

Xetra[®] Release 13.0

Functional Description

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1 Introduction

The electronic trading system Xetra is enhanced through individual releases. The latest release, Xetra Release 13.0 is mainly characterized by new functionality regarding OTC trading (Xetra Trade Entry), order book matching, performance enhancements and improvements of the member interface landscape of Deutsche Börse. Where the changes require amendments of the rules and regulations of the Frankfurter Wertpapierbörse (FWB[®], the Frankfurt Stock Exchange), they are subject to corresponding resolutions of the FWB Exchange Council and approval of the Exchange Supervisory Authority.

The production start for Release 13.0 is scheduled for November 26th, 2012.

With Xetra Release 13.0 the OTC functionality (Xetra Trade Entry) will be enhanced with new fields allowing the entry of special trade details for OTC trades. Fields for a deviating trading date and additional costs will be provided. Furthermore it can be decided trade by trade if the OTC trade in a CCP-eligible instrument should be cleared via a CCP or not.

Beside the currently already available manual approval process for OTC trades a new automatic approval will be introduced. Per counterparty a maximum trade value can be configured as a cap up to which the OTC trade is approved automatically.

Furthermore the reversal of already approved OTC trades can be triggered by a member but requires as well automatic or manual approval by the counterparty.

In addition to these changes the entry of OTC trades on-behalf by an intermediary will be supported whereby these trades are subject to automatic or manual approval by the counterparties again.

This enhanced OTC service (Xetra Trade Entry) is not only provided via VALUES API, J-Trader and Enhanced Transaction Solution interface but newly also in the Xetra FIX Gateway.

Two new order types are introduced with Xetra Release 13.0 as well.

The Order-on-Event will complement the intelligent order types which will be introduced in the Xetra FIX Gateway on July 2nd. This new order will only become executable in the Xetra order book if a certain reference value has been reached. As a reference an instrument, an index or a future can be used.

The new TOP+ Order can be entered analogously to the TOP Order via the Enhanced Transaction Solution Interface but will be subject to an extended validation. A TOP+ Order does not necessarily have to narrow the existing visible spread in the order book but has to fulfil a certain volume threshold defined by Deutsche Börse.

With Xetra Release 13.0 measures are taken to further increase the liquidity in the midpoint order book in medium term. For this purpose, additional features and a new trading phase will be introduced for the midpoint order book.

For instruments traded in trading model Continuous Auction with Specialist a quote request feature will be introduced with Xetra Release 13.0. The request will be received by the Specialist who can answer it by sending a quote to the order book.

Furthermore a dedicated Trading Restriction becomes available in Continuous Auction with Specialist which ensures that the order is executed only in a particular intraday auction initiated by the Specialist.

For trades in non-CCP eligible instruments members can decide with Xetra Release 13.0 whether all trades conducted against the same counterparty should be aggregated for settlement. Aggregation is done separately for the buy and the sell side and can be enabled for the agent and/or the proprietary account. Aggregation itself will not be done in Xetra but the trade confirmations/notifications are already marked accordingly.

As a further general enhancement for all trading models, the maximum order validity at order entry and order modification will be extended to allow up to 360 days, the number of tick size settings will be increased from 11 to 20 bands and initial changes will be made to Xetra in order to enable the support for various Central Counterparties in the future.

For security reasons, in the future a user is prompted to change the initial password at first log-in of the user to the Xetra system.

Further technical changes are introduced with Xetra Release 13.0 to continue the implementation of the interface strategy as announced in September 2010.

Via the Enhanced Transaction Solution, it will be possible to receive all persistent orders of a member in a dedicated session. Members will also be able to individually authorise sessions for receipt of private broadcast streams (e.g. trade notifications). Timestamps via the Enhanced Transaction Solution and Enhanced Broadcast Solution will be harmonised in order to provide improved comparability for the members and to further increase transparency.

In addition to the order functionality and the trade functionality, the OTC functionality (Xetra Trade Entry) will become available via FIX Gateway as of Xetra Release 13.0. Also, aside from the Trailing-Stop Order and the One-Cancels-Other Order, the new innovative Order-on-Event (see above) will be offered exclusively via the Xetra FIX Gateway.

The *Functional Description* document contains information on the functional structure of Xetra Release 13.0. It describes the functionality provided to market participants by Xetra Release 13.0. The graphical trading user interface (Xetra J-Trader) supports trading in stocks, bonds, warrants, certificates, reverse convertibles, mutual funds, exchange traded funds, exchange traded commodities, exchange traded notes and subscription rights on the Xetra back end.

The functional description is primarily targeted at those people who are in charge of the implementation of Xetra at the participants' site. This document is designed to provide this group of people with an overview of main Xetra features. This includes the description of the Xetra J-Trader menu structure, the Xetra process components and the Xetra front end functionality.

Note

All information contained in this document represents the current planning status.

2 Fundamentals

2.1 Release History

The core of the electronic trading system Xetra has been introduced by the first two releases, Release 1.0 and 2.0. Over the years, several releases added further functionality to the trading system. The development process is ongoing. The following figure provides an overview of the individual Xetra releases and the current planning status of their implementation:

| Release | Date | Content |
|---------|--------------------------|--|
| 1 | 10.06.1997 | Introduction Xetra front end Provision of the new Xetra front end: <ul style="list-style-type: none"> • Client-server architecture • Introduction of a modern graphical user interface for IBIS and IBIS-R |
| 2 | 28.11.1997 | Introduction Xetra back end Equity-Wholesale trading initiated (replacement IBIS for equities): <ul style="list-style-type: none"> • Opening and closing auction as well as continuous trading via order book • Volatility interruption • Round lot trading |
| 2.1 | 30.03.1998 | Front end release Based on member requirements: <ul style="list-style-type: none"> • Enhanced front end functionality • Enhanced front end operation architecture |
| 3 | 12.10.1998 | Xetra "Grundstufe": Market model for on-exchange trading is implemented for stocks and bonds: <ul style="list-style-type: none"> • Completion of trading functionality • Trading of all order sizes • Intraday auction • "Designated Sponsor" • Increased number of securities • OTC trades |
| 3.1 | 03.05.1999 20.09.1999 | IPO-Functionality: <ul style="list-style-type: none"> • Support of the first price determination of an IPO • Extensions of the Designated Sponsor functionality • Extended volatility interruptions • Maximum order validity 90 days |

| Release | Date | Content |
|---------|------------|---|
| 4 | 02.05.2000 | Xetra Warrant Trading: <ul style="list-style-type: none"> • Implementation of the market model for warrant trading • Extensions of the transparency during auctions • Multiple settlement accounts per member • Introduction of an IPO matching range • Increased number of securities |
| 5 | 02.10.2000 | European Alliance Release: <ul style="list-style-type: none"> • Multiple exchange support capability • Implementation of European Alliance requirements • Introduction of OTC broadcasts • Introduction of dynamic profiles • Implementation of the market model Xetra XXL |
| 6 | 30.04.2001 | CCP-Readiness Release: <ul style="list-style-type: none"> • Introduction of netting functionality • Introduction of Give up/Take up functionality • Prices without turnover for warrants, certificates and reverse convertibles • Intraday closing auction |
| 6.5 | 19.11.2001 | Front End Release: <ul style="list-style-type: none"> • Introduction of complete trading functionality with Java-based front end (Xetra J-Trader) • Introduction of order completion flag • Enhancements for Xetra XXL |
| 7 | 19.08.2002 | Xetra BEST Introduction: <ul style="list-style-type: none"> • Implementation of the Xetra BEST market model • Abolition of the C++ based front end Xetra Trader • Enhancements for the CCP • Performance enhancements • Creation of the prerequisite for the introduction of a new transaction-based excessive usage fee concept |
| 7.1 | 06.12.2004 | Subscription Right Trading: <ul style="list-style-type: none"> • Enhancements for subscription rights trading • Introduction of an Online Time and Sales Sheet window |
| 8.0 | 23.04.2007 | Performance & Speed Release: <ul style="list-style-type: none"> • Performance measures such as new matcher, delta protocol for Inside Market Broadcast and broadcast split • Improvement of pre-trade and post-trade transparency • Heartbeat functionality • XML Reports |

| Release | Date | Content |
|---------|------------|--|
| | | <ul style="list-style-type: none"> • Xetra BEST enhancement • New framework for Xetra J-Trader |
| 8.1 | 22.10.2007 | <p>MiFID Readiness Release:</p> <ul style="list-style-type: none"> • OTC trading enhancements for MiFID compliance regarding post trade transparency • Default BEST Execution for Xetra BEST trading |
| 9.0 | 28.04.2008 | <p>Trading in Structured Products:</p> <p>Implementation of the market model for structured products</p> <ul style="list-style-type: none"> • Introduction of trading model "Continuous Auction with Specialist" • Introduction of trading model "Continuous Auction with Issuer" |
| 9.1 | 24.11.2008 | <p>New Order Type</p> <ul style="list-style-type: none"> • Introduction of the Midpoint Order <p>Fund Trading</p> <ul style="list-style-type: none"> • Introduction of Mutual Funds on Xetra Frankfurt 2 in trading model Continuous Auction with Specialist <p>Enhancements to facilitate the introduction of additional products:</p> <ul style="list-style-type: none"> • Capability of Multi-Currency Trading • CCP Connectivity for Xetra Frankfurt 2 • Enhanced Data Distribution via CEF • XQS Enhancement for new instrument types |
| 10.0 | 08.06.2009 | <p>Introduction of high-speed Enhanced Connectivity Interfaces</p> <ul style="list-style-type: none"> • Enhanced Transaction Solution • Enhanced Broadcast Solution <p>New Order Types</p> <ul style="list-style-type: none"> • Introduction of the Discretionary Order • Introduction of the Hidden Order <p>Introduction of Persistency Attribute for Orders</p> <p>Introduction of Minimum Acceptable Quantity for Midpoint Orders</p> <p>Enhanced Data Distribution in the Continuous Auction Trading Models</p> <p>Synchronization of the Fee Reporting between Xetra Frankfurt-1 and Frankfurt-2</p> |

| | | |
|------|------------|---|
| 10.1 | 19.10.2009 | Introduction of "Xetra International Market (XIM)" <ul style="list-style-type: none">• Enables trading with home market settlement Introduction of Auction Price without Turnover |
| 11.0 | 28.06.2010 | Performance improvements for non-persistent orders and quotes Introduction of "Trade Notification" on Enhanced Transaction Solution interface. Support of OTC trades with settlement t+1 always as non-CCP eligible Changes to tick-size regime <ul style="list-style-type: none">• 4 decimals for equities• up to 11 price limits for every instrument Introduction of the execution restriction "Book-or-Cancel (BOC)" |
| 11.1 | 09.05.2011 | Improvements for bond trading: <ul style="list-style-type: none">• non-Euro denomination currency but settlement in Euro• variable coupon dates and/or pool factors• subscription of instruments• Flag for prices with an order from the "Bundesbank" present in the book. Modification of fee reports CB142 and CB242 as well as introduction of CB162 Support individual set of non-Euro currencies per member for trading & settlement |

| | | |
|------|------------|--|
| 12.0 | 28.11.2011 | <p>Introduction of a the Xetra FIX Gateway as a new trading interface supporting FIX versions 4.2 and 4.4</p> <p>Introduction of Xetra Market Data Interface for netted inside market data</p> <p>New Order Types</p> <ul style="list-style-type: none"> • Strike Match Order • Top-of-Book Order <p>Multi Exchange Capability</p> <ul style="list-style-type: none"> • Same ISIN several times on a backend • Several Trading and Settlement Calendars <p>Cross Request Functionality</p> <p>Enhancement for Auction Price without Turnover in Continuous Trading</p> <p>Clearing Member Stop Functionality to prevent a NCM from trading</p> <p>More flexible trading times in trading model Continuous Auction</p> <p>Discontinuing "All Order Confirmation" and "Quote Confirmation" Broadcast</p> <p>Introduction of the Common Report Engine for MISS-less report transfer</p> <p>Introduction of WebTrading</p> |
|------|------------|--|

Figure 1: Xetra Release Overview

With the first release, Deutsche Börse AG provided participants with front end applications for using the IBIS and IBIS-R cash market systems.

With Release 2.0, Deutsche Börse AG set up the Xetra overall architecture consisting of a new network infrastructure, a new Xetra backend and the required software. On this basis, stock wholesale trading was transferred from IBIS to Xetra.

Release 2.1 increased the operational efficiency of the Xetra front end functionality.

With the introduction of Release 3.0, the market model for "on-exchange trading" was fully implemented for both stocks and bonds. Among other things, this enables the trading in all order sizes with an increased number of instruments. In addition, the introduction of Designated Sponsors ensures sufficient liquidity even for stocks which are less liquid.

Release 3.1 has further improved the front end functionality for the Designated Sponsor, created the basis for an IPO, complemented the range of protective measures in auctions by the extended volatility interruption feature and has set the maximum order validity to 90 days.

A new market model for warrant trading has been implemented with Release 4.0. Besides an increased transparency in auctions for highly liquid instruments, multiple settlement accounts and a "matching range" for the initial price determination for an IPO have been introduced.

With Release 5.0 the requirements of the European Alliance, multiple exchange support capability and dynamic profiles have been implemented.

The fundamentals for the CCP (central counterparty) have been introduced with Release 6.0 (e.g. netting, give up/take up). Also, the intraday closing auction and prices without turnover for warrants, certificates and reverse convertibles have been implemented.

With Xetra Release 6.5 the complete trading functionality for the Java-based front end Xetra J-Trader has been introduced. Furthermore, an order completion flag and enhancements for Xetra XXL have been implemented.

The focus of Xetra Release 7.0 has been the introduction of the new Xetra BEST market model. In addition, further enhancements for the CCP have been introduced.

Xetra 7.1 introduced trading in subscription rights. The new Online Time and Sales Sheet window was introduced in Xetra J-Trader.

Xetra 8.0 advanced Xetra system performance and introduced heartbeat functionality to monitor members' connection status and automatically delete quotes of disconnected members.

Pre- and post-trade transparency was improved for Xetra, the XML report format was implemented and measures to improve execution probability for Xetra BEST were taken.

With Release 8.1 the requirements laid out by the Markets in Financial Instruments Directive (MiFID) which became effective on November 1, 2007 as well as simplifications concerning the entry of orders into Xetra BEST were implemented.

With the introduction of Xetra Release 9.0 a new Xetra instance (FFM2) for trading in structured products was implemented. The Xetra Frankfurt 2 trading system has been built on basis of the Xetra Release 9.0 software and offers a market model with two trading models. Starting with this release structured products hosted on Xetra and XONTRO (market place Frankfurt) are completely migrated to the new Xetra Frankfurt 2 instance.

Xetra Release 9.1 was characterized by the introduction of the "Midpoint Order". As a first step of introducing additional products, open-ended mutual funds (Publikumsfonds) are traded in the "Continuous Auction with Specialist" trading model. Further enhancements were made to facilitate the introduction of additional products on Xetra Frankfurt 2.

Xetra Release 10.0 is characterized by the introduction of two new optional high-speed interfaces to access Xetra. The "Enhanced Broadcast Solution" and the "Enhanced Transaction Solution". Additionally two new order types, the "Discretionary Order" and the "Hidden Order", are introduced. "Non-Persistent Orders and Quotes" are provided for members requiring a faster response from Xetra concerning their order status.

The Discretionary Order introduced with the Xetra 10.0 software is currently not activated since the regulatory approval is still outstanding.

With Xetra Release 10.1 the market segment "Xetra International Market (XIM)" was introduced. This allows trading with settlement at the issuer CSD of an instrument. In the first step France, Belgium, Finland, Spain and the Netherlands were supported. For trading model Continuous Trading the Auction Price without Turnover was implemented which allows determining a price in the closing auction as midpoint of best bid and ask if no matching can take place.

Release 11.0 in the Xetra history was characterized by performance improvements which reduced the processing time of non-persistent orders and quotes significantly. The "Trade Notification" was introduced as an additional application message on the Enhanced Transaction Solution interface. Furthermore, the OTC trade functionality was enhanced to allow even today + 1 as settlement date and the tick-size regime was changed to up to 4 decimals for equities and up to a maximum of 11 price limits for every instrument. Last but not least the execution restriction "Book-or-Cancel (BOC)" was introduced.

Major enhancements for the bond trading facility have characterized Xetra Release 11.1. For bonds denomination in non-Euro currency with settlement in Euro and the usage of variable coupon periods as well as pool factors became possible. Furthermore the subscription of instruments was introduced as well as a flag for prices out of price determinations with an order of the "Bundesbank" present in the order book. To support these enhancements the Specialist was enabled to enter an exchange rate with his matching quote and to modify and delete orders on-behalf of other members. The fee reports CB142 as well as CB242 were adapted and the new report CB162 was introduced. Finally, Xetra was enhanced to support an individual set of non-Euro currencies per member defining the currencies he wants to trade and settle.

In Xetra Release 12.0 several changes and enhancements need to be emphasized. Beside new Order Types, i.e. Strike Match Order and Top-of-Book Order, especially the introduction of a new FIX based trading interface, the new Xetra Market Data interface for netted inside market data as well as the possibility to trade an ISIN several times per backend and the support of more than one trading and settlement calendar, have to be mentioned as the major features introduced with this release. Furthermore, the possibility for Clearing Members was introduced to stop an assigned Non-Clearing Member from trading, trading times in trading model Continuous Auction became more flexible and the Cross Request functionality was introduced. Finally, to simplify the access structure of Xetra a web-based trading solution (WebTrading) was introduced.

