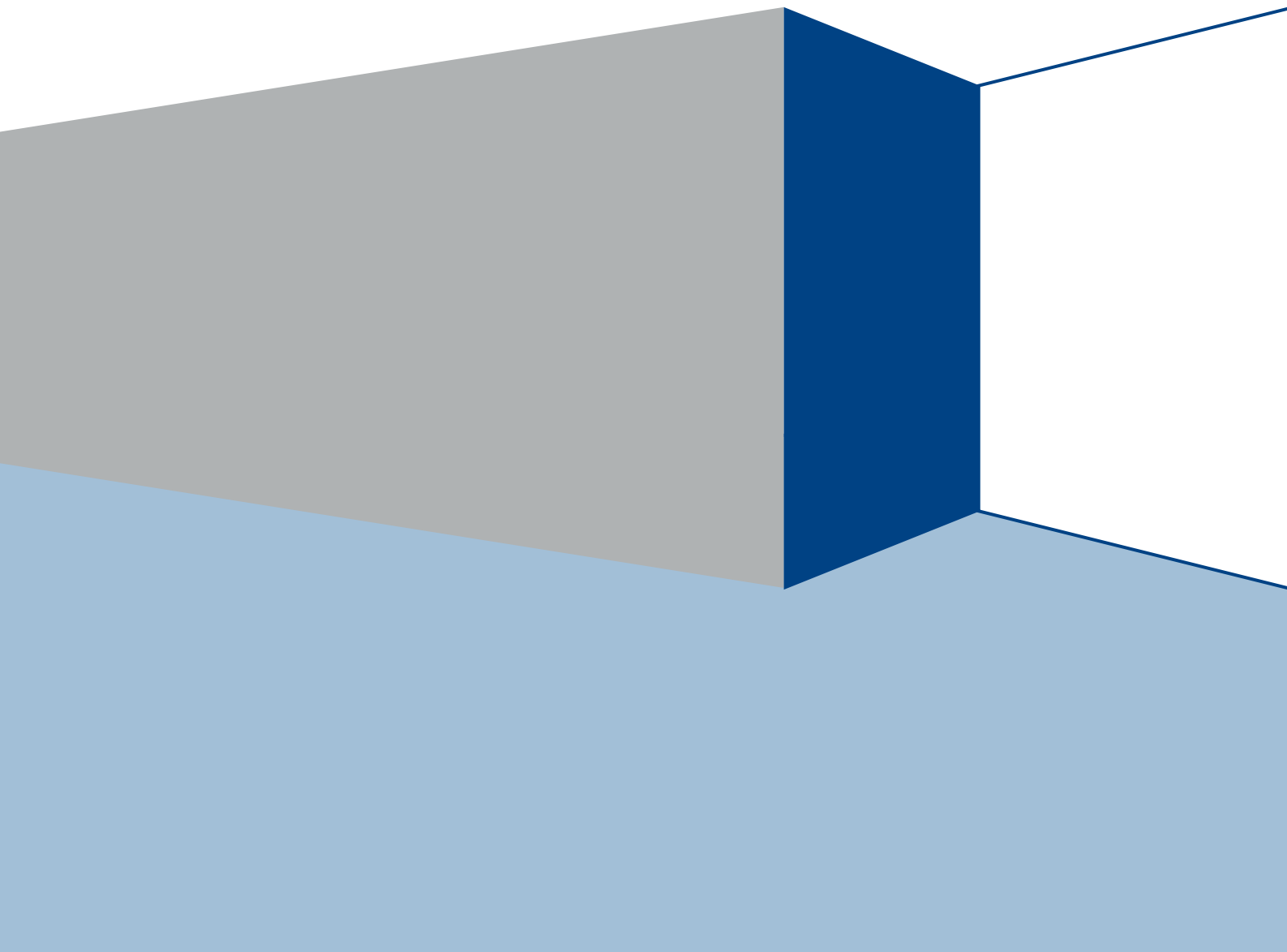




**London**  
Stock Exchange Group

GUIDE TO TESTING SERVICES

# Oslo Børs cash equity and fixed income market migration to TradElect



## Important note

This Guide to Testing Services sets out the current position regarding the testing services available for the Oslo Børs cash equities and fixed income market migration to TradElect in partnership with the London Stock Exchange Group, “the Group”, and, as a development project, is subject to change.

This document has been produced by the Group and Oslo Børs to assist customers of these Oslo Børs markets. While it has been prepared on the basis of the best information available, Oslo Børs and the Group accepts no liability for decisions taken, or systems work carried out by any party, based on this document.

This document does not form part of the contractual documentation between the Oslo Børs and its respective customers.

## Associated Publications

Readers should also refer to the Group’s native interface technical specification and Customer Testing Services documents that support the Group’s TradElect and Infolect systems.

