

TECHNICAL REQUIREMENTS

ANNEX II.

OF

HUPX MARKET RULES

Version **54.0**

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1. GENERAL RULES

1.1. GOALS OF THE TECHNICAL REQUIREMENTS

1. The Technical Requirements are set of rules applicable to technical conditions related to access and use of the Trading System of HUPX including parameters and prescriptions to ensure the technical conditions of the orderly trading and data reporting. Furthermore the Technical Requirements contain all rules referred to in HUPX Market Rules.
2. HUPX shall publish the Technical Requirements on its Website.

1.2. PERSONS BOUND BY THE TECHNICAL REQUIREMENTS AND EFFECTIVE DATE

1. The present Technical Requirements are binding on HUPX and on persons bound by the HUPX Rules and Regulations.
2. The present Technical Requirements will become effective as defined in the Section 1.1.4.7 of HUPX Market Rules.

1.3. DEFINITION

1. The definitions used in these Technical Requirements shall have the meaning as defined in the HUPX Market Rules.

2. GENERAL TECHNICAL REQUIREMENTS ON HUPX INTRADAY CONTINUOUS MARKET

2.1. IT REQUIREMENTS FOR HUPX INTRADAY CONTINUOUS MARKET TRADING SYSTEM

1. HUPX provides the HUPX Members the technical and operational documents, guides, manuals necessary for the orderly use of the Trading System any other documents needed to use the technical facilities for accessing its services.
2. HUPX publishes the documents on its Website.

2.2. TRADING SYSTEM AND TRADING VIA API

1. HUPX Member shall use the following electronic order-transmission and reception system in order to access HUPX Intraday Continuous Market:
 - a) Trading System: Deutsche Börse M7
 - b) Third party application, automatic trading (API trading) is available.

2.3. TECHNICAL AND COMPLIANCE TESTING

1. HUPX may require technical testing for access to the trading platform and/or to deliver changes or updates to the trading infrastructure or trading software.
2. HUPX communicates to the HUPX Members the eventual necessity of technical testing in an Operational Notice.

3. HUPX requires compliance testing of API solution before connecting to the Trading System. The compliance test can be performed via:

3.1. individually performed compliance tests in case of user-specific software;

3.2. compliance test of a certified ISV (independent software vendor) listed on the HUPX Website.

~~3.4. Prior to the first connection to the production Trading System HUPX may also require Members having access to trading system via API to participate in compliance testing to verify that the trading processes and algorithms used by the HUPX Member work properly. The compliance test covers – inter alia – the testing of the following main functions:~~

~~3.1.4.1. General system requests and responses,~~

~~3.2.4.2. Order entry function including entering modifying and cancelling various orders into trading system,~~

~~3.3.4.3. Trading function and all relevant business data flow,~~

~~3.4.4.4. “Panic button”: member is able to revoke its active orders immediatelyimmediately, if necessary,~~

~~3.5.4.5. In the frame of compliance testing member shall declare that its trading system is suitable:~~

~~3.5.1.4.5.1. to handle basic to exceptional market circumstances;~~

~~3.5.2.4.5.2. avoid to-submitsubmitting unnecessary amount of orders.~~

~~5. The detailed test scenarios for the compliance test shall be sent out to relevant HUPX Member by HUPX market operations prior to the actual testing period. Compliance test scenarios are defined by HUPX and will be provided before compliance testing.~~

~~6. After performance of the compliance test (potential) HUPX Member is required to confirm that the test was successful via email from the Registered Email Address.~~

~~4.~~

2.4. MAXIMUM MESSAGE NUMBER

1. HUPX may define maximum message number in case of submission of Orders.
2. HUPX defines the maximum number of ~~transactions_order events~~ per trading day:
 - 2.1. HUPX Member is allowed to execute maximum 8560,000 order ~~transactions_events~~ per Trading Day.
 - 2.2. Order ~~transactions_events~~ will be considered with the following order action types: UADD (Order added by the User); UMOD (Order modified by the User).

2.3. HUPX may suspend the trading right of the HUPX Member temporary or apply other sanctions set out in the HUPX Market Rules if the maximum order transaction limit is breached. In such case 2.3.8 of HUPX Market Rules is applicable. HUPX is also entitled to restrict or revoke the permission to access trading via API in accordance with 2.5.1.2 of HUPX Market Rules.

3. GENERAL TECHNICAL REQUIREMENTS ON HUPX DAY-AHEAD MARKET AND HUPX INTRADAY AUCTION MARKET

3.1. IT REQUIREMENTS FOR HUPX DAY-AHEAD MARKET AND HUPX INTRADAY AUCTION TRADING SYSTEM

1. HUPX provides the HUPX Members the technical and operational documents, guides, manuals necessary for the orderly use of the Trading System any other documents needed to use the technical facilities for accessing its services.
2. HUPX publishes the documents on its Website.

