



DEUTSCHE BÖRSE
CASH MARKET

T7 Release 10.0

Final Release Notes

for the Trading Venues Xetra and Börse Frankfurt

Version 1.0

Date 27 Aug 2021

© 2021 by Deutsche Börse AG ("DBAG"). All rights reserved.

All intellectual property, proprietary and other rights and interests in this publication and the subject matter of this publication are owned by DBAG, other entities of Deutsche Börse Group or used under license from their respective owner. This includes, but is not limited to, registered designs and copyrights as well as trademark and service mark rights. Methods and devices described in this publication may be subject to patents or patent applications by entities of Deutsche Börse Group.

Specifically, the following trademarks and service marks are owned by entities of Deutsche Börse Group: Buxl[®], DAX[®], DivDAX[®], eb.rexx[®], Eurex[®], Eurex Repo[®], Eurex Strategy WizardSM, Euro GC Pooling[®], F7[®], FDAX[®], FWB[®], GC Pooling[®], GCPI[®], M7[®], MDAX[®], N7[®], ODAX[®], SDAX[®], T7[®], TecDAX[®], USD GC Pooling[®], VDAX[®], VDAX-NEW[®] and Xetra[®].

The following trademarks and service marks are used under license and are property of their respective owners:

- All MSCI indexes are service marks and the exclusive property of MSCI Barra.
- ATX[®], ATX[®] five, CECE[®] and RDX[®] are registered trademarks of Vienna Stock Exchange AG.
- IPD[®] UK Annual All Property Index is a registered trademark of Investment Property Databank Ltd. IPD and has been licensed for the use by Eurex for derivatives.
- SLI[®], SMI[®] and SMIM[®] are registered trademarks of SIX Swiss Exchange AG.
- The STOXX[®] indexes, the data included therein and the trademarks used in the index names are the intellectual property of STOXX Limited and/or its licensors Eurex derivatives based on the STOXX[®] indexes are in no way sponsored, endorsed, sold or promoted by STOXX and its licensors and neither STOXX nor its licensors shall have any liability with respect thereto.
- Bloomberg Commodity IndexSM and any related sub-indexes are service marks of Bloomberg L.P.
- PCS[®] and Property Claim Services[®] are registered trademarks of ISO Services, Inc.
- Korea Exchange, KRX, KOSPI and KOSPI 200 are registered trademarks of Korea Exchange Inc.
- BSE and SENSEX are trademarks/service marks of Bombay Stock Exchange ("BSE") and all rights accruing from the same, statutory or otherwise, wholly vest with BSE. Any violation of the above would constitute an offence under the law of India and international treaties governing the same.

Information contained in this publication may be erroneous and/or untimely. All descriptions, examples and calculations contained in this publication are for illustrative purposes only, and may be changed without further notice. Neither DBAG nor any entity of Deutsche Börse Group makes any express or implied representations or warranties regarding the information contained herein. This includes without limitation any implied warranty of the information's merchantability or fitness for any particular purpose and any warranty with respect to the accuracy, correctness, quality, completeness or timeliness of the information.

Neither DBAG nor any entity of Deutsche Börse Group shall be responsible or liable for any third party's use of any information contained in this publication under any circumstances. The information contained in this publication is not offered as and does not constitute investment advice, legal or tax advice, an offer or solicitation to sell or purchase any type of financial instrument.

Content

1. Overview of T7 Release 10.0	6
1.1 New Features and Enhancements Overview	6
1.2 Note on Interfaces	7
1.3 Further Reading	8
1.4 Contacts	9
1.5 Definitions and Abbreviations	9
2. Introduction of Multi-Currency Trading for ETFs and ETPs	10
2.1 Impact on Interfaces	10
2.1.1 ETI	10
2.1.2 FIX Gateway	11
2.1.3 FIX LF Interface	11
2.1.4 Market and Reference Data Interfaces	11
2.1.5 Trader GUI	11
2.1.6 XML Reports	11
2.1.6.1 Structural change for currency field in some XML reports	12
3. Trading Hour Extension for Börse Frankfurt	13
3.1 Impact on Interfaces	13
4. Self-Match Prevention (SMP) and Matching Cascades	14
4.1 Functional Description	14
4.1.1 Self-Match Prevention also for FOK orders	14
4.2 Changes to SMP message workflow	15
4.3 Example	15
4.4 Impact on Interfaces	16
4.4.1 ETI	16
4.4.2 FIX Gateway	16
4.4.3 FIX LF Interface	16
4.4.4 Market and Reference Data Interfaces	17
4.4.5 XML Reports	17
5. New Automated Corridor Expansion Volatility Model	18
5.1 Functional Description	18

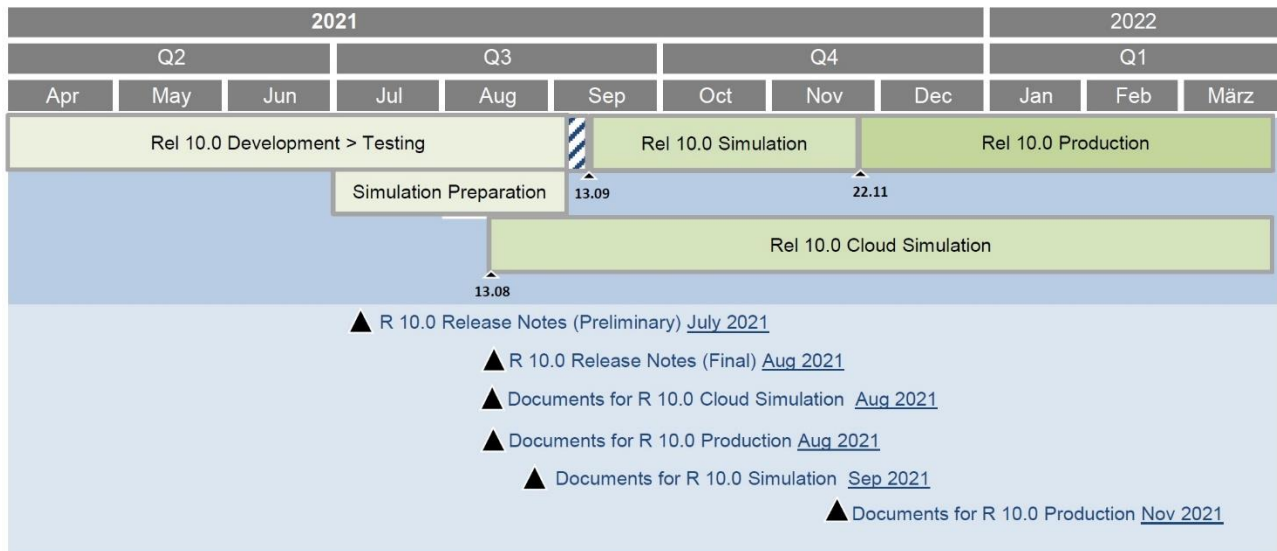
5.1.1	Configuration of the ACE Volatility Model	18
5.1.2	Triggering of ACE Volatility Interruptions	19
5.1.3	Terminations of ACE Volatility Interruptions	19
5.1.4	Examples: Behaviour of the ACE Volatility Model in Specific Market Situations	20
5.1.4.1	Processing ACE Volatility Interruptions without Automatic Termination in an ACE Volatility Corridor	21
5.1.4.2	Processing and Termination of ACE Volatility Interruptions in the Opening Auction	22
5.1.4.3	Processing and Termination of ACE Volatility Interruptions in the First Volatility Corridor	23
5.1.4.4	Processing and Termination of ACE Volatility Interruptions in the Third Volatility Corridor	24
5.1.4.5	Processing of ACE Volatility Interruptions followed by a Scheduled Auction	25
5.1.4.6	ACE Volatility Interruptions and Trade-at-Close	25
5.2	Impact on Interfaces	25
5.2.1	RDI and RDF	26
5.2.2	Market Data	26
5.2.3	Trader GUI	26
6.	Continuous Auction with Market Maker Trading Model Enhancements	27
6.1	Impact on Interfaces	27
6.1.1	RDI and RDF	27
6.1.2	Market Data	27
7.	SFTP Up/Download Functionality for non-MiFIR Transaction Reporting	28
8.	SFTP Upload Functionality for Short Codes and algoIDs	29
9.	Trading Sessions for the new T7 FIX LF interface	30
10.	Further Changes and Enhancements	31
10.1	T7 Trader GUI: Display of the Coupon Rate for Variable Bonds	31
10.2	Overwriting of Free Text Fields when Specialist acts On Behalf	31
10.3	Remove field <i>OrdNoClearing</i> from T7 Trader GUI views	31
10.4	Removal of Self-Match Prevention (SMP) from FIX gateway	31
10.5	Enhancement for Price Determination based on Price-without-Turnover (PWT) Quotes on Börse Frankfurt	31
10.6	Change of field content in ETI TES broadcast messages	32
10.7	Regular clean-up of News messages	32
10.8	Reference data files for Simulation in CSV format	32

10.9 New XML Reports for Xetra Performance Measuring	32
10.10 XML Reports: New / modified valid values in field <i>errDescription</i>	32
11.Change log	33

1. Overview of T7 Release 10.0

Deutsche Börse AG is planning to launch T7 Release 10.0 on 22 November 2021.

