T7 Release 7.0

Final Release Notes Eurex

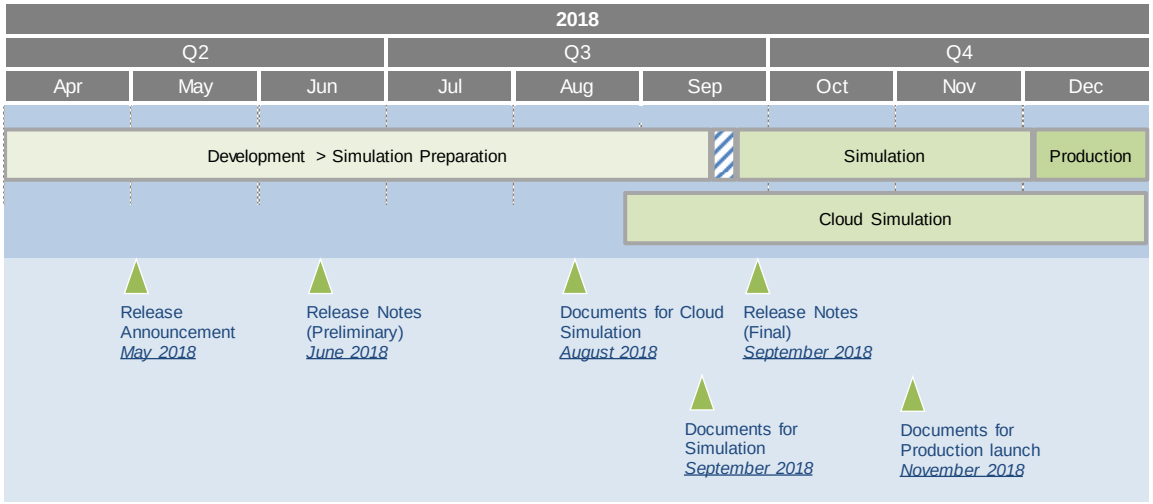
Date 12 October 2018

Content

1. Overview T7 Release 7.0

Deutsche Börse AG is planning to launch Release 7.0 of T7 on 3 December 2018.

The following diagram gives an overview of the introduction schedule:



Deutsche Börse AG provides a dedicated release simulation environment in order to give trading participants the opportunity to perform comprehensive testing of their trading applications, independent from the T7 production environment. The simulation period for T7 Release 7.0 is planned to start on 24 September 2018.

In addition to the T7 release simulation, Deutsche Börse AG offers T7 Cloud Simulation in Release 7.0 to allow trading participants and Independent Software Vendors to test against the current T7 production and simulation software versions. In the Cloud Simulation, participants can initiate predefined market scenarios and test specific strategies more easily than in a shared environment. Cloud Simulation is available around the clock for a fixed price per hour and will start in advance to the usual simulation for the T7 Release 7.0. For more information on the T7 Cloud Simulation, please refer to http://www.eurexchange.com/exchange-en/technology/t7-cloud-simulation.

1.1 New Features and Enhancements Overview

The following new features and enhancements will be introduced with T7 Release 7.0:

- Eurex Improve
- Enhancements to Quote Functionality
- Enhancement of Market Maker Protection
- Pre-Trade Risks Functionality
- Data Format Change of Quantity Fields to 8-byte Fields with 4 Decimals
- Removal of Connection Gateways
- Trading Venue Transaction Identification Code (TVTIC)
- Passive Liquidity Protection
- Equity Total Return Futures and Preparation for Basket of Total Return Futures
- Enhancements to Eurex EnLight, which will be introduced continuously and communicated separately
- Extension of Trading and Clearing Hours

Note on Interfaces

T7 Release 7.0 will provide backwards compatibility for the T7 ETI interface version 6.1, i.e. participants who do not want to use the new functionality will still be able to connect to T7 with the interface layout version 6.1 even after production launch of T7 Release 7.0.

The T7 FIX Interface, market and reference data interfaces will **not** provide backward compatibility to the previous releases.

1.2 Further Reading

The existing documents have been or will be revised for T7 Release 7.0. The following table provides an overview of the preliminary schedule for the publication.

T7 Release 7.0	Eurex	Xetra	Combined	Q1 2018			Q2 2018			Q3 2018			Q4 2018		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Release Notes															
T7 Release 7.0, Release Notes	X	X							◆			●			
Simulation															
Participant Simulation Guide			X									●			
Overview and Functionality															
T7 Functional and Interface Overview			X									●			
T7 Cross System Traceability			X									●			
T7 Functional Reference			X									●			
T7 Incident Handling Guide			X									●			
Participant and User Maintenance Manual	X	X										●			
Contract Notes Description		X										●			
Known Limitations			X									■		●	
GUI Solutions															
Trader, Admin and Clearer GUI – User Manual	X	X										■		●	
T7 Trader, Admin and Clearer GUI – Installation Manual			X									■		●	
Trading Interfaces															
T7 Enhanced Trading Interface – Manual incl. Repository and Header			X								◆	■		●	
T7 Enhanced Trading Interface – XML Representation			X								◆	■		●	
T7 FIX Gateway - FIX 4.2 and 4.4 Manual incl. Fiximate and			X								◆	■		●	
Market and Reference Data Interfaces															
T7 Market-, Enhanced Order Book- and Reference Data Interfaces, Manual incl. Fast Message Template, Repository & FIXML Schema Files			X								◆	■		●	
Xetra Instrument Reference Data Guide		X										●			
T7 Extended Market Data Services – Manual incl. Fast Message Template and Underlying Ticker Data			X									■		●	
Reports															
XML Reports - Reference Manual	X	X										■		●	
Common Report Engine User Guide			X										●		
Network Access															
N7 Network Access Guide			X									●			
Rules & Regulations															
Xetra Rules & Regulations		X												●	

◆ - cloud-simulation / preliminary version
■ - simulation / preliminary version
● - production / final version

The documents will be available on the Eurex website www.eurexchange.com under the link:

> Technology > T7 Trading Architecture > System Documentation > Release 7.0.

Please note that the outlined schedule is preliminary and subject to change.

1.3 Contacts

If you have any questions or require further information, please contact your Global Key Account Manager Trading. Alternatively, please contact your Technical Key Account Manager using your VIP number or via e-mail to cts@deutsche-boerse.com.

1.4 Definitions and Abbreviations

Term / Abbreviation	Description
BTRF	Basket Total Return Future
BOC	Book-or-Cancel
BU	Business Unit
CGW	Connection Gateway
CLIP	Interface Name for Eurex Improve denoted as Client Liquidity Improvement Process
DBAG	Deutsche Börse AG
EMDI	T7 Enhanced Market Data Interface
EMDS	T7 Extended Market Data Service
EOBI	T7 Enhanced Order Book Interface
ETI	T7 Enhanced Trading Interface
ETRF	Equity Total Return Future
Eurex EnLight	Eurex EnLight, introduced as the Selective Request for Quote Service (SRQS) with release 6.0, is a price discovery service offered by Eurex on the T7 platform to negotiate off-book transactions electronically.
Eurex Improve	Eurex Improve is a new service to enhance the capabilities of banks/broker to execute a client order. Internal name is CLIP.
FIX	Financial Information eXchange (protocol)
GUI	Graphical User Interface
HF	High Frequency
IOC	Immediate-Or-Cancel
LF	Low Frequency
MDI	T7 Market Data Interface
NCM	Non-Clearing Member
OTC	Over-the-Counter
PLP	Passive Liquidity Protection
PS	Partition Specific Gateway

RDF	T7 Reference Data File
RDI	T7 Reference Data Interface
T7	T7 is the trading architecture developed by Deutsche Börse Group
TES	T7 Entry Service
TAC	Trade at Close
TAM	Trade at Market
TVTIC	Trading Venue Transaction Identification Code

2. Eurex Improve

Eurex Improve is a client flow facilitation service enabling the execution of customer flow at best price levels in the central order book of Eurex markets. The customer flow is backed by an in-house proprietary desk of a facilitating bank/broker denoted as bank/broker in the following. Eurex Improve will supplement the existing request-for-cross functionality aiming to create trades with sizes below the minimum block size limit and to improve the liquidity of the central order book. The corresponding functionality will be implemented with Release 7.0 and will be denoted in the T7 trading platform as “Client Liquidity Improvement Process” (CLIP).

It is planned to activate the functionality of Eurex Improve in the production environment in the first half of 2019. Details about the activation schedule will be communicated at a later point in time.

2.1 Functional Description

2.1.1 Overview

The Eurex Improve functionality will involve three different parties:

- End Client (“client”): An end client requests an execution of its client flow in the central order book. The Eurex Improve functionality will provide a secured execution of the client flow at a price (or better) and quantity agreed outside of T7. The end client is represented by a bank or client broker who is a Eurex member.
- Facilitating bank/broker (“broker”): The bank/broker is on the opposite side of the client flow and intends to be executed against the client flow at the price and quantity level agreed with the client before. In opposite to the client side, the execution of the proprietary side of the bank/broker is subject to price competition.
- Liquidity Providers: Any market participant not involved in the submission of a CLIP trading indication has the opportunity to interact in the execution of the client flow.

The general process of Eurex Improve will comprise three different steps:

1. Initiation phase
   A trader submits a CLIP trading indication[1] to T7 by specifying all details of the client flow. This comprises the agreed price (*Price*) and agreed quantity (*OrderQty*), the specification of the client and proprietary side (*InputSource*), and additional details of the intended execution. T7 will validate the consistency and the market integrity of the CLIP trading indication.
2. Price Improvement Period
   Immediately after a CLIP trading indication was successfully validated, all market participants will be informed via a dedicated announcement about an imminent execution of client flow. Any market participant will now have the opportunity to get involved in the execution of the client flow by submitting orders or quotes in the corresponding instrument during the price improvement period.
   The price improvement period will have a fixed length of less than 1 second which will be specified by Eurex.
3. Execution
   Immediately after the conclusion of the price improvement period, the execution of the client flow will be performed in a single match event. The execution will comprise the conversion of the client and proprietary side of the CLIP trading indication into the corresponding client order and opposing bank/broker order. The execution of the client order against the opposing order book side will be performed in accordance with the general matching rules (including other orders at relevant price levels) and ensures that the client order will be matched at the agreed price level or even better depending on the market situation in the central order book after the price improvement period.

