedule.

Please also note that it is prohibited to perform indicative trades between the same client accounts, or client accounts with the same ISIN, when the cross-trade verification is enabled for at least one account.

You can add an indicative quote into IQS using command AddQuote.

After that, you receive a reply message containing the following information:

- Successful/Unsucsessful adding of a quote.

- Quote ID (successful adding).

- Rejection reason (unsuccessful adding).

All quotes data are transmitted in table 'quotes_log' of streams IQS_MARKETDATA_REPL and IQS_USERMARKETDATA_REPL.

2.2.2. Changing indicative quotes

A trade participant is able to change their successfully added quote by changing its one or more settings, such as:

- Price;

- Volume;

- External ID.

To change a quote, a trade participant should clearly specify its ID.

Once a login has rights to change orders into the trading system on behalf of a 7-digit section, it also has rights to change indicative quotes into IQS on behalf of the same section

A changing transaction must consists of 1 or 2 quotes. A changing transaction of 2 quotes must contain one buy and one sell quote on the same instrument, where new buy price must exceed the new sell one. The following settings should be specified for both quotes:

- Set of changeable parameters (price/volume/external ID);

- Volume change rules (field 'regime', for details see Section 4.4, "MoveQuote - Move quotes").

The following settings must be specified for each quote:

- ID;

- Price;

- Volume;

- External ID.

When changing quotes, the new price values are verified to match the price fluctuation limits. Please note, that quotes are allowed to be changed only in accordance with the trading schedule. Please also note that it is prohibited to perform indicative trades between the same client accounts, or client accounts with the same ISIN, when the cross-trade verification is enabled for at least one account.

You can change an indicative quote into IQS using command MoveQuote.

After that, you receive a reply message containing the following information:

- Successful/Unsucsessful changing of the quote.

- New quote ID (successful changing).

- Rejection reason (unsuccessful changing).

2.2.3. Deleting indicative quotes

A trade participant is able to delete their indicative quotes. Once a login has rights to delete orders into the trading system on behalf of a 7-digit section, it also has rights to delete indicative quotes into IQS on behalf of the same section

There are two deletion methods available, i.e. single quote deletion (command DelQuote), and mass quote deletion (command DelUserQuotes).

Upon single quote deletion, an indicative quote to delete must be specified with its ID. After that, you receive a reply message containing the following information:

- Successful/Unsuccessful deletion.

- Rejection reason (unsuccessful deletion).

- Remaining volume (successful deletion).

Upon mass quote deletion, you can select quotes by specifying any set of settings (including empty subset), i.e.:

- Client ID;

- Underlying asset ID;

- Instrument ID;

- Direction (Sell/Buy);

- Quote external ID.

All indicative quotes matching the specified settings will be deleted, according to the rights granted to the login.

After that, you receive a reply message containing the following information:

- Successful/Unsuccessful deletion.

- Rejection reason (unsuccessful deletion).

- Number of deleted indicative quotes.

2.3. How indicative quotes match into trades

Within IQS, indicative quotes are matched in the Order Driven Market mode. When two indicative quotes of opposite direction match, they perform an indicative trade.

All data on matched indicative trades are transmitted in table qdeal (all indicative trades) of stream IQS_MARKETDATA_REPL, and user_qdeal (user's indicative trades) of stream IQS_USERMARKETDATA_REPL.

There are two sides behind each indicative trade, i.e. Initiator (initially added quote), and Contractor (the matching quote, which was added later and performs the indicative trade).

Two negotiated orders are added into SPECTRA, one by one, that perform a trade. Finally, the process of matching two quotes into deal is considered to be completed.

Every stage of matching indicative quotes is indicated by indicative trade status change. Indicative trade status data are transmitted in table rejected _qdeal of stream IQS_MARKETDATA_REPL and user_qdeal_state of stream IQS_USERMARKETDATA_REPL.

Below is the quote matching algorithm, step by step:

- After two indicative quotes are matched, an indicative trade performs within IQS, with the status value '0' (being processed).

- A negotiated order from the Contractor side based on the indicative trade parameters is added into SPECTRA. Upon adding the order, all necessary checks and verifications are applied, including the one for collateral sufficiency. After the order is added, the indicative trade status changes to '1' (wait for confirmation from Initiator).

- Within a certain time frame (specified by administrator), IQS is awaiting for trade confirmation from the Initiator (see Section 2.4, "Confirming trades" for details). After confirmation is received, the indicative trade status changes to '2' (confirmation from Initiator received). A negotiated order from the Initiator side based on the indicative trade parameters is added into SPECTRA.

- After two orders are matched into trade within SPECTRA, the indicative trade status changes to '4' (trade performed); processing of indicative trade will be ceased. All data on trades matched within SPECTRA are transmitted in tablesdeal and multileg_deal of stream IQS_MARKETDATA_REPL, and user_deal and user_multileg_deal of stream IQS_USERMARKETDATA_REPL.

- Once there any error occurs on matching the quotes, or, for any reason, the trade cannot be confirmed, the indicative trade status changes to '3' (trade not performed due to an error), and the appropriate IQS error code is transmitted in field 'error code' in table user_qdeal_state of stream IQS_USERMARKETDATA_REPL.

  All data on all unconfirmed and rejected indicative trades are transmitted via the gateway in table rejected _qdeal of stream IQS_MARKETDATA_REPL.

2.4. Confirming trades

Before two quotes match into trade, there must be a confirmation received from Initiator side. There are two methods of confirmation, i. e.:

- Automatic confirmation, applied upon adding a quote;

- Manual confirmation, prior to performing a trade.

To confirm trades automatically, a participant should set option 'auto_confirm' in command AddQuote upon adding an indicative quote.

To confirm a trade manually, the participant should send command ConfirmQDeal containing the indicative trade ID in reply to indicative trade status change to '1' (wait for confirmation from Initiator). As the reply time is limited, any delay in sending the confirmation is considered as confirmation refusal.

2.5. Trades confirmation control

In order to prevent trading participants from avoiding to perform trades, there is an trade confirmation control service provided as a part of IQS. Due to the service logic, a participant will be fined (in levels) every time their refuse to confirm a trade. Once the fine amount reaches a certain limit, the participant will be denied to add more quotes on the given instrument for a specified time period, and their active quotes will be deleted from IQS.

The penalty levels are calculated for each possible parameter, i.e. client ID, underlying asset, instrument type (futures/option/calendar spread). The penalty level is a subject to change from 0 to 10, accurate to 5th decimal place.

The following penalty types are provided within IQS:

- Penalty for trade confirmation refusal. By default, each refusal will result in fine level increase to 1. For more than one refusal in 1 second time period, the penalty level will not increase.

- Penalty for erroneous quote adding from Contractor side. By default, each erroneous adding will result in penalty level increase to 1.

- Penalty for erroneous quote adding from Initiator side. By default, each erroneous adding will result in penalty level increase to 1.

The penalty level decreases with time, which may finally lead to remove the restrictions from the participant. By default, the penalty level decrease rate is 1 point per 1 minute.

The penalty level policy, as well as penalties applicability and removal policies, can be specified by the administrator. The participant's penalty data are transmitted via the gateway in streams IQS_FINESLEVEL_REPL and IQS_PENALTY_REPL.

2.6. Data structure

All transmitted data can be divided into the following groups:

- Trading data

- Reference data

• Clearing data

The trading data includes the following:

• Aggregated orderbooks

Are generated on the basis of user quotes by adding up the volume for each instrument, the price level and the direction of a quote. Updated online and comes to be the main way to get information by current prices and volumes. User can select the desired depth of an orderbook from 5, 20 or 50 of quotes in each direction;

Orderbooks are sent by multiple Plaza-2 replication streams:

• For futures instruments - streams IQS_FUTAGGR5_REPL, IQS_FUTAGGR20_REPL and IQS_FUTAGGR50_REPL

• For option instruments - streams IQS_OPTAGGR5_REPL, IQS_OPTAGGR20_REPL and IQS_OPTAGGR50_REPL

• Market activity data logs

The best bid/ask price, opening price, closing price, current settlement prices, etc are transmitted as a part of market activity information. This information is sent in the streams IQS_FUTCOMMON_REPL and IQS_OPTCOMMON_REPL for futures and options, respectively.

• User's indicative quotes data log (and complete quotes log in the trading system)

The entire history of user's operations with quotes is transmitted in user's quotes log. User's quotes logs are available in table quotes_log in stream IQS_USERMARKETDATA_REPL. Upon demand, a participant may also receive the complete log containing anonymised transactions with indicative quotes transmitted in table quotes_log of stream IQS_MARKETDATA_REPL.

• User's trades and indicative trades data logs

The logs contain data on trades and indicative trades performed by the participant during the current trading session. The logs are transmitted in table user_qdeal of stream IQS_USERMARKETDATA_REPL for indicative trades, in table user_deal of stream IQS_USERMARKETDATA_REPL for trades, and in table user_multileg_deal of stream IQS_USERMARKETDATA_REPL for multi-leg instruments trades.

• Trading system trades and indicative trades data logs

The logs contain data on trades and indicative trades performed by all users during the current trading session. All user per-sonal data are anonymised, except the data belonging to the participant. The logs are transmitted in table qdeal of stream IQS_MARKETDATA_REPL for indicative trades, in table deal of stream IQS_MARKETDATA_REPL for trades, and in table multileg_deal of stream IQS_MARKETDATA_REPL for multi-leg instruments trades.

