



T7 Release 5.0

Final Release Notes for Eurex

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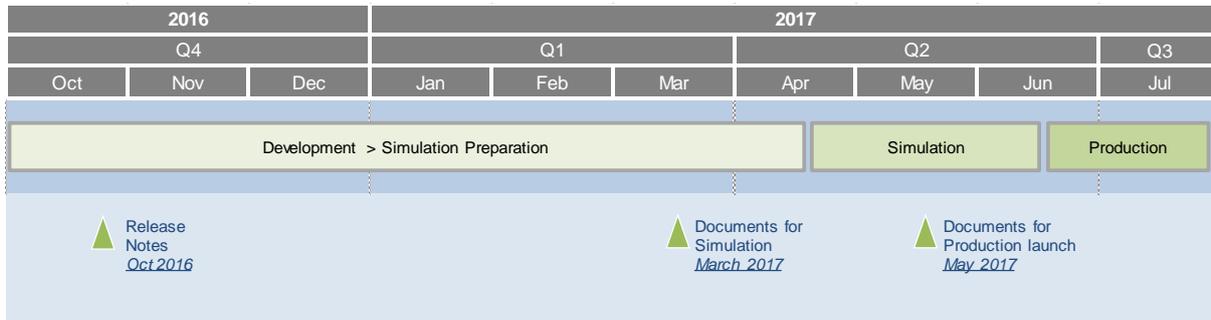
All descriptions, examples and calculations contained in this publication are for illustrative purposes only, and may be changed without further notice.

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1. Introduction

Deutsche Börse Group will migrate its Cash Market Xetra to T7 architecture with T7 Release 5.0 in order to improve and extend its exchange infrastructure. T7 Release 5.0 is planned to be launched on **19 June 2017**. The following diagram gives an overview of the introduction schedule:



A dedicated simulation environment will be provided, in order to give trading participants the opportunity to perform comprehensive testing of their trading applications, independent from Eurex Exchange’s production environment. The simulation period for T7 Release 5.0 is currently scheduled to start on **18 April 2017**.

In addition to T7’s release simulation, participants can also use the T7 Cloud Simulation that allows trading participants and Independent Software Vendors (ISVs) to test against the current T7 production and simulation environment. In this environment participants can initiate predefined market scenarios and test specific strategies more easily than in a shared environment. The T7 Cloud simulation is available 24/7 for a fixed price per hour and is accessible using an SSL-encrypted internet connection. 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

In addition to the Cash Market migration, T7 Release 5.0 will also introduce the Trade at Reference Price for Futures products functionality for Eurex Exchange together with some smaller functional and technical enhancements and changes. Furthermore there will be changes for the trading and market and reference data interfaces due to the Cash Market migration.

1.2 Further Reading

T7 Release 5.0 documentation is split into two parts, a set of combined documents which are relevant for all the markets supported by the T7 platform and another set of market specific documents which are relevant only for a particular market such as ‘Eurex’ or ‘Xetra’. The following existing documents will be revised for T7 Release 5.0. Preliminary versions (identified by ◆) were published in **October and December 2016** and simulation versions (identified by ■) will be published prior to the start of simulation. The final versions (identified by ●) will be published between **March 2017 and May 2017** prior to the production launch.

T7 Release 5.0	Eurex	Xetra	Combined	Q3 2016			Q4 2016			Q1 2017			Q2 2017			
				Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
				Release Notes												
T7 Release 5.0, Release Notes	x	x					◆								●	
Simulation																
Participant Simulation Guide	x	x													●	
Overview and Functionality																
T7 Functional and Interface Overview			x												●	
T7 Functional Reference			x												●	

T7 Release 5.0	Eurex	Xetra	Combined	Q3 2016			Q4 2016			Q1 2017			Q2 2017		
				Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Participant and User Maintenance Manual	X	X											●		
Xetra Market Model Equities & ETPs		X											●		
GUI Solutions															
Trader, Admin and Clearer GUI - Manual	X	X											■	●	
T7 Trader, Admin and Clearer GUI - Installation Manual			X										■	●	
Trading Interfaces															
Xetra Enhanced Trading Interface - An Introduction		X			●										
Xetra FIX Gateway - An Introduction		X			●										
T7 Enhanced Trading Interface – Manual incl. Repository and Header files			X					◆		■				●	
T7 Enhanced Trading Interface – XML Representation			X					◆		■				●	
T7 FIX Gateway - FIX 4.2 and 4.4 Manual incl. Fiximate and Repository			X					◆		■				●	
Market and Reference Data Interfaces															
Xetra Enhanced Market Data Feed Interface, Market Data Feed Interface, Reference Data Interface – An Introduction		X			●										
T7 Market-, Enhanced Order Book- and Reference Data Interfaces, Manual incl. Fast Message Template and Repository			X					◆		■				●	
Reference Data File – FIXML Schema Files	X	X						◆		■				●	
Xetra Instrument Reference Data Guide		X											●		
T7 Extended Market Data Services – Manual incl. Fast Message Template and Underlying Ticker Data			X					◆		■				●	
T7 Multicast-Addresses		X										●			
Reports															
XML Reports - Reference Manual	X	X						◆			■			●	
Common Report Engine User Guide			X										●		
Network Access															
Network Access Guide			X									■			●
Rules & Regulations															
Xetra Rules & Regulations		X											●		
Connectivity Pricing															
Information on Connectivity Pricing Concept		X		●											
Price List		X												●	

