T7 Release 14.1

FIX LF
Manual
Version 1

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Contents

1. List of Abbreviations

Please find a list of all the abbreviations used in the document.

FIX	Financial Information eXchange
TCP/IP	Transmission Control Protocol /Internet Protocol
FPL	FIX Protocol Limited
RDI	Reference Data Interface
MIC	Market Identifier Code
PLP	Passive Liquidity Protection
GUI	Graphical User Interface
ETI	Enhanced Trading Interface
TES	T7 Entry Service
CLIP	Client Liquidity Improvement Process (Eurex Improve)
TLS	Transport Layer Security
SSL	Secure Sockets Layer
CA	Certificate Authority
FIXS	FIX over TLS

2. Introduction

The T7 FIX LF interface is intended for participants that require a standard FIX connection to the exchange and supports all T7 market place types:

- T7 Cash

- T7 Derivatives

The purpose of this document is to provide a way to access the T7 trading system via an interface using the FIX protocol. The interface includes basic trading functionality for the T7 Cash and T7 Derivatives markets in a consolidated manner.

The T7 FIX LF interface provides the following trading functions:

- Order management

- Execution notifications

- Risk control event notifications

- Request for quote

- Cross Trade Announcement

- Eurex Improve: Client Liquidity Improvement Process (CLIP) – for T7 Derivatives only

- Creation of a strategy (T7 Derivatives only)

- Inquiry for risk limits information (T7 Derivatives only)

- Deletion of orders submitted either via other FIX LF sessions or other T7 interfaces (T7 GUI, ETI, FIX Gateway)

Additionally, the T7 FIX LF interface enables participants to subscribe to private trading data for each market type in a broadcast form:

- Trade notifications at a business unit level

- Drop Copy for standard orders at the business unit level

The T7 trading system supports the access via FIX LF for both market place types, T7 Derivatives and T7 Cash.

A FIX LF session can only be used to access one exchange/market.

Participants are requested to order separate FIX LF sessions per market/exchanges for their business units via the Xetra Member Section (T7 Cash) and the Eurex Member Section (T7 Derivatives) respectively.

Note: The T7 FIX LF interface does not provide any reference data. Participants are asked to retrieve reference data either via RDI (the Reference Data Interface) or via RDF (Reference Data File).

2.1 Purpose

The purpose of this document is to provide an overview of the T7 FIX LF interface for the T7 trading system.

The focus of the description is to capture T7 specific behaviour, highlight where it deviates from the recommended FIX Protocol standard and keep the amount of the FIX specification, which needs to be included in this document to a minimum.

2.2 Related Documents

Please refer to the related documents listed below for details on message formats, release scope, system overview, and functional reference.

2.2.1 FIX LF Message References

There are two message reference manuals for the cash and derivatives markets, FIX LF Cash Message Reference and FIX LF Derivatives Message Reference, which provide all message formats available. Both documents are provided together with the FIX LF Manual.

2.2.2 Release Notes

There are separate release Release Notes for the cash and derivatives markets, namely Release Notes Xetra and Release Notes Eurex giving an overview of the functional and technical enhancements and changes to be introduced.

2.2.3 Functional and Interface Overview

There is a single overview document, which gives an overview of T7, irrespective of any cash markets or derivatives markets specifics. It describes the major functional and system features, and provides a high level description of the interface landscape.

2.2.4 Cross System Traceability

A single overview document providing detailed information on order, quote, and trade traceability across trading and clearing systems.

2.2.5 Functional Reference

A single reference document, which gives detailed insight into the functional concepts of T7, irrespective of any cash markets or derivatives markets specifics.

2.2.6 Network Access Guide

A single reference document providing detailed information on how to access the FIX LF gateways (including IP address, IP subnet, and port).

2.2.7 Incident Handling Guide

A single document providing a detailed description of the reaction of the T7 trading system to technical incidents. It describes the reaction of T7 in scenarios either observed in the past or to be expected in case of technical outages.

2.3 Supported FIX Version

Only FIX protocol version 4.4 is supported.

The interface is a point-to-point service based on the technology and industry standards TCP/IP, FIX and FIX Session Protocol. The session and application event models and messages are based on the definitions of the FIX protocol for the supported version.

Following a FIX Protocol Limited (FPL) recommendation to use standard fields from higher versions as the primary solution before using user-defined fields, Deutsche Boerse applies the following design rules for support of functionality

currently not provided in the corresponding FIX version:

- Fields reserved for internal use (Tag numbers 10000 - 19999) are not used.

- Standard fields of the supported FIX versions that only became part of the standard message in a higher version are used.

- FIX fields of higher versions are only added to standard messages, if no standard field for the required functionality is available in the supported FIX versions.

2.4   Intended Readership

The main target group is technical staff within the T7 trading system participants.

2.5   Change Log

Date	Version	Description
29.01.2025	14.1-1.0	T7 14.1 – Version 1: backward compatibility

3. Service Description

3.1 FIX Session Concept

As per the FIX Protocol standard, a FIX session is defined as a bi-directional stream of ordered messages between two parties with a contiguous sequence number.

A participant may have multiple FIX sessions. A FIX session will be initiated by the participant, and maintained between the participant and the T7 FIX LF Gateway over the course of a trading day.

Participants are required to order separate FIX LF sessions for access to the different T7 markets.

The T7 FIX LF interface supports two types of sessions:

Trading session: supports order management, request for quote, cross trade announcement, Eurex Improve: Client Liquidity Improvement Process (CLIP) (Derivatives only), risk control events, and strategy creation (Derivatives only). Each session will receive information for all of its own orders. Several traders may share a single session, but every session can only be instantiated once.

Back-office session: used for receipt of trade confirmations at the business unit level. Clearing business units receive trade confirmations from their trading business units and from their non-clearing members. Back-office sessions can additionally be configured to receive drop copy information for standard orders at the business unit level. Clearing members do not receive drop copy order information from their non-clearing members.

3.2 Party Identification

The **participant** is an entity accessing the T7 Trading System.

A participant may have several **business units** as independent entities taking part in trading at the exchange. Business units are identified by a business unit ID. A business unit belongs to a participant.

A **user** is a person, such as a trader or an exchange market supervisor that interacts with the T7 Trading System. Users are identified by a user ID. A user belongs to one business unit. A user is a trader or administrator that logs on to the system to enter commands on the trading system.

Users can be assigned to a specific trader group, along with the head trader and supervisor roles:

- A user with a user level of head trader may modify or cancel orders of any user belonging to the same trader group.

- A user with a user level of supervisor may modify or cancel orders of any user belonging to the same business unit.

The <Parties> component block will be used to identify the parties in the FIX messages. For each party a separate occurrence of the repeating group will be set up.

3.3 Market Identifier Codes

The FIX LF interface is designed to support access to all markets on T7 (Cash and Derivatives). The supported markets are identified by unique Market Identifier Codes (MIC):

Market Identifier Code (MIC)	Derivatives	Cash	Description
XEEE	X		Europan Energy Exchange
XEUR	X		Eurex Deutschland
XBUD		X	Budapest Stock Exchange
XBUL		X	Bulgarian Stock Exchange
XETR		X	Deutsche Börse Xetra
XFRA		X	Deutsche Börse Frankfurt
XLJU		X	Ljubljana Stock Exchange
XMAL		X	Malta Stock Exchange
XPRA		X	Prague Stock Exchange
XVIE		X	Vienna Stock Exchange
XZAG		X	Zagreb Stock Exchange

3.4 Security Identification

Instruments traded on T7 will be identified by the product identifier (*Symbol (55)*) and the instrument identifier (*SecurityID (48)*). Both fields must be provided on the FIX LF requests operating on instrument level. For messages operating on product level e.g. *UserOrderMassActionRequest (UCA)* only Symbol (55) will be provided.

For the identification of an instrument traded on T7 Derivatives only the marketplace-assigned identifier with SecurityIDSource (22) = "M" (Marketplace-assigned identifier) will be supported and must be provided in the FIX LF request. Both single and multileg instruments are uniquely identified by the corresponding instrument ID. T7 Derivatives messages sent to the participants will also contain the marketplace-assigned identifier in the component <Instrument>.

For the identification of an instrument traded on T7 Cash the ISIN with *SecurityAltIDSource (456)* = "4" (ISIN) and the T7 instrument ID (marketplace-assigned identifier) with *SecurityIDSource (22)* = "M" (Marketplace-assigned identifier) will be supported. One of both identifiers must be provided in the FIX LF requests. If *SecurityAltIDSource (456)* is set to "4" (ISIN), *Symbol (55)* can contain *"[N/A]"* instead of the product identifier.

For FIX LF requests with *SecurityAltIDSource (456)* set to "4" the field *Currency (15)* must be set.

T7 Cash messages sent to the participants will contain both instrument identifiers in the component <Instrument>:

- ISIN: *SecurityAltID (455)* with *SecurityAltIDSource (456)* = *"4"* (ISIN)

- Instrument ID assigned by the trading system: *SecurityID (48)* with S*ecurityIDSource (22)* = *"M"* (Marketplace-assigned identifier)

<Instrument>	D	C	Description in Derivatives – all Messages	Description in Cash – Messages from Client	Description in Cash – Messages to Client
Symbol (55)	X	X	T7 Product identifier	"[N/A]" (if ISIN is used) or T7 Product identifier	T7 Product identifier
Security (48)	X	X	T7 instrument identifier	T7 Instrument identifier - only if ISIN is not used	T7 Instrument identifier
SecurityIDSource (22)	X	X	"M" (Marketplace-assigned identifier)	"M" (Marketplace-assigned identifier) - only if ISIN is not used	"M" (Marketplace-assigned identifier)
ProductComplex (1227)	X		Instrument type		
SecurityType (167)	X		Security type		
SecuritySubType	X		Strategy type		
NoSecurityAltID		X		"1" - only if T7 Instrument identifier is not used	"1"
SecurityAltID (455)		X		Instrument identifier (ISIN) – only if T7 Instrument identifier is not used	Instrument identifier (ISIN)
SecurityAltID-Source (456)		X		"4" (ISIN) – only if T7 Instrument identifier is not used	"4" (ISIN)

3.5 Order ID Policy

The standard FIX policy regarding usage of Client Order IDs is supported by the T7 FIX LF interface

Order related messages must include a unique participant defined identifier, the Client Order ID, in the *ClOrdID (11)* field.

