

T7 Disaster Recovery Concept 2020

Interface Configuration Details

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1 Introduction

This document provides an overview of Deutsche Börse's disaster recovery concept for the T7 trading system. It contains the required technical background information as well as functional features and limitations to enable participants to continue trading in a DR situation.

Furthermore, it describes which interfaces and functionalities are in scope of the annual DR test exercise and which are not (chapter 5).

Please note: The next DR test will be performed on 24 October 2020 as part of the annual FIA disaster recovery test.

Deutsche Börse kindly requests that all Trading Participants take part in the T7 disaster recovery test

For an overall description of T7 network options, please refer to the document "N7 Network Access Guide", also available on the Eurex and Xetra website:

www.eurexchange.com -> Technology -> T7 Trading architecture -> System documentation -> Release 9.0 -> Network Access

www.xetra.com -> Technology -> T7 Trading architecture -> System documentation -> Release 9.0 -> Network Access

2 Disaster recovery scenario

The following description is relevant for installations connecting via redundant line WAN connection (Ethernet, E1/T1) outside of the primary data centre¹. Customer installations inside the primary data centre are considered defunct in a disaster recovery (DR) scenario that results in a complete outage of this data centre.

Three types of customer installations have to be considered for the T7 DR scenario:

- Customer installations inside the primary data centre (CoLocation / Proximity)
- Customer installations connecting to the Frankfurt Access Point (customers in Germany)
- Customer installations connecting to remote Access Points (London, Chicago, etc.)

