

Schedule J/1 General Technical Terms and Conditions

Rules for the Technical Installations of the Trading Systems

1. General rules for access to the Exchange EDP System

- (1) The Rules for the Technical Installations govern access to the Exchange EDP System and apply to all trading members and Authorized Service Providers (ASPs, specified in item 12.), together referred to as "Connectivity Customers". The Rules define, in particular, the technical conditions required for taking part in trading and/or connecting to the Exchange EDP System.
- (2) After being admitted as an exchange member and having been granted the authorization to participate in trading, the trading member is given access to the Exchange EDP System. To access the Exchange EDP System, Connectivity Customers must submit an application to the Connectivity Provider. Trading members are permitted to participate in electronic trading in one or several Partner Exchange Markets. The Connectivity Provider grants the Connectivity Customer technical access to the relevant market provided the Connectivity Customer meets the legal and technical requirements for accessing the Exchange EDP System of the respective market.
- (3) The legal requirements for the technical access to the Exchange EDP System are met if the Connectivity Customer has entered into the relevant contract on the use of the EDP System of the Connectivity Provider, in a valid version, for the term of the admission to trading. Irrespective of this, the trading member must meet the legal requirements for members of the Exchange and for participation in trading in the respective market.
- (4) The technical conditions are met if the Connectivity Customer admitted fulfills the technical requirements for connecting to the Exchange EDP System and the conditions for the use pursuant to these Technical Rules.
- (5) The exchange operating company shall have the right to inspect a Connectivity Customer's compliance with these Rules for Technical Installations and with the technical requirements, guidelines and instructions of the exchange operating company at any time. The Connectivity Provider shall have the right to inspect all systems and connections used by the Connectivity Customer in the location(s) of the Connectivity Customer for compliance with the requirements for the connection and operation of the systems and their proper use in accordance with these Rules for Technical Installations.

2. Technical access to the Exchange EDP System

- (1) The Exchange assigns every Connectivity Customer at least one customer identification code (customer ID) for accessing the Exchange EDP System that is permitted to be used exclusively by the respective Connectivity Customer.
- (2) The Exchange may assign several customer identification codes to trading members, if the trading member clears the trades executed in the electronic trading system through several clearing members or clearing agents. In this case, the Exchange assigns a customer ID for each clearing member or clearing agent charged with the clearing of trades.
- (3) Based on the respective customer ID, the trading members must generate personal user IDs and passwords (Trader IDs) for exchange traders and further persons using the Exchange EDP System (Technical Users) personal user IDs and passwords (trader IDs). Personal user IDs and passwords are permitted to be used exclusively by the persons to whom they have been assigned. Passwords must be kept secret from unauthorized third parties.
- (4) The use of the Exchange EDP System for taking part in exchange trading, in particular, the entry of orders is permitted only for exchange traders admitted to exchange trading. In the event of emergency, the Exchange may give trading members the option of authorizing additional technical users – upon written request and with its approval – to cancel all open orders (orders and quotes) with immediate effect and to block the entry of new orders (orders and quotes) of the trading member; such technical users must have the required expert knowledge and experience to ensure that their participation will not disrupt trading and the authorization process must involve a compliance staff member and observe the principle of dual control.
- (5) Trading members are under the obligation to immediately inform the Exchange in writing of allocations and changes to personal user IDs for accessing the Exchange EDP System.

3. Member trading system

- (1) An exchange member must connect with at least one member trading system to the Exchange EDP System. A member trading system comprises all hardware and software components of a trading member, in particular, the local networks, interfaces and backend entry devices through which a trading member is connected to the Exchange EDP System from one location to take part in trading and to enable orderly exchange trading. The operation and the regular maintenance of the participant trading system is the responsibility of the trading member. The trading member is responsible for ensuring that the participant trading system always complies with applicable regulatory requirements.
- (2) The trading member must ensure orderly operation of its member trading system so as to guarantee that it will not disrupt exchange trading processes or functionalities.
- (3) The Connectivity Provider may define which hardware and combinations of operating systems are permitted for the installation of the member trading system. The trading member must notify the Connectivity Provider of the combination(s) selected before it is granted access to the Exchange EDP System. Any ex post changes must be notified to the Connectivity Provider.
- (4) The Connectivity Provider may assign node numbers and network areas and/or network addresses to member trading systems. In this case, the trading members are under the obligation to communicate exclusively with the Exchange EDP System via the assigned node numbers, network areas and/or network addresses.
- (5) As a minimum, the software defined by the Connectivity Provider (exchange software) must be installed on the member trading system. The trading member is not permitted to pass the exchange software on to third parties. The further details are defined by the Exchange.