ClOrdIDs with 20 characters or less are accepted. Characters in ASCII range 32-126 are allowed - with the exception of: 33, 34, 38, 39, 43, 60, 61, 62, 64, 96, and 124.

A ClOrdID (11) may only be used once per business day and FIX LF trading session. Additionally the T7 trading system enforces the uniqueness of *ClOrdID (11)* values among currently active orders. It is not recommended to reuse ClOrdIDs from inactive orders.

The Client Order ID needs to change on every modification and cancellation request; the original scope is specified by the *OrigClOrdID (41)*. In this way the participant is able to find and track individual requests by their Client Order ID. This FIX concept is called message chaining and intended for order handling through a single interface and session.

Orders entered through the FIX LF interface can be modified through sessions of other interfaces, i.e. T7 GUI or Enhanced Trading Interface (ETI). Cross-interface order id chaining is not supported.

Note: The T7 FIX LF interface will not ignore trailing spaces in the field *ClOrdID (11)*.

3.6 Uniqueness of Identifiers

The following table documents the criteria for uniqueness of IDs:

FIX Field	Description	Rule	Uniqueness
ClOrdID (11)	Unique participant defined order request identifier.	The uniqueness of ClOrdID (11) is checked at entry time among currently active orders for the same session. Duplicate ClOrdID (11) values for the same session will be rejected	- Session
ExecID (17)	The field ExecID (17) in the Execution Report provides a unique identifier and can be used for the identification of duplicate order messages.	Is unique per session.	- Session
OrderID (37)	Exchange Order ID generated by the T7 System; it remains constant over the lifetime of an order.	An exchange order ID is guaranteed to be unique among all orders of the same product.	- Product
TrdMatchID (880)	Unique identifier for each price level (match step) of a match event; it is used for public trade reporting (on-book trades only).	Is unique per product and business day.	- Business Day - Product
SecondaryExecID (527) LegExecID (1893) SideTradeID (1506)	Private identifier of an order match step event, which can be used for reconciliation between Order Executions and Trade Notifications.	Is unique per product and business day	- Business Day - Product
SideTradeReportID (1005)	Unique identifier for each side of a trade (with or without a central counterparty). Only used for T7 Cash trades.	Is unique per trade type (on-book/off-book), product and business day.	- Trade Type - Business Day - Product
TradeReportID (571)	In messages sent via FIX LF Back-office sessions, the field TradeReportID (571) in the Trade Capture Report provides a unique trade identifier and can be used for the identification of duplicate trade confirmation messages.	Is unique per business day and business unit.	- Business Day - Business Unit

FIX Field	Description	Rule	Uniqueness
TradeID (1003) OrigTradeID (1126)	The TradeID (1003) field in the Trade Notification uniquely identifies all allocations referring to the same matching event, instrument, and price. The OrigTradeID (1126) is delivered for trade reversals and contains the TradeID (1003) of the original trade.	Is unique per product and business day.	- Business Day - Product
UTransactTime (30060) MassActionReportID (1369)	Transaction timestamp, which provides date and time in UTC, represented as nanoseconds past the UNIX epoch (00:00:00 UTC on 1 January 1970).	Is unique per product.	- Product

3.7   Quantity Fields

Technically, the quantity fields are defined with a format that allows up to 15 digits before the decimal point and at most 4 significant decimal places (Qty (15.4)).

Functionally, the usage and the allowed formats for the quantity fields are different depending on the market type and on the instrument setup:

- For T7 Derivatives the user is not allowed to enter quantity fields with decimals (other than "0"). Entering a value with decimals or a value higher than the allowed maximum value leads to a rejection.

- For T7 Cash the user is able to enter quantity fields with decimals (other than "0") only if the related instrument has a minimum tradeable unit less than 1. For other instruments, entering a quantity with decimals (other than "0") will lead to a rejection.

3.8   Order Management

A FIX LF session can only modify orders (i.e. orders previously submitted successfully) on the same FIX LF session.

A FIX LF session can delete orders entered via a different T7 session (e.g., ETI, T7 GUI).

3.8.1   Type of Orders / Trading, Execution, and Validity Restrictions

The following type of orders are supported via the T7 FIX LF interface:

Type of Orders	D	C	Description	Relevant FIX Tags
Market (M)	X	X	Market orders have no specific price limit. They will be matched to the best price available.	- OrdType (40) = '1'
Limit (L)	X	X	Limit orders include a specified price limit and may not be executed at a price worse than that limit.	- OrdType (40) = '2' - Price (44)

Type of Orders	D	C	Description	Relevant FIX Tags
Stop Market (S)	X	X	Stop orders are orders that create market orders when the specified trigger price is reached. Stop orders are not visible in the order book for any market participant.	- OrdType (40) = '3' - StopPx (99)
Stop Limit (SL)	X	X	Stop limit orders create limit orders when the specified trigger price is reached. Stop limit orders are not visible in the order book for any market participant.	- OrdType (40) = '4' - Price (44) - StopPx (99)
Iceberg (Ice)		X	Limit Order that contains a peak quantity and an overall quantity. The peak quantity can be determined absolutely or randomly. Once the displayed quantity has been completely executed, a new peak is entered into the book. In auction trading, iceberg orders contribute with their overall volume.	<DisplayInstruction> - OrdType (40) = '2' - Price (44)
Immediate or Cancell (IOC)	X	X	An IOC order is to be executed immediately, either completely or to the extent possible; the portion that cannot be executed immediately is cancelled. The execution restriction IOC is allowed for Market and Limit orders.	- TimeInForce (59) = '3'
Fill or Kill (FOK)		X	A Market or Limit order, which is executed immediately and fully or not at all. If immediate and full execution is not possible, the order is cancelled without entry in the order book.	- TimeInForce (59) = '4'
Book or Cancel (BOC)	X	X	A Limit order, which is placed as resting liquidity in the order book to ensure passive execution. If immediate (and hence aggressive) execution is possible, the order is rejected without entry into the order book.	- ExecInst (18) contains '6'
Trailing Stop (TSO)		X	A Trailing Stop order is a Stop order whose stop limit is adjusted in accordance with the development of the reference price. Because of the dynamic adjustment of the stop limit the investor does not need to permanently watch the market in order to optimize the stop limit.	- ExecInst (18) contains 'a' - OrdType (40) = 'P' - StopPx (99) - PegOffsetValue (211) - PegOffsetType (836)
One-cancels-the-other (OCO)	X	X	A combination of a Limit order and a Stop (Market) order, expressed as a single order. Traders will specify a limit price and a trigger price (StopPx (99)) as part of one order	- OrdType (40) = '2' - Price (44) - StopPx (99)
Opening auction only (OAO)		X	Order only valid in opening auctions.	- TradingSessionSubID (625) = '2'
Closing auction only (CAO)	X	X	Closing auction only orders may be entered during the entire trading day, but are only active during the closing auction phase.	- TradingSessionSubID (625) = '4'
Intraday auction only (IAO)		X	Order only valid in intraday auctions.	- TradingSessionSubID (625) = '6'
Auction only (AOO)		X	Order only valid in auctions.	- TradingSessionSubID (625) = '8'
Special auction (SA)		X	Order only valid in special auction.	- TradingSessionSubID (625) = '105'

Type of Orders	D	C	Description	Relevant FIX Tags
Good-for-day (Day)	X	X	All orders are assumed to be day orders unless otherwise specified. The validity of a day order ends at the close of that day's trading period.	- TimeInForce (59) = '0'
Good-till-date (GTD)	X	X	Order carries a specified date up to one year from entry, on which the order is automatically cancelled.	- TimeInForce (59) = '6' - ExpireDate (432)
Good-till-cancelled (GTC)	X	X	Order remains valid until it is executed, cancelled, or if the contract expires.	- TimeInForce (59) = '1'
Trade-at-Close (TaC)		X	Orders that participate in trading in the Trade-at-Close instrument phase.	- TradeAtCloseOptIn (30625) = 'Y'
Persistent	X	X	A Persistent order is an order that survives a trading interruption or system failure. Persistent orders are always written to disk to prevent them from being lost during an emergency and remain in the book until their validity expires.	- ExecInst (18) contains 'H'
Non-persistent	X	X	Non-persistent orders are automatically cancelled in case of a trading interruption or exchange system failure. Non-persistent orders are not submit-able via FIX LF. They are only part of the order drop copies related to ETI sessions.	- ExecInst (18) contains 'Q'

3.8.2   Relevant FIX Fields for the Identification of the Type of Orders

The following table shows the relevant FIX fields for identifying any type of orders, the usage of the relevant tags and components and the assignments of the tag values depending on the order type attribute.

The following information has to be considered:

- "Y" or "N" will indicate if tags and components are mandatory or optional for the type of order specified.

- Other values will describe the tag values allowed/supplied for the type of order specified. Example: =1/=2 means that one of the valid values "1", "2" must be supplied.

- Empty cells will indicate that a tag or component is not allowed for the type of order specified.

