



# **FIX Specification for Datatec Systems**

## **SET ICAP: Set-FX**

**Version 3.82**

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# 1. Document History

Date	Author	Description
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2017-05-03	Benito Velasco	Version 2.00: Improvements and corrections.
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2019-07-12	Alexe Bahamonde Benito Velasco	Version 3.80: Add the optional MiscFeesGrp component to ExecutionReport(35=8) and TradeCaptureReport(35=AE) messages to send VAT amounts for some markets.

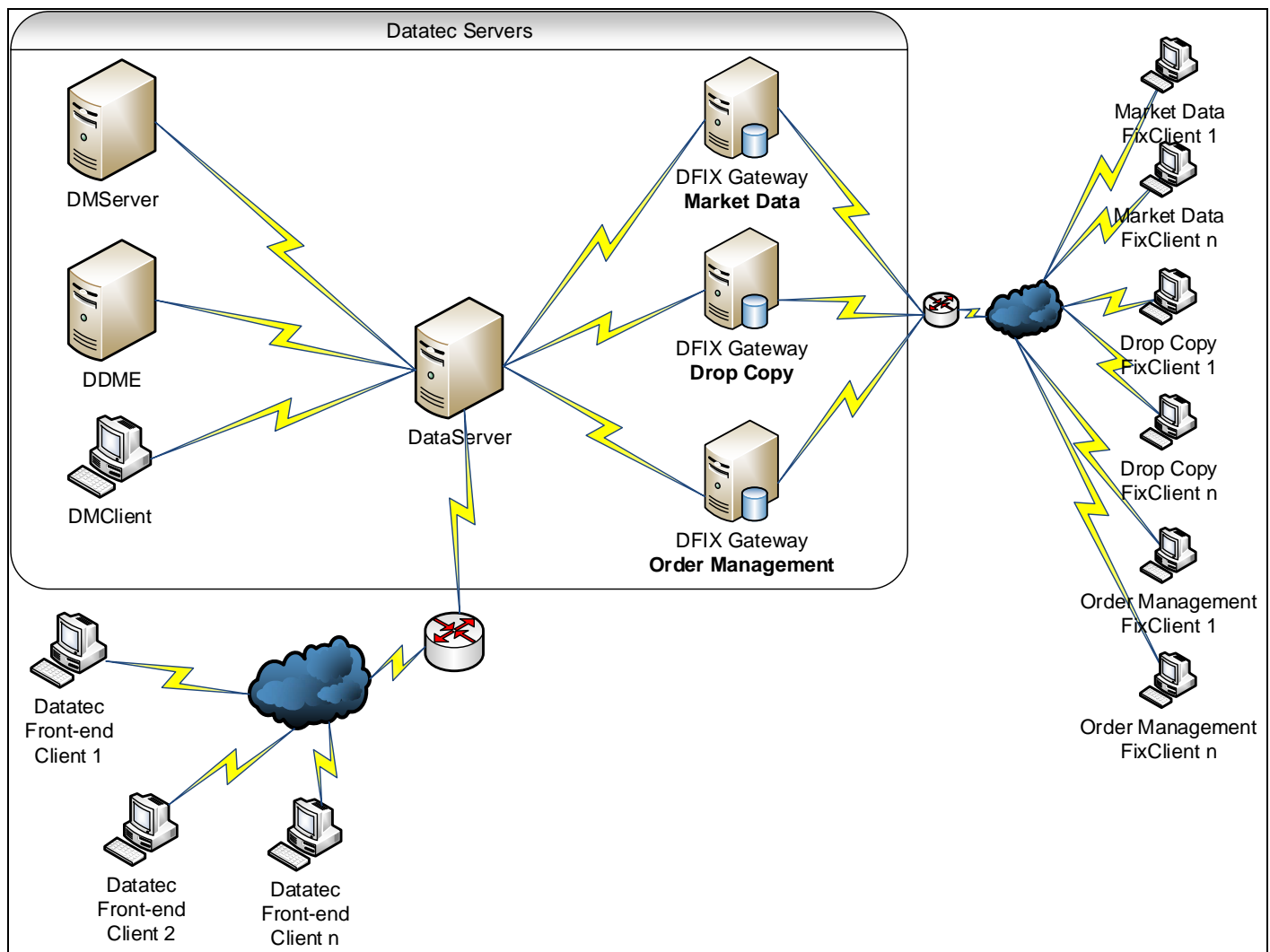
## 2. Introduction

This document details the specifications of the FIX Protocol for connecting to FX Spot markets on the DATATEC platform. The FIX Client should connect using FIX Protocol 5.0 SP2 with the latest Extension Pack.

The implementation supports the FIX Protocol standard conventions. The FIX session will always be started and terminated by the FIX Client. The DATATEC FIX (DFIX) Gateway which will act as a server will always be the session listener. There may be multiple instances of the DFIX Gateway, and each instance can allow multiple FIX client connections.

The following diagram shows the architecture of the Datatec environment including FIX Client connections:

**Figure 1 – Architecture including FIX Client connections**



The DFIX Gateway maintains a TCP/IP connection with the DS (Data Server) using the Datatec internal message protocol and multiple FIX Sessions with FIX Clients. The main job of the DFIX Gateway is to translate Datatec messages received from the DS into FIX messages to send to the appropriate FIX Clients; and to translate FIX messages received from FIX clients to send them to the DS. In some cases the DFIX Gateway will complete other tasks like maintaining the central order book and when necessary preparing messages like Snapshot and Incremental messages for Market Data.

### 3. FIX Messages Supported

The following table lists the FIX messages that will be supported by the DFIX Gateway; the direction of the messages is indicated with respect to the DFIX Gateway.

**Table 1 – FIX Messages Supported**

Message Name	Message Type	Direction	Message Function
<b>Administrative Messages</b>			
Logon	A	Inbound Outbound	Identifies and authenticates a user establishing a FIX session with the gateway. The logon message must be the first message sent by the application requesting to initiate a FIX session.
Logout	5	Inbound Outbound	Initiates or confirms the termination of a FIX session. Disconnection without the exchange of logout message should be interpreted as an abnormal disconnection.
Reject	3	Inbound Outbound	Response message issued when a message is received but cannot be processed by the DFIX Gateway or FIX Client, e.g. when the FIX message is malformed, or missing standard required fields.
ResendRequest	2	Inbound Outbound	Sent by either party to initiate a re-transmission of missing messages from the other party.
SequenceReset	4	Inbound Outbound	Used by either party to respond to the ResendRequest message to reset the incoming sequence number on the opposing side. This message has two modes: Sequence Reset - Gap Fill and Sequence Reset-Reset.
TestRequest	1	Inbound Outbound	To check sequence numbers or verify communication line status. The opposite application responds to the TestRequest with a Heartbeat message containing the TestReqID field with the value from the same field in the TestRequest message.
Heartbeat	0	Inbound Outbound	Monitors gateway status during periods of inactivity.
BusinessMessageReject	j	Outbound	Rejects any application message that cannot be processed by the DFIX Gateway and cannot be rejected via another message.
<b>Reference Data Messages</b>			
MarketDefinitionRequest	BT	Inbound	Request for markets structure information.
MarketDefinition	BU	Outbound	Respond to MarketDefinitionRequest. It will provide the initial snapshot of the market



Message Name	Message Type	Direction	Message Function
			structure information, one message for each market which the FIX Client has access.
MarketDefinitionUpdateReport	BV	Outbound	Used by DFIX Gateway to send subsequent updates in market structure information.
PartyRiskLimitsRequest	CL	Inbound	Used to request for risk information for specific parties, specific party roles or specific instruments.
PartyRiskLimitsReport	CM	Outbound	Used to communicate party risk limits. The message can either be sent as a response to the PartyRiskLimitsRequest message or can be published unsolicited.
PartyRiskLimitsUpdateReport	CR	Outbound	Used to convey incremental changes to risk limits.
<b>Market Data Messages</b>			
MarketDataRequest	V	Inbound	Requests for a market data on specific market.
MarketDataRequestReject	Y	Outbound	Rejects MarketDataRequest messages that cannot be honored due to business or technical reasons.
MarketDataSnapshotFullRefresh	W	Outbound	Responds to the MarketDataRequest message with the current market data on specific market.
MarketDataIncrementalRefresh	X	Outbound	Used to convey subsequent changes on specific market.
<b>Order Management Messages</b>			
NewOrderSingle	D	Inbound	Used by institutions wishing to electronically submit orders for execution. This could include hit/take orders.
OrderCancelRequest	F	Inbound	Request to cancel all of the remaining quantity of an existing order.
OrderCancelReplaceRequest	G	Inbound	Request message to change the details of an existing order that is not been fully filled.
OrderCancelReject	9	Outbound	Reject message for an OrderCancelReplaceRequest or OrderCancelRequest that cannot be honored.
ExecutionReport	8	Outbound	Responds with the action that matching engine has taken in response to a new or existing order. Include: <ul style="list-style-type: none"> <li>- Confirm the receipt of an order.</li> <li>- Confirm changes to an existing order (i.e. accept cancel and replace requests).</li> <li>- Relay order status information.</li> <li>- Relay fills information on working orders.</li> </ul>
OrderMassActionRequest	CA	Inbound	Used to request the cancellation or status of a

Message Name	Message Type	Direction	Message Function
			group of orders that match the criteria specified in the request.
OrderMassActionReport	BZ	Outbound	Acknowledgement to an OrderMassActionRequest.
OrderStatusRequest	H	Inbound	Used by the institution to generate an order status message back from DFIX Gateway.
<b>Trade Capture Reporting and Post Trade Messages</b>			
TradeCaptureReportRequest	AD	Inbound	Request all trades belonging to requesting institution, and to subscribe or unsubscribe for trade capture reports.
TradeCaptureReport	AE	Inbound Outbound	<p>This message will be used to:</p> <ul style="list-style-type: none"> <li>- Sent as a reply to a TradeCaptureReportRequest.</li> <li>- Report trades between counterparties.</li> <li>- Report trades to a trade matching system (Trade Registration).</li> <li>- Reject a trade registered.</li> <li>- Confirm a trade registered.</li> <li>- Report unmatched and matched trades.</li> <li>- Report a trade annulled.</li> <li>- Report trades switched in or switched out clearing house.</li> </ul>
TradeCaptureReportRequestAck	AQ	Outbound	Used to indicate that no trades matched the selection criteria specified in the TradeCaptureReportRequest or the TradeCaptureReportRequest was invalid.
TradeCaptureReportAck	AR	Outbound	<p>This message will be used to:</p> <ul style="list-style-type: none"> <li>- Acknowledge trade capture reports received from counterparty.</li> <li>- Reject a trade capture report received from counterparty.</li> </ul>

## 4. DFIX Gateway Functionality

### 4.1. FIX Support for DFIX Functional Areas

The DFIX Gateway functionality has been broken down into several areas, each area will use a specific set of FIX messages, as indicated in the following table:

Table 2 – DFIX Gateway Functionality Areas

Area	Sent by FIX Client	FIX Message Type	Sent by DFIX Gateway	FIX Message Type
<b>Logon and Authentication</b>	FIX Session Logon and Authentication Request	A	FIX Session Authenticated	A
			Authentication Failure	5
	FIX Session Logoff Request	5	FIX Session Logoff Response	5
<b>Markets Definition</b>	Market Definition Subscription Request	BT	Market Definition Response	BU
	N/A		Market Definition Update	BV
<b>Market Data</b>	Market Data Subscription Request	V	Subscription Reject	Y
			Subscription Response (snapshot/full refresh)	W
	N/A		Incremental Updates	X
	Market Data Unsubscribe Request	V	N/A	
<b>Credit Limits</b>	Credit Limits Subscription Request	CL	Credit limits Response	CM
	N/A		Credit limits Update	CR
	Credit Limits Unsubscribe Request	CL	N/A	
<b>Order Management</b>	Submit Order Request	D TimeInForce=1	Execution Report	8
	N/A		Execution Report (changes in status of an order)	8
	Order Amend Request	G	Execution Report	8
			Order Amend Reject	9
	Order Interrupt Request	F	Execution Report	8
			Order Interrupt Reject	9
	Interrupt All Orders Request	CA	Interrupt All Orders Accepted plus Execution Report (changes in status of orders)	BZ 8
			Interrupt All Orders Reject	BZ
	Hit/Take Order Request – specific amount	D TimeInForce=3	Execution Report (Cancelled when is not filled)	8
			Execution Report (Partial fill or filled)	8
	Order Status Request	H	Execution Report (order status)	8
			Order Status Reject	8

Area	Sent by FIX Client	FIX Message Type	Sent by DFIX Gateway	FIX Message Type
Post Trade	Trade Capture Report Request (Subscription)	AD	Trade Capture Reports	AE
			Request Reject	AQ
	Trade Capture Report Request (Unsubscribe)	AD	N/A	
	Trade Registration Request	AE	Trade Registration Request rejected or accepted	AR
			Trade Registration Request sent to counterpart	AE
	Confirm Trade Registration	AE	Confirm Trade Registration rejected	AR
			Trade Capture Report	AE
	Reject Trade Registration	AE	Reject Trade Registration sent to counterpart	AE

Each of the FIX messages specified in the above table will be described in the following sections of this document.

## 4.2. User profiles

The Datatec platform will support three user profiles for FIX Clients. FIX Clients will be setup with the appropriate profiles based on their needs.

1. Order and Trade Management, known as Order Management - This profile allows order submission, modification and cancelation of orders as well as receiving execution reports from DFIX Gateway. This profile will be able to support trade registration.
2. Market Data - This profile provides real-time information of OrderBook (current bids and offers), market trades, trades summary and chronological best prices listing.
3. Drop Copy - This profile provides carbon copies of all Execution Reports and Trade Capture Reports where the firm is involved in the current business day. Drop Copy is a read-only interface that does not allow a recipient to enter, cancel or replace any orders on Datatec platform.

On the platform there will be at least one instance of DFIX Gateway dedicated to serving each user profile with its respective DFIX Gateway for fail over. The DFIX Gateway architecture is scalable. The exchange could have 2 or 3 or more DFIX Gateways serving each kind of profile. If an exchange client wants both Order Management and Market Data, two separate FIX sessions should be established with two different DFIX Gateway servers each serving one of the profiles.

The OrderBook is maintained in the Matching Engine and is streamed to the DataServers using a fast technique native to Datatec called Global Tables which are maintained in memory in each Datatec subscriber to a given table. The DFIX Gateways that are serving Order Management and Market Data profiles will be connected to DataServers using the Datatec protocol and will receive a copy of the OrderBook. The DFIX Gateway which is serving Drop Copy profile will also be connected to the Data Servers but this does not subscribe to the OrderBook.

## 4.3. Required Functionality by Profile

The following table shows the functionality areas for each profile, some of which are required to be implemented by the FIX Client and some of which are optional.

**Table 3 – Required Functionality by Profile**

Functionality Area			Profile	Order Management	Market Data	Drop Copy	
						Participants	Third Parties
Logon and Authentication				R	R	R	R
Markets Definition				R	R		
Market Data					R		
Credit Limits	Credit limits Subscription			C			
Order Management	Orders submit			R			
	Execution Report	Fill and Partial Fill				R	
		Other order status				C	
Post Trade	Trade Capture Report	Without Subscription				R	
		With Subscription				C	R
	Trade Registration			C			

C	Conditionally implemented – Based on customer needs
R	Implementation required as part of profile

The following tables show the messages sent and received by profile and indicating whether each group of messages is required to be implemented or is conditionally implemented (using the same colors of the previous table).

Even though the messages are the same of the ones presented in the messages table of DFIX Gateway Functionality Areas, the information is presented from a profile perspective in order to help the audience when checking or testing a specific profile.

#### 4.3.1. Order Management profile

**Table 4 – Order Management - Messages sent and received**

Area		Sent by FIX Client	FIX Msg Type	Sent by DFIX Gateway	FIX Msg Type
Logon and Authentication		FIX Session Logon and Authentication Request	A	FIX Session Authenticated	A
				Authentication Failure	5
		FIX Session Logoff Request	5	FIX Session Logoff Response	5
Markets Definition		Market Definition Subscription Request	BT	Market Definition Response	BU
		N/A		Market Definition Update	BV
Credit Limits	Subscription	Credit Limits Subscription Request	CL	Credit limits Response	CM

Area		Sent by FIX Client	FIX Msg Type	Sent by DFIX Gateway	FIX Msg Type		
		N/A		Credit limits Update	CR		
		Credit Limits Unsubscribe Request	CL	N/A			
Order Management		Submit Order Request	D TimeInForce=1	Execution Report	8		
		N/A		Execution Report (changes in status of an order)	8		
		Order Amend Request	G	Execution Report	8		
				Order Amend Reject	9		
		Order Interrupt Request	F	Execution Report	8		
				Order Interrupt Reject	9		
		Interrupt All Orders Request	CA	Interrupt All Orders Accepted plus Execution Report (changes in status of orders)	BZ 8		
				Interrupt All Orders Reject	BZ		
		Hit/Take Order Request – specific amount	D TimeInForce=3	Execution Report (Cancelled when is not filled)	8		
				Execution Report (Partial fill or filled)	8		
		Order Status Request	H	Execution Report (order status)	8		
				Order Status Reject	8		
		Post Trade	Trade Registration	Trade Registration Request	AE	Trade Registration Request rejected or accepted	AR
						Trade Registration Request sent to counterpart	AE
Confirm Trade Registration	AE			Confirm Trade Registration rejected	AR		
				Trade Capture Report	AE		
Reject Trade Registration	AE			Reject Trade Registration sent to counterpart	AE		

### 4.3.2. Market Data profile

Table 5 – Market Data - Messages sent and received

Area	Sent by FIX Client	FIX Msg Type	Sent by DFIX Gateway	FIX Msg Type
Logon and Authentication	FIX Session Logon and Authentication Request	A	FIX Session Authenticated	A
			Authentication Failure	5
	FIX Session Logoff Request	5	FIX Session Logoff Response	5
Markets Definition	Market Definition Subscription Request	BT	Market Definition Response	BU
	N/A		Market Definition Update	BV
Market Data	Market Data Subscription Request	V	Subscription Reject	Y
			Subscription Response (snapshot/full refresh)	W
	N/A		Incremental Updates	X
	Market Data Unsubscribe Request	V	N/A	

### 4.3.3. Drop Copy profile

Table 6 – Drop Copy - Messages sent and received

Area		Sent by FIX Client	FIX Msg Type	Sent by DFIX Gateway	FIX Msg Type
Logon and Authentication		FIX Session Logon and Authentication Request	A	FIX Session Authenticated	A
				Authentication Failure	5
		FIX Session Logoff Request	5	FIX Session Logoff Response	5
Execution Report (Order Management)	Fill and Partial Fill	N/A		Execution Report (Partial fill or filled)	8
	Other order status	N/A		Execution Report (changes in status of an order)	8
Trade Capture Report (Post Trade)	Without Subscription	N/A		Trade Capture Reports	AE
	With Subscription (Queries*)	Trade Capture Report Request (Subscription)	AD	Trade Capture Reports	AE
				Request Reject	AQ
		Trade Capture Report Request (Unsubscribe)	AD	N/A	

\*Queries: Queries of current or previous days with optional date and time ranges. Some restrictions apply.

**Table 7 – Drop Copy for Third Parties - Messages sent and received**

Area		Sent by FIX Client	FIX Msg Type	Sent by DFIX Gateway	FIX Msg Type
Logon and Authentication		FIX Session Logon and Authentication Request	A	FIX Session Authenticated	A
				Authentication Failure	5
		FIX Session Logoff Request	5	FIX Session Logoff Response	5
Trade Capture Report (Post Trade)	With Subscription (Queries*)	Trade Capture Report Request (Subscription)	AD	Trade Capture Reports	AE
				Request Reject	AQ
		Trade Capture Report Request (Unsubscribe)	AD	N/A	

*\*Queries: This functionality for Third parties (i.e. Regulatory entities) has additional restrictions due to the number resulting trades.*



## 5. Identifiers

An identifier can be a word, number, letter, symbol, or any combination of those, which are used to uniquely identify something. The words, numbers, letters, or symbols may follow an encoding system, or they may simply be arbitrary.

All IDs must use only the following valid characters:

- Numbers 0-9
- Letters (A-Z, a-z)
- - Hyphen (decimal 45)
- \_ Underscore (decimal 95)

The maximum length for an ID varies depending on the type or purpose of ID.

### 5.1. *Messaged IDs*

In FIX Protocol there are different message fields that are handled as identifiers.

#### 5.1.1. *Request IDs*

All FIX messages that are used to request information include a request ID field which should be created by the FIX Client and used to track other messages associated with the request. The maximum length for request IDs that is supported by the DFIX Gateway is 32 characters.

#### 5.1.2. *Order and FirmTrade IDs*

IDs used for orders and trades, like ClOrdID(11), OrderID(37), OrigClOrdID(41), ExecID(17), FirmTradeID(1041) must be up to a maximum length of 10 characters. Some of these IDs are created by FIX Clients and some other by the DFIX Gateway. The uniqueness of these values is guaranteed within a single trading day.

#### 5.1.3. *Trade IDs*

IDs used for TradeID(1003) must be up to a maximum length of 32 characters. These IDs are generated by Datatec. The uniqueness of these values is guaranteed within a single trading day.

### 5.2. *Party IDs*

These kinds of IDs are all created on the Datatec by the Platform administrator, and are currently being sent to and used by the native Datatec GUI. The platform has identifiers for Firms (Institutions), Branches, Users (Traders, Brokers, etc.).

Firms are identified by a short 3-character ID and by a name of maximum 30 characters. In some cases the FIX Client needs to send the short ID, the exchange will provide the list of all firms that participate in markets segments supported by DFIX Gateway. The list of firms will be delivered by Datatec to the clients in a CSV file with columns as shown in the following:

ID	Name	Class	Function
BCL	Bancolombia	B	P
BGT	Banco de Bogotá	B	P
CIT	Citibank	B	P
CCD	Cámara de Compensación de Divisas	C	C
STN	Banco Santander	B	P

Branches belong to firms, branches are identified by a short 4-character ID plus 3-character of the city code where branch was created plus 1-character assigned by the system to distinguish branches in the same city; i.e. a complete ID for branches is an 8-character ID; this will be send by the DFIX Gateway in message where the branch ID is required. Normally the first 4 characters are assigned by the system administrator ensuring that this code is not assigned to any other branch in the system, so the native GUI normally only use the first 4 characters. Branches also have a full name of maximum 50 characters. The list of branches will also be delivered by the exchange in a CSV file with columns as shown follow:

Branch ID	Firm ID	Name	City	Agency
BCLBBOGA	BCL	Bancolombia	Bogotá	BOG,A
BCLCCLIA	BCL	Bancolombia	Cali	CLI,A
BCLGBOGB	BCL	Bancolombia	Bogotá 1	BOG,B
BGTBBOGA	BGT	Banco de Bogotá	Bogotá	MDL,A
BGTCCLIA	BGT	Banco de Bogotá	Cali	CLI,A
CITBBOGAA	CIT	Citibank	Bogotá	BOG,A
CITCCLIA	CIT	Citibank	Cali	CLI,A
CITMDLA	CIT	Citibank	Medellín	BOG,A
CCDBBOGA	CCD	Cámara de Compensación de Divisas	Bogotá	BOG,A
SNTBBOGA	SNT	Banco Colpatría	Bogotá	BOG,A
SNTKBOGB	SNT	Banco Colpatría	Bogotá Respaldo	BOG,B

Users belong to branches, and they are identified by a short name of maximum 10 characters and also by a full name of maximum 30 characters.

The DFIX Gateway will send these identifiers, names and full names in the Parties component along with the role of each, when this information is needed.

## Beneficiary Codes

Normally trades are between two market participants like banks, investment houses, etc. All these counterparties use IDs as described before. There are two other sorts of trades:1) between two market participants but one of them or both parties traded on behalf of a final customer on their respective sides; and 2) between a market participant and a final customer. Customers do not use the same kind of IDs as market participants; these use their personal or institution codes as follows:

Code	ID Type	Sample values
<b>As used in Colombia</b>		
C	Identification (Cédula)	79265455, 06074698
D	New Identification (Cédula nueva)	1000149153, 1010038336
N	NIT	8605344581, 8001322424
P	Passport	06360020297, 10531039208
T	Identity Card	97022204673, 96101709865
I	New Identity Card	

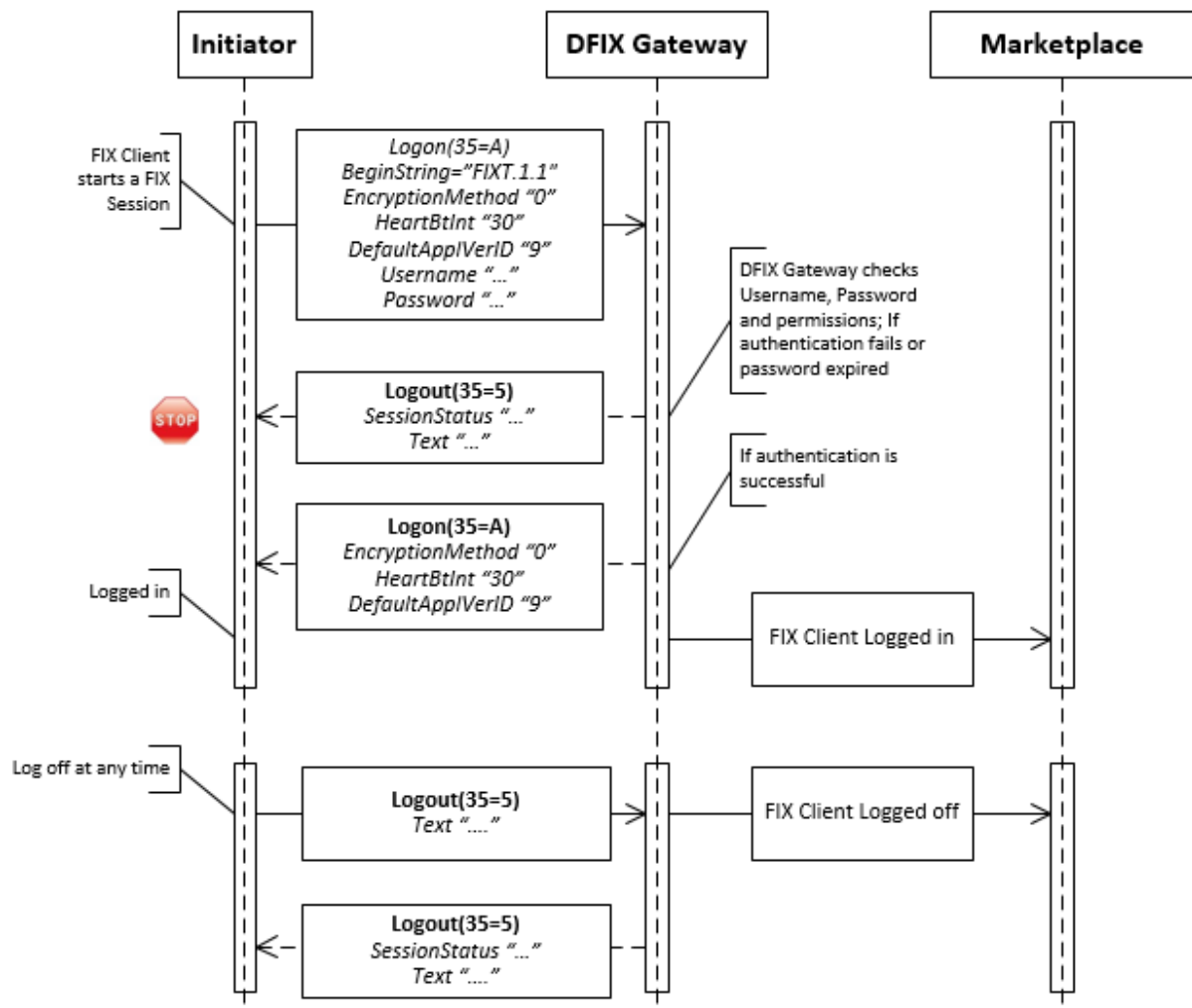
Code	ID Type	Sample values
E	Foreign Identification	263092, 288454
R	Civil Registration Code	9804195822, 1014875766
X	Foreign Company Code	20472315154, 1896767
S	Swift Code	CSFBGB2LXX1, SBOSGB2XXXX
<b>As used in Peru</b>		
R	RUC	20130098488, 20219960256
D	DNI	434518267, 06669871
A	Cavali Code	910697, 707725
C	Card abroad (Foreign Identification)	
O	Other ID	CONTIFONDOS, CONTISAB

When the DFIX sends one of these beneficiary IDs, The DFIX will concatenate the code and the value into the field PartyID(448). (e.g. C06074698, N8605344581).

## 6. Logon and Authentication

This section describes the Logon and Authentication function, and the FIX messages used to support this function. The flow of the messages involved in the Logon and Authentication process is as follows:

Figure 2 – Session Logon and Authentication Workflow



### 6.1. Standard Header & Trailer

All FIX messages will have header, body and trailer. The following represents the format of the FIX Standard Header and Standard Trailer, as used by the DFIX Gateway. Any additional tags that the FIX Client may include in the header will be ignored.

