Technical Specification

Oslo Børs Document Feed

Issue 1.4
2 September 2013

Disclaimer

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Change log

This document can be updated at any time, and has been through the following iterations:

Issue	Date	Description
1.0	14.09.2005	• Initial release
1.1	11.10.2005	• Added time zone information. Corrected minor errors.
1.2	22.12.2005	• Added new record type – Replacement ('R') • Document index file extended with one column (used only in Replacement records)
1.3	09.11.2006	• Added new field to all document types – country code (conforming to ISO 3166-1 alpha-2)
1.4	02.09.2013	• New document layout.

Please note that only the latest issue of this document will be available from the Oslo Børs website.

Content

1. Introduction

The Oslo Børs Document Feed is a service from Oslo Børs where corporate documents such as financial reports and prospectuses are distributed via FTP/SFTP.

1.1 Purpose

This is a document aimed at the client side system developer to provide the necessary information for implementing a client system for retrieving documents from the Oslo Børs Document Feed.

1.2 References

Reference	Description
ISO 6616	Standard for defining security numbers using ISIN codes
ISO 8859-1	Standard defining ISO Latin-1 character set
ISO 639-1	Standard defining ISO two-letter language codes
ISO 3166-1 alpha-2	Standard defining two-letter country codes

1.3 Support, calendar and core hours

Oslo Børs provides a manned technical services desk in the hours specified below, excluding exchange holidays, unless advised otherwise.

Personnel and queries covered	Hours (CET)	Telephone	E-mail
Technical support and operational issues	07:00-21:00	+47 22 34 19 90	technicalsupport@oslobors.no
Product and commercial issues	07:30-18:30	+47 22 34 18 02	products@oslobors.no

1.4 Notification policy

- Major changes – three months
- Minor changes – one month
- Bug fixes – as soon as possible if critical and coordinated with major/minor releases where appropriate

2. Product overview

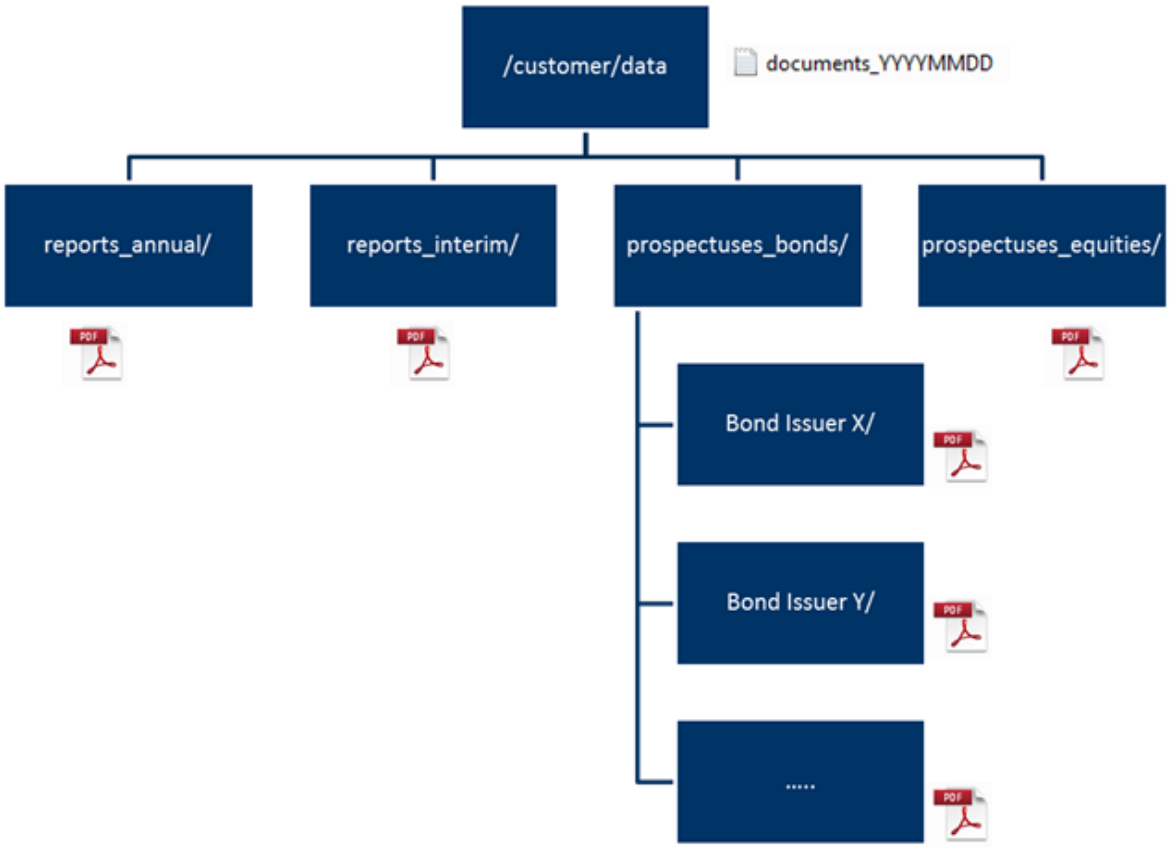
The Oslo Børs Document Feed comprises original documents issued by the listed companies on Oslo Børs, distributed electronically (in PDF format) by means of FTP. The documents are divided into annual reports, interim reports, equity prospectuses and bond prospectuses.

