

T7 Release 10.0

Derivatives and Cash Markets

Participant Simulation Guide

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Abstract

This document describes the timeline, new and changed features as well as Simulation focus days for the T7 Release 10.0 Simulation. Trading participants should use this document to plan and prepare their T7 Release 10.0 Simulation participation. This document should be read alongside the T7 Release 10.0 Release Notes, all required technical interface descriptions, the regular Simulation Calendar and the regularly updated Implementation News either on

- eurex.com > Support > Information Channels > Implementation News for the derivatives markets
- xetra.com > Technology > Implementation News for the cash markets

Keywords

T7 Enhanced Trading Interface, T7 Enhanced Market Data Interface, T7 Enhanced Order Book Interface, T7 Extended Market Data Service, T7 Reference Data Interface, T7 FIX Gateway, T7 FIX LF, Common Report Engine, Common Upload Engine, T7 Trader GUI, T7 Admin GUI, T7 Trade Entry Services

7 Market Technology

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1. Definitions and Abbreviations

Term	Explanation
BF	Börse Frankfurt
BFZ	Börse Frankfurt Zertifikate
CCP	Central Counter Party
CEF®	Deutsche Börse Group Real Time Data Feed
CRE	Common Report Engine
CUE	Common Upload Engine
DBAG	Deutsche Börse AG
EEX	European Energy Exchange
EMDI	T7 Enhanced Market Data Interface (non-netted)
EMDS	T7 Extended Market Data Service
EOBI	T7 Enhanced Order Book Interface
ETI	T7 Enhanced Trading Interface
Eurex EnLight	Eurex EnLight is a price discovery service offered on the T7 platform to negotiate off-book transactions electronically
FIX	Financial Information eXchange protocol
FIXML	Financial Information Exchange Mark-up Language
GMC	Middleware Cluster for T7 Trader GUI, T7 Admin GUI, T7 Clearer GUI
GUI	Graphical User Interface
ISV	Independent Software Vendor
LF	Low Frequency
MDI	T7 Market Data Interface (netted)
RDI	Reference Data Interface
RDF	Reference Data File
SPoC	Single Point of Contact
T7	T7 trading system developed by Deutsche Börse Group
TES	T7 Entry Services
TKAM	Technical Key Account Manager
Xetra EnLight	With Xetra EnLight, Frankfurt Stock Exchange offers an on-exchange request-for-quote functionality for off-book trading in the cash market

2. Simulation Overview

2.1 Introduction

The purpose of T7 Release 10.0 Simulation is to provide an opportunity for participants and Independent Software Vendors (ISVs) to become familiar with the new and enhanced functional and technical setup and features of T7 Release 10.0 and to prepare for production. The production launch date for T7 Release 10.0 is planned for 22 November 2021.

The key objectives of the T7 Release 10.0 Simulation:

- Provide high quality information and simulation to support participant and ISV readiness.
- Familiarize participants with the new trading services functionality.
- Early identification of issues both from the Exchange and from the participants' side to minimize risk of T7 Release 10.0 launch and production operation.

The T7 Release 10.0 Simulation covers both, the cash and the derivatives markets which means all markets on the T7 Simulation environment, and T7 Börse Frankfurt Simulation environment. The "T7 Release 10.0 Simulation" always includes all the environments described above, unless explicitly stated otherwise.

The simulation period for T7 Release 10.0 is planned to start on 13 September 2021.

Please note: The start of the EMDS Customer Simulation is planned for 27 September 2021.

In addition to the T7 Release Simulation, Deutsche Börse AG offers a T7 Release 10.0 Cloud Simulation to allow trading participants and ISVs 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. The Cloud Simulation is available around the clock for a fixed price per hour and has been started on 13 August 2021.

The exchange offers several dedicated focus days during the simulation phase to help participants become accustomed to new or changed features of T7. On those days, which are marked in the simulation calendar, special testing scenarios will be provided. This document describes the different test scenarios for the T7 Simulation.

2.2 Note on Interfaces

T7 Release 10.0 will not provide backwards compatibility for the T7 Trading -, Market Data- and Reference Data Interface version 9.1, i.e. participants will have to use the new function 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:

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 gateway. Ordering of the FIX LF Trading Sessions is planned to be possible from 31 August 2021 (Simulation) and from 19 November 2021 (Production) onwards.

The existing FIX gateway will decommission FIX version 4.2 and will require FIX version 4.4 with T7 Release 10.0. FIX gateway back office sessions will no longer be available after 1 October 2021.

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 011/2021 / Xetra Circular 061/2021, Eurex Circular 012/21 / Eurex Circular 081/2021 and upcoming information.

2.3 Further Information

Please note and be aware of the following T7 Release 10.0 Simulation condition:

The T7 Release Simulation is a shared simulation environment with the purpose of providing participants the opportunity to test functional and technical enhancements for the forthcoming T7 Release. Following a release, the environment will be available with the current software for further testing of all T7 related functionality. The T7 Simulation is not designed for very extensive or even performance testing. Participants who would like to test scenarios involving an unusually large amount of order and quote transactions and/or trades shall contact their Technical Key Account Manager (TKAM). The TKAM will ask for the purpose of the test and a detailed description of the participants test scenario (including number of expected orders, quotes and trades). The TKAM together with the participant will evaluate the request and attempt to find a solution which can realistically be provided together with a potential date and time for the execution.

2.4 Intended audience

This document serves as the guide for all simulation participants, i.e. current and future users of the T7 system. In particular, the following participants will be involved in the simulation:

- Exchange trading participants
- ISVs (Front, Middle and Back office)

In order to achieve a common understanding of the responsibilities and tasks, the distribution of this Simulation Guide to the appropriate project teams and line organizations is recommended as soon as possible. All parties involved, e.g. central coordinators, system administrators, traders and ISV representatives, should be aware of their tasks before the start of the Simulation.

2.5 Timeline

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

The following timeline gives an overview of the introduction schedule:

T7 10.0 Cloud Simulation Start	13 August 2021	T7 Simulation
T7 9.1 Simulation last batch	2 September 2021	T7 Simulation
T7 10.0 Simulation Software Installation and Conversion	3 September – 10 September 2021	T7 Simulation
T7 10.0 Simulation Execution	13 September– 19 November 2021	T7 Simulation
T7 10.0 Conversion & Support Window	20 November 2021	T7 Production
T7 10.0 Production Launch	22 November 2021	T7 Production
T7 10.0 – Launch of 'Trading Hour Extension' for Börse Frankfurt	29 November 2021	T7 Production



Figure 1: T7 Release 10.0 document publication and introduction timeline

2.6 T7 Cloud Simulation

In addition to T7's release simulation participants can also use the T7 Cloud Simulation which allows trading participants and ISVs to test against the current T7 production and simulation software version. 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:

eurex.com > Support > Technology > T7 Cloud Simulation

xetra.com > Technology > T7 Trading Architecture > Cloud Simulation

2.7 Simulation Calendar

The Simulation Calendar for the derivatives market is available under the following path:

eurex.com > Support > Initiatives & Releases > Simulation Calendar

Whereas the Simulation Calendar for the cash market can be found on the following link:

xetra.com > Trading > Trading calendar and trading hours

2.7.1 Guiding principles for Simulation Calendar

- The simulation will be set up and run from both a functional and technical perspective as production-like as possible to help simulate business processes under realistic conditions. In order to provide a production-like system environment, the different T7 components will be set up as an integrated simulation environment. Nevertheless, system availability and technical performance will be scaled to simulation requirements and will differ from production.
- T7 Release 9.1 permanent simulation will terminate with the end of day processing on 2 September 2021. The T7 Simulation will not be available for participants and ISVs from 3 September 2021 to 10 September 2021 in order to prepare the T7 Release 10.0 Simulation. Participants are encouraged to use the T7 Cloud Simulation for testing purposes during this period.
- The T7 Release 10.0 Simulation is planned to start on 13 September 2021 and will last until 19 November 2021. All functional and technical preparations should be completed before the start of the simulation.
- On batch days, calendar days correspond to actual business days. The following days until the next batch day have the business date of this forthcoming batch day. Here several calendar days (with 24 hours trading availability) constitute one business day.
- Weekends are generally open for simulation, but no technical and functional support will be available.
- In order to provide those participants and ISVs not located in a European time zone with the maximum possible access to the simulation environment, it is envisaged that the T7 Release 10.0 Simulation back-end systems and network will be re-opened as soon as the batch has been successfully completed.
- Quarterly, monthly and weekly last trading/maturity & expiration dates for standard products are planned throughout the T7 Release Simulation.

