DEUTSCHE BÖRSE GROUP

T7 Release 11.0

Derivatives and Cash Markets

Participant Simulation Guide

Abstract

This document describes the timeline, new and changed features as well as Simulation focus days for the T7 Release 11.0 Simulation. Trading participants should use this document to plan and prepare their T7 Release 11.0 Simulation participation. This document should be read alongside the T7 Release 11.0 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 LF, Common Report Engine, Common Upload Engine, T7 Trader GUI, T7 Admin GUI, T7 Trade Entry Services

7 Market Technology

Today's global markets demand new standards of flexibility and performance. 7 Market Technology series (A7, B7, C7, F7, M7, N7, T7) from Deutsche Börse Group offers a range of innovations in trading, clearing, risk management and connectivity – advanced infrastructure that lets you adapt to whatever the future brings.

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1. Definitions and Abbreviations

Term	Explanation
BF	Börse Frankfurt
BFZ	Börse Frankfurt Zertifikate
CCP & C7 SCS	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
SMP	Self-Match Prevention
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 11.0 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 11.0 and to prepare for production. The production launch date for T7 Release 11.0 is planned for 21 November 2022.

The key objectives of the T7 Release 11.0 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 11.0 launch and production operation.

The T7 Release 11.0 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 11.0 Simulation" always includes all the environments described above, unless explicitly stated otherwise.

The simulation period for T7 Release 11.0 is planned to start on 12 September 2022.

Please note: The start of the EMDS Customer Simulation is planned for 26 September 2022.

In addition to the T7 Release Simulation, Deutsche Börse AG offers a T7 Release 11.0 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 started on 12 August 2022.

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 11.0 will not provide backwards compatibility for the T7 ETI/FIX LF interface version 10.1, i.e. participants who do not want to use the new functionality will not be able to connect to T7 with the interface layout version 10.1 or older after the launch of T7 Release 11.0.

Public market and reference data interfaces, including EOBI, EMDI, MDI, RDI/RDF, as well as reports and data files, will not provide backwards compatibility.

2.3 Further Information

Please note and be aware of the following T7 Release 11.0 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 11.0 of T7 on 21 November 2022.

The following timeline gives an overview of the introduction schedule:

T7 11.0 Cloud Simulation Start	12 August 2022	T7 Simulation
T7 10.1 Simulation last batch	6 September 2022	T7 Simulation
T7 11.0 Simulation Software Installation and Conversion	7 September – 11 September 2022	T7 Simulation
T7 11.0 Simulation Execution	12 September – 18 November 2022	T7 Simulation
T7 11.0 Conversion & Support Window	19 November 2022	T7 Production
T7 11.0 Production Launch	21 November 2022	T7 Production