Copies of these documents and further information can be obtained from the Technical Library on the Group’s website at:

<http://www.londonstockexchange.com/techlibrary>

Further information specific to the Oslo Børs markets’ migration to TradElect (including the FIX 5.0 Interface Service and Technical Description, the Oslo Børs Market Configuration Matrix and the FIX Conformance Test Tool (FCTT) guide) can be found at both the Oslo Børs and the Group’s websites at the following links:

[http://www.obvps.no/obvps\\_eng/Frontpage/Delta](http://www.obvps.no/obvps_eng/Frontpage/Delta)

<http://www.londonstockexchange.com/techguidenotes>

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This document, “Oslo Børs cash equity and fixed income Guide to Testing Services”, has been through the following iterations:

Version	Date	Description
1.0	August 2009	Initial document release
2.0	February 2010	Updated release
2.1	15 February 2010	Minor update to previous release

Amendments made to the original content, will be identified using a series of side bars as illustrated opposite.

The following schedule of changes also provides further details of amendments to the original document.

#	Section	Page #	Description
1	Key Testing Dates	10	<ul style="list-style-type: none"> <li>Updated key milestones to reflect revised project timetable</li> </ul>
2	Customer Development Service	6	<ul style="list-style-type: none"> <li>Amended Live Simulation Service section to include extended opening hours and automated order generation</li> </ul>
3	Appendix A - New Sector Schedules	19	<ul style="list-style-type: none"> <li>Updated Segment/Sector tables to include CCP segments</li> <li>Updated start time in segment OAX1 and modified the following segments: OBX, OBMA, OAX, OBWR, OBAU, OBOC, OBTM, OABM and OABT to reflect extended CDS opening hours</li> <li>Added additional segments for CCP testing</li> </ul>
4	Appendix A - New Sector Schedules	22	<ul style="list-style-type: none"> <li>Updated closing hours in the following Fixed Income segments: OBAU, OBOC, OBTM, OABM, OABT and OBIA</li> </ul>

## Overview

The Customer Testing Services have been updated as part of the pending migration of the Oslo Børs cash equities and fixed income markets to the Group's TradElect (and Infolect) platform.

The Customer Testing Services, comprise of the Customer Development Service (CDS), Conformance and High Volumes environments. In addition, an online FIX Conformance test tool has also been introduced to enable customer accreditation via the FIX 5.0 interface.

Customers will need to complete the following activities, in preparation for production readiness:

- Complete/return request for testing services access form, (See Access to Testing Services section).
- Connect to CDS environment and perform functional testing in preparation for Conformance testing.
- Complete all required trading and information conformance testing.
- Complete/return request for production access form (forms will be provided at a later date).
- Participate in mandatory dress rehearsals.

## Customer Development Service

The Customer Development Service (CDS) is a fully functioning simulation of the proposed production environment with extended hours in certain segments.

### Oslo Børs Live Simulation Service

The Live Simulation Service is configured to replicate the anticipated Oslo Børs go-live configuration with full live service rules. Some segments will have extended opening hours and these are detailed in Appendix A. However, this service will contain a reduced set of live securities. Market configuration information can also be found in Appendix A and in the Market Configuration Matrix (see Associated Publications section).

Automated background data will be provided within a market structure representing the Oslo Equity and Fixed Income markets. Orders will automatically generated in segments OBX and OBAU.

Market data will be disseminated via Infolect through 15 new Service Channels, each having a new Service Channel code and Multicast address. Service Channel configuration is detailed in the Connectivity section of this document.

# Oslo Børs Conformance Testing

## Native Interface

The Conformance Test Service allows customers to ensure their systems are functionally compliant with the Exchange's Trading and Information applications via the native interface. Full conformance test sessions follow pre-defined and formally executed test scripts, which cover a range of technical and functional tests. These cycles test different application components to ensure system behaviour and interaction is as expected, and are divided into Trading Conformance test cycles and Information Conformance test cycles. A Customer Test Analyst is assigned to assist and support customers as they progress through each of the test cycles.

The Conformance Test environment is separate to the CDS environment. It is accessed via different IP addresses therefore separate Conformance enablements will be created. The environment also contains a different set of instruments.

***Conformance to the Exchange's Trading and Information applications is proved once all required conformance test cycles have been successfully executed.***

The HVS Test Service allows customers to test the performance of their applications, and can be executed at the end of the Information Conformance test or as a standalone, independent test.

A profile is used to 'ramp-up' message rates and to record the point at which a customer misses messages and submits re-requests. The test is divided into three main areas:

- **Start of Day Reference Data Download:** The test commences with a start of day reference data download containing the instruments, segments, currencies and prices used in HVS. This provides configuration details for customers' systems.
- **High Volumes Test:** A high volume of messages are disseminated according to a pre-defined data profile designed to ensure customers' applications can receive and process high message volumes without missing data. This part of the HVS test takes approximately one hour to complete.

- **Forced Re-Request:** The HVS test ends with a forced re-request in order to establish that a customer's re-request functionality operates as expected and can successfully identify and re-request missed messages.

## **FIX 5.0 Interface**

The Fix Conformance Test Tool (FCTT) is a web based application. It is an automated service so customers are not assigned to a Customer Test Analyst for the duration of the test as they are during a 'native' interface conformance test. Customers are able to run scenarios, edit properties, and customise scenario assignments based upon their trading profiles.