#### 6.1.1. FIX Message Header

Each administrative or application message is preceded by a standard header. The header identifies the message type, length, destination, sequence number, origination point and time.

**Table 8 – Standard Message Header**

Tag	Field Name	DataType	Reqd	Comments
8	BeginString	String	Y	Identifies the beginning of the message and version of the protocol used in the transmission Protocol version. Must be the FIRST TAG IN THE MESSAGE. (Always unencrypted) Valid values: FIXT.1.1
9	BodyLength	Length	Y	Message length (number of bytes) from MsgType up to but not including the CheckSum tag. ALWAYS SECOND TAG IN MESSAGE. (Always unencrypted)
35	MsgType	String	Y	Defines message type. ALWAYS THIRD TAG IN MESSAGE. (Always unencrypted)
34	MsgSeqNum	SeqNum	Y	Integer message sequence number.
49	SenderCompID	String	Y	Code used to identify message sender. For messages FIX Client sends it must be set with the value assigned by the Datatec administrator. For messages Datatec sends it will have the value DFIX_GW
43	PossDupFlag	Boolean		Indicates possible retransmission of message with this sequence number
97	PossResend	Boolean		Indicates that message may contain information that has been sent under another sequence number.
52	SendingTime	UTCTimeStamp	Y	Time of message transmission (always expressed in UTC (Universal Time Coordinated, also known as "GMT"). Format: YYYYMMDD-HH:MM:SS.mmm Example: 20100122-20:46:12.805
56	TargetCompID	String	Y	Code used to identify message receiver. For messages FIX Client sends this field must have the value DFIX_GW. For messages Datatec sends it will contain the value assigned by Datatec administrator.

SenderCompID and TargetCompID values in the table above are used by the FIX Client to send a message; when the DFIX Gateway sends a message to the FIX Client, the values of these fields are switched around.

### **6.1.2. FIX Message Trailer**

Each administrative or application message is terminated by a standard trailer. The trailer is used to segregate messages and contains the three digit character representation of the Checksum value.

**Table 9 – Standard Message Trailer**

Tag	Field Name	Data Type	Reqd	Comments
10	Checksum	String	Y	Three byte, simple checksum. ALWAYS LAST TAG IN MESSAGE. (Always unencrypted)

## 6.2. FIX Session Logon and Authentication

The DFIX Gateway application after connecting to DataServer, is ready to accept FIX sessions; it's waiting for a FIX Session Logon Request sent by a customer to establish a FIX session. The session is established using the Logon(35=A) message and part of the process to establish a session includes the authentication of the initiator. This requires a valid SenderCompID(49) which defines the party initiating the session, a Username(553) and a Password(554). The FIX session will not be established if authentication processing fails.

The FIX Logon(35=A) as detailed below also contains information related to the "default" version of FIX being used and optionally the Extension Pack. The heart beat interval is also established and DFIX Gateway accepts only an interval of 30 seconds. Any different value in HeartBtInt(108) will cause a session reject.

**Table 10 – Logon Message**

Logon(35=A)				
Tag	Field Name	Data Type	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = <b>A</b>
98	EncryptMethod	int	Y	Method of encryption Supported values: 0 = None/Other
108	HeartBtInt	int	Y	Heartbeat interval. Supported values: 30 = 30 seconds
141	ResetSeqNumFlag	Boolean		Indicates both sides of FIX session should reset sequence numbers. Supported values: N = No (Default) Y = Yes, reset sequence numbers
553	Username	String		Required for logon initiator. FIX Client ID provided by ICAP and is formed by the 8-character branch ID and a short name. This must be authorized by the exchange for one and only one of the following profiles: Order Management, Market Data or Drop Copy.
554	Password	String		Required for logon initiator when the FIX Client has been configured to connect using a password. If the client is authorized to connect without password, this field is not required, but if it is filled, the DFIX Gateway will ignore it. Associated password for the Client ID, 8-16 alphanumeric

Logon(35=A)				
Tag	Field Name	DataType	Reqd	Comments
				characters, case sensitive. If it's a password change this is the old password.
925	NewPassword	String		Required for logon initiator if it is sending a password change. For clients authorized to connect without password, the DFIX Gateway ignores this field. New password must comply the rules of the password policy. 8-16 alphanumeric characters. Case sensitive. Must be different from the previous client's 12 passwords. Must have at least one alphabetic character. Must have at least one numeric character. Cannot have more than four sequential characters. For example "abcde", "12345" are not allowed. Cannot have more than two consecutive equal characters. For example "AAA" is not allowed.
1137	DefaultApplVerID	String	Y	The default FIX version for the entire session and applies to all messages on this session. Supported values: 9 = FIX 5.0 SP2
1407	DefaultApplExtID	int		The default Extension Pack for the entire FIX session and applies to all messages on this session. Supported values: 214 = EP214 - Default value if not specified
1408	DefaultCstmApplVerID	String		The default DFIX FIX Client version number for the entire session and applies to all messages on this session. Supported values: 1.0
1409	SessionStatus	int		Session status at time of logon. Field is used when the logon messages is sent as an acknowledgment from the acceptor of the FIX session. Supported values: 0 = Session active (Default Logged in) 1 = Session password changed (Logged in)
58	Text	String		Available to provide a response to logon when used as a logon acknowledgement from acceptor back to the logon initiator.
	Standard Trailer		Y	

### 6.3. FIX Session Logout

The Logout(35=5) message initiates or confirms the termination of a FIX session. Disconnection without the exchange of logout messages should be interpreted as an abnormal condition. Either the FIX Client or DFIX Gateway can initiate a logout of the FIX session.

When the DFIX Gateway receives the Logout(35=5) message, it cancels all client orders in the OrderBook which are not fully executed, by sending Datatec withdrawal messages to the Matching Engine. The DFIX Gateway also sends to the FIX Client a Logout(35=5) message to indicate session logout complete and the connection is closed. **DFIX Gateway will not be sending ExecutionReport(35=8) messages to the client who is disconnecting, indicating their orders are cancelled. The client is responsible for ensuring their systems reflect this status of their outstanding orders; but DFIX Gateway will keep sending the ExecutionReport messages to the other FIX Clients in the same firm and clients with drop copy profile.**

If the FIX session terminates abruptly, the DFIX Gateway will also cancel all client orders in the OrderBook which are not fully executed, by sending Datatec withdrawal messages to the Matching Engine. **The DFIX Gateway will not be sending ExecutionReport(35=8) messages to the client who is disconnecting, indicating their orders are cancelled. The client is responsible for ensuring their systems reflect this status of their outstanding orders; but DFIX Gateway will keep sending the ExecutionReport messages to the other FIX Clients in the same firm and clients with drop copy profile.** The FIX Client also has to try to reestablish a new FIX session.

Table 11 – Logout Message

Logout(35=5)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = 5
1409	SessionStatus	int		Session status at time of logout. Field is used when the logon messages is sent as a logon failure from the acceptor of the FIX session. Supported values: 2 = Session password due to expire (Warning in normal Logout) 3 = New session password does not comply with policy 4 = Session logout complete (Default) 5 = Invalid username or password 6 = Account locked 7 = Logons are not allowed at this time 8 = Password expired 9 = Received MsgSeqNum(34) is too low. 10 = Received Next Expected MsgSeqNum(789) is too high 1001 = Duplicated user (already connected) 1002 = Not Authorized 1003 = Wrong Profile 1004 = Wrong SenderCompID 1099 = Other
58	Text	String		Free format text string
	Standard Trailer		Y	

## 6.4. Logon Failures and Account Locked

If during a logon the SenderCompID, TargetCompID or IP address of the session initiator is invalid, the session will be immediately terminated and no Logout(35=5) message will be sent. This login attempt might be an



unauthorized attempt to break into our system; hence one does not want to divulge any information about the system, such as: which SenderCompID/TargetCompID.

If during a logon the DFIX Gateway receives a second connection attempt while a valid FIX session is already underway for that same SenderCompID, the session acceptor immediately will terminate the second connection attempt and no Logout(35=5) message will be sent. Sending a Logout message runs the risk of interfering with and possibly adversely affecting the current active FIX connection. For example, sending a Logout message might consume a sequence number that would cause an out of sequence condition for the established FIX session.

In all other logon failures a Logout(35=5) message will be returned with an appropriate reason code in the field SessionStatus(1409) and may include additional explanation in the field Text(58) which provides information regarding the failure. If the session initiator fails to authenticate (SessionStatus(1409) with values: 3 – New session password does not comply with policy, or 5 – Invalid username or password, or 8 - Password expired) with the DFIX Gateway within three attempts, on the third failed attempt the account will be locked and all subsequent logon attempts will be rejected. To unlock the account requires marketplace operations to reset the account. Any other causes for failure will not cause the account to be locked after the defined number of failed attempts.

## 6.5. Password Expired and Password Change

If the FIX Client's password has expired or the user has been authorized to connect using a temporary password, FIX Client will receive a Logout(35=5) message where the field SessionStatus(1409)=8. The client must start a new FIX session, sending the old password in the field Password(554) and the new in the field NewPassword(925).

A voluntary password change can only be done at logon time, and is done in the same way as an expired password is changed, sending the old password and the new password on Logon message.

When the DFIX Gateway receives a Logon(35=A) message with NewPassword(925), and the UserName(553) and current Password(554) are valid, the new password is checked against the password policy for compliance. If the new password complies, the FIX session is accepted by sending Logon(35=A) message with SessionStatus(1409)=1, and the new password is updated in the Datatec database and becomes the password to be used for subsequent session logons. If the new password does not comply with the password policy then an error status (SessionStatus(1409)=3) is returned in the Logout(35=5) message.

## 6.6. Logon Submitted Tags

The following table shows tags in Logon(35=A) message that must be submitted based on various scenarios where this message is sent.

Table 12 – Logon Submitted Tags

Tag	Logon without password change	Logon with Password Change	Logon Acknowledgment
EncryptMethod(98)	R	R	R
HeartBtInt(108)	R	R	R
Username(553)	R	R	

Tag	Logon without password change	Logon with Password Change	Logon Acknowledgment
Password(554)	R	R	
NewPassword(925)		R	
DefaultAppVerID(1137)	R	R	R
DefaultAppExtID(1407)	C	C	C
DefaultCstmAppVerID(1408)	C	C	C
SessionStatus(1409)			C
Text(58)			C

C	Conditionally required – Based on Input or Error condition
R	Required as part of the message

## 6.7. Scenarios to establish FIX Sessions

There are three types of scenarios to establish FIX sessions:

1. At the start of the day, a new FIX session should be used to connect to the DFIX Gateway, with MsgSeqNum (34) set to 1 in the Logon(35=A) message. The FIX session should expect MsgSeqNum (34) in the reply message to start from 1.
2. If for any reason the FIX session is disconnected, the DFIX Gateway will remember all client subscriptions except Market Data subscriptions. The FIX Client should try to reconnect and establish the FIX session to the same DFIX Gateway. The Logon(35=A) message should set MsgSeqNum (34) to the last MsgSeqNum (34) sent plus 1. A FIX session can only be reconnected during the same day. The FIX session should also expect the MsgSeqNum (34) from the DFIX Gateway to be the last MsgSeqNum (34) received plus 1. The standard ResendRequest(35=2) message can be used to retrieve messages missed during disconnection if a higher than expected MsgSeqNum (34) is received. After reconnect the DFIX Client does not need to send all subscription messages again, only subscriptions to Market Data need to be sent.
3. If the FIX session cannot be established with the same DFIX Gateway, it should fail over to a different DFIX Gateway. Connecting to a different DFIX Gateway is similar to a reconnection. If it's the first time the FIX Client is connecting to this failover DFIX Gateway the sequence numbers will begin from 1. If the FIX Client has already connected to this failover DFIX Gateway today, when the FIX Client fails over and connects again, inbound and outbound sequence numbers will be maintained consistent with the previous connection with this failover DFIX Gateway and resetting of sequence numbers is not required.

When a FIX Client connects successfully to a specific DFIX Gateway, all other FIX Gateways receive a notification and remove any subscription that they may have received in any prior connection from this same FIX Client. For this reason, every time a FIX Client which was connected to one DFIX Gateway connects to another DFIX Gateway the FIX Client should send all the subscription messages again.

DFIX Gateway will adhere to the FIX Session behavior and recovery as prescribed by the FIX Session standard for FIXT.1.1 Session Layer Protocol<sup>1</sup>.

## 6.8. Error Handling Messaging

If a message fails a session-level rule (e.g. body length is incorrect), a session-level Reject(35=3) message will be issued by the recipient. The Reject format is as follows.

Table 13 – Reject Message

Reject(35=3)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = 3
45	RefSecNum	SeqNum	Y	MsgSeqNum of rejected message.
371	RefTagID	int		The tag number of the FIX field being referenced
372	RefMsgType	String		The MsgType of the FIX message being referenced
373	SessionRejectReason	int		Code to identify reason for a session-level reject message. Supported values. 0 = Invalid Tag Number 1 = Required Tag Missing 2 = Tag not defined for this message type 3 = Undefined tag 4 = Tag specified without a value 5 = Value is incorrect (out of range) for this tag 6 = Incorrect data format for value 7 = Decryption problem 8 = Signature problem 9 = CompID problem 10 = SendingTime Accuracy Problem 11 = Invalid MsgType 12 = XML Validation Error 13 = Tag appears more than once 14 = Tag specified out of required order 15 = Repeating group fields out of order 16 = Incorrect NumInGroup count for repeating group 17 = Non "Data" value includes field delimiter (<SOH> character) 18 = Invalid/Unsupported Application Version 99 = Other
58	Text	String		Free format text string.
	<i>Standard Trailer</i>		Y	

Rejected messages should be logged and the incoming sequence number incremented.

<sup>1</sup> See <http://www.fixtradingcommunity.org/pg/structure/tech-specs/session-level-specs>

For a FIX message which fulfills session-level rules and cannot be rejected via any other means, the BusinessMessageReject(35=j) message will be issued. The BusinessMessageReject format is as follows.

**Table 14 – BusinessMessageReject Message**

BusinessMessageReject(35=j)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = j (lowercase)
45	RefSeqNum	SeqNum		MsgSeqNum of rejected message.
372	RefMsgType	String	Y	The MsgType of the FIX message being referenced
379	BusinessRejectRefID	String		The value of the business-level "ID" field on the message being referenced.
380	BusinessRejectReason	Int	Y	Code to identify reason for a BusinessMessageReject message. Supported values. 0 = Other 1 = Unknown ID 2 = Unknown Security 3 = Unknown Message Type 4 = Application not available 5 = Conditionally required field missing 6 = Not Authorized
58	Text	String		Free format text string.
	<i>Standard Trailer</i>		Y	

## 6.9. Resend Request

The ResendRequest(35=2) message is sent by the receiving application to initiate the retransmission of messages. This function is utilized if a sequence number gap is detected, if the receiving application lost a message, or as a function of the initialization process.

The resend request can be used to request a single message, a range of messages or all messages subsequent to a particular message.

The ResendRequest format is as follows.

**Table 15 – ResendRequest Message**

ResendRequest(35=2)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = 2
7	BeginSeqNo	SeqNum	Y	Message sequence number of first message in range to be resent.
16	EndSeqNo	SeqNum	Y	Message sequence number of last message in range to be resent. If request is for a single message BeginSeqNo =

ResendRequest(35=2)				
Tag	Field Name	DataType	Reqd	Comments
				EndSeqNo. If request is for all messages subsequent to a particular message, EndSeqNo = 0 (representing infinity).
	Standard Trailer		Y	

## 6.10. Sequence Reset

In the event that either system detects an error in sequence numbers, the SequenceReset(35=4) message is sent to rectify the situation.

The SequenceReset format is as follows:

Table 16 – SequenceReset Message

SequenceReset(35=4)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = 4
36	NewSeqNo	SeqNum	Y	New sequence number.
123	GapFillFlag	Boolean		Indicates that the Sequence Reset message is replacing administrative or application messages that will not be resent. Supported values: Y = Gap Fill message, MsgSeqNum field valid N = Sequence Reset, ignore MsgSeqNum
	Standard Trailer		Y	

## 6.11. Test Request

The TestRequest(35=1) message forces a heartbeat from the opposing application. The test request message checks sequence numbers or verifies communication line status. The opposite application responds to the Test Request with a Heartbeat containing the TestReqID.

Table 17 – TestRequest Message

TestReset(35=1)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = 1
112	TestReqID	String	Y	Identifier included in Test Request message to be returned in resulting Heartbeat.
	Standard Trailer		Y	

## 6.12. HeartBeat

The Heartbeat(35=0) message monitors the status of the communication link and identifies when the last of a string of messages was not received.

Table 18 – Heartbeat Message

Heartbeat(35=0)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = 0
112	TestReqID	String		Required when the heartbeat is the result of a Test Request message.
	<i>Standard Trailer</i>		Y	

## 7. Markets Definition

Once the FIX Client has established a FIX session, the FIX Client using MarketData or OrderManagement profiles must send a message requesting the definition of the markets to which the user is authorized to access. The request is made using MarketDefinitionRequest(35=BT) message with the following fields:

Table 19 – MarketDefinitionRequest Message

MarketDefinitionRequest(35=BT)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = <b>BT</b>
1393	MarketReqID	String	Y	Unique identifier for the request, created by client
263	SubscriptionRequestType	char	Y	1 = Snapshot + Updates (Subscribe)
	<i>Standard Trailer</i>		Y	

When the DFIX Gateway receives the MarketDefinitionRequest message, it will send one MarketDefinition (35=BU) message for each Datatec market the user is authorized to view or participate. The format of the message is:

Table 20 – MarketDefinition Message

MarketDefinition(35=BU)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = <b>BU</b>
1393	MarketReqID	String	Y	Unique identifier value carried from request
1394	MarketReportID	String	Y	Unique identifier created by the DFIX Gateway
1301	MarketID	Exchange	Y	This is the Market Identification Code (MIC) conforming to ISO-10383. Supported values: XBOG = Bolsa de Valores de Colombia XBCL = Bolsa Electrónica de Chile XLIM = Bolsa de Valores de Lima
1300	MarketSegmentID	String	Y	Identifies the market segment, assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
1396	MarketSegmentDesc	String		Short description or name of the Market Segment, assigned by Datatec
<InstrumentScopeGrp> component			Y	Repeating group used to specify the instruments that belong to the market segment
1656	NoInstrumentScopes	NumInGroup	Y	Number of instrument scopes. Datatec has defined one instrument for each market segment currently supported, and then this field comes with 1.

MarketDefinition(35=BU)					
Tag	Field Name		DataType	Reqd	Comments
→	1535	InstrumentScopeOperator	int	Y	Operator to perform on the instrument(s) specified Supported values: 1 = Include
→	<InstrumentScope> component			Y	Block used to specify the instrument
→	1536	InstrumentScopeSymbol	String	Y	Currency pair in CCY/CCY format. The supported values will be used in all messages that include the field Symbol(55). Supported values: USD/COP USD/CLP USD/PEN
→	End <InstrumentScope> component				
End <InstrumentScopeGrp> component					
15	Currency		Currency	Y	Identifies currency used for price. Supported values: COP = For market 71 and 76 CLP = For market 39 PEN = For market 51
<BaseTradingRules> component					Trading rules that are applicable to a market segment of trading session.
<TickRules> component					Repeating group, specifies the rules for determining how a price ticks.
1205	NoTickRules		NumInGroup		Number of tick rules. If the market on Datatec has defined basic fraction for price, this field comes with 1.
→	1206	StartTickPriceRange	Price		Required if NoTickRules(1205)> 0 It should always be 0 (None). Required by the FIX Protocol. FIX clients should not use the contents of this tag.
→	1208	TickIncrement	Price		Required if NoTickRules(1205)> 0 Basic fraction for price.
End <TickRules> component					
1786	TradeVolType		int		Defines the type of units for MinTradeVol(562) and MaxTradeVol(1140) Supported values: 0 = Number of units (e.g. share, par, currency, contracts)
562	MinTradeVol		Qty		The minimum order or trade quantity/amount e.g. 250000
1140	MaxTradeVol		Qty		The maximum order or trade quantity/amount e.g. 50000000
1245	TradingCurrency		Currency	Y	Identifies currency used for amount. Supported values: USD = US Dollar



MarketDefinition(35=BU)					
Tag	Field Name		DataType	Reqd	Comments
423	PriceType		int	Y	Defines the type of price used in the market. Supported values: 20 = Normal rate representation
End <BaseTradingRules> component					
<OrdTypeRules> component				Repeating group, specifies the order types that are valid for trading on market segment	
1237	NoOrdTypeRules		NumInGroup		Number of order types, always 1.
→	40	OrdType	char		Required if NoOrdTypeRules(1237)> 0 Type of orders allowed in the market. Supported values: 2 = Limit - With amount and price, match against orders better or equal to the specified price
End <OrdTypeRules> component					
<TimeInForceRules> component				Repeating group, specifies the time in force rules that are valid for trading on market segment	
1239	NoTimeInForceRules		NumInGroup		Number of time in force techniques
→	59	TimeInForce	char		Required if NoTimeInForceRules(1239)> 0 Specifies how long an order remains into the market. Supported values: 1 = Good Till Cancel (GTC) 3 = Immediate Or Cancel (IOC)
End <TimeInForceRules> component					
<ClrInstGrp > component				Repeating group, specifies the clearing conditions that are valid for trading on market segment  * FIX 5.0 component added to message	
576	NoClearingInstructions		NumInGroup		Number of clearing instructions
→	577	ClearingInstruction	int		Required if NoClearingInstructions(576)> 0 Indicates clearing instructions allowed in the market segment. Supported values: 0 = Process normally 6 = Clear against central counterparty
End <ClrInstGrp> component					
	Standard Trailer			Y	

If there are subsequent changes in the definition of markets, these changes are sent to the FIX Clients using MarketDefinitionUpdateReport(35=BU) message with the following fields:

Table 21 – MarketDefinitionUpdateReport Message

MarketDefinitionUpdateReport(35=BV)					
Tag	Field Name		DataType	Reqd	Comments
	Standard Header			Y	MsgType = <b>BV</b>
1393	MarketReqID		String	Y	Unique identifier value carried from request
1394	MarketReportID		String	Y	Unique identifier created by the DFIX Gateway
1395	MarketUpdateAction		char	Y	Specifies the action taken for the specified MarketID(1301) + MarketSegmentID(1300). Supported values: A = Add D = Delete M = Modify
1301	MarketID		Exchange	Y	This is the Market Identification Code (MIC) conforming to ISO-10383. Supported values: XBOG = Bolsa de Valores de Colombia XBCL = Bolsa Electrónica de Chile XLIM = Bolsa de Valores de Lima
1300	MarketSegmentID		String	Y	Identifies the market segment, assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
1396	MarketSegmentDesc		String		Short description or name of the Market Segment, assigned by Datatec
<InstrumentScopeGrp> component				Y	Repeating group used to specify the instruments that belong to the market segment
1656	NoInstrumentScopes		NumInGroup	Y	Number of instrument scopes. Datatec has defined one instrument for each market segment currently supported, and then this field comes with 1.
→	1535	InstrumentScopeOperator	int	Y	Operator to perform on the instrument(s) specified Supported values: 1 = Include
→	<InstrumentScope> component			Y	Block used to specify the instrument
→	1536	InstrumentScopeSymbol	String	Y	Currency pair in CCY/CCY format. The supported values will be used in all messages that include the field Symbol(55). Supported values: USD/COP USD/CLP USD/PEN
→	End <InstrumentScope> component				
End <InstrumentScopeGrp> component					
15	Currency		Currency	Y	Identifies currency used for price. Supported values: COP = For market 71 and 76

MarketDefinitionUpdateReport(35=BV)					
Tag	Field Name		DataType	Reqd	Comments
					CLP = For market 39 PEN = For market 51
<BaseTradingRules> component					Trading rules that are applicable to a market segment of trading session.
<TickRules> component					Repeating group, specifies the rules for determining how a price ticks.
1205	NoTickRules		NumInGroup		Number of tick rules. If the market on Datatec has defined basic fraction for price, this field comes with 1.
→	1206	StartTickPriceRange	Price		Required if NoTickRules(1205)> 0 It should always be 0 (None). Required by the FIX Protocol. FIX clients should not use the contents of this tag.
→	1208	TickIncrement	Price		Required if NoTickRules(1205)> 0 Basic fraction for price.
End <TickRules> component					
<PriceLimits> component					Specifies the price limits that are valid for trading. These are specified as ticks above the best sell order in the market, and ticks below the best buy order in the market. This range in ticks may be modified by the exchange during market hours, in which case a MarketDefinitionUpdateReport(35=BV) message with the new tick values will be sent.
1306	PriceLimitType		int		Describes how the price limits are expressed Supported values: 1 = Ticks
1148	LowLimitPrice		Price		Ticks down from the reference price used to determine whether the price of a new order is valid.
1149	HighLimitPrice		Price		Ticks up from the reference price used to determine whether the price of a new order is valid.
End <PriceLimits> component					
1786	TradeVolType		int		Defines the type of units for MinTradeVol(562) and MaxTradeVol(1140) Supported values: 0 = Number of units (e.g. share, par, currency, contracts
562	MinTradeVol		Qty		The minimum order or trade quantity/amount e.g. 250000
1140	MaxTradeVol		Qty		The maximum order or trade quantity/amount e.g. 50000000
1245	TradingCurrency		Currency	Y	Identifies currency used for amount. Supported values: USD = US Dollar
423	PriceType		int	Y	Defines the type of price used in the market.

MarketDefinitionUpdateReport(35=BV)				
Tag	Field Name		Data Type	Reqd Comments
				Supported values: 20 = Normal rate representation
End <BaseTradingRules> component				
<OrdTypeRules> component				Repeating group, specifies the order types that are valid for trading on market segment
1237	NoOrdTypeRules		NumInGroup	Number of order types, always 1.
→	40	OrdType	char	Required if NoOrdTypeRules(1237)> 0 Type of orders allowed in the market. Supported values: 2 = Limit - With amount and price, match against orders better or equal to the specified price
End <OrdTypeRules> component				
<TimeInForceRules> component				Repeating group, specifies the time in force rules that are valid for trading on market segment
1239	NoTimeInForceRules		NumInGroup	Number of time in force techniques
→	59	TimeInForce	char	Required if NoTimeInForceRules(1239)> 0 Specifies how long an order remains into the market. Supported values: 1 = Good Till Cancel (GTC) 3 = Immediate Or Cancel (IOC)
End <TimeInForceRules> component				
<ClrInstGrp> component				Repeating group, specifies the clearing conditions that are valid for trading on market segment  * FIX 5.0 component added to message
576	NoClearingInstructions		NumInGroup	Number of clearing instructions
→	577	ClearingInstruction	int	Required if NoClearingInstructions(576)> 0 Indicates clearing instructions allowed in the market segment. Supported values: 0 = Process normally 6 = Clear against central counterparty
End <ClrInstGrp> component				
	Standard Trailer		Y	

## 8. Market Data

Market data is a profile for both the DFIX Gateway and the FIX Client, which provides real-time information of OrderBook (current bids and offers), market trades, trades summary and chronological best prices listing. This section explains how clients should request and deal with this information. The messages involved in this section are:

- MarketDataRequest(35=V)
- MarketDataRequestReject(35=Y)
- MarketDataSnapshotFullRefresh(35=W)
- MarketDataIncrementalRefresh(35=X)

Before explaining the format of the messages and how they should be used, an explanation is included about the different types of information sent as part of the market data.

### 8.1. OrderBook

The DFIX Gateway currently supports Top-Of-Book and Full Order-Depth views, thus maintaining consistency between what FIX clients can receive and what native users currently receive on the Datatec platform. There is a group of users on the Datatec GUI front end who have access to receive all orders in the Spot markets; and another group which only has access to receive the best bid and offer. In the same way FIX Clients can be configured to receive one of the two views, but not both at the same time.

#### 8.1.1. Top-Of-Book view

The DFIX Gateway Server provides the current best bid and offer in the market without calculating the tradable or non-tradable condition.

Example:

Current Order Book

Bid	Offer
250 @ 2348.90	500 @ 2349.10
500 @ 2348.90	750 @ 2349.10
250 @ 2348.85	1000 @ 2349.20
450 @ 2348.80	

Top-Of-Book sent on MDFullGrp

NoMDEntries	EntryType	EntryPx	EntrySize	EntryID	PriceLevel
2	0 [Bid]	2348.90	250	TOP	1
	1 [Offer]	2349.10	500	TOP	1

After a subscription the server sends the Top-Of-Book in a MarketDataSnapshotFullRefresh(35=W) message without any other related information, such as trades, opening, closing, high, low, etc.. If there are no bids and offers, a single J entry type will be sent in the MarketDataSnapshotFullRefresh message.

Note that orders have a constant value in EntryID; this value always is "TOP".

The Top-Of-Book view is maintained using the MarketDataIncrementalRefresh(35=X) message with the following instructions:

**New**, is used when there are no orders in a side and new order has been entered, insert the order as Top-Of-Book.

Example: When the first offer is entered into the market 250 @ 2349.00 and user was already subscribed when there were no offers.