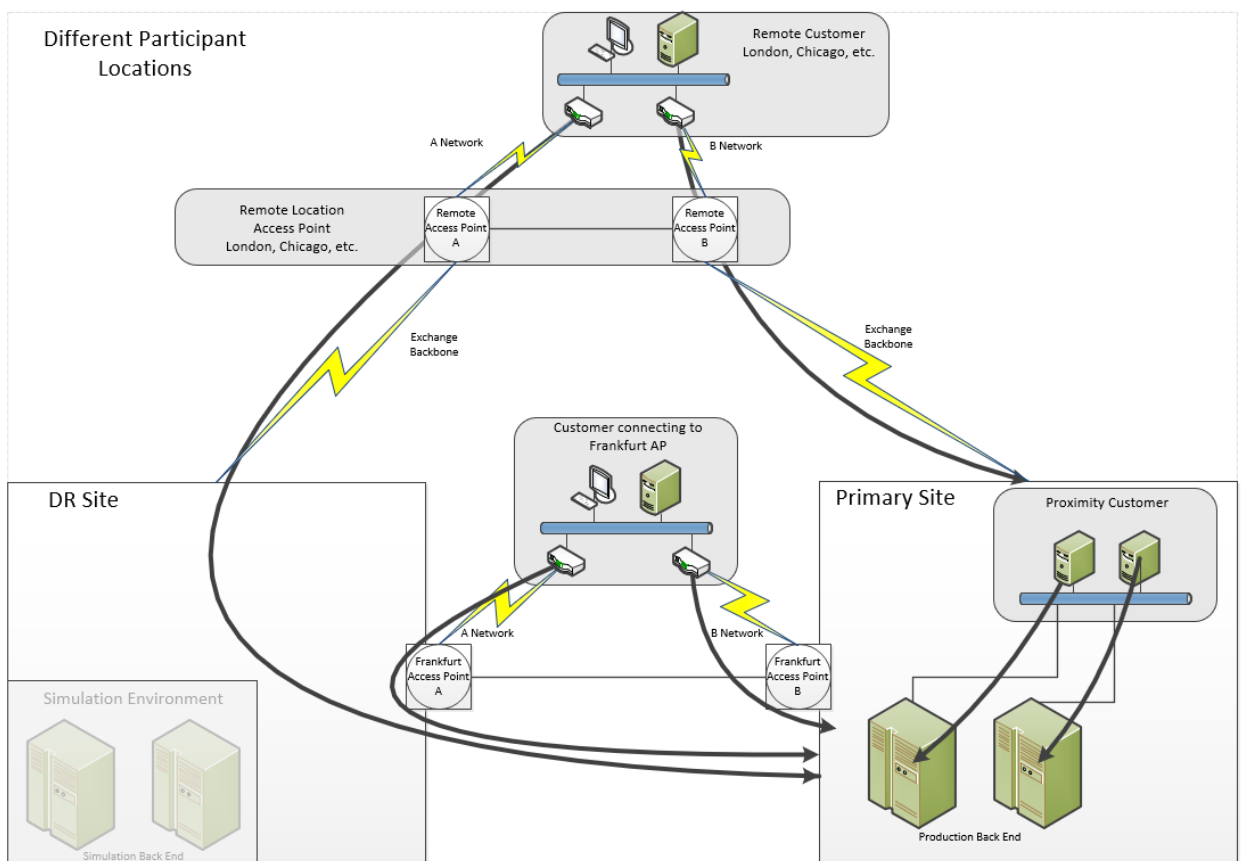


Figure 1: All three types of customer installations and their redundant connectivity to the T7 production back ends.

¹ Combined/iAccess is available in the DR data centre and in the primary data centre, so it depends where the participant's tunnel is terminated as to whether he will still have connection. Tunnels in the primary data centre do not automatically move to the DR data centre.

Figure 2 displays the result of a DR scenario that renders the whole facility of the primary data centre (FR2) inaccessible.

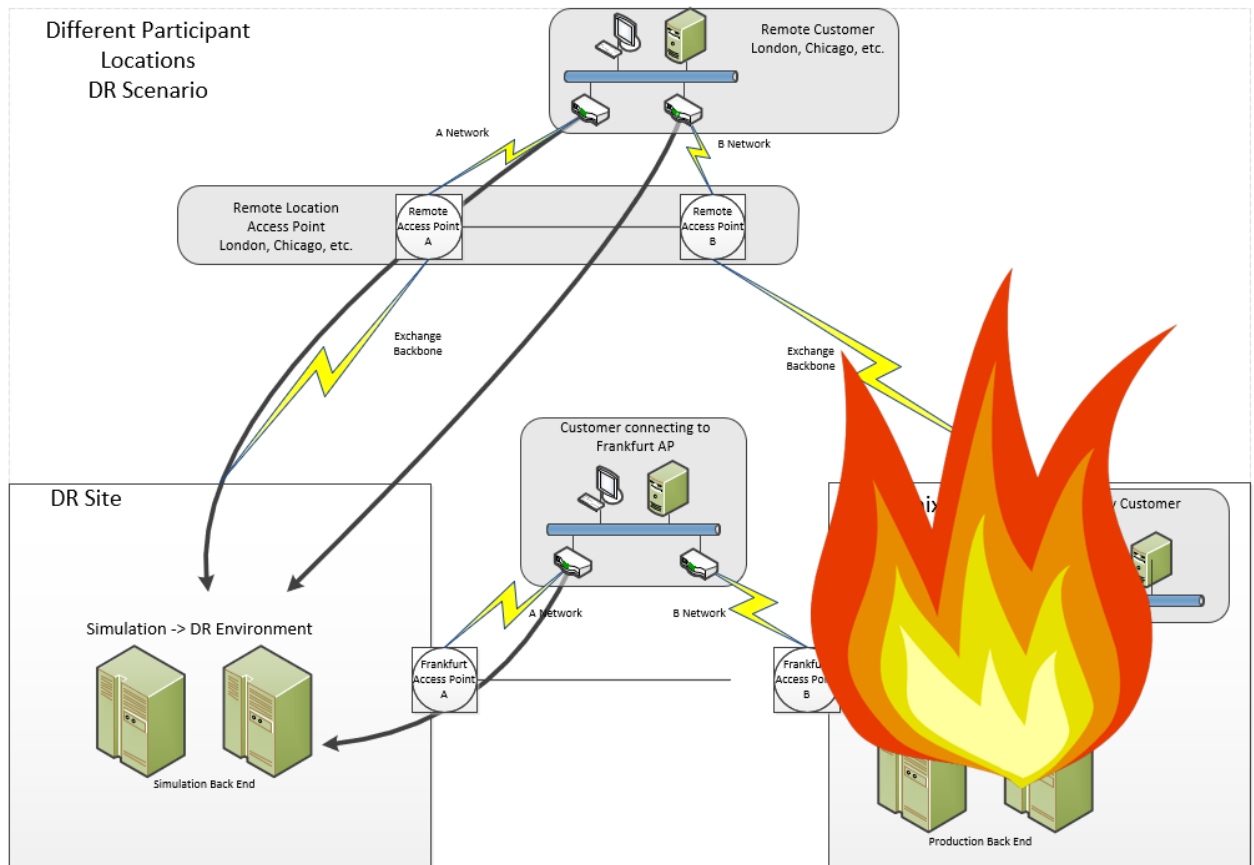


Figure 2: Disaster recovery scenario

In such a scenario, customer installations connecting to remote access points (i.e. London, Chicago, etc.) will continue to use both leased lines connecting them to the local access point. The local access point continues to use backbone lines to Frankfurt which are terminating in the DR data centre.