Customers connect to the FCTT via a web based front end and select the scenarios that are appropriate for them by completing a screen based questionnaire. The conformance test comprises a number of functional scenarios which simulate interactions with the Exchange. Customers step through each scenario in turn following the on screen instructions as presented by the tool. The tool validates messages and provides simulated responses and feedback during the test. At the end of the test, customers have the option to submit the test results or restart the test.

The Exchange provides two TCP/IP connections to each customer, one for the web based GUI and one to connect the customer's application to FCTT FIX engine.

Each customer is provided with 2 login IDs and CompIDs with which to connect their system to the FCTT environment and run the conformance test. One of these CompIDs is used for the Trading test and the other is used for the retransmission service (Own Orderbook Download (OOBD) and Own Tradesbook Download (OTBD) service).

## Conformance Testing Policy

Conformance testing is mandatory for all customers who wish to access the Oslo Børs markets on TradElect and Infolect unless they can demonstrate that no software changes have been required in order to support these new markets.

Conformance testing is also mandatory for customers developing their software to use the new hidden order functionality.

Even though new Infolect messages have been introduced for the Oslo Børs Service Channels, conformance testing will not be required if the only change to customers' software is configuration based.

A High Volumes (HVS) test will be mandatory for all Oslo Børs customers except those that have Infolect software that has not changed, and that software has passed a HVS test (either for Performance Channels or Service Channels) within the past 2 years. This approach also applies to customers using accredited software.

Live Connectivity (LCON) tests will be performed using mandatory dress rehearsal weekends in the lead-up to go-live.

All required conformance testing should be successfully completed by the first dress rehearsal weekend. Any customer who fails to meet this pre-requisite is at risk of not being allowed to go-live on day 1.

## Key Testing Dates

The key testing milestones with indicative dates are listed below. The launch of the Oslo Børs cash equities and fixed income markets on *TradElect* is planned for 12 April 2010.

Timetable	
<b>7 September 2009</b>	CDS native interface go live with the Oslo Børs equity market models. FIX 5.0 Interface and the Oslo Børs fixed income market will go live on 8 September 2009.
<b>11 September 2009</b>	Customer Testing Guide issued
<b>21 September 2009</b>	Conformance Testing Service (including the online FIX Conformance Test tool) go live
<b>28 September 2009</b>	Model-Based Testing Service go live
<b>30 November 2009</b>	Dress Rehearsal Guide issued
<b>12 December 2009</b>	First mandatory weekend dress rehearsal (all conformance testing completed by this date)
<b>16 January 2010</b>	Second mandatory weekend dress rehearsal
<b>27 February 2010</b>	Third mandatory weekend dress rehearsal
<b>27 March 2010</b>	Fourth weekend dress rehearsal (optional)
<b>12 April 2010</b>	Go Live

## Service Times

### Oslo Børs Live Simulation/Model-Based Testing Services

The service hours for the Oslo Børs Live Simulation Services will match those of the anticipated live service, with identical period timings. Please refer to period schedule in Appendix A. The service hours for the Live Simulation and Model-Based Testing Services are below:

CDS Test Service	Availability	Service Hours	Additional Notes
Live Simulation Service	Five days a week	08:50 to 18:00	Reference data downloads are provided for all services at 06:00 each business day.
Model Based Testing Services: <ul style="list-style-type: none"> <li>• Interactive Service</li> <li>• Market Control Actions</li> </ul>		08:50 to 21:00 09:00 to 21:00	

All times are CET.

### Native Conformance Test Service

Conformance/HVS Test Service	Availability	Service Hours	Additional Notes
Morning Session	Five days a week	11:00 to 16:00	Connectivity commences at 10:30
Afternoon Session		14:00 to 19:00	Connectivity commences at 13:30
Evening Session (HVS only)	Monday - Thursday	18:00 to 20:00	Connectivity commences at 17:30

All times are CET.

### FIX 5.0 Conformance Test Service

For FIX 5.0 Conformance testing, the FCTT is available 24 hrs a day x 5 days per week from the point that a customer has been enabled for the service.

## Connectivity

This section contains the connectivity details (Multicast & Interactive Gateway where appropriate), for all Oslo Børs testing services. The details are relevant for all methods of network connectivity e.g. Extranex, VFN, FNN, VPNET and NSP. Furthermore, existing Extranex customers will be able to receive Oslo Market Reference Data via the S17 Service Channel.

The native interface service codes for the Interactive Gateways are described below:

- Legacy (T01/T02): including the 5EO Enter Order (AD) message version.
- Standard (T03/T04): including the 5EO Enter Order (AE) message version.
- New (T05/T06): including the 5EO Enter Order (AF) message version used for hidden order functionality.

### Oslo Børs CDS Service

The multicast source address for all Service Channels within this service is 194.169.13.110.