All the Eurex relevant documents including the combined documents will be available on the Eurex website www.eurexchange.com > **Technology** > **Eurex Exchange's T7** > **System Documentation** > **Release 5.0**.

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 Group Client Key Account Manager or via e-mail to memberservices@eurexchange.com. Alternatively, please contact your Technical Key Account Manager using your VIP number or via e-mail to cts@eurexchange.com.

2. Functional Aspects

2.1 Trade at Reference Price

The new Trade at Reference Price functionality will be supported for Futures with T7 Release 5.0 in on-book trading and for block trades in off-book trading (TES).

2.1.1 Overview

The new T7 functionality **Trade at Reference Price (TARP)** allows trading of a Futures product at differential prices relative to a reference point whose actual value may not yet be fixed during the trading phase, but finally defined only after (or later in) the trading phase. The reference point is denoted as **reference price**. Differential prices will be used in trading, and are referred to as **prices in trading notation**. For clearing and settlement, differential prices will be converted to actual prices by adding the reference price to the differential price. Thus, prices in trading notation are converted into **prices in clearing notation**. Since the reference price may not be known at the point in time when the orders are matched or off-book trades are concluded in differential prices, the conversion from trading to clearing notation is based on a preliminary reference price, which refers to the previous business day. Thus, before the finalization of the reference price at the end of the trading day, trades will be preliminary with respect to the trade price in clearing notation, and hence denoted as **preliminary trades** in clearing notation. As soon as the final reference price of the current trading day will be available and approved by the exchange, preliminary trades in clearing notation will be converted automatically into **final trades** in clearing notation by adding the final reference price to the differential price. Trade at reference price functionality will be supported for on-book trading and off-book trading (Block Trades only). Initially, the new trade at reference price functionality will be used for index Futures where the reference price is identical to the underlying index closing price. The corresponding functionality is denoted as **Market-on-Close (MOC)**.

2.1.2 Market-on-Close (MOC)

Market-on-Close allows trading of the difference between the index futures price and the index level at index close (also denoted as trading the basis). Market-on-Close functionality uses the trade at reference price functionality on T7 with the underlying index close price as reference price. A separate Futures product, denoted as **MOC Future**, will be provided for this purpose on T7. Trades in a MOC Future will be settled on a daily basis in an associated reference product, denoted as the **MOC reference Future**. For this purpose C7 will introduce a new dedicated process for MOC Futures, known as transaction based settlement. The association of the MOC Future to its MOC reference Future will only be established in C7, the MOC Future will be traded independent from the MOC reference Future.

Off-book trades of TES type EFP-Index with appendix Trade-at-Index-Close (TAIC) are regarded as interim solution for block trades in MOC Futures. In contrast to this interim solution, the new Market-on-Close functionality will support on-book and off-book trading. Please note that Eurex intends to replace completely the EFP-Index with Trade-at-Index-Close by the MOC functionality at some later point in time.

Eurex plans to introduce a MOC Future for the EuroStoXX50 Index (SX5E) with T7 Release 5.0. The launch date of the new MOC Future will be communicated in a subsequent Eurex circular. In the following chapters, the main features of this MOC Future are described: i) the representation of prices in two notations depending on the affected area, trading or clearing, and ii) the support of preliminary and final trades.

2.1.2.1 Trading Notation versus Clearing Notation of Prices

In T7, order and trade prices of MOC products will be quoted in trading notation, representing the difference between the index Futures price and the index level at index close (i.e. representing the basis). In order to be sent to the clearing system, the trade price will be converted into clearing notation. The relation between a price in trading notation and in clearing notation depends on the underlying index close price which corresponds to the reference price maintained by the exchange. An additional static clearing price offset can be defined per product. The reference price and the clearing price offset constitute the conversion parameters for a MOC Future, or for a TARP product in general. The current conversion parameters will be disclosed via T7 RDI/RDF and will also be

available via the Trader GUI. Note that, depending on the product setup, a MOC product (or a TARP product in general) may also be traded with negative prices in the trading notation, whereas trade prices in clearing notation are always positive.