2.2 Functional Features of Xetra Release 13.0

The existing functionality of Xetra is further extended by Release 13.0. Listed below is an overview of the main Xetra Release 13.0 features.

| Criterion | Xetra Release 13.0 |
|---------------------------------------|--|
| Member/type of trading | Wholesale and retail trade. |
| Trading hours (main trading phase) | 08:50 a.m. – 05:30 p.m. (Xetra Frankfurt) 08:00 a.m. – 08:00 p.m. (Xetra Frankfurt 2: Equities and Funds) 09:00 a.m. – 08:00 p.m. (Xetra Frankfurt 2: Structured Products) 09:00 a.m. – 05:30 p.m. (Xetra Frankfurt 2: Bonds) 11:00 a.m. – 01:00 p.m. (Xetra Frankfurt 2: Bonds & Structured Products with Single Auction) 12:00 a.m. – 08:00 p.m. (Xetra Frankfurt 2: Subscription Rights) 09:00 a.m. – 05:30 p.m. (Xetra International Market) |
| Trading models | <ul style="list-style-type: none"> • Continuous trading with opening auction, intraday auction and closing auction. Xetra BEST functionality is only available during continuous trading. • Several auctions per day. • One auction per day. • Continuous auction with Issuer or with Specialist |
| Auction phases | Pre-call phase, call phase, price determination phase, order book balancing phases, IPO call phase and freeze phase. |
| Instruments | All stocks, bonds as well as warrants, certificates, reverse convertibles, subscription rights, mutual and exchange traded funds traded at the Frankfurt Stock Exchange (FWB). |
| Order size | Round lots or multiples thereof, odd lots. Xetra BEST orders can only be entered up to a maximum order size which is defined by the exchange. For subscription rights a minimum order size exists. The entry of Midpoint Orders must satisfy the Minimum Midpoint Order Value defined by the exchange. The entry of Hidden Orders must satisfy the Minimum Hidden Order Value defined by the exchange in order to comply with MiFID large in scale requirements. |
| Order and Quote types | (BEST) limit orders, (BEST) market orders, market-to-limit orders, iceberg orders, stop limit orders, stop market orders, midpoint orders, discretionary orders, hidden orders, strike match orders, top-of-book order, TOP+ order, book-or-cancel order, trailing stop order, one-cancels-other order, order-on-event and (BEST) quotes, indicative quotes, standard quotes, matching quotes and price without turnover quotes. |
| Order attributes | Detailed identification (bid/ask, limit, volume) and in addition, variable and flexible execution conditions and validity constraints as well as allocation to |

| Criterion | Xetra Release 13.0 |
|----------------------|--|
| | <p>the trading form.</p> <p>Validity for a maximum of 360 days from date of entry; all open orders are transferred to the following trading day.</p> <p>Orders without validity restriction are good for day.</p> <p>If no default BEST Executor is defined, Xetra BEST orders have to be entered with an executor ID.</p> <p>The optional parameter Minimum Acceptable Quantity for Midpoint Orders defines the minimum quantity for execution with another midpoint order.</p> <p>The Discretionary Range is a mandatory parameter for Discretionary Orders. It specifies the amount by which the Discretionary Limit should be more aggressive than the visible limit of a Discretionary Order.</p> <p>For Strike Match Orders the entry of a second limit is mandatory, defining the minimum (for a buy order) or the maximum price (for a sell order) at which the order can be executed in the Closing Auction.</p> <p>Trailing Stop Orders have to be entered with an absolute or percentage distance between the stop limit and the current reference price. Trailing Stop Orders can only be entered via FIX.</p> <p>For an Order-on-Event a reference, a rule and the respective reference limit needs to be provided. An Order-on-Event can only be entered via FIX.</p> <p>Orders can be characterized as persistent or non-persistent orders.</p> |
| Order prioritisation | <ul style="list-style-type: none"> • Price/time priority. • For midpoint orders: Volume/time priority taking the Minimum Acceptable Quantity into account. |

| Criterion | Xetra Release 13.0 |
|--|--|
| Market transparency | <p>Open order book with full market depth (accumulated per limit with number of orders for each limit) in continuous trading.</p> <p>Via the Enhanced Broadcast Solution interface un-netted order book information with additional order book depth is available.</p> <p>Partially closed order book in stock trading auctions and during the call/freeze phase in continuous auction trading models. When the market imbalance indicator is activated, additional information is available during partially closed order book auctions regarding surplus and executable volume.</p> <ul style="list-style-type: none"> - Different transparency rules apply for both continuous auction trading models. Details are described in the Market Model Continuous Auction. For structured products an order book depth of 1 is defined. - All on-exchange trade prices are disseminated in Xetra via VALUES and Enhanced Broadcast Solution and via CEF. OTC trades are disseminated via CEF, only, in case reporting is chosen by the originator. - For midpoint orders and hidden orders no pre-trade information is disclosed to the market. - The Discretionary Range of Discretionary Orders is not disclosed to the market. |
| Trading form, matching process | Auctions and continuous trading with automatic matching; (extended) volatility interruptions and market order interruptions. |
| Order Book | Order book (accumulated display for each limit) for each instrument (for open order book only); unlimited number of own orders. |
| Matching rules | Logical matching rules mapped by the system for order matching; special matching rules for the first quotation of new issues, for midpoint orders, discretionary orders, hidden orders, continuous auction trading and Xetra BEST. |
| OTC trade facility (Xetra Trade Entry) | <p>OTC trades with settlement and/or MiFID reporting can be entered via all trading interfaces. MiFID Reporting is not provided in Xetra International Market and Frankfurt 2.</p> <p>OTC trades with settlement can only be entered with settlement code "Delivery versus Payment (DVP)". As settlement date every business day between today + 1 and today + 89 days is possible.</p> <p>OTC trades can be entered by an intermediary on-behalf of the counterparties.</p> <p>The counterparties can decide to reverse conducted OTC trades on their own.</p> <p>Actions require the approval of the counterparty either manually or</p> |

| Criterion | Xetra Release 13.0 |
|--------------------------|--|
| | automatically (if configured). |
| Order/quote confirmation | <p>For non-persistent orders and quotes only a synchronous response is sent to the sender. No order and quote confirmation broadcasts are created for Enhanced Transaction Solution interface, FIX Gateway and VALUES API.</p> <p>For persistent orders entered via VALUES API or the J-Trader a dedicated order confirmation broadcast is sent in addition to the synchronous response.</p> |
| Execution confirmation | <p>Via trader screen, workstation, member server (MISS), Enhanced Transaction Solution and FIX Gateway</p> <p>If orders or quotes entered via the trading interface Enhanced Transaction Solution are executed two types of execution confirmations are returned to the session. One is unreliable and faster and the other one is recoverable. Both contain the Match ID which allows to map executions and trades.</p> |
| Trade confirmation | <p>Trade confirmations for exchange transactions, Xetra BEST transactions and over-the-counter business (OTC) transferred to trader screen, workstation and MISS (in bond trading including accrued interest); may be forwarded to in-house systems.</p> <p>Corresponding trade notifications are provided via Enhanced Transaction Solution containing settlement information, the Match ID, the Client Order ID and the respective free text fields which allow to map executions and trades.</p> <p>Members using the FIX Gateway receive the respective trade capture messages (trade reports).</p> <p>For netted trades update trade confirmations, trade notifications and/or trade capture messages are provided.</p> <p>Additional trade confirmations in XONTRO Trade contract note format on completion of online trading day.</p> |
| Accounting cut-off | Upon completion of online trading day. |

Figure 2: Xetra Features Overview

3 Xetra J-Trader – The Trading GUI

Via the Xetra J-Trader graphical user interface, Release 13.0 offers exchange members' access to the Xetra trading system of Deutsche Börse AG.

3.1 J-Trader Menu Structure with Release 13.0

The menu structure of the windows (Figure 3) represents the functionality provided by the Xetra trading user interface in Release 13.0. There will be changes in the J-Trader menu structure with Xetra 13.0.

Xetra Trading System

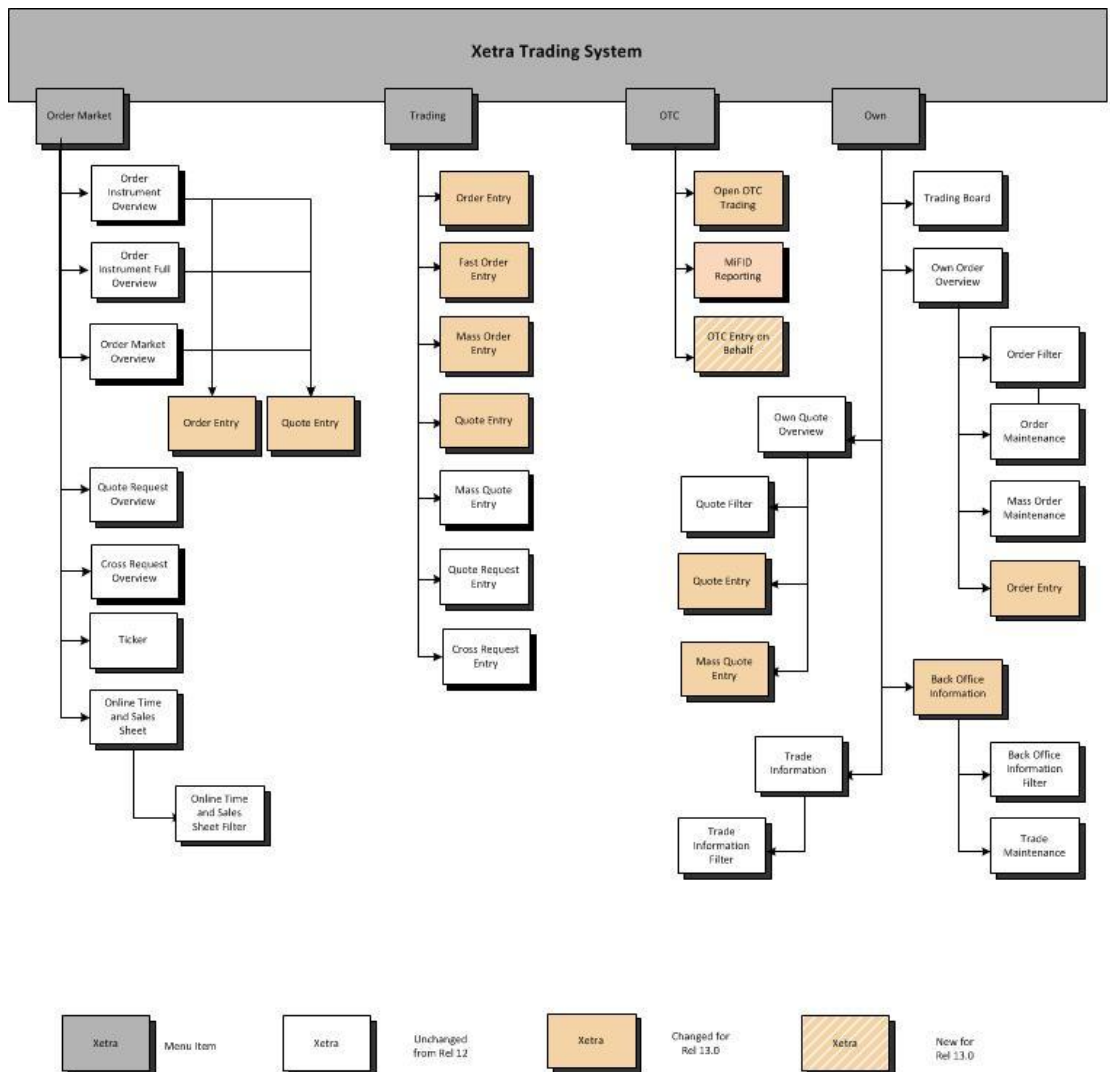


Figure 3a: Xetra J-Trader R13.0 menu structure 1

The windows Hourly Bid Entry, Block Bid Entry and Results are only relevant for EEX instruments.

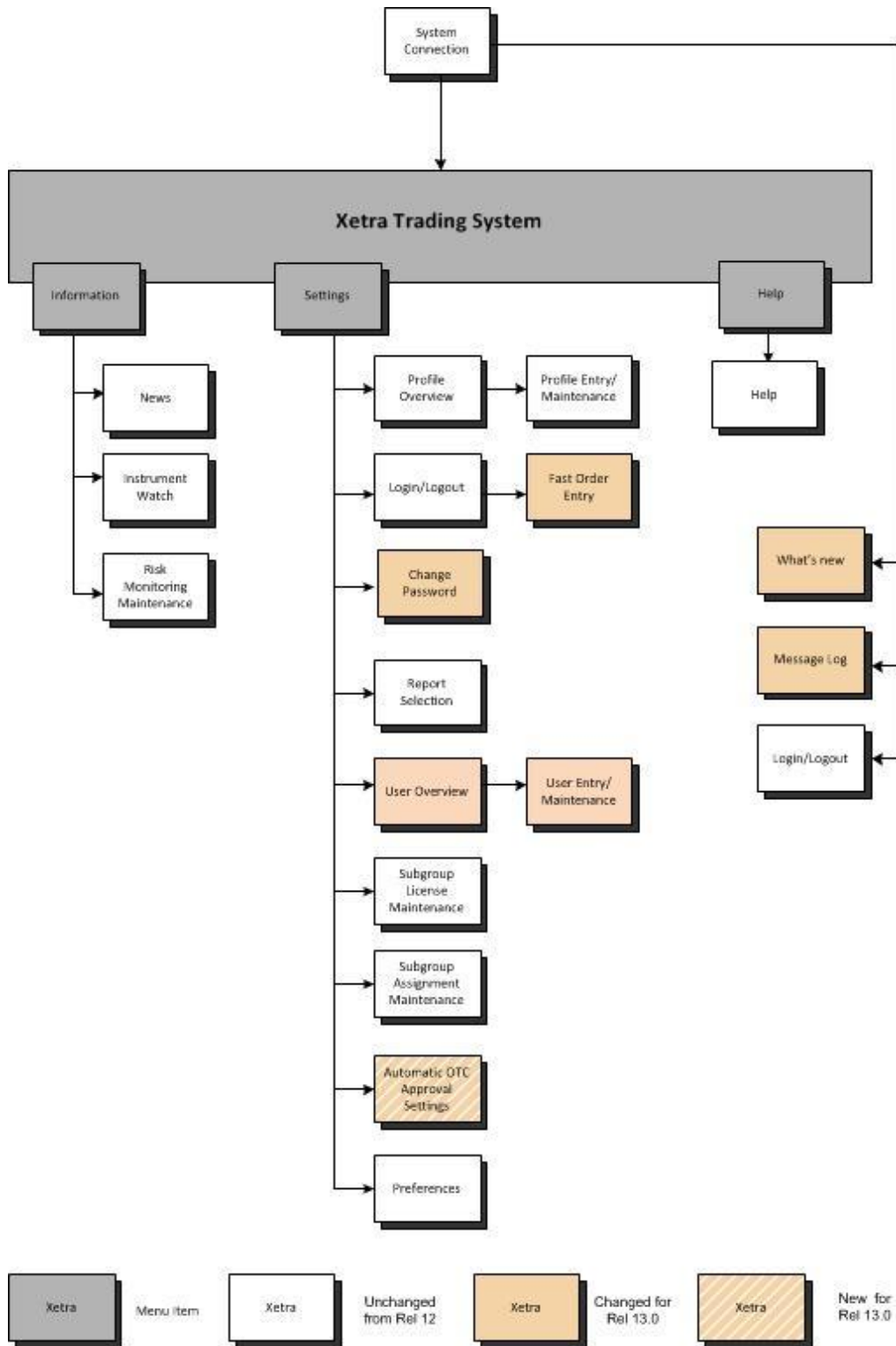


Figure 3b: Xetra J-Trader R13.0 menu structure 2

3.2 Login

Allows the user to log into the Xetra front end. By entering both user ID and password, access to the Xetra front end main menu ("Xetra Trading System") is provided. The *Login/Logout* window provides access to different exchanges. Since Xetra Release 8.1, logins to more than one exchange are disabled. To log in one or more users to more than one exchange, the start of multiple J-Trader application sessions is necessary.

Every user is required to change the default password given by the system during the first logon. No grace logon or period is granted.

3.3 Message Log

The *Message Log* window opens automatically after the Xetra login and cannot be closed. All major exception codes as well as instrument suspensions, volatility and market order interruptions, fast market situations and high priority news are displayed in chronological order. The latest message is always visible in the top row, even if the message list is scrolled down.

If the *Open OTC Trading* window is not open, the button "OTC Alert/No OTC Alert" is active.

If a trading member gets stopped by its clearing member a highlighted message is displayed in the *Message Log* window of users belonging to the respective trading member.

3.4 Window

Allows the user to log out from the Xetra front end application.

Below the menu item *Window* all opened windows will be displayed. Clicking on the menu item lists all windows that are currently open. The items of this menu item are dynamically updated. The title of a window will reflect the currently selected filter criteria as displayed in the window title bar at the point of time the *Window* menu item is opened. After selecting an item of the list, the respective window will pop up automatically. Iconized windows will pop up with the same size as before having been minimized.

3.5 Order Market

Contains windows which provide an overview of the order situation for one or more instruments. In the order market windows, instruments of the exchange the user is logged into are displayed. The specific submenu contents of the Order Market Menu are outlined briefly in the table below.

| Window | Content |
|---------------------------|---|
| Order Instrument Overview | For a single instrument, this window provides detailed order book information on both continuous trading and auction trading. This includes, for example, information on the accumulated order size per limit for the best 10 bid or ask side limits as well as the number of orders for each limit and a variety of instrument data regarding the current trading day (last price, size and time of last trade, highest and lowest exchange price, valuation price, daily transaction volume, etc). When the market imbalance indicator is activated for the Continuous Trading trading model or the One Auction trading model, additional information is available during auctions with a closed order book regarding surplus and executable volume. The last price, quantity and time of last trade as well as the accumulated quantity and the total number of Xetra BEST and midpoint trades are published in separate columns. For the <i>Order Instrument Overview</i> window quick filter |

| Window | Content |
|--------------------------------|--|
| | functionality exists. |
| Order Instrument Full Overview | This window provides detailed order book information on both continuous trading and open auction of a single instrument, i.e. information on the accumulated order volume per limit for the entire order book depth. For the <i>Order Instrument Full Overview</i> window quick filter functionality exists. |
| Order Market Overview | The <i>Order Market Overview</i> provides an overview of the market activity for a variety of instruments. This includes e.g. information on the accumulated order size per limit for the best ten bid or ask side limits as well as the number of orders for each limit and data on the most recent trade executions. When the market imbalance indicator is activated for the trading model Continuous Trading or the One Auction model, additional information is available during auctions with a closed order book regarding surplus and executable volume. The last price, quantity and time of last trade as well as the accumulated quantity and the total number of Xetra BEST and midpoint trades are published in separate columns. For the <i>Order Market Overview</i> window a quick filter functionality exists. The display of a traders own bid or ask quantity for a certain limit is discontinued with Release 13.0. |
| Quote Request Overview | This window provides a detailed overview of any quote requests received for one or more selected Continuous Trading instruments. For the <i>Quote Request Overview</i> window a quick filter functionality exists. |
| Ticker | The <i>Ticker</i> window contains the current values for individual indices (e.g. DAX, MDAX, Dow Jones, STOXX 50) and displays both prices and executed volumes which are based on profiles defined by the user. Prices without turnover that have been determined in Xetra are displayed with a quantity of zero. Xetra BEST prices are displayed with the indicator "XB". For midpoint prices the identifier "XM" is displayed. Prices determined in Continuous Auction with an order of the "Bundesbank" present in the order book get flagged as "XB" as well. For the <i>Ticker</i> window quick filter functionality exists. |
| Online Time and Sales Sheet | The <i>Online Time and Sales Sheet</i> window allows members to inquire all trade prices and quantities of an instrument for the current and any of the previous four business days. The <i>Online Time and Sales Sheet</i> window offers quick filter functionality. |
| Cross Request Overview | The <i>Cross Request Overview</i> window gives an overview of all cross requests and the respective quantities that are available for one or several instruments. For the <i>Cross Request Overview</i> window a quick filter functionality exists. |

Figure 4: Order market submenus

3.6 Trading

Contains windows for detailed entry of orders, quotes and BEST quotes. Orders, quotes and BEST quotes can only be entered for instruments of the exchange the user is logged into. The following table describes the trading functionality submenus (keep in mind that Xetra BEST trading is restricted to market orders and limit orders which are marketable in Xetra BEST, i.e. immediate execution is necessary).

| Window | Content |
|------------------|---|
| Order Entry | <p>Detailed order entry.</p> <p>Via J-Trader only the entry of persistent orders is supported.</p> <p>For Continuous Trading instruments where a Designated Sponsor or Liquidity Manager is available or instruments in Continuous Auction with Specialist a manual quote requests can be sent to all Designated Sponsors or Liquidity Managers, respectively the Specialist via the QR button.</p> <p>An agent order can be specified as a BEST order if the executor ID is filled with the member ID of a BEST Executor. An agent order is specified as BEST order if a default BEST Executor is defined for the instrument to be ordered, the executor ID field is left empty and the user's subgroup is set for Default BEST Execution.</p> |
| Fast Order Entry | <p>Quick entry of single orders after selection via market windows. In case an agent order is submitted for an instrument to which a default BEST Executor is assigned (and Default BEST Execution is active for the user's subgroup), the order is routed to Xetra BEST and the specified Default BEST Executor.</p> <p>For Continuous Trading instruments where a Designated Sponsor or Liquidity Manager is available or instruments in Continuous Auction with Specialist a manual quote requests can be sent to all Designated Sponsors or Liquidity Managers, respectively the Specialist via the QR button.</p> <p>The Fast Order Entry Window cannot be closed.</p> <p>Via J-Trader only the entry of persistent orders is supported.</p> |
| Mass Order Entry | <p>Simultaneous entry of multiple orders. For Continuous Trading instruments where a Designated Sponsor or Liquidity Manager is available or instruments in Continuous Auction with Specialist a manual quote requests can be sent to all Designated Sponsors or Liquidity Managers, respectively the Specialist via the QR button.</p> <p>An agent order can be specified as a BEST order if the executor ID is filled with the member ID of a BEST Executor. An agent order is specified as BEST order if a default BEST Executor is defined for the instrument to be ordered, the executor ID field is left empty and the user's subgroup is set for Default BEST Execution.</p> <p>Order upload via "csv" or "txt" formatted file is supported.</p> <p>Via J-Trader only the entry of persistent orders is supported.</p> |

| Window | Content |
|---------------------|--|
| Quote Entry | Detailed entry of quotes, and BEST quotes. BEST quotes are entered with relative limits (minimum 0.001 €) and additional parameters. |
| Mass Quote Entry | Simultaneous entry of multiple quotes, or BEST quotes. BEST quotes are entered with relative limits (minimum 0.001 €) and additional parameters. |
| Quote Request Entry | Entry of quote requests for Designated Sponsor and Liquidity Manager in Continuous Trading instruments and for the Specialist in Continuous Auction instruments. |
| Cross Request Entry | Via the <i>Cross Request Entry</i> window a cross request can be entered into the trading system. Instrument and quantity must be entered. |

Figure 5: Trading submenus

3.7 OTC

Enables users to enter over-the-counter business (OTC) into Xetra (Xetra Trade Entry), including the possibility to report OTC trades according to MiFID post trade transparency demands. Three basic entry options are supported: namely "settlement only", "settlement and reporting" or "reporting only". After entry, trade reports are forwarded to the dissemination system CEF.

