Eurex Group Technology Roadshow

Spring 2015
Eurex Group Technology Roadshow

Eurex Clearing’s C7 release 3.0

Spring 2015
Agenda

• **Introduction**
  - Background
  - Architecture
  - C7 release 3.0 timeline to launch

• Enhancements with C7 release 3.0
• Simulation/ roll-out approach
• Next steps
Introduction

Background

• As a first step in the Eurex Clearing Technology Roadmap, Eurex Clearing successfully delivered its industry standard FIXML interface. This will be the standard interface for Eurex Clearing going forward.

• C7 is replacing the Eurex Clearing classic system in a stepwise approach.

• Architecturally this is a move away from Virtual Memory System (VMS) to a much more flexible Linux environment at Eurex Clearing.

• Eurex Clearing launched the C7 architecture in June 2014 with release 1.0 of C7. Following on, release 2.0 was implemented in November 2014.
  – Release 1.0 introduced the possibility for the disclosed clients of Clearing Members to have an unlimited number of agent accounts (Flexible Accounts).
  – Release 2.0 enhanced the offering with more granular reporting on flexible account level for settlement.
  – With release 3.0 all other position accounts (P, A and M accounts) and the associated transaction and position management will be migrated to the C7 architecture.

• Release 3.0 is a mandatory release for all Members and is accompanied by several technical and functional enhancements.
Introduction

Architecture
# Introduction

## C7 release 3.0 timeline to launch

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<td>Member access</td>
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<td>C7 GUI and FIXML</td>
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Eurex Clearing classic Member simulation with 5 cloned products only

Eurex Clearing classic Member simulation

27 Jul
Agenda

• Introduction

**Enhancements with C7 release 3.0**
  - Overview of functional enhancements
  - Technical connectivity

• Simulation/ roll-out approach

• Next Steps
Enhancements with C7 release 3.0

Overview of functional enhancements

This overview lists main functionalities that will be introduced with C7 release 3.0. For detailed information, please visit our website www.eurexclearing.com > Technology > C7 or request bilateral meetings with Eurex Clearing representatives.

• Average pricing facility
  – Functionality to merge multiple transactions into one transaction priced with a volume-weighted average price calculated by C7.

• New entitlement model
  – A role and privileges based entitlement model will replace Resource Access Level (RAL) based validations for user rights.

• Flexible Contracts integration
  – Flexible Contracts will be completely integrated for transaction and position management to be in line with standard contract processing.
Enhancements with C7 release 3.0

Overview of functional enhancements

• Direct access to Historical Transactions (Removal of HiTT)
  – The HiTT functionality (existing in Eurex Clearing Classic) will be obsolete with C7 as transactions executed on t-1 and t-2 can be directly adjusted.

• Trade reversal behavior
  – With C7 release 3.0 a new logic for trade reversals including the whole chain of transaction adjustments will be introduced.

• Rule based auto close-out
  – Auto-close out at position account level (end of day) including Flexible Accounts will be made available to all Members.

• UTI (Unique Trade Identifier) and UPI (Unique Position Identifier)
  – With C7 3.0 the logic for composition of the UTI/ UPI required for EMIR reporting will be changed due to the introduction of a unique transaction ID.
Enhancements with C7 release 3.0

Overview of functional enhancements

• **New calculation method for zero cost quantity**
  – The zero cost quantity will be calculated differently, enabling the close-out of the current day’s closing transactions to be closed as part of positions before the 13:30 deadline.

• **Preliminary trade handling (Variance Futures)**
  – Trades with preliminary prices (Variance Futures) will be adjustable regarding all position and transaction management events excluding average pricing.

• **FIA eGAINS rate identifier**
  – The FIA eGAINS rate identifier will be included in FIXML trade confirmations, give-up/ take-up workflow and GUI confirmations.

• **Report changes**
  – With C7 release 3.0 new reports will be introduced and existing clearing reports for Eurex Clearing customers will be adapted or become obsolete.
  – Detailed information on report changes will be published in May 2015.
Enhancements with C7 release 3.0

Technical connectivity

No change in already existing connectivity for C7 and Common Report Engine

- Members can already apply to get access to the Derivatives Clearing GUI of C7.
- The FIXML connectivity is already in place and is used today for Eurex Clearing classic system and C7.
- The first C7 reports are already available on the Common Report Engine, like today for Eurex Clearing classic system.
- The existing connectivity to the Common Report Engine is not affected. All C7 release 3 reports will be available on the existing Common Report Engine connectivity.
- Connectivity to Eurex Clearing Classic via the @X-tract GUI remains necessary for collateral management.
Agenda

- Introduction
- Enhancements with C7 release 3.0

**Simulation/ roll-out approach**
- C7 release 3.0-overall timeline
- Simulation framework
- Strong governance - A strict Eurex Clearing guided approach
- Enhanced C7 release 3.0 related customer support
- New entitlement model
- Simulation scenarios
- Migration strategy