NoMDEntries	UpdateAction	EntryType	EntryPx	EntrySize	EntryID	PriceLevel	EntryPositionNumber
1	0 [New]	1	2349.00	250	TOP	1	1

**Overlay**, updates the Top-Of-Book view. Overlay means that client should replace values sent previously. Top-Of-Book only has one price level so there is no need to use multiple instructions when the best price changes. An action of *overlay* is used to indicate a new price or a change in quantity of the first order in the market. When the best price changes the server does not send a delete of one price level followed by a New for the next price level.

NoMDEntries	UpdateAction	EntryType	EntryPx	EntrySize	EntryID	PriceLevel	EntryPositionNumber
1	5 [Overlay]	1	2348.85	1000	TOP	1	1

**Delete**, is used when the last order in a side has been withdrawn and there are no more orders in that side.

NoMDEntries	UpdateAction	EntryType	EntryPx	EntrySize	EntryID	PriceLevel	EntryPositionNumber
1	2 [Delete]	1	2349.00	250	TOP	1	1

### 8.1.2. Full Order-Depth view

The server provides limited information about each individual order. All orders are sent in one or more than one MarketDataSnapshotFullRefresh(35=W) messages. Orders are sorted by price then time, but all bids are sent first and then all offers. For each order sent as part of Full Order-Depth view, the DFIX Gateway will calculate the tradable condition depending on the FIX Client configuration which specifies if the tradable condition is calculated or not. When the tradable condition is calculated, it is based on firms' credit conditions.

For the same OrderBook in the Top-Of-Book example above, for Full Order-Depth one MarketDataSnapshotFullRefresh(35=W) message will be sent carrying seven entries in the MDFullGrp component, four for bids and three for offers, corresponding to the seven orders in the market.

NoMDEntries	EntryType	EntryPx	EntrySize	EntryID	PriceLevel
7	0 [Bid]	2348.90	250	8ALSHW	1
	0	2348.90	500	8ALSHY	2
	0	2348.85	250	8ALSHZ	3
	0	2348.80	450	8ALSI0	4
	1 [Offer]	2349.10	500	8ALSI1	1
	1	2349.10	750	8ALSI2	2
	1	2349.20	1000	8ALSI3	3

The DFIX Gateway is able to send up to 20 entries in MDFullGrp. When OrderBook has more than 20 orders, more than one MarketDataSnapshotFullRefresh message will be sent. The field MDPriceLevel(1023) will contain the display position of a bid or offer, it is numbered from most competitive to least competitive, per market segment and side, beginning with 1. Each order has a unique MDEntryID. Note that the DFIX Gateway does not aggregate the order amounts at the same price; each order is sent as an independent price level. If there are no bids and offers, a single J entry type will be sent in the MarketDataSnapshotFullRefresh message.

Full Order-Depth view is maintained using the MarketDataIncrementalRefresh(35=X) message with the following instructions:

**New**, is used to insert a new order identified by MDEntryID. The New instruction contains the PriceLevel at which the order must be inserted, taking into account that each order is treated as an independent price level; it also contains the EntryPositionNumber within the PriceLevel, but for spot markets the EntryPositionNumber always will be 1.

Example: A new offer is entered into the market 250 @ 2349.00 (Best offer)

NoMDEntries	UpdateAction	EntryType	EntryPx	EntrySize	EntryID	PriceLevel	EntryPositionNumber
1	0 [New]	1	2349.00	250	8ALSIC	1	1

Now clients should update their OrderBook local copy so that it is as follows:

Bids				Offers			
EntryID	EntryPx	EntrySize	PriceLevel	EntryID	EntryPx	EntrySize	PriceLevel
8ALSHW	2348.90	250	1	8ALSIC	2349.00	250	1
8ALSHY	2348.90	500	2	8ALSI1	2349.10	500	2
8ALSHZ	2348.85	250	3	8ALSI2	2349.10	750	3
8ALSI0	2348.80	450	4	8ALSI3	2349.20	1000	4

Clients are responsible for PriceLevel renumbering.

**Change**, is used to change the quantity or other information related to an order. Change is not used to alter the PriceLevel or EntryPositionNumber of an entry. The trading function of CancelReplace that changes the price of an order will result in a deletion of the old order and an insertion of the updated order into the new price level. 'Change' is not to be used when an order is being re-ranked for any reason.

Example: The price of the first bid is changed to 2348.89 and two instructions are sent in one MarketDataIncrementalRefresh message:

NoMDEntries	UpdateAction	EntryType	EntryPx	EntrySize	EntryID	PriceLevel	EntryPositionNumber
2	2 [Delete]	0	2348.90	250	8ALSHW	1	1
	0 [New]	0	2348.89	250	8ALSHW	2	1

Now clients should update their OrderBook local copy to be as follows:

Bids				Offers			
EntryID	EntryPx	EntrySize	PriceLevel	EntryID	EntryPx	EntrySize	PriceLevel

8ALSHY	2348.90	500	1	8ALSIC	2349.00	250	1
8ALSHW	2348.89	250	2	8ALSI1	2349.10	500	2
8ALSHZ	2348.85	250	3	8ALSI2	2349.10	750	3
8ALSI0	2348.80	450	4	8ALSI3	2349.20	1000	4

**Delete**, is used to delete an order.

Example: Bid with price 2348.85 was withdrawn.

NoMDEntries	UpdateAction	EntryType	EntryPx	EntrySize	EntryID	PriceLevel	EntryPositionNumber
1	2 [Delete]	0	2348.85	250	8ALSHZ	3	1

Now clients should update their OrderBook local copy to be as follows:

Bids				Offers			
EntryID	EntryPx	EntrySize	PriceLevel	EntryID	EntryPx	EntrySize	PriceLevel
8ALSHY	2348.90	500	1	8ALSIC	2349.00	250	1
8ALSHW	2348.89	250	2	8ALSI1	2349.10	500	2
8ALSI0	2348.80	450	3	8ALSI2	2349.10	750	3
				8ALSI3	2349.20	1000	4

**Delete and Change** Instructions use MDEntryID as the key to reference the order. They also include the PriceLevel and EntryPositionNumber of the order; this provides a constant check regarding the integrity of the book.

## 8.2. Market Trades

After a successful subscription to market trades as part of market data, if the FIX client is authorized to receive this information, then it will receive the complete list of trades that marketplace includes in statistical data. The same list of trades is received by the current native Datatec GUI users.

The server provides limited information about each individual trade, without revealing the counterparties. The full list of trades will be sent in more than one MarketDataSnapshotFullRefresh(35=W) message if necessary. The entries in this message do not carry MDEntryID, PriceLevel and EntryPositionNumber; it carries a TradeID which identifies each trade.

Example:

NoMDEntries	EntryType	EntryPx	EntrySize	EntryDate	EntryTime	TradeID	AggressorSide
3	2 [Trade]	2348.85	250	20170808	16:19:09.000	039111909C0BU8K6R8YC0P98APKKP	2 [Sell]
	2	2349.10	250	20170808	16:48:35.000	039114835C0BU8K6R90C0P98APKKS	1 [Buy]
	2	2350.00	500	20170808	16:51:10.000	039131036C0BU8K6R9CC0P98APKKY	1

Market Trades are maintained using the MarketDataIncrementalRefresh(35=X) message with the following instructions:

**New**, is used to insert a new trade identified by TradeID.



**Change**, is used to update a trade that has been modified. In spot and next day markets, trade modification is not allowed, so change instructions for market trades will not occur.

**Delete**, is used to delete a trade that has been annulled.

**Delete and Change** Instructions use TradeID as the key to reference the trade.

### 8.3. Trades Summary

Trades Summary consists of a series of statistical data derived from market trades in the current day. It includes opening price, closing price, trading session high price, trading session low price, the weighted average price traded and the total volume traded; these are called Indices; each one is a single value that represents a price or an amount. The indices may be replaced after a new market trade.

Example of MDFullGrp component in MarketDataSnapshotFullRefresh received by FIX client after a subscription for entry types 4, 5, 7, 8, 9, B and there is a summary for the market:

NoMDEntries	EntryType	EntryPx	EntrySize
6	4 [Opening price]	2348.90	
	5 [Closing price]	2348.92	
	7 [Trading session high price]	2348.95	
	8 [Trading session low price]	2348.90	
	9 [Trading session weighted average price]	2348.93	
	B [Trade volume]		500

If there is no a summary for the market, the MarketDataSnapshotFullRefresh message will not include any entries about trades summary indices.

Trades Summary data is maintained using the MarketDataIncrementalRefresh(35=X) message with the following instructions:

**New**, is used when there is no value for some index and a new trade is done and affects a value or values in trades summary. All affected values are sent in only one MarketDataIncrementalRefresh message

MDIncGrp Example sent after the first trade:

NoMDEntries	UpdateAction	EntryType	EntryPx	EntrySize
6	0 [New]	4	2348.90	
	0	5	2348.90	
	0	7	2348.90	
	0	8	2348.90	
	0	9	2348.90	
	0	B		500

**Overlay**, updates an index value of trades summary. Overlay means that client should replace values sent previously.

**Delete**, is used when values in trades summary become empty, for example when all trades have been annulled.

## 8.4. Session Fixing Price

Fixing prices are volume-weighted average ones calculated either in the same platform or externally. Depending on the market, clients can request either the calculated price (Fixing Price) or the externally calculated one (Settlement Fixing Price).

### 8.4.1. Fixing Price

Fixing Price consist of a series of prices calculated in a similar way that the weighted average price traded (269=9) but they differ in the schedule and the trades taken into account for the calculation. This price may be replaced after a new market trade.

There are special rules and different schedule depending on the platform where this price is calculated.

Below a sample of the component in the MarketDataSnapshotFullRefresh message received by a FIX client after a subscription for entry type "W" and when there already is a Fixing Price for the market:

NoMDEntries	EntryType	EntryPx
1	W [Session Fixing Price]	2348.45

If there is no Fixing Price for the market, the MarketDataSnapshotFullRefresh message will not include any entries about it.

Session Fixing Prices data are maintained using the MarketDataIncrementalRefresh(35=X) message with same instructions used for Trades Summary data.

## 8.5. Chronological Best Prices Listing

When FIX Client sends a subscription to the chronological best prices listing in the market data profile, if the client is authorized to receive this information, then they will receive the complete list of bid or offer prices that the marketplace determined were the best prices at any given moment. The same chronological list of prices is received by native Datatec users.

The complete chronological list of best prices may be sent in multiple MarketDataSnapshotFullRefresh(35=W) messages as necessary. The entries in this message carry an MDEntryID which identifies each best price.

Example:

NoMDEntries	EntryType	EntryPx	EntryDate	EntryTime	EntryID
3	N [Session High Bid]	2348.90	20170808	14:08:25.000	8ALSHX
	N	2348.89	20170808	15:37:04.000	8ALSIE
	O [Session Low Offer]	2349.10	20170808	14:09:10.000	8ALSIZ

The chronological best prices listing is maintained using the MarketDataIncrementalRefresh(35=X) message only with instruction **New**, because each time a price becomes the best, it is always new in this context.

## 8.6. Market Data Subscription

The FIX Client must send a MarketDataRequest(35=V) message for the instruments that trade in the market segments whose definition has already been received. The user can only send one market segment and one instrument in each subscription request.

A subscription message where the NoRelatedSym(146) is "0" will result in a protocol violation and DFIX Gateway will reject the subscription.

A subscription message where the NoMarketSegments(1310) is not equal to "1" will result in an invalid subscription and DFIX Gateway will reject the subscription. DFIX Gateway will only support NoMarketSegments(1310)=1.

The format of the request message is as follows:

**Table 22 – MarketDataRequest Message**

MarketDataRequest(35=V)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = V
262	MDReqID	String	Y	Unique identifier for the request, created by client
263	SubscriptionRequestType	Char	Y	Type of market data subscription request. Supported values: 1 = Snapshot + Updates (Subscribe) 2 = Disable previous Snapshot + Update Request (Unsubscribe)
264	MarketDepth	Int	Y	Depth of market for Book Snapshot / Incremental updates. Supported values: 0 = Full book depth 1 = Top of book
265	MDUpdateType	Int		Required if SubscriptionRequestType(263) = 1 (Snapshot + Updates). Type of market data update. Supported values: 1 = Incremental refresh
266	AggrgatedBook	Boolean		Required if SubscriptionRequestType(263) = 1 (Snapshot + Updates). Indicates whether the order book entries are aggregated or not. Supported values: N = Orders not aggregated by price level
<MDReqGrp> component			Y	Repeating group of MDEntryType in the subscription
267	NoMDEntryTypes	NumInGroup	Y	Number of MDEntryType fields in the request
→	269	MDEntryType	char	Y The type of market data entry. Supported values:

MarketDataRequest(35=V)				
Tag	Field Name		Data Type	Reqd Comments
				0 = Bid 1 = Offer 2 = Trade 4 = Opening price 5 = Closing price 7 = Trading session high price 8 = Trading session low price 9 = Trading session weighted average price B = Trade volume N = Session High Bid O = Session Low Offer W = Session Fixing Price (Datatec calculated price) * = All supported entry types - To indicate all available data
End <MDReqGrp> component				
<MarketSegmentScopeGrp> component			Y	Repeating group, used to limit the result set to the specified market segment
1310	NoMarketSegments		NumInGroup	Y Number of market segments in the subscription. It must be 1.
→	1301	MarketID	Exchange	Y Carried from MarketDefinition. This is the Market Identification Code (MIC) conforming to ISO-10383. Supported values: XBOG = Bolsa de Valores de Colombia XBCL = Bolsa Electrónica de Chile XLIM = Bolsa de Valores de Lima
→	1300	MarketSegmentID	String	Y Carried from MarketDefinition. Identifies the market segment, it's assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
End < MarketSegmentScopeGrp> component				
<InstrmtMDReqGrp> component			Y	Repeating group used to limit the result set to a specific instrument. It must be 1.
146	NoRelatedSym		NumInGroup	Y Number of instruments in the request
→	55	Symbol	String	Y Currency pair in CCY/CCY format, from MarketDefinition InstrumentScopeSymbol(1536)
End < InstrmtMDReqGrp> component				
	Standard Trailer		Y	

If DFIX Gateway receives a new subscription request with the same or different MDReqID(262), the new request replaces the previous one. Each user is only allowed to have one active request.

Examples:

Time	MDReqID (262)	MarketDepth (264)	NoMDEntryTypes (267)	MDEntryType (269)				Comment
1	1	0	2	0	1			All current bids and current offers will be sent.
2	1	0	3	0	1	2		All current bids, current offers and market trades should be sent, but as bids and offers have already been sent by the previous subscription, only the market transactions will be sent at this time.
3	2	0	1	2				Stop sending bids and offers and continue sending market trades.
4	2	0	1	*				All available data will be sent, without include those that were sent by the last subscription.
5	3	0	2	0	1			All current bids and current offers will be sent, but as bids and offers have already been sent by the previous subscription, nothing is sent at this time.

Market Data subscription is used to receive real-time market data; in the event of a FIX session disconnection, all active subscriptions will be cancelled. On a Market Data profile, FIX Client must reset sequence numbers on every logon using ResetSeqNumFlag(141)=Y and client needs to send another MarketDataRequest(35=V) message.

## 8.7. Market Data Subscription Rejected

The DFIX Gateway analyzes the request and may send a rejection message if the user does not have access to the requested information or if any field of the request is incorrect or not supported. Although several currency pairs may be included in the subscription request, one rejection message will be sent for each market segment and currency pair rejected.

The rejection is sent using the following message:

**Table 23 – MarketDataRequestReject Message**

MarketDataRequestReject(35=Y)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = Y
262	MDReqID	String	Y	MDReqID value carried from MarketDataRequest
281	MDReqRejReason	char	Y	Reason for the rejection. Supported values: 0 = Unknown symbol 1 = Duplicated MDReqID 3 = Insufficient permissions 4 = Unsupported SubscriptionRequestType 5 = Unsupported MarketDepth 6 = Unsupported MDUpdateType 7 = Unsupported AggrgatedBook 8 = Unsupported MDEntryType A = Unsupported Scope

MarketDataRequestReject(35=Y)				
Tag	Field Name	DataType	Reqd	Comments
58	Text	String		Text of the reason for rejection, including the instrument that was rejected
	<i>Standard Trailer</i>		Y	

## 8.8. Market Data Subscription Accepted

If the subscription request is valid and the user is authorized to access the requested data, for each instrument and market in the subscription the DFIX Gateway sends one or more **Market Data – Snapshot/Full Refresh(35=W)** messages. The TotNumReports(911) field in the last message tells the client how many of these messages have been sent. All messages resulting from one request message will contain the same MDReqID carried from the request.

Although multiple instruments (currency pairs) can be contained in a single Subscription Request, a response Snapshot/Full Refresh message will be sent individually for each successfully subscribed market segment and currency pair for each type of view.

A Market Data Snapshot message may contain several trades, opening price, closing price, trading session high price, trading session low price, VWAP (Volume Weighted Average Price), traded volume, as well as high bid and low offer; but only for one instrument per message.

Messages containing bids and/or offers cannot contain trades, opening, closing, high, low, VWAP prices, traded volume, high bid or low offer.

**Table 24 – MarketDataSnapshotFullRefresh Message**

MarketDataSnapshotFullRefresh(35=W)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = <b>W</b>
911	TotNumReports	int		Total number of reports returned in response to a request. Only present in the last message sent.
262	MDReqID	String	Y	MDReqID value carried from MarketDataRequest
1301	MarketID	Exchange	Y	Identifier of the market which data belongs. This is the Market Identification Code (MIC) conforming to ISO-10383. Supported values: XBOG = Bolsa de Valores de Colombia XBCL = Bolsa Electrónica de Chile XLIM = Bolsa de Valores de Lima
1300	MarketSegmentID	String	Y	Identifier of the market segment to which data belongs. Identifies the market segment, it's assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot

MarketDataSnapshotFullRefresh(35=W)					
Tag	Field Name		DataType	Reqd	Comments
					51 = PE Dollar Spot
<Instrument> component				Y	Identifies the instrument to which data belongs
55	Symbol		String	Y	Currency pair
End <Instrument> component					
1021	MDBookType		int		Required if this message include bid or offer entry types. Describes the type of book (view) for which the feed is intended Supported value: 1 = Top of Book 3 = Order-Depth
<MDFullGrp> component				Y	Repeating group with requested data
268	NoMDEntries		NumInGroup	Y	Number of repeating blocks to follow. Must be >= 1.
→	269	MDEntryType	char	Y	Type of market data entry. Supported values: 0 = Bid 1 = Offer 2 = Trade 4 = Opening price 5 = Closing price 7 = Trading session high price 8 = Trading session low price 9 = Trading session weighted average price B = Trade volume N = Session High Bid O = Session Low Offer W = Session Fixing Price (Datatec calculated price) J = Empty book (Used when there are no bids and offers in the market)
→	278	MDEntryID	String		Required when MDEntryType is 0 (Bid), 1 (Offer), N (Session High Bid) or O (Session Low Offer). Unique MarketData Entry identifier. Allows subsequent incremental changes to be applied using this field
→	270	MDEntryPx	Price		Required when MDEntryType is not B (Trade Volume) or J (Empty book). Price of the market data entry
→	271	MDEntrySize	Qty		Required when MDEntryType is 0 (Bid), 1 (Offer), 2 (Trade) or B (Trade Volume) Quantity or volume of the market data entry
→	272	MDEntryDate	UTCDateOnly		If MDEntryType is 2 (Trade), N (Session High Bid) or O (Session Low Offer), this field contains the trade date or price date (UTC Date only)
→	273	MDEntryTime	UTCTimeOnly		If MDEntryType is 2 (Trade), this field contains the match time from the Matching Engine. For a registered trade it contains the time entered by initiator. (UTC

MarketDataSnapshotFullRefresh(35=W)					
Tag	Field Name		DataType	Reqd	Comments
					Time only). If MDEntryType is ) N (Session High Bid) or O (Session Low Offer), this field contains the time when the price was the best.
→	1070	MDQuoteType	Int		Calculated when MDEntryType is 0 (Bid), 1 (Offer) and MDBookType = 3. FIX Client configuration could specify if this field is or not calculated. Also for MDBookType = 1, this field is not calculated. Identifies quote type. Supported values: 1010 = Tradable with bilateral credit 1011 = Tradable with bilateral credit and Clearing house credit 1013 = Not tradable, order from same firm 1014 = Not tradable, insufficient credit
→	110	MinQty	Qty		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains minimum quantity of an order to be executed. (For future use)
→	37	OrderID	String		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains the ClOrdID(11) that was submitted by the order owner. This field is sent only for order belonging to the FIX Client, otherwise omitted.
→	1003	TradeID	String		If MDEntryType is 2 (Trade), This field contains the unique trade identifier generated by Datatec.
→	828	TrdType	Int		If MDEntryType is 2 (Trade), this specifies the type of trade. Supported values: 0 = Regular trade (Default) 22 = Privately negotiated trade – Registered trade
→	829	TrdSubType	Int		If MDEntryType is 2 (Trade), this may contain additional trade type qualifiers. Used in conjunction with TrdType(828). Supported values: 36 = SWAP converted 1003 = Stop Loss 1004 = Volume Match The following values applies for MarketSegmentID = 71 and 76 on Trade Registration 1006 = Swap O/N 1007 = Swap Forward 1008 = Swap Future
→	1023	MDPriceLevel	Int		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains the display position of a bid or offer, numbered from most competitive to least competitive, per market segment an side, beginning with 1.
→	483	TransBkdTime	UTCTimestamp		If MDEntryType is 2 (Trade), this field contains the time



MarketDataSnapshotFullRefresh(35=W)					
Tag	Field Name		DataType	Reqd	Comments
					of trade agreement for privately negotiated trades  * FIX 5.0 field added to message
→	2445	AggressorTime	UTCTimestamp		If MDEntryType is 2 (Trade), this field contains the timestamp of aggressive order.
→	2446	AggressorSide	char		If MDEntryType is 2 (Trade), this field contains the side of aggressive order. Supported values: 1 =Buy 2 =Sell
→	1925	TradeClearingInstruction	int		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains the clearing condition of the order.  * FIX 5.0 field added to message  Supported values: 0 = Process normally (Default, not cleared against central counterparty) 6 = Clear against central counterparty
End <MDFullGrp> component					
	Standard Trailer			Y	

## 8.9. Market Data Incremental Refresh

The Market Data – Snapshot/Full Refresh(35=W) message may be followed by **Market Data – Incremental Refresh(35=X)** messages, these will be sent every time there is a change in market data.

Separate Market Data – Incremental Refresh messages for each type of view will be sent; but the message may contain multiple instruments in a single message.

**Table 25 – MarketDataIncrementalRefresh Message**

MarketDataIncrementalRefresh(35=X)				
Tag	Field Name	Data Type	Reqd	Comments
	Standard Header		Y	MsgType = X
1021	MDBookType	int		Required if this message include bid or offer entry types. Describes the type of book (view) for which the feed is intended 1 = Top of Book 3 = Order-Depth
262	MDReqID	String	Y	MDReqID value carried from MarketDataRequest
1301	MarketID	Exchange	Y	Identifier of the market which data belongs. This is the Market Identification Code (MIC) conforming to ISO-

MarketDataIncrementalRefresh(35=X)					
Tag	Field Name		Data Type	Reqd	Comments
					10383. Supported values: XBOG = Bolsa de Valores de Colombia XBCL = Bolsa Electrónica de Chile XLIM = Bolsa de Valores de Lima
1300	MarketSegmentID		String	Y	Identifier of the market segment to which data belongs. Identifies the market segment, it's assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<MDIncGrp> component				Y	Repeating group with updated data
268	NoMDEntries		NumInGroup	Y	Number of repeating blocks to follow. Must be >= 1.
→	279	MDUpdateAction	char	Y	Must be the first field of this repeating group. Types of market data update action. Supported values: 0 = New 1 = Change 2 = Delete 5 = Overlay
→	269	MDEntryType	char	Y	Market data entry type. Supported values: 0 = Bid 1 = Offer 2 = Trade 4 = Opening price 5 = Closing price 7 = Trading session high price 8 = Trading session low price 9 = Trading session weighted average price B = Trade volume N = Session High Bid O = Session Low Offer W = Session Fixing Price (Datatec calculated price)
→	278	MDEntryID	String		Required when MDEntryType is 0 (Bid), 1 (Offer), N (Session High Bid) or O (Session Low Offer). Unique MarketData Entry identifier. Allows subsequent incremental changes to be applied using this field
→	<Instrument> component			Y	Component used to identify the "Instrument"
→	55	Symbol	String	Y	Currency pair
→	End <Instrument> component				
→	270	MDEntryPx	Price		Required when MDEntryType is not B (Trade Volume) or J (Empty book). Price of the market data entry

MarketDataIncrementalRefresh(35=X)					
Tag	Field Name		Data Type	Reqd	Comments
→	271	MDEntrySize	Qty		Required when MDEntryType is 0 (Bid), 1 (Offer), 2 (Trade) or B (Trade Volume) Quantity or volume of the market data entry
→	272	MDEntryDate	UTCDateOnly		If MDEntryType is 2 (Trade), this field contains the trade date (UTC Date only)
→	273	MDEntryTime	UTCTimeOnly		If MDEntryType is 2 (Trade), this field contains the match time from the Matching Engine. For a registered trade it contains the time entered by initiator. (UTC Time only)
→	1070	MDQuoteType	int		Calculated when MDEntryType is 0 (Bid), 1 (Offer) and MDBookType = 3. FIX Client configuration could specify if this field is or not calculated. Also for MDBookType = 1, this field is not calculated. Identifies quote type. Supported values: 1010 = Tradable with bilateral credit 1011 = Tradable with bilateral credit and Clearing house credit 1013 = No tradable, order from same firm 1014 = No tradable, insufficient credit
→	110	MinQty	Qty		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains minimum quantity of an order to be executed. (For future use)
→	37	OrderID	String		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains the ClOrdID(11) that was created by the order owner
→	1003	TradeID	String		If MDEntryType is 2 (Trade), This field contains the unique trade identifier generated by Datatec.
→	828	TrdType	int		If MDEntryType is 2 (Trade), this specifies the type of trade. Supported values: 0 = Regular trade 22 = Privately negotiated trade – Registered trade
→	829	TrdSubType	int		If MDEntryType is 2 (Trade), this may contain additional trade type qualifiers. Used in conjunction with TrdType(828). Supported values: 36 = SWAP converted 1003 = Stop Loss 1004 = Volume Match The following values applies for MarketSegmentID = 71 and 76 on Trade Registration 1006 = Swap O/N 1007 = Swap Forward 1008 = Swap Future

MarketDataIncrementalRefresh(35=X)					
Tag	Field Name		DataType	Reqd	Comments
→	290	MDEntryPositionNo	int		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains the position of a bid or offer inside of a price level. For Spot and Next Day markets, the DFIX Gateway always sends 1
→	1023	MDPriceLevel	int		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains the display position of a bid or offer
→	483	TransBkdTime	UTCTimestamp		If MDEntryType is 2 (Trade), this field contains the time of trade agreement for privately negotiated trades
→	2445	AggressorTime	UTCTimestamp		If MDEntryType is 2 (Trade), this field contains the Timestamp of aggressive order.
→	2446	AggressorSide	char		If MDEntryType is 2 (Trade), this field contains the side of aggressive order. Supported values: 1 =Buy 2 =Sell
→	1925	TradeClearingInstruction	int		If MDEntryType is 0 (Bid) or 1 (Offer), this field contains the clearing condition of the order.  * FIX 5.0 field added to message  Supported values: 0 = Process normally (Default, not cleared against central counterparty) 6 = Clear against central counterparty
End <MDIncGrp> component					
	Standard Trailer			Y	

## 8.10. Market Data Unsubscribe

A FIX Client can unsubscribe from the current active subscription by sending a MarketDataRequest(35=V) message setting fields MDReqID(262) equal to the last value sent on subscription and SubscriptionRequestType(263) equal 2 (Disable previous Snapshot + Update Request). Sending update messages related to the subscription being disabled will be discontinued.

Other required fields in the MarketDataRequest message must be sent to satisfy the FIX Protocol, but these will be ignored by the DFIX Gateway.

## 9. Credit Limits

### Bilateral Limits

FX Spot markets on Datatec like USD/COP, USD/CLP and USD/PEN use bilateral credit limits, where each firm that wants to trade in a market must define the amount of credit limits against their counterparties. The amounts are defined in three ways:

- 1) **Buy/Sell Credit Limits:** Defined as separate limit amounts, one for purchases (buy limit) and other for sales (sell limit). For each one the remaining credit balance is calculated as the credit limit minus traded amounts (utilized amount) for the given side. The side is from the perspective of the party setting the limit against counterparties.

Example:

*Customer A extends 10 million buy credit and 12 million sell credit to CustomerB*

*If Customer A buys 4 million from CustomerB, the resulting buy credit limit balance will be 6 million. Subsequently, if Customer A sells 1 million to CustomerB, the resulting sell credit limit balance will be 11 million.*

- 2) **Netted Credit Limits:** Defined as separate limit amounts, one for purchases and other for sales, where the remaining credit balance is calculated as the limit minus traded amounts for one side plus traded amounts of the other side.