OTC trades entered for settlement need an approval of the counterparty. For this feature, a dynamically updated list box showing all open OTC trades for settlement processing (and optional trade reporting) is available. In this list box the trade reversals of previously approved OTC trades triggered by a member are displayed until approval as well.

Xetra offers an additional window exclusively for reporting matters that features a dynamic list of all daily trade reports and allows entry confirmation and cancellation.

For the entry of OTC trades by an intermediary on-behalf of the counterparties a separate window is available.

| Window | Content |
|------------------|--|
| Open OTC Trading | This window is used to enter, approve and report (open) over-the-counter business trades (OTC) and dynamically displays information on open OTC trades and OTC trade reversals that have not yet been approved by the counterparty. Trades can be entered for settlement only (no MiFID reporting information supplied) or settlement and reporting. OTC trades can be approved by the counterparty by selecting the trade via a double click and pressing the <i>Approve</i> button. If the Open OTC Trading window is closed, the Message Log window shows an active toggle button "OTC alert"/ "No OTC alert" giving notice of any incoming open OTC trades to be approved and of successful approval by the counterparty of previously entered OTC trades. |
| MiFID Reporting | This window is used to report OTC trades not entered for settlement into Xetra or entered previous for settlement only in Xetra. Additionally, trade reports can be |

| Window | Content |
|---------------------------|--|
| | <p>amended, or existing trade reports can be confirmed or cancelled. A list box in the upper half displays line-by-line information about trade reports entered on the current business day.</p> <p>For Xetra International Market trade reporting is not supported.</p> |
| OTC Trade Entry on-behalf | <p><i>The OTC Trade Entry on Behalf</i> window allows an intermediary to enter OTC trades on behalf of two other members. Only the entry of OTC trades and no trade reporting or trade reversals are allowed to be entered on behalf.</p> |

Figure 6: OTC trading activities submenu

3.8 Own

Contains windows that provide an overview of own orders, quotes, BEST quotes and trades as well as the associated inquiry functions for the particular exchange. In these windows, instruments of the exchange the user is logged into can be displayed.

| Window | Content |
|--------------------|---|
| Trading Board | <p>The <i>Trading Board</i> window is an individual configurable frame set which includes the information and functionality of several windows. A special <i>Trading Board Ticker</i> window is offered for the <i>Trading Board</i>.</p> |
| Own Order Overview | <p>Based on a user-defined profile, this window provides an overview of own orders. In order to individually define and display any selection, the selection can be filtered in accordance with a variety of criteria using the <i>Order Filter</i> window. Via the <i>Own Order Overview</i> window single or multiple orders can be deleted. Additional windows can be used to enter or modify single orders (via <i>Order Maintenance</i> window) and to modify multiple orders (via <i>Mass Order Maintenance</i> window) in accordance with the filter. For the <i>Own Order Overview</i> window a quick filter functionality exists.</p> <p>Since the unreliable "All Order Confirmation" broadcast was discontinued with Xetra Release 12.0, non-persistent orders (entered via VALUES API, Enhanced Transaction Solution interface and/or FIX Gateway) can only be inquired in this window.</p> |
| Own Quote Overview | <p>Based on a user-defined profile, this window provides an overview of own quotes, or BEST quotes, which can also be deleted, held and released via this window. The quote entry is accessible using the respective buttons. In order to individually define and display any selection, quotes, and BEST quotes can be filtered in accordance with a variety of criteria using the <i>Quote Filter</i> window. For the <i>Own Quote Overview</i> window a quick filter functionality exists. This window is not available for instruments of the continuous auction trading models.</p> <p>Since the unreliable "Quote Confirmation" broadcast was discontinued with Xetra</p> |

| Window | Content |
|-------------------------|---|
| | Release 12.0, quotes can only be inquired. |
| Back Office Information | <p>This window lists all securities transactions (exchange and off-exchange) performed by the relevant user. Xetra BEST trades can be identified by the trade type "XB" and midpoint trades by the trade type "XM". For netted trades additional information is provided (e.g. average price, accumulated quantity, netting type). Using the <i>Instrument Selection</i> or the <i>Back Office Information Filter</i> (entry of selected filter criteria) window, users can opt to view trade information (e.g. average bid price/ask price, accumulated trade quantities) regarding a specific instrument or a range of different instruments. The <i>Trade Maintenance</i> window allows for the modification of individual attributes (e.g. settlement account) of own trades. For each trade confirmation in the <i>Back Office Information</i> window it is shown whether the underlying order has been partially or fully executed.</p> <p>The reversal of approved OTC trades can be triggered by one of the counterparties via the <i>Back Office Information</i> window.</p> <p>For the <i>Back Office Information</i> window a quick filter functionality exists.</p> |
| Trade Information | <p>This window gives an overview of all execution confirmations, providing users directly with relevant information on a specific order execution. Xetra BEST executions can be identified by a flag. The <i>Trade Information Filter</i> window can be used to filter the display of execution confirmations, for example on the basis of the selected profile. For the <i>Trade Information</i> window a quick filter functionality exists.</p> |

Figure 7: Own trading activities submenus

3.9 Information

Contains windows for the representation of both general market information (messages) and individually set alerts. In the information windows, only the information of the exchange the user is logged into is displayed. The following table provides an overview of the content of the Information submenus.

| Window | Content |
|-----------------------------|--|
| News | The Exchange can use this window to transmit information to market participants in the form of freely formattable texts (e.g. introduction of new trade instruments). |
| Instrument Watch | <p>The <i>Instrument Watch</i> window provides an overview of any alerts entered. These alerts are designed to inform members of changes in the market when individually set limits are either fallen short or exceeded.</p> <p>Also, the <i>Instrument Watch</i> window allows entering / maintaining alerts.</p> |
| Risk Monitoring Maintenance | The <i>Risk Monitoring Maintenance</i> window is a window which provides clearing members with the facility to stop all (on-exchange and off-exchange) trading activities of a non-clearing member immediately and to release them again. |

Figure 8: Information submenus

3.10 Settings and Help

Contains windows for trader-specific configuration (e.g., profiles, colors, fonts) and a context-sensitive system help function. The following table outlines the setting function submenus.

| Window | Content |
|---|--|
| Profile Overview | This window allows for creation, modification and deletion of profiles. Profiles may be created and modified using the <i>Profile Entry/Maintenance</i> window. The <i>Profile Maintenance window</i> will open after double clicking on a profile. |
| Login/Logout | This window can be used for logging into and out of Xetra. Only one user can log in to only one exchange simultaneously (in contrast to releases prior to Xetra 8.1). |
| Change Password | The <i>Change Password</i> window provides users with the functionality for modifying their user-specific Xetra password. |
| Report Selection | This window allows for the selection of specific reports (e.g. trade confirmations). Reports selected by members are made available as XML reports. In addition, text reports generated on the basis of XML Reports are available. |
| User Overview | Using the <i>User Overview</i> window, members can carry out the administration of their own users. The addition of new users is done via the <i>User Entry</i> window. There the user authorizations, the accounts (e.g. Agent, Proprietary, Liquidity Manager, BEST Executor), the maximum order value (value has to be entered in the exchange currency), the OTC default account type and the Default BEST Execution assignment (valid for the user's subgroup) can be determined. The <i>User Maintenance</i> window allows modifying the above-listed attributes of an existing user. The attributes of a user (i.e. user code, user name, resource access levels, senior indicator and agent/proprietary accounts) can easily be copied from one user to another. |
| Subgroup License Maintenance | This window can be used to assign or revoke the Designated Sponsor, Liquidity Manager and BEST Executor licence with regard to specific trader subgroups. |
| Subgroup Assignment Maintenance | This window allows for the assignment of individual instrument groups to specific trader subgroups. |
| Default BEST Executor Assignment Window | The Default BEST Executor Assignment Window allows flow providers to assign Default BEST Executors to each instrument. Upon selection of an instrument group (assigned to the member), instruments in this group (which are assigned to the flow provider) are listed below one per row. The Default BEST Executor Assignment can be modified based on selected instruments; i.e. by clicking a field in the column DefBESTExec a Default BEST Executor can be assigned to or removed from the respective instrument. Clicking the Submit or Apply button completes the modification. It is possible to choose more than one instrument at once for maintenance. This window is not available for instruments of the continuous auction trading models. |

| | |
|---------------------------------|---|
| Automatic OTC Approval Settings | The <i>OTC Auto Approval Settings</i> window allows members to maintain the OTC Approval reference data. Members may add, inquire, and change for which entering members, which instrument groups, and up to which maximum tradable amount the automatic OTC approval of trades (and trade reversals) is performed on their side. |
| Preferences | The <i>Preferences</i> window is a tabbed pane window, which allows the user to select fonts and colours, configure the increments of limits and quantities, set up user-defined text field context menus, set up the default timing for highlighting and quote request indicators, define the display of time and date formats, enable yield calculation, raise quote alerts, and turn tool tips on and off. |

Figure 9: Settings submenus

All windows within this menu structure are non-modal, i.e. the user can interact with all windows at the same time. The Xetra front end enables users to save their individual window configuration. This means that location, size, column scaling, setting of filters and profiles of all currently opened dynamically updated windows can be saved. This also applies to each individual window. Therefore, the individually saved settings are still available after the next login procedure.

4 Xetra Release 13.0 Functionality

4.1 Exchange Members and User IDs

In order to participate in Xetra Frankfurt and/or Xetra Frankfurt 2, exchange members must meet the admission requirements of a German Stock Exchange. They are required to ensure proper clearing and settlement of trades. Exchange members who are not directly involved in Clearstream clearing transactions are required to nominate a settlement member.

Once a new member has been admitted, the Exchange enters the member with the associated access rights into the Xetra system and assigns a Member ID (e.g., ABCFR). User IDs are allocated, then entered and maintained in the Xetra system by the members themselves (e.g., TRD001).

User IDs for trading functions are authorized by the Exchange following admission/verification. Admission is a prerequisite for entry, modification and deletion of orders and quotes. All other user IDs are authorized for inquiries only.

The Exchange creates instrument groups which can be allocated to the individual members by the Exchange. The members have to use these predefined instrument groups for authorization of trader subgroups.

Changes in access rights covered by a specific user ID are carried out by the members themselves and recorded by the Exchange. They are made available to members at the end of the day in form of text reports and XML reports. Therefore users of the system can be divided into several categories:

- **Traders**
Traders are individuals admitted for exchange trading. A trader can act as agent trader (account A) or as proprietary trader (account P). As Designated Sponsor (account D), as Liquidity Manager (account Q), as Issuer (account I) or Specialist (account I, or L) the trader can enter quotes into the system to provide additional liquidity.
 - **Issuers**
Issuers participate by entering quotes into the system ("Issuer", account I). A quote consists of a simultaneous entry of a limit buy and a sell order and is flagged accordingly. In addition, Issuers (in the 'Continuous Auction Trading Model') permanently provide quotes for the purposes of limit surveillance.
 - **Specialists**
Specialists participate as information and liquidity provider. Matching quotes initiating the price determination process are entered on behalf of Issuers (account I). These quotes are based on the separately received Issuer quotes and the current order book situation. In addition orders can be entered on proprietary basis (account P), and proprietary basis with additional liquidity (account L).
 - **BEST Executors**
BEST Executors participate as traders by offering BEST execution services to their own customers or customers of Flow Providers by entering BEST quotes into the system ("BEST Executor", account E).
 - **Other users**
Administrators are users who are not admitted or authorized for trading (they assign and maintain authorization rights for the member's personnel). This category also includes personnel in settlement, operation, supervision and information users.
-

4.2 Market Transaction Process

The entire process of entry, processing and settlement of all transactions in Xetra Release 13.0 is outlined below.

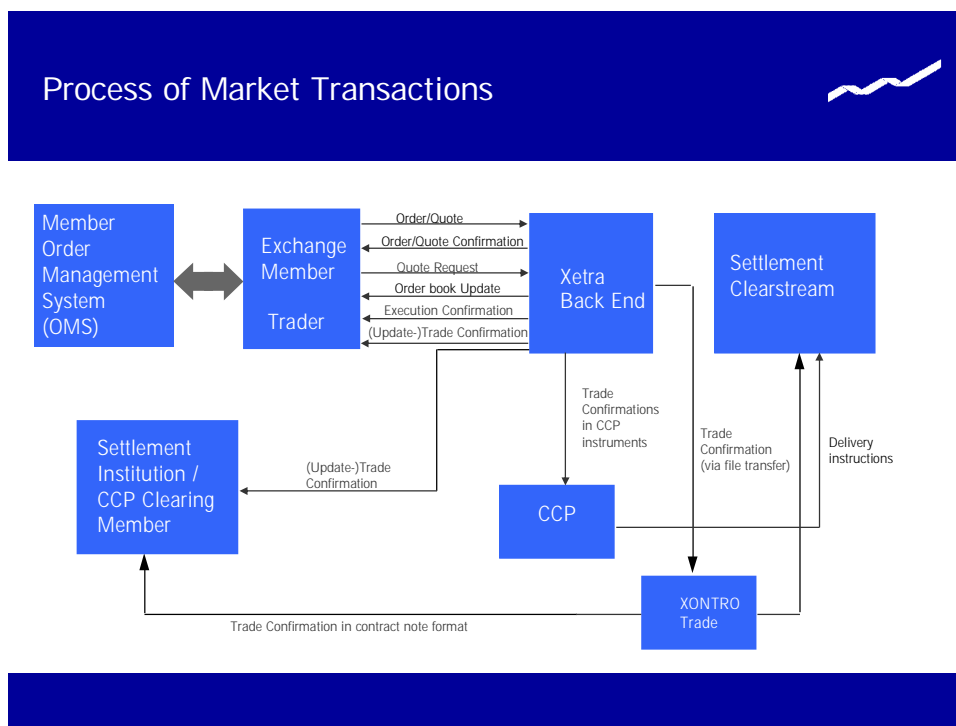


Figure 10: Process of market transactions

Traders enter orders, BEST orders, quotes, BEST quotes, and quote requests using their Xetra front end application. These are forwarded to the Xetra backend where they are processed in accordance with set attributes.

Designated Sponsors and BEST Executors as well as Issuers and Specialists may select Heartbeat Monitoring. In case of a member application or connection breakdown, all quotes of this Member/Subgroup will be deleted automatically in accordance with the market model. In case of any concerned instrument being in the IPO related FREEZE status at the time of an automated quote deletion attempt, according to the market model the quote deletion for such instrument cannot be processed immediately. Such quote may then still be executed during the instrument state change from FREEZE to continuous trading, or immediately thereafter, since the deletion request will not be stored in the processing queue but will be resent in short intervals until successful.

In every phase of the transaction process, members obtain information on the state of their entered orders, BEST orders, quotes, BEST quotes as well as on executed trades. Once the entry of an order, BEST order, quote or BEST quote has been accepted by the Xetra backend and entered into the order book, an order or quote confirmation is forwarded to the trading member. Within the trading models 'Continuous Auction with Issuer' and 'Continuous Auction with Specialist' only for quotes that lead to a matching situation or that are flagged for price determination without turnover, a quote confirmation is processed. When a trade is executed, an execution confirmation is forwarded to the member in a timely manner. This confirmation details essential order information (order dates, execution price and volume, execution time). Almost simultaneously, a more comprehensive (update-) trade confirmation is also forwarded. All trade

confirmations are displayed on the trading screen and are available for the trading member, CCP clearing member and the settlement institution via the server (MISS), Enhanced Transaction Solution interface and FIX Gateway.

During the online day trade confirmations in CCP instruments are forwarded to the CCP. At the end of the online trading day, all trade confirmations are forwarded via File Transfer to the XONTRO Trade system. In XONTRO Trade, trade confirmations are created for Deutsche Börse AG members in contract note format. The exchange members, CCP clearing members and settlement institutions can receive these trade confirmations in contract note format. The Xetra trades of Deutsche Börse AG members in non-CCP instruments are automatically forwarded to Clearstream for initiation of the settlement process. For CCP instruments delivery instructions are sent from the CCP to Clearstream.

For Xetra International Market no contract notes are created in XONTRO Trade. For Xetra International Market home market settlement is provided.

4.3 Orders in Xetra

Round lots as well as odd lots are tradable on Xetra. Round lot quantities for the individual instruments will be defined in connection with determining both trading segments and trading parameters. For subscription rights a minimum order size exists.

4.3.1 Order Types and Order Specification

All orders entered in Xetra are anonymous. However specialists receive detailed information about all orders entered in instruments the specialist offers his services for. The trading members do not receive any information as to which member has entered an order into the order book. As basic order types Limit, Market, Market-to-Limit, Midpoint, Discretionary, Hidden, Strike Match, Top-of-Book, TOP+, One-Cancels-Other, Order-on-Event and Iceberg orders can be entered into the system during exchange trading. The possibility to enter trading restrictions and/or execution restrictions depends on the type of the order. The validity constraints "Good-for-Day" (GFD) or "Good-Till-Cancelled" (GTC) as well as the entry of a certain validity date ("Good-Till-Date") are supported for all order types. However, Iceberg orders can only be entered with the validity constraint "Good-for-Day (GFD)". In addition, (Trailing) Stop Limit and Stop Market orders can be entered in Xetra.

Midpoint, Discretionary, Hidden, Strike Match, Top-of-Book and TOP+ orders are only available for instruments in trading model Continuous Trading.

