Eurex Exchange's T7

Functional and Interface Overview

Release 4.0

Version	V4.0.2
Date	12. September 2016

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1 Introduction

Eurex Exchange's T7 is a state-of-the art trading system that is used to operate the Eurex and EEX derivative exchanges. By taking advantage of new technologies, T7 has significantly improved throughput and reduced latency. T7 offers high performance together with reliable connectivity, enriched trading functionality, as well as a faster time-to-market.
Eurex Exchange´s T7 performs on-book trading functions and Eurex Trade Entry Services, while Eurex Clearing's C7 and the Eurex Clearing classic system provide clearing services. The Eurex Clearing classic system is currently taking care of the clearing of EEX products while Eurex Clearing's C7 is the system clearing all Eurex products.

1.1 Purpose of this document

This document describes the main capabilities, and in general terms, how Eurex Exchange's T7 functions. The following areas are described:

- Main components.
- New and changed functionality.
- Descriptions of the interfaces available.

In addition, this document contains detailed information about states, traceability, trade concepts, and clearing fields in the appendix.
Content changes compared to previous document versions are listed in the change log at the end of the document.

1.2 Further reading

The following documents provide additional information:

- Eurex Functional Reference.
- Eurex Exchange's T7 Release 3.0 Notes.
- Eurex Participant and User Maintenance – Manual.
- Eurex Enhanced Trading Interface – Manual.
- Eurex Market and Reference Data Interfaces – Manual.
- Eurex Enhanced Order Book Interface – Manual.
- Eurex Extended Market Data Service – Manual.
- Eurex FIX Gateway – FIX Manuals.
- Eurex Trader and Admin GUI – Manual.
- Eurex Trade Entry Services – Manual.
- Common Report Engine (CRE), User Guide.

These documents are available on the Eurex website www.eurexchange.com > Technology > Eurex Exchange's T7 > System Documentation.
Additionally, please refer to the Eurex Clearing FIXML Interface Specification available on the Eurex Clearing website www.eurexclearing.com > Technology > Eurex Clearing Classic System > System Documentation and > Technology > Eurex Clearing's C7 > System Documentation for more information on Eurex Clearing's C7.

2 Main Components

The following chapter describes the main components of Eurex Exchange's T7.

2.1 Multiple Markets

Eurex Exchange's T7 is able to operate multiple markets on one technical instance, independently of each other. It is currently used by the Eurex Exchange and EEX European Energy Exchange for derivatives trading.

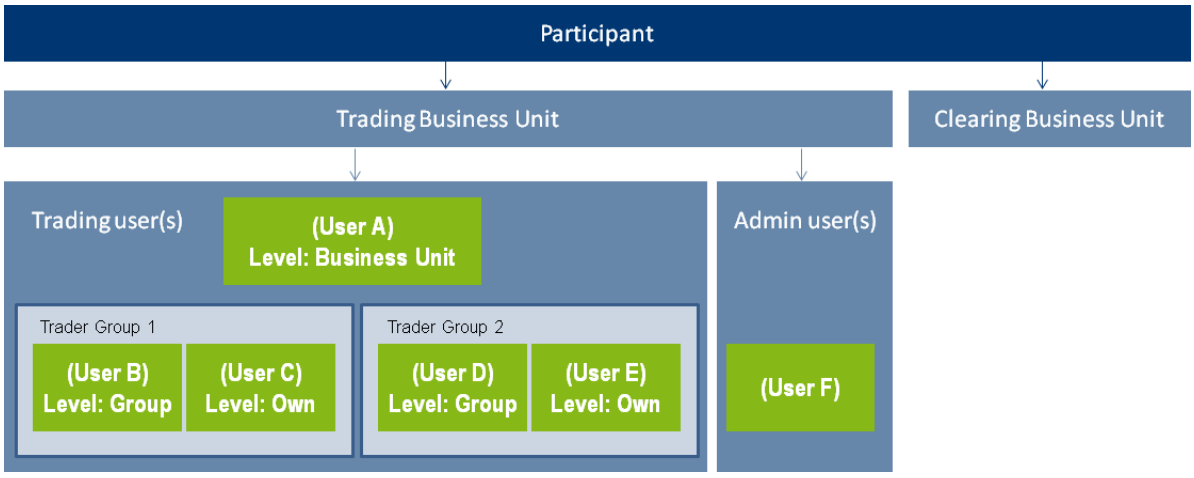
Participants, products and trading rules belong to exactly one market, subject to contractual agreements

2.2 Participant, Business Unit, User

Eurex Exchange's T7 has a three level hierarchy:

- **Participant:** An entity accessing T7, which can be an exchange Participant, a clearing member, or a service provider.
- **Business Unit:** In T7, a Participant may have several business units, which are independent of each other. There are two types of business units:
  - **A Trading Business Unit**, which is used for trading.
  - **A Clearing Business Unit**, which is used by clearing members to receive trade confirmations from its trading business units and from its non-clearing members.

  Each non-clearing member initially has just one trading business unit and each clearing member just one trading and one clearing business unit.
- **User(s):** A business unit can have multiple users. A user can be a trading user and/or an administrator.



A user can be assigned to a Trader Group. Within the trader group there are three user levels: "trader", "head trader" and "supervisor". This user levels concept is then valid for on-book and off-book trading.

2.2.1 User concept for on-book trading

For on-booking trading, these are the actions associated with the respective user level:

- A "trader" can enter an order and is the owner of this order. He can only modify/delete orders that he owns. He can mass delete his own orders across all sessions.
- A "head trader" can modify/delete orders owned by any trader in the same trader group, but not for an order owned by a trader in a different trader group
- A "supervisor" can modify/delete orders owned by any trader in the same business unit.

Quote ownership does not depend on the trader group, refer to section 3.2.
With T7, users are configured by the Participant via the Eurex Admin GUI and have to be registered via the Member Section. Trading users must be activated by the exchange.

A service administrator can manage which functions the users are allowed to perform. In T7, the various trading functions are grouped into different "Roles" such as trader, market maker, market maker protection and service administrator. A Participant can assign these roles to its users and a user can be given more than one role. A user can have different roles for each product assignment group.

For example:

- A trader can have the "trader role" for one product assignment group, while having a "market maker role" in another.
- A "trader role" is enabled to maintain orders, but is not enabled for maintaining quotes, which is part of the "market maker role".
- A user only having the "trading view" can see trading information, but cannot enter orders or quotes.
- A user with a "service administrator role" is enabled to maintain users.

Please refer to the "Participant and User Maintenance Manual" for further details.

2.2.2 User concept for Eurex Trade-Entry Services

For on-booking trading, these are the actions associated with the respective user level:

- A "trader" can enter a pending TES trade and is the initiator user of this TES trade. The initiating user can modify or delete a TES trade which he previously initiated. Independent of the TES trade entry, a "trader" can also be included to a pending TES trade as one of the approving users. In case the initiating user is also a party to the TES trade then he also needs to approve his side(s) of the TES trade.
- A "head trader" can delete pending TES trades of an initiating user belonging to the same trader group and approve TES sides of an approving user belonging to the same trader group

A "supervisor" may delete pending TES trades of any initiating user belonging to the same business unit and approve TES sides of any approving user belonging to the same business unit.
A service administrator can manage which TES activities the users in his business unit are allowed to perform. In T7, the TES activities enter, modify, delete view and approve a TES trade (for more information, please see chapter 4.1) are grouped into different "Roles". The following TES roles will be supported:

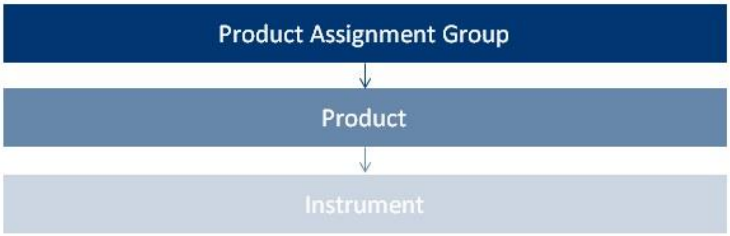
- TES trader – A TES trader must be involved in the TES trade as one of the counter parties. A user who is assigned the TES trader role can enter a TES trade as an initiating user and then modify or delete that TES trade. A TES trader can act as an approving user and can approve his TES side.

- TES broker – A TES broker is not involved in the TES trade as a counter party. A user who is assigned TES broker role can enter a TES trade as an initiating user and then modify or delete that TES trade, but is not allowed to act as approving user and approve a TES trade.
- TES view – This role allows the user to view TES trades.

A service administrator can assign these roles to his users and a user can be given more than one role. A user can have different roles for each product assignment group.
By default, each Eurex participant will receive the TES trader, the TES broker and the TES view role. The roles TES trader and TES broker also include the activity to submit a create instrument request for flexible instruments by default.

2.3 Products and Instruments

Each market in Eurex Exchange's T7 has the following hierarchy: **Product Assignment Groups**[1], **Products** and **Instruments**. A product belongs to one product assignment group. The term "instrument" is used to refer to the object which is traded.
The Eurex Reference Data Interface (Eurex RDI) and the Reference Data File describe each product, each instrument and their trading parameters, refer to section 5.4.



2.4 Instrument Types

Simple instruments are individual futures contracts or options series. **Complex instruments** facilitate the simultaneous trading of two or more simple instruments.
The simple and complex instruments are grouped into **Instrument Types**:

- **Simple instruments**: Individual futures contracts or options series.
- **Futures spread:** All calendar spread combinations for futures.
- **Standard options strategy:** Strategies with up to four legs, which conform to standard rules (e.g. BUL, BER, STD).
- **Non-standard options strategy:** Any combination of simple options instruments, not covered by a standard options strategy, with up to five legs.
- **Option volatility strategy:** Volatility strategies with up to five legs (e.g. C–U, P+U, BUL–U).
- **Standard futures strategy:** Analogous to standard options strategy. Initially, T7 supports two standard futures strategies for EURIBOR: Futures Butterfly and Futures Condor.
- **Pack and bundle:** Futures strategies containing consecutive quarterly maturity dates of the EURIBOR futures
- **Strip:** Futures strategy similar to packs and bundles with at least two and at most 20 legs.
- **Inter-product spread:** Combination of contracts that belong to different futures products of

[1] For instance, the product assignment group "German Interest Rate Futures & Options" contains the products FGBL, FGBM, FGBS, FGBX, OGBL, OGBM, and OGBS. A simple instrument would be FGBL DEC 2014.

the same market. This functionality is currently used by the European Energy Exchange (EEX).

- **Flexible instruments:** tailor-made futures or options contracts which can only be traded off-book via Eurex TES.



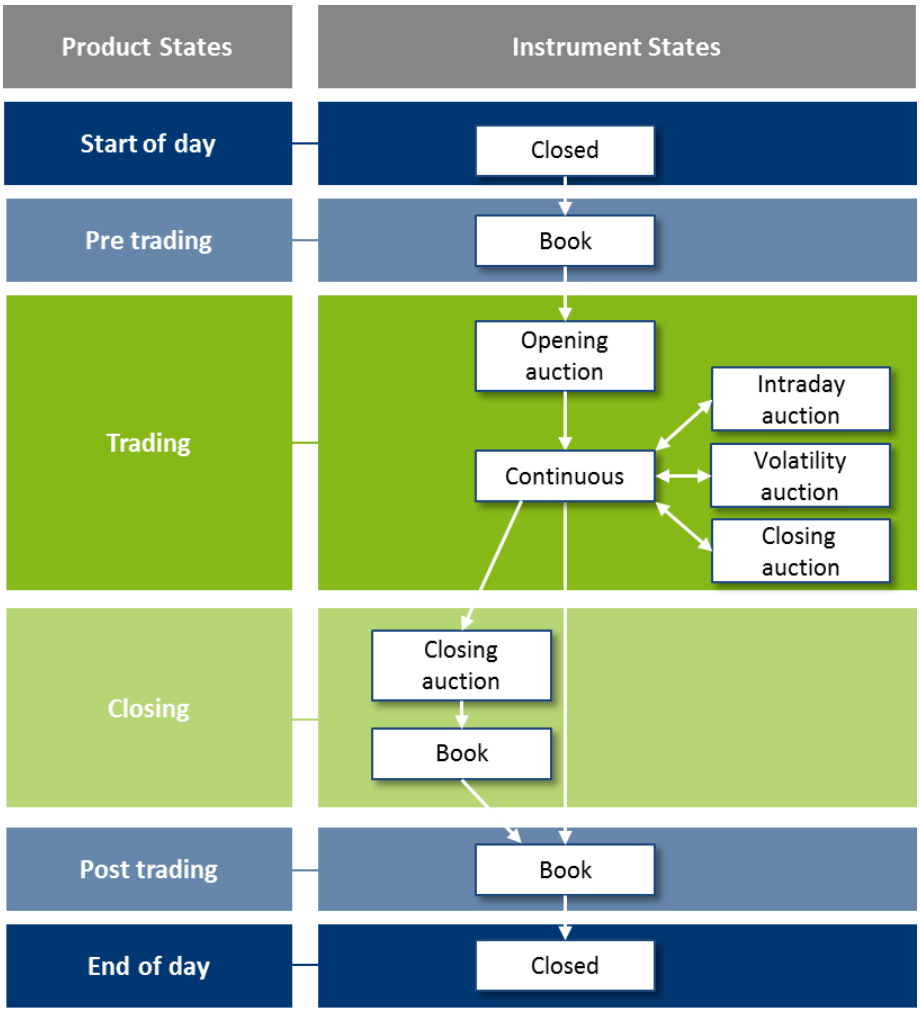
Typically, complex instruments are requested by traders, however, some futures spreads, packs and bundles and inter-product spreads are created by the exchange by default. Complex instruments requested by traders with open orders valid beyond the current trading day will be available the next day.
It is possible to have different trading parameters per instrument type, for example allocation schemes and price validations. Therefore, instruments belonging to different instrument types of the same product can vary in their trading behavior.
The order execution notification for a complex instrument order contains the order's trade price and quantity, as well as the individual leg prices and leg quantities, while the trade confirmations are always based on simple (leg) instruments, implying that there are separate trade confirmations at least for each leg in case of a complex instrument match.
All simple instruments and complex instruments (except for Inter-Product-Spreads) can be traded on-book and via Eurex TES.

2.5 Product and Instrument States

2.5.1 On-book Product and Instrument States

The trading states of an exchange give the trading day a structure; they also control what activities are available to traders and what the exchange system does.
Eurex Exchange's T7 applies trading states at both the product level and at the instrument level. Instruments of the same product can be in different instrument states.
Product states give structure to the trading day and control general access to the products, while instrument states control order/quote maintenance, execution and availability of market information.

Instrument states enable greater flexibility with auctions.
The following diagram shows a typical trading day. Note how product state changes are usually accompanied by instrument state changes, but there are also instrument state changes without a product state change, particularly those related to auctions.



Refer to section 6.1 for product and instrument state details.

2.5.2 TES Activity Product Status

Eurex Exchange's T7 applies trading status at both the product level and at the instrument level. Instruments of the same product can be in different instrument states.
The TES activity status for a product determines which TES activities are allowed in the product. Please note that the product status for TES is independent of the product status for on-book trading. For a given product, the following values for the TES activity status are foreseen:

- **On** - When the TES activity status is "On" for a product then TES trade entry, TES trade modification, TES trade deletion and TES trade approval are allowed for all the instruments of the corresponding product.
- **Ended** - The TES activity status "Ended" terminates the TES trading session of a business day. All the pending TES trades will be deleted during transition to the TES activity status "Ended". TES trade entry/modification/approval and deletion are not allowed.
- **Off** – The TES activity status "Off" indicates that the product is no longer available for TES

trading or TES trading has not been started for the day. In this case all TES activities are disabled for the product.

- **Halted** – The TES activity status "Halted" is reserved for emergency situations. Market Supervision may set the TES activity status to "Halted" for a product if they judge that market conditions or technical conditions impair the integrity of the market. In this state TES trade entry/modification/approval and deletion are not allowed. Pending TES trades remain when the TES activity status is "Halted".



2.5.3 On-book and Off-book Instrument Status

The instrument status controls whether an instrument is currently available for trading or not. The instrument status for on-book trading is independent of the instrument status for off-book trading. For a given instrument, the following values for instrument status are foreseen:

- **Active** – The instrument status of an instrument to allow TES trading will be "Active".
- **Inactive** - Market supervision may decide to deactivate an instrument during the day. An inactive complex instrument can no longer be traded.
- **Expired** - Instruments that expire during the trading day, rather than at the end of the trading day, will upon expiration acquire the listing status "Expired" as opposed to "Active".

3 On-book Functionality

This section describes key aspects of the functionality provided by Eurex Exchange's T7 for on-book trading.

3.1 Orders

T7 supports multiple types of orders. These are specified with order attributes at order entry. The combinations of order attributes that are permitted can differ per product and instrument type.

For example, a "regular limit order" has the order type attribute "regular", the price condition "limit", and any of the time validities such as good-for-day. A "market order" would be the same, except for having the price condition attribute "market".

The Book-or-Cancel order is an order that is accepted by the system only if it does not trade on entry. T7 also supports Stop Limit orders and Stop Market orders. Note: for the time being no product will allow Stop Limit orders.

Orders for all simple and complex instrument types, including options strategies, can have a validity of more than the current day.

For all orders, two mandatory technical order attributes have to be set. These order attributes cannot be changed during the lifetime of an order:

1. Persistent or Non-persistent Orders:

- **Persistent Orders** are re-instated at the start of the next business day depending on their order validity, or after a failure of the trading system.
- **Non-persistent** orders will be deleted end of a business day, in case of session loss, market resets, or trading interrupts (volatility interrupts, state changes to halt).

2. Standard or Lean Orders:

- For **standard orders**, the complete order history can be recovered via retransmission requests. This order data is visible to all low-frequency sessions (refer to section 5.2.1) belonging to the same business unit (via subscription to the listener data broadcast). Standard orders can be persistent or non-persistent.
- For l**ean orders,** only the execution notifications and unsolicited events can be recovered (via retransmission requests on the session data channel). All data on lean orders are visible only to the session that submitted the order. Lean orders are always non-persistent.

For further details, please refer to the "Eurex Enhanced Trading Interface Manual".

Please note: Persistent orders owned by a FIX/ETI session that is destined for deletion as per a Participant's system change request are deleted during the end of day process without any notification to the Participant.

Market makers and high-frequency traders can improve system performance by selecting lean and non-persistent orders, as is done in the high frequency sessions, refer to section 5.2.1.