The price conversion is based on the following:

$$\text{Price in Clearing Notation} = \text{Price in Trading Notation} + \text{Reference Price} - \text{Clearing Price Offset}$$

Please note that different price granularities may apply for the price in trading notation, the reference price and the clearing price offset.

Example:

MOC Future:	FES1 (zero clearing price offset)
MOC Reference Future:	FESX
Underlying Index:	SX5E
Index close price (final reference price):	2,485.62
Participant A:	Buy 1 contract (to open position) FES1 traded @3.1 (open position) Delivery price: 2,488.72 (3.1+2,485.62) Long 1 contract FESX on the next business day
Participant B:	Sell 1 contract (to open position) FES1 traded @3.1 Delivery price: 2,488.72 (3.1+2,485.62) Short 1 contract FESX on the next business day
Participant C:	Buy 1 contract (to open position) FES1 traded @-2.7 Delivery price: 2,482.92 (-2.7+2,485.62) Long 1 contract FESX on the next business day
Participant D:	Sell 1 contract (to open position) FES1 traded @-2.7 Delivery price: 2,482.92 (-2.7+2,485.62) Short 1 contract FESX on the next business day

Please note that the price granularity of the MOC reference product FESX is 1.0, the price granularity of the MOC product FES1 is given by 0.1, and the price granularity of the Underlying Index Close Price SX5E is 0.01. Thus, the clearing price granularity is given by 0.01 and, as a consequence, trades in the reference product FESX resulting from transaction based settlement of basis trades in the MOC future FES1 will have a higher price granularity compared to trades directly generated in FESX.

Order, quote and TES broadcasts will be filled with prices in trading notation only. Trade price statistics in the market data interfaces will be provided exclusively in trading notation. Once executed, the traded price in trading notation will be converted to clearing notation before it is sent to C7. Trade notifications on ETI and Eurex T7 Trader GUI will be provided with prices in both trading and clearing notations.

The Eurex T7 Trader GUI will display prices in clearing notation for orders and trades in addition to prices in trading notation. The GUI trades view will indicate the state of a trade in a MOC product (or TARP product in general) as preliminary or final.

The report T7 Daily Trade Confirmation TE810 will show preliminary and final trades indicated with a corresponding trade type.

The conversion parameters that will be used in the calculation of the clearing price (reference price, clearing price offset) will immediately be available via a dedicated TARP status message in the T7 RDI (Reference Data Interface) snapshot messages and will also be included in the T7 RDF (Reference Data File). Final conversion parameters will be tagged as the current business day in the business day type. Note that in the T7 RDI instrument snapshot message the previous day's settlement price will be published in clearing notation. The specific conversion method of TARP products will be indicated in the functional products and instrument files on the Eurex web page www.eurexchange.com.

2.1.2.2 Preliminary and Final Trades

During the day, before the index close price is known, the calculation of the clearing price applies a preliminary value of the reference price, denoted as preliminary reference price. Trades where the calculation of the trade price in clearing notation is based on a preliminary reference price will be marked as preliminary trades in clearing notation and sent immediately to C7. Every morning, the preliminary reference price will automatically be set to the final reference price of the previous business day, corresponding to the index close value of the previous day.

In the evening, when the index close value of the index is known, market supervision will enter the index close value as the final reference price thereby triggering the recalculation of the trade prices in clearing notation for all preliminary trades that are concluded during the day. All preliminary trades will be converted to final trades in clearing notation using the final reference price. At their creation, final trades will be forwarded immediately to C7.

3. Technical Enhancements

3.1 Enhancement of Trading Interfaces

3.1.1 New ETI Version

Together with T7 Release 5.0, the **T7 ETI** will change to version "5.0". ETI version "4.0" will be supported in backward compatibility mode. ETI version "3.0" will no longer be supported.

3.1.2 Introducing the Market Concept to Sessions

Currently T7 supports two markets, Eurex and EEX. In the context of the Cash Market migration to the T7 platform with Release 5.0, T7 will extend its support to include markets such as Xetra. In order to help market participant's communication with T7 interfaces, **T7 ETI** will introduce the concept of a *Market* at the session level with Release 5.0. As a result, the following impact is expected:

- The session logon response will contain the market identifier for which that particular session is configured.
- A subscription to the broadcasts is only accepted for the market that corresponds to the session. In case the market identifier is not provided in the subscription request then the session's market is taken as the default. The data provided in the broadcast will only be from the session's market.
- Participants connecting to several markets will need individual sessions for each market.

3.1.3 Processing based on the Network Sequence

The T7's **High Frequency gateways** will be enhanced with T7 Release 5.0 to process the incoming transactions in the sequence they are received at the network interface and will prevent any re-ordering within the gateway. More precisely the sequence will be kept for all transactions processed by a specific gateway and targeting the same matching engine. Requests processed by different gateways and/or by different partitions may still overtake each other.