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 10.0 is planned to start on 13 September 2021.

In addition, and prior to the T7 release simulation, Deutsche Börse AG offers a T7 Release 10.0 Cloud Simulation to allow trading participants and Independent Software Vendors (ISVs) to test the T7 Release 10.0 ETI, FIX gateway, new FIX LF interface, as well as RDI, MDI, EMDI and EOBI interface changes. In the Cloud Simulation, participants can initiate predefined market scenarios and test specific strategies more easily than in a shared environment. The Cloud Simulation is available around the clock for a fixed price per hour and started on 13 August 2021.

For more information on the T7 Cloud Simulation, please refer to <http://www.xetra.com/xetra-en/technology/t7/cloud-simulation>.

1.1 New Features and Enhancements Overview

The following new features and enhancements will be introduced with T7 Release 10.0:

	Relevant for	
	T7 Xetra	T7 Börse Frankfurt
Introduction of Multi-Currency Trading for ETFs and ETPs	x	
Trading Hour Extension for Börse Frankfurt		x
Self-Match Prevention (SMP) and Matching Cascades	x	
Introduction of the <i>Automated Corridor Expansion</i> Volatility Model	x	

	Relevant for	
	T7 Xetra	T7 Börse Frankfurt
<i>Continuous Auction with Market Maker</i> Trading Model Enhancements		x
SFTP Up/Download Functionality for non-MiFIR Transaction Reporting	x	x
SFTP Upload Functionality for Short Codes and algoIDs	x	x
Trading Sessions for the T7 FIX LF interface	x	x

And Further Changes and Enhancements.

1.2 Note on Interfaces

T7 Release 10.0 will **not** provide backwards compatibility for the T7 ETI/FIX interface version 9.1, i.e. participants will have to use the new functionality and **will not be able** to connect to T7 with the interface layout version 9.1 anymore, after the production launch of T7 Release 10.0.

Concerning the existing FIX gateway, see chapter 9.

1.3 Further Reading

The existing documents have been or will be revised for T7 Release 10.0. The following table provides an overview of the schedule for the publication:

T7 Release 10.0	Derivatives Markets	Cash Markets	Combined	Q2 / 2021			Q3 / 2021			Q4 / 2021		
				Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
T7 Release 10.0 - Release Notes	X	X					◆	●				
T7 Functional Reference			X					●				
T7 Functional and Interface Overview			X					●				
T7 Participant Simulation Guide			X					●				
T7 Cross System Traceability			X					●				
T7 Incident Handling Guide			X					●				
T7 Participant and User Maintenance Manual	X	X						●				
Contract Notes Description		X									●	
T7 Known Limitations			X						■		●	
T7 Trader, Admin and Clearer GUI – User Manual	X	X							■		●	
T7 Trader, Admin and Clearer GUI – Installation Manual			X						●			
T7 Enhanced Trading Interface – Manual incl. XSD, XML Representation and Layouts			X						■		●	
T7 FIX Gateway – FIX 4.4 Manual incl. Fiximate and Repository			X						■		●	
T7 FIX LF – Manual incl. XML Representation and FIX Repository			X						■		●	
T7 Market, - Enhanced Order Book and Reference Data Interfaces Manual incl. Fast Message Template, Repository & FIXML Schema Files			X						◆		●	
T7 Extended Market Data Services – Manual incl. Fast Message Template and Underlying Ticker Data			X						■		●	
Cash Market Instrument Reference Data Guide		X							●			
T7 XML Report Reference Manual			X						■		●	
Common Report Engine User Guide			X						●			
Common Upload Engine User Guide			X						●			
N7 Network Access Guide			X						●			
Exchange Rules & Regulations		X									●	
Market Models		X									●	
MiFIR Reporting Manual			X			●						
Non-MiFIR Member Reporting Manual			X		●							

◆ Cloud Simulation / Prelim. Version ■ Simulation Version ● Production / Final Version

Please note that the outlined schedule is subject to change.

The documents will be available on the Xetra website www.xetra.com under the path:

> Technology > T7 Trading Architecture > System Documentation > Release 10.0

1.4 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.

1.5 Definitions and Abbreviations

Term/Abbreviation	Description
ACE	Automated Corridor Expansion (volatility model)
BFZ	Börse Frankfurt Zertifikate AG is a subsidiary of Deutsche Börse AG. The marketplace offers trading in certificates, warrants and reverse convertibles.
Börse Frankfurt	Trading venue of FWB, where equities, bonds, ETFs, ETCs, ETNs and funds are traded.
BU	Business Unit
CRE	Common Report Engine
CUE	Common Upload Engine
DBAG	Deutsche Börse AG
EMDI	T7 Enhanced price level netted Market Data Interface
EOBI	T7 Enhanced Order Book Market Data Interface
ETI	T7 Enhanced Trading Interface
FIX	Financial Information eXchange (portal)
FWB	Frankfurter Wertpapierbörse
GUI	Graphical User Interface
LF	Low Frequency
MDI	T7 netted price level aggregated Market Data Interface
RDF	T7 Reference Data File
RDI	T7 Reference Data Interface
SFTP	Secure File Transfer Protocol
SMP	Self-Match Prevention
T7	T7 is the trading architecture developed by Deutsche Börse Group
TES	T7 Entry Service
XETR	Market Identifier Code (MIC) of trading venue T7 Xetra
XFRA	Market Identifier Code (MIC) of trading venue T7 Börse Frankfurt including Börse Frankfurt Zertifikate

2. Introduction of Multi-Currency Trading for ETFs and ETPs

ETF and ETP instruments are already traded in different currencies on the trading venue Xetra.

Starting with T7 Release 10.0, T7 Xetra will offer the possibility to trade the same ISIN in multiple trading currencies as dedicated individual instruments meaning that an instrument will relate to a specific ISIN-currency combination. All ISIN-currency combinations of one ISIN will be traded in the same product.

Please note that the setup of multi-currency ISINs will be based on the concept that the trading currency equals the settlement currency for an ISIN in case of Multi-Currency Trading. Therefore, the prerequisite to trade these ETF and ETP instruments will continue to be that a participant must register for the settlement currency to use the new functionality if not already done.

This functionality is initially planned for ETFs and ETPs and will initially be supported for USD and EUR trading lines. Further currencies will be introduced in 2022. Participants will be informed about the introduction of additional currency trading lines accordingly.

Please note, that the trading currency will generally become – besides the ISIN – a defining attribute of an instrument, so that for each ISIN-currency combination a separate orderbook will be maintained. This means:

- Designated Sponsors and Regulated Market Makers will have to register for every ISIN-currency combination separately.
- Xetra EnLight respondents will have to register for each ISIN-currency combination separately.
- Instrument Events will be triggered for each ISIN-currency combination separately, such as the deletion of all orders and quotes, adjustment of the reference price by a specific amount, or generation of news board messages among other events.

Participants who want to participate in multi-currency trading should analyse the potential impact on their systems and interfaces where the ISIN is used as a primary key. Participants may have to consider that in a front-end (GUI) the ISIN will no longer be sufficient to identify an instrument / orderbook. Either the ISIN plus currency or the short code (mnemonic) will be needed to ensure a clear identification. Participants relying on WM-Daten for their order-routing should check how WM-Daten handles multi-currency trading.

Even if participants are not using this feature, they will need to ensure that their orders are routed to the ISIN-currency combination they expect.

2.1 Impact on Interfaces

The following chapter outlines the changes to interfaces to support the functionality. The changes are described in a general fashion to provide an indication of the upcoming amendments. For detailed changes, please refer to the interface manuals and to the *Online Help* in the GUIs.