2.8 Liquidity for selected products in the simulation environment

2.8.1 Derivatives Market: Liquidity (bid/ask prices)

Liquidity (bid/ask prices) will be provided on each trading day throughout T7 Release 10.0 Simulation in the following products:

Options

- OESX and ALV: only best bid, best ask
- ODAX, OGBL, OGBM and DB1: only best bid, best ask
- OKS2: only best bid, best ask

Futures

- FGBL: Bid and ask prices with an order book depth up to 20
- FESX: Bid and ask prices with an order book depth up to 20
- EVAR: only best bid, best ask

Futures Calendar Spread Orders

- FESX: Bid and ask prices with an order book depth up to 20
- FGBL: Bid and ask prices with an order book depth up to 20

2.8.2 Cash Market XETR Liquidity (bid/ask prices)

For the duration of the member Release Simulation, the liquidity (bid / ask quantities in the order book) will be provided via automated scripts for the following instruments.

Instruments in XETR with liquidity providing scripts

- LU0937835576 (Bid and ask prices with an order book depth level up to 3)
- LU1306625283 (Bid and ask prices with an order book depth level up to 3)
- DE000A1E0HR8 (Bid and ask prices with an order book depth level up to 3)
- DE0005140008 (Bid and ask prices with an order book depth level up to 3)
- DE0005557508 (Bid and ask prices with an order book depth level up to 3)

ICEBERG

- AT0000730007 (Bid and ask prices with an order book depth level up to 3)
- DE0005200000 (Bid and ask prices with an order book depth level up to 3)

VDO

- AT0000730007 (Single bid VDO order)
- DE0005200000 (Single ask VDO order)

Multi-Currency ETFs and ETPs

- IE00BZ2GV965 -EUR (Bid and ask prices with an order book depth level up to 3)
- IE00BZ2GV965 -USD (Bid and ask prices with an order book depth level up to 3)

- LU0599612842 -EUR (Bid and ask prices with an order book depth level up to 3)
- LU0599612842 -USD (Bid and ask prices with an order book depth level up to 3)

- CH0454664001 -EUR (Bid and ask prices with an order book depth level up to 3)
- CH0454664001 -USD (Bid and ask prices with an order book depth level up to 3)

2.8.3 Cash Market Börse Frankfurt: Liquidity provision

Liquidity is provided for a selection of instruments by DBAG.

The list of all instruments also including the test scenario instruments can be found on the Xetra website under the following path:

www.xetra.com > Technology > T7 Trading Architecture > System documentation > Release 10.0 > Simulation

2.8.4 Cash Market Börse Frankfurt: Matching quotes for selected instruments:

DBAG will act as a specialist and enter matching quotes on request for the following instruments. Please contact the Functional Helpdesk Börse Frankfurt for your requests (see chapter 8).

#	ISIN	Instrument
1	DE0001142693	BUNDANL. KPS 4.1.36
2	DE0001102408	BUNDANL.V.16/26
3	XS0205545840	ARGENTINA 05/33 DISC
4	XS0553728709	DT.TELEK.INTL F.10/30 MTN
5	SE0002829192	SWEDEN 09-39 1053
6	AU000000AUZ8	AUSTRALIAN MINES LTD.
7	CA25260V1031	DIAMOND FIELDS RES
8	USY384721251	HYUNDAI MOT.0,5N.VTG GDRS
9	AT00000VIE62	FLUGHAFEN WIEN AG
10	DE0007018509	WINDHOFF AG O.N.
11	DE000A1E8G88	VIVANCO GRUPPE AG
12	AU0000XCLWV6	AUSTRALIA 2030 CI
13	DE000DZ42N68	Memory Express GOB 17/22
14	XS2028085731	CS INT. CALL26

3. Functional and Technical Enhancements

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

Cash and derivatives markets:

- Trading Sessions for the new T7 FIX LF interface
- Adaption of Self-Match Prevention (SMP) and Matching Cascades
- SFTP Upload Functionality for Short Codes and algo IDs via CUE
- SFTP Up- and Download Functionality for non-MiFIR Transaction Reporting via CUE and CRE

Cash markets:

- Introduction of Multi-Currency Trading for ETFs and ETPs
- New Automated Corridor Expansion Volatility Model (*The functionality will be enabled in the simulation starting September 17, 2021*)
- Trading Hour Extension for Börse Frankfurt
- Continuous Auction with Market Maker Trading Model Enhancements

Derivatives markets:

- Next Generation Exchange-Traded Derivatives (ETD) Contracts
- New Market Order Validation for Options
- Eurex EnLight Staging of Request-for-Quote
- Enhancing Pre-Trade Risk Limits for Futures Spreads (*The enhancement will be enabled in the simulation starting September 15, 2021*)
- Eurex EnLight Auto Pulling of Quotes
- Aggregation of Off-Book Trade Sides (*The enhancement will not be activated at the start of the simulation on September 13, but at a later stage of the simulation and communicated separately*)
- New Eurex and EEX Naming Convention for T7 XML Reports

Further Changes and Enhancements

- Removal of FIX Gateway 4.2 Trading Sessions (*Cash & Derivatives markets*)
- *SMP will be offered for the new FIX LF interface.*
- Remove field OrdNoClearing from T7 Trader GUI views (*Cash & Derivatives markets*)
- Removal of Self-Match Prevention (SMP) from FIX gateway (*Cash & Derivatives markets*)
- Removal of field alphaOrderNo from XML reports (*Cash & Derivatives markets*)
- T7 Trader GUI: Display of the Coupon Rate for Variable Bonds (*Cash markets*)
- Overwriting of Free Text Fields when Specialist acts On Behalf (*Cash markets*)
- Adjustment of price determination based on Price-without-Turnover (PWT) quotes in Börse Frankfurt (*Cash markets*)
- Field CustOrderHandlingInst in Trade Enrichment Rules (*Derivatives markets*)
- Field ComplianceText added to more ETI request (*Derivatives markets*)

- Add Settlement Dates to Trader GUI Views (*Derivatives markets*)
- No PIN needed anymore for Clearing Business Units (*Derivatives markets*)

Reports:

- New Reports:
 - RD205 SMP Group Status Report
 - TT137 Temporary Extended Pre-Trade Risk Limit Consumption Report

Performance & Rating Reports:

- 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

With T7 Release 10.0, all Performance & Rating Reports, which are currently available in text and CSV format to Designated Sponsors and Regulated Market Makers to monitor their activity, will be converted to XML format. For more information, please refer to the Xetra Circular 63/2021 and the document “T7 XML Report Reference Manual”.

- Changed Reports:
 - TR101 MiFID II OTR Report
 - TR901 MiFID II Message Rate Report
 - Reports with changes in layouts¹

Please note:

Billing reports for T7 Xetra will be provided in the T7 Release 10.0 simulation to reflect changes related to the Multi-Currency Trading as of 29 September 2021.

Details on each of these features and the changes to the affected interfaces, reports and GUIs are communicated to the participants in the form of two T7 Release 10.0 Release Notes documents, directed at the Eurex and Xetra customer base respectively:

¹ The list of all reports with changes in layouts can be found in the document “T7 XML Report Modification Announcement”.

Eurex:

[Eurex.com](#) > Support > Initiatives & Releases > T7 Releases > T7 Release 10.0 > System documentation > Overview and Functionality > T7 10.0 Release Notes

Xetra:

[Xetra.com](#) > Technology > T7 Trading Architecture > System documentation > Release 10.0 > Overview and Functionality > T7 10.0 Release Notes

3.1 Next Generation ETD Contracts

Currently, the Eurex product scope supports at most one expiration per month. In case of more than one expiration per month, additional products need to be set up referring to the same underlying with the same expiration month but different expiration days. As an example, index options contracts expiring on the 3rd Friday of a month for all contracts on a monthly, quarterly or yearly base are summarized by one product ("main product", e.g. OESX) and index options contracts referring to the same underlying and expiring on the 1st, 2nd or 4th Friday of the front month are provided by additional products (e.g. OES1, OES2 or OES4, respectively).

In future, the Eurex product scope will be enhanced to support more than one expiration per month and will apply across the trading, clearing and risk management areas. Consequently, several sub-monthly expiring contracts referring to the same month will be able to be summarized by the same product denoted as integration of weekly expiring contracts. T7 Release 10.0 already provided the functional and technical changes to support products having more than one expiration per month. Corresponding release activities in the clearing and risk management areas are also taking place to consistently support this approach.

The ability to support sub-monthly expiring contracts and the required cross-system changes in the trading, clearing and risk management area are summarized by the Eurex Next Generation ETD Contracts initiative providing the following trading opportunities.