Customer installations connecting to the Frankfurt access point will be able to continue to use a single leased line connecting to the access point half located in the DR data centre.

Customer installations within the primary data centre are considered to be non-functional in this DR scenario.

3 General considerations

In a disaster recovery scenario, the T7 infrastructure regularly used for T7 simulation will be re-used to serve as disaster recovery production infrastructure.

The switch of the back ends and the transfer of reference data will not be instantaneous but is expected to take up to two hours.

While most T7 interfaces will be available in the disaster recovery scenario, several conceptual differences to regular production exist and have to be accounted for.

3.1 Functional

- Order books will be empty after switch to the DR environment.
 - IDs (MatchStepID, EventID etc.) are reset and start from "1" again. Timestamps must be used to detect duplicate IDs.
 - OrderIDs are based on timestamps, no further action required.
 - Trades of the current business day will not be transferred to T7 DR System but can still be inquired from the respective Clearing systems.
 - T7 DR system will start with an empty trade data base. All Trades reported in DR will start from 1 again. Timestamps must be used to detect duplicate trade IDs in the clearing systems.
 - Intraday defined strategies will be transferred to the T7 DR system.
 - Limited number of partitions are running in the DR scenario
 - A new reference data file (RDF) will be produced during DR start up and will be published by the DR back end (as well as further intraday updates) onto the Common Report Engine into the respective production directory.
-

3.2 Configuration for DR

3.2.1 Same as Production

- User IDs, ETI and FIX sessions will be used from production.
- All TCP and UDP Ports will be the same as for normal production.
- GUI Java WebStart Server will be the same as for normal production.
- FIX Gateway A Side Subnet will be the same as for normal production.
- Stream-A multicast groups will be the same as for normal production for the following T7 broadcast interfaces:
 - Market Data Interface (MDI)
 - Enhanced Market Data Interface (EMDI)
 - Extended Market Data Service (EMDS)
 - Market Signals (MS) - derivatives market only
 - Reference Data Interface (RDI)
- Stream-A Rendezvous Point (RP) will be the same as for normal production.
- Stream-A Technical Heartbeat will be the same as for normal production.
- CRE A-Side Subnet will be the same as for normal production.

3.2.2 Differ from Production

- ETI Trading Gateway and Partition Specific Gateway Subnets will differ from regular production.
- GUI Landing Pages and (Crypto) Proxy Servers will differ from regular production.
- Stream-A multicast groups for Enhanced Order Book Interface (EOBI) will differ from regular production (using a dedicated DR address range).
- Stream-B multicast groups will not be available at all
- Source IP addresses will differ from regular production for the following T7 broadcast interfaces:
 - Market Data Interface (MDI)
 - Enhanced Market Data Interface (EMDI)
 - Enhanced Order Book Interface (EOBI)
 - Extended Market Data Service (EMDS)
 - Market Signals (MS) - derivatives market only
 - Reference Data Interface (RDI)

See chapter 4 for full network details.

3.2.2.1 Enhanced Order Book Interface (EOBI)

Deutsche Börse offers the possibility to receive EOBI data in case of a Disaster Recovery scenario to customers outside the primary data centre (connected via leased line).

Customers outside Co-Location, connecting via leased line, who have access to the regular “A” multicast streams, will be able to receive EOBI data using dedicated EOBI multicast addresses (see chapter 4 for network details). Please make sure that your internal firewall settings are adjusted accordingly.

The receipt of this data can be tested as part of the annual FIA disaster recovery test.

3.3 Return to Production

After the DR scenario has been resolved, Deutsche Börse will communicate the procedure for re-establishing the connection to the production environment with adequate notification time.

4 Disaster recovery network details

Due to the nature of the distributed T7 architecture, different interfaces will be configured in varying ways.

T7 interfaces whose production infrastructure is solely located in the primary data centre will switch to the simulation infrastructure and need to be accessed via simulation network addresses (i.e. ETI gateways).

