

Document title

# **Euronext Cash and Derivatives Markets – Optiq MDG External User Acceptance Connectivity**

Document type or subject

Technical Specifications - External

Revision number

Revision Number: 5.18.0

Date

September 2022

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### DOCUMENT HISTORY

The following table provides a description of all changes to this document.

VERSION NO.	DATE	CHANGE DESCRIPTION
1.0	Sept 2016	Optiq® Market Data Gateway External User Acceptance (EUA) – Virtual and Physical – Environment feed configuration details.
1.1	Nov 2016	Optiq® Market Data Gateway External User Acceptance (EUA) – Virtual and Physical – File services access for the V-EUA
1.2	March 2017	Retail Matching Facility renamed into Best of Book. BBBO changed into FBMU for Equities/Funds/Fixed Income and Bourse de Luxembourg. Change of the layout of the feed configuration.
1.3	April 2017	Correct made to Multicast Group IP for the 1G channel - Index Options Netherlands
1.4	November 2017	New Channels added for APA SI Quotes and APA Trade Publication to Optiq Segment – 10, Trade Reporting and Publication.
1.5	June 2018	Removal of MDG Set Of Channels ID 12 – Trade Reporting And Publication
1.6	July 2018	New Channels added for ETF Access to Optiq Segment – 2, Funds. Removal MDG Set Of Channels ID 10 - Societe Generale Systematic Internaliser (SI)
1.7	July 2018	New Channels added for Best of Book (RMF) Funds.
1.8	July 2018	MDG Set of Channels 9 and 15 renamed for Euronext Dublin Integration.
1.9	November 2018	New Channel added for Euronext Block.
2.0	November 2018	Changes made to Derivatives Feed Configuration for Optiq Step 3. MDG Set of Channels 18, 19 and 28 removed. Introduction of new Optiq Segments for Equity Derivatives, Index Derivatives and Financial Derivatives. MDG Set of Channels 20 to 26 renamed.
2.1	January 2019	Changed the amount of Partitions for Equity Derivatives from 2 to 3 and For Index Derivatives from 2 to 1.
2.2	October 2019	Removal of the Derivatives 100M FBMU channel IDs.
2.3	January 2020	Addition of Optiq Segment 16 for the Irish Bonds and Funds
2.4	February 2020	Addition of MDG Set of Channels 10 for Equities Norway and 12 for Fixed Income Nordic ABM
2.5	July 2021	Addition of MDG Set of Channels 34 for Forex
2.6	September 2021	Adding 1 Warrants partition configuration
2.7	September 2021	Document version alignment to Production document version

VERSION NO.	DATE	CHANGE DESCRIPTION
3.0	December 2021	New target specifications of the new Euronext Data Centre in Aruba Bergamo ITALY
5.16.0	June 2022	<b>**change of version numbering logic**</b> Addition of new cash markets EQUities and ETFs/Funds sets-of-channels for Borsa Italiana integration: "18" (Equities Italy), "45" (Italy GEM), "39" (Italy ETF plus), "19" (Italy TAH)
5.18.0	September 2022	Adjustment of naming for MDG Set of Channels "19", "39" and "45" Decommissioning of FBOU.100M Real Time for MDG Set of Channels "1" and "32" Decommissioning of FBMU.100M Real Time for MDG Set of Channels "4"

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## REFERENCE MATERIAL

The following document, which either should be read in conjunction with this document or which provide other relevant information for the user:

- [Euronext Markets – Optiq MDG Client Specifications](#)

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## FURTHER INFORMATION

- For additional information please visit: [www.euronext.com/optiq](http://www.euronext.com/optiq)

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## 1. INTRODUCTION

This document provides all multicast addresses required to access the Euronext Optiq® Market Data Gateway External User Acceptance (EUA). Only shaped data is provided in the test environment. In order to ensure a Production-like test environment, separate IP addresses and ports are used to replicate the Production 'shaped' and 'unshaped' configuration.

The Euronext Optiq® Market Data Gateway Next Release-EUA (P-EUA) and the Current Release-EUA (V-EUA) environment are located in Bergamo. The P-EUA and V-EUA Source IP Address ranges are provided in this document and for P-EUA the Source IP Address ranges are provided for the live and standby systems as part of the High Availability mechanism. EUA High Availability (HA) and failover testing will only be conducted on the Next Release test environment (P-EUA).

Customers are requested to allow the V-EUA and P-EUA Source IP Address ranges through their Firewalls.

With the XML Standing Data files for the different Optiq Segments, customers will be able to map which instruments are available in which channel. The Optiq MDG feed configuration can be found at the end of each Standing Data file available and these will be provided on a daily basis in XML format. It is required to use the feed configuration details as part of the standing data files to connect to the feed on a daily basis.

In case a new partition is added to an Optiq Segment, customers are required to adapt to this type of change using the Optiq MDG Standing Data files that include the feed configuration details.

### 1.1 OPTIQ SEGMENTS, PARTITIONS AND MDG SET OF CHANNELS

Below you will find an overview of the available Optiq Segments, the number of partitions per Optiq Segment and the MDG Set Of Channels ID and Name that are part of each Optiq Segment. The Optiq Segments listed in the below table are also available in the real-time Standing Data (1007) messages and Contract Standing Data (1013) messages and also available in Standing Data files.

Optiq Segment	Number of Partitions	MDG Set Of Channels ID	MDG Set Of Channels Name
1. Equities	4	6	Equities Netherlands
		5	Equities France
		7	Equities Belgium
		8	Equities Portugal
		9	Equities Dublin
		10	Equities Norway
		11	Best of Book (RMF)
		18	Equities Italy [MTAA, MIVX, EXGM]
		45	Italy GEM [BGEM]
2. Funds	1	1	Funds
		32	ETF Access
		39	Italy Funds [ETFP, ATFX]
		31	Best of Book (RMF) Funds
3. Fixed Income	1	2	Fixed Income
		12	Fixed Income Nordic ABM
4. Warrants and Certificates	2	4	Warrants and Certificates
5. Bourse de Luxembourg	1	3	Bourse De Luxembourg

Optiq Segment	Number of Partitions	MDG Set Of Channels ID	MDG Set Of Channels Name
9. Indices	1	13	Euronext Indices
		14	Euronext iNAVs
		15	Euronext Dublin Indices
10. Trade Reporting and Publication	1	29	APA SI Quotes
		30	APA Trade Publication
14. Euronext Block	1	33	Euronext Block
		19	Italy TAH [XTAH] <sup>1</sup>
16. Irish Bonds & Funds	1	35	Euronext Dublin Bonds and Funds
8. Commodity Derivatives	1	16	Commodity Derivatives
11. Index Derivatives	1	23	Index Options France
		24	Index Options Netherlands
		25	Index Derivatives Other
		26	Index Futures France
		27	Index Futures Netherlands
12. Equity Derivatives	3	20	Equity Derivatives France
		21	Equity Derivatives Netherlands
		22	Equity Derivatives Other
13. Financial Derivatives	1	17	Currency Derivatives
15. Forex	1	34	Forex

