



# **Moscow Exchange Fix protocol specifications for Derivatives market**

**version 1.6.10**

**Moscow 2017**

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## History of changes

Date	Version	Changes
13.03.2014	1.3.0	Added 'Revision' field (service field, replication system) into the 'Execution Report' message (section 4.1.6.).
14.04.2014	1.3.0	Section '2.5. Instrument group': changed allowable values of the 'Symbol' and 'SecurityID' fields.
24.04.2014	1.3.0	Added 'Parties' fields group into the 'New Order Single', 'Order Cancel Request', 'Order Mass Cancel Request', 'Order Cancel/Replace Request' messages.
13.05.2014	1.3.0	Section '4.4. Error processing': added error processing description (errors transmitted in the 'SenderCompID' and 'TargetCompID' fields).
3.06.2014	1.3.0	Section '2.5. Instrument group': changed allowable values for the 'Symbol' field. Deleted 'SecurityID' field.
20.08.2014	1.3.0	Section '2.5. Instrument group': changed descriptions of the 'SecurityType' and 'CFICode' fields. Section '2.9. Other fields': changed allowable values for the 'MassCancelRequestType' field. Section '4.1.3. Order Mass Cancel Request': changed description of the 'MarketSegmentID' field.
26.08.2014	1.3.0	Section '3.1.1. Logon': deleted 'DefaultAppVerID' field.
29.08.2014	1.3.0	Section '2.5. Instrument group': changed allowable values for the 'Symbol' field.
15.12.2014	1.3.0	Section '2.5. Instrument group': changed mandatory status and details of the 'CFICode' field.
22.01.2015	1.3.0	Cancel on disconnect: <ul style="list-style-type: none"> <li>Added field 'ExecRestatementReason' (Order cancellation reason, applied for orders cancelled by the Trading System) into message 'Execution Report' (section 4.1.6.).</li> <li>Added section '4.5. Automatic order cancellation option (Cancel On Disconnect)'.</li> </ul>
20.05.2015	1.4.0	Drop Copy service: added section '5.3. Translation of order status and trades'.
2.07.2015	1.4.0	Section '2.1. Standard Header group' now contains description of the field 'OrigSendingTime'.
13.07.2015	1.4.0	Added field 'ClOrdLinkID' into section '4.1.1. New Order Single'.
22.01.2016	1.5.0	Section '3.2.1. Session establishing and termination' now contains info about a restriction for reestablishing connection to FIX Gate.
23.03.2016	1.6.0	All messages of service Drop Copy (section '5. Drop Copy service') now contain field 'ClOrdLinkID'.
18.04.2016	1.6.1	Changes applied: <ul style="list-style-type: none"> <li>Added section '2.1. Data types'.</li> <li>Section '2.2. Group Standard Header'. Description of field 'BeginString' now contains the allowable value = 'FIX.4.4'.</li> <li>Section '2.6. Group Instrument'. Changed fields 'SecurityType' and 'CFICode' descriptions. The field 'Symbol' has its allowable values changed.</li> <li>Section '2.10. Other fields': fields 'MassCancelResponse' and 'MassCancelRequestType' now have their allowable values changed.</li> <li>Section '4.1.1. New Order Single': field ClOrdLinkID (583) replaced with MatchRef (20021).</li> <li>Section '4.1.3. Order Mass Cancel Request': fields 'Account' and 'MarketSegmentID' now have their descriptions changed.</li> <li>Message 'Order Mass Cancel Report' (section 4.1.8.) now contains new fields 'TransactTime' (Reply time) and 'Revision' (Service field of replication subsystem).</li> <li>Section '4.2. Trading interaction scenarios' has been updated.</li> <li>Message descriptions now contain field types.</li> </ul>
25.05.2016	1.6.2	Section '4.2.4. Replacing' now contains a new scenario.
9.08.2016	1.6.3	Section '2.10. Other fields': deleted allowable value '3' Done for day from field 'OrdStatus'.
27.09.2016	1.6.4	Changes applied: <ul style="list-style-type: none"> <li>Sections '4.1.1. New Order Single' and '4.1.4. Order Cancel/Replace Request' now contain description of field 'Flags'.</li> <li>Section '2.10. Other fields': updated allowable values of field 'Flags'.</li> </ul>
18.01.2017	1.6.5	Section '4.2.6. Relisting multi-days orders' has been edited and updated.
22.02.2017	1.6.6	Updated description for field 'TransactTime' of section '4.1.6. Execution Report'.
27.02.2017	1.6.8	Updated section '4.5. Automatic order cancellation option (Cancel On Disconnect)'.

Date	Version	Changes
22.05.2017	1.6.9	<p>Changes applied:</p> <ul style="list-style-type: none"> <li>• Section '2.1. Data types': changed description of type 'UTCTimestamp'.</li> <li>• Sections '4.1.1. New Order Single', '4.1.2. Order Cancel Request', '4.1.3. Order Mass Cancel Request', '4.1.4. Order Cancel/Replace Request', '4.1.6. Execution Report', '4.1.8. Order Mass Cancel Report', '5.2.1. Common instruments trades', '5.2.2. Multi-leg instruments trades', '5.3.1. Adding order', '5.3.2. Deleting order', '5.3.3. Moving order', '5.3.4. Common instruments trades', '5.3.5. Multi-leg instruments trades': changed description of field 'TransactTime'.</li> <li>• Message 'Order Cancel Reject' (section 4.1.7.) now contains new fields 'TransactTime' (Reply time) and 'Revision' (Service field of replication subsystem).</li> </ul>
31.10.2017	1.6.10	Section '4.2.6. Relisting multi-days orders' has been edited.

# 1. Introduction

## 1.1. Document purpose

The document below describes the protocol for interaction between the FIX Gate application and client trading systems. The description is based on the standard FIX protocol (Financial Information Exchange, <http://www.fixtradingcommunity.org>, version 4.4) specification. The specification does not contain neither technical nor administrative details on network connection or security protection methods.

## 1.2. General description

FIX Gate is a server application which provides availability for user applications such as robots, terminals, technical analysis systems, etc. to connect to the exchange trading sessions using the FIX 4.4 protocol. The protocol consists of transport, session and application layers.

The transport layer defines rules of: a) transferring data as set of messages, b) composing message as set of fields, c) composing fields using field ID and field value. The transport layer description is a part of FIX 4.4 specification, therefore, it is not listed in this specification.

The session layer provides identification of each participant as well as guaranteed delivery and message consistent processing, connection status control and session recovery in case of a failure. This specification contains a brief description of the session layer protocol in order to cover certain parameters needed for establishing connection to FIX Gate.

This specification is based upon application layer protocol description, which defines rules of trading process.

## 2. Description of fields and their values

There are many messages containing the same field sets, for example, the 'Standard Header' and 'Standard Trailer' fields which contain some service information. Some of such field sets are described below:

- **Tag** – the unique field ID, used for generating a FIX message.
- **Field** – the field name, not used for generating FIX messages and described for your reference only.
- **Presence** – a field attribute: specifies whether the field in message is mandatory or optional.
  - Y - mandatory field;
  - N - optional field;
  - C - mandatory, if meets the condition (see 'Details').
- **Type** - field type.
- **Details** – detailed description of the field.
- **Allowable values** - additional limitations.

The "\*" symbol - flag of difference from the standard FIX protocol.