- Integration of weekly expiring options contracts:
As indicated above, monthly expiring contracts belonging to weekly options products will be integrated into the corresponding main product as integrated weekly expiring contracts. This affects all weekly options products in the fixed income, equity and equity index area including the options on the underlying EuroStoXX50 index (OESX). After the integration is completed, the weekly options products will become obsolete.
Integrated weekly expiring options can also be used as leg instruments in any standard options strategy, non-standard options strategy and options volatility strategy. Please note that position rolling between sub-monthly and monthly expiring contracts is facilitated by using specific standard options strategies (e.g. call or put calendar spreads) with sub-monthly expiring contracts as leg instruments.

- Daily expiring futures contracts in physically settled single stock futures:
Physically settled single stock futures will be equipped with daily expiring futures contracts having a lifetime of one business day. Consequently, on each business day, there will be a newly created single stock futures which expires on the same business day.
Daily expiring single stock futures contracts can be used as leg instrument of an options volatility strategy of the corresponding options product allowing a delta-neutral hedging with physical stocks in the stock options area.
- Daily expiring MSCI futures contracts:
MSCI index futures will be equipped with daily expiring futures contracts having a lifetime of three business days. Consequently, on each business day, each MSCI futures product will have three daily expiring futures contracts available for trading, one contract expiring today (T0), a second contract expiring the next business day (T1) and a third contract expiring the next after the next business day (T2).
Daily expiring MSCI futures contracts can be used as leg instruments in calendar spreads representing the basis instrument of the quarterly expiring futures contract used as leg instrument in the same calendar spread.

For more details, please refer to Eurex Circular 057/2021, to the Final T7 Release 10.0 Notes (see § 2) https://www.eurex.com/resource/blob/2826276/b79161dd0ae71da3d94337ff7c3f1f04/data/T7_Release_10.0_-_Final_Functional_Technical_Release_Notes_Eurex_v.1.1.pdf and to the following link of the Eurex Next Generation ETD Contracts initiative. <https://www.eurex.com/ex-en/support/initiatives/project-readiness>

4. Simulation preparation

Preparation activities should be completed prior to the start of T7 Release 10.0 Simulation.

4.1 Organisational preparation

Prior to the start of T7 Release 10.0 Simulation, the following organisational preparatory activities need to be completed by all participants to ensure readiness for the simulation phase:

- All participants and ISVs will be asked to name a person acting as a single point of contact (SPoC) during the simulation. This person shall coordinate all internal activities, functional as well as technical, and shall communicate with affiliated participants during simulation, when collaboration is required. The SPoC maintenance is available to the participant via the web application in the Member Section at <https://membersection.deutsche-boerse.com>.
- Documents will be made available in order to facilitate and support general simulation needs. However, in order to simulate the individual requirements participants are encouraged to define specific simulation objectives and scenarios on their own.
- Personnel for participation in simulation on the focus days (specified in the Simulation Calendar) should be identified and confirmed.
- Participants are encouraged to set up an internal issue management process.

4.2 Functional preparation

Participants and ISVs planning to participate in the simulation should verify their individual setup/clearing-relationship and inform the exchange of any changes that may be required prior to the start of their simulation testing activity.

The completion of functional preparations prior to production start is mandatory.

4.3 Technical preparation

In order to ensure technical readiness for simulation, members/ISVs should consider the following topics:

- The changes for the following interfaces have to be implemented
 - T7 Enhanced Trading Interface ETI
 - T7 FIX Gateway (Trading sessions only)
 - T7 FIX LF Gateway (ordering of FIX LF Trading and Back-Office sessions via the Member Portal)
 - T7 Market and Reference Data Interfaces
 - Common Report Engine (new and changed reports)
 - Common Upload Engine
- A technical connection to T7 systems needs to be established (if not existing).
- Internal resources for timely installation of simulation software should be identified and confirmed.
- Related in-house systems should be set up to simulate subsequent processing.

5. Focus Day Overview

This chapter outlines which focus days will be offered. Focus days are planned and triggered by the Exchange. Specific actions have to be done by the Exchange to enable the scenario of the focus days. Focus days can be of technical nature (e.g. Market Data Service Failure), or of functional nature (e.g. Corporate Action). In either case participants cannot test without the Exchange taking action first.

Recommended test scenarios on the other hand can be done by the participants without any particular initiating action by the Exchange. Participants can run through these scenarios at their own discretion. These scenarios usually highlight new or changed features of the current release and participants are highly advised to perform these scenarios and verify their procedures and software used to be fit for these scenarios.

In the overview below, all focus days offered and recommended test scenarios for this release simulation are listed and described:

Technical Focus Days – Triggered by the Exchange:

- Matching Engine & Gateway Failover and Failure, EOBI Failure
 - Matching Engine Failover
 - Matching Engine Failure
 - Enhanced Order Book Interface (EOBI) Failure
- FIX Gateway Failover
- FIX LF Interface Failover & Gap Test (*New focus day for T7 Release 10.0*)
- Market Data Services Failure
- T7 RDI Failure (*derivatives markets*)
- Matching Engine Processing Delay
- GUI (forced user log out)

Functional Focus Days – Triggered by the Exchange:

- Multi-Currency Trading (*T7 Xetra*) (* New focus day for T7 Release 10.0 *)
- Automated Corridor Expansion Volatility Model (*T7 Xetra*) (*New focus day for T7 Release 10.0*)
- Corporate Actions

Functional Focus Days – On request only:

- Stressed market conditions / exceptional circumstances
- Product Halt
- Market Halt
- Instrument Suspend (*cash markets*)
- Quote Request Driven Trading (*T7 Börse Frankfurt*)
- Special Auction (*T7 Börse Frankfurt*)
- Trading Halt on Product level (*T7 Börse Frankfurt*)
- Instrument Stop (*T7 Börse Frankfurt*)

Recommended Test Scenarios to be executed by participants:

- **New:** Integrated weekly expiring options
- **New:** Options Volatility Strategies with daily expiring future leg
- **New:** Market on Close (MoC) + x days
- SMP and Matching Cascades (*New recommended test scenario for T7 Release 10.0*)
- Trade at Close (*T7 Xetra*)
- Full Spread Matrix (*derivatives markets*)
- New Strategy Setup – complex instruments (*derivatives markets*)
- Trade Traceability
- Risk Events (*derivatives markets*)
- Locked Stock (*T7 Börse Frankfurt*)
- Non-CCP Trading (*T7 Börse Frankfurt*)

5.1 Technical Focus Days – Triggered by the Exchange

Technical focus days will be offered on several occasions during the Simulation and will be triggered by the Exchange. Participants should use this opportunity to test the behaviour of the T7 trading and market data interfaces in conjunction with their own front office applications as well as their order book- and session management systems. Technical focus days will be provided simultaneously across multiple partitions (Cash & Derivatives).

5.1.1 Gateway & Matching Engine Failover & Failure, EOBI Failure

The T7 simulation environment runs on separate partitions. Every process in the partition has a standby process that can take over in case the primary process fails. During simulation, a failover and a failure of a matching engine & gateway will be simulated. This focus day will shut down both matcher and gateway processes belonging to one partition consecutively allowing participants to verify the failover mechanisms in their applications.

Prior to this focus day scenario, participants are advised to insert several non-persistent vs. persistent and standard vs. lean orders and quotes in the simulation environment. The exchange will cut connections twice and affected participants will be able to verify their internal failover processes.

On this focus day, Deutsche Börse performs a failover for the consolidated gateway and matching engine processes (Matching Engine Failover), thereafter the secondary gateway and matching engine process will be stopped (Matching Engine Failure). All processes will subsequently be restarted, and the scenario will then be repeated.

Participants are encouraged to subscribe the service availability notifications, they may receive service availability (10030) with matching engine status “unavailable” for the partition in question as a result of the matcher failure/failover, and service availability (10030) with matching engine status “available” for the partition in question as soon as order/quote maintenance is possible again.

Matching Engine Failover

When the primary matcher process in the partition will be stopped, the standby matcher process will take over. During the failover non-persistent orders and quotes are deleted. A Trading Session Event 'Market reset' states the technical problem and includes the message key, which is the last reproducible order message, followed by Extended Order Information (with ExecRestatement-Reason order book restatement) and Trading Session Events 'End of Restatement'.

Low frequency sessions stay connected during the failover and receive these notifications, while high frequency sessions get disconnected and must establish a new TCP/IP connection to an available matching engine & gateway process, before they can retransmit these data. Availability of order/quote maintenance is announced via Service Availability (10030).

Please note: This scenario automatically triggers an "EOBI Failure", listed below.

Matching Engine Failure

For the execution of a matching engine failure both matcher processes will be stopped for a partition in simulation. Before the partition is re-started, the matching engine & gateway process for that partition will be shut down, so high frequency sessions will get disconnected.