2.1.1 ETI

No impact on ETI.

2.1.2 FIX Gateway

The trading currency will become – besides the ISIN – a defining character of an instrument in various messages where this is not already the case.

In the existing FIX gateway, the currency field is optional for requests sent with an ISIN as identifier. If the currency is not specified, EUR will be set as default currency for ISINs that are traded with more than one currency, to ease the handling of multi-currency trading via the existing FIX gateway. The introduction of a default currency for the existing FIX gateway will reduce the efforts to adapt to multi-currency trading for the trading participants that will continue to use the current FIX infrastructure until its decommissioning.

2.1.3 FIX LF Interface

The trading currency will become – besides the ISIN – a defining character of an instrument in various messages where this is not already the case.

On the new FIX LF interface, the currency will be mandatory.

2.1.4 Market and Reference Data Interfaces

The message layouts for the market data and RDI/RDF reference data interfaces will not be changed with this requirement.

2.1.5 Trader GUI

The trading currency will become – besides the ISIN – a defining character of an instrument in various views, especially in searches and filters. Either ISIN plus currency or the short code (mnemonic) will be required to ensure a clear identification.

2.1.6 XML Reports

With T7 Release 10.0, several XML reports will be changed in order to make them capable to reflect instruments traded in more than one currency. This means in practice, that besides the ISIN also the currency has to be part of keys.

For all reports:

- Wherever there is the *isinCod* in a key field, but the *currTypCod* is missing, the field *currTypCod* will be added to this key, even if the *currTypCod* is also part of the data record.

Fee reports CB042 ... CB263:

- The existing field *currTypCod* will be replaced by the new field *billCurrTypCod*.
- The existing field *exchCurrTypCod* will be replaced by the existing field *currTypCod*.
- A new field header will reflect the currency (in the manual denoted with XXX).

TR101 MiFID II OTR Report:

- The OTR will be calculated per instrument reflecting the ISIN-currency combination.

TR901 MiFID II Message Rate Report:

- The Message Rate will be calculated per instrument reflecting the ISIN-currency combination.

2.1.6.1 Structural change for currency field in some XML reports

With T7 Release 10.0, there will be a structural change in the following reports to have the currency field as part of the instrument group:

- TC540 Daily Order Maintenance
- TC545 TES Maintenance Reports
- TC550 Open Order Detail
- TC600 EnLight Maintenance Reports
- TC610 EnLight Best Execution Summary
- TC810 T7 Daily Trade Confirmation
- TC812 Daily Prevented Self-Matches
- TC910 Daily Match Step Activity
- PM010 Performance Report Equities Regulated Market Maker
- PM020 Performance Report ETFs & ETPs Regulated Market Maker
- PM100 Performance Report Equities Designated Sponsor
- PM200 Performance Report ETFs and ETPs Designated Sponsor
- PM300 Compliance Report Equities Designated Sponsor
- PM400 Compliance Report ETFs & ETPs Designated Sponsor
- PM500 Rating Report Equities Designated Sponsor
- PM600 Individual Rating Report Equities Designated Sponsor
- PM810 Individual Issuer-Designated Sponsor Report ETFs & ETPs
- PM820 Individual Designated Sponsor-Issuer Report ETFs & ETPs
- PM900 Specialist Performance per Executed Order
- PM920 ITM Issuer Fulfillment Instrument Level
- PM930 ITM Issuer Performance Per Executed Order

3. Trading Hour Extension for Börse Frankfurt

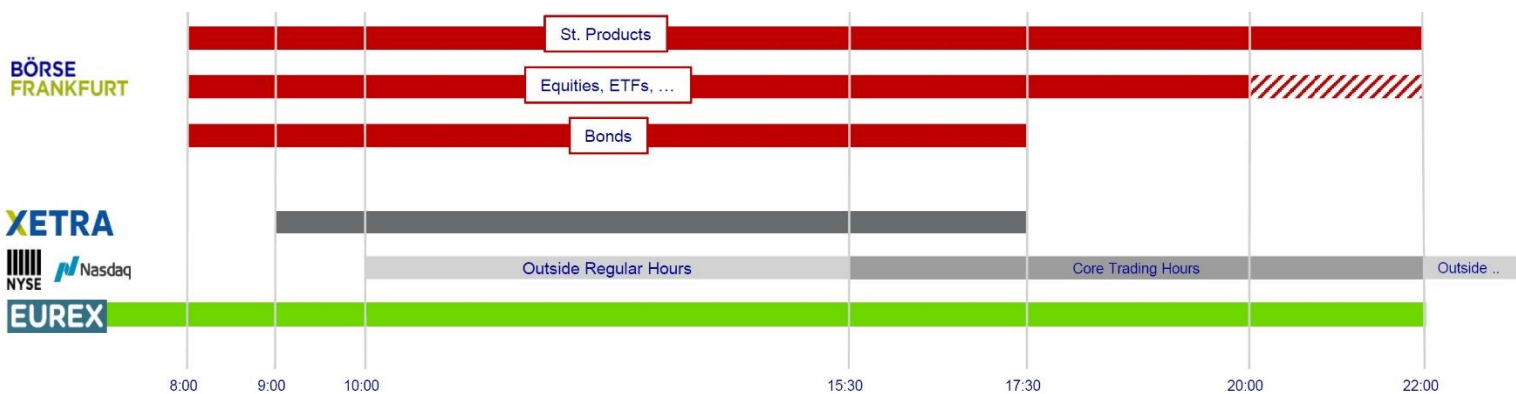
With the introduction of T7 Release 10.0, the technical readiness will be achieved to allow trading of all instruments listed on the trading venue Börse Frankfurt until 10 p.m. CE(S)T.

Currently, trading ends at 10 p.m. CE(S)T for a subset of instruments of Börse Frankfurt Zertifikate. Trades in these instruments are all settled bilaterally without a central counterparty.

For Börse Frankfurt equities, mutual funds, and ETF/ETP instruments, regardless of whether they will be cleared bilaterally or via a central counterparty, the trading hours will be extended to 10 p.m. CE(S)T after the launch of T7 Release 10.0. No such change is envisaged for Bonds.

As a result, traders will be able to trade in US shares during the full regular trading hours of the US markets.

The trading hours will be extended as of 29 November 2021.



3.1 Impact on Interfaces

There will be no impact on interfaces.

4. Self-Match Prevention (SMP) and Matching Cascades

With the introduction of T7 Release 10.0, Xetra will change the processing of the Xetra Self-Match Prevention (SMP) for SMP type “A” to allow a consistent matching cascade beyond the first price level. Incoming SMP orders or quotes will be allowed to continue matching on the next price levels after the first SMP event has been triggered until the quantity has been exhausted or no matching can any longer occur. In addition, it will be possible to enter FOK orders using the SMP functionality.

4.1 Functional Description

Xetra Self-Match Prevention is an optional feature supported for cash markets in continuous trading and prevents the execution of an incoming order against a sitting order or quote side from the same business unit, if they have been marked with the same identifier (SMP ID) by the entering user.

Today, for the incoming order, if there is still a remaining open quantity left after its quantity has been reduced by the prevented match quantity on a specific price level, then this remainder of the incoming order is allowed to match further *only on the same* price level. It is also possible that further matches on that price level are again prevented due to a self-match prevention. After matching is completed on that price level, any remaining open quantity left for the incoming order is cancelled, effectively preventing the incoming order from matching on further price levels.

The new SMP functionality enhancement will allow an incoming SMP order or quote to match further into the next price levels, as far as quantity and limit permit, even when an SMP cancellation occurred on a previous price level. After the matching on all possible price levels has been completed, any remaining open quantity left for the incoming order or quote will be processed according to the respective validity or order restriction. In general, besides the quantity reduction caused by an SMP prevention the matching process of an order with SMP ID and the respective SMP action will not be different to an order without SMP ID or SMP action.

With the SMP functionality enhancement, each SMP event will be reported on each price level separately, accumulating the executed, deleted, and cancelled quantities on each price level, thus allowing customers to distinguish executed quantities from cancelled quantities for incoming orders or quotes or deleted quantities for sitting orders or quotes. The deleted quantity reported on a match event level will be the accumulation of all deleted quantities on all match steps.