## 1.2 CHANNEL TYPES AND CHANNEL IDS

The Channel Types and Channel ID's that are available to each customer depend on the available bandwidth on customer connections to the SFTI Network and the services that were selected in the SFTI® order form. Depending on the Asset Class, the following Optiq MDG channel types are made available to customers:

1. Pre-trade
  - a. BBBO – Best Bid and Offer
  - b. FBMU – Full Book using Market Update message (includes Best Bid and Best Offer)
  - c. FBOU – Full Book using Order Update message (includes Best Bid and Best Offer)
2. Post Trade – REFT – Reference Data and Full Trade Information
3. Indices – REFI – Reference Data and Index messages
4. Irish Bonds & Funds – IBFR - Irish Bonds & Funds Reference Data
5. APA Publication
  - a. APSI – (Pre-trade) APA Quotes and standing data
  - b. APTR – (Post-trade) APA trades
6. Euronext Blocks – EBLK – Blocks market segment data

Please read chapter **2.1 TYPE OF MARKET DATA CHANNELS** of the Euronext Cash and Derivatives Markets. – Optiq MDG Client Specifications for more details.

<sup>1</sup> While TAH -trading after hours- concerns equities instruments, it is hosted for technical reasons in the BLK (Blocks) Optiq segment

### 1.3 ADDITION OF A NEW PARTITION

The Channel ID contains 5 numbers and is provided as a field in the Optiq MDG packet header.

1. The first number on the left is used to identify if the channel is a real-time channel (3 for V-EUA and 5 for P-EUA) or snapshot (4 for V-EUA and 6 for P-EUA)
2. The second number is n= the partition number -1, with n=0 for the first partition, n=1 for the second partition, etc.
3. The last three number xxx represent the last numbers on the right used for the Multicast Group IP.

Each partition as part of an Optiq Segment has a Feed A and a Feed B and uses a unique Source IP address from the ranges as specified below:

Feed A/B	Feed A	Feed B
Rendez-vous Point on Colocation	212.107.67.242	212.107.67.243
Rendez-vous Point on CMC	212.107.67.248/32	212.107.67.249/32
Current EUA IP Address range	212.107.91.0/25	212.107.91.128/25
Next EUA Primary IP Address range	212.107.90.0/25	212.107.90.128/25
Next EUA Secondary IP Address range	212.107.90.0/25	212.107.90.128/25

Customers are required to allow the whole range as specified above through their Firewalls to allow for the addition of a new partition within an Optiq Segment. In case of a new partition

1. A new Source IP will be used for the new partition, the Multicast Group IP Addresses for Feed A and B remain unchanged for the new partition
2. A new Channel ID is defined as 1(n)xxx and is equal to the ports used for the new partition.

The Multicast Group IP addresses for Real-time and Snapshot, for Feed A and B are:

Environment	Channel ID	Real-Time/Snapshot	Multicast Group Feed A	Multicast Group Feed B
Current EUA	3(n)xxx	Real-Time	224.0.212.xxx	224.0.213.xxx
	4(n)xxx	Snapshot		
Next EUA	5(n)xxx	Real-Time		
	6(n)xxx	Snapshot		



## 2. OPTIQ SEGMENT – 1. EQUITIES REAL-TIME AND SNAPSHOT CONFIGURATION

### 2.1 MDG SET OF CHANNELS ID 6 – EQUITIES NETHERLANDS

Environment	VEUA and PEUA	MDGSetOfChannels ID	6
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Netherlands

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.120	VEUA	VEUA 31120	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.120	30120	PEUA 51120	32120	33120
		PEUA		PEUA	PEUA
		50120		52120	53120
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.120	VEUA	VEUA 41120	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.120	40120	PEUA 61120	42120	43120
		PEUA		PEUA	PEUA
		60120		62120	63120

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.121	VEUA	VEUA 31121	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.121	30121	PEUA 51121	32121	33121
		PEUA		PEUA	PEUA
		50121		52121	53121
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.122	VEUA	VEUA 31122	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.122	30122	PEUA 51122	32122	33122
		PEUA		PEUA	PEUA
		50122		52122	53122
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.121	VEUA	VEUA 41121	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.121	40121	PEUA 61121	42121	43121
		PEUA		PEUA	PEUA
		60121		62121	63121

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.123	VEUA	VEUA 31123	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.123	30123	PEUA 51123	32123	33123
		PEUA		PEUA	PEUA
		50123		52123	53123
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.124	VEUA	VEUA 31124	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.124	30124	PEUA 51124	32124	33124

		PEUA 50124		PEUA 52124	PEUA 53124
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.125	VEUA 30125	VEUA 31125	VEUA 32125	VEUA 33125
Multicast Group IP Feed B	224.0.213.125	PEUA 50125	PEUA 51125	PEUA 52125	PEUA 53125
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.123	VEUA 40123	VEUA 41123	VEUA 42123	VEUA 43123
Multicast Group IP Feed B	224.0.213.123	PEUA 60123	PEUA 61123	PEUA 62123	PEUA 63123

## 2.2 MDG SET OF CHANNELS ID 5 – EQUITIES FRANCE

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	5
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities France

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.110	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.110	30110	31110	32110	33110
		PEUA	PEUA	PEUA	PEUA
		50110	51110	52110	53110
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.110	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.110	40110	41110	42110	43110
		PEUA	PEUA	PEUA	PEUA
		60110	61110	62110	63110

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.111	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.111	30111	31111	32111	33111
		PEUA	PEUA	PEUA	PEUA
		50111	51111	52111	53111
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.112	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.112	30112	31112	32112	33112
		PEUA	PEUA	PEUA	PEUA
		50112	51112	52112	53112
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.111	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.111	40111	41111	42111	43111
		PEUA	PEUA	PEUA	PEUA
		60111	61111	62111	63111

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.113	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.113	30113 PEUA 50113	31113 PEUA 51113	32113 PEUA 52113	33113 PEUA 53113
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.114	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.114	30114 PEUA 50114	31114 PEUA 51114	32114 PEUA 52114	33114 PEUA 53114
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.115	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.115	30115 PEUA 50115	31115 PEUA 51115	32115 PEUA 52115	33115 PEUA 53115
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.113	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.113	40113 PEUA 60113	41113 PEUA 61113	42113 PEUA 62113	43113 PEUA 63113