4. Connection lines

- (1) The connection of the member trading system is done through one or more leased line(s) or via Internet or via a combination thereof, or through the connection of one or more Authorized Service Provider(s) ("ASP(s)"). The Connectivity Provider defines at which access point(s) the connection to the Exchange EDP System is to be set up.

Leased line: The procurement, installation and operation of the leased line shall be done by the Connectivity Provider or a third party it charges with the task. The Connectivity Provider shall ensure that all of the leased lines are set up with bandwidths. The details, especially the possible bandwidths and the routes shall be defined by the Connectivity Provider. A requirement for a connection via a leased line is that the connection routes and types supported by the Exchange EDP System must be available at the Connectivity Customer and it must be possible to set up and operate the lines under the usual conditions and for reasonable costs, while at the same time ensuring that the security standards and quality defined by the Connectivity Provider are met. The Connectivity Provider may define that a Connectivity Customer be permitted to connect to the Exchange EDP System only with a minimum and/or maximum number of leased lines if this is required for system capacity reasons or for other reasons.

Secure Internet Connection: The connection of a trading member to the Internet is the sole responsibility of the trading member. This includes the physical setup of a connection to the Internet such as the selection of an Internet service provider as well as the setup of general security functions such as firewalls, etc.

The connection of a trading member to the EDP system of the stock exchange via the Internet is the shared responsibility of the exchange operating company and the trading member. This includes the entire physical connection of the trading member's systems to the Exchange EDP system as well as all security measures that must be taken to ensure orderly trading.

Within its failsafe and secure connection to the Internet, the Connectivity Provider ensures a sufficient bandwidth and informs the trading member of the parameters for a secure Internet connection to the Exchange EDP system. The trading member must ensure that all parameters such as the bandwidth to the Internet, system addresses, the security certificates used, etc. comply with these requirements. The Connectivity Provider will monitor compliance with the parameters as well as with the strict security requirements with the same due care as for other types of connections

5. Locations:

- (1) A location designates the entirety of all business premises of a trading member within a building complex under the address given by the trading member from where an application is submitted to the Connectivity Provider for the technical connection of the member trading system (technical location) and/or for trading access of a trading member for an exchange trader (trading location). The Connectivity Provider may reject the connection from the location of the trading member if the applicability and compliance with the General Technical Terms and Conditions cannot be guaranteed and it is not possible for the Connectivity Provider or a third party it may charge with the task to conduct an inspection. Business premises at which the member trading systems are installed that serve merely as backup systems or for taking part in technical simulations are not considered locations in the meaning of these Rules.
- (2) A trading member system must be installed at a location of the trading member and connected to the exchange EDP system. Participation of a trading member in exchange trading must consist at least of one technical location and of one trading location. Additionally, participation of a trading member in exchange trading is possible from several technical locations as well as from several trading locations.
- (3) If a trading member connects to the Exchange EDP System via an ASP or a leased line, the trading member may connect – in departure from paragraphs 1 and 2 and item 4 – individual hardware components of its member trading system via an ASP or a line from one technical location to the Exchange EDP System and further hardware components of its member trading system via another ASP or line from a further technical location (split location). A requirement for this is that both locations communicate via the same network area pursuant to item 3 para. 4 with the Exchange EDP System and it is ensured that in the event of failure of one line, orderly exchange trading will continue to be possible. The split location must be notified to the Connectivity Provider which must give its consent.
- (4) The Connectivity Provider can approve the installation, the connection and the operation of parts of the member trading system on the business premises of a third party charged by a trading member with the operation of the member trading system provided the applicability and compliance with the General Technical Terms and Conditions of Business, is guaranteed, in particular with respect to third parties charges with the operation of its trading system (e.g. computer center). By entering into the corresponding agreements with third parties, the trading member shall ensure that the Connectivity Provider has the right to inspect at any time the business premises of any such third party to ascertain compliance with the requirements for a connection and operation of a member trading system.
- (5) The Connectivity Provider may revoke approval pursuant to paragraphs 3 and 4 if orderly exchange trading or system security is at risk due to the connection or the operation of parts of the member trading system.

