



New Eurex Interfaces – *Improving Broadcast and Transaction Streams*

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Eurex Technology Roadmap

Eurex has been a major driver of the trend towards electronic trading and today continues to set the standards in fully electronic trading and clearing. The exchange anticipates future developments in technology by constantly optimizing the Eurex® system to accelerate trading speed and throughput, upgrading system capacity, enhancing real-time information distribution and improving interfaces. Eurex's integrated risk management is unparalleled in the industry.

Eurex's Technology Roadmap is the name for the exchange's technology strategy. The initiative started in the first quarter of 2006 to address major trends observed in electronic trading. Examples of enhancements already introduced within the framework of the Eurex Technology Roadmap are the deployment of new system hardware in 2006 and the continuous upgrade of the Eurex network. In combination with various new software features, these measures have already significantly improved the system's performance.

The next phase of the Technology Roadmap centers on working with members to enhance their access to the Eurex® system.

New Interfaces to Access Eurex

In order to meet your demand for streamlined access to the Eurex marketplace, Eurex designed two optional interfaces that provide you with high-performance, low-latency access to market data and order management, respectively:

- The Enhanced Broadcast Solution (EBS) provides access to un-netted market data in real-time and with extended market depth.
- The Enhanced Transaction Solution (ETS) offers high-speed access for core trading activities; focus is on order and quote maintenance functions.

Interface Characteristics at a Glance

	Enhanced Broadcast Solution (EBS)	Enhanced Transaction Solution (ETS)
Description	Uni-directional socket interface used by members to receive market data from the exchange	Two-way socket interface used by a member to send orders and quotes to the exchange and receive confirmations in return
Introduction Date	December 03, 2007	April 14, 2008
Availability	Eurex members only	Eurex members only
Usage	Optional	Optional
Key Technical Features	<ul style="list-style-type: none"> • Low latency • Market data dissemination concept based on a state of the art multicast protocol • Additional market depth • Independent of hardware platform • Independent of operating system and compiler 	<ul style="list-style-type: none"> • Low latency • Message-based • Session-oriented • Open interface • Simplicity • Full control on failover • Independent of hardware platform • Independent of operating system and compiler

Both interfaces are optional and are considered suitable for firms that pursue certain types of trading strategies, for example high-frequency trading.

All Eurex members will still have to use the existing MISS-based architecture, even if they also decide to adopt the EBS and ETS interfaces. In fact, as the optional ETS interface only supports a subset of the trading functionality, members need to configure hybrid connection alternatives that also utilize the MISS-based architecture.

Enhanced Broadcast Solution

In December 2007, the Enhanced Broadcast Solution interface introduced a new high-performance, market information broadcast mechanism. This service features the dissemination of un-netted public market data¹ via a technically enhanced method.

The interface offers:

- Order book depth for options products (up to ten prices)
- Enhanced order book depth for futures products (up to twenty prices for benchmark futures)
- Individual subscription model allowing the selection of product groups

To cater to individual data requirements supported by the subscription model, Eurex offers a wide range of bandwidth connections. Member applications can be programmed to display any order book depth up to the maximum level distributed by the exchange.

Enhanced Transaction Solution

To provide members with faster, streamlined access to the Eurex® system for high-frequency trading strategies is the idea behind the introduction of the Eurex Enhanced Transaction Solution (ETS). The new message-based interface will be directly available only to Eurex members. The launch is scheduled to take place on April 14, 2008.

The new ETS interface will provide core trading activities and focus on order and quote entry as well as maintenance functionalities. It will be offered as an optional connection for members and run in parallel to the existing MISS-based trading interface VALUES API. The functionalities that will be made available to the market have been carefully selected in cooperation with Eurex members to ensure that the new trading solution adequately meets your needs.

ETS is a session-oriented interface, which means that a session is the basic context of the interaction with the Eurex® system. A session is initiated when an application connects to the system and continues until the connection to the system is interrupted. Several trader subgroups may share a single session, but any session may only be used once. A given member has a set number of sessions (maximum of 10), depending on its technical requirements.

Overview: Available ETS Trading Functionality

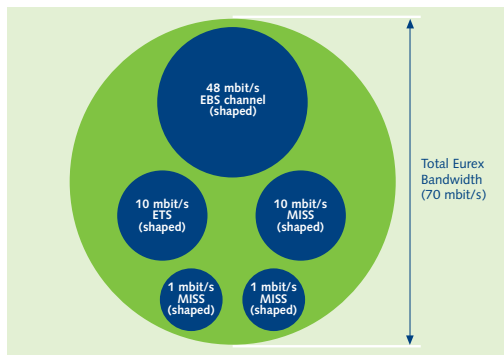
- Enter, modify, inquire and delete orders (persistent and non-persistent) and quotes for:
 - Options (single leg)
 - Futures (single leg and double)
 - Futures time spreads
 - Strategies
- Mass Quote entry function also for strategies
- Mass Delete all orders (persistent and non-persistent) and quotes
- Provision of order/quote related status data (i.e. execution)
- Bi-directional heartbeat at a session level
- Setting/inquiry of Market Maker protection limits
- Session logon/logoff
- Trader login/logout

¹ The legacy data interface "New Socket Data Feed" will be replaced by EBS. In order to provide members with sufficient time for the migration, the "New Socket Data Feed" will be supported until June 30, 2008.

New Guidelines for Data Lines

In order to provide members with greater flexibility and efficiency in managing the variety of different connections that are available to the Eurex Exchanges, Eurex offers its members an extended connection portfolio from April 14, 2008 onwards. This will enable you to consolidate MISS/VALUES API, EBS and ETS on one physical connection. In addition to consolidating all connection types into one line, several logical channels can be defined on a high bandwidth connection.

