



Risk Management

Phase 1 Specification

Revision History

Version	Notes	Author
1.0	Initial release, Summer 2017	Matt Stuppel

Related Documents

Name	Link	Version	Comment
Market Model	www.equiduct.com	4.1a	

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1 Introduction

This document specifies the Risk Management functionality offered by Equiduct for use by trading participants and by third parties authorised to do so by participants, such as general clearing members (GCMs) and other post-trade facilitators.

Specifically, this document describes the initial scope (Phase 1) functionality to be delivered into Equiduct's production system (ETS) in Q3 2017.

1.1 Overview

The functions provided by the Risk Management service are:

- 1) Order nominal value limits, per market segment
- 2) Order limit price collar
- 3) Gross traded value limit
- 4) Trade (risk) drop-copy session with automatic "kill switch" functionality
- 5) Instrument (symbol) restrictions

These functions are layered atop existing risk-related services provided as part of the Equiduct production trading system:

- 6) Price monitoring – trades must occur within a collar around the mid-EBBO
- 7) Kill switch – Equiduct market operations team can immediately cancel all open interest and disallow order entry for a trading participant
- 8) Market segment restrictions (restrict trading to certain primary markets and/or currencies)
- 9) Fix session (port) throttles

2 Risk Management functions

2.1 Order nominal value limits

Value limits can be assigned to apply to all orders submitted in a given Equiduct market segment, specified by primary market identifier, in EUR for that segment. Limit orders where the nominal value – calculated as limit price multiplied by order quantity – exceeds this limit, will be rejected.

Participants and authorised facilitators can set and change these limits by emailing a comma-separated values (csv) file to Equiduct Market Control containing the following information:

Participant	Primary Market	Currency	Maximum Order Value
FIRM1	XLON	EUR	10,000,000
FIRM1	XPAR	EUR	150,000
FIRM1	XLIS	EUR	50,000

Changes to the value limits will be effective for the next trading day after submission.

Where a nominal value limit is in place for a given participant market segment on Equiduct, market orders will be rejected.

2.2 Order limit price collar

Participants and authorised facilitators can set an Equiduct-wide percentage threshold around the mid-point of the EBBO against which the limit prices of aggressive orders will be checked. Orders with a limit price outside the configured threshold will be rejected.

This setting can be updated on request by Equiduct Market Control with any change being effective for the next trading day.

As an example, with the collar set at 3% if the EBBO is 10.15 / 10.25 then a buy order with limit price 10.50 (2.9% away from mid) will be accepted but with limit price 10.55 (3.4% away from the mid) will be rejected.

If the EBBO is not valid at the time of order entry – for example due to a trading halt on the primary market – the collar will be checked against the last automated on-book trade price observed in the consolidated book. If no trades have occurred on the current trading day, the check will fall-back to the previous closing price.

2.3 Gross traded value limit

A limit may be assigned on the total value traded by a participant during a single trading day. The limit is specified in Euros with trade values all normalised to Euros using the applicable FX rate from the previous trading day. Once this limit is breached then, for the target participant, all open orders are cancelled and all new orders are rejected until either the end of that trading day, or approval is received by Equiduct Market Control to increase the value limit and resume trading.

The value limit may be adjusted up or down intraday on request to Equiduct Market Control. If the limit is reduced below the current gross traded value for the target participant, the participant will be immediately prevented from trading.

The calculation of gross traded value and, where necessary, the action to halt trading for a participant, is implemented downstream of the Equiduct Matching Engine meaning that there will be a small, but non-zero, delay between the first trade which breaches the limit and the action to prevent further trading. Based on current system performance this delay is expected to be well under 1 millisecond, but during this delay it is possible for the participant to submit further orders and for these orders to trade, or for passive orders from the target participant to be hit and traded by aggressive orders from other firms.

Prior to a traded value breach, emails can be generated to notify that a significant fraction of the configured limit has been utilised. The initial threshold, which defaults to 50%, can be configured on request. Subsequent warning emails will be generated at 10% increments up to the 100% limit.

2.4 Trade drop copy session

The trade drop-copy session is a FIX session (port) which will receive copies of all trades and trade cancels (FIX Execution Report messages) for the configured “managed” trading participant. The managed participant is prevented from entering orders in the morning before the drop-copy session logs on, and if the drop-copy session disconnects during the trading day then the managed participant has all open orders cancelled and new order entry is blocked. In such cases, after an intraday disconnection and reconnection of the drop-copy session, Equiduct Market Control can, on request, allow the managed participant to resume trading.

2.5 Instruments Restrictions

The standard setup on Equiduct is that market participants are enabled for trading on a per-market-segment (i.e. per-primary-market) basis and, once enabled for a segment, are permitted to trade on any instrument within that segment. As an additional risk management facility, participants and authorised facilitators may restrict trading, either by specifying a list of instruments to enable with any non-specified instruments disabled or vice versa.

Initial setup can be achieved by emailing a csv file to Equiduct Market Control as in the example below. Note that the non-existent symbol “DEFAULT” is used to specify the default setting for a given market segment.

Participant	Primary Market	Symbol	Permit Trading?
FIRM1	XLON	EUR	10,000,000
FIRM1	XPAR	EUR	150,000
FIRM1	XLIS	EUR	50,000

On request via email or telephone, Equiduct Market Control are able to intervene intraday to disallow trading in one or more symbols or to add permitted symbols (with the restriction that the trading participant must already have appropriate configuration in place to allow trading on the relevant market segment on Equiduct). Application of a full csv file of changes is only possible overnight.

2.6 Confirmation of changes

Equiduct will provide an automated report confirming the currently effective risk management configuration for a given trading participant. This report will be generated and distributed via email after any intraday changes are applied and can also be scheduled for daily distribution before the start of the trading day.

Appendix A Future Directions

Once the new Risk Management functionality is live and in active use in production, Equiduct will use input from active market participants to prioritise further enhancements. Items which have already been discussed and are under active consideration include:

- 1) A secure API for participants and authorised facilitators to support:
 - a. Direct management of configuration settings (gross value limits, order value limits, price collar and instrument restrictions).
 - b. Viewing current settings and real-time activity information.
 - c. 'Kill switch' to disable trading.
- 2) A GUI providing access to the API facilities described in (1) for use by clients who do not wish to code to the API.
- 3) Additional overall position limits, such as open notional value (resting orders) and possible net traded value in addition to gross traded.
- 4) Addition of orders from "monitored" participants to drop-copy service.