### 2.1. Data types

Within the protocol, the following data types are used:

Type	Details
char	Single character value, can include any alphanumeric character or punctuation except the delimiter. All char fields are case sensitive (i.e. m != M).
String	Alpha-numeric free format strings, can include any character or punctuation except the delimiter. All char fields are case sensitive (i.e. morstatt != Morstatt).
float	Sequence of digits with optional decimal point and sign character (ASCII characters "-", "0" - "9" and "."); the absence of the decimal point within the string will be interpreted as the float representation of an integer value. The number of decimal places used should be a factor of business/market needs and mutual agreement between counterparties. Note that float values may contain leading zeros (e.g. "00023.23" = "23.23") and may contain or omit trailing zeros after the decimal point (e.g. "23.0" = "23.0000" = "23" = "23.").
Price16.5	Float field representing a price. The number of significant digits is sixteen. The number of decimal places is five.
Int	Sequence of digits without commas or decimals and optional sign character (ASCII characters "-" and "0" - "9"). The sign character utilizes one byte (i.e. positive int is "99999" while negative int is "-99999"). Note that int values may contain leading zeros (e.g. "00023" = "23"). Examples: 723 in field 21 would be mapped int as [21=723], -723 in field 12 would be mapped int as [12=-723].
NumInGroup	Int field representing the number of entries in a repeating group. Value must be positive.
Int32	Integer signed, 4 bytes.
Int64	Integer signed, 8 bytes.
StringN	String of symbols with fixed length.
UTCTimestamp	Time/date combination represented in UTC (Universal Time Coordinated) in YYYYMMDD-HH:MM:SS.sss (milliseconds) or YYYYMMDD-HH:MM:SS.ssssssss (nanoseconds) format.
SeqNum	Int32 field representing a message sequence number. Value must be positive.
Boolean	Char field containing one of two values: 'Y' = True/Yes, 'N' = False/No.
LocalMktDate	Date of Local Market (vs. UTC) in YYYYMMDD format. Valid values: YYYY = 0000-9999, MM = 01-12, DD = 01-31.

### 2.2. Standard Header group

The standard header contained in every message contains.

Tag	Field name	Mandatory	Type	Details	Allowable values
8	BeginString	Y	String7	Specifies message start and protocol version.	= "FIX.4.4"
9	BodyLength	Y	Length	Message body length. Calculated in accordance with the standards.	
35	MsgType	Y	String10	The MsgType ID which is unique for every message.	

Tag	Field name	Mandatory	Type	Details	Allowable values
49	SenderCompID	Y	String64	Sender ID. The allowable values are specified by the exchange individually for every trading firm (broker firm).	
56	TargetCompID	Y	String	Recipient ID. (FIX-gate ID).	
34	MsgSeqNum	Y	SeqNum	Message sequential number.	
52	SendingTime	Y	UTCTimestamp	Message sending time.	
122	OrigSendingTime	N*	UTCTimestamp	Original message transmission time when resending messages in reply to resend request (message Resend Request (2)), in UTC. Mandatory if a message is sent in reply to resend request (message Resend Request (2)).	
97	PossResend	N	Boolean	Indicates the message containing some data which had been already sent with another sequential number.	
43	PossDupFlag	N	Boolean	Indicates the allowance for resending message using the same sequential number.	

## 2.3. Standard Trailer group

The standard trailer (end) which every message contains.

Tag	Field name	Mandatory	Type	Details
10	Checksum	Y	String3	Message checksum. For calculation method description see FIX, Volume 2: 'Checksum Calculation'.

## 2.4. Order Qty Data group

The group contains some quantity data.

Tag	Field name	Mandatory	Type	Detail	Allowable values
38	OrderQty	Y*	Int32	Instrument units quantity.	!=0

The 'OrderQty', 'LeavesQty' and 'LastQty' fields are used in:

- futures and options contracts;
- lots for the Standard instruments. The lot volume data appear in the 'ContractMultiplier' and 'Security Definition' messages as well as in the instrument specification on the web-site.

## 2.5. Parties group

The optional group 'Parties' contains the following values:

- Counterparty code, in case of negotiated order;
- Brokerage Firm code, in case of adding order with a Clearing Firm login.

The fields order is fixed.

Tag	Field name	Mandatory	Type	Details	Allowable values
453	NoPartyIDs	N	NumInGroup	Elements quantity in block.	Must be >= 1.
=> 448	PartyID	Y*	String64	Counterparty ID	<ul style="list-style-type: none"> <li>• 5-letter participant code</li> <li>• Client login in SPECTRA</li> <li>• BrokerCode</li> </ul>
=>447	PartyIDSource	Y*	char	PartyID source type	"C", Generally accepted market participant identifier

Tag	Field name	Mandatory	Type	Details	Allowable values
=>452	PartyRole	Y*	Int32	ID type.	<ul style="list-style-type: none"> <li>"1" (Executing Firm) - 5-letter order's owner code</li> <li>"3" (Client ID) - client login in SPECTRA</li> <li>"7" (EnteringFirm) - BrokerCode, used for adding orders via CF level logins.</li> <li>"17" (Contra Firm) - 5-letter counterparty code, used for adding negotiated orders</li> <li>"18" (Contra Clearing Firm) - counterparty firm SPECTRA ID in the OTC order</li> </ul>

## 2.6. Instrument group

The group contains instruments parameters.

Tag	Field name	Mandatory	Type	Details	Allowable values
55	Symbol	Y	String25	Instrument symbol ID.	Allowable codes are defined by the Exchange. Clients can transmit both 'shorts_isin' and 'isin' instrument codes in messages. The 'Execution Report' message sent via the gateway contains the instrument ID received from client. An 'Execution Report' message sent in reply to 'Order Status Request' contains 'N/A' in its field 'Symbol'.
461	CFICode	C*	Int32	Instrument class according to the ISO-10962 standard. Mandatory for options and multi-leg orders.	<ul style="list-style-type: none"> <li>FXXXXX – futures</li> <li>OXXXXX – option</li> <li>FMXXXS – calendar spread</li> </ul>
167	SecurityType	C*	Int32	Multi-leg instrument type. Mandatory in message 'New Order Single' when adding a multi-leg order.	<ul style="list-style-type: none"> <li>MLEG - calendar spread</li> </ul>

## 2.7. Instrument Leg group

The group contains legs parameters of a multi-leg instrument.

Tag	Field name	Mandatory	Type	Details	Allowable values
555	NoLegs	N	NumInGroup	Number of legs.	Must be = 2.
=> 600	LegSymbol	Y	String25	Symbol ID of a calendar spread futures.	
=> 623	LegRatioQty	N	Int32	Quantity ratio	
=> 624	LegSide	N	char	Direction	<ul style="list-style-type: none"> <li>'1' – buy</li> <li>'2' – sell</li> </ul>
=> 637	LegLastPrice	N	Price16.5	All legs price	

## 2.8. MiscFeesGrp\* group

The group contains fee data.

Tag	Field name	Mandatory	Type	Details	Allowable values
136	NoMiscFees*	N	NumInGroup	Number of elements in block.	Must be = 1.
=> 139	MiscFeeType*	Y*	Int32	Fee type.	"4" (Exchange Fees)



Tag	Field name	Mandatory	Type	Details	Allowable values
=> 137	MiscFeeAmt*	Y*	Price16.5	Fee amount.	

## 2.9. UndInstrmtGrp group

Tag	Field name	Mandatory	Type	Details	Allowable values
711	NoUnderlyings	N	NumInGroup	Number of elements in block.	Must be = 1.
884	UnderlyingStartValue	N	Price16.5	Repo first leg price	

## 2.10. Other fields

Most of the fields meets the FIX specification. There are some of the supported fix-messages fields below. The 'Allowable values' column shows supported range of values according to the FIX protocol specification. If a field is absent in the table, please follow the FIX4.4 directives.

Tag	Field name	Details	Allowable values
11	ClOrdID	User ID of the sent message.	Any string with unique ID for every 'SenderCompld'.
39	OrdStatus	Order status.	<ul style="list-style-type: none"> <li>• '0' New</li> <li>• '1' Partially filled</li> <li>• '2' Filled</li> <li>• '4' Canceled</li> <li>• '5' Replaced</li> <li>• '6' Pending Cancel</li> <li>• '8' Rejected</li> <li>• 'A' Pending New</li> <li>• "C" Expired</li> <li>• "E" Pending Replace</li> </ul>
44	Price	Price	Decimal number
54	Side	Direction	<ul style="list-style-type: none"> <li>• '1' - Buy</li> <li>• '2' - Sell</li> </ul>
59	TimInForce	Order type	<ul style="list-style-type: none"> <li>• '0' Day –Quote order (remains in queue after being partially matched).</li> <li>• '3' IOC – Immediate-or-Cancel order (cancelled if not immediately executed).</li> <li>• '4' FOK – Fill-or-Kill order.</li> <li>• '6' GTD – Good-to-Day order</li> </ul>
102	CxlRejReason	Reason for cancelling/modifying request rejection.	<ul style="list-style-type: none"> <li>• '0' Too late to cancel - The order has been already executed.</li> <li>• '1' Unknown order - Order not found.</li> <li>• '3' Order already in Pending Cancel or Pending Replace status.</li> <li>• '99' Other – Other reason.</li> </ul>
103	OrdRejReason	Reason for request rejection. Specified for 'Execution Report' with ExecType=8.	<ul style="list-style-type: none"> <li>• '1' Unknown symbol - Instrument not found.</li> <li>• '2' Exchange closed - Trading session is over.</li> <li>• '3' Order exceeds limit - Order exceeds the limits set.</li> <li>• '5' Unknown order - Order not found.</li> <li>• '6' Duplicate Order - Order ID already exists.</li> </ul>