- Next steps
Simulation/ roll-out approach

Simulation timeline

<table>
<thead>
<tr>
<th>2015</th>
<th>June</th>
<th>July</th>
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<tr>
<td>Simulation Plan</td>
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- **C7 3.0 simulation (15 weeks)**
  - No T7 in simul 4-10 Sep
  - Prisma 4.0 simulation launch 18 Sep
  - C7 3.0 production launch 9 Nov
  - Prisma 4.0
  - 3 batches per week
  - Focus days (CA, expiration, ...)
  - Closed group tests (GU/TU, pos.trans, cap.tests)

- **Production Launch**
- **Expected Software Delivery from ISVs**

- **Classic Member simulation (5 cloned products in Eurex classic for production tests)**

### Member access

- **C7 GUI and FIXML**

### Member Readiness Approach

**Before simulation launch:**
- Members get info (docu, calls, workshops, webinars)
- Members provide contact
- Members connect C7 GUI

**During simulation:**
- Members participate in Simulation launch activities
- Members test reports/reconciliation
- Members use C7 3.0 GUI
- Start of weekly ISV calls
- Start of monthly “ISV/Member” calls
- Members to test ISV’s middle/back-office apps with C7 3.0 FIXML with project support
- Full STP test
- ISV readiness statements
- Members stabilize SW
- Members execute capacity tests
- Member readiness statements

**Before simulation launch:**
- Members get info (docu, calls, workshops, webinars)
- Members provide contact
- Members connect C7 GUI
Simulation/ roll-out approach

Simulation framework 1/2

Test ownership is with individual ISV and Member

- **Rationale**: ISV and Members know their business and their internal handling best.

- ISVs and Members are expected to organize testing and access to T7, C7 (FIXML and GUI), and CRE.

- For specific requests, Eurex Clearing is available; a prescriptive test plan will be provided which should be used in conjunction with already available FIXML volumes 3 and 4 as well as the Functional Release Notes.

- Members will be required to sign off transaction/ position management processing and reconciliation of new reports.

Eurex Clearing will provide 3 batches per week in simulation

- Non-batch days will enable extended workflow testing for ISVs and Members, position reset as well as non-European Member testing during evening hours.

- Three batches a week are seen as satisfactory by Members.
Simulation/ roll-out approach

Simulation framework 2/2

A parallel simulation environment to support Eurex Clearing classic testing

Rationale: We recognize the requirement to have production-like testing during the C7 release 3.0 simulation phase.

Eurex Clearing offers simulation for Eurex Clearing Classic with look-a-like ETDs during the entire simulation phase of C7 Release 3.0.

Pre-simulation support

• Documentation will be made available on a timely basis.
• Additional webinars for selected topics will be available in the first half of 2015.
• Important to note:
  – Preliminary FIXML descriptions and Function Release Notes have been published in early February 2015.
  – Details on selected report changes to be published in May 2015.
  – The entitlement model will be described in dedicated documentation and webinars/ webcasts.
  – The migration approach and the necessary Member activities will be described in a Simulation approach and prescriptive scenarios.

Strong governance and enhanced customer support from Eurex Clearing for C7 release 3.0

• See next slides
Simulation/ roll-out approach

Strong governance - A strict Eurex Clearing guided approach for C7 release 3.0:

- Eurex Clearing will communicate and adhere to a simulation calendar with defined batch and focus days.
- Eurex Clearing will conduct weekly Member and ISV user groups to monitor simulation activity and production readiness, from the start of simulation.
- GUI and FIXML access to simulation as well as participation and milestone achievement in simulation will be tracked by Eurex Clearing and anonymously disclosed to the market.
- Timely delivery of ISV applications will be monitored by Eurex Clearing.
- Senior management affirmation and sign off for production readiness will be required at Member level.
- Eurex Clearing will provide dedicated C7 release 3.0 support teams.
Simulation/ roll-out approach

Enhanced C7 release 3.0 related customer support

• As of June 2015, a centralized customer support for C7 release 3.0 will be established.

  Hotline: +49 (0) 69 211 12700
  Email: C7Release3.0@eurexclearing.com

• Clearing Members, Non-Clearing Members, Registered Customers and Independent Software Vendors can request special services during simulation for C7 release 3.0:
  – Position reset within the simulation environment
  – Production like creation and migration of positions from Eurex Clearing classic simulation to C7 simulation*
  – Eurex Exchange to add large volumes of T7 transactions. This allows Members to test the whole workflow and the interaction between T7 and C7
  – Eurex Clearing to create large volume FIXML Trade Capture Reports for Clearing Members participating to conduct capacity testing (e.g. during dedicated focus days)

*Upon Member request and subject to simulation contract availability (not all production contracts exist in simulation)
Simulation/ roll-out approach

User setup before migration weekend

New entitlement model

With Release 3.0 Eurex Clearing introduces a new concept for the management of user access and rights.