Other T7 interfaces whose production infrastructure is distributed across both data centres will be able to continue to use the existing/remaining production infrastructure in the DR data centre (i.e. FIX gateways, multicast addresses).

On the following pages, you can find all available T7 interface connection details in a disaster recovery scenario.

4.1 T7 network details derivatives markets

4.1.1 Eurex T7

The following tables summarize all available interface connection details in a disaster recovery scenario for the T7 derivatives market Eurex (XEUR).

Interface	Connection option	URL / IP addresses	IP subnets	Ports	Protocol
GUI Landing Page	Internet	http://webgui.eurexchange.com/emergency		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.eurexchange.com/emergency		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.190	-	80 / 443	TCP/IP
	Leased line	193.29.93.173	193.29.93.160/28	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.235	193.29.90.224/27	80	TCP/IP
		193.29.90.236			
	Leased line - side A	193.29.89.225	193.29.89.224/28	80 / 8089	TCP/IP
Leased line - side B	193.29.95.225	193.29.95.224/28			
Eurex ETI	Gateway type	IP addresses Side A	IP addresses Side B	Ports	Protocol
	PS trading gateways	193.29.89.129 (active) 193.29.89.130 (active) 193.29.89.154 (active)	193.29.89.161 (stand-by) 193.29.89.162 (stand-by) 193.29.89.187 (stand-by)	19043	TCP/IP
	LF trading gateways	193.29.89.65 193.29.89.66 193.29.89.67 193.29.89.68	193.29.89.97 193.29.89.98 193.29.89.99 193.29.89.100	19006	TCP/IP
Eurex FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.150.253.31	90.150.253.0 / 24	Individually assigned	TCP/IP
All Eurex T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	193.29.91.252/32	-		
	Technical heartbeat Service A only	-	59086		
Eurex MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.50.64-65 224.0.50.67-74 224.0.29.72-76	US-allowed products	US-restricted products	
			59000	59032	
Source networks	193.29.89.192/28	-			

Table 1: Eurex T7 market network details in DR scenario, part 1/2

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	Description	Multicast groups Service A	Ports		
			US-allowed products	US-restricted products	
Eurex MDI	Multicast groups	224.0.50.64-65 224.0.50.67-74 224.0.29.72-76	59000	59032	
	Source networks	193.29.89.192/28	-		
Eurex EMDI	Multicast groups	224.0.50.2-9 224.0.50.12-63 224.0.29.2-55	Snapshot: 59000 Incremental: 59001	Snapshot: 59032 Incremental: 59033	
	Source networks	193.29.89.0/27	-		
Eurex EOBI	Multicast groups ¹	224.0.169.32-63 224.0.169.144-159 224.0.172.128-191	Snapshot: 59000 Incremental: 59001	Snapshot: 59032 Incremental: 59033	
	Source networks	193.29.89.0/27	-		
¹ Multicast address range of EOBI is dedicated to Disaster Recovery Environment only (no re-use of production address range)					
Eurex Market Signals	Reference Data	224.0.114.1	59000	-	
	Eurex IOC liquidity Indicator for Options	224.0.114.128	59001	59033	
	Risk Alerts	224.0.114.134	59001	59033	
	Source networks	193.29.89.0/27	-		
Eurex Extended Market Data Service (EMDS)	Ticker Feed	224.0.50.75	59000 Replay: 59001	59032 Replay: 59033	
	Settlement prices	224.0.50.77			
	Intraday open interest data	224.0.50.78	Replay: 59001	Replay: 59033	
	Eurex T7 trades	224.0.50.79			
	Source networks	193.29.89.192/28	-		
Eurex RDI	Multicast groups	224.0.50.0	Snapshot: 59098		
	Multicast groups	224.0.50.1	Incremental: 59099		
	Source networks	193.29.89.192/28	-		
Common Report Engine	Connection option	Gateway IP address	IP subnets	Ports Public	Particip.
	Internet	193.29.90.132	-	2221	2222
Leased line - side A	193.29.90.67	193.29.90.64/27			

Table 2: Eurex T7 market network details in DR scenario, part 2/2

4.1.2 EEX T7

The following tables summarize all available interface connection details in a disaster recovery scenario for the European Energy Exchange (EEX).