Example:

*Customer A extends 10 million buy credit and 12 million sell credit to CustomerB.*

*If Customer A buys 4 million from CustomerB, the resulting netted credit limit balance will be 6 million for buy credit and 16 million for sell credit. Subsequently, if CustomerA sells 1 million to CustomerB, the resulting netted credit limit balance will now be 7 million for buy credit and 15 million for sell credit.*

Note the difference compared to Buy/Sell Credit Limits. With netted credit limits, buys affect the balance of the buy credit limit **and** the balance of the sell credit limit. Similarly, sells also affect both sell and buy credit limit balances.

- 3) **Gross Credit Limits:** Defined as a single gross amount, the remaining credit balance is calculated as the limit minus all traded amounts (purchases and sales).

Example:

*CustomerA extends 10 million gross credit to CustomerB.*

*If CustomerA buys 4 million from CustomerB, the resulting gross credit limit balance will be 6 million. Subsequently, if Customer A sells 1 million to CustomerB, the resulting gross credit limit balance will be 5 million.*

For bilateral credit limits there is a credit limit owner (the party setting the limit) and the counterparty. Only the owner can see and change the amounts assigned to their counterparties. The counterparty can never see the amount of credit that others have assigned to it. Only authorized users within a firm can change the amounts of

credit limits for their own firm and only on a schedule that is set in each market. It's normally configured to allow changes to credit limits only outside of market hours.

## Clearinghouse Limits

For USD/COP FX Spot market, there is a Clearinghouse (Cámara de Compensación de Divisas – CCD) which also assigns a netted buy and sell credit limit for each participant to trade with all the other counterparties. Each counterparty is only entitled to see the amount of their own clearinghouse assigned credit limit and the current balance.

For both bilateral and clearinghouse limits, a party's credit balance is used to determinate if orders displayed in the market are tradable or not tradable for each counterparty. This condition is indicated for each order in the MDQuoteType(1070) field.

The messages involved in this section are:

- PartyRiskLimitsRequest(35=CL)
- PartyRiskLimitsReport(35=CM)
- PartyRiskLimitsUpdateReport(35=CR)

All these messages are defined in 5.0SP2 FIX Protocol.

### 9.1. Credit Limits Request

The **PartyRiskLimitsRequest**(35=CL) message is used to request credit limits information for specific parties, specific party roles or specific instruments. As stated above, a firm may only request information about its own credit limits extended to other counterparties in the market segment or request credit limits extended to its own firm by the clearing house.

Table 26 – PartyRiskLimitsRequest Message

PartyRiskLimitsRequest(35=CL)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = CL
1666	RiskLimitRequestID	String	Y	Unique identifier for the request, created by client
1760	RiskLimitRequestType	int	Y	Type of risk limits information. Supported values: 1 = Definitions 3 = Definitions and utilization
263	SubscriptionRequestType	char	Y	Subscription request type. Supported values: 1 = Snapshot + Updates (Subscribe) 2 = Disable previous Snapshot + Update Request (Unsubscribe)
<RequestingPartyGrp> component				Required when SubscriptionRequestType(263) = 1. Repeating group used to identify the party making the request and their role.

PartyRiskLimitsRequest(35=CL)				
Tag	Field Name		Data Type	Reqd Comments
1657	NoRequestingPartyIDs		NumInGroup	If specified, always 1.
→	1658	RequestingPartyID	String	Required when NoRequestingPartyIDs > 0 Party identifier of the requester – It should contain a 3-character Firm ID.
→	1659	RequestingPartyIDSource	char	Required when NoRequestingPartyIDs > 0 Identifies the source of RequestingPartyID value. Supported values: C = Generally accepted market participant identifier - Datatec mnemonic
→	1660	RequestingPartyRole	int	Required when NoRequestingPartyIDs > 0 Identifies the role of RequestingPartyID Supported values: 13 = Order Origination Firm 21 = Clearing House
End <RequestingPartyGrp> component				
<Parties> component				Repeating group used to identify the clearing house when participant is sending a request to ask credit limits extended by clearing house
453	NoPartyIDs		NumInGroup	If specified, always 1.
→	448	PartyID	String	Required when NoPartyIDs > 0. Party identifier – It should contain a 3-character Firm ID
→	447	PartyIDSource	char	Required when NoPartyIDs > 0. Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier - Datatec mnemonic
→	452	PartyRole	int	Required when NoPartyIDs > 0. Identifies the role of PartyID Supported values: 21 = Clearing House
End <Parties> component				
1533	RiskLimitPlatform		String	Y The area to which credit limits is applicable. It identifies the market segment which credit limit values belong, Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
	Standard Trailer			Y

If the market segment only uses bilateral credit limits, FIX Clients can request the amounts of credit limits that their own institution has extended to all counterparties by sending the PartyRiskLimitsRequest(35=CL) message with its own 3-character Firm ID in RequestingPartyID(1658) and RequestingPartyRole(1660) = 13, and the Parties component should be omitted.

If the market segment uses clearing house credit limits, the owner of the credit limits is the clearing house and the counterparties are the other institutions (market participants). Market participants requesting information on the credit limits extended by clearing house to them should send in the PartyRiskLimitsRequest(35=CL) with its own 3-character Firm ID in RequestingPartyID(1658), RequestingPartyRole(1660) = 13, PartyID(448) with the clearing house 3-character Firm ID and PartyRole(452) = 21.

If the FIX Client is the clearing house and wants to request the amounts of credit limits that the clearing house has extended to market participants, the request should include its own 3-character Firm ID in RequestingPartyID(1658) and RequestingPartyRole(1660) = 21. The Parties component is not needed in this case.

## 9.2. Credit Limits Request Rejected

When the DFIX Server receives PartyRiskLimitsRequest(35=CL)message, it analyzes the information received and checks permissions, then using the **PartyRiskLimitsReport(35=CM)** message will send a rejection of the request or will send all information requested. If the request is rejected, all required fields of the message will be sent and RequestResult(1511) will carry the code of the rejection and RejectText(1328) a text explaining the reason for rejection.

The complete structure of the PartyRiskLimitsReport(35=CM) message is included on the next sub section.

## 9.3. Credit Limits Request Accepted

If the request was not rejected, then the DFIX Gateway will send the information of credit limits in one or more messages, the client should use the value of the field TotNoParties(1512) to find out how many counterparties in total will be received and the field LastFragment(893) to find out which the last party is.

The PartyRiskLimitsReport(35=CM) message with credit limits information has the following structure:

**Table 27 – PartyRiskLimitsReport Message**

PartyRiskLimitsReport(35=CM)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = <b>CM</b>
1667	RiskLimitReportID	String	Y	Unique identifier for the report created by DFIX Gateway
1666	RiskLimitRequestID	String	Y	The RiskLimitRequestID value carried from PartyRiskLimitsRequest
1760	RiskLimitRequestType	int	Y	The type of request. Supported values: 1 = Definitions 3 = Definitions and utilization
1511	RequestResult	int	Y	The result of the request. Supported values: 0 = Valid request



PartyRiskLimitsReport(35=CM)						
Tag	Field Name			DataType	Reqd	Comments
						1 = Invalid or unsupported request 2 = No data found that match selection criteria – but the request is valid 5 = Request for data not supported 99 = Other (Used when rejecting a request of a market that uses other market credit limits. For example, a Bank having market 76 configured to use limits of market 71).
1512	TotNoParties			int		Required when RequestResult(1511) = 0 (Valid request). Total number of counterparties as a result of the request
893	LastFragment			Boolean		Required when RequestResult(1511) = 0 (Valid request). Indicates whether this message is the last N = Not last message (Default if not specified) Y = Last message
<PartyRiskLimitsGrp> component						Required when RequestResult(1511) = 0 (Valid request). Repeating group of parties and the risk limits for the party
1677	NoPartyRiskLimits			NumInGroup		Number of counterparties included in this message
→	<PartyDetailGrp> component					Required if NoPartyRiskLimits(1677) > 0 Repeating group, contains details for a party
→	1671	NoPartyDetails		NumInGroup		If specified, always 1
→	→	1691	PartyDetailID	String		Required if NoPartyDetails(1671) > 0 Party identifier – 3-character Firm ID
→	→	1692	PartyDetailIDSource	char		Required if NoPartyDetails(1671) > 0 Identifies the source of PartyDetailID Supported values: C = Generally accepted market participant identifier - Datatec mnemonic
→	→	1693	PartyDetailRole	int		Required if NoPartyDetails(1671) > 0 Identifies the role of PartyDetailID Supported values: 17 = Contra Firm - This will be the Counterparty Firm 21 = Clearing House
→	→	<RelatedPartyDetailGrp> component				Required if the credit limits owner is using credit limits by branches. Repeating group that include the owner branch.
→	→	1562	NoRelatedPartyDetailID	NumInGroup		If specified, always 1
→	→	→	1563	RelatedPartyDetailID	String	Required if NoRelatedPartyDetailID(1562) > 0 Branch identifier – 8-character Branch ID

PartyRiskLimitsReport(35=CM)							
Tag	Field Name				DataType	Reqd	Comments
→	→	→	1564	RelatedPartyDetailIDSource	char		Required if NoRelatedPartyDetailID(1562) > 0 Identifies the source of Related PartyDetailID Supported values: C = Generally accepted market participant identifier - Datatec mnemonic
→	→	→	1565	RelatedPartyDetailRole	int		Required if NoRelatedPartyDetailID(1562) > 0 Supported values: 75 = Location ID
→	→	End <RelatedPartyDetailGrp> component					
→	→	1672	PartyDetailStatus	int			Indicates the status of the party in credit limits definition Supported values: 0 = Active - Default if not specified. 1 = Suspended - Suspend until re-activate 2 = Halted - Suspend for rest of the day
→	End <PartyDetailGrp> component						
→	<RiskLimitsGrp> component						Required if NoPartyRiskLimits(1677) > 0 Repeating group, contains credit limits for the party.
→	1669	NoRiskLimits			NumInGroup		If specified, always 1
→	→	<RiskLimitTypesGrp> component					Required if NoRiskLimits(1669) > 0 Repeating group of credit limit types and values
→	→	1529	NoRiskLimitTypes		NumInGroup		Required if NoRiskLimits(1669) > 0 If the firm is configured for gross limits, this field will be "1". If firm is configured for Buy/Sell credit limits or Buy/Sell net limits, this field will be "2". The first instance represents the buy limit and the second instance represents the sell limit.
→	→	→	1530	RiskLimitType	int		Required if NoRiskLimitTypes(1529) > 0 Specifies the type of credit limit Supported values: 0 = Credit limit (Buy/Sell credit limits) 1 = Gross limit 2 = Net limit
→	→	→	1531	RiskLimitAmount	Amt		Required if NoRiskLimitTypes(1529) > 0 Specifies the amount of credit limit that was setup. If there is no amount setup "0" will be sent
→	→	→	1766	RiskLimitUtilizationAmount	Amt		Required if NoRiskLimitTypes(1529) > 0 and this message is in response to a request asking definitions and utilization Contains the current utilized amount. If there is no utilized amount "0" will be sent
→	→	→	1533	RiskLimitPlatform	String		Required if NoRiskLimitTypes(1529) > 0 The area to which credit limits is applicable. It

PartyRiskLimitsReport(35=CM)							
Tag	Field Name				DataType	Reqd	Comments
							Identifies the market segment which credit limit values belong, Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
→	→	→	1633	LimitAmtRemaining	Amt		Required if NoRiskLimitTypes(1529) > 0 and this message is in response to a request asking definitions and utilization  The balance amount remaining calculated after each trade.  * FIX 5.0 field added to message
→	→	End <RiskLimitTypesGrp> component					
→	End <RiskLimitsGrp> component						
→	1670	RiskLimitID			String		Required if NoPartyRiskLimits(1677) > 0 Unique reference identifier of the credit limits entry assigned by Datatec.
End <PartyRiskLimitsGrp> component							
1328	RejectText				String		Identifies the reason for rejection
	Standard Trailer					Y	

## 9.4. Credit Limits Update Report

After the DFIX Gateway has sent all the credit limit information requested by the client, DFIX Gateway will send **PartyRiskLimitsUpdateReport(35=CR)** messages at the time that any change either by new limit definitions, modifications or deletion of limit definitions, or by market transactions that change the utilized amount.

The PartyRiskLimitsUpdateReport message has the following structure:

**Table 28 – PartyRiskLimitsUpdateReport Message**

PartyRiskLimitsUpdateReport(35=CR)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = <b>CR</b>
1667	RiskLimitReportID	String	Y	Unique identifier for the report created by DFIX Gateway
1666	RiskLimitRequestID	String	Y	The RiskLimitRequestID value carried from PartyRiskLimitsRequest

PartyRiskLimitsUpdateReport(35=CR)						
Tag	Field Name			Data Type	Reqd	Comments
<PartyRiskLimitsUpdateGrp> component					Y	Repeating group of parties and the risk limits for the party
1677	NoPartyRiskLimits			NumInGroup		Number of counterparties included in this message
→	1324	ListUpdateAction		char		Required if NoPartyRiskLimits(1677) > 0 The type of update. Supported values: A = Add D = Delete M = Modify
→	<PartyDetailGrp> component					Required if NoPartyRiskLimits(1677) > 0 and ListUpdateAction(1324) is A or M; when ListUpdateAction(1324) = D, this component is not included in the <b>PartyRiskLimitsUpdateGrp</b> component. Repeating group, contains details for a party
→	1671	NoPartyDetails		NumInGroup		If specified, always 1
→	→	1691	PartyDetailID		String	Required if NoPartyDetails(1671) > 0 Party identifier – 3-character Firm ID
→		1692	PartyDetailIDSource		char	Required if NoPartyDetails(1671) > 0 Identifies the source of PartyDetailID Supported values: C = Generally accepted market participant identifier - Datatec mnemonic
→	→	1693	PartyDetailRole		int	Required if NoPartyDetails(1671) > 0 Identifies the role of PartyDetailID Supported values: 17 =Contra Firm– This will be the Counterparty Firm 21 = Clearing House
→	→	<RelatedPartyDetailGrp> component				Required if the credit limits owner is using credit limits by branches. Repeating group that include the owner branch.
→	→	1562	NoRelatedPartyDetailID		NumInGroup	If specified, always 1
→	→	→	1563	RelatedPartyDetailID	String	Required if NoRelatedPartyDetailID(1562) > 0 Branch identifier – 8-character Branch ID
→	→	→	1564	RelatedPartyDetailIDSource	char	Required if NoRelatedPartyDetailID(1562) > 0 Identifies the source of PartyDetailID Supported values: C = Generally accepted market participant identifier - Datatec mnemonic
→	→	→	1565	RelatedPartyDetailRole	int	Required if NoRelatedPartyDetailID(1562) > 0 Supported values: 75 = Location ID
→	→	End <RelatedPartyDetailGrp> component				

PartyRiskLimitsUpdateReport(35=CR)						
Tag	Field Name			Data Type	Reqd	Comments
→	→	1672	PartyDetailStatus		int	Indicates the status of the party in credit limits definition Supported values: 0 = Active - Default if not specified 1 = Suspended - Suspend until re-activate 2 = Halted - Suspend for rest of the day
→	End <PartyDetailGrp> component					
→	<RiskLimitsGrp> component					Required if NoPartyRiskLimits(1677) > 0 Repeating group, contains credit limits for the party
→	1669	NoRiskLimits		NumInGroup		If specified, always 1
→	→	<RiskLimitTypesGrp> component				Required if NoRiskLimits(1669) > 0 Repeating group of credit limit types and values
→	→	1529	NoRiskLimitTypes		NumInGroup	Required if NoRiskLimits(1669) > 0 If the firm is configured for gross limits, this field will be "1". If firm is configured for Buy/Sell credit limits or Buy/Sell net limits, this field will be "2". The first instance represents the buy limit and the second instance represents the sell limit.
→	→	→	1530	RiskLimitType	int	Required if NoRiskLimitTypes(1529) > 0 Specifies the type of credit limit Supported values: 0 = Credit limit 1 = Gross limit 2 = Net limit
→	→	→	1531	RiskLimitAmount	Amt	Required if NoRiskLimitTypes(1529) > 0 Specifies the amount of credit limit that was setup. If there is no amount setup"0" will be sent.
→	→	→	1766	RiskLimitUtilization Amount	Amt	Required if NoRiskLimitTypes(1529) > 0 and this message is an updating for a request asking definitions and utilization Contains the current utilized amount. If there is no utilized amount"0" will be sent
→	→	→	1533	RiskLimitPlatform	String	Required if NoRiskLimitTypes(1529) > 0 The area to which credit limits is applicable. Identifies the market segment which credit limit values belong, Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
→	→	→	1633	LimitAmtRemaining	Amt	Required if NoRiskLimitTypes(1529) > 0 and this message is an updating for a request asking definitions and utilization The balance amount remaining calculated after each

PartyRiskLimitsUpdateReport(35=CR)							
Tag	Field Name				DataType	Reqd	Comments
							trade.  * FIX 5.0 field added to message
→	→	End <RiskLimitTypesGrp> component					
→	End <RiskLimitsGrp> component						
→	1670	RiskLimitID			String		Required if NoPartyRiskLimits(1677) > 0 Unique identifier of the credit limit. This will contain a new identifier when ListUpdateAction=A, otherwise it will contain the same identifier as established in the PartyRiskLimitsReport message if updating or deleting an existing credit limit "record".
End <PartyRiskLimitsGrp> component							
	Standard Trailer					Y	

## 9.5. Credit Limits Unsubscribe

A FIX Client can unsubscribe from the previous subscription sending a PartyRiskLimitsRequest(35=CL) message setting fields RiskLimitRequestID(1666) equal to the last value sent on subscription and SubscriptionRequestType(263) equal 2 (Disable previous Snapshot + Update Request). Sending update messages related to the subscription being disabled will be discontinued.

Other required fields in the PartyRiskLimitsRequest message must be sent to satisfy the FIX Protocol, but these will be ignored by the DFIX Gateway.

## 10. Order Management

The order management section consists of a description of how messages are used for entering, modifying and canceling (withdraw) orders. This section also describes how messages are used for hit and take operations.

The messages involved in this section are:

- NewOrderSingle(35=D)
- OrderCancelRequest(35=F)
- OrderCancelReplaceRequest(35=G)
- OrderCancelReject(35=9)
- OrderMassActionRequest(35=CA)
- OrderMassActionReport(35=BZ)
- OrderStatusRequest(35=H)
- ExecutionReport(35=8)

### 10.1. Uniqueness of ClOrdID(11)

The DFIX Gateway will check the uniqueness of ClOrdID(11) in the NewOrderSingle(35=D), OrderCancel/ReplaceRequest(35=G) and OrderCancelRequest(35=F) messages. FIX Clients submitting these messages must ensure uniqueness of the values they use in the ClOrdID(11) field within a single trading day (Datatec markets do not accept multi-day orders) in order to avoid receiving rejections from DFIX Gateway.

### 10.2. Order Identification

In OrderCancel/ReplaceRequest(35=G) or OrderCancelRequest(35=F) messages, the order can be identified by sending either the OrigClOrdID(41) field or the OrderID(37) received from Datatec.

If the OrigClOrdID (41) is used, it must be assigned the value of the original order being cancelled or amended that was specified previously in the ClOrdID(11).

### 10.3. Cross Protocol Order Management

All orders entered by Datatec Frontend Users (i.e. from the Datatec GUI), will be communicated to FIX Clients from the same branch using ExecutionReport(35=8) messages. In these reports the field ClOrdID(11) will not be set but the OrderID(37) field will carry the ID assigned by DFIX Gateway. These orders can be amended, canceled or status requested from FIX Client providing the valid OrderID(37) and the field OrigClOrdID(41) should be omitted.

Orders entered via FIX Clients can be amended or cancelled using the Datatec frontend. FIX Clients must be prepared to receive unsolicited order updates and cancels.

### 10.4. Workflows

The figures below describe the workflow for different situations.

In the diagrams, **Marketplace** includes all applications on Datatec side, like DFIX Gateway, DataServer, Matching Engine and DMServer.

Figure 3 – Order Entry Workflow

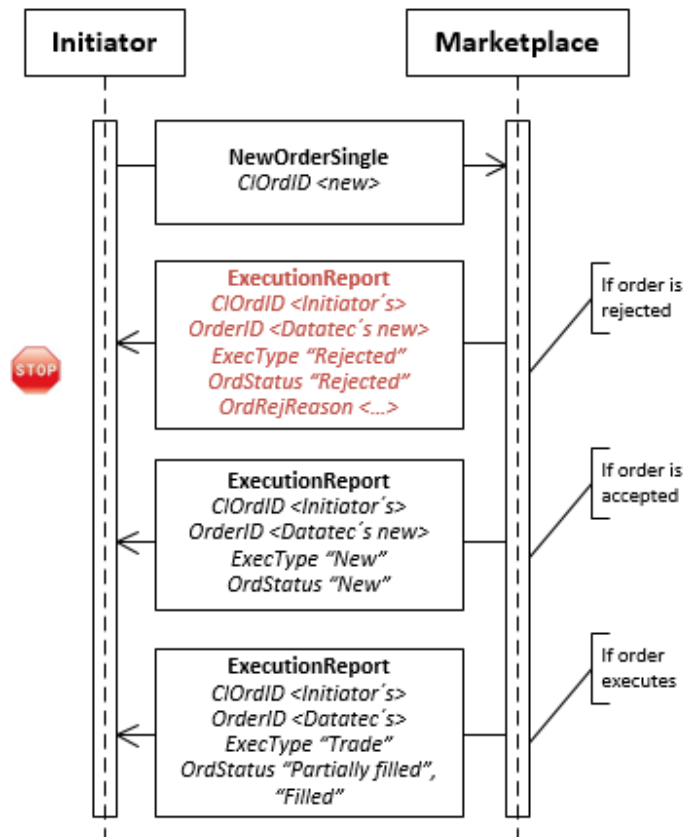




Figure 4 – Order with IOC Entry Workflow

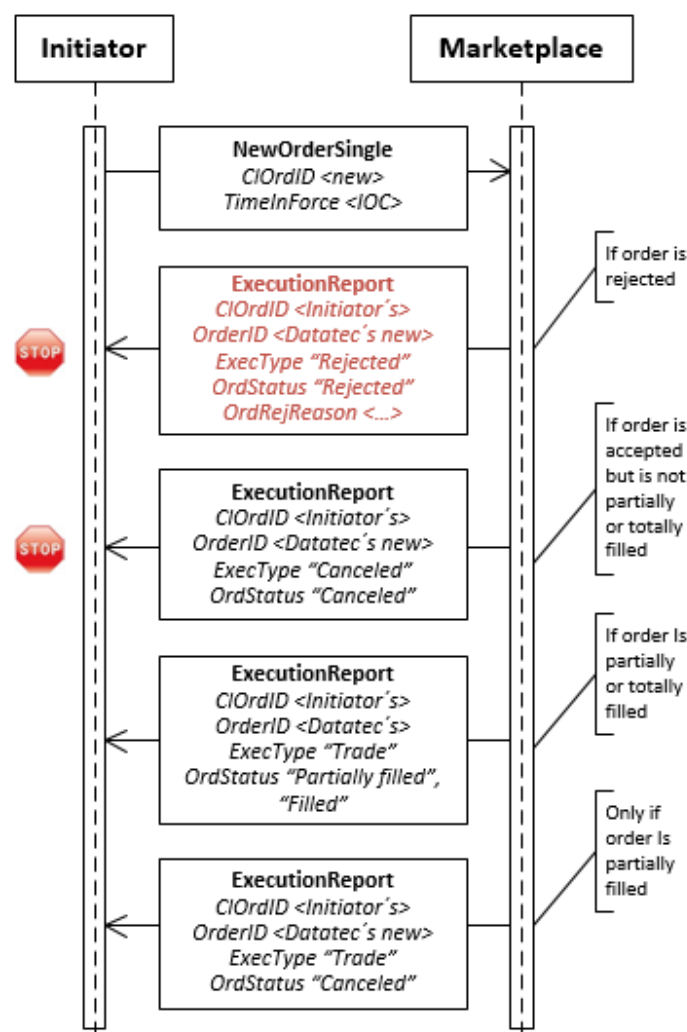


Figure 5 – Order Modification Workflow

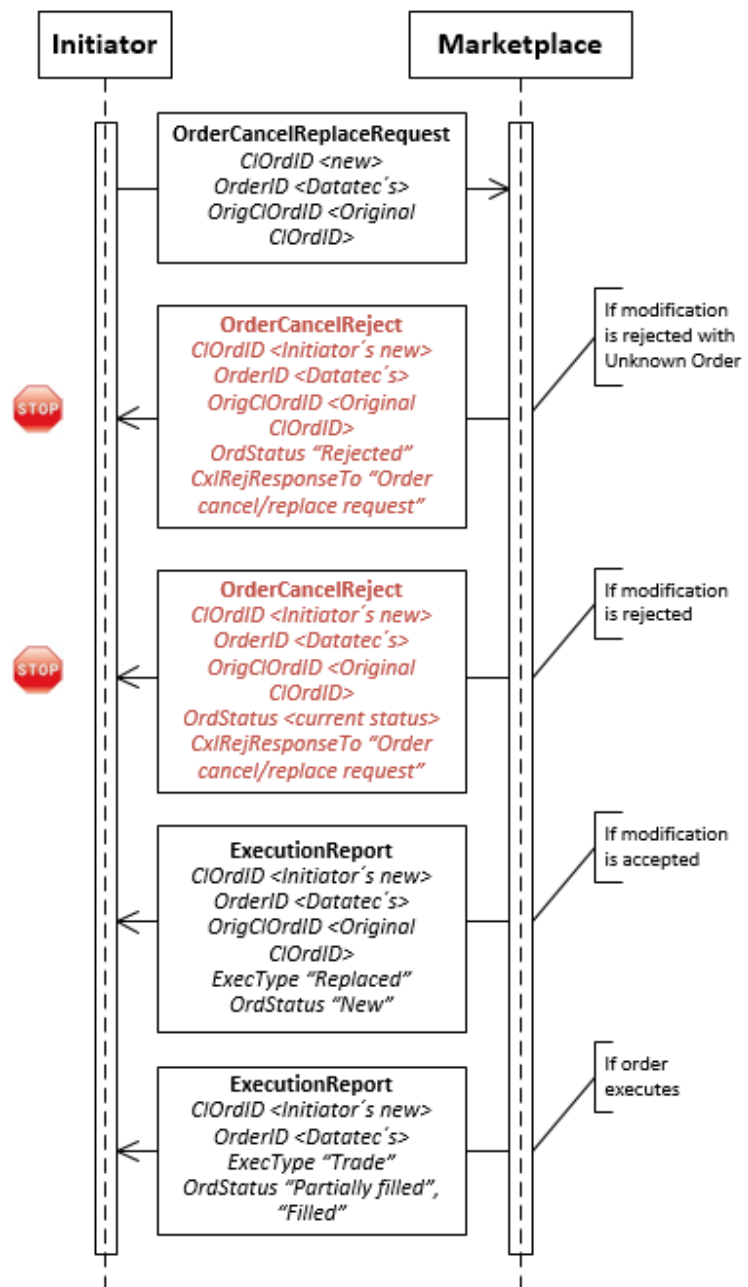


Figure 6 – Order Cancellation Workflow

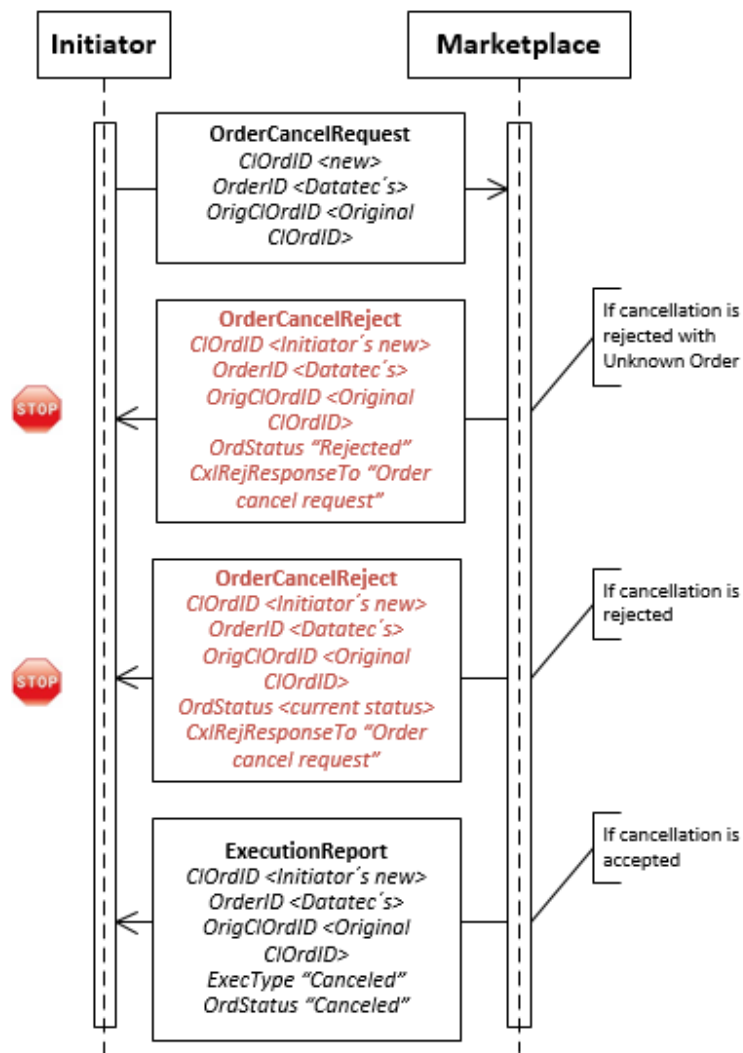


Figure 7 – Order Entered via FIX and Amended via Datatec Frontend (Cross protocol)