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

- A "price reasonability check" helps to ensure that the price does not differ significantly from the market. A trader submitting an order or mass quote entry can decide individually for each order or mass quote entry, whether it is subjected to a price reasonability check or whether the check is skipped. If the best bid and best ask prices are not available, an additional reference price (last traded price, theoretical price) is taken into account. If the additional reference price

is also not available, the incoming order/quote is:
  - Accepted without performing a price validation and without additional notification in case the submitting trader chooses an optional price reasonability check, or
  - Rejected in case the submitting trader chooses a mandatory price reasonability check with a specific notification to the entering trader.
- An "extended price range check" (also referred to as a fat finger check) ensures that the price does not cross through the market to such an extent as to be considered an erroneous price. The extended price range check cannot be skipped by the entering trader. However, if a price reasonability check requested by a trader was successfully applied, the extended price range check is skipped.
- Usually, the price range applied by the extended price range check is larger than the price range applied by the price reasonability check.

3.2 Quotes

Quotes may be used to maintain a single bid/offer in multiple instruments within a product. The following applies for quotes:

- Quotes belong to the session on which they are entered, refer to section 5.2.1. A business unit can have multiple sessions, each with its own quotes.
- The "mass quote" function allows the Participant to enter, modify and delete multiple quotes of a session simultaneously. This function is available for both, options and futures.
- T7 provides "quote entry" to replace an existing quote with the new quote. This is done by starting a new quote life cycle with an accumulated traded quantity set to zero. It also provides "quote modification", which refers to an existing quote and preserves the accumulated traded quantity. The priority timestamp of a quote stored in the order book is changed when the price is changed or the open quote quantity is increased.
- The "delete all quotes" function can be used to delete all quotes of a session in a product.
- Quotes for complex instruments are supported and can be mixed with quotes for simple instruments inside a single "mass quote" transaction.
- An incoming or a modified quote side which fails the price reasonability check or the extended price range validation results in the complete deletion of the quote: i.e. both sides of the quote, including existing old sides in the book, are deleted.
- Quotes are automatically deleted when an instrument changes to "closed" or "restricted", which occurs at the end of the day; or when an instrument is suspended by market supervision, or has expired.
- Quotes are always deleted in case of a volatility interrupt.
- A complete session can be inactivated and re-activated for quoting. This feature can be applied to all quotes of a session, filtered by product, or by product/instrument type. When quotes of a session are inactivated they are unavailable for matching, but can be updated while remaining inactive. During the time of the inactivation, any new quotes entered into the session will also be inactivated. When quotes are (re-)activated they receive a new matching time priority. The market maker protection functionality (refer to 3.6) uses this inactivation function rather than quote deletion.

3.3 Matching

When trading an incoming order against the book, the best priced orders in the book are traded first. When there are multiple orders at the best price, the allocation scheme specifies how the quantity of the incoming order is allocated to those book orders. Eurex Exchange's T7 supports the following allocation schemes, which can be different per product and instrument type.

3.3.1 Allocation schemes

- **Time allocation:** The quantity of the incoming order is allocated to the oldest book order first. If there is any remainder then it is moved to the next oldest order, until the quantity of the incoming order is exhausted or all orders at the best price have been executed.
- **Pro-rata allocation:** The allocated quantity of the incoming order is shared amongst all book orders at the best price. The allocation is proportional to the size of each book order. All book orders at the best price are considered in the allocation.
- **Time-pro-rata allocation:** The allocation of an individual order is based on its order size as well as on the order priority time, combining aspects of pro-rata and time allocation. In that way best price orders with an older order priority time receive a higher share of the quantity of the incoming order, at the expense of orders with younger order priority times, and there are potentially less book orders involved, compared to the pro-rata allocation.

3.3.2 Synthetic matching

Synthetic matching is based on the combination of different order book sides being used to generate a synthetic order in simple or spread instruments competing for execution with the outright orders.

It is possible for an incoming order to be executed against a synthetic book order, generating a synthetic match event, instead of being executed against an outright order generating a direct match event. For some additional information refer to section 6.4.3.

3.3.3 Volatility Interrupts

A volatility interrupt leads to a volatility auction state. The handling of volatility interrupts in T7 is as follows:

- The volatility interrupt is triggered before the affected order is matched outside the volatility range.
- Volatility interrupts at both the instrument and the product level are supported.
- Volatility interrupts are possible for both options and for futures.

3.3.4 Self-Match Prevention (SMP)

Self-match prevention is an optional functionality which allows a business unit to prevent that certain own orders of the same instrument match against each other. This functionality can be used by filling in the numeric SMP-ID (field *MatchInstCrossID* in Eurex ETI and Eurex FIX Gateway, field *CrossID* in the Eurex Trader GUI) in the respective order or quote message. The SMP-ID will be checked on a business unit level. Its setup and usage lies within a business unit's responsibility.
SMP is:

- Offered via all trading interfaces (Eurex ETI, Eurex FIX Gateway) including the Trader GUI.
- Supported for orders (including Stop Orders, Market Orders, One-Cancels-the-Other Orders) and quotes.
- Performed during the instrument state Continuous only.

- Supported for all matching allocation schemes.
- Not supported for synthetic matching, i.e. SMP will not prevent matches of orders/quotes in instruments different to the incoming order's instrument.

When an incoming order (newly added, modified, triggered order/quote, or reactivated quote) and a book order (or quote side) would match against each other, T7 checks whether they are owned by the same business unit and whether they carry the same user supplied SMP-ID. If that is the case, the match between the two orders is prevented and the quantity which would have matched is cancelled from the open order quantity, for both the incoming order and the book order. Afterwards, the incoming order is allowed to match further only on the same price level in case of sufficient quantity. After matching completed on that price level, any remaining open quantity left for the incoming order is deleted. In case there is quantity left from the book order after its reduction because of SMP, this quantity remains in the book.

3.4 Trade Traceability

Eurex Exchange's T7 provides trade traceability, allowing orders to be linked to executions, trade confirmations, and trades in clearing for simple instruments and complex instruments. Refer to section 6.2 and 6.3. For matching and trade concepts, refer to section 6.4.

3.5 Clearing

Trade information is forwarded to the Eurex Clearing classic system and to Eurex Clearing's C7 for clearing. Eurex Exchange's T7 offers Participants several clearing related fields, for both internal Participant use and for use by the clearing system (refer to the sections6.5.3 and 6.6.3).

Eurex Exchange's T7 uses a trade enrichment rule concept as a simple index table of rules which has to be referenced on transaction entry by the originator.
For further details refer to the sections 6.5.2 and 6.6.2 and document "Eurex Trader GUI and Eurex Admin GUI Manual".

3.6 Safeguards for Participants

Participant safeguard functions are available in Eurex Exchange's T7 including:

- Transaction Size Limits (maximum order quantity) enables the Participant to restrict the quantity at order and quote entry.
- Market maker protection (MMP) features:
  - MMP is available for both futures and options.
  - MMP can be applied either on the product level or on the product/instrument type level.
  - MMP uses quote inactivation rather than quote deletion.
  - MMP can be maintained separately via Eurex Trader and Eurex Admin GUIs and Eurex ETI.
  - Percentage, volume, delta and vega limits can be used for MMP.
- Pre-Trade limits, enables the Participant to set limits on the number of open orders and quote sides stored in the order book, to help prevent accidental massive submission of orders from algorithmic trading and/or order routing systems.
- Manual stop/release of trading is available, the effect of this is on a Participant level, on a business unit level, or for an individual trader. Manual stop/release can be performed by an

exchange Participant, by a clearing member (via the existing Eurex interfaces), or by the clearing house.

- Advanced Risk Protection functionality is supported; it can provide warnings, slow or stop a Participant if certain limits are exceeded.
- Price validations for orders and quotes, refer to section 3.1.

4 TES Functionality

This section describes key aspects of the TES functionality provided by Eurex Exchange's T7.

4.1 TES Types and TES Type Eligibility

The Trade Entry Service on T7 supports the following TES types:

- Block Trade - Supports the bi- and multilateral off-book trading of standard Eurex products.
- Exchange for Physicals (EFP) Fin – Supports bilateral off-book trading on futures products and a cash reference to specific bonds.
- Exchange for Physicals (EFP) Index – Supports bilateral off-book trading on futures products and a cash reference to an equity basket.
- Exchange for Swaps (EFS) – Supports bilateral off-book trading on futures products and a cash reference to a swap contract.
- Vola Trade – Supports bilateral off-book trading on futures products and a reference to an options off-book (Block TES trade) trade. On-book options trades are not allowed to be used as a reference for a vola trade.
- Trade at Market – Specific TES type for Total Return Futures products (TRF). TRF contracts are associated with an underlying index and replicate the daily performance of a Total Return Swap corresponding to the contract expiration. For more information on TRF products, please see Eurex Exchange's T7 4.0 Release Notes.
- Basis Trade – Specific TES type only used for basis trades resulting from Eurex Bonds to indicate the derivative futures leg in T7; this TES type cannot be used via the Eurex ETI or T7 Trader GUI.

The TES type eligibility defines on business unit and user level if TES trading in one or more of the above mentioned TES types is allowed.
The supervisors of each business unit are able to assign the eligibility of certain TES types to the users belonging to their business unit.
If a user is eligible for the TES type "Block Trade", he is automatically eligible for the TES types "Trade at Market" and "Basis Trade". This means there is no independent TES type eligibility for "Trade at Market" and "Basis Trade".

4.2 TES Profiles

To support a configurable mapping between products and their instrument types on the one hand and TES types on the other hand, a TES profile will be introduced.
The TES profile will summarize all valid product – instrument type – TES type combinations termed as TES profile key and corresponding TES profile attributes.
The key is a combination of the product, instrument type and TES type while the TES profile attributes consist of:

- Broker Allowed – This flag defines whether broker trades are supported or not.
- Max Participants - This field provides information about how many participants / TES approving users can be involved on both sides of a TES trade
- Minimum Price Step – This field provides the information about the minimum price increment allowed for a TES trade.
- Minimum Lot Size - This field provides the information about the minimum TES side quantity allowed in a single leg.

- Non-disclosure Limit – This field provides the quantity threshold for using the non-disclosure feature.
- Price Validation Rule – The rule used for price validation of TES trades in accordance to "Conditions for Utilization of the Eurex Trade Entry Services"

The TES profile will be published on the Eurex web page under www.eurexclearing.com > Technology > Eurex Exchange's T7 > Documents.
The table below shows an example of a TES profile (the actual configuration in production might be different):

TES Profile								
Key			Attributes					
Product	Instrument Type	TES Type	Broker Allowed	Max Participants	Minimum Price Step	Minimum Lot Size	Non-disclosure Limit	Price Validation Rule
FDAX	Simple	Block	FALSE	2	0.5	250	999999	FUTURE SIMPLE INSTRUMENT
FDAX	Flexible	Block	FALSE	2	0.5	250	1	FUTURE SIMPLE INSTRUMENT
FDAX	Simple	Vola	FALSE	2	0.5	1	999999	FUTURE SIMPLE INSTRUMENT
FDAX	Simple	EFP_Idx	FALSE	2	0.5	1	999999	FUTURE SIMPLE INSTRUMENT
FDAX	Calendar Spread	Block	FALSE	2	0.5	250	999999	FUTURES SPREAD
OGBL	Simple	Block	TRUE	30	0.005	100	999999	OPTION SIMPLE INSTRUMENT
OGBL	Flexible	Block	FALSE	2	0.005	100	1	OPTION SIMPLE INSTRUMENT
OGBL	Standard Strategy	Block	FALSE	2	0.005	100	999999	STANDARD OPTION STRATEGY
OGBL	Volatility Strategy	Block	FALSE	2	0.005	100	999999	OPTION VOLATILITY STRATEGY
OGBL	Non-standard Strategy	Block	FALSE	2	0.005	100	999999	NON STANDARD OPTION STRATEGY

4.3 TES Requests

The following TES requests are supported by Eurex Exchange's T7 via the Eurex ETI interface:

- TES Trade Entry:
  The request enables the entry of a pending TES trade containing the general TES trade information which encompasses the instrument Id, the trade price, the traded quantity, the TES closure time or the text field "TES trade description". It also specifies all users involved on the buy and sell side of the TES trade (approving users).
- TES Trade Modify:
  The request allows the modification of a pending TES trade by its initiating user. As long as the TES trade is not approved by all of its approving users, the modification of the general TES trade information except instrument Id and external references is supported. This also includes the approving users and the number of the approving users involved on the TES trade sides.
- TES Trade Delete:
  The request allows the deletion of a pending TES trade by its initiating user.
- TES Trade Approve:
  The request allows the approval of a pending TES trade side by its approving user. All TES trade side specific information (e.g. trading capacity, open/close indicator, text fields) needs to be specified in this request. A TES trade also needs to be approved by the initiating user if the initiating user is identical to an approving user, i.e. if the user who was initiating the TES trade is also involved on any side of the same TES trade.

4.4 Clearing

Similarly to Eurex on-book trades, TES Trade information is forwarded to the Eurex Clearing's C7. All clearing and settlement functions are performed there.

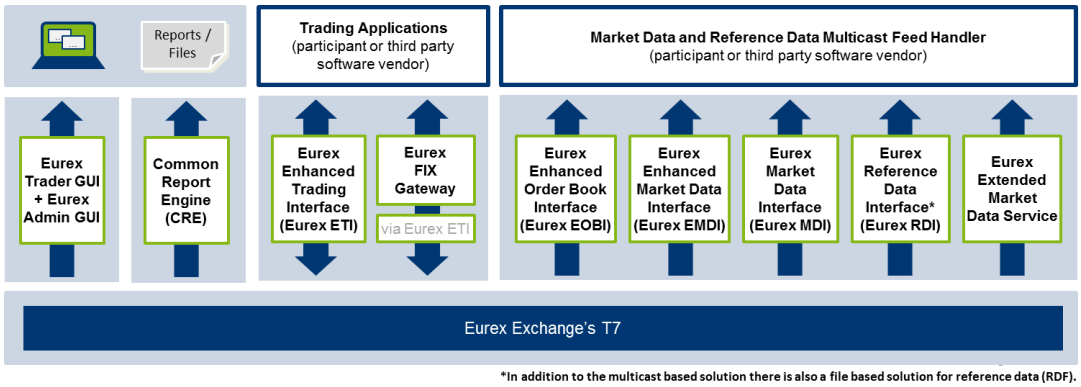
5 Interfaces

Eurex Exchange's T7 provides Participants with a portfolio of interfaces: Gateways act as entry points for transactions, market and reference data are distributed using multicast, additionally a GUI solution is offered.
One general design principle of the interfaces is to minimize the exchanges' effect on the Participants. Participants do not need to install exchange hardware or software components. T7 can be accessed without the need for specific hardware, operating system, programming language, and compiler versions, as long as they support the general communication components, like TCP/IP and IP multicast.

Eurex Exchange's T7 supports the following interfaces:

- **Eurex Enhanced Trading Interface (Eurex ETI):** Eurex ETI is the high performance trading interface designed for Participants who require the highest throughput and the lowest latency. The Eurex ETI supports full trading functionality, including market making (quoting) and Eurex Trade Entry Service.
- **Eurex FIX Gateway:** The Eurex FIX Gateway is intended for Participants who require a standard FIX connection to the exchange. Market making (quoting) functionality is not supported by this interface.
- **Eurex Market Data Interface (Eurex MDI):** Provides netted price level aggregated market data using multicast technology.
- **Eurex Enhanced Market Data Interface (Eurex EMDI)**: Provides un-netted price level aggregated market data for on-book trading and publishes trades entered via Eurex TES.
- **Eurex Enhanced Order Book Interface (Eurex EOBI):** Provides, for selected products only, the entire visible order book by publishing information on each individual order and quote in un-netted manner, along with all on-book executions and state information.
- **Eurex Reference Data Interface (Eurex RDI):** This interface provides reference data via high bandwidth connections, including intra-day updates. Some reference data is also disseminated via Eurex MDI and the incremental channel of Eurex EMDI
  Additionally to the Eurex Reference Data Interface, reference data is also delivered as a start-of-day file (RDF) including updated intraday files for incrementals.
- **Eurex Extended Market Data Service (Eurex EMDS):** This interface provides intraday settlement prices, adjusted open interest and underlying ticker data.
- **GUIs:** Graphical user interfaces that provide direct human access to the system.
  - **Eurex Trader GUI:** Basic trading functions for orders and Eurex Trade Entry Services. Quoting is not supported.
  - **Eurex Admin GUI:** Administration functions, for example, user maintenance.
- **Common Report Engine:** Trading reports, audit trail reports, and reference data files (Eurex RDF) are provided exclusively via the common report engine.

Historical information of previous days is not provided by the interfaces, except for public news.



*In addition to the multicast based solution there is also a file based solution for reference data (RDF).

5.1 Functions compared to Interfaces

The following table provides an overview; refer to the next sections for more information.

	Core Trading[1]	Market Making[2]	Info[3]	Eurex Trade Entry Services[8]	Market Data	Reference Data	Admin[5]	Reports
Eurex ETI	✓	✓	✓	✓				
FIX Gateway	✓		Private risk control messages					
Eurex MDI					✓[4]	New & deleted complex and flexible instruments		
Eurex EMDI					✓[4]	New & deleted complex and flexible instruments		
Eurex EOBI[6]					✓[7]	New & deleted complex instruments		
Eurex RDI						✓		
Eurex EMDS					Intraday settlement prices, open interest, underlying ticker data			
Eurex Trader GUI	✓	Only quote deletion, activation/ deactivation, protection maintenance	✓	✓	✓	✓		
Eurex Admin GUI		Protection Maintenance					✓	
Common Report Engine						✓		✓

[1] Order management, trade confirmations, complex instrument creation, cross request, quote request

[2] Quote management, market maker protection

[3] Public news, private risk control messages

[4] Public market data, on-book and off-book trade information, product and instrument states, quote and cross requests

[5] User maintenance, password maintenance, PIN procedure, trade enrichment rule, stop trading, risk control actions

[6] For selected products only

[7] Does not provide off-book trade information

[8] TES trade management, TES trade approval, TES trade confirmations.

5.2 Trading Interfaces

There are two types of trading interfaces: The Eurex Enhanced Trading Interface (Eurex ETI) and the Eurex FIX Gateway. Both are session oriented interfaces. Participants are requested to order their sessions from the exchange.

Participant applications are connected to the trading system by opening a TCP session to an application Gateway.

5.2.1 The Eurex Enhanced Trading Interface

The Eurex Enhanced Trading Interface (Eurex ETI) is the high performance trading interface designed for Participants who require the highest throughput and lowest latency.

A Participant must establish a TCP session to connect to Eurex Exchange's T7. All application messages exchanged between the client and the Eurex ETI are close to the FIX V5.0 SP2 semantics, including all officially approved extension packs. A proprietary session layer is used to provide the highest flexibility.

Eurex ETI provides all trading functions of Eurex Exchange's T7:

- Order handling for simple and complex instruments.
- Additional support of short order message layouts for simple instruments, which applies streamlined functionality to achieve a comparable latency to quotes.
- Quote handling, including quote inactivation, for simple and complex instruments.
- Execution notifications.
- Market maker protection mechanisms.
- Creation of complex instruments (strategies).
- Request for quote.
- Cross request.
- TES entry, modification, deletion and approval.

