Nasdaq Implementation Guide

Transaction Reporting. Version 1.4. February 2022

Date	Version	Description of change
2017-10-02	1.0	Initial version
2017-10-17	1.1	Changes to the SFTP solution in chapter 2
2017-11-08	1.2	Update chapter 1 visual presentation Update chapter 3 SFTP clarification Included Appendix A and B
2020-06-23	1.3	Removed the section regarding MiFID II project communication, updated contact information
2022-02-16	1.4	Added new trading system in full file reporting table

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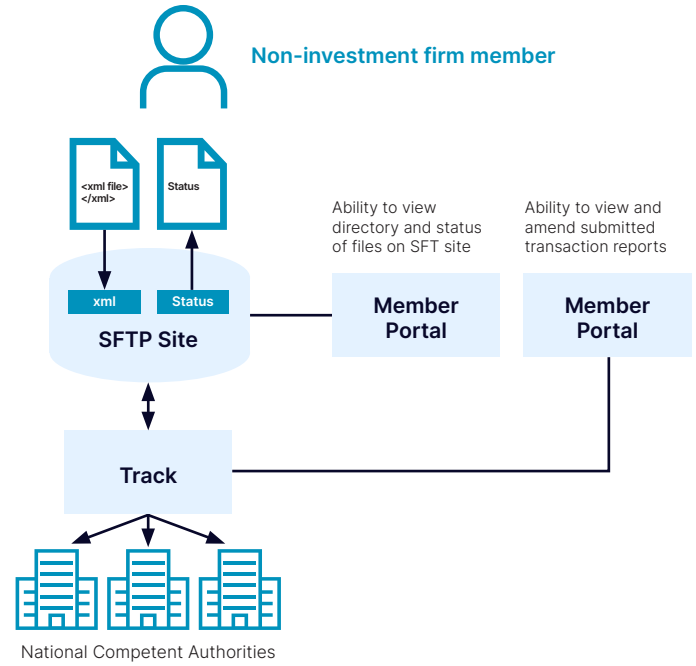
1. Overview

This document is a guideline for non-investment firm members, not themselves subject to MiFIR[1], and as such covered by Nasdaq's obligation to Transaction Report to its Trading Venues' Competent Authorities on behalf of members that are not subject to MiFIR. Article 26 (5) in MiFIR[1] mandates that operators of a trading venue shall report details of transactions in financial instruments traded on its platform which are executed through its systems by a firm which is not subject to MiFIR themselves. The format and contents of transaction reports are set out in Regulatory Technical Standard (RTS) 22[3].

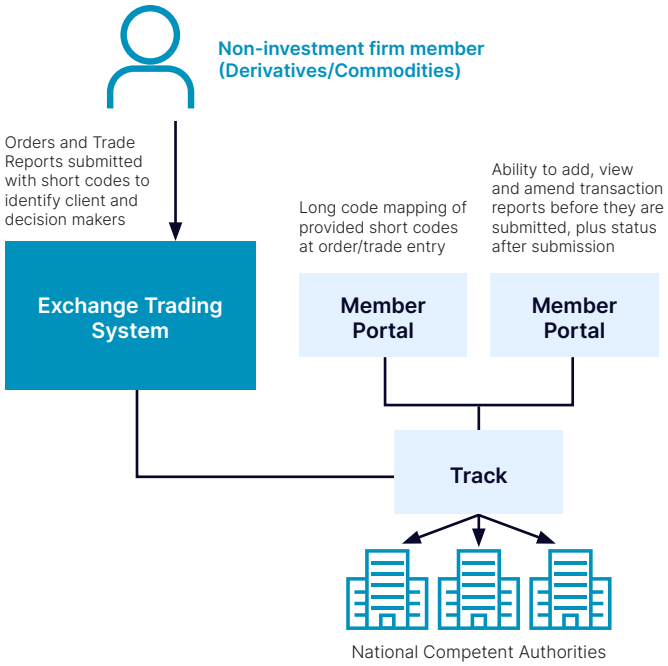
In order for Nasdaq to meet its obligations, required information to complete the transaction reports must be collected and obtained from the affected members. Because of the level of detail and the nature of the information required, which will not always be known at the point of submission of an order or trade report, it is not possible to collect all information on orders or trade reports.

