Cancel on Disconnect (COD) on INET Nordic

COD in brief

Nasdaq Nordic and Nasdaq Baltic* (herein after "Nasdaq") offer a Cancel On Disconnect (COD) service that monitors the loss of connections between the Member and the INET Nordic trading system (Host). If a lost connection is detected by the Host, the COD service cancels resting Orders for the disconnected port. In the event of a severe failure on the Host side COD will also be applied.

COD is offered over the following protocols:
- OUCH - Order entry
- FIX Order entry

If the Member has requested the COD configuration on the port, the Host will cancel all Orders that are open on the book in the event that the port is disconnected.

Note that the FIX Drop on-Disconnect service that is part of INET PRM Services will cancel all open Orders and prevent Order entry for one or more PRM Accounts in case of a disconnected FIX Drop port.

Configuration information

COD is a subscription-based service. The Member must complete a request in the Member Portal (see link below).

Registration for COD is based on Session ID/Account Name, and disconnect triggers COD for all registered sessions over the port in question.

Detailed Port configuration options:

**OUCH port:**
- Cancel On Disconnect disabled
- Cancel On Disconnect enabled
  - Cancel all
  - Keep Cross type Orders only (auction Orders)

**FIX port:**
- Cancel On Disconnect disabled
- Cancel On Disconnect enabled
  - Keep GTC
  - Keep Cross type Orders only (auction Orders)
  - Keep GTC and Cross Orders
  - Cancel all

There is currently no charge for the COD service.

Link to Member Portal:
https://memberportal.nasdaq.com/

Technical and Trade Support - INET

Nasdaq Cash Equity Operations trade support and member configuration, technical support for INET, GCF, FDS and auxiliary systems:

Email: operator@nasdaq.com
Phone: +46 8 405 6410

*Nasdaq Nordic represents common offering by Nasdaq Copenhagen A/S, Nasdaq Helsinki Ltd, Nasdaq Iceland hf. and Nasdaq Stockholm AB. Nasdaq Baltic represents the common offering by Nasdaq Riga AS, Nasdaq Tallinn AS and AB Nasdaq Vilnius
FUNCTIONALITY IN DETAIL

The COD functionality allows users to have working Orders automatically cancelled upon an unintentional loss of session connectivity from the Member or the Host side. Upon a session disconnect, the COD functionality checks for resting Orders for registered session and sends a command to cancel the Orders. If COD has worked correctly, a user will receive unsolicited cancel accept confirmations upon reconnecting.

Members should contact Cash equity trade support to check Order status after an ungraceful disconnect. It is the Member’s responsibility to re-enter all Orders that have been cancelled by COD.

<table>
<thead>
<tr>
<th>PROTOCOL</th>
<th>FROM THE HOST PERSPECTIVE</th>
<th>FROM THE MEMBER PERSPECTIVE</th>
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</thead>
<tbody>
<tr>
<td>FIX</td>
<td>The HeartBtInt that is specified in the Logon message (10 to 60 seconds) will be used to make sure that the Member connection is alive and functioning. If Nasdaq detects inactivity for a period longer than the HeartBtInt + 10 seconds, a Test Request to determine if you are still active will be sent. If after another HeartBtInt, there is still no activity, Nasdaq will send another Test Request. If there is still no activity after this additional HeartBtInt, Nasdaq will immediately send a logout message and the connection will be closed, and COD activated.</td>
<td>It is expected that similar logic will be used on Member side in Order to detect Host activity.</td>
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| OUCH - SOUPBINTCP | SoupBinTCP uses logical heartbeat packets to quickly detect connection failures. Once logged in, the Member must send a Member Heartbeat packet within 1 second has passed since the Member last sent anything. If the Host doesn’t receive anything from the Member within 15 seconds, it may close the existing socket and activate COD. | The Host will send a Server Heartbeat packet anytime more than 1 second has passed since the server last sent any data. This ensures that the Member will receive data on a regular basis. If the Member does not receive anything (neither data nor heartbeats) for 15 seconds, it can assume that the connector is down and attempt to reconnect using a new TCP/IP socket. |

COD - Applied

The Host detects a loss of session connectivity by monitoring its application messaging with the Member system. When there is a lack of messages received for a period exceeding the specified heartbeat interval, the Host may close the connection and initiate the COD functionality.

The Host also initiates COD directly when TCP-connection is noticed broken and before the heartbeat time elapses.

If the connection being closed is the primary connection and the Member system initiates a fail over process the secondary connection, COD will anyway be triggered. The COD will also apply if the Member system is logged on to both the Primary and Secondary, and disconnects from any of the Secondary or Primary ports.

If the Host is suffering from a severe failure, the COD service will be enabled on OUCH and/or FIX port level after about 15 seconds

COD – Not applied

COD is applied for a loss of session, and not initiated for a graceful disconnect, meaning a voluntary log out performed by the Member system will not trigger the COD.