



Cancel on Disconnect for ASTS

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Glossary

- **COD-mode** – Cancel on Disconnect mode. When active, Trading System monitors user transactional activity and cancels his active orders in case of inactivity timeout, logoff or connection loss.
- **HEARTBEATINTERVAL** – time interval during which client application should notify Trading System about his presence at least once by sending any transaction or a special 'USER_HEARTBEAT' transaction when using the bridge interface or the standard `Heartbeat (0)` message in FIX interface. In the current implementation HEARTBEATINTERVAL is set to 10 sec.
- **Inactivity timeout limit** – time interval after which client application that does not send any transactions is considered as inactive. In the current implementation inactivity timeout is defined as $2 * HEARTBEATINTERVAL = 20$ sec.

General Description

In order to provide an ability of automatic order cancellation in case of inactivity timeout, logoff or connection loss, Moscow Exchange introduces the "Cancel on Disconnect" service for ASTS Trading & Clearing system.

To activate the "Cancel on Disconnect" service a Trading Member should submit an application to the MOEX Client Center.

If a user does not perform any transactions it is necessary to simulate activity by repeatedly submitting explicit heartbeats at least once in HEARTBEATINTERVAL (currently - 10 seconds), but not more often than once per second.

Types of cancelled orders

The COD function is only applied to anonymous orders on the book, including anonymous REPO with CCP, entered 'today'.



Changes in Bridge Interface

1. The 'USER_HEARTBEAT' transaction has been added. It must be repeatedly submitted by user in case he does not enter any other transactions (order submission, withdrawal, etc.). User should send this transaction at least once in HEARTBEATINTERVAL (currently - 10 seconds), but not more often than once per second.
2. The 'CODMODE_SWITCH' transaction has been added. It can be used to either activate or deactivate COD-mode (depending on its current state). Applies only to the "on-demand" option. See the 'Cancel on Disconnect On-Demand' chapter below. In case of attempt to submit this transaction by user with fully automatic option it will be rejected by the Trading System.

Details on COD-mode

1. If the COD-mode is active, Trading System monitors user activity. Each transaction registered by the Trading System whether successful or not, is treated as expression of activity.
2. If user does not send any transactions he must simulate activity by submitting the heartbeats at least once in HEARTBEATINTERVAL (currently - 10 seconds), but not more often than once per second.
3. In case user reaches inactivity timeout limit (20 sec. in the current implementation) all his active orders will be cancelled by the Trading System.
4. In case user with the enabled COD-mode explicitly disconnects from the Trading System (with 'LOGOFF' transaction) all his active orders will be cancelled.

Notes on Implementation

- Trading System assigns status "D" (Canceled on Disconnect) to orders cancelled by the COD mechanism.
- If orders are cancelled due to inactivity timeout, but user has not logged off from the Trading System and connection loss has not occurred, user will not be automatically disconnected.
- When using the Sponsored Market Access (refer to the SMA documentation): if a MASTER_ID reaches inactivity timeout it will be disconnected from the trading system. Any attempts to use this connection will cause the "(201) Unable to service request" error. User must reconnect to the system in this case. If a MASTER_ID disconnects from the system using the LOGOFF transaction it will be considered as inactive.

Order Cancellation Conditions

All the mentioned below conditions lead to order cancellation if COD-mode is active (unless otherwise specified):

- User has not submitted any transactions during the inactivity timeout limit (currently 20 sec.).



- Client application has lost connection to the Bridge server. In this case Bridge server submits 'LOGOFF' to the Trading System on behalf of user. After processing the request Trading System will cancel user's active orders.
- Bridge server has lost connection to the Trading System or unable to operate properly due to an error. All the user's active orders submitted through this Bridge server instance will be cancelled after the inactivity timeout.
- Embedded-Bridge server has lost connection to the Trading System or unable to operate properly due to an error. All the user's active orders will be cancelled after the inactivity timeout.
- Gateway has lost connection to the Trading System or unable to serve client requests due to an error. In case user does not reconnect to another Gateway within the inactivity timeout limit (currently 20 sec), all his active orders will be cancelled.
- FIX server is unable to operate properly due to an error. In case user does not reconnect to another FIX server within the inactivity timeout limit (currently 20 sec) all his active orders will be cancelled.
- FIX user has lost connection to the FIX server or unable to operate properly due to an error. In this case FIX server submits 'LOGOFF' transaction to the Trading System on behalf of user. After processing the request Trading System will cancel user's active orders.
- FIX user has been disconnected due to heartbeat timeout (defined at FIX logon). In this case FIX server submits 'LOGOFF' transaction to the Trading System. After processing the request Trading System will cancel user's active orders.
- In case FIX server or any other external system is losing connection to its client but continues to send heartbeats on behalf of this client, such behavior cannot be recognized by Trading System as abnormal. Such situation should be handled on the user side.

For all the above mentioned cases: after connection loss (except voluntary logoff) user may reconnect during the inactivity timeout limit (currently 20 sec.) without order cancellation.

Cancel on Disconnect On-Demand

There is also a Cancel on Disconnect On-Demand mode in the ASTS Trading and Clearing System, but it is not available in production environment yet.

Order cancellation on-demand requires manual activation of COD-mode after each connection to the Trading System using a special transaction 'CODMODE_SWITCH' when using bridge interface or 6867=A when using FIX interface. The 'CODMODE_SWITCH' bridge transaction can be used to either activate or deactivate the COD-mode depending on its current state.

If the on-demand COD-mode is active and the user goes offline then COD should be reactivated on reconnection by calling the 'CODMODE_SWITCH' transaction.