• Penalty data logs

The logs contain list of penalties applied to the participant as a result of their refusal to confirm/perform indicative trades. The fines log is transmitted in table fines_level of stream IQS_FINESLEVEL_REPL, and the applied restrictions log is transmitted in table penalty_log of stream IQS_PENALTY_REPL.

The reference data includes the following:

• Trading sessions status and schedule

Trading session time information and all its components, i.e.: intermediate clearing, evening clearing, evening session time are available in 'session' table of stream IQS_FUTINFO_REPL. You can find trading session status in the same table, that helps to track current session status.

• Instruments and underlying assets directories, and their properties

Futures Instruments assigned to the trading session are transmitted in table fut_sess_contents of stream IQS_FUTINFO_REPL. Also, the table contains data on multi-leg instruments. Options instruments are transmitted in table opt_sess_contents of stream IQS_OPTINFO_REPL. Directory of underlying assets behind futures is available in table fut_vcb of stream IQS_FUTINFO_REPL.

These directories can be updated during the trading session, for example, as a result of the suspension of trading on any instrument or during the price limit extension procedure.

• Companies and clients references

These reference data are transmitted in tables diler and investr of stream IQS_FUTINFO_REPL. Personal clients' information is available exclusively in these references.

• Bond references

Bond data is transmitted in tables of stream IQS_FUTINFO_REPL: bond settings references - fut_bond_registry, bond instrument ref-erence - fut_bond_isin, ACI (Accrued Coupon Income) for coupon payment dates - fut_bond_nkd, nominal payout value for a bond - fut_bond_nominal.

Clearing information, transmitted by Plaza-2 gateway, includes the following data:

• Clearing settlement prices

The prices are generated during the evening clearing session. They are available in table fut_sess_settl of stream IQS_FUTINFO_REPL.

- Intermediate clearing session variation margin data are available in table fut_intercl_info of stream IQS_FUTINFO_REPL for futures, and in table opt_intercl_info of stream IQS_OPTINFO_REPL for options.

- Registries, containing orders rejected during the clearing session.

Contain the orders, which were not replaced during the clearing session due to lack of funds. The futures registry is transmitted in table fut_rejected_orders of stream IQS_FUTINFO_REPL.

2.7. Flood control

The control system of clients' application flood control is a part of the IQS. It restricts client's application to send more transactions per time unit (for single login on SPECTRA) than it is stated in the connection agreement. At present moment, you can acquire login with 30, 60, 90, etc. trading transactions per second. Trading operations are all transactions associated with quote managing. Amount of non-trade (all the rest) operations for any type of login is limited in 1000 transactions per second.

If you exceed the limit of messages, the control system does not transmit a message into the trading system core, and sends the user a reply message (msgid=299) with the notification of denial of service of the following structure:

Field	Type	Description
queue_size	i4	Number of messages for a single user
penalty_remain	i4	Time in milliseconds after which the next message from this user will be successfully received.
message	c128	Error text message

Please pay attention to the two details:

1. The number of messages for the elapsed second is estimated while receiving every single message. Thus, if a user constantly sends requests with the frequency greater than it is allowed, then his messages will not be processed at all.

2. A reject message with can be sent in a reply to any user's message.

3. Replication scheme

3.1. Stream IQS_USERMARKETDATA_REPL - User's trades, indicative trades and indicative quotes

Tables:

- quotes_log - User's indicative quotes log

- user_qdeal - User's indicative trades log

- user_qdeal_state - User's indicative trades status

- user_deal - User's trades log

- user_multileg_deal - User's multi-leg trades log

- heartbeat - Server times table

- sys_events - System events table

3.1.1. Table quotes_log: User's quotes log

The table contains user's indicative quotes log

Table 1. Fields of table quotes_log

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
id_quote	i8	Indicative quote ID
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
xamount	i8	Quote amount, in lots
xamount_rest	i8	Remaining amount in the quote
qdeal_id	i8	Indicative trade ID
xstatus	i8	Extended quote status
price	d16.5	Price
moment	t	Quote update time
moment_ns	u8	Quote update time, nanoseconds since Unix epoch, UTC
dir	i1	Direction: 1 - Buy, 2 - Sell
action	i1	Operation with the quote
qdeal_price	d16.5	Price of the performed indicative trade
order_quote	u1	0 - quote; 1 - order. Omitted (always 0).
id_ord	i8	Order ID
client_code	c7	Client code
login_from	c20	Login ID, who added the quote
comment	c20	Trader's comment
ext_id	i8	External ID
local_stamp	t	User's local time stamp
isin_type	i1	Instrument type

Notes:

- Field 'xstatus' is a bit mask:

0x00000001ULL	Quoted
0x00000002ULL	Counter
0x00000010ULL	Client's collateral was not checked while adding quote

0x00001000ULL   Last record in transaction

0x00100000ULL   The record is a result of moving the quote

0x00200000ULL   The record is a result of deleting the quote

0x00400000ULL   The record is a result of mass deletion of quotes

0x20000000ULL   Quote's leftover deleted doe to a cross-trade

0x08000000ULL   Multi-leg instrument quote

- Field 'isin_type' may contain the following values:

  0   Fitures

  1   Option

  2   Multi-leg instrument

- Field 'action' contains an action with the quote:

  0   Quote deleted

  1   Quote added

  2   Quote matched into an indicative trade

3.1.2. Table user_qdeal: User's indicative trades log

Table 2. Fields of table user_qdeal

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
qdeal_id	i8	Indicative trade ID
xamount	i8	Volume, number of units of the instrument in indicative trade
quote_id_buy	i8	Buyer side quote ID
quote_id_sell	i8	Seller side quote ID
price	d16.5	Price
moment	t	Time of indicative trade
moment_ns	u8	Time of indicative trade, in nanoseconds
qdeal_type	i1	Indicative trade type. Omitted (always 1).
xstatus_buy	i8	Extended status of the trade from Buyer side
xstatus_sell	i8	Extended status of the trade from Seller side
ext_id_buy	i8	Quote external ID (Buyer side)
ext_id_sell	i8	Quote external ID (Seller side)
code_buy	c7	Buyer side code
code_sell	c7	Buyer side code
code_rts_buy	c7	Buyer side RTS code
code_rts_sell	c7	Seller side RTS code
active_side	i1	Contractor side
login_buy	c20	Buyer side login
login_sell	c20	Seller side login
comment_buy	c20	Buyer side quote comment
comment_sell	c20	Seller side quote comment
isin_type	i1	Instrument type

Notes:

- Field 'active_side' defines the Contractor side. The Initiator side is required to confirm the indicative trade.

    1   Buyer side.

    2   Seller side.

- Field isin_type may contain the following values:

    0   Futures

    1   Option

    2   Multi-leg instrument

3.1.3. Table user_qdeal_state: User's indicative trades status

Table 3. Fields of table user_qdeal_state

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
qdeal_id	i8	Indicative trade ID
quote_id	i8	Quote ID
id_ord	i8	Order ID
state	i4	Indicative trade status
error_code	i4	IQS error code
spectra_error_code	i4	SPECTRA error code
dir	i1	Transaction direction: 1 - Buy, 2 - Sell.
client_code	c7	Client code
isin_id	i4	Instrument unique ID

Notes:

- Field 'state' may contain the following values:

    0   Indicative trade is being processed.

    1   Wait for confirmation from Initiator side.

    2   Confirmation from Initiator side received

    3   Indicative trade not performed due to an error.

    4   Indicative trade performed.

- Field 'error_code' may contain the following values:

    1   Indicative trade not confirmed.

    2   Error adding Contractor side order

    3   Error adding Initiator side order

    4   Order not found on SPECTRA

    5   Order timeout on SPECTRA

    6   SPECTRA is unavailable

- The complete list of error codes transmitted in field 'spectra_error_code' can be found in **p2gate_ru.pdf** [ftp://ftp.moex.com/pub/FORTS/Plaza2/docs/].