Tag	Field Name	M	L	S	SL	Ice	TSO	FOK	BOC	OCO	IOC
	\<Display-Instruction>					Y					
	\<Peg-Instructions>						Y				
18	ExecInst	N	N	N	N	N	contains 'a'	N	contains '6'	N	N
40	OrdType	1	=2	=3	=4	=2	=P	=1/=2	=2	=2	=1/=2
44	Price		Y		Y	Y		-/Y	Y	Y	-/Y
59	TimeInForce	N	N	N	N	N	N	=4	N	N	=3
99	StopPx			Y	Y		Y/N			Y	
	T7 Derivatives	X	X	X	X				X	X	X
	T7 Cash	X	X	X	X	X	X	X	X	X	X

3.8.3 Price Validity Checks

There are two different price validations for orders, both considering the most recent best bid and best ask price.

Price Reasonability Check

When entering or replacing an order, the user may opt for a check ensuring that the entered price does not differ significantly from the market. For using the price reasonability check functionality the field *ValueCheckType (1869)* in the component *\<ValueChecksGrp>* has to be set to "1" (Price check). The field *ValueCheckAction (1870)* provides the following options:

- Valid value "0" = Do not check
- Valid value "1" = Check
- Valid value "2" = Best effort (only for T7 Derivatives)

The value "best effort" defined only for T7 Derivatives differs from the value "check" in the following way. If the best bid and best ask prices are not available or if their spread is not reasonable, an additional reference price (the last traded price or the theoretical price) is taken into account. If the additional reference price is also not available, the incoming order or quote is

- accepted without performing a price validation in case the submitting user choose "best effort", or
- rejected in case the submitting user chooses "check".

Extended Price Range Validation

In case no price reasonability check was performed, the extended price validity check is applied, which ensures that no erroneous price crosses through the market.

3.8.4 Notional Value and Quantity Checks

When entering or replacing an order, additional checks may be activated to prevent orders with a too large value (notional value check) or with a too large order size (quantity check) from entering the order book.

The notional value check functionality prevents orders with a too large order value from entering the order book. The validation verifies the order value against the maximum order value limit set by the participant for their traders.

The quantity check functionality prevents orders with a too large order size from entering the order book. The validation verifies the order quantity against the maximum order quantity limit set by the participant for their traders. (Iceberg orders will be validated with the full order quantity when entering the order book.)

The execution of these validations depends on the values entered in the component *<ValueChecksGrp>*:

Validity check	D	C	ValueCheckType (1869)	ValueCheckAction (1870)	Additional Information
Notional Value Check	X	X	"2" (Notional value check)	"0" (Do not check) "1" (Check)	
Quality Check		X	"3" (Quantity check)	"0" (Do not check) "1" (Check)	Entry not allowed for T7 Derivatives. For T7 Derivatives the quantity validation will be always performed and cannot be deactivated.

3.8.5 Cancellation

Canceling an order will remove the remainder of an active order from the order book. Orders can be canceled via FIX LF interface either using the *OrigClOrdID* or the *OrderID*.

Using the *OrigClOrdID* only orders entered via FIX LF can be deleted. The T7 FIX LF interface will respond with an *ExecutionReport (8)* or *BusinessMessageReject (j)* message for confirmation or rejection respectively.

Alternatively, any order of the own Business unit and not submitted via the own sessions can be canceled by using *OrderID*. Please note that the submitting FIX LF session will only get a *BusinessMessageAck (U28)* if the canceled order is owned by (submitted via) another T7 session. Only the owning session will get the related *ExecutionReport (8)*. Please note that getting a *BusinessMessageAck (U28)* only means that the related request has been received by the T7 system. The owning sessions have to wait for the related *ExecutionReport (8)* messages as a deletion confirmation.

Participants can also submit a *UserOrderMassActionRequest (UCA)* in order to delete all active orders in a given product using different values of *MassActionScope (1374)*:

- 6 (all orders for a specific session) – the dedicated session has to be provided in the party field *<target session id>*
- 7 (all orders for the own session)
- 100 (all orders of all sessions)

The *UserOrderMassActionRequest (UCA)* can be further restricted to a defined trader and/or a defined instrument. The user may delete only part of their orders for one instrument by entering the additional filter criteria side and price.

3.8.6 Modification

The FIX LF session may only modify orders that have been entered previously via the same session.

The participant must use the *OrigClOrdID (41) t*o identify the order to modify. The T7 FIX LF interface will respond with an *ExecutionReport (8)* or *BusinessMessageReject (j)* message for confirmation or rejection respectively.

The ExecutionReport (8) will contain ExecRestatementReason (378) = 181 (ownership changed) if the order ownership was changed. This will be the case if the submitter (Entering Trader) of the modify request is different from the original owner of the order.

Orders that have been completely executed may not be modified anymore.

Note: Modifications of the total order quantity to a quantity less than or equal to the accumulated executed order quantity will be interpreted as a cancel request.

3.8.7 Self Match Prevention

The Self Match Prevention (SMP) functionality allows participants to prevent an execution of an incoming order against a book order or quote side from the same business unit in the same instrument (crossing).

Depending on the market, participants can specify an individual Self Match Prevention ID in the field *MatchInstCrossID (28744),* which is contained in the component *<MtchgInst>* (Matching Instructions).

The *ExecutionReport (8)* will contain the field *CrossedIndicator (2523)* with the valid value *1 (Cross rejected)* if the order was deleted or modified due to SMP.

Please note that in case of *CrossedIndicator (2523)* set to *1 (Cross rejected), LastQty (32)* provides the quantity being reduced due to SMP. *LastPx (31)* provides here the price level for SMP.

3.8.8 Account Structure

The mandatory field *TradingCapacity (1815)* specifies the relationship between the market participant and the order.

Business Type	D	C	Description	Related FIX Tag
Agency	X	X	Market Participant is trading on behalf of its customer.	TradingCapacity (1815) = 1
Issuer/Liquidity Provider		X	Market Participant is acting as an Issuer/ Liquidity Provider.	TradingCapacity (1815) = 3
Proprietary	X	X	Market Participant is trading for its own account.	TradingCapacity (1815) = 5
Market Making	X	X	Market Participant is acting as a Market Maker.	TradingCapacity (1815) = 6
Riskless Principal		X	Market Participant is acting on the own name for a foreign account.	TradingCapacity (1815) = 9
Retail Customer (Agency)		X	Market Participant is trading on behalf of retails clients.	TradingCapacity (1815) = 10
Retail Market Maker		X	Market Participant is acting as Retail Market Maker.	TradingCapacity (1815) = 11

The usage of the field *Account (1)* will be supported only for **T7 Derivatives:**

The entry of a T7 account type and number is supported via the *Account (1)* field designating the account type to be used for the order when submitted to clearing. There are three types of accounts:

- Agent accounts: "A1", "A2", "A3", "A4", "A5", "A6", "A7", "A8", "A9", "G1", and "G2": The account codes G1 and G2 are actually designations that the trade is going to be sent to another member, usually when a participant uses one member to perform the execution and another to do the clearing.
- Proprietary accounts: "P1" and "P2".
- Market Maker accounts: "M1" and "M2".

Every order entered into the T7 trading system must be associated with one of these account types.

In case that no account information is entered by the market participant the clearing account information will be derived from the field *TradingCapacity (1815).*

3.8.9 Text Fields

The T7 trading system supports four free-format text fields for trader-specific comments to an order. The mapping of the T7 text fields to the FIX tags is as follows:

Text Field	D	C	Related FIX Tag
Free Text Field 1	X	X	FreeText1 (25007)
Free Text Field 2	X	X	FreeText2 (25008)
Free Text Field 3	X		FreeText3 (25009)
Free Text Field 4		X	FreeText4 (25107)

3.8.10 Order Status and Execution Report

The *ExecutionReport (8)* message is used to communicate events that affect an order.

The field *ExecType (150)* specifies the type of event. The field *OrdStatus (39)* specifies the new status of the order.

The different scenarios and their usage of the *OrdStatus (39)* and *ExecType (150)* are as follows:

Scenario	D	C	OrdStatus (36)	ExecType (150)
Order book replay: Transmission of all active orders + SMP quantity reduction	X	X	0 = New 1 = Partially filled	D = Restated
Order book replay: Transmission of inactivated auction orders	X	X	9 = Suspended	D = Restated
Successful submission of an order	X	X	0 = New	0 = New

Scenario	D	C	OrdStatus (36)	ExecType (150)
Submission of an order in locked stock (T7 Deutsche Börse Frankfurt)		X	A = Pending New	A = Pending New
Final confirmation of an order entered in locked stock (T7 Deutsche Börse Frankfurt)		X	0 = New	0 = New
Successful submission of an auction order outside the auction	X	X	9 = Suspended	0 = New
Successful modification of an order	X	X	0 = New 1 = Partially filled 2 = Filled	5 = Replaced
Modification of an order in locked stock (T7 Deutsche Börse Frankfurt)		X	E = Pending Replace	E = Pending Replace
Final confirmation of an order modification in locked stock (T7 Deutsche Börse Frankfurt)		X	0 = New 1 = Partially filled 2 = Filled	5 = Replaced
Successful modification of an auction order outside the auction	X	X	9 = Suspended	5 = Replaced
Successful cancellation of an order	X	X	4 = Cancelled	4 = Cancelled
Successful cancellation of an auction order outside the auction	X	X	9 = Suspended	4 = Cancelled
Successful Cancellation of a main trading hours only retail order outside of main trading hours		X	9 = Suspended	4 = Cancelled
Cancellation during instrument freeze state	X	X	6 = Pending Cancel	6 = Pending Cancel
Cancellation of an order in locked stock (T7 Deutsche Börse Frankfurt)		X	6 = Pending Cancel	6 = Pending Cancel
Final confirmation of an order cancellation in locked stock (T7 Deutsche Börse Frankfurt)		X	4 = Cancelled	4 = Cancelled
Partial fill	X	X	1 = Partially filled	F = Trade
Complete fill	X	X	2 = Filled	F = Trade
Triggered Stop Order	X	X	0 = New	L = Triggered by system
Triggered One-cancels-the-other Order	X	X	0 = New	L = Triggered by system