This will lead to changes in the ETI and FIX order and quote related messages that will not be backward compatible. Please note that SMP will be offered only for the new FIX LF interface but not anymore for the existing FIX gateway. The existing FIX gateways will neither support the original nor the enhanced SMP functionality after Release 10.0. Trading participants relying on the functionality are required to migrate to the new FIX LF interface with Release 10.0.

4.1.1 Self-Match Prevention also for FOK orders

With T7 Release 10.0, Self-Match Prevention (SMP) will also be possible for FOK orders.

- If the FOK order will potentially be fully executable, considering all price levels, then the FOK order will not be deleted, and the Self-Match Prevention will be applied, according to the new SMP model with matching cascades.
- If the FOK order will not potentially be fully executable, it will be deleted without any impact on any other order in the order book.

4.2 Changes to SMP message workflow

With the SMP functionality enhancement, the matching cascade continues after the first SMP check, hence the number of match steps will increase. Currently, the cancelled quantity due to SMP is reported on match event level together with cancellations that result from the same price level limitation. With this enhancement, the cancelled quantities will also be introduced for each match step and therefore available for each price level.

For each price level, Xetra will report the accumulated cancelled quantity in the corresponding match step which will be reported under attribute *deletedQty*. Please note, there could potentially be a match step without step quantity and step price but only with deleted quantity due to SMP. The Match Step ID will also be assigned to match steps and reported where the complete step quantity gets cancelled due to SMP (no execution). When both executions and cancellations at different match steps occur during one transaction, the cancelled quantity on each price step as well as the executed quantity on each price step are reported including the Match Step Id for each match step. The field cancelled quantity, as of today, will be the accumulated quantity cancelled due to SMP and other possible cancellation like e.g. IOC.

4.3 Example

Consider a scenario where participant X enters a sell order 600 @ 99.0 with SMP ID 123 for a certain instrument. The order book situation is:

Price Level	Price	Quantity	Order Owner	SMP ID Participant X
1	100.0	200	Participant Y	
1	100.0	50	Participant X	123
2	99.6	100	Participant X	123
3	99.5	50	Participant Z	

Comparing the existing SMP workflow with the enhanced SMP workflow in T7 10.0, the matching is executed in the following steps:

Steps	Existing SMP Workflow	Enhanced SMP workflow T7 10.0
1	Execute 200@100.0 against participant Y	Execute 200@100.0 against participant Y
2	Reduce incoming order by 50 due to SMP, while the sitting order at price level (1) is deleted.	Reduce incoming order by 50 due to SMP, while the sitting order at price level (1) is deleted.
3	Since price level is depleted, cancel remaining 350 quantity of incoming order	Reduce incoming order by 100 due to SMP, while the sitting order at price level (2) is deleted.
4		executed 50@99.5 against participant Z
5		Incoming order with 200@99.0 remaining quantity gets written into the orderbook

See here the message flow (simplified) for the incoming order via Immediate Execution Response:

Field Names (Tag)	Existing SMP	Enhanced SMP T7 10.0
Message Body		
OrdStatus (39)	Cancelled	Partially filled

Field Names (Tag)	Existing SMP	Enhanced SMP T7 10.0
ExecType (150)	Trade	Trade
ExecRestatementReason (378)	Order added	Order added
ExecutedQty (14)	200	250
DeletedQty (84)	400	150
Fill Group		
MatchID 1 (28708)	1	1
FillQty 1 (1365)	200	200
FillPx 1 (1364)	100	100
DeletedQty (new) 1		50
MatchID 2 (28708)		2
FillQty 2 (1365)		
FillPrice 2 (1364)		99.6
DeletedQty 2 (new)		100
MatchID 3 (28708)		3
FillQty 3 (1365)		50
FillPrice 3 (1364)		99.5
DeletedQty 3 (new)		

4.4 Impact on Interfaces

The following chapter outlines the changes to interfaces to support the functionality. The changes are described in a general fashion to provide an indication of the upcoming amendments. For detailed changes, please refer to the interface manuals and to the *Online Help* in the GUIs.

4.4.1 ETI

Several order messages will be modified:

- NewOrderResponse (10101)
- NewOrderNRResponse (10102)
- ModifyOrderResponse (10107)
- ModifyOrderNRResponse (10108)
- OrderExecResponse (10103)
- OrderExecNotification (10104)
- OrderExecReportBroadcast (10117)
- QuoteExecutionReport (10407)

4.4.2 FIX Gateway

The existing FIX gateways will neither support the original nor the enhanced SMP functionality after Release 10.0. Trading participants relying on the functionality are required to migrate to the new FIX LF interface with Release 10.0.

4.4.3 FIX LF Interface

With T7 Release 10.0, the enhanced SMP functionality will be offered via the new FIX LF interface.

4.4.4 Market and Reference Data Interfaces

The message layouts for the market data and RDI/RDF reference data interfaces are not changed with this requirement.

4.4.5 XML Reports

The following reports will be modified:

- TC540 Daily Order Maintenance.
- TC812 Daily Prevented Self-Matches.

New report for listing of Business Units belonging to same SMP Group:

- RD205 SMP Group Status report.

5. New Automated Corridor Expansion Volatility Model

On Wednesday 24 November 2021, after the start of T7 Release 10.0, T7 Xetra will introduce the *Automated Corridor Expansion (ACE)* volatility model in the trading model *Continuous Trading with Auctions*. The existing volatility model currently in place – referred to as *Single Volatility Interruption* model here – will also continue to be available. The exchange will define the volatility model assigned to each instrument. After the release introduction, it is planned to introduce the ACE volatility model for all ETF and ETP instruments.

In the ACE volatility model, volatility interruption price corridors will widen automatically and successively in specified time intervals to allow for consecutively larger price deviations from the last traded price. Thus, the new ACE volatility model will provide a concept for the automated termination of volatility interruptions, which will allow for a faster switchover to *Continuous Trading*, in particular during times of market stress.

The price corridors applicable for a respective call phase will be pre-defined and disclosed to the market. Additionally, the exchange may define further price quality criteria for the resolution of volatility interruptions. The latter will not be disclosed to the market.

The ACE volatility model will not be offered for the *Continuous Auction with Market Maker* nor the *Continuous Auction with Specialist* trading models.

5.1 Functional Description

A definition beforehand: There are two variations of a volatility event: In continuous trading, a *volatility auction* is triggered. In an auction, a *volatility interruption* is indicated for this auction. Since the resolution handling in both cases does not differ, the term volatility interruption is used for both variations throughout the following sections of this chapter.

5.1.1 Configuration of the ACE Volatility Model

The applicable parameters of the ACE volatility model will be defined separately for each instrument and for each of the following trading phases:

- Continuous trading.
- Opening auction.
- Intraday auction.
- Closing auction.

It will be possible to assign the ACE volatility separately for each of these phases on a *per instrument* level.

Furthermore, the ACE volatility model may not be assigned for all of these trading phases. In case the ACE volatility model is not assigned to a trading phase, the *Single Volatility Interruption* model will apply.

The configuration parameters of the ACE volatility model will include a set of up to ten volatility corridors, defined in percent as the maximum allowed deviation to the last traded price (plus and minus), with a specific duration for each corridor. Please note that the *initial dynamic volatility percentage* can be set to a different percentage value than that of the first volatility corridor.

In addition to the dynamic volatility corridors, which refer to the last traded price, there will also be a static volatility percentage referring to the last auction price.

The configuration will be published in the reference data.

5.1.2 Triggering of ACE Volatility Interruptions

If the ACE volatility model is assigned to an instrument and a trading phase, a volatility interruption will be triggered if the volatility range calculated on the basis of the last traded price and the *initial dynamic volatility percentage* is exceeded. The calculation is performed similar to the Single Volatility Interruption model:

- Initial upper price boundary = $LTP + (LTP * \text{initial dynamic volatility percentage})$
- Initial lower price boundary = $LTP - (LTP * \text{initial dynamic volatility percentage})$
where LTP is the Last Traded Price.

A volatility interruption will also be triggered if the volatility range calculated on the basis of the last auction price and the *static volatility percentage* is exceeded:

- Upper static price boundary = $LAP + (LAP * \text{static volatility percentage})$
- Lower static price boundary = $LAP - (LAP * \text{static volatility percentage})$
where LAP is the Last Auction Price.

Once a volatility interruption is triggered, the first volatility corridor will be calculated:

- The upper and lower price boundaries will be calculated based on the last traded price and the first corridor percentage value assigned to the instrument.
- The duration of the volatility interruption will be calculated.