During the re-start of the matcher processes, non-persistent orders and quotes are deleted. A Trading Session Event 'Market reset' states the technical problem and includes the message key, which is the last reproducible order message, followed by Extended Order Information (with ExecRestatement-Reason order book restatement) and Trading Session Events 'End of Restatement'.

Low frequency sessions stay connected and receive these notifications, while high frequency sessions must establish a new TCP/IP connection to an available matching engine & gateway process, before they can retransmit these data. Availability of order/quote maintenance is announced via Service Availability (10030).

Please note: The Matching Engine failure automatically triggers an EOBI failure as well.

EOBI Failure

Prior to the focus day, participants should check whether they are able to receive market data via EOBI, i.e. they should try to send some orders on benchmark futures products and equities which are available in the T7 simulation environment. Public market data information from T7 EOBI will be provided in packages marked with a MarketSegmentID, i.e., product identifier; PartitionID; ApplSeqNum (continuous numbering format); Packages are sent over redundant multicast address and port combinations. Each package is uniquely identified by its MarketSegmentID and ApplSeqNum combination. In addition to the packet sequence numbering, individual messages are sequenced by MsgSeqNum, which is contiguous per MarketSegmentID.

In case of an EOBI Failure, both the ApplSeqNum and the MsgSeqNum for a specific MarketSegmentID will restart from 1.

An EOBI Failure is triggered together with a matching engine failure. Participant applications should detect this, whenever an ApplSeqNum is received which is smaller than one which has already been received for a specific MarketSegmentID and multicast address:port combination. Whenever a participant application detects a restart of the MsgSeqNum as well, it must rebuild all order books for this MarketSegmentID again from the T7 EOBI snapshot channel.

All non-persistent orders and quotes entered prior to the failover will be deleted. The receiving application needs to invalidate its view of the order book and refresh once an explicit message has been received containing new information.

- ➔ The Gateway & Matching Engine Failover & Failure, EOBI Failure scenario will be offered between 15:00-16:00 CET/CEST

FX LF Interface:

For the FIX LF Interface the Order Management availability will change to unavailable during the gateway and matcher shutdown and start-up phase. Participants will have to probe the FIX LF Interface for each market to find the active gateway until they get a successful login (see also the description of the FIX LF Interface Failover & Gap Test scenario).

5.1.2 FIX Gateway Failover

In case of a FIX Gateway Application Failover, all FIX sessions connected to this FIX Gateway will be disconnected and the corresponding port will be closed.

Customers should then activate the connection to the secondary FIX Gateway. The first FIX session logon to the secondary FIX Gateway may take some seconds. So, if a connection or a session logon fails or is not responded to immediately, a second attempt should only be made after a few seconds (30 seconds recommended).

Schedule :

- 15:00 CEST: Application Failover FIX Gateway
(IP address: 90.150.253.32 becomes unavailable for Derivatives
IP address: 90.152.253.42 becomes unavailable for Cash XETR
IP address: 90.152.253.197 becomes unavailable for Cash BF)
- 15:15 CEST: Restart of FIX Gateway
(IP address: 90.150.253.32 available again for Derivatives
IP address: 90.152.253.42 available again for Cash XETR
IP address: 90.152.253.197 available again for Cash BF)
- 15:30 CEST: Application Failover FIX Gateway
(IP address: 90.151.253.32 becomes unavailable for Derivatives
IP address: 90.153.253.42 becomes unavailable for Cash XETR
IP address: 90.153.253.198 becomes unavailable for Cash BF)
- 15:45 CEST: Restart of FIX Gateway
(IP address: 90.151.253.32 available again for Derivatives
IP address: 90.153.253.42 available again for Cash XETR
IP address: 90.153.253.198 available again for Cash BF)

These tests are recommended for all T7 participants (Members/Vendors) using the T7 FIX Interface.

In the event of a FIX Gateway failure, active FIX sessions will be disconnected. FIX sessions may be resumed for the same SenderCompID (49) on the secondary FIX Gateway, using the secondary IP address and port number.

Recovery notes:

In the event that the disconnection was due to an outage on the FIX Gateway side, members should consider the following recovery mechanisms:

- After reconnection of the FIX session, the FIX Gateway may receive a sequence number higher than the one expected and sends a Resend Request (2) message to the member.
- The member should resend all potentially missing messages with PossDupFlag (43) = "Y", to indicate that a message may have been previously transmitted with the same MsgSeqNum (34).
- **Please note:** No Gap Fill messages should be sent by the member during the resend series for application messages. Application messages should always be re-transmitted since the T7 FIX Gateway requires all missing application messages for reconciliation with T7 Exchange's T7 trading system fall-back.
- If a participant sends Gap Fill messages during the resend series for application messages the related orders might not be accessible any more via the FIX Gateway and related order specific information will not be forwarded to the FIX session.

Please Note: The FIX Failover focus day scenario is only valid for the current FIX gateway not for the FIX LF Interface.

➔ The FIX Failover / Failure scenario will be offered between 15:00-16:00 CET/CEST

5.1.3 FIX LF Interface Failover & Gap Test

In case of a FIX LF Interface Failover, all FIX LF interface sessions connected to the (active) FIX LF Interface will be disconnected and the corresponding port will be closed.

Customers should then activate the connection to the secondary (standby) FIX LF interface.

In case of a FIX LF Interface Failover, all FIX LF sessions connected to the (active) FIX LF gateway will be disconnected and the corresponding port will be closed.

Customers should then activate the connection to the secondary (standby) FIX LF gateway.

All FIX LF interface sessions use the same target FIX LF interface IP address and port number per environment (simulation and production). At any one point of time only one of the FIX LF interface will be active and accept requests. Under normal circumstances, the FIX LF Gateway IP labelled as "active" in the N7 Network Guide is the one to which participants should initially attempt their session logins. The standby gateway will only become active in the event of a FIX LF interface failover.

Schedule :

Part 1:

- IP address: 193.29.89.65 becomes unavailable for Derivatives (XEUR, XEEE) - IP address: 193.29.89.97 will be available.
- IP address: 193.29.94.97 becomes unavailable for Cash Xetra (XETR, XBUL, XMAL, XVIE, XBUD, XLJU, XPRA, XZAG) - IP address: 193.29.94.65 will be available.
- IP address: 193.29.94.98 becomes unavailable for Cash Börse Frankfurt (XFRA) - IP address: 193.29.94.66 will be available.

Part 2:

- IP address: 193.29.89.97 becomes unavailable for Derivatives (XEUR, XEEE) - IP address: 193.29.89.97 will be available.
- IP address: 193.29.94.65 becomes unavailable for Cash Xetra (XETR, XBUL, XMAL, XVIE, XBUD, XLJU, XPRA, XZAG) - IP address: 193.29.94.97 will be available.
- IP address: 193.29.94.66 becomes unavailable for Cash Börse Frankfurt (XFRA) - IP address: 193.29.94.98 will be available.

Recovery notes:

- During the start-up of the FIX LF interfaces, listen ports for both the active and standby interfaces will be created and activated. If a connection attempt to the listen port is refused, then the interface is either not available or in an early phase of the start-up process. Once the interfaces have been completely started, a differentiation between the active and standby interfaces, from a participant perspective, is not possible at this point as both gateways will accept TCP connections on the respective IP address and port.
- Following the start-up of the FIX LF interfaces the states of the individual markets (e.g.) XETR, XEUR will be recovered. If a request is sent either during the recovery process of the first market on the active gateway or to the standby gateway, the connection will be terminated. Once the recovery process for a market has been completed, the interface will switch to the normal operation mode for the market which has been completely recovered and a session logon for the market will be possible. If a connection request is accepted but the logon to a specific market is still rejected, this indicates that at least one market has been completely recovered but the market for which the logon request was sent is still in the recovery process.
- During the transition to the normal mode of operation, all existing TCP connections will be terminated before new TCP connections will be accepted. In the event of an interface failover, during the transition phase to become the new active interface, the standby interface will behave in the same way as previously the active gateway during its transition phase to the normal operating mode.
- To be certain that the connection to the correct interface has been established, the FIX LF gateways should be polled alternately with session logon requests until the session logon is successfully processed. A successful login indicates that a participant has connected to the active interface.

Gap Test:

Participants can submit transactions via another interface (i.e. ETI or GUI) in order to initiate a gap test. In this case the participant will face a gap in their outbound traffic (tag 34, MsgSeqNum) and have to recover the previously generated transactions after a successful re-login to the FIX LF Interface.