3.1.4 Enhancement of the T7 FIX Interface

With T7 Release 5.0 onwards, the **T7 FIX** interface will provide a generic interface with common messages for all T7 markets. That implies:

- Changes in the existing functionality and messages. For more details on the changes please refer to the T7 FIX Gateway manual on the Eurex website.
- With T7 Release 5.0, the T7 FIX interface will not be backwards compatible to the FIX interface for Release 4.0.

3.1.5 Enhancement of Order Execution Response and Notification

With T7 Release 5.0 the *Immediate Execution Response* and *Book Order Execution* messages on the **T7 ETI** interface will be enhanced to help participants manage their incoming orders and open orders in the book more efficiently.

Side will be included as a mandatory field to the *Immediate Execution Response* and *Book Order Execution* Notification on the **T7 ETI** interface.

3.1.6 Enhancement of Approve TES Trade Broadcast

With T7 Release 5.0 the *Approve TES Trade Broadcast* on the **T7 ETI** interface will be enhanced to additionally contain the entering user of a *Approve TES trade* request (*PartyIDEnteringFirm* and *PartyEnteringTrader*) which can be different from the approving user as specified when entering the off-book trade initially in T7. Please note that the entering user of a *Approve TES trade* request must belong to the same business unit as the approving

user of the affected TES side and must be a group head trader of the approving user, or alternatively must be a trader supervisor for the business unit.

3.1.7 Extending FIX Compliance

With T7 Release 5.0 T7 ETI will incorporate the FIX Extension Pack 188 which will result in following changes:

- Tag *NoFillsIndex* (25010) will be changed to Tag *FillRefID* (2421).
- *PartySettlementLocation* will be renamed to *PartyIDSettlementLocation*.

3.2 Common Report Engine

In general, report changes (cf. Eurex XML Report Reference Manual v3.1.3) will become effective on **5 June 2017** in production and on **12 May 2017** in the simulation environment. Additional changes will become effective later (cf. Eurex XML Report Reference Manual v3.1.4), on **3 July 2017** in production and on **9 June 2017** in the simulation environment.

3.2.1 TE545 Daily TES Maintenance

The TE545 Daily TES Maintenance report will be updated to use new tags for alphanumeric data in replacement of tags for numeric data as follows:

- *couponRat* replacing *cpnRat*
- *couponFrq* replacing *cpnFreq*
- *cashBsktRefId* replacing *cashBsktRefId*
- *fixedRat* replacing *fixRat*
- *couponVarRef* replacing *cpnVarRef*
- *couponVarOfs* replacing *cpnVarOfs*

3.2.2 TE930 T7 Daily Trade Statistics

The availability of report TE930 T7 Daily Trade Statistics is changed from “for all members” to “public” and thus must be retrieved from the public area of the common report engine.

3.2.3 RD115 User Profile Status

The RD115 User Profile Status report will be updated to include the following information:

- *delProtected* (indicating users which cannot be deleted by the business unit service administrator)

The following information will be included as a later change on **3 July 2017**, respectively on **9 June 2017** in simulation:

- *enableProprietaryAcct* (set for a user who is enabled to use the proprietary account for the trading capacity)
- *enableAgencyAcct* (set for a user who is enabled to use the agency account for the trading capacity)
- *enableMarketMakingAcct* (set for a user who is enabled to use the market-making account for the trading capacity)

3.2.4 RD125 User Transaction Size Limit Status

The RD125 User Transaction Size Limit Status report will be updated to include the following information:

- *maxTESQty* (the maximum TES quantity for a trader in a product)
- *effMaxTESQty* (the effective maximum TES quantity for a trader in a product)

3.2.5 RD Trading RDS Reports with combined Layout for all Markets

As a later change on **3 July 2017**, respectively on **9 June 2017** in simulation, the RD trading RDS reports (RD110, RD115, RD120, RD125, RD130, RD135, RD140, RD145, RD155) will be provided with a common layout for all markets supported by the T7 platform. The following new tags will be introduced on RD trading RDS reports for usage in cash markets only: *freeText4* (affecting reports RD115 and RD135), *maxOrderValue* (affecting report RD115), *settlAcct* (affecting report RD115), *settlLocat* (affecting report RD 115).

4. Appendix

4.1 Definitions and Abbreviations

The following definitions and abbreviations are used in the release notes:

T7	Trading system developed by Deutsche Börse Group
T7 ETI	T7 Enhanced Trading Interface
T7 RDF	T7 Reference Data File
T7 RDI	T7 Reference Data Interface
T7 FIX	Financial Information eXchange (Protocol)
C7	Clearing system developed by Deutsche Börse Group
MOC	Market-On-Close
RDS	Reference Data System
TARP	Trading At Reference Price
TES	T7 Entry Services for off-book Trades
EFPI	Exchange for Physicals (EFP) Index
EEX	European Energy Exchange