Tag	Field name	Details	Allowable values
			<ul style="list-style-type: none"> <li>'99' Other - Other reason.</li> </ul>
150	ExecType	Order status report type (Execution Report).	<ul style="list-style-type: none"> <li>'0' New</li> <li>'3' Done for day</li> <li>'4' Canceled</li> <li>'5' Replaced</li> <li>'6' Pending Cancel</li> <li>'8' Rejected</li> <li>'C' Expired</li> <li>'E' Pending Replace</li> <li>'F' Trade</li> <li>'I' Order Status</li> </ul>
198	SecondaryOrderID	Additional order ID in the SPECTRA system.	<p>String:</p> <ul style="list-style-type: none"> <li>'F:Order ID in SPECTRA' - for futures or Standard instruments.</li> <li>'O:Order ID in SPECTRA' - for option instruments.</li> </ul>
373	SessionRejectReason	Message reject reason ID for the session layer.	<ul style="list-style-type: none"> <li>'0' – Incorrect tag.</li> <li>'1' – Mandatory field missing.</li> <li>'2' – Undefined tag for this message type.</li> <li>'3' – Undefined tag.</li> <li>'4' – Value missing for this tag.</li> <li>'5' – Incorrect value for this tag (vale limits exceeded).</li> <li>'6' – Incorrect data format for this value.</li> <li>'7' – Decoding error.</li> <li>'8' – Signature error.</li> <li>'9' – 'CompID' error.</li> <li>'10' – 'SendingTime' accuracy error.</li> <li>'11' – Incorrect message type.</li> <li>'12' – XML validation error.</li> <li>'13' – Tag already exists.</li> <li>'14' – Tags definition order error.</li> <li>'15' – Group fields definition order error.</li> <li>'16' – Group elements number calculation error ('NumInGroup').</li> <li>'17' – Non-data field contains separator.</li> <li>'99' - Other.</li> <li>'7100' – Messages limit exceeded.</li> <li>'7101' – System error.</li> </ul>
434	CxlRejResponseTo	Specifies request type where 'Order Cancel Reject' is reply.	<ul style="list-style-type: none"> <li>'1' – Order Cancel Request.</li> <li>'2' – Order Cancel/Replace Request.</li> </ul>

Tag	Field name	Details	Allowable values
530	MassCancelRequestType	Mass cancel request type.	<ul style="list-style-type: none"> <li>'1' – Cancel all orders for certain instrument.</li> <li>'8' or '9' – Cancel all orders in the certain market segment.</li> </ul>
531	MassCancelResponse	Trading system mass cancel response.	<ul style="list-style-type: none"> <li>'0' – Mass cancel request is rejected.</li> <li>'1' - All orders for certain instrument are cancelled.</li> <li>'8' or '9' – All orders in the certain market segment are cancelled.</li> </ul>
532	MassCancelRejectReason	Mass cancel reject reason.	'99' Other – Other reason.
1300	MarketSegmentID*	Market segment.	<ul style="list-style-type: none"> <li>'F' – Futures and Standard.</li> <li>'O' – Options.</li> </ul>
20008	Flags	Operation flags.	<p>Bits of the field 'Flags' in messages '4.1.1. New Order Single' and '4.1.4. Order Cancel/Replace Request':</p> <ul style="list-style-type: none"> <li>0x8 - Verify price limits for option contracts.</li> </ul> <p>Bits of the field 'Flags' in message '4.1.6. Execution Report':</p> <ul style="list-style-type: none"> <li>0x1 – Quote</li> <li>0x2 – Counter</li> <li>0x4 – OTC order.</li> <li>0x1000 – End-of-transaction bit.</li> <li>0x80000 – Fill-or-Kill order.</li> <li>0x100000 – The record is a result of moving the order.</li> <li>0x200000 – The record is a result of cancelling the order.</li> <li>0x400000 – The record is a result of mass canceling orders.</li> <li>0x20000000 – The record is a result of order last leg deletion due to a cross-trade.</li> </ul>

## 3. Session layer protocol

Session layer protocol which provides parties authentication, guaranteed messages delivery and sequential message processing, connection status and session recovery in case of any failure.

### 3.1. Supported messages

- **Logon** - Initiates session.
- **Logout** - Initiates or confirms session termination.
- **Heartbeat** - Ensures that session is up and running.
- **Test Request** - Used as part of session establishment procedure, must be replied with specific Heartbeat message.
- **Reject** – Informs party about incorrect or unknown message.
- **Resend Request** - Informs party that messages in particular range must be resent.
- **Sequence Reset** - Used to skip administrative messages on resend – 'Gap Fill mode'. Also used to reset messages sequence – 'Reset mode'.

All the messages can be sent in both directions.

#### 3.1.1. Logon

Initiates or confirms session start. This message must be the first in every session.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type 'A'.
98	EncryptMethod	Y	Int	Encryption method. Must be set to '0' – NONE_OTHER – no message encryption..
108	HeartBtInt	Y	Int	Heartbeat messages sending interval.
141	ResetSeqNumFlag	N	Boolean	Reset messages sequence for both parties.
<Trailer' group>		Y		

#### 3.1.2. Logout

Initiates or confirms session termination.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '5'.
58	Text	N	String	Reason for session termination
<Trailer' group>		Y		

#### 3.1.3. Heartbeat

Ensures that session is up and running. If the 'Heartbeat' message is sent in response to the 'Test Request' message, the 'TestReqID' field must contain the 'Test Request' message ID.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '0'.
112	TestReqID	N	String	Mandatory if sent in response to the 'Test Request' message.
<Trailer' group>		Y		

#### 3.1.4. Test Request

The message calls/initiates/requests the 'Heartbeat' message from the opposite party..

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '1'.

Tag	Field name	Mandatory	Type	Details
112	TestReqID	Y	String	Request message ID, returned in the 'Heartbeat' message.
<Trailer' group>		Y		

### 3.1.5. Reject

The reject message should be issued when a message is received but cannot be properly processed due to a session-level rule violation. An example of when a reject may be appropriate would be the receipt of a message with invalid basic data (e.g. MsgType=&) which successfully passes CheckSum and BodyLength checks.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '3'.
45	RefSeqNum	Y	SeqNum	Rejected message number.
371	RefTagID	N	Int	Invalid field number.
372	RefMsgType	N	String	Rejected message type.
373	SessionRejectReason	N	Int	Rejection reason ID.
58	Text	N	String	Rejection reason details.
<Trailer' group>		Y		

### 3.1.6. Resend Request

The message initiates resending of a particular message range. Use 'BeginSeqNo=EndSeqNo' for a single message resending and 'EndSeqNo=0' for a range of messages starting from the particular one (where '0' indicates infinity).

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '2'.
7	BeginSeqNo	Y	SeqNum	Number of the first message to resend.
16	EndSeqNo	Y	SeqNum	Number of the last message to resend.
<Trailer' group>		Y		

### 3.1.7. Sequence Reset

Used to skip administrative messages on resend – 'Gap Fill mode'. Also used to reset messages sequence – 'Reset mode'.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '4'.
123	GapFillFlag	N	Boolean	Mode: <ul style="list-style-type: none"> <li>'Y' - the 'Gap Fill' mode – the 'MsgSeqNum' field is used. If there are some administrative messages to be skipped, then the 'Sequence Reset' message is used for responding to the 'Resend Request' message.</li> <li>'N' - the 'Reset' mode - Messages sequence reset mode.</li> </ul>
16	NewSeqNo	Y	SeqNum	New sequence number.
<Trailer' group>		Y		

## 3.2. Session establishing and termination scenarios

### 3.2.1. Session establishing and termination

For establishing connection to FIX Gate a client must send the 'Logon' message including its 'SenderCompID'. If the 'Logon' message is valid and the sender was successfully authorized then FIX Gate sends the 'Logon' message in return, confirming that the connection has been successfully established.