Top-of-Book and TOP+ orders can only be entered via Enhanced Transaction Solution interface while the intelligent order types One-Cancels-Other, Order-on-Event and Trailing Stop orders can only be utilized within the FIX Gateway.

Only market orders and marketable limit orders (limit orders which can be executed immediately against a BEST quote) are subject to Xetra BEST. To enter a BEST order, either a valid Executor ID must be provided or Default BEST Execution has to be activated by respective instrument and user subgroup settings. BEST orders that can not be executed immediately within Xetra BEST are routed into the Xetra order book and are shown as regular limit or market orders in the order book.

Orders are valid for a maximum of 360 days from the date of entry. This applies also to those validity constraints that do not define automatic order expiry at a fixed point in time (i.e., GTC).

During the order book balancing phase of an auction, members can execute any remaining surplus, i.e., orders which are executable at the auction price, but could not be executed at this point. For this purpose, Xetra provides a special order type, the Accept Surplus order.

While Quotes with the Designated Sponsor account can be entered by all members, only members who are registered in the system as Liquidity Manager, Issuers or Specialists can enter quotes with these account types into Xetra. A quote is the simultaneous entry of a limited buy and a sell order in Xetra. Quotes entered into the system are always "good-for-day". A newly entered quote in an instrument will overwrite any existing quote of the same trader subgroup in the order book. A quote cannot be modified. At any time, for each trader subgroup, there is only one quote per instrument in the order book.

Only members who are registered in the system as BEST Executor can enter BEST quotes into Xetra. A BEST quote consists of different parameters and dynamically adapts to the current order book situation on a relative basis. The minimum price improvement of a BEST quote is 0.001 €. The parameters of BEST quotes are described in Figure 12. BEST quotes entered into the system are always 'good-for-day'. A newly entered BEST quote will overwrite any existing BEST quote of the member. BEST quotes cannot be modified. At any time, for each member, there is only one BEST quote per instrument in the order book.

4.3.2 Non-Persistent Orders

For members requiring a faster response from Xetra concerning their order status, non-persistent orders are provided.

Thereby, members can choose whether they send their orders as persistent or as non-persistent orders. The main functional difference is that non-persistent orders will be removed from the order book in exceptional circumstances, i.e. typically, if there are technical problems on the exchange's backend side or when an instrument leaves the "HALT" state. In both cases a "Market Reset" will be triggered, whereby only persistent orders are restored in the order book. Non-persistent orders and quotes entered via the new interface Enhanced Transaction Solution are deleted if the trading session loses the connection or because of missing heartbeats.

The member may select between the non-persistent and the persistent order attribute independent of the type or restriction code of the order. Once the order has been sent to the exchange, the persistency attribute of the order cannot be changed anymore.

Non-persistent orders are not supported for trading model "Continuous Auction" and in general non-persistent orders cannot be entered using the J-Trader.

Members are able to select between the non-persistent and persistent attribute for their orders at the time of the order entry. The new field "Persistency Indicator" is provided in the order entry windows for this purpose:

- § 'P' - Persistent order
- § 'N' - Non-persistent order
- § ' ' - Blank (Default)

Orders entered via VALUES with the attribute ' ' will be treated by the following rules regarding order persistency:

- § Agent orders are persistent by default.
 - § All other orders (account type not 'A') are non-persistent if the validity of the order is GFD ("good for day") or explicitly stated the current business day.
-

§ All orders with validity greater than GFD ("good for day") are persistent orders by default.

All orders entered via the Enhanced Transaction Solution interface are non-persistent by default once the persistency attribute is omitted.

For non-persistent orders and quotes the unreliable order response information will be sent out immediately after the order/quote has been processed by the core matching process, but before the transaction is finally completed. As an effect of this performance measure the unreliable order response information for non-persistent orders/quotes may be sent out indicating that the order/quote was executed but, in reality, the transaction was not finalized because of a technical problem on the Xetra backend. In the very rare case of such technical interruption, a Market Reallocation Event message will be sent out to all affected members, indicating that all non-persistent orders or quotes in the respective set have been deleted. Members receiving a Market Reallocation Event message are highly recommended to verify the execution status of their most recently received order status information by cross-checking the respective reliable information received from the Xetra backend.

Public unreliable inside market information is broadcast based on the unreliable execution status of non-persistent orders/quotes as well. I.e. the price and/or the new order book situation resulting from the not completed transaction is published to the market. However, it will be rolled back by the Market Reallocation Event and the inside market is corrected. The All Trade Price streams (VALUES and Enhanced Broadcast Solution) will always contain correct data because they are generated when the transaction is completed.

For more details please refer to the document "Technical Description" for Xetra Release 13.0.

4.3.3 Iceberg Orders

The order type "iceberg order" can be used by a trader to avoid adverse price movements due to a large order size.

Iceberg orders are orders with quantities only partially visible in the order book. An iceberg order is characterized by its overall quantity, the peak quantity which characterizes the visible part of the order and the mandatory limit. The peak quantity and the overall quantity must always be a round lot and the peak quantity has to be at least 1/20 of the overall quantity. If the overall quantity divided by the peak quantity leaves a rest, the last peak creates a smaller order than the original peak, but also of a round lot size.

Iceberg orders have different behaviours in continuous trading and in auction trading. In continuous trading, as soon as the peak quantity (i.e., the visible order quantity) is fully executed, another peak with the same limit and quantity is entered into the order book, as long as there is a remaining quantity. This newly entered peak receives a new timestamp. It is sorted with all other orders already available at the respective limit according to time priority (i.e., the new quantity of the iceberg order does not have time priority within the respective limit). Price priority is guaranteed. The iceberg order will be completely matched before the next limit in the order book is executed. The order number remains the same for the entire iceberg order.

In auction trading, the complete quantity of the iceberg order is considered for the (indicative) auction price calculation. During the call phase (if the market imbalance indicator is switched on) the complete order quantity and during the order book balancing phase the remaining order quantity is used to calculate the surplus.

If the iceberg order has only been partially executed during the auction, a new order with the (remaining) peak quantity is entered into the order book for continuous trading. It does not matter whether the order has been executed against an odd or a round lot order. If it is not possible to completely refill the peak quantity and if the new peak consists of a round lot and an odd lot part, the iceberg order will be treated as follows: The round lot part will be traded in continuous trading whereas the odd lot part can only be executed in the next auctions.

If a volatility interruption in continuous trading occurs the complete quantity of the iceberg order is considered. For Xetra BEST iceberg orders are not supported. Iceberg orders are considered when calculating the price for executions in Xetra BEST.

Iceberg orders are not supported in continuous auction trading models.

Execution and trade confirmations are created after each partial execution. An increase of the peak or overall quantity leads to a new timestamp – losing time priority - and a new order number, whereas a reduction maintains the original timestamp and order number.

The order type 'I' always has to be entered if an iceberg order is entered. All order entry and maintenance windows support iceberg orders. It is not possible to modify an iceberg order to a different order type and vice versa. The *Own Order Overview* window displays the iceberg order with remaining quantity, peak quantity, and executed quantity.

The minimum overall quantity and minimum peak quantity is defined on instrument level. Iceberg orders entered in pre-trading can be executed for the first time in the opening auction. Iceberg orders entered in post-trading are deleted after post-trading because iceberg orders can only be entered with the validity constraint "Good-for-Day". Trading restrictions and execution restrictions are not supported.

4.3.4 Market-to-Limit Orders

With the order type "market-to-limit order", Xetra provides an order type giving a trader a high execution probability (like a market order) combined with a protection against unintended price impact (like a limit order).

In continuous trading a market-to-limit order is executed against the best limit available on the opposite side of the order book. If the order is not executed completely, the order is entered into the order book with a limit equal to the partial execution for the remaining quantity. The incoming market-to-limit order is only accepted if there are only limit orders on the opposite side of the order book. If there are no orders, or only market orders, or market and limit orders on the opposite side of the order book, the incoming market-to-limit order is rejected.

Market-to-limit orders entered during an auction (including volatility interruptions and market order interruptions) are treated like market orders.

At the end of an auction, the market-to-limit order is executed at the auction price. Market-to-limit orders can trigger market order interruptions and volatility interruptions. If the order can not be fully executed (irrespective whether the order is partially executed or not executed at all) the rest of the order is offered during the order book balancing phase. If at the end of this phase the order has only been partially executed or not executed at all, the order is entered into the order book with a limit equal to the auction price. If there is no auction price, market-to-limit orders which were entered during the call phase of the auction are deleted.

Market-to-limit orders can also be entered during pre-trading and post-trading. Those orders are considered for the next auction and treated as described above.

Market-to-limit orders can not be changed to a different order type during order maintenance. For market-to-limit orders all validity constraints are supported. If the execution restriction "Fill-or-Kill" or "Immediate or Cancel" is selected the validity constraint must be "Good-for-Day". No trading restrictions (e.g., auction only) are supported.

The order type 'T' always has to be entered if a market-to-limit order is entered. All order entry windows allow the entry of a market-to-limit order.

Market-to-limit orders are not supported with the continuous auction trading models. For Xetra BEST market-to-limit orders are not supported.

4.3.5 Midpoint Orders

The "Midpoint Order" is an order type which is completely hidden concerning pre-trade information, i.e. neither limit nor volume of midpoint orders is disclosed to the market. Since a midpoint order interacts only with other midpoint orders but not with orders of the Xetra open order book this order type offers the possibility of executions at the midpoint of the Xetra best bid/ best ask spread and thus without any market impact.

Midpoint orders can be entered with or without a limit. Executions take always place at the midpoint of the Xetra best bid/ best ask spread which is either equal to or better than the specified limit price respectively without a limit at midpoint. Validity constraints as well as execution restrictions are supported for midpoint orders. Trading restrictions are not available for this order type.

Midpoint orders are available for continuous trading model instruments only. They are only valid in continuous trading, i.e. no execution of midpoint orders will take place during auctions.

For executions of midpoint orders the volume/time priority rule applies, i.e. prioritization of the largest order respectively if two or more midpoint orders have the same order volume, the midpoint order with the oldest time stamp is prioritized. Additionally the Minimum Acceptable Quantity of the Midpoint Orders is taken into account during the matching process.

The Minimum Acceptable Quantity entered for an order is applied to "every fill". If an order is partially executed and its volume is reduced below the Minimum Acceptable Quantity, the Minimum Acceptable Quantity is set to the remaining volume.

Matching is only carried out if an execution at the midpoint of the Xetra best bid/best ask spread would not result in a volatility interruption. Midpoint Orders themselves do not trigger volatility interruptions.

For Xetra Best midpoint orders are not supported.

The order type 'P' always has to be entered if a midpoint order is entered. All order entry and maintenance windows support midpoint orders. It is not possible to modify a midpoint order to a different order type and vice versa.

4.3.6 Discretionary Orders

In production the Discretionary Order is currently not activated.

The Discretionary Order is a new order type for the open order book of Xetra. It enhances the already existing Limit Order by a second parameter, the "Discretionary Range".

The Discretionary Range is hidden and therefore not visible for other market participants. It defines the upper limit of the price improvement at which the discretionary order may be executed if execution at the visible limit is not possible. Hence, with respect to a buy order, the Discretionary Range must be positive and with respect to a sell order, the Discretionary Range must be negative. Execution possibilities within the Discretionary Range will only be verified if no "conventional" executions against normal visible orders or Hidden Orders are possible.

A Discretionary Order can only be entered with a limit, the Discretionary Range and the order type 'D'. All order entry and maintenance windows support discretionary orders. It is not possible to modify a discretionary order to a different order type and vice versa.

The validity of a Discretionary Order can be determined by means of further constraints:

- § Good-for-day: Order only valid for the current exchange trading day.
- § Good-till-date: Order only valid until a specified date (up to a max. of 360 days from the date of entry).
- § Good-till-cancelled: Order only valid until it is either executed or deleted by the originator or the system on reaching its maximum validity of 360 days.

Trading restrictions (e.g. opening auction only or closing auction only) are not available. Execution restrictions (e.g. Fill-or-Kill or Immediate-or-Cancel) are not available.

Discretionary orders are allowed for Xetra Best.

4.3.6.1 Matching Rules in Continuous Trading

4.3.6.1.1 Processing / Matching of incoming orders

Incoming orders are always considered with their most aggressive limit only (i.e., if the incoming order has a Discretionary Limit, then the order is considered with its Discretionary Limit). Besides this, the existing matching procedure for incoming orders is used.

4.3.6.1.2 Matching of sitting orders

In general, the visible limit of sitting Discretionary Orders is always considered first and their Discretionary Limit will only be verified for execution if no full execution against normal visible limits and Hidden Orders in the order book is possible. That means that the Discretionary Limit of a sitting Discretionary Order serves only as a subsidiary execution possibility for incoming orders within the "Discretionary procedure".

Firstly, the execution of the incoming order against the normal visible limits and Hidden Orders in the order book is verified. Sitting Discretionary Orders are considered with their visible limit only.

Secondly, if full execution of an incoming order against normal visible orders or Hidden Orders is not possible, the execution of the incoming order within the Discretionary Range of sitting Discretionary Orders is verified. In case of an execution matching takes place at the limit of the incoming order.

If two or more sitting Discretionary Limits compete for execution the following visible price/time priority rule applies:

1. Prioritization of the Discretionary Order with the most aggressive visible limit.
2. For Discretionary Orders with the same visible limit: prioritization of the Discretionary Order with the oldest time stamp.

If the execution of the incoming order is neither possible against visible orders and Hidden Orders nor within the Discretionary Range, the incoming order is placed in the order book.

4.3.6.2 Matching Rules in Auction

The insertion, modification or deletion of Discretionary Orders in auctions is possible. Discretionary Orders are considered with their Discretionary Limit. The visible limit is not relevant for determining the auction price. The published indicative auction price is also based on eventually available Discretionary Limits. Only if no indicative auction price can be determined (i.e. no crossed order book), then only visible limits are considered and published as best bid/best ask.

4.3.7 Hidden Orders

The Hidden Order works similar as the already existing Limit Order, whereas the limit is hidden and therefore not visible for other market participants.

Visible orders (limit orders, discretionary orders with their visible limit and iceberg orders (with peak volume and iceberg volume)) have priority over same-priced Hidden Orders.

The order type 'H' always has to be entered if a hidden order is entered. All order entry and maintenance windows support hidden orders. It is not possible to modify a hidden order to a different order type and vice versa.

The validity of a Hidden Order can be determined by means of further constraints:

- § Good-for-day: Order only valid for the current exchange trading day.
- § Good-till-date: Order only valid until a specified date (up to a max. of 360 days from the date of entry).
- § Good-till-cancelled: Order only valid until it is either executed or deleted by the originator or the system on reaching its maximum validity of 360 days.

Trading restrictions (e.g. opening auction only or closing auction only) are not available.

Execution restrictions (e.g. Fill-or-Kill or Immediate-or-Cancel) are not available.

For Xetra Best hidden orders are not supported.

4.3.7.1 Matching Rules in Continuous Trading

In general, Hidden Orders are executed according to price-visibility-time priority and executions are disseminated immediately as normal "Börsenpreis" (no post-trade delay):

- § Incoming Hidden Orders are treated as conventional Limit Orders when entering the Xetra order book.
- § Should an incoming Hidden Order (or parts of it) not be executable, it is stored in the order book. The Hidden Order is not displayed.
- § Passive Hidden Orders are executed according to price-visibility-time priority:
 - If a Hidden Order provides the best price, then an incoming order is executed against the Hidden Order (price priority)
 - If a Hidden Order competes with a same-priced (visible) Limit Order for execution, the (visible) Limit Order is executed first, regardless of the respective timestamps (visibility priority)
 - If a Hidden Order competes with a same-priced Iceberg Order for execution, the total Iceberg Order (i.e. peak and iceberg volume) is executed first (visibility priority).

If a Hidden Order competes with another same-priced Hidden Order for execution, the order with the older timestamp is executed (time priority).

4.3.7.2 Matching Rules in Auction

The insertion, modification or deletion of Hidden Orders in auctions is possible – as it is the case for any other limit order. Hidden orders are considered with their full volume in auctions.

Hidden Orders are considered in Auctions to determine the auction price:

- § The published indicative auction price is also based on eventually available Hidden Orders and the volume of Hidden Orders is part of the Market Imbalance information.

However, if no indicative auction price can be determined (i.e. in case of an uncrossed order book) Hidden Orders are not disclosed to the market, i.e. the published best bid/best ask consists of visible orders only.

4.3.8 Strike Match Order

The Strike Match Order builds a bridge between Xetra and Eurex. Using this order allows to reduce the so-called "pin risk" of equity options quoted at-the-money. Therefore, the Strike Match Order shall only be used on expiration days of equity options.

A Strike Match Order is a new order with an additional limit that can be added for limit or market orders. With this additional limit the minimum price for a buy order or the maximum price for a sell order is defined. The Strike Match Order can only be used in the Closing Auction in trading model Continuous Trading and has been designed for trading members who wish to perform their hedging transactions on Xetra in a more efficient way, i.e. avoiding unintended executions.

An order that should be entered as Strike Match Order has to be marked with the new execution restriction "SMO" and needs to have trading restriction "CA" ("Closing Auction only"). While changing the additional limit will be possible, the execution restriction and the trading restriction cannot be modified. Regarding the matching priority only changes of the normal limit (including modifications from or to a market order) will have an influence. Strike Match Orders will only be valid for the Closing Auction of the respective trading day and are deleted during the end of day processing.

In general the price determination in auctions follows the principle of highest executable volume with lowest surplus. Before introducing the Strike Match Order, the accumulated quantity of buy orders/ sell orders is by definition weakly monotone increasing or decreasing. However, by introducing the Strike Match Order this is not the case anymore. It will be possible to have the same executable volume with the same surplus on different sides of the order book and even taking the reference price into account may not lead to a definite price. If in an Closing Auction the situation comes up that different prices with the same volume and the same surplus on different sides are possible, the price closest to the reference price will be determined. If the reference price is in the middle of two possible prices the auction price will be determined at the potential price with the highest limit.

4.3.9 Top-of-Book Order

By entering a Top-of-Book (TOP) Order, a trader ensures that this order is either placed on top of the order book narrowing the current order book spread or is rejected. However, execution against Hidden Orders within the order book spread is possible. These rules ensure that the execution of a TOP order is always treated as passive in the billing process.

A Top-of-the-Book Order will be accepted and added to the order book if its limit is narrowing the current order book spread, i.e. if the limit of a buy (sell) TOP order is greater (smaller) than the best visible bid (ask) in the order book and smaller (greater) than the best visible ask (bid). If an incoming TOP order can be executed against a sitting order (visible or hidden) at a visible limit, the TOP order gets rejected.

But incoming TOP orders may still be fully or partially executed against sitting Hidden Orders. A full execution of the TOP order is possible, if in case of a buy (sell) TOP order its limit is greater (smaller) than the best visible bid (ask) limit in the order book and greater (smaller) than or equal to the limit of the Hidden Order on the ask (bid) side. If the incoming TOP order can only be partially executed against a sitting Hidden Order it is additionally checked that the limit of the buy (sell) TOP order is smaller (greater) than the best visible ask (bid) limit. If this is the case the TOP order will be executed partially and the remaining quantity is placed in the order book. Otherwise there is no execution of the TOP order and the order is rejected.

A Top-of-the-Book Order can only be entered via Enhanced Transaction Solution interface and is a limit order having the field "timeInForceCode" set to "8". The entry via VALUES API, J-Trader GUI or the FIX Gateway is not supported.