3.1.4. Table user_deal: User's orders log

Table 4. Fields of table user_deal

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem

Field	Type	Description
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
id_deal	i8	Trade ID
qdeal_id	i8	Indicative trade ID
xamount	i8	Volume, number of units of the instrument
id_ord_buy	i8	Buyer side order ID
id_ord_sell	i8	Seller side order ID
quote_id_buy	i8	Buyer side quote ID
quote_id_sell	i8	Seller side quote ID
price	d16.5	Price
moment	t	Time of indicative trade
moment_ns	u8	Time of indicative trade, in nanoseconds
xstatus_buy	i8	Trade status from Buyer side
xstatus_sell	i8	Trade status from Seller side
ext_id_buy	i4	Order external ID (Buyer side)
ext_id_sell	i4	Order external ID (Seller side)
code_buy	c7	Buyer side code
code_sell	c7	Seller side code
comment_buy	c20	Buyer side order comment
comment_sell	c20	Seller side order comment
fee_buy	d26.2	Buyer side fee on trade
fee_sell	d26.2	Seller side fee on trade
login_buy	c20	Buyer side users login
login_sell	c20	Seller side users login
code_rts_buy	c7	Buyer side RTS code
code_rts_sell	c7	Seller side RTS code
opt_type	i1	Option contract type

Notes:

- Field 'opt_type' may contain the following values:

    1 PUT.

    2 CALL.

3.1.5. Table user_multileg_deal: User's multi leg trades log

Table 5. Fields of table user_multileg_deal

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Multi-leg instrument ID
isin_id_rd	i4	Repo direct instrument ID
isin_id_rb	i4	Repo back instrument ID
isin_id_repo	i4	Repo instrument ID
duration	i4	Repo duration
id_deal	i8	Trade ID
id_deal_rd	i8	ID of the near leg of repo in table 'deal'

Field	Type	Description
id_deal_rb	i8	ID of the far leg of repo in table 'deal'
id_ord_buy	i8	Order ID (Buyer side)
id_ord_sell	i8	Order ID (Seller side)
quote_id_buy	i8	Quote ID (Buyer side)
quote_id_sell	i8	Quote ID (Seller side)
xamount	i8	Volume, number of units of the instrument
price	d16.5	Price of the near leg of multi-leg trade
rate_price	d16.5	Trade rate
swap_price	d16.5	Trade swap price
buyback_amount	d16.2	Repo buyback amount
moment	t	Trade time
moment_ns	u8	Trade time, in nanoseconds
xstatus_buy	i8	Trade status (Buyer side)
xstatus_sell	i8	Trade status (Seller side)
ext_id_buy	i4	External ID (Buyer side order)
ext_id_sell	i4	External ID (Seller side order)
code_buy	c7	Buyer side code
code_sell	c7	Seller side code
comment_buy	c20	Buyer side order comment
comment_sell	c20	Seller side order comment
login_buy	c20	Buyer side user login
login_sell	c20	Seller side user login
code_rts_buy	c7	Buyer side RTS code
code_rts_sell	c7	Seller side RTS code

3.1.6. Table heartbeat: Server times

In this table, data are accrued from the trading system core in a specified period of time, so that the data can be used to obtain a timing reference (for example, to verify that all trades are received on time). All records added into the table will be later deleted during the non-trading time (night time).

Table 6. Fields of table heartbeat

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
server_time	t	Server date and time

3.1.7. Table sys_events: Table of system events

Table 7. Fields of table sys_events

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
event_id	i8	Event unique ID
sess_id	i4	Trading session number
event_type	i4	Event type
message	c64	Event description

Notes:

- Possible event types:

event_type = 1
message = "session_data_ready"
All data from the clearing system have been loaded into the trading system

event_type = 2
message = "intraday_clearing_finished"
All clearing procedures have been finished in the intraday clearing session

event_type = 4
message = "intraday_clearing_started"
Intraday clearing session has started

event_type = 5
message = "clearing_started"
Main clearing session has started

event_type = 6
message = "extension_of_limits_finished"
Limits have been extended

event_type = 8
message = "broker_recalc_finished"
Funds have been recalculated after intraday clearing session

event_type =10000
message = "iqs_session_inited"
IQS trading session has been scheduled

event_type =10001
message = "iqs_session_started"
IQS trading session is in progress

event_type =10002
message = "iqs_session_suspended"
IQS trading session has been suspended

event_type =10003
message = "iqs_session_stoped"
IQS trading session has been closed compulsorily

event_type =10004
message = "iqs_session_finished"
IQS trading session has been completed as scheduled

3.2. Stream IQS_MARKETDATA_REPL - Anonymous quotes, trades and indicative trades

Tables:

- quotes_log - Indicative quotes log

- qdeal - Indicative trades log

- rejected_qdeal - Indicative trades status log

- deal - Trades log

- multileg_deal - Multi-leg trades log

- heartbeat - Server times table

- sys_events - System events log

3.2.1. Table quotes_log: Indicative quotes log

The table contains log on indicative quotes.

Table 8. Fields of table quotes_log

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem

Field	Type	Description
id_quote	i8	Indicative quote ID
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
xamount	i8	Quote volume, in lots
xamount_rest	i8	Remaining amount in the quote
qdeal_id	i8	Indicative trade ID
xstatus	i8	Extended quote status
price	d16.5	Price
moment	t	Quote update time
moment_ns	u8	Quote update time, nanoseconds since Unix epoch, UTC
dir	i1	Direction: 1 - Buy, 2 - Sell
action	i1	Operation with the quote
qdeal_price	d16.5	Price of the performed indicative trade
order_quote	u1	0 - quote; 1 - order. Omitted (always 0).
id_ord	i8	Order ID

Notes:

- Field 'xstatus' is a bit mask:

    0x00000001ULL   Quote

    0x00000002ULL   Counter

    0x00000010ULL   Client's collateral was not checked while adding order

    0x00001000ULL   End-of-transaction bit

    0x00100000ULL   The record is a result of moving the quote

    0x00200000ULL   The record is a result of deleting the quote

    0x00400000ULL   The record is a result of mass deletion of quotes

    0x20000000ULL   Order's leftover deleted due to a cross-trade

    0x08000000ULL   Multi-leg instrument quote

- Field 'action' describes an action with the quote:

    0   Quote deleted

    1   Quote added

    2   Quote matched into indicative trade

3.2.2. Table qdeal: Indicative orders log

Table 9. Fields of table qdeal

Filed	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
qdeal_id	i8	Indicative trade ID
xamount	i8	Volume, amount of instruments
quote_id_buy	i8	Quote ID (Buyer side)
quote_id_sell	i8	Quote ID (Seller side)
price	d16.5	Price
moment	t	Indicative trade time

Filed	Type	Description
moment_ns	u8	Indicative trade time, in nanoseconds
qdeal_type	i1	Indicative trade type. Omitted (always 1).

3.2.3. Table rejected_qdeal: Indicative trades status log

The table contains data on non-confirmed and rejected indicative trades

Table 10. Fields of table rejected_qdeal

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
qdeal_id	i8	Indicative trade ID
quote_id	i8	Quote ID
reason	u1	Indicative trade status (rejection reason)
moment	t	Indicative trade time
moment_ns	u8	Indicative trade time, in nanoseconds
dir	i1	DIrection: 1 - Buy, 2 - Sell
isin_id	i4	Instrument unique ID

Notes:

- Field 'reason' may contain the following values:

    0   Reject not received.

    1   Rejection received.

    2   Undefined status.

3.2.4. Table deal: Trades log

Table 11. Fields of table deal

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
id_deal	i8	Trade ID
qdeal_id	i8	Indicative trade ID
xamount	i8	Volume, amount of instruments
id_ord_buy	i8	Order ID (Buyer side)
id_ord_sell	i8	Order ID (Seller side)
quote_id_buy	i8	Quote ID (Buyer side)
quote_id_sell	i8	Quote ID (Seller side)
price	d16.5	Price
moment	t	Trade time
moment_ns	u8	Trade time, in nanoseconds

3.2.5. Table multileg_deal: Multi leg trades log

Table 12. Fields of table multileg_deal

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem

Field	Type	Description
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Multi-leg instrument ID
id_deal	i8	Trade ID
id_ord_buy	i8	Order ID (Buyer side)
id_ord_sell	i8	Order ID (Seller side)
quote_id_buy	i8	Quote ID (Buyer side)
quote_id_sell	i8	Quote ID (Seller side)
xamount	i8	Volume, amount of instruments
price	d16.5	Price
rate_price	d16.5	Trade rate
swap_price	d16.5	Trade swap price
buyback_amount	d16.2	Buyback amount for repo trades
moment	t	Trade time
moment_ns	u8	Trade time, in nanoseconds

3.2.6. Table heartbeat: Server times

In this table, data are accrued from the trading system core in a specified period of time, so that the data can be used to obtain a timing reference (for example, to verify that all trades are received on time). All records added into the table will be later deleted during the non-trading time (night time).

Table 13. Fields of table heartbeat

FIeld	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
server_time	t	Server date and time

3.2.7. Table sys_events: System events

Table 14. Fields of table sys_events

FIeld	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
event_id	i8	Event ID
sess_id	i4	Trading session ID
event_type	i4	Event type
message	c64	EVent description

Notes:

• Available event types:

> event_type = 1
> message = "session_data_ready"
> All data for a new trading session are loaded and calculated
>
> event_type = 2
> message = "intraday_clearing_finished"
> All clearing procedures has finished for intraday clearing session
>
> event_type = 4
> message = "intraday_clearing_started"
> Intraday clearing session has started
>
> event_type = 5

message = "clearing_started"
Main clearing session has started

event_type = 6
message = "extension_of_limits_finished"
Limits have been extended

event_type = 8
message = "broker_recalc_finished"
Funds have been recalculated after intraday clearing session

event_type =10000
message = "iqs_session_inited"
IQS trading session has been scheduled

event_type =10001
message = "iqs_session_started"
IQS trading session is in progress

event_type =10002
message = "iqs_session_suspended"
IQS trading session has been suspended

event_type =10003
message = "iqs_session_stoped"
IQS trading session has been closed compulsorily

event_type =10004
message = "iqs_session_finished"
IQS trading session has been completed as scheduled

3.3. Stream IQS_FUTCOMMON_REPL - Futures: General information

Tables:

• common - Market fundamentals

3.3.1. Table common: Market fundamentals

The table contains market fundamentals data, i.e. best buy/sell quotes, opening/closing price values, etc.

