



Smart Order Routing, Execution algorithms and MiFID II preparations

Guideline

Nasdaq Exchange and Clearing Services AB
Nasdaq Stockholm AB, Nasdaq Copenhagen A/S and Nasdaq Helsinki Ltd



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Document History

Revision	Published	Author(s)	Summary of Changes
1.0	2017-07-12	Anders Green	First public vision.
1.01	2017-09-18	Pranas Sista	Added Execution within Firm field
2.00	2017-10-09	Anders Green	Added SOR strategies as algorithms

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1 Smart Order Routing, Execution algorithms and MiFID II preparations

1.1 Disclaimer

This document is based on information currently available. We recognize that not all information is complete and new information can be expected from regulators and therefore all information may be subject to change. This document will discuss how Nasdaq Nordic¹ and Nasdaq Exchange and Clearing Services AB (Nasdaq) may support its clients to fulfil MiFID II requirements regarding two services that likely are considered being algorithmic trading in the light of the new legislation. The document does not intend to constitute legal advice for any client to Nasdaq Nordic or Nasdaq.

1.2 Background

Since 2011 a set of Smart Order Routing (SOR) strategies and later from 2014 multiple execution algorithms (Algo(s)) are offered in the INET trading system. The SOR services are provided by Nasdaq Nordic. The Algo solution is based on a service provided by Nasdaq and its third party provider, and the service utilizes Nasdaq Nordic's SOR. Both services are accessed via the regular Nasdaq Nordic FIX order entry interface by populating ExecBroker [76] with the strategies detailed below.

1.3 SOR strategies provided by Nasdaq Nordic [76]

The following SOR strategies may be labeled as algorithmic trading due to the MiFID II definitions. This interpretation is based on the fact that the SOR decides where to send child orders, and may split a parent order into multiple child orders.

- DCAN
- DCAP
- DNGY
- SCAN
- STGY

1.4 Algo Strategies provided by Nasdaq [76]

- TWAP
- VWAP
- PVOL
- IMSH
- CLOS

¹ Nasdaq Copenhagen, Nasdaq Helsinki, Nasdaq Iceland, Nasdaq Stockholm are respectively brand names for Nasdaq Copenhagen A/S, Nasdaq Helsinki Ltd, Nasdaq Iceland hf., Nasdaq Stockholm AB. Nasdaq Nordic represents the common offering by Nasdaq Copenhagen, Nasdaq Helsinki, Nasdaq Iceland and Nasdaq Stockholm.

- PNPR
- SUPR

2 MiFID II requirements

In MiFID II there are some explicit requirements on Investment firms and Exchange operators in respect of Algos. Based on MiFID II mandate ESMA has also developed following regulatory technical standards that have relevance in this respect:

RTS 6: Organizational requirements of investment firms engaged in algorithmic trading;

RTS 7: Trading venues shall require their members to certify algorithms; and

RTS 24: Data Required for Record Keeping.

2.1 Usage of SOR and Algo strategies and MiFID II

It is Nasdaq Nordic's and Nasdaq's understanding that an Investment firm needs to comply with the requirements in MiFID II RTS 6, for algorithms "purchased from a third party". Members using the SOR and Algos seems therefore to be subject to same requirements as a firm deploying its own algorithms.

Nasdaq Nordic and Nasdaq provides the following support/functionality in order for clients to comply with RTS 6:

- SOR and Algo documentation
- SOR and Algo training
- SOR and Algo support desk
- Nasdaq Nordic SOR and Nasdaq Algos are tested, and test reports are available on request
 - o Functional testing
 - o Stress testing
- Member has access to SOR and Algos in INET Nordic NTF test environment and can conduct own testing
- SOR and Algos are standardized, and not tailored per member.
 - o Any changes of functionality is discussed with members, ordered by Nasdaq, and verified by Nasdaq and members before being deployed to members in production.
- Pre/Post Trade Risk management
 - o A set of pre/post trade Algo controls are available, and configured for all members using the service
- Controls on max orders/s generated by Nasdaq Algos
- Member can terminate an ongoing Algo at any time
 - o Cancel Parent order
 - o Contact Operations
 - o Cancel on disconnect

MiFID II introduces also some new requirements for Nasdaq Nordic to record data throughout the trading day. For example RTS 24 stipulates the exchange to gather the following fields:

- Client identification code
- Trader/Algo identification code (investment decision)
- Execution within firm
- Algo indicator

The following FIX tags may be used:

- NoPartyIDs [453]
- PartyID [448]
- PartyIDSource [447]
- PartyRole [452]
- PartyRoleQualifier [2376]
- OrderAttributeType [2594], 4 = Algorithmic order.

From a compliance standpoint Nasdaq algorithms may likely be counted as the Members' algorithms; hence the Investment decision and Execution within Firm field's need to be populated with an Algo short code.

The following Nasdaq long code algo names are recommended to use. These long codes should be mapped to short codes in Nasdaq Member Portal. Short codes should be populated at order entry.

Strategy	Long code algo name	Short code (example)
DCAN	NasdaqDCAN	100001
DCAP	NasdaqDCAP	100002
DNGY	NasdaqDNGY	100003
SCAN	NasdaqSCAN	100004
STGY	NasdaqSTGY	100005
TWAP	NasdaqTWAP	200001
VWAP	NasdaqVWAP	200002
PVOL	NasdaqPVOL	200003
IMSH	NasdaqIMCH	200004
CLOS	NasdaqCLOS	200005
PNPR	NasdaqPNPR	200006
SUPR	NasdaqSUPR	200007

It is the responsibility of the Member to conduct this mapping and upload the short-long code mapping to Nasdaq Nordic.

Note that the Member may use other short codes for the SOR and Algos, but not Long code Algo names.

A new algo indicator, OrderAttributeType [2594], must be added to identify orders where an Algo is involved in either the execution or the investment decision. For the SOR and Algo offering, the value of the field is always set "true". The algo indicator will therefore be passed through to child and parents acknowledgements and executions automatically. Nasdaq and Nasdaq Nordic will auto populate Algo Indicator regardless what client has indicated in the [2594].

2.2 Algo certification

Any algorithm used on the INET Nordic platform must be certified - RTS 7. Algo certification shall therefore be conducted according to instructions from Nasdaq Nordic. The certification shall be performed in the Member portal provided by Nasdaq Nordic. The Member shall report the algos being used and certify that they have been tested before use.

Even though a client is not planning to use all of the SORs and Algos provided, recommendation is that all are certified, since then the client is prepared and there are no further requirements for additional certification.

In the certification the above Long name shall be used.

Upon request Nasdaq Nordic and Nasdaq may provide test reports on conducted tests. It is however anticipated that the Member has conducted own testing in INET NTF before using the services.

2.3 Support and questions

For technical questions and configuration, please contact Nasdaq Cash Equity Operations:

Tel: +46 8 405 6410,

E-mail: operator@nasdaq.com

2.4 Q&A

Will the use of Nasdaq Algos mean that we will be considered as HFT?

Members are required to assess whether they meet the criteria of 'high-frequency algorithmic trading technique' as a subset of algorithmic trading technique. The definitions says that more than average 2 orders per second in an instrument or more than average 4 orders per seconds across the venue is required.

Nasdaq Nordic will calculate the estimates of average messages per second in any single instrument as well as in all instruments at Nasdaq markets. Monthly estimates will be made available upon request for participants via Member Portal.