Sample Configuration



When selecting the bandwidth necessary to suit their individual requirements, members should consider the following framework:

- A physical line can contain only one logical ETS channel.
- A physical line can contain only one EBS channel.
- The EBS channel must have a bandwidth of at least 10 mbit/s.
- MISS and ETS channels can have a bandwidth of 1 mbit/s or 10 mbit/s.
- For failover purposes two high bandwidth connections with an identical configuration must be ordered.

Price Overview

Prices for existing connections to Eurex remain unchanged. However, in order to complement the introduction of the new interfaces, Eurex now offers customers increased flexibility in terms of managing multiple connections to the Eurex® system. Consolidating various connection alternatives helps you to streamline your technical infrastructure as well as your line costs. Prices for consolidated line scenarios are described below.

Enhanced Broadcast Solution

The following table illustrates the prices for access to EBS depending on the bandwidth selected and the location of the members' individual installation.

EBS Prices by Bandwidth and Location² (EUR/Month)

Tier	Bandwidth in Mbit/s					
	10	20	30	50	60	70
1	3,500	4,250	4,750	5,500	6,000	6,500
2	3,500	On request	On request	On request	On request	On request
3	6,000	7,500	8,500	9,500	On request	On request
4	6,000	On request	On request	On request	On request	On request
5	10,000	13,200	16,300	21,600	On request	On request
6	20,000	27,600	27,600	55,800	On request	On request
7	30,000	On request	On request	On request	On request	On request
8	Not available	Not available	Not available	Not available	Not available	Not available

Tier	Locations ³
1	Amsterdam, Chicago, Dublin, Frankfurt, London, Milan, New York City, Paris, Zurich
2	Helsinki, Madrid, Vienna
3	Belgium, Denmark, France, Germany, Italy, Luxembourg, Netherlands, Switzerland, United Kingdom, USA
4	Austria, Finland, Portugal, Singapore, Spain, Sweden
5	Australia
6	Greece
7	Gibraltar
8	Dubai

² These charges refer to the bandwidth of a connection supplied to a given member for access to EBS and are independent of any additional channels configured for the consolidation of further connections.

³ Pricing for tiers 3 to 8 are only valid for currently existing Eurex member locations (as of October 1, 2007).

Proximity Services

In addition, Eurex members can choose to connect via Proximity Services, which is a special offer provided by selected partners of Eurex's IT service provider Deutsche Börse Systems, primarily aimed at high-frequency traders. Proximity Services permit a member to place its servers in a data center located in Frankfurt near the exchange matching engine, giving customers added advantages:

- Ultra low latency access
- Lowest round trip times due to the short distance
- Actual availability of more than 99.999 percent

The cost of lines for Proximity Services is EUR 2,000 per month regardless of bandwidth. For Proximity Services, Eurex also offers a connection alternative via 100 mbit/s lines.

Enhanced Transaction Solution

For accessing Eurex via ETS, Eurex gives members the choice between a bandwidth of either 1 mbit/s or 10 mbit/s. The connection can either be made via a dedicated leased-line connection (10 mbit/s) or via the definition of the appropriate logical channels on an existing EBS connection. Eurex always provides each member the first two ETS sessions free of charge.

ETS Prices by Connectivity Solution (EUR/Month)

Each 10 mbit/s leased-line	See prices for 10 mbit/s EBS connections (page 7)
Each 1 mbit/s channel	EUR 700
Each 10 mbit/s channel	EUR 1,400
Each session (from third session)	EUR 700

Access via MISS/VALUES API

From April 14, 2008 onwards, members will also be able to choose between a bandwidth of either 1 mbit/s or 10 mbit/s for standard connections via the MISS/VALUES API architecture. Furthermore, standard connections can be established either via leased-line, via Internet or via the definition of the appropriate logical channels on a high bandwidth connection.

MISS Prices by Connectivity Solution (EUR/Month)

Each 1 mbit/s leased-line (unchanged)	EUR 750 for the first two connections for each additional connection EUR 2,000
Each 10 mbit/s leased-line	See prices for 10 mbit/s EBS connections (page 7)
Each 1 mbit/s internet connection	EUR 500
Each 1 mbit/s channel	EUR 700
Each 10 mbit/s channel	EUR 1,400

In the event that a member establishes a MISS/VALUES API connection with the definition of the appropriate logical channels on a high bandwidth connection, any further additional 1 mbit/s leased-line connections which may be present will in general be charged at EUR 2,000.

Sample Configuration Costs

As indicated above, pricing depends on many factors. For an optimal configuration we recommend to take the following aspects into consideration:

- Physical location
- Infrastructure
- Trading volume
- Trading style
- Choice of services
- Level of redundancy

The following scenario outlines pricing for a configuration chosen by a hypothetical high-frequency algorithmic trading company (NCM) located in Chicago.

Costs for a Redundantly Configured Exchange Connection

Connection Type	Description	Price (EUR/Month)	Comment
2 x 60 mbit/s ⁴	Overall capacity requirement		Two lines required for redundancy
49 mbit/s channel per line	EBS	12,000 (2 x 6,000)	The full line capacity of 60 mbit/s is charged
10 mbit/s channel per line	ETS	2,800 (1,400 x 2)	(One line for failover)
	ETS session	0	(First two sessions per member are free, additional sessions are charged at a rate of EUR 700 per session)
1 mbit/s channel per line	MISS	1,400 (700 x 2)	(One line for failover)
Sum		16,200	

Further Information

For expert advice on your migration scenarios please contact your local sales representative or visit www.eurexchange.com.

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⁴ The bandwidth requirement for EBS connections depend on the members' individual product subscription and the overall volume development.

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