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.eurexchange.com/emergency/eex		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.eurexchange.com/emergency/eex		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.190	-	80 / 443	TCP/IP
	Leased line	193.29.93.173	193.29.93.160/28	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.235	193.29.90.224/27	80	TCP/IP
		193.29.90.236			
	Leased line - side A	193.29.89.225	193.29.89.224/28	80 / 8089	TCP/IP
Leased line - side B	193.29.95.225	193.29.95.224/28			
EEX ETI	Gateway type	IP addresses Side A	IP addresses Side B	Ports	Protocol
	LF trading gateways	193.29.89.65 193.29.89.66 193.29.89.67 193.29.89.68	193.29.89.97 193.29.89.98 193.29.89.99 193.29.89.100	19006	TCP/IP
EEX FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.150.253.31	90.150.253.0 / 24	Individually assigned	TCP/IP
All Eurex T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	193.29.91.252/32	-		
	Technical heartbeat Service A only	-	59086		
EEX MDI	Description	Multicast groups Service A	Ports		
			US-allowed products	US-restricted products	
	Multicast groups	224.0.50.66	59000	59032	
	Source networks	193.29.89.192/28	-	-	

Table 3: EEX T7 market network details in DR scenario, part 1/2

EEX EMDI	Description	Multicast groups Service A	Ports		
			US-allowed products	US-restricted products	
EEX EMDI	Multicast groups	224.0.50.10	Snapshot: 59000	Snapshot: 59032	
		224.0.50.11	Incremental: 59001	Incremental: 59033	
	Source networks	193.29.89.0/27	-		
EEX RDI	Description	Multicast groups service A	Ports		
	Multicast groups	224.0.29.0	Snapshot: 59098		
	Multicast groups	224.0.29.1	Incremental: 59099		
	Source networks	193.29.89.192/28	-		
Common Report Engine	Connection option	Gateway IP address	IP subnets	Ports	
				Public	Particip.
	Internet	193.29.90.132	-		2221
	Leased line - side A	193.29.90.67	193.29.90.64/27		

Table 4: EEX T7 market network details in DR scenario, part 2/2

4.2 T7 network details cash markets

4.2.1 Xetra T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra T7.

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.xetra.com/emergency		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
	Leased line - side B	193.29.94.233	193.29.94.232/29		
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	PS trading gateways	193.29.94.129 (active)	193.29.94.161 (stand-by)	19043	TCP/IP
		193.29.94.130 (active)	193.29.94.162 (stand-by)	19043	TCP/IP
	LF trading gateways	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.16 - 22	59000		
	Source networks	193.29.94.192/28	-		

Table 5: Cash market network details in DR scenario, part 1/2

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Xetra EMDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.160.0 - 63	Snapshot: 59000 Incremental: 59001		
Source networks	193.29.94.0/27	-			
Xetra EOBI	Description	Multicast groups Service A	Ports		
	Multicast groups ¹	224.0.173.128-191	Snapshot: 59000 Incremental: 59001		
Source networks	193.29.94.0/27	-			
¹ Multicast address range of EOBI is dedicated to Disaster Recovery Environment only (no re-use of production address range)					
Xetra Extended Market Data Service (EMDS)	Description	Multicast groups Service A	Ports		
	All Trade Prices (ATP)	224.0.161.64	59000 Replay: 59001		
	Ticker feed	224.0.161.31	59000		
Source networks	193.29.94.192/28	-			
Xetra RDI	Description	Multicast groups service A	Ports		
	Multicast groups	224.0.161.0	Snapshot: 59098 Incremental: 59099		
Source networks	193.29.94.192/28	-			
Common Report Engine	Connection option	Gateway IP address	IP subnets	Ports Public	Particip.
	Internet	193.29.90.132	-	2221	2222
	Leased line - side A	193.29.90.67	193.29.90.64/27		

Table 6: Cash market network details in DR scenario, part 2/2

4.2.2 Xetra Vienna T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra Vienna T7.

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.xetra.com/emergency/xvie		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency/xvie		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
	Leased line - side B	193.29.94.233	193.29.94.232/29		
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	Trading gateways (LF only)	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.32-36	59000		
	Source networks	193.29.94.192/28	-		

