

Document title

## **OPTIQ® MARKET DATA GATEWAY FEED CONFIGURATION**

**PRODUCTION AND DISASTER RECOVERY**

Document type or subject

FEED CONFIGURATION DOCUMENT

Revision number

Revision Number: 2.6

Date

July 2021

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## PREFACE

### DOCUMENT HISTORY

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

VERSION NO.	DATE	CHANGE DESCRIPTION
1.0	September 2016	Optiq® Market Data Gateway Production and Disaster Recovery (DR) Environment feed configuration details.
1.1	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. Addition of the DR Source IP Addresses for Feed A and B.
1.2	March 2017	Corrected made to Environment field, now correctly showing PROD.
1.3	May 2017	Corrected Euronext Indices channel, Index Options Netherlands Partition 2 and Index Options France Partition 2.
1.4	June 2017	Correction Equity and Index Futures Netherlands 10G partition 2 and Commodity Derivatives Snapshot Partition 1.
1.5	November 2017	New Channels added for APA SI Quotes and APA Trade Publication to Optiq Segment – 10, Trade Reporting and Publication.
1.6	June 2018	Removal of MDG Set Of Channels ID 12 – Trade Reporting And Publication
1.7	July 2018	New Channels added for ETF Access to Optiq Segment – 2, Funds. Removal of MDG Set Of Channels ID 10 - Societe Generale Systematic Internaliser (SI)
1.8	July 2018	New Channels added for Best of Book (RMF) Funds.
1.9	July 2018	MDG Set of Channels 9 and 15 renamed for Euronext Dublin Integration.
2.0	November 2018	New Channels added for Euronext Block
2.1	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.
2.2	January 2019	Changed the amount of Partitions for Equity Derivatives from 2 to 3 and For Index Derivatives from 2 to 1.
2.3	October 2019	Removal of the Derivatives 100M FBMU channel IDs.
2.4	January 2020	Addition of Optiq Segment 16 for the Irish Bonds and Funds
2.5	February 2020	Addition of MDG Set of Channels 10 for Equities Norway and 12 for Fixed Income Nordic ABM
2.6	July 2021	Addition of MDG Set of Channels 34 for Forex

## 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

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This document provides all multicast addresses required to access the Euronext Optiq® Market Data Gateway Production and Disaster Recovery (DR).

The Euronext Optiq® Market Data Gateway Production environment (PROD) is located in Basildon and the Disaster Recovery (DR) environment is located at St. Denis. The Production Primary (P) and Secondary (S) Source IP Address ranges are provided in this document for the live and standby systems as part of the High Availability mechanism.

Customers are requested to allow the Production Primary, Production Secondary and Disaster Recovery (DR) 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)
2. Funds	1	1	Funds
		32	ETF Access
		31	Best of Book (RMF) Funds
3. Fixed Income	1	2	Fixed Income
		12	Fixed Income Nordic ABM
4. Warrants and Certificates	1	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
Optiq Segment	Number of Partitions	MDG Set Of Channels ID	MDG Set Of Channels Name
10. Trade Reporting and Publication	1	29	APA SI Quotes
		30	APA Trade Publication
Optiq Segment	Number of Partitions	MDG Set Of Channels ID	MDG Set Of Channels Name
14. Euronext Block	1	33	Euronext Block
Optiq Segment	Number of Partitions	MDG Set Of Channels ID	MDG Set Of Channels Name
16. Irish Bonds & Funds	1	35	Euronext Dublin Bonds and Funds
Optiq Segment	Number of Partitions	MDG Set Of Channels ID	MDG Set Of Channels Name
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
Optiq Segment	Number of Partitions	MDG Set Of Channels ID	MDG Set Of Channels Name
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

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

## 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 (1) or snapshot (2)
2. The second number is n= 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 SFTI WAN	156.48.121.2	156.48.121.55
Rendez-vous Point SFTI Co-lo	156.48.99.5	
Primary IP Address	212.197.192.0/25	212.197.193.0/25
Secondary IP Address	212.197.192.0/25	212.197.193.0/25
Disaster Recovery IP Address	212.197.227.0/25	212.197.228.0/25

