

## Connecting to ISE T7

The Irish Stock Exchange (ISE) migrated its electronic order book trading facility from ISE Xetra to ISE T7 on **17<sup>th</sup> July 2017**.

To connect to ISE T7, members can choose from all of the connectivity options that are available for the Deutsche Börse Xetra T7 market, including co-location. Members connecting to another T7 market benefit from being able to use their ordered/existing T7 lines to connect to ISE T7, with no additional line charges. Alternatively members may choose to establish separate lines for their ISE T7 connection.

Members can choose from the following options:

- A Multi-Interface-Channel (MIC)
- 10 Gbit/s connectivity in co-location
- A new GUI-Channel for the T7 GUI solutions

Simulation access is available via all connectivity options.

### **1. Multi-Interface Channel (MIC)<sup>1</sup>**

Access to the following interfaces can be enabled by the T7 MIC:

- T7 Enhanced Market Data Interface - EMDI (un-netted market data on high-bandwidth lines only)
- T7 Extended Market Data Service – EMDS
- T7 Market Data Interface – MDI (netted market data)
- T7 Reference Data Interface – RDI
- T7 Enhanced Trading Interface – ETI
- T7 FIX Gateway
- T7 Admin GUI

Three bandwidth options are offered for the MIC. The bandwidth required by a member depends on the use of EMDI.

If EMDI is required, two bandwidth options of 80 Mbit/s and 200 Mbit/s are available. The part used for transactional interfaces within the MIC will be configured to a bandwidth of 10 Mbit/s. Market/reference data interfaces will use the remaining bandwidth.

- 200 Mbit/s – the highest bandwidth option for a MIC is recommended if the EMDI will be used to subscribe to full un-netted market data.
- 80 Mbit/s – this option should be chosen if un-netted market data via the EMDI is required for a subset of instruments.

In the case where no EMDI is required (if netted market data via MDI is sufficient), the bandwidth of the MIC will be limited to 7 Mbit/s. In this setup, the transactional interfaces will be assigned a bandwidth of 2 Mbit/s and market/reference data interfaces will use the remaining bandwidth.

In order to avoid any interference of multicast and unicast data within a MIC, a traffic-shaping mechanism will be used to separate market and reference data from the transactional interfaces.

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<sup>1</sup> Access to the T7 EOBI (Enhanced Order Book Interface) will be provided via separate connectivity (10 Gbit/s) and cannot be accessed via the MIC

## 2. 10 Gbit/s Connectivity

Members can also connect to ISE T7 via a 10 Gbit/s connection in co-location. Please note that this connectivity is offered for either:

- market data (EMDI standalone, EOBI standalone or a combined EMDI/EOBI connection), or
- transactions (e.g. via ETI and/or the new FIX Gateway).

## 3. GUI Channel

T7 introduces two new GUI applications:

- Admin GUI for trader and parameter maintenance, and
- Trader GUI for entering and maintaining orders, and for viewing the order book.

Access to the T7 GUIs is available via a dedicated GUI-channel on leased lines or via the internet.

A GUI-channel can be ordered with various bandwidth options of 1 Mbit/s, 3 Mbit/s, 10 Mbit/s or 40 Mbit/s GUI-channels (in conjunction with a MIC). A GUI-channel of 7 Mbit/s or 40 Mbit/s will also be offered separately without a MIC.

The maximum bandwidth requirement per open T7 Trader GUI is estimated to be approximately 300 Kbit/s. Based on this assumption, a minimum of three concurrently open T7 Trader GUIs can be used per 1 Mbit/s GUI-channel.

In addition to the GUI-channel, access to the T7 Admin & Trader GUIs is also possible via the internet. There is no limit on the number of open GUIs that can be used via the internet. However, the number of open GUIs is limited by the bandwidth of the member's internet access.

All members must order the Admin GUI for trader set-up and maintenance irrespective of whether they submit orders via ETI, FIX or the Trader GUI.