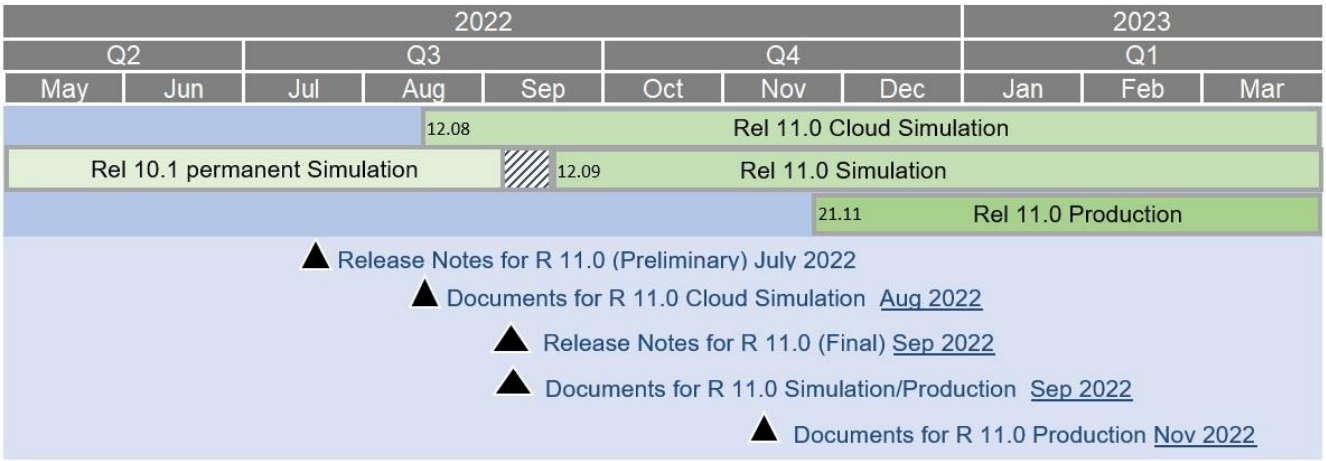

Figure 1: T7 Release 11.0 document publication and introduction timeline

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 10.1 permanent simulation will terminate with the end of day processing on 6 September 2022. The T7 Simulation will not be available for participants and ISVs from 7 September 2022 to 11 September 2022 in order to prepare the T7 Release 11.0 Simulation. Participants are encouraged to use the T7 Cloud Simulation for testing purposes during this period.
- The T7 Release 11.0 Simulation is planned to start on 12 September 2022 and will last until 18 November 2022. All functional and technical preparations should be completed before the start of the T7 Release 11.0 Simulation.
- Following the T7 Release 11.0 Simulation, which ends on 18 November 2022, the T7 11.0 Permanent Simulation will start on 19 November 2022.
- 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 11.0 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 11.0 Simulation in the following products:

Product	Product Type	Order Type
OESX	Option	Only best bid, best ask
ALV	Option	Only best bid, best ask
ODAX	Option	Only best bid, best ask
OGBL	Option	Only best bid, best ask
OGBM	Option	Only best bid, best ask
DB1	Option	Only best bid, best ask
OKS2	Option	Only best bid, best ask
FGBL	Future	Bid and ask prices with an order book depth up to 20
FESX	Future	Bid and ask prices with an order book depth up to 20
FSTB	Future	Only best bid, best ask
FESX	Futures Calendar Spread	Bid and ask prices with an order book depth up to 20
FGBL	Futures Calendar Spread	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.

ISIN	Currency	Order Type	Order Book depth level (Bid/Ask prices)
LU0937835576	EUR	Standard	3
LU1306625283	EUR	Standard	3
DE000A1E0HR8	EUR	Standard	3
DE0005140008	EUR	Standard	3
DE0005557508	EUR	Standard	3
AT0000730007	EUR	Iceberg	3
DE0005200000	EUR	Iceberg	3
AT0000730007	EUR	VDO	Single bid VDO order
DE0005200000	EUR	VDO	Single ask VDO order
IE00BZ2GV965	EUR	Multi-Currency ETFs and ETPs	3
IE00BZ2GV965	USD	Multi-Currency ETFs and ETPs	3

LU0599612842	EUR	Multi-Currency ETFs and ETPs	3
LU0599612842	USD	Multi-Currency ETFs and ETPs	3
CH0454664001	EUR	Multi-Currency ETFs and ETPs	3
CH0454664001	USD	Multi-Currency ETFs and ETPs	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 11.0 > 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 11.0:

Cash and derivatives markets:

- Message Encryption for ETI Low Frequency Gateways
- Enhancement of Customer Order Handling Instruction Field (tag 1031)

Cash markets:

- Pre-Trade Risk Limits based on the Notional Value (XETR)
- Enhancements for Xetra EnLight Quotes (XETR)

Derivatives markets:

- Pre-Trade Risk Limits for Options
- Fixed Income Total Return Futures (French government bonds)
- Herfindahl Hirschman Index Indication via T7 EOBI
- Non-Friday Weekly Options
- Strips for Dividend Futures
- Clearing Price of Trade-at-Market TES Trades for Initiating Brokers
- Validation of the Custom Underlying Price in TAM TES Trades
- Non-recoverable Eurex EnLight Quotes and Frequency Restrictions
- Off-book Trades via T7 EOBI
- Remove Quote Activation Delay for PLP Products

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 11.0 Release Notes documents, directed at the Eurex and Xetra customer base respectively:

Eurex:

Eurex.com > Support > Initiatives & Releases > T7 Release 11.0 >
System documentation > Overview and Functionality > T7 11.0 Release Notes

Xetra:

Xetra.com > Technology > T7 Trading Architecture > System documentation >
Release 11.0 > Overview and Functionality > T7 11.0 Release Notes

The following functionalities in chapters 3.1 and 3.2 require particular attention during the T7 Release 11.0 Simulation phase:

3.1 Next Generation ETD Contracts

Currently, the Eurex product scope (in production) 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 options 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 weekly options 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 & 10.1 already provided the functional and technical changes to support products having more than one expiration per month, and with T7 Release 11.0 additional sub-monthly expiring contracts will be introduced in the Simulation environment. Corresponding release activities in the clearing and risk management areas are also taking place to consistently support this approach.