Table 15. Fields of table common

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
best_buy	d16.5	Best buy quote price
amount_buy	i4	Best buy quote amount
xamount_buy	i8	Best buy quote amount (8-byte version)
orders_buy_qty	i4	Buy quotes number
orders_buy_amount	i4	Total number of contracts in buy quote
xorders_buy_amount	i8	Total number of contracts in buy quote (8-byte version)
best_sell	d16.5	Best sell quote price
amount_sell	i4	Best sell quote amount
xamount_sell	i8	Best sell quote amount (8-byte version)
orders_sell_qty	i4	Sell quotes number
orders_sell_amount	i4	Total number of contracts in sell quote
xorders_sell_amount	i8	Total number of contracts in sell quote (8-byte version)
open_price	d16.5	Opening price
close_price	d16.5	Closing price
price	d16.5	Closing trade price

Field	Type	Description
trend	d16.5	Price trend (price difference of the last two trades)
amount	i4	Closing trade amount
xamount	i8	Closing trade amount (8-byte version)
deal_time	t	Closing trade date and time
deal_time_ns	u8	Closing trade date and time, in nanoseconds
min_price	d16.5	The low
max_price	d16.5	The high
avr_price	d16.5	Weighted Average Price
contr_count	i4	Total number of contracts in all trades
xcontr_count	i8	Total number of contracts in all trades (8-byte version)
capital	d26.2	Total volume of trades, in Russian rubles
deal_count	i4	Number of trades
mod_time	t	Record update date and time
mod_time_ns	u8	Record update date and time, in nanoseconds
local_time	t	Time stamp for replication monitoring purposes (table common)

Notes:

- Field 'open_price' contains the price of the first trade in the current session, or 0, if absent.

- Field 'close_price' contains a price value of the last trade in the appropriate trading session. Before the trading session closes, the field contains 0. After the session closes (7 PM till 10 AM), the field 'close_price' contains a price value of the last trade, or 0, if there were no trades during the last trading session.

3.4. Stream IQS_OPTCOMMON_REPL - Options: common information

Tables:

- common - Market fundamentals

3.4.1. Table common: Market fundamentals

The table contains market fundamentals data, i.e. best buy/sell quotes, opening/closing price values, etc.

Table 16. Fields of table common

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
best_buy	d16.5	Best buy quote price
amount_buy	i4	Best buy quote amount
xamount_buy	i8	Best buy quote amount (8-byte version)
orders_buy_qty	i4	Buy quotes number
orders_buy_amount	i4	Total number of contracts in buy quote
xorders_buy_amount	i8	Total number of contracts in buy quote (8-byte version)
best_sell	d16.5	Best sell quote price
amount_sell	i4	Best sell quote amount
xamount_sell	i8	Best sell quote amount (8-byte version)
orders_sell_qty	i4	Sell quotes number
orders_sell_amount	i4	Total number of contracts in sell quote
xorders_sell_amount	i8	Total number of contracts in sell quote (8-byte version)
open_price	d16.5	Opening price
close_price	d16.5	Closing price

Field	Type	Description
price	d16.5	Closing trade price
trend	d16.5	Price trend (price difference of the last two trades)
amount	i4	Closing trade amount
xamount	i8	Closing trade amount (8-byte version)
deal_time	t	Closing trade date and time
deal_time_ns	u8	Closing trade date and time (8-byte version)
min_price	d16.5	The low
max_price	d16.5	The high
avr_price	d16.5	Weighted Average Price
contr_count	i4	Total number of contracts in all trades
xcontr_count	i8	Total number of contracts in all trades (8-byte version)
capital	d26.2	Total volume of trades, in Russian rubles
deal_count	i4	Number of trades
mod_time	t	Record update date and time
mod_time_ns	u8	Record update date and time, in nanoseconds
local_time	t	Time stamp for replication monitoring purposes (table common)

Notes:

- Field 'open_price' contains the price of the first trade in the current session, or 0, if absent.

- Field 'close_price' contains a price value of the last trade in the appropriate trading session. Before the trading session closes, the field contains 0. After the session closes (7 PM till 10 AM), the field 'close_price' contains a price value of the last trade, or 0, if there were no trades during the last trading session.

3.5. Aggregated orderbook streams

There are several streams of aggregated quotes defined with different depths.

Futures:

- FORTS_FUTAGGR50_REPL – 50 quotes depth

- FORTS_FUTAGGR20_REPL – 20 quotes depth

- FORTS_FUTAGGR20_REPL – 5 quotes depth

For options:

- FORTS_OPTAGGR50_REPL – 50 quotes depth

- FORTS_OPTAGGR20_REPL – 20 quotes depth

- FORTS_OPTAGGR20_REPL – 5 quotes depth

The ability to receive particular stream depends on user account rights.

Tables:

- orders_aggr - Netted orders

3.5.1. Table orders_aggr: Netted orders

The table contains list of aggregate quotes. Each aggregate quote is a result of summing up volumes of active quotes on the same instrument, price and direction.

Table 17. Fields of table orders_aggr

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
isin_id	i4	Instrument unique ID
price	d16.5	Price level

Field	Type	Description
volume	i8	Volume
moment	t	Moment of the last quote update
moment_ns	u8	Time when the deal was made, nanoseconds since Unix epoch, UTC
dir	i1	Direction

Note:

- Records in the table can be completely updated, i.e. not only quote's volume can be updated but also the instrument, price, direction. When this event occurs it is considered that previous quote left the order-book and the new one appeared.

- There can be records with zero volume in the table (volume = 0). These records should be ignored. Nulling of existing quotes may take place – this means that quote left the order-book or zero quote was filled in by any values – this means that quote with new values was placed in the order-book.

3.6. Stream IQS_FINESLEVEL_REPL - Participant's penalty levels

Tables:

- fines_level - Participant's penalty levels

3.6.1. Table fines_level: Participant's penalty levels

The table contains data on penalties applied to the participant as a result of their refusal to confirm indicative trades.The penalty levels are calculated for each possible parameter, i.e. client ID, underlying asset, instrument type (futures/option/calendar spread). The penalty level is a subject to change from 0 to 10, accurate to 5th decimal place.

Table 18. Fields of table fines_level

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
client_code	c7	Client ID
code_vcb	c25	Underlying asset ID
isin_type	u1	Instrument type
fine_level	u8	Penalty level
moment_ns	u8	Calculation time, in nanoseconds

Notes:

- Field 'isin_type' may contain the following values:

    0   Futures

    1   Option

    2   Multi-leg instrument

3.7. Stream IQS_PENALTY_REPL - Penalties log

Tables:

- penalty_log - Penalties log

3.7.1. Table penalty_log: Penalties log

The table contains a log of penalties applied to the participant as a result of their refusal to confirm/perform indicative trades.

Table 19. Fields of table penalty_log

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
client_code	c7	Client code

Field	Type	Description
code_vcb	c25	Underlying asset code
isin_type	u1	Instrument type
quotes_deleted	u1	Penalty 'Quotes deletion': 0 - none, 1 - applied
prohibition_applied	u1	Penalty 'Restriction of adding quotes': 0 - none, 1 - applied
level_after_penalty	u8	Level after penalty's been applied
penalty_start_ns	u8	Applied penalty start time, in nanoseconds
penalty_end_ns	u8	Applied penalty end time, in nanoseconds
sess_id	i4	Trading session ID

Notes:

- Field 'isin_type' may contain the following values:

    0   Futures

    1   Option

    2   Multi-leg instrument

3.8. Stream IQS_FUTINFO_REPL - Futures: reference and session information

Tables:

- rates - Currency rates directory

- fut_sess_contents - Traded instruments directory

- fut_vcb - Traded assets directory

- fut_instruments - Instruments directory

- fut_bond_registry - Guide on parameters of bonds

- diler - Companies dictionary

- sys_messages - Trading system messages

- prohibition - Prohibitions

- multileg_dict - Multi-leg instruments directory

- delivery_report - Delivery report

- fut_rejected_orders - register of orders rejected during the clearing

- fut_intercl_info - Information of the variation margin calculated based on the results of the intraday clearing

- fut_bond_nkd - Accrued interest as of the coupon payment date

- fut_bond_nominal - Payment of bonds' face value

- fut_bond_isin - Guide on bond instruments

- usd_online - USD rate online

- investr - Clients directory

- fut_sess_settl - Clearing results: settlement prices

- fut_margin_type - Type of margining

- fut_settlement_account - Settlement Account

- sys_events - table of events

- dealer - Companies directory

- investor - Clients directory

- session - Information about a trading session

3.8.1. Table rates: Currency rates directory

Table 20. Fields of table rates

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
rate_id	i4	Payment currency identifier
curr_base	c15	Base currency code
curr_coupled	c15	Linked currency code
radius	d16.5	Price indicator change radius (in percent)

3.8.2. Table fut_sess_contents: Traded instruments directory

The table contains directory of instruments which are traded in specified trading session.