[1] Technically, a CLIP trading indication is the ETI *CLIP Enter Request* request.

The Eurex Improve process is depicted in the diagram below.

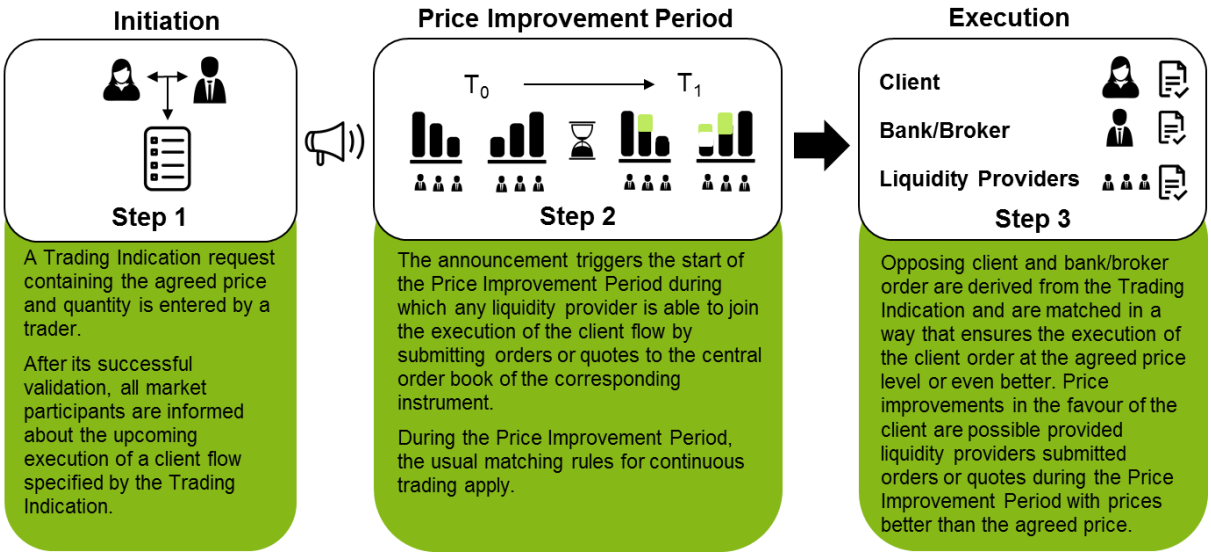


Figure 1: Graphical Representation of the Eurex Improve Process

When executing the client flow in the central order book, the Eurex Improve functionality will aim to provide a benefit to all parties mentioned above.

- The end client will be executed completely at a price agreed upfront with his bank/broker or even better from his point of view.
- The bank/broker will be able to offer his client a secured execution of his flow regarding price and quantity.
- Liquidity providers will have the opportunity to be involved in an additional matching opportunity against the client flow.

2.1.2 Initiation Phase

There are two ways to enter a CLIP trading indication. A trader of a bank/broker is submitting a CLIP trading indication containing both the client and the backing proprietary side (two-sided CLIP trading indication).

It is also possible to enter separately the client side and the proprietary side by two different one-sided CLIP trading indications. In this case, the entering traders must belong to the same bank/broker. A cross-reference must be included to each one-sided CLIP trading indication in order to ensure a correct mapping between the client and proprietary side of a CLIP trading indication. The entry of one-sided CLIP trading indications submitted by two different traders from different business units is not supported. A CLIP trading indication is subjected to the following validations:

- The agreed price of the CLIP trading indication must improve the best price on the client side of the central order book, i.e. in case of a CLIP trading indication with a client buy (sell) side, the agreed price must be strictly larger (smaller) than the best bid (ask) price of the central order book. The validation will ensure that the agreed price represents the best price on the client side available at the point in time when the CLIP trading indication is submitted.
- The agreed quantity of the CLIP trading indication must be within a minimum and maximum quantity threshold determined by Eurex.
- The trading capacity (i.e. clearing account type) of the client side of a CLIP trading indication must be marked as client-induced, i.e. must be set identical to “agency”.
- When submitting a CLIP trading indication, the corresponding trader(s) must not have orders or quotes in the central order book the CLIP trading indication is referring to.

The Eurex Improve functionality supports a tolerable price concept enabling the specification of an additional price on the proprietary side of a CLIP trading indication denoted as maximum tolerable price. By specifying a maximum tolerable price, the bank/broker accepts to be executed at price levels which were created during the price improvement period in order to increase his share of matched quantity against the client flow.

- In case the bank/broker specified a maximum tolerable price and in case the proprietary side of the bank/broker is on the buy (sell) side, then the maximum tolerable price must be strictly larger (smaller) than the agreed price. For more details about the tolerable price concept, see 2.1.5.

If one or several aforementioned validations are violated, the CLIP trading indication will be rejected.

In case the validations of a CLIP trading indication were successfully passed, an announcement will be sent to all market participants informing them about the upcoming execution of a client flow.

Eurex can specify whether the announcement will include the agreed quantity, the client side, or the agreed price as a mandatory information of the announcement. In any case, the trader submitting the CLIP trading indication can enrich the information content of the announcement by deciding to disclose the agreed quantity, the client side and/or the agreed price in case the corresponding field(s) are not specified by Eurex to be mandatory information fields.

Eurex is currently in discussions with trading participants about the mandatory information content of the announcement.

2.1.3 Price Improvement Period

The price improvement period will start immediately after the announcement of a CLIP trading indication took place. The announcement will be available to all market participants and included in the T7 market data interfaces MDI/EMDI/EOBI. For reference purpose in the present document, the point in time where the CLIP trading indication was successfully validated and the announcement has been sent out is denoted as T_0. The time T_0 is also the starting time of the price improvement period.

After the start of the price improvement period, all market participants except the trader(s) involved in the CLIP trading indication now have the opportunity to enter order or quotes in the central order book of the corresponding instrument and try to be considered in the upcoming execution of the client flow. In particular, liquidity providers already involved in products where the upcoming execution of the client flow will take place can react improving their quotes by lowering the bid – ask spread and/or increasing the quote size.

Since the price improvement period takes place during continuous matching (i.e. during product state “trading” and instrument state “continuous”), the general matching rules valid for the corresponding product will apply. A newly submitted order crossing the bid – ask spread of the corresponding order book will be matched immediately upon entry without affecting the status of the price improvement period.

The CLIP trading indication will not take part in regular matching during the price improvement period, i.e. the client flow specified by the CLIP trading indication will not be included in the regular order book during the price improvement period.

The price improvement period will have a fixed length (denoted as Δt) of less than 1 second. The value of Δt will be determined by Eurex and published on the Eurex webpage. The price improvement period will be concluded at $\mathrm{T}_1 = \mathrm{T}_0 + \Delta t$ after the price improvement period Δt elapsed and the announcement occurred at T_0.

In case an instrument change occurs during the price improvement period (which includes a volatility interrupt during the price improvement period since a volatility interrupt results in an instrument state change from “continuous” to “auction”), then the price improvement period will be terminated prematurely. The announced execution of a client flow will not take place and the pending CLIP trading indication will be deleted.

2.1.4 Execution

Immediately after the conclusion of the price improvement period at $T_1 = T_0 + \Delta t$, the execution of the client flow will be performed in one single match event denoted as a CLIP match event.

First, the proprietary side of the CLIP trading indication will be converted into a proprietary order and inserted into the central order book with a price priority consistent to the agreed price and a time priority identical to T_0.

Afterwards, the client side of the CLIP trading indication will be converted into a client order with a limit identical to the agreed price and with a priority time identical to T_1. The client order will be handled as an incoming order and executed against the order book side of the proprietary order.

The execution of the client order against the proprietary side of the order book will be performed in accordance with the general matching rules. In case there is no order on the proprietary side of the order book with a limit equal to or better than the agreed price (i.e. the proprietary order is the best priced order), then the client order will be executed completely against the proprietary order at a match price level identical to the agreed price (see chapter 2.1.7.). In case the proprietary order is not the price best order, then the client order will be matched first against the orders or quotes on the proprietary side of the order book having a better price from a client point of view than the agreed price. The resulting match price improves the agreed price since the client pays (sells) at a lower (higher) price than the agreed price if the client is on the buy (sell) side. As a consequence, the participation of the proprietary order in the CLIP match event will not be ensured and depends on the market situation reflected in the central order book at the end of the price improvement period at T_1. A concrete example of such a CLIP match event is given in chapter 2.1.7.

Independent of the market situation at T_1, the client order is the only order on the client side of the central order book considered in the CLIP match event. Usually, the agreed price of the trading indication entered at T_0 is still the price best order on the client side when the price improvement period is concluded and the CLIP match event takes place at $T_1 = T_0 + \Delta t$. However, it might also be possible that the client order is not the price best order on the client side at T_1 anymore because the market is running against the bank/broker during the price improvement period Δt. In such a market situation, the CLIP match event will take place outside the best bid-ask price range. A specific flag is used to indicate a match event outside the bid-ask price range in the T7 market data feed MDI/EMDI. A concrete example of a CLIP match event resulting to a match price outside the bid-ask price range is given in chapter 2.1.9.

It is pointed out that because of the price competition which takes place in the central order book on the proprietary side, the proprietary side of the CLIP trading indication can match completely, partially or not at all against the client side of the trading indication. Consequently, regardless of the agreements between client and bank/broker made before the submission of the CLIP trading indication to T7, the outcome of the CLIP match event is – as far as the matched quantity is concerned – foreseeable from a client point of view but it is not foreseeable from a bank/broker point of view.