A TOP Order is only accepted in Continuous Trading but not in auctions or volatility interruptions to guarantee the passiveness in the billing process. Consequently TOP orders in the book are deleted as soon as an auction or volatility interruption is triggered.

4.3.10 TOP+ Order

TOP+ Orders can be entered by members to the Xetra order book analogously to the existing TOP Order (see above). It can only be entered via Enhanced Transaction Solution interface and is a limit order having the field "timeInForceCode" set to "9". The entry via VALUES API, J-Trader GUI or the FIX Gateway is not supported.

A TOP+ Order is only accepted in Continuous Trading but not in auctions or volatility interruptions to guarantee the passiveness in the billing process. Consequently TOP+ orders in the book are deleted as soon as an auction or volatility interruption is triggered.

Different to the TOP Order the TOP+ Order is subject to a different validation. The TOP+ order does not have to reduce the visible spread to be entered in the order book. Precisely, a TOP+ order is entered in the order book if the orders available on the same side of the order book with the same limit or a limit better than the TOP+ order have an overall volume that is below a volume limit defined by Deutsche Börse. Additionally, as for TOP Orders, the limit of a buy (sell) TOP+ Order needs to be lower (higher) than the best visible limit on the sell (buy) side of the book. I.e. if an incoming TOP+ Order can be executed against a sitting order (visible or hidden) at a visible limit, the TOP+ Order gets rejected.

Example:

Deutsche Börse has defined 10,000 € as threshold for the TOP+ Order.
Order book looks like:

| Buy | Limit | Sell |
|-----------|-------|------|
| | 12 | 900 |
| 400 | 11 | |
| 600 (500) | 10 | |
| 1000 | 9 | |

Figure 11: Order book example TOP+ order

Incoming TOP+ Order buy 950 @ 10 is validated:

Limit of TOP+ Order is lower than the best visible limit on the sell side which is ok.

Volume of orders in the book with a limit equal to or better than the limit of the TOP+ Order is $400 \cdot 11 + 600 \cdot 10 = 10,400$ € which is higher than the defined threshold. Hence the TOP+ Order gets rejected. The overall size of the TOP+ Order is not relevant.

If the buy order in the book with limit 10 would only have a quantity of 500 the TOP+ Order would have been accepted because the overall volume at the relevant limits on the same side of the order book ($400 \cdot 11 + 500 \cdot 10 = 9,400$ €) is below the threshold.

4.4 Intelligent Order Types

In this chapter first the general functional structure of intelligent order types is described. Afterwards the different intelligent order types "One-Cancels-Other", "Trailing-Stop" and "Order-on-Event" are explained in more detail.

4.4.1 Overview

The general functionality of intelligent order types is highlighted in this chapter. The description given here is common to all intelligent order types.

4.4.1.1 Order entry

Intelligent orders can be entered via the Xetra® FIX Gateway only. They are always persistent. The orders are administrated outside the order book in a separate module of the trading system. In this module the monitoring of the trigger event, the trigger of the order and in case of Trailing Stop Orders the adjustments of Trailing Stop Limits take place.

After having received the intelligent order a limit order appendant to the intelligent order is entered into the order book. If not described otherwise the limit of sell orders is the maximum limit valid for the respective instrument and the limit of buy orders is the lowest Tick Size valid for the respective instrument. After successful order entry an Execution Report including the order attributes of the intelligent order and a Xetra order number is returned (see Figure 12).

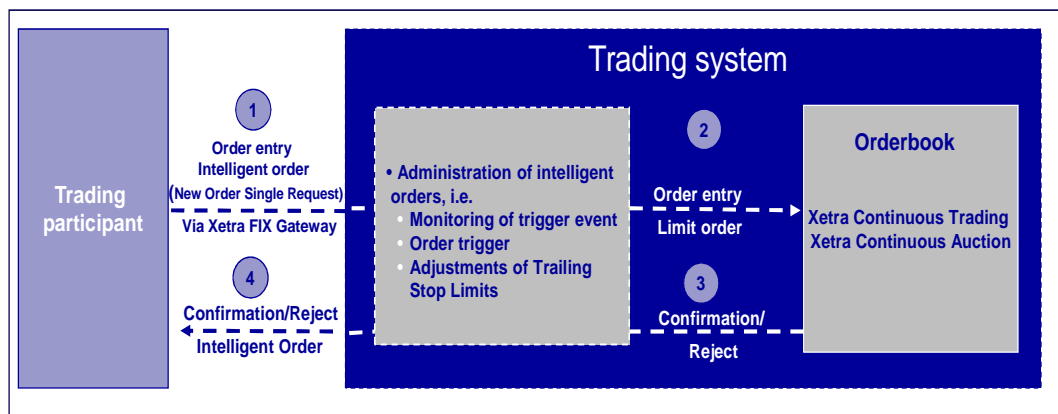


Figure 12: Order entry intelligent orders

In the order book intelligent orders cannot be identified by the order type. The limit orders appending to intelligent orders can be identified as "intelligent orders" in the text field (TS = Trailing Stop Order, OCO = One-cancels-other Order, OOE = Order-On-Event) In the text field members can enter the valid value for the respective intelligent order (i.e. TS for Trailing Stop Order, OCO for One-cancels-other Order, OOE for Order-On-Event) or leave the text field blank. All other member entries in the text field lead to a rejection of the order. The text field for the entry of the Secondary Client Order ID is not affected and can be used as usual.

4.4.1.2 Order modification before trigger event

Intelligent orders can be modified via Xetra FIX Gateway only. If the modification requires a modification of the appending limit order in the order book it is modified accordingly (e.g. limit modification of the limit order of a One-cancels-other order). An Execution Report about the modification is returned.

4.4.1.3 Trigger of the intelligent order

Intelligent orders need a prior trigger event before execution will be possible. A trigger event might be a price determination, a Specialist/Market Maker Quote, the reaching/break through of an index level or a similar event. An Execution Report about the trigger of the order is returned. When the intelligent order is triggered the appendant limit order in the order book is modified to a market or limit order. The order gets a new order number and an Execution Report about the modification is returned. Intelligent orders are only triggered during main trading phase. They are not triggered if the traded instrument is in "HALT".

If the intelligent order is triggered and the appendant limit order modified during an auction's freeze phase (Continuous Auction with Specialist) the modification confirmation is returned when the order book is unlocked.

If not described otherwise the monitoring of the trigger event ends when the intelligent order is triggered.

4.4.1.4 Order execution

The limit and market orders resulting from triggered intelligent orders are executed as market or limit orders according to the matching rules of the respective trading model. After (partial) execution of the order an Execution Report about the order execution is returned.

4.4.1.5 Order deletion

Intelligent orders can be deleted via Xetra FIX Gateway only. The deletion of an intelligent order leads to the deletion of the appending limit order in the Xetra order book. An Execution Report about the order deletion is returned.

The limit order appendant to the intelligent order can also be deleted via GUI, VALUES and Enhanced Transaction Solution (ETS). In this case both the intelligent order and the appending limit order are deleted and an Execution Report about the deletion is returned.

4.4.1.6 Order modification and deletion after trigger

Modifications of limit and market orders resulting from triggered intelligent orders are not possible and will be rejected.

Limit and market orders resulting from triggered intelligent orders can be deleted via Xetra FIX Gateway. Order deletion of limit and market orders resulting from triggered orders is also possible via GUI, VALUES or ETS. An Execution Report about the deletion is returned.

4.4.1.7 Execution restrictions

Execution restrictions are not supported.

4.4.1.8 Trading restrictions

Trading restrictions are not supported.

4.4.1.9 Trading models

Intelligent orders may be entered for the trading models 'Continuous Trading', 'Continuous Auction with Specialist' and 'Continuous Auction with Market Maker'.

4.4.1.10 Trading phases

Order entry, modification and deletion is possible within pre-trading, main trading and post trading phases. Order entries, modifications or deletions outside these phases are rejected.

If an intelligent order is entered during an auction's freeze phase (Continuous Auction with Specialist) the limit order appending to the intelligent order is stored and entered into the order book immediately after the Specialist unlocks the order book.

4.4.1.11 Auctions and volatility interruptions

There are no special rules for intelligent orders in auctions or volatility interruptions. The indicative prices are not used as reference prices.

4.4.1.12 Price reasonability check

Price reasonability checks are not possible for intelligent orders.

4.4.2 Trailing Stop Orders

A Trailing Stop Order is a stop order type, the execution of which will be possible after reaching, exceeding or falling below a predefined reference price level (trigger event). In addition to regular stop order attributes an absolute or percentage distance between the stop limit and the current reference price is entered. The stop limit adjusts automatically to the development of the reference.

A reference can be a price determination (Xetra Continuous Trading) or the bid/ask limit of a Specialist/Market Maker Quote (Xetra Continuous Auction). In the market model Xetra Continuous Auction a Trailing Stop Buy order is triggered if the stop limit is equal to or exceeds the ask limit of the Specialist/Market Maker quote. A Trailing Stop Loss Order is triggered if the stop limit equals or falls below the bid limit of the Specialist/Market Maker quote.

(see below).

4.4.2.1 Order entry

Trailing Stop Orders can be entered as Trailing Stop Market Orders only. In addition to the general order attributes the order entry requires the following order attributes:

| Order attribute | Description/Content | Mandatory |
|-----------------|-----------------------------------|--|
| Stop Limit | Stop Limit | required, if no trailing amount is entered |
| Trailing amount | Set either in Euros or percentage | required, if no stop limit is entered |
| Trailing type | A (absolute) P (percentual) | required, if trailing amount is entered |

Figure 13: Trailing Stop Order attributes

If only a trailing amount is entered the initial trailing stop limit is current reference minus trailing amount for Trailing Stop Sell Orders and current reference plus trailing amount for Trailing Stop Buy Orders.

The entry of both, a stop limit and a trailing amount is possible. If the difference between the reference and the stop limit is greater than the entered trailing amount the initial stop limit for Trailing Stop Sell Orders is the result from the subtraction of reference and trailing amount and for Trailing Stop Buy Orders the result from the addition of reference and trailing amount. If the difference between the reference and the stop limit is less than the entered trailing amount the stop limit is the initial stop limit.

If only a stop limit without trailing type is entered the adjustments are made according to an absolute difference to the reference.

4.4.2.2 Sell Orders

As the reference price rises, the trailing stop limit rises by the trailing amount. If the reference price falls, the trailing stop limit remains the same. When the trailing stop limit is reached or fallen below the Trailing Stop Sell Order is triggered.

4.4.2.3 Buy Orders

As the reference price falls, the stop limit falls by the trailing amount. If the reference price rises, the stop limit remains the same. When the trailing stop limit is reached or exceeded the Trailing Stop Buy Order is triggered.

4.4.2.4 Modification before trigger event

The Trailing Stop Order attributes that can be modified before the trigger event are shown in table 14.

| Trailing amount | Trailing type | Volume | | Stop Limit | Validity constraints |
|-----------------|---------------|--------------------|---|------------|----------------------|
| | | Continuous Trading | | | |
| ü | ü | Continuous Trading | ü | ü | ü |
| | | Continuous Auction | - | | |

Figure 14: Trailing Stop Order modifications

Otherwise order modification happens as described above.

4.4.3 One-Cancels-Other Order

A One-cancels-other Order is an order that combines a limit order and a stop order.

The limit order and the stop order can be combined within one ISIN. The volume of the stop order of a One-cancels-other Order must be equal to the volume of the limit order of this OCO. In case the limit order is fully executed, the stop order is automatically deleted. In case the limit order is partially executed the quantity of the stop order is reduced accordingly. In case the stop order is triggered the limit order won't be executed.

4.4.3.1 Order entry

One-cancels-other Orders can be entered as One-cancels-other Market Orders and One-cancels-other Limit Orders.

The following Limit Order/Stop Order combinations are possible:

- § Sell Limit Order and Sell Stop Market Order
- § Sell Limit Order and Sell Stop Limit Order
- § Buy Limit Order and Buy Stop Market Order
- § Buy Limit Order and Buy Stop Limit Order

In addition to the general order attributes the order entry requires the following order attributes:

| Order attribute | Description/Content | Mandatory |
|------------------------------|---|-----------|
| Stop Limit of the Stop Order | Stop Limit (without specification: stop market order) | Yes |
| Limit of the Stop Order | Limit | Yes |

Figure 15: One-cancels-others Order attributes

4.4.4 Stop Order and Limit Order

The One-cancels-other Order consists of a limit order and a stop order. The limit order is entered immediately in the order book. The stop order is not entered in the order book.

4.4.4.1 Execution of the Limit Order

The limit order is executed according to the matching rules of the trading model. In case the limit order is fully executed the stop order is automatically deleted. In case of a partial execution of the limit order the volume of the stop order is adjusted and the monitoring of the reference price continuous.

4.4.4.2 Triggering of the Stop Order

The execution of the stop order will be possible after a predefined reference price level is reached, exceeded or fallen below (trigger event). A reference can be a price determination (Xetra Continuous Trading) or the bid/ask limit of a Specialist/Market Maker Quote (Xetra Continuous Auction). In the market model Xetra Continuous Auction the stop buy order is triggered if the stop limit is equal to or exceeds the ask limit of the Specialist/Market Maker quote. A stop loss is triggered if the stop limit equals or falls below the bid limit of the Specialist/Market Maker quote.

The limit order in the order book is not cancelled but modified:

- Stop Market Order:

When the Stop Market Order is triggered the limit order in the order book is modified to a market order.

- Stop Limit Order

When the Stop Limit Order is triggered the limit of the limit order in the order book is modified to the limit of the Stop Limit Order.

4.4.4.3 Modification before trigger event

The One-cancels-other Order attributes that can be modified before they are triggered are shown in table 16.

| Limit of the limit order | Limit of the Stop Limit Order | Stop Limit | Volume | | Validity constraints |
|--------------------------|-------------------------------|------------|--------------------|---|----------------------|
| ü | ü | ü | Continuous Trading | ü | ü |
| | | | Continuous Auction | - | |

Figure 16: Modification of One-cancels-other Orders

Otherwise order modification happens as described above.

4.4.5 Order-On-Event

An Order-On-Event is an order, the execution of which will be possible after a predefined reference price level is reached, exceeded or fallen below (trigger event). Orders-on-Event can be entered as Buy or Sell Market or Limit Orders. A reference can be a price determination in an instrument that is different from the traded instrument, a price determination in a future or an index level. Among these given references the investor chooses the respective reference and defines the rule according to which the Order-On-Event is triggered.

4.4.5.1 Order entry

In addition to the general order attributes of a market or limit order the order entry requires the following attributes:

| Order attribute | Description/Content | Mandatory |
|-----------------|--|-----------|
| Reference | ISIN instrument ISIN Index ISIN future | yes |
| Rule | < > <= >= | yes |
| Reference limit | The index level or the price level of the instrument or future | yes |

Figure 17: Order-On-Event order attributes

4.4.5.2 Modification before trigger event

The Order-On-Event order attributes that can be modified before they are triggered are shown in table 18.

| Limit of the limit order | Reference limit | Rule | Volume | | Validity constraints |
|--------------------------|-----------------|------|--------------------|---|----------------------|
| ü | ü | ü | Continuous Trading | ü | ü |
| | | | Continuous Auction | - | |

Figure 18: Order-On-Event order modifications

Otherwise order modification happens as described above.

4.4.5.3 Example

An investor wants to buy a warrant ABC if the DAX 30 falls below 5.000 points. He enters:

ISIN: WARRANTOABCO
 B/S: Buy
 Quantity: 1
 Limit: Market
 Reference: DE0008469008
 Rule & Reference Limit: <= 5.000,00

A buy limit order is entered into the order book of warrant ABC with limit 0,001 € (depending on tick size) and the permanent observation of the index value for the DAX 30 is started. As soon as the index reaches or falls below 5.000 points the respective buy order in the Xetra order book of warrant ABC is modified to a buy market order.

4.4.6 Order Attributes

Xetra enables members to clearly identify their orders. The order attributes are shown in the table below.

| Order Attribute | Description/Content | Mandatory |
|-----------------|--|---|
| Bid/ask | Bid/ask. | yes |
| Instrument | Securities identification number, ISIN or short name. | yes |
| Volume | Order size depends on tradable unit (number of securities/nominal value) and the minimum order size of an instrument. The minimum order size is a multiple of the minimum tradable unit. | yes |
| Limit | Limit (without specification: market order/stop market order). | Only for limit, iceberg, stop limit, hidden and discretionary |

| Order Attribute | Description/Content | Mandatory |
|------------------------|--|---|
| | | orders. |
| Order type | <ul style="list-style-type: none"> - market order (M) - limit order (L) - market-to-limit order (T) - iceberg order (I) - midpoint order (P) - discretionary order (D) - hidden order (H) - stop order | Only for market-to-limit, iceberg, midpoint, discretionary, hidden and stop orders. |
| Stop Limit | Stop Limit | Only for stop orders |
| Second Limit | Second limit of a Strike Match Order defining the minimum (buy) or maximum (sell) execution price of an order. | Only for strike match orders |
| Peak quantity | Peak quantity for iceberg orders. | Only for iceberg orders. |
| Validity constraints | <ul style="list-style-type: none"> - Good-for-Day (GFD), - Good-till-Date (GTD), - Good-till-Cancelled (GTC) (without specification: GFD) Valid for a maximum of 360 days from date of entry. Iceberg orders are only valid Good-for-Day. | no |
| Execution restrictions | <ul style="list-style-type: none"> - Immediate-or-Cancel (IOC) - Fill-or-Kill (FOK) - Book-or-Cancel (BOC) - Strike Match Order (SMO) - Top-of-Book Order (TOP) - TOP+ Order (TPP) <p>Executions restrictions are not available within the continuous auction trading models. Execution restrictions are not available for iceberg orders, discretionary orders and hidden orders.</p> <p>The execution restrictions "BOC", "TOP" and "TPP" are only allowed for Limit orders. Combinations with trading restrictions are not supported. Orders entered with this execution restriction will be rejected if they are executable immediately. If "BOC", "TOP" or "TPP" orders are entered during an Auction Call Phase or a</p> | no |

| Order Attribute | Description/Content | Mandatory |
|------------------------------|---|-----------|
| | <p>Volatility Interruption they are rejected as well.</p> <p>The entry of TOP and TOP+ Orders is only supported via Enhanced Transaction Solution interface by using the timeInForceCode "8" respectively "9". A Strike Match Order is only available together with trading restriction "Closing Auction only (CA)" and needs to have a second limit defining the minimum (buy) or maximum (sell) execution price of the order.</p> | |
| Trading restrictions | <p>Trading restrictions in Continuous Trading:</p> <ul style="list-style-type: none"> - Opening Auction only (OA) - Auction only (AU) - Closing Auction only (CA) - End-of-day Auction only (EA) - Main Trading Phase only (MT) - Auctions in Main Trading Phase only (MA) - Accept Surplus (SU) <p>(Entry possible only during order book balancing and only as IOC or FOK order.)</p> <p>Trading restriction in Continuous Auction with Specialist:</p> <ul style="list-style-type: none"> - Special Auction (SA) <p>Orders with this trading restriction are only considered for the price determination triggered by the Special Auction Quote of the Specialist.</p> <p>For Continuous Auction with Market Maker no trading restrictions are supported.</p> <p>Trading restrictions are not available for iceberg orders, midpoint orders, discretionary orders, hidden orders and market-to-limit orders.</p> | no |
| Text field | <p>Freely usable.</p> <p>For intelligent orders this field might be used to indicate the type of order (TS, OCO or OOE).</p> | no |
| Member internal order number | Freely usable. | no |
| Executor ID | Member ID of the BEST Executor the BEST order will be sent to. If a Default BEST Executor is defined and the field is left empty, the orders will be directed to Xetra BEST. | no |

| Order Attribute | Description/Content | Mandatory |
|-----------------------------|---|---|
| Account identification | <ul style="list-style-type: none"> - A ("Agent") - P ("Proprietary") - D ("Designated Sponsor") - Q ("Liquidity Manager") - I ("Issuer") - L ("Specialist") - E ("BEST Executor")¹ | yes |
| Netting type | <ul style="list-style-type: none"> - No netting - Order Level Netting <p>The chosen netting type has to fit to the member's netting setting.</p> | no |
| Member ID | Xetra-specific identification assigned by the Exchange. | yes |
| User ID | Xetra-specific identification assigned by the member. | yes |
| Xetra order number | <p>Xetra-specific identification assigned by the system.</p> <p>Stays unchanged over the lifecycle of an order or quote.</p> | yes |
| Time stamp | Xetra-specific identification assigned by the system. | yes |
| Minimum Acceptable Quantity | <p>The Minimum Acceptable Quantity (MAQ) is only available for Midpoint Orders. It must be less than or equal to the overall size of a Midpoint Order.</p> <p>The entry of a MAQ has to be a multiple of the "Minimum Tradable Unit" and the "Round Lot Quantity".</p> <p>An order with a MAQ executes only against other orders if the MAQ-restriction is fulfilled.</p> <p>The Minimum Acceptable Quantity entered for an order is applied to "every fill".</p> <p>If an order is partially executed and its volume is reduced below the Minimum Acceptable</p> | no (only available for Midpoint Orders) |