### 2.3 MDG SET OF CHANNELS ID 7 – EQUITIES BELGIUM (INCLUDING PUBLIC AUCTION MARKET)

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	7
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Belgium (Including Public Auction Market)

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.100	VEUA	VEUA 31100	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.100	30100	PEUA 51100	32100	33100
		PEUA		PEUA	PEUA
		50100		52100	53100
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.100	VEUA	VEUA 41100	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.100	40100	PEUA 61100	42100	43100
		PEUA		PEUA	PEUA
		60100		62100	63100

Channel Type		FBMU	Channel ID /Port			
Real-time						
Channel Speed		100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A		224.0.212.101	VEUA	VEUA 31101	VEUA	VEUA
Multicast Group IP Feed B		224.0.213.101	30101	PEUA 51101	32101	33101
			PEUA		PEUA	PEUA
			50101		52101	53101
Channel Speed		1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A		224.0.212.102	VEUA	VEUA 31102	VEUA	VEUA
Multicast Group IP Feed B		224.0.213.102	30102	PEUA 51102	32102	33102
			PEUA		PEUA	PEUA
			50102		52102	53102
Snapshot						
Channel Speed		100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A		224.0.212.101	VEUA	VEUA 41101	VEUA	VEUA
Multicast Group IP Feed B		224.0.213.101	40101	PEUA 61101	42101	43101
			PEUA		PEUA	PEUA
			60101		62101	63101

Channel Type		FBOU	Channel ID /Port			
Real-time						
Channel Speed		100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A		224.0.212.103	VEUA	VEUA 31103	VEUA	VEUA
Multicast Group IP Feed B		224.0.213.103	30103	PEUA 51103	32103	33103
			PEUA		PEUA	PEUA
			50103		52103	53103
Channel Speed		1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A		224.0.212.104	VEUA	VEUA 31104	VEUA	VEUA
Multicast Group IP Feed B		224.0.213.104	30104	PEUA 51104	32104	33104
			PEUA		PEUA	PEUA
			50104		52104	53104
Channel Speed		10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot						
Channel Speed		100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A		224.0.212.103	VEUA	VEUA 41103	VEUA	VEUA
Multicast Group IP Feed B		224.0.213.103	40103	PEUA 61103	42103	43103
			PEUA		PEUA	PEUA
			60103		62103	63103

## 2.4 MDG SET OF CHANNELS ID 8 – EQUITIES PORTUGAL

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	8
Optiq Segment name	Equities	MDGSetOfChannelsNa me	Equities Portugal

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4

Multicast Group IP Feed A	224.0.212.105	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.105	30105	31105	32105	33105
		PEUA	PEUA	PEUA	PEUA
		50105	51105	52105	53105

## Snapshot

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.105	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.105	40105	41105	42105	43105
		PEUA	PEUA	PEUA	PEUA
		60105	61105	62105	63105

Channel Type	FBMU	Channel ID /Port
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## Real-time

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.106	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.106	30106	31106	32106	33106
		PEUA	PEUA	PEUA	PEUA
		50106	51106	52106	53106
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.107	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.107	30107	31107	32107	33107
		PEUA	PEUA	PEUA	PEUA
		50107	51107	52107	53107

## Snapshot

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.106	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.106	40106	41106	42106	43106
		PEUA	PEUA	PEUA	PEUA
		60106	61106	62106	63106

Channel Type	FBOU	Channel ID /Port
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## Real-time

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.108	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.108	30108	31108	32108	33108
		PEUA	PEUA	PEUA	PEUA
		50108	51108	52108	53108
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.109	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.109	30109	31109	32109	33109
		PEUA	PEUA	PEUA	PEUA
		50109	51109	52109	53109
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4

## Snapshot

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.108	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.108	40108	41108	42108	43108
		PEUA	PEUA	PEUA	PEUA
		60108	61108	62108	63108

## 2.5 MDG SET OF CHANNELS ID 9 – EQUITIES DUBLIN

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	9
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Dublin

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.165	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.165	30165	31165	32165	33165
		PEUA	PEUA	PEUA	PEUA
		50165	51165	52165	53165
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.165	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.165	40165	41165	42165	43165
		PEUA	PEUA	PEUA	PEUA
		60165	61165	62165	63165

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.166	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.166	30166	31166	32166	33166
		PEUA	PEUA	PEUA	PEUA
		50166	51166	52166	53166
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.167	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.167	30167	31167	32167	33167
		PEUA	PEUA	PEUA	PEUA
		50167	51167	52167	53167
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.166	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.166	40166	41166	42166	43166
		PEUA	PEUA	PEUA	PEUA
		60166	61166	62166	63166

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.168	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.168	30168	31168	32168	33168
		PEUA	PEUA	PEUA	PEUA
		50168	51168	52168	53168
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.169	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.169	30169	31169	32169	33169
		PEUA	PEUA	PEUA	PEUA
		50169	51169	52169	53169

Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.168	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.168	40168	41168	42168	43168
		PEUA	PEUA	PEUA	PEUA
		60168	61168	62168	63168

## 2.6 MDG SET OF CHANNELS ID 10 – EQUITIES NORWAY

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	10
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Norway

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.85	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.85	30085	31085	32085	33085
		PEUA	PEUA	PEUA	PEUA
		50085	51085	52085	53085
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.85	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.85	40085	41085	42085	43085
		PEUA	PEUA	PEUA	PEUA
		60085	61085	62085	63085

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.86	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.86	30086	31086	32086	33086
		PEUA	PEUA	PEUA	PEUA
		50086	51086	52086	53086
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.87	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.87	30087	31087	32087	33087
		PEUA	PEUA	PEUA	PEUA
		50087	51087	52087	53087
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.86	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.86	40086	41086	42086	43086
		PEUA	PEUA	PEUA	PEUA
		60086	61086	62086	63086

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.88	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.88	30088	31088	32088	33088
		PEUA	PEUA	PEUA	PEUA
		50088	51088	52088	53088
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.89	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.89	30089	31089	32089	33089
		PEUA	PEUA	PEUA	PEUA
		50089	51089	52089	53089
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.88	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.88	40088	41088	42088	43088
		PEUA	PEUA	PEUA	PEUA
		60088	61088	62088	63088

## 2.7 MDG SET OF CHANNELS ID 11 – BEST OF BOOK (RMF)

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	11
Optiq Segment name	Equities	MDGSetOfChannelsName	Best of Book (RMF)