2.1.5 Tolerable Price Concept

In addition to the agreed price, the bank/broker can specify a maximum tolerable price on the proprietary side when submitting the CLIP trading indication. The maximum tolerable price indicates up to which price level the bank/broker is willing to be executed on the proprietary side against the client flow at less favourable conditions for him. In case the proprietary side is on the buy (sell) side, the maximum tolerable price needs to be strictly larger (smaller) than the agreed price implying that the proprietary side of the CLIP trading indication is buying at a higher (selling at a lower) price compared to the agreed price.

When the CLIP match event takes place at a price level between the maximum tolerable price (including) and the agreed price (excluding) and this price level contains orders or quotes entered during the price improvement period, then an additional proprietary order (“tolerable proprietary order”) will be derived from the trading indication and considered on that price level. The time priority of the tolerable proprietary order will be identical to T_0. The quantity of the tolerable proprietary order is given by a percentage (“tolerable proprietary quantity percentage”) of the matched client order quantity at this price level. The tolerable proprietary quantity percentage

will be determined by Eurex. The concrete value is currently under discussion with trading participants. A concrete example of a CLIP match event and the impact of the tolerable price concept is provided in chapter 2.1.8.

The difference between the maximum tolerable price and the agreed price must not exceed a maximum tolerable price interval determined by Eurex. Concrete value are currently under discussion with trading participants.

2.1.6 Example 1: Eurex Improve Match Event without Price Improvements by Liquidity Providers

The following example describes a CLIP match event which might occur in less liquid markets. It assumes that the price agreed between bank/broker and client is not improved during the price improvement period implying that the CLIP match event takes place inside the best bid – ask spread available after the price improvement period.

Figure 2: Bank/broker Z ("BB Z") submits a CLIP trading indication with an agreed price of 11.6 and an agreed quantity of 100 lots. The client is on the buy side and the bank/broker on the sell side. The order book valid before the announcement at T_0 is depicted in the diagram on the left and the order book after the price improvement period at T_1 is given in the diagram on the right side.

The CLIP match event starts by converting the bank/broker side of a CLIP trading indication into a sell order with 100 @ 11.6 which is inserted to the central order book with an order priority time identical to the time of the announcement of the CLIP trading indication. Afterwards, the client side of the CLIP trading indication is converted into an incoming buy order with 100 @ 11.6 which is executed against the sell side of the order book. Since there was no price improvement during the price improvement period, the incoming client buy order is completely executed at 11.6 against sell order of the bank/broker. Because of the price time priority, the liquidity providers joining the order book during the price improvement period can only be considered in the execution against the client order, if they are improving the price on the proprietary side, i.e. if they are entering a sell order or sell quote with a price smaller than 11.6 (which was not the case in Example 1).

Executions	Buy Side	Sell Side
100 @ 11.6	Bank/broker Z (client side)	Bank/broker Z (proprietary side)

2.1.7 Example 2: Eurex Improve Match Event with Price Improvements by Liquidity Providers

The following example describes a CLIP match event where liquidity providers are improving the price agreed between the client and bank/broker on the proprietary side.

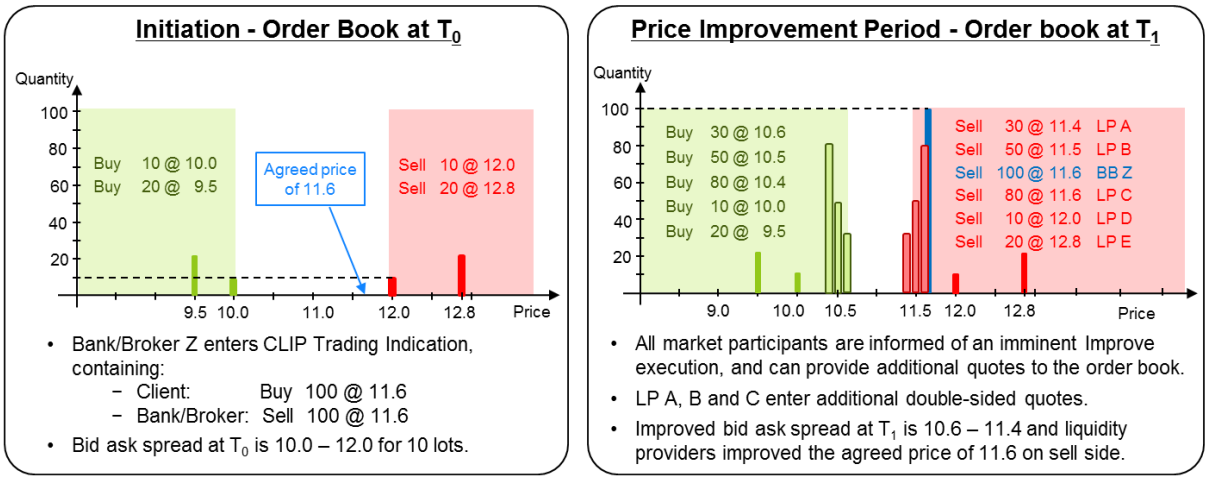


Figure 3: A CLIP trading indication is submitted by bank/broker Z with an agreed price of 11.6 and an agreed quantity of 100 lots. Again, the client is on the buy side and the bank/broker on the sell side. The order book valid before the announcement at T_0 is depicted in the diagram on the left and the order book after the price improvement period at T_1 is given in the diagram on the right side.

Again, the CLIP match event starts by converting the bank/broker side of a CLIP trading indication into a sell order with 100 @ 11.6 and inserting it to the central order book. Afterwards, the client buy order with 1000 @ 11.6 is extracted from the CLIP trading indication and executed as an incoming order against the sell side of the order book. The resulting trades are summarized in the table below. The first match of the CLIP match event takes place at a price of 11.4 and a traded quantity of 30 lots. A second match is executed at a price of 11.5 with a traded quantity of 50 lots. The last match occurs at the agreed price level of 11.6, where 20 out of 100 lots of the sell order of Bank/Broker Z are executed against the remaining client order. As indicated in Example 2, liquidity provider A and B submitted orders or quotes with a more competitive price compared to the agreed price of Bank/Broker Z.

Executions	Buy Side	Sell Side
30 @ 11.4	Bank/Broker Z (client side)	Liquidity Provider A
50 @ 11.5	Bank/Broker Z (client side)	Liquidity Provider B
20 @ 11.6	Bank/Broker Z (client side)	Bank/Broker Z (proprietary side)

From a client point of view, instead of buying 100 lots at a price of 11.6, the client actually buys 100 lots at an average trade price of 11.49 which is below the originally agreed price of 11.6 and represents – from his point of view – a better price. The example also shows that the bank/broker side only received 20 lots at the agreed price of 11.6.

2.1.8 Example 3: Eurex Improve Match Event and Tolerable Price Concept

Example 3 describes a CLIP match event where the bank/broker is using the tolerable price concept. The order book situation before and after the price improvement period of Example 3 are the same as for Example 2. The CLIP trading indication submitted by Bank/Broker Z is also assumed to be the same as in Example 2 except that Bank/Broker Z is additionally specifying a maximum tolerable price of 11.4.

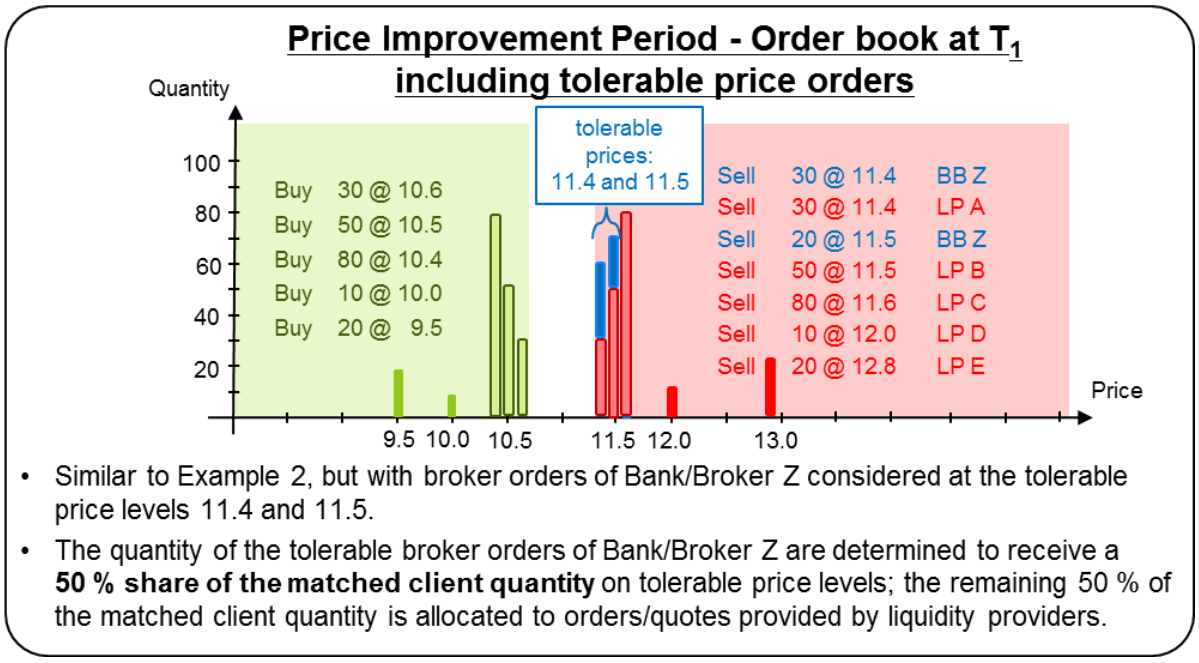


Figure 4: The diagram shows the order book situation after the price improvement period is concluded at T_1. Tolerable proprietary orders are considered at tolerable price levels of 11.4 and 11.5. The tolerable proprietary quantity percentage is 50% of the matched client order quantity on each tolerable match price level.