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

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

Environment	Channel ID	Real-Time/Snapshot	Multicast Group Feed A	Multicast Group Feed B
Production	1(n)xxx	Real-Time	224.0.64.xxx	224.0.65.xxx
	2(n)xxx	Snapshot	224.0.66.xxx	224.0.67.xxx

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

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

Environment	PROD	MDGSetOfChannels ID	6
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Netherlands

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.120	10120	11120	12120	13120
Multicast Group IP Feed B	224.0.65.120				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.120	20120	21120	22120	23120
Multicast Group IP Feed B	224.0.67.120				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.121	10121	11121	12121	13121
Multicast Group IP Feed B	224.0.65.121				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.122	10122	11122	12122	13122
Multicast Group IP Feed B	224.0.65.122				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.121	20121	21121	22121	23121
Multicast Group IP Feed B	224.0.67.121				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.123	10123	11123	12123	13123
Multicast Group IP Feed B	224.0.65.123				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.124	10124	11124	12124	13124
Multicast Group IP Feed B	224.0.65.124				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.125	10125	11125	12125	13125
Multicast Group IP Feed B	224.0.65.125				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.123	20123	21123	22123	23123
Multicast Group IP Feed B	224.0.67.123				

2.2 MDG SET OF CHANNELS ID 5 – EQUITIES FRANCE

Environment	PROD	MDGSetOfChannels ID	5
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities France

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.110	10110	11110	12110	13110
Multicast Group IP Feed B	224.0.65.110				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.110	20110	21110	22110	23110
Multicast Group IP Feed B	224.0.67.110				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.111	10111	11111	12111	13111
Multicast Group IP Feed B	224.0.65.111				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.112	10112	11112	12112	13112
Multicast Group IP Feed B	224.0.65.112				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.111	20111	21111	22111	23111
Multicast Group IP Feed B	224.0.67.111				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.113	10113	11113	12113	13113
Multicast Group IP Feed B	224.0.65.113				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.114	10114	11114	12114	13114
Multicast Group IP Feed B	224.0.65.114				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.115	10115	11115	12115	13115
Multicast Group IP Feed B	224.0.65.115				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.113	20113	21113	22113	23113
Multicast Group IP Feed B	224.0.67.113				

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

Environment	PROD	MDGSetOfChannels ID	7
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Belgium (Including Public Auction Market)

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.100	10100	11100	12100	13100
Multicast Group IP Feed B	224.0.65.100				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.100	20100	21100	22100	23100
Multicast Group IP Feed B	224.0.67.100				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.101	10101	11101	12101	13101
Multicast Group IP Feed B	224.0.65.101				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.102	10102	11102	12102	13102
Multicast Group IP Feed B	224.0.65.102				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.101	20101	21101	22101	23101
Multicast Group IP Feed B	224.0.67.101				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.103	10103	11103	12103	13103
Multicast Group IP Feed B	224.0.65.103				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.104	10104	11104	12104	13104
Multicast Group IP Feed B	224.0.65.104				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.103	20103	21103	22103	23103
Multicast Group IP Feed B	224.0.67.103				

2.4 MDG SET OF CHANNELS ID 8 – EQUITIES PORTUGAL

Environment	PROD	MDGSetOfChannels ID	8
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Portugal

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.105	10105	11105	12105	13105
Multicast Group IP Feed B	224.0.65.105				

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.105	20105	21105	22105	23105
Multicast Group IP Feed B	224.0.67.105				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.106	10106	11106	12106	13106
Multicast Group IP Feed B	224.0.65.106				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.107	10107	11107	12107	13107
Multicast Group IP Feed B	224.0.65.107				

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.106	20106	21106	22106	23106
Multicast Group IP Feed B	224.0.67.106				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.108	10108	11108	12108	13108
Multicast Group IP Feed B	224.0.65.108				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.109	10109	11109	12109	13109
Multicast Group IP Feed B	224.0.65.109				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.108	20108	21108	22108	23108
Multicast Group IP Feed B	224.0.67.108				