Multicast Addressing CDS			
Oslo Service Channel	Description	Multicast IP Address	Port
G01	Oslo Equities - Level 1	224.4.6.65	61000
G02	Oslo Equities - Level 2	224.4.6.66	61000
G03	Oslo Equities (Instrument) Reference Data	224.4.6.67	61000
G04	Oslo Fixed Income - Level 1	224.4.6.68	61000
G05	Oslo Fixed Income - Level 2	224.4.6.69	61000
G06	Oslo Fixed Income (Instrument) Reference Data	224.4.6.70	61000
G07	Oslo Warrants - Level 1	224.4.6.71	61000
G08	Oslo Warrants - Level 2	224.4.6.72	61000
G09	Oslo Warrants (Instrument) Reference Data	224.4.6.73	61000
G10	Oslo Market Status Indicators	224.4.6.74	61000
G11	Oslo Market Reference Data	224.4.6.75	61000
G12	Oslo News	224.4.6.76	61000
G13	Oslo Indices	224.4.6.77	61000
G14	Government Bond Restricted Auction Level 1	224.4.6.78	61000
G15	Government Bond Restricted Auction Level 2	224.4.6.79	61000

Interactive Gateway Addressing CDS			
Service Code	Service Description	Exchange IP Address	Port
FX1	Oslo FIX Secure Interactive <b>CompID - LSE001</b>	194.169.13.38	51160
FX2	Oslo FIX Message Retrieval Service / Own Order Book Download / Own Trades Book Download <b>CompID - LSE001</b>	194.169.13.39	52260
T01	Oslo Native ( <i>Legacy</i> ) Message Retrieval Service / Own Order Book Download / Own Trades Book Download	194.169.13.37	52200
T02	Oslo Native ( <i>Legacy</i> ) Secure Interactive	194.169.13.36	51100
T03	Oslo Native ( <i>Standard</i> ) Message Retrieval Service / Own Order Book Download / Own Trades Book Download	194.169.13.37	52200
T04	Oslo Native ( <i>Standard</i> ) Secure Interactive	194.169.13.36	51100
T05	Oslo Native ( <i>New</i> ) Message Retrieval Service / Own Order Book Download / Own Trades Book Download	194.169.13.37	52200
T06	Oslo Native ( <i>New</i> ) Secure Interactive	194.169.13.36	51100

## Native Conformance Test Service

The multicast source address for all service channels within this service is 194.169.13.112.

Multicast Addressing Conformance			
Oslo Service Channel	Description	Multicast IP Address	Port
G01	Oslo Equities - Level 1	224.4.6.129	62000
G02	Oslo Equities - Level 2	224.4.6.130	62000
G03	Oslo Equities (Instrument) Reference Data	224.4.6.131	62000
G04	Oslo Fixed Income - Level 1	224.4.6.132	62000
G05	Oslo Fixed Income - Level 2	224.4.6.133	62000
G06	Oslo Fixed Income (Instrument) Reference Data	224.4.6.134	62000
G07	Oslo Warrants - Level 1	224.4.6.135	62000
G08	Oslo Warrants - Level 2	224.4.6.136	62000
G09	Oslo Warrants (Instrument) Reference Data	224.4.6.137	62000
G10	Oslo Market Status Indicators	224.4.6.138	62000
G11	Oslo Market Reference Data	224.4.6.139	62000
G12	Oslo News	224.4.6.140	62000
G13	Oslo Indices	224.4.6.141	62000
G14	Government Bond Restricted Auction Level 1	224.4.6.142	62000
G15	Government Bond Restricted Auction Level 2	224.4.6.143	62000

Interactive Gateway Addressing Conformance			
Service Code	Service Description	Exchange IP Address	Port
T01	Oslo Native ( <i>Legacy</i> ) Message Retrieval Service / Own Order Book Download / Own Trades Book Download	194.169.13.47	52800
T02	Oslo Native ( <i>Legacy</i> ) Secure Interactive	194.169.13.46	51800
T03	Oslo Native ( <i>Standard</i> ) Message Retrieval Service / Own Order Book Download / Own Trades Book Download	194.169.13.47	52800
T04	Oslo Native ( <i>Standard</i> ) Secure Interactive	194.169.13.46	51800
T05	Oslo Native ( <i>New</i> ) Message Retrieval Service / Own Order Book Download / Own Trades Book Download	194.169.13.47	52800
T06	Oslo Native ( <i>New</i> ) Secure Interactive	194.169.13.46	51800

### FIX 5.0 Conformance Test Service

FIX 5.0 Online Conformance Test Tool Addressing		
Exchange IP Address	Port	CompID
206.65.180.151	51100 or 27500	LSE001

## High Volume Service (HVS)

The multicast source address for all Service Channels within this service is 194.169.13.112.

