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	Subject	Borsa İstanbul Technological Transformation Program Phase 2+ BISTECH Trading System Test Environments
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	Prepared by	Trading Systems Development Directorate, Debt Securities Market Directorate, Precious Metals and Diamonds Market Directorate
	Distribution	Members, Data Vendors, Software Companies

To Whom It May Concern

As the next step(Phase 2+) of the BISTECH Technological Transformation Program, Debt Securities Market (DSM) and Precious Metals and Diamonds Market (PMD) will be transformed to run on the same system together with Equity Market (EM) and Financial Derivatives Market (FDM). The targeted date of this launch is on 5 March 2018. The access to the Phase 2+ BISTECH Trading System Test Environment for members is granted by August as stated in the Member Briefing held on 25 May 2017.

In this context, the amendments of FIX, FIX Reference Data (RD), FIX Drop Copy (DC) and Data Broadcast TIP protocols for all markets were announced on 27 July 2017. The updated documents have been published at the "BISTECH PHASE 2+" page at <http://www.borsaistanbul.com/en/bistechsupport/technical-documents> .

The Phase 2+ BISTECH Trading System Test Environment will be used to test the FIX, OUCH, ITCH, TIP protocols as well as Trader Workstation (TW) application to be used in all markets except the PMD Market in the BISTECH Trading System on 22 August 2017.

The test version of the TW application can be downloaded from <http://www.borsaistanbul.com/en/bistechsupport/client-applications> .

The members (except PMD members) who connect to BISTECH Trading System Phase 2+ Test Environments via their own Remote Wide Area Network and Independent Software Vendors(ISV) will continue to use existing VPN users. Members who will connect to the BISTECH environment for the first time via the Remote Wide Area Network are required to obtain VPN users from the Marketing and Sales Directorate after obtaining signature. All connection information (user, password, IP / port, etc.) for the test environment is included in the "Technical Information and Testing Program" document on the attached sheet.

Unlike other markets, GIW (Genium-INET Workstation), which will be used as a trader workstation application for PMD Market instead of TW, can be tested as of August 22, 2017. A general and technical information briefing about BISTECH transition is going to be held at a later date in September. Members who want to connect via FIX protocol will also be able to do the test using the following document.

Kindly submitted for your information.

Best regards,

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ANNEX: Phase 2+ BISTECH Trading System Test Environment Technical Information and Test Program Document

**ANNEX:
PHASE 2+ BISTECH TRADING SYSTEM
TEST ENVIRONMENT
TECHNICAL INFORMATION AND TEST PROGRAM DOCUMENT**

Please forward this announcement to company managers and IT staff.

(This announcement can be downloaded from "<http://www.borsaistanbul.com/en/bistechsupport/general-letter>" page)

Dear Member,

The test environments of Phase 2+ of the BISTECH System, developed on the basis of the Borsa Istanbul - Nasdaq Strategic Partnership, will be used for free testing purposes by members and software organizations as of 22/08/2017. Technical details for connection to the test environment are provided in this document.

A - Necessary Information Before Testing

The connection to the test environments will be provided over the existing live (production) network. The members can avoid the intense data traffic by planning the testing times within the day, the members can get rid of the peak hours that are concentrated in the live environment and avoid data traffic that may occur.

Connections to test environments via remote access network;

- If Client-to-Site connection is used to connect to BISTECH test environment, the connection can be established by selecting the BISTECH profile via Cisco AnyConnect software.
- If Site-to-Site VPN connection is used to connect to BISTECH test environment, the IP addresses of test servers must be defined in the Exchange Encryption Domain definitions defined on the VPN device. Members who wish to receive current Encryption Domain information may contact bistechsupport_autoticket@borsaistanbul.com.

BISTECH FIX GW active-passive redundancy structure, unlike BISTECH live environment, is not going to be used in the test environment of BISTECH Trading System, instead only active Gateways (GW) will operate. Members will be able to test the failover scenarios in a planned rehearsal environment, which available test dates will be announced later.

Members can obtain connection information (user, password, IP / port, etc.) for BISTECH Trading System Phase 2+ Test Environment from "User Management and Authorities" menu on BISTECH CONNECT corporate customer portal (<http://connect.int2.uyg.borsaistanbul.com>) from 09:30 on 22 August 2017. This portal will only be used for Phase 2+. For the entries of members and data vendors, one test user has already been added to the system and their passwords are the same as their user names.

In order to provide access to <http://connect.int2.uyg.borsaistanbul.com> through the Remote Wide Area Network and Internet VPN connections, <http://connect.int2.borsaistanbul.com> should be decrypted as 10.57.3.106 on the user's computers. This resolution must be provided by the member / software

organizations with the Host file or DNS registration change.

The Connect environment(<http://connect.int.uyg.borsaistanbul.com>), which is available for the Phase 2 production test environment, continues to operate. For this reason, it is important to pay attention to the Connect environment where our members receive their connection information in order to avoid confusion about Phase 2 (EM + FDM) and Phase 2+ (EM + FDM + DSM + PMD) test environments.

Currently, two different Phase 2 test environments are available for members: production-environment-like which is Prod-Like: 10.57.3.8, and Pre-Prod: 10.57.3.22, the environment in which pre-production changes take place. In these environments, the Phase2 Prod-Like environment is going to be closed on 21/08/2017 before the BISTECH Phase 2+ member test environment starts to operate. The Phase 2+ Test Environment is going to be opened with the same IP address (10.57.3.8) on 22 August 2017. In other words, the IP addresses of the new Phase 2+ test environment are the same as those used previously as Prod-Like during Phase 2 tests. The Pre-Prod test environment (10.57.3.22) will continue its current operation as the Phase 2 environment.

