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e u r e x *circular 051/12*

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Recipients: All Trading Participants of Eurex Deutschland and Eurex Zürich and Vendors
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⚠ **High priority**

Network Upgrade for Eurex Exchange's new Trading Architecture

Related Eurex Circular: 021/12

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Content may be most important for:	**Attachments:**
Ü All departments	none

Summary:

Eurex will introduce its new trading architecture in December 2012. As the system throughput of the new trading architecture is expected to increase significantly, bandwidth requirements for Eurex trading participants' network connectivity will also increase.

Deutsche Börse's network backbone as well as each Eurex participant's network connection must be upgraded to comply with the higher bandwidth requirements. To provide all participants with appropriate network connectivity for the new trading architecture in a timely manner, Eurex will shortly start to proactively upgrade the physical connections.

Starting **April 2012**, the Technical Account Managers will contact all participants to discuss the individual migration and arrange a connection test for the proactively initiated physical line upgrade.

Based on the physical line upgrades, Eurex will introduce new connectivity options for participants in order to support the new interface landscape of the new trading architecture. As soon as the pricing for the new connectivity options will be available, participants are requested to order their desired new connectivity options to enable the services for the new trading architecture.

Please note that the individual network upgrade or at least a temporary modification of the current connection is required for connecting to the simulation environment of the new trading architecture as of **September 3, 2012**. The individual network upgrade is mandatory to be able to use the new trading architecture in production which is scheduled to launch on December 3, 2012.

Network Upgrade for Eurex Exchange's new Trading Architecture

1 Introduction

This circular highlights the connectivity changes for Eurex participants, describes the new connectivity portfolio and provides a high level process description and the timeline for the introduction of the network changes.

As detailed in Eurex circular 021/12, Eurex will introduce its new trading architecture in December 2012. As the system throughput of Eurex Exchange's new trading architecture is expected to increase substantially, bandwidth requirements for Eurex trading participants' network connectivity will also increase:

- Particularly, users of the new un-netted market data interface Eurex Enhanced Market Data Interface (Eurex EMDI) will be affected due to significantly higher bandwidth requirements than for the current Enhanced Broadcast Solution.
- Users of the Eurex Market Data Interface (Eurex MDI) for netted market data must also expect higher bandwidth requirements than today.
- In addition, trading participants who rely on the new GUI solution for trading (Eurex Trader GUI) should consider bandwidth requirements increasing with the number of open trading windows.

Deutsche Börse's network backbone as well as each Eurex participant's network connection must be upgraded to comply with the higher bandwidth requirements. In parallel, Eurex will introduce new connectivity options for participants in order to support the new interfaces of Eurex Exchange's new trading architecture.

The individual network upgrade must be complete or at least a temporary modification of the current connection is required in order to enable participation in the simulation of the new trading architecture starting on September 3, 2012. The individual network upgrade is mandatory to be able to use the new trading architecture in production which is scheduled to be launched on December 3, 2012.

To provide all participants with appropriate network connectivity for the new trading architecture in time, Eurex will follow a defined process for participants' individual connectivity upgrades:

- Eurex will start to proactively upgrade the physical lines in order to prepare the lines for the new connectivity options required for the new trading architecture.
  - Where applicable, physical E1/T1 lines will either be prepared for the full available bandwidth (2 or 1.5 Mbit/s, respectively) or the lines will be replaced by new lines based on Ethernet.
  - Where applicable, existing Ethernet lines will be upgraded to 100 Mbit/s or 1 Gbit/s.
- Starting April 2012, the Technical Account Managers will contact every participant's designated contact persons to discuss the next steps of the participant's individual migration. The first step in this process is to schedule a connection test for the proactively initiated technical line upgrade or reconfiguration.

  Please note: The line upgrade or reconfiguration including connection test will provide technical access to the current Eurex® system and to the new trading architecture. Normally, a second connection test is not required to access the simulation environment of the new trading architecture.
- As soon as the pricing for the new connectivity options will be available, participants are requested to order their desired new connectivity options to enable the services for the new trading architecture.

Please ensure that both a project coordinator and a technical contact have been designated for the Technology Roadmap and are registered as such in the member section of the Eurex website (https://member.eurexchange.com).

2 New Eurex connectivity portfolio

The new Eurex connectivity options for Eurex Exchange's new trading architecture have two components: A GUI channel for the new trading GUI (Eurex Trader GUI) and a Multi-Interface-Channel (MIC) for market/ reference data, transaction interfaces and the Eurex Admin GUI. The newly-defined MIC will be a modified version of the MIC introduced with Eurex Release 14.0 in 2011.

Eurex will offer various bandwidth options for the new MIC in order to cover different requirements of the market data interfaces. Due to the expected higher system throughput of the new trading architecture, the new high-bandwidth options are designed for an increase of market data of up to two to three times the volume provided by the current system.

- 760 Mbit/s – the highest bandwidth option for a MIC is recommended if the Eurex EMDI will be used to provide un-netted market data for a broad set of options and futures products.
- 260 Mbit/s – this option should be used if un-netted market data via the Eurex EMDI is required for a subset of options and futures products.
- 80 Mbit/s – the lowest option for Eurex EMDI is suitable if un-netted market data exclusively for futures products and only a small subset of options products is required (e.g. for users in the United States) and if some queuing latency is acceptable.
- 5 Mbit/s (2 or 1.5 Mbit/s in TIER II/U.S. locations) – this option is suggested if netted market data via the Eurex MDI is sufficient. Un-netted market data using Eurex EMDI cannot be received via this connectivity option.