Scenario	D	C	OrdStatus (36)	ExecType (150)
Trailing stop order update triggered by the trading system			0 = New	5 = Replaced
Activated auction order	X	X	0 = New 1 = Partially filled	D = Restated
Inactivated auction order	X	X	9 = Suspended	9 = Suspended
Modification of an order to Immediate or Cancel (IOC) triggered by the system	X	X	0 = New	5 = Replaced
Unsolicited modification triggered by third party	X	X	0 = New 1 = Partially filled 2 = Filled	5 = Replaced
Unsolicited cancellation triggered by third party	X	X	4 = Cancelled	4 = Cancelled
Unsolicited cancellation triggered by the trading system	X	X	4 = Cancelled	4 = Cancelled
Cancellation of not (fully) executed Immediate or Cancel (IOC) order	X	X	4 = Cancelled	4 = Cancelled
Cancellation of not executed Fill or Kill (FOK) order		X	4 = Cancelled	4 = Cancelled
Cancellation of executable Book or Cancel (BOC) order at entry/modify	X	X	4 = Cancelled	4 = Cancelled
Cancellation due to Self Match Prevention (SMP)	X	X	4 = Cancelled	4 = Cancelled

3.8.11 Order Book Restatement

During the start-of-day phase and after a market reset event (an exchange system failure), all active orders of a session will be transmitted to the market participant via the respective session.

During Order Book Restatement *ExecutionReport (8)* messages for each restated order of the corresponding session are provided and finally a *TradingSessionStatus (h)* message indicates the end of the restatement per product; see chapter 3.8.16 Trading Session Events.

The reason for the restatement is communicated in field *ExecRestatementReason (378)* in message *ExecutionReport (8)*.

Each end of restatement message initiates the start of trading for a product.

ExecRestatementReason (378) will have the value *"1" (GT renewal / restatement)*.

3.8.12 Passive Liquidity Protection (PLP)

Passive Liquidity Protection (PLP) strengthens order book trading for specific products. Aggressive order transactions will be deferred by a time interval in the order before they are able to interact with the order book. Non-agressive order transactions will directly impact the order book without deferral.

A mass cancellation affects deferred aggressive orders by changing the order type to IOC (immediate or cancel). This ensures that, if the order is not executed after the deferral, this will be deleted.

The information about the change of the order type to IOC (Immediate or Cancel) will be provided in the field *ExecRestatementReason (378)* of the corresponding modify *ExecutionReport (8)* message:

Scenario	ExecRestatementReason (378)
Order has been changed to IOC	114

3.8.13 Trailing Stop Order Update Notifications (T7 Cash)

Notifications generated by the trading system about the update of the field *StopPx (99)* for trailing stop orders are communicated to participants via a modify *ExecutionReport (8).*

The reason for the order update is provided in the field *ExecRestatementReason (378)* of the *ExecutionReport (8)* message:

Scenario	ExecRestatementReason (378)
Trailing Stop Update	213

3.8.14 Unsolicited Order Cancellations generated by the Trading System (T7 Cash)

Notifications about unsolicited order cancellations generated by the trading system are communicated to participants via a cancel *ExecutionReport (8).*

The reason for the order cancellation is provided in the field *ExecRestatementReason (378)* of the *ExecutionReport (8)* message:

Scenario	ExecRestatementReason (378)
GT (good-till) corporate action	0
Exchange Option	8
End of Day Processing	146
Order Expiration Intraday	148
Exceeds maximum quantity	237
Invalid Limit Price	238
User does not exist	241
Session does not exist	242
Invalid Stop Price	243
Instrument does not exist	245

Scenario	ExecRestatementReason (378)
Business Unit Risk Event	246
Dividend Payment	292
Last Trading Day	294
Trading Parameter Change	295
Currency Change	296
Product Assignment Change / Special Event	297
Reference Price Change	298
Tick Rule Change	300
Quote Request Solution Order Expiry	316

3.8.15 Mass Cancellation Notification

The following unsolicited mass cancellation events may occur:

Mass Cancellation Event	MassActionReason (28721)	D	C
Product Holiday	Product State Holiday (106)	X	X
Product Halt	Product State Halt (105)	X	X
Instrument Suspension	Instrument Suspended (107)	X	X
Strategy Cancellation	Complex Instrument Deletion (109)	X	
Volatility Interruption Product Level	Volatility Interrupt (110)	X	
Volatility Interruption Instrument Level	Volatility Interrupt (110)	X	X
Product temporarily not tradeable	Product temporarily not tradeable (111)	X	X
Instrument stopped	Instrument Stopped (113)		X
Instrument knock out	Instrument knock out (115)		X
Instrument sold out	Instrument sold out (116)		X
Member disabled	Member has been disabled (117)	X	
Instrument knock out reverted	Instrument knock out has been reverted (118)		X
Automatic deletion of Quotes	Automatic deletion of Quotes (119)		X

Additional events related to technical reasons are also possible. See complete list of values for the field *MassActionReason (28721)* in the description of message *UserOrderMassActionReport (UBZ)*.

Quotes are always canceled by mass cancellation events.

The information about the scope of the deleted orders as result of the event is delivered in the field *UExecInst (30018)* in message *UserOrderMassActionReport (UBZ):*

UExecInst (30018)	Persistent Orders	Non-persistent Orders
not provided	No	No
H	Yes	No
Q	No	Yes
H Q	Yes	Yes

3.8.16   Trading Session Events

The *TradingSessionStatus (h)* message is used by the T7 FIX LF interface for all session related events.

Trading session events might imply mass cancellation events, where no explicit mass cancellation notifications are provided.

The information about the scope of the orders deleted implicitly for the different session related events is summarized in following table:

Event	Level	TradSesEvent (1368)	Persistent Orders	Non-persistent Orders
End of Restatement	Product	End of restatement (103)	No	Yes
End of Service	FIX LF session	Message transmission ended (201)	No	Yes

- **End of Restatement:** implies that all non-persistent orders of the session in a product have been canceled; in this case no individual cancellation notifications are provided on individual order level.

- **End of Service**: informs the participant about the end of message transmission for the whole FIX LF session.

3.9   Trade Capture

3.9.1   Trade Capture via Back-Office Session

T7 Derivatives and T7 Cash trading participants will use Back-office sessions to receive trade confirmations (on-book and off-book) for the business unit.

The scope for all *TradeCaptureReport (AE)* messages will be the business unit. All trade information the business unit is authorized to see will be provided within one stream. For clearing business units this feature includes the provision of all trade information for all of their non-clearing business units.

After a Back-office FIX LF session logon, the transmission of existing trades of the current business day can be requested via *ResendRequest (2)*.

Newly generated trades and trade reversals on the T7 trading system will automatically be transmitted via the Back-office FIX LF session.

3.9.2 T7 Entry Service (TES)

The T7 Entry Service (TES) enables participants to enter off-book transactions into the T7 system.

This service is not offered via the FIX LF interface, but trades generated from TES entries will be delivered via FIX LF Back-office sessions. For these trades the FIX LF interface will generate *TradeCaptureReport (AE)* messages.

3.9.3 Xetra/Eurex EnLight

Trade confirmations related to Xetra/Eurex EnLight transactions will be delivered via FIX Back-office sessions. These will be *TradeCaptureReport (AE)* messages with *TrdType (828) = 1006* (Xetra/Eurex EnLight triggered trade) and a link to the corresponding Xetra/Eurex EnLight deals in the field *NegotiationID (28758)* and in the component *<SRQSRelatedTradeIDGrp>*.

See more information in 3.19 Xetra/Eurex EnLight - Selective RFQ Platforms.

3.9.4 Trade Capture Report - Identification Criteria

<u>**Trade Types**</u>

The field *TrdType (828)* is used to identify an on-book and off-book trade. To identify an on-book trade *TrdType (828)* will be set to "0" (Regular Trade (on-book). Other values identify an off-book trade.

Trade Type	TrdType (828)	D	C
On-book	0 = Regular Trade (on-book)	X	X
Off-book	1 = Block Trade	X	
Off-book	12 = Exchange for Swap (EFS)	X	
Off-book	50 = Portfolio Compression Trade	X	
Off-book	54 = OTC		X
Off-book	1000 = Vola Trade	X	
Off-book	1001 = Exchange for physical (EFP) Fin trade	X	
Off-book	1002 = Exchange for physical (EFP) Index Future trade	X	
Off-book	1004 = Trade at market	X	
Off-book	1005 = Large in scale		X
Off-book	1006 = Xetra/Eurex EnLight triggered trade	X	X
Off-book	1007 = QTPIP Block Trade	X	

Trade Report Types

The field *TradeReportType (856)* indicates the type of the Trade Capture Report. For on-book and off-book trade confirmations via Back-office session following scenarios are possible:

Scenario	TradeReportType (856)	D	C
Finale Trade	0 = Submit	X	X
Preliminary Trade	1 = Alleged	X	
Modified Trade	5 = No/Was (Replaced)	X	
Trade Reversal	7 = (Locked-In) Trade Break	X	X

Message Event Source

The FIX LF interface does not offer the field *MessageEventSource (1011)* any longer.
The field *MessageEventSource (1011)* is used in *TradeCaptureReport (AE)* messages sent to participants. The field describes the event that caused the creation of the message and can be used to distinguish the messages of the different message flows.