2.5 MDG SET OF CHANNELS ID 9 – EQUITIES DUBLIN

Environment	PROD	MDGSetOfChannels ID	9
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Dublin

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.165	10165	11165	12165	13165
Multicast Group IP Feed B	224.0.65.165				

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.165	20165	21165	22165	23165
Multicast Group IP Feed B	224.0.67.165				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.166	10166	11166	12166	13166
Multicast Group IP Feed B	224.0.65.166				

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.167	10167	11167	12167	13167
Multicast Group IP Feed B	224.0.65.167				

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.166	20166	21166	22166	23166
Multicast Group IP Feed B	224.0.67.166				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.168	10168	11168	12168	13168
Multicast Group IP Feed B	224.0.65.168				

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.169	10169	11169	12169	13169
Multicast Group IP Feed B	224.0.65.169				

Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.168	20168	21168	22168	23168
Multicast Group IP Feed B	224.0.67.168				



2.6 MDG SET OF CHANNELS ID 10 – EQUITIES NORWAY

Environment	PROD	MDGSetOfChannels ID	10
Optiq Segment name	Equities	MDGSetOfChannelsName	Equities Norway

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.85	10085	11085	12085	13085
Multicast Group IP Feed B	224.0.65.85				

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.85	20085	21085	22085	23085
Multicast Group IP Feed B	224.0.67.85				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.86	10086	11086	12086	13086
Multicast Group IP Feed B	224.0.65.86				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.87	10087	11087	12087	13087
Multicast Group IP Feed B	224.0.65.87				

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.86	20086	21086	22086	23086
Multicast Group IP Feed B	224.0.67.86				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.88	10088	11088	12088	13088
Multicast Group IP Feed B	224.0.65.88				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.89	10089	11089	12089	13089
Multicast Group IP Feed B	224.0.65.89				

<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.88	20088	21088	22088	23088
Multicast Group IP Feed B	224.0.67.88				

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

Environment	PROD	MDGSetOfChannels ID	11
Optiq Segment name	Equities	MDGSetOfChannelsName	Best of Book (RMF)

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.138	10138	11138	12138	13138
Multicast Group IP Feed B	224.0.65.138				
<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.139	10139	11139	12139	13139
Multicast Group IP Feed B	224.0.65.139				
<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.138	20138	21138	22138	23138
Multicast Group IP Feed B	224.0.67.138				

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

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

Environment	PROD	MDGSetOfChannels ID	1
Optiq Segment name	Funds	MDGSetOfChannelsName	Funds

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.130	10130			
Multicast Group IP Feed B	224.0.65.130				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.130	20130			
Multicast Group IP Feed B	224.0.67.130				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.131	10131			
Multicast Group IP Feed B	224.0.65.131				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.132	10132			
Multicast Group IP Feed B	224.0.65.132				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.131	20131			
Multicast Group IP Feed B	224.0.67.131				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.133	10133			
Multicast Group IP Feed B	224.0.65.133				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.134	10134			
Multicast Group IP Feed B	224.0.65.134				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.135	10135			
Multicast Group IP Feed B	224.0.65.135				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.133	20133			
Multicast Group IP Feed B	224.0.67.133				

3.2 MDG SET OF CHANNELS ID 32 – ETF ACCESS

Environment	PROD	MDGSetOfChannels ID	32
Optiq Segment name	Funds	MDGSetOfChannelsName	ETF Access

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.90	10090			
Multicast Group IP Feed B	224.0.65.90				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.90	20090			
Multicast Group IP Feed B	224.0.67.90				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.91	10091			
Multicast Group IP Feed B	224.0.65.91				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.92	10092			
Multicast Group IP Feed B	224.0.65.92				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.91	20091			
Multicast Group IP Feed B	224.0.67.91				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.93	10093			
Multicast Group IP Feed B	224.0.65.93				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.94	10094			
Multicast Group IP Feed B	224.0.65.94				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.95	10095			
Multicast Group IP Feed B	224.0.65.95				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.93	20093			
Multicast Group IP Feed B	224.0.67.93				