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.138	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.138	30138	31138	32138	33138
		PEUA	PEUA	PEUA	PEUA
		50138	51138	52138	53138
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.139	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.139	30139	31139	32139	33139
		PEUA	PEUA	PEUA	PEUA
		50139	51139	52139	53139
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.138	VEUA	VEUA	VEUA	VEUA
Multicast Group IP Feed B	224.0.213.138	40138	41138	42138	43138
		PEUA	PEUA	PEUA	PEUA
		60138	61138	62138	63138

## 2.8 MDG SET OF CHANNELS ID 18 – EQUITIES ITALY

Environment	V-EUA P-EUA	MDGSetOfChannels ID	18
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Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Italy		
Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.075	vEUA: 30075	vEUA: 31075	vEUA: 32075	vEUA: 33075
Multicast Group IP Feed B	224.0.213.075	pEUA: 50075	pEUA: 51075	pEUA: 52075	pEUA: 53075
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.075	vEUA: 40075	vEUA: 41075	vEUA: 42075	vEUA: 43075
Multicast Group IP Feed B	224.0.213.075	pEUA: 60075	pEUA: 61075	pEUA: 62075	pEUA: 63075
Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.076	vEUA: 30076	vEUA: 31076	vEUA: 32076	vEUA: 33076
Multicast Group IP Feed B	224.0.213.076	pEUA: 50076	pEUA: 51076	pEUA: 52076	pEUA: 53076
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.077	vEUA: 30077	vEUA: 31077	vEUA: 32077	vEUA: 33077
Multicast Group IP Feed B	224.0.213.077	pEUA: 50077	pEUA: 51077	pEUA: 52077	pEUA: 53077
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.076	vEUA: 40076	vEUA: 41076	vEUA: 42076	vEUA: 43076
Multicast Group IP Feed B	224.0.213.076	pEUA: 60076	pEUA: 61076	pEUA: 62076	pEUA: 63076
Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.126	vEUA: 30126	vEUA: 31126	vEUA: 32126	vEUA: 33126
Multicast Group IP Feed B	224.0.213.126	pEUA: 50126	pEUA: 51126	pEUA: 52126	pEUA: 53126
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.127	vEUA: 30127	vEUA: 31127	vEUA: 32127	vEUA: 33127
Multicast Group IP Feed B	224.0.213.127	pEUA: 50127	pEUA: 51127	pEUA: 52127	pEUA: 53127
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.126	vEUA: 40126	vEUA: 41126	vEUA: 42126	vEUA: 43126
Multicast Group IP Feed B	224.0.213.126	pEUA: 60126	pEUA: 61126	pEUA: 62126	pEUA: 63126
Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.078	vEUA: 30078	vEUA: 31078	vEUA: 32078	vEUA: 33078

Multicast Group IP Feed B	224.0.213.078	pEUA: 50078	pEUA: 51078	pEUA: 52078	pEUA: 53078
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.079	vEUA: 30079	vEUA: 31079	vEUA: 32079	vEUA: 33079
Multicast Group IP Feed B	224.0.213.079	pEUA: 50079	pEUA: 51079	pEUA: 52079	pEUA: 53079
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.080	vEUA: 30080	vEUA: 31080	vEUA: 32080	vEUA: 33080
Multicast Group IP Feed B	224.0.213.080	pEUA: 50080	pEUA: 51080	pEUA: 52080	pEUA: 53080
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.078	vEUA: 40078	vEUA: 41078	vEUA: 42078	vEUA: 43078
Multicast Group IP Feed B	224.0.213.078	pEUA: 60078	pEUA: 61078	pEUA: 62078	pEUA: 63078

## 2.9 MDG SET OF CHANNELS ID 45 – GLOBAL EQUITY MARKET

Environment	V-EUA P-EUA	MDGSetOfChannels ID	45
Optiq Segment name	Equities	MDGSetOfChannelsName	Global Equity Market

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.081	vEUA:30081	vEUA:31081	vEUA:32081	vEUA:33081
Multicast Group IP Feed B	224.0.213.081	pEUA:50081	pEUA:51081	pEUA:52081	pEUA:53081
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.081	vEUA:40081	vEUA:41081	vEUA:42081	vEUA:43081
Multicast Group IP Feed B	224.0.213.081	pEUA:60081	pEUA:61081	pEUA:62081	pEUA:63081

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.083	vEUA:30083	vEUA:31083	vEUA:32083	vEUA:33083
Multicast Group IP Feed B	224.0.213.083	pEUA:50083	pEUA:51083	pEUA:52083	pEUA:53083
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.097	vEUA:30097	vEUA:31097	vEUA:32097	vEUA:33097
Multicast Group IP Feed B	224.0.213.097	pEUA:50097	pEUA:51097	pEUA:52097	pEUA:53097
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.083	vEUA:40083	vEUA:41083	vEUA:42083	vEUA:43083
Multicast Group IP Feed B	224.0.213.083	pEUA:60083	pEUA:61083	pEUA:62083	pEUA:63083

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.082	vEUA:30082	vEUA:31082	vEUA:32082	vEUA:33082
Multicast Group IP Feed B	224.0.213.082	pEUA:50082	pEUA:51082	pEUA:52082	pEUA:53082
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.096	vEUA:30096	vEUA:31096	vEUA:32096	vEUA:33096
Multicast Group IP Feed B	224.0.213.096	pEUA:50096	pEUA:51096	pEUA:52096	pEUA:53096
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.082	vEUA:40082	vEUA:41082	vEUA:42082	vEUA:43082
Multicast Group IP Feed B	224.0.213.082	pEUA:60082	pEUA:61082	pEUA:62082	pEUA:63082

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.084	vEUA:30084	vEUA:31084	vEUA:32084	vEUA:33084
Multicast Group IP Feed B	224.0.213.084	pEUA:50084	pEUA:51084	pEUA:52084	pEUA:53084
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.098	vEUA:30098	vEUA:31098	vEUA:32098	vEUA:33098
Multicast Group IP Feed B	224.0.213.098	pEUA:50098	pEUA:51098	pEUA:52098	pEUA:53098
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.084	vEUA:40084	vEUA:41084	vEUA:42084	vEUA:43084
Multicast Group IP Feed B	224.0.213.084	pEUA:60084	pEUA:61084	pEUA:62084	pEUA:63084

### 3. OPTIQ SEGMENT – 2. FUNDS REAL-TIME AND SNAPSHOT CONFIGURATION

#### 3.1 MDG SET OF CHANNELS ID 1 – FUNDS

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	1
Optiq Segment name	Funds	MDGSetOfChannelsName	Funds