Nasdaq has implemented two alternative solutions to supply Nasdaq with the required information to transaction report.

1. Full File Solution



2. Short Code Enrich Solution



#	Solution	System/Markets	Description
1	Full File submission	INET / Genium INET (All markets) / Nordic Derivative Trading System	Members must supply Nasdaq with complete Transaction Report files in the format mandated by ESMA.
2	Short Code Enrichment	Genium INET (Commodities/Fixed Income)	Members are required to supply additional details on short codes submitted at order/trade entry and may require additional enrichment at Nasdaq. This solution is suited for members with mainly proprietary trading. Members with significant post trade processing should use the full file submission solution.

2. Description of full file submission

Supplying Nasdaq with a full transaction report file is an option for all non-investment firm members on Nasdaq's trading venues.

The format of the files supplied to Nasdaq must be in the format mandated by ESMA in RTS 22 and must comply with its accompanying validation schemas. The list of transaction report attributes is described in Chapter 7 of the Regulatory and Technical Implementing Standards[1].Further information can be found in the ESMA guideline documentation on Transaction Reporting [2]. The ISO 20022 XML format for the reports is specified in the `MiFIR - Transaction Data - Reporting' section of the Swift MyStandards Portal[4].

The files must be submitted by SFTP to Nasdaq on day T. Nasdaq will perform format validation and basic content validation to verify the total number of trades, cumulative volumes, etc. before the files are submitted to the trading venue's relevant competent authority.

Members on multiple Nasdaq markets must provide separate Transaction Report files for each operating MIC where they are active. The relevant Nasdaq operating LEIs are:

Nasdaq Operating MIC	Trading Venue
XSTO	Nasdaq Stockholm
XCSE	Nasdaq Copenhagen
XHEL	Nasdaq Helsinki
XICE	Nasdaq Iceland
XTAL	Nasdaq Tallinn
XRIS	Nasdaq Riga
XLIT	Nasdaq Vilnius
NORX	Nasdaq Commodities

2.1. SFTP

Transaction Report files submitted by members must be supplied via SFTP. Authentication will be carried out via private key authentication and password. As part of the process of getting setup on the system, Members will be supplied with instructions for generating a key to use when accessing the service.

Nasdaq's SFTP service for Transaction Reporting files contain one root directory for each member where all files, inbound and outbound are placed.

2.2. File submission and correction

Members must submit their transaction report files by uploading them to Nasdaq's SFTP site. Submitted files must adhere to the following naming convention:

TR_<MIC>_<Member LEI>_<date>_<sequence number>.xml

where:

Field	Description
MIC	Nasdaq Operating MIC.
Member LEI	LEI of the member submitting the file
Date	Submission date in format YYYYMMDD
Sequence number	Sequence number of the submission. Must be in ascending order during the day.

Note that this naming convention is strictly enforced and any files which deviate from it will be rejected and no further processing of the contents of the file will be carried out. Note that the associated message identifier to be used in identifying the files sent to Nasdaq, which will be populated in the feedback files we provide, will be taken from the file name and consist of <sequence number>.

Members may submit multiple transaction report files per operating MIC as long as the sequence number is maintained unique per submitted file. Files placed by the members on the SFTP site will automatically and immediately be read and removed by Nasdaq and subjected to format and content validation. Records that pass such validation will immediately be forwarded to the appropriate NCA.

Members will be notified of the status of its submission through a combination of a status file on the SFTP server, the TRACK application and an email report. Setup of status information is configurable per member as per request.

Status files will be placed in member's SFTP directory. Any errors reported due to format, content of reconciliation errors must be corrected by the member through submission of a new corrected transaction report with an incremented sequence number or by manually correcting the information in the TRACK application.

The correction of an erroneous transaction record is carried out by submitting a cancellation of the initial transaction and then submitting a new (amended) transaction record with relevant fields corrected using the same Transaction Reference Number as the original submission. More details on the mechanism for doing this are available in the ESMA documentation[2]. Corrected records should be submitted in delta files containing only the corrected records. Resubmitting previously accepted records without a preceding cancellation will result in a rejection due to duplicate record.

