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EURONEXT MARKETS – OPTIQ® OEG OUTBOUND LAG MECHANISM

Document type or subject

Optiq® OEG Outbound Lag Mechanism - Functionality Description

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PREFACE

PURPOSE

This document provides details of the lag mechanism that has been implemented to achieve the dissemination of the public feed ahead of the private feed.

This document encompasses other technical specifications made available for Optiq, some of which are listed in the section Associated documents.

ASSOCIATED DOCUMENTS

The following list identifies the associated documents, which either should be read in conjunction with this document, or which provide other relevant information to the clients:

- Euronext Cash Markets – Optiq OEG Client Specifications – SBE Interface
- Euronext Cash Markets – Optiq OEG Client Specifications – FIX 5.0 Interface
- Euronext Cash Markets – Optiq Kinematics Specifications
- Euronext Cash Markets – Optiq & TCS Error List
- Euronext Cash Markets – Optiq OEG Connectivity Configuration Specifications
- Euronext Cash and Derivatives Markets – Optiq File Specification
- Euronext Cash Markets - OEG Cancel on Disconnect (CoD) Functional Overview
- Euronext Cash Markets - OEG Throttling mechanism

Clients are advised to also refer to the Euronext Rules and Regulations documents for more details.

For the latest version of documentation please visit http://www.euronext.com/optiq

SUPPORT

Operational Client Services Desk

Email: clientsupport@euronext.com

DOCUMENT & REVISION HISTORY

For the details of this and previous updates of this document please refer to the Appendix at the end of this document.

Version	Change Description
1.1	Typos in the table explaining the figure 1

CONTENTS

1. INTRODUCTION

Euronext is implemented a software lag at the outbound path for private messages in order to achieve a dissemination of the public feed ahead of the private one.

1.1 GLOSSARY

This section provides a list of some terms & abbreviations commonly used in this document. Please note that some of these terms are described in more details in the dedicated sections within this document or in the associated Optiq specifications documents.

- **Order Entry Gateway (OEG):** is the software that manages the access for exchanges' clients, and acts as the private interface between the clients and the Optiq matching engine.
- **Market Data Gateway (MDG):** is the software that provides high-speed, real-time market data (public messages) for the Exchange's markets.
- **Matching Engine (ME):** is the software that manages the trading services for the Exchange's markets.
- **Optiq Segment:** defines a universe of instruments habitually sharing common trading properties. An Optiq Segment can contain one or several asset classes. An Optiq Segment access is setup through a Logical Access.
- **Partition:** is a technical subdivision of an Optiq Segment. An Optiq Segment may be comprised of at least one or several partitions, physically independent one from another, but connected to each other within the context of the Optiq Segment. Instruments may move from one partition to another within an Optiq segment.
- **Logical Access:** is an OEG (Order Entry Gateway) entry point, setup for clients to connect to a single Optiq Segment, containing the technical configuration for the client's connectivity. Multiple logical accesses can share the same SFTI line.
- **OE Session:** the individual physical connection, to a single Partition. A single Logical access may have as many OE sessions as there are partitions in the Optiq segment.

1.2 SCOPE

All the segments of the Cash and Derivatives markets are in the scope, except the warrant one.

2. SOFTWARE ARCHITECTURE

2.1 OVERVIEW

To achieve a dissemination of public feed ahead of the private feed, a lag mechanism is added on all private outbound messages.

The type of slowdown will be a predefined and fixed transmission lag applied to every single outbound message regardless of its message type, the lag being equivalent to simulate a fixed network delay. A member on a given logical access would see the same message flow sequence, with or without the slowdown, varying only by a fixed time increase on response latency.

The delay will be a constant value across a given Optiq Segment but specific value for each segment to reflect the difference of imbalances in private and public latencies for the different Optiq Segments.

The value of the delay has been determined to have a fixed percentage of the messages public first, based on the analysis of the production data on an Optiq Segment basis.