As indicated in Figure 4, the CLIP match event is creating a tolerable proprietary order at price level 11.4 since 11.4 is a tolerable proprietary price level. The tolerable proprietary quantity at 11.4 is derived in that way that Bank/Broker Z receives a 50 % share of the matched client order quantity on that price level. Since the quantity provided by the liquidity provider A on the tolerable price level of 11.4 is 30 lots and the client order quantity available for matching at 11.4 is 100 lots, the tolerable proprietary order receives 30 lots resulting in an overall execution of 60 lots at 11.4. The tolerable proprietary quantity at the next tolerable proprietary price level of 11.5 is derived by taking into account the remaining client order quantity of 40 lots available for matching of that price level. This results to a tolerable proprietary quantity of 20 lots and to a partial execution of 20 out of 50 lots of the order of Member B at 11.5. The executions of the CLIP match event are summarized in the table below. The remaining part of the proprietary order of 50 lots (not matched against the client flow) is deleted at the end of the CLIP matching event.

Executions	Buy Side	Sell Side
30 @ 11.4	Bank/Broker Z (client side)	Bank/Broker Z (proprietary side)
30 @ 11.4	Bank/Broker Z (client side)	Liquidity Provider A
20 @ 11.5	Bank/Broker Z (client side)	Bank/Broker Z (proprietary side)
20 @ 11.5	Bank/Broker Z (client side)	Liquidity Provider B

From a client point of view, instead of buying 100 lots at the agreed price of 11.6, the client actually buys 100 lots at an average trade price of 11.44, which is even better compared to Example 2. Compared to Example 2, the matched quantity of the proprietary side of the CLIP trading indication increased to 50 lots from 20 lots with an averaged trade price of 11.44 representing a quantity share of 50% of the incoming order when executed on tolerable price levels.

2.1.9 Example 4: Eurex Improve Match Event outside Bid-Ask Spread

Example 4 outlines the case that during the price improvement period the market is running away from the proprietary side of the bank/broker. Although it is assumed that such big market movements rarely occur within the small time interval of the price improvement period, it cannot be excluded.

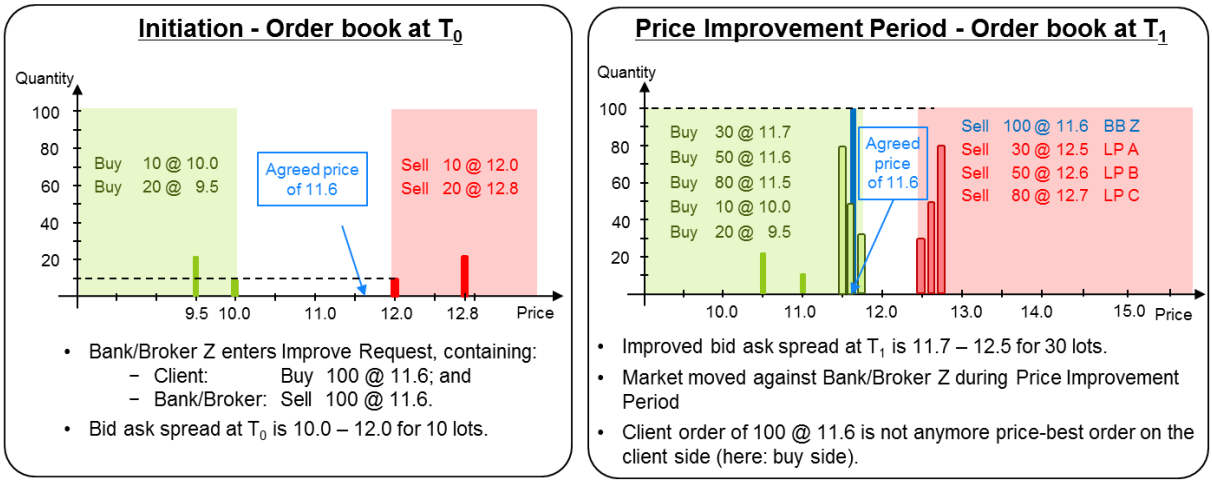


Figure 5: Initial situation of Example 3 is the same as for Example 1 and 2. During the price improvement period, however, the market moved against the bank/broker with a shift of the best bid-ask spread from 10.0 to 12.0 toward 11.7 to 12.5 (shift of mid point price/fair value from 11.0 to 12.1).

As indicated in the diagram on the right of Figure 5, the client order created by the CLIP match event on the buy side is not the price best buy order since a strong market movement is assumed. Consequently and in accordance with the general CLIP matching procedure, the client buy order is now matched against the sell side of the order book at a price level outside the best bid-ask spread and completely executed against the best priced sell order in the order book which is the now outdated proprietary order of the bank/broker at 11.6. Such a CLIP match event outside the bid-ask spread is indicated separately in the T7 market data interfaces.

Executions	Buy Side	Sell Side
100 @ 11.6	Bank/Broker Z (client side)	Bank/Broker Z (proprietary side)

2.1.10 Summary

When executing client flow in the central order book, the Eurex Improve functionality will provide a benefit to the three different parties involved in the CLIP match event.

- The end client will be completely executed in the central Eurex order book at a price and a quantity agreed upfront with bank/broker. In addition, the end client will benefit from potential price improvements resulting from the price improvement period.
- The bank/broker is able to offer an execution-secured match of the client flow regarding price and quantity by backing the client flow. The Eurex Improve matching event will also ensure that the proprietary side of the CLIP trading indication is only executed against the client flow. The bank/broker can choose to be matched at less favourable price levels on the proprietary side against the client flow in order to extenuate the effects of the price competition in the central order book.
- Liquidity provider will have the opportunity to be involved in an additional matching opportunity against the client flow. Since the execution takes place in the central order book, connectivity to this client flow will already be available for active liquidity providers.

2.2 Impact on Interfaces

The following chapters outline the changes to the ETI interface, FIX interface, GUIs, and reports. The changes are described in a general fashion to provide an indication of upcoming changes. For detailed changes, please refer to the interface manuals once they are published, and to the Online Help in the GUIs.

2.2.1 ETI

The following changes will apply to T7 ETI interface:

- New request messages will be introduced to enter (*CLIP Enter Request*) or to delete a side of the CLIP trade (*CLIP Delete Request*).
- A new response message (*Response to a CLIP Request*) and two new notification messages (*CLIP Execution Notification* and *CLIP Deletion Notification*) will inform the owning session about maintenance activities of a CLIP trade.
- The *Book Order Execution* message will include new execution restatement reasons (*ExecRestatementReason*) and the *Trade Notification* message will include a new valid value for the match type (*13*).
- CLIP trade prices which lie outside the best bid and ask will be specifically flagged in the trade notifications via the *MatchSubType* (*6*).

2.2.2 FIX

The Eurex Improve functionality, as described in the previous chapter for the T7 ETI interface, will be also valid for the T7 FIX interface:

- A new request messages will be introduced to enter and to delete a side of the CLIP trade.
- A new response message will be introduced as response to the enter and delete requests.
- New notification message will include maintenance activities (execution or deletion) via the FIX message *ExecutionReport* (*8*).
- The Trade Notification message will include a new valid value for the match type.

2.2.3 Market Data and Reference Data

The following enhancements will be provided for MDI, EMDI and EOBI:

- A CLIP announcement will be published immediately after the creation of a CLIP trading indication. The announcement will optionally include the information about the side, quantity and price of the CLIP trading indication.
- MDD and EOBI will publish the update of the public order book and execution of orders which are involved in the CLIP matching process.
- Matches from CLIP trading will be reported with the new valid value for the match type.
- CLIP trades will be considered as on-book trades with respect to the *MDOriginType* in EMDI (on-exchange).
- Trades from CLIP matching will be included in the trade volume reporting and trade statistics. An exception applies in case of a price movement after the CLIP announcement, when the CLIP trade price lies outside of the best bid and ask. Such CLIP trade prices will be specifically flagged via the *TradeCondition* (*k*) and will only be included into the trade volume statistics but not into the trade price statistics.

The reference data published on the Eurex webpage (Product information) will involve the current Eurex Improve settings for a product.

2.2.4 GUI

The following enhancements refer to the Eurex Improve service:

- The Market View will be enhanced by a new column *CLIP* to indicate CLIP announcements.
- The Order Entry will be enhanced to enter/delete CLIP trade(s). The modification of a CLIP trade will not be supported. The following additional fields are required on the Order Entry for CLIP trade:
    - Arrangement ID (The CLIP arrangement ID)
    - Counterparty trader ID in case of a one-sided CLIP trading indication
    - PublishPrice (Indicate whether or not the Price should be displayed in the Market view)
    - PublishSide (Indicate whether or not the Side should be displayed in the Market view)
    - PublishQty (Indicate whether or not the quantity should be displayed in the Market view).
- The Orders View and Order History view will display open CLIP trade.
- The Trades View will be enhanced by new match type column CLIP.
- Risk Controls (Stop Trading) will be enhanced to support the cancellation of the CLIP trading indication of a stopped bank/broker.

2.2.5 Reports

The following reports will be changed:

- TE810 – T7 Daily Trade Confirmation
- TE910 – Daily Trade Activity

A new daily report will be introduced for Eurex Improve:

- TE590 – CLIP trading indications

  Per instrument and user, the report will list CLIP trading indications which involve the reported user as a bank/broker. The report will comprise the following actions for a CLIP trading indication: CLIP announcement, CLIP matching and abandonment of a CLIP improvement period.

3. Enhancements of Quote Functionality

3.1 Single Sided Quote Configuration

Eurex can define whether single-sided quotes are allowed for a trading model. In this context, a new configuration possibility will be introduced regarding the scope for rejections, i.e. whether both quote sides or only one quote side should be taken into account.