2.3. Implementation guidance

This section provides further guidance to members submitting complete transaction report files to Nasdaq:

- Transaction Reference Numbers (contents of the TxIdField in the XML schema): Must be unique across Members and dates. It is required that this field be composed of the Member LEI and Date as well as the reference number for the transaction unique to that day.
- Trading Venue Identifiers: The Trading Venue Identifier for each transaction should be the corresponding Segment MIC for the venue of execution and should not be aggregated to the Operating MIC.
- Members may delete status files from its SFTP directory as they have been consumed. Nasdaq will delete remaining status files after 30 days.

3. Description of short code enrichment solution

Enriched short code data, provided at order/trade entry with additional details to transaction report, is an option only available to members on Nasdaq's Derivatives, Fixed Income and Commodities markets traded in Genium INET. It is a solution mainly suited to members with no or limited post trade processing.

Enriched data relevant to transaction reporting must be supplied by the member through the Member Portal (GUI or API) or via SFTP, as further described below:

- SFTP file upload – upload of CSV files with mapping details and retrieval of unmapped short codes5. Please also see Appendix A for file extension for Transaction reporting.
- WEB based REST API – ability to add, edit and verify mapping details and to get list of unmapped short codes.6 Please also see Appendix B for API extension for Transaction reporting.
- Member Portal GUI – ability to view, add, edit, carry out intraday reconciliation and export long code mappings. The GUI will include support of manual file uploads.

When uploading a file to the SFTP, a temporary prefix must be used in the filename (i.e. tmp). When the file is completely uploaded, the file should be renamed with the file name prefix mapping the file content (sct). This is to prevent files from being processed before they have been fully uploaded. Each file uploaded to the SFTP account needs to have a unique filename, duplicates won't be processed again.

Pending Transaction Report records will be available for preview as of 07:30 CET on T+1, after Nasdaq has merged the trade data with supplied short code mappings. Members are required to verify the records in the TRACK application (see section 4) and if needed enrich or amend details to complete the records by 11:00 CET on T+1. Nasdaq will subsequently submit the completed and verified transaction reports to its relevant NCA's and will display resulting status reports in the TRACK application.

Members are required to resolve any errors no later than 19:30 CET in the TRACK application.

4. TRACK Application

Nasdaq will use its TRACK system to send transaction reports to its relevant NCA's. Members that need to submit data to Nasdaq to complete transaction report records can optionally use TRACK through a GUI and an upload functionality. Members who already use TRACK would need to request a separate MIFID II Transaction Reporting user.

Transaction report records will be subjected to relevant business validations and errors will be displayed and alerted in the GUI and also via email. TRACK will manage feedback received from the NCA's system and map it to the corresponding transaction report in the TRACK system. TRACK will show the status of records sent, i.e. approved, rejected or pending.

Transaction Report files, as described in section 2, can be uploaded in the TRACK application and will undergo the same validation as described in section 2.

5. Security

It is important to note that transaction report data, by their nature, contain Personally Identifiable Information (PII). Nasdaq takes the security of this information seriously and has adopted the following measures to safeguard this information:

- File transfer between Members and Nasdaq will be by SFTP, authenticated by private key.
- The Nasdaq Member Portal and TRACK is accessed via username/password and two factor authentication (2FA). Access to the REST API and file transfer will be subject to similar levels of authentication.
- The Transaction Reports are only made available to Nasdaq's relevant competent authorities.
- Access to the transaction report data within Nasdaq is strictly restricted to staff that process or support the data.

Note that these measures apply to the Production environment only. Data submitted to the Test environment will not be as stringently protected for ease of debugging during client testing. Accordingly, Members must submit dummy data that does not contain any PII to the Test system.

6. Daily Operations Schedule

Members are required to submit transaction report data for their activity on the day on which that activity occurred (Day T). The service will process transaction report data between 7:30 CET and 19:30 CET on any market day on which Nasdaq is open for trading. Members may also submit information outside of these operating hours; however, we cannot guarantee availability of the systems outside of the core operating hours. Support is available through Nasdaq Trading Operations.