Eurex ETI enables Participants to subscribe to private trading data in broadcast form:

- Drop copy of order events other than for lean orders (optional subscription).
- Trade confirmation at a business unit level (optional subscription).

The following trading support information is available for each session:

- News messages from Eurex market supervision (optional subscription).
- Private risk control messages (always sent).

Eurex ETI does not provide any market data, reference data, or administrative functions.

Eurex ETI is a session oriented interface. Eurex ETI responds to each request on the same session after the request was submitted. It also sends unsolicited messages when there are changes or executions to any orders and quotes entered on that session.

Eurex ETI is based on the following general concepts:

- Trade confirmations are the only legally binding information that a trade has occurred.
- Orders are owned by the user.
- Lean orders can only be modified through the same session, where they had been entered previously.
- Quotes are owned by the session.
- Order and quote responses as well as execution messages do not completely echo the data

of the original order. Hence Participant applications should save the details of each order and quote sent.

- No state recovery (inquiry) is supported; Participant applications must keep track of the order book and use retransmission recovery and the order book replay, which is sent at start-of-day and in case of an exchange system failure (i.e. market reset).
- For quotes and lean orders only the execution notifications and unsolicited events are recoverable.
- For standard (non-lean) orders all order events are recoverable.
- A listener broadcast contains order events for standard (non-lean) orders but not for lean orders (refer to 3.1).

Eurex ETI supports two session types: high-frequency (HF) and low-frequency (LF) sessions. Both session types differ in functionality:

- The HF session only supports lean orders. Standard orders are rejected. A HF session does not support the subscription of broadcasts.
- A LF session may also be used for the receipt of broadcasts; for example, listener broadcast or trade notifications at a business unit level/clearing member level. Orders in a LF session can be persistent or non-persistent, standard (non-lean) or lean, refer to 3.1. TES requests are only supported via LF sessions.

In order to protect its trading system, Eurex Exchange's T7 has several measures in place to ensure that its most vital components are not harmed by a malfunctioning client application. In particular, the following technical transaction limits (throttle) are used for the respective combinations of environment, session type and capacity type:

Environment	Session type	Capacity type	Transactions/sec
Production	HF	Full	150
	HF	Light	50
	LF	Full	150
	LF	Light	50
Simulation	HF	Full	20
	HF	Light	20
	LF	Full	20
	LF	Light	20

Additionally, all Eurex ETI sessions have an assigned disconnection limit of:

- 450, i.e. in case of more than 450 consecutive rejects due to exceeding the technical transaction limit for sessions with a throttle value of 150 txn/sec.
- 150, i.e. in case of more than 150 consecutive rejects due to exceeding the technical transaction limit for sessions with a throttle value of 50 txn/sec.

For both limits all technical transactions are counted using a sliding window.

Dedicated back-office Eurex ETI LF sessions are available to receive trade and listener broadcasts.

This session type cannot be used to enter order/quotes.

Please refer to the "Eurex Enhanced Trading Interface Manual" for further details.

5.2.2 The Eurex FIX Gateway

The Eurex FIX Gateway is intended for Participants that require a standard FIX connection to the exchange. The FIX Gateway will support two types of FIX sessions; Trading and Back-Office FIX sessions.
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 version 4.2 and 4.4 of the FIX Protocol.

The Eurex FIX Gateway supports the following features of Eurex Exchange's T7 via FIX trading sessions:

- Order handling for simple and complex instruments.
- Execution notifications are sent to the session on which the order was received.
- Request for quote.
- Cross request.
- Enhanced support for mass deletion events (market reset, risk control events).
- Creation of complex instruments (strategy).
- Simplified handling of orders for multi-leg instruments due to enhanced security identification.

Each Eurex FIX session has a technical transaction limit of 50 transactions per second.

Dedicated back-office FIX sessions are available to receive trade confirmations and drop copies of standard orders at a business unit level. The FIX Gateway does not provide quote functionality, market data, reference data, or administrative functions. Please refer to the "FIX Gateway Manual" for further details.

5.3 The Eurex Market Data Interfaces

Market data is available using multicast interfaces:

- Eurex Enhanced Market Data Interface (Eurex EMDI) offers un-netted market data and TES trade data and requires a high bandwidth connection.
- Eurex Market Data Interface (Eurex MDI) offers netted market data, with fewer order book and trade updates, requiring a lower bandwidth connection.
- Eurex Enhanced Order Book Interface (Eurex EOBI) provides, for selected products only, the entire visible order book by publishing information on each individual order and quote, along with executions and state information. It is the most granular source of market data. Eurex EOBI requires a 10GB connection and is available in co-location installations only.

All data feeds are distributed over a number of IP multicast addresses.

5.3.1 Eurex Market Data Interface and Eurex Enhanced Market Data Interface

The Eurex EMDI and Eurex MDI feeds follow FIX 5.0 SP2 semantics and are FAST encoded. Eurex EMDI uses out-of band recovery, while Eurex MDI uses in-band recovery.
The following information is provided:

- Order book depth aggregated by price levels.
- Less price levels are provided on the Eurex MDI feed, which can be different to the number

provided on the current Eurex system.

- On-book and TES trade information.
- Product state and instrument state information.
- Quote requests and cross requests.
- Description of complex instruments created intra-day.

Please refer to the "Eurex Market and Reference Data Interfaces Manual", which contains further details on the interface.

5.3.2 Eurex Enhanced Order Book Interface

Eurex EOBI is available for a selected group of Eurex Exchange's futures and options. The Eurex EOBI feed is distributed in the form of fixed length binary messages, without any compression, and uses out-of-band recovery. Most of the functional concepts used are similar to those of Eurex EMDI, however the Eurex EOBI provides greater transparency, together with a high throughput at minimal latency. The following information is provided on the Eurex EOBI:

- Order book information, disseminated without any depth limitation.
- The side, price, priority timestamp and displayed quantity of each visible order and quote.
- Trade prices and traded quantity for each executed on-book trade.
- Product state and Instrument state information
- Quote requests and cross requests
- Intra-day changes with regard to complex instruments.

The required reference data information is available via the Eurex Reference Data Interface (Eurex RDI) feed and the Eurex Reference Data Files (Eurex RDF). Please refer to the "Eurex Enhanced Order Book Interface Manual", which contains further details.

5.4 Reference Data

The following public reference data is provided to Participants:

- Product information.
- Instrument information (simple and complex instruments).
- Settlement prices and open interest from previous day.

Information is provided for published and active, but not for delisted products/instruments.

Please refer to the "Eurex Market and Reference Data Interfaces Manual", which contains further details on the interface.

5.4.1 Eurex Reference Data Interface (Eurex RDI)

The Eurex Reference Data Interface (Eurex RDI) distributes data over a number of IP multicast addresses via high bandwidth connections. All feeds follow FIX 5.0 SP2 semantics and are sent with FAST encoding.
Information is provided as regular snapshots containing information as of the beginning of the day and as incremental messages for intra-day updates (created/deleted complex instruments). For intra-day recovery purposes the snapshots are repeated during the day. It uses the same technical means as the market data interfaces.

5.4.2 Eurex Reference Data File (Eurex RDF)

Reference Data Files (RDF) are provided at the beginning of the day with the full set of products and instruments. Additional Reference Data Files with updates are provided at fixed intervals during the exchange trading day, containing intra-day created/deleted complex instruments. The files are available on the common report engine.

5.4.3 Reference Data in the market data interfaces

All information about intra-day created complex instruments is also provided in the Eurex EMDI, Eurex MDI and Eurex EOBI.

5.5 Eurex Extended Market Data Service

Participants and CEF ultra+ clients can receive via multicast the following:

- Intraday settlement prices.
- Open interest information.
- Underlying ticker data.

5.6 Graphical User Interfaces

The Graphical User Interfaces (GUIs) provide exchange Participants with trading, market data and administrative functions. The GUIs are started from a standard web browser with java web start.

The GUIs are based on web technology; there is no need to install software kits provided by the exchange. The GUIs can be accessed by standard leased lines or via the internet. For authentication, user/password methods, and client certificate (only for internet access) technologies are used.

The Eurex Trader GUI provides access to the following functions for products and instruments traded on Eurex Exchange's T7:

- Market overview and depth for simple and complex instruments.
- Display of theoretical prices.
- Maintenance of standard (non-lean) orders.
- View of standard (non-lean) orders of the business unit.
- Execution information for on-book trading of the business unit.
- Display of underlying ticker.
- Creation of complex instruments.
- Request for quote.
- Cross requests.
- The setting of market maker protection parameters.
- Quote deletion and activation/deactivation.
- Emergency risk control functions (panic cancel and stop/release button).
- Private risk control messages.
- General messages from Eurex market supervision.
- Entry or query of Quotes or lean orders is not supported.

The Eurex Trader GUI also provides Eurex Trade Entry Services.

The Eurex Admin GUI contains the following functions:

- Administrative functions, such as creation of users, assignment of entitlements and transaction size limits.
- Trade enrichment rules setting
- Emergency risk control functions (panic cancel and stop/release button).

For more information on the Eurex GUIs please refer to the "Eurex Trader GUI and Eurex Admin GUI Manual".

5.7 Reports

Trading reports, audit trail reports, and reference data files are provided via the Common Report Engine, where they can be retrieved by Participants.
Please refer to the "Common Report Engine (CRE), User Guide" for details.

6 Appendix

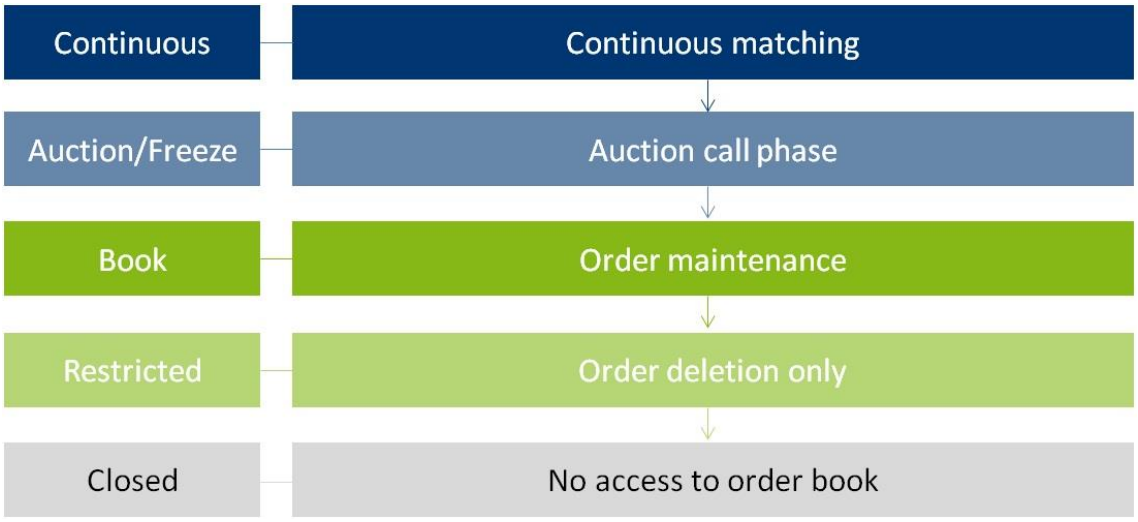
This appendix contains detailed information on product and instrument stats for on-book trading, order and trade traceability and clearing fields used by the clearing systems.

6.1 Product and Instrument State Details (On-book Trading)

Eurex Exchange's T7 includes the concept of instrument states. Instruments of one product can be in different instruments states. Instrument states control the following:

- Whether or not order and quote maintenance is possible, and to what extent.
- What order book information is published by the exchange.
- Whether or not orders and quotes are executed.

The following diagram describes the instrument states of T7, reflecting the hierarchy in terms of market activity:



6.1.1 The Instrument States

The following describes the instrument states and what is possible in each:

- **Instrument State Continuous:** The instrument state Continuous is the state where trading is continually in progress, with this instrument state the following is possible:
  - Order maintenance.
  - Quote maintenance.
  - Order book data is published by the exchange.
  - Continuous matching of orders and quotes.
  - Trade data is published by the exchange.

- **Auction Instrument States:** There are four auction instrument states that represent the auction call phases of various types of auctions:
  1. Opening Auction: An opening auction occurs before the system enters continuous trading.

2. Closing Auction: For some products, there is a closing auction, either at the end of the continuous trading phase, or during the day to determine an auction price as a basis for a settlement price. There can only be one closing auction per day.
3. Volatility Interrupt Auction: A volatility interrupt results in a volatility interrupt auction.
4. Intraday Auction: An auction that does not fit into the three other categories is an intraday auction. For example, when resuming the on-exchange trading activities by changing from product state "HALT" to "Trading" to resolve an intra-day emergency situation, the trading session may start with an instrument state "auction" which is qualified as "intra-day".

In an auction instrument state:

- Order maintenance is possible.
- Quote maintenance is possible.
- Only top of book price data is published by the exchange (either best bid/ask or the potential auction price).
- No trading occurs, but at the end of an auction instrument state, an order book uncrossing may occur, potentially resulting in an auction trade which is published by the exchange.

- **Auction Freeze Instrument States:** An auction freeze state is a state where the exchange market supervision has frozen the market during an auction call phase, in order to check and control the order book if necessary. Like for the auction instrument states described above, for each type of auction, there is one auction freeze instrument state.
    1. Opening Auction Freeze.
    2. Closing Auction Freeze.
    3. Volatility Interrupt Auction Freeze.
    4. Intraday Auction Freeze.

  In an auction freeze instrument state:

  - No order entry or modification is possible.
  - No immediate order deletion is possible, but order deletion requests will result in the order being marked as pending deletion.
  - No quote entry or replacement is possible.
  - No immediate quote deletion is possible, but quote deletion requests will result in the quote being marked as pending deletion.
  - Only top of book price data is published by the exchange (either best bid/ask or the potential auction price).
  - No trading occurs, but at the end of an auction freeze instrument state, an order book uncrossing may occur, potentially resulting in an auction trade which is published by the exchange.

  Orders and quotes that had been marked as pending deletion during the auction freeze phase will be deleted immediately upon leaving the auction freeze instrument state. Nevertheless, if an auction freeze phase ends with an uncrossing, the orders and quotes that are marked as pending deletion will still participate in this uncrossing and may therefore be executed in an auction trade.

- **Instrument State Book:** This instrument state enables traders to maintain their orders, but no trading actually takes place**:**
  - Order maintenance is possible.
  - Quote maintenance is possible.
  - No order book data is published by the exchange.
  - No trading occurs.
- **Instrument State Restricted:** This instrument state is where traders are only permitted to delete their orders:
  - No order entry and no order modification is possible, but order deletion is supported.
  - No quote maintenance is possible and there are no quotes in the order book.
  - No order book data is published by the exchange.
  - No trading occurs.
- **Instrument State Closed:** This instrument state is where no access to the order book is available:
  - No order maintenance is possible.
  - No quote maintenance is possible and there are no quotes in the order book.
  - No order book data is published by the exchange.
  - No trading occurs.

6.1.2 The Product states

Product states give structure to the trading day and also control the general access to the system. Eurex Exchange's T7 applies the product states that are described below:

- **Start of Day:** This product state represents the time in the morning before activity begins. Participants have no functional access to the trading system in this product state.
- **Pre-Trading:** This product state occurs in the morning before trading starts. It is typically a time where traders can maintain their orders prior to the start of trading. No trades occur in this phase.
- **Trading:** This product state represents the trading phase and includes continuous trading phases as well as auction call phases.

  Note: In T7, auction call phases and continuous trading phases belong to the same trading product state, however they represent different instrument states.
- **Closing:** This product state is a short phase between Trading and Post-Trading, and covers the time between the end of continuous trading and the end of the last auction, typically a closing auction. The end of this product state marks the moment when no more trades can occur for the affected product for the rest of the day.
  For products that have no closing auction at the end of the continuous trading phase, the product state Closing has a zero duration, except if there was an auction running at the time when Closing started.
- **Post-Trading:** This product state occurs in the evening after trading has ended and is typically a time where traders can maintain their orders in preparation for the next trading day. No trades occur in this phase.
- **End of Day:** This product state represents the time in the evening that is reserved for the end-of-day processing by the exchange. Members have no access to the trading system in this product state.

- **Halt:** Market supervision may halt the market if it deems that market conditions or technical conditions impair the integrity of the market. In such a case, a product will be set to the product state Halt. In this product state, no trading occurs and access to the order book is restricted.
- **Holiday:** This product state applies to products that are not open for trading on that day, even though the exchange is open. Participants have no access to the trading system for a product that is in the product state Holiday.

6.1.3 Fast Market

A Fast Market is declared by an exchange when an especially volatile market situation is expected. During this time certain price controls are relaxed, e.g. minimum quote spread requirements.
In T7, Fast is a special status of the product that the exchange can set independently of the product and instrument states. This allows for example, a product to be set to Fast Market early in the morning before trading starts, without any impact on the sequence and timing of the product states.

6.1.4 Instrument Listing Status

Eurex Exchange's T7 supports two situations where the Listing Status of an instrument changes from Active to a different value:

- **Intra-day Expiry:** When an instrument expires during the trading day, rather than at the end of the trading day, it acquires the listing status Expired as opposed to Active.
- **Instrument Suspension:** Market supervision may suspend an instrument under unusual circumstances. A suspended instrument will acquire the listing status Suspended as opposed to Active.

6.2 Traceability with the Eurex Clearing Classic System

This appendix describes how to reference order, quote and trade messages using the identifiers supported by Eurex Exchange's T7 and how they can be linked to the trade messages from the Eurex Clearing classic system, applicable to all EEX on-book trades.

6.2.1 Order Traceability

The following diagram shows the key identifiers available in the system and how Participants can use them to cross reference the various response messages.

The primary identifier for each message type is shown in bold. Each identifier is assigned a unique color, and aligned vertically in the diagram, making it easy to quickly see the traceability across the messages. The interface field name is specified underneath in parentheses.

On every order, Participants provide a Client Order ID (optional for ETI) and up to three free text fields for their own reference purposes. The system will return these fields on its responses where shown in the diagram. The Client Order ID is checked to be unique among live orders for the same instrument and session.