The market data will display the upper and lower boundaries of the applicable corridor to market participants. If a volatility interruption is triggered during an auction, the volatility indicator will be set in the market data. If a volatility interruption is triggered during continuous trading, the trading phase will be set to volatility auction.

Please note that once the first volatility interruption has been triggered in the ACE volatility model, the static volatility range will no longer be considered.

5.1.3 Terminations of ACE Volatility Interruptions

There are three regular resolutions to an ACE volatility interruption:

- Automatic termination when the potential execution price lies inside the defined boundaries:

If the potential execution price at the end of the volatility interruption lies inside the price boundaries of the currently active volatility corridor, the volatility interruption will terminate automatically with a price determination, provided that any additional optional price quality control checks have been passed successfully.

- Transition to the next corridor when the potential execution price lies outside the defined boundaries:

If the potential execution price at the end of the volatility interruption lies outside the price boundaries of the currently active volatility corridor, the volatility interruption will be automatically followed by another volatility interruption as long as the maximum number of ACE volatility corridors defined for the instrument has not been reached. The upper and lower price boundaries of the next corridor will be calculated based on the last traded price and the next corridor's percentage value.

- Transition to an *Extended Volatility Interruption* when the volatility interruption was not resolved in the final ACE volatility corridor:

In case a volatility interruption was not automatically terminated in the final ACE volatility corridor because the above-mentioned criteria for an automated termination were not met, an *Extended Volatility Interruption* will be triggered and Market Operations will need to manually terminate the volatility interruption as known from the Single Volatility Interruption model.

There are also circumstances when the regular ACE volatility model processing is interrupted. These are similar to the Single Volatility Interruption model:

- If there is no executable situation at the end of a volatility interruption, the ACE volatility interruption will be terminated and continuous trading will resume.
- An immediate termination of an ACE volatility interruption will be performed when a regular auction (e.g. intraday auction or closing auction) is scheduled.
- The termination of an ACE volatility interruption at the end of the trading day (product state *Closing*) will be performed in the same way as for the Single Volatility Interruption model, i.e. the volatility interruption will be terminated without a price determination.

5.1.4 Examples: Behaviour of the ACE Volatility Model in Specific Market Situations

This chapter visually outlines the processing of ACE volatility interruptions and adds additional information regarding specific market situations. The underlying assumption is always that the instrument will have a valid ACE volatility model assignment for the specific instrument state and that any additional potential price quality control checks will be passed successfully.

As stated earlier, in the following sections, the term volatility interruption is used synonymously both for volatility auctions triggered in continuous trading and for auctions with volatility interruptions.

The following abbreviations apply to the examples below. All boundaries are calculated according to the percentages of the respective static or dynamic percentages as defined in ACE volatility model.

Parameter	Description
IUPB	Initial upper price boundary; can be the same value as UPB_1
ILPB	Initial lower price boundary; can be the same value as LPB_1
USPB	Upper static price boundary
LSPB	Lower static price boundary
UPB_n	Upper Price Boundary _n , where n is the volatility corridor (1-10)
LPB_n	Lower Price Boundary _n , where n is the volatility corridor (1-10)
t	The volatility interruption time, i.e. the corridor's <i>duration</i> plus random end
LTP	Last Traded Price

5.1.4.1 Processing ACE Volatility Interruptions without Automatic Termination in an ACE Volatility Corridor

The following figure gives an overview of the maximum processing sequence of the ACE Volatility Model when a volatility interruption is triggered during continuous trading.

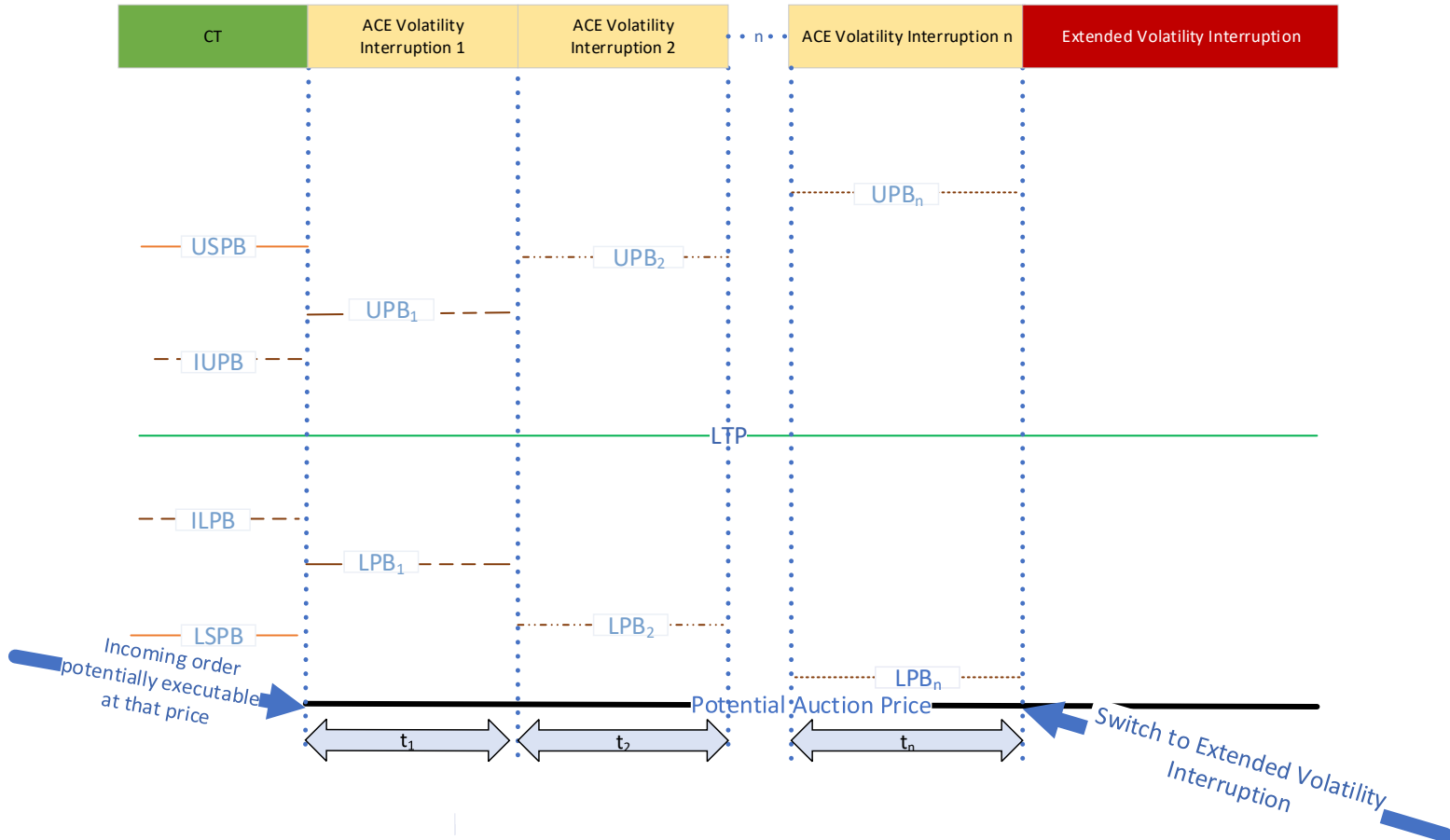


Figure 1 Processing of ACE volatility interruptions without automatic termination in an ACE volatility corridor

5.1.4.2 Processing and Termination of ACE Volatility Interruptions in the Opening Auction

The following figure gives an overview of the ACE volatility processing sequence when a volatility interruption is triggered during the opening auction and resolved within the first volatility corridor. The same processing will be applied during an intraday auction and the closing auction when the ACE volatility interruption is resolved within first volatility corridor.