### Connecting via a Multi-Member Service Provider

Members can also chose to connect to ISE T7 via a registered Multi-Member Service Provider. A list of registered providers is available from the ISE by e-mailing: [iseT7@ise.ie](mailto:iseT7@ise.ie)

### Ordering Connectivity

Members can contact their Deutsche Börse TKAM to discuss their connectivity options and the recommended bandwidth that will meet their needs. Orders for new lines and sessions for ISE T7 should be entered via the Member Section portal:

<https://member.deutsche-boerse.com/irj/portal>

The price list for ISE T7 is set out in the Appendix. All fees are invoiced monthly.

## Appendix: ISE T7 Bandwidth, GUI and Session Charges

Service	Bandwidth (Mbit/s)	Fee per Connection (EUR/month)				
		Co-Location (Equinix)	Leased in Tier A	Leased in Tier B	Leased in Tier C	iAccess
T7 Multi-Interface Channel (MIC)	7	1,500	1,500	1,500	1,500	750 <sup>X1</sup>
	80	3,000	4,200	R	R	-
	200	4,000	5,400	R	R	-
T7 EMDI Market Data: Co-Location/Co-Location 2.0	10,000	4,500/5,000	-	-	-	-
T7 EOBI Market Data: Co-Location/Co-Location 2.0	10,000	5,500/6,000	-	-	-	-
T7 EOBI and EMDI Market Data: Co-Location/Co-Location 2.0	10,000	6,500/7,000	-	-	-	-
T7 ETI/FIX Transactions: Co-Location/Co-Location 2.0	10,000	4,500/5,000	-	-	-	-
T7 GUI – Channel (in combination with MIC)	3	110	170	300	340	-
	10	380	600	1,000	1,100	-
	40	1,500	2,300	R	R	-
T7 GUI via Internet	n/a			500 <sup>X2</sup>		
T7 GUI-only Channel (on lines without MIC)	7	-	1,500	1,500	1,500	-
	40		2,300	R	R	-

For members connecting via ETI and/or FIX, dedicated sessions for ISE T7 must be ordered.

- ETI offers low frequency sessions for order entry, and back-office sessions for receipt of execution information.
- The T7 FIX Gateway also offers both trading and back-office sessions.

Trading System Usage	Fee (EUR/month)
ETI Low Frequency Full Session (max. 150 Transactions/Second)	500
ETI Low Frequency Light Session (max. 50 Transactions/Second)	250
FIX Trading Session (max. 50 Transactions/Second)	250
FIX Back Office Session	100
ETI Back Office Session	100

Service	Bandwidth of used Installation (Mbit/s)	Fee per used Installation (EUR/month)		
		Up to 2 Sessions	3 to 6 Sessions	More than 6 Sessions
Connection via Multi-Member System Provider <sup>x3</sup>	7	0	0	0
	80-200	200	400	800
	10,000	400	800	1,600

Multi-Member Service Providers providing connectivity to EMDI or EOBI, will also be subject to a monthly fee of EUR 500 for each member firm they provide either of these service to.

Legend	
Tier A	Metro Areas of Amsterdam, Frankfurt, London, Milan, Paris and Zurich
Tier B	Austria, France, Germany, Netherlands, Switzerland and UK
Tier C	Belgium, Denmark, Finland, Ireland, Italy, Luxembourg, Portugal, Spain and Sweden
R and other locations	High-bandwidth MIC (80 Mbit/s, 200 Mbit/s) and GUI Channel in other locations available upon request (connection fee will be at least Tier A)
x1	For Combined Access, the bandwidth of the iAccess connection will be aligned with the bandwidth of the associated leased line
x2	A GUI connection via Internet is free of charge for members with a MIC, a GUI-Channel, a 10 Gbit/s connection in Co-Location or if a connection via a Multi-Member Service Provider is used.
x3	The member is charged a fee for each installation of a Multi-Member Service Provider that can be used. The fee is determined by the provided bandwidth and the number of trading sessions registered per installation. If there are already fees paid for MICs, GUI-Channels and connections in Co-Location then no fees up to this amount will be charged for connecting via Multi-Member Service Providers. Connecting via a Multi-Member Service Provider which is an affiliated company is exempted from this fee.
Remarks	10 Gbit/s is available in specific Co-Location (equinix) rooms only.