- New entitlement model replaces Resource Access Level (RAL) based validations for user rights.
- The entitlement model is role based, roles are built from privileges on a Member level. The system security administrator of the Member is responsible to allow or maintain roles and privileges at individual user level.

Entitlement setup phases before migration weekend (simulation and production)

<table>
<thead>
<tr>
<th>Entitlement setup phase</th>
<th>Frozen zone</th>
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<tbody>
<tr>
<td>C7 users get passwords for GUI (by service admin of Member)</td>
<td>Launch weekend</td>
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<tr>
<td>Members can deselect users from C7</td>
<td>Simulation/production</td>
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<tr>
<td>Members can modify user’s entitlements</td>
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</table>

- Members are required to manage their entitlement settings in the C7 GUI.
- Prior to go live of release 3.0 simulation and production all applicable Member users will be enabled for C7. Members can then deselect users from C7. During dedicated entitlement setup phases with sufficient lead time, individual roles and privileges can be modified.
- The timeframe for entitlement setup will be one week in simulation and four weeks in production.
- Webinars take place at appropriate times and Members can request bilateral training if required.
Simulation/ roll-out approach

Simulation of launch weekend

Simulating position migration from Eurex Clearing classic to C7

- Historical simulation positions are migrated, from Eurex Clearing classic to C7, in the same way as this will happen in production. This will happen only once.

- **Position migration**
  - After the last Eurex Clearing classic batch, Eurex Clearing will send out the Eurex Clearing classic reports with positions as of 22 July eob as normal.
  - Eurex Clearing classic simulation is closed on 23 and 24 July and will not be online. Classic reports will be available for a reconciliation following the last batch in simulation.
  - Eurex Clearing checks the successful migration of all positions.
  - Members receive selected C7 reports showing the state of positions for the next business day morning.
  - C7 release 3.0 simulation starts on 27 July.
Simulation/ roll-out approach

Simulation of launch weekend

Upon request: Simulating migration with production-like open interest

- One week before or on one of the last few days before simulation migration, the CM´s simulation environment is cleared down by Eurex Clearing on request.
- The Clearing Member also clears down its Back Office simulation environment.
- Eurex Clearing adds production-like positions to Eurex Clearing classic simulation on 22 July.*
- Then, the position migration from Eurex Clearing classic to C7 is performed as outlined on the previous slide.
- A reconciliation of C7 reports that includes transactions from 27 & 28 July is performed on 29 July.**
- This C7 reconciliation can be repeated after three successive batch days and the whole cycle repeated on a weekly basis after cleardowns on non-batch days.

*CM permission required to copy production positions  ** Other C7 reports may apply
Simulation/ roll-out approach

Simulation scenarios

Focus days

Eurex Clearing will offer standard focus days for

- Product expirations
- Capital adjustments
- Holidays of individual products

Closed group tests

Eurex Clearing will offer closed group focus days for groups of Members with limited participants. Members have to apply and will be assigned to one of the days.

- Circular sequence tests for give-up/ take-up and for position transfer
  - In a group of Members give-ups and take-ups will be performed in the following manner: Member A gives up to B, B takes up; Member B gives up to C, C takes up; etc.
  - The same process applies for position transfer testing

- Capacity tests
  - In ISV dedicated focus days, Eurex Clearing will provide large volume FIXML TCRs for CMs that apply to participate.
  - Members should be aware that their own connection bandwidth should be assessed before replicating the production-like high volumes in simulation.

Focus days can be repeated on request.
Simulation/ roll-out approach

Production migration strategy

- Following the last production batch in Eurex Clearing classic, all positions of standard options and futures series in standard accounts (A1-A7, A9, P1, P2, M1 and M2) will be migrated to the C7 system. Already existing positions in the C7 system will remain untouched.
- All transactions of Flexible Contracts will be aggregated into positions first and will then be migrated to the C7 system as well.
Simulation/ roll-out approach

Migration strategy

Important to note:

• Release 3.0 will introduce a new and enhanced ID logic for all transactions, which is incompatible to the legacy system’s logic. Consequently, only positions are migrated, not individual transactions.

  ➢ Members will not be able to perform historical trade adjustments on the transactions executed on the two days before C7 production start. Should individual transactions require adjustments such as give-up, Members will need to work with positions for two days, rather than transactions.