Channel Type	REFT	Channel ID /Port
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#### Real-time

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.130	VEUA 30130			
Multicast Group IP Feed B	224.0.213.130	PEUA 50130			

#### Snapshot

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.130	VEUA 40130			
Multicast Group IP Feed B	224.0.213.130	PEUA 60130			

Channel Type	FBMU	Channel ID /Port
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#### Real-time

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.131	VEUA 30131			
Multicast Group IP Feed B	224.0.213.131	PEUA 50131			

#### Channel Speed 1G

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.132	VEUA 30132			
Multicast Group IP Feed B	224.0.213.132	PEUA 50132			

#### Snapshot

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.131	VEUA 40131			
Multicast Group IP Feed B	224.0.213.131	PEUA 60131			

Channel Type	FBOU	Channel ID /Port
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#### Real-time

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.134	VEUA 30134			
Multicast Group IP Feed B	224.0.213.134	PEUA 50134			

#### Channel Speed 10G

Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.135	VEUA 30135			
Multicast Group IP Feed B	224.0.213.135	PEUA			

50135					
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.133	VEUA			
		40133			
Multicast Group IP Feed B	224.0.213.133	PEUA			
		60133			

### 3.2 MDG SET OF CHANNELS ID 32 – ETF ACCESS

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	32
Optiq Segment name	Funds	MDGSetOfChannelsName	ETF Access

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.90	VEUA 30090			
Multicast Group IP Feed B	224.0.213.90	PEUA 50090			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.90	VEUA 40090			
Multicast Group IP Feed B	224.0.213.90	PEUA 60090			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.91	VEUA 30091			
Multicast Group IP Feed B	224.0.213.91	PEUA 50091			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.92	VEUA 30092			
Multicast Group IP Feed B	224.0.213.92	PEUA 50092			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.91	VEUA 40091			
Multicast Group IP Feed B	224.0.213.91	PEUA 60091			

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.94	VEUA 30094			
Multicast Group IP Feed B	224.0.213.94	PEUA 50094			
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.95	VEUA 30095			
Multicast Group IP Feed B	224.0.213.95	PEUA 50095			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.93	VEUA 40093			

Multicast Group IP Feed B 224.0.213.93 PEUA  
60093

### 3.3 MDG SET OF CHANNELS ID 39 – FUNDS ETF ITALY

Environment	V-EUA P-EUA	MDGSetOfChannels ID	39
Optiq Segment name	Funds	MDGSetOfChannelsName	Funds ETF Italy

In the tables below, in the “Channel ID/Port number” cells, the first number corresponds to the vEUA port number, the second corresponds to the pEUA port number

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.50	30050			
Multicast Group IP Feed B	224.0.213.50	50050			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.50	40050			
Multicast Group IP Feed B	224.0.213.50	60050			

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.051	30051			
Multicast Group IP Feed B	224.0.213.051	50051			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.052	30052			
Multicast Group IP Feed B	224.0.213.052	50052			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.051	40051			
Multicast Group IP Feed B	224.0.213.051	60051			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.53	30053			
Multicast Group IP Feed B	224.0.213.53	50053			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.54	30054			

Multicast Group IP Feed B	224.0.213.54	50054				
Snapshot						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.53	40053				
Multicast Group IP Feed B	224.0.213.53	60053				
Channel Type	FBOU	Channel ID /Port				
Real-time						
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.56	30056				
Multicast Group IP Feed B	224.0.213.56	50056				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.57	30057				
Multicast Group IP Feed B	224.0.213.57	50057				
Snapshot						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.55	40055				
Multicast Group IP Feed B	224.0.213.55	60055				



### 3.4 MDG SET OF CHANNELS ID 31 – BEST OF BOOK (RMF)

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	31
Optiq Segment name	Funds	MDGSetOfChannelsName	Best of Book (RMF) Funds

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.136	VEUA 30136			
Multicast Group IP Feed B	224.0.213.136	PEUA 50136			
Channel Speed	1G	Partition 1			
Multicast Group IP Feed A	224.0.212.137	VEUA 30137			
Multicast Group IP Feed B	224.0.213.137	PEUA 50137			
Channel Speed	100M	Partition 1			
Multicast Group IP Feed A	224.0.212.136	VEUA 40136			
Multicast Group IP Feed B	224.0.213.136	PEUA 60136			

## 4. OPTIQ SEGMENT – 3. FIXED INCOME REAL-TIME AND SNAPSHOT CONFIGURATION

### 4.1 MDG SET OF CHANNELS ID 2 – FIXED INCOME

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	2
Optiq Segment name	Fixed Income	MDGSetOfChannelsName	Fixed Income

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.150	VEUA 30150			
Multicast Group IP Feed B	224.0.213.150	PEUA 50150			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.150	VEUA 40150			
Multicast Group IP Feed B	224.0.213.150	PEUA 60150			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.151	VEUA 30151			
Multicast Group IP Feed B	224.0.213.151	PEUA 50151			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.152	VEUA 30152			
Multicast Group IP Feed B	224.0.213.152	PEUA 50152			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.151	VEUA 40151			
Multicast Group IP Feed B	224.0.213.151	PEUA 60151			

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.153	VEUA 30153			
Multicast Group IP Feed B	224.0.213.153	PEUA 50153			

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.154	VEUA 30154			
Multicast Group IP Feed B	224.0.213.154	PEUA 50154			
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.153	VEUA 40153			
Multicast Group IP Feed B	224.0.213.153	PEUA 60153			

## 4.2 MDG SET OF CHANNELS ID 12 – FIXED INCOME NORDIC ABM

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	12
Optiq Segment name	Fixed Income	MDGSetOfChannelsName	Fixed Income Nordic ABM

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.149	VEUA 30149			
Multicast Group IP Feed B	224.0.213.149	PEUA 50149			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.149	VEUA 40149			
Multicast Group IP Feed B	224.0.213.149	PEUA 60149			

## 5. OPTIQ SEGMENT – 4. WARRANTS & CERTIFICATES REAL-TIME AND SNAPSHOT CONFIGURATION

### 5.1 MDG SET OF CHANNELS ID 4 – WARRANTS & CERTIFICATES

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	4
Optiq Segment name	Warrants & Certificates	MDGSetOfChannelsName	Warrants & Certificates

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.155	VEUA 30155	VEUA 31155		
Multicast Group IP Feed B	224.0.213.155	PEUA 50155	PEUA 51155		
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.155	VEUA 40155	VEUA 41155		
Multicast Group IP Feed B	224.0.213.155	PEUA 60155	PEUA 61155		