3.1.1 Initiatives

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, weekly options belonging to monthly expiring contracts 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 future 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.

Following products already support sub-monthly contracts in Simulation (1st activation wave):

- Weekly Options: AXA, BAY, CSGN, ROG, ODAX (including end-of-month contracts), OSMI
  - Please Note: In order to have a weekly product in simulation which follows the setup in production, NOA1 - 5 weekly options are setup as “classic” monthly expiring products.
- MSCI Futures: FMWN, FMEA
- Single Stock Futures: AXAP, BAYP, ROGP, NO3P

During a 2nd activation wave, starting in September 2022, the following additional options products will support sub-monthly contracts in Simulation:

- Weekly Options: OESX including decommissioning of OES1/2/4/OMSX (
- approach analog to production start, start date in simulation: 2022-09-23, after expiration on 2022-09-22, integration period lasts until 2022-10-18)
- MSCI Futures: FMWO, FMJP, FMEF (activation date in simulation: 2022-09-30, daily expiring futures with lifetime of three business days)
- Single Stock Futures: ADSP, BMWP, UBSP (activation date in simulation: 2022-10-07, daily expiring futures with lifetime of one business day)

For more details, please refer to Eurex Circular 057/2022 and to the following path of the Eurex Next Generation ETD Contracts initiative.
eurex.com > Support > Initiatives & Releases > Project Readiness > Next Generation ETD Contracts

4. Simulation preparation

Preparation activities should be completed prior to the start of T7 Release 11.0 Simulation.

4.1 Organisational preparation

Prior to the start of T7 Release 11.0 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 LF
    - T7 Market and Reference Data Interfaces
    - Common Report Engine (new and changed reports)
- 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 LF Interface Failover & Gap Test
- 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:

- 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:

- Integrated weekly expiring options (Eurex)
- Options Volatility Strategies with daily expiring future leg (Eurex)

- Market on Close (MoC) + x days (Eurex)
- Non-Friday Weekly Options (Eurex)
- SMP and Matching Cascades
- Trade at Close (*T7 Xetra*) - *On request only*
- 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)*

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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 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.

All FIX LF interface sessions use the same target FIX LF interface IP address and port number per environment (simulation and production) and market place. 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.

During failover, the active FIX LF interface will go down and the standby FIX LF interface will become active. In the second step, the process is repeated, i.e. the now active standby FIX LF interface is shut down and the inactive FIX LF interface becomes activated.

Recovery notes:

- During the start-up of the FIX LF interfaces, listen ports for both the active and standby interfaces will be created an 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 a 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.

5.1.3 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.

5.1.4 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.

5.1.5 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.

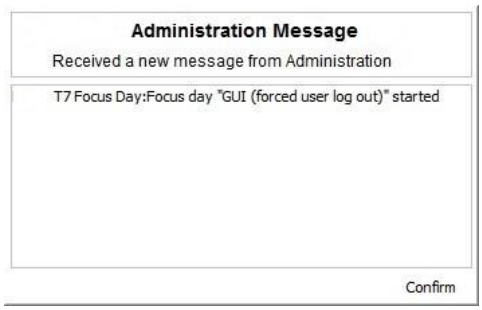
5.1.6 GUI (forced user log out)

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 sub-divided 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 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 product state Post-Trading. 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 of the Corporate Actions scenario are displayed in the current simulation calendar.

The products will be announced via 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

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 is 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, a 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 Specialists 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, DE000A0GNPZ3

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 (Derivatives Markets)

Current existing weekly options products (dedicaded product symbol OES1, OES2,…) will be decommissioned and weekly contracts will be integrated into the corresponding main options product (here: OESX). After the integration of weekly contracts into the main options product is concluded, the weekly options products do not contain anymore any contracts and will be removed.

Based on a first activation wave which took place in April and May 2022, the following products already support sub-monthly contracts in Simulation:

ODAX, OGBL, OSMI, BAY, AXA, ROG and CSGN products are supporting weekly expiration.

OESX will “take over” sequentially contracts from OES1, OES2, OES4 & OMSX. E.g.: parallel listing of OES1 OCT22 and OESX 1st Friday (Thursday in Simulation) October expiration is not supported. The sequential migration approach of contracts of OES1/2/4 and OMSX toward integrated options contracts in OESX will also take place in production environment.

Please note: weekly contracts displayed in grey indicate that the contract exists but is inactive, i.e. not tradable.