6.1. Day T

Deadline (CET)	Action	Solution
19:30	Deadline for Participants to submit transaction report files to Nasdaq for trades on Day T. Nasdaq carries out file format and basic content validation and then sends it to the relevant NCA. All reports will be immediately sent to NCA if initial validations are OK.	Full File submission

6.2. Day T+1

Deadline (CET)	Action	Solution
07:30	Pending Transaction Reports are made available in the TRACK application after Nasdaq has merged the trade data with short code mapped data.	Short Code Enrich
09:00	The NCAs validate the supplied transactions against the instrument reference data list published by ESMA.	Full File submission
11:00	If a Participant needs to adjust the report with allocations etc. this will be possible during morning up until 11:00.	Short Code Enrich
19:30	In the event of rejected/erroneous transaction reports, members must submit corrections at the very latest end of day.	All

6.3. Disaster Recovery

TRACK has one primary and secondary site. In the event of a site failover participants will need to connect to the secondary site manually. In this situation, participants may be asked to manually resubmit reports that were uploaded prior to the failover but not successfully processed.

The SFTP is setup with a primary and secondary site. The secondary site will be mirroring the primary site on a continuous basis. If the primary site would fail, then there would be a hot fail-over to the secondary site

7. Testing

In order to gain access to the Transaction Report service, Participants will need to contact Trading Operations. They will then be provided with the hostname of the SFTP server and a username as well as instructions for generating a public key authentication. The test environment will be available during most business hours and the availability schedule will be communicated, including any maintenance downtime. The timings of workflows will be mimicked in the test environment. Note that real production PII should not be used in the test environment, due to less security compared to the production environment.

When access to the test environment is given Nasdaq requires participants to perform full testing of reporting prior to moving to the production system.

For end-to-end testing, Nasdaq is dependent on availability and access to the test environments of its NCA's. The current status of the NCA test system availability is outlined below:

Nasdaq Operating MIC	Trading Venue	Test System Available
XSTO	Nasdaq Stockholm	Yes
XCSE	Nasdaq Copenhagen	No
XHEL	Nasdaq Helsinki	No
XICE	Nasdaq Iceland	No
XTAL	Nasdaq Tallinn	No
XRIS	Nasdaq Riga	No
XLIT	Nasdaq Vilnius	No
NORX	Nasdaq Commodities	No

8. Contact

For information regarding Transaction Reporting please contact Regulatory Reporting at:

Email: RegulatoryReporting@nasdaq.com

Phone: +46 8 405 7360

9. References

1 European Commission, Markets in Financial Instruments (MiFIR) - Regulation (EU) No 600/2014 available from https://ec.europa.eu/info/law/ markets-financial-instruments-mifir-regulation-eu-no-600-2014_en

2 European Securities and Markets Authority. Technical Reporting Instructions: MiFIR Transaction Reporting, 26 October 2016 https://www.esma.europa.eu/sites/default/files/library/2016-1521_mifir_transaction_reporting_technical_reporting_instructions.pdf

3 European Securities and Markets Authority, Regulatory technical and implementing standards – Annex 1, 28 September 2015 https://www.esma.europa.eu/sites/default/files/library/2015/11/2015-esma-1464_annex_i_-_draft_rts_and_its_on_mifid_ii_and_mifir.pdf

4 Swift, MyStandards Portal, https://www.swift.com/our-solutions/compliance-and-shared-services/mystandards?AKredir=true

5 Short Code csv file format specifications https://www.nasdaq.com/docs/Nasdaq-Member-Portal-Short-Code-Mgmt-CSV-specification_0.pdf

6 Short Code Management Application Programmer's Interface Manual https://www.nasdaq.com/docs/Nasdaq-Member-Portal-Short-Code-Mgmt-API-Manual.pdf

Appendix A Short code identities mapping file with Transaction Reporting extensions

This file type extends the Short code identities mapping file (sci) file format, but contains both shortcode identities mappings and optionally, fields for transaction reporting purposes. The CSV format only allows for one client and/or one clientDecisionMaker to be defined and any existing client-mappings will be replaced with the new ones defined in the data row.