Table 7: Vienna cash market network details in DR scenario, part 1/2

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Xetra EMDI	Description	Multicast groups Service A	Ports
	Multicast groups	224.0.160.64-73	Snapshot: 59000 Incremental: 59001
Source networks	193.29.94.0/27	-	
Xetra EOBI	Description	Multicast groups Service A	Ports
	Multicast groups ¹	224.0.173.192-201	Snapshot: 59000 Incremental: 59001
Source networks	193.29.94.0/27	-	
¹ Multicast address range of EOBI is dedicated to Disaster Recovery Environment only (no re-use of production address range)			
Xetra Extended Market Data Service (EMDS)	Description	Multicast groups Service A	Ports
	All Trade Prices (ATP)	224.0.161.68	59000 Replay: 59001
	Ticker feed	224.0.161.39	59000
	Source networks	193.29.94.192/28	-
Xetra RDI	Description	Multicast groups service A	Ports
	Multicast groups	224.0.161.1	Snapshot: 59098 Incremental: 59099
Source networks	193.29.94.192/28	-	

Table 8: Vienna cash market network details in DR scenario, part 2/2

4.2.3 Xetra Malta T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra Malta T7.

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.xetra.com/emergency/xmal		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency/xmal		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
	Leased line - side B	193.29.94.233	193.29.94.232/29		
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	Trading gateways (LF only)	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.50-51	59000		
	Source networks	193.29.94.192/28	-		

Table 9: Malta cash market network details in DR scenario, part 1/2

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Xetra EMDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.160.114-115	Snapshot: 59000 Incremental: 59001		
	Source networks	193.29.94.0/27	-		
Xetra EOBI	Description	Multicast groups Service A	Ports		
	Multicast groups ¹	224.0.173.242-243	Snapshot: 59000 Incremental: 59001		
	Source networks	193.29.94.0/27	-		
¹ Multicast address range of EOBI is dedicated to Disaster Recovery Environment only (no re-use of production address range)					
Xetra Extended Market Data Service (EMDS)	Description	Multicast groups Service A	Ports		
	All Trade Prices (ATP)	224.0.161.77	59000 Replay: 59001		
	Source networks	193.29.94.192/28	-		
Xetra RDI	Description	Multicast groups service A	Ports		
	Multicast groups	224.0.161.8	Snapshot: 59098 Incremental: 59099		
	Source networks	193.29.94.192/28	-		
Common Report Engine	Connection option	Gateway IP address	IP subnets	Ports	
	Internet	193.29.90.132	-	Public	Particip.
	Leased line - side A	193.29.90.67	193.29.90.64/27	2221	2222

Table 10: Malta cash market network details in DR scenario, part 2/2

4.2.4 Xetra Bulgaria T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra Bulgaria T7.

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landingpage	Internet	http://webgui.xetra.com/emergency/xbul		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency/xbul		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
Leased line - side B	193.29.94.233	193.29.94.232/29			
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	Trading gateways (LF only)	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.48	59000		
	Source networks	193.29.94.192/28	-		

Table 11: Bulgaria cash market network details in DR scenario, part 1/2

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Xetra EMDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.160.112-113	Snapshot: 59000 Incremental: 59001		
Source networks	193.29.94.0/27	-			
Xetra EOBI	Description	Multicast groups Service A	Ports		
	Multicast groups ¹	224.0.173.240-241	Snapshot: 59000 Incremental: 59001		
Source networks	193.29.94.0/27	-			
¹ Multicast address range of EOBI is dedicated to Disaster Recovery Environment only (no re-use of production address range)					
Xetra Extended Market Data Service (EMDS)	Description	Multicast groups Service A	Ports		
	All Trade Prices (ATP)	224.0.161.76	59000 Replay: 59001		
	Ticker feed	224.0.161.49	59000		
Source networks	193.29.94.192/28	-			
Xetra RDI	Description	Multicast groups service A	Ports		
	Multicast groups	224.0.161.7	Snapshot: 59098 Incremental: 59099		
Source networks	193.29.94.192/28	-			
Common Report Engine	Connection option	Gateway IP address	IP subnets	Ports	
	Internet	193.29.90.132	-	Public	Particip.
	Leased line - side A	193.29.90.67	193.29.90.64/27	2221	2222

Table 12: Bulgaria cash market network details in DR scenario, part 2/2

4.2.5 Xetra Budapest T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra Budapest T7.

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.xetra.com/emergency/xbud		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency/xbud		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
Leased line - side B	193.29.94.233	193.29.94.232/29			
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	Trading gateways (LF only)	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.54-55	59000		
	Source networks	193.29.94.192/28	-		