• For C7 release 3.0, In-The-Money (ITM) parameters for automatic exercise will not be migrated. Members will be informed with sufficient lead time that the ITM parameters have to be re-entered, where Eurex Clearing’s default parameters are not used.
Agenda

• Introduction
• Enhancements with C7 release 3.0
• Simulation/ roll-out approach

**Next steps**
- Communication plan
- Get ready for simulation
# Next steps

## Communication plan

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<td>Simulation/ roll-out approach</td>
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<td>User setup phase</td>
<td>C7 3.0 simulation</td>
<td>Expected software delivery from ISVs</td>
<td>User setup phase</td>
<td>C7 3.0 production</td>
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### Documentation

**Already published**
- C7 3.0 Release Notes - V1.0
- Preliminary FIXML Trade Capture Documentation

**Simulation**
- C7 3.0 Preliminary Description of selected reports

**Simulation**
- Simulation guide
- Functional Reference (incl. entitlements)
- GUI Manual
- Reports Manual
- FIXML

**Production**
- Entitlement Documentation
- Production Introduction Guide
- Functional Reference
- GUI Manual
- Reports Manual
- FIXML

### Roadmap

**Workshops**
- Paris
- London
- Frankfurt
- Zurich
- Milano

### Webinars

- Simulation guide
- Major FIXML changes
- Entitlement (concept only)

- Entitlement (Production readiness)
- Production migration approach

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[www.eurexgroup.com](http://www.eurexgroup.com)
Next steps

Get ready for simulation

In order to get ready for simulation all Members should conduct the following steps as soon as possible

• Provide Service Request Form
• Request an authentication certificate
• Connect to simulation environment
• Request bilateral or trilateral (incl. ISV) meetings if necessary
• Get in touch with your individual ISV
C7 release 3.0

Key contacts

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Eurex Group Technology Roadshow
Eurex Clearing Prisma
Spring 2015
Introduction of Eurex Clearing Prisma in a stepwise approach (1/3)

Enabling Clearing Members to migrate to the new risk method at their own pace

• The main product groups ‘listed equity (index) derivatives’ and ‘listed fixed income (FI) derivatives / money market products’ are already available in the new margin methodology Eurex Clearing Prisma.

• With Prisma release 2.0 Eurex Clearing offers as the first Clearing House worldwide a fully automatic cross-margining functionality between listed FI derivatives and OTC IRS products.

• Eurex Clearing Prisma is available for flexible accounts introduced with Eurex Clearing’s new clearing architecture C7.

• Significant number of Clearing Members have already migrated proprietary and client accounts to Eurex Clearing Prisma and benefit from these efficiencies.

• Eurex Clearing Prisma margin figures are reported on a daily basis through hypothetical margin reports available on the Common Report Engine (CRE).

• The self service Eurex Clearing Prisma Migration Tool is available within the Eurex Clearing Member Section at www.eurexclearing.com to ensure a smooth and swift migration for the Clearing Members.
Introduction of Eurex Clearing Prisma in a stepwise approach (2/3)

First step of Risk-based Margining (RBM) decommissioning by the end of 2015

- In 2015 Eurex Clearing Prisma introduces two more releases and prepares for the first step of RBM decommissioning.

- The introduction of release 3.0 is planned for 1 June 2015 and includes:
  - Performance enhancements and application extensions of the Margin Calculator.
  - Improved handling of the Euro-Swap Futures at maturity.
  - New products assigned to Liquidation Groups: Exchange traded fund (ETF) derivatives, precious metals, exchange traded commodity index derivatives (futures)
  - Enhanced calculation of the long option credit.
  - Amendment of report CP010.

- Release 4.0, which is planned for November 2015, includes:
  - New products assigned to Liquidation Groups*: Property futures, FX derivatives, Exchange traded commodity index derivatives (options), KOSPI & TAIFEX derivatives.
  - Enhancements to the methodology that facilitate remaining product migrations.

- In a first step RBM will be decommissioned for all exchange traded derivatives (ETDs) assigned to Liquidation Groups in Eurex Clearing Prisma by end of 2015.

- Accordingly, using Eurex Clearing Prisma will become mandatory for all ETDs available in Prisma and RBM will no longer be supported for these products.

- Eurex Clearing will decommission RBM in two major steps leading up to the complete decommissioning by the end of 2016.

* Variance futures, dividend and VSTOXX derivatives will follow in Q2/2016.
Introduction of Eurex Clearing Prisma in a stepwise approach (3/3)

Full decommissioning of RBM for all remaining products by the end of 2016

• In 2016 all remaining products will be introduced to Eurex Clearing Prisma.
• The introduction of remaining products, enhancements and new functionalities will be split into Prisma release 5.0 and release 6.0.
• Detailed information regarding scope and timeline will be communicated in Q3/Q4 2015.
• With the second and final step RBM will be fully decommissioned for all remaining products cleared by Eurex Clearing (equities, bonds, repos, etc.) by the end of 2016.
• At the same time Eurex Clearing Prisma will be the only margin methodology available at Eurex Clearing covering all products and all asset classes.
  – This also applies to all future product and asset class introductions.
## Eurex Clearing Prisma – Product migration schedule

