

16 SEPTEMBER 2019

EURONEXT CASH DISASTER RECOVERY TEST: GUIDELINES FOR PARTICIPANTS

The objective is to simulate real life scenario that the trading architecture and Disaster Recovery Plan are fully operational within the targeted time frame.

The Euronext Disaster Recovery test will take place on Saturday 21 September 2019.

Euronext recommends that all customers take advantage of this service, however the test is not mandatory.

SCOPE OF THE TEST

The following are included in the test:

- Both production trading systems of Euronext's Data Centres: DC1, located at Basildon (UK) and DC2 (DR Data Centre), located in the Paris region.
- Trading engines:
 - Optiq Cash Markets: Equities, Funds, Warrants & Certificates, Fixed Income, Euronext Block, Luxembourg Stock Exchange, Trade Confirmation System (TCS), Transaction Reporting and Publication System (Saturn) and Index platform

Related access means: Optiq Cash Order Entry available via OEG Market Data: All MDG market data services

The following systems/ services are **not** part of the test:

- Co-location access means
- Post-trade systems: trades will not be integrated in the clearing system and no clearing members will be involved in this test.
- Universal Trading Platform Derivatives Markets: Equity Options and Futures products, Index and Currency derivative products and Commodity products.

MAIN PRINCIPLES OF THE TEST

Euronext will simulate a failover of DC1 to DC2 during the continuous trading session and will manage the transfer through the appropriate decision-making process (for Cash Markets).

As soon as Euronext considers DC2 to be fully operational for Cash markets, a pre-opening session and a trading session will be set up on Cash Optiq, and customers will be given by our readiness status to reconnect.

Customers are responsible for making sure that their internal systems and access means are correctly synchronised with Euronext central systems.

CUSTOMER PARTICIPATION

Euronext strongly encourages any customers to participate actively in this test in order to ensure that they are familiar with the Euronext failover process.

No registration is needed to participate to the test. However, only Production access will be made available on Euronext Cash Disaster Recovery site

COMMUNICATION

During the test Euronext will keep customers informed through the Live Market Status web page:

www.euronext.com/market-status .

TRADING DATE DETAILS

The trading date used for the purposes of the test will be Saturday 21 September 2019. The order book situations will be those of Monday 23 September 2019 before the start of the pre-opening session, i.e. after the corporate events of the evening of Friday 20 September 2019.

Euronext recommends members to enter orders as they do in the live environment.

DR TEST SCHEDULE FOR CASH MARKETS

Note: All timings are approximate and are stated as CET

Timeline	Action
10:30	<ul style="list-style-type: none">• Beginning of the test Euronext emails registered participants in order to check the status and timeline in the Market Status web page. <ul style="list-style-type: none">• Participants are invited to check the status and timeline on the Market Status web page
11:00	Customers start their systems and connect their applications to Euronext DC1 central systems.
11:00	Market data referential messages will be published
11:30	On DC1: <ul style="list-style-type: none">• Pre-opening phase (Core call) on DC1• Customers can connect and send orders to the trading platforms
11:45	<ul style="list-style-type: none">• Opening and Continuous Trading Session• Customers can trade on all trading engines (including TCS)
13:00	<ul style="list-style-type: none">• Approximate time of the disaster event
13:30	<ul style="list-style-type: none">• Beginning of the failover from DC1 to DC2 <input type="checkbox"/> Order Entry access means disconnected from the markets

	<p>Market Status message: Trading halt and fail-over on DC2 due to a disaster event on Euronext Markets.</p> <p>Euronext will then complete the failover procedure from DC1 to DC2 and carry out all necessary assessments to check the platform readiness of DC2. Customers will then be given our readiness status to reconnect. Members must shift their network connection to DC2 as explained in the 'Details for Order Entry Connections' section of this document below.</p>
15:00	<ul style="list-style-type: none"> Market Data heartbeat messages will be sent on Market Data multicast channels from DC2. <ul style="list-style-type: none"> □ Allowing customer to check their Market Data feed reception from Euronext Disaster Recovery site. <p>Market Status message: Trading platform in DC2 is available to connect.</p>
15:15	<ul style="list-style-type: none"> Euronext advises clients that DC2 is ready, authorizing Order Entry connections. <p>Market Status message: Trading to resume on DC2</p>
15:30 15:45	<ul style="list-style-type: none"> Pre-opening period on DC2: Customers may send orders Opening and Continuous Trading Session on DC2: Customers can trade on Euronext Market.
16:30	<ul style="list-style-type: none"> End of the test Customers can disconnect from Euronext central systems <p>Market Status message: End of the Disaster Recovery tests</p> <ul style="list-style-type: none"> After the test, customers must roll back their internal systems to the situation of the evening of Friday, 20 September 2019 (after corporate events and order cancellations).
Post 17:00	<ul style="list-style-type: none"> Euronext Member Connectivity Administrators (MCAs) at member firms should complete the Disaster Recovery test results Form available at: https://connect2.euronext.com/en/form/disaster-recovery-test-cash-mkt

IMPORTANT REMINDERS

- During the fail-over from DC1 to DC2, for Cash markets, no market data will be available in the MDG feed (even heartbeat messages) until the complete start-up of DC2.
- During the test, Euronext will restart the markets on DC2:
 - For Cash markets: with a full order book, i.e. as it was at the time of the disaster event on DC1.
- As the order books on DC2 will then become the Market of Reference, customers will need to manage the synchronization of the local data with the data sent by DC2 trading engines.
- Referential market data:

The referential market data will only be sent one time from DC1 around 11:00 CET. No new referential market data will be sent to the customer from DC2. However Standing Data File are available on EFS.

REQUIRED DOCUMENTATION FOR DISASTER RECOVERY ACCESS

EURONEXT SERVICE	TITLE	DESCRIPTION
Euronext File Service	Optiq Euronext File Services User Guide	EFS user guide
Cash & Derivatives Market Data gateway feed configuration	OPTIQ® MARKET DATA GATEWAY FEED CONFIGURATION	Market data parameters: No change, excepted "Colocation member". same flows used than for Prod
Cash Order Entry Gateway connectivity	EURONEXT MARKETS - OPTIQ OEG CONNECTIVITY SPECIFICATIONS V2.2.0	Description of the connectivity configuration for Prod and DR

ROLL-BACK FOR CUSTOMERS' INTERNAL SYSTEMS

Upon completion of the DR test, members must restore/rollback their internal Production systems to the state as of Friday 20 September 2019 evening (after corporate events). It is very important that members do NOT synchronize their order book with data from Saturday 21 September 2019.

The Saturday 21 September 2019 session will not be taken into account in the Live/Production environment which will start on Monday 23 September 2019 as usual. Customers are requested to ensure their readiness for the next trading day's activities following any Saturday disaster recovery test.

Members are responsible for purging all market data and order entry data sent and received during the Saturday disaster recovery test.

CONCLUSION

Euronext would like to make this test as realistic as possible in order to draw the most relevant and useful conclusions, and therefore encourages customers to participate actively.

Euronext will communicate the test results and conclusions at the beginning of the following week.

CONTACTS

- For any question related to the test, please contact Operational Clients Relationship Officer – Euronext Market Services on email: clientsupport@euronext.com

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