5.1.4 Market Data Services Failure

Prior to the focus day participants should check whether they receive market data from T7, i.e. they should try to send some orders on products which are available in Simulation. Market data information will be provided in packages marked with a SenderCompID; PartitionID; PacketSeqNum (continuous numbering format); the MessageSeqNum (continuous per SenderCompID multicast address and port combination) and a MarketSegmentID. The SenderCompID always remains constant for a product during the whole business day, if there is no failover.

When the market data failure is initiated by DBAG, a crash will be simulated within the partition for market data services. During this time participants can try to insert new orders and quotes for that product. As a result, they will receive a message that the associated partition is not available. As long as the partition is not available, i.e. not restarted by the exchange, participants will neither be able to receive market data for products linked to that partition, nor be able to enter orders. In this test scenario, all partitions in Simulation will be affected and therefore the test will refer to all products, which are available at that time in the Simulation.

Participants can identify this failover scenario by comparing the SenderCompID value with the previous value. A new SenderCompID, which is available in the packet header and in each data message for incremental and snapshots, indicates the partition failure. Additionally, the PacketSeqNum will be reset to 1.

Once this condition is observed, it can be assumed that a fail-over scenario took place and the rebuild of the order book can be started. All non-persistent orders and quotes entered prior to the failover will be deleted. The receiving application needs to invalidate its view of the order book until an explicit message has been received containing new information.

➔ The Market Data Services Failure scenario will be offered between 15:00-16:00 CET/CEST.

5.1.5 T7 RDI Failure (derivatives market)

In this test scenario both the failover and the restart of the T7 RDI will be simulated (EEX RDI is independent of T7 RDI and will not be affected by the T7 RDI Failure). As a precondition for the tests derivatives markets, participants are advised to create some complex instruments in the Simulation environment before the failover and restart of the RDI are performed.

In the first part of the test scenario when the T7 RDI fails over, a new initial reference file will be generated with a new file set identifier. This file will contain any complex instruments, already created and deleted during the day, i.e. the entire history.

In the second part of the test scenario, when the T7 RDI is restarted, a new initial reference file will be generated with a new file set identifier. This file contains the existing complex instruments but not the entire history of creations and deletions.

➔ The RDI Failure scenario will be offered between 15:00-16:00 CET/CEST.

5.1.6 Matching Engine Processing Delay

This focus day scenario is provided to assist participants in testing the very rare event where massive processing delays occur on a partition. In this scenario the following events will be triggered:

All non-persistent Orders and Quotes will be deleted for the affected partitions and deletion notification will be triggered. Product-specific DeleteAllOrderQuoteEventBroadcast messages will be sent to all ETI and FIX sessions with MassActionReason set to (111) Product_temporarily_not_tradable.

For a minimum time period of 10 seconds or until the slow processing is resolved, all transactions except order deletions will be rejected with SessionRejectReason set to (102) Service_Temporarily_Not_Available and VarText 'TRANSACTION REJECTED DUE TO SLOW PARTITION'

In the event that a product is temporarily not tradable, participants will be informed when the matching engine will accept transactions again by a TradingSessionStatus message (MsgType (tag 35) = "h") specifying TradSesEvent (tag 1368) = 105 ("Service Resumed").

Please note: Participants will still be able to send deletion requests for any persistent orders which they would like to remove.

Participants are requested to check that their applications can correctly handle order / quote deletions and transaction rejections due to the slow partition state.

➔ The Matching Engine Processing Delay scenario will be offered between 15:00-16:00 CET/CEST.

5.1.7 GUI (forced user log out)

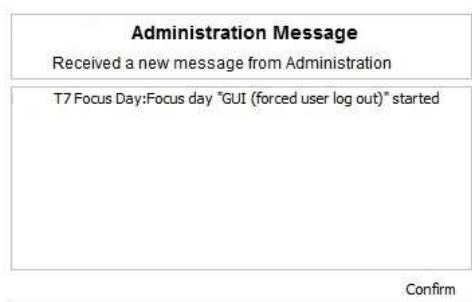
The GUI Focus Day scenario is provided primarily to make participants aware of a function within T7 whereby in an emergency/exceptional situation T7 Operations can not only send messages directly to the user's screen but also force the termination of the GUI itself. In addition, the focus day is also provided to make participants aware of the effects of a full GUI environment restart. The GUI (forced user log out) focus day will be subdivided into three parts:

- Send Admin Message only

- Admin Message + Forced Trader GUI Shutdown
- Full GUI environment restart

Send Admin Message only

All GUI instances (both Admin and Trading) logged in at the point when the focus day is initiated will receive a message “T7 Focus Day: Focus day “GUI (forced user log out)” started”. This message will appear in a new popup window.



This window can be closed by pressing the Confirm button.

Admin Message + Forced Trader GUI Shutdown

After this first message the following message will be sent 10 minutes prior to the GUI environment shutdown: “T7 GUI Focus Day: Automatic GUI shutdown has been triggered and the GUI environment will be restarted”. On the Trader and Admin GUI the following pop-up windows will be displayed:



The colour of this popup window will turn to yellow 15 seconds prior to the forced shutdown and turns red for the last 5 seconds.

Full GUI environment restart

Following a full restart of the GUI environment in Simulation will be performed. On the scheduled focus day participants will be encouraged to suspend orders so that the effect on suspended orders caused by a GUI restart can be observed. Suspended orders will all be deleted, the rest of the order book will remain unchanged after a restart.

➔ The GUI (forced user log out) focus day scenario will be offered between 15:00-15:30 CET/CEST.

5.2 Functional Focus Days – Triggered by the Exchange

The exact dates for the functional focus days triggered by the exchange are displayed in the Simulation calendar available on the websites

eurex.com > Support > Initiatives & Releases > Simulation Calendar

xetra.com > Trading > Trading calendar and trading hours

5.2.1 Multi-Currency Trading (T7 Xetra)

On the focus day "Multi-Currency Trading" 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. In particular participants should check that orders are sent to the ISIN currency combination they expect. In addition participants will have the opportunity to test the clearing and settlement processing of the trades, generated in these instruments as well as the contract notes and reports.

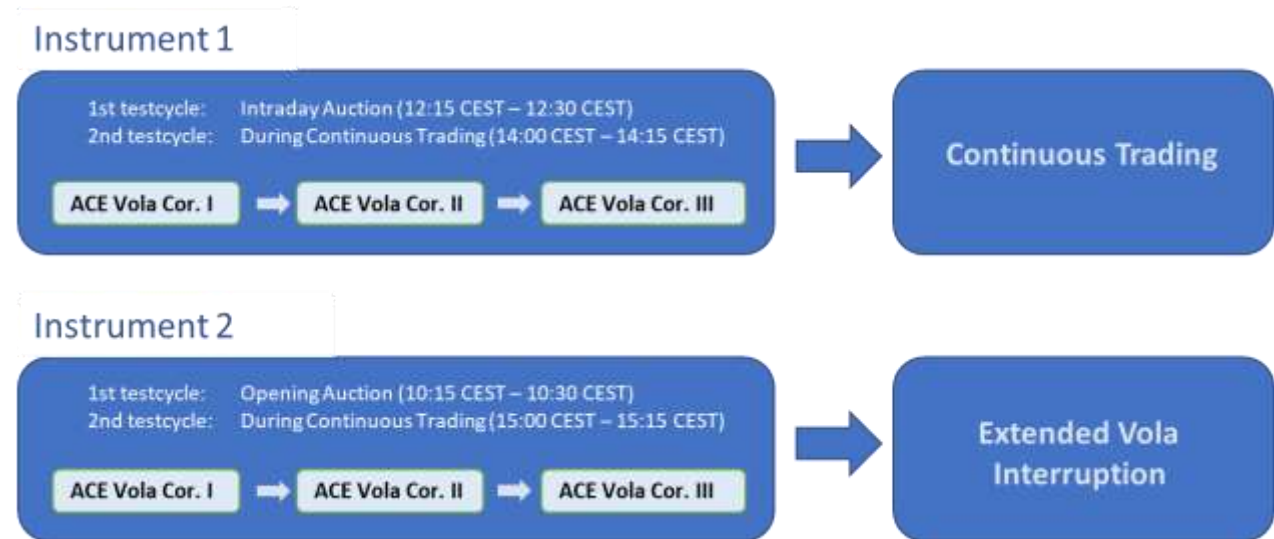
The instruments for the Multi-Currency Trading scenario will be announced via Implementation News before the respective focus days.

Please note that Designated Sponsors, Regulated Market Makers and Xetra EnLight respondents will have to register for every ISIN currency combination separately.

5.2.2 Automated Corridor Expansion Volatility Model (T7 Xetra)

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. In case a volatility interruption was not automatically terminated in the final ACE volatility corridor, an Extended Volatility Interruption will be triggered, and Cash Market Operations will need to manually terminate the volatility interruption.