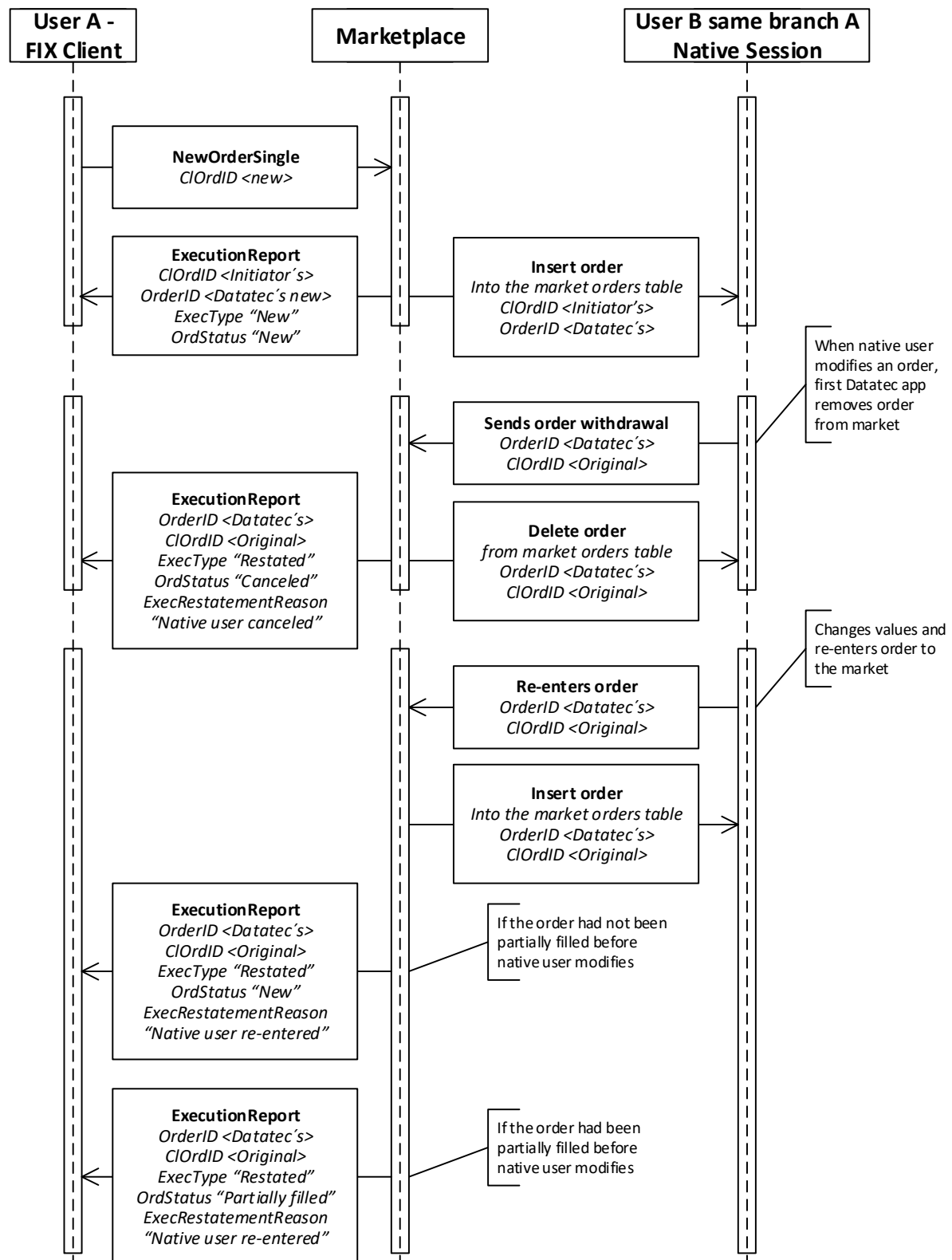


Figure 8 – Order Entered via Datatec Frontend and Amended via FIX (Cross protocol)

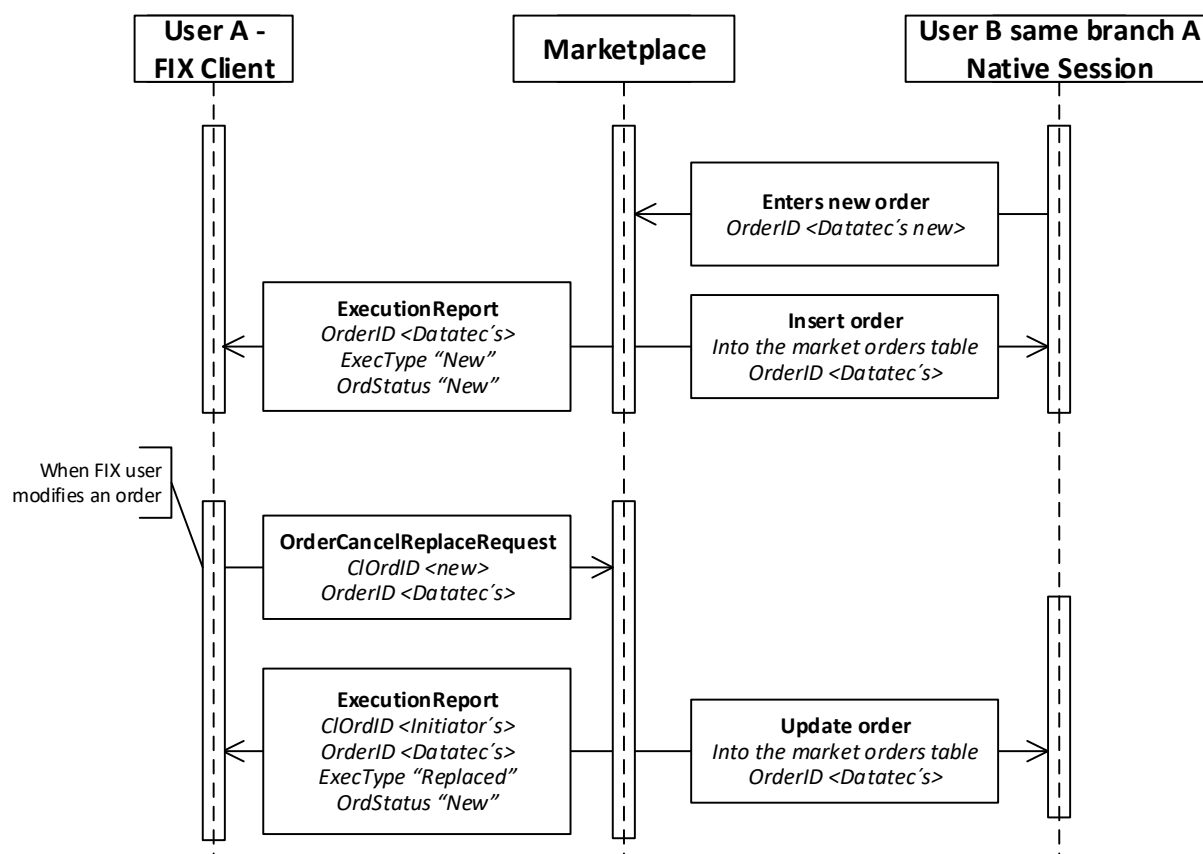
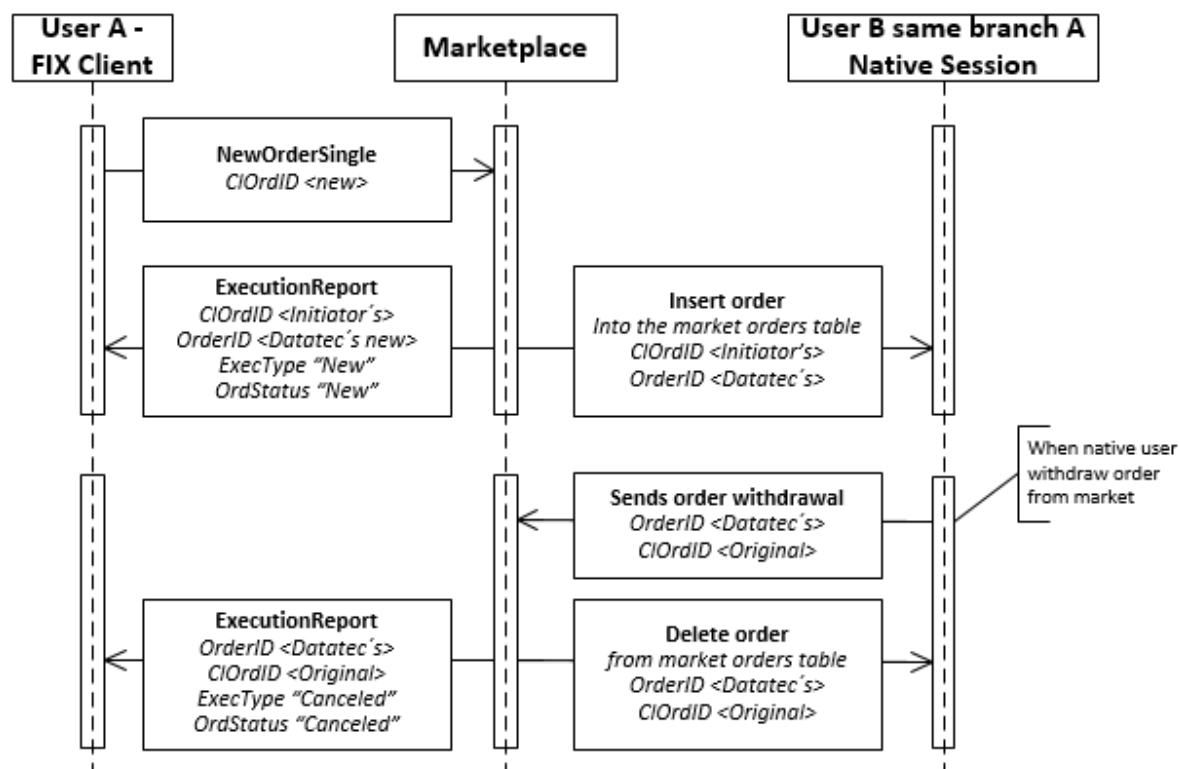


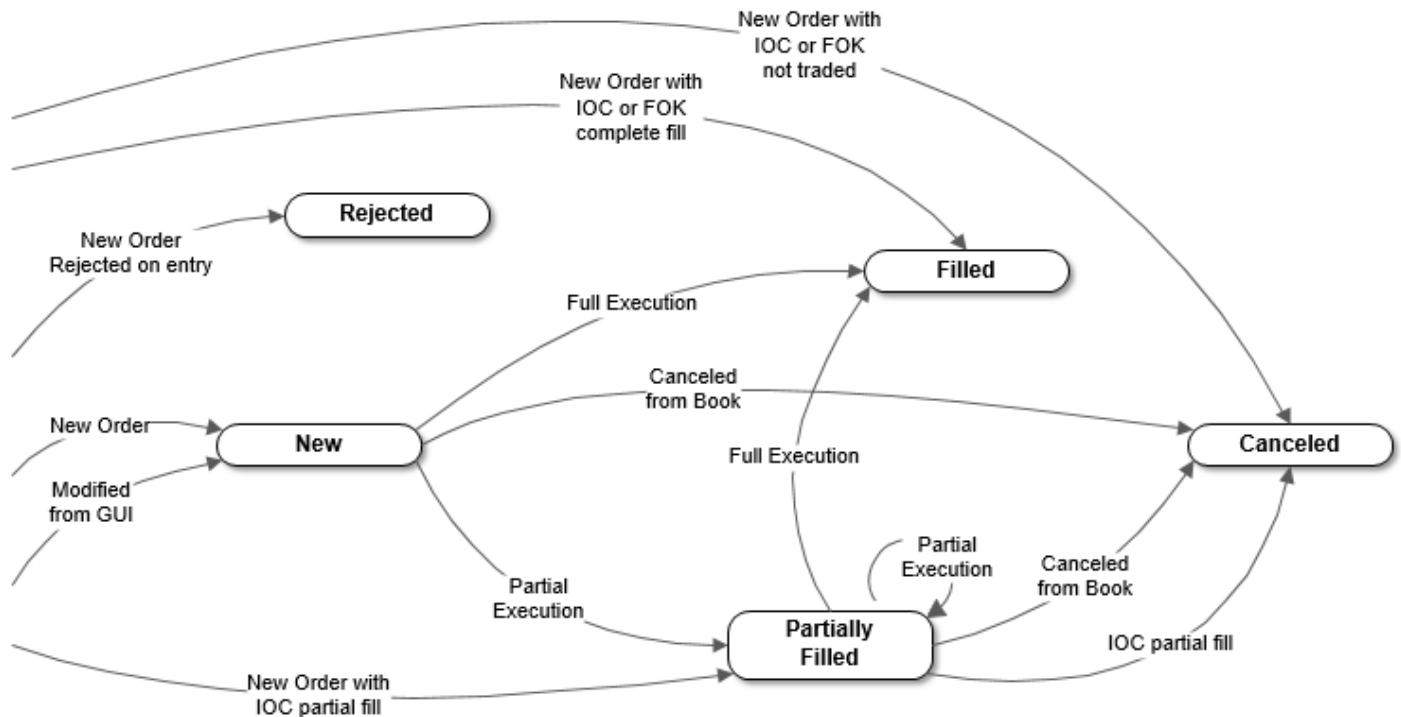
Figure 9 – Order Entered via FIX and Cancelled via Datatec Frontend (Cross protocol)



## 10.5. Order Status

Order state changes are conveyed in ExecutionReport(35=8) messages. Every state change is communicated in a separate ExecutionReport. The OrdStatus(39) field specifies the state of the order and the ExecType(150) specifies the purpose of the ExecutionReport.

Figure 10 – Order Status States



## 10.6. Order Submit Request

Orders submitted need to include the side (bid / offer), the instrument (currency pair and type of market); and a unique identifier set by the order submitter for the order, which is sent in the ClOrdID(11) field. The same ID should be referenced in the OrigClOrdID(41) field when modifying or cancelling the order. The DFIX Gateway will send acceptance or rejection messages for the order entry.

Orders should not be submitted for an instrument if the FIX Client has not received a successful Market Definition Subscription response. The DFIX Gateway will validate that this condition is fulfilled before accepting the order; and if it has not, the order submission will be refused.

Orders must be submitted one by one. Batch order submissions are not supported.

The FIX standard **NewOrderSingle**(35=D) message is used for the order submission as detailed below:

Table 29 – NewOrderSingle Message

NewOrderSingle(35=D)					
Tag	Field Name		Data Type	Reqd	Comments
	Standard Header			Y	MsgType = D
11	ClOrdID		String	Y	Unique identifier of the order created by FIX Client. ID should be unique to simplify modifying and cancelling of orders.
<Parties> component				Y	Component used to identify the order submitter (Branch, User and Customer)
453	NoPartyIDs		NumInGroup	Y	Minimum 2, maximum 3.
→	448	PartyID	String	Y	Party identifier, first block should be the 8-character Branch ID, second block should be the Trader short name, and if there is a third block, it should be a beneficiary code.
→	447	PartyIDSource	char	Y	Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier (Datatec mnemonic)
→	452	PartyRole	int	Y	Identifies the role of RequestingPartyID Supported values: 11 = Order Origination Trader 13 = Order Origination Firm 32 = Beneficiary (For future use)
End <Parties> component					
1300	MarketSegmentID		String	Y	Identifies the market segment where the order is being traded, assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component				Y	Component used to identify the “Instrument”
55	Symbol		String	Y	Currency pair in CCY/CCY format, from MarketDefinitionInstrumentScopeSymbol(1536)
End <Instrument> component					
54	Side		char	Y	Side of the order from order submitter's perspective. Supported values: 1 = Buy - Bid 2 = Sell – Offer
<OrderQtyData> component				Y	Component block contains the fields commonly used for indicating the amount or quantity of an order
38	OrderQty		Qty	Y	Quantity of the order, which must be greater or equal to the minimum of the market and less than or equal to the maximum and multiple of the basic fraction
End <OrderQtyData> component					

NewOrderSingle(35=D)				
Tag	Field Name	Data Type	Reqd	Comments
40	OrdType	Char	Y	Order type Supported values: 2 = Limit - mount and price included; will match against orders better or equal to the specified price
44	Price	Price	Y	Price per unit of the quantity
110	MinQty	Qty		Applies only if the market allows, it takes the minimum amount that can be taken / hit in an order. (For future use)
1822	MinQtyMethod	Int		Required if MinQty(110) is present. Supported values: 1001 = Multiple (applies to every execution), if LeavesQty (151) is less than MinQty(110), order will be canceled.
<DisplayInstruction> component				Component block is used to convey instructions on how a reserved order is to be handled in terms of when and how much of the order quantity is to be displayed to the market
1138	DisplayQty	Qty		For Iceberg orders, this is the amount shown to other market participants
1083	DisplayWhen	Char		Required if DisplayQty(1138) is present. Supported values: 1 = Immediate (after each fill) - At the beginning and after each execution
End <DisplayInstruction> component				
59	TimeInForce	Char	Y	Supported values: 1 = Good Till Cancel (GTC) 3 = Immediate Or Cancel (IOC)
60	TransactTime	UTCTimestamp	Y	UTC date and time of the order creation
1925	TradeClearingInstruction	int		This field contains one of the clearing conditions allowed in the market segment for orders  * FIX 5.0 field added to message  Supported values: 0 = Process normally (Default, not cleared against central counterparty) 6 = Clear against central counterparty
	Standard Trailer		Y	

## 10.7. IOC orders

An IOC (Immediate Or Cancel) order is an order that must be filled immediately at the limit price or better. If the order is partially filled or cannot be filled, the unfilled portion will be cancelled.



An IOC order with a value in DisplayQty(1138) (Iceberg IOC order), will be sent to the Matching Engine by the full amount of the order, without taking into account the DisplayQty.

When DFIX Gateway receives the order entry, it creates a unique identifier for the order regardless of whether the order is accepted or rejected, this value will be conveyed in the OrderID(37) field of the ExecutionReport(35=8). Datatec then validates the received information and if the order is not valid, returns an **ExecutionReport(35=8)** message with the reason for rejection. If the order passes the validation tests, the order is sent to market participants and the DFIX Gateway returns an ExecutionReport(35=8) message indicating that the order was accepted and successfully entered into the market.

Subsequent ExecutionReport(35=8) messages will be sent to the FIX Client reporting the status of the order as it changes as a result of activity, such as trading or order amendment.

## 10.8. Execution Report

The ExecutionReport(35=8) message is used to:

- Confirm the receipt of an order
- Reject orders
- Confirm changes to an existing order (i.e. Cancel or Cancel/Replace requests)
- Report order status information (e.g. responding to OrderStatusRequest)
- Report fill information on working orders

When responding to an OrderStatusRequest(35=H), the ExecutionReport(35=8) for an order with an OrdStatus(39) of either "cancelled" or "filled" will only contain the mandatory fields. Non-mandatory fields will not be provided.

**Table 30 – ExecutionReport Message**

ExecutionReport(35=8)				
Tag	Field Name	DataType	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = 8
37	OrderID	String	Y	Unique identifier for the order created by DFIX Gateway
11	ClOrdID	String		Required when responding to an order submitted by FIX Clients. Unique identifier carried from NewOrderSingle(35=D) When responding to a cancel request this contains the ClOrdID from the OrderCancelRequest(35=F) message. When responding to a modification request this contains the ClOrdID from the OrderCancelReplaceRequest(35=G) message. The value becomes the new ClOrdID for the successfully amended order. When rejecting an OrderStatusRequest(35=H) this contains the OrdStatusReqID from the request.
17	ExecID	String	Y	Unique identifier for the execution assigned by Datatec (will be 0 (zero) for ExecType(150)=I (Order Status)).
41	OrigClOrdID	String		Conditionally required when responding to a Cancel request or Cancel/Replace request. It contains the original ClOrdID

ExecutionReport(35=8)				
Tag	Field Name	Data Type	Reqd	Comments
				value of the order being cancelled or modified/amended.
150	ExecType	Char	Y	Describes the purpose of or reason for the execution report. Supported values: 0 = New - Accepted 4 = Canceled 5 = Replaced 8 = Rejected D = Restated F = Trade (partial fill or fill) I = Order Status
39	OrdStatus	Char	Y	Identifies the current status of the order Supported values: 0 = New - Accepted 1 = Partially filled 2 = Filled 4 = Canceled 6 = Pending Cancel (i.e. result of Order Cancel Request) 8 = Rejected A = Pending New E = Pending Replace (i.e. result of Order Cancel/Replace Request)
103	OrdRejReason	Int		Required when ExecType(150)=8 (Rejected) Code to identify the reason for order rejection Supported values: 1 = Unknown symbol 2 = Exchange closed 3 = Order exceeds limit 4 = Too late to enter 5 = Unknown order 6 = Duplicated ClOrdID 11 = Unsupported order characteristic 13 = Incorrect quantity 16 = Price exceeds current price band 18 = Invalid price 25 = Insufficient credit limit 99 = Other
1328	RejectText	String		Conditionally required when ExecType(150)=8 (Rejected). Additional text describing the reason for rejection
378	ExecRestatementReason	int		Required if ExecType(150) = D (Restated) The reason for restatement 1000 = GUI Native user canceled 1001 = GUI Native user re-entered
1300	MarketSegmentID	String	Y	Identifies the market segment of the order as specified in the order Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day

ExecutionReport(35=8)				
Tag	Field Name	DataType	Reqd	Comments
				39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component			Y	Component used to identify the "Instrument"
55	Symbol	String	Y	Currency pair
End <Instrument> component				
54	Side	char	Y	Side of the order. Supported values: 1 = Buy - Bid 2 = Sell - Offer
<OrderQtyData> component			Y	Component block contains the fields commonly used for indicating the amount or quantity of an order
38	OrderQty	Qty		Conditionally required when ExecType(150) is not I (Order status) and OrdStatus(39) is not 4 (Cancelled) or 2 (Filled). Quantity of the order
End <OrderQtyData> component				
40	OrdType	char		Conditionally required when ExecType(150) is not I (Order status) and OrdStatus(39) is not 4 (Cancelled) or 2 (Filled). Order type Supported values: 2 = Limit - Amount and price included; will match against orders better or equal to the specified price
44	Price	Price		Conditionally required when ExecType(150) is not I (Order status) and OrdStatus(39) is not 4 (Cancelled) or 2 (Filled). Price on order
110	MinQty	Qty		Applies only if the market allows. It takes the minimum amount that can be taken / hit in an order. (For future use)
1822	MinQtyMethod	int		Required if MinQty(110) is present. Supported values: 2 = Multiple (applies to every execution) 1001 = Multiple (applies to every execution), if LeavesQty(151) is less than MinQty(110), order will be canceled.
<DisplayInstruction> component				Component block is used to convey instructions on how a reserved order is to be handled in terms of when and how much of the order quantity is to be displayed to the market
1138	DisplayQty	Qty		For Iceberg orders, here is the amount shown on orders windows
1083	DisplayWhen	char		Required if there is DisplayQty(1138) Supported values: 1 = At the beginning and after each execution
End <DisplayInstruction> component				
59	TimeInForce	char	Y	Supported values:

ExecutionReport(35=8)				
Tag	Field Name	DataType	Reqd	Comments
				1 = Good Till Cancel (GTC) 3 = Immediate Or Cancel (IOC)
60	TransactTime	UTCTimestamp	Y	UTC date and time of the ExecutionReport message.
75	TradeDate	LocalMktDate		Indicates date of trade referenced in this message in YYYYMMDD format. Absence of this field indicates current day
63	SettlType	String		Specific trade settlement period Supported values: 0 = Regular / FX Spot settlement (T+1 or T+2 depending on currency) (Default) 1 = Cash (TOD / T+0) 2 = Next Day (TOM / T+1) 3 = T+2 4 = T+3
64	SettlDate	LocalMktDate		Specific date of trade settlement in YYYYMMDD format.
14	CumQty	Qty	Y	Total executed quantity
151	LeavesQty	Qty	Y	Quantity opened for further execution. If the OrdStatus (39) is Canceled or Rejected (in which case the order is no longer active) then LeavesQty could be "0", otherwise LeavesQty = OrderQty(38) - CumQty(14).
31	LastPx	Price		Price of this (last) fill. Required if ExecType(150) = F (Trade)
32	LastQty	Qty		Quantity on this (last) fill. Required if ExecType(150) = F (Trade)
880	TrdMatchID	String		Identifier assigned to a trade by a matching system. Required if ExecType(150) = F (Trade)
1057	AggressorIndicator	Boolean		Used to identify whether the order initiator is an aggressor or not in the trade. Supported values: Y = Order initiator is aggressor N = Order initiator is passive
<Parties> component				Repeating group used to specify parties information related to an order or related to a trade. For an order, there may be up to 3 parties: a pair branch and trader and one beneficiary. For a trade, there may be up to 6 parties: two pair of branch and trader as market participants, one beneficiary and a clearing house. For clearing house party the 3-character Firm ID will be sent. For beneficiary its compounded code. For other parties involved the 8-character Branch ID and the Trader short name will be sent.
453	NoPartyIDs	NumInGroup		Number of parties related to a trade.
→	448	PartyID	String	Required when NoPartyIDs > 0.

ExecutionReport(35=8)						
Tag	Field Name			Data Type	Reqd	Comments
						Party identifier
→	447	PartyIDSource		char		Required when NoPartyIDs > 0. Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier -Datatec mnemonic
→	452	PartyRole		int		Required when NoPartyIDs > 0. Identifies the role of PartyID Supported values: 11 = Order originator Trader 13 = Order originator Firm 17 = Contra Firm 21 = Clearing House 32 = Beneficiary (For future use) 37 = Contra Trader
→	<PtysSubGrp> component					Required when NoPartyIDs > 0. Repeating group of Party sub-identifiers.
→	802	NoPartySubIDs		NumInGroup		Number of PartySubIDs
→	→	523	PartySubID	String		Sub-identifier, DFIX Gateway will send the firm or branch name, or trader name, or the city name
→	→	803	PartySubIDType	int		Type of PartySubID(523) value. Supported values: 1 = Firm – Firm full name or Branch full name 2 = Person – Full name 34 = Address City – Related to the branch
→	End <PtysSubGrp> component					
End <Parties> component						
58	Text			String		Text describing the status of the order
<MiscFeesGrp> component						Repeating group used to specify miscellaneous fees to be reported. It applies only for MarketSegmentID = 71 and 76 when markets are configured with VAT (Value added Tax)
136	NoMiscFees			NumInGroup		Number of fees to be reported, always 1.
→	137	MiscFeeAmt		Qty		Required when NoMiscFees > 0. Quantity of the fee
→	138	MiscFeeCurr		Currency		Required when NoMiscFees > 0. Currency of the fee amount. Supported values: COP – Local currency
→	139	MiscFeeType		int		Required when NoMiscFees > 0. Supported values: 22 = Value Added tax – VAT
→	891	MiscFeeBasis		int		If NoMiscFees > 0 this fields indicates how the amount fee is

ExecutionReport(35=8)				
Tag	Field Name	DataType	Reqd	Comments
				calculated. Supported values: 0 = Absolute – Total fixed amount (Default)
End <MiscFeesGrp> component				
1925	TradeClearingInstruction	int		This field contains one of the clearing conditions allowed in the market segment for orders  * FIX 5.0 field added to message  Supported values: 0 = Process normally (Default, not cleared against central counterparty) 6 = Clear against central counterparty
	Standard Trailer		Y	

As can be seen, most fields for this message are the same as in the order entry message; in fact, they are copied from the entry message.

The Status and Purpose of the response messages (ExecutionReport) is defined by the values in fields OrdStatus(29) and ExecType(150).

## 10.9. Order Amend

Amending an order is a more efficient method of changing an order instead of cancelling and sending in a new order. The Order Amend message allows Client applications to change both the price and the size, or to change only the price, or to change only the size, of an active Order. Changing the price may change the position of the order in the Order Book. A Reduction of the order size, with no price change, will not affect the position of the order in the Order Book. Increasing of the order size, without a price change, will cause the order to lose the priority it had over other orders at that price.

It should be noted that the Order Amend should not be used to decrease the size of the order to zero, use the Order Interrupt Request for that purpose.

The **OrderCancelReplaceRequest(35=G)** message is used to change the parameters of an existing order. Do not use this message to cancel the remaining quantity of an order, use the **OrderCancelRequest(35=F)** message for this purpose.

Although the FIX protocol allows for virtually all of the Order attributes to be changed, there are limitations as to what the Datatec systems allows. The following attributes are allowed to change:

- OrderQty (38)
- Price (44)
- TradeClearingInstruction(1925)
- MinQty(110)

- DisplayQty (1138)

**Note:** Any change to the price of an order or **increasing** quantities will result in the order losing its position in the order book. For Iceberg orders this rule applies for any of the quantities increase, the OrderQty(38) and/or DisplayQty(1138).