In addition to the MIC-based connectivity options, Eurex will offer 10 Gbit/s connection options in co-location. Please note that these connectivity options will be offered separately for either market data (Eurex EMDI) or transactions (e.g. via Eurex ETI). Simulation access to the new trading architecture will also be available on 10 Gbit/s connections.

Service	Bandwidth (Mbit/s)	Bandwidth Distribution (Mbit/s)		Availability of Connection					
		Market Data	Transaction Data	Co-Location	Leased Line*	Leased Line in TIER I**	Leased Line in TIER II***	Leased Line in U.S.	iAccess
Eurex Multi-Interface Channel (MIC):	1.5	1.5		-	-	-	-	ü	combined access
	2	2		-	-	-	ü	-	combined access
	5	4	1	ü	ü	ü	-	-	ü
	80	70	10	ü	-	ü	-	ü	-
	260	250	10	ü	-	ü	-	-	-
	760	750	10	ü	-	ü	-	-	-
Market Data: Eurex EMDI	10,000	10,000	-	ü	-		-	-	-
Transactions: Eurex ETI	10,000	-	10,000	ü	-		-	-	-

* Current Eurex locations (where technically feasible) except TIER II and United States.

** TIER I: Metro area of London, Frankfurt, Paris, Amsterdam and Zurich. Availability of high-bandwidth MIC (80 Mbit/s, 260 Mbit/s and 760 Mbit/s) in other locations on request.

*** TIER II: Asia, Australia, Finland, Gibraltar, Greece. Other locations on request.

3 Upgrading plan

The network connectivity upgrade for participants depends on the location and bandwidth currently used. Connection changes will be different for participants using Ethernet lines (or E1/T1 lines in Tier II/U.S. locations) and participants who require an upgrade from existing E1/T1 lines to new Ethernet lines.

3.1 Participants currently using E1/T1 connections

Eurex will upgrade participants' connectivity following these principles:

- Participant connections in the United States currently using 1 Mbit/s Eurex bandwidth will be upgraded to the full T1 bandwidth (1.5 Mbit/s).
- Participant connections in Tier II areas will be upgraded to the full E1 bandwidth (2 Mbit/s).
- In all other locations, participants with an E1 connection will be upgraded to at least 5 Mbit/s based on Ethernet lines, resulting in new physical lines and technical changes on the participant's side.

To support upgrading from E1/T1 lines to Ethernet lines, the participants' hardware must fulfil the following technical requirements:

- A Cisco router with a free RJ45 port, supporting 10/100 Mbit/s Ethernet or 10/100/1000 Mbit/s Ethernet, respectively, is required (according to the planned bandwidth upgrade).
- The Cisco router must be capable of supporting multicast data rates of up to 4 Mbit/s in order to receive market data of the 5 Mbit/s MIC. For that purpose, Eurex recommends devices such as the Cisco 28xx series or higher. Older Cisco devices such as the 26xx series are not suitable.
- In addition to the current requirement of EIGRP support, the Cisco router has to support the BGP protocol.

3.2 Participants currently using Ethernet connections

Depending on the current bandwidth and participants' locations, connections will be upgraded to a bandwidth of either 100 Mbit/s or 1 Gbit/s.

To support upgrading the bandwidth of their existing Ethernet lines, participants' hardware must fulfil the following technical requirements:

- In order to receive un-netted market data, the Cisco router should be a hardware switching device such as the Cisco 49xx series or Cisco Nexus 30xx.
- In addition to the current requirement of EIGRP support, the Cisco router has to support the BGP protocol.

3.3 Participants currently using iAccess connectivity

Participants' iAccess or combined connections (leased line + iAccess) will also be upgraded to a higher bandwidth, based on a Multi-Interface-Channel configuration.

- When using a combined connection, the iAccess part will be upgraded to the bandwidth of the associated leased line, up to 5 Mbit/s.
- Single iAccess connections will be configured to a bandwidth of 5 Mbit/s.

To support the iAccess upgrade, participants' hardware and internet connection must fulfil the following technical requirements:

- A Cisco router capable of full duplex encryption rates of 10 Mbit/s is required.
- An internet connection with a minimum bandwidth of 5 Mbit/s.

4 Next Steps

In the next few days, Eurex will start to proactively prepare upgrades of the physical lines. The Technical Account Managers will contact your designated contact persons in the first week of April 2012 to:

1. discuss the next steps and your individual migration scenario in detail.
2. arrange an individual connection test for the line/bandwidth upgrade.

Due to the large amount of necessary connection tests, there are limited connection test slots available. We highly recommend arranging the connection test as soon as possible.

As soon as the pricing for the new connectivity options is available, participants are requested to order their desired new connectivity options to enable the services for the new trading architecture.

Please note that the individual network upgrade or at least a temporary modification of the current connection must be complete to connect to the simulation environment (available from September 3, 2012). The individual network upgrade/reconfiguration is mandatory in order to access the production environment of Eurex Exchange's new trading architecture.

5 Contacts

For any questions you may have about the network upgrade please contact your Technical Account Manager using your VIP number or tel. +49-69-211-1 12 10.

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