### Overview

<table>
<thead>
<tr>
<th>Products</th>
<th>Available under Eurex Clearing Prisma*</th>
<th>RBM decommissioning</th>
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<tbody>
<tr>
<td>Listed equity (index) derivatives</td>
<td>since June 2013</td>
<td>Dec 2015</td>
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<td>Listed fixed income &amp; money market products</td>
<td>since June 2014</td>
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<td>Exchange traded fund (ETF) derivatives</td>
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<tr>
<td>Exchange traded commodity index derivatives (futures)</td>
<td>Q3 / 2015</td>
<td>Dec 2015</td>
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<td>Precious metal derivatives</td>
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<td>Exchange traded commodity index derivatives (options)</td>
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<td>FX derivatives</td>
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<td>Q2 / 2016</td>
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<td>KOSPI &amp; TAIFEX derivatives</td>
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<td>Variance futures</td>
<td>Q2 / 2016</td>
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<td>VSTOXX Derivatives</td>
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</table>

* Timeline for product migrations to Eurex Clearing Prisma is subject to the regulatory approval.
Decommissioning of Risk-based Margining (RBM) Roadmap

Members should plan for an early migration to Eurex Clearing Prisma

Mandatory migration timeline to Eurex Clearing Prisma follows staggered approach:

- First step → decommissioning of RBM for all exchange traded derivatives (ETDs) which are assigned to Liquidation Groups in Eurex Clearing Prisma by the end of 2015.

- Please note, that with the first decommissioning step Eurex Clearing will also discontinue the file service for RBM including the Theoretical Price and Parameter files.

- Second step → Complete decommissioning of RBM for all remaining products cleared by Eurex Clearing (equities, bonds, repos, commodities, etc.) by the end of 2016.

- Eurex Clearing recommends that all Members and customers who are still using RBM plan for an early migration to allow for a smooth transition to the new methodology.
## Indicative timeline for Eurex Clearing Prisma release 3.0 & 4.0

<table>
<thead>
<tr>
<th>Communication Calendar</th>
<th>2014</th>
<th>2015</th>
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<tbody>
<tr>
<td><strong>User Guides &amp; Documentation Release 3.0</strong></td>
<td>Oct</td>
<td>Nov</td>
</tr>
<tr>
<td>Functional and Technical Release Notes</td>
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<tr>
<td>Eurex Clearing Prisma – User Guide Methodology Descri.</td>
<td></td>
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<tr>
<td>Eurex Clearing Prisma – User Guide IR Cross-Margining</td>
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<tr>
<td>'Vendor Development Kit' for listed products &amp; x-margining</td>
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<tr>
<td>Eurex Clearing Prisma Customer Roadmap</td>
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<table>
<thead>
<tr>
<th><strong>User Guides &amp; Documentation Release 4.0</strong></th>
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</thead>
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<tr>
<td>Functional and Technical Release Notes</td>
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<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Simulation and Rollout Release 3.0 &amp; 4.0</strong></th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eurex Clearing Prisma Member Simulation Guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member &amp; Vendor Simulation Release 3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production Launch Prisma Release 3.0</td>
<td></td>
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</tr>
<tr>
<td>Member &amp; Vendor Simulation Release 4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production Launch Prisma Release 4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RBM Decommissioning (ETDs)*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* All ETDs assigned to Liquidation Groups in Eurex Clearing Prisma
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Eurex Group Technology Roadshow

Eurex Exchange’s T7 release 3.0

Spring 2015
Agenda

• Rollout and implementation planning
• Self-match prevention (SMP)
• Change for distribution of reference data for weekends and Exchange holidays
• Communication schedule
• Outlook
• Contacts
Rollout and implementation planning

Initial draft

<table>
<thead>
<tr>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2016</th>
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<tbody>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Apr</td>
<td>May</td>
</tr>
</tbody>
</table>

Release 3.0

Development > Preparation for Simulation

- Simulation closed from 4 - 10 September (incl.)
- Connection test
- 21 November
- 23 November

Next steps

- Workshops
- Trading Participants & ISV consultation

Release contacts for the T7 release 3.0 can already be registered in the Member Section of our website eurexchange.com.
Self-match prevention (SMP)

What is SMP and what benefits does it provide?

• The Self-match prevention (SMP) functionality will help Participants to prevent an unintended execution of an incoming order or quote against a resting order or quote on the opposite side of the order book in the same instrument from the same business unit.

• The new functionality is regarded by Eurex Exchange to prevent unintended cross matches in T7 in order to be compliant with regulatory requirements, but it does not release a Participant from its own responsibility to take appropriate actions for reasons of regulatory compliance.