¹ Orders cannot be entered on the BEST Executor account. However the BEST Executor account is used for automatically generated orders on the Xetra backend to ensure order book consistency for orders with a limit better than or equal to the execution price of Xetra BEST.

| Order Attribute | Description/Content | Mandatory |
|-----------------------|---|--|
| | Quantity, the Minimum Acceptable Quantity is set to the remaining volume. | |
| Discretionary Range | <p>The Discretionary Range specifies the amount by which the Discretionary Limit is more aggressive than the visible limit.</p> <p>The minimum allowable amount of the Discretionary Range is one tick.</p> <p>The Discretionary Range for a Discretionary Sell Order must be lower than its visible limit</p> | only for Discretionary Orders |
| Persistency Indicator | <p>Members will be able to select between the non-persistent and persistent attribute for their orders at the time of the order entry:</p> <ul style="list-style-type: none"> § 'P' - Persistent order § 'N' - Non-persistent order § '' - Blank (Default) <p>Orders with the attribute '' will be treated the following way:</p> <ul style="list-style-type: none"> § Agent orders are persistent by default. § All other orders (account type not 'A') are non-persistent if the validity of the order is GFD ("good for day") or explicitly stated the current business day. § All orders with validity greater than GFD ("good for day") are persistent orders by default. § All orders entered via the Enhanced Transaction Solution interface are non-persistent by default. | yes |
| ETS Session ID | Xetra-specific identification assigned by the system. | yes (Enhanced Transaction Solution only) |
| Client Order ID | When entering an order via Enhanced Transaction Solution or FIX Gateway the member has to assign a client order ID which will be used as a unique identifier for later reference. | yes (Enhanced Transaction Solution and FIX) |

| Order Attribute | Description/Content | Mandatory |
|-------------------------------|---|--------------------------------------|
| Order Creation Date | The Order Creation Date field indicates the order/quote creation date and is assigned by the Xetra system. | yes |
| Order Creation Time | The Order Creation Time field indicates the order/quote creation time and is assigned by the Xetra system. | yes |
| Total Executed Order Quantity | Total executed order quantity since the creation of the order (assigned by the Xetra system). | yes |
| Total Order Quantity | The total order quantity which is the sum of the executed order quantity since the creation and the remaining order quantity (assigned by the Xetra system). Via the Enhanced Transaction Solution the field Total Order Quantity can be modified. | yes |
| Market Reset Indicator | This field is assigned by the Xetra system when a market reset event occurred and indicates the reason for deletion of non-persistent orders. A Market Reallocation event is also indicated within this field. | no |
| Set ID | This field indicates the instrument set where an instrument is allocated. Xetra-specific identification assigned by the system. | yes |
| Linked Order Number | In the Continuous Auction trading model order maintenance is not considered during the freeze phase. While the order book is locked for price determination order entries, modifications and deletions are queued and stored in the so called locked stock. The Linked Order Number field is used in the context of the locked stock to indicate the linkage to the original order in the normal order book. (Xetra-specific identification assigned by the system.) | no |
| Trailing amount | Set either in Euros or percentage | Only for Trailing Stop Order via FIX |
| Trailing type | A (absolute) | Only for Trailing Stop |

| Order Attribute | Description/Content | Mandatory |
|-----------------|---|---------------------------------|
| | P (percentage) | Order via FIX |
| Reference | ISIN DAX 30 instrument ISIN Index ISIN future | Only for Order-on-Event via FIX |
| Rule | < > <= >= | Only for Order-on-Event via FIX |
| Reference limit | Index level or the price level of the reference | Only for Order-on-Event via FIX |

Figure 19: Order attributes of Xetra Release 13.0

4.4.7 Quote Attributes

The quote functionality enables Designated Sponsors, Liquidity Manager, Issuers and Specialists to enter limited buy and sell orders simultaneously. The quote functionality enables BEST Executors to enter BEST quotes.

Since the introduction of Xetra 10.0 all quotes are non-persistent by definition.

| Quote Attribute | Description/Content | Mandatory ² |
|-----------------|---|------------------------|
| Exchange | Exchange at which the instrument is being traded. | yes |
| Instrument | Securities identification number, ISIN or short name. | yes |
| Bid limit | Limit of bid side. BEST quotes have to be entered with relative limits in steps of 0.001 €. | yes |
| Ask limit | Limit of ask side. BEST quotes have to be entered with relative limits in steps of 0.001 €. | yes |
| Bid quantity | Bid quote quantity depends on tradable unit (number of securities/nominal value). For BEST quotes the bid quantity defines the | yes |

² The term „mandatory“ refers to all market models except the continuous auction trading models. Quote attributes available in the continuous trading models depend on the type of quote (e.g. matching quote).

| Quote Attribute | Description/Content | Mandatory ² |
|------------------------|--|------------------------|
| | maximum executable quantity for one BEST order, which is subject to execution against the bid leg of the BEST quote. | |
| Ask quantity | Ask quote quantity depends on tradable unit (number of securities/nominal value). For BEST quotes the ask quantity defines the maximum executable quantity for one BEST order, which is subject to execution against the ask leg of the BEST quote. | yes |
| Account identification | - D ("Designated Sponsor") - Q ("Liquidity Manager") - I ("Issuer") - I ("Specialist") - E ("BEST Executor") | yes |
| Netting type | No netting - Order Level Netting The chosen netting type has to fit to the member's netting settings. | no |
| Bid boundary | Upper bound for the execution against the bid leg of the BEST quote (only for BEST quotes). | no |
| Ask boundary | Lower bound for the execution against the ask leg of the BEST quote (only for BEST quotes). | no |
| Bid reserve quantity | Reserve quantity for executions against the bid leg of a BEST quote. | only for BEST quotes |
| Ask reserve quantity | Reserve quantity for executions against the ask leg of a BEST quote. | only for BEST quotes |
| Quote Type | - blank (Standard Quote) - F (Matching Quote) - W (Price without turnover) - I (Indicative Quote) Quote Type other than blank only allowed in trading model Continuous Auction. | no |
| Trading Restriction | Used to initiate a price determination for certain price types in Continuous Auction with Specialist: - CC Bundesbank participation | |

| Quote Attribute | Description/Content | Mandatory ² |
|-------------------------------------|--|------------------------|
| | - SA Special Auction | |
| Exchange Rate | In trading model Continuous Auction the Specialist can enter an exchange rate together with his matching quote if the instrument's denomination currency is different than Euro. | no |
| Member ID | Xetra-specific identification assigned by the Exchange. | yes |
| User ID | Xetra-specific identification assigned by the member. | yes |
| Xetra order number | Xetra-specific identification assigned by the system. | yes |
| Time stamp | Xetra-specific identification assigned by the system. | yes |
| Market Reset Indicator | This field is assigned by the Xetra system when a market reset event occurred and indicates the reason for the deletion of the quotes. A Market Reallocation event is also indicated within this field. | no |
| Set ID | This field indicates the instrument set where an instrument is allocated. Instruments with the same set ID (and the same trading model) can be combined into a single mass quote request. Xetra-specific identification assigned by the system. | yes |
| Quote confirmation suppression flag | This field specifies if the sending of quote confirmation broadcast shall be suppressed after entry or deletion of quotes. | yes |

Figure 20: Quote attributes of Xetra Release 13.0

4.5 OTC Trading (Xetra Trade Entry) & Post-trade Transparency Services according to MiFID

In Xetra as part of the services offered by Deutsche Börse Group, reporting of trades concluded off-exchange is supported in accordance with the requirements set out in the EU financial markets directive MiFID. As stated there a member that has traded off-exchange is responsible to comply with the reporting requirements and timelines given.

With respect to disclosure functionality, the following types of OTC trades are supported by the Xetra system:

- OTC trades for settlement including reporting
- OTC trades for reporting only
- OTC trades for settlement without reporting

The CCP also supports OTC trades entered into Xetra for settlement with settlement date today + 2 or later. In this case CCP immediately becomes the legal counterparty to both members as soon as the trader of the counterparty has approved such Xetra trade. Approved OTC trade information distributed to the members via the Xetra trade confirmation will show CCP's member identifier as counterparty, as well as the original counterparty's identifier.

For Xetra International Market MiFID reporting is not provided.

The entry of OTC trades for settlement and/or reporting is supported via VALUES API, Enhanced Transaction Solution interface and FIX Gateway.

4.5.1 OTC trade entry

Entry of OTC trade information exclusively for publication purposes will be supported for all instruments admitted to trading on a regulated market inside the European Economic Area (EEA). OTC trades within these instruments are subject to transparency requirements according to MiFID.

The selection between the three types of OTC trades is supported via two flags that are integrated into the existing Xetra OTC trade entry facility: The settlement indicator is used for entering an OTC trade including settlement. The reporting indicator is applied to generate an OTC trade for MiFID compliant trade reporting. Both indicators can be combined, i.e. if an OTC trade for settlement including reporting should be entered, both indicators have to be set. The settlement indicator can only be set for instruments that are on-exchange tradable on Xetra Frankfurt.

All attributes that are required for post-trade transparency services according to MiFID can be entered in Xetra.

All OTC trades entered with reporting will be subject to validations for reasonable prices and volumes.

All entered OTC trades receive a unique OTC trade number. With Xetra 8.1 entry of the OTC trade time became mandatory including time difference to UTC³. Based on the assigned OTC trade number, deletion functionality for the Open OTC trade (OTC trade with settlement prior to an approval by counterparty) and the OTC trade report (OTC trade with reporting) is supported.

³ Universal Time Coordinated

If the OTC trade was conducted on another day than the current business day this can be documented by entering a "Deviating Trading Day", i.e. a member can optionally enter a trading date that lies in the past. In case "N" or "I" is specified as settlement period, the settlement date will then be calculated by the entered trading date plus national resp. international value expressed in business days but still needs to be at least one day after the current business day.

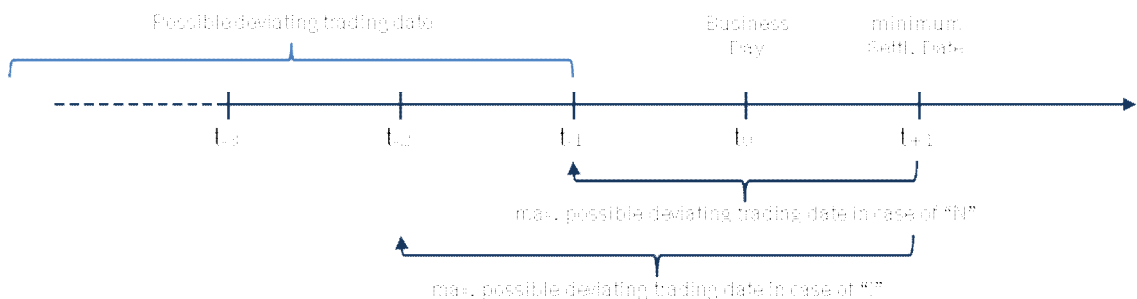


Figure 21: Determining Deviating Trading and Settlement Date

Furthermore it is possible to enter "Additional Cost" like brokerage fee, commissions, etc. together with the trade. Members can enter a certain amount which will be added to the settlement amount. Both a positive as well as a negative absolute value is possible. As the cost amount is added to the settlement amount, a positive value means the buyer pays the costs, whereas a negative value means that the seller bears the costs. The currency of the cost amount is always equal to the settlement currency. This field is optional and can be filled at the entry of an OTC trade.

Trades where a deviating trading day results in $t+1$ settlement or where additional costs were entered will be non-CCP eligible. But also OTC trades in CCP eligible instruments where these two fields are not used can be selected for settlement without a CCP via the "Non-CCP" flag.

4.5.2 OTC (Xetra Trade Entry) on-behalf by an Intermediary

A new functionality is introduced with 13.0 to allow an intermediary to enter off-exchange trades in the Xetra trading system on-behalf of other trading members.

To enter an on-behalf OTC trade the submitter is required to fill in all mandatory fields with valid values for instrument, price, quantity, trade date, settlement code, settlement date and the member and trader IDs of the buyer and seller. The account type is not mandatory since it will be specified by the counterparties itself in the course of approval.

The fields relevant for MiFID reporting are not available for OTC (Xetra Trade Entry) on-behalf. The respective trade reporting has to be done by one of the counterparties according to the rules of the MiFID.

An OTC trade entered by an intermediary needs to be approved by both sides of the trade.

The message flow between the counterparties and the submitter of the OTC trade is shown in the following table:

| Action | Open OTC Broadcast | | |
|---|---|-------------------------------------|--------------------------------------|
| | Submitter | Buyer | Seller |
| Submitter enters an OTC trade on behalf | Open OTC buy record Open OTC sell record | Open OTC buy record for approval | Open OTC sell record for approval |
| As soon as Buyer approves the open OTC trade | OTC buy record approval | OTC buy record approval | no message |
| As soon as Seller approves the open OTC trade | OTC sell record approval | no message | OTC sell record approval |

Figure 22: Messages generated for OTC trade entry by an intermediary

4.5.3 OTC trade price validation

OTC trades entered for reporting purposes and OTC trades entered for settlement with reporting will be price-validated. The validation will be performed against the "OTC reference price" of the instrument. Depending on liquidity, the "OTC reference price" is the current reference price in the Xetra order book, or an imported price of an instrument at its most relevant market in terms of liquidity. If no external price is available from the previous business day, the most current price available from the most relevant market in terms of liquidity is used for validation. The competent authority of each EEA country defines the most relevant market in terms of liquidity of an instrument.

It is validated whether the OTC trade price entered is not higher (lower) than the "OTC reference price" plus (minus) a fixed deviation parameter of the "OTC reference price". The deviation parameter will be set on instrument level and depends on the liquidity of the instrument. In case an OTC trade price is qualified as "invalid", the trade will be published with a price alert code via the CEF system, and the member receives a feedback.

Based on that feedback information a member has to provide a confirmation in case the OTC trade that had been qualified as invalid is actually correct. A member can generate a confirmation via entry of the OTC trade with the original OTC trade number and the confirmation flag set. The confirmed trade will be published with a confirmation indicator via the CEF system.

OTC trades entered with reporting option will not be price-validated and disseminated to CEF with respective mark in case one of the following conditions are fulfilled:

- OTC trade date is not equal to the current business day.
- OTC trade currency cannot be converted into EURO, e.g. due to missing conversion factor.
- Unit of trading of the instrument differs to the unit provided within the OTC trade.
- OTC trade was conducted at an "ex day" of that instrument.
- The OTC trade that was previously entered and qualified as invalid is being confirmed.

Trades that are not price-validated will be published including an indicator that no price validation was performed, except for a confirmation of a trade entry with a previously invalid price check.

4.5.4 OTC trade volume validation

OTC trades entered by a Xetra member with the reporting option will be volume-validated. It is validated whether the OTC trade volume entered does not exceed the volume cap for the respective instrument. Volume caps are set on instrument level and are derived from the average daily turnover classes.

OTC trades entered with reporting option will not be volume-validated in case one of the following conditions is fulfilled:

- The volume cap parameter of the instrument is not available in Xetra.
- An OTC trade that was previously entered and qualified as invalid is being confirmed.

In case an OTC trade volume is qualified as invalid, the trade will be published with a volume alert code via the CEF system, and the member receives a feedback. Based on that feedback information a member has to provide a confirmation in case the OTC trade that had been qualified as invalid is actually correct. A confirmation can be generated by a member via entry of the OTC trade with the original OTC trade number and the confirmation flag set. The confirmed trade will be published with the confirmation indicator via the CEF system.

4.5.5 OTC trade deletion

OTC trade deletion is supported for all types of OTC trades (including OTC trades for reporting only). Deletion is supported for OTC trades entered on the current business day. OTC trades with settlement can be deleted prior to approval by the counterparty. For a deletion, the OTC trade number assigned by the exchange is required. Non-approved OTC-trades will be deleted during the daily accounting cut-off and will not be forwarded to settlement.

The Xetra member can request a publication of the OTC trade deletion via the reporting flag. If the OTC trade deletion is to be published, i.e. the reporting flag has been set for the OTC trade, then the deletion will be published in the same way as the entered OTC trade with reporting, i.e. including its trade details.

As mentioned, OTC trades entered for settlement can be deleted prior to a successful counterparty approval.

If the OTC trade was entered by an intermediary it cannot be deleted neither by the intermediary nor by the counterparties themselves.

4.5.6 OTC trade approval

After an open OTC trade was entered either by a member or an intermediary the counterparty is requested to approve this trade. If the trade was entered by an intermediary both counterparties have to approve the respective entry.

Beside a manual approval Xetra provides the possibility to enable automatic approval of OTC trades entered against them. Trading members will be enabled to define counterparties in the "OTC Automated Approval Authorization" table whose open OTC trades shall be automatically approved by the trading system.

The member may either authorize automated approval for all instruments or he may specify certain instrument groups where the automatic approval shall be applied. Another safeguard is the definition of the maximum OTC trade amount (MaxTrdAmnt). This maximum trade amount per OTC trade is checked for automated approval. An "OTC Automated Approval Authorization" table could be defined like this:

| OTC Automated Approval Authorization | | | |
|--------------------------------------|------------------------------------|-------------|--------------|
| Member | Instrument Group | MaxTrdAmnt | Auto Reverse |
| AAAFR | | 2.000.000 | |
| ABCFR | DAX1, MDX1, SDX1, TDX1, GER1, GER2 | 100.000 | √ |
| CCCLN | DAX1, STX1, USS1 | 999.999.999 | |
| EDEFR | DAX1, PBA0, PBA1, PBA2, PBA3 | 10.000 | √ |

Figure 23: Overview OTC Automated Approval Configuration

When the instrument group is left empty the value of the MaxTrdAmnt applies to all open OTC trades of the respective member. The default setting for MaxTrdAmnt is set to "0".