Trade Type	MessageEventSource (1011)	D	C
on-book	200 = On-Book Trade Notification	X	X
off-book	201 = TES Trade Notification	X	X

3.9.5 Trade Reconciliation (On-Book Trades)

There are several identifiers that can be used to associate an *ExecutionReport (8)* with *TradeCaptureReports (AE)* and public trades on the market data interface.

Every match event with one or more executions (match steps) in a simple or complex instrument results in one *ExecutionReport (8)* message per matching step for each order. A *TradeCaptureReport (AE)* will then be sent to confirm each trade at each price level.

For complex instruments (only T7 Derivatives), there is a *TradeCaptureReport (AE)* for each leg execution of the instrument.

Every match step occurring in the exchange has an identifier that is provided in the field *TrdMatchID (880)* in the *ExecutionReport (8)* as well as in the *TradeCaptureReport (AE)*. This identifier allows participants to link Trade Capture Reports and the corresponding Execution Report.

The *TradeID (1003)* field in the *TradeCaptureReport (AE)* uniquely identifies all allocations referring to the same matching event, instrument, and price.

The field *SideTradeID (1506)*, which is unique for a product and business day, in the *TradeCaptureReport (AE)* provides the private identifier of an order match event, which can easily be reconciled with the corresponding *ExecutionReport (8)* for orders in the following way:

- for order match events in simple instruments, the *ExecutionReport (8)* message provides a private execution identifier, *SecondaryExecID (527)*.

- for order match events in complex instruments (only T7 Derivatives) the *ExecutionReport (8)* message provides the order execution ID on each price level and additionally the order leg execution ID, *LegExecID (1893)*.

Match Reporting	D	C	ExecutionReport (8)	TradeCaptureReport (AE)
Trade event on instrument level: public trade volume reporting.	X	X	TrdMatchID (880)	TrdMatchID (880)
Identifier for all allocations referring to the same instrument.	X	X		TradeID (1003), OrigTradeID (1126)
Private execution identifier in Order in a simple instrument.	X	X	SecondaryExecID (527)	SideTradeID (1506)
Private execution identifier for an order in a complex instrument. (only T7 Derivatives).	X		LegExecID (1893)	SideTradeID (1506)
Participant assigned client order ID – only for orders submitted via the FIX LF interface.	X	x	ClOrdID (11)	ClOrdID (11)
System Order ID generated by the T7 System.	X	X	OrderID (37)	OrderID (37)

Note: For trade reversals a new *TradeID (1003)* is generated by the T7 trading system. The original trade identifier is delivered in field *OrigTradeID (1126)* and provides the link to the original trade.

3.10 Cross Request – Cross Trade Announcement

With the Cross Trade Announcement the participant can announce a Cross Trade by using the message *CrossRequest (UDS)*. A Cross Trade is a trade where a participant trades against an own order in the order book. In a prearranged trade, orders from at least two participants are executed against each other as previously negotiated. Cross requests can be entered by the Cross Request message or by the *EnterCLIPRequest (U29)* using *CrossRequestType(28771) = 'Cross Announcement' (1)*.

The Cross Request contains the security identification (product and instrument id combination) and the *OrderQty (38)*, which is mandatory for regulatory reasons.

A trader sends the T7 FIX LF message *CrossRequest (UDS),* which is published via the T7 Market Data Interface (MDI) to all other participants, to alert them of the intention to trade with an own order or prearranged trade.

Cross and prearranged trades may not knowingly be entered into the T7 trading system by a participant, unless the participant precedes the cross or prearranged trade with a cross request.

Using the *EnterCLIPRequest (U29)* for crossing, that can be started uni- or bi-lateral, after a waiting time, the system automatically sends the crossing orders into the system.

3.11 Eurex Improve: Client Liquidity Improvement Process (T7 Derivatives only)

Eurex Improve (CLIP) enhances the ability of brokers to execute a client order.

With a CLIP request the broker can execute a client order against another broker (**bilateral** CLIP request) or against himself (**unilateral** CLIP request), under the consideration of potential price advantages for client orders in matches aginst the central order book.

A CLIP request can be entered by using the message *EnterCLIPRequest (U29)*. The field *CrossRequestType (28771)* <u>must be set to</u> *'Liquidity Improvement Cross' (2)*.

For a **bilateral** CLIP request two separate one-sided *EnterCLIPRequest (U29)* messages have to be entered, one for the client and one for the broker order – identified by the content of the field *InputSource (979)*.

An **unilateral** CLIP request can be entered via one two-sided *EnterCLIPReuest (U29)* message. The two sides contain the information about the client and the broker order – idendified by the content of the field *InputSource (979)*.

A CLIP request can be deleted by using the message *DeleteCLIPRequest (U30)*.

In case of an execution an *ExecutionReport (8)*. will be sent. The different scenarios related to orders resulting from CLIP entries are described by different values of the field *ExecRestatementReason (378)* in the message *ExecutionReport (8)*:

Scenario	ExecRestatementReason (378)
Execution	340 = CLIP execution after improvement period
Cancellation due to start of closing auction	122 = Instrument State Change
Cancellation of a broker order due to the execution of a client order	342 = CLIP cancellation
Cancellation after exposure time	343 = CLIP request deleted by arrangement time out
Cancellation after validation failure	344 = CLIP Request deleted by arrangement validation

After the successful validation of the CLIP request information (both, client and broker side), all market participants are informed about an upcoming execution of a client flow and have the opportunity of submitting orders and quotes during a defined price improvement period.

After the conclusion of the price improvement period the execution process will be initiated including the conversion of the client CLIP and the broker CLIP sides into orders and the execution of the client order according to the general matching rules. This ensures that the client order will be executed at the agreed price level or even better, depending on the central order book after the price improvement period.

3.12 Quote Request Functionality

The Quote Request Functionality can be used by a trader to request Public and Private Quotes for a specified instrument. In both cases the message *QuoteRequest (R)* will be used. The Private Quote functionality is only supported in T7 Deutsche Börse Frankfurt.

The field *PrivateQuote (1171)* in the message *QuoteRequest (R)* is used to distinguish between requests for public and for private quotes. If this field is missing, a *QuoteRequest (R)* message will be processed as a request for a public quote.

3.12.1   Request for Public Quotes

For T7 Derivatives, all requests for public quotes are published via the market data interface to all other participants.

For T7 Cash, traders can choose to publish requests for public quotes to all market participants via the market data interfaces, to market makers and designated sponsors only via the trading interfaces, or a combination thereof.

Every *QuoteRequest (R)* message contains the security identification (see details in chapter 3.4 Security Identification). *Side (54)* and *OrderQty (38)* are optional attributes.

A *QuoteRequest (R)* message might be rejected with an error message indicating a previous request for quote has already recently been sent.

A *QuoteRequest (R)* message is validated against the available quantities at the best price and the corresponding bid/ask spread in the market.

Summary of the different scenarios:

Scenario	Description
Successful Public Quote Request	The participant *will receive a BusinessMessageAck (U28)* message with QuoteStatus (297) = 0 (Accepted)
Rejected Public Quote Request	The participant will receive a *BusinessMessageReject (j)* message

3.12.2 Request for Private Quotes (T7 Cash - T7 Deutsche Börse Frankfurt)

With the Private Quote Request the participant is requesting a private quote from the instrument's Specialist. The quote from the Specialist is distributed privately only to the participant that sent the request. The response must be sent by the Specialist within a certain time limit (depending on configuration in T7 Backend), otherwise the quote request is rejected by the T7 System and deleted.

Summary of the different scenarios:

Scenario	Description
Successful Private Quote Request	The participant will receive a *Quote (S)* message with a unique quote-identifier in the field *QuoteID (117)*. The participant can send an especially marked *NewOrderSingle (D)* with a reference to the quote in the field *QuoteID (117)* to request the execution of a trade for the Private Quote. If the Specialist does not execute the order with a *QuoteID (117)* within a dedicated time frame, the order is deleted automatically by the T7 System. In this case the participant will receive a delete *ExecutionReport (8)* with *ExecRestatementReason (378)* = 316 (Quote Request Solution Order Expiry). If the Specialist executes the order, the participant will receive a fill *ExecutionReport (8)* with a reference to the quote-id in the fields *RefOrderID (1080)* and *RefOrderIDSource (1081)*
Rejected Private Quote Request	The participant will receive a *BusinessMessageReject (j)* message

3.13 Pre-Trade Risk Limits

The *UserPartyRiskLimitsRequest (UCL)* is used to inquire pre-trade risk limits. These limits can be defined for on-book or off-book trading on product, exchange, and user risk group level.

The requested pre-trade risk limits will be communicated via *UserPartyRiskLimitsReport (UCM).*

3.14 Risk Control Event Notifications

The FIX LF interface supports the dissemination of Risk control event notifications on both, Trading and Back-office

sessions. Clearing members can also receive Risk control event notifications for their non-clearing members on their FIX LF sessions.

The following notifications are available:

Risk Control Event Notification	D	C
Stop Button Event	X	X
Limit Breach Event	X	
Legal Notification	X	

3.15 Mass Deletion Request

The *UserOrderMassActionRequest (UCA)* will allow deletion of multiple orders. Orders may be filtered by Product identifier (*Symbol*) or Product identifier (*Symbol*) and Security identifier (*SecurityID*).

Note: The *ProductComplex (1227)* will not be allowed on this request as no filtering by instrument type will be supported. It is not possible - for example - to restrict a mass cancellation operation to "Standard Option Strategies".