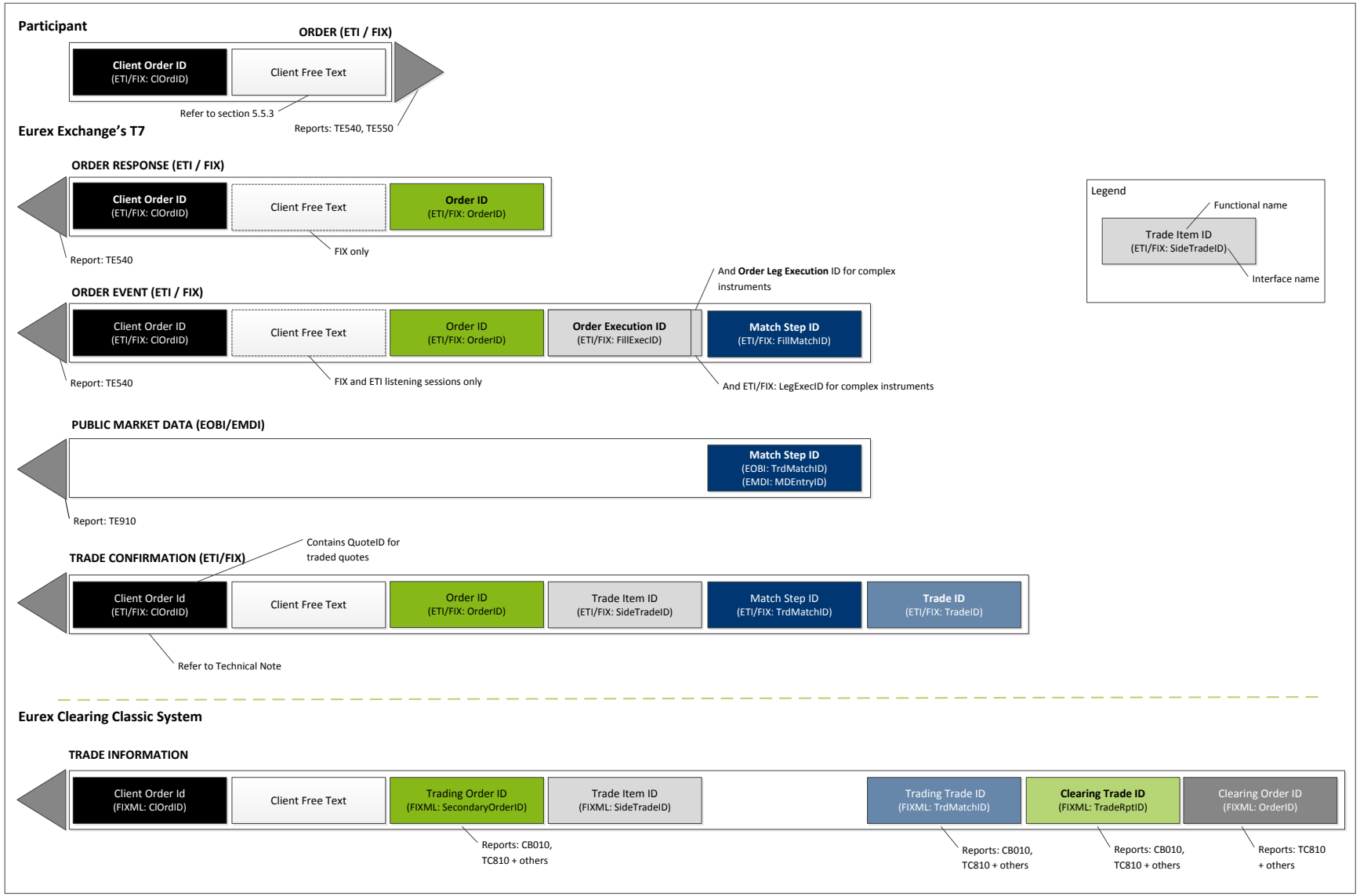
Each new order received is assigned an Order ID by the exchange, which is unique within a product, and is returned to the Participant on all private messages.

For every match event, T7 assigns identifiers, unique within product and business day, to each aggregated price level (Match Step ID), every order execution (Order Execution ID) and every trade (Trade ID). For the matching of a complex order, in addition to the Order Execution ID, an Order Leg Execution ID is provided for each leg of the complex instrument match. The Trade Item ID is the same as the Order Execution ID / Order Leg Execution ID.

The Eurex Clearing classic system assigns new (clearing) Trade IDs and (clearing) Order IDs, and provides Participants with the original identifiers (Trading Trade ID, Trade Item ID and Trading Order ID), so there is backwards traceability.

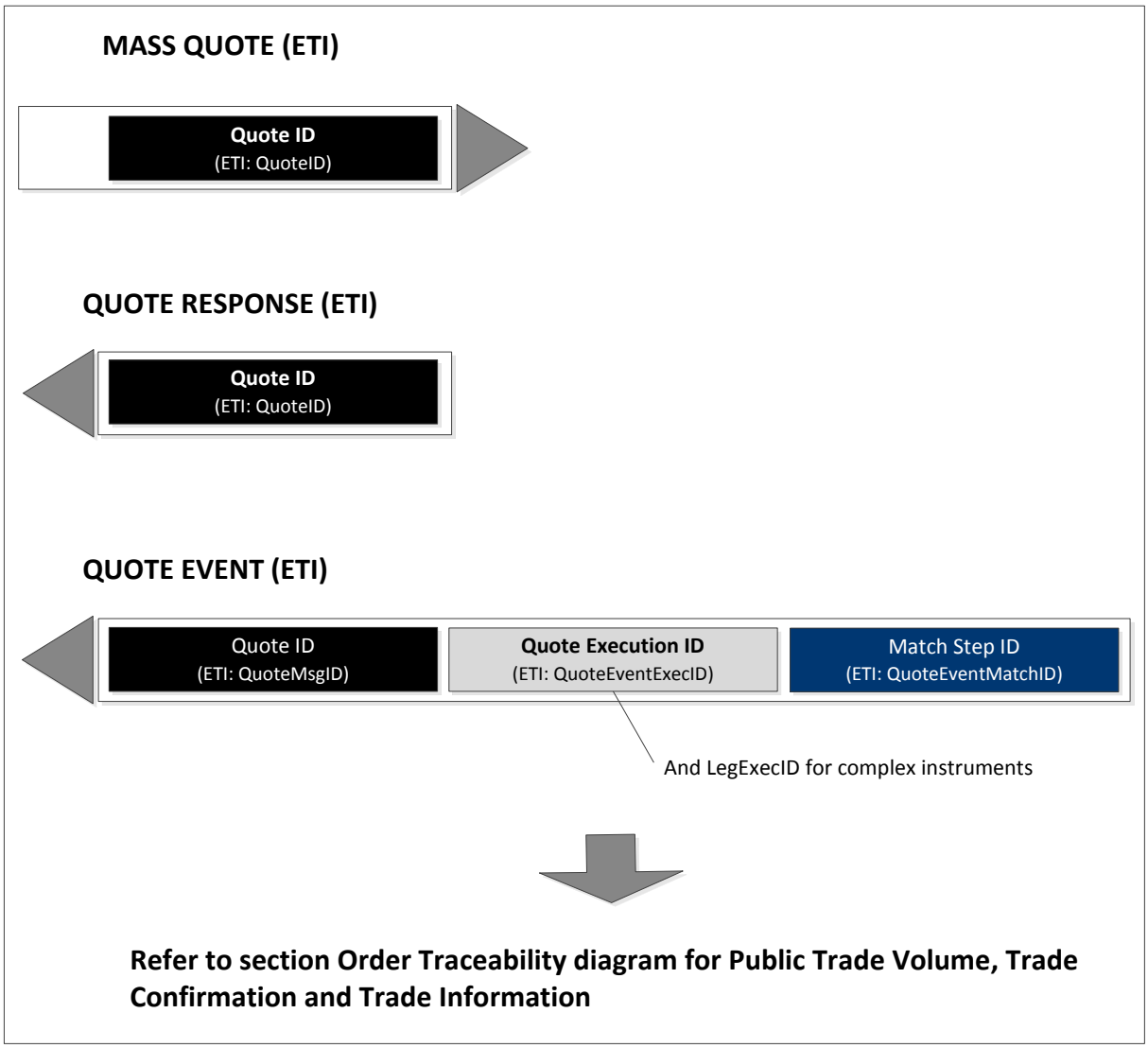
Technical Notes:

- The Order ID generated by T7 and used on all electronic interfaces is a 64-bit unsigned integer (e.g. 100000). On the GUI and on the trading reports it is shown as a (up-to) 20 digit decimal and 12 character hexatridecimal (base 36) representation (e.g. 255S). In the interfaces from the Eurex Clearing classic system the Order ID is shown as decimal number in the field "OrderID2". Please note that the Eurex Clearing classic system assigns an additional clearing system specific Order ID which is shown as a hexatridecimal number in field "OrderID".
- The Client Order ID is provided in the FIXML interface from the Eurex Clearing classic system same as it was entered in the order.
- The Client Order ID of an order entered via the Eurex ETI is contained in the execution confirmation received in the FIX GW. For an order entered via the FIX GW, the Client Order ID returned in the trade confirmation is not the Client Order ID entered with the order, rather an ID used by the FIX GW to communicate via the ETI with T7.
- The Client Order ID is not provided in the drop copy of the FIX GW back office session. Mapping can be achieved using the Order ID.


Participant
ORDER (ETI / FIX)
Client Order ID
(ETI/FIX: ClOrdID)
Client Free Text
Refer to section 5.5.3
Reports: TE540, TE550
Eurex Exchange's T7
ORDER RESPONSE (ETI / FIX)
Client Order ID
(ETI/FIX: ClOrdID)
Client Free Text
Order ID
(ETI/FIX: OrderID)
Report: TE540
FIX only
Legend
Functional name
Trade Item ID
(ETI/FIX: SideTradeID)
Interface name
ORDER EVENT (ETI / FIX)
And Order Leg Execution ID for complex instruments
Client Order ID
(ETI/FIX: ClOrdID)
Client Free Text
Order ID
(ETI/FIX: OrderID)
Order Execution ID
(ETI/FIX: FillExecID)
Match Step ID
(ETI/FIX: FillMatchID)
Report: TE540
FIX and ETI listening sessions only
And ETI/FIX: LegExecID for complex instruments
PUBLIC MARKET DATA (EOBI/EMDI)
Match Step ID
(EOBI: TrdMatchID)
(EMDI: MDEntryID)
Report: TE910
TRADE CONFIRMATION (ETI/FIX)
Contains QuoteID for traded quotes
Client Order Id
(ETI/FIX: ClOrdID)
Client Free Text
Order ID
(ETI/FIX: OrderID)
Trade Item ID
(ETI/FIX: SideTradeID)
Match Step ID
(ETI/FIX: TrdMatchID)
Trade ID
(ETI/FIX: TradeID)
Refer to Technical Note
Eurex Clearing Classic System
TRADE INFORMATION
Client Order Id
(FIXML: ClOrdID)
Client Free Text
Trading Order ID
(FIXML: SecondaryOrderID)
Trade Item ID
(FIXML: SideTradeID)
Trading Trade ID
(FIXML: TrdMatchID)
Clearing Trade ID
(FIXML: TradeRptID)
Clearing Order ID
(FIXML: OrderID)
Reports: CB010, TC810 + others
Reports: CB010, TC810 + others
Reports: CB010, TC810 + others
Reports: TC810 + others

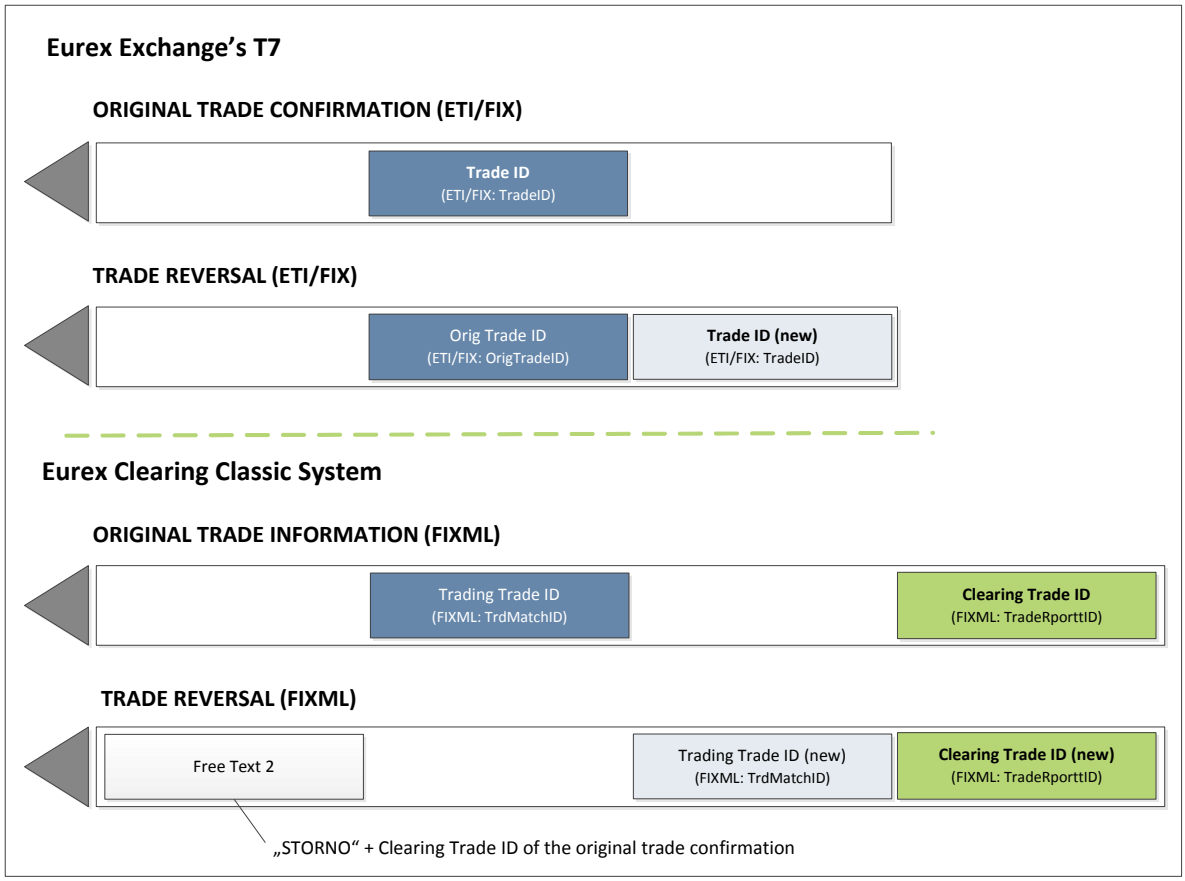
6.2.2 Quote Traceability

The following diagram shows the key identifiers available for quotes and how Participants can use them to cross reference the various response messages.
Eurex Exchange's T7 supports quotes via the ETI Interface only. One or more quotes can be entered in a Mass Quote, for which Participants provide a Quote ID for the entire Mass Quote (i.e. not per individual quote). This Quote ID is returned on the Quote Response as well as any Quote Events for executed quotes. Quote IDs are not checked for uniqueness.
For every match event, the system assigns identifiers, unique within product and business day, to each aggregated price level (Match Step ID) and every execution (Quote Execution ID). Quote Leg Execution IDs are also provided for executions occurring in complex instruments.
Subsequent Public Trade Volume, Trade Confirmations, and Trade Information are provided using the same messages as with orders, refer to section 6.2.1.



6.2.3 Trade Reversal

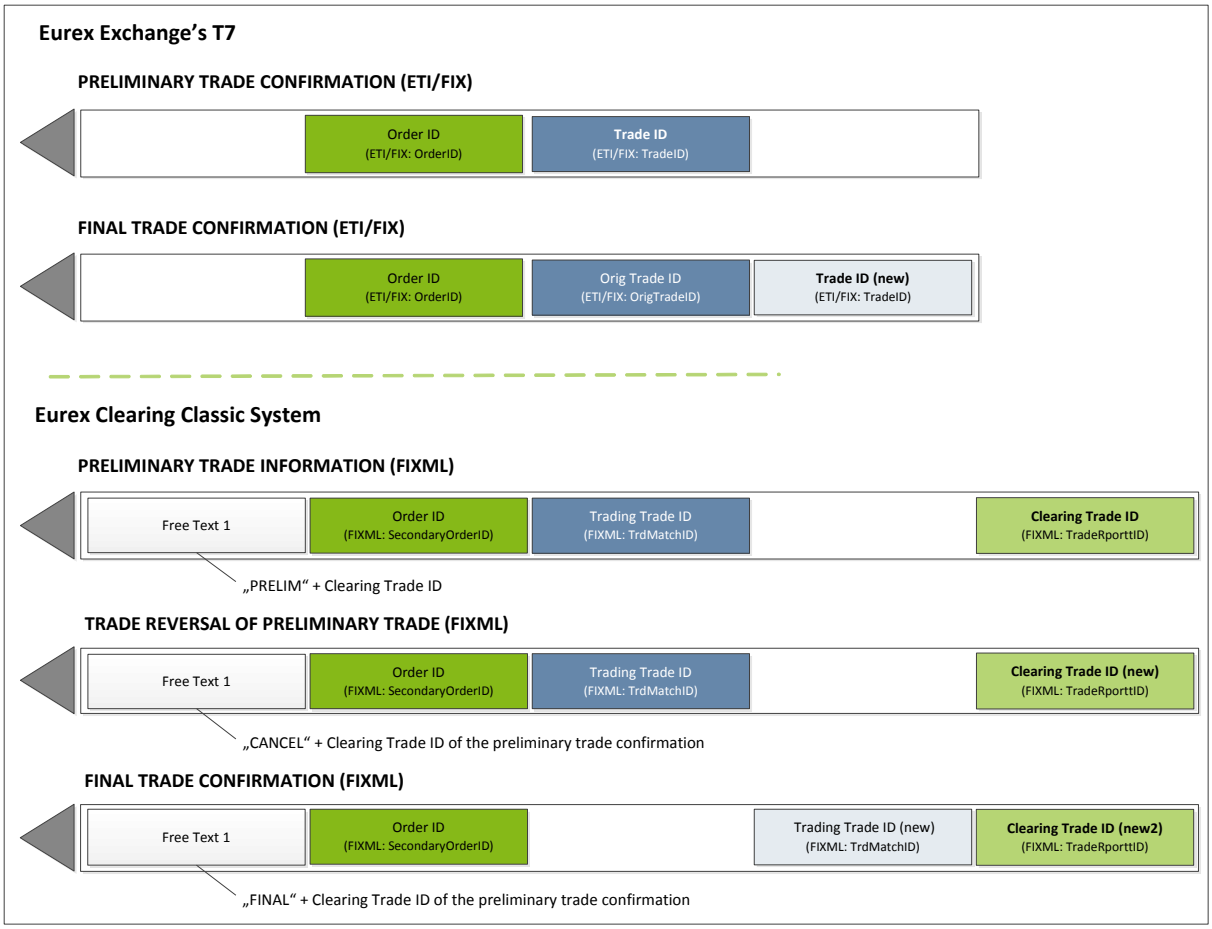
When a trade is reversed, Eurex Exchange's T7 sends Participants a Trade Reversal message containing a new Trade ID. For traceability, the original Trade ID is also provided.
The Eurex Clearing classic system will then calculate a new Clearing Trade ID, and provide Participants with Trade Information including a reference back to the new Trade ID.
The following diagram shows how to trace the trade identifiers in the case of a reversal.