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.156	VEUA 30156	VEUA 31156		
Multicast Group IP Feed B	224.0.213.156	PEUA 50156	PEUA 51156		
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.157	VEUA 30157	VEUA 31157		
Multicast Group IP Feed B	224.0.213.157	PEUA 50157	PEUA 51157		
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.156	VEUA 40156	VEUA 41156		
Multicast Group IP Feed B	224.0.213.156	PEUA 60156	PEUA 61156		

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.159	VEUA 30159	VEUA 31159		
Multicast Group IP Feed B	224.0.213.159	PEUA 50159	PEUA 51159		

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.158	VEUA 40158	VEUA 41158		
Multicast Group IP Feed B	224.0.213.158	PEUA 60158	PEUA 61158		

## 6. OPTIQ SEGMENT – 5. BOURSE DE LUXEMBOURG REAL-TIME AND SNAPSHOT CONFIGURATION

### 6.1 MDG SET OF CHANNELS ID 3 – BOURSE DE LUXEMBOURG

Please note that the Bourse de Luxembourg Index messages are included in the Referential Data and Full Trade Information (REFT) real-time and snapshot channels.

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	3
Optiq Segment name	Bourse de Luxembourg	MDGSetOfChannelsName	Bourse de Luxembourg

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.170	VEUA 30170			
Multicast Group IP Feed B	224.0.213.170	PEUA 50170			

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.170	VEUA 40170			
Multicast Group IP Feed B	224.0.213.170	PEUA 60170			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.171	VEUA 30171			
Multicast Group IP Feed B	224.0.213.171	PEUA 50171			

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.172	VEUA 30172			
Multicast Group IP Feed B	224.0.213.172	PEUA 50172			

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.171	VEUA 40171			
Multicast Group IP Feed B	224.0.213.171	PEUA 60171			

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.173	VEUA 30173			
Multicast Group IP Feed B	224.0.213.173	PEUA 50173			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.174	VEUA			

Multicast Group IP Feed B	224.0.213.174	30174				
		PEUA				
		50174				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4	
Snapshot						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.173	VEUA				
		40173				
Multicast Group IP Feed B	224.0.213.173	PEUA				
		60173				

## 7. OPTIQ SEGMENT – 9. INDICES REAL-TIME AND SNAPSHOT CONFIGURATION

### 7.1 MDG SET OF CHANNELS ID 13 – EURONEXT INDICES

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	13
Optiq Segment name	Indices	MDGSetOfChannelsName	Euronext Indices

Channel Type	REFI	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.250	VEUA 30250			
Multicast Group IP Feed B	224.0.213.250	PEUA 50250			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.250	VEUA 40250			
Multicast Group IP Feed B	224.0.213.250	PEUA 60250			

### 7.2 MDG SET OF CHANNELS ID 14 – EURONEXT INAV'S

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	14
Optiq Segment name	Indices	MDGSetOfChannelsName	Euronext iNAV's

Channel Type	REFI	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.251	VEUA 30251			
Multicast Group IP Feed B	224.0.213.251	PEUA 50251			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.251	VEUA 40251			
Multicast Group IP Feed B	224.0.213.251	PEUA 60251			

### 7.3 MDG SET OF CHANNELS ID 15 – EURONEXT DUBLIN INDICES

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	15
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Optiq Segment name	Indices	MDGSetOfChannelsName	Euronext Dublin Indices			
Channel Type	REFI	Channel ID /Port				
Real-time						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.252	VEUA 30252				
Multicast Group IP Feed B	224.0.213.252	PEUA 50252				
Snapshot						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.252	VEUA 40252				
Multicast Group IP Feed B	224.0.213.252	PEUA 60252				

## 8. OPTIQ SEGMENT – 10. TRADE REPORTING AND PUBLICATION REAL-TIME AND SNAPSHOT CONFIGURATION

### 8.1 MDG SET OF CHANNELS ID 29 – APA SI QUOTES

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	29
Optiq Segment name	Trade Reporting and Publication	MDGSetOfChannelsName	APA SI Quotes

Channel Type	APSI	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.145		VEUA 31145		
Multicast Group IP Feed B	224.0.213.145		PEUA 51145		
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.145		VEUA 41145		
Multicast Group IP Feed B	224.0.213.145		PEUA 61145		

### 8.2 MDG SET OF CHANNELS ID 30 – APA TRADE PUBLICATION

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	30
Optiq Segment name	Trade Reporting and Publication	MDGSetOfChannelsName	APA Trade Publication

Channel Type	APTR	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.146		VEUA 31146		
Multicast Group IP Feed B	224.0.213.146		PEUA 51146		
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.146		VEUA 41146		
Multicast Group IP Feed B	224.0.213.146		PEUA 61146		

## 9. OPTIQ SEGMENT – 14. EURONEXT BLOCK

### 9.1 MDG SET OF CHANNELS ID 33 – EURONEXT BLOCK

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	33
Optiq Segment name	Euronext Block	MDGSetOfChannelsName	Euronext Block

Channel Type	EBLK	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.99	VEUA 30099			
Multicast Group IP Feed B	224.0.213.99	PEUA 50099			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.99	VEUA 40099			
Multicast Group IP Feed B	224.0.213.99	PEUA 60099			

### 9.2 MDG SET OF CHANNELS ID 19 – TRADING AFTER HOURS ITALY

Environment	V-EUA P-EUA	MDGSetOfChannels ID	19
Optiq Segment name	Block	MDGSetOfChannelsName	Trading After Hours Italy

In the tables below, in the “Channel ID/Port number” cells, the first number corresponds to the vEUA port number, the second corresponds to the pEUA port number

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.070	30070			
Multicast Group IP Feed B	224.0.213.070	50070			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.070	40070			
Multicast Group IP Feed B	224.0.213.070	60070			

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.128	30128			
Multicast Group IP Feed B	224.0.213.128	50128			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.129	30129			
Multicast Group IP Feed B	224.0.213.129	50129			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.128	40128			
Multicast Group IP Feed B	224.0.213.128	60128			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.071	30071			
Multicast Group IP Feed B	224.0.213.071	50071			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.072	30072			
Multicast Group IP Feed B	224.0.213.072	50072			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.071	40071			
Multicast Group IP Feed B	224.0.213.071	60071			

Channel Type	FBOU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.073	30073			
Multicast Group IP Feed B	224.0.213.073	50073			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.074	30074			
Multicast Group IP Feed B	224.0.213.074	50074			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.073	40073			
Multicast Group IP Feed B	224.0.213.073	60073			