Participants can also submit a *UserOrderMassActionRequest (UCA)* in order to delete all active orders in a given product using different values of *MassActionScope (1374)*:

- 6 (all orders for a specific session) – the dedicated session has to provided in the party field *<target session id>*

- 7 (all orders for the own session)

- 100 (all orders of all sessions)

A user may delete either its own orders or the orders owned by a different trader. In both cases the owning trader of the orders to be deleted must be provided in the party *<target executing trader>*.

Users may delete only part of their orders for one instrument by entering the additional filter criteria side and price. For the buy side the orders will be deleted starting from the highest price until the price specified in the filter, for the sell side starting from the lowest price.

The omission of the filter criteria results in a mass deletion request according to the *MassActionScope* in a *Symbol* or a *SecurityID* respectively.

The request will be answered by either

- UserOrderMassActionReport (UBZ) messages if any order of the submitting FIX LF session has been affected,

- a BusinessMessageAck (U28) message if no order of the submitting FIX LF session has been affected, or

- a Business MessageReject (j) message for a rejected request.

Please note: in case of a cross-session mass deletion, any affected T7 FIX LF session will get a *UserOrderMassAction-Report (UBZ)* messages, too. If any order of that session has been affected,

Additional information in the message *UserOrderMassActionReport (UBZ)* for requests processed successfully:

- Orders that couldn't be canceled due to an incompatible instrument state are provided with their Exchange Order ID (*NotAffectedOrderID (1371)*) and with their FIX Client Order ID (*NotAffOrigClOrdID (1372)*) in the component <N*otAffectedOrdersGrp>*.if there is a FIX LF Client Order ID for the related order.

- For T7 Cash persistent orders that were canceled are provided with their Exchange Order ID (*AffectedOrderID (535)*) and with their FIX LF Client Order ID *(AffectedOrigClOrdID (1824))* in the component *<AffectedOrders-Grp> if there is a FIX LF Client Order ID for the related order.*

3.16 Session Details List

The *SessionDetailsList (U6)* message provides the list of T7 sessions (ETI, FIX LF, T7 GUI) of the own business unit for a specific exchange. This message will be delivered for T7 Cash and Derivatives only via Back-office sessions.

SessionDetailsList (U6) will be the first message to a participant. In case of any FIX LF gateway failover the *SessionDetailsList (U6)* will be re-sent at startup (without any content change).

Each T7 session will be categorized into different types identified by the field *SessionMode (28730).*

The information contained in the *SessionDetailsList (U6)* message can be used to identify the source of the *TradeCaptureReport (AE)* and *ExecutionReport (8)* messages provided via FIX LF Back-office sessions based on the content of the party fields *<tcr session id>* and *<session id>.*

A Sponsored Access Session receives a list of sessions only from the current Sponsored Access Unit.

There will be no possibility for the participant to deactivate the reception of this message.

3.17 Drop Copy for Order Information (Business Unit Level)

Drop copy functionality for standard (not lean) orders of a business unit of the current business day is provided as an optional feature of the Back-office FIX LF session.

When the client chooses the drop copy feature for a Back-office FIX LF session in the Member Section, the order-information of the current business day for standard (not lean) orders of the business unit is provided on a stream basis:

- After a Back-office session logon, the transmission of the existing active standard orders for the current business day can be requested via *ResendRequest (2).*

- Newly generated messages for standard (not lean) orders on the back end will automatically be transmitted via the Back-office FIX LF session.

- All drop copy information for standard (not lean) orders will be sent via *ExecutionReport (8)* and *UserOrderMassActionReport (UBZ)* messages.

Note: Messages for orders entered via the T7 FIX LF interface will provide the *ClOrdID (11)* in the *ExecutionReport (8)* message of the Drop Copy functionality for standard (not lean) orders.

For iceberg orders immediately executed or partially executed after being entered or modified the display quantity will only be set in the last *ExecutionReport (8)* of the transaction. The first *ExecutionReports (8)* will have *DisplayQty (1138) = -1.*

Note: The Drop Copy functionality only includes on-book order activity.

3.18 Regulatory Requirements - MiFID II Functionality

Please refer to the Functional Reference for the details.

3.19 Xetra/Eurex EnLight - Selective RFQ Platforms

Xetra and Eurex EnLight platforms allow banks and brokers to selectively contact market makers with requests for quotes in order to find a trading counterparty allowing the negotiation of off-book transactions electronically using the T7 infrastructure.

3.20 Continuous Auction Specialist Model (T7 Cash - T7 Deutsche Börse Frankfurt)

The trading model Continuous Auction with Specialist is used for instruments traded on T7 Deutsche Börse Frankfurt.

For each instrument traded in the Continuous Auction Specialist Model there is a Specialist responsible of maintaining the order book and triggering the price determinations.

The Specialist is able to enter, modify and delete orders on-behalf of other Business Units via T7 ETI only, (not via FIX LF).

The Specialist can freeze and unfreeze the order book, which is required mainly for the price determination. Order requests sent by the participants in the freeze phase are queued by the system and processed when the order book is unfrozen. A specific handling is required for these scenarios, referred to as locked stock scenarios.

It is not intended to describe here all details about the functionality related to the trading model Continuous Auction with Specialist. Only some of the main features available via the FIX LF interface, which differ significantly from the functionality offered for the other T7 Cash markets, will be summarized in the next chapters.

3.20.1 Quote Request Solution (Private Quotes)

See chapter 3.12.2 Request for Private Quotes (T7 Cash - T7 Deutsche Börse Frankfurt).

3.20.2 Order Maintenance from Specialist on Behalf of other Business Units

The Specialist is able to enter, modify and delete orders on-behalf of other Business Units via the other T7 interfaces (not FIX LF).

The *ExecutionReport (8)* messages include the information about the entering firm and entering trader of the corresponding order transaction in the parties <entering firm> and <entering trader>. The content of these parties can be used for the identification of orders entered, modified or deleted by the Specialist on-behalf of other Business Units.

3.20.3 Locked Stock Scenarios

In the Specialist model, order requests entered during the freeze phase (locked stock) are queued until the order book is unfrozen.

Requests received in this phase are confirmed preliminarly with a pending response. The final status of the request will depend on the actions performed by the specialist during the locked stock.

Examples:

- Enter request for a new order is received during locked stock. When the order book is unfrozen, the order entry is executed.

- Modify request (e.g. Price change) for an existing order is received during locked stock. If the order is fully executed in locked stock, the order modification will not be executed.

The information about the pending requests will be also sent via FIX LF Back-office Sessions. In this case, if the order reaches a final status (canceled, executed), is triggered or is restated (e.g. due to a matcher failover) before the execution of some of the pending transactions, there will be no final message for each of the pending requests. The *ExecutionReport (8)* containing the information about the final order status (canceled, executed) will implicitly finish (discard) the open pending transactions. In case of an order restatement, the *ExecutionReport (8)* will contain the information about the current status of the order, including the result of pending transactions executed successfully, but for which no final message has been generated.

All *ExecutionReport (8)* messages related to the status after locked stock will contain the component *<OrderEventGrp>*, which will include the information about the final status in the field *OrderEventType (1796)*.

Please note: There is no explicit rejection message for rejected pending events (i.e. the T7 FIX LF interface does not send *OrderCancelReject (9)* messages for the remaining open requests belonging to the related order, in case of *OrderEventType (1796) = 100* (Status after locked stock - Pending requests discarded). This is the case for example, when an order modify / delete request is sent for an order during a locked orderbook situation, and this order gets fully executed at the end of the locked stock situation.

The acceptance of pending transactions (execution reports with order status/exec type set to Pending New/Replace/Cancel) is seen as a successful processing of the related transaction. Please note that the *OrigClOrdID (41)* of any follow-up request must be set to *ClOrdID (11)* of the last successfully processed request referring to the specific order.

OrigClOrdID (41) of an execution report reporting the successful execution of a pending cancel order request is NOT filled with the *ClOrdID (11)* of the request followed by that cancel order request. The *ClOrdID (11)* of the cancel order request is used instead.

Locked Stock Scenarios – Identification Criteria

The following table summarizes the identification criteria for the different locked stock scenarios:

Scenario	Identification Criteria	Trading Session	Back-office Session
Submission of an order in locked stock	ExecutionReport (8) OrdStatus (39) = A (Pending New) ExecType (150) = A (Pending New) ExecRestatementReason (378) = 138 (Pending New)	X	X
Final confirmation of an order entered in locked stock	ExecutionReport (8) OrdStatus (39) = 0 (New) ExecType (150) = 0 (New) ExecRestatementReason (378) = 141 (Pending New Applied) OrderEventType (1796) = 101 (Status after locked stock - Pending request executed)	X	X
Modification of an order in locked stock	ExecutionReport (8) OrdStatus (39) = E (Pending Replace) ExecType (150) = E (Pending Replace) ExecRestatementReason (378) = 139 (Pending Replace)	X	X
Final confirmation of an order modification in locked stock	ExecutionReport (8) OrdStatus (39) = 0 (New), 1 (Partially filled) or 2 (Filled) ExecType (150) = 5 (Replaced) ExecRestatementReason (378) = 142 (Pending Replace Applied) OrderEventType (1796) = 101 (Status after locked stock - Pending request executed)	X	X

Scenario	Identification Criteria	Trading Session	Back-office Session
Cancellation of an order in locked stock	ExecutionReport (8) OrdStatus (39) = 6 (Pending Cancel) ExecType (150) = 6 (Pending Cancel) ExecRestatementReason (378) = 197 (Order cancellation pending)	X	X
Final confirmation of an order cancellation in locked stock	ExecutionReport (8) OrdStatus (39) = 4 (Canceled) ExecType (150) = 4 (Canceled) ExecRestatementReason (378) = 199 (Pending Cancellation Executed) OrderEventType (1796) = 101 (Status after locked stock - Pending request executed)	X	X
Trigger of an order - Pending requests in locked stock discarded	ExecutionReport (8) OrdStatus (39) = 0 (New) ExecType (150) = L (Triggered by system) OrderEventType (1796) = 100 (Status after locked stock - Pending requests discarded)	X	X
Cancellation of an order - Pending requests in locked stock discarded	ExecutionReport (8) OrdStatus (39) = 4 (Canceled) ExecType (150) = 4 (Canceled) OrderEventType (1796) = 100 (Status after locked stock - Pending requests discarded)	X	X
Full execution of an order – Pending requests in locked stock discarded	ExecutionReport (8) OrdStatus (39) = 2 (Filled) ExecType (150) = F (Trade) OrderEventType (1796) = 100 (Status after locked stock - Pending requests discarded)	X	X

3.21 Issuer State Change Request (T7 Cash)

The issuer state change request allows the issuer of an instrument to send knockout and soldout requests directly into the Trading System using the FIX LF request message *SecurityStatusDefinitionRequest (U27)*.