2.2 LAG AND LATENCY MONITORING

- The following diagram shows the current path of a private message sent to member and represents the different timestamps provided in the outbound messages:

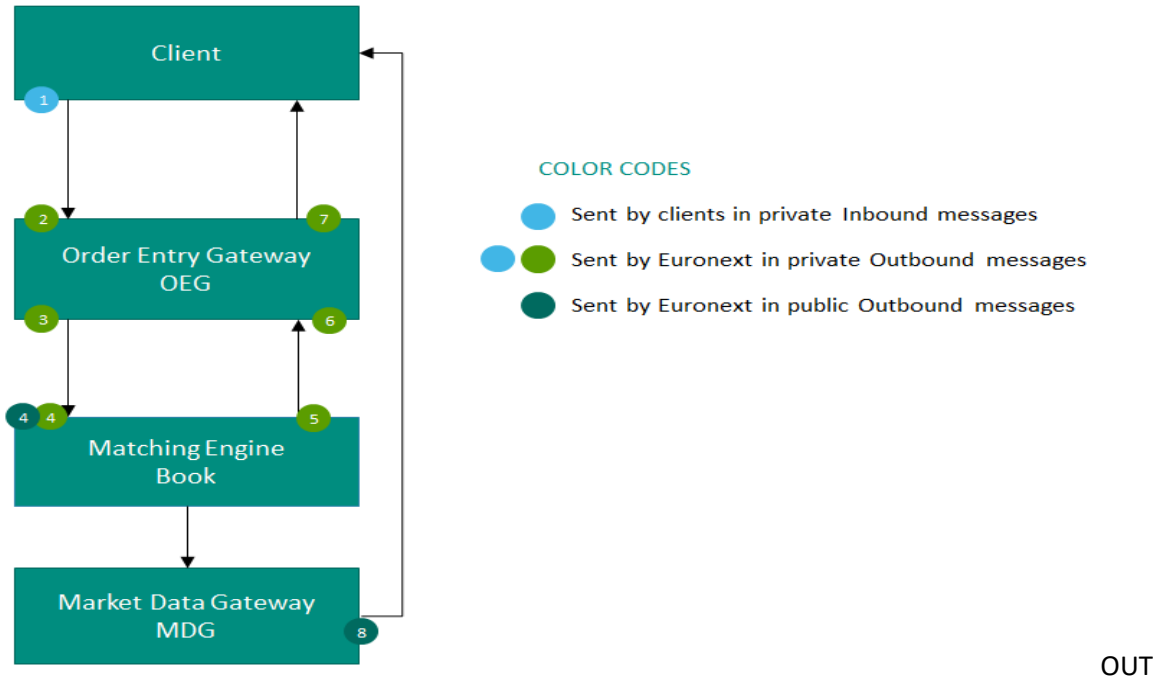

Figure 1

step	Field name	Description of data provided
1	*Message Sending Time*	is assigned by the Client in his inbound message.
2	*OEG IN From Member*	is assigned by the OEG after decoding the inbound message.
3	*OEG OUT To ME*	is assigned by the OEG when sending the inbound message to the matching engine, and is later on provided in the outbound messages.
4	*Book IN Time*	is assigned by the ME when receiving the inbound message from the OEG.
5	*Book OUT Time*	is assigned by the ME when sending the outbound message to the OEG.
6	*OEG IN From ME*	is assigned by the OEG when receiving the outbound message from the ME.
7	*OEG OUT To Member*	is assigned by the OEG when sending the outbound message to the client.
8	*PacketTime*	is assigned by the MDG when sending the message to the market.

For every single outbound message ready to leave the Optiq server toward the client step 7 in the diagram, the solution consist in adding predefined fixed lag before delivering the message to the network layer. Timestamp T7 (OEG OUT To Member) is incremented accordingly.

At the end, there will be no impact on the internal timestamps provided in Outbound message to allow the clients to monitor the processing time of the system at different levels.

APPENDIX A: REVISION HISTORY

SUMMARY OF CHANGES

Version	Change Description
1.0	First Release

DOCUMENT HISTORY

REVISION NO.	DATE	AUTHOR	CHANGE DESCRIPTION
1.0	27 April 2021	Euronext	First Release
1.1	17 June 2021	Euronext	Typos in the table explaining the figure 1