## 10. OPTIQ SEGMENT – 16. IRISH BONDS & FUNDS

### 10.1 MDG SET OF CHANNELS ID 35 – EURONEXT DUBLIN BONDS AND FUNDS

Environment	V-EUA P-EUA	MDGSetOfChannels ID	35
Optiq Segment name	Irish Bonds & Funds	MDGSetOfChannelsName	Euronext Dublin Bonds and Funds

Channel Type	IBFR	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.226	VEUA 30226			
Multicast Group IP Feed B	224.0.213.226	PEUA 50226			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.226	VEUA 40226			
Multicast Group IP Feed B	224.0.213.226	PEUA 60226			

## 11. OPTIQ SEGMENT – 8. COMMODITY DERIVATIVES REAL-TIME AND SNAPSHOT CONFIGURATION

### 11.1 MDG SET OF CHANNELS ID 16 – COMMODITY DERIVATIVES

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	16
Optiq Segment name	Commodity Derivatives	MDGSetOfChannelsName	Commodity Derivatives

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.245	VEUA 30245			
Multicast Group IP Feed B	224.0.213.245	PEUA 50245			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.245	VEUA 40245			
Multicast Group IP Feed B	224.0.213.245	PEUA 60245			

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.246	VEUA 30246			
Multicast Group IP Feed B	224.0.213.246	PEUA 50246			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.247	VEUA 30247			
Multicast Group IP Feed B	224.0.213.247	PEUA 50247			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.246	VEUA 40246			
Multicast Group IP Feed B	224.0.213.246	PEUA 60246			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.248				
Multicast Group IP Feed B	224.0.213.248				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4

Multicast Group IP Feed A	224.0.212.249	VEUA 30249			
Multicast Group IP Feed B	224.0.213.249	PEUA 50249			
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.248	VEUA 40248			
Multicast Group IP Feed B	224.0.213.248	PEUA 60248			

## 12. OPTIQ SEGMENT – 11. INDEX DERIVATIVES REAL-TIME AND SNAPSHOT CONFIGURATION

### 12.1 MDG SET OF CHANNELS ID 23 – INDEX OPTIONS FRANCE

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	23
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Options France

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.220	VEUA 30220			
Multicast Group IP Feed B	224.0.213.220	PEUA 50220			

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.220	VEUA 40220			
Multicast Group IP Feed B	224.0.213.220	PEUA 60220			

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.221	VEUA 30221			
Multicast Group IP Feed B	224.0.213.221	PEUA 50221			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.222	VEUA 30222			
Multicast Group IP Feed B	224.0.213.222	PEUA 50222			

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.221	VEUA 40221			
Multicast Group IP Feed B	224.0.213.221	PEUA 60221			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.223				
Multicast Group IP Feed B	224.0.213.223				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4



Multicast Group IP Feed A	224.0.212.224	VEUA 30224			
Multicast Group IP Feed B	224.0.213.224	PEUA 50224			
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.225	VEUA 30225			
Multicast Group IP Feed B	224.0.213.225	PEUA 50225			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.223	VEUA 40223			
Multicast Group IP Feed B	224.0.213.223	PEUA 60223			

## 12.2 MDG SET OF CHANNELS ID 24 – INDEX OPTIONS NETHERLANDS

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	24
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Options Netherlands

Channel Type	REFT	Channel ID /Port
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### Real-time

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.230	VEUA 30230			
Multicast Group IP Feed B	224.0.213.230	PEUA 50230			

### Snapshot

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.230	VEUA 40230			
Multicast Group IP Feed B	224.0.213.230	PEUA 60230			

Channel Type	BBBO	Channel ID /Port
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### Real-time

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.231	VEUA 30231			
Multicast Group IP Feed B	224.0.213.231	PEUA 50231			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.232	VEUA 30232			
Multicast Group IP Feed B	224.0.213.232	PEUA 50232			

### Snapshot

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.231	VEUA			

Multicast Group IP Feed B 224.0.213.231 40231  
PEUA  
60231

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.233				
Multicast Group IP Feed B	224.0.213.233				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.234	VEUA 30234 PEUA 50234			
Multicast Group IP Feed B	224.0.213.234				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.235	VEUA 30235 PEUA 50235			
Multicast Group IP Feed B	224.0.213.235				
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.233	VEUA 40233 PEUA 60233			
Multicast Group IP Feed B	224.0.213.233				

### 12.3 MDG SET OF CHANNELS ID 25 – INDEX DERIVATIVES OTHER (BELGIUM AND PORTUGAL)

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	25
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Derivatives Other

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.240	VEUA 30240			
Multicast Group IP Feed B	224.0.213.240	PEUA 50240			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.240	VEUA 40240			
Multicast Group IP Feed B	224.0.213.240	PEUA 60240			

Channel Type	BBBO	Channel ID /Port			
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Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.241	VEUA 30241			
Multicast Group IP Feed B	224.0.213.241	PEUA 50241			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.242	VEUA 30242			
Multicast Group IP Feed B	224.0.213.242	PEUA 50242			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.241	VEUA 40241			
Multicast Group IP Feed B	224.0.213.241	PEUA 60241			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.243				
Multicast Group IP Feed B	224.0.213.243				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.244	VEUA 30244 PEUA 50244			
Multicast Group IP Feed B	224.0.213.244				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.243	VEUA 40243 PEUA 60243			
Multicast Group IP Feed B	224.0.213.243				

## 12.4 MDG SET OF CHANNELS ID 26 – INDEX FUTURES FRANCE

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	26			
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Futures France			
Channel Type	REFT	Channel ID /Port				
Real-time						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	

Multicast Group IP Feed A	224.0.212.190	VEUA 30190				
Multicast Group IP Feed B	224.0.213.190	PEUA 50190				
Snapshot						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.190	VEUA 40190				
Multicast Group IP Feed B	224.0.213.190	PEUA 60190				
Channel Type	BBBO	Channel ID /Port				
Real-time						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.191	VEUA 30191				
Multicast Group IP Feed B	224.0.213.191	PEUA 50191				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.192	VEUA 30192				
Multicast Group IP Feed B	224.0.213.192	PEUA 50192				
Snapshot						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.191	VEUA 40191				
Multicast Group IP Feed B	224.0.213.191	PEUA 60191				
Channel Type	FBMU	Channel ID /Port				
Real-time						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.193					
Multicast Group IP Feed B	224.0.213.193					
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.194	VEUA 30194				
Multicast Group IP Feed B	224.0.213.194	PEUA 50194				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.195	VEUA 30195				
Multicast Group IP Feed B	224.0.213.195	PEUA 50195				
Snapshot						
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4	
Multicast Group IP Feed A	224.0.212.193	VEUA 40193				
Multicast Group IP Feed B	224.0.213.193	PEUA 60193				