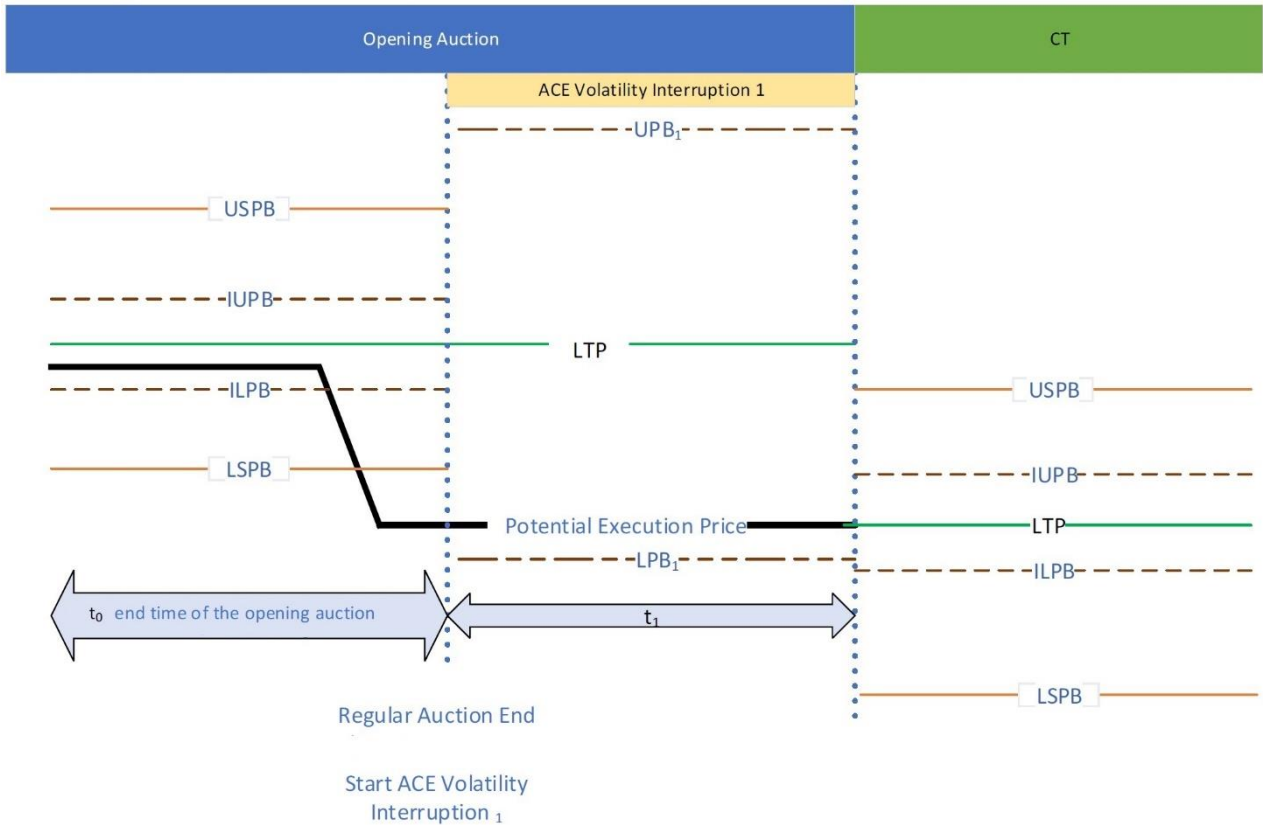


Figure 2 Processing and termination of ACE volatility interruptions in the Opening Auction

5.1.4.3 Processing and Termination of ACE Volatility Interruptions in the First Volatility Corridor

The following figure gives an overview of the ACE volatility processing sequence when a volatility interruption is triggered during continuous trading and resolved within the first volatility corridor.

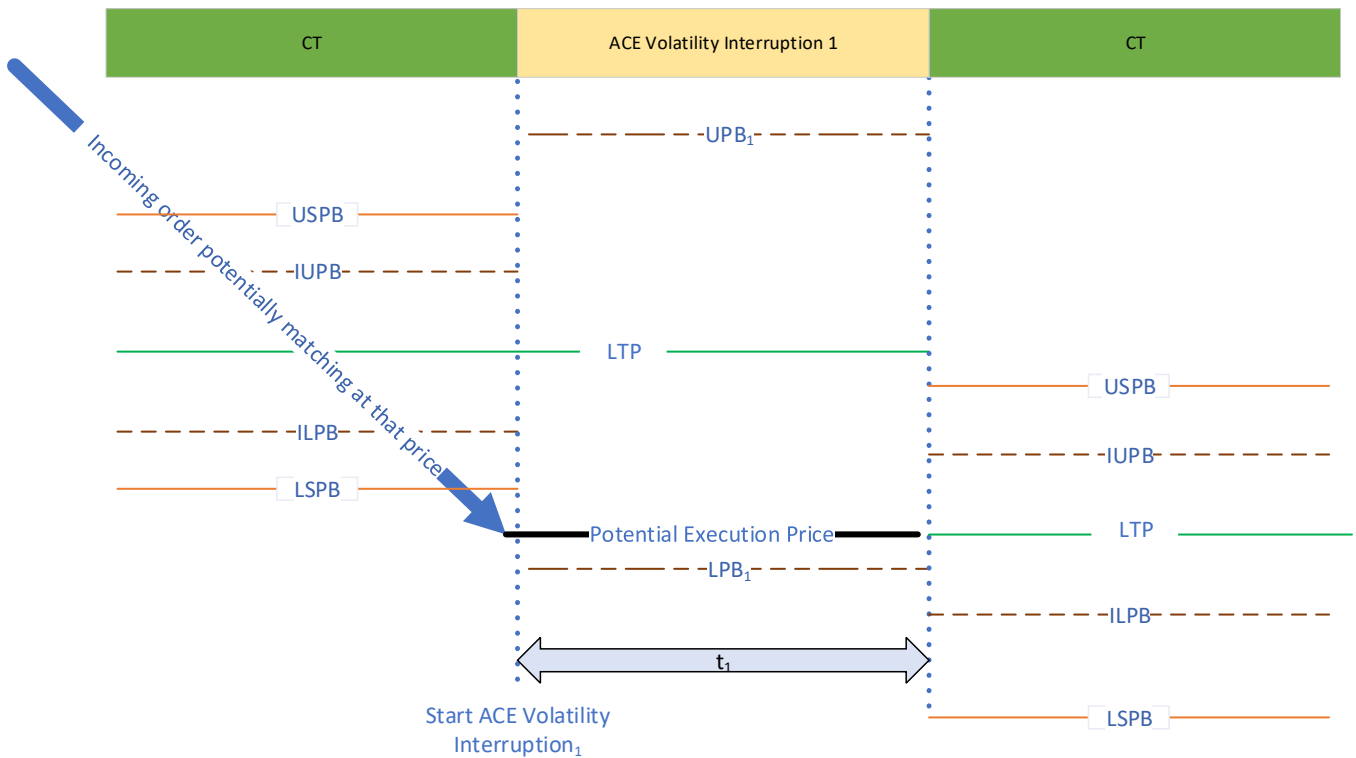


Figure 3 Processing and termination of ACE volatility interruptions in the first volatility corridor

5.1.4.4 Processing and Termination of ACE Volatility Interruptions in the Third Volatility Corridor

The following figure gives an overview of the ACE volatility processing sequence when a volatility interruption is triggered during continuous trading and resolved within the third volatility corridor.