**3.3 MDG SET OF CHANNELS ID 31 – BEST OF BOOK (RMF) FUNDS**

Environment	PROD	MDGSetOfChannels ID	31
Optiq Segment name	Funds	MDGSetOfChannelsName	Best of Book (RMF) Funds

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.136	10136			
Multicast Group IP Feed B	224.0.65.136				
<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>			
Multicast Group IP Feed A	224.0.64.137	10137			
Multicast Group IP Feed B	224.0.65.137				
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>			
Multicast Group IP Feed A	224.0.66.136	20136			
Multicast Group IP Feed B	224.0.67.136				

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

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

Environment	PROD	MDGSetOfChannels ID	2
Optiq Segment name	Fixed Income	MDGSetOfChannelsName	Fixed Income

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.150	10150			
Multicast Group IP Feed B	224.0.65.150				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.150	20150			
Multicast Group IP Feed B	224.0.67.150				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.151	10151			
Multicast Group IP Feed B	224.0.65.151				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.152	10152			
Multicast Group IP Feed B	224.0.65.152				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.151	20151			
Multicast Group IP Feed B	224.0.67.151				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.153	10153			
Multicast Group IP Feed B	224.0.65.153				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.154	10154			
Multicast Group IP Feed B	224.0.65.154				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.153	20153			
Multicast Group IP Feed B	224.0.67.153				

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

Environment	PROD	MDGSetOfChannels ID	12
Optiq Segment name	Fixed Income	MDGSetOfChannelsName	Fixed Income Nordic ABM

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.149	10149			
Multicast Group IP Feed B	224.0.65.149				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.149	20149			
Multicast Group IP Feed B	224.0.67.149				

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

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

Environment	PROD	MDGSetOfChannels ID	4
Optiq Segment name	Warrants & Certificates	MDGSetOfChannelsName	Warrants & Certificates

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.155	10155			
Multicast Group IP Feed B	224.0.65.155				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.155	20155			
Multicast Group IP Feed B	224.0.67.155				

Channel Type	BBBO	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.156	10156			
Multicast Group IP Feed B	224.0.65.156				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.157	10157			
Multicast Group IP Feed B	224.0.65.157				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.156	20156			
Multicast Group IP Feed B	224.0.67.156				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.158	10158			
Multicast Group IP Feed B	224.0.65.158				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.159	10159			
Multicast Group IP Feed B	224.0.65.159				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.158	20158			
Multicast Group IP Feed B	224.0.67.158				



## 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	PROD	MDGSetOfChannels ID	3
Optiq Segment name	Bourse de Luxembourg	MDGSetOfChannelsName	Bourse de Luxembourg

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.170	10170			
Multicast Group IP Feed B	224.0.65.170				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.170	20170			
Multicast Group IP Feed B	224.0.67.170				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.171	10171			
Multicast Group IP Feed B	224.0.65.171				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.172	10172			
Multicast Group IP Feed B	224.0.65.172				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.171	20171			
Multicast Group IP Feed B	224.0.67.171				

Channel Type	FBOU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.173	10173			
Multicast Group IP Feed B	224.0.65.173				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.174	10174			
Multicast Group IP Feed B	224.0.65.174				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.173	20173			
Multicast Group IP Feed B	224.0.67.173				

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

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

Environment	PROD	MDGSetOfChannels ID	13
Optiq Segment name	Indices	MDGSetOfChannelsName	Euronext Indices

Channel Type	REFI	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.250	10250			
Multicast Group IP Feed B	224.0.65.250				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.250	20250			
Multicast Group IP Feed B	224.0.67.250				

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

Environment	PROD	MDGSetOfChannels ID	14
Optiq Segment name	Indices	MDGSetOfChannelsName	Euronext iNAV's

Channel Type	REFI	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.251	10251			
Multicast Group IP Feed B	224.0.65.251				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.251	20251			
Multicast Group IP Feed B	224.0.67.251				

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

Environment	PROD	MDGSetOfChannels ID	15
Optiq Segment name	Indices	MDGSetOfChannelsName	Euronext Dublin Indices

Channel Type	REFI	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.252	10252			
Multicast Group IP Feed B	224.0.65.252				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.252	20252			
Multicast Group IP Feed B	224.0.67.252				