6. Backend entry devices, access and interfaces

- (1) A Backend entry device is an EDP System of the trading member that is used to enter orders into the Exchange EDP System. Backend entry devices may be installed at the technical locations and the trading locations pursuant to item 5, para. 1 and 3 of the trading member and from there connected to the Exchange EDP System. Item 5, para. 4 does not apply.
- (2) To maintain access to the Exchange EDP System, a trading member must have at least one available backend entry device via a non-programmable connection or an interface to the Exchange EDP System. Further details are defined by the Exchange.
- (3) The Exchange may permit the connection of several terminals upon written request of a trading member. The Exchange may limit the number of member trading systems requested by a trading member if this is necessary for reasons relating to system performance or for other material reasons.
- (4) The Exchange may stipulate that trading members connect to the Exchange EDP System only via certain interfaces and must also meet further minimum requirements, especially regarding the programming of the interfaces.

7. Trading member software

- (1) In addition to the exchange software, trading members may install their own software (Member Software) on their member trading systems. The Connectivity Provider may define that trading members must register the software with the Connectivity Provider and must assign at least one electronic ID (identifier) as specified by the Connectivity Provider. The identifier must always be transmitted when the Member Software communicates with the Exchange EDP System.
- (2) If the Member Software causes disruptions to the Exchange EDP System, the Connectivity Provider may cancel the use of the Member Software with immediate effect. The trading member software must be sufficiently tested prior to use. Further details are defined by the Exchange.

8. Order routing system

- (1) An order routing system is a Member Software application that makes it possible for the entries sent by the various users of the Member Software, in particular, order entry and order cancellation, to be transmitted directly with the user ID of one exchange trader to the Exchange EDP System.
- (2) The Exchange shall be in the position to define the rules and regulation for an order routing system individually on its own.

9. Direct market access

- (1) Direct market access is a type of direct electronic access in the meaning of Article 4 (1) No. 41 MiFID II: "direct electronic access" means an arrangement where a trading member of a trading venue permits another person to use its trading code so as to permit the person to electronically transmit orders for financial instruments directly to the trading venue. Direct market access includes arrangements which involve the use of the infrastructure of the trading member or any connecting system of the trading member by said person to transmit orders.
- (2) The Exchange shall be in the position to define the rules and regulation for a direct market access individually on its own.

10. Automated order entry system (or algorithmic trading)

- (1) "Algorithmic trading" is trading in a financial instrument in which a computer algorithm automatically determines the order parameters. Order parameters are decisions regarding whether an order should be triggered, the timing, the price or quantity of an order, and how an order is to be processed after being entered: with restricted human intervention or even none at all. This term does not apply to systems used to forward orders to the exchange EDP system, to process orders without any specific order parameters, to confirm orders or for the post-trade processing of executed orders. An automated order entry system is the member software of a trading member for executing algorithmic trading.
- (2) The Exchange shall be in the position to define an automated order entry system individually on its own.

11. Revocation of connection permissions

- (1) The Exchange may restrict or revoke a connection of systems pursuant to items 8, 9 or 10 (order routing systems, direct market accesses, automated order entry systems or algorithmic trading).

12. Authorized Service Provider ("ASP")

- (1) Several trading members may connect their frontend entry devices via an ASP to the Exchange EDP System.
- (2) The trading members are under the obligation to notify the Connectivity Provider in writing if they are connecting to the Exchange EDP System via an ASP. The Connectivity Provider defines in detail the further conditions for connecting an ASP.

13. Staff

- (1) The Connectivity Customers are under the obligation to make qualified personnel available in sufficient numbers at all times during exchange trading hours to ensure orderly exchange trading and to guarantee that they can be reached by telephone. This applies only as long as the orders of trading members are in the Exchange EDP System or are entered into said system.
- (2) Moreover, a contact person must be notified to the Connectivity Provider that can be reached in the case of technical disruptions or proof must be furnished of a service agreement with a third party.