• The usage of SMP is optional.
Self-match prevention (SMP)

Impact on trading interfaces

The self-match prevention functionality will be offered via all trading interfaces (Eurex ETI, Eurex FIX and the T7 Trader GUI) and is supported for all order types (limit order, market order, stop order and OCO order) and on (mass) quote level. It can be applied to simple and complex instruments in the same manner. Self-match prevention will be supported for all allocation schemes during continuous trading but will not be applied for any matches resulting from auctions. Self-match prevention will also not be supported for synthetic matching.

A new optional field denoted as CrossID (numeric, 4-byte) is planned to be included in the layout of the order add or modify request and to the layout of the mass quote request. With the help of the CrossID, a business unit will have the flexibility to consider its individual setup (e.g. with respect to traders, trader groups and/or sessions) implying that the setting of the CrossID lies solely within a business unit’s responsibility.

Eurex Enhanced Trading Interface (ETI) and FIX Gateway (FIX)

- Backward compatibility to version 2.5 ETI message layouts will be provided for the self-match prevention functionality. FIX backwards compatibility is given if the client application does not use the new optional field and is able to ignore the other new fields.

T7 Trader GUI

- An additional field will be added to the Order Entry/Maintenance window and will also be visible in the order and in the Order History view.
**Self-match prevention (SMP)**

**Impact on market & reference data interfaces**

Eurex Exchange plans to publish the SMP events via Eurex EMDI and Eurex EOBI. Participants are therefore required to adapt their applications to the mandatory changes accordingly.

**Eurex Enhanced Order Book Interface (EOBI)**
- A new field `RestingCxlQty` will be added to show the deleted quantity due to SMP within a match step. The Execution Summary will also be sent out in case that no quantity was traded since all orders/quote sides participating in the matching event have been deleted due to SMP.
- Not backward compatible.

**Eurex Enhanced Marked Data Interface (EMDI)**
- A new field `CxlQty` will be added to the `MDIncGrp/TradeEntryGrp` for trade entries in depth incremental messages which belongs to the price level where SMP has been triggered.
- Not backward compatible.

**Eurex Market Data Interface (MDI)**
- No changes required for SMP.
Self-match prevention (SMP)

Report changes

• The reports TE540 Daily Order Maintenance and TE550 Open Order Detail will be enhanced with the CrossID.

• Furthermore a new report containing the prevented cross trades during a trading day will be provided. More details regarding the changes to the reports will be provided in due course.

• The SMP orders/quotes are not included in the report TE810 T7 Daily Trade Confirmation.
**Self-match prevention (SMP)**

Trading interfaces – SMP actions

**In a nutshell**
- A SMP condition is fulfilled in case the incoming order (or a triggered order or a (re-activated) quote) is facing for execution to a sitting order (or quote) having the **same CrossID / SMP-ID value** and the **same business unit ID**.
- When the SMP conditions are fulfilled, both the quantity of the incoming order and the quantity of the SMP sitting order which would have matched will be deleted.
  - SMP sitting order: If only one part of its quantity would have matched against the incoming order, the remaining part stays in the book. If its whole quantity would have matched, it will be deleted.
  - Incoming order: Only the part of the quantity which would have matched against the sitting order will be deleted. The incoming order can match the whole price level containing the SMP sitting order(s) in case of sufficient quantity. Any quantity left after matching on this price level (including synthetic matching) will be deleted.

<table>
<thead>
<tr>
<th>Event</th>
<th>CrossID/ business unit ID</th>
<th>SMP action</th>
</tr>
</thead>
<tbody>
<tr>
<td>( Q^{\text{book}} \geq Q^{\text{inc}} ): Whole/ part of quantity of sitting order ( Q^{\text{book}} ) would match against incoming order ( Q^{\text{inc}} ).</td>
<td>different</td>
<td>Match.</td>
</tr>
<tr>
<td>( Q^{\text{book}} &gt; Q^{\text{inc}} ): Quantity of incoming order ( Q^{\text{inc}} ) smaller than quantity of sitting order ( Q^{\text{book}} ).</td>
<td>equal</td>
<td>No match. Quantity of sitting order ( Q^{\text{book}} ) is reduced by the amount of the quantity of incoming order ( Q^{\text{inc}} ).</td>
</tr>
<tr>
<td>( Q^{\text{book}} \leq Q^{\text{inc}} ): Quantity of incoming order ( Q^{\text{inc}} ) is equal to or larger than quantity of sitting order ( Q^{\text{book}} ).</td>
<td>equal</td>
<td>Partial match. Sitting order ( Q^{\text{book}} ) completely deleted. Quantity of incoming order ( Q^{\text{inc}} ) is reduced by the amount of the quantity of sitting order ( Q^{\text{book}} ). Remaining part of incoming order ( Q^{\text{inc}} ) continues to match.</td>
</tr>
<tr>
<td>( \sum Q^{\text{book}} &lt; Q^{\text{inc}} ): Quantity of incoming order ( Q^{\text{inc}} ) exceeds accumulated sitting quantity of price level ( \sum Q^{\text{book}} ).</td>
<td>equal</td>
<td>Match. Sitting order ( Q^{\text{book}} ) completely deleted. Quantity of incoming order ( Q^{\text{inc}} ) reduced by the amount of sitting order ( Q^{\text{book}} ). Remaining part of incoming order completely matches all other book orders of the same price level. Still remaining part of incoming order cancelled.</td>
</tr>
</tbody>
</table>
Change for distribution of reference data for weekends and Exchange holidays