Table 21. Fields of table fut_sess_contents

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
short_isin	c25	Description of the instrument
isin	c25	Symbol code of the instrument
name	c75	Instrument name
inst_term	i4	Shift from RTS standard instruments
code_vcb	c25	Base contract code
is_limited	i1	Flag of limits established for trading
limit_up	d16.5	Upper price limit
limit_down	d16.5	Lower price limit
old_kotir	d16.5	Adjusted settlement price of the previous session
buy_deposit	d16.2	Collateral of the buyer
sell_deposit	d16.2	Collateral of the seller
roundto	i4	Number of decimal places after the decimal point for the price
min_step	d16.5	Minimum price increment
lot_volume	i4	Lot, i.e. number of units of the underlying asset in the instrument
step_price	d16.5	Value of the minimum price incrememnt
d_pg	t	Expiration date
is_spread	i1	Flag of the futures contract's being part of an intermonth spread 1 – spread; 0 – no spread.
d_exp	t	Instrument's settlement date
is_percent	i1	Flag of futures contract. 1 – interest rate futures, 0 – common futures, 2 - weather and electricity futures, 3 - Eurobonds futures, 4 - futures on repo rate
percent_rate	d6.2	Variation margin rate for interest rate futures
last_cl_quote	d16.5	Quote after the last clearing session
signs	i4	Flags field
is_trade_evening	i1	Flag of being traded during the evening trading session
ticker	i4	Unique ID number of the primary RTS standard instruments
state	i4	State of trading in the instrument
price_dir	i1	Direction of price sorting for the instrument

Field	Type	Description
multileg_type	i4	Type of multi-leg instrument
legs_qty	i4	Number of instruments for multi-leg instrument
step_price_clr	d16.5	Value of the minumum increment for the clearing session
step_price_interclr	d16.5	Value of the minumum increment for the intraday clearing session
step_price_curr	d16.5	Value of the minimum increment in USD
d_start	t	Instrument's start trade date
exch_pay	d16.5	Exchange fee
pctyield_coeff	d16.5	Coef. for yield calculation on percent rates futures
pctyield_total	d16.5	Sum of rates for yield calculation on percent rates futures

Notes:

- Trading session state has priority over instrument state. That is, if a session is in "suspended" or "finished" state, then all instruments can't be traded regardless their states.

- Field state can take the following values:

  0   Session for this instrument is scheduled. One can cancel orders for this instrument

  1   Session for this instrument is running. One can both add and cancel orders for this instrument

  2   Trading in all instruments has been suspended. One can cancel orders for each instrument.

  3   Session for this instrument has been closed compulsorily. Orders can be neither added nor cancelled

  4   Session for this instrument has been completed because the time is up. Orders can be neither added nor cancelled

  5   Trading in this instrument has been suspended. One can cancel orders for this instrument

- Field signs is a bit mask and defines the following values:

  0x01   The instrument is traded in the evening session

  0x02   Futures-style (1) or equity-style (0)

  0x10   Sign of anonymous trading

  0x20   Sign of non-anonymous trading

  0x40   Sign of trading in the main session

  0x100   Sign of multi-leg instrument

  0x1000   Sign of primary price for multi-leg instruments:

    - 0 for swap price

    - 1 for rate price

  0x800000   The instrument is allowed for trades within IQS

- Field price_dir can take the following values:

  0   Standard order of price graduation

  1   Reverse order of price graduation

- Field multileg_type can take the following values:

  0   Ordinary instrument, not the multi-leg one

  1   The instrument that is traded in the REPO mode

  2   The instrument is RTS Money swap

  3   The instrument is calendar futures spread

- Field is_trade_evening is bit mask:

  0   Instrument is not traded

  1   Instrument is traded in the evening trading session

2   Instrument is traded in the main trading session

- Field roundto. For this field, the number of decimal places in its value may differ for expiration technical trades. The number of decimal places for expiration price value is determined according to contract specification.

3.8.3. Table fut_vcb: Traded assets directory

The table contains directory of base contracts for instruments.

Table 22. Fields of table fut_vcb

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
code_vcb	c25	Base contract code
name	c75	Name
exec_type	c1	Settlement type
curr	c3	Payment currency
exch_pay	d16.2	Exchange fee per 1 contract in Russian rubles
exch_pay_scalped	i1	Flag of scalping the exchange fee
clear_pay	d16.2	Clearing fee per 1 contract in Russian rubles
clear_pay_scalped	i1	Flag of scalping the clearing fee
sell_fee	d7.3	Commission payable by the seller. Not relevant
buy_fee	d7.3	Commission payable by the buyer. Not relevant
trade_scheme	c1	Trading mode
section	c50	Market section. 'Securities', 'Commodities', 'Money'
exch_pay_spot	d16.5	Exchange fee for RTS standard instrument per 1 lot in percentage of the price
client_code	c7	Client code
exch_pay_spot_repo	d16.5	Exchange fee on repo
rate_id	i4	Rate ID

Notes:

- Field exec_type can take the following values:

    A   Alternative

    D   Settlement

    I   Index

    T   Settlement via T+ mode, ASTS

- Field trade_scheme can take the following values:

    F   With 100% collateral

    G   With pledge

- The following fields of the table contain default values:

    exch_pay,d16.2 = 0.0

    exch_pay_scalped,i1 = 0

    clear_pay,d16.2 = 0.0

    clear_pay_scalped,i1 = 0

    sell_fee,d7.3 = 0.0

    buy_fee,d7.3 = 0.0

    exch_pay_spot,d16.5 = 0.0

exch_pay_spot_repo,d16.5 = 0.0

client_code,c7 = "" (empty string)

3.8.4. Table fut_instruments: Instruments directory

Table 23. Fields of table fut_instruments

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
isin_id	i4	Instrument unique ID
short_isin	c25	Description of the instrument
isin	c25	Symbol code of the instrument
name	c75	Instrument name
inst_term	i4	Shift from RTS standard instruments
code_vcb	c25	Base contract code
is_limited	i1	Flag of limits established for trading
old_kotir	d16.5	Adjusted settlement price of the previous session
roundto	i4	Number of decimal places after the decimal point for the price
min_step	d16.5	Minimum price increment
lot_volume	i4	Lot, i.e. number of units of the underlying asset in the instrument
step_price	d16.5	Value of the minimum price incrememnt
d_pg	t	Expiration date
is_spread	i1	Flag of the futures contract's being part of an intermonth spread 1 – spread; 0 – no spread.
d_exp	t	Instrument's settlement date
is_percent	i1	Flag of futures contract. 1 – interest rate futures, 0 – common futures, 2 - weather and electricity futures, 3 - Eurobonds futures, 4 - futures on repo rate
percent_rate	d6.2	Variation margin rate for interest rate futures
last_cl_quote	d16.5	Quote after the last clearing session
signs	i4	Flags field
volat_min	d20.15	Volatility lower edge
volat_max	d20.15	Volatility upper edge
price_dir	i1	Direction of price sorting for the instrument
multileg_type	i4	Type of multi-leg instrument
legs_qty	i4	Number of instruments for multi-leg instrument
step_price_clr	d16.5	Value of the minumum increment for the clearing session
step_price_interclr	d16.5	Value of the minumum increment for the intraday clearing session
step_price_curr	d16.5	Value of the minimum increment in USD
d_start	t	Instrument's start trade date
is_limit_opt	i1	Flag of calculation of the limits on options on this future
limit_up_opt	d5.2	For options in the money: the upper limit of deviation from the central strike volatility
limit_down_opt	d5.2	For options in the money: the lower limit of deviation from the central strike volatility
adm_lim	d16.5	For options in the money: limit of the theoretical price deviation set by the administrator
adm_lim_offmoney	d16.5	For options out of the money: limit of the theoretical price deviation
apply_adm_limit	i1	For options in the money: 1 - apply administrative limits, 0 - apply volatility deviation limits
pctyield_coeff	d16.5	Coef. for yield calculation on percent rates futures

Field	Type	Description
pctyield_total	d16.5	Sum of rates for yield calculation on percent rates futures
exec_name	c1	Flag of dated option. D-daily, W-weekly, M-monthly

Notes:

- Field roundto. For this field, the number of decimal places in its value may differ for expiration technical trades. The number of decimal places for expiration price value is determined according to contract specification.

3.8.5. Table fut_bond_registry: Guide on parameters of bonds

Table 24. Fields of table fut_bond_registry

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
bond_id	i4	ID of the bond
small_name	c25	Trading code for corporate bonds trading on RTS
short_isin	c25	Bonds issue
name	c75	Bond's name
date_redempt	t	Bond's maturity date
nominal	d16.5	Bond's face value
bond_type	i1	Type: share/bond
year_base	i2	Day-count basis

Notes:

- Field bond_type is a bit mask and defines the following values:

    0   not set

    0x1   Share

    0x2   Bond (not amortized, actual formula)

    0x4   Amortized bond

    0x8   Bond, virtual American formula

    0x10   Bond, virtual European formula

3.8.6. Table diler: Companies directory

Table 25. Fields of table diler

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
client_code	c7	Client code
name	c200	Company name
rts_code	c50	RTS code of the company
status	i4	Sign of segregated account
signs	i4	Flags field
transfer_code	c7	Account code for position transfer
exp_weight	d3.2	Expiration scenario weight for BF, in total collateral. Applied during the evening clearing session.
num_clr_2delivery	i4	Number of clearing sessions before expiration to start BF expiration scenarios calculation. Applied during the evening clearing session.
margin_type	i1	Margin type, according to BF's sections, applied during the evening clearing session:

Field	Type	Description
		• 3 - half nett
		• 4 - nett
calendar_spread_margin_type	i1	Margin type for calendar spreads, for BF portfolio, applied during the evening clearing session:
		• 3 - half nett
		• 4 - nett
num_clr_2delivery_client_default	i4	Number of clearing sessions before expiration to start clients' expiration scenarios calculation (default value). Applied during the evening clearing session.
exp_weight_client_default	d3.2	Expiration scenario weight for client sections, in total collateral (default value). Applied during the evening clearing session.
go_ratio	d16.5	Total collateral ratio value, for BF. Applied during the evening clearing session.
check_limit_on_withdrawal	i1	Verify collateral sufficiency, for BF, upon funds depositing/withdrawal:
		• 1 - Verify
		• 2 - Do not verify
limit_tied_money	i1	BF trading limit accordance with the BF's total funds amount (all sections):
		• 1 - maintain accordance
		• 0 - virtual (independent) limit. The value may change according to the profit/loss values only, resulting from the evening clearing session. Applied during the evening clearing session.
limits_set	i1	Verify collateral sufficiency, for BF, upon adding orders:
		• 1 - Verify
		• 2 - Do not verify
no_fut_discount	i1	Discount on futures for BF portfolio, applied during the evening clearing session:
		• 1 - Discount prohibited
		• 0 - Discount allowed
no_fut_discount_client_default	i1	Discount on futures for BF's clients (default value is 1), applied during the evening clearing session:
		• 1 - DIscount prohibited
		• 0 - DIscount allowed

Notes:

• Status field is a bit mask:

  • 0x01 - control section

  • 0x02 - separate register

  • 0x04 - BF is control

3.8.7. Table sys_messages: Trading system messages

Table 26. Fields of table sys_messages

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
msg_id	i4	Unique message ID
moment	t	Message date and time
lang_code	c8	Message language

Field	Type	Description
urgency	i1	Urgency
status	i1	Message status
text	c255	Short text
message_body	c4000	Full text

3.8.8. Table prohibition: Prohibitions

Table 27. Fields of table prohibition

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
prohib_id	i4	Number of prohibition
client_code	c7	Client code
initiator	i4	Prohibition originator
section	c50	Section
code_vcb	c25	Base contract code
isin_id	i4	Instrument unique ID
priority	i4	Priority of prohibition
group_mask	i8	Bitmask of groups for which there is a prohibition
type	i4	Type of prohibition
is_legacy	i4	Prohibition originator type

Notes:

- Field Initiator - Initiator of the prohibition:

    0   BF;

    1   CF Chief trader;

    2   CC Administrator;

    3   TS Administrator.

- Field Type - Prohibition type

    0   No prohibitions (when cancelling a previous prohibition with lower priority, otherwise simply delete the line);

    1   prohibited to open positions;

    2   prohibited to perform all trading operations;

    3   prohibited to open sell positions;

    0x08   BF prohibition to add orders for exercising.

    0x10   Only Chief Trader is allowed to add orders for exercising.

- Field ProhibitionGroupMask - Instrument type bitmask:

    0x1   T+0

    0x2   T+1

    0x4   T+2

    ...   ...

    0x8000000   T+27

    0x10000000   T-1

    0x20000000   spots

    0x40000000   futures

0x80000000   options

- Field Priority - From high to low

Client code, instrument   9

Client code, UA   8

Client code, all UAs   7

BF code, instrument   6

BF code, UA   5

BF code, all UAs   4

CF code, instrument   3

CF code, UA   2

CF code, all UAs   1

- Field SectionID - Name:

1   Securities

2   Commodities

3   FX

4   MOSENEX

5   SPBEX

6   SPBEX_OAO

7   NAMEX

- Field is_legacy - Prohibition originator type:

0   indicates the prohibition set by the Trading Administrator/Clearing Administrator; these prohibitions cannot be changed by traders.

1   indicates the prohibition set by a trader; these prohibitions can be changed by traders.

3.8.9. Table multileg_dict: Multileg instruments directory

Table 28. Fields of table multileg_dict

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Multi-leg instrument ID
isin_id_leg	i4	ID of the instrument which is a component of specified multi-leg instrument
qty_ratio	i4	Quantity ratio
leg_order_no	u1	Leg order in a multi-leg instrument. The default value is 0.

Notes:

- The meaning of the filed qty_ratio is specifying the number and direction of the multi-leg instrument: If the value equals qty_ratio > 0 then this instrument is a multi-leg instrument with the same direction with which is the multi-leg order, if qty_ratio < 0 – with opposite. Absolute value of qty_ratio specifies the coefficient by which the number of multi-leg instruments in the order should be multiplied in order to get the number of instruments isin_id_leg.

3.8.10. Table fut_rejected_orders: register of orders rejected during the clearing

Table 29. Fields of table fut_rejected_orders

Field	Type	Description
replID	i8	Service field of the replication subsystem

Field	Type	Description
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
order_id	i8	Order ID number
sess_id	i4	Trading session ID
moment	t	Order update time
isin_id	i4	Instrument unique ID
client_code	c7	Client code
dir	i1	Direction
amount	i4	Volume, in units of the instrument
xamount	i8	Volume, in units of the instrument (8-byte version)
price	d16.5	Price
date_exp	t	Order's expiration date
id_ord1	i8	ID number of the first order
moment_reject	t	Time when the order was rejected
ret_code	i4	Return code of the re-entering procedure
ret_message	c255	Text of the message containing the reason for rejection of the order when it is re-entered
comment	c20	Trader's comment
login_from	c20	Login of the user who has entered the order
ext_id	i4	External ID number. It is added to orders, trades

3.8.11. Table fut_intercl_info: Information of the variation margin calculated based on the results of the intraday clearing

Table 30. Fields of table fut_intercl_info

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
isin_id	i4	Instrument unique ID
client_code	c7	Client code
vm_intercl	d16.2	Variation margin debited or credited during the intraday clearing

3.8.12. Table fut_bond_nkd: Accrued interest as of the coupon payment date

Table 31. Fields of table fut_bond_nkd

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
bond_id	i4	ID of the bond
date	t	Coupon payment date
nkd	d16.7	Accrued interest as of the coupon payment date
is_cupon	i1	Flags: 0 - accrued interest as of the bond futures contract settlement date, 1 - coupon, 2 - accrued interest as of the bond settlement date

3.8.13. Table fut_bond_nominal: Payment of bonds' face value

Table 32. Fields of table fut_bond_nominal

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem

Field	Type	Description
replAct	i8	Service field of the replication subsystem
bond_id	i4	ID of the bond
date	t	Coupon payment date
nominal	d16.5	payment of bonds' face value
face_value	d16.5	Payment of bonds' rest face value
coupon_nominal	d8.5	Coupon value in % of face value
is_nominal	i1	Type of record in the table

Notes:

- Field is_nominal may contain the following values:

   0   Residual face value as of the bond futures contract settlement date

   1   Residual face value as of the coupon payment date

   2   Residual face value as of the bond settlement date

3.8.14. Table fut_bond_isin: Guide on bond instruments

Table 33. Fields of table fut_bond_isin

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
isin_id	i4	Instrument unique ID
bond_id	i4	ID of the bond
coeff_conversion	d5.4	Conversion ratio

3.8.15. Table usd_online: USD rate online

Table 34. Fields of table usd_online

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
id	i8	Rate ID
rate	d16.4	USD rate
moment	t	Time of the rate

Notes:

- At current moment filed id can take value = 1 (rub to usd)

3.8.16. Table investr: Clients directory

Table 35. Fields of table investr

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
client_code	c7	Client code
name	c200	Client name
status	i4	Client's flags
calendar_spread_margin_type	i1	Margin type of calendar spreads, for client (applied during the evening clearing session):

Field	Type	Description
		• Half nett
		• Nett

Notes:

- Status field is a bit mask:

  - 0x01 - control section

  - 0x02 - separate register

  - 0x04 -BF is control

3.8.17. Table fut_sess_settl: Clearing results: settlement prices

The table contains settlement instruments prices of the last clearing.

Table 36. Fields of table fut_sess_settl

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
date_clr	t	Clearing date
isin	c25	Symbol code of the instrument
isin_id	i4	Instrument unique ID
settl_price	d16.5	Settlement price

3.8.18. Table fut_margin_type: Type of margining

Table 37. Fields of table fut_margin_type

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
code	c12	Settlement Account or Brokerage Firm Code
type	i1	Type of Code. Settlement Account - 0, Brokerage Firm - 1.
margin_type	i1	Type of margining. 2 – half netting by Brokerage Firm, 3 – half netting by Settlement Account
UCP_type	i1	Type of Unified Collateral Pool: • 1 - Unified Collateral Pool (standard) • 0 - not Unified Collateral Pool
prohibit_coeff	d16.2	Debt coefficient value for Settlement Account. If NULL, then no debt coefficient will be applied, all applied automatic prohibitions will be cancelled.
prohibit_type	i4	Type of automatic prohibition for Settlement Account: • 1 - prohibited to open positions • 2 - prohibited to add orders.
settlement_account_type	i1	Settlement Account Type. 0 - own SA, 1 - client SA, 2 - SA (Trust Management type).