Table 13: Budapest cash market network details in DR scenario, part 1/2

Xetra EMDI	Description	Multicast groups Service A	Ports
	Multicast groups	224.0.160.120-123	Snapshot: 59000 Incremental: 59001
	Source networks	193.29.94.0/27	-
Xetra EOBI	Description	Multicast groups Service A	Ports
	Multicast groups ¹	224.0.173.248-251	Snapshot: 59000 Incremental: 59001
	Source networks	193.29.94.0/27	-
¹ Multicast address range of EOBI is dedicated to Disaster Recovery Environment only (no re-use of production address range)			
Xetra RDI	Description	Multicast groups service A	Ports
	Multicast groups	224.0.161.4	Snapshot: 59098 Incremental: 59099
	Source networks	193.29.94.192/28	-

Table 14: Budapest cash market network details in DR scenario, part 2/2

4.2.6 Xetra Ljubljana T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra Ljubljana T7

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.xetra.com/emergency/xliu		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency/xliu		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
Leased line - side B	193.29.94.233	193.29.94.232/29			
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	Trading gateways (LF only)	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.56-57	59000		
	Source networks	193.29.94.192/28	-		

Table 15: Ljubljana cash market network details in DR scenario, part 1/2

Xetra EMDI	Description	Multicast groups Service A	Ports
	Multicast groups	224.0.160.124-125	Snapshot: 59000 Incremental: 59001
Source networks	193.29.94.0/27	-	
Xetra EOB1	Description	Multicast groups Service A	Ports
	Multicast groups ¹	224.0.173.252-253	Snapshot: 59000 Incremental: 59001
Source networks	193.29.94.0/27	-	
¹ Multicast address range of EOB1 is dedicated to Disaster Recovery Environment only (no re-use of production address range)			
Xetra RDI	Description	Multicast groups service A	Ports
	Multicast groups	224.0.161.5	Snapshot: 59098 Incremental: 59099
Source networks	193.29.94.192/28	-	

Table 16: Ljubljana cash market network details in DR scenario, part 2/2

4.2.7 Xetra Prague T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra Prague T7.

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.xetra.com/emergency/xprg		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency/xprg		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
Leased line - side B	193.29.94.233	193.29.94.232/29			
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	Trading gateways (LF only)	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.52-53	59000		
	Source networks	193.29.94.192/28	-		

Table 15: Prague cash market network details in DR scenario, part 1/2

Xetra EMDI	Description	Multicast groups Service A	Ports
	Multicast groups	224.0.160.116-119	Snapshot: 59000 Incremental: 59001
	Source networks	193.29.94.0/27	-
Xetra EOB1	Description	Multicast groups Service A	Ports
	Multicast groups ¹	224.0.173.244-247	Snapshot: 59000 Incremental: 59001
	Source networks	193.29.94.0/27	-
¹ Multicast address range of EOB1 is dedicated to Disaster Recovery Environment only (no re-use of production address range)			
Xetra RDI	Description	Multicast groups service A	Ports
	Multicast groups	224.0.161.3	Snapshot: 59098 Incremental: 59099
	Source networks	193.29.94.192/28	-

Table 16: Prague cash market network details in DR scenario, part 2/2

4.2.8 Xetra Zagreb T7

The following tables summarize all available interface connection details in a disaster recovery scenario for Xetra Zagreb T7.

Interface	Connection option	URL / IP addresses		Ports	Protocol
GUI Landing Page	Internet	http://webgui.xetra.com/emergency/xzag		80 / 443	TCP/IP
	Leased line	http://webgui.vpn.xetra.com/emergency/xzag		80 / 443	TCP/IP
Java WebStart	Internet	193.29.90.189	-	80 / 443	TCP/IP
	Leased line	193.29.93.174	-	80 / 443	TCP/IP
GUI (Crypto)Proxies	Internet	193.29.90.233	193.29.90.224/27	80	TCP/IP
		193.29.90.234			
	Leased line - side A	193.29.94.225	193.29.94.224/29	80 / 8089	TCP/IP
Leased line - side B	193.29.94.233	193.29.94.232/29			
Xetra ETI	Gateway type	IP subnets Side A	IP subnets Side B	Ports	Protocol
	Trading gateways (LF only)	193.29.94.65	193.29.94.97	19006	TCP/IP
Xetra FIX Gateway	Connection option	IP addresses	IP subnets	Ports	Protocol
	Leased line - side A	90.152.253.41	90.152.253.0/24	Individually assigned	TCP/IP
All Xetra T7 broadcast interfaces	Description	Rendezvous points	Ports		
	Rendezvous points Service A only	185.102.253.252	-		
	Technical heartbeat Service A only	-	59086		
Xetra MDI	Description	Multicast groups Service A	Ports		
	Multicast groups	224.0.161.58-59	59000		
	Source networks	193.29.94.192/28	-		