The result of the processing of an issuer state change request will be reported to the issuer via the response message *SecurityStatus (f)*.

3.22 Strategy Creation (T7 Derivatives)

The creation of a strategy will be supported only for T7 Derivatives.

The SecurityDefinitionRequest (c) message can be used to request the creation of a specified complex instrument on T7 Derivatives markets

The product identifier (*Symbol (55)*), and the signature <InstrmtLegGrp>, which provides the description of the legs, their ratios and side, are mandatory attributes of the request.

The (*SecuritySubType (762)*) tag must be present in case of a futures spread, option combination or strategy definition.

Only after a specific complex instrument has been requested and created, is it possible to enter orders for this instrument. The successful creation of a complex instrument, or the rejection, is confirmed by the *SecurityDefinition (d)* message. When a new strategy is requested, the instrument identifier (*SecurityID (48)*) and the signature of the complex instrument are returned.

Complex instrument definitions created by users are always temporary and are deleted during end of day processing if their order book is empty.

Note: The signature, which is returned by the T7 may differ from the signature, which was sent in the *SecurityDefinitionRequest (c)*, e.g. in order to match a pre-defined strategy template.

3.23 Variance Futures (T7 Derivatives)

Participants enter, modify, and delete orders in variance futures using the same messages and fields as for other simple instruments in T7 trading system (New Order Single, Order Cancel/Replace Request, Order Cancel Request). The only difference for variance futures is that the entered Price (44) is understood as Volatility and the entered quantity (*OrderQty (38)*) is understood as Vega Notional.

An Execution Report is published as usual.

3.24 Total Return Futures (T7 Derivatives)

Participants enter, modify and delete orders in total return futures using the same messages and fields as for other simple instruments in T7 trading system (New Order Single, Order Cancel/Replace Request, Order Cancel Request).

An Execution Report is published as usual.

Once traded, T7 provides a preliminary Trade Capture Report (*TradeReportType (856)* is 1 = Alleged) that includes also a preliminary calculated clearing price (*ClearingTradePrice (1596)*) and calculated clearing quantity (*ClearingTradeQty (28736)*).

At the end of the trading day a final Trade Capture Report (*TradeReportType (856)* is 5 = No/Was (Replaced)) is published that provides the final calculated clearing price and clearing quantity.

3.25 Decaying Futures (T7 Derivatives)

With the Decaying Futures functionality, a trade in one futures product is automatically converted into equivalent trades in a related product. Trades on Decaying products executed on year, season or quarter basis are split into subsequent months. On-exchange decaying trades are reported in T7 only on the decaying instrument basis.

4. Connectivity and Session Parameters

4.1 Connectivity

4.1.1 Connectivity Options

The FIX LF interface provides only one connectivity option:

- - the FIXS via the TLS port – resulting in TLS encrypted payload.

FIXS implements a transport layer encryption using simple TLS (supporting versions 1.2 and 1.3) with certificate valida-tion of server with CA (DigiCert) pinning. Please refer to the Network Access Guide for the list of supported cipher-suites.

4.1.2 IP Addresses and Ports

The FIX connection between a member's infrastructure and the T7 FIX LF interface is established via a TCP/IP connec-tion. The service comprises of an active FIX LF Gateway and a standby FIX LF Gateway, operated in the T7 Simulation and Production environments. The respective gateways will use distinct target IP addresses and port numbers. There is only one TLS port number per Gateway (for all FIX LF sessions).

For each FIX LF session, two individual IP addresses are assigned and communicated by T7.

The participant is free to define its own source addresses as long as they match one of the IP subnet addresses entered during the registration of the FIX LF session (see chapter 4.2.2 Network Authentication).

4.2 Session Identification and Authentication

4.2.1 Session Identification and Logon Parameters

For each FIX LF session, a unique identifier, the *SenderCompID (49)* and a *Password (554)* is assigned by T7 on registration. A participant may have multiple FIX LF sessions. For each business unit and market a separate FIX LF session is required. The password maintenance is only provided by the related Member Section (either T7 Cash or T7 Derivatives).

For security reasons a *Password (554)* must be specified on the *Logon (A)* message.

The T7 FIX LF interface does NOT support password maintenance.

In exceptional circumstances, a password may need to be reset. Participants are able to perform the password maintenance via the Member Section.

All messages sent to the FIX LF interface should contain the assigned unique identifier of the FIX LF session in the field *SenderCompID (49)* and market type identifier code (MIC) in the *TargetCompID (56)* field:

All messages sent by the FIX LF interface to the client (FIX LF session) will contain the MIC of the market the related FIX LF session belongs to.

The FIX LF interface has a two-step logon procedure, with a *Logon (A)* message (Session Logon) followed by one or multiple *User Request (BE)* messages (Trader Logons) at an application level.

4.2.2 Network Authentication

The FIX LF interface will validate the subnet from where the FIX LF session is initiated during session logon. The FIX LF session logon (*Logon (A)* message) will be rejected by the FIX LF interface if the subnet cannot be authenticated. Participants are allowed to initiate/resume their FIX LF sessions from alternate locations,e.g., a backup site or disaster recovery location, T7 permits the setup of up to four IP subnet addresses for FIX LF session IDs via the Member Section.

4.2.3 Session Logon

The *Logon (A)* message authenticates a FIX session and establishes a connection to the FIX Gateway. This message must be the first one sent by the client. The T7 trading system will validate the *SenderCompID (49)* and *Password (554)*. A successful logon will initiate a FIX session.

EncryptMethod (98) must be set to "0" (None/other).

TradSesMode (339) as part of the *Logon (A)* response indicates the purpose of the initiated FIX LF session (production, simulation, disaster recovery). Additionally, the response field *DefaultCstmApplVerSubID (28763)* refers to the version of the FIX LF artefacts (manual, message reference, data dictionary) the used FIX LF interface is based on.

<u>Note</u>: The *Logon (A)* message is not used to log on and authenticate a trader on the T7 trading system.

4.2.4 Trader Logon

The *User Request (BE)* message identifies and authenticates a qualified trader establishing access to the T7 trading system. FIX LF sessions may be shared by several traders, with the exception of FIX LF Back-office sessions. FIX LF Back-office sessions do not require a trader logon.

Trading Session

The participant must provide the corresponding T7 User ID of the trader in the *Username (553)* field, and the corresponding password in the *Password (554)* field.

A successful trader logon will grant the trader access to the T7 trading system.

A trader logon requires an active connection to the T7 trading system. Order related messages will only be accepted by the trading system if a trader is logged on successfully. Otherwise these messages will be rejected (e.g. "User not logged in" in the message *BusinessMessageReject (j)*) and have to be sent again by the participant using a new *MsgSeqNum (34)* . It is strongly recommended that order related messages should only be sent if a previous trader logon was positively confirmed.

Back-office Session

FIX LF Back-office sessions do not require a trader logon.

4.3 Failover – Best Practice for how to get connected

The T7 FIX LF Gateway interface features a redundant setup of all components to provide a high level of availability and fault tolerance and to facilitate a client's implementation of failover in network- and application level failure scenarios.

All FIX LF sessions use the same target FIX LF gateway IP address and port number per environment (simulation and production). At any one point of time only one of the FIX LF gateways will be active and accept requests. Under normal circumstances, the gateway labelled as "active" (please refer to the Network Access Guide for the details) is the one, to which participants should initially attempt their session logins. The standby gateway will only become active in the event of a gateway failover.

Both active and standby FIX LF gateways will undergo the same startup stage:

- At startup, listen ports will be created and activated. If a connection attempt to the listen port is refused, then the gateway is either not available or in an early phase of the startup process.

- Once the gateways have been completely started both gateways will accept TCP connections on the respective IP address and port but will drop the client after 25 seconds of inactivity or if the client sends a request (at least one byte).

Following the startup, only the active FIX LF gateway will recover the states of the individual markets (e.g.) XETR, XEUR. Active and standby FIX LF gateways are indistinguishable from customer perspective until the first market has been recovered by the active gateway:

- During the recovery process of the first market, the active gateway will terminate all existing TCP connections before new TCP connections will be accepted.

- Once the recovery process for a market has been completed, the active gateway will switch to the normal operation mode for the market, which has been completely recovered and a session logon for that market will be possible.

- If a connection request is accepted but the logon to a specific market is still rejected (error text "login not yet enabled for market [MIC]"), this indicates that at least one market has been completely recovered but the market, for which the logon request was sent is still in the recovery process.