The MaxTrdAmnt is always the market value in settlement currency of the instrument the trade was entered in. I.e. for instruments quoted in pieces the value is calculated as quantity multiplied by price and for instruments quoted in per cent, it is nominal multiplied by price (in percentage).

Since user may apply different account types for OTC trades, the account to be used with the automatic approval feature, has to be specified by the member. Therefore, a new field "OTC Default Account Type" is introduced on user level.

As soon as an OTC trade is entered against the trading member the Xetra system will verify if the senders' member ID is defined in the authorization table. Afterwards the instrument resp. the instrument group will be validated and the OTC trade amount will be compared if it is less or equal to the given MaxTrdAmnt. In case the above verifications are passed the specified account type of the user is utilized by the Xetra system for the automatic approval. OTC trades which cannot be approved automatically because any validation fails become subject to the manual approval process. Open OTC trades which are not approved will be deleted within the next batch run as today.

4.5.7 OTC trade reversal

As long as an OTC trade is not approved it can be deleted from the system again (see above). However, after the approval a trade reversal can be triggered by Market Supervision or by the counterparties.

Due to the bilateral nature of an OTC trade it must not be possible for one party to reverse a transaction without the approval of its counterparty. Hence, the reversal request has to be forwarded to the counterparty of the trade for approval. The reversal can then be subject to automatic approval, similar to the automated approval process for OTC trade entries, provided the Auto Reverse flag is set in the "OTC Automated Approval Authorization" table (see above).

In cases automated approval for the reversal is not enabled the reversal request is sent to the counterparty for manual approval. If a reversal request for an OTC trade is not approved by the counterparty until the end of the trading day the trade will remain active.

A reversal of an OTC trade cannot be initiated by the intermediary who entered the trade on-behalf.

4.5.8 Publication of OTC trades

The CEF system will publish the OTC trades entered for reporting. In case a trade has been flagged accordingly, CEF will perform the delay of Block-Trades automatically according to MiFID⁴.

4.6 Administrative Trading Support

4.6.1 Electronic Confirmations in Xetra

Throughout the entire transaction process, the trading members are supplied with electronic confirmations. This enables them to trace the status of their orders at any given moment. Using an order entry as an example, Figure 24 below summarises in which phase of the transaction process electronic confirmations are forwarded to the members.

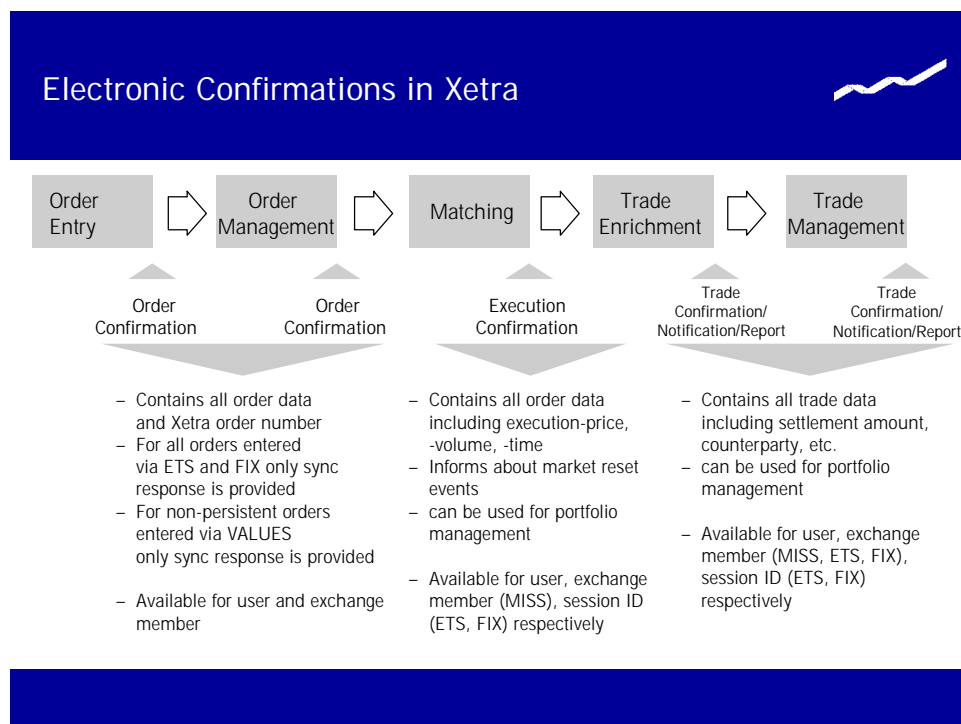


Figure 24: Electronic Confirmations in Xetra

When it is possible to fully execute an order immediately in continuous trading, the relevant member does not receive an order confirmation but only an electronic execution confirmation for each trade.

According to the Market Model Xetra BEST, in some cases orders on the BEST Executor account are generated on the backend to ensure order book consistency. These orders are not entered by a trader. Therefore members acting as a BEST Executor have to be able to process execution confirmations without having entered an order. Trade confirmations based on the execution of an automatically generated order can be identified by the combination of the trade type "XP" and the account "E" (BEST Executor).

⁴ For more detailed information regarding the Block Trade delay please refer to the "MiFID Service Description".

Executions based on the entry of a BEST quote do not have the same order number as the entered BEST quote. These executions can be linked to the entered BEST quote via the member internal order number and the text field which are inherited to the executions.

Due to the role of the Specialist as an intermediary all entered quotes of the Specialists are "on behalf" of the Issuer. This means that all trades resulting from such a quote are executed against the Issuer and not against the Specialist himself. Therefore, the Issuer will receive all trades resulting from quote matching as well as all execution and trade confirmations related to those trades. The Specialist receives responses for quotes entered on behalf and execution confirmations but no trade confirmation for matched quotes.

4.6.2 Trade Enrichment

The Xetra system will automatically add to all trades (both exchange transaction and over-the-counter business entries) all transaction data required for settlement. This transaction data includes determination of settlement amount, calculation of accrued interest for bonds, addition of KV-number to the member ID, etc.

The main trade attributes are listed in the table below.

| Trade Attributes | Description/Content |
|------------------------|---|
| Trade number | Identification number for the specific trade; assigned by the Exchange. |
| Exchange | Exchange at which the instrument is being traded. |
| Trade Type | - XP ("Xetra trade"), - XB ("Xetra BEST trade"), - OTC ("OTC trade"), - XM ("Xetra Midpoint trade") - EXT ("External trade"). |
| Instrument | Securities identification number, ISIN, short name. |
| Price | Price of the (last partial) execution. |
| Average price | Average price based on market value and netted quantity. |
| Quantity | Quantity of the (last partial) execution. |
| Accumulated quantities | Accumulated quantities of underlying executions (only for netted trades). |
| Settlement amount | Sum of money to be settled. |
| Accrued interest | Accrued interest contained in settlement amount. |
| Accrual days | Number of days for which interest accrues. |
| Settlement date | Day on which the trade is due for settlement. |

| Trade Attributes | Description/Content |
|--|---|
| Exchange Rate | For instruments with denomination currency not Euro the exchange rate is used to calculate the settlement amount of a trade. The exchange rate can either be entered by the specialist in continuous auction trading model together with a matching quote or the exchange rate updated once a day during the batch is used and published. |
| Account identification | <ul style="list-style-type: none"> - A ("Agent") - P ("Proprietary") - D ("Designated Sponsor") - Q ("Liquidity Manager") - I ("Issuer") - L ("Specialist") - E ("BEST Executor") |
| Counterparty Member ID | Counterparty in a trade (for instruments with a central counterparty/post trade anonymity always filled with a generic value). |
| Counterparty Clearing Member ID | Clearing member via whom the counterparty settles the trade (for instruments with a central counterparty/post trade anonymity always filled with a generic value). |
| Kassenvereinsnummer of the counterparty | Kassenvereinsnummer of the counterparty in a trade (for instruments with a central counterparty/post trade anonymity always filled with a generic value). |
| Kassenvereinsnummer of the Clearing Member | Kassenvereinsnummer of the settlement member via whom the counterparty settles the trade (for instruments with a central counterparty/post trade anonymity always filled with a generic value). |
| Xetra order number | Xetra-specific identification assigned by system (not for over-the-counter business entries). |
| Order completion flag | <p>Information of completion status of underlying order.</p> <p>The order completion flag may have the value</p> <ul style="list-style-type: none"> • "F" if the trade results from a full order execution which means that there will be no additional (update) trade confirmation resulting from further executions of the underlying order, • "P" if the trade results from an order execution with a remaining positive order quantity, • blank (initialised) for imported floor trades, and OTC trades. |
| Member internal order number | Freely usable. |

| Trade Attributes | Description/Content |
|--------------------|---|
| Text field | Freely usable. |
| Executor ID | For Xetra BEST trades: Member ID of the BEST Executor the order has been sent to. For CCP OTC trades: Original Counterparty. |
| Netting Type | Netting type of the trade. " " No netting "O" Netting on Order Level "A" Bilateral Aggregation |
| Execution time | Time at which the order was executed (determined by the system). |
| Kind of depository | Specification how the instrument is deposited by Clearstream. |

Figure 25: Overview of trade attributes

4.6.3 Home Market Settlement

In Xetra the member settlement information needs to be set up on country level. All trading members need to name their settlement accounts and custody relationship at the local Central Securities Depository (CSD) for all settlement countries they would like to trade on. Only one home market settlement location per settlement country will be supported.

For Xetra Frankfurt and Xetra Frankfurt 2 home market settlement is provided via Clearstream Frankfurt, no other settlement locations are supported.

For Xetra International Market the local Central Securities Depository (CSD) for the corresponding settlement country is supported. Currently home market settlement is supported for Finland, France, Netherlands, Belgium, Spain, Italy, Austria, Portugal, Ireland, Switzerland, Great Britain, Sweden, Denmark and Norway on Xetra International Market.

4.6.4 Multiple Settlement Accounts per Member

Each member has a maximum number of 16 available settlement accounts per settlement country. Xetra members who settle Xetra trades for a number of non-clearing members have at their disposal 16 settlement accounts per settlement country which they can use for their non-clearing member and also for themselves. This enables market participants to keep any trades which are separated during trading also separate during settlement.

For each settlement country the member wants to trade on, a settlement institution and at least one settlement account (up to a maximum of 16) has to be set up. For each trading member one of these accounts needs to be defined as the default settlement account per settlement country.

The member has the option to explicitly allocate one of these 16 settlement accounts to each individual trader as a default for any trades executed by the particular traders. If the trader's individual default settlement account does not belong to the settlement country of the instrument, the member's default settlement account for the settlement country is applied. During Trade Modification a trader can use all settlement accounts of the member for the respective settlement country.

Xetra International Market will provide new instrument groups that are assigned to the corresponding settlement country. An instrument group will only be assigned to the member if the member has registered for the respective country.

In order to ensure appropriate settlement of the trades via the home market settlement resulting out of the international order book, the trading system will evaluate, whether the trading member has been registered for the settlement country of the respective equity and prevent the order entry for equities of non-registered countries.

Any changes to member and trader default settlement accounts become effective on the following trading day.

4.6.5 Trade Management

The following descriptions regarding the trade confirmation via VALUES fit to the trade notification via Enhanced Transaction Solution and the trade report via FIX Gateway analogously.

One execution of an order may link to multiple trade confirmations with different trade IDs (in case of no order level netting) depending on the number of partial executions.

Each trade confirmation for a CCP instrument contains the CCP as counterpart, i.e., each execution leads to a minimum of two trade confirmations with a minimum of two trade numbers.

4.6.5.1 Order Level Netting

It is possible that one order⁵ is matched against several other orders of different members. Order Level Netting describes the accumulation of single trades per order.

Order Level Netting is only supported for CCP instruments.

Order Level Netting is provided on member level per account type. The settings for the proprietary account are also valid for the Designated Sponsor, Liquidity Manager, Issuer and BEST Executor accounts.

The member's netting settings per account type are applied during order entry. The netting parameter cannot be changed on order level.

In case of "order level netting" only one trade ID is generated per business day and order id. Additional partial executions will be aggregated for the same trade ID incrementing the suffix (update of trade confirmation). The trade confirmation contains information about e.g. the weighted average price, accumulated volume and netting type. The weighted average price is rounded up to five decimals ("Symmetric Arithmetic Rounding", as usually used in accounting).

⁵ The term order is used as a synonym for orders and quotes.

Further executions of the order lead to an update of the trade confirmation providing the weighted average price and the accumulated volume based on all executions of the order for the current trading day as well as the price and volume of the last execution.

4.6.5.2 Bilateral Aggregation

Xetra offers the opportunity to aggregate non-CCP eligible trades for settlement as well. Aggregation will be done per ISIN, settlement account and MIC for all trades against the same counterparty on the same trading day with the same settlement date and it will be executed separately for the buy and the sell side. As a further precondition for trading model Continuous Auction one of the counterparties of the trade must be the Quote Provider (Scoach) or the Specialist (FWB®). The choice to aggregate or not can be made separately for the A and P account. If aggregation is used for both accounts, no account segregation is done, i.e. A and P are aggregated together.

Non-CCP eligible OTC trades are as well taken into account for bilateral aggregation. The same rules as for on-exchange trades apply.

All trades that should be considered for bilateral aggregation include the netting type "A" in the trade confirmation/notification or the respective trade report and will be aggregated before routing them to CBF for settlement.

A trading member using bilateral aggregation has to ensure that the settlement infrastructure used, e.g. his clearing member / settlement agent, is capable of processing the aggregated positions.

4.6.5.3 Trade Modification

Trade attributes which are not subject to the counterparty's approval (e.g., settlement account, member internal order number, text, etc.) may be modified. This applies to exchange trades, BEST trades and over-the-counter business entries. Every modification results in a new trade confirmation or in case of order level netting of an update of the trade confirmation.

Account modifications of trades are only possible if the netting type of the trade fits to the netting type of the target account.

Users may replace the settlement account of a specific trade using one of the remaining 15 settlement accounts of the corresponding settlement country of the relevant member during the same business day. If a settlement account is modified, a new trade confirmation will be forwarded to both counterparties in case of order level netting. Trade modification of the settlement account is only allowed within the corresponding home market settlement country of the instrument.

After a trade modification any further execution of the order will lead to a new trade confirmation and an update of this new trade confirmation according to the chosen netting type of the order. The only exception is that a trade has been selected for modification and is sent to the backend with the same values (not modified). In this case netting continues for this trade.

4.6.5.4 Trade Reversal

With the introduction of the CCP the same trade number is not assigned to both counterparties of the trade anymore. As described in the paragraph "order level netting" one trade can consist of several executions against several members. For each trade the CCP is assigned as counterparty. Therefore a trade reversal is always a reversal of two trades, i.e., the trade of member A against the CCP and the trade CCP against member B have to be reversed.

If only one partial execution of a netted trade is reversed an update trade confirmation is sent to the member. The update trade confirmation will lead to a decrease of the volume and a recalculation of the average price.

4.6.6 Reports

Members can obtain evaluations of their trading activities in the form of XML reports. These reports may also be obtained as standard text reports on the basis of XML reports. Selected reports (daily trade confirmation, fees per executed order) may be forwarded to a settlement service provider.

The Xetra backend currently provides members with the reports listed in the table below which can be requested via the VALUES API interface or the J-Trader.

The newly introduced Common Report Engine service enables the centralised provision of all reports. This service offers Members the possibility to retrieve all of their reports from a single source. It is provided independent from the MISS servers in place. During the introduction phase of the Common Report Engine service it will be provided in parallel to the existing report distribution mechanisms.

| Report ID | Report | Content | Availability |
|-----------|------------------------------------|--|--------------|
| RPTCB042 | Fees per Executed Order | Overview of charges per executed (BEST) order, including cap and floor (and inclusive of over-the-counter business entries). | Daily |
| RPTCB050 | Fee Overall Summary | Overview of charges incurred on any given trading day. | Daily |
| RPTCB060 | Fee Statement | Detailed statement of charges for completed month. | Monthly |
| RPTCB062 | Designated Sponsor Refund | This report lists the monthly Designated Sponsor refund per order. | Monthly |
| RPTCB068 | Transaction Overview | Overview of all transactions that are relevant for the calculation of excessive usage fees. | Daily |
| RPTCB080 | Monthly Fee and Rebate Statement | Overview on the current month's fees and refunds/rebates for Xetra. | Monthly |
| RPTCB142 | Fees per Executed Order Xetra FFM2 | Overview of charges per executed (BEST) order, including cap and floor (and inclusive of over-the-counter business entries). | Daily |
| RPTCB143 | Specialist Refund | This report lists the daily Specialist refund per order. | Daily |

| Report ID | Report | Content | Availability |
|-----------|-------------------------------------|---|--------------|
| RPTCB150 | Fee Overall Sum. Xetra FFM2 | Overview of charges incurred on any given trading day. | Daily |
| RPTCB160 | Fee Statement Xetra FFM2 | Detailed statement of charges for completed month. | Monthly |
| RPTCB162 | Monthly Specialist Refund | This report will show the monthly Specialist refunds and additional credits per order. | Monthly |
| RPTCB242 | Recompensation Per Executed Order | This report lists the recompensation for specialists for each executed order per ID and summed by instrument and account. | Daily |
| RPTCB250 | Recompensation Overall Summary | This report provides specialists with the current and previous day's recompensations. In addition, it provides information on the current month-to-date recompensation sum, the previous month' recompensation and the current year-to-date recompensation sum. It is available for each member acting as Specialist. | Daily |
| RPTCB260 | Specialist Recompensation Statement | This report is produced for specialists at the end of the month and gives detailed data on the current month's recompensations | Monthly |
| RPTSC001 | WSS Instrument Import FFM2 | Overview of all instruments of an issuer that are traded in the continuous auction trading model including instruments where the import to the Xetra system has been failed. This report is available to the respective issuer. | Daily |
| RPTTC530 | Daily Quote Maintenance | Provides an overview of quotes entered persistently or deleted during the trading day. | Daily |
| RPTTC535 | Daily BEST Quote Maintenance | Provides an overview of all BEST quotes entered or deleted during the trading day. | Daily |
| RPTTC540 | Daily Order Maintenance | Provides an overview of all (BEST) orders entered, modified or deleted during the trading day. | Daily |
| RPTTC550 | Open Order Detail | Provides an overview of all orders in the order book at market close, sorted according to trader and instrument. | Daily |
| RPTTC810 | Daily Trade Confirmation | Provides an overview of all trades conducted during the trading day. | Daily |

| Report ID | Report | Content | Availability |
|-----------|---|--|--------------|
| RPTTC815 | Daily MiFID Trade Reporting | To satisfy MiFID reporting requirements, this report contains an inventory of all OTC trades (entered with trade report for publication) that occurred on the current day, showing all added, modified and cancelled MiFID reporting trades. | Daily |
| RPTTC820 | Daily Open OTC Maintenance | Provides an overview of all open off-exchange trades not confirmed by the counterparty. These entries are automatically deleted by Xetra at the end of the relevant trading day. | Daily |
| RPTTD930 | Daily Trade Statistics | Provides an overview of all trading activities in all instruments on any given day. | Daily |
| RPTTD965 | Specialist State Change | Provides information about all instrument state changes performed by the Specialist. This report is available for Specialists, only. | Daily |
| RPTTL001 | System Transaction Overview | This report provides each member with the details about his numbers of orders, quotes and inquiries at the respective day. | Daily |
| RPTTT110 | User System Security Maintenance | Documents all modifications to user authorizations during the trading day. | Daily |
| RPTTT115 | User System Security Status | Identifies and documents status of user authorizations. | Daily |
| RPTTT120 | User Instrument Maintenance | Documents all modifications in the allocation of instruments to members. | Daily |
| RPTTT125 | User Instrument Status | Provides an overview of both the current instrument groups and the instrument allocation for each member and trader subgroup (including Designated Sponsor admissions). | Daily |
| RPTTT130 | Daily Default BEST Executor Maintenance | Lists changes to Default BEST Executor assignments on instrument level made on the current day. | Daily |
| RPTTT135 | Risk Event Report | This report lists details concerning occurred Stop-Button events | Daily |

Figure 26: XML Standard reports selectable in Xetra

Additionally, performance reports and rating reports are created as standard reports for Designated Sponsors, Liquidity Managers, Issuers, Specialists and BEST Executors and two further reports for the Bilateral Aggregation are provided. All these reports are not selectable in Xetra itself but are distributed via MISS and Common Report Engine to the respective members.