Table 17: Zagreb cash market network details in DR scenario, part 1/2

Xetra EMDI	Description	Multicast groups Service A	Ports
	Multicast groups	224.0.160.126-127	Snapshot: 59000 Incremental: 59001
	Source networks	193.29.94.0/27	-
Xetra EOB1	Description	Multicast groups Service A	Ports
	Multicast groups ¹	224.0.173.254-255	Snapshot: 59000 Incremental: 59001
	Source networks	193.29.94.0/27	-
¹ Multicast address range of EOB1 is dedicated to Disaster Recovery Environment only (no re-use of production address range)			
Xetra RDI	Description	Multicast groups service A	Ports
	Multicast groups	224.0.161.6	Snapshot: 59098 Incremental: 59099
	Source networks	193.29.94.192/28	-

Table 18: Zagreb cash market network details in DR scenario, part 2/2

5 Disaster recovery test scope

Disaster recovery test exercises will be performed once a year on a weekend (usually Saturday). DR test exercises have been aligned with the yearly FIA business continuity test (see <https://bcp.fia.org>).

As the smooth transition to the T7 disaster recovery environment in the event of a real disaster is critical, Deutsche Börse kindly requests that all Trading Participants take part in the T7 disaster recovery test. Participation will serve to ensure that all requirements and demands for the transition to the disaster recovery environment are met and that the necessary emergency procedures are in place and have been successfully executed on a regular basis. The validation of these emergency procedures is crucial for Deutsche Börse and its trading members not only to be compliant to the respective Business Continuity Processes but also to ensure continued market integrity.

During a DR test exercise, production reference data will be used, including User IDs, T7 GUI SSH keys and ETI sessions.

Please note: Changes done to these reference data will not be copied back to production after the test. It is not advised to perform any changes to this data during the test exercise. Any order book or trading information created during the DR test exercise will not be transferred back to production.

Trade date for the DR test exercise is DR test date – 1 (DR test date: 24.10.2020 > trade date: 23.10.2020)

The scope of DR test exercises is as follows:

The following T7 interfaces will be available during the DR test exercise

- Enhanced Transaction Solution (ETI)
- T7 Market Data Service (MDI)
- T7 Enhanced Market Data Service (EMDI)
- T7 Enhanced Order Book Interface (EOBI)
- T7 GUI
- Reference Data Interface (RDI)
- Reference Data File (RDF)
- Common Report Engine (CRE)

Customers participating in the DR test exercise can

- receive market data via MDI, EMDI, EOBI and T7 GUI
- read reference data via RDI
- receive Reference Data File (RDF) - provided by TKAMs on request
- enter orders and quotes via ETI and T7 GUI
- access CRE

The following T7 interfaces will not be available during the DR test exercise

- FIX Gateway
-

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- T7 GUI Launcher
- Extended Market Data Service
- Market Signals (MS)

The Clearing systems C7 and CCP are not participating in the DR test exercise. No data generated during a DR test exercise is forwarded to any Clearing system.

6 Change log

The change log describes on a higher level, what changed in the latest version of the document over older versions.

No	Chapter, page	Date	Change
1.0.0		27 Sept 2013	Initial version the Eurex Exchange's T7 Disaster Recovery Concept
2.0.0	All	25 July 2016	Added EOBI, EMDS and Eurex Market Signals
3.1.1	All	31 August 2017	Change to common document including T7 cash markets and EEX
4.0	All	29 August 2018	Adhere to T7 Release 6.1 (e.g. Partition Specific Gateway, etc...), added Introduction
2019	All	15 August 2019	Adhere to T7 Release 7.1 (e.g. deletion of Connection GWs), added additional IP for Xetra Partition Specific Gateway, added EOBI addresses, added Partner Exchanges
2020-1.0	All	4 September 2020	Adhere to T7 Release 8.1, added EOBI chapter, added Vienna Partner Exchanges