For correct session termination, client must send the 'Logout' message to FIX Gate and receive one in return. Any other ways of session closing/termination are incorrect and may lead to an error.

Also, before sending the 'Logout' message it is recommended to send the 'Test Request' message to FIX Gate and receive the 'Heartbeat' message in return. This may help to avoid missing and/or lost messages.

When a connection has been established via FIX Gate, it is recommended to wait 30 seconds after closing the previous session before sending a new Logon message. Otherwise, the connection will be terminated by FIX Gate without any additional notifications.

### 3.2.2. Message resending request

During the initialization process or due to unexpected connection break there may be numeration error when the incoming message sequence number is greater than expected (while the common message number is always greater by 1 than that of the last message in log). In this case, a client must request the retransmission via sending the 'Resend Request' message including sequence number range for the missing messages (the 'BeginSeqNo', 'EndSeqNo' fields values).

### 3.2.3. Session status monitoring

The 'Heartbeat' message is used to monitor the FIX session status as well as gaps in messages sequence numbers in case of missing some incoming messages. In order to do this, the client application generates the 'Heartbeat' messages and sends it to FIX Gate in accordance with time interval specified by the 'HeartBtInt' field value in the 'Logon' Message.

If there is no reply from FIX Gate within the specified time interval (the 'HeartBtInt' field value + transmission time), the client should generate and send the 'Test Request' message to Fix Gate. In case of no reply within the specified time interval the client should reestablish connection to the FIX Gate.

### 3.2.4. Resetting message sequence

The following methods are used to reset message sequence:

- Sending the 'Logon' message with the 'ResetSeqNumFlag' flag.
- Sending the 'Sequence Reset' in the 'Reset mode' mode.
- By schedule. For example, message sequence can be automatically reset by the Exchange before starting a trading session.

After message sequence was reset, there is no more option to resend any message via the 'Resend Request' procedure.

### 3.2.5. Session recovery after failure

In order to recover session after failure, the client should send the 'Logon' message which includes the sequence number 1 more than that of the last message in log (the 'MsgSeqNum' field). If the incoming 'Logon' message sequence number is greater than expected, then the client must request the retransmission via sending the 'Resend Request' message including sequence number range for the missing messages.

If the primary FIX gate server is unreachable, the client is recommended to establish connection to the secondary server to continue working according to the rules stated above.

The primary and secondary servers do not synchronize message sequence numbers, so that a client will not be able to receive messages starting from the last received one once they have switched from one server to another. When trying to connect to another server, the client will receive a message with its sequence number less than expected. In this case, it is recommended to reset the message sequence number counter.

## 4. Trading interaction

### 4.1. Supported messages

- **New Order Single** – Request for generating a new trading order, sent from client to the FIX Gate server.
- **Order Cancel Request** – Order cancel request, sent from client to the FIX Gate server.
- **Order Mass Cancel Request** – Order mass cancel request, sent from client to the FIX Gate server.
- **Order Cancel/Replace Request** – Order replace request, sent from client to the FIX Gate server.
- **Order Status Request** – Order current status request, sent from client to the FIX Gate server.
- **Execution Report** – Order status data, sent from the FIX Gate server to client.
- **Order Cancel Reject** – Order cancel reject reason, sent from the FIX Gate server to client.
- **Order Mass Cancel Report** – Reply to the 'Order Mass Cancel Request' message, sent from the FIX Gate server to client.

#### 4.1.1. New Order Single

Adding new order for any type of instruments.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type 'D'.
60	TransactTime	Y	UTCTimestamp	Order sending time (UTC). Date format: YYYYM-MDD-HH:MM:SS.ssssssss
11	ClOrdID	Y	String20	User ID of the order.
20021	MatchRef	N	String10	Client ID of negotiated order. Client IDs are used to securely match negotiated orders.
40	OrdType	Y	char	Order type. Supported order type:'2' – Limit
<Instrument' group>		Y		
1	Account	Y*	String3	3-symbol client code.
59	TimeInForce	N	char	Order type. If the field is missing, then its value is set to '0' (quote order).
54	Side	Y	char	Order direction.
<OrderQtyData' group>		Y		
<UndInstrmtGrp' group>		N		Repo first leg price
44	Price	C	Price16.5	Order price. Mandatory for the type 2 orders ('OrdType'=2 (Limit)).
526	SecondaryClOrdID	N	String20	Comment field, added to orders and trades.
<Parties' group>		N		<ul style="list-style-type: none"> <li>• BrokerCode, used for adding orders via CF level logins. PartyID-Source=C (Generally accepted market participant identifier), Party-Role=7 (EnteringFirm).</li> <li>• 5-letter counterparty code, used for adding negotiated orders. PartyIDSource=C (Generally accepted market participant identifier) Party-Role=17 (Contra Firm).</li> </ul>
432	ExpireDate	C	LocalMktDate	Order expiration date. Date format: YYYYMMDD. Mandatory for the orders with 'TimeInForce'=6 (GTD).
1300	MarketSegmentID*	N	char	Market segment the order is specified for. If missing, then the market segment is specified in accordance with 'CFICode'.
20008	Flags	N	Int64	Flag bitmask: <ul style="list-style-type: none"> <li>• 0x8 – Verify price limits for option contracts.</li> </ul>
<Trailer' group>		Y		

#### 4.1.2. Order Cancel Request

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type 'F'.

Tag	Field name	Mandatory	Type	Details
<'Parties' group>		N		BrokerCode.
11	ClOrdID	Y	String20	User ID of the order.
37	OrderID	C*	Int64	Order ID to cancel in SPECTRA. Allowable values: >0. Mandatory, if the 'OrigClOrdID' field is missing.
41	OrigClOrdID	C*	String20	User ID of the order to cancel. Mandatory, if the 'OrderID' field is missing.
<'Instrument' group>		Y		
54	Side	Y	char	Order direction.
60	TransactTime	Y	UTCTimestamp	Order sending time (UTC). Date format: YYYYM-MDD-HH:MM:SS.ssssssss
<'OrderQtyData' group>		Y		
<'Trailer' group>		Y		

#### 4.1.3. Order Mass Cancel Request

Tag	Field name	Mandatory	Type	Details
<'Header' group>		Y		Message type 'q'.
<'Parties' group>		N		BrokerCode.
11	ClOrdID	Y	String20	User ID of the order.
530	MassCancelRequestType	Y	char	Mass cancel request type.
1300	MarketSegmentID	Y*	char	Market segment to search orders to cancel.
54	Side	N	char	Order type by direction: <ul style="list-style-type: none"> <li>'1' – Buy orders.</li> <li>'2' – Sell orders.</li> <li>'Y' – All orders.</li> <li>'Z' – All no limit orders.</li> </ul> If the field is missing in the incoming message, all orders will be canceled ('Y' value).
1	Account*	Y	String3	Client account ID. If the 'Account' parameter is not specified or equal to '%%%', then all orders for all client accounts will be canceled. It is reasonable to set the value '%%%' for BF and/or CF logins only.
<'Instrument' group>		C*		Instrument ID. Mandatory, if 'MassCancelRequestType'=1.
60	TransactTime	Y	UTCTimestamp	Order sending time (UTC). Date format: YYYYM-MDD-HH:MM:SS.ssssssss
<'Trailer' group>		Y		

#### 4.1.4. Order Cancel/Replace Request

Order price/volume replace request.