For MarketSegmentID(1300) = 71 and 76, there is a different rule for quantities modification. For orders and Iceberg orders, any change (increase or decrease) in the quantities OrderQty(38) and/or DisplayQty(1138) will result in the order losing its position in the order book.

The FIX standard **OrderCancelReplaceRequest** (35=G) message is as follow:

**Table 31 – OrderCancelReplaceRequest Message**

OrderCancelReplaceRequest(35=G)					
Tag	Field Name		DataType	Reqd	Comments
	Standard Header			Y	MsgType = <b>G</b>
11	ClOrdID		String	Y	Unique Identifier for the Amend request, created by the FIX Client (Request ID). This identifier will be used in the ClOrdID tag of the: <ul style="list-style-type: none"><li>- Cancel Reject message if the Amend Order request is rejected.</li><li>- Execution Report in response to the Amend request if accepted, it becomes the client's order ID for the accepted amend order.</li></ul>
37	OrderID		String		Unique Identifier for the original Order that was assigned by DFIX Gateway and sent in the ExecutionReport as a response to original order submission.
41	OrigClOrdID		String		Original ClOrdID of the order that is being requested to be replaced/amended by this message. Conditionally required for orders submitted via FIX.
<Parties> component				Y	Component used to identify the order submitter (Branch, User and Customer)
453	NoPartyIDs		NumInGroup	Y	Minimum 2, maximum 3.
→	448	PartyID	String	Y	Party identifier, first block should be the 8-character Branch ID, second block should be the Trader short name, and if there is a third block, it should be a customer code.
→	447	PartyIDSource	char	Y	Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier (Datatec mnemonic)
→	452	PartyRole	int	Y	Identifies the role of RequestingPartyID Supported values: 11 = Order Origination Trader 13 = Order Origination Firm 32 = Beneficiary (For future use)
End <Parties> component					

OrderCancelReplaceRequest(35=G)				
Tag	Field Name	DataType	Reqd	Comments
1300	MarketSegmentID	String	Y	Identifies the market segment, assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component			Y	Component used to identify the "Instrument"
55	Symbol	String	Y	Currency pair in CCY/CCY format, from MarketDefinitionInstrumentScopeSymbol(1536)
End <Instrument> component				
54	Side	char	Y	Side of the order from order submitter's perspective. This must be the same as the original order. Supported values: 1 = Buy - Bid 2 = Sell – Offer
<OrderQtyData> component			Y	Component block contains the fields commonly used for indicating the amount or quantity of an order
38	OrderQty	Qty	Y	Quantity of the order, which must be greater or equal to the minimum of the market and less than or equal to the maximum and multiple of the basic fraction. OrderQty cannot be set to "0".
End <OrderQtyData> component				
40	OrdType	char	Y	Order type Supported values: 2 = Limit -Amount and price included; will match against orders better or equal to the specified price
44	Price	Price	Y	Price per unit of the quantity
110	MinQty	Qty		Applies only if the market allows, it takes the minimum amount that can be taken / hit in an order. (For future use)
1822	MinQtyMethod	int		Required if MinQty(110) is present. Supported values: 1001 = Multiple (applies to every execution), if LeavesQty (151) is less than MinQty(110), order will be canceled.
<DisplayInstruction> component				Component block is used to convey instructions on how a reserved order is to be handled in terms of when and how much of the order quantity is to be displayed to the market
1138	DisplayQty	Qty		For Iceberg orders, here is the amount shown to other market participants
1083	DisplayWhen	char		Required if there is DisplayQty(1138) Supported values: 1 = Immediate (after each fill) - At the beginning and after each execution



OrderCancelReplaceRequest(35=G)				
Tag	Field Name	DataType	Reqd	Comments
End <DisplayInstruction> component				
59	TimeInForce	char	Y	Supported values: 1 = Good till cancel(GTC)
60	TransactTime	UTCTimestamp	Y	UTC date and time of the amend/modification request creation
1925	TradeClearingInstruction	int		This field contains one of the clearing conditions allowed in the market segment for orders  * FIX 5.0 field added to message  Supported values: 0 = Process normally (Default, not cleared against central counterparty) 6 = Clear against central counterparty
	Standard Trailer		Y	

### 10.10. Order Interrupt Request

The **OrderCancelRequest(35=F)** message requests the cancellation of all of the remaining unexecuted quantity of an existing order. The cancel request message should be sent using a new ClOrdID(11) and is treated as a separate entity. The request will only be accepted if the order can successfully be withdrawn from Matching Engine. The ExecutionReport(35=8) message will be relaying the status of cancelled order. Otherwise, OrderCancelReject(35=9) message will be sent.

In the order cancel request message the order can be identified by either its prior ClOrdID(11) in OrigClOrdID(41) field, or by the OrderID(37).

The format of the OrderCancelRequest message is:

**Table 32 – OrderCancelRequest Message**

OrderCancelRequest(35=F)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = F
11	ClOrdID	String	Y	Unique identifier of cancel request created by FIX Client. This identifier will be used in the ClOrdID tag of the: - Cancel Reject message if the order cancel request is rejected. - Execution Report in response to the cancellation request if accepted.
37	OrderID	String		Unique Identifier for the original Order that was assigned by DFIX Gateway and sent in the ExecutionReport as a response of order submission.

OrderCancelRequest(35=F)					
Tag	Field Name		DataType	Reqd	Comments
41	OrigClOrdID		String		Original ClOrdID of the order that is being requested to be canceled by this message. Conditionally required for orders submitted via FIX.
<Parties> component				Y	Component used to identify the order submitter (Branch, User and Customer)
453	NoPartyIDs		NumInGroup	Y	Minimum 2, maximum 3.
→	448	PartyID	String	Y	Party identifier, first block should be the 8-character Branch ID, second block should be the Trader short name, and if there is a third block, it should be a customer code.
→	447	PartyIDSource	char	Y	Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier (Datatec mnemonic)
→	452	PartyRole	int	Y	Identifies the role of RequestingPartyID Supported values: 11 = Order Origination Trader 13 = Order Origination Firm 32 = Beneficiary (For future use)
End <Parties> component					
1300	MarketSegmentID		String	Y	Identifies the market segment, assigned by Datatec Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component				Y	Component used to identify the “Instrument”
55	Symbol		String	Y	Currency pair in CCY/CCY format, from MarketDefinitionInstrumentScopeSymbol(1536)
End <Instrument> component					
54	Side		char	Y	Side of the order from order submitter's perspective. Must be same as the original order being cancelled. Supported values: 1 = Buy - Bid 2 = Sell – Offer
<OrderQtyData> component				Y	Component block contains the fields commonly used for indicating the amount or quantity of an order
38	OrderQty		Qty	Y	Quantity of the order. Required by the FIX Protocol. DFIX Gateway does not use or validate the contents of this tag.
End <OrderQtyData> component					
60	TransactTime		UTCTimestamp	Y	UTC date and time of the cancel request creation. Required by the FIX Protocol. DFIX Gateway does not use or validate the contents of this tag.

OrderCancelRequest(35=F)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Trailer		Y	

## 10.11. Order Cancel Reject

The OrderCancelReject(35=9) message is issued by the DFIX Gateway upon receipt of an OrderCancelRequest(35=F) message or an OrderCancelReplaceRequest(35=G) message which cannot be honored. Filled orders cannot be modified or cancelled.

The Cancel Reject message should provide the ClOrdID(11) which was specified on the Cancel/Replace Request or Cancel Request message for identification, and the OrigClOrdID should be that of the last accepted order except in the case of CxlRejReason = "Other". FIX Clients should refer to the RejectText(1328) field for specific information on the reason for the rejection.

The order cancel reject message format is as follows.

**Table 33 – OrderCancelReject Message**

OrderCancelReject(35=9)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = 9
11	ClOrdID	String	Y	Unique identifier of cancel request created by FIX Client.
37	OrderID	String	Y	Unique Identifier for the original Order that was assigned by DFIX Gateway and sent in the ExecutionReport as a response of order submission. If CxlRejReason="Unknown order", specify "NONE".
41	OrigClOrdID	String		It contains the original ClOrdID(11) of the order which could not be canceled or replaced.
39	OrdStatus	char	Y	Identifies current status of order after this cancel reject is applied. If CxlRejReason = "Unknown Order", this field specify Rejected.
60	TransactTime	UTCTimestamp		UTC date and time of cancelation request rejection assigned by DFIX Gateway.
102	CxlRejReason	int		Code to identify reason for cancel rejection. Supported values: 0 = Too late to cancel 1 = Unknown order 3 = Order already in Pending Cancel or Pending Replace status 6 = Duplicated ClOrdID(11) received 8 = Price exceeds current price band 18 = Invalid price increment 99 = Other – Refer to RejectText(1328) field for exact reason for rejection

OrderCancelReject(35=9)				
Tag	Field Name	DataType	Reqd	Comments
434	CxlRejResponseTo	char	Y	Identifies the type of request that a Cancel Reject is in response to. Supported values: 1 = Order cancel request 2 = Order cancel/replace request
1328	RejectText	String		Conditionally required when CxlRejReason(102)=99 (Other) to provide further rejection reasons.
<Parties> component			Y	Component used to identify the order or order cancel/replace submitter (Branch, User and Customer); carried from request
453	NoPartyIDs	NumInGroup	Y	Minimum 2, maximum 3.
→	448	PartyID	Y	Party identifier, first block should be the 8-character Branch ID, second block should be the Trader short name, and if there is a third block, it should be a customer code.
→	447	PartyIDSource	Y	Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier (Datatec mnemonic)
→	452	PartyRole	Y	Identifies the role of RequestingPartyID Supported values: 11 = Order Origination Trader 13 = Order Origination Firm 32 = Beneficiary (For future use)
End <Parties> component				
	Standard Trailer		Y	

## 10.12. Interrupt All Orders Request

The OrderMassActionRequest(35=CA) message will be used to request the cancellation of all unexecuted orders matching criteria specified within the request.

Table 34 – OrderMassActionRequest Message

OrderMassActionRequest(35=CA)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = <b>CA</b>
11	ClOrdID	String	Y	Unique identifier of order mass action request created by FIX Client.
<Parties> component			Y	Component used to identify the order submitter (Branch and User)
453	NoPartyIDs	NumInGroup	Y	Always 2.

OrderMassActionRequest(35=CA)					
Tag	Field Name		Data Type	Reqd	Comments
→	448	PartyID	String	Y	Party identifier, first block should be the 8-character Branch ID, second block should be the Trader short name
→	447	PartyIDSource	char	Y	Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier (Datatec mnemonic)
→	452	PartyRole	int	Y	Identifies the role of RequestingPartyID Supported values: 11 = Order Origination Trader 13 = Order Origination Firm
End <Parties> component					
1300	MarketSegmentID		String		Identifies the market segment, assigned by Datatec. Required if MassActionScope(1374) = 9 Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component					Component used to identify the “Instrument”
55	Symbol		String		Currency pair in CCY/CCY format, from MarketDefinition InstrumentScopeSymbol(1536)
End <Instrument> component					
54	Side		Char		Side of the orders from order submitter's perspective. If it's specified only the orders from this side will be affected Supported values: 1 = Buy - Bid 2 = Sell – Offer
1373	MassActionType		Int	Y	Specifies the type of action requested. Supported values: 3 = Cancel orders
1374	MassActionScope		Int	Y	Specifies the scope of order mass action request. Supported values: 7 = All orders – All branch orders 9 = All orders for a market segment – For the branch 1000 – All orders for user 1001 – All orders for user for a market segment
60	TransactTime		UTCTimestamp	Y	UTC date and time of the order mass action creation. Required by the FIX Protocol. DFIX Gateway does not use or validate the contents of this tag.
	Standard Trailer			Y	

The OrderMassActionReport(35=BZ) is used to response to an OrderMassActionRequest(35=CA). Note that each affected resting order that is successfully canceled is acknowledged with a separate ExecutionReport(35=8) for each order.

When a FIX Client requests “interrupt all orders”, other FIX Clients in the same firm will receive the ExecutionReport(35=8) messages; only the requester will receive the OrderMassActionReport(35=BZ) message.

**Table 35 – OrderMassActionReport Message**

OrderMassActionReport(35=BZ)					
Tag	Field Name		DataType	Reqd	Comments
	Standard Header			Y	MsgType = <b>BZ</b>
11	ClOrdID		String	Y	ClOrdID provided on the Order Mass Action Request.
1369	MassActionReportID		String	Y	Unique identifier for the report assigned by DFIX Gateway
<Parties> component				Y	Component used to identify the order submitter of on the Order Mass Action Request (Branch and User)
453	NoPartyIDs		NumInGroup	Y	Always 2.
→	448	PartyID	String	Y	Party identifier, first block should be the 8-character Branch ID, second block should be the Trader short name
→	447	PartyIDSource	char	Y	Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier (Datatec mnemonic)
→	452	PartyRole	int	Y	Required when NoPartyIDs > 0. Identifies the role of RequestingPartyID Supported values: 11 = Order Origination Trader 13 = Order Origination Firm
End <Parties> component					
1300	MarketSegmentID		String		Identifies the market segment, assigned by Datatec. Required if MassActionScope(1374) = 9 Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component					Component used to identify the “Instrument”
55	Symbol		String		Currency pair in CCY/CCY format, from MarketDefinition InstrumentScopeSymbol(1536)
End <Instrument> component					
54	Side		Char		Side of the orders from order submitter’s perspective. If it’s specified only the orders from this side will be

OrderMassActionReport(35=BZ)					
Tag	Field Name		DataType	Reqd	Comments
					affected Supported values: 1 = Buy - Bid 2 = Sell – Offer
1373	MassActionType		int	Y	Specifies the type of action requested on the Order Mass Action Request Supported values: 3 = Cancel orders
1374	MassActionScope		int	Y	Specifies the scope of order mass action request. Supported values: 7 = All orders 9 = All orders for a market segment 1000 – All orders for user 1001 – All orders for user for a market segment
1375	MassActionResponse		int	Y	Indicates the action taken by the DFIX Gateway as a result of the Action Request Supported values: 0 = Rejected 1 = Accepted
1376	MassActionRejectReason		int		Indicates why Order Mass Action Request was rejected Required if MassActionResponse(1375) = 0 Supported values: 0 = Mass Action Not Supported 6 = Invalid or unknown trading session 8 = Invalid or unknown Market Segment 99 = Other
533	TotalAffectedOrders		Int		Optional field used to indicate the total number of orders affected by the Order Mass Action Request, Only present in the last message sent.
<AffectedOrdGrp> component					Repeating group used to list of orders affected by the Order Mass Action Request.
534	NoAffectedOrders		NumInGroup		Number of affected orders in this message
→	1824	AffectedOrigClOrdID	String		Required if NoAffectedOrders(534)> 0 and must be the first repeating field in the group. Indicates the client ClOrdID(11) of an order affected by the Order Mass Action Request.
→	535	AffectedOrderID	String		Required if NoAffectedOrders(534)> 0. Indicates the OrderID(37) of an order affected by the Order Mass Action Request.
End <AffectedOrdGrp> component					
60	TransactTime		UTCTimestamp		UTC date and time when this report was sent.
58	Text		String		Free format text string
	Standard Trailer			Y	

## 10.13. Order Status Request

The OrderStatusRequest(35=H) message is used by the FIX Clients to request for the status of an order from the DFIX Gateway. If an OrderStatusRequest(35=H) is issued for an order that is either cancelled, or totally filled, only mandatory fields will be provided in resulting ExecutionReport(35=8) message. Non-mandatory fields will not be provided. If the order is not found or unknown the ExecutionReport(35=8) message will be used to reject the OrderStatusRequest(35=H) message.

Table 36 – OrderStatusRequest Message

OrderStatusRequest(35=H)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = H
37	OrderID	String		The OrderID(37) of the order whose status is being requested. Conditionally required if ClOrdID(11) is not provided. Either OrderID or ClOrdID must be provided.
11	ClOrdID	String		The ClOrdID(11) of the order whose status is being requested. Conditionally required if OrderID(37) is not provided.
790	OrdStatusReqID	String		Optional, Unique identifier of order status request, created by FIX Client. If provided it will be used on Execution Report when this request is rejected. If it is not provided, the rejection will use the ClOrdID.
1300	MarketSegmentID	String	Y	Identifies the market segment where the order belongs Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component			Y	Component used to identify the "Instrument"
55	Symbol	String	Y	Currency pair in CCY/CCY format.
End <Instrument> component				
54	Side	char	Y	Side of order Supported values: 1 = Buy - Bid 2 = Sell – Offer
	Standard Trailer		Y	

## 10.14. Execution Report Returned Tags

The following table shows tags in ExecutionReport(35=8) message that are returned based on various scenarios where this message is sent.



Table 37 – Execution Report Returned Tags

Tag	New Order Accepted	New Order Rejected	Order Cancel/ Replace Accepted	Order Cancel Accepted	Unsolicited Cancel	Order Partially Filled	Order Totally Filled	Order Status
OrderID(37)	R	R	R	R	R	R	R	R
ClOrdID(11)	RF	RF	RF	RF	RF	RF	RF	RF
ExecID(17)	R	R	R	R	R	R	R	R
OrigClOrdID(41)			R	R				
ExecType(150)	R	R	R	R	R	R	R	R
OrdStatus(39)	R	R	R	R	R	R	R	R
OrdRejReason(103)		R						
RejectText(1328)		R						
ExecRestatementReason(378)	C		C	C				
MarketSegmentID(1300)	R	R	R	R	R	R	R	R
Symbol(55)	R	R	R	R	R	R	R	R
Side(54)	R	R	R	R	R	R	R	R
OrderQty(38)	R	C	R	R	R	R	R	R
OrdType(40)	R	C	R	R	R	R	R	R
Price(44)	C	C	C	C	C	C	C	C
TradeClearingInstruction(1925)	C	C	C	C	C	C	C	C
MinQty(110)	C	C	C	C	C	C	C	C
MinQtyMethod(1822)	C	C	C	C	C	C	C	C
DisplayQty(1138)	C	C	C	C	C	C	C	C
DisplayWhen(1083)	C	C	C	C	C	C	C	C
TimeInForce(59)	C	C	C	C	C	C	C	C
TransactTime(60)	R	R	R	R	R	R	R	R
TradeDate(75)						R	R	
SettlType(63)						R	R	
SettlDate(64)						R	R	
CumQty(14)	R	R	R	R	R	R	R	R
LeavesQty(151)	R	R	R	R	R	R	R	R
LastPx(31)						R	R	
LastQty(32)						R	R	
TrdMatchID(880)						R	R	
AggressorIndicator(1057)						R	R	
Parties	R	R	R	R	R	R	R	R
Text(58)	C	C	C	C	C	C	C	C

C	Conditionally required – Based on Input, Transaction, Query or Error condition
R	Required as part of ExecutionReport message
RF	Required as part of ExecutionReport for an order entered via FIX

## 11. Trade Capture Reporting

The TradeCaptureReport(35=AE) message is used for a number of reasons, including:

- Relaying Confirmed Trades to various parties not involved in the execution, such as clearing houses, regulatory bodies, the exchange's back office systems.
- Relaying Confirmed Trades to counterparties of the trade.

In both cases, those messages are outbound from the marketplace as a reply to a TradeCaptureReportRequest(35=AD) message.

Trades occur when the Matching Engine identifies matching conditions between buy and sell orders. On Datatec platforms Trades generated by the Matching Engine do not need confirmation from any counterparty, so the trades are sent as confirmed.

Trade Capture Reporting involves the following messages:

- TradeCaptureReportRequest(35=AD)
- TradeCaptureReport(35=AE)
- TradeCaptureReportRequestAck(35=AQ)

DFIX Gateway will support two ways of sending trade reports:

- Real-time trade reports are provided via the TradeCaptureReport(35=AE) message. FIX Clients that have sent a subscription request will receive trade details of each eligible trade immediately after it is executed.
- Query-based trade reports also are provided via the TradeCaptureReport(35=AE) message, but the FIX Client will receive trade reports based on the criteria provided in the request. The request can specify a date, date and time or a pair of date and time. When a single date is provided the client will receive all trades for that date. When date and time is provided the client will receive trade as of that date and time onwards. When a pair of date and time is provided, the client will receive trades between those dates and times.

Queries involving more than one trading day can only be requested outside of market hours, if these queries are received during market hours, the DFIX Gateway will reject them.

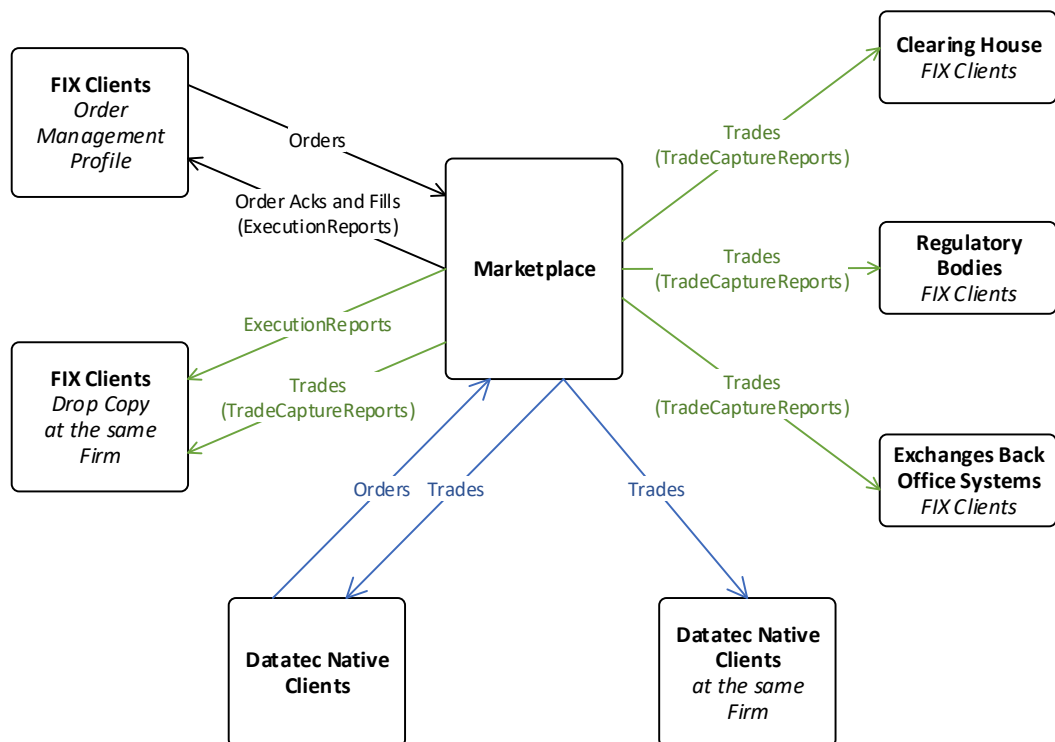
"Eligible trades" mean that DFIX Gateway will send only the trades that client is authorized to receive. For example, Clearing Houses, Regulatory, Exchange Back Office Systems have the right to receive all market trades; however, participant firms will only receive trades where the firm is one of the counterparties involved in the trade.

### 11.1. Workflows

The following workflows illustrate when Trade Capture Reports are sent to multiple parties and how they ask for and receive Trade Capture Reports.

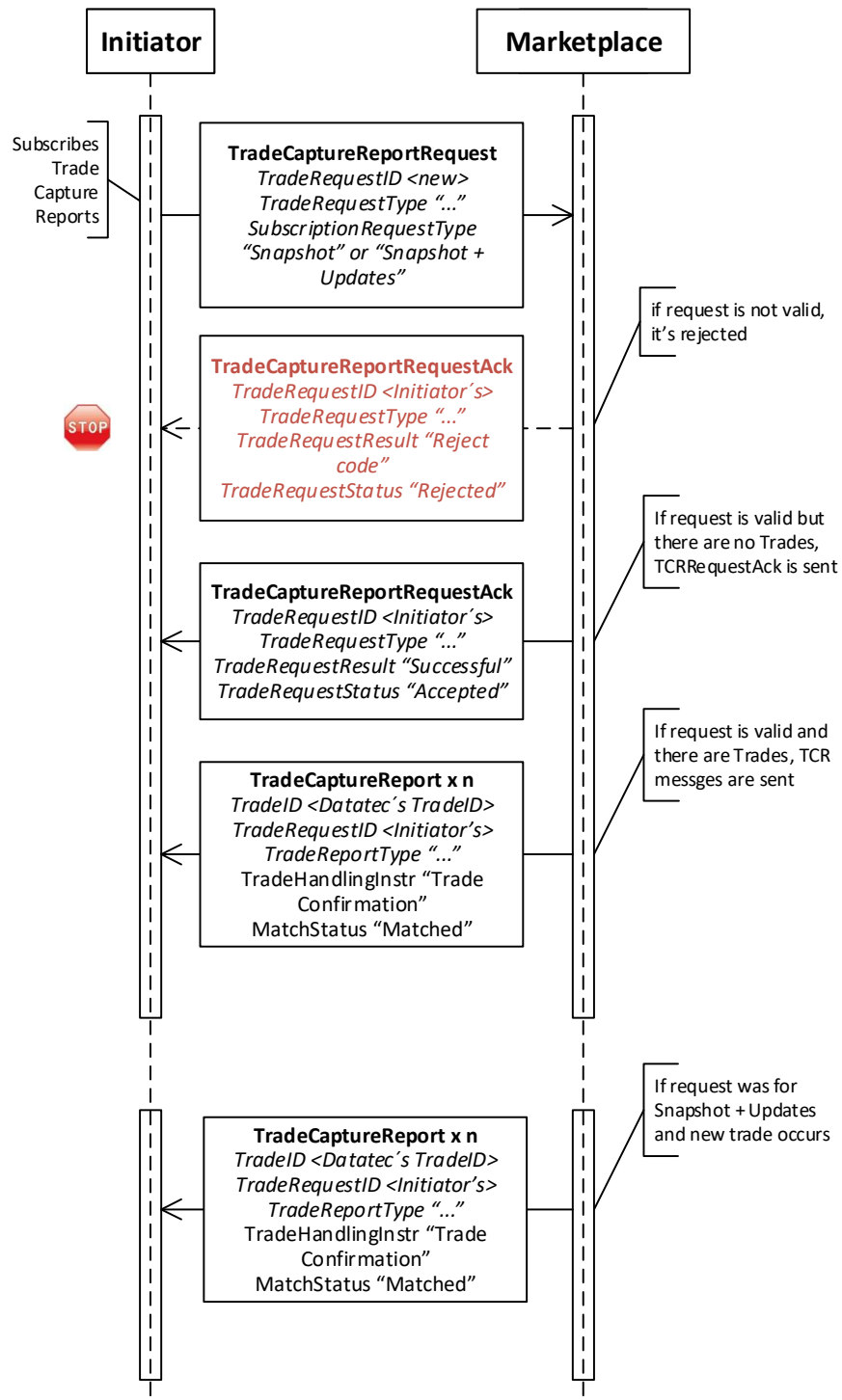
### 11.1.1. Workflow for multiple parties

Figure 11 – Trade Capture Reporting for Multiple Parties



## 11.1.2. Trade Capture Reporting Workflow

Figure 12 – Trade Capture Reporting Workflow



## 11.2. Trade Capture Report Request

A FIX Client may use the TradeCaptureReportRequest(35=AD) message to request the details of all eligible trades or those that meet certain criteria. The server will respond as follows:

- If the request is accepted and there are trades that match the request, the DFIX Gateway will transmit trades using TradeCaptureReport(35=AE) messages immediately without sending TradeCaptureReportRequestAck(35=AQ). Each TradeCaptureReport(35=AE) will include the TradeRequestID(568) of the request it is sent in response to. The last TradeCaptureReport(35=AE) will set value Y (Last Message) in LastRptRequested(912) of the last trade.
- If the request is accepted but there are no trades to send, the DFIX Gateway will transmit a TradeCaptureReportRequestAck(35=AQ) message with TradeRequestResult(749)=0 (Successful) and TradeRequestStatus(750)=0 (Accepted).
- If the request is rejected, TradeCaptureReportRequestAck(35=AQ) message will be sent with TradeRequestStatus(750)=2 (Rejected) and the reason will be specified in the field TradeRequestResult(749).

The TradeCaptureReportRequest(35=AD) is used to:

1. Request all of a firm's trades,
2. Request all market trades. Only for certain type of clients such as the clearing house, regulator or exchange back office,
3. Request all trades that a FIX user is authorized to see that occurred after a specified date/time (one date/time supplied in TrdCapDtGrp component),
4. Request all trades that a FIX user is authorized to see that occurred after the first specified date/time and before the second specified date/time (two date/times supplied in TrdCapDtGrp component),
5. Unsubscribe to trade capture reports.

For the first three cases, the FIX Client may request "Snapshot + Updates" or just a "Snapshot". For the last request case, only one snapshot will be provided of the market data.

In all cases, the request must specify the market segment and instrument that trades belong to.