Multicast Addressing HVS			
Oslo Service Channel	Description	Multicast IP Address	Port
G01	Oslo Equities - Level 1	224.4.6.193	63000
G02	Oslo Equities - Level 2	224.4.6.194	63000
G03	Oslo Equities (Instrument) Reference Data	224.4.6.195	63000
G04	Oslo Fixed Income - Level 1	224.4.6.196	63000
G05	Oslo Fixed Income - Level 2	224.4.6.197	63000
G06	Oslo Fixed Income (Instrument) Reference Data	224.4.6.198	63000
G07	Oslo Warrants - Level 1	224.4.6.199	63000
G08	Oslo Warrants - Level 2	224.4.6.200	63000
G09	Oslo Warrants (Instrument) Reference Data	224.4.6.201	63000
G10	Oslo Market Status Indicators	224.4.6.202	63000
G11	Oslo Market Reference Data	224.4.6.203	63000
G12	Oslo News	224.4.6.204	63000
G13	Oslo Indices	224.4.6.205	63000
G14	Government Bond Restricted Auction Level 1	224.4.6.206	63000
G15	Government Bond Restricted Auction Level 2	224.4.6.207	63000

Interactive Gateway Addressing HVS			
Service Code	Service Description	Exchange IP Address	Port
T01	Oslo Native ( <i>Legacy</i> ) Message Retrieval Service	194.169.13.47	52900
T03	Oslo Native ( <i>Standard</i> ) Message Retrieval Service	194.169.13.47	52900
T05	Oslo Native ( <i>New</i> ) Message Retrieval Service	194.169.13.47	52900

## Access to Testing Services

Customers will have continuous access to the CDS environment for the Oslo Børs markets until the end of the migration. Customers will not be charged for this access during this period. Conformance testing will also be free of charge for customers until the end of the migration.

### Enablers

New Oslo Børs CDS and Conformance Trading and Information enablers with the format of **TBK8xxxxOSB** for Trading and **TBK7xxxxOSB** for Information will be provided to customers to be able to access the environment.

For the native interface, new 010 and 020 USAPs will be allocated to these new enablers. For the FIX 5.0 interface, ComplIDs will be assigned to customer enablers by the Exchange.

All CDS & Conformance enabler requests will go via the Oslo Børs Service Desk. The request for testing services access form can be found on both the Oslo Børs & London Stock Exchange Group websites (see Associated Publications section)

Conformance tests can be booked by contacting the Customer Testing Team on +44 207 797 3100 (Option 2).

Access to the online FIX Conformance Test Tool is available on request also by contacting the Oslo Børs Service Desk.

### Tradergroup Configuration

For each customer, at least one tradergroup for each of the following types of activities will be mandated (e.g. if a customer only performs manual trading, one tradergroup will be allocated):

- Manual trading
- Automated order routing
- Algorithmic trading
- DMA solutions
- Participation in issuing auctions/buy back auctions

Existing UK customers will be required to use new tradergroups that are different to their current tradergroups used on the London Markets.

***Customers should be aware that tradergroups are interface specific, therefore the same tradergroup cannot be shared across the native and FIX interfaces.***

The different Types of tradergroup are detailed below:

Tradergroup	Description	May be used for	
		Equities	Fixed Income
MANE	Manual Trading Equities (registration of orders and manual trades)	X	
MANF	Manual Trading Fixed Income (registration of orders and manual trades)		X
AOR	Automated order routing (client orders are routed directly to TradElect, “untouched”)	X	X
ALG	Algo trading (Orders generated by a computer)	X	1)
DMA	Members’ clients’ system directly connected to TradElect	X	1)
PRD	Gives access to participation of issuing and buy back auctions limited to primary dealers		X

1) Currently these categories are not applicable to fixed income customers. However, they may become applicable in the future.

The following naming standard for tradergroups will be followed:

<Member mnemonic>\_<Type of Tradergroup> + <Number>

For example, a tradergroup for manual trading in equities for customer PAS would be PAS\_MANE001 and for algorithmic trading, the tradergroup would be PAS\_ALG001

Each customer will have one Preference Group (associated to the Member ID) which will include all a customer’s tradergroups by default. This will enable customers to preferentially trade with themselves before trading with other participants where there is more than one order at a given price level. Customers can choose to opt out of this configuration and should contact the Oslo Børs Service Desk if they wish to do so.

## Contact Details

Please contact the Oslo Børs Service Desk for support during this testing phase and for any queries regarding the migration of Oslo Børs cash equities and fixed income markets to TradElect. The contact details are below:

### Oslo Børs Service Desk

Telephone No. +47 2234 1818

Email address: [technicalsupport@oslobors.no](mailto:technicalsupport@oslobors.no)

Hours of service: 08.00 - 16:30 CET, Monday - Friday

## Appendix A - Exchange and Market Structure

This information is subject to change. Customers should refer to the Market Configuration Matrix for the latest market structure information.