A.1 File name

File name must follow the pattern

sct_<unique file id for member>.csv

Columns

Column number	Column content	Format/Values	Mandatory?	Valid for Codetype	Example
1	exchange		Y		INET
2	mpid		Y		ABCD
3	code type		Y		Client-Person
4	shortcode		Y		10000123
5	longcode		Y		SE197711101234
6	begin date		Y		2017-12-31
7	end date		N		
8	alias	1 to 32 alphanumeric May only contain letters A-Ö (case insensative) and digits and must start with a letter	N		C123
9	comment	1 to 32 alphanumeric	N		"customer number 123"
10	update*	Y or N	N		Y
11	client longcode	1 to 50 alphanumeric (([A-Z]{2,2}[A-Z0-9]{1,33})|([A-Z]{2,2}[0-9]{8}[A-Z]{1}[A-Z#]{4}[A-Z]{1}[A-Z#]{4})) When longcodetype is LEI valid format is 20 characters	N	Client-Person Client-Entity	SE19800413ADAM#JONES
12	client firstName	1-140 alphanumeric	N	Client-Person Client-Entity	
13	client surName	1-140 alphanumeric	N	Client-Person Client-Entity	
14	client dateOfBirth	YYYY-MM-DD	N	Client-Person Client-Entity	
15	client country	3 alphanumeric	N	Client-Person Client-Entity	
16	client longCodeType	NIDN, CCPT, CONCAT or LEI	N	Client-Person Client-Entity	

Column number	Column content	Format/Values	Mandatory?	Valid for Codetype	Example
17	client decisionMaker longcode	1 to 50 alphanumeric (([A-Z]{2,2}[A-Z0-9]{1,33})|([A-Z]{2,2}[0-9]{8}[A-Z]{1}[A-Z#]{4}[A-Z]{1}[A-Z#]{4})) When longcodetype is LEI valid format is 20 characters	N	Client-Person Client-Entity	SE19800413ADAM#JONES
18	client decisionMaker firstName	1-140 alphanumeric	N	Client-Person Client-Entity	
19	client decisionMake surName	1-140 alphanumeric	N	Client-Person Client-Entity	
20	client decisionMaker dateOfBirth	YYYY-MM-DD	N	Client-Person Client-Entity	
21	client decisionMaker country	3 alphanumeric	N	Client-Person Client-Entity	
22	client decisionMaker longCodeType	NIDN, CCPT, CONCAT or LEI	N	Client-Person Client-Entity	
23	longCodeTypeOf Branch	NIDN, CCPT, CONCAT or LEI	N	ExecutionDecisionMaker-Person InvestorDecisionMaker-Person	
24	countryOfBranch	3 alphanumeric	N	ExecutionDecisionMaker-Algo ExecutionDecisionMaker-Person InvestorDecisionMaker-Person InvestorDecisionMaker-Algo	

* = Note. The SC Update attribute must be set if system is to allow any of the Order Record Keeping or Transaction Reporting attributes to be updated.

A.2 Examples

*Note below MPID and other data is an example, not actual references.

INET,ABCD,Client-Person,10000121,SE195604081234,2018-01-04,,,"customer number 121",N,SE19800413ADAM#JONES,John,Doe,1980-12-12,SWE,NDIN,,,,,,,,

INET,ABCD,Client-Entity,10000123,LEI45678901234567890,2017-12-31,,,"customer number 123",N,,,,,,,SE19800413ADAM#JONES,Jane,Doe,1970-01-23,CCPT,SWE

INET,ABCD,InvestorDecisionMaker-Person,18800121,SE195604081234,2018-01-04,,,"customer number 121",N,,,,,,,,,,,,CONCAT,SWE

Appendix B Transaction Reporting Shortcode management REST API

B.1 POST PUT GET /identifiers/

PUT can be invoked arbitrary number of times for a single or a set of items. As long as data is identical to previous calls or previous data is absent, system will silently accept call.

Changes must be done by setting the correction flag explicitly to true and are allowed to for fields marked as modifiable below.