There will be three possibilities for the definition of the scope of rejections at a product level:

1. *NotSSQAllowed* (Single Sided Quote Not Allowed)
   An entry of single sided quote is not allowed. If the validation would only affect one quote side, both quote sides will be rejected regardless.
2. *SSQOnEntryAllowed* (Single Sided Quote Entry Allowed)
   An entry of single sided quote is allowed. However, if a double-sided quote is intended, the rejection always involves both quote sides, i.e. the rejection will never lead to the result that only one quote side is left for entry.
3. *SSQSupported* (Single Sided Quote Supported)
   An entry of single sided quote is allowed and the rejection may lead to the situation that only one quote side is entered to the book.

The quote rejection scope in all Eurex markets will operate in the mode "Single Sided Quote on Entry Allowed" as outlined in Point (2) above implying that there will be no change in the quote rejection scope from Release 6.1 to T7 Release 7.0. However, it is envisioned that the quote rejection scope will be changed to "Single Sided Quote Supported" at a later point in time. The configurations will be published via the Eurex Web page and provided via the RDI/RDF (see chapter 3.4.2).

3.2 Enhancement of Quote Mass Cancellation

The current Quote Mass Cancellation request allows the deletion of multiple quotes of the same trading session within the same product in a single request. A Business Unit (BU) using multiple sessions for trading a single product currently has to send multiple Quote Mass Cancellation requests to delete all its resting quotes. This leads to a higher risk of adverse trades for participants active in providing quotes to the market.

With T7 Release 7.0, the Quote Mass Cancellation request will be enhanced to allow cancellation of quotes on the BU level, where all sessions will be considered. Thus, the risk for a market maker will be mitigated by having the choice of cancelling the quotes either on a session or on a BU level.

Correspondingly, the usage of the existing field *TargetPartyIDSessionID (20655*) in the Quote Mass Cancellation request will become optional. If no specific session is specified on submission, then all quotes belonging to the same BU for the same product will be deleted. The session that originally submitted the request and all sessions that had any quote deleted will be informed of the cancellation of their quotes. Please note that any session will be able to delete quotes of another session without user validation.

3.3 Enhancement of Quote Activation Request

The Quote Activation request will no longer support the instrument type scope for inactivation or activation of quotes.

3.4 Impact on Interfaces

The following chapters outline the changes to the ETI interface, FIX interface, GUIs, and reports. The changes are described in a general fashion to provide an indication of upcoming changes. For detailed changes, please refer to the interface manuals once they are published, and to the *Online Help* in the GUIs.

3.4.1 ETI

Changes will be made to the following requests:

- Quote Mass Cancellation request

The *TargetPartyIDSessionID* will be optional. The Quote Mass Cancellation response/notification will be adjusted accordingly.

The Quote Activation request will no longer support the instrument type scope.

3.4.2 Market Data and Reference Data

Due to the configuration possibility of the rejection scope, the product snapshot messages will include values of *QuoteSideIndicator* and *QuoteSideModelType* (RDI/RDF).

Trading parameters published on Eurex website will be enhanced by *SingleSidedQuoteSupport* with new valid values: *NotSSQAllowed*, *SSQOnEntryAllowed*, *SSQSupported*.

The corresponding mapping of the trading parameters on the website with the values via RDI/RDF is illustrated as follows:

Trading Parameter on the Eurex Website	Mapping RDI/RDF
NotSSQAllowed	QuoteSideIndicator = 0 (One-sided quote not allowed) QuoteSideModelType = 0 (Single-sided quote not supported)
SSQOnEntryAllowed	QuoteSideIndicator = 1 (One-sided quote allowed) QuoteSideModelType = 0 (Single-sided quote not supported)
SSQSupported	QuoteSideIndicator = 1 (One-sided quote allowed) QuoteSideModelType = 1 (Single-sided quote supported)

Table 1: Mapping of the Quote Parameters between RDI/RDF and Eurex Website

3.4.3 GUI

Changes will be made to

- Risk Control -> Quote deletion window

The *SessionID* will become optional.

4. Enhancement of Market Maker Protection

Currently, the Market Maker Protection (MMP) mechanism offers market makers the possibility to prevent too many of their quotes being matched during a short of period time. The parameters for the MMP functionality are currently set for each product and session combination separately. With T7 Release 7.0, the MMP functionality will be extended to allow setting the parameters on both the BU level, as well as at a session level per product. In this case when both parameters for the entire BU and for an individual trading session in a product are set, the following scenarios may occur:

- *The limit set for the BU gets exceeded but the limit for the individual trading session not*
  All quotes of a BU, including the quotes for the specified trading session in product, will be deleted when the limit is broken at a BU level
- *The limit set for the BU is still active, but the limit for the individual trading session in a product gets exceeded*
  All quotes which belong to the individual trading session for a product will be deleted when its specified limit is broken, but all other quotes belonging to other sessions of the BU remain in the order book.

Setting MMP parameters per instrument type will no longer be supported.

4.1 Impact on Interfaces

The following chapters outline the changes to the ETI interface, FIX interface, GUIs, and reports. The changes are described in a general fashion to provide an indication of upcoming changes. For detailed changes, please refer to the interface manuals once they are published, and to the *Online Help* in the GUIs.

4.1.1 ETI

Changes will be made to the following requests:

- Market Maker Parameter Definition request
- Inquire Market Maker Parameter request

The *targetPartySessionID* will become optional. Setting MMP parameters per *instrument type* will *be* removed.

4.1.2 GUI

Changes will be made to

- Market Maker Protection View.

The *SessionID* will become optional and the instrument type level will be removed.

4.1.3 Reports

The following reports will be changed:

- TT132 – Market Maker Protection

5. Pre-Trade Risk Limits Functionality

A new pre-trade risk limits functionality will provide the possibility to continuously check in real time whether traded quantities (on-book/off-book) in combination with incoming transactions will breach the pre-defined risk limits. In case the pre-trade risk limit functionality is activated and any newly submitted transaction (on-book/off-book) would exceed the defined pre-trade risk limits, the transaction will be rejected. The T7 pre-trade risk limit functionality supplements the existing Advanced Risk Protection which is based on the validation of intra-day margin limits (which are maintained outside T7). It is planned to introduce the pre-trade risk limit functionality for selected futures and primarily for those futures which are available for trading during the extended trading hours.

The pre-trade risk limits functionality will be available on 4 December 2018.

5.1 Functional Description

The new pre-trade risk limits functionality will check whether an incoming transaction would lead to a breach of a previously defined pre-trade risk limit. In case the incoming transaction would breach a limit, the transaction will be rejected. The new functionality will be available at product level for on-book and off-book trading activity separately. It will be possible to change the limits intraday. Please note that the continuous check of the traded quantities considers only traded quantities from the current business day, and not quantities from previous days.

Pre-trade risk limits can be set by different parties, separately for the buy and sell side:

- by the Exchange for a Business Unit (BU)
- by a Clearing Member for his related NCMs (including his own NCM trading BU)
- by a trading BU for different user risk groups.
  The administrator may assign users to different user risk groups and then define pre-trade risk limits for them.

For on-book trading, T7 will continuously calculate the following *on-book statistics* during the day:

- *Buy Side On-Book Statistics* = Traded on-book Quantity on buy side
  – Traded on-book Quantity on sell side
  + Quantity of open orders & quotes on buy side,

- *Sell Side On-Book Statistics* = Traded on-book quantity on sell side
  – Traded on-book quantity on buy side
  + Quantity of open orders & quotes on sell side.

Every incoming order or quote will be validated against these statistics. An incoming buy order/quote will be rejected if **the sum** of the incoming order's or quote's quantity and of the *Buy Side On-book Statistics* exceeds any of the on-book buy side limits defined by the different parties. In addition, an incoming sell order/quote will be rejected **if the sum** of the incoming order's or quote's quantity and of the *Sell Side On-book Statistics* exceeds any of the on-book sell side limits.

For off-book trading, T7 will continuously calculate the following off-book statistics during the day:

- *Buy Side Off-Book Statistics* = Traded off-book quantity on buy side
  – Traded off-book quantity on sell side
  + Quantity of pending off-book trades on buy side,

- *Sell Side Off-Book Statistics* = Traded off-book quantity on sell side
  – Traded off-book quantity on buy side
  + Quantity of pending off-book trades on sell side.

The term "pending off-book trade" refers to an off-book trade side already approved by the corresponding trader while the approval of the other off-book trade side is missing. An incoming approval request for an off-book trade buy side will be rejected if **the sum** of the buy side's quantity to be approved and of the *Buy Side Off-book*

Statistics exceeds any of the off-book buy side limits defined by the different parties. In addition, an incoming approval request for an off-book trade sell side will be rejected if **the sum** of the sell side's quantity to be approved and of the *Sell Side Off-book Statistics* exceeds any of the off-book sell side limits.

Orders and quotes as well as trades in complex instruments are handled in accordance with their legs. The quantity of an open order or quote on the buy (sell) side of a complex instrument is given by the sum of all legs with a buy (sell) side indicator multiplied with the corresponding leg ratio. The same applies to pending off-book trades. Since trades in complex instruments are decomposed into leg trades regardless whether traded on-book or off-book, the corresponding traded quantity on the buy or sell side are considered on leg instrument level.

As an exception, the underlying leg in an option volatility strategy is not considered at all in the calculation of the on-book or off-book statistics with respect to the corresponding underlying future leg. In addition, a future vola trade referring to a block-traded option is also not considered in the off-book statistics of the corresponding future.

Note that in case a user is shifted to a different user risk group, his previously traded quantities will be kept in the statistics calculated for his previous user risk group, and his newly traded quantities will be accumulated in the statistics of the new user risk group. However, his quantities of open orders and quotes respectively and his non-approved traded off-book quantities will be added to the statistics of the new user risk group.

Participants will have the possibility to maintain the pre-trade risk limits for their user risk groups via the T7 Admin GUI and via ETI. Clearing members may maintain the settings for their NCMs (including their own Trading BU) via a new T7 Clearer GUI and also via ETI. To increase the usability, the maintenance of these limits will be supported by a file upload functionality.