Tag	Field name	Mandatory	Type	Details
<'Header' group>		Y		Message type 'G'.
<'Parties' group>		N		BrokerCode.
11	ClOrdID	Y	String20	User ID of the price/volume replace order.
37	OrderID	C*	Int64	Order ID to replace in SPECTRA. Allowable values: >0. Mandatory, if the 'OrigClOrdID' field is missing.
41	OrigClOrdID	C*	String20	User ID of the order to cancel. Mandatory, if the 'OrderID' field is missing.
<'OrderQtyData' group>		Y		New instrument quantity for the first order.
44	Price	C	Price16.5	New price for the first order. Mandatory for orders where 'OrdType'=2 (Limit).
<'Instrument' group>		Y		



Tag	Field name	Mandatory	Type	Details
54	Side	Y	char	Order direction.
60	TransactTime	Y	UTCTimestamp	Order sending time (UTC). Date format: YYYYM-MDD-HH:MM:SS.ssssssss
20008	Flags	N	Int64	Flag bitmask: <ul style="list-style-type: none"> <li>• 0x8 – Verify price limits for option contracts</li> </ul>
<Trailer' group>		Y		

#### 4.1.5. Order Status Request

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type 'H'.
11	ClOrdID	C*	String20	Client ID of the requested order. Mandatory if OrderID is missing. Allowable values: > 0.
37	OrderID	C*	Int64	Order ID in the SPECTRA system. Mandatory if ClOrdID is missing. Allowable values: >0.
<Instrument' group>		Y		
54	Side	Y	char	Order direction.
790	OrdStatusReqID	N	String64	Can be used for the status request message identification. The value is returned via the 'Execution Report' message.
<Trailer' group>		Y		

#### 4.1.6. Execution Report

Order status change report. The message is sent as a reply when:

- Order was successfully added;
- Order was rejected;
- Order was successfully canceled;
- Order current status was requested;
- Order current status request was rejected;
- Order was replaced;
- Multi-day order was relisted;
- Order was executed.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '8'.
11	ClOrdID	Y*	String20	User ID of the order sent.
41	OrigClOrdID	N	String20	User ID of the order to be canceled/replaced.
150	ExecType	Y	char	Report type.
39	OrdStatus	Y	char	Order status.
17	ExecID	Y	String64	Unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID in SPECTRA.
198	SecondaryOrderID	N	String64	Order secondary ID.
336	TradingSessionID	N	Int32	Trading session ID.
1	Account	N	String7	7-symbol client account code.
60	TransactTime	N	UTCTimestamp	Order status changing time/Reply sending time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss. The field is not transmitted if OrdStatus=6 (Pending Cancel) or OrdStatus=E (Pending Replace). The field is not transmitted in response to an order status request.

Tag	Field name	Mandatory	Type	Details
<'Instrument' group>		Y		
54	Side	Y	char	Direction.
44	Price	C	Price16.5	Price. If 'ExecType'=F (Trade), then Price=0.
32	LastQty	C	Int32	Instrument quantity in trade. Specified for 'Execution Report' with 'ExecType'=F (Trade).
<'OrderQtyData' group>		Y*		
151	LeavesQty	Y	Int32	Volume left.
14	CumQty	Y	Int32	Total instrument units quantity bought or sold via the order.
6	AvgPx	Y	Price16.5	Trade average price via the order.
103	OrdRejReason	N	Int32	Request rejection reason. Specified for 'Execution Report' where 'ExecType'=8 (Rejected).
58	Text	N	String255	Message text.
790	OrdStatusReqID	N	String64	Order status request ID. Specified for 'Execution Report' where 'ExecType'=I (Order Status).
526	SecondaryClOrdID	N	String20	Comment.
<'Parties' group>		N		Used for the OTC order reports.
527	SecondaryExecID	N	Int64	Trade ID. Specified for 'Execution Report' where 'ExecType'=F (Trade).
880	TrdMatchID	N	Int64	Trade ID. Specified for 'Execution Report' where 'ExecType'=F (Trade) for multi-leg trades.
31	LastPx	C	Price16.5	Matched trade price. Specified for 'Execution Report' where 'ExecType'=F (Trade).
<'MiscFeesGrp' group>		N		Trade fee. Specified for 'Execution Report' where 'ExecType'=F (Trade).
<'Instrument Leg' group>		N		Specified for 'Execution Report' where 'ExecType'=F (Trade) for multi-leg trades.
432	ExpireDate	C	LocalMktDate	Order expiration date. Specified for the orders with 'TimeInForce'=6 (GTD).
922	EndCash	N	Price16.5	Buy-back amount. Specified for 'Execution Report' where 'ExecType'=F (Trade) for multi-leg trades.
20008	Flags	N	Int64	Operation flags.
40	OrdType	N	char	Order type. '2' – Limit
20018	Revision	N	Int64	Service field, replication system.
378	ExecRestatementReason	N	Int32	Order cancellation reason. Applied when order was cancelled by the Trading System. '100' – Cancelled via Cancel on Disconnect.
<'Trailer' group>		Y		

#### 4.1.7. Order Cancel Reject

Tag	Field Name	Mandatory	Type	Details
<'Header' group>		Y		Message type '9'.
37	OrderID	Y	Int64	Order ID in SPECTRA.
198	SecondaryOrderID	N	String64	Secondary order ID.
11	ClOrdID	Y	String20	User ID of the order cancel command.
41	OrigClOrdID	Y	String20	User ID of the order to be canceled/replaced.
39	OrdStatus	Y	char	Order current status.
434	CxlRejResponseTo	Y	char	Specifies the request type which caused the 'Order Cancel Reject' message.
102	CxlRejReason	N	Int32	Order cancel/replacing rejection reason.
58	Text	N	String255	Message text.
60	TransactTime	N	UTCTimestamp	Reply sending time. Date format: YYYYMMDD-HH:MM:SS.ssssssss
20018	Revision	N	Int64	Service field, replication system.

Tag	Field Name	Mandatory	Type	Details
<Trailer' group>		Y		

#### 4.1.8. Order Mass Cancel Report

Order mass cancel report (successful/ unsuccessful).

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type 'r'.
11	ClOrdID	Y*	String20	User ID of the order mass cancellation request.
37	OrderID	Y	Int64	Unique ID generated by FIX Gate for every outgoing 'Order Mass Cancel Report' message.
530	MassCancelRequestType	Y	char	Mass cancel request type.
531	MassCancelResponse	Y	char	Mass cancel response by the trading system.
532	MassCancelRejectReason	C	Int32	Mass cancel rejection reason. Mandatory if 'MassCancelResponse'=0 (Reject).
533	TotalAffectedOrders	N	Int32	Number of orders cancelled.
58	Text	N	String255	Message text.
60	TransactTime	N	UTCTimestamp	Reply sending time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss
20018	Revision	N	Int64	Service field, replication system.
<Parties' group>		N		Broker code.
<Trailer' group>		Y		

## 4.2. Trading interaction scenarios

### 4.2.1. Adding order

Most of the orders are accepted by the trading system without any additional condition.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order into the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3...n		<b>ExecutionReport</b> , ExecType=F(Trade), OrdStatus=2(Filled) or OrdStatus=1(PartiallyFilled)	The system returns the trade parameters and its status (fully/partially filled). Therefore, the 'ExecutionReport' message containing the order status can be sent several times.

Also, the order can be rejected by the system.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2		<b>ExecutionReport</b> , ExecType=8(Rejected), OrdStatus=8(Rejected)	The system rejects the order adding the reason for rejection.

An order containing TimeInForce=3(IOC) can be completely matched, cancelled or partly matched with its leftover part cancelled.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order into the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3		<b>ExecutionReport</b> , ExecType=F(Trade), OrdStatus=2(Filled)	The message transmits the trade parameters and indicates that the order has been completely matched.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order into the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3		<b>ExecutionReport</b> , ExecType=F(Trade), OrdStatus=1(PartiallyFilled)	The message transmits the trade parameters and indicates that the order is partially matched.
4		<b>ExecutionReport</b> , ExecType=4(Canceled), OrdStatus=4(Canceled)	The message indicates that the order's leftover part has been cancelled.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order into the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3		<b>ExecutionReport</b> , ExecType=4(Canceled), OrdStatus=4(Canceled)	The message indicates that the order' has been cancelled.

#### 4.2.2. Cancelling order

A successfully placed order can be cancelled by client by using either its 'OrderID' or 'OrigClOrdID' (an ID specified by the client).