6.2.4 Preliminary and Final Trade Confirmations for Variance Futures

For Variance Futures, trading on T7 is performed in volatility-vega trading notation (σ,υ). However, clearing is performed with futures price-quantity clearing notation (P_t,Q_t). For more information on Variance Futures, please refer to "Eurex Release 2.1 Notes" and the "Eurex Functional Reference".
Each match in a Variance Futures instrument generates a trade in the trading notation which is converted by T7 into the clearing notation.
As the values for the conversion parameters are known only at the end of the trading day, T7 does a preliminary conversion at the time of the trade, based on the previous day's values of the conversion parameters. The preliminary trade information is immediately communicated to the user and the clearing system.
At the end of the trading day, when the day's conversion parameter values have been approved, T7 calculates the final values and replaces the preliminary trades with the final trades. For that, a final trade confirmation is sent which contains the Trade ID of the preliminary trade conformation as reference.
In addition to the preliminary and final trade confirmations (analogously to the confirmations sent by

T7), the Eurex Clearing classic system sends out a trade reversal message for the preliminary trade. The clearing system uses the FreeText1 field to link the three confirmation messages. In case of a trade based on orders, the Order ID from T7 is included in all three confirmation messages.
The following diagram shows how to trace the trade identifiers in the case of variance future trades.

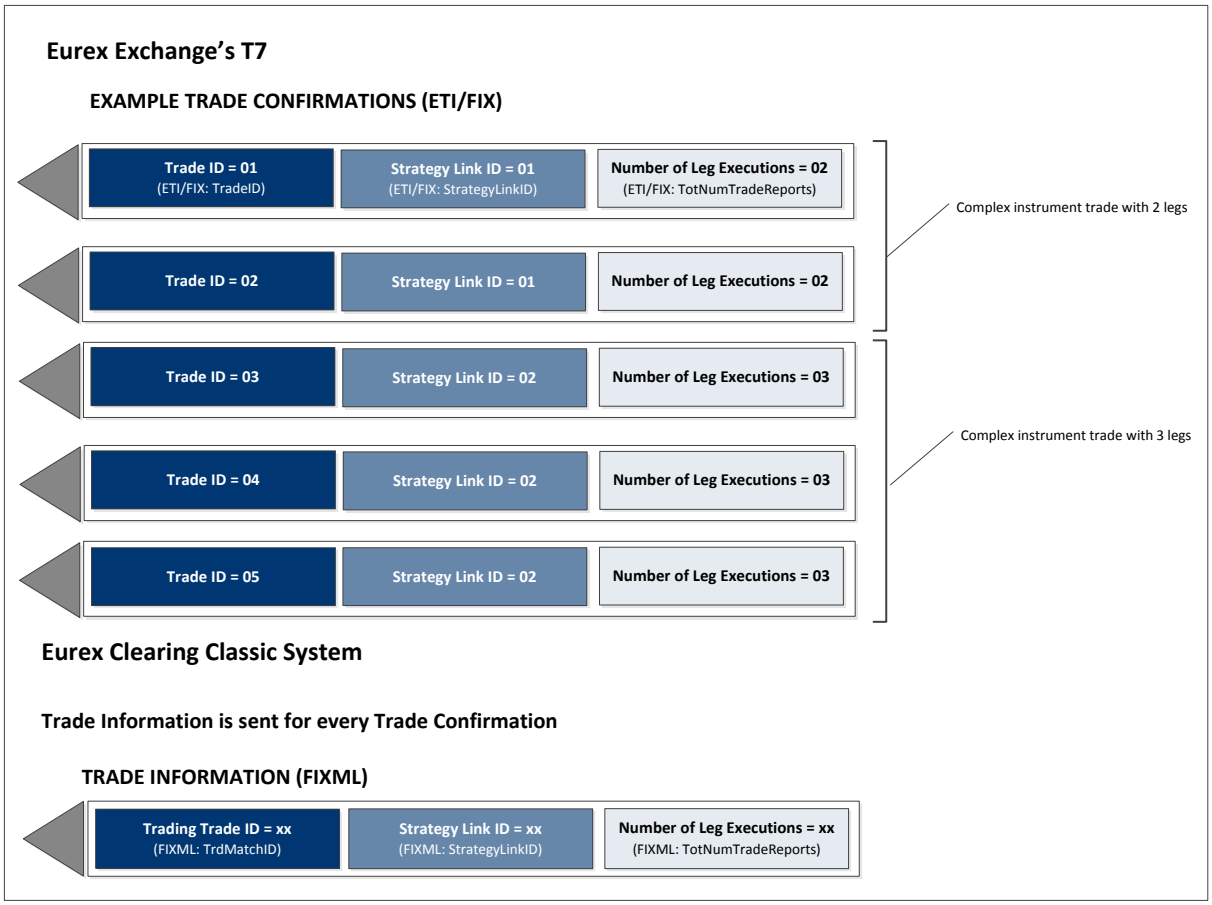


6.2.5 Complex Instrument Trades

When a trade occurs in a complex instrument, trade confirmations are generated in the corresponding simple instrument legs only (not for the complex instrument). As a result, multiple trade confirmations are sent for one order at a single price level. When this occurs, Eurex Exchange's T7 provides two additional fields, enabling Participants to easily identify and summarize leg trade confirmations that belong to the same complex instrument match:

- A Strategy Link ID to trace all legs of the complex instrument that are matched in one match step (price level).
- The Number of Leg Executions to convey how many trade confirmations were generated for an order in the complex instrument match step.

These fields are also provided with the clearing information published by the Eurex Clearing classic system.
The following diagram is an example of trade confirmations sent to a Participant resulting from two complex instrument matches, one with 2 legs, and one with 3 legs.



6.3 Traceability with Eurex Clearing's C7

This appendix describes how to reference order, quote and trade messages using the identifiers supported by Eurex Exchange's T7 and how they can be linked to the trade messages from Eurex Clearing's C7, applicable to all Eurex on-book trades.

Similarly to on-book trades, TES trades are also forwarded to Eurex Clearing's C7. For more details, please refer to chapter 6.3.3.

6.3.1 Order Traceability

The following diagram shows the key identifiers available in the system for on-book trading and how Participants can use them to cross reference the various response messages.

The primary identifier for each message type is shown in bold. Each identifier is assigned a unique color, and aligned vertically in the diagram, making it easy to quickly see the traceability across the messages. The interface field name is specified underneath in parentheses.

On every order, Participants provide a Client Order ID (optional for ETI) and up to three free text fields for their own reference purposes. The system will return these fields on its responses where shown in the diagram. The Client Order ID is checked to be unique among live orders for the same instrument and session.

Each new order received is assigned an Order ID by the exchange, which is unique within a product, and is returned to the Participant on all private messages.

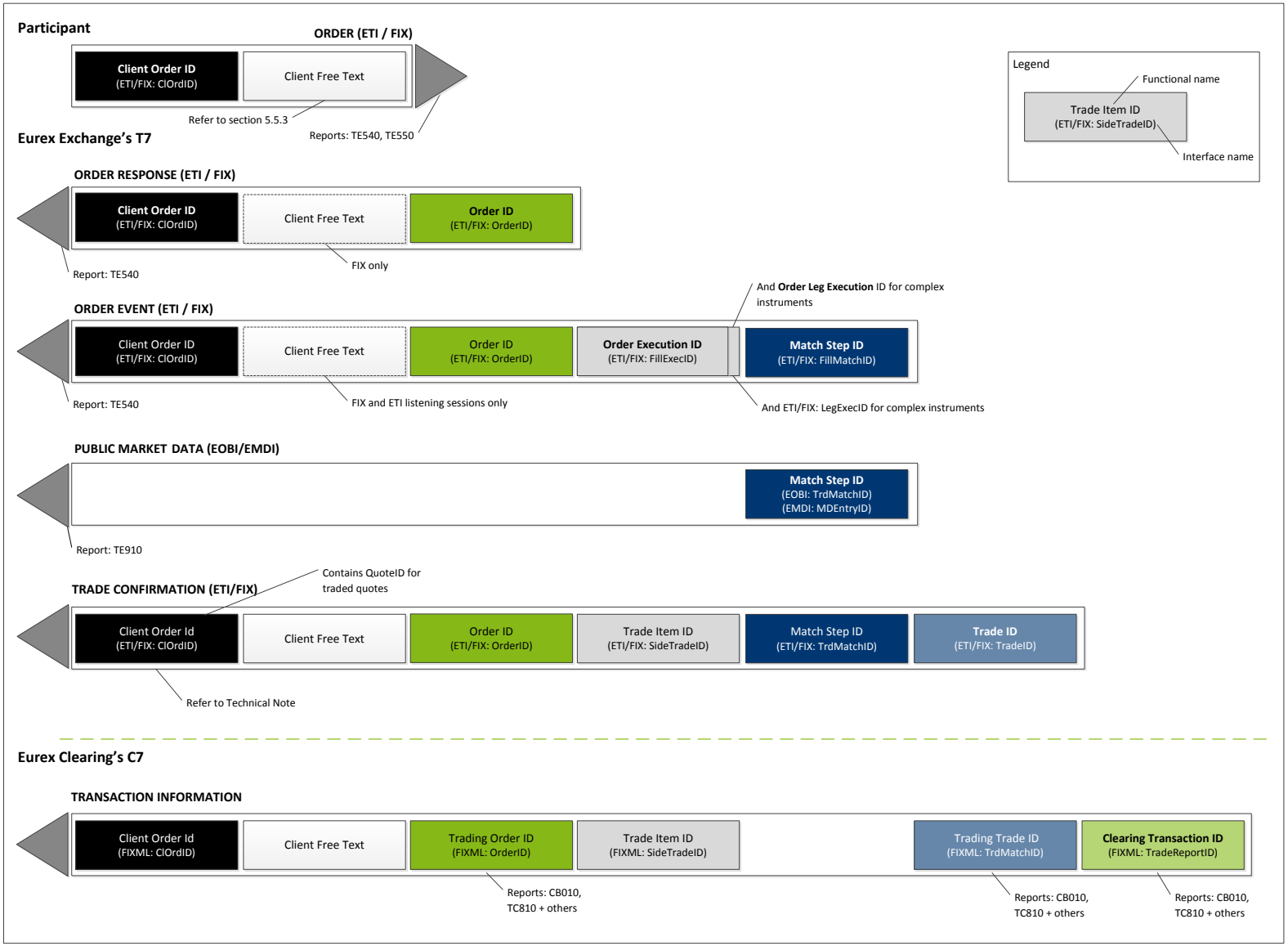
For every on-book match event, T7 assigns identifiers, unique within product and business day, to each aggregated price level (Match Step ID), every order execution (Order Execution ID) and every trade (Trade ID). For the matching of a complex order, in addition to the Order Execution ID, an Order Leg Execution ID is provided for each leg of the complex instrument match. The Trade Item ID is the same as the Order Execution ID / Order Leg Execution ID.

Please note that the Trade ID and Side Item ID is only unique (within product and business day) for either on-book or off-book (TES) trades. Members wishing to reconcile their T7 trade confirmation with their C7 transaction confirmation messages need to take the field TrdType into account.

Eurex Clearing's C7 assigns new (clearing) Transaction IDs and provides Participants with the original identifiers (Trading Trade ID, Trade Item ID and Trading Order ID), so there is backwards traceability. Please note that a trade on T7 is also referred to as a transaction on Eurex Clearing's C7.

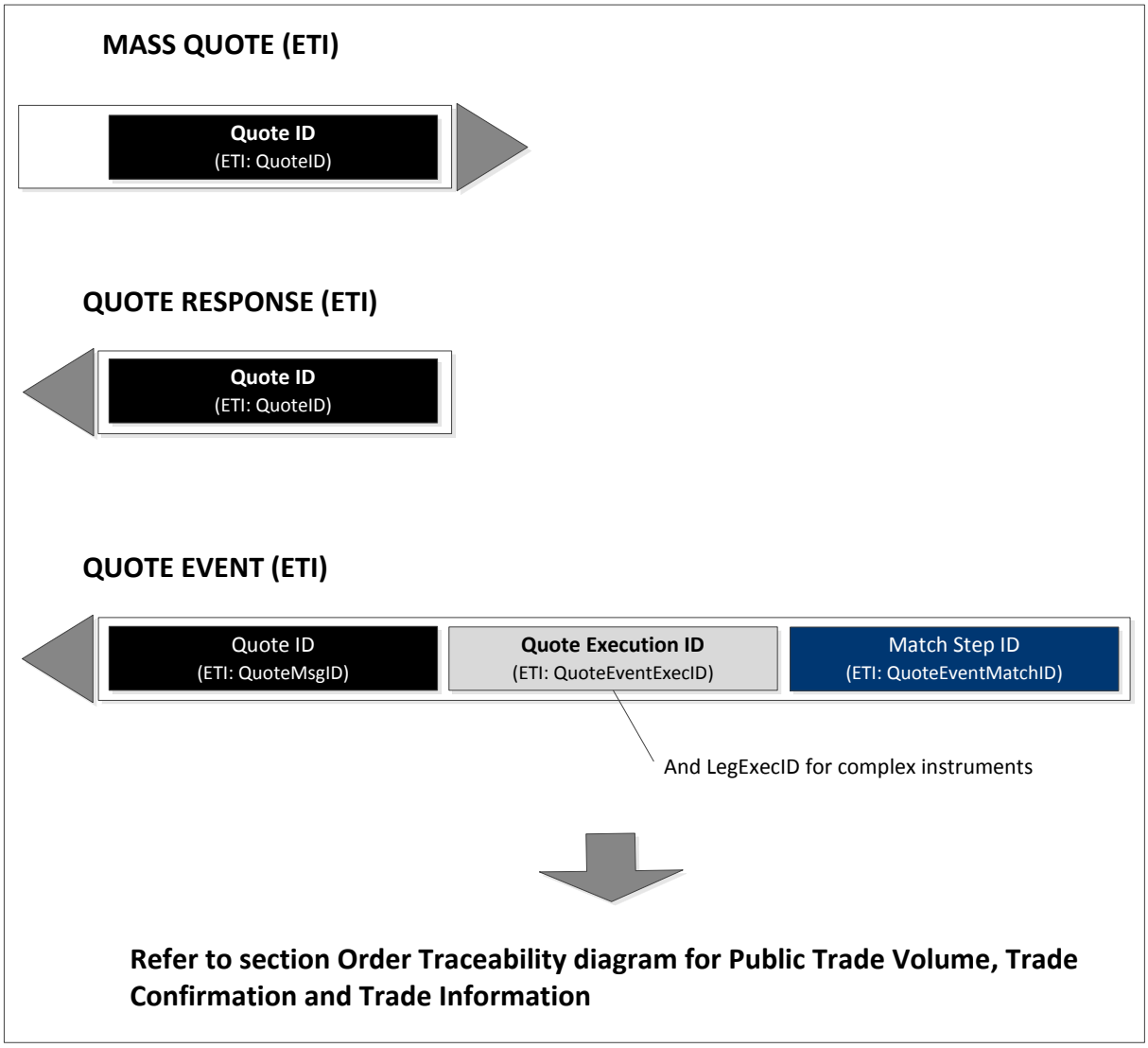
Technical Notes:

- The Order ID generated by T7 and used on all electronic interfaces is a 64-bit unsigned integer (e.g. 100000). On the GUI and on the trading reports it is shown as a (up-to) 20 digit decimal and 12 character hexatridecimal (base 36) representation (e.g. 255S). In the interfaces of Eurex Clearing's C7 the Order ID is shown as number in the field "OrderID".
- The Client Order ID is provided in the FIXML interface from Eurex Clearing's C7 same as it was entered in the order.
- The Client Order ID of an order entered via the Eurex ETI is contained in the execution confirmation received in the FIX GW. For an order entered via the FIX GW, the Client Order ID returned in the trade confirmation is not the Client Order ID entered with the order, rather an ID used by the FIX GW to communicate via the ETI with T7.
- The Client Order ID is not provided in the drop copy of the FIX GW back office session. Mapping can be achieved using the Order ID.


Participant
ORDER (ETI / FIX)
Client Order ID
(ETI/FIX: ClOrdID)
Client Free Text
Refer to section 5.5.3
Reports: TE540, TE550
Eurex Exchange's T7
Legend
Functional name
Trade Item ID
(ETI/FIX: SideTradeID)
Interface name
ORDER RESPONSE (ETI / FIX)
Client Order ID
(ETI/FIX: ClOrdID)
Client Free Text
Order ID
(ETI/FIX: OrderID)
Report: TE540
FIX only
ORDER EVENT (ETI / FIX)
And Order Leg Execution ID for complex instruments
Client Order ID
(ETI/FIX: ClOrdID)
Client Free Text
Order ID
(ETI/FIX: OrderID)
Order Execution ID
(ETI/FIX: FillExecID)
Match Step ID
(ETI/FIX: FillMatchID)
Report: TE540
FIX and ETI listening sessions only
And ETI/FIX: LegExecID for complex instruments
PUBLIC MARKET DATA (EOBI/EMDI)
Match Step ID
(EOBI: TrdMatchID)
(EMDI: MDEntryID)
Report: TE910
TRADE CONFIRMATION (ETI/FIX)
Contains QuoteID for traded quotes
Client Order Id
(ETI/FIX: ClOrdID)
Client Free Text
Order ID
(ETI/FIX: OrderID)
Trade Item ID
(ETI/FIX: SideTradeID)
Match Step ID
(ETI/FIX: TrdMatchID)
Trade ID
(ETI/FIX: TradeID)
Refer to Technical Note
Eurex Clearing's C7
TRANSACTION INFORMATION
Client Order Id
(FIXML: ClOrdID)
Client Free Text
Trading Order ID
(FIXML: OrderID)
Trade Item ID
(FIXML: SideTradeID)
Trading Trade ID
(FIXML: TrdMatchID)
Clearing Transaction ID
(FIXML: TradeReportID)
Reports: CB010, TC810 + others
Reports: CB010, TC810 + others
Reports: CB010, TC810 + others

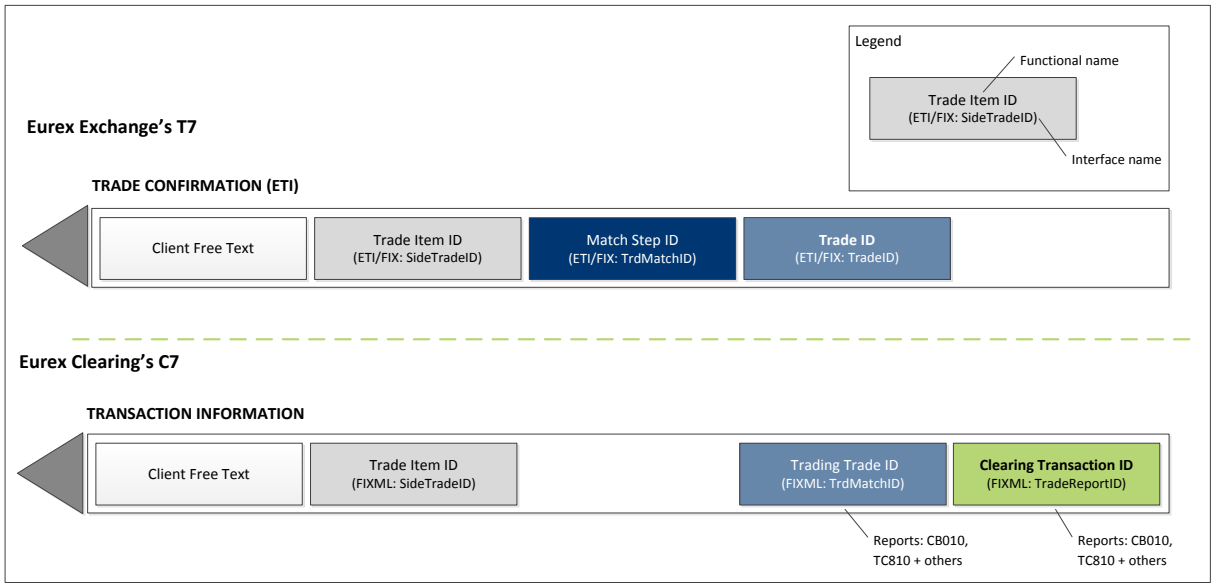
6.3.2 Quote Traceability

The following diagram shows the key identifiers available for quotes and how Participants can use them to cross reference the various response messages.
Eurex Exchange's T7 supports quotes via the ETI Interface only. One or more quotes can be entered in a Mass Quote, for which Participants provide a Quote ID for the entire Mass Quote (i.e. not per individual quote). This Quote ID is returned on the Quote Response as well as any Quote Events for executed quotes. Quote IDs are not checked for uniqueness.
For every match event, the system assigns identifiers, unique within product and business day, to each aggregated price level (Match Step ID) and every execution (Quote Execution ID). Quote Leg Execution IDs are also provided for executions occurring in complex instruments.
Subsequent Public Trade Volume, Trade Confirmations, and Trade Information are provided using the same messages as with orders, refer to section 6.3.1.