## 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	PROD	MDGSetOfChannels ID	29			
Optiq Segment name	Trade Reporting and Publication	MDGSetOfChannelsName	APA SI Quotes			
<b>Channel Type</b>	<b>APSI</b>	<b>Channel ID /Port</b>				
<b>Real-time</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.64.145	11145				
Multicast Group IP Feed B	224.0.65.145					
<b>Snapshot</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.66.145	21145				
Multicast Group IP Feed B	224.0.67.145					

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

Environment	PROD	MDGSetOfChannels ID	30			
Optiq Segment name	Trade Reporting and Publication	MDGSetOfChannelsName	APA Trade Publication			
<b>Channel Type</b>	<b>APTR</b>	<b>Channel ID /Port</b>				
<b>Real-time</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.64.146	11146				
Multicast Group IP Feed B	224.0.65.146					
<b>Snapshot</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.66.146	21146				
Multicast Group IP Feed B	224.0.67.146					

## 9. OPTIQ SEGMENT – 14. EURONEXT BLOCK

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

Environment	PROD	MDGSetOfChannels ID	33			
Optiq Segment name	Euronext Block	MDGSetOfChannelsName	Euronext Block			
<b>Channel Type</b>	<b>EBLK</b>	<b>Channel ID /Port</b>				
<b>Real-time</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.64.99	10099				
Multicast Group IP Feed B	224.0.65.99					
<b>Snapshot</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.66.99	20099				
Multicast Group IP Feed B	224.0.67.99					

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

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

Environment	PROD	MDGSetOfChannels ID	35			
Optiq Segment name	Irish Bonds & Funds	MDGSetOfChannelsName	Euronext Dublin Bonds and Funds			
<b>Channel Type</b>	<b>IBFR</b>	<b>Channel ID /Port</b>				
<b>Real-time</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.64.226	10226				
Multicast Group IP Feed B	224.0.65.226					
<b>Snapshot</b>						
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>	
Multicast Group IP Feed A	224.0.66.226	20226				
Multicast Group IP Feed B	224.0.67.226					

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

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

Environment	PROD	MDGSetOfChannels ID	16
Optiq Segment name	Commodity Derivatives	MDGSetOfChannelsName	Commodity Derivatives

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.245	10245			
Multicast Group IP Feed B	224.0.65.245				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.245	20245			
Multicast Group IP Feed B	224.0.67.245				

Channel Type	BBBO	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.246	10246			
Multicast Group IP Feed B	224.0.65.246				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.247	10247			
Multicast Group IP Feed B	224.0.65.247				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.246	20246			
Multicast Group IP Feed B	224.0.67.246				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.248	10249			
Multicast Group IP Feed B	224.0.65.248				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.249	10249			
Multicast Group IP Feed B	224.0.65.249				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.248	20248			
Multicast Group IP Feed B	224.0.67.248				

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

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

Environment	PROD	MDGSetOfChannels ID	23
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Options France

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.220	10220			
Multicast Group IP Feed B	224.0.65.220				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.220	20220			
Multicast Group IP Feed B	224.0.67.220				

Channel Type	BBBO	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.221	10221			
Multicast Group IP Feed B	224.0.65.221				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.222	10222			
Multicast Group IP Feed B	224.0.65.222				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.221	20221			
Multicast Group IP Feed B	224.0.67.221				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.223				
Multicast Group IP Feed B	224.0.65.223				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.224	10224			
Multicast Group IP Feed B	224.0.65.224				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.225	10225			
Multicast Group IP Feed B	224.0.65.225				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.223	20223			
Multicast Group IP Feed B	224.0.67.223				



12.2 MDG SET OF CHANNELS ID 24 – INDEX OPTIONS NETHERLANDS

Environment	PROD	MDGSetOfChannels ID	24
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Options 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	224.0.64.230	10230			
Multicast Group IP Feed B	224.0.65.230				

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.230	20230			
Multicast Group IP Feed B	224.0.67.230				

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.231	10231			
Multicast Group IP Feed B	224.0.65.231				