Connection via TW:

- Members will be able to use TW in the test environment, and the test version of the TW application can be downloaded from <http://www.borsaistanbul.com/en/bistechsupport/client-applications> . The TW IP address is common to all our members in the testing environment and is as below. The connection port information can be obtained from the Connect environment.

	IP Address	Port No
TW Connection	10.57.3.8	8024 / 8025 / 8026 / 8027

Connection via FIX:

- For FIX connection, the members will be given user and password information as well as port information. The connection port information belongs to the member itself and can be obtained from the Connect environment.
- There is a two partitional structure in the test environment as in the production. Information about which partition to use for which instruments is included in the "Security Definition Report" messages on the FIX RD channel. The test taker needs to connect to both partitions separately with different users. Partitions' IP information will be common, but port information will be different. For this purpose, two user and port definitions (one set) will be given to the members for FIX order transmission.

	IP Address	Port No	
FIX Order Transmission	10.57.3.8 (RWAN) / 194.0.142.188 (Co-Lo)	Partition 1	Partition 2
		<i>Private to the member 1</i>	<i>Private to the member 2</i>

- A FIX user can only be connected to one partition at the same time. For another partition connection, the second FIX user needs to connect.
- If a separate user is requested for Market Maker tests, additional port / user information will be provided to the members.

- Status information of market instruments, partition information of instruments, base and limit prices information etc. will be given by FIX Reference Data (RD) link. The partition information of the assets can be changed in advance in both test and production environment. Members have to build and test their structures accordingly.
- Information can be obtained from FIX RD regardless of partition structure by single user. A different FIX user and port information from the FIX users used for order transmission will be shared with the members for this connection.

	IP Address	Port No
FIX Reference Data	10.57.3.8 (WAN) / 194.0.142.188 (Co-lo)	<i>Private to the member</i>

- Drop Copy (DC) messages can be retrieved via FIX Drop Copy. FIX DC requires a separate connection to the two partitions. For this reason, two FIX DC users and port information will be shared with members besides FIX Order Transmission and FIX RD users.

	IP Address	Port No	
		Partition 1	Partition 2
FIX Drop Copy	10.57.3.8 (WAN) / 194.0.142.188 (Co-lo)	<i>Private to the member 1</i>	<i>Private to the member 2</i>

Connection via OUCH:

- OUCH tests for the Equity Market and Derivatives Market will be available in the test environment. There will be no OUCH channels in other markets. For OUCH connection, there is a two partitioned structure as in FIX connection.

	IP Address	Port No	
		Partition 1	Partition 2
OUCH	194.0.142.188 (Co-lo)	<i>Private to the member 1</i>	<i>Private to the member 2</i>

Connection via ITCH:

- ITCH tests for the Equity Market and Derivatives Market will be available in the test environment. There will be no ITCH channels in other markets. For ITCH connection, there is a two partitioned structure as in FIX connection. Unlike the production environment, the ITCH data broadcast in the test environment can be received from both wide area network (SoupbinTCP) and co-location (MoldUdp).

PTRM:

- Pre-Trade Risk Management (PTRM) was put into use in the test environment. The default PTRM user definitions for all markets can be obtained from the connect environment.

Connection via GIW:

- Technical announcements will also be made for members who will use the Genium INET Workstation (GIW) in Precious Metals and Diamonds Market (PMD).

Connection via TIP:

- Data Vendors (DV) need to send an e-mail to vyk-support_autoticket@borsaistanbul.com for authorized username and password information to broadcast DSM and PMD data.

	IP Address	Port No
DV – TIP	(For connection through Data Vendors' testing network) 185.76.203.244	39101
	(For connection via Internet VPN) 10.57.3.17	39103

Day-End Reports:

- All documents (All Orders Book / Member Trade Book, Bulletins, etc.) produced for members and data vendors as a result of tests on the test environment will be available at the end of the day. Those documents, which will be produced on a regular basis every day in the member test and data broadcast test environments, will be accessible via the VERDA (Data Sharing) file sharing application on the BISTECH Connect platform. These files will be available at the end of trading sessions of test environment. Members will be able to access the VERDA test environment screens via existing VPN connections. The system is going to be available at <http://connect.int2.uyg.borsaistanbul.com>. Day-end reports will be available on the "Verda" menu in this portal.
- End-of-day reports are not going to be given in the test environment in the first place and the related reports will be included later in the test environment. After the update of the file of the end-of-day reports file format, the end-of-day reports will be generated and delivered in the test environment. Members will also be notified at this stage.

B - Test Data and Trading Hours

Production environment data dated 1 August 2017 is going to be used in the test environment. The price information will be generated as a result of the transactions in the test environment following the first uploaded trade and these prices will be transferred to the next trading days. Before carrying out the order transmission test, it is necessary to obtain the current partition and price information for the instruments to be used in the test via the FIX RD test link.

All information about test environments and the trading hours of the markets are available in the "Test Environment Information Document" at <http://www.borsaistanbul.com/en/bistechsupport/technical-documents>

Members and software organizations can forward all questions about BISTECH systems testing to the bistechsupport_autoticket@borsaistanbul.com e-mail address.