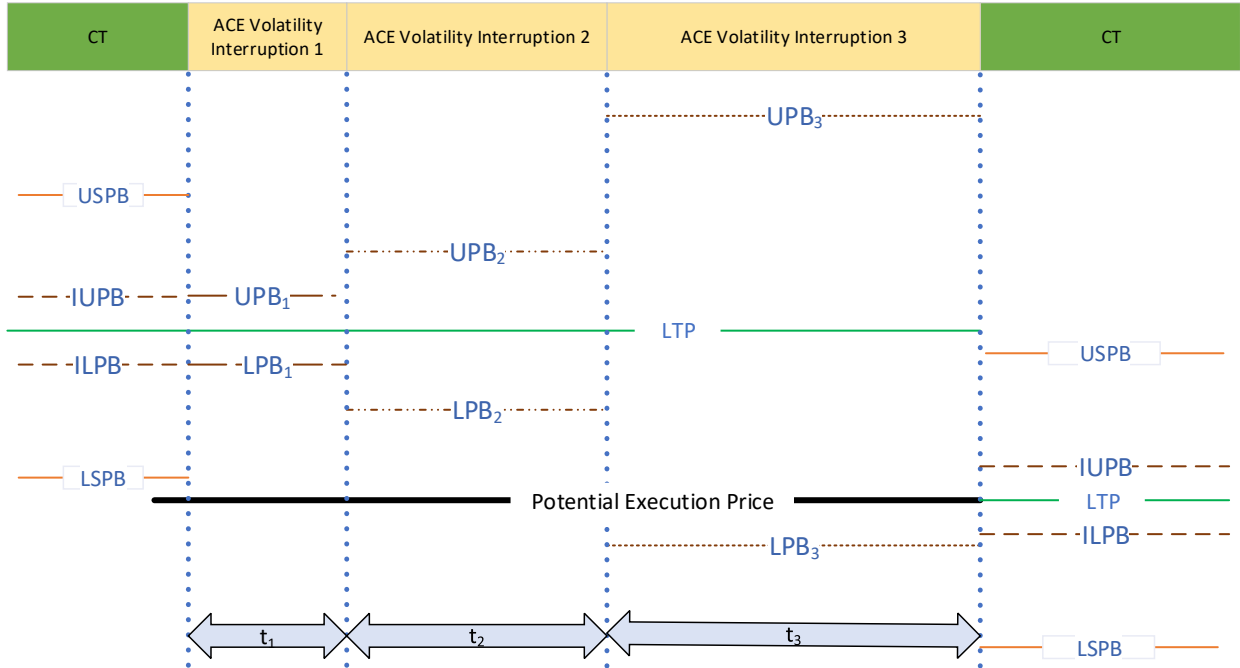


Figure 4 Processing and termination of ACE volatility interruptions in the third volatility corridor

5.1.4.5 Processing of ACE Volatility Interruptions followed by a Scheduled Auction

The following figure gives an overview of the ACE volatility processing sequence when a volatility interruption took place during continuous trading and a scheduled auction is initiated. This applies to both intraday and closing auctions. This behaviour is also the same in the Single Volatility Interruption model.

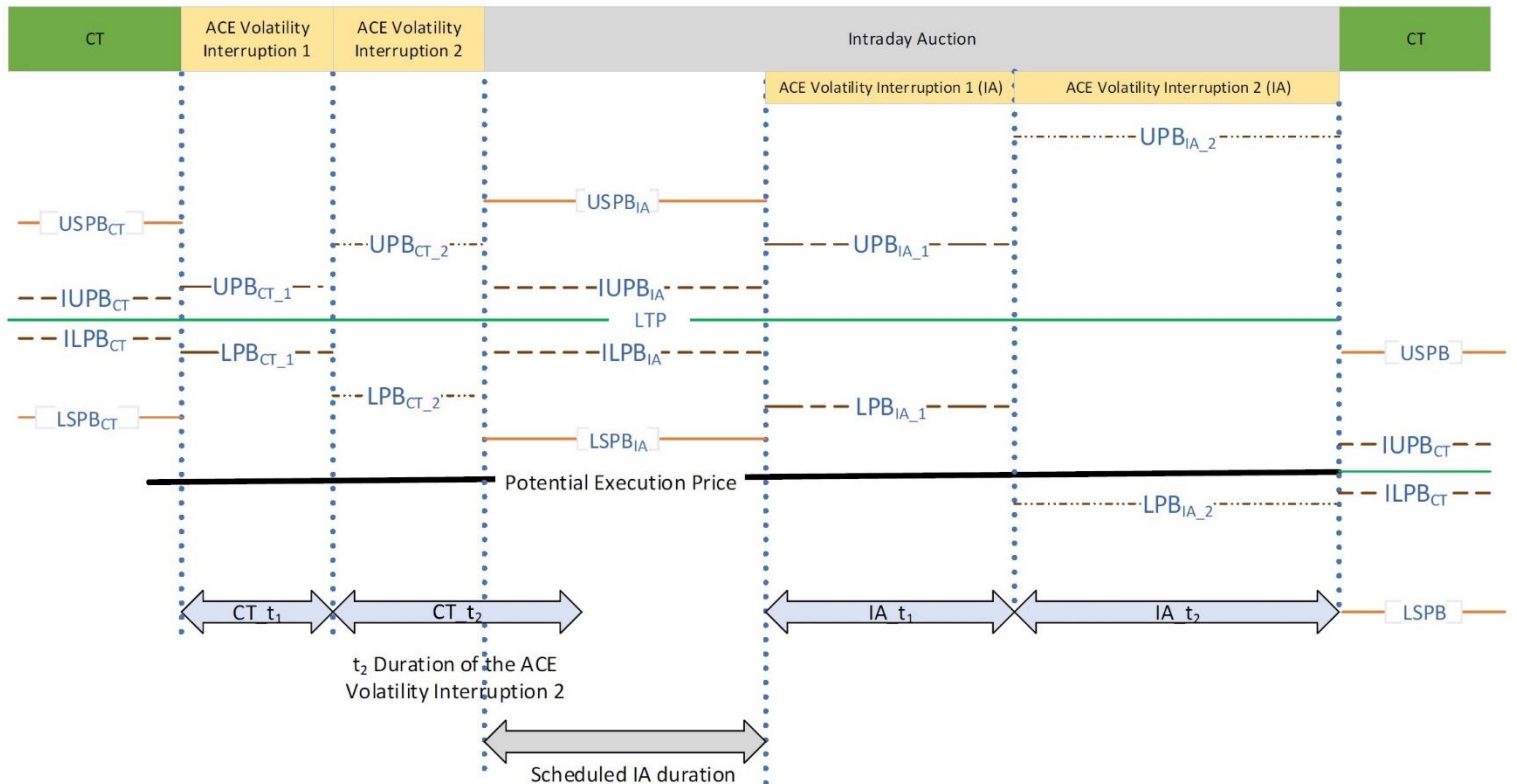


Figure 5 Processing of ACE volatility interruptions followed by a scheduled auction

5.1.4.6 ACE Volatility Interruptions and Trade-at-Close

For instruments with an enabled Trade-at-Close (TaC) phase that have not completed the ACE volatility processing sequence before post trading is scheduled to start, the TaC phase will not take place.

5.2 Impact on Interfaces

The following chapter outlines the changes to interfaces to support the functionality. The changes are described in a general fashion to provide an indication of the upcoming amendments. For detailed changes, please refer to the interface manuals and to the *Online Help* in the GUIs.

5.2.1 RDI and RDF

The descriptive names of the *Volatility Corridor Tables* for each of the four trading phases will be reflected in the instrument reference data (RDI and All Tradable Instrument file).

A new static CSV file will be provided, containing the *Volatility Corridor Tables* and the associated *Volatility Corridors*. The file name will follow the pattern:

<YYYYMMDD>_volatilityCorridorTables.csv.

The record layout will be as follows, sorted by ID and Percentage:

ID;VolatilityCorridorTableName;InitialDynamicVolatilityPercentage;staticVolatilityPercentage;Percentage;Duration;Market

Please note that the parameters of the price quality control checks will not be disclosed to the market.

5.2.2 Market Data

Other than for the Single Volatility Interruption model, the market data (EMDI, MDI, and EOBI) will display the upper and lower boundary for the currently active volatility corridor, and the auction's volatility indicator.

5.2.3 Trader GUI

Also in the Trader GUI views the market data (EMDI, MDI, and EOBI) will display the upper and lower boundary for the currently active volatility corridor, and the auction's volatility indicator.

6. ***Continuous Auction with Market Maker* Trading Model Enhancements**

Starting with T7 Release 10.0, the following enhancements will be introduced for the *Continuous Auction with Market Maker* trading model:

- Instrument covers will be offered in the *Continuous Auction with Market Maker* trading model available at Börse Frankfurt Zertifikate.
- It will be possible to assign quoting periods by Issuers to instruments traded in the *Continuous Auction with Market Maker* trading model.

The instrument cover activation process will resemble the one that was introduced with T7 Release 9.1 for the *Continuous Auction with Specialist* trading model:

Covers are identifiable via a dedicated reference data field *Cover Indicator*. As long as the *Cover Indicator* points to an intraday or long-term cover, the instrument will not be tradeable in T7, but available in the reference data only. Covers will become tradeable only and immediately upon the activation by the Issuer, who will be able to update certain instrument attributes denoted as *Adjustable Cover Attributes* with the activation.

6.1 **Impact on Interfaces**

The following chapter outlines the changes to interfaces to support the functionality. The changes are described in a general fashion to provide an indication of the upcoming amendments. For detailed changes, please refer to the interface manuals and to the *Online Help* in the GUIs.

6.1.1 **RDI and RDF**

Trading participants will be informed of the activation via an RDI incremental message and an RDF incremental file, which will list potentially changed instrument attributes.