5.2 Product-Specific NCM Inactivation

With the introduction of the pre-trade risk limits functionality, a clearing member may also inactivate his NCM for trading for a specific product, e.g. preventing the NCM from trading in that product. The inactivation functionality will be provided for on-book and off-book trading separately as for the pre-trade risk limits functionality. After inactivation of a NCM for a specific product, all orders and quotes of that specific product of the NCM will be deleted and any further order and quote transactions will be rejected. The same applies to non-approved TES trades. The inactivation of the NCM has no effect on the pre-trade risk limits, which have been set before. Once the clearing member resets the inactivation, the NCM can enter orders and quotes respectively approve TES trades again, and the NCM will be subject to the defined pre-trade risk limits again.

The NCM inactivation for clearing members will be available via ETI and via the new T7 Clearer GUI.

5.3 Impact on Interfaces

The following chapters outline the changes to the ETI interface, FIX interface, GUIs, and reports. The changes are described in a general fashion to provide an indication of upcoming changes. For detailed changes, please refer to the interface manuals once they are published, and to the *Online Help* in the GUIs.

5.3.1 ETI

The following new requests will be provided for inquiry and maintenance of the pre-trade risk limits, each applicable for on-book and off-book trading activities:

- Inquire Pre-Trade Risk Limits Request
- Pre-Trade Risk Limits Definition Request

The new request message for maintenance of the pre-trade risk limits (*Pre-trade Risk Limits Definition Request*) can also be used by clearing members to inactivate/activate a NCM via the *PartyDetailStatus* (*1672).*

5.3.2 FIX

The FIX-Gateway will be extended to support the inquiry of the risk limits via a new FIX-message.

5.3.3 GUI

For maintenance of the pre-trade risk limits, a new Pre-Trade Risk Limits (Maintenance) View will be available.

For clearing members to set and review the pre-trade risk limits of their NCMs on BU level (including their own BU) or to inactivate/activate their NCMs, a new T7 Clearer GUI will be provided.

5.3.4 Reports

The following report will be introduced:

The TT136 – Pre-Trade Risk Control

The new report will list per business unit all pre-trade risk limits at the start of the day and all corresponding activities during the day.

6. Data Format Change of Quantity Fields

With the release introduction, the data format of quantity fields will be made more flexible to support quantities with four decimal places. The affected fields are those fields containing

- order quantities
- sums of order quantities, e.g. in the context of market data
- traded quantities
- sums of traded quantities (traded volume)
- limits for order and/or traded quantities (e.g. MMP, Pre-Trade Risk Limits)

Please note that the T7 ETI interface will provide backwards compatibility while the T7 FIX interface and market and reference data interfaces will not (see chapter 1.1).

6.1 ETI

The data type ***Qty*** will be changed from a 4-byte integer to an 8-byte field with four decimals (*float with precision four*).

To coincide with the introduction of release 7.0, quantity values will have to be entered with four additional zeroes (Qty x 10000). This means that a quantity of 1 needs to be expressed as “10000” in the corresponding ETI field. Quantities with decimal places will not be accepted.

A selection of affected fields is provided below:

- OrderQty
- AllocQty
- FillQty
- LastQty
- LeavesQty[2]

Please note that all newly introduced quantity related fields will be affected too.

6.2 FIX

Quantity fields used in the FIX interface are defined with a format that allows up to 15 digits before decimal point and at most 4 significant decimal places. The usage and the allowed formats for the quantity fields are different depending on the market and on the instrument setup.

In general, quantity fields can be entered with four decimal places but not necessarily. For example, a quantity of 1 can be either entered as “1” or “1.0000”. However, for Eurex, quantities with decimals other than "0" are not allowed will result on entry to a rejection.

6.3 Market Data and Reference Data

The format change will affect MDI, EMDI, EOBI. For example, the following fields will have the new data format:

- LastQty (EOBI)
- RestingCxlQty (EOBI, EMDI)
- OrderQty (EOBI)
- MDEntrySize (EOBI, EMDI)[3]

[2] Please note that the list of quantities do not represent all affected quantity related fields and therefore, is incomplete.

The RDI/RDF interface and quantity related fields in the reference data published on the Eurex webpage will not be affected.

6.4 GUI

On the GUI, the quantity decimals will be entered and displayed in the same integer format as before.

6.5 Reports

The format change will be applied to the reports. Quantity related fields will be displayed with four decimal places. Please refer to the “XML Reports - Reference Manual” for further details.

7. Removal of Connection Gateways

The primary and secondary Connection Gateways (CGW) for Low Frequency (LF) and High Frequency (HF) sessions are currently assigned to the individual sessions during the ordering process via the member portal. The CGW plays a central role in the logon process to the T7 trading system via the ETI interface. The primary and secondary trading gateways, which are also assigned to the ETI session during the ordering process, or to the active Partition-Specific (PS) gateway are provided in the response to the gateway request message.

To simplify the ETI session logon process, the connection to the T7 trading system via the CGW will no longer be possible with T7 Release 7.0. Participants can either directly logon to the active PS gateway for HF sessions or to any of the LF trading gateways for LF sessions. The IP addresses of the active/standby PS gateways and the LF trading gateways are provided in the N7 Network Access Guide available via the Eurex website.

Participants using ETI 6.1 backward compatibility for T7 Release 7.0 will still be able to perform the session logon via the CGW. In the next T7 release, the CGW will no longer be available.

Prior to the ultimate removal of the CGW with the next T7 release, the assignment of the CGW to the HF/LF sessions will still be visible in the member portal and will also continue to be provided during the ordering of new sessions. For participants using the ETI 7.0 layouts, this information can be ignored.

8. Trading Venue Transaction Identification Code (TVTIC)

With the release introduction, the trading venue transaction identification code (“TVTIC”) will be included in the T7 trade confirmation regarding on-book and off-book trades. The TVTIC was introduced by MiFID/MiFIR in order to provide an individual transaction identification code for each transaction (trade) created by a trading venue.

In T7, the TVTIC is created by concatenating the following fields:

TVTIC = Envir_Flag (*1*) + T7 SecurityID (*20*) + TranTime(*20*) + DealType(*1*) + MatchStepID(*10*)

Please note that the length of the fields shall be fixed with leading zeros to the given 52-character string values below. It is recommended to take the data required to create the TVTIC from the T7 ETI interface even if other interfaces are mentioned below.

- Envir_Flag (*1*)
  as a prefix from session context
  - Valid value “1” for T7 environment
  - Valid value “2” for T7/FX environment
- SecurityID (*20*)
  - EMDI, ETI, FGW, RDI/RDF: SecurityID (*tag 48*)
- TranTime (*20*)
  - ETI, trade notification and TES trade broadcast: TransactTime (*tag 60*)
  - EMDI: MDEntryTime (*tag 273*)
  - FGW in Execution and Trade Capture Report: UTransactTime (*tag 30060*)
- DealType (*1*)
  - Valid value "0" for on-book
  - Valid value "1" for off-book
  - EMDI: MDOriginType (*tag 1024*)
- MatchStepID (*10*)
  - ETI, trade notification TrdMatchID (*tag 880*)
  - ETI, TES trade broadcast PackageID (*tag 2489*)
  - EMDI: MDEntryID (*tag 278*)
  - FGW: TrdMatchID (*tag 880*)

Thus, the number of characters of the TVTIC is 52.

As a general rule, the T7 SecurityID used for the creation of the TVTIC is always a simple instrument Security ID as e.g. provided in the T7 trade confirmation. In case of a complex (multi-leg) instrument match, the TVTIC is created on instrument leg level and the corresponding leg instrument Security ID is taken into account.

The approach of referring to the simple instrument Security ID uniformly covers all different types of trades resulting from the matching of simple and complex instruments regardless whether they are matched in a direct or synthetic context. With the help of the Strategy Link Id (*tag 1851*), it is possible to retrieve all relevant information on complex instrument level.

9. Passive Liquidity Protection

9.1 Functional Description

9.1.1 Summary

Eurex will introduce a concept of passive liquidity protection (“PLP”) to strengthen order book trading. Aggressive order transactions (i.e. order transactions that are executable upon arrival at the matching engine) will be deferred by a time interval in the order of milliseconds or even lower, before they are able to interact with the order book. Non-aggressive order transactions (i.e. order transactions that are not executable upon entry and also denoted as passive order transactions) will directly impact the order book without deferral. Quote transactions are assumed to be passive by default and, consequently, will be treated like a Book-or-Cancel transactions with the consequence that a quote side executable upon entry will be deleted.

The effective use of the passive liquidity protection requires markets with an extrinsically driven price formation. For the Eurex exchange, the requirement is usually satisfied for options where price changes in the underlying market result to price changes of the corresponding option market or for FX products where pricing relevant information is provided from FX markets outside the Eurex environment. Apart from FX futures, therefore, it is not intended to apply the passive liquidity protection to the futures market.

The product scope, the activation approach and the deferral times of the passive liquidity protection are currently discussed with market participants and will be decided and communicated at a later point in time.

9.1.2 Current Situation

Data analysis of executions in the central order book show that matching events can be classified in general by the following three use cases.