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order into the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3...n		<b>ExecutionReport</b> , ExecType=F(Trade), OrdStatus=1(PartiallyFilled)	The order can be partially filled. Therefore, the 'ExecutionReport' message containing the order status can be sent several times.
n+1	<b>OrderCancelRequest</b>		The client sends the order cancel request.
n+2		<b>ExecutionReport</b> , ExecType=6(PendingCancel), OrdStatus=6(PendingCancel)	The system confirms receiving of the order cancel request.
n+3		<b>ExecutionReport</b> , ExecType=4(Canceled), OrdStatus=4(Canceled)	The system returns the order cancel confirmation.

If the order has been already cancelled or filled, the cancel request will be rejected by the system.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New),	The system sends the order adding confirmation.
3	<b>OrderCancelRequest</b>		The client sends the order cancel request.
4		<b>ExecutionReport</b> , ExecType=F(Trade), OrdStatus=2(Filled)	The order has been fully filled.
5		<b>OrderCancelReject</b> , CxlRejReason=0(Too late to cancel), OrdStatus=2(Filled)	The system rejects order cancel request adding the reason for rejection along with the order current status report.

If the selected order is already being added, cancelled or replaced, the cancellation request will be also rejected by the system.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2	<b>OrderCancelRequest</b>		The client sends the order cancel request.
3		<b>OrderCancelReject</b> , CxlRejReason=3(Order already in	The system rejects order cancel request adding the reason for rejection along with the order current status report.

Step	Client	FIX Gate	Details
		PendingCancel or PendingReplace status), OrdStatus=A(PendingNew)	

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system confirms receiving of the order.
3	<b>OrderCancelRequest</b>		The client sends the order cancel request.
4		<b>OrderCancelReject</b> , CxlRejReason=3(Order already in PendingCancel or PendingReplace status), OrdStatus=6(PendingCancel) or OrdStatus=E(PendingReplace)	The system rejects order cancel request adding the reason for rejection along with the order current status report.

### 4.2.3. Order mass cancel

The 'Execution Report' message is sent for every order canceled due to the mass cancel request ('Order Cancel Reject' if the cancel request was rejected). After that, the system sends the 'Order Mass Cancel Report' message containing the mass cancel report .

Step	Client	FIX Gate	Details
1	<b>OrderMassCancelRequest</b>		The client sends the mass cancel request.
2		<b>ExecutionReport</b> , ExecType=4(Canceled), OrdStatus=4(Canceled)	Order cancel confirmation message.
3		<b>ExecutionReport</b> , ExecType=4(Canceled), OrdStatus=4(Canceled)	Order cancel confirmation message.
4		<b>ExecutionReport</b> , ExecType=4(Canceled), OrdStatus=4(Canceled)	Order cancel confirmation message.
5		<b>OrderMassCancelReport</b>	Order mass cancel report message.

### 4.2.4. Replacing

Clients can modify the order price/volume values by using either 'OrderID' or 'OrigClOrdID' (an ID specified by the client).

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3...n		<b>ExecutionReport</b> , ExecType=F(Trade), OrdStatus=1(PartiallyFilled)	The order can be partially filled. Therefore, the 'ExecutionReport' message can be sent several times.
n+1	<b>OrderCancel/ReplaceRequest</b>		The client sends order replacement request.
n+2		<b>ExecutionReport</b> , ExecType=E(PendingReplace), OrdStatus=E(PendingReplace)	The system confirms receiving of the order replacement request.
n+3		<b>ExecutionReport</b> , ExecType=5(Replaced), OrdStatus=0(New) or 1(Partially-Filled)	The system sends the order replacement confirmation message.

If the order has been already cancelled or filled, the replacement request will be rejected by the system.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New),	The system sends the order adding confirmation.

Step	Client	FIX Gate	Details
3	<b>OrderCancel/ReplaceRequest</b>		The client sends order replacement request.
4		<b>ExecutionReport</b> , ExecType=F(Trade), OrdStatus=2(Filled)	The order has been fully filled.
5		<b>OrderCancelReject</b> , CxlRejReason=0(Too late to cancel), OrdStatus=2(Filled)	The system rejects order replacement request adding the reason for rejection along with the order current status report.

If the selected order is already being added, cancelled or replaced, the cancellation request will be also rejected by the system.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2	<b>OrderCancel/ReplaceRequest</b>		The client sends order replacement request.
3		<b>OrderCancelReject</b> , CxlRejReason=3(Order already in PendingCancel or PendingReplace status), OrdStatus=A(PendingNew)	The system rejects order replacement request adding the reason for rejection along with the order current status report.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3	<b>OrderCancel/ReplaceRequest</b>		The client sends order replacement request.
4		<b>OrderCancelReject</b> , CxlRejReason=3(Order already in PendingCancel or PendingReplace status), OrdStatus=6(PendingCancel) or OrdStatus=E(PendingReplace)	The system rejects order replacement request adding the reason for rejection along with the order current status report.

If a message **OrderCancel/ReplaceRequest** sent from the client side contains a value in field OrderQty which is equal or less than that of the field CumQty (the total number of trades matched), then the message **OrderCancel/ReplaceRequest** indicates the client side's intention to cancel the leftover part of the order.

Step	Client	FIX Gate	Details
1	<b>NewOrderSingle</b>		The client sends a new order to the trading system.
2		<b>ExecutionReport</b> , ExecType=0(New), OrdStatus=0(New)	The system sends the order adding confirmation.
3	<b>OrderCancel/ReplaceRequest</b>		The client sends order replacement request.
4		<b>ExecutionReport</b> , ExecType=5(Replaced), OrdStatus=2(Filled)	The system confirms order cancellation. OrdStatus=2(Filled) sends out in accordance with specifications provided in sections C.3.b and C.3.c of vol. 4 of the FIX 4.4 protocol specification guidelines.

#### 4.2.5. Order current status request

Clients can request order current status report by using its 'ClOrdID'.

Step	Client	FIX Gate	Details
1	<b>OrderStatusRequest</b>		The client sends an order current status request .
2		<b>ExecutionReport</b> , ExecType=l(OrderStatus)	The system sends the order current status report.
2		<b>ExecutionReport</b> , ExecType=l(OrderStatus), OrdStatus=8(Rejected), OrdRejReason=5(UnknownOrder)	The system reply if the order is not found.

#### 4.2.6. Relisting multi-days orders

Multi-day orders are the orders with a fixed expiration date. Such orders will be automatically relisted for the next trading session, with a new number, and with a reference to the client order ID (field 'ClOrdID') taken from the last trading session. Upon relisting an order, the trading system verifies the instrument and the client availability, and the funds sufficiency. In case of a negative result, the order will be rejected.

The multi-day orders are relisted during the Evening clearing session. After an order has been successfully relisted, the clients will receive the messages 'Execution Report', 'ExecType=0(New)', 'OrdStatus=0(New)' (adding a new order). If an order has been rejected by the system, the clients will receive the messages 'Execution Report', 'ExecType=8(Rejected)', 'OrdStatus=8(Rejected)'.

On the expiration date, a multi-day order will be automatically cancelled after closing the Evening trading session.

#### 4.2.7. Execution Reports broadcast for the DAY type orders

After the main trading session ends, the 'DAY' type orders (expiring upon the end of trading session) are cancelled. The 'Execution Report' are sent to clients, where 'ExecType'=C(Expired), 'OrdStatus'=C(Expired).

### 4.3. Abnormal activity control

There is the abnormal activity control system within FIX Gate, which disallows users to send more messages (within the same fix-session) than it is specified in the connection request. Now, the limitations are 30, 60, 90, etc. trading operations ('New Order Single', 'Order Cancel Request', 'Order Cancel/Replace Request', 'Mass Cancel Request') per 1 second. For all other operations (excluding the session layer messages) the limitation is 500 operations per 1 second.

If the sending limit is exceeded, the client receives the 'Reject' message containing the rejection notification.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type '3'.
45	RefSeqNum	Y	SeqNum	Rejected message number.
372	RefMsgType	N	String10	Rejected message type.
373	SessionRejectReason	N	Int32	=7100 (Flood control)
58	Text	N	String255	Reason for rejection. The error text is formatted as: "penalty_remain=%d;queue_size=%d;message=%s", where <ul style="list-style-type: none"> <li>• penalty_remain – time interval in milliseconds before sending the next sending attempt.</li> <li>• queue_size – number of messages from a single user;</li> <li>• message – message text.</li> </ul>
<Trailer' group>		Y		

Every time a new message received, the number of messages for the last second is calculated anew. Therefore, if a client repeatedly sends more requests per second with the frequency greater than it is allowed, then his messages won't be processed at all.