The distribution of reference data will be harmonized

• Prior to release 3.0, reference data is delivered directly after a business day rollover, therefore reference data for a business day on Monday is usually delivered on a Saturday. Following the introduction of release 3.0, reference data will only be distributed in the morning of each new business day and no longer during weekends or Exchange holidays.
## Communication schedule

<table>
<thead>
<tr>
<th>Release 3.0</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
</tr>
</tbody>
</table>

- Development > Preparation for Simulation
- Simulation closed from 4 - 10 September (incl.)
- Connection test
- Production launch
- 11 September
- 23 November

### Communication
- **Release announcement**
  - April 2015
- **Release notes**
  - June 2015
- **Documents for simulation**
  - August 2015
- **Documents for production**
  - October 2015

For further details please visit our website eurexchange.com.
Outlook I

Future T7 releases - Implementation of Trade Entry Services in T7 (early preview)

• It is planned to implement Eurex Trade Entry Services (TES) - formerly known as OTC - in a future T7 release. Eurex Trade Entry Services enable Participants to enter off-book trades in the T7 system. The Multilateral Trade Registration facility supports pre-negotiated off-book trades with multiple counterparties.

• To provide a convenient solution to the market, to get to know the opinion of Eurex customers and to take their needs into account, a Market Intelligence Survey has been performed. The most active Eurex TES users and their ISVs have been approached. The principal assumption was, that many front office software providers would appreciate the availability in the trading interface as they could concentrate on one interface for all trading relevant functionality. As a result, they could decommission FIXML – if not used for clearing functionality.

• A number of customers provided their feedback with a clear tendency towards Eurex ETI. This will be considered in our further planning.

• Since customers may continue to use FIXML (e.g. for clearing functionality) Eurex is planning to support FIXML further on.
Outlook II

Launch of T7 Cloud Simulation

- Eurex T7 Cloud Simulation is a cloud-based, on-demand simulation environment providing private access to dedicated, virtual instances of Eurex Exchange’s T7 trading architecture for testing and development purposes. The environment allows Trading Participants and ISVs to continually develop and evaluate their own software, initiate pre-defined market scenarios and test specific strategies not possible in a shared environment, being completely independent of other T7 environments. The simulation covers T7 in the current production version as well as the current release version. Eurex T7 Cloud Simulation is ready to be launched.

<table>
<thead>
<tr>
<th>Scoping of T7 simulation environment</th>
<th>Effect on customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>The standard simulation environment...</td>
<td></td>
</tr>
<tr>
<td>+ Allows for front-to-back testing (ex-Clearstream; the clearing and settlement division of Deutsche Börse).</td>
<td>• Early identification of system dependencies and issues. • Ensure that system integration functions without glitches.</td>
</tr>
<tr>
<td>+ Mirrors the production environment from a technical and functional perspective.</td>
<td>• Confidence in the workings of the production environment.</td>
</tr>
<tr>
<td>+ Permits Deutsche Börse to conduct its own internal tests before delivering software into production.</td>
<td>• Introduction of stable software into the production environment.</td>
</tr>
<tr>
<td>+ Leverages production environment infrastructure costs.</td>
<td>• Cost savings are passed on to our customers (no fee for simulation).</td>
</tr>
<tr>
<td>+ Allows for functional scenario and technical failure tests.</td>
<td>• A more secure and stable production environment.</td>
</tr>
<tr>
<td>Complemented by features of the T7 Cloud Simulation environment:</td>
<td></td>
</tr>
<tr>
<td>+ T7 Cloud Simulation is always available. There are no limitations due to batch runs in the standard simulation (3x per week from 16.00 to 10.00 h CET).</td>
<td>• Customers are able to access this simulation environment in their core working time (important for customers based in Asia and America).</td>
</tr>
<tr>
<td>+ Allows customers to select on which version they want to test their trading activity.</td>
<td>• Customers can test in the T7 version that they want to test. This is very effective during release rollouts, when the standard simulation is already upgraded to the upcoming production version.</td>
</tr>
<tr>
<td>+ Allows customers to build up their own order book scenarios without the risk that other trading participants clear them away.</td>
<td>• Customers can test their individual order book scenarios and trading strategies without the risk of interference by others.</td>
</tr>
</tbody>
</table>
# Further information