- Aggressive Client Trade:
  The use case assumes that one or several liquidity providers are displaying double-sided quotes in the central order book denoted as passive liquidity provision. End customers willing to trade in the central order book accept the prevailing bid-ask spread and execute their client flow against the opposite side of the order book. In this use case, the end customer is on the aggressor side and the liquidity provider is acting passively in the central order book.
- Passive Client Trade:
  In contrast to the use case mentioned above, the end customer does not execute at the bid-ask spread of the central order book and places his client order inside the spread without knowing the outcome of the execution of the client order. Provided that the price of the client order now resting in the order book is attractive, competing market participants (including liquidity providers) who are assumed to permanently monitor the central order book try to aggressively match the passive client order as quickly as possible. In contrast to the use case mentioned above, the end customer is behaving passively and the liquidity providers are acting aggressively in the central order book.
- Liquidity Provider Trade:
  It is assumed that a specific price signal occurs outside the central order book and results to an outdated quote side. Such situations typically occur in extrinsically driven markets. The liquidity provider who owns the outdated quote side (“passive liquidity provider”) tries to update it. Since the extrinsic price signal can be observed by all market participants, other liquidity providers try to aggressively match the outdated quote side (“aggressive liquidity providers”). However, the passive liquidity provider has the disadvantage that he is competing against a multiplicity of aggressive liquidity providers in removing his stale quote side before the fastest aggressive liquidity provider is hitting his stale quote. Statistically, the higher the number of aggressive liquidity providers trying to hit the outdated quote side, the lower the chance of the passive liquidity provider to be successful in removing his stale quote side in due time.

Data analysis of options markets show that passive client trades are largely dominating the execution of client orders, i.e. client orders are rarely hitting passive quotes in options markets. In addition, the bid – ask spreads in

particular in less liquid stock options markets are less attractive amplifying the decline of the end customers to trade against the passively provided liquidity in the order book.

9.1.3 Motivation for Using Passive Liquidity Protection

The new T7 functionality “Passive Liquidity Protection” aims to reduce the number of liquidity provider trades and to increase the number of aggressive client trades by count and by volume. It is intended to motivate passive liquidity providers to display larger bid – ask volumes and/or tighter bid – ask spreads.

To encourage liquidity providers to display more competitive quotes, each order transaction aggressively entering the order book is deferred by a time interval Δt in the order of milliseconds or even lower. When the deferral time Δt has elapsed, the corresponding order transaction will be processed by the matching engine of the T7 trading platform and is interacting with the order book valid at that point in time. The deferred transactions will not be visible in market data as long as they are deferred.

For markets with extrinsically driving pricing formation, an order aggressively targeting a stale quote side is deferred and a passive quote transaction is processed without deferral. Thus, the selective deferral procedure gives the passive liquidity provider a time advantage of Δt to update the stale quote side before the first aggressively acting order also addressing the stale quote side is re-entering the matching engine for a second time. In case the market maker was successful in updating this stale quote side until the deferral time Δt elapsed, the aggressive order re-entering the matching engine of the T7 Trading Platform for a second time will find a cleared price level and, consequently, will not result in a liquidity provider trade.

Note that a liquidity provider (or any other market participant) is not able to recognize upfront that a passive order or quote side is going to be matched because no information will be provided to market participants about the deferral of aggressive order transactions. Instead, a liquidity provider has to react pro-actively in order to benefit from the deferral time Δt. However, it is assumed that the time advantage for a passive liquidity provider will support him to display more competitive quotes with tighter bid – ask spreads and/or larger bid – ask volumes resulting in an increased number of aggressive client trades.

The deferral of aggressive order transactions is harmless in the case of an aggressive or passive client trade. With a high probability, the quote side provided by a liquidity provider will still be available after the deferral time Δt for matching against the aggressively acting client order since there is no motivation for the liquidity provider to withdraw or remove his quote side. Basically, it is assumed that the passive liquidity provider has no motivation and there are no external circumstances recognized by him to prevent the aggressive client trade.

In case of a passive client trade, all aggressive order transactions targeting the client order in the central order book will be deferred by the same deferral time Δt without changing the transaction sequence. Thus, the first aggressively acting order targeting the client order will also be the first order re-entering the matching engine of T7 after the deferral time Δt elapsed. This order will be executed first against the client order still passively sitting in the order book. Despite the deferral of aggressive order transactions, there is still an incentive of using an optimized latency profile for aggressive liquidity providers for trading against passive client orders improving the bid – ask spread. The overall success rate to match against a stale quote side will be reduced with the introduction of the passive liquidity protection concept.

9.1.4 Configuration and Requirement Handling

The deferral time Δt needs to be carefully adjusted and refers to matching engine processing times. On the one hand, it needs to be long enough to allow the handling of a certain number of transactions by the matching engine allowing a reasonable (but not exhaustive) protection of passive liquidity providers. On the other hand, it also needs to be short enough to avoid a significant change of the order book during the deferral time and, thereby, devaluating deferred orders intended to result in aggressive or passive client trades. The deferral time Δt does not represent the time scale valid at the entry point for transactions arriving at the exchange network (access switch layer). Please note that the time scale valid at the access switch layer is in the order of micro seconds or even lower and, consequently, are not comparable to the matching engine processing times.

The configuration and requirement handling affects the T7 Eurex environment as well as the T7/FX environment.

9.1.5 Details about Deferral Decision

T7 will apply the following criteria to identify whether aggressive order transactions will be deferred:

1. **Regular Orders**
   An incoming single-order request transaction will be evaluated to ascertain if the enclosed order can be executed based on the order limit and the current central order book situation (incl. synthetic pricing, if synthetic matching is enabled). This evaluation is denoted as the marketability criterion for deferral and if it is fulfilled, a deferral will take place. Note an order restriction may prevent an immediate execution (e.g. BOC trading restriction) for the order enclosed by a request transaction, which will then not need to be analysed.
2. **Reference to Previous Orders**
   Each order transaction which is deferred will be entered into a deferral list according to a first-in-first-out sequence.
   In the event that a newly incoming transaction with a reference (using *ClOrdId* or *exchangeOrderId*) to an order transaction in the deferral list is entered, the newly incoming transaction will not pass the previous transaction that is deferred. For example, an incoming order modification transaction referencing an order transaction that is on the deferral list via the *ClOrdId*, the incoming modification transaction will also be put to the deferral list and processed after the deferred order entry transaction. The same applies to deletions. This situation is denoted as forward reference criterion and whenever an incoming order fulfils this criterion, it will be put to the deferral list.
3. **Quotes**
   Since each quote transaction is processed as a passive transaction (regardless of whether the quote is submitted with trading restriction BOC), quotes are never deferred. Instead, quotes which turn out to be aggressive will be rejected by T7 and the submitter of the quote transaction is informed about the rejection. The quote rejection context is consistent to the overall quote handling as outlined in chapter 3.1.

There are four mass cancellation events, which can occur while a transaction is deferred. The table below represents them and further outlines, which handling T7 will apply when the deferral of an order transaction is finished:

Event Type	Deferral Handling
Mass Order Deletion Request	IOC
Session Logout	Only non-persistent orders in scope: Reject for further processing
Risk Event at a BU level with Order Deletion	Reject for further processing
GUI Stop Trader/BU Button	Reject for further processing

Table 2: Mass Cancellation Events and Deferral Handling

- *Mass Order Deletion Request*
  In case of an incoming Mass Order Deletion request while an order transaction is deferred, T7 will apply to this deferred transaction the order validity of an Immediate-Or-Cancel (IOC). Thus, after the deferral, the corresponding order transaction will be matched, and any remaining quantity will be deleted automatically implying that the order will not be written to the order book.
- *Session Logout, Risk Event at a BU level with Order Deletion, GUI Stop Trader/BU Button*
  If such a mass cancellation event occurs, any deferred order transaction will be rejected after the deferral. That means for example, that even if a deferred order would have been executable, it would not be matched.

9.2 Impact on Interfaces

The following chapters outline the changes to the ETI interface, FIX interface, GUIs, and reports. The changes are described in a general fashion to provide an indication of upcoming changes. For detailed changes, please refer to the interface manuals once they are published, and to the *Online Help* in the GUIs.

9.2.1 ETI

The following changes will apply to T7 ETI interface:

- Participants will be informed in the response messages whether their corresponding transaction has been deferred. For this reason, a new field (*TransactionDelayIndicator*) will be introduced.
  Please note that the response messages will be created when the order arrives in the order book, i.e. after the deferral. It will not be send when the order when the deferral starts.
- Order Mass Cancellation Response/Notification
  Mass Cancellation Response/Notification messages will be enhanced to additionally provide a list of deferred deletion IDs (ETI message sequence number).
- A new value for the quote entry reject reason (*tag 368*) will be introduced indicating the rejection reason due to potential aggressive behavior.

9.2.2 Market Data and Reference Data

The following enhancements will be provided for RDI/RDF:

- The deferral time will be published on instrument level via RDI/RDF.

10. Equity Total Return Futures

After the successful launch of Equity Index Total Return Futures with T7 Release 4.0, Eurex plans to extend its portfolio of Total Return Futures. T7 Release 7.0 will provide the technical platform for trading of Equity Total Return Futures. The trading of ETRFs is planned to be activated in Q2 of 2019.

10.1 Functional Description

10.1.1 Equity Total Return Futures (ETRF)

10.1.1.1 ETRF Definition

An OTC Equity Total Return Swap is a transaction between two parties in which each party agrees to make a series of payments to the other, with at least one set of payments determined by the total return on an equity share. Eurex Equity Total Return Futures (ETRF) are fully fungible futures contracts aiming to replicate the performance of an OTC Equity Total Return Swap.