3.8.19. Table fut_settlement_account: Settlement Account

Table 38. Fields of table fut_settlement_account

Field	Type	Description
replID	i8	Service field of the replication subsystem

Field	Type	Description
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
code	c7	Brokerage Firm Code or Client Code
type	i1	Brokerage Firm - 1, Client - 2
settlement_account	c12	Settlement Account

3.8.20. Table sys_events: table of events

Table 39. Fields of table sys_events

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
event_id	i8	Unique ID of the event
sess_id	i4	Session number
event_type	i4	Type of the event
message	c64	Description of the event

Notes:

- Possible types of events

    event_type = 1
    message = "session_data_ready"
    All data from the clearing system have been loaded into the trading system

    event_type = 2
    message = "intraday_clearing_finished"
    All clearing procedures have been finished in the intraday clearing session

    event_type = 4
    message = "intraday_clearing_started"
    Intraday clearing session has started

    event_type = 5
    message = "clearing_started"
    Main clearing session has started

    event_type = 6
    message = "extension_of_limits_finished"
    Limits have been extended

    event_type = 8
    message = "broker_recalc_finished"
    Funds have been recalculated after intraday clearing session

3.8.21. Table dealer: Companies directory

Table 40. Fields of table dealer

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
client_code	c7	Client code
name	c200	Company name
rts_code	c50	RTS code of the company
status	i4	Sign of segregated account
transfer_code	c7	Account code for position transfer
exp_weight	d3.2	Expiration scenario weight for BF, in total collateral. Applied during the evening clearing session.

Field	Type	Description
num_clr_2delivery	i4	Number of clearing sessions before expiration to start BF expiration scenarios calculation. Applied during the evening clearing session.
margin_type	i1	Margin type, according to BF's sections, applied during the evening clearing session: • 3 - half nett • 4 - nett
calendar_spread_margin_type	i1	Margin type for calendar spreads, for BF portfolio, applied during the evening clearing session: • 3 - half nett • 4 - nett
num_clr_2delivery_client_default	i4	Number of clearing sessions before expiration to start clients expiration scenarios calculation (default value). Applied during the evening clearing session.
exp_weight_client_default	d3.2	Expiration scenario weight for clients, in total collateral (default value). Applied during the evening clearing session.
go_ratio	d16.5	Total collateral ratio value, for BF. Applied during the evening clearing session.
check_limit_on_withdrawal	i1	Verify collateral sufficiency, for BF, upon funds depositing/withdrawal: • 1 - Verify • 2 - Do not verify
limit_tied_money	i1	BF trading limit accordance with the BF's total funds amount (all sections): • 1 - maintain accordance • 0 - virtual (independent) limit. The value may change according to the profit/loss values only, resulting from the evening clearing session. Applied during the evening clearing session.
limits_set	i1	Verify collateral sufficiency, for BF, upon adding orders: • 1 - Verify • 2 - Do not verify
no_fut_discount	i1	Discount on futures for BF portfolio, applied during the evening clearing session: • 1 - Discount prohibited • 0 - Discount allowed
no_fut_discount_client_default	i1	Discount on futures for BF's clients (default value is 1), applied during the evening clearing session: • 1 - DIscount prohibited • 0 - DIscount allowed

Notes:

• Status field is a bit mask:

  • 0x01 - control section

  • 0x02 - separate register

  • 0x04 - BF is control

3.8.22. Table investor: Clients directory

Table 41. Fields of table investor

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem

Field	Type	Description
replAct	i8	Service field of the replication subsystem
client_code	c7	Client code
name	c200	Client name
status	i4	Client's flags
calendar_spread_margin_type	i1	Margin type for client calendar spread, applied during the evening clearing session: • 3 - half nett • 4 - nett

Notes:

- Status field is a bit mask:

  - 0x01 - control section

  - 0x02 - separate register

  - 0x04 -BF is control

3.8.23. Table session: Information about a trading session

The table contains trading sessions timetable.

Table 42. Fields of table session

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
begin	t	Opening time
end	t	Closing time
state	i4	Session status
opt_sess_id	i4	ID number of the relevant session for options
inter_cl_begin	t	Time when the intraday clearing begins
inter_cl_end	t	Time when the intraday clearing is over
inter_cl_state	i4	Status of the intraday clearing
eve_on	i1	Flag of holding an additional evening session
eve_begin	t	Time when the additional evening session starts
eve_end	t	Time when the additional evening session is over
mon_on	i1	Flag of holding an additional morning session
mon_begin	t	Time when the additional morning session starts
mon_end	t	Time when the additional morning session is over
pos_transfer_begin	t	Time when the special period for position transfer starts
pos_transfer_end	t	Time when the special period for position transfer finishes

Notes:

- Fields pos_transfer_begin and pos_transfer_end specify the period of trading session during which special mode of concluding trades with instruments that are delivered during this current trading day is in power. During this special mode all orders with this certain instrument are prohibited excluding negotiated trades within one Clearing member.

- Field state can take the following values:

  0   Session is scheduled. Orders can't be placed but can be cancelled.

  1   Session is running. Orders can be both placed and cancelled.

  2   Trading with all instruments is suspended. Orders can't be placed but can be cancelled.

  3   Session is closed compulsorily. Orders can be neither placed nor cancelled.

4   Session is completed because the time is up. Orders can be neither added nor cancelled.

- Field inter_cl_state is a bit mask:

0x0   It is not defined. Orders can be both placed and cancelled.

0x01   It is scheduled today. Orders can be placed and cancelled.

0x02   It is cancelled. Orders can be placed and cancelled.

0x04   Current, i.e.it is running, nothing can be done. Orders can't be placed and cancelled.

0x08   Current, i.e. it is running (due to time schedule), but actually it is over and intraday clearing data is already available. Orders can't be placed but can be cancelled.

0x10   It is successfully over (due to time schedule as well). Orders can be placed and cancelled.

3.9. Stream IQS_OPTINFO_REPL - Options: reference and session information

Tables:

- opt_sess_contents - Traded instruments directory

- opt_vcb - Traded assets directory

- opt_rejected_orders - register of orders rejected during the clearing

- opt_intercl_info - Information of the variation margin calculated based on the results of the intraday clearing

- opt_exp_orders - Register of orders for expiration of option

- opt_sess_settl - Clearing results: volatility and theoretical prices

- sys_events - table of events

3.9.1. Table opt_sess_contents: Traded instruments drectory

The table contains directory of instruments which are traded in specified trading session.

Table 43. Fields of table opt_sess_contents

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
isin_id	i4	Instrument unique ID
isin	c25	Symbol code of the instrument
short_isin	c25	Description of the instrument
name	c75	Instrument name
code_vcb	c25	Base contract code
fut_isin_id	i4	ID of the futures instrument
is_limited	i1	Flag of limits established for trading
limit_up	d16.5	Upper limit on premium
limit_down	d16.5	Lower limit on premium
old_kotir	d16.5	Quote (theoretical price of the option) of the previous session
bgo_c	d16.2	Basic size of the collateral to be posted on one open position of the option writer (Russian rubles)
bgo_nc	d16.2	Basic size of collateral to be posted on one unsecured position of the option writer (Russian rubles)
europe	i1	Option's kind. 0 – American option, 1 – European option
put	i1	Option's type. 0 - Call option, 1 - Put option
strike	d16.5	Strike price

Field	Type	Description
roundto	i4	Number of decimal places after the decimal point for the price
min_step	d16.5	Premium's minimum increment
lot_volume	i4	Lot, i.e. number of units of the underlying asset in the instrument
step_price	d16.5	Value of the minimum premium's increment
d_pg	t	Expiration date
d_exec_beg	t	Day when the instrument's expiration begins
d_exec_end	t	Day when the instrument's expiration is over
signs	i4	Flags field
last_cl_quote	d16.5	Settlement Price (theoretical price of the option) after the last clearing session
bgo_buy	d16.2	Basic size of Collateral requested in order to buy a futures-style option
base_isin_id	i4	ID of the base futures instrument
d_start	t	Instrument's start trade date
exch_pay	d16.2	Exchange fee per 1 contract in Russian rubles

Notes:

- Field signs is a bit mask and defines the following values:

  0x01   The instrument is traded in the evening session

  0x02   Futures-style (1) or equity-style (0)

  0x10   Sign of anonymous trading

  0x20   Sign of non-anonymous trading

  0x40   Sign of trading in the main session

  0x800000   Instrument is allowed for trading within IQS

3.9.2. Table opt_vcb: Traded assets directory

The table contains directory of base contracts for instruments.