### 4.4. Error processing

In case of any error in message delivery and processing (on the system layer), the client ID can receive either a message sending error or a reply 'system error' message.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		
45	RefSeqNum	Y	SeqNum	Rejected message number.
372	RefMsgType	N	String10	Rejected message type.
373	SessionRejectReason	N	Int32	=7101 (System error)
58	Text	N	String255	Reason for rejection. Text is formatted as: 'code=%d;message=%s'.
<Trailer' group>		Y		

In case of a failure in communication between the gateway and the trading system, FIX Gate stops processing of client orders and sends along with sending them the 'Business Message Reject' messages in reply.

Tag	Field name	Mandatory	Type	Details
<Header' group>		Y		Message type 'j'.

Tag	Field name	Mandatory	Type	Details
45	RefSeqNum	Y	SeqNum	Rejected message number.
372	RefMsgType	N	String10	Rejected message type.
380	BusinessRejectReason	N	Int32	=4 (Application not available)
58	Text	N	String255	'Application not available'
<Trailer group>		Y		

If the 'Logon' or any other trading message from client contains an incorrect value in the 'SenderCompID' or 'TargetCompID' fields, then FIX Gate sends a 'Logout' type message in respond and terminates the session.

Tag	Field name	Mandatory	Type	Details
<Header group>		Y		Message type '5'.
58	Text	N	String255	'FIX protocol violation'
<Trailer group>		Y		

## 4.5. Automatic order cancellation option (Cancel On Disconnect)

The trading system includes a client connection control feature ('Cancel On Disconnect' or 'COD'). This option allows to automatically cancel some client's orders (anonymous orders without specified expiration time) on disconnect.

To enable/disable the 'COD' option, a trading participant should apply the appropriate request to the Client Center. The 'COD' option will be enabled for the ID (p2login) belonging to the trading participant.

When an ID connects to the trading system having the 'Cancel On Disconnect' option enabled, the trading system starts to monitor its connection activity in the 'COD' mode.

The connection activity monitoring algorithm is as following:

- If the 'COD' mode is enabled for the client, the system monitors the client's activity on transaction level via messages sent by the client side.
- The client side specifies a 'HeartBtInt' value in the message 'Logon'. Therefore, if the client side has not sent any messages within the time interval from  $2 * \text{HeartBtInt}$  up to  $3 * \text{HeartBtInt}$ , or the client side has lost its connection to the FIX Gate, all their active orders will be cancelled automatically.

Order cancellation conditions are as following:

- The FIX-session was closed by client via 'Logout' command. Orders will be cancelled on disconnect.
- FIX user has lost connection to FIX-server or become unable to operate properly due to an error. Once the connection loss has been detected, all orders will be cancelled.
- FIX user has been disconnected due to FIX heartbeats timeout (specified at FIX Logon). Orders will be cancelled on disconnect.
- There may occur an issue when FIX server or an API clients access server connected to the Trading System via gateway becomes unable to operate properly: it loses connections to a client but does not inform the Trading System about it. The Trading System cannot handle such issues; if occurs, the issue should be resolved on the client side.

All orders added by clients with COD-mode enabled are cancelled when the evening trading session ends and when the Trading System has been restored after a failure.

Every time the 'COD' cancels an order, the Trading System sends message 'Execution Report' to the client, where ExecType=4(Canceled), OrdStatus=4(Canceled), ExecRestatementReason=100 (Cancelled via 'Cancel On Disconnect').



## 5. Drop Copy service

**Drop Copy** is a service which allows clients to obtain order status messages along with trading messages themselves for Clearing Firms, Brokerage Firms or for specified clients accounts passed either through FIX Gate, Plaza-2 Gate, or Wire Gate (TWIME).

The service does not translate the status 'Pending' and reports for rejected trades on all layers excluding the clearing layer.

Each **Drop Copy** client is provided with the separate FIX login, which is not valid for making trading operations.

There are two ways of translation are available according to the client's settings:

- translation of trades
- translation of order status and trades

### 5.1. Session layer

The **Drop Copy** service session layer is equal to that of the standard FIX session, i. e. clients are connected to and authenticated by the **Drop Copy** server using the standard methods, with possibility to exchange the 'Heartbeat' messages and make the 'Resend Request' requests.

### 5.2. Trades broadcast

Trades are broadcasted using the 'Execution Report' messages.

#### 5.2.1. Common instruments trades

Tag	Field name	Mandatory	Type	Details
<Group 'Header'>		Y		Message type '8'.
11	ClOrdID	Y*	String20	Order user's ID
583	ClOrdLinkID	N	String10	External ID
150	ExecType	Y	char	=F(Trade)
39	OrdStatus	Y	char	=2(Filled) or =1(PartiallyFilled)
17	ExecID	Y	String64	The unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID in SPECTRA.
198	SecondaryOrderID	N	String64	Order secondary ID.
336	TradingSessionID	N	Int32	Trading session ID.
1	Account	N	String7	Client account ID.
60	TransactTime	N	UTCTimestamp	Order status change time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss.
<Group 'Instrument'>		Y		Unique instrument ID.
54	Side	Y	char	Operation direction.
44	Price	C	Price16.5	=0
<Group 'OrderQtyData'>		N		OrderQty=0
151	LeavesQty	Y	Int32	=0
14	CumQty	Y	Int32	=0
32	LastQty	C	Int32	Instrument quantity in trade.
<Group 'Parties'>		N		User login.
527	SecondaryExecID	N	Int64	Trade ID.
31	LastPx	C	Price16.5	Trade price.
<Group 'MiscFeesGrp'>		N		Trade fee.
377	SolicitedFlag	N	Boolean	= 'N' (Was not solicited)
797	CopyMsgIndicator	N	Boolean	= 'Y'
<Group 'Trailer'>		Y		

#### 5.2.2. Multi-leg instruments trades

Tag	Field name	Mandatory	Type	Details
<Group 'Header'>		Y		Message type '8'.

Tag	Field name	Mandatory	Type	Details
11	ClOrdID	Y*	String20	Order user's ID
583	ClOrdLinkID	N	String10	External ID
150	ExecType	Y	char	=F(Trade)
39	OrdStatus	Y	char	=2(Filled) or =1(PartiallyFilled)
17	ExecID	Y	String64	The unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID in SPECTRA.
198	SecondaryOrderID	N	String64	Secondary order ID.
336	TradingSessionID	N	Int32	Trading session ID
1	Account	N	String7	Client account ID.
60	TransactTime	N	UTCTimestamp	Order status change time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss.
<Group 'Instrument'>		Y		Unique instrument ID.
54	Side	Y	char	Operation direction.
44	Price	C	Price16.5	=0
<Group 'OrderQtyData'>		N		OrderQty=0
151	LeavesQty	Y	Int32	=0
14	CumQty	Y	Int32	=0
32	LastQty	C	Int32	Instrument quantity in trade.
<Group 'Parties'>		N		User ID.
527	SecondaryExecID	N	Int64	Trade ID.
31	LastPx	C	Price16.5	Trade price
<Group 'MiscFeesGrp'>		N		Trade fee
<Group 'Instrument Leg'>		N		Near leg trade price
<Group 'Instrument Leg'>		N		Far leg trade price
922	EndCash	N	Price16.5	Buy-back amount
377	SolicitedFlag	N	Boolean	= 'N' (Was not solicited)
797	CopyMsgIndicator	N	Boolean	= 'Y'
<Group 'Trailer'>		Y		

## 5.3. Translation of order reports and trades

Order reports and trades are translated by sending messages 'Execution Report' to clients.

### 5.3.1. Adding order

Tag	Field name	Mandatory	Type	Details
<Group 'Header'>		Y		Message type '8'.
11	ClOrdID	Y*	String20	Client's order ID.
583	ClOrdLinkID	N	String10	External ID
150	ExecType	Y	char	=0(New)
39	OrdStatus	Y	char	=0(New)
17	ExecID	Y	String64	The unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID within SPECTRA. The prefix 'DC:F:' stays for futures or multi-leg instruments. The prefix 'DC:O:' stays for option contracts.
198	SecondaryOrderID	N	String64	Additional order ID. The prefix 'F:' stays for futures or multi-leg instruments. The prefix 'O:' stays for option contracts.
336	TradingSessionID	N	Int32	Trading session ID.
1	Account	N	String7	Client account code.