In the event of a gateway failover, the standby gateway will behave in exactly the same way as previously the active gateway during its transition phase to the normal operating mode.

The best practice for making a connecting to the currently active FIX LF gateway is as follows:

1. Attempt connection and login on the "active" FIX LF gateway.
2. If unsuccessful, attempt a connection and login to the "standby" FIX LF gateway.
3. If unsuccessful, revert back to the "active" FIX LF gateway.
4. Repeat the process until a session login has become successful.
5. On connection loss restart at step (1) using the "standby" FIX LF gateway first.

Note: A failover will not cause a reset of sequence numbers on the FIX LF Gateway side, neither is a reset of sequence numbers required in the participant's application. After re-establishment of the FIX LF session via the new connection, the regular retransmission process of missed messages starts.

4.4   Message Throttling and Queuing

All messages will be processed by the FIX engine on the exchange side. Nevertheless participants should not send more than 50 application messages (production environment) per second and FIX LF session in order to prevent the T7 FIX LF interface from queuing. In case of exceeding a rate of 50 messages per second, the FIX LF interface may queue the affected messages internally and forward them subsequently to the back end, maintaining the maximum back end throttle rate.

The field *ThrottleInst (1685)* as part of the (session) *Logon (A)* request message allows the participants instruct the FIX LF interface how to handle incoming FIX LF request messages:

- valid value 0: reject if throttle limit exceeded

- valid value 1: queue if throttle limit exceeded – queuing time is to be defined by *ThrottleMaxQueueTime* (28790)

- valid value 2: queue if throttle limit exceeded – queuing time unlimited

Please note: the field *ThrottleInst (1685)* has to be set for Back-office sessions, too.

4.5 Backward Compatibility

The FIX LF interface for 14.1 is backward compatible with FIXLF 14.0 if

- the participant application (implementing the FIX LF 14.0 interface) including its technical layer (e.g., the FIX engine) is able to deal with unknown messages, fields, and valid values, and

- any new T7 14.1 functionality is not used by the participant.

5.   Session Layer

The T7 FIX LF interface uses session level messages as specified by the FIX 4.4 Specification with T7 specific extensions as described in this document.

Details regarding the layouts of the administrative messages can be found in chapter Administrative Messages being part of the FIX LF Interface – Cash/Derivatives Message Reference.

5.1   Logon

The *Logon (A)* message is the first message the participant needs to send after the TCP connection has been established.

As the first message for the day the participant should send a Logon (A) message with sequence number 1.

The Logon request is validated in two steps. First, the FIX LF interface checks if the message conforms to the provided FIX repository. (verifying whether the required fields are part of the message). If this is not the case, the FIX LF interface will not send a *Logout (5)* message but will immediately close the TCP socket. Second, the T7 system validates the fields *Password (554)*, *HeartBtInt(108)*, *DefaultCstmApplVerID(1408)*, *ThrottleInst (1685),* and *ThrottleMaxQueueTime (2879)*. If validation fails, the FIX LF interface will send a *Logout (5)* message providing the reason for the rejection followed by the termination of the TCP connection.

Note: If validation during session logon has failed, the sequence number will not be reset.

In the event of an intra-day restart the *Logon (A)* response message may provide a sequence number higher than expected by the participant. This would indicate that messages were missed. The participant should send a *ResendRequest (2)* message to trigger retransmission of the missed messages (please refer to chapter 5.5 Resend Request for more details).

Logon requests with *ResetSeqNumFlag (141)* set to "Y" will trigger a reset of sequence numbers at the participant side only. The sequence number will always be set to 1 in such cases. The FIX LF interface's sequence numbering will remain unchanged. Therefore the participant is able to access all messages disseminated by the FIX LF interface including the transmission of all active orders at start of the business day.

Our recommendation: participants should always trigger the resetting of the sequence numbers when logging in.

Note: if a FIX LF session is successfully logged on a subsequent *Logon (A)* message on the same TCP connection will lead to a TCP disconnect.

5.2   Sequence Number

All FIX LF messages are identified by a unique sequence number.

Sequence numbers are reset by the FIX LF interface during down time after the end of each business day. The same behaviour is expected for the FIX engine on the client side.

Sequence numbers sent by the client, which are behind the sequence expected will trigger a logout and TCP connection drop by the FIX LF interface.

Sequence numbers ahead of sequence will trigger a message recovery by the FIX LF interface via the *ResendRequest (2)* message.

5.3   Heartbeat

The *HeartBtInt (108)* has to be specified by the participant during the FIX LF session logon and must be greater or equal to 30 seconds.

A *Heartbeat (0)* message should be sent by the participant if no other message has been processed during the defined *HeartBtInt (108)* interval.

5.4   Test Requests

A *TestRequest (1)* message should be sent if no in-sequence message has been received for more than the heartbeat interval. If no in-sequence message is received after that for more than the heartbeat interval, the TCP connection should be dropped.

5.5   Resend Requests

A *ResendRequest (2)* message initiates the retransmission of missed messages and can be used if a sequence number gap has been detected. A *ResendRequest (2)* message needs to be processed even if it is ahead of sequence.

The *PossDupFlag (43)* field set to "Y" in the Message Header of a FIX LF message indicates that a FIX engine is repeating transmission of previously sent content (including *MsgSeqNum (34)*). In this case a new value is set in the field *SendingTime (52)* and the sending time of the original message is delivered in field *OrigSendingTime (122).*

The T7 FIX LF interface supports open or closed sequence range in a *Resend Request (2)* message (an open range is indicated by sequence number zero as the *EndSeqNo (16)*).

Note: the FIX LF interface will reject any request messages where the *PossDupFlag (43)* field set to "Y" - with the error code 5 ('Value is incorrect for this tag").

5.6   Rejected

Session level rejects are used by the T7 FIX LF interface to indicate violations of the session protocol, missing fields or invalid values.

5.7   Sequence Reset

Two types of *SequenceReset (4)* messages are supported: Gap Fill mode and Reset mode.

5.7.1   Gap Fill Mode

This type of *SequenceReset (4)* message is the response to a *ResendRequest (2)* message.

Gap Fill mode is indicated by *GapFillFlag (123)* field = "Y".

All gap fill messages should have *PossDupFlag (43)* = "Y" in the Message Header.

5.7.2   Reset Mode

The Reset Mode of the *SequenceReset (4)* message may be used by the participant in emergency scenarios where all means of automatic recovery are lost (e.g. in case of an unrecoverable application failure).

Reset Mode is indicated if *GapFillFlag (123)* = "N" or if the field is omitted.

After the Reset Mode has been triggered, the *TestRequest (1)* message should be used by the participant to verify that the requested reset has been accepted by the FIX LF interface.

5.8 Logout

The *Logout (5)* message is used by the participant to gracefully close the FIX LF session. Messages need to be processed normally by the participant until the FIX LF interface sends the logout confirmation.

Note: The FIX LF interface will also send a *Logout (5)* message if validation fails for a FIX LF session logon. The reason for the rejection is specified in *SessionStatus (1409).* The *Logout (5)* message is followed by a drop of the TCP connection.

5.9 Possible Resend

5.9.1 Messages from Client

The FIX LF interface will reject any request messages where the *PossResend (97)* = *"Y":* - with the error code 5 ('Value is incorrect (out of range) for this tag").

5.9.2 Message to Client

The FIX LF interface will set *PossResend (97)* = "Y" to indicate that a message sent to the client may contain information that has been sent under another sequence number.

If the participant receives a message from FIX LF interface containing *PossResend (97)* = *"Y"*, the participant must check if the information contained in the message has been received in a previous message and has been already processed. If this is the case the participant should discard the message to avoid the processing of duplicate data.

This is especially relevant for messages containing trading information (order and trade messages). For these messages the FIX LF interface will deliver fields that can be used for the identification of duplicate messages without checking the whole content of the FIX LF messages.

Relevant messages and fields to be used for the identification of duplicate messages:

Message content	FIX Message	FIX field	D	C
Order information	ExecutionReport (8)	ExecID (17)	X	X
Trade notifications (back-office sessions only)	TradeCaptureReport (AE)	TradeReportID (571)	X	X

5.10 Recovery

When a participant reconnects after a FIX session disconnection during the same business day, two different scenarios can be identified as a reason for the outage: namely outage on the client side and outage on T7 FIX LF side.

5.10.1 Outage on the Client Side

 After resuming the FIX LF session, the participant may have missed some messages from the FIX LF interface. In this case, the sequence number of the next message received from the FIX LF interface will be ahead of the last *MsgSeqNum (34)* stored on the participant side.

The participant should send a *ResendRequest (2)* message in order to trigger all missed messages during the outage.

The FIX LF interface will return all potentially missed messages with *PossDupFlag (43)* = "Y" to indicate that a message may have been previously transmitted with the same *MsgSeqNum (34)*.

Mass cancellation on disconnect is not supported by the FIX LF interface. All open orders remain in the order book during an outage.

5.10.2 Outage on T7 FIX LF Side

In the unlikely event that the disconnection was due to an outage on the T7 side, the participant should consider the following recovery mechanisms:

- After reconnection of the FIX LF session, the FIX LF interface may receive a sequence number higher than the one expected and sends a *ResendRequest (2)* message to the participant.

- The participant can take one of the following actions – only needed when not setting *ResetSeqNumFlag (141)* to "Y" at *Logon (A)* request:

  ○ Send a GapFill message, or

  ○ Resend all potentially missed messages with *PossDupFlag (43)* = "Y", to indicate that a message may have been previously transmitted with the same *MsgSeqNum (34)*. Please be aware that the FIX LF interface will send a reject for all these requests with field *SessionRejectReason* set to 5 ('Value is incorrect for this tag").