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.232	10232			
Multicast Group IP Feed B	224.0.65.232				

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.231	20231			
Multicast Group IP Feed B	224.0.67.231				

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.233				
Multicast Group IP Feed B	224.0.65.233				

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.234	10234			
Multicast Group IP Feed B	224.0.65.234				

Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.235	10235			
Multicast Group IP Feed B	224.0.65.235				

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.233	20233			
Multicast Group IP Feed B	224.0.67.233				

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

Environment	PROD	MDGSetOfChannels ID	25
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Derivatives Other

<b>Channel Type</b>	<b>REFT</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.240	10240			
Multicast Group IP Feed B	224.0.65.240				

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.240	20240			
Multicast Group IP Feed B	224.0.67.240				

<b>Channel Type</b>	<b>BBBO</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.241	10241			
Multicast Group IP Feed B	224.0.65.241				

<b>Channel Speed</b>	<b>1G</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.242	10242			
Multicast Group IP Feed B	224.0.65.242				

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.241	20241			
Multicast Group IP Feed B	224.0.67.241				

<b>Channel Type</b>	<b>FBMU</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.243				
Multicast Group IP Feed B	224.0.65.243				

<b>Channel Speed</b>	<b>1G</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.244	10244			
Multicast Group IP Feed B	224.0.65.244				

<b>Channel Speed</b>	<b>10G</b>	Partition 1	Partition 2	Partition 3	Partition 4

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.243	20243			
Multicast Group IP Feed B	224.0.67.243				

12.4 MDG SET OF CHANNELS ID 26 – INDEX FUTURES FRANCE

Environment	PROD	MDGSetOfChannels ID	26
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Futures France

<b>Channel Type</b>	<b>REFT</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.190	10190			
Multicast Group IP Feed B	224.0.65.190				

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.190	20190			
Multicast Group IP Feed B	224.0.67.190				

<b>Channel Type</b>	<b>BBBO</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.191	10191			
Multicast Group IP Feed B	224.0.65.191				

<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.192	10192			
Multicast Group IP Feed B	224.0.65.192				

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.191	20191			
Multicast Group IP Feed B	224.0.67.191				

<b>Channel Type</b>	<b>FBMU</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.193				
Multicast Group IP Feed B	224.0.65.193				

<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.194	10194			
Multicast Group IP Feed B	224.0.65.194				
Multicast Group IP Feed A	224.0.64.195	10195			
Multicast Group IP Feed B	224.0.65.195				

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.193	20193			
Multicast Group IP Feed B	224.0.67.193				

12.5 MDG SET OF CHANNELS ID 27 –INDEX FUTURES NETHERLANDS

Environment	PROD	MDGSetOfChannels ID	27
Optiq Segment name	Index Derivatives	MDGSetOfChannelsName	Index Futures Netherlands

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.200	10200			
Multicast Group IP Feed B	224.0.65.200				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.200	20200			
Multicast Group IP Feed B	224.0.67.200				

Channel Type	BBBO	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.201	10201			
Multicast Group IP Feed B	224.0.65.201				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.202	10202			
Multicast Group IP Feed B	224.0.65.202				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.201	20201			
Multicast Group IP Feed B	224.0.67.201				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.203	10203			
Multicast Group IP Feed B	224.0.65.203				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.204	10204			
Multicast Group IP Feed B	224.0.65.204				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.205	10205			
Multicast Group IP Feed B	224.0.65.205				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.203	20203			
Multicast Group IP Feed B	224.0.67.203				

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

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

Environment	PROD	MDGSetOfChannels ID	20
Optiq Segment name	Equity Derivatives	MDGSetOfChannelsName	Equity Derivatives France

Channel Type	REFT	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.175	10175	11175	12175	
Multicast Group IP Feed B	224.0.65.175				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.175	20175	21175	22175	
Multicast Group IP Feed B	224.0.67.175				

Channel Type	BBBO	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.176	10176	11176	12176	
Multicast Group IP Feed B	224.0.65.176				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.177	10177	11177	12177	
Multicast Group IP Feed B	224.0.65.177				
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.176	20176	21176	22176	
Multicast Group IP Feed B	224.0.67.176				