Table 44. Fields of table opt_vcb

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
code_vcb	c25	Base contract code
name	c75	Name
exec_type	c1	Settlement type
curr	c3	Payment currency
exch_pay	d16.2	Exchange fee per 1 contract in Russian rubles
exch_pay_scalped	i1	Flag of scalping the exchange fee
clear_pay	d16.2	Clearing fee per 1 contract in Russian rubles
clear_pay_scalped	i1	Flag of scalping the clearing fee
sell_fee	d7.3	Commission payable by the seller. Not relevant
buy_fee	d7.3	Commission payable by the buyer. Not relevant
trade_scheme	c1	Trading mode
coeff_out	d7.3	Approximation ratio for options priced beyond limits
is_spec	i1	Flag of an RFQ specialist for this contract
spec_spread	d16.5	Maximum width of the specialist's spread
min_vol	i4	Minimum volume of quotes from the specialist
client_code	c7	Client code

Field	Type	Description
rate_id	i4	Rate ID

Notes:

- The following fields of the table contain default values:

  exch_pay,d16.2 = 0.0

  exch_pay_scalped,i1 = 0

  clear_pay,d16.2 = 0.0

  clear_pay_scalped,i1 = 0

  sell_fee,d7.3 = 0.0

  buy_fee,d7.3 = 0.0

  is_spec,i1 = 0

  spec_spread,d16.5 = 0.0

  client_code,c7 = "" (empty string)

3.9.3. Table opt_rejected_orders: register of orders rejected during the clearing

Table 45. Fields of table opt_rejected_orders

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
order_id	i8	Order ID number
sess_id	i4	Trading session ID
moment	t	Order update time
isin_id	i4	Instrument unique ID
client_code	c7	Client code
dir	i1	Direction
amount	i4	Volume, in units of the instrument
xamount	i8	Volume, in units of the instrument (8-byte version)
price	d16.5	Price
date_exp	t	Order's expiration date
id_ord1	i8	ID number of the first order
moment_reject	t	Time when the order was rejected
ret_code	i4	Return code of the re-entering procedure
ret_message	c255	Text of the message containing the reason for rejection of the order when it is re-entered
comment	c20	Trader's comment
login_from	c20	Login of the user who has entered the order
ext_id	i4	External ID number. It is added to orders, trades

3.9.4. Table opt_intercl_info: Information of the variation margin calculated based on the results of the intraday clearing

Table 46. Fields of table opt_intercl_info

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
isin_id	i4	Instrument unique ID

Field	Type	Description
client_code	c7	Client code
vm_intercl	d16.2	Variation margin debited or credited during the intraday clearing

3.9.5. Table opt_exp_orders: Register of orders for expiration of option

Table 47. Fields of table opt_exp_orders

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
exporder_id	i8	Unique ID number of the order for expiration
client_code	c7	Client code
isin_id	i4	Instrument unique ID
amount	i4	Number of expiring positions
xamount	i8	Number of expiring positions (8-byte version)
sess_id	i4	Trading session ID
date	t	Date and time
amount_apply	i4	Number of positions detailed in orders as of intraday clearing
xamount_apply	i8	Number of positions detailed in orders as of intraday clearing (8-byte version)

3.9.6. Table opt_sess_settl: Clearing results: volatility and theoretical prices

The table contains volatility and theoretical prices of the last clearing.

Table 48. Fields of table opt_sess_settl

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
sess_id	i4	Trading session ID
date_clr	t	Clearing date
isin	c25	Symbol code of the instrument
isin_id	i4	Instrument ID number
volat	d16.5	Option's volatility
theor_price	d16.5	Option's theoretical price

3.9.7. Table sys_events: table of events

Table 49. Fields of table sys_events

Field	Type	Description
replID	i8	Service field of the replication subsystem
replRev	i8	Service field of the replication subsystem
replAct	i8	Service field of the replication subsystem
event_id	i8	Unique ID of the event
sess_id	i4	Session number
event_type	i4	Type of the event
message	c64	Description of the event

Notes:

- Possible types of events

    event_type = 1
    message = "session_data_ready"

All data from the clearing system have been loaded into the trading system

event_type = 2
message = "intraday_clearing_finished"
All clearing procedures have been finished in the intraday clearing session

event_type = 4
message = "intraday_clearing_started"
Intraday clearing session has started

event_type = 5
message = "clearing_started"
Main clearing session has started

event_type = 6
message = "extension_of_limits_finished"
Limits have been extended

event_type = 8
message = "broker_recalc_finished"
Funds have been recalculated after intraday clearing session

All data from the clearing system have been loaded into the trading system

event_type = 2
message = "intraday_clearing_finished"
All clearing procedures have been finished in the intraday clearing session

4. Commands description

4.1. AddQuote - Add quote

Message type: 301

Reply message type: 201

Table 50. Input data

Parameter name	Type	Default value	Description
broker_code	c4	""	BF code
isin_id	i4		Instrument ID
type	u1		Quote type
auto_confirm	u1	0	Automatic confirmation of indicative trade
dont_check_money	u1	0	Risks are calculated for client section on the given quote. Login must obtain the appropriate rights to change this parameter.
client_code	c3		Client code
amount_sell	u8		Instrument amount in sell quote
price_sell	i8		Sell quote price/swap price (may contain a negative value)
ext_id_sell	u8	0	Sell quote external ID
amount_buy	u8		Instrument amount in buy quote
price_buy	i8		Buy quote price/swap price (may contain a negative value)
ext_id_buy	u8	0	Buy quote external ID
comment_buy	c20	""	Comment field, reserved for developers' needs.
comment_sell	c20	""	Comment field, reserved for developers' needs.
local_stamp	t		Time stamp

Table 51. Output data

Parameter name	Type	Default value	Description
reply_code	u4		Return code
message	c255		Message text
reply_code_dir	u1		Erroneous quote: • '0' – Undefined (reply_code=0). • '1' – Buy quote. • '2' – Sell quote. • '3' – Both quotes.
quote_id_sell	u8		Sell quote ID
quote_id_buy	u8		Buy quote ID

Return codes:

0   success

Other value   error

Notes:

• Field **type** may contain the following values:

     1   Day quote (remains in orderbook after being partly matched)

     2   IOC quote (cancelled after trading session ends)

• Field **auto_confirm** may contain the following values:

     0   do not confirm automatically

     1   confirm automatically

- Field ***dont_check_money*** may contain the following values:

  0   verify collateral for client section

  1   do not verify collateral for client section

4.2. DelQuote - Delete quote

Message type: 302

Reply message type: 202

Table 52. Input data

Parameter name	Type	Default value	Description
broker_code	c4	""	BF code
quote_id	u8		Quote ID within the trading system
local_stamp	t		Time stamp

Table 53. Output data

Parameter name	Type	Default value	Description
code	u4		Return
message	c255		Message text
amount	u8		Amount of instrument in the deleted quote

Return codes:

0   success

Other value   error

4.3. DelUserQuotes - Delete quotes by type

Message type: 303

Reply message type: 203

Table 54. Input data

Parameter name	Type	Default value	Description
broker_code	c4	""	BF code
code	c3		Client account code
code_vcb	c25		Contract code
buy_sell	u1		Buy/Sell quote
ext_id	u8	0	External ID
isin_id	i4	0	Instrument ID
local_stamp	t		Time stamp

Table 55. Output data

Parameter name	Type	Default value	Description
code	u4		Return code
message	c255		Message text
num_quotes	u4		Number of deleted quotes

Return codes:

0   success

Other value   error

Notes:

- Field ***buy_sell*** may contain the following values:

    1   Buy quotes

    2   Sell quotes

    3   All quotes

- If field *code* not specified, or contains '%%%', then quotes will be deleted for all client accounts.

- If field *code_vcb* not specified, or contains '%', then quotes will be deleted for all contracts.

- If field *ext_id* contains a value other than 0, then all quotes with appropriate value *ext_id* will be deleted; all values in other fields will be ignored; however, these values must not be outside the allowable range.

4.4. MoveQuote - Move quotes

Message type: 304

Reply message type: 204

Table 56. Input data

Parameter name	Type	Default values	Description
broker_code	c4	""	BF code
quote_id_sell	u8		Sell quote ID
amount_sell	u8	0	New amount of instrument for the sell quote
price_sell	i8	0	New price/swap price for the sell quote
ext_id_sell	u8	0	New external ID for the sell quote
quote_id_buy	u8	0	Buy quote ID
amount_buy	u8	0	New amount of instrument for the buy quote
price_buy	i8	0	New price/swap price for the buy quote
ext_id_buy	u8	0	New external ID for the buy quote
local_stamp	t		Time stamp
regime	u1		Mode

Table 57. Output data

Parameter name	Type	Default values	Description
reply_code	u4		Reply code
message	c255		Message text
reply_code_dir	u1		Erroneous quote: • '0' – Undefined (reply_code=0). • '1' – Buy quote. • '2' – Sell quote. • '3' – Both quote.
quote_id_sell	u8		Sell quote ID
quote_id_buy	u8		Buy quote ID

Return codes:

0   success

Other value   error

Notes:

- Value in field *regime* specifies the command work mode. The field may contain the following values:

    0   Do not change the initial quote volume. All new amounts will be ignored.

    1   Change quote volume. The quote volume will be replaced with the new one.

    2   Delete previously added quotes. If there is at least one quote volume that does not match the new one, both quotes will be deleted. Otherwise, the previously added quotes will be replaced with the new ones.

3 Replace quote volumes with the new ones, excluding the part (not less than 0) that has been already matched. If a new volume is less than the part matched, both quotes will be deleted.

• A deleted order cannot be relisted; instead, a error message will be issued.

• If at least one quote is not found when moving a pair of quotes, both quotes will not be moved, and a error message will be issued.

• If moving of two quotes (Buy&Sell) results in coincidence of their price values, both quotes will not be moved, and a error message will be issued.

• If moving of two quotes (Buy&Sell) results in a cross-trade (matching with a quote either of the same VATIN, or of the same client account) for one quote, both quotes will not be moved.

4.5. ConfirmQDeal - Confirm trade

Message type: 305

Reply message type: 205

Table 58. Input data

Parameter name	Type	Default values	Description
deal_id	u8		Indicative trade ID
local_stamp	t		Time stamp

Table 59. Output data

Parameter name	Type	Default values	Description
code	u4		Return code
message	c255		Message text

Return codes:

0 Success

Other value error