The configuration parameters of the ACE volatility model will be published in the reference data.

Test scenario and expected result:

Prior to the planned volatility interruption participants are recommended to enter persistent and non persistent orders in the respective product. As a result of this test scenario all persistent and non persistent orders are still in the book after the volatility interruption started (Please note: If certain orders prevent that the third ACE Volatility corridor can be reached, they will be deleted).

During the freeze of an Extended Volatility Interruption, instrument's trading phase does not allow deletion of orders. In such a situation the respective orders cannot be deleted directly but the deletion is pending until the respective phase gets released. Participants are recommended to execute a Mass Cancellation by the respective trader or contact the Functional Helpdesk Cash Market Operations and request the execution of a Mass Delete. Within the mass cancellation (/ deletion) message the member is informed about all orders with "Pending Deletion" by enumeration of the system order numbers. When the Extended Vola Freeze is resolved an order marked for pending deletion might get executed or (the remaining quantity) is deleted before the next incoming order book transaction is processed. For this final deletion a single order message is formatted.

Please contact the Market Operations Helpdesk (contact details are included in chapter 7) if you would like to test the ACE Volatility Model outside the focus day and require support.

5.2.3 Corporate Actions

Derivatives Market

Participants will have the opportunity to test Corporate Action processing. On the first focus day, i.e. before end-of-day processing starts, participants are requested to generate positions in T7 in the defined products to check the system behaviour on the effective focus day (second business day).

Cash Market

Simulation Business Day 1:

DBAG maintains the Cum-Indicator, Ex date and the dividend amount of the instruments.

Simulation Business Day 2:

The Cum-Indicator is set and visible for participants. The participants should now have open orders in POSTR. These orders will be deleted during the following batch run. Furthermore, the deletion messages including the order deletion reasons will be sent.

Simulation Business Day 3 (Ex-day): The participants see the Ex indicator and the reference price is reduced accordingly by the dividend amount.

The exact dates and products of the Corporate Actions scenario are displayed in the current simulation calendar.

5.3 Functional Focus Days – On request only

5.3.1 Stressed market conditions / exceptional circumstances

The regulatory relevant states of market conditions for market making will be normal market conditions, stressed market conditions and exceptional circumstances. Stressed market conditions will be established on product level for the derivatives market and instrument level for the cash market, whereas exceptional circumstances will typically affect the whole market. The product will be in normal market conditions, when neither stressed nor exceptional market conditions apply. There are no market making obligations during exceptional circumstances.

Automatically triggered stressed market conditions will have a fixed duration (e.g. 10 minutes). Ongoing automatically set stressed market conditions will be prolonged by this time period, when the trigger conditions are detected again. The following trigger events for automatically set stressed market conditions will be supported, depending on the type of the affected product:

Derivatives Market

- Simultaneous significant change of price and volume – applies to equity index futures, single stock futures and ETF futures.
- End of a volatility interruption – applies to equity index futures, single stock futures and ETF futures.
- Stressed Market Signals in a related futures product – in case a futures product is in stressed market conditions and there is a corresponding options product with the same underlying, the options product will be automatically set in stressed market conditions. Note that a volatility interruption in such a futures product is considered as a stressed market signal. Corresponding options products are ETF options, equity options and equity index options.

During stressed market conditions, the maximum quote spread for quotes and Request for Quote requests is widened and the minimum quote quantity for quotes can be changed.

Cash Market

- significant short-term change in price, i.e. the cash market instrument is in an extended volatility interruption on T7,
- significant short-term change in volume, i.e. significantly above-average traded volume in the price determination after an extended volatility interruption.

According to the regulatory technical requirements, T7 has to support the state of exceptional circumstances under the following triggering conditions:

- Extreme volatility – a state of extreme volatility is established when the majority of products, which are subject to market making regulation is in stressed market conditions or in a volatility interruption. The state of extreme volatility is set for the whole market.
- War, industrial action, civil unrest or cyber sabotage – this state is declared by the Exchange Management Board with simultaneous effect for the whole market.
- Disorderly trading conditions at the exchange – this state is declared when there is either a significant increase of processing times, or multiple erroneous executions of transactions, or loss of connectivity for many Participants. The state of disorderly trading conditions is declared by the Exchange Management Board with simultaneous effect for the whole market.
- Suspension of pre-trade transparency obligation – the declaration of this state rests upon the decision of the responsible regulator. This condition applies per product.

Exceptional circumstances will be declared for a period of one hour and will end as soon as the triggering conditions are no longer met. The state of exceptional circumstances may be extended until the end of the business day, if the criteria are repeatedly breached. Exceptional circumstances will end automatically at the end of the business day. In case the triggering conditions remain in effect, they will be declared again on the next business day.

T7 will publish exceptional circumstances only via news messages (Eurex webpage, Xetra webpage, T7 GUI and ETI). Exceptional circumstances will not be communicated via the T7 market data interfaces. Thus, there might be situations where stressed market conditions in a product are set during a state of exceptional circumstances. In this case, exceptional circumstances always trump stressed market conditions, regardless of the sequence of setting the regulatory trading conditions.

On the Focus Day “Stressed market conditions / exceptional circumstances” first “Stressed market conditions” will be triggered by the exchange for 3 products for a defined time period of 10 minutes.

Afterwards Exceptional circumstances will be declared for the period of one hour for the whole market.

5.3.2 Product Halt

As a possibility to reflect a product halt in T7, DBAG offers to schedule the Simulation of the product halt scenario on request.

Test scenario and expected result:

Prior to the planned Product Halt participants are recommended to enter non-persistent- and persistent orders and quotes in the affected products. With the transition of the trading phase to HALT, this product will not be tradable between the given times in T7. In this scenario, all non-persistent orders and quotes will be deleted after the market reset and participants must re-enter them. Persistent orders for the affected product will stay in the system. Additionally, the following message occurs:

10308 - (ETI: Mass Cancellation Event aka DeleteAllOrderQuoteEventBroadcast aka BC CleanupOQ)

OrderMassActionReport (UBZ) messages will be sent to all FIX sessions.

5.3.3 Market Halt

As a possibility to reflect a market halt in T7, DBAG offers to schedule the Simulation of the market halt scenario on request.

Test scenario and expected result:

Prior to the planned Market Halt participants are recommended to enter non-persistent orders and quotes and persistent orders in any products in the affected market. As a result of the market halt, products will not be tradable between the given times. In this scenario all non-persistent orders and quotes will be deleted after the market reset and participants must re-enter those orders and quotes. Persistent orders will stay in the system.

Additionally, the following message will be sent:

10308 - (ETI: Mass Cancellation Event aka DeleteAllOrderQuoteEventBroadcast aka BC CleanupOQ)

5.3.4 Instrument Suspend (Cash Markets)

As a possibility to reflect an instrument suspend in T7, DBAG offers the Simulation of the following focus day on request.

Test scenario and expected result:

Prior to the planned Instrument Suspend participants are recommended to enter non-persistent- and persistent orders and quotes in the affected instrument. As a result, this instrument will not be tradable between the given times in T7. In this scenario all orders (persistent and all non-persistent) and all quotes will be deleted after the market reset and participants must re-enter them. Additionally, the following message occurs:

10308 - (ETI: Mass Cancellation Event aka DeleteAllOrderQuoteEventBroadcast aka BC CleanupOQ)

5.3.5 Quote Request Driven Trading (T7 Börse Frankfurt)

On the focus days “Quote Request Driven Trading”, participants are requested to enter quote requests which will in turn be answered by the Specialist with a dedicated quote. The quote will then be tradable for the sender of the quote request. If a participant enters a quote request for a particular instrument and quantity with QuoteID field empty, the existing processing is started and Specialist’s standard quote is expected. But if a participant fills in his QuoteID, Specialist’s response is expected. When the quote request is answered by the Specialist, it is distributed only to the quote-requesting session via private broadcast. Participants may answer this Specialist’s response by entering an order with the QuoteID. This order entered by the participant is forwarded to the Specialist who should enter a matching quote leading to a full execution of the QuoteID order. In case the matching quote does not guarantee a full execution of the QuoteID order, the Specialist Quote gets rejected and no matching will take place. Please Note: If the QuoteID order is not executed within a defined time interval, it is automatically deleted by the trading system, regardless of the current instrument state.