### New Exchange:

Exchange Code	Exchange Description
OSL	OSLO BØRS

### New Market:

Market Code	Market Name
OB	OSLO BØRS

### New Segments:

Segment Code	Segment Name
OBX	OBX SHARES
OBMA	OB MAIN LIST
OBPC	OB EQUITY CERTIFICATES
OBWR	OB WARRANTS
OBFU	OB FUND UNITS
OAX	OAX OSLO AXESS
OBAU	OBFI AUTOMATCH
OBFC	OBFI CALL
OBTM	OBFI TELEPHONE
OABM	OAFI ABM
OABT	OAFI TELEPHONE
OBIA	OBFI ISSUING AUCTIONS
OBBA	OBFI BUY BACK AUCTIONS
OBUB	OBFI UNLIMITED BUY BACK
OBMC	OB MAIN LIST CCP
OBXC	OBX SHARES CCP

## New Sectors:

Segment Code	Sector Code	Sector Name
OBX	OBX1	OBX SHARES
OBMA	OBM1	OB MATCH SHARES
OBMA	OBSN	OB STANDARD AND OB NEW SHARES
OBPC	OBP1	OB EQUITY CERTIFICATES
OBWR	OBW1	OB WARRANTS
OBWR	OBW2	OB FINANCIAL CERTIFICATES
OBFU	OBF1	OB ETFS
OAX	OAX1	OAX SHARES
OBAU	OBAM	OB AUTOMATCH
OBOC	OBC1	OB. CALL
OBTM	OBTP	OB TELEPHONE
OABM	OAB1	OA ABM
OABT	OAT1	OA TELEPHONE
OBIA	OBIG	OB ISSUING AUCTIONS
OBBA	OBBG	OB BUY BACK AUCTIONS
OBUB	OBUA	OB UNLIMITED BUY BACK AUCTIONS
OBMC	OBSC	OB STANDARD & OB NW.SHARES CCP
OBMC	OM1C	OB MATCH SHARES CCP
OBXC	OX1C	OBX SHARES CCP

## New Sector Schedules (All times are in CET):

Segment Code	Sector Code	Period Start Time	Period Name	Period Description
OBX	OBX1	08:10:00	OSOP	OSLO OPEN
OBX	OBX1	08:45:00	OACL	OPENING AUCTION CALL
OBX	OBX1	09:00:00	CTTD	CONTINUOUS TRADING
OBX	OBX1	18:13:00	CTD1	CONTINUOUS TRADING 1
OBX	OBX1	18:20:00	CLCL	CLOSING AUCTION CALL
OBX	OBX1	18:25:00	ECOM	END CLS.AUC.ODR.MGMT
OBX	OBX1	19:15:00	MCSD	MARKET CLOSED
OBX	OBX1	19:16:00	ADPR	ADMIN PERIOD
OBX	OBX1	19:30:00	ENDA	END OF ADMIN
OBMA	OBM1	08:10:00	OSOP	OSLO OPEN
OBMA	OBM1	08:45:00	OACL	OPENING AUCTION CALL
OBMA	OBM1	09:00:00	CTTD	CONTINUOUS TRADING
OBMA	OBM1	18:13:00	CTD1	CONTINUOUS TRADING 1

Segment Code	Sector Code	Period Start Time	Period Name	Period Description
OBMA	OBM1	18:20:00	CLCL	CLOSING AUCTION CALL
OBMA	OBM1	18:25:00	ECOM	END CLS.AUC.ODR.MGMT
OBMA	OBM1	19:15:00	MCSD	MARKET CLOSED
OBMA	OBM1	19:16:00	ADPR	ADMIN PERIOD
OBMA	OBM1	19:30:00	ENDA	END OF ADMIN
OBMA	OBSN	08:10:00	OSOP	OSLO OPEN
OBMA	OBSN	08:45:00	OACL	OPENING AUCTION CALL
OBMA	OBSN	09:00:00	CTTD	CONTINUOUS TRADING
OBMA	OBSN	18:13:00	CTD1	CONTINUOUS TRADING 1
OBMA	OBSN	18:20:00	CLCL	CLOSING AUCTION CALL
OBMA	OBSN	18:25:00	ECOM	END CLS.AUC.ODR.MGMT
OBMA	OBSN	19:15:00	MCSD	MARKET CLOSED
OBMA	OBSN	19:16:00	ADPR	ADMIN PERIOD
OBMA	OBSN	19:30:00	ENDA	END OF ADMIN
OBPC	OBP1	08:10:00	OSOP	OSLO OPEN
OBPC	OBP1	08:45:00	OACL	OPENING AUCTION CALL
OBPC	OBP1	09:00:00	CTTD	CONTINUOUS TRADING
OBPC	OBP1	17:13:00	CTD1	CONTINUOUS TRADING 1
OBPC	OBP1	17:20:00	CLCL	CLOSING AUCTION CALL
OBPC	OBP1	17:25:00	ECOM	END CLS.AUC.ODR.MGMT
OBPC	OBP1	18:15:00	MCSD	MARKET CLOSED
OBPC	OBP1	18:16:00	ADPR	ADMIN PERIOD
OBPC	OBP1	18:30:00	ENDA	END OF ADMIN
OAX	OAX1	08:10:00	OSOP	OSLO OPEN
OAX	OAX1	10:45:00	OACL	OPENING AUCTION CALL
OAX	OAX1	11:00:00	CTTD	CONTINUOUS TRADING
OAX	OAX1	20:13:00	CTD1	CONTINUOUS TRADING 1
OAX	OAX1	20:20:00	CLCL	CLOSING AUCTION CALL
OAX	OAX1	20:25:00	ECOM	END CLS.AUC.ODR.MGMT
OAX	OAX1	20:45:00	MCSD	MARKET CLOSED
OAX	OAX1	20:46:00	ADPR	ADMIN PERIOD
OAX	OAX1	20:58:00	ENDA	END OF ADMIN
OBFU	OBF1	08:10:00	OSOP	OSLO OPEN
OBFU	OBF1	08:45:00	FOAC	FUNDS OPNG.AUCT.CALL
OBFU	OBF1	09:00:00	FCTD	FUNDS CONTINUOUS TDG
OBFU	OBF1	17:13:00	FCT1	FUNDS CONTS. TRDG. 1
OBFU	OBF1	17:20:00	FCCL	FUNDS CLOSG.AUC.CALL
OBFU	OBF1	17:25:00	FDET	FUNDS END TRADING
OBFU	OBF1	18:15:00	MCSD	MARKET CLOSED
OBFU	OBF1	18:16:00	ADPR	ADMIN PERIOD