6.3.3 TES Trade Traceability

The following diagram shows the key identifiers available for TES trades and how Participants can use them to cross reference the trade/transaction confirmations:



In case of TES trades in complex instruments, the Match Step ID is the same for all leg trades belonging to the complex instrument TES trade while the Trade ID is different for each leg trade. Please note that the Trade ID and Side Item ID is only unique (within product and business day) for either on-book or off-book (TES) trades. Participants wishing to reconcile their T7 trade confirmation with their C7 transaction confirmation messages need to take the field TrdType into account. This means in order to get a unique identifier for a trade on T7 per business day and per product, Participants should use the combination of the fields Trade ID and TrdType.

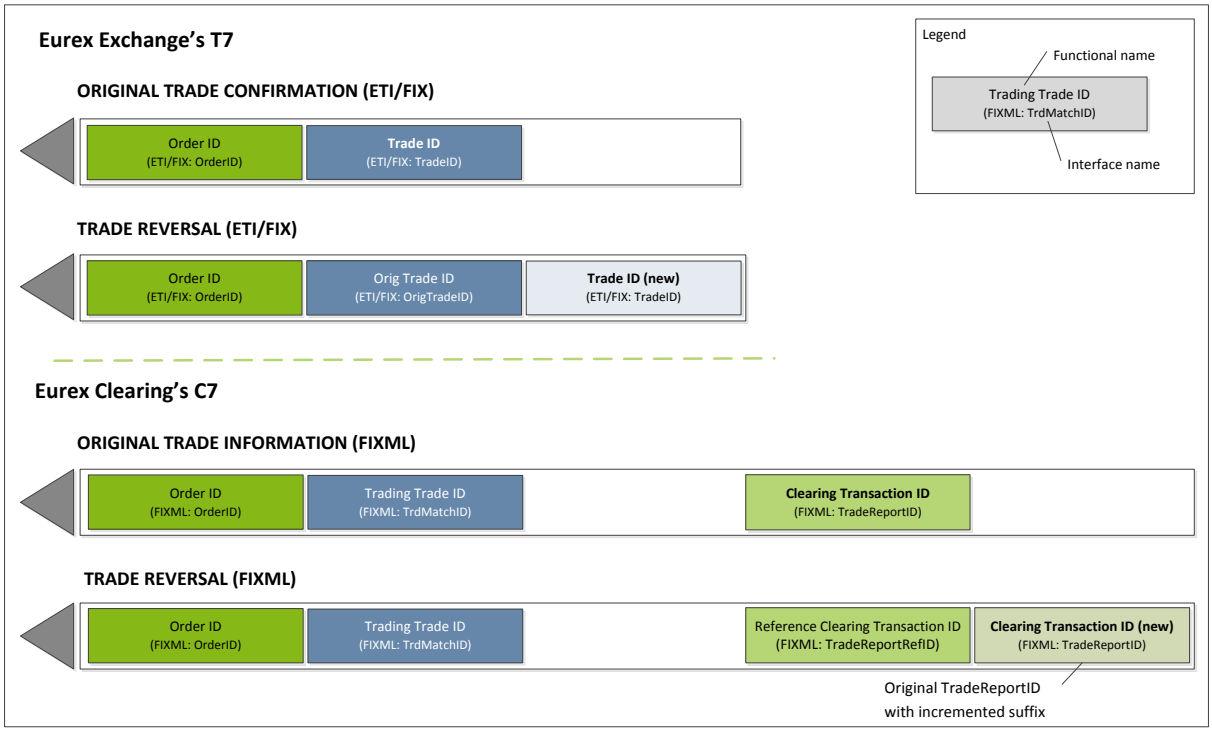
Please note that the Match Step ID is identical to the TES ID created when the TES trade was initiated by the initiating user and that the Trade ID and Trade Item ID are generated when the TES trade was approved by all involved parties.

6.3.4 Trade Reversal

When a trade is reversed, Eurex Exchange's T7 sends Participants a Trade Reversal message containing a new Trade ID. For traceability, the original Trade ID is also provided.
Eurex Clearing's C7 will then calculate a new Clearing Transaction ID (based on the original Clearing Transaction ID with an incremented suffix), and provide Participants with trade information including the Order ID as reference back to the Eurex Exchange's T7 trade and trade reversal.
In case one or several transaction adjustment activities have been performed on Eurex Clearing's C7 before a trade (transaction in Eurex Clearing's C7's term) becomes subject to a trade reversal, C7 will reverse all adjustments one by one and finally will reverse the original transaction.
For example, a trade A is passed on from Eurex Exchange's T7 to Eurex Clearing's C7, afterwards, several adjustments (O/C adjustment, give-up, take-up) are made: A→B→C→ D.
When the trade reversal happens, C7 will first reverse adjustment D, then C, then B, and finally the transaction A. All adjustments and all reversals will have similar Clearing Transaction IDs which only differ in the suffix (the original transaction A will have the suffix "0"). And each reversal will contain a Reference Clearing Transaction ID which is the Clearing Transaction ID of the adjusted transaction which has been reversed. The final reversal, which reverses the original transaction A, will reference

the original Clearing Transaction ID with the suffix "0". For more information on trade reversal in Eurex Clearing's C7, please see Eurex Clearing FIXML Interface Specification Volume 3: Transaction & Position Confirmation, chapter 3.3.13.

The following diagram shows how to trace the trade identifiers in the case of a reversal without adjustments.



6.3.5 Preliminary and Final Trade Confirmations

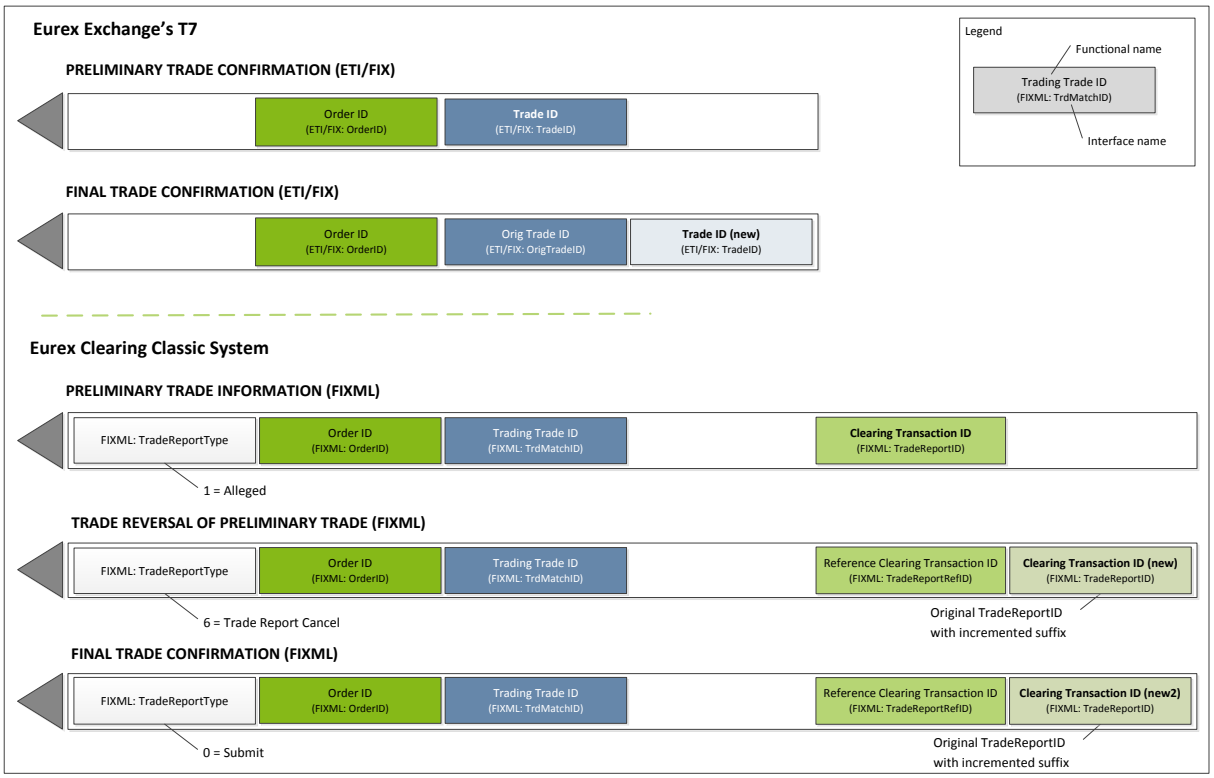
Currently, there are two products on Eurex T7 which have a different trading and clearing notations: For Total Return Futures, the trading notation on T7 is specified by the interest rate spread given in basis points. In order to be sent to the clearing system, the trading spread is converted to clearing notation, i.e. a clearing price given in index points. For more information on Total Return Futures, please refer to "Eurex Exchange's T7 Release 4.0 Release Notes" and the "Eurex Functional Reference".

For Variance Futures, trading on T7 is performed in volatility-vega trading notation (σ,υ). However, clearing is performed with futures price-quantity clearing notation (P_t,Q_t). For more information on Variance Futures, please refer to "Eurex Release 2.1 Notes" and the "Eurex Functional Reference". Each match in a Variance Futures instrument generates a trade in the trading notation which is converted by T7 into the clearing notation.

As the values for the conversion parameters for both products are known only at the end of the trading day, T7 does a preliminary conversion at the time of the trade, based on the previous day's values of the conversion parameters. The preliminary trade information is immediately communicated to the user and the clearing system. For Total Return Futures, it is possible to enter a special type "Trade at Market" via TES which results in a regular trade and do not require the preliminary and final trade confirmations.

At the end of the trading day, when the day's conversion parameter values have been approved, T7 calculates the final values and replaces the preliminary trades with the final trades. For that, a final

trade confirmation is sent which contains the Trade ID of the preliminary trade conformation as reference.
In addition to the preliminary and final trade confirmations (analogously to the confirmations sent by T7), Eurex Clearing's C7 sends out a transaction reversal message for the preliminary trade. The clearing system uses the TradeReportRefID field to link the three confirmation messages. In case of a trade based on orders, the Order ID from T7 is included in all three confirmation messages.
The following diagram shows how to trace the trade identifiers in the case of Total Return Future or Variance Future trades.



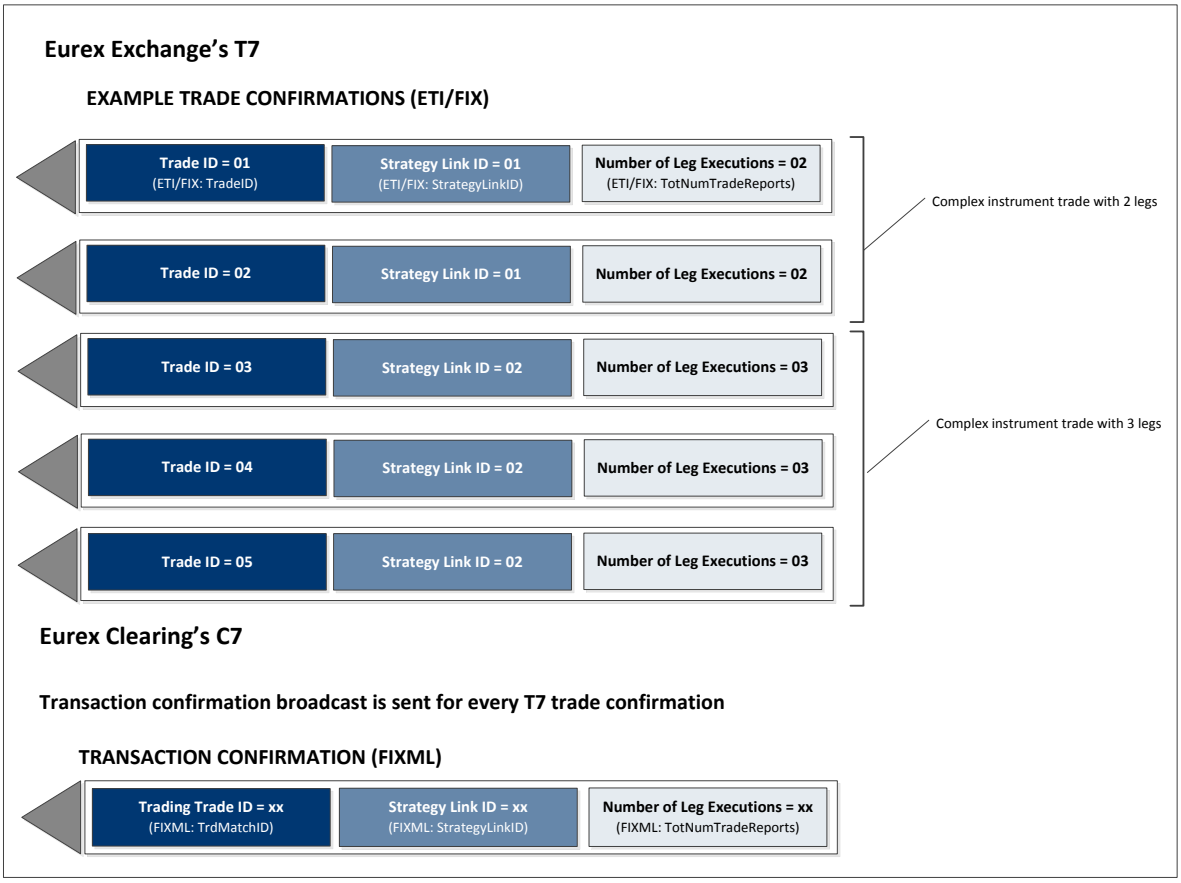
6.3.6 Complex Instrument Trades

When a trade occurs in a complex instrument, trade confirmations are generated in the corresponding simple instrument legs only (not for the complex instrument). As a result, multiple trade confirmations are sent for one order at a single price level. When this occurs, Eurex Exchange's T7 provides two additional fields, enabling Participants to easily identify and summarize leg trade confirmations that belong to the same complex instrument match:

- A Strategy Link ID to trace all legs of the complex instrument that are matched in one match step (price level).
- The Number of Leg Executions to convey how many trade confirmations were generated for an order in the complex instrument match step.

These fields are also provided with the clearing information published by Eurex Clearing's C7. Additionally, Eurex Clearing's C7 forwards on the information on strategy type and sub type from Eurex Exchange's T7 via the fields RelatedInstrumentGrp (contains information about the strategy type, where applicable), RelatedProductComplex (contains the general strategy type), and RelatedSecuritySubType (contains further detail on the strategy , e.g. the color for packs and bundles).

The following diagram is an example of trade confirmations sent to a Participant resulting from two complex instrument matches, one with 2 legs, and one with 3 legs.



6.4 Trade Concepts

This appendix describes the on-book matching and trade concepts in Eurex Exchange's T7 for simple and complex instruments, including Match Event, Match Step, Execution, Trade, and Trade Item.

6.4.1 Direct Simple Instrument Match

The following diagram illustrates the concepts describing a direct simple instrument match in T7. A direct match occurs when an incoming order matches against an order on the opposite side of the same order book (it does not match with synthetic orders derived from other order books, refer to section 6.4.3).

When an incoming order is executed, a Match Event is generated, representing the entire execution. Every price level executed in the match event is called a Match Step, and is assigned a unique Match Step ID.

A Match Step is the total aggregated quantity executed at one price level in a Match Event. For example, Match Step 01 containing a traded volume of 80 at price 17 is generated when incoming Order 4 (Sell 100@16) matches with Orders 2 (Buy 50@17) and 3 (Buy 30@17) in the order book. A second Match Step 02 containing a traded volume of 20 at price 16 is generated when the remaining quantity of Order 4 matches with Order 1 (Buy 20@16). All Match Steps are published in the Public Trade Volume messages.