14. Obligation to maintain the system's technical capacities

- (1) To secure orderly exchange trading, the Exchange may define a maximum number of entries into the Exchange EDP System per second for every trading member. In the event the maximum limit is exceeded, the Exchange EDP System will reject every additional entry for the trading member in the relevant second.
- (2) The Connectivity Provider may measure the loads generated by the individual member trading systems on the Exchange EDP System and, if necessary, limit the loads through technical measures or exclude the concerned trading member from the use of the Exchange EDP System if this is necessary to ensure system security or for any other material reasons.
- (3) The exchange operating company defines measurement figures for the maximum order-to-trade-ratio. The measurement figures are based on the transaction behavior of the trading members and reviewed half-yearly, and updated and published if applicable. Trading participants are under the obligation to observe the defined order-to-trade-ratios. The exchange operating company is entitled to collect fees for the use of the system that exceeds the maximum order-to-trade-ratio.

15. Prohibition of abuse of the system

- (1) The trading members are permitted to use the Exchange EDP System only for trading purposes and for the clearing of trades in the markets operated by the Exchange. Any other use shall require a prior written agreement between the trading member and the Exchange.

16. Technical problems

- (1) In the case of technical problems, the Connectivity Provider may block or restrict access to the Exchange EDP System for one, several or all trading members irrespective of whether the technical problem is at the Connectivity Provider or at one, several or all trading members.
- (2) Connectivity Customers are under the obligation to inform themselves of the technical requirements and/or of any changes through the info channels made available by the Connectivity Provider. The Connectivity Provider will inform the Connectivity Customer without delay, insofar as possible, of any technical problems. In the event of technical problems with the Exchange EDP System, Connectivity Customers are under the obligation to permit the Connectivity Provider or a third party it charges with the task of accessing the locations at which the member trading systems are installed for the purpose of repairing the disruption.
- (3) In the event technical access is blocked for all trading members, no further entries can be made into the Exchange EDP System (halt status). Following a halt status, trading is continued in accordance with the general rules. The Exchange will immediately inform the trading member regarding the time sequence of the trading phases.
- (4) The respective exchange may, in the event of failure of a member trading system or of a partial failure of the Exchange EDP System, upon the request of the trading member, make entries on its behalf into the Exchange EDP System (trading-on-behalf).
- (5) The heartbeat functionality is an application that may be made available upon request, and, provided the trading member enters binding quotes for the shares defined by the Exchange, permits trading members to continuously monitor the connection between a functionality of a trading member (quote machine) and the Exchange EDP System based on a fixed interval signal.

- (6) If the signal is not received within a binding, pre-defined period, all binding quotes of the predefined user group of the trading member are automatically deleted. The deletion is done also if the internal system failover mechanism restores a connection. During trading phases in which the trading model does not permit the cancellation of orders, orders are cancelled in the next trading phase. In the event of technical problems or disruptions to the Exchange EDP System, especially if the capacity of the heartbeat functionality is exceeded, the Exchange may interrupt the provision of this functionality for individual trading members or for all trading members. In this case, there is no automatic deletion of the binding orders of the user affected by the interruption.
- (7) The trading members must immediately notify the Exchange by telephone if entering or receiving data is not possible at all or only in part due to a disruption of operations or due to force majeure. In such case, the Exchange may, upon request of said trading member, enter the data into the Exchange EDP System for electronic trading.
- (8) The trading member or the affected exchange trader must immediately notify the Exchange of any failure in the telecommunications or any another disruption that prevents telephone contact.

17. Contingency planning

- (1) Every Connectivity Customer is responsible for taking the appropriate measures for contingency planning and action in its area of responsibility. These measures are defined, monitored and regularly reviewed in accordance with legal requirements, and serve, above all, to ensure that disorderly trading conditions are avoided.
- (2) A Connectivity Customer has the option of setting up backup locations, furnishing these and connecting them to the Exchange EDP System. These connections are inactive as a rule and are only activated in the case of emergency.
- (3) The setting up and operation of a backup location is subject to the provisions of items 2 to 5. The one-time and recurring costs in this context are borne by the Connectivity Customer.
- (4) To guarantee uninterrupted access to the Exchange EDP System in the case of emergency, a Connectivity Customer may set up a separate network for the backup locations.

18. Synchronization of the clocks used

Trading members must ensure that the systems used for electronic trading comply with applicable legal provisions applicable to system time with respect to synchronization and preciseness, and that the systems have the relevant process for verifiability to coordinated universal time (UTC) and are regularly checked.

19. Obligation to provide information to the Connectivity Provider

The Connectivity Customer is under the obligation to provide the Connectivity Provider and/or Exchange with information regarding any questions on the market access of the Connectivity Customer to the exchange EDP system operated by the exchange operating company and to grant access to the documentation at all times.