Channel Type	FBMU	Channel ID /Port			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.178				
Multicast Group IP Feed B	224.0.65.178				
Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.179	10179	11179	12179	
Multicast Group IP Feed B	224.0.65.179				
Channel Speed	10G	Partition 1	Partition 2	Partition 3	Partition 4
<b>Snapshot</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.178	20178	21178	22178	
Multicast Group IP Feed B	224.0.67.178				

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

Environment	PROD	MDGSetOfChannels ID	21
Optiq Segment name	Equity Derivatives	MDGSetOfChannelsName	Equity Derivatives Netherlands

<b>Channel Type</b>	<b>REFT</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.180	10180	11180	12180	
Multicast Group IP Feed B	224.0.65.180				

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.180	20180	21180	22180	
Multicast Group IP Feed B	224.0.67.180				

<b>Channel Type</b>	<b>BBBO</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.181	10181	11181	12181	
Multicast Group IP Feed B	224.0.65.181				
<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.182	10182	11182	12182	
Multicast Group IP Feed B	224.0.65.182				

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.181	20181	21181	22181	
Multicast Group IP Feed B	224.0.67.181				

<b>Channel Type</b>	<b>FBMU</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.183				
Multicast Group IP Feed B	224.0.65.183				
<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.184	10184	11184	12184	
Multicast Group IP Feed B	224.0.65.184				
<b>Channel Speed</b>	<b>10G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>

<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.183	20183	21183	22183	
Multicast Group IP Feed B	224.0.67.183				

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

Environment	PROD	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	224.0.64.185	10185	11185	12185	
Multicast Group IP Feed B	224.0.65.185				

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.185	20185	21185	22185	
Multicast Group IP Feed B	224.0.67.185				

Channel Type	BBBO	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.186	10186	11186	12186	
Multicast Group IP Feed B	224.0.65.186				

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.187	10187	11187	12187	
Multicast Group IP Feed B	224.0.65.187				

Snapshot					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.66.186	20186	21186	22186	
Multicast Group IP Feed B	224.0.67.186				

Channel Type	FBMU	Channel ID /Port			
Real-time					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.188				
Multicast Group IP Feed B	224.0.65.188				

Channel Speed	1G	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.189	10189	11189	12189	
Multicast Group IP Feed B	224.0.65.189				

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	224.0.66.188	20188	21188	22188	
Multicast Group IP Feed B	224.0.67.188				

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

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

Environment	PROD	MDGSetOfChannels ID	17
Optiq Segment name	Financial Derivatives	MDGSetOfChannelsName	Currency Derivatives

<b>Channel Type</b>	<b>REFT</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.140	10140			
Multicast Group IP Feed B	224.0.65.140				
<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.140	20140			
Multicast Group IP Feed B	224.0.67.140				

<b>Channel Type</b>	<b>BBBO</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.141	10141			
Multicast Group IP Feed B	224.0.65.141				
<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.142	10142			
Multicast Group IP Feed B	224.0.65.142				
<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.141	20141			
Multicast Group IP Feed B	224.0.67.141				

<b>Channel Type</b>	<b>FBMU</b>	<b>Channel ID /Port</b>			
<b>Real-time</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.143				
Multicast Group IP Feed B	224.0.65.143				
<b>Channel Speed</b>	<b>1G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.64.144	10144			
Multicast Group IP Feed B	224.0.65.144				
<b>Channel Speed</b>	<b>10G</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
<b>Snapshot</b>					
<b>Channel Speed</b>	<b>100M</b>	<b>Partition 1</b>	<b>Partition 2</b>	<b>Partition 3</b>	<b>Partition 4</b>
Multicast Group IP Feed A	224.0.66.143	20143			
Multicast Group IP Feed B	224.0.67.143				



## 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			
<b>Real-time</b>					
Channel Speed	100M	Partition 1	Partition 2	Partition 3	Partition 4
Multicast Group IP Feed A	224.0.64.161	10161			
Multicast Group IP Feed B	224.0.65.161				