On the Focus Day “Quote Request Driven Trading” participants are requested to test the functionality by entering quote requests in following instruments:

Specialist BALFR: XS1206541366, AT0000758305, DE000CP3S5F3, LU0028119013

Specialist UHEFR: DE0001135481, AU3CB0223519

Specialist ICFFR: AT0000BAWAG2, DE0008471301, DE000VL3TBC7

Specialist MWBMU: DE0005070908, DE000DL19SH3

Specialist RELFR: AT000B049788, SE0004517290

Specialist SPAFR: DE0005196232, DE000A0GPNPZ3

Specialist SEYFR: DE0005221303, DE000A19S4V6

Specialist WSTFR: DE0006614035, DE000A1KRJU8

Specialist BFVBL: AT000000STR1, FI0009000681

Specialist WALFR: AU3CB0246676, DE000A14KJF5

5.3.6 Special Auction (T7 Börse Frankfurt)

To support participants during their testing of the trading restriction “Special Auction (SA)”, DBAG will initiate the special auction on request.

5.3.7 Trading Halt on Product level (T7 Börse Frankfurt)

As a possibility to reflect a product halt in T7, DBAG offers to schedule the simulation of the product halt scenario on request.

Test scenario and expected result:

Prior to the planned Product Halt participants are recommended to enter orders and quotes in the affected products. With the transition of the trading phase to HALT, this product will not be tradable between the given times in T7. In this scenario, all standard quotes will be deleted after the market reset and specialists must re-enter them. Orders for the affected product will stay in the system.

5.3.8 Instrument Stop (Börse Frankfurt)

As a possibility to reflect an instrument stop in T7, DBAG offers to schedule the simulation of the Instrument Stop scenario on request.

Test scenario and expected result:

Prior to the planned Instrument Stop, participants are recommended to enter orders and quotes in the affected products. With the transition of the trading phase to STOP, this instrument will not be tradable between the given times in T7. In this scenario, all standard quotes will be deleted after the market reset and Specialists must re-enter them. Orders for the affected product will stay in the system.

5.4 Recommended test scenarios executed by participants

The following test scenarios should be executed anytime by participants in Simulation. There are no special tasks to be performed by the exchange.

5.4.1 Integrated weekly expiring options

Current existing weekly products (dedicated product symbol NOA1, NOA2,...) will be decommissioned and weekly contracts will be integrated into the main product NOA3. Eurex plans to offer, for testing purpose in Simulation environment in a first activation wave, a parallel listing of weekly contracts. After the integration of weekly contracts into the main product is concluded, the weekly products do not contain anymore any contracts and will be removed.

The activation of the weekly contracts in selected options will take place in two waves. The first wave of activation (Wave 1) will be performed on 9 February 2022, the second wave of activation (Wave 2) will be performed in May 2022. The exact dates for May 2022 will be communicated in due course.

Following products support sub-monthly contracts in Simulation.

NOA3 will have NOA1, NOA2, NOA4 contracts parallel listed for a longer time period and available in February 2022

Example based on the assumption weekly products will be terminated in April 2022:

Month	NOA3	NOA1	NOA2	NOA4
February 2022	All 3 weeklies inside one product + other monthly contracts of weekly products	FEB22 1 st week MAR22 1 st week	FEB22 2 nd week MAR22 2 nd week	FEB22 4 th week MAR22 4 th week
March 2022	All 3 weeklies inside one product + other monthly contracts of weekly products	MAR22 1 st week	MAR22 2 nd week	MAR22 4 th week
April 2022	All 3 weeklies inside one	-	-	-

	product and no weekly products anymore			
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OESX will “take over” sequentially contracts from OES1, OES2, OES4 & OMSX. E.g.: parallel listing of OES1 JUN22 and OESX 1st Friday June expiration is not supported.

Example based on the assumption delistings of contracts in weekly products starts in May 2022:

Month	OESX	OES1	OES2	OES4	OMSX
May 1 st week	Monthly contracts only	MAY22 1 st week JUN22 1 st week	MAY22 2 nd week JUN22 2 nd week	MAY22 4 th week JUN22 4 th week	MAY22 EoM JUN22 EoM
May 2 nd week	Monthly contracts + JUL22 1 st week	JUN22 1 st week	MAY22 2 nd week JUN22 2 nd week	MAY22 4 th week JUN22 4 th week	MAY22 EoM JUN22 EoM
May 3 rd week	Monthly contracts + JUL22 1 st week + JUL22 2 nd week	JUN22 1 st week	JUN22 2 nd week	MAY22 4 th week JUN22 4 th week	MAY22 EoM JUN22 EoM
May 4 th week	Monthly contracts + JUL22 1 st week + JUL22 2 nd week	JUN22 1 st week	JUN22 2 nd week	MAY22 4 th week JUN22 4 th week	MAY22 EoM JUN22 EoM
May last days + June 1 st week	Monthly contracts + JUL22 1 st week + JUL22 2 nd week	JUN22 1 st week	JUN22 2 nd week	JUN22 4 th week	MAY22 EoM JUN22 EoM

	+ JUL22 4th week				
June 2 nd week	Monthly contracts + JUL22 1 st week + JUL22 2 nd week + JUL22 4 th week + JUL22 EoM + AUG22 1 st week	-	JUN22 2 nd week	JUN22 4 th week	JUN22 EoM
June 3 rd week	Monthly contracts + JUL22 1 st week + JUL22 2 nd week + JUL22 4 th week + JUL22 EoM + AUG22 1 st week + AUG22 2 nd week	-	-	JUN22 4 th week	JUN22 EoM
June 4 th week	Monthly contracts + JUL22 1 st week + JUL22 2 nd week + JUL22 4 th week	-	-	JUN22 4 th week	JUN22 EoM

	+ JUL22 EoM + AUG22 1st week + AUG22 2nd week				
June 5 th week	Monthly contracts + JUL22 1st week + JUL22 2nd week + JUL22 4th week + JUL22 EoM + AUG22 1st week + AUG22 2nd week + AUG22 4th week	-	-	-	JUN22 EoM
July 1 st week	Monthly contracts + JUL22 1st week + JUL22 2nd week + JUL22 4th week + JUL22 EoM + AUG22 1st week	-	-	-	-

	+ AUG22 2 nd week				
	+ AUG22 4 th week				
	+ AUG22 EoM				

Requirements:

- Member level has to be set to at least 2 = EXPIRATION_DATE

Test scenario:

- Processing of contract reference data information delivered via RDI/RDF , especially such fields like
 - ContractDate
 - ContractCycleType
 - ContractIdentificationEligibility
 - IsPrimary
- Entry, modification and deletion of quotes and orders
- Entry and approval of TES trades
- Number of contracts within one product will increase significantly, ensure that mass quote is properly processed.

5.4.2 Options Volatility Strategies with daily expiring future leg

With start of T7 Release 10.0 Eurex supports daily expiring contracts. Existing physical settled single stock futures will be extended with daily expiring contracts (dailies). Such dailies are settled in Eurex system at the end of day.

A combination of option legs with daily expiring future leg allows a new type of option volatility strategies, replacing current option volatility strategies with cash leg.

The activation of the daily expiring contracts in selected physically settled single stock futures will take place in two waves. The first wave of activation (**Wave 1**) will be performed on 11 February 2022, the second wave of activation (**Wave 2**) will be performed in May 2022. The exact dates for May 2022 will be communicated in due course.

In Simulation following product pairs can be used for testing of the new functionality:

Option	Future with daily expiring contracts	Activation in
ADS	ADSP	Wave 2
AXA	AXAP	Wave 1 (11 Feb 2022)
BAY	BAYP	Wave 1 (11 Feb 2022)
NOA3	NOAE	Wave 1 (11 Feb 2022)
BMW	BMWP	Wave 2
ROG	ROGP	Wave 2
UBSN	UBSP	Wave 2

Requirements:

- Member level must be set to at least 2 = EXPIRATION_DATE

Test scenario:

- Creation of option volatility strategies containing a daily expiring future leg
- Entry, modification and deletion of quotes and orders
- Entry and approval of TES trades

5.4.3 Market on Close (MoC) + x days

Index Futures will be enhanced with daily expiring contracts with remaining lifetime “X” (up to two business days, i.e. $X = 0, 1, 2$). The daily expiring index future will be used as short-term leg of future calendar spread and the quarterly expiring contract will be used as long-term leg. This is relevant for MSCI Futures.

As the newly defined future calendar spread is representing the basis, basis trading is equivalent to trading a future calendar spread using daily expiring future contracts as short-term leg. The settlement of the basis at $T+X$ can be achieved by choosing the corresponding future calendar spread with the daily expiring leg instrument expiring at $T+X$.

The activation of the daily expiring contracts in selected MSCI futures will take place in two waves. The first wave of activation (**Wave 1**) will be performed on 18 February 2022, the second wave of activation (**Wave 2**) will be performed in May 2022. The exact dates for May 2022 will be communicated in due course.