Segment Code	Sector Code	Period Start Time	Period Name	Period Description
OBFU	OBF1	18:30:00	ENDA	END OF ADMIN
OBWR	OBW1	08:10:00	OSOP	OSLO OPEN
OBWR	OBW1	08:45:00	WOCL	WARRANT.OPN.AUC.CLL
OBWR	OBW1	09:00:00	WCTD	WARRANTS CONT. TDG.
OBWR	OBW1	18:20:00	WCAC	WARRANT.CLS.AUC.CLL
OBWR	OBW1	18:25:00	WETD	WARRANTS END TDG.
OBWR	OBW1	19:15:00	MCSD	MARKET CLOSED
OBWR	OBW1	19:16:00	ADPR	ADMIN PERIOD
OBWR	OBW1	19:30:00	ENDA	END OF ADMIN
OBWR	OBW2	08:10:00	OSOP	OSLO OPEN
OBWR	OBW2	08:45:00	WOCL	WARRANT.OPN.AUC.CLL
OBWR	OBW2	09:00:00	WCTD	WARRANTS CONT. TDG.
OBWR	OBW2	18:20:00	WCAC	WARRANT.CLS.AUC.CLL
OBWR	OBW2	18:25:00	WETD	WARRANTS END TDG.
OBWR	OBW2	19:15:00	MCSD	MARKET CLOSED
OBWR	OBW2	19:16:00	ADPR	ADMIN PERIOD
OBWR	OBW2	19:30:00	ENDA	END OF ADMIN
OBAU	OBAM	08:10:00	OSOP	OSLO OPEN
OBAU	OBAM	08:15:00	OEAL	ORDER ENTRY ALLOWED
OBAU	OBAM	08:45:00	OATC	OPN.ACN CLL.AUTOMCH.
OBAU	OBAM	09:00:00	CTAM	CTS.TDING.AUTOMATCH END
OBAU	OBAM	17:00:00	ETAM	CTS.TDG.AUTOMCH.
OBAU	OBAM	18:15:00	MCSD	MARKET CLOSED
OBAU	OBAM	18:16:00	ADPR	ADMIN PERIOD
OBAU	OBAM	18:30:00	ENDA	END OF ADMIN
OBOC	OBC1	08:10:00	OSOP	OSLO OPEN
OBOC	OBC1	08:15:00	OENE	ORDER ENTRY ALLOWED
OBOC	OBC1	08:45:00	OAOC	OPN.AUCT. ONLY CALL
OBOC	OBC1	09:00:00	OAEO	OPN.AUCT.END ODR.ETY
OBOC	OBC1	16:59:00	ATCC	AUCT.TDG.CLSG. CALL
OBOC	OBC1	17:00:00	ENAT	END AUCTION TRADING
OBOC	OBC1	18:15:00	MCSD	MARKET CLOSED
OBOC	OBC1	18:16:00	ADPR	ADMIN PERIOD
OBOC	OBC1	18:30:00	ENDA	END OF ADMIN
OBTM	OBTP	08:10:00	OSOP	OSLO OPEN
OBTM	OBTP	09:00:00	ONEC	ORDER ENTRY NO EXEC.
OBTM	OBTP	17:00:00	OSBC	OSLO ORDER BK CLSD.
OBTM	OBTP	18:15:00	MCSD	MARKET CLOSED
OBTM	OBTP	18:16:00	ADPR	ADMIN PERIOD