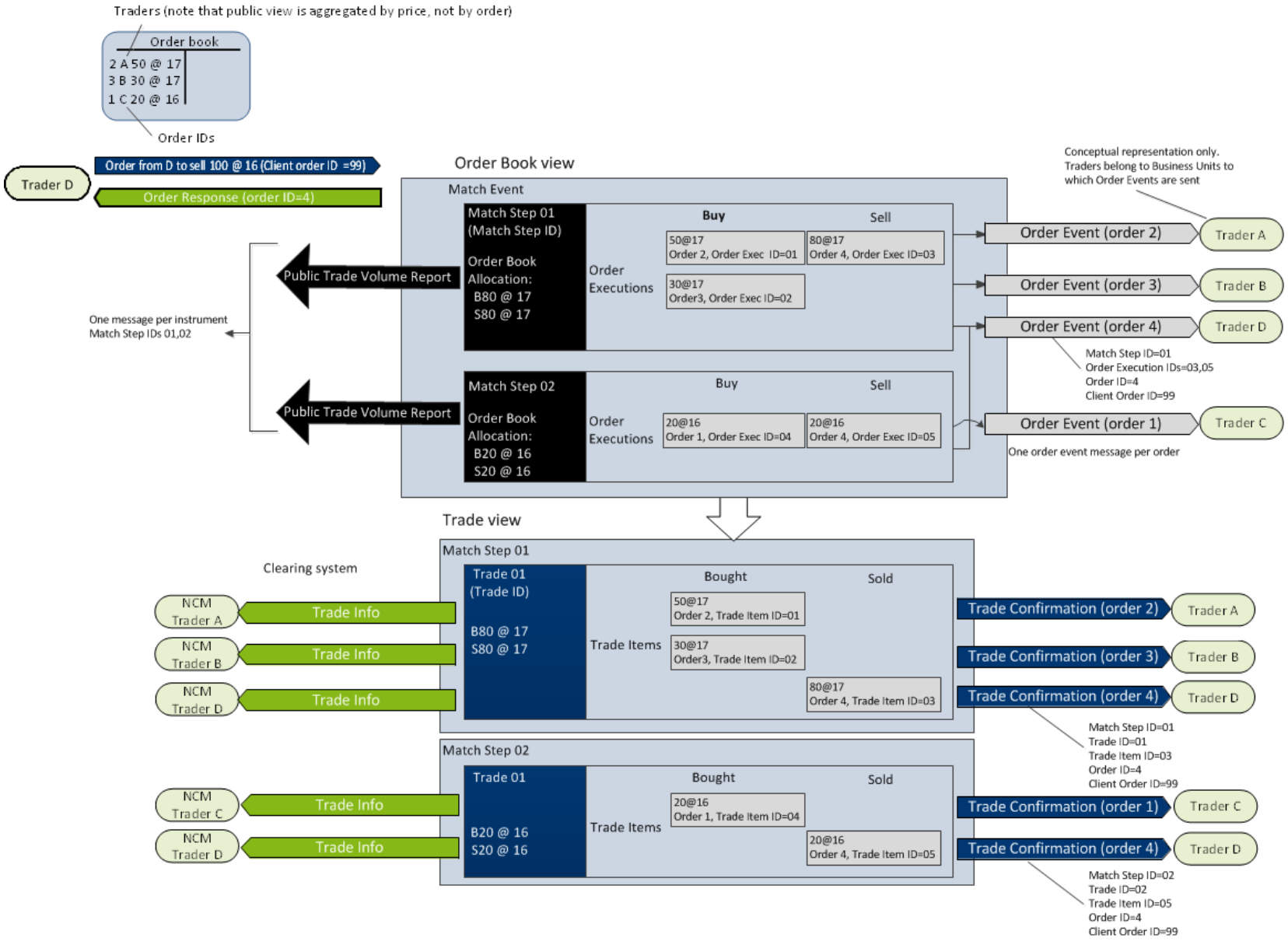
Each Match Step is broken down into Order Executions, wherein one execution is generated for every order executed at every price level. For example:

- Order Execution 01, Trader A buys 50 @ 17 (Order 2)
- Order Execution 02, Trader B buys 30 @ 17 (Order 3)
- Order Execution 03, Trader D sells 80 @17 (Order 4)
- Order Execution 04, Trader C buys 20 @ 16 (Order 1)
- Order Execution 05, Trader D sells 20 @ 16 (Order 4)

Order Event messages are sent to the trader for every one of their orders involved in a Match Event, including all its executions. One Order Event message is generated per order, for example, one Order Event to Trader D containing both executions of Order 4.

Based on Match Steps, Trades are then generated and assigned unique Trade IDs. Trades are aggregates of the quantity traded at each price level. For direct simple instrument matches, there is a one-to-one correspondence between Trades and Match Steps (this is not true for complex instrument matches, refer to sections 6.4.2. and 6.4.3)

Each Trade is broken down into Trade Items with unique Trade Item IDs, wherein one Trade Item is generated for every order executed at every price level. Note that for simple instruments, Trade Item IDs will be equal to the Order Execution IDs. A Trade Confirmation is then provided for every Trade Item to each Participant involved in a trade.


Traders (note that public view is aggregated by price, not by order)
Order book
2 A 50 @ 17
3 B 30 @ 17
1 C 20 @ 16
Order IDs
Trader D
Order from D to sell 100 @ 16 (Client order ID =99)
Order Response (order ID=4)
Order Book view
Match Event
Match Step 01
(Match Step ID)
Order Book
Allocation:
B80 @ 17
S80 @ 17
Buy
Sell
Order
Executions
50@17
Order 2, Order Exec ID=01
80@17
Order 4, Order Exec ID=03
30@17
Order3, Order Exec ID=02
Public Trade Volume Report
One message per instrument
Match Step IDs 01,02
Match Step 02
Order Book
Allocation:
B20 @ 16
S20 @ 16
20@16
Order 1, Order Exec ID=04
20@16
Order 4, Order Exec ID=05
Public Trade Volume Report
Conceptual representation only.
Traders belong to Business Units to
which Order Events are sent
Order Event (order 2)
Trader A
Order Event (order 3)
Trader B
Order Event (order 4)
Trader D
Match Step ID=01
Order Execution IDs=03,05
Order ID=4
Client Order ID=99
Order Event (order 1)
Trader C
One order event message per order
Trade view
Clearing system
Match Step 01
Trade 01
(Trade ID)
B80 @ 17
S80 @ 17
Bought
Sold
Trade Items
50@17
Order 2, Trade Item ID=01
30@17
Order3, Trade Item ID=02
80@17
Order 4, Trade Item ID=03
NCM
Trader A
Trade Info
NCM
Trader B
Trade Info
NCM
Trader D
Trade Info
Trade Confirmation (order 2)
Trader A
Trade Confirmation (order 3)
Trader B
Trade Confirmation (order 4)
Trader D
Match Step ID=01
Trade ID=01
Trade Item ID=03
Order ID=4
Client Order ID=99
Match Step 02
Trade 01
B20 @ 16
S20 @ 16
Bought
Sold
Trade Items
20@16
Order 1, Trade Item ID=04
20@16
Order 4, Trade Item ID=05
NCM
Trader C
Trade Info
NCM
Trader D
Trade Info
Trade Confirmation (order 1)
Trader C
Trade Confirmation (order 4)
Trader D
Match Step ID=02
Trade ID=02
Trade Item ID=05
Order ID=4
Client Order ID=99

6.4.2 Direct Complex Instrument Match

A direct complex instrument match occurs when an incoming complex order matches against an order on the opposite side of the same complex order book.

When the incoming order is executed, a Match Event is generated for the complex instrument, representing the entire execution, and Match Steps are generated for each executed price level.

Each Match Step is broken down into Order Executions, wherein one execution is generated for every order executed at every price level in the complex instrument. In addition to an Order Execution ID, an Order Leg Execution ID is provided for each leg of the complex instrument match.

Order Event messages are sent to the trader for every order involved in the Match Event, including all its executions.

The trades are generated in the corresponding simple instrument legs of the combination only (not for the complex instrument). For an example, refer to the diagram in section 6.4.3. In Match Step 01, the incoming Order 5 executes with Order 1 in the complex instrument AB order book. Trades are then generated in the simple instrument legs A and B (Trade 01 and 02) – no trades are generated for complex instrument AB.
Each Trade is broken down into Trade Items with unique Trade Item IDs, wherein one Trade Item is generated for every order executed at every price level in every simple instrument leg. Trade Confirmations are provided for every Trade Item to every Participant involved in a trade.

6.4.3 Synthetic Match

The following diagram illustrates the concepts of a synthetic match in T7. Match Step 02 is a Synthetic Match, where complex Order 5 entered into complex instrument AB matches with a combination of orders in the simple instrument legs A and B (Orders 2, 3 and 4).

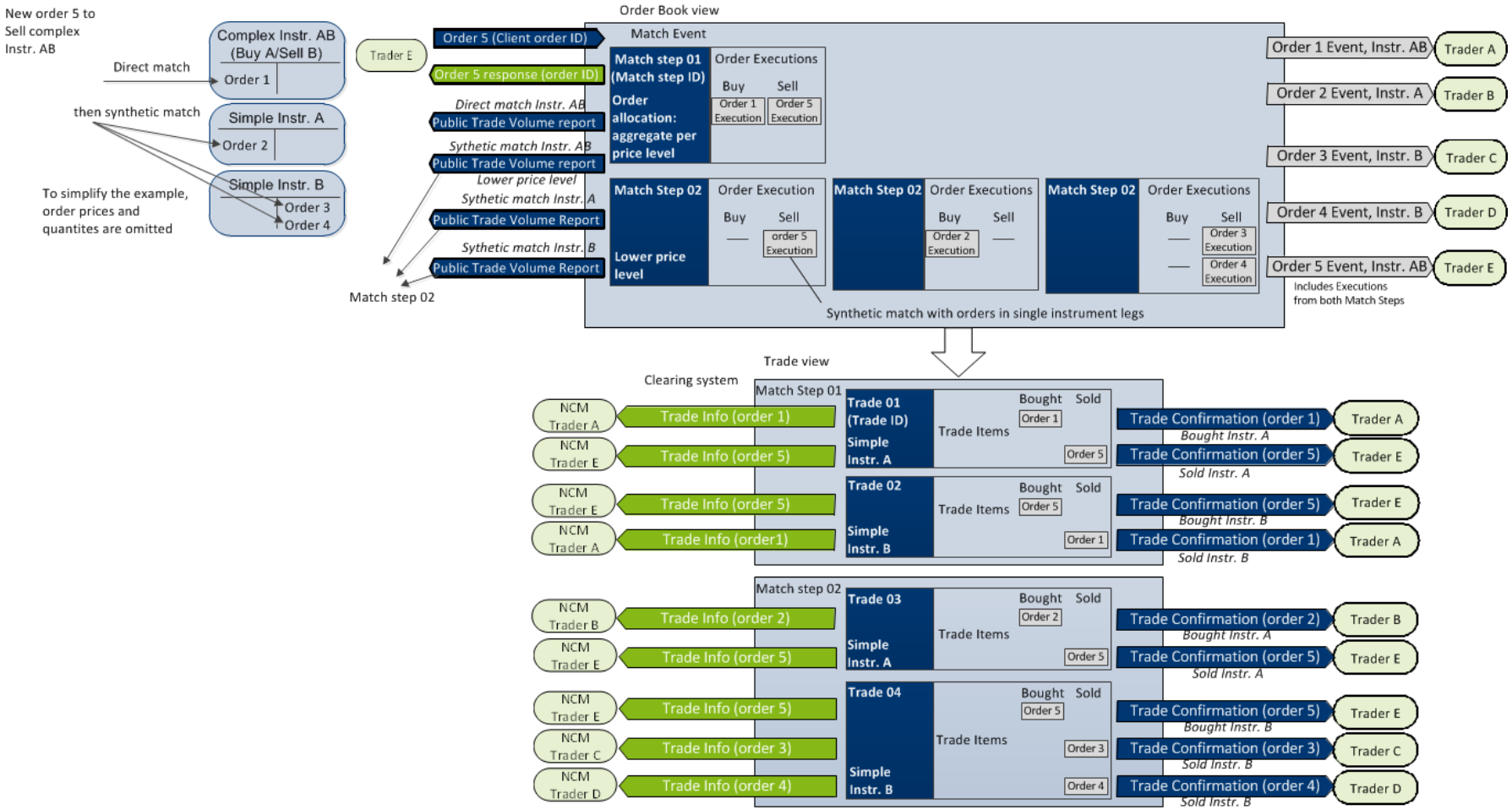
When an incoming complex order is executed, a Match Event is generated, representing the entire execution. The Match Event includes all instruments (simple and complex) that participated in the match.

Every price level executed in the match event is assigned a unique Match Step ID. If the Match Step includes synthetic matches, then all executions in the simple instrument legs belong to the same Match Step ID. All Match Steps are published in Public Trade Volume messages.

Each Match Step is broken down into executions, wherein one execution is generated for every order executed at every price level in each instrument (either in a complex or in a simple instrument). In addition to an Order Execution ID, an Order Leg Execution ID is provided for each leg of a complex instrument match. An Order Event with the executions is generated per order.

Trades are then generated in the simple instruments only (not complex instruments) and are assigned unique Trade IDs. In Match Step 02, the incoming Order 5 entered into complex instrument AB, executes with Orders 2, 3 and 4 in the simple instrument legs A and B. Trades are generated in the simple instrument legs A and B only (Trade IDs 03 and 04) – no trades are generated for complex instrument AB.

Each Trade is broken down into Trade Items with unique Trade Item IDs, wherein one Trade Item is generated for every order executed at every price level in every simple instrument leg. Trade Confirmations are provided for every Trade Item to every Participant involved in a trade.


New order 5 to Sell complex Instr. AB
Direct match
then synthetic match
To simplify the example, order prices and quantites are omitted
Complex Instr. AB (Buy A/Sell B)
Order 1
Simple Instr. A
Order 2
Simple Instr. B
Order 3
Order 4
Trader E
Order Book view
Match Event
Order 5 (Client order ID)
Order 5 response (order ID)
Direct match Instr. AB
Public Trade Volume report
Sythetic match Instr. AB
Public Trade Volume report
Lower price level
Sythetic match Instr. A
Public Trade Volume Report
Sythetic match Instr. B
Public Trade Volume Report
Match step 02
Match step 01 (Match step ID)
Order allocation: aggregate per price level
Order Executions
Buy
Sell
Order 1 Execution
Order 5 Execution
Match Step 02
Order Execution
Lower price level
order 5 Execution
Match Step 02
Order Executions
Order 2 Execution
Match Step 02
Order Executions
Order 3 Execution
Order 4 Execution
Synthetic match with orders in single instrument legs
Order 1 Event, Instr. AB
Trader A
Order 2 Event, Instr. A
Trader B
Order 3 Event, Instr. B
Trader C
Order 4 Event, Instr. B
Trader D
Order 5 Event, Instr. AB
Trader E
Includes Executions from both Match Steps
Trade view
Clearing system
Match Step 01
Trade 01 (Trade ID)
Simple Instr. A
Trade Items
Bought
Sold
Order 1
Order 5
Trade 02
Simple Instr. B
Order 5
Order 1
Match step 02
Trade 03
Simple Instr. A
Order 2
Order 5
Trade 04
Simple Instr. B
Order 5
Order 3
Order 4
NCM Trader A
NCM Trader E
NCM Trader B
NCM Trader C
NCM Trader D
Trade Info (order 1)
Trade Info (order 5)
Trade Info (order1)
Trade Info (order 2)
Trade Info (order 3)
Trade Info (order 4)
Trade Confirmation (order 1)
Bought Instr. A
Trade Confirmation (order 5)
Sold Instr. A
Trade Confirmation (order 5)
Bought Instr. B
Trade Confirmation (order 1)
Sold Instr. B
Trade Confirmation (order 2)
Bought Instr. A
Trade Confirmation (order 5)
Sold Instr. A
Trade Confirmation (order 5)
Bought Instr. B
Trade Confirmation (order 3)
Sold Instr. B
Trade Confirmation (order 4)
Sold Instr. B

6.5 Clearing Fields used by the Eurex Clearing Classic System

Eurex Exchange's T7 provides full trading functionality for Participants. Several clearing related fields are available for internal Participant use, and for use by the Eurex Clearing classic system. This appendix describes these fields and their handling.

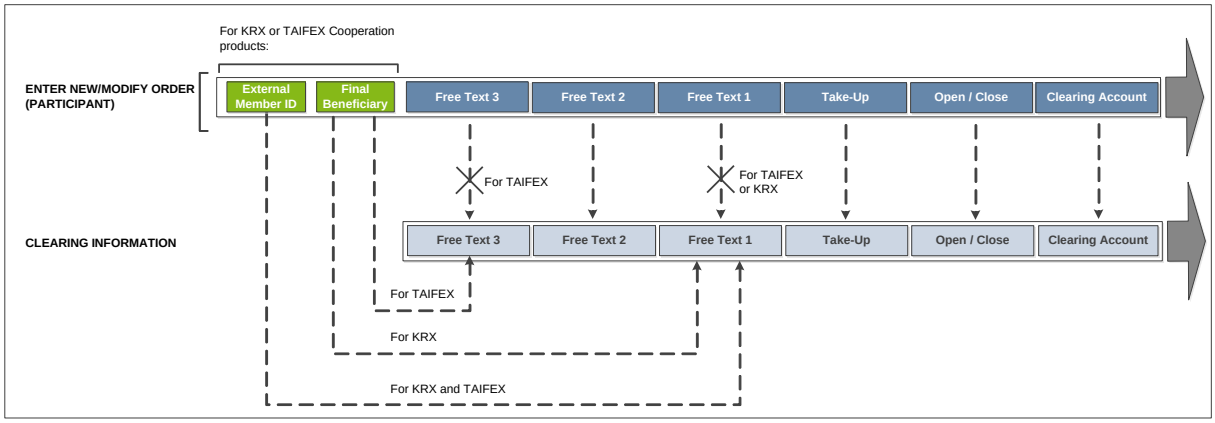
6.5.1 Orders

Clearing fields can be specified on new orders and modifications to existing orders. The following clearing fields are supported and passed through to the Eurex Clearing classic system:

- Open / Close Indicator.
- Clearing Account.
- Take-Up Member (receiving Clearing Member for Give-Up).
- Free Text 1.
- Free Text 2.
- Free Text 3.
- Cooperation details for Eurex KRX or Eurex TAIFEX Products:
  - External Member ID
  - Final Beneficiary

For complex instruments, the Open / Close Indicator and Clearing Account can be specified individually per leg.

The diagram below shows the available clearing fields and their handling:



Handling within Eurex Exchange's T7

The system does not perform business validations on clearing fields, except for KRX or TAIFEX Products.

For Eurex KRX Products, the Participant must provide the cooperation details as follows:

- The External Member ID must be allowed for the entering Participant; and
- The Final Beneficiary field must be specified.

For Eurex TAIFEX Products, the Participant must provide the cooperation details as follows:

- The External Member ID must be allowed for the entering Participant;
- The Branch Code field must be specified; and
- The Final Beneficiary field must be specified.

Clearing information from the Eurex Clearing classic system

The Eurex Clearing classic system will validate and update the clearing fields if required, and then provide clearing information to Participants, as follows:

Clearing Field	Handling
Clearing Account	If the Clearing Account is not valid, it will be replaced using rules (see 6.5.4) based on: • Take Up Member (if specified); • Type of Member; and • Trading Capacity (required with the order).
Take-Up Member	Validated to be a valid Take-Up Member, and removes/ignores if not valid.
Free Text 1	For non-KRX/TAIFEX Products, this free text is returned for Participant use. For Eurex KRX Products, this field contains the KRX Member and Final Beneficiary. For Eurex TAIFEX Products, this field contains the TAIFEX Member and Branch Code. For Variance Futures, this field contains a reference to the Clearing Trade ID of the preliminary trade confirmation
Free Text 2	Free text is returned for Participant use. In case of reversed trades, this field contains the Clearing Trade ID of the original trade confirmation.
Free Text 3	For non-TAIFEX Products, this free text is returned for Participant use. For Eurex-TAIFEX Products, this field contains the Final Beneficiary.