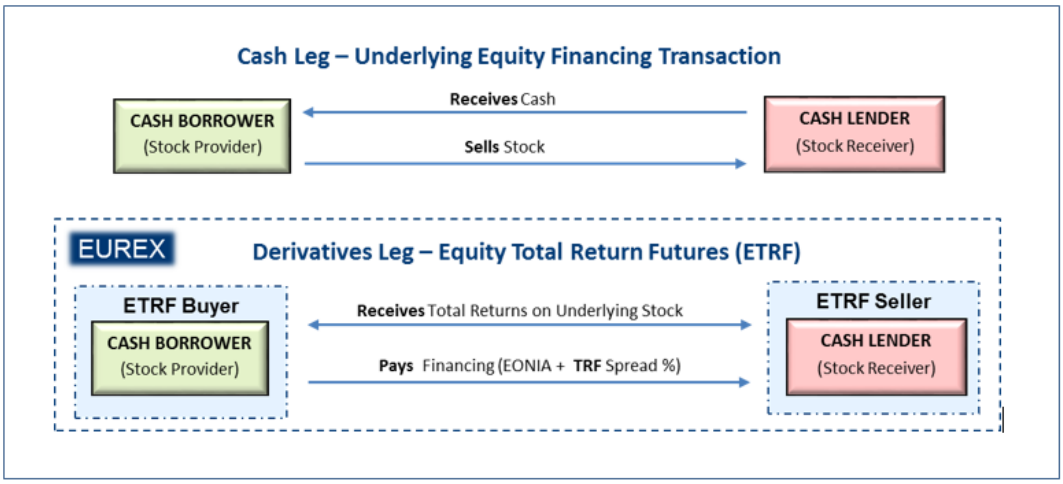


Figure 6: Equity Financing Transactions via ETRF

As depicted in the above figure, Eurex provides its participants with the possibility to trade the derivatives part of an equity financing transaction via ETRF. The corresponding cash basket hedge is envisaged to be executed outside Eurex.

The ETRF Buyer receives the total return of the underlying single stock, i.e. the value appreciation of the stock plus the Distribution meaning the dividends paid. The total return may become negative if the depreciation of the stock value exceeds the dividends paid. The ETRF Seller in return receives the funding, i.e. a financing payment. Like for Equity Index Total Return Futures, the interest rate is the EONIA rate plus the TRF spread that had been negotiated on T7.

10.1.1.2 ETRF Implementation

On-book and off-book trading of further ETRF products will be supported with the existing implementation of Total Return Futures in T7. For details, please refer to the existing functional and technical T7 documentation that is available on the Eurex website, e.g. the chapter on Total Return Futures in the appendix chapter of the T7 Functional Reference.

Note that also for each ETRF, a dedicated dividend (distribution) index will be applied by Eurex to handle the contributions of dividend payments on the ETRF.

10.1.1.3 Corporate Action Handling

Corporate actions on the underlying stock may require a correction of TRF specific parameters. Such a correction will be done in the morning before trading starts, after the corporate action has been done (ex-date). The correction is realized through a multiplication of the following previous day's TRF parameters with the applicable R-Factor:

- Dividend (Distribution) Index
- Accrued Distribution
- Accrued Funding
- Underlying Close Price

The applied R-Factor will be made available in the existing report TA115 Total Return Futures Parameters.

10.1.2 Preparation for Basket Total Return Futures (BTRF)

The present subsection provides an overview of Basket Total Return Future (BTRF) planned to be introduced with T7 Release 7.1 in 2019. The concept is envisaged to support different types of baskets in the future. For Release 7.0, the specific basket type BTRF will be supported.

T7 will support the off-book trading of baskets of ETRF instruments, or Basket Total Return Futures (BTRF). A BTRF is a customised package of one or more ETRF TES trades with the same expiration month and constructed within certain parameters (e.g. bucket, volume, notional amount, relative weight of each component, etc.) in relation to eligible shares. The BTRF is assembled and entered by a trader or by a broker. All component ETRF trades should have the same market side (buy/sell) and the same type of trade (Trade at Market (TAM) or Trade at Close (TAC)). The BTRF is approved and executed as a whole. There is no partial execution of a BTRF. The individual trades in the component instruments are then forwarded to clearing. Each Basket TRF will be identified based on a unique Basket ID automatically generated by T7 system. In addition, the trader can add an Own Reference ID in T7 for each basket trade for reconciliation purposes.

The picture below illustrates the bilateral negotiation of a BTRF between two counterparties

Figure 7: Basket Total Return Futures trading between two counterparties

T7 supports various types of basket amendment trades by making reference to an existing Basket ID. In a basket amendment operation, participants can change the composition of a specific basket by adding more component trades to the basket, where the additional trades may also be counter trades, effectively reducing or removing individual positions in the basket.

More functional and technical documentation and information for BTRF trading can be provided on demand and will be published in the T7 Release 7.1 documentation early 2019.

10.2 Impact on Interfaces

The following chapters outline the changes to the ETI interface, FIX interface, GUIs, and reports. The changes are described in a general fashion to provide an indication of upcoming changes. For detailed changes, please refer to the interface manuals once they are published, and to the *Online Help* in the GUIs.

10.2.1 ETI/FIX

The ETI/FIX interface will contain BTRF related fields (e.g. *BasketTrdMatchID*, *BasketSideTradeReportID*). Since BTRF will not be introduced with Release 7.0, the corresponding fields can be ignored.

10.2.2 Market Data and Reference Data

The T7 market and reference data interfaces will contain fields BTRF related fields. Since BTRF will not be introduced with Release 7.0, the corresponding fields can be ignored.

10.2.3 GUI

The T7 Trader GUI will support the trading of ETRF in the same way as it already supports the trading of equity index Total Return Futures.

10.2.4 Reports

The existing report TA115 Total Return Futures Parameters will report the R-Factor that is applied on the ETRF product parameters in the case of a corporate action.

11. Other Functional Enhancements

11.1 Enhancements to MIFID II Requirements

The following enhancements will be introduced due to MiFID II requirements:

- **Interface Changes**
  New fields will be added to the trade notifications and to the TES trade notification:
  - The individual transaction identification code (*TVTIC*) for each transaction resulting from full or partial executions (for more details, please refer to chapter 8)
  - The field *PartyIDClientID*
  - The field *OrderAttributeLiquidityProvision*
  - The field *OrderAttributeRiskReduction* indicating as to whether the transaction reduces risk in an objectively measurable way
  - The *fields PartyIDInvestmentDecisionMaker*, *PartyIDInvestmentDecisionMakerQualifier*, *ExecutingTrader*, *ExecutingTraderQualifie*r
- **Market Data Interface Changes**
  All components, which are related to the calculation of the *TVTIC* (except of *Envir_Flag*), will be distributed separately in the market data interfaces as well. In particular, the match step ID/TES Trade ID for the futures with underlying leg of an option volatility strategy will be filled in the future. For details about the individual components, please see the Reporting Handbook.
- **XML Report Changes**
  - The report “TE810 – T7 Daily Trade Confirmation” will include the aforementioned fields. Please note, that the *TVTIC* is already included.
  - Changes to reports “TR901 MiFID II Message Rate Report” and the “TR101 MiFID II OTR Report”.
    Only relevant for participants with a “multimember clearing account”, i.e. participants using more than one member ID.
    The “TR901 MiFID II Message Rate Report” and the “TR101 MiFID II OTR Report” reports are currently provided separately for each member ID. With the release introduction, both reports will be provided at investment firm level, i.e. all used member IDs and hence the trading activity is aggregated in one report. MiFID II rules require such change.

11.2 Extension of Trading and Clearing Hours

To cover the Asian core market hours, trading and clearing hours will be extended for specific Eurex benchmark products. A separate announcement will provide information about exact schedule for trading and clearing. In this context, trading in flexible instruments will no longer be possible after 8:15 pm CET.

11.3 Introduction of Stop Limit Orders

With the release introduction, Eurex will introduce stop limit orders. A stop limit order is a regular limit order but with an additional stop limit price (*StopPx*). The stop limit price is the price at which the regular limit order can be triggered. When the trigger condition is fulfilled, the regular limit order is entered into the order book. The trigger conditions will be the same as currently applied to stop market orders.

On entry of stop limit orders, the regular limit price of the stop order will be compared with its stop limit price. If the price difference exceeds the applicable price range, the stop limit order entry will be rejected.

Stop limit orders are intended to be made available for futures products, in particular for futures products with extended trading hours. Further details about the activation schedule will be provided at a later point in time.

11.4 New Information of TES Publication in TES Broadcast

To provide more information which TES trades will be published real time and which are disclosed to the market when the market is closed, the TES Broadcast will be enhanced by the two new valid values of "*Deferred Publication*" (*2*) and "*Published*" (*3*) in the existing field *TradePublishIndicator* (*1390*).

The new value *Published* indicates that the off-book trade is visible in real-time in the public trade volume reporting of MDI/EMDI or in the TES Time & Sales screen of the T7 Trader GUI. In contrast, the value *Deferred Publication* is indicating that the corresponding off-book trade is not visible in the public trade volume reporting of MDI/EMDI or in the T7 Trader GUI but it will be published at the end of the business day via the EMDS data stream. Please note that the deferred publication applies to off-book trades equal to or higher than the non-disclosure quantity limit valid for the corresponding product.

11.5 Eurex EnLight Enhancements

Enhancements to the Eurex EnLight service are introduced continuously and will be communicated separately.

11.6 Change of Valid Characters for Free-Format Text Fields

With the release introduction, the valid values for the free-format text fields (FreeText1, FreeText2, FreeText3) will be changed. The following characters will no longer be supported: " (0x22) , & (0x26), = (0x3D), ` (0x60) , @ (0x40), + (0x2B), ’ (0x27), < (0x3C), > (0x3E).

11.7 Report Enhancement: Instrument Mnemonics

The value of the existing field *instrumentMnemonic* contained in the reports mentioned below will be changed to be consistent with the instrument mnemonics provided via the T7 RDI reference data interface.

Please note that the instrument mnemonic is also used by ESMA as "Instrument Full Name" allowing a simplified mapping between Eurex instruments available on T7 and instrument reference data provided by Eurex to ESMA in the context of the regulatory required instrument reporting.

The following reports will be affected:

- TA113 Complex and Flexible Instrument Definition
- TA114 Variance Futures Parameter
- TE535 Cross and Quote Requests
- TE540 Daily Order Maintenance
- TE545 Daily TES Maintenance
- TE550 Open Order Detail
- TE600 Eurex EnLight Maintenance
- TE610 Eurex EnLight Best Execution Summary
- TE810 T7 Daily Trade Confirmation
- TE812 Daily Prevented Self-Matches
- TE910 T7 Daily Trade Activity
- TE930 T7 Daily Trade Statistics