## Contact us

<table>
<thead>
<tr>
<th>Sales</th>
<th>Trading &amp; Clearing Services</th>
<th>Front Office ISVs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christian Dimanski</td>
<td>Frank Horneff</td>
<td>Frank Horneff</td>
</tr>
<tr>
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<td><a href="mailto:frank.horneff@eurexchange.com">frank.horneff@eurexchange.com</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tim Sauer</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="mailto:tim.sauer@eurexchange.com">tim.sauer@eurexchange.com</a></td>
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</tbody>
</table>

## Customer Technical Support

Your dedicated technical account manager
Eurex Group Technology Roadshow

Spring 2015

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www.eurexgroup.com
Introduction of a new Eurex Market Signal
Real-time Intraday Volatility Forecast

Frankfurt, May 20th, 2015
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Agenda

- Overview of Eurex Market Signals
- Intraday Volatility Forecast
  - Model components
  - Forecast in action
  - Product scope
- Technical provision
Overview of Eurex Market Signals

**Eurex IOC Liquidity Indicator for Options**
- Fully proprietary indicator based on cancelled IOC orders, which are not visible in the order book
- Provides clients with so far unavailable information
- Supports clients in determination of liquidity and estimation of fair value in options
- Calculated for the top 77 Eurex option products
- Introduced in December 2014
- Target groups are algorithmic traders, banks and hedge funds

**Eurex Real-time Intraday Volatility Forecast**
- Proprietary forecast model based on public data
- Volatility forecast supports clients in assessment of short-term risk and slippage probabilities
- Initially calculated for DAX®, EURO STOXX 50® and Euro-Bund
- We are planning to introduce Eurex Real-time Intraday Volatility Forecast in November 2015
- Target groups are brokers, banks and hedge funds

Eurex Market Signals can be ordered by Trading Participants in the Member Section of the Eurex website
Real-time Intraday Volatility Forecast will be a new Eurex Market Signal

- Prices remain difficult to forecast, but the planned real-time Volatility Forecast correctly captures much of the variation in prices in near term.

- The planned Eurex Market Signal measures realized volatility of underlyings based on future’s quotes and allows accurate forecasts for:
  - Next 10 seconds
  - Next minute
  - Next 10 minutes

- The model employed is based entirely on public data
  - Eurex EMDI
  - Trading calendars
  - AlphaFlash® event schedule
Model components (1/2): Model is calibrated with historical time series of average realized volatility

Volatility measure

- Measure based on best bid, best ask data instead of traded prices in order to smooth out volatility in cases of “spread bouncing”
- Averaging approach applied based on time grid with 10 millisecond spacing

Historical calibration

- Time series of historical realized volatility available since January 1st, 2014
- Forecast model components are calibrated by use of samples from 3 to 9 months
- Dynamical model update every week
Model components (2/2): Elements of Volatility Forecast model

Volatility measurement

- **Choice of measure**
  - Average realized volatility

Components of volatility forecast model

- **Short-term memory**
  - Dedicated model captures short-term dynamics

- **Intraday seasonality**
  - Predictive variables for repeating intraday pattern

- **Long-term memory modelled in intraday seasonality**

- **Scheduled news**
  - Impact forecast for selected scheduled events
Intraday Volatility Forecast in action

DAX index volatility forecast versus DAX future trading on June 25th, 2014

Trades
- Price (in EUR)
- Contracts per trade (number, 2nd axis)

Realized volatility, per 1 minute bin
- Forecast (in %)
- Observed (in %)
# Product scope

<table>
<thead>
<tr>
<th>Real-time analytic</th>
<th>Publishing frequency</th>
<th>Reference period</th>
<th>Product scope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average realized volatility</strong></td>
<td>Every second</td>
<td>Last second</td>
<td>All products related to most liquid futures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All higher bin sizes may be aggregated from one-second bins</td>
<td></td>
</tr>
<tr>
<td><strong>Forecast 10 second bin</strong></td>
<td>Every 5 seconds</td>
<td>Next ten seconds</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plus the following 2 ten-second bins</td>
<td></td>
</tr>
<tr>
<td><strong>Forecast 1 minute bin</strong></td>
<td>Every 30 seconds</td>
<td>Next minute</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plus the following 4 one-minute bins</td>
<td></td>
</tr>
<tr>
<td><strong>Forecast 10 minute bin</strong></td>
<td>Every 5 minutes</td>
<td>Next 10 minutes</td>
<td></td>
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Initially

- DAX®
- EURO STOXX 50®
- Euro-Bund
Technical Provision

General data flow for Eurex Market Signals

Eurex Participant → Eurex Connectivity → Eurex Market Signals → Eurex T7 Trading System

- MIC or 10 GB Market data channel
- Public Eurex Reference and Market Data Interfaces
- Calculation Engine

TCP Service

Multicast Service A/B

Eurex Participant
Thank you.

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