In Simulation the following products are available for the testing of the new functionality:

MSCI Future	Activation in
FMEA	Wave 1 (18 Feb 2022)
FMWO	Wave 2
FMWN	Wave 1 (18 Feb 2022)
FMJP	Wave 2
FMEF	Wave 2

Requirements:

- Member level must be set to at least 2 = EXPIRATION_DATE

Test scenario:

- Creation of calendar spread containing a daily expiring index future as short-term leg and a quarterly expiring contract used as long-term leg
- Entry, modification and deletion of quotes and orders
- Entry and approval of TES trades

5.4.4 SMP and Matching Cascades

The adapted 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. Furthermore, with T7 Release 10.0, Self-Match Prevention (SMP) will also be possible for FOK orders (Xetra only).

Participants are requested to test the SMP functionality enhancement by entering orders, which are executable against each other, which provides the basis to create the necessary conditions and setup to match further into the next price levels.

In report TC812 “T7 Daily Prevented Self-Matches” Participants can see all order deletions, cancellations, and modification due to self match prevention.

The following test-scenario is recommended:

Requirements:

- One active Trader with role “Trader” for the product to be tested and sufficient trade size limits for order book trading.

Testscenario:

1. Enter a several buy limit orders into the order book ensuring different limit prices to ensure the the order gets filled up with orders. Also, ensure that some orders are send with the same SMP ID (for ETI: tag 28744 MatchInstCrossID; GUI: CrossID – e.g. “123”).
2. Enter a sell market order with sufficient quantity to execute multiple SMP flagged and non-SMP flagged of the previously entered limit orders into the same product with identical SMP ID (“123”)

As outcome of the test, the Participant should receive:

- Respective partial execution messages for the incoming market orders highlighting the involvement of SMP with the respective match steps and fill groups for the involved price levels
- Respective deletion messages for the resting limit orders with SMP ID “123” that were involved in the execution but prevented by T7 due to Eurex SMP

5.4.5 Trade at Close (T7 Xetra)

To provide participants with an opportunity to test the new trading phase Trade at Close (TaC), DBAG will provide buy and sell market orders during the TaC phase (15:45 CET/CEST- 15:55 CET/CEST) in the following instruments:

DE0005089031

DE0005102008

DE0005103006

DE0005104400

DE0005495329

In the Trade at Close phase (15:45 CET/CEST- 15:55 CET/CEST), trading participants will have the possibility to enter orders that will result in trades at the fixed closing auction price. Orders entered prior to the Trade at Close phase which have not been executed and are flagged accordingly and qualify for the Trade at Close phase will participate in the Trade at Close phase. The Trade at Close phase will only be triggered if the closing auction ended with an auction price with positive turnover.

Please note that the support of the scenario by DBAG is only provided on batch days.

5.4.6 Full Spread Matrix (Derivatives Markets)

In T7 it is possible to set up and trade products with up to 20 different calendars spreads.

The exchange can configure which calendar spreads of a futures product are considered for synthetic matching; a synthetically linked full spread matrix is achieved by considering all calendar spreads of a futures product.

The following products are configured with a synthetically linked full spread matrix in the Simulation:

Group	Product	Currency	Product Name
FINT	FEU3	EUR	THREE-MONTH-EURIBOR FUT. (ACI)
FINX	FEXD	EUR	FUT ON EURO STOXX 50 INDEX DIV
FVOL	FVS	EUR	FUT ON MINI VSTOXX

5.4.7 New Strategy Setup – complex instruments (Derivatives Markets)

Typically, complex instruments are requested by traders, however, some futures spreads are created by the exchange by default. Complex instruments requested by traders with open orders valid beyond the current business day will be available the next day.

It is possible to have different trading parameters per instrument type, for example allocation schemes and price validations. Therefore, different instruments of the same product can vary in their trading behaviour.

Please note: Strategies are always created on a temporary basis and are cancelled during the end of day processing if no open orders valid beyond the current business day are in the order book.

Traders may request complex instruments from T7 at any time during the Simulation. If the requested complex instrument matches a predefined standard option strategy, then the matching engine will create a standard option strategy.

5.4.8 Trade Traceability

T7 provides trade traceability, allowing orders to be linked to executions, trade confirmations, and trades.

While sending a new order, participants can provide a client order ID and up to three free text fields, which are optional for ETI. For each new order received by the Exchange a separate order ID by the exchange is assigned which is unique and returned to the participant on all private messages.

For every match event T7 assigns identifiers unique within product and business day, to each aggregated price level, every order execution and every trade.

Derivatives Market: For the matching of a complex order in addition to the order leg, the execution ID and order leg execution ID is provided for each leg of the complex instrument match.

5.4.9 Risk Events (Derivatives Markets)

Risk parameters will be triggered due to defined trading volume or quantity limits. Limits can be set by Clearing Members for their Non-Clearing Members (Exchange Participants) or by Non-Clearing Members themselves on an intraday basis. There are three levels of limitation which can be defined by participants and is the same for all business units.

1. *Alert message*

The user receives a popup message which informs him that he has exceeded a predefined limit, no further actions happen.

2. *Threshold message*

The user is informed that he has exceeded the second limit and therefore a throttle mechanism is implemented for trading. For traders it is not possible to trade in a general way and volume as the trade volume is limited as per the threshold limitation given by the clearing members.

3. *Blocking message*

With this scenario, trading is disabled for the respective trading user if he exceeds his trading limits or any other given quantity limits for trading. User entitlements are independent of those extra limitations.

5.4.10 Locked Stock (Börse Frankfurt)

Locked Stock refers to the condition when the order book is frozen by the Specialist for a price determination. During Freeze, all order transactions that can impact the potential execution price/quantity, will be kept “Pending” in Locked Stock. After unfreeze, the processing of these order transactions will be performed (if applicable).

All relevant scenarios, which can occur in connection with order add, modify, and delete messages on Locked Stock, as well as basic information about order notifications created per action before, during and after Freeze, are listed in the document ‘Functional Reference’ (chapter 3.2.5.1, available on the following path:

Xetra.com > Technology > System documentation > Release 10.0 > Overview and Functionality

6. Documentation

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

The documents will be available on the websites

eurex.com > Support > Initiatives & Releases > T7 Release 10.0 > System Documentation

xetra.com > Technology > T7 trading architecture > System Documentation > Release 10.0

7. Support

The standard support times of the Exchange will be in effect during the simulation phases. The helpdesk departments and further information sources are provided in the following section.

7.1 Contacts and support hours

The following helpdesks provide first level support for specific topics from Monday until Friday:

7.1.1 Group Client Key Account Management

Phone: individual number to your Group Client Key Account Manager (09:00 - 18:00 CET/CEST)

- Participants readiness activities
- Participant preparation requirements
- Participant setup questions for simulation and production
- Participant data changes for simulation and production
- ISV related queries

7.1.2 Functional Helpdesk Eurex

Phone: +49-69-211-1 12 10 (24 hours, Monday - Friday)

- Functional trading related issues for trading
- Functional focus days
- Product data management
- Market control
- Simulation participation and execution

7.1.3 Functional Helpdesk Cash Markets Operations

Phone: +49-69-211-1 14 00 (07:00 – 22:00 CET/CEST)

- Functional trading related issues
- Functional focus days
- Market control
- Simulation participation and execution

7.1.4 Helpdesk Clearing Data Control

Phone: +49-69-211-1 24 53

(08:00 - 20:00 CET/CEST)

- Entitlement management
- Participant- and user data management

7.1.5 Customer Technical Support

Phone: individual VIP number

(24 hours, Monday - Friday)

- All technical issues related to the simulation environment (e.g. connectivity issues)
- Technical focus days

7.2 Further sources of information

Changes and further information regarding the T7 Simulation will be provided via the following channels:

- Circulars
- Info-Mail
- Implementation News on Eurex Exchange's and Xetra website for T7 under following path:

eurex.com > Support > Information Channels > Implementation News

xetra.com > Technology > Implementation News

8. Change Log

No.	Chapter , page	Date	Change
1.0	all	30 Aug 2021	Initial Version for Release 10.0
1.1	3.1	7 Jan 2022	Added chapter "Next Generation ETD Contracts" to the new functional enhancements section.
	5	7 Jan 2022	Added the following to the Focus days overview – recommended test scenarios overview: <ul style="list-style-type: none"> • <u>New:</u> Integrated weekly expiring options • <u>New:</u> Options Volatility Strategies with daily expiring future leg • <u>New:</u> Market on Close (MoC) + x days
	5.4	7 Jan 2022	Added the following to the recommended test scenarios: <ul style="list-style-type: none"> 5.4.1. Integrated weekly expiring options 5.4.1. Options Volatility Strategies with daily expiring future leg 5.4.1. Market on Close (MoC) + x days