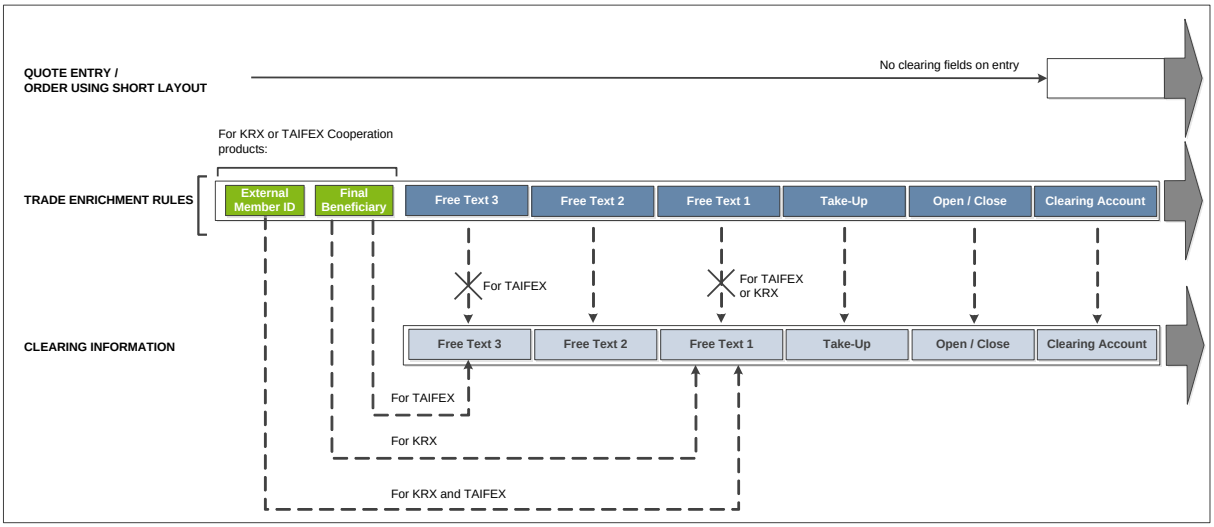
6.5.2 Quotes and Orders Entered Using the Short Layout

To optimize quoting efficiency, clearing fields are not available on quote entry or on orders entered using the short layout. Instead, Participants configure Trade Enrichment Rules that generate default clearing fields every time a quote or order entered using the short layout is executed. These defaulted values are provided in the trade confirmation, and then passed to the Eurex Clearing classic system. The following clearing fields can be set up:

- Clearing Account.
- Free Text 1.
- Free Text 2.
- Free Text 3.

- Open / Close Indicator.
- Take-Up Member.
- Cooperation Partner (KRX or TAIFEX):
  - External Member ID.
  - Final Beneficiary.

The diagram below shows how an executed quote / order entered using the short layout is enriched using the Trade Enrichment Rules:



Handling within T7

Using the Eurex Admin GUI, Participants are able to define trade enrichment rules as a simple index table and can specify on transaction entry the exact trade enrichment rule to be used at the time of execution. Each enrichment rule will be identified by a Participant-defined integer identifier.

When the quote or order entered using the short layout is executed, Eurex Exchange's T7 will use the Trade Enrichment Rule ID supplied by the Participant to look up the rule and then apply the corresponding clearing fields to the trade information sent to the clearing system and returned to the Participant.

KRX and TAIFEX trade enrichment

Participants may define trade enrichment rules for external member ID and final beneficiary account that will be applied to executed quotes and orders entered using the short layout.

To use this feature, Participants must supply the exchange with a default external member ID and final beneficiary account to be used if a valid trade enrichment rule for the product is not supplied.

6.5.3 Client Free Text

On orders, Participants can provide up to three free text fields for their own reference purposes. On quotes and orders entered using the short order layout, the free text fields are added to executed quotes using the Participant configured trade enrichment rules.

The following table shows the mapping of the free text fields across the interfaces to Eurex Exchange's T7 and the Eurex Clearing classic system:

Interface	Field Names			Field Length
Trader GUI	Free Text 1	Free Text 2	Free Text 3	Entry of up to 12 characters.
FIX GW	Text	FreeText2	FreeText3	Entry is truncated to 12 characters, if longer. Trade notification always 12 characters.
ETI	FreeText1	FreeText2	FreeText2	Always 12 characters.
FIXML	FreeText1	FreeText2	FreeText3	Trade confirmation with truncated trailing spaces. I.e. less than 12 characters possible. Field not present if not entered or just spaces entered.
XML-Report TE540	freeText1	freeText2	freeText3	Truncated trailing spaces. I.e. less than 12 characters possible. Field not present if not entered or just spaces.

The last column shows how the field lengths are handled technically.

6.5.4 Clearing Account Rules

If the Clearing Account is missing or determined not valid, then it will be set by the clearing system according to the following logic:

(1) If the Clearing Account is not "G1" or "G2, the Take-Up Member field will be ignored and blanked out.
(2) If the Clearing Account is "G1", a valid Take-Up Member field will be kept, and an invalid Take-Up Member field (including set to member's own ID) will be initialized to spaces.
(3) If the Clearing Account is "G2", a valid Take-Up Member field will be kept, and an invalid Take-Up Member field (including set to member's own ID) will be initialized to spaces, and the Clearing Account will be set to "G1".
(4) If the trade is from a quote, then the Clearing Account is set to "M1" (if "M1" is not allowed for Participant, then it is set to "P1").
(5) Otherwise, if a valid Clearing Account is provided/defaulted, then it will be used.
(6) If the Clearing Account is not valid, then it is derived based on Trading Capacity (A -> "A1", P -> "P1", M->"M1").
(7) If Clearing Account derived in (6) is not allowed for Participant, then it is set to "A1" if the Clearing Account supplied by the Participant starts with "A". If not "A", then it is set to "P1".

Note that the trade confirmation from Eurex Exchange's T7 will reference the Clearing Account that has been provided/defaulted by the Participant. The trade information from the Eurex Clearing classic system will specify the final, potentially updated, Clearing Account.

6.6 Clearing Fields used by Eurex Clearing's C7

Eurex Exchange's T7 provides full trading functionality for Participants. Several clearing related fields are available for internal Participant use, and for use by Eurex Clearing's C7. This appendix describes these fields and their handling.

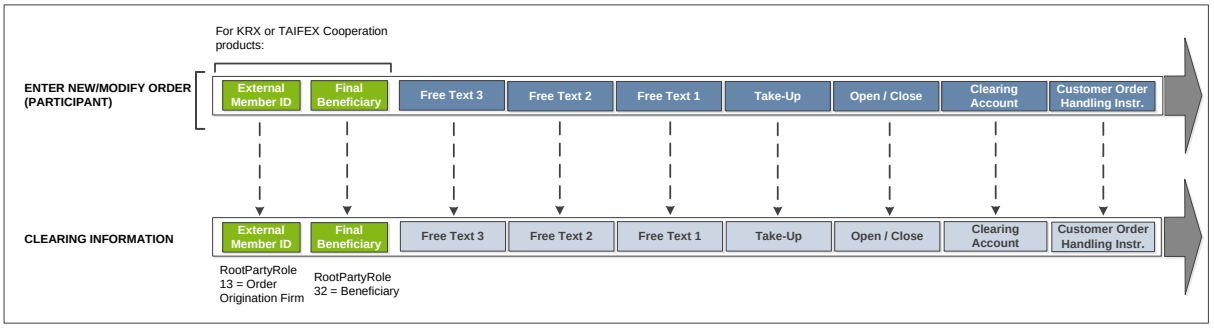
6.6.1 Orders

Clearing fields can be specified on new orders and modifications to existing orders. The following clearing fields are supported and passed through to Eurex Clearing's C7:

- Open / Close Indicator.
- Clearing Account.
- Take-Up Member (receiving Clearing Member for Give-Up).
- Free Text 1.
- Free Text 2.
- Free Text 3.
- Cooperation details for Eurex KRX or Eurex TAIFEX Products:
  - External Member ID
  - Final Beneficiary
- Customer Order Handling Instruction (identifies the source of an order, in accordance with the FIA guidelines for the rate Identifier for eGains).

For complex instruments, the Open / Close Indicator and Clearing Account can be specified individually per leg.

The diagram below shows the available clearing fields and their handling:



Handling within Eurex Exchange's T7

The system does not perform business validations on clearing fields, except for KRX or TAIFEX Products.

For Eurex KRX Products, the Participant must provide the cooperation details as follows:

- The External Member ID must be allowed for the entering Participant; and
- The Final Beneficiary field must be specified.

For Eurex TAIFEX Products, the Participant must provide the cooperation details as follows:

- The External Member ID must be allowed for the entering Participant;
- The Branch Code field must be specified; and
- The Final Beneficiary field must be specified.

Clearing information from Eurex Clearing's C7

Eurex Clearing's C7 will validate and update the clearing fields if required, and then provide clearing information to Participants, as follows:

Clearing Field	Handling
Clearing Account	If the Clearing Account is not valid, it will be replaced using rules (see 6.6.4) based on: • Take Up Member (if specified); • Type of Member; and • Trading Capacity (required with the order).
Take-Up Member	Validated to be a valid Take-Up Member, and removes/ignores if not valid.
Free Text 1	This free text is returned for Participant use.
Free Text 2	This free text is returned for Participant use.
Free Text 3	This free text is returned for Participant use.
External Member ID	This field is used for KRX/TAIFEX cooperation products.
Beneficiary ID	This field is used for KRX/TAIFEX cooperation products.
Customer Order Handling Instruction	This field is used to for the rate identifier for eGains.

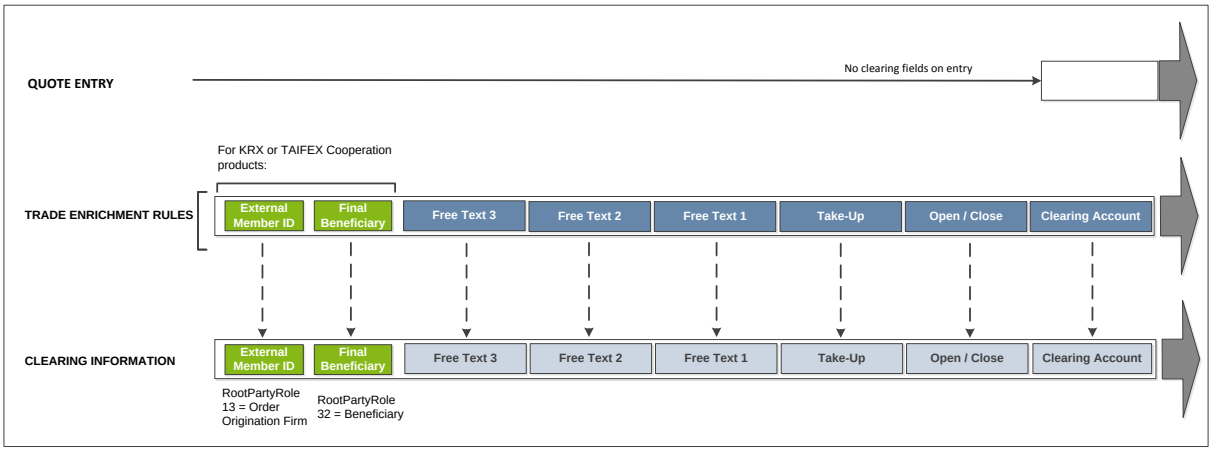
6.6.2 Quotes and Orders Entered Using the Short Layout

To optimize quoting efficiency, clearing fields are not available on quote entry or on orders entered using the short layout. Instead, Participants configure Trade Enrichment Rules that generate default clearing fields every time a quote or order entered using the short layout is executed. These defaulted values are provided in the trade confirmation, and then passed to Eurex Clearing's C7. The following clearing fields can be set up:

- Clearing Account.
- Free Text 1.
- Free Text 2.
- Free Text 3.
- Open / Close Indicator.
- Take-Up Member.
- Cooperation Partner (KRX or TAIFEX):

- External Member ID.
- Final Beneficiary.

The diagram below shows how an executed quote / order entered using the short layout is enriched using the Trade Enrichment Rules:



Handling within T7

Using the Eurex Admin GUI, Participants are able to define trade enrichment rules as a simple index table and can specify on transaction entry the exact trade enrichment rule to be used at the time of execution. Each enrichment rule will be identified by a Participant-defined integer identifier.

When the quote or order entered using the short layout is executed, Eurex Exchange's T7 will use the Trade Enrichment Rule ID supplied by the Participant to look up the rule and then apply the corresponding clearing fields to the trade information sent to the clearing system and returned to the Participant.

KRX and TAIFEX trade enrichment

Participants may define trade enrichment rules for external member ID and final beneficiary account that will be applied to executed quotes and orders entered using the short layout.

To use this feature, Participants must supply the exchange with a default external member ID and final beneficiary account to be used if a valid trade enrichment rule for the product is not supplied.

6.6.3 Client Free Text

On orders, Participants can provide up to three free text fields for their own reference purposes. On quotes and orders entered using the short order layout, the free text fields are added to executed quotes using the Participant configured trade enrichment rules.

The following table shows the mapping of the free text fields across the interfaces to Eurex Exchange's T7 and Eurex Clearing's C7:

Interface	Field Names			Field Length
Trader GUI	Free Text 1	Free Text 2	Free Text 3	Entry of up to 12 characters.
FIX GW	Text	FreeText2	FreeText3	Entry is truncated to 12 characters, if longer. Trade notification always 12 characters.
ETI	FreeText1	FreeText2	FreeText2	Always 12 characters.
FIXML	FreeText1	FreeText2	FreeText3	Text fields can hold 36 characters each. Exclamation mark (!) and pipe (|) are not allowed.
T7 XML-Report TE540	freeText1	freeText2	freeText3	Truncated trailing spaces. I.e. less than 12 characters possible. Field not present if not entered or just spaces.
C7 XML-Report (e.g. CB012)	Text1	Text2	Text3	Up to 36 characters. Field not present if not entered or just spaces.

The last column shows how the field lengths are handled technically.

6.6.4 Clearing Account Rules

If a valid Clearing Account is provided/defaulted it will be used. If the Clearing Account is missing or determined not valid, then it will be set by the clearing system according to the following logic:

(1) If the Clearing Account is "G1" or "G2", then the Clearing Account will be set as described in (3).
If the Take Up Member field is filled correctly and
a. all validations for the Give Up are fulfilled, Give Up will be triggered automatically.
b. in case validations for the Give Up are not fulfilled, no Give Up will be triggered automatically.

(2) If the trade is from a quote, then the Clearing Account is set to "M1" (if "M1" is not allowed for the Participant, then it is set to "P1").

(3) If the Clearing Account is not valid, then it is derived based on Trading Capacity:
a. Agency -> "A1" (if "A1" is not allowed for the Participant, then it is set to "P1")
b. Proprietary -> "P1" (if "P1" is not allowed for the Participant, then the trade will be flagged as erroneous)
c. Market Making -> "M1" (if "M1" is not allowed for the Participant, then it is set to "P1").

Please note that the trade confirmation from Eurex Exchange's T7 will reference the Clearing Account that has been provided/defaulted by the Participant. The trade information from Eurex Clearing's C7 will specify the final, potentially updated, Clearing Account in accordance with the Clearing Account Rules.

7 Change log

No	Chapter, page	Date	Change
V1.0	General	8-Feb-2012	Creation
V1.1	General	30-Apr-2012	Minor wording adaptation Some content changes Included detailed product and instrument state description Included traceability description Included trade concept description Included description of clearing fields
V1.1.1	• 5.4.4 • 6.3.1	9-May-2012	Minor wording adaptation Removed chapter 5.4.4 Client Order ID is unique per instrument and session
V1.1.2	• General • 2.2 • 3.2 • 3.6, 5.1 • 4, 5.1, 5.5 • 4, 5.4.1 • 5.2.1, • 5.2.1 • 5.4.2 • 5.4 • 6.1.1, 6.1.2 • 6.3.1 • 6.3.6	18-July-2012	• Wording, Update of References • Clarifications for trader group • Quote activation is delayed • Market maker protection maintenance in both GUIs • "Extended Market Data Service" in its own chapters • RDI via high bandwidth connections • Introduction of Short Order Message layouts • Modification of standard (non-lean) orders possible by other session. • Handling of Reference Data Files • Clarification about not showing delisted products/ instruments • Closing Auction is possible during the day • Handling of client order id in clearing interfaces • Identify and summarize leg trade confirmations
V1.1.3	• 5.2.1, p18	23-August-2012	• Removed misleading details about modification/ cancellation across sessions
V1.2	• General • 3.1	07-November-2012	• Wording • Stop limit orders will not be allowed for any product
V1.2.1	• 6.6.3	28-November-2012	• Client Order ID format in various interfaces
V1.3	• 6.3.1 • 6.5.4	22-April-2013	• Trade Item ID to be added to Trade Confirmation for backwards traceability. • New section to describe the rules applied to

No	Chapter, page	Date	Change
			Clearing Accounts by the clearing system.
V2.0	• General • 6.5.4	26-August-2013	• Revised to T7 Release 2.0 enhancements • Revised clearing account logic.
V2.0.1	• Page 2 • 1.2	14-October-2013	• Updated legal section • Updated Eurex website document path
V2.1	• General • 3.1 • 5.6 • 6.5.3	21-February-2014	• Wording, document references added • Changed explanation of technical order attributes • Emergency risk control functions added to list • For Eurex/TAIFEX link: Free Text 3 will be used for Final Beneficiary instead of Free Text 2
V2.5.1	• General • 2.4 • 5.2.1	04-August-2014	• Wording • New complex instrument types • Information on throttle added
V2.5.2	• 5.2.1	07-October-2014	• Correction on disconnection limit information
V2.5.3	• 2.4	22-October-2014	• Minimum number of legs for strips corrected
V2.5.4	• 6.3.1	05-February-2015	• Changed description of Order ID display in the Eurex Clearing classic system
V3.0.1	• 3.3.4 • 6.2.3 • 6.2.4 • 6.5.1 • 6.5.3	03-August-2015	• Description of the self-match prevention (SMP) functionality added • Diagram for trade reversal updated • Description for preliminary and final trade confirmations for Variance Futures added • Changed description of free text fields • Changed description of free text fields
V3.0.2	• 3.1 • 6.3 • 6.6	10-June-2016	• Added information on session cancellation • Added chapter on traceability with Eurex Exchange's C7 • Added clearing fields and Clearing Account Rules used by Eurex Exchange's C7
V.4.0.1	• General • 2.2.2 • 2.5.2 • 4 • 6.3.3	15-August-2016	• Added information on Eurex Trade Entry Services which is migrated from the Eurex Classic Clearing System to Eurex Exchange's T7 with release 4.0 • Added user concept for Eurex TES • Added chapter on TES activity product status • Added chapter on TES functionality • Added chapter on TES trade traceability
V.4.0.2	• 6.1.1 • 6.3.3	12-September-2016	• Added more information on intraday auctions. • Added more information on TES traceability