## 12.5 MDG SET OF CHANNELS ID 27 – INDEX FUTURES NETHERLANDS

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	27
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Futures Netherlands

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.200	VEUA 30200			
Multicast Group IP Feed B	224.0.213.200	PEUA 50200			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.200	VEUA 40200			
Multicast Group IP Feed B	224.0.213.200	PEUA 60200			

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.201	VEUA 30201			
Multicast Group IP Feed B	224.0.213.201	PEUA 50201			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.202	VEUA 30202			
Multicast Group IP Feed B	224.0.213.202	PEUA 50202			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.201	VEUA 40201			
Multicast Group IP Feed B	224.0.213.201	PEUA 60201			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.203				
Multicast Group IP Feed B	224.0.213.203				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.204	VEUA 30204			
Multicast Group IP Feed B	224.0.213.204	PEUA 50204			
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.205	VEUA 30205			
Multicast Group IP Feed B	224.0.213.205	PEUA 50205			
Snapshot					

Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.203	VEUA 40203			
Multicast Group IP Feed B	224.0.213.203	PEUA 60203			

## 13. OPTIQ SEGMENT – 12. EQUITY DERIVATIVES REAL-TIME AND SNAPSHOT CONFIGURATION

### 13.1 MDG SET OF CHANNELS ID 20 – EQUITY DERIVATIVES FRANCE

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	20
Optiq Segment name	Equity Derivatives	MDGSetOfChannelsName	Equity Derivatives France

Channel Type	REFT	Channel ID /Port
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Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.175	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.175	30175	31175	32175	
		PEUA	PEUA	PEUA	
		50175	51175	52175	

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.175	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.175	40175	41175	42175	
		PEUA	PEUA	PEUA	
		60175	61175	62175	

Channel Type	BBBO	Channel ID /Port
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Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.176	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.176	30176	31176	32176	
		PEUA	PEUA	PEUA	
		50176	51176	52176	

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.177	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.177	30177	31177	32177	
		PEUA	PEUA	PEUA	
		50177	51177	52177	

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.176	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.176	40176	41176	42176	
		PEUA	PEUA	PEUA	
		60176	61176	62176	

Channel Type	FBMU	Channel ID /Port
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Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.178				
Multicast Group IP Feed B	224.0.213.178				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.179	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.179	30179	31179	32179	
		PEUA	PEUA	PEUA	
		50179	51179	52179	

Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.178	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.178	40178	41178	42178	
		PEUA	PEUA	PEUA	
		60178	61178	62178	

### 13.2 MDG SET OF CHANNELS ID 21 – EQUITY DERIVATIVES NETHERLANDS

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	21
Optiq Segment name	Equity Derivatives	MDGSetOfChannelsName	Equity Derivatives Netherlands

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.180	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.180	30180	31180	32180	
		PEUA	PEUA	PEUA	
		50180	51180	52180	
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.180	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.180	40180	41180	42180	
		PEUA	PEUA	PEUA	
		60180	61180	62180	

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.181	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.181	30181	31181	32181	
		PEUA	PEUA	PEUA	
		50181	51181	52181	
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.182	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.182	30182	31182	32182	
		PEUA	PEUA	PEUA	
		50182	51182	52182	
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.181	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.181	40181	41181	42181	
		PEUA	PEUA	PEUA	
		60181	61181	62181	

Channel Type	FBMU	Channel ID /Port			
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Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.183				
Multicast Group IP Feed B	224.0.213.183				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.184	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.184	30184	31184	32184	
		PEUA	PEUA	PEUA	
		50184	51184	52184	
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	10M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.183	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.183	40183	41183	42183	
		PEUA	PEUA	PEUA	
		60183	61183	62183	

### 13.3 MDG SET OF CHANNELS ID 22 – EQUITY DERIVATIVES OTHER (BELGIUM AND PORTUGAL)

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	22
Optiq Segment name	Equity Derivatives	MDGSetOfChannelsName	Equity Derivatives Other

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.185	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.185	30185	31185	32185	
		PEUA	PEUA	PEUA	
		50185	51185	52185	
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.185	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.185	40185	41185	42185	
		PEUA	PEUA	PEUA	
		60185	61185	62185	

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.186	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.186	30186	31186	32186	
		PEUA	PEUA	PEUA	
		50186	51186	52186	
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.187	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.187	30187	31187	32187	
		PEUA	PEUA	PEUA	
		50187	51187	52187	

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.186	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.186	40186	41186	42186	
		PEUA	PEUA	PEUA	
		60186	61186	62186	
Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.188				
Multicast Group IP Feed B	224.0.213.188				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.189	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.189	30189	31189	32189	
		PEUA	PEUA	PEUA	
		50189	51189	52189	
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.188	VEUA	VEUA	VEUA	
Multicast Group IP Feed B	224.0.213.188	40188	41188	42188	
		PEUA	PEUA	PEUA	
		60188	61188	62188	

## 14. OPTIQ SEGMENT – 13. FINANCIAL DERIVATIVES REAL-TIME AND SNAPSHOT CONFIGURATION

### 14.1 MDG SET OF CHANNELS ID 17 – CURRENCY DERIVATIVES

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	17
Optiq Segment name	Financial Futures	MDGSetOfChannelsName	Currency Futures

Channel Type	REFT	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.140	VEUA 30140			
Multicast Group IP Feed B	224.0.213.140	PEUA 50140			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.140	VEUA 40140			
Multicast Group IP Feed B	224.0.213.140	PEUA 60140			

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.141	VEUA 30141			
Multicast Group IP Feed B	224.0.213.141	PEUA 50141			
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.142	VEUA 30142			
Multicast Group IP Feed B	224.0.213.142	PEUA 50142			
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.141	VEUA 40141			
Multicast Group IP Feed B	224.0.213.141	PEUA 60141			

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.143				
Multicast Group IP Feed B	224.0.213.143				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4

Multicast Group IP Feed A	224.0.212.144	VEUA 30144			
Multicast Group IP Feed B	224.0.213.144	PEUA 50144			
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.143	VEUA 40143			
Multicast Group IP Feed B	224.0.213.143	PEUA 60143			

## 15. OPTIQ SEGMENT – 15. FOREX

### 15.1 MDG SET OF CHANNELS ID 34 – FOREX

Environment	V-EUA and P-EUA	MDGSetOfChannels ID	34
Optiq Segment name	Forex	MDGSetOfChannelsName	Forex

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.212.161	VEUA 30161			
Multicast Group IP Feed B	224.0.213.161	PEUA 50161			