Segment Code	Sector Code	Period Start Time	Period Name	Period Description
OBTM	OBTP	18:30:00	ENDA	END OF ADMIN
OABM	OAB1	08:10:00	OSOP	OSLO OPEN
OABM	OAB1	09:00:00	ONEC	ORDER ENTRY NO EXEC.
OABM	OAB1	17:00:00	OSBC	OSLO ORDER BK CLSD.
OABM	OAB1	18:15:00	MCSD	MARKET CLOSED
OABM	OAB1	18:16:00	ADPR	ADMIN PERIOD
OABM	OAB1	18:30:00	ENDA	END OF ADMIN
OABT	OAT1	08:10:00	OSOP	OSLO OPEN
OABT	OAT1	09:00:00	ONEC	ORDER ENTRY NO EXEC.
OABT	OAT1	17:00:00	OSBC	OSLO ORDER BK CLSD.
OABT	OAT1	18:15:00	MCSD	MARKET CLOSED
OABT	OAT1	18:16:00	ADPR	ADMIN PERIOD
OABT	OAT1	18:30:00	ENDA	END OF ADMIN
OBIA	OBIG	08:10:00	OSOP	OSLO OPEN
OBIA	OBIG	10:15:00	IACL	ISSUING AUCTION CALL
OBIA	OBIG	11:00:00	IABE	ISSG.AUC.BY.ODR.END
OBIA	OBIG	11:05:00	IASO	ISSG.AUCT.SELL ONLY
OBIA	OBIG	11:10:00	EIBA	END ISSG.BY.BACK AUC
OBIA	OBIG	18:15:00	MCSD	MARKET CLOSED
OBIA	OBIG	18:16:00	ADPR	ADMIN PERIOD
OBIA	OBIG	18:30:00	ENDA	END OF ADMIN
OBUB	OBUA	08:10:00	OSOP	OSLO OPEN
OBUB	OBUA	10:15:00	BBAC	BUY BACK AUCTN. CALL
OBUB	OBUA	11:00:00	BBSE	BY.BCK.SLL.ODR.END
OBUB	OBUA	11:05:00	BBBO	BY.BCK.AUC.BY.ORDER
OBUB	OBUA	11:10:00	EIBA	END ISSG.BY.BACK AUC
OBUB	OBUA	18:15:00	MCSD	MARKET CLOSED
OBUB	OBUA	18:16:00	ADPR	ADMIN PERIOD
OBUB	OBUA	18:30:00	ENDA	END OF ADMIN
OBBA	OB BG	08:10:00	OSOP	OSLO OPEN
OBBA	OB BG	10:15:00	BBAC	BUY BACK AUCTN. CALL
OBBA	OB BG	11:00:00	BBSE	BY.BCK.SLL.ODR.END
OBBA	OB BG	11:05:00	BBBO	BY.BCK.AUC.BY.ORDER
OBBA	OB BG	11:10:00	EIBA	END ISSG.BY.BACK AUC
OBBA	OB BG	18:15:00	MCSD	MARKET CLOSED
OBBA	OB BG	18:16:00	ADPR	ADMIN PERIOD
OBBA	OB BG	18:30:00	ENDA	END OF ADMIN

**CCP testing:**

OBMC	OBSC	08:10:00	OSOP	OSLO OPEN
OBMC	OBSC	08:45:00	OACL	OPENING AUCTION CALL
OBMC	OBSC	09:00:00	CTTD	CONTINUOUS TRADING
OBMC	OBSC	14:13:00	CTD1	CONTINUOUS TRADING 1
OBMC	OBSC	14:20:00	CLCL	CLOSING AUCTION CALL
OBMC	OBSC	14:25:00	ECOM	END CLS.AUC.ODR.MGMT
OBMC	OBSC	15:15:00	MCSD	MARKET CLOSED
OBMC	OBSC	15:16:00	ADPR	ADMIN PERIOD
OBMC	OBSC	15:30:00	ENDA	END OF ADMIN
OBMC	OM1C	08:10:00	OSOP	OSLO OPEN
OBMC	OM1C	08:45:00	OACL	OPENING AUCTION CALL
OBMC	OM1C	09:00:00	CTTD	CONTINUOUS TRADING
OBMC	OM1C	14:13:00	CTD1	CONTINUOUS TRADING 1
OBMC	OM1C	14:20:00	CLCL	CLOSING AUCTION CALL
OBMC	OM1C	14:25:00	ECOM	END CLS.AUC.ODR.MGMT
OBMC	OM1C	15:15:00	MCSD	MARKET CLOSED
OBMC	OM1C	15:16:00	ADPR	ADMIN PERIOD
OBMC	OM1C	15:30:00	ENDA	END OF ADMIN
OBXC	OX1C	08:10:00	OSOP	OSLO OPEN
OBXC	OX1C	08:45:00	OACL	OPENING AUCTION CALL
OBXC	OX1C	09:00:00	CTTD	CONTINUOUS TRADING
OBXC	OX1C	14:13:00	CTD1	CONTINUOUS TRADING 1
OBXC	OX1C	14:20:00	CLCL	CLOSING AUCTION CALL
OBXC	OX1C	14:25:00	ECOM	END CLS.AUC.ODR.MGMT
OBXC	OX1C	15:15:00	MCSD	MARKET CLOSED
OBXC	OX1C	15:16:00	ADPR	ADMIN PERIOD
OBXC	OX1C	15:30:00	ENDA	END OF ADMIN



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