4.7 Initial Price Determination for an IPO

Xetra supports special functions supporting the initial price determination for new issues (IPOs). One functionality is a matching range preset by the lead bank. The "IPO matching range" defines the lower and upper limits for the first price determination, offering both lead bank and members certainty that there will be no erratic price fluctuations during the first price determination.

This first price determination will only be available once, either as an opening auction (in the case of instruments traded in continuous trading or using several auctions throughout the trading day) or as a single intraday auction (for instruments traded with a single auction only). Initial price determinations will take place by way of auctions which differ from existing Xetra auctions with respect to auction flow and transparency.

Market Supervision will always run auctions for the purpose of initial price determination manually. Auctions commence with the IPO call phase. During the IPO call phase, information on the indicative price or the best bid and/or ask limit are not published. During this phase, the lead bank of the IPO will be enabled to enter an IPO matching range via Market Supervision. This price indication is published using the *Newsboard* function available to Market Supervision.

During the IPO call phase, market participants will be able to enter orders or quotes, and to modify or delete existing orders or quotes. The procedures regarding the assignment of new quote and order execution priorities following modifications will apply without changes. In the Continuous Trading trading model orders with the trading restriction "OA – Opening Auction Only" are only valid in the IPO auction.

Following completion of the IPO call phase, Market Supervision will switch to the freeze phase. During this phase, market participants will still be able to view their own orders and the quotes of their user group, however, the entry, modification or deletion of orders/quotes will be disabled. The order book is frozen in order to allow the lead bank to assess the market situation. Having done so, the lead bank will be able to enter orders via Market Supervision, by way of trading on behalf. Market Supervision will then manually initiate the price determination phase, executing existing orders at the auction price within the IPO matching range.

If the IPO matching range is modified during the freeze phase, the lead bank can broadcast a new price indication via the *Newsboard* function. In this case, Market Supervision will switch back to the IPO call phase, allowing the market to react upon the new price indication by entering, modifying or deleting orders. This second IPO call phase will again be followed by a freeze.

For instruments traded in the Continuous Trading trading model, the IPO auction is followed by an intraday auction. Continuous trading is re-initiated at the end of the intraday auction. For instruments traded in a different trading model, trading is resumed in accordance with the applicable trading model.

Initial Price Determination for an IPO

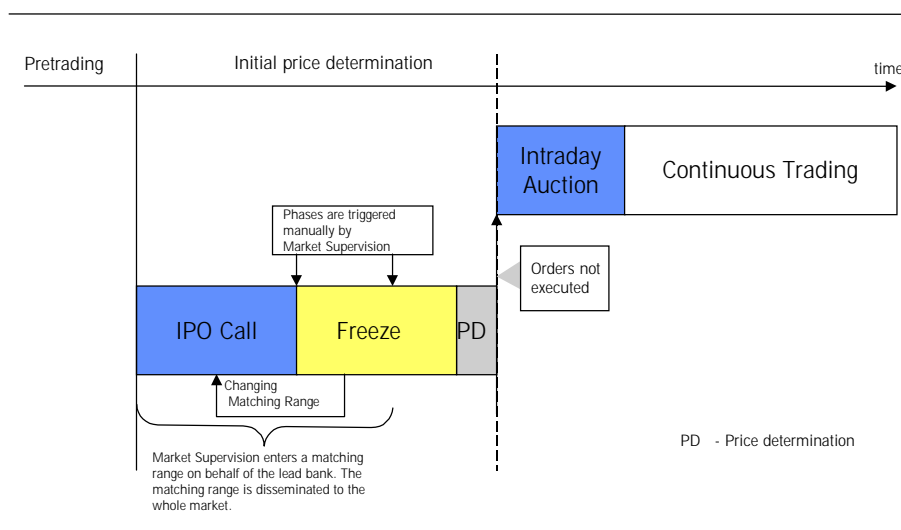


Figure 27: Initial Price Determination for an IPO

4.8 Market Models

Xetra 13.0 allows trading of stocks, bonds, warrants, certificates, reverse convertibles, mutual funds, exchange traded funds, exchange traded commodities, exchange traded notes and subscription rights. Detailed information about this can be found in the documents "Market Model Equity", "Market Model Continuous Auction" and "Market Model Xetra BEST". The market model for subscription rights is included in the market model for equities.

For Xetra International Market a dedicated market model is provided.

4.9 Enhanced Transaction Solution – Functional Overview

The Enhanced Transaction Solution is an optional trading interface for low-latency market access and transaction processing. It offers high-speed access for trading activities. The connection to the Xetra system is established through a standard TCP/IP socket interface connection whereby any operating system and programming language supporting TCP/IP can be used.

Please find more details regarding the Enhanced Transaction Solution interface in the "Xetra 13.0 Technical Description" and the "Enhanced Transaction Solution – Interface Specifications".

The main functional concepts provided by the Enhanced Transaction Solution are described in the following.

4.9.1 Session Concept

The Enhanced Transaction Solution is a session-oriented interface whereby the session is the basic context of the interaction with the Xetra system. Enhanced Transaction Solution based applications will receive information for orders and quotes entered within their own session.

Several traders may share a single session, but every session may only be instantiated once.

Upon closing the session the user can decide if all non-persistent orders as well as quotes and/or persistent orders of the session are to be deleted (mass delete). Also in case of a connection loss, all non-persistent orders as well as quotes and/or all persistent belonging to that session are deleted (heartbeat).

Independent of the session, orders entered via Enhanced Transaction Solution interface can be deleted using the J-Trader GUI.

4.9.2 Total Order Quantity Modification

The Enhanced Transaction Solution provides members with the facility to perform an absolute order modification. This means that members are able via Enhanced Transaction Solution to specify the new total order quantity when modifying an order. This approach assumes that the member maintains the value of the previous total order quantity.

The total order quantity will be the sum of the cumulated executed and the remaining unexecuted quantities.

| |
|--|
| $\text{total order quantity} = \text{cumulated executed order quantity} + \text{remaining order quantity}$ |
|--|

This feature helps members to have a clear and accurate view of their order quantities. The modification of the total order quantity to a value lower than the cumulated executed quantity will mean the deletion of the order.

Please note that the order modification logic currently provided will continue to be available via VALUES. Total Order Quantity Modification is not supported via VALUES.

4.9.3 Client Order Identification

The Enhanced Transaction Solution provides members with the facility to assign user order reference numbers to orders. The provision of the client order ID is mandatory for orders entered via the Enhanced Transaction Solution. Additionally the system order ID generated by the Xetra system will be reported.

The reference assigned to an order must be unique within the corresponding Xetra system's order book, i.e. per session ID (member), instrument, buy-or-sell code and trader's subgroup. Entry of orders with references duplicate to orders existing in the order book will be rejected by the Xetra system. Members can use this reference number during the lifetime of an order to inquire and to perform maintenance activities on it.

The lifetime of an order will be over when it is fully executed or when it is deleted. The modification of an existing order cannot change the client order ID. The cumulated executed order quantity will not be reset in the event of an order modification. The order creation time also remains unchanged, while the order price-time priority may change depending on modification details.

The Client Order ID will have an alphanumeric format with a maximum length of 12 characters, only upper case letters and numbers can be used. This will supplement the system generated order numbers but will not replace them. Please note that the Client Order ID cannot be entered via VALUES requests.

4.9.4 Trade Management

For trade management purposes the trade notification message can be used. In this message type all settlement relevant information like counterparty and trade ID is provided.

The trade notification comes as a recoverable event notification and contains the Match ID which is also assigned to the execution confirmation. Hence, using the Match ID it is possible to map an execution and the resulting trade(s). Additionally, the client order ID is delivered within the trade notification. This allows members to map their trade notification even more easily to the underlying order. For trades with order level netting the netted positions will be delivered in the trade notification as well.

The trade notification broadcast allows members to subscribe all trades on member level. I.e. all trade messages the member is authorized to receive will be included in one trade capture stream. It will not be possible to subscribe only for a subset of trade data. Clearing Members (CCP trades) and Settlement Institutes (non-CCP trades) are able to receive all required data with the help of one single subscription request. No subscription per trading member is required.

4.9.5 Persistent Order Information on Member Level

The "Order Event Member Level" stream includes all persistent order transactions of the member. They are received independent if it was triggered by a trader via any interface (e.g. order add via J-Trader) or by the system (e.g. match). Even automatically generated orders for clean up prints in Xetra BEST are included. Open orders from previous business days that are still valid are sent in this recoverable event stream during start-of-day processing after session logon.

4.9.6 Authorization concept

In general a session needs to be enabled to receive a certain stream except for the recoverable matching event stream. To allow the subscription of trade notification, OTC information or order event stream during session logon the respective session has to be enabled at the Xetra backend upon member request. If the session is not authorized for a certain stream but tries to subscribe an error message is send and logon is rejected.

4.9.7 New Features with the current Release

With the current release the following features are added to the Enhanced Transaction Solution interface:

- § Only interface to enter TOP+ Orders
 - § Broadcast information for persistent orders on member level
 - § Authorization concept for broadcasts
 - § Quote Request in trading model Continuous Auction with Specialist
-

4.9.8 Functional Restrictions

The existing VALUES or J-Trader functionality will be required in addition to the Enhanced Transaction Solution for some back-office and administrative (e.g. trader ID setup) functions. The focus of the Enhanced Transaction Solution interface is order, quote and trade functionality.

The Enhanced Transaction Solution does not provide the following trading functionality:

- § Trade inquiry and trade modification
- § Clearing Member Stop Button functionality
- § Issuer and Specialist specific broadcasts and inquiries
- § Matching quotes as Specialist cannot be entered with an exchange rate

4.10 Enhanced Broadcast Solution – Functional Overview

The Enhanced Broadcast Solution offers a high-performance, functionally enhanced transmission mechanism for un-netted market information.

The Enhanced Broadcast Solution is provided as an optional service for transmission of un-netted market data. Dissemination of netted price information via the existing MISS architecture (Public Inside Market Broadcast) using the VALUES API connection remains unchanged. Transaction data and specific customer data (Private Broadcast) will continue to be transmitted via the current connection or via the Enhanced Transaction Solution.

The Market data transmission concept via Enhanced Broadcast Solution is based on the principle of a subscription model.

Synchronization of broadcast transmission in the various streams for display of the complete order book has to be made by the recipient's application.

4.10.1 Reference Data

A reference data stream transmits information about all instruments including assignment of instrument, order book depth and the corresponding multicast address. Client applications can process this information automatically on a daily basis. In case of changes, manual re-configuration is not required.

4.10.2 Order Book Information

The current state of the order book is distributed using the order book information messages. Members have to build and maintain their own picture of the order book from these messages.

- § Snapshot: Snapshots contain complete order book information at a specific point in time up to the depth indicated in the reference information. The snapshot message should be used only for the creation of the market picture at the beginning of a trading day and for its recovery in case of a data loss. Snapshots provide information about the actual instrument status, the details of the last trade and the days' statistical information for the instrument. The Snapshots contain also information as to which delta broadcasts are included in the snapshot.
-

- § Delta or Incremental: Deltas contain absolute values which are disseminated whenever an event with influence on the market (e.g. orders or transactions) takes place. Only the changes that took place in the market (delta) are transmitted. Deltas should be interpreted as commands issued by the exchange. Members have to alter/change their copy of the order book for each instrument based on the delta messages received. Deltas contain consecutive numbers so that a possible loss of previous broadcast trans-missions during system outage or under peak load can be detected.

Under normal conditions members will be able to maintain their copy of the order book by joining the delta broadcast stream and applying the received messages.

Listed below are some rules or exceptions pertaining to the data content published by the Enhanced Broadcast Solution interface.

- § Order book rules for auctions: Order book information displayed during auctions depends on the instrument set-up. Order book depths will not be delivered during auctions; only top of book information will be disseminated. Please find more details in the corresponding market models (see chapter 4.8).

4.10.3 Statistical Information

Trade Price Information: The Xetra All Trade Price (ATP) broadcast stream contains the Xetra trade price information. All ATP messages will be disseminated over the ATP stream.

4.10.4 Status Information

State change messages will inform the members of a system or exchange state change. State Change messages will not be sent per instrument. The instrument state through out the day is received via the delta stream.

Please find more detailed information about the specification of the interface to Enhanced Broadcast Solution in the document Enhanced Broadcast Solution – Interface Specifications for Xetra Release 13.0.

4.11 FIX based Interfaces

As announced in September 2010, Deutsche Börse introduced two new interfaces with Xetra Release 12.0 in 2011 as part of its interface strategy. Implementation of a standardised interface using the Financial Information eXchange (FIX) protocol for order management and trade capture, providing easier access to Xetra for the Members and a Xetra Market Data Interface for netted market data in multicast format take place with Xetra Release 13.0.

For more details please refer to the document "Technical Description" for Xetra Release 13.0.

4.11.1 Xetra FIX Gateway – Functional Overview

Xetra offers a standard FIX interface providing access to the exchange for order handling and trade capture. The supported FIX versions are 4.2 and 4.4.

For a member accessing Xetra via FIX Gateway it is possible to address different Xetra markets via the same FIX session.

For more details please refer to the document "Technical Description" for Xetra Release 13.0 or the specification documents "Xetra FIX Gateway - FIX 4.2" and "Xetra FIX Gateway - FIX 4.4".

4.11.1.1 Session concept

A client may have multiple FIX sessions. The FIX Gateway will support two types of FIX sessions: trading and back-office FIX sessions. Customers will use dedicated FIX sessions in the context of order handling and back-office. For a member it will be supported to have access to different Xetra markets via the same FIX session.

4.11.1.1.1 Trading Session

As for Enhanced Transaction Solution interface the context for all order related messages will be the FIX session, i.e. only orders entered by the corresponding FIX session will be maintainable. At start of business day all active orders will be transmitted via the respective FIX session.

In order to support emergency procedures of the member, the deletion of orders entered via FIX Gateway will additionally be supported via the Xetra J-Trader GUI.

4.11.1.1.2 Back-Office Session

The context for all trade capture messages will be the Xetra member, i.e. all trade information the member is authorized to see will be provided within one stream. This feature includes for a clearing member (CCP trades) or a settlement institute (non-CCP trades) the provision of all trade information of all of its assigned trading members.

4.11.1.2 Client Order ID Chaining

In FIX it is a standard that the Client Order ID changes on every request. FIX customers use the Client Order ID to track each individual request. E.g. when sending a Replace Request for an order in FIX, one has to generate a new Client Order ID for the request. This way the customer is able to find and track individual requests by their Client Order ID. The Xetra FIX Gateway will support this Client Order ID chaining.

4.11.1.3 New Features with the current Release

With the current release the following features are added to the FIX Gateway:

- § OTC functionality (Xetra Trade Entry) including trade reporting
- § Only Interface to enter intelligent order types
- § Quote Request in trading model Continuous Auction with Specialist

4.11.1.4 Functional Restrictions

The existing VALUES and GUI functionality will be required in addition to the FIX Gateway especially for some back-office and administrative (e.g. trader ID setup) functions.

The FIX Gateway does not provide the following trading functionality:

- § Quote maintenance
- § Trade inquiry and trade modification
- § Clearing Member Stop Button functionality

4.11.2 Xetra Market Data Interface – Functional Overview

In parallel to the Enhanced Broadcast Solution interface the Xetra Market Data Interface is available for distributing order book information in multicast format as low-footprint and low bandwidth solution.

In addition to Inside Market information disseminated via the Snapshot and Delta stream, Ticker Information and State Change information is supported via dedicated streams. No dedicated trade price stream and no reference data stream is provided via Xetra Market Data Interface. The reference data including the multicast-addresses can be derived from the ascii reference data file that is available on Deutsche Börse homepage.

The customized messages of Xetra Market Data Interface are disseminated over a multicast network and are fully compliant to the FIX protocol version 5.0. Furthermore, the interface conforms to the FAST (FIX Adapted for Streaming) protocol version 1.2 principles for efficient bandwidth utilization.

For more details please refer to the document "Technical Description" for Xetra Release 13.0 or the specification document "Xetra Market Data Interface".

4.11.2.1 Snapshot and Delta stream

The Xetra Market Data Interface contains Snapshot and Delta information within one stream. The data is provided aggregated and netted per price level with a market depth of up to 10 price levels (technically).

4.11.2.2 Trade Price Information

The Xetra All Trade Price (ATP) broadcast stream contains the Xetra trade price information.

4.11.2.3 Ticker Information

Within the Ticker Information index information is sent to the members.

4.11.2.4 State Changes stream

The dedicated State Change stream will contain information about System State, Exchange States, FAST market, technical Market Reset (set level), Knock-out information (instrument level), Suspension Information (instrument-level).

5 APPENDIX A – Order Attributes and Interfaces

The following table gives an overview about the main order attributes and via which interface they can be used.

| | J-Trader | FIX Gateway | VALUES | Enhanced Transaction Solution |
|--|-------------|----------------|--------|-------------------------------|
| Order Type | | | | |
| Market | x | x | x | x |
| Limit | x | x | x | x |
| Market-to-Limit | x | x | x | x |
| Iceberg | x | x | x | x |
| Hidden | x | x | x | x |
| Midpoint | x | x | x | x |
| Discretionary | x | x | x | x |
| Trailing Stop Order | - | x | - | - |
| One Cancels Other | - | x | - | - |
| Order on Event | - | x | - | - |
| Execution Restriction | | | | |
| Strike Match Order | x | x ⁶ | x | x ⁵ |
| Book-or-Cancel | x | x | x | x |
| Top-of-the-Book | - | - | - | x |
| TOP+ Order | - | - | - | x |
| Stop (Market/Limit) | x | x | x | x |
| Fill-Or-Kill | x | x | x | x |
| Immediate-Or-Cancel | x | x | x | x |
| Validity Constraint | | | | |
| Good-for-day | x | x | x | x |
| Good-till-date | x | x | x | x |
| Good-till-cancelled | x | x | x | x |
| Trading Restriction | | | | |
| Main Trading Phase only (MT) | x | x | x | x |
| Auctions in Main Trading Phase only (MA) | x | x | x | x |
| Auction only (AU) | x | x | x | x |
| Opening Auction only (OA) | x | x | x | x |
| Closing Auction only (CA) | x | x | x | x |
| End-of-day Auction only (EA) | x | x | x | x |
| Accept Surplus (SU) | x | x | x | x |
| Other Attributes (selection) | | | | |
| Client Order ID | - (display) | x | - | x |
| Persistent Orders | x | x (default) | x | x |
| Non-Persistent Orders | - | x | x | x |

⁶ In contrast to VALUES and J-Trader the SMO is available as order type via FIX Gateway and Enhanced Transaction Solution interface.