Date	OESX	OES1	OES2	OES4	OMSX

2022-09-22	Monthly contracts only	OCT22 1st week	OCT22 2nd week	SEP22 4th week	SEP22 EoM
2022-09-23	+ OCT22 1st week + OCT22 2nd week Monthly contracts + OCT22 4th week	OCT22 1st week	OCT22 2nd week	OCT22 4th week	SEP22 EoM
2022-09-30	+ OCT22 1st week + OCT22 2nd week Monthly contracts + OCT22 4th week + NOV22 EoM	OCT22 1st week	OCT22 2nd week	OCT22 4th week	OCT22 EoM
2022-10-07	+ OCT22 2nd week Monthly contracts + OCT22 4th week + NOV22 1st week + NOV22 EoM	NOV22 1st week	OCT22 2nd week	OCT22 4th week	OCT22 EoM
2022-10-14	Monthly contracts + OCT22 4th week + NOV22 1st week	NOV22 1st week	NOV22 2nd week	OCT22 4th week	OCT22 EoM

	+ NOV22 2nd week + NOV22 EoM				
2022-10-18	**Monthly contracts** + OCT22 4th week + NOV22 1st week + NOV22 2nd week + NOV22 4th week + NOV22 EoM + DEF22 1st week + DEC22 2nd week + DEC22 4th week + DEC22 EoM	NOV22 1st week	NOV22 2nd week	OCT22 4th week	OCT22 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
  - ContractIdentificationEligibilty
  - 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 (Derivatives Markets)

Since the start of T7 Release 10.0 Eurex supports daily expiring contracts. Existing physical settled single stock futures have been 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.

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

Option	Future with daily expiring contracts
AXA	AXAP
BAY	BAYP
NOA3	NO3P
ROG	ROGP

The following Single Stock Futures will be enabled with the new functionality with activation date 2022-10-07:

ADSP, BMWP, UBSP.

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 (Derivatives Markets)

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.

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

FMEA, FMWN.

The following MSCI Futures will be enabled with the new functionality with activation date 2022-09-30: FMWO, FMJP, FMEF.

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 Non-Friday Weekly Options

In the Eurex Simulation environment, prior to launch of T7 Release 11.0, the integrated weekly contracts are displayed as Friday weekly options although – usually – Fridays are not supported as business days in the Eurex Simulation environment. For more details about business days in the Simulation environment, please refer to the Eurex Simulation calendar

https://www.eurex.com/ex-en/support/initiatives/simulation-calendar

As general rule, monthly and sub-monthly contracts expiring on Fridays in the Production environment are usually configured to expire on Thursdays in the Simulation environment.

The display of the T7 Trader GUI of integrated weekly expiring contracts will strictly take into account the day of the week the corresponding contract is referring to (contract date). Therefore, Thursday weekly options contracts are displayed in the Simulation environment referring to the Friday weekly options products in the production environment.

To provide testing opportunities in non-Friday weekly options, additional Tuesday weekly options will be introduced in selected options products in the Simulation environment supplementing the existing Thursday weekly options in these options products.

It is planned to introduced Tuesday weekly options in the second half of October 2022 in the options product OESC.

5.4.5 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, since T7 Release 10.0, Self-Match Prevention (SMP) is also possible for FOK orders (Xetra only).

Participants are requested to test the SMP functionality 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

5.4.6 Trade at Close (T7 Xetra) - *On request only*

To provide participants with an opportunity to test the 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.

5.4.7 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 EuroSTOXX50 INDEX DIV
FVOL	FVS	EUR	FUT ON MINI VSTOXX

5.4.8 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.

5.4.9 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.

5.4.10 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.

5.4.11 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 > T7 trading architecture > System documentation > Release 10.1 > Overview and Functionality

6. Documentation

The existing documents have been or will be revised for T7 Release 11.0. The following table provides an overview of the schedule for the publication:

T7 Release 11.0	Derivatives Markets	Cash Markets	Combined	Q3/ 2022 Jul	Q3/ 2022 Aug	Q3/ 2022 Sep	Q4/ 2022 Oct	Q4/ 2022 Nov
T7 Release 11.0 - 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 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			●		
Exchange Rules & Regulations		X						●
Market Models		X						●

◆ Cloud Simulation/Preliminary Version ■ Simulation Version ● Production/Final Version

Please note that the outlined schedule is subject to change.

The documents will be available on the websites

eurex.com > Support > Initiatives & Releases > T7 Release 11.0 > System Documentation

xetra.com > Technology > T7 trading architecture > System Documentation > Release 11.0

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	29 August 2022	Initial Version for Release 11.0