6.1.2 **Market Data**

Trading participants will be informed of the activation via MDI and EOBI about the instrument state change to Pre-Call.

7. SFTP Up/Download Functionality for non-MiFIR Transaction Reporting

As previously announced, Frankfurt Stock Exchange and Eurex Frankfurt AG will offboard from the technical infrastructure of the Regulatory Reporting Hub (RRH). Hence, the current Axway/RRH SFTP server used for non-MiFIR trading participant data up/downloads (non-MiFIR Transaction Reporting, cf. Art. 26 (5) MiFIR) will be replaced and the report creation procedure and structure will be optimized.

Non-MiFIR participants are required to migrate their up/download processes to the Common Upload Engine (CUE) / Common Report Engine (CRE) and adapt to the simplified file structure and processing. CUE and CRE are SFTP servers and the respective account management will be done in the Member Section.

Please find more information in the FWB circular [035/2021](#) and in the following documents:

- Information handbook for audit trail, transaction and other regulatory reporting under the MiFID II / MiFIR regime
- Regulatory Reporting Solution for non-MiFIR trading participants User Manual
- Trading Venue File Specifications
- Sample files (extract, upload and feedback files)

The User Manual has been updated in chapter 4.7 describing how to correct/cancel transaction reports from before the previous trading day. This functionality will be available for testing at a later point in time after Simulation start. Furthermore, some validation rules have been reformulated in the Trading Venue File Specifications.

8. SFTP Upload Functionality for Short Codes and algoIDs

Deutsche Börse AG will implement the Common Upload Engine (CUE) as central point of Trading Participant data uploads. The CUE is an SFTP server and the respective account management will be done in the Member Section analogue to the Common Report Engine (CRE).

The current SFTP server for short code and algoID uploads will be migrated to the CUE.

Trading Participants using the current SFTP server will therefore be required to migrate their upload processes to CUE until T7 Release 10.0. A parallel operation of CUE and the Axway SFTP server will be granted from 22 November 2021 until 17 December 2021 eob.

For more information please refer to FWB circular [046/21](#).

9. Trading Sessions for the new T7 FIX LF interface

Back office sessions for the T7 FIX LF interface were originally introduced together with T7 Release 9.0 in March 2021. In conjunction with T7 Release 10.0, Xetra will also introduce the corresponding T7 FIX LF trading sessions.

With the launch of T7 Release 10.0, the new T7 FIX LF trading sessions will be offered in parallel to the existing FIX Gateway trading sessions. The FIX LF interface will ultimately replace the existing FIX gateway interface after transition phases. Please note that T7 Release 10.0 will support only FIX version 4.4 both for the existing FIX gateway and for the new FIX LF interface. Ordering of the FIX LF Trading Sessions is planned to be possible from 31 August 2021 (Simulation) and from 19 November 2021 (Production) onwards.

For more information regarding the transition phases for both the T7 FIX LF back office and T7 FIX LF trading sessions and the decommissioning of the existing FIX gateway, please refer to the Xetra Circular [011/21](#) and upcoming information.

The existing FIX gateway will decommission FIX version 4.2 and will require FIX version 4.4 prior to T7 Release 10.0. FIX gateway back office sessions and FIX gateway 4.2 trading sessions will no longer be available after 01 October 2021. Self-Match Prevention (SMP) will be offered only for the new FIX LF interface.

The existing FIX gateway is planned to be decommissioned in April 2022: In Simulation, the test of the FIX GW decommissioning will be executed in the 2nd half of March 2022 and the FIX GW will not be available anymore as of 01 April 2022. In Production, the existing FIX gateway will start for the last time on Friday 29 April 2022 and will not be available anymore on Monday 02 May 2022. The possibility to order trading sessions for the FIX GW will be removed as of 28 February 2022 for both Simulation and Production.

All details concerning the FIX LF interface will be outlined in the FIX LF Manual.

10. Further Changes and Enhancements

With T7 Release 10.0, Xetra will in addition introduce the following changes and enhancements.

10.1 T7 Trader GUI: Display of the Coupon Rate for Variable Bonds

With T7 Release 10.0, the *Trades* view will display the correct coupon rate also for Variable Bonds, or none at all.

10.2 Overwriting of Free Text Fields when Specialist acts On Behalf

With T7 Release 10.0, the overwriting behavior for free text fields in order modifications made by Specialists on behalf in the *Continuous Auction with Specialist* trading model will be changed.

- If the Specialist acts on behalf of a trader who is not a member of the Business Unit of the Specialist, then the free text fields will not be overwritten when provided.
- If the Specialist acts on behalf of a trader who is a member of the Business Unit of the Specialist, but not a part of the Specialist user group, then the free text fields will not be overwritten when provided.
- If the Specialist acts on behalf of a trader who is a member of the Business Unit of the Specialist, and also a part of the Specialist User group, then the free text fields will be overwritten when provided.

10.3 Remove field *OrdNoClearing* from T7 Trader GUI views

The field *OrdNoClearing* will be removed from all T7 Trader GUI views. These are in particular:

- Orders
- Order History
- Trades
- Trade Summary

10.4 Removal of Self-Match Prevention (SMP) from FIX gateway

With T7 Release 10.0, the functionality supporting Self-Match Prevention (SMP) will be removed from the FIX gateway. With T7 Release 10.0, Self-Match Prevention will be available only in the FIX LF interface.

10.5 Enhancement for Price Determination based on Price-without-Turnover (PWT) Quotes on Börse Frankfurt

With T7 Release 10.0, the price determination for a Price-without-Turnover (PWT) quote on Börse Frankfurt will be configurable. The price determination out of a PWT quote can be based on the bid price or on the midpoint of the bid and ask of the PWT quote.

In the latter case, the calculated midpoint will be rounded to the next tick. If single-sided quotes are allowed, i.e. PWT quotes with bid side only, then the bid side is taken.

With the start of T7 10.0, the current Price-without-Turnover handling stays unchanged, i.e. it will be based on the bid price for both Börse Frankfurt and Börse Frankfurt Zertifikate. Once the basis for the PWT calculation will change, members will be informed with sufficient lead time.

10.6 Change of field content in ETI TES broadcast messages

With T7 Release 10.0, the field for the executing trader in ETI TES broadcast messages will be filled with the entering trader.

10.7 Regular clean-up of News messages

With T7 Release 10.0, as with every T7 Release, there will be a clean-up of News messages available in the T7 Trader GUI and on the Xetra website. Messages older than one year will be dropped.

10.8 Reference data files for Simulation in CSV format

For T7 10.0 Simulation, various reference data files will be provided in CSV format on the Xetra website as they are provided for Production. These files are:

- Static Data File (Xetra and BF incl. BFZ)
- All Tradable Instruments file listing instruments for Xetra
- All Tradable Instruments file listing instruments for BF and BFZ
- All Tradable Instruments file listing only instruments for BF
- All Tradable Instruments file listing only instruments for BFZ

10.9 New XML Reports for Xetra Performance Measuring

With T7 Release 10.0, new XML Reports will be introduced for Performance Measuring of Designated Sponsors and Regulated Market Makers in Xetra. These reports will be:

- PM010 Performance Report Equities Regulated Market Maker
- PM020 Performance Report ETFs & ETPs Regulated Market Maker
- PM100 Performance Report Equities Designated Sponsor
- PM200 Performance Report ETFs & ETPs Designated Sponsor
- PM300 Compliance Report Equities Designated Sponsor
- PM400 Compliance Report ETFs & ETPs Designated Sponsor
- PM500 Rating Report Equities Designated Sponsor
- PM600 Individual Rating Report Equities Designated Sponsor
- PM810 Individual Issuer-Designated Sponsor Report ETFs & ETPs
- PM820 Individual Designated Sponsor-Issuer Report ETFs & ETPs

For details see the XML Report Modification Announcement document for T7 Release 10.0.

10.10 XML Reports: New / modified valid values in field *errDescription*

In the field *errDescription*, the following valid values are added respectively modified:

- Modified: 2 – Modified Description: Duplicate short / long code combination in database.
- New: 25 – Description: Client long value already registered.

The field *errDescription* occurs in the following XML reports:

- TR160 Identifier Mapping Error.
- TR162 Algo HFT Error.
- TR165 DMA Error Report.

11. Change log

No	Date	Log entry
1.0	27 August 2021	Publication.