Tag	Field name	Mandatory	Type	Details
60	TransactTime	N	UTCTimestamp	Order status change time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss.
<Group 'Instrument'>		Y		Instrument's unique ID.
54	Side	Y	char	Operation direction.
44	Price	C	Price16.5	Price.
<Group 'OrderQtyData'>		Y*		
151	LeavesQty	Y	Int32	Order amount left to be exercised.
14	CumQty	Y	Int32	Total quantity of instruments bought or sold by the order.
6	AvgPx	Y	Price16.5	=0
526	SecondaryClOrdID	N	String20	Comment.
<Group 'Parties'>		N		
40	OrdType	Y	char	=Limit
<Group 'Trailer'>		Y		

### 5.3.2. Deleting order

Tag	Field name	Mandatory	Type	Details
<Group 'Header'>		Y		Order type '8'.
11	ClOrdID	Y*	String20	Client's order ID.
583	ClOrdLinkId	N	String10	External ID
41	OrigClOrdID	N	String20	Client's ID of canceled/replaced order.
150	ExecType	Y	char	=4(Canceled)
39	OrdStatus	Y	char	=4(Canceled)
17	ExecID	Y	String64	The unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID within SPECTRA. The prefix 'DC:F:' stays for futures or multi-leg instruments. The prefix 'DC:O:' stays for option contracts.
198	SecondaryOrderID	N	String64	Additional order ID. The prefix 'F:' stays for futures or multi-leg instruments. The prefix 'O:' stays for option contracts.
336	TradingSessionID	N	Int32	Trading session ID.
1	Account	N	String7	Client account code.
60	TransactTime	N	UTCTimestamp	Order status change time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss.
<Group 'Instrument'>		Y		Instrument's unique ID.
54	Side	Y	char	Operation direction.
44	Price	C	Price16.5	Price.
<Group 'OrderQtyData'>		Y*		
151	LeavesQty	Y	Int32	=0
14	CumQty	Y	Int32	Total quantity of instruments bought or sold by the order.
6	AvgPx	Y	Price16.5	=0
526	SecondaryClOrdID	N	String20	Comment.
<Group 'Parties'>		N		
40	OrdType	Y	char	=Limit
<Group 'Trailer'>		Y		

### 5.3.3. Moving order

Tag	Field name	Mandatory	Type	Details
<Group 'Header'>		Y		Order type '8'.
11	ClOrdID	Y*	String20	Client's order ID.

Tag	Field name	Mandatory	Type	Details
583	ClOrdLinkID	N	String10	External ID
41	OrigClOrdID	N	String20	Client's ID of canceled/replaced order.
150	ExecType	Y	char	=5(Replaced)
39	OrdStatus	Y	char	=0(New)
17	ExecID	Y	String64	The unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID within SPECTRA. The prefix 'DC:F:' stays for futures or multi-leg instruments. The prefix 'DC:O:' stays for option contracts.
198	SecondaryOrderID	N	String64	Additional order ID. The prefix 'F:' stays for futures or multi-leg instruments. The prefix 'O:' stays for option contracts.
336	TradingSessionID	N	Int32	Trading session ID.
1	Account	N	String7	Client account code.
60	TransactTime	N	UTCTimestamp	Order status change time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss.
<Group 'Instrument'>		Y		Instrument's unique ID.
54	Side	Y	char	Operation direction.
44	Price	C	Price16.5	Price.
<Group 'OrderQtyData'>		Y*		
151	LeavesQty	Y	Int32	Order quantity left to be exercised.
14	CumQty	Y	Int32	Total amount of instruments bought or sold by the order.
6	AvgPx	Y	Price16.5	=0
526	SecondaryClOrdID	N	String20	Comment.
<Group 'Parties'>		N		
40	OrdType	Y	char	=Limit
<Group 'Trailer'>		Y		

### 5.3.4. Common instruments trades

Tag	Field name	Mandatory	Type	Details
<Group 'Header'>		Y		Order type '8'.
11	ClOrdID	Y*	String20	Client's order ID.
583	ClOrdLinkID	N	String10	External ID
150	ExecType	Y	char	=F(Trade)
39	OrdStatus	Y	char	=2(Filled) or =1(PartiallyFilled)
17	ExecID	Y	String64	The unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID within SPECTRA. The prefix 'DC:F:' stays for futures or multi-leg instruments. The prefix 'DC:O:' stays for option contracts.
198	SecondaryOrderID	N	String64	Additional order ID. The prefix 'F:' stays for futures or multi-leg instruments. The prefix 'O:' stays for option contracts.
336	TradingSessionID	N	Int32	Trading session ID.
1	Account	N	String7	Client account code.
60	TransactTime	N	UTCTimestamp	Order status change time. Date format: YYYYM-MDD-HH:MM:SS.ssssssss.
<Group 'Instrument'>		Y		Instrument's unique ID.
54	Side	Y	char	Operation direction.
44	Price	C	Price16.5	=0
<Group 'OrderQtyData'>		Y*		
151	LeavesQty	Y	Int32	Order amount left to be exercised.
14	CumQty	Y	Int32	Total quantity of instruments bought or sold by the order.

Tag	Field name	Mandatory	Type	Details
32	LastQty	C	Int32	Instrument quantity in order.
<Group 'Parties'>		N		Login.
527	SecondaryExecID	N	Int64	Trade ID.
31	LastPx	C	Price16.5	Matched trade price.
<Group 'MiscFeesGrp'>		N		Trade fee.
377	SolicitedFlag	N	Boolean	= 'N' (Was not solicited)
797	CopyMsgIndicator	N	Boolean	= 'Y'
526	SecondaryClOrdID	N	String20	Comment.
<Group 'Trailer'>		Y		

### 5.3.5. Multi-leg instruments trades

Tag	Field name	Mandatory	Type	Details
<Group 'Header'>		Y		Order type '8'.
11	ClOrdID	Y*	String20	Client's order ID.
583	ClOrdLinkID	N	String10	External ID
150	ExecType	Y	char	=F(Trade)
39	OrdStatus	Y	char	=2(Filled) or =1(PartiallyFilled)
17	ExecID	Y	String64	The unique ID generated by FIX Gate for every outgoing 'Execution Report' message.
37	OrderID	Y	Int64	Order ID within SPECTRA. The prefix 'DC:F:' stays for futures or multi-leg instruments. The prefix 'DC:O:' stays for option contracts.
198	SecondaryOrderID	N	String64	Additional order ID. The prefix 'F:' stays for futures or multi-leg instruments. The prefix 'O:' stays for option contracts.
336	TradingSessionID	N	Int32	Trading session ID.
1	Account	N	String7	Client account code.
60	TransactTime	N	UTCTimestamp	Order status change time. Date format: YYYYMMDD-HH:MM:SS.ssssssss.
<Group 'Instrument'>		Y		Instrument's unique ID.
54	Side	Y	char	Operation direction.
44	Price	C	Price16.5	=0
<Group 'OrderQtyData'>		Y*		
151	LeavesQty	Y	Int32	Order amount left to be exercised.
14	CumQty	Y	Int32	Total quantity of instruments bought or sold by the order.
32	LastQty	C	Int32	Instrument quantity in order.
<Group 'Parties'>		N		Login.
527	SecondaryExecID	N	Int64	Trade ID.
31	LastPx	C	Price16.5	Matched trade price.
<Group 'MiscFeesGrp'>		N		Trade fee.
<Group 'Instrument Leg'>		N		Near leg trade price.
<Group 'Instrument Leg'>		N		Far leg trade price.
922	EndCash	N	Price16.5	Buy-back amount.
377	SolicitedFlag	N	Boolean	= 'N' (Was not solicited)
797	CopyMsgIndicator	N	Boolean	= 'Y'
526	SecondaryClOrdID	N	String20	Comment.
<Group 'Trailer'>		Y		