The endpoint identifiers/ is used to upload or modify a single item. Both http GET, POST and PUT is allowed. HTTP verb POST is typically used to insert a short code mapping for the first time. PUT is used to update a previously registered mapping and it is also allowed for initial insert. The response 2xx indicates successful update and other responses, such as 4xx and 5xx, indicates that the item was not updated in the registry. The GET identifiers service provides functionality to retrieve identifiers for previously stored values.

B.2 URL suffix

/{version}/scregistry/identifiers/transaction-reporting (GET, PUT, POST)

B.3 Parameters

Transaction reporting extends to /{version}/scregistry/identifiers/

transactionReporting class	**contents**		**Valid for Codetype**
clients[ ]	**clients class**		Clients are used when CodeType is Client-Person or Client-Entity
	longCode	When longcodetype are NIDN, CCPT, CONCAT, ("(([A-Z]{2,2}[A-Z0-9]{1,33})|([A-Z]{2,2}[0-9]{8}[A-Z]{1}) When longcodetype is LEI valid format is 20 characters	
	longCodeType	NIDN, CCPT, CONCAT, LEI	
	firstname	1-140 alphanumeric	
	surname	1-140 alphanumeric	
	dateOfBirth	YYYY-MM-DD	
	country	3 Alphabetic	
clientDecisionMakers[ ]	**clientDecisionMaker class**		clientDecisionMakers are used when CodeType is Client-Person or Client-Entity
	longCode	When longcodetype are NIDN, CCPT, CONCAT, ("(([A-Z]{2,2}[A-Z0-9]{1,33})|([A-Z]{2,2}[0-9]{8}[A-Z]{1})When longcodetype is LEI valid format is 20 characters	
	longCodeType	NIDN, CCPT, CONCAT, LEI	
	firstname	1-140 alphanumeric	
	surname	1-140 alphanumeric	
	dateOfBirth	YYYY-MM-DD	
	country	3 Alphabetic	
countryOfBranch	Country of the branch responsible for the person making the investment decision, 3 Alphabetic		countryOfBranch is used when CodeType is ExecutionDecisionMaker-Person, InvestorDecisionMaker-Person, ExecutionDecisionMaker-Algo or InvestorDecisionMaker-Algo.

transactionReporting class	contents	Valid for Codetype
longCodeTypeOfBranch	NIDN, CCPT, CONCAT, LEI	longCodeTypeOfBranch is used when CodeType is ExecutionDecisionMaker-Person, InvestorDecisionMaker-Person

B.4 Example response

A response for a record containing some of the extra fields. Example below is for CodeType "Client-Person"

*Note below MPID and other data is an example, not actual references.


```
{
    "exchange": "SE",
    "mpid": "XYX",
    "codeType": "Client-Person",
    "shortcode": 2000142,
    "beginDate": "2017-05-12",
    "endDate": null,
    "longcode": "SE197612050000",
    "alias": "OLTE",
    "comment": "OLTE",
    "transactionReporting": {
      "clients": [
        {
          "firstName": "Olle",
          "surname": "Tellus",
          "longCode": "SE197612050000",
          "longCodeType": "NIDN",
          "dateOfBirth": "1976-12-05",
          "country": "SWE"
        },
        {
          "firstName": "Arne",
          "surname": "Moon",
          "longCode": "SE194011110000",
          "longCodeType": "NIDN",
          "dateOfBirth": "1940-11-11",
          "country": "SWE"
        }
      ],
          "clientDecisionMakers": [
        {
          "firstName": "Annie",
          "surname": "Saturnus",
          "longCode": "SE194011110000",
          "longCodeType": "NIDN",
          "dateOfBirth": "1940-11-11",
          "country": "SWE"
        }
      ]
    }
}
```

Example below is for CodeType "ExecutionDecisionMaker-Person"


```
{
    "exchange": "SE",
    "mpid": "XYX",
    ”codeType": "ExecutionDecisionMaker-Person",
    "shortcode": 203839,
    "beginDate": "2017-06-28",
    "endDate": null,
    ”longcode”: "SE2212121212",
    "alias": "2",
    "comment": "2",
    "transactionReporting": {
      ”countryOfBranch": "SWE",
      ”longCodeTypeOfBranch”:”CONCAT”
    }
}
```