3.2. TRADING SYSTEM AND TRADING VIA API

1. HUPX Member shall use the following electronic order-transmission and reception system in order to access its auction markets in accordance with the relevant Market Notices:
 - a) Trading System: EPEXSPOT Trading System (ETS)
 - b) Third party application, automatic trading (API trading) is available for HUPX Intraday Auction Members.

3.3. TECHNICAL AND COMPLIANCE TESTING

1. HUPX may require technical testing for access to the trading platform and/or to deliver changes or updates to the trading infrastructure or trading software.
2. HUPX communicates to the HUPX Members the eventual necessity of technical testing in an Operational Notice.
- ~~3. Prior to the first connection to the production Trading System HUPX may also require Members having access to trading system via API to participate in compliance testing to verify that the trading processes work properly. HUPX requires compliance testing of API solution before connecting to the Trading System. The compliance test can be performed via:~~
 - ~~3.1. individually performed compliance tests in case of user-specific software;~~
 - ~~3.2. compliance test of a certified ISV (independent software vendor) listed on the HUPX Website.~~
- ~~4. Compliance test scenarios are defined by HUPX and will be provided before compliance testing.~~
- ~~3.5. After performance of the compliance test (potential) HUPX Member is required to confirm that the test was successful via email from Registered Email Address.~~

4. TECHNICAL CONNECTION TO THE HUPX SFTP SERVER

1. The HUPX Member must meet the requirements set by HUPX for the access of HUPX sFTP server, which are published on the sFTP server for the HUPX Members or are provided for the HUPX members.
2. The port provided above must be allowed on the firewall of the computer running the client in order to gain access to the sFTP server.
3. One sFTP user can login from 10 instruments all at once.

4.1.1. SAFETY SETTINGS – SERVER FINGERPRINT

1. In order to create a safe sFTP connection, HUPX suggests that the HUPX Member validates the HUPX sFTP server fingerprint on first login. This requires a comparison of the fingerprint received on first login to the fingerprint provided by HUPX.
2. The valid HUPX sFTP fingerprint is published on the sFTP server or is provided for the HUPX Member.
3. In case of changing the fingerprint the HUPX Members will be informed by HUPX.

4.1.2. SAFETY SETTINGS – ALGORITHMS

1. When connecting to the HUPX sFTP server, the client and server applications agree in the background on which algorithms shall be used during the communication (so-called “SSH handshake”). If the client and the server cannot agree on which algorithms shall be used the connection will be unsuccessful.
2. If the connection is unsuccessful because of the SSH handshake process, the HUPX Member must clarify whether the sFTP client supports one of the algorithms supported by HUPX sFTP.
3. The supported algorithms are published on the sFTP server or are provided for the HUPX Members.

4.1.3. PASSWORD REQUIREMENTS FOR CONNECTING HUPX SFTP SERVER

1. HUPX determines the password requirements for joining HUPX sFTP server.
2. The password requirements are published on the HUPX sFTP server or are provided for the HUPX Members.
3. The HUPX Members are obliged to change their password related to the sFTP server in every 90 days regularly. The first modification must be made in 90 days after this regulation takes effect.
4. In case the HUPX Member does not change its password in 90 days, HUPX can block its access to the sFTP server which will be unblocked immediately as soon as the password has been changed.
5. In addition, HUPX suggests to the HUPX Members to establish an internal procedure considering password changes.

5. DESIGNATIONS

5.1. DESIGNATION OF CLEARING HOUSE

1. European Commodity Clearing AG (registered under Augustusplatz 9, 04109 Leipzig, Germany) has been designated by HUPX as the Clearing House of HUPX.

5.2. DESIGNATION OF THE TSO

1. MAVIR Magyar Villamosenergia-ipari Átviteli Rendszerirányító Ltd. (registered under Anikó utca 4., 1031 Budapest, Hungary) has been designated by HUPX as the TSO.

5.3. DESIGNATION OF SHIPPING AGENT

1. MAVIR Magyar Villamosenergia-ipari Átviteli Rendszerirányító Ltd. (registered under Anikó utca 4., 1031 Budapest, Hungary) has been designated by HUPX as Shipping Agent on HUPX Day-ahead, HUPX Intraday Auction and HUPX Intraday Continuous Markets.

5.4. DESIGNATION OF TRANSIT SHIPPER

1. MAVIR Magyar Villamosenergia-ipari Átviteli Rendszerirányító Ltd. (registered under Anikó utca 4., 1031 Budapest, Hungary) has been designated by HUPX as Transit Shipper on HUPX Intraday Market.