**Table 38 – TradeCaptureReportRequest Message**

TradeCaptureReportRequest(35=AD)				
Tag	Field Name	DataType	Reqd	Comments
	Standard Header		Y	MsgType = <b>AD</b>
568	TradeRequestID	String	Y	Unique identifier for the trade request created by FIX Client. For SubscriptionRequestType(263)=2 (Unsubscribe) this field must specify the same request ID of the subscription request being disabled.
569	TradeRequestType	int	Y	Type of Trade Capture Report Request Supported values:

TradeCaptureReportRequest(35=AD)				
Tag	Field Name	Data Type	Reqd	Comments
				0 = All Trades
263	SubscriptionRequestType	Char		Subscription Request Type If the field is absent, SubscriptionRequestType(263)=0 (Snapshot) will be the default. Supported values: 0 = Snapshot 1 = Snapshot + Updates (Subscribe) 2 = Disable previous Snapshot + Update Request (Unsubscribe)
1300	MarketSegmentID	String	Y	Identifies the market segment that trades belong to  * FIX 5.0 field added to message  Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component			Y	Component used to identify the "Instrument"
55	Symbol	String	Y	Currency pair in CCY/CCY format, from MarketDefinition if FIX client has requested MarketDefinitions. Supported values: USD/COP USD/CLP USD/PEN
End <Instrument> component				
<TrdCapDtGrp> component				Repeating group used to request for trades after a specified date/time (1 instance) or between two dates/times (2 instances).
580	NoDates	NumInGroup		Number of dates provided (must be 1 or 2 if specified).
→	75	TradeDate	LocalMktDate	Conditionally required if NoDates(580)> 0 Indicates date of trading day.
→	60	TransactTime	UTCTimestamp	To request trades for a specific time.
End <TrdCapDtGrp> component				
	Standard Trailer		Y	

### 11.3. Trade Capture Report Request Ack

The TradeCaptureReportRequestAck(35=AQ) message is used indicate:

- That the Trade Capture Report Request was valid but no trades were found that matched the selection criteria specified in the request,
- That the Trade Capture Report Request was invalid for some business reason, such as request is not authorized, invalid or unknown instrument, etc.

**Table 39 – TradeCaptureReportRequestAck Message**

TradeCaptureReportRequestAck(35=AQ)				
Tag	Field Name	Data Type	Reqd	Comments
	Standard Header		Y	MsgType = <b>AQ</b>
568	TradeRequestID	String	Y	Unique identifier carried from the request
569	TradeRequestType	int	Y	Type of TCR Request carried from the request
263	SubscriptionRequestType	char		Subscription Request Type carried from the request Supported values: 0 = Snapshot 1 = Snapshot + Updates (Subscribe) 2 = Disable previous Snapshot + Update Request (Unsubscribe)
1300	MarketSegmentID	String	Y	Identifies the market segment that trades belong to, carried from the request  * FIX 5.0 field added to message  Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component			Y	Component used to identify the "Instrument"
55	Symbol	String	Y	Currency pair in CCY/CCY format
End <Instrument> component				
749	TradeRequestResult	int	Y	Result of Trade Capture Report Request Supported values: 0 = Successful (default) 1 = Invalid or unknown instrument 8 = TradeRequestType not supported 9 = Not authorized 99 = Other
750	TradeRequestStatus	int	Y	Status of Trade Capture Report Request Supported values: 0 = Accepted 2 = Rejected
58	Text	String		Free format text string
	Standard Trailer		Y	

## 11.4. Trade Capture Report

The TradeCaptureReport(35=AE) message can be:

- Sent as reply to a TradeCaptureReportRequest(35=AD) message,
- Used to report trades to the subscribed users
- Used to report privately negotiated trades between counterparties (Trade Registration)

The table below includes the structure of the Trade Capture Report message used in all use cases mentioned.

**Table 40 – TradeCaptueReport Message**

TradeCaptureReport(35=AE)				
Tag	Field Name	Data Type	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = <b>AE</b>
1003	TradeID	String		Unique trade identifier generated by Datatec. Conditionally required in all TCR messages sent from DFIX Gateway.
1041	FirmTradeID	String		Unique ID assigned to a trade by the Firm to track a trade within the Firm system. This ID can be assigned either before or after submission to the DFIX Gateway. Conditionally required in all post trade workflow TCR messages.
856	TradeReportType	int		Type of Trade Report Supported values: 0 = Submit 2 = Accept 3 = Decline 5 = No/Was 7 = Trade Break 11 = Alleged New 13 = Alleged No/Was 15 = Alleged Trade Break
939	TrdRptStatus	int		Status of the trade report Supported values: 0 = Accepted 1 = Rejected 2 = Cancelled 4 = Pending New 5 = Pending Cancel 6 = Pending Replace
568	TradeRequestID	String		Request ID if the Trade Capture Report is in response to a TCRRequest message. Echoes the value from the TCRRequest.
828	TrdType	int		Type of trade Supported values: 0 = Regular trade (Default) 22 = Privately negotiated trade – Registered trade



TradeCaptureReport(35=AE)				
Tag	Field Name	Data Type	Reqd	Comments
829	TrdSubType	int		Contain additional trade type qualifiers. Supported values: 36 = SWAP converted 42 = Auction Trade 1000 = Next Day converted 1001 = FIX converted 1002 = RFQ Trade 1003 = Stop Loss 1004 = Volume Match The following values applies for MarketSegmentID = 71 and 76 on Trade Registration 1006 = Swap O/N 1007 = Swap Forward 1008 = Swap Future
1123	TradeHandlingInstr	Char		Specifies how the TCR should be handled Supported values: 0 = Trade Confirmation 3 = One-party report for pass through
1125	OrigTradeDate	LocalMktDate		Required when TrdSubType(829) = 1000 (Next Day converted) or 1001 (FIX converted). Used to preserve original trade date when original trade is being reported.
912	LastRptRequested	Boolean		Indicates whether this message is the last report message in response to a request message. The absence of this field should be understood as not the last message Supported values: N = Not last message (Default if not specified) Y = Last Message
263	SubscriptionRequestType	char		Subscription Request Type carried from the request if there was any
17	ExecID	String		Identifier assigned by Datatec when trade occurs
423	PriceType	int		Defines the type of price used in the market Supported values: 20 = Normal rate representation
<RootParties> component				Repeating group used for acting parties that applies to the whole message. When Broker registered a trade, their data will be sent here.
1116	NoRootPartyIDs	NumInGroup		Number of parties, maximum 2.
→	1117	RootPartyID	String	Required when NoRootPartyIDs > 0. Party identifier – 8-character Branch ID or Trader short name
→	1118	RootPartyIDSource	char	Required when NoRootPartyIDs > 0. Identifies the source of PartyID value. Supported values:

TradeCaptureReport(35=AE)					
Tag	Field Name		Data Type	Reqd	Comments
					C = Generally accepted market participant identifier - Datatec mnemonic
→	1119	RootPartyRole	int		Required when NoRootPartyIDs > 0. Identifies the role of RequestingPartyID Supported values: 7 = Entering Firm 36 = Entering Trader - Broker
End <RootParties> component					
1300	MarketSegmentID		String	Y	Identifies the market segment that trades belong to Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component				Y	Component used to identify the "Instrument"
55	Symbol		String	Y	Currency pair in CCY/CCY format
End <Instrument> component					
31	LastPx		Price		Trade Price
32	LastQty		Qty	Y	Trade Quantity
15	Currency		Currency	Y	Primary currency of the specified currency pair. Used to qualify LastQty(32); i.e. what currency the LastQty is denominated. Supported values: USD = US Dollar
60	TransactTime		UTCTimestamp	Y	UTC date and time of the trade represented by this TCR
75	TradeDate		LocalMktDate		Indicates date of trade referenced in this message in YYYYMMDD format. Absence of this field indicates current day, but is useful when reporting other than current day trades.
63	SettlType		String		Specific trade settlement period Supported values: 0 = Regular / FX Spot settlement (T+1 or T+2 depending on currency) (Default) 1 = Cash (TOD / T+0) 2 = Next Day (TOM / T+1) 3 = T+2 4 = T+3
64	SettlDate		LocalMktDate		Specific date of trade settlement in YYYYMMDD format.
573	MatchStatus		char		The status of this trade with respect to matching or comparison. Supported values:

TradeCaptureReport(35=AE)						
Tag	Field Name			Data Type	Reqd	Comments
						0 = Compared, matched or affirmed 1 = Uncompared, unmatched or unaffirmed
<TrdCapRptSideGrp> component					Y	Repeating group for trade side instances
552	NoSides			NumInGroup	Y	Always 2
→	54	Side		char	Y	Side for this block of fields in the repeating group. Must be the first field in this repeating group. Supported values: 1 = Buy 2 = Sell
→	<Parties> component					Repeating group, is used to identify and convey information of the entities in this side of the trade
→	453	NoPartyIDs				Number of parties involved in the side of the trade For Trade Registration Request this field should be a minimum of 2 party instances and a maximum of 3 party instances. For other uses a minimum of 4 party instances and a maximum of 5 party instances.
→	→	448	PartyID	String		Required if NoPartyIDs(453) > 0 Identification of the party. 8-character Branch code, or Trader short name, or the Beneficiary code.
→	→	447	PartyIDSource	char		Required if NoPartyIDs(453) > 0 Used to identify class source of PartyID value Supported values: C = Generally accepted market participant identifier (Datatec mnemonic)
→	→	452	PartyRole	int		Required if NoPartyIDs(453) > 0 Used to identify role of PartyID in the side of the trade 11 = Order originator Trader 13 = Order originator Firm 17 = Contra Firm 32 = Beneficiary (For future use) 37 = Contra Trader
→	→	<PtysSubGrp> component				Required when NoPartyIDs(453)> 0 and the message is been sent by DFIX Gateway. Not required when this message is sent by FIX Clients, Repeating group of Party sub-identifiers.
→	→	802	NoPartySubIDs		NumInGroup	Number of PartySubIDs
→	→	→	523	PartySubID	String	Sub-identifier, DFIX Gateway will send the branch name, or trader name, or city name.
→	→	→	803	PartySubIDType	int	Type of PartySubID(523) value. Supported values: 1 = Firm – Firm full name or Branch full name 2 = Person – Full name 34 = Address City – Related to the branch

TradeCaptureReport(35=AE)					
Tag	Field Name		Data Type	Reqd	Comments
→	→	End <PtysSubGrp> component			
→	End <Parties> component				
→	<MiscFeesGrp> component				Repeating group used to specify miscellaneous fees to be reported. It applies only for MarketSegmentID = 71 and 76 when markets are configured with VAT (Value added Tax)
→	136	NoMiscFees	NumInGroup		Number of fees to be reported, always 1.
→	→	137	MiscFeeAmt	Qty	Required when NoMiscFees > 0. Quantity of the fee
→	→	138	MiscFeeCurr	Currency	Required when NoMiscFees > 0. Currency of the fee amount. Supported values: COP – Local currency
→	→	139	MiscFeeType	int	Required when NoMiscFees > 0. Supported values: 22 = Value Added tax – VAT
→	→	891	MiscFeeBasis	int	If NoMiscFees > 0 this fields indicates how the amount fee is calculated. Supported values: 0 = Absolute – Total fixed amount (Default)
→	End <MiscFeesGrp> component				
→	<TradeReportOrderDetail> component				Order details for the order associated with this side of the trade.
→	37	OrderID	String		ID of the order associated with this side of the trade.
→	11	ClOrdID	String		Client order ID of the order associated with this side of the trade. Required if the order belongs to FIX Client and is not a registered trade.
→	End <TradeReportOrderDetail> component				
→	1057	AggressorIndicator	Boolean		Used to identify whether the side's order initiator is an aggressor or not in the trade. Supported values: Y = Order initiator is aggressor N = Order initiator is passive
End <TrdCapRptSideGrp> component					
751	TradeReportRejectReason		int		Only used for Trade Registration and Post Trade operations, Indicates the reason of Trade Capture Report rejected Supported values: 0 = Successful (default) 101 = Expired 99 = Other
1328	RejectText		String		Text explaining the reason for rejection

TradeCaptureReport(35=AE)				
Tag	Field Name	DataType	Reqd	Comments
1925	TradeClearingInstruction	int		This field contains one of the clearing conditions allowed in the market segment for orders and trades Supported values: 0 = Process normally (Default, not cleared against central counterparty) 6 = Clear against central counterparty
	Standard Trailer		Y	

## 11.5. Trade Capture Report Submitted and Returned Tags

The following table shows tags in TradeCaptureReport(35=AE) message that are submitted or returned based on various scenarios where this message is sent.

**Table 41 – Trade Capture Report Submitted and Returned Tags**

Tag	Reporting a Matched Trade	Trade Registration							
		Submit New Trade	Send Alleged Trade	Send Expired Request	Counterparty Declines	Send Decline to initiator	Counterparty Accepts	Reject by Credit Limits	Send Confirmed Trade
TradeID(1003)	R		R	R	R	R	R	R	R
FirmTradeID(1041)		R		C		R	R	R	R
TradeReportType(856)	R	R	R	R	R	R	R	R	R
TrdRptStatus(939)			R	R	R	R	R	R	R
TradeRequestID(568)	C								
TrdType(828)		R	R	R	R	R	R	R	R
TrdSubType(829)	C	C	C	C	C	C	C	C	C
TradeHandlingInstr(1123)	R								R
OrigTradeDate (1125)	C								
LastRptRequested(912)	C								
SubscriptionRequestType(263)	C								
ExeclD(17)	R								
PriceType(423)	R	R	R	R	R	R	R	R	R
RootParties									
MarketSegmentID(1300)	R	R	R	R	R	R	R	R	R

Tag	Reporting a Matched Trade	Trade Registration							
		Submit New Trade	Send Alleged Trade	Send Expired Request	Counterparty Declines	Send Decline to initiator	Counterparty Accepts	Reject by Credit Limits	Send Confirmed Trade
Symbol(55)	R	R	R	R	R	R	R	R	R
LastPx(31)	C	C	C	C	C	C	C	C	C
LastQty(32)	R	R	R	R	R	R	R	R	R
Currency(15)	R	R	R	R	R	R	R	R	R
TransactTime(60)	R	R	R	R	R	R	R	R	R
TradeDate(75)	R	C	R	R	C	R	C	C	R
SettlType(63)	C	C	C	C	C	C	C	C	C
SettlDate(64)	C	C	C	C	C	C	C	C	C
MatchStatus(573)	R								R
TrdCapRptSideGrp	R	R	R	R	R	R	R	R	R
→ Side(54)	R	R	R	R	R	R	R	R	R
→ Parties	R	R	R	R	R	R	R	R	R
→ → PtysSubGrp	R								R
→ OrderID(37)	R								R
→ ClOrdID(11)	C								
→ AggressorIndicator(1057)	R	C	R	R	C	R	C	R	R
TradeReportRejectReason(751)				R				R	
RejectText(1328)				R				R	
TradeClearingInstruction(1925)	C	C	C	C	C	C	C	C	C

C	Conditionally required– Based on Input, Transaction, Query or Error condition
R	Required as part of TradeCaptureReport message

## 12.Trade Registration

When a trade is agreed between two counterparties outside the electronic exchange system, this trade can be entered into the system. Trade registration allows two counterparties to formally agree that a trade took place outside the electronic markets on the platform, usually to comply with reporting requirements. This section details the message flows and specific messaging considerations for implementation of a privately negotiated two party trade confirmation.

The implementation will use what FIX calls the "entity-based model" of identifying the trade. What this means is each side should supply their own trade identifier and DFIX Gateway will also supply a centrally assigned trade identifier. The identifiers will not change during the life of the trade.

The entire workflow uses the TradeCaptureReport(35=AE) and TradeCaptureReportAck(35=AR) messages. The way the flow works is: Initiator sends in a TradeCaptureReport(35=AE) with all the trade details to the DFIX Gateway indicating they did this trade with the identified counterparty. DFIX will send an "alleged trade" TradeCaptureReport(35=AE) message to the counterparty telling them the initiator alleged the trade against them. The counterparty has to accept or reject the alleged trade. The counterparty responds with an answer sent to DFIX Gateway. Finally DFIX will send the confirmed trade to both parties if the counterparty accepts the alleged trade. For details see the workflow diagrams in the sub-sections below.

The following table describes some of the key FIX fields used in two party trade confirmations:

**Table 42 – Key FIX fields in Two Party Trade Confirmation**

Field	Description
TradeID(1003)	Unique trade identifier generated by Datatec. Trade IDs are unique for a given business date. Once assigned, this ID is used to identify the trade in post trade operations.
FirmTradeID(1041)	Unique ID assigned to a trade by the Firm to track a trade within the Firm system. The initiator, on submission of the trade registration will provide its own trade identifier in this field. The counterparty will also provide its own trade identifier when responding to DFIX. FirmTradeIDs of the respective parties in the trade are not revealed to each other. The ID must be unique for the given business date.
TradeReportType(856)	Type of Trade Report
TrdRptStatus(939)	Status of the trade report (Status of the trade itself)
TradeHandlingInstr(1123)	Specifies how the TCR should be handled
TradeClearingInstruction(1925)	Contains one of the clearing conditions allowed in the market segment for orders
MatchStatus(573)	The status of this trade with respect to matching or comparison.
TrdAckStatus(1523)	Field in TradeCaptureReportAck(35=AR) used to indicate the status of trade submission

The client should submit a privately negotiated trade for confirmation via a TradeCaptureReport containing both sides of the trade (i.e. NoSides (552) = 2). Each side will contain a Parties block which contains

information specifying the party which participated in that particular side of the trade (and not the other side of the trade, i.e. only one counterparty is specified in each of the two Parties blocks).

The firm which reports the trade to the marketplace will be identified via PartyRole(452) of Order Originator Firm (13), the trader who reports via PartyRole of Order Originator Trader (11), the counterparty will be identified via PartyRole of Contra Firm (17) and the counterparty trader via PartyRole of Contra Trader (37).

The message should include a trade identifier in the field FirmTradeID(1041). The Trade Capture Report should also include a TradeReportType(856) of Submit (0) and a TradeHandlingInstr(1123) of One-Party Report for Pass Through (3). The time at which the privately negotiated trade was concluded should be specified in the TransactTime(60) field; and all other fields specified for "Submit New Trade" in section "Trade Capture Report Submitted and Returned Tags".

The field AggressorIndicator(1057) is not required for trade registration, in native GUI, the passive side is who starts the registration process, same applies for FIX Clients, and if this field is specified in the TradeCaptureReport message, the DFIX Gateway will check that the side where FIX Client branch is included, is the passive side.

## **12.1. Workflows**

The whole process of trade Registration has been divided in two workflow diagrams; the first one includes the submission of the trade from the initiator, how it is conveyed to the counterparty and the expiration of the request. The second one includes the rejection or acceptance sent by counterparty and how the process is finished. A separated workflow is provided for Colombian platform, where the acceptance could include a change of the trade to the clearing house.



Figure 13 – Trade Registration Workflow Part 1

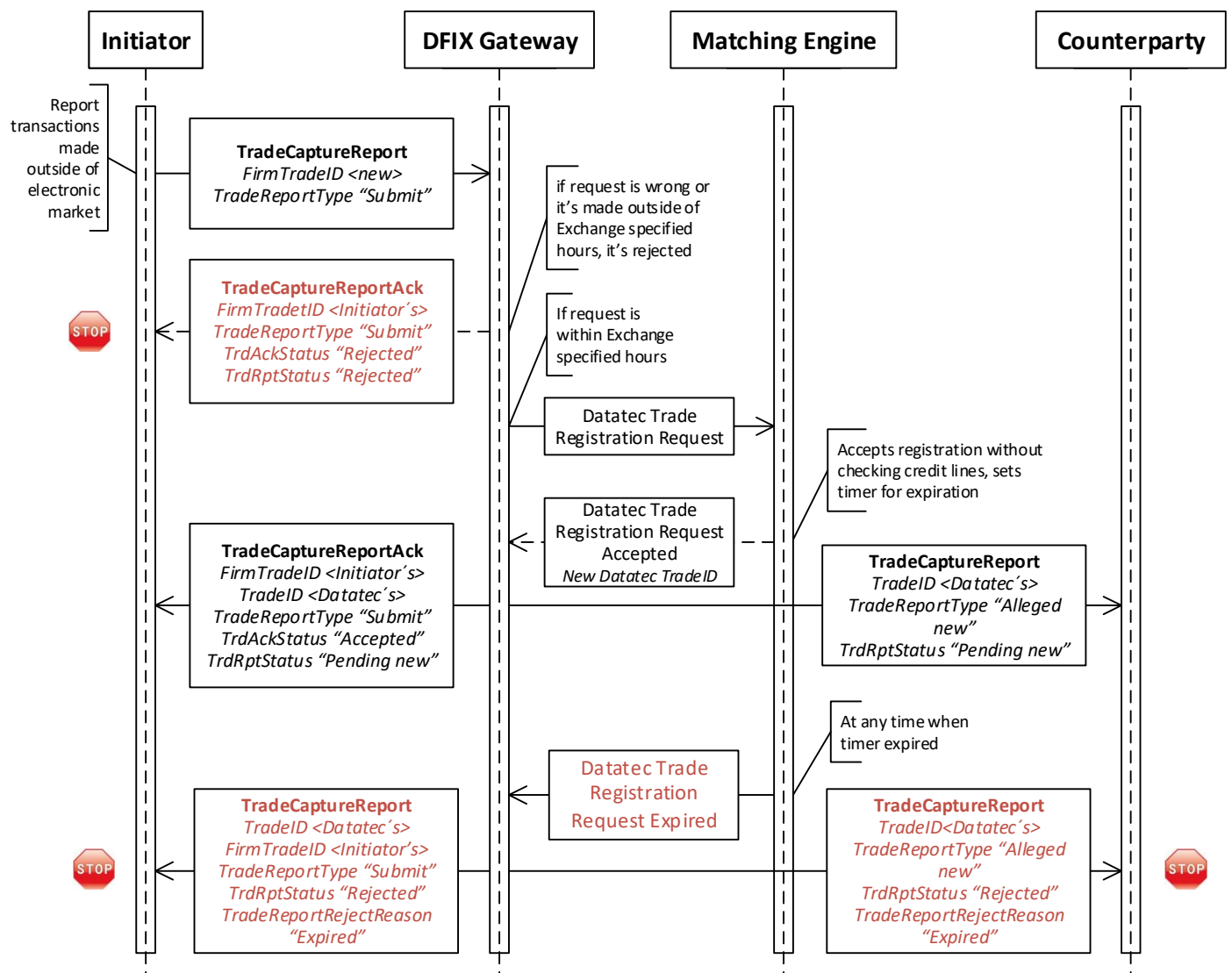
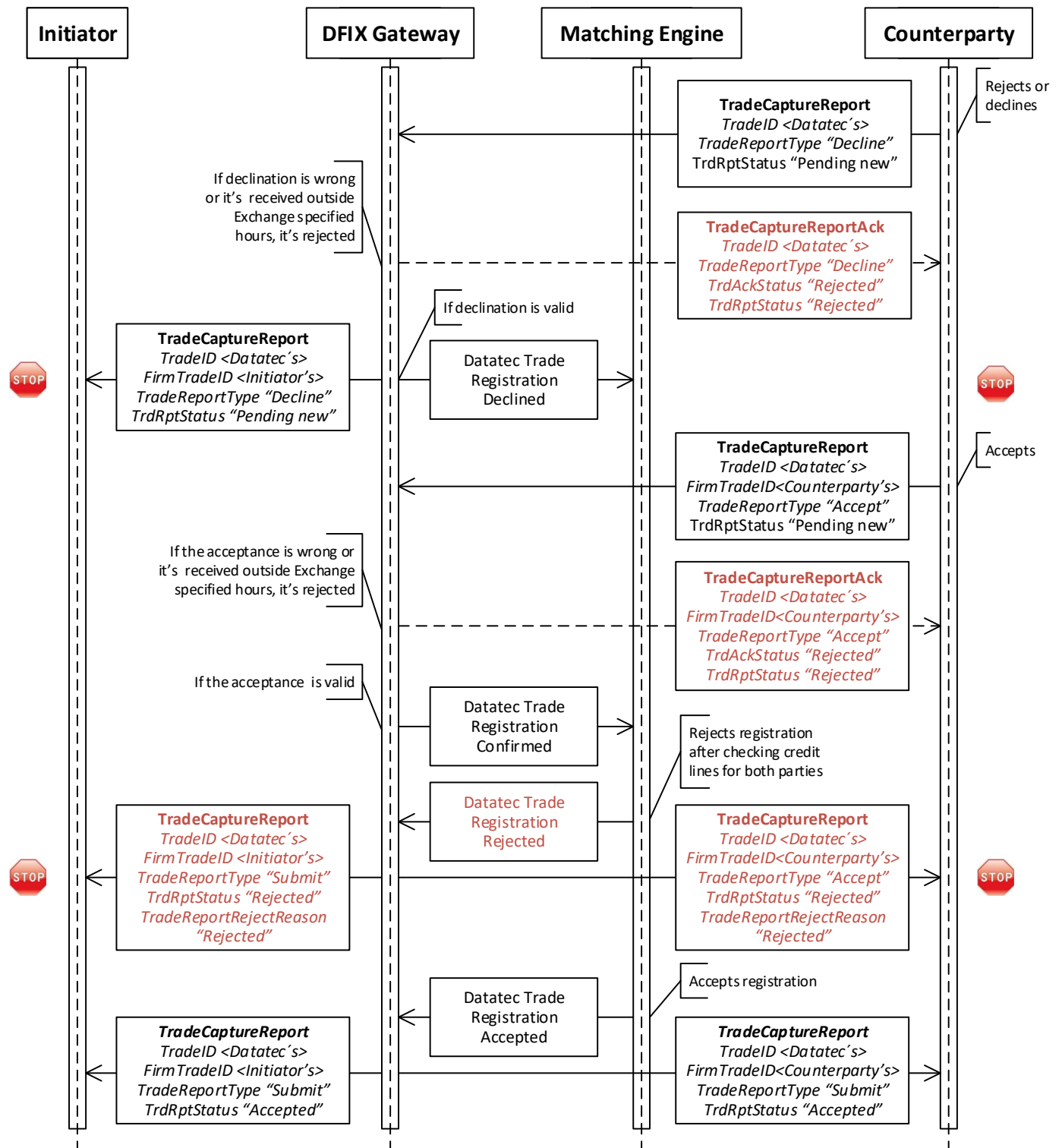
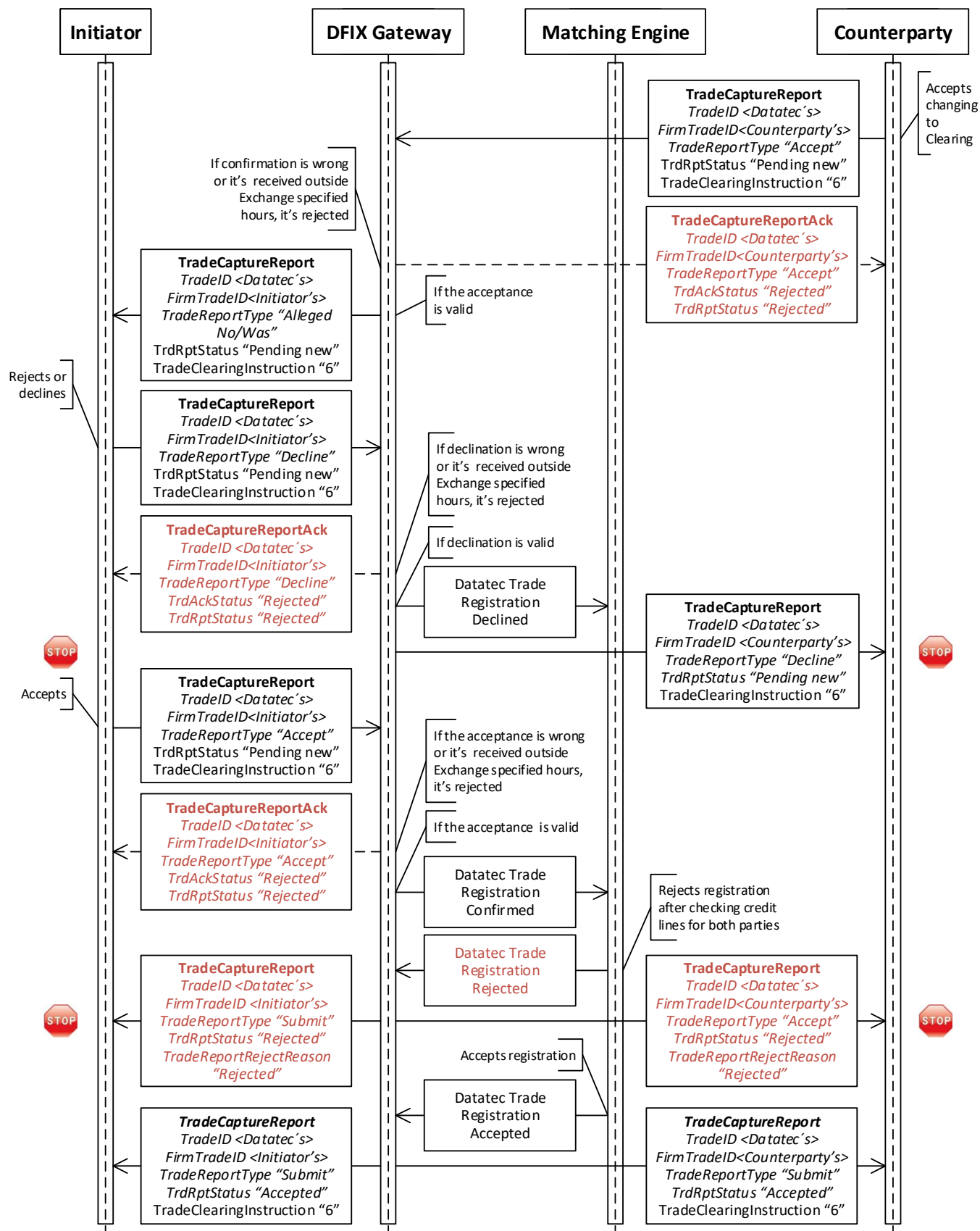


Figure 14 – Trade Registration Workflow Part 2



### Figure 15 – Acceptance with change to Clearing House



## 12.2. Trade Capture Report Ack

The TradeCaptureReportAck(35=AR) message can be:

- Used by DFIX to acknowledge Trade Capture Reports received
- Used by DFIX to reject a Trade Capture Report received

These use cases of Trade Capture Report Ack message are included in the Trade Registration workflows. Most of the fields in TCRack message are carried over from Trade Capture Report being acknowledged or rejected; only fields TrdRptStatus(939), TrdAckStatus(1523), TradeReportRejectReason(751) and RejectText(1328) are set by the DFIX Gateway before sending.

**Table 43 – TradeCaptureReportAck Message**

TradeCaptureReportAck(35=AR)				
Tag	Field Name	Data Type	Reqd	Comments
	<i>Standard Header</i>		Y	MsgType = <b>AR</b>
1003	TradeID	String		Unique trade identifier assigned by Datatec
1041	FirmTradeID	String	Y	Unique ID assigned to a trade by the Firm
856	TradeReportType	int	Y	Type of Trade Report, carried from TCR
939	TrdRptStatus	int	Y	Status of the trade report Supported values: 0 = Accepted 1 = Rejected 4 = Pending New 5 = Pending Cancel 6 = Pending Replace
1523	TrdAckStatus	int	Y	Status of the trade submission (not the trade report) Supported values: 0 = Accepted 1 = Rejected
828	TrdType	int		Type of trade Supported values: 0 = Regular trade (Default) 22 = Privately negotiated trade – Registered trade
829	TrdSubType	int		If MDEntryType is 2 (Trade), this may contain additional trade type qualifiers. Used in conjunction with TrdType(828). Supported values: 36 = SWAP converted 42 = Auction Trade 1000 = Next Day converted 1001 = FIX converted 1002 = RFQ Trade 1003 = Stop Loss 1004 = Volume Match The following values applies for MarketSegmentID =

TradeCaptureReportAck(35=AR)					
Tag	Field Name		Data Type	Reqd	Comments
					71 and 76 on Trade Registration 1006 = Swap O/N 1007 = Swap Forward 1008 = Swap Future
1123	TradeHandlingInstr		char		Specifies how the TCR should be handled Supported values: 0 = Trade Confirmation 3 = One-party report for pass through
1125	OrigTradeDate		LocalMktDate		Required when TrdSubType(829) = 1000 (Next Day converted) or 1001 (FIX converted). Used to preserve original trade date when original trade is being reported.
17	ExecID		String		Identifier assigned by Datatec
423	PriceType		int		Defines the type of price used in the market Supported values: 20 = Normal rate representation
<RootParties> component					Repeating group used for acting parties that applies to the whole message. When Broker registered a trade, their data will be sent here.
1116	NoRootPartyIDs		NumInGroup		Number of parties, maximum 2
→	1117	RootPartyID	String		Required when NoRootPartyIDs > 0. Party identifier – 8-character Branch ID or Trader short name
→	1118	RootPartyIDSource	char		Required when NoRootPartyIDs > 0. Identifies the source of PartyID value. Supported values: C = Generally accepted market participant identifier - Datatec mnemonic
→	1119	RootPartyRole	int		Required when NoRootPartyIDs > 0. Identifies the role of RequestingPartyID Supported values: 7 = Entering Firm 36 = Entering Trader - Broker
End <RootParties> component					
1300	MarketSegmentID		String	Y	Identifies the market segment where trades belong to Supported values: 71 = CO Dollar Spot 76 = CO Dollar Next Day 39 = CL Dollar Spot 51 = PE Dollar Spot
<Instrument> component				Y	Component used to identify the “Instrument”
55	Symbol		String	Y	Currency pair in CCY/CCY format, from MarketDefinition

TradeCaptureReportAck(35=AR)						
Tag	Field Name			Data Type	Reqd	Comments
End <Instrument> component						
31	LastPx			Price		Trade Price
32	LastQty			Qty		Trade Quantity
15	Currency			Currency	Y	Primary currency of the specified currency pair. Used to qualify LastQty(32); i.e. what currency the LastQty is denominated. Supported values: USD = US Dollar
60	TransactTime			UTCTimestamp	Y	UTC date and time of the trade represented by this TCR
75	TradeDate			LocalMktDate		Indicates date of trade referenced in this message in YYYYMMDD format.
63	SettlType			String		Specific trade settlement period Supported values: 0 = Regular / FX Spot settlement (T+1 or T+2 depending on currency) (Default) 1 = Cash (TOD / T+0) 2 = Next Day (TOM / T+1) 3 = T+2 4 = T+3
64	SettlDate			LocalMktDate		Specific date of trade settlement in YYYYMMDD format.
573	MatchStatus			char		The status of this trade with respect to matching or comparison. 0 = Compared, matched or affirmed 1 = Uncompared, unmatched or unaffirmed
<TrdCapRptAckSideGrp> component					Y	Repeating group for side instances carried from TCR
552	NoSides			NumInGroup	Y	Always 2
→	54	Side		char	Y	Side for this block of fields in the repeating group. Must be the first field in this repeating group. Supported values: 1 = Buy 2 = Sell
→	<Parties> component					Repeating group, is used to identify and convey information of the entities in this side of the trade; carried from TCR being acknowledged.
→	453	NoPartyIDs		NumInGroup		Number of parties involved in the side of the trade
→	→	448	PartyID	String		Required if NoPartyIDs(453) > 0 Identification of the party.
→	→	447	PartyIDSource	char		Required if NoPartyIDs(453) > 0 Used to identify class source of PartyID value Supported values: C = Generally accepted market participant identifier

TradeCaptureReportAck(35=AR)						
Tag	Field Name			Data Type	Reqd	Comments
						(Datatec mnemonic)
→	→	452	PartyRole		int	Required if NoPartyIDs(453) > 0 Used to identify role of PartyID in the side of the trade 11 = Order originator Trader 13 = Order originator Firm 17 = Contra Firm 32 = Beneficiary (For future use) 37 = Contra Trader
→	→	<PtySubGrp> component				Required when NoPartyIDs(453)> 0. Repeating group of Party sub-identifiers.
→	→	802	NoPartySubIDs		NumInGroup	Number of PartySubIDs
→	→	→	523	PartySubID	String	Sub-identifier, DFIX Gateway will send the branch name, or trader name, or city name.
→	→	→	803	PartySubIDType	int	Type of PartySubID(523) value. Supported values: 1 = Firm – Firm full name or Branch full name 2 = Person – Full name 34 = Address City – Related to the branch
→	→	End <PtySubGrp> component				
→	End <Parties> component					
→	<TradeReportOrderDetail> component					Order details for the order associated with this side of the trade.
→	37	OrderID			String	ID of the order associated with this side of the trade.
→	11	ClOrdID			String	Client order ID of the order associated with this side of the trade. Required if the order belongs to FIX Client and is not a registered trade.
→	End <TradeReportOrderDetail> component					
→	1057	AggressorIndicator			Boolean	Used to identify whether the side order initiator is an aggressor or not in the trade. Supported values: Y = Order initiator is aggressor N = Order initiator is passive
End <TrdCapRptAckSideGrp> component						
751	TradeReportRejectReason			int		Only used for Trade Registration and Post Trade operations, Indicates the reason of Trade Capture Report rejected Supported values: 0 = Successful (default) 1 = Invalid Party information 2 = Unknown instrument 3 = Unauthorized to report trades 4 = Invalid trade type 5 = Price exceeds current price band

TradeCaptureReportAck(35=AR)				
Tag	Field Name	Data Type	Reqd	Comments
				101 = Expired 99 = Other
1328	RejectText	int		Text explaining the reason or rejection
1925	TradeClearingInstruction	int		This field contains one of the clearing conditions allowed in the market segment for orders and trades  * FIX 5.0 field added to message  Supported values: 0 = Process normally (Default, not cleared against central counterparty) 6 = Clear against central counterparty
	<i>Standard Trailer</i>		Y	



## 13. Switch in and Switch out of Clearing

The FX Clearing House in Colombia is responsible for settling trading accounts, clearing trades, collecting and maintaining margin monies, regulating delivery and reporting trading data. The Clearing House acts as a third party in all Dollar Spot and Dollar Next Day trades.

All participants of Colombian USD/COP Spot & Next Day markets are required to clear all their trades through the Clearing House by the end of each trading session. By default trades are cleared against the Clearing House, but depending on the amount of credit that participants have in the Clearing House, some trades may not be cleared at the time of the trade.

### 13.1. Switch to Clearing

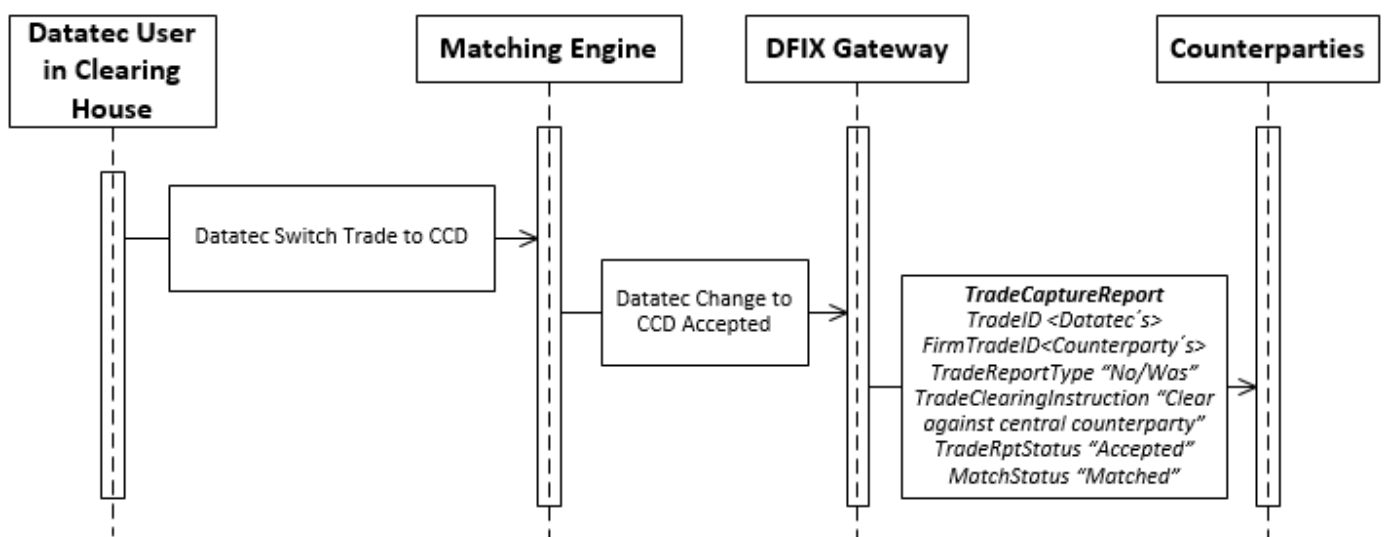
The process of switch to clearing can only be executed for a trade which already exists and is not yet cleared against the Clearing House. The trade may have been electronic or registered. This process is only possible if sufficient Clearing House credit is available for both counterparties.

There are two ways of switch to clearing via Datatec Frontend:

- i. The Clearing House using a Datatec native GUI executes the process of switch to clearing; in this case counterparties confirmation is not needed.
- ii. Datatec users using their native GUI agree on switch to clearing a trade.

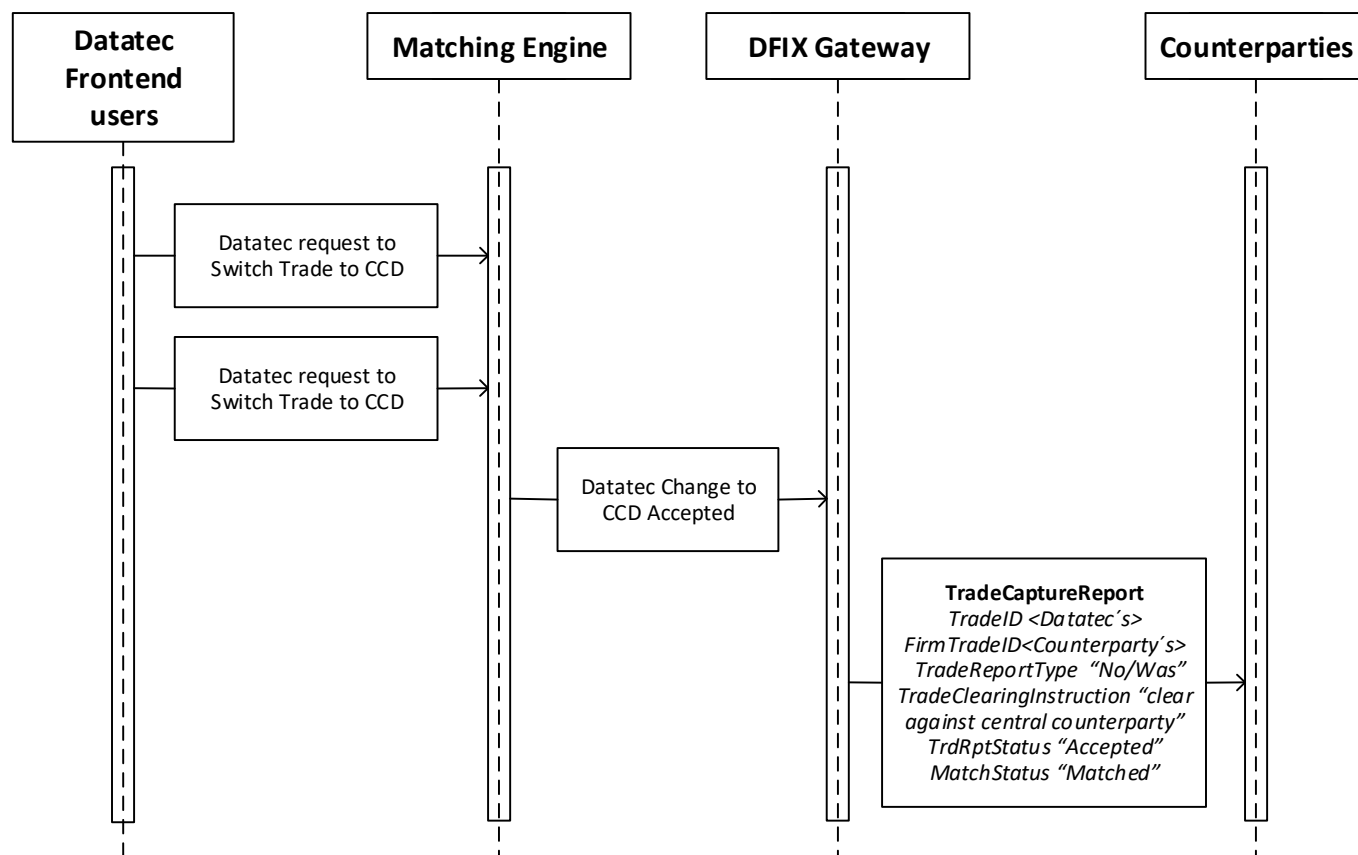
#### 13.1.1. Switch to Clearing Workflow – Executed by Clearing House

Figure 16 – Switch to Clearing Workflow – Executed by Clearing House



#### 13.1.2. Switch to Clearing Workflow – Agreed by Datatec Frontend users

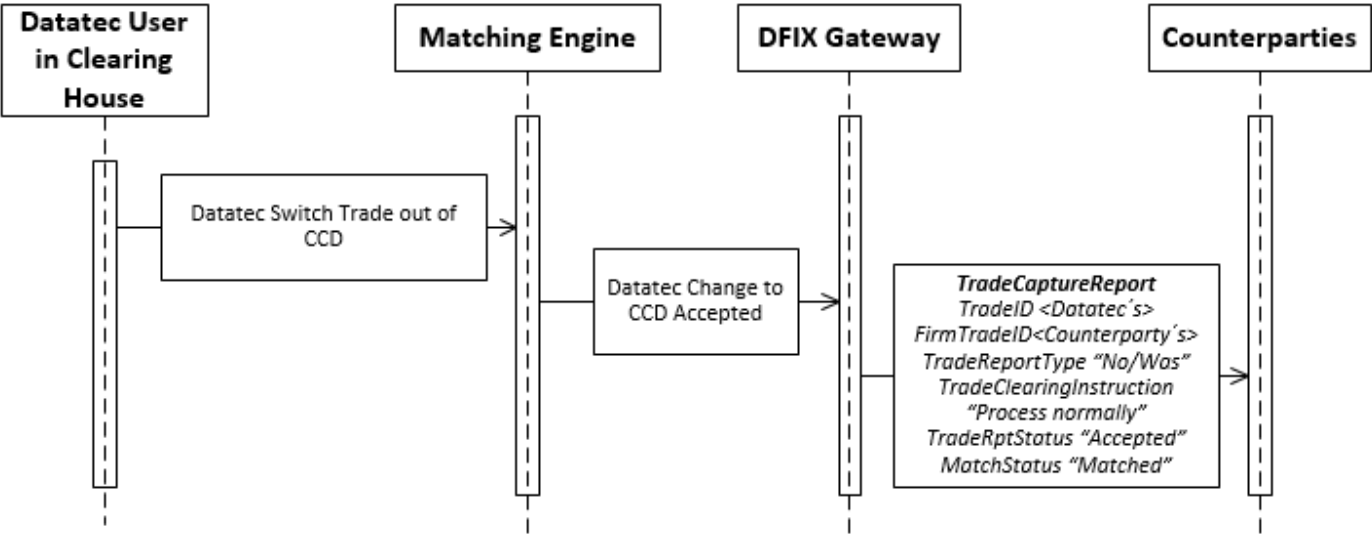
Figure 17 – Switch to Clearing Workflow – Agreed by Datatec Frontend users



## 13.2. Switch out of Clearing

Switch out of Clearing is the process of removing a trade from the Clearing House. This change of clearing instructions cannot be executed by FIX Clients or Datatec Clients; only a Clearing House User using a special Datatec front end has the permissions necessary to do it. But when this Clearing House user changes the condition of the trade, this must be communicated to the trade counterparties and other third parties. The update should be sent using the TradeCaptureReport(35=AE) message. The following diagram shows how the key fields will be filled:

Figure 18 – Workflow for Switch out of Clearing



## Appendix A: FIX Data Types

The following table details the standard FIX Data Type definitions used by the standard. This is provided here for convenience as the FIX Message Tables references the standard data types. Any user defined field (a.k.a. custom fields) will also use standard FIX data types as indicated in the message table where the user defined field is used.

When an enumerated field requires clarity of the data type of the corresponding value field (e.g. PartySubIDType and PartySubID) for a given enumeration, the standard FIX data type will also be used and indicated in the elaboration for the enumeration.

This table is extracted from the FIX Protocol standard data dictionary.

**Table 44 – FIX Data Type Descriptions**

Type Name	Base Type	Description
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  The following data types are based on int.
Length	int	int field representing the length in bytes. Value must be positive.
TagNum	int	int field representing a field's tag number when using FIX "Tag=Value" syntax. Value must be positive and may not contain leading zeros.
SeqNum	int	int field representing a message sequence number. Value must be positive.
NumInGroup	int	int field representing the number of entries in a repeating group. Value must be positive.
DayOfMonth	int	int field representing a day during a particular month (values 1 to 31).
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. All float fields must accommodate up to fifteen significant digits. 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.").  Note that fields which are derived from float may contain negative values unless explicitly specified otherwise. The following data types are based on float.
Qty	float	float field capable of storing either a whole number (no decimal places) of "shares" (securities denominated in whole units) or a decimal value containing decimal places for non-share quantity asset classes (securities denominated in fractional units).
Price	float	float field representing a price. Note the number of decimal places may vary. For certain asset classes, prices may be negative values. For example, prices for options strategies can be negative under certain market conditions. Refer to Volume 7: FIX Usage by Product for asset classes that support negative price values.

Type Name	Base Type	Description
		Example(s): Strk="47.50"
PriceOffset	float	float field representing a price offset, which can be mathematically added to a "Price". Note the number of decimal places may vary and some fields such as LastForwardPoints may be negative.
Amt	float	Float field typically representing a Price times a Qty  Example(s): Amt="6847.00"
Percentage	float	Float field representing a percentage (e.g. 0.05 represents 5% and 0.9525 represents 95.25%). Note the number of decimal places may vary.
char		Single character value, can include any alphanumeric character or punctuation except the delimiter. All char fields are case sensitive (i.e. m != M).  The following fields are based on char.
Boolean	char	char field containing one of two values: 'Y' = True/Yes 'N' = False/No
String		Alpha-numeric free format string can include any character or punctuation except the delimiter. All String fields are case sensitive (i.e. morstatt != Morstatt).
MultipleCharValue	String	String field containing one or more space delimited single character values (e.g.  18=2 A F  ).
MultipleStringValue	String	String field containing one or more space delimited multiple character values (e.g.  277=AV AN A  ).
Country	String	String field representing a country using ISO 3166 Country code (2-character) values.
Currency	String	String field representing a currency type using ISO 4217 Currency code (3-character) values.  Example(s): StrkCcy="USD"
Exchange	String	String field representing a market or exchange using ISO 10383 Market Identifier Code (MIC) values.
MonthYear	String	String field representing month of a year. An optional day of the month can be appended or an optional week code. Valid formats: YYYYMM YYYYMMDD YYYYMMWW Valid values: YYYY = 0000-9999 MM = 01-12 DD = 01-31 WW = w1, w2, w3, w4, w5.

Type Name	Base Type	Description
		<p>Example(s):</p> <p>MonthYear="200303"</p> <p>MonthYear="20030320"</p> <p>MonthYear="200303w2"</p>
UTCTimestamp	String	<p>String field representing time/date combination represented in UTC (Universal Time Coordinated, also known as "GMT") in either YYYYMMDD-HH:MM:SS (whole seconds) or YYYYMMDD-HH:MM:SS.sss (milliseconds) format, colons, dash, and period required.</p> <p>Valid values:</p> <p>YYYY = 0000-9999</p> <p>MM = 01-12</p> <p>DD = 01-31</p> <p>HH = 00-23</p> <p>MM = 00-59</p> <p>SS = 00-60 (60 only if UTC leap second)</p> <p>sss=000-999 (indicating milliseconds).</p> <p>Leap Seconds: Note that UTC includes corrections for leap seconds, which are inserted to account for slowing of the rotation of the earth. Leap second insertion is declared by the International Earth Rotation Service (IERS) and has, since 1972, only occurred on the night of Dec. 31 or Jun 30. The IERS considers March 31 and September 30 as secondary dates for leap second insertion, but has never utilized these dates. During a leap second insertion, an UTCTimestamp field may read "19981231-23:59:59", "19981231-23:59:60", "19990101-00:00:00". (see <a href="http://tycho.usno.navy.mil/leapsec.html">http://tycho.usno.navy.mil/leapsec.html</a>)</p> <p>Example(s):</p> <p>TransactTime="20011217-09:30:47"</p>
UTCTimeOnly	String	<p>String field representing time-only represented in UTC (Universal Time Coordinated, also known as "GMT") in either HH:MM:SS (whole seconds) or HH:MM:SS.sss (milliseconds) format, colons, and period required. This special-purpose field is paired with UTCDateOnly to form a proper UTCTimestamp for bandwidth-sensitive messages.</p> <p>Valid values:</p> <p>HH = 00-23</p> <p>MM = 00-59</p> <p>SS = 00-60 (60 only if UTC leap second)</p> <p>sss=000-999 (indicating milliseconds).</p> <p>Example(s):</p> <p>MDEntryTime="13:20:00.000"</p>
UTCDateOnly	String	<p>String field representing date-only represented in UTC (Universal Time Coordinated, also known as "GMT") in YYYYMMDD format. This special-purpose field is paired with UTCTimeOnly to form a proper UTCTimestamp for bandwidth-sensitive messages.</p> <p>Valid values:</p> <p>YYYY = 0000-9999</p> <p>MM = 01-12</p> <p>DD = 01-31.</p>

Type Name	Base Type	Description
		Example(s): MDEntryDate="20030910"
LocalMktDate	String	String field representing a Date of Local Market (as oppose to UTC) in YYYYMMDD format. This is the "normal" date field used by the FIX Protocol. Valid values: YYYY = 0000-9999 MM = 01-12 DD = 01-31.  Example(s): BizDate="2003-09-10"
TZTimeOnly	String	String field representing the time represented based on ISO 8601. This is the time with a UTC offset to allow identification of local time and timezone of that time. Format is HH:MM[:SS][Z[+ -hh[:mm]]] where HH = 00-23 hours MM = 00-59 minutes SS = 00-59 seconds hh = 01-12 offset hours mm = 00-59 offset minutes.  Example: 07:39Z is 07:39 UTC Example: 02:39-05 is five hours behind UTC, thus Eastern Time Example: 15:39+08 is eight hours ahead of UTC, Hong Kong/Singapore time Example: 13:09+05:30 is 5.5 hours ahead of UTC, India time
TZTimestamp	String	String field representing a time/date combination representing local time with an offset to UTC to allow identification of local time and time zone offset of that time. The representation is based on ISO 8601. Format is YYYYMMDD-HH:MM:SS[Z[+ -hh[:mm]]] where YYYY = 0000 to 9999 MM = 01-12 DD = 01-31 HH = 00-23 hours MM = 00-59 minutes SS = 00-59 seconds hh = 01-12 offset hours mm = 00-59 offset minutes  Example: 20060901-07:39Z is 07:39 UTC on 1st of September 2006 Example: 20060901-02:39-05 is five hours behind UTC, thus Eastern Time on 1st of September 2006 Example: 20060901-15:39+08 is eight hours ahead of UTC, Hong Kong/Singapore time on 1st of September 2006 Example: 20060901-13:09+05:30 is 5.5 hours ahead of UTC, India time on 1st of September 2006
data	String	String field containing raw data with no format or content restrictions. Data fields are always

Type Name	Base Type	Description
		<p>immediately preceded by a length field. The length field should specify the number of bytes of the value of the data field (up to but not including the terminating SOH).</p> <p>Caution: the value of one of these fields may contain the delimiter (SOH) character. Note that the value specified for this field should be followed by the delimiter (SOH) character as all fields are terminated with an "SOH".</p>
Pattern		Used to build on and provide some restrictions on what is allowed as valid values in fields that uses a base FIX data type and a pattern data type. The universe of allowable valid values for the field would then be the union of the base set of valid values and what is defined by the pattern data type. The pattern data type used by the field will retain its base FIX data type (e.g. String, int, char).
Tenor	Pattern	<p>Used to allow the expression of FX standard tenors in addition to the base valid enumerations defined for the field that uses this pattern data type. This pattern data type is defined as follows:</p> <p>Dx = tenor expression for "days", e.g. "D5", where "x" is any integer &gt; 0</p> <p>Mx = tenor expression for "months", e.g. "M3", where "x" is any integer &gt; 0</p> <p>Wx = tenor expression for "weeks", e.g. "W13", where "x" is any integer &gt; 0</p> <p>Yx = tenor expression for "years", e.g. "Y1", where "x" is any integer &gt; 0</p>
Reserved100Plus	Pattern	Values "100" and above are reserved for bilaterally agreed upon user defined enumerations.
Reserved1000Plus	Pattern	Values "1000" and above are reserved for bilaterally agreed upon user defined enumerations.
Reserved4000Plus	Pattern	Values "4000" and above are reserved for bilaterally agreed upon user defined enumerations.
XMLData	String	Contains an XML document raw data with no format or content restrictions. XMLData fields are always immediately preceded by a length field. The length field should specify the number of bytes of the value of the data field (up to but not including the terminating SOH).
Language	String	<p>Identifier for a national language - uses ISO 639-1 standard</p> <p>Example(s):</p> <p>en = English</p> <p>es = Spanish</p>
LocalMktTime	String	<p>String field representing the time local to a particular market center. Used where offset to UTC varies throughout the year and the defining market center is identified in a corresponding field.</p> <p>Format is HH:MM:SS where</p> <p>HH = 00-23 hours</p> <p>MM = 00-59 minutes</p> <p>SS = 00-59 seconds</p> <p>In general only the hour token is non-zero.</p> <p>Example: 07:00:00</p>
XID	String	The purpose of the XID datatype is to define a unique identifier that is global to a FIX message. An identifier defined using this datatype uniquely identifies its containing element, whatever its type and name is. The constraint added by this datatype is that the values of all the fields that have an ID datatype in a FIX message must be unique.
XIDREF	String	The XIDREF datatype defines a reference to an identifier defined by the XID datatype.