The distribution of the documents is based on the following two main principles:

- A document index file, incrementally updated with records as new documents are distributed to the client's FTP directory and when documents are amended, replaced or deleted.
- Documents are identified and described by their filenames which are constructed from fields separated by underscore characters.

3. The FTP directory structure

Before making the documents available for the client, a directory structure must be created at the client's FTP directory at the Oslo Børs FTP server, under the /data/ directory:



4. Filename conventions

The document filenames are constructed from fields, separated by underscore characters '_' (ASCII decimal value 95). Each document type has a fixed number of fields.

Below is a detailed description of the document types and their filenames. These are the default filenames used in Oslo Børs' internal archive. However, filenames can be transformed into custom filenames upon distribution to each client, by combining some or all of the existing fields. E.g. the end-period values can be limited to displaying the year only, or the 'pages' field can be prefixed by the string "page". The sequence of the fields can also be rearranged. However, note that a minimum of fields are required in order to ensure a unique identification of the files.

4.1 Annual reports

Annual and interim reports may be published as several parts, e.g. a main report with several addendums. The parts may not always be distributed at the same time. In general reports are only in one part.

Filename construction:
year_month_day_country_ticker_isin_language_part_pages_releasedate.suffix

where the first three fields represents the end-period date. For annual reports, the end-period date will be the last day of the fiscal year.

Fields:

Field name	Data type	Field description
year	integer	End-period year. Format: yyyy
month	integer	End-period month. Format: mm
day	integer	End-period day of month. Format: dd
country	char(2)	The instrument issuer's country of domicile denoted by a two-letter country code conforming to ISO 3166-1 alpha-2.
ticker	string	The instrument ticker.
isin	char(12)	International security identification number.
language	char(2)	The document's main language, denoted by a two-letter language code conforming to ISO 639-1.
part	string	The part number of the document, denoted by an integer value prefixed by an uppercase 'P'. E.g. "P1" for part 1. The purpose of this field is to identify the parts in a multi-part document. Single-part documents will always have the value P1.
pages	integer	The number of pages in the document.
releasedate	date	The document's release date. Format: yyyymmdd
suffix	string	The filename suffix. ".pdf" is the only suffix currently in use.

Example:

```
2012_12_31_NO_STL_NO0013462786_EN_P1_78_20130410.pdf
```

4.2 Interim reports

Filename construction:

quarter_year_month_day_country_ticker_isin_language_part_pages_releasedate.suffix

Fields:

Field name	Data type	Field description
quarter	char(2)	Denotes the quarter. Valid values are: Q1, Q2, Q3, Q4.
year	integer	End-period year. Format: yyyy
month	integer	End-period month. Format: mm
day	integer	End-period day of month. Format: dd
country	char(2)	The instrument issuer's country of domicile, denoted by a two-letter country code conforming to ISO 3166-1 alpha-2.
ticker	string	The instrument ticker.
isin	char(12)	International security identification number.
language	char(2)	The document's main language, denoted by a two-letter language code conforming to ISO 639-1.
part	string	The part number of the document, denoted by an integer value prefixed by an uppercase 'P'. Eg. "P1" for part 1. The purpose of this field is to identify the parts in a multi-part document. Single-part documents will always have the value P1.
pages	integer	The number of pages in the document.
releasedate	date	The document's release date. Format: yyyymmdd
suffix	string	The filename suffix. ".pdf" is the only suffix currently in use.

Example:

```
Q2_2013_06_30_NO_STL_NO0013462786_EN_P1_24_20130725.pdf
```

4.3 Equity prospectuses

Filename construction:

year_number_prospectustype_country_ticker_isin_language_pages_releasedate.suffix

Fields:

Field name	Data type	Field description
year	integer	The year the document was published. Format: yyyy
number	integer	An issue number unique for each equity prospect within a year. Starting at 1 and increases with 1 for each new prospect distributed.
Prospectus type	char(3)	The equity prospectus type, denoted by a 3-letter code. See code descriptions below.
country	char(2)	The instrument issuer's country of domicile, denoted by a two-letter country code conforming to ISO 3166-1 alpha-2.
ticker	string	The instrument ticker.
isin	char(12)	International security identification number.
language	char(2)	The document's main language, denoted by a two-letter language code conforming to ISO 639-1.
pages	integer	The number of pages in the document.
releasedate	date	The document's release date. Format: yyyymmdd
suffix	string	The filename suffix. ".pdf" is the only suffix currently in use.

Prospectus type codes:

Code	Description
GEN	General prospectus
IPO	Initial public offering
PEO	Public equity offering
MAA	Merger and acquisition

Example:

```
2012_68_GEN_NO_STL_NO0013462786_EN_8_20121216.pdf
```

4.4 Bond prospectuses

Filename construction:

year_prospectustype_country_ticker_isin_language_pages_releasedate.suffix

Fields:

Field name	Data type	Field description
year	integer	The year the document was published. Format: yyyy
prospectustype	char(2)	The bond prospectus type, denoted by a 2-letter code. See code descriptions below.
country	char(2)	The instrument issuer's country of domicile, denoted by a two-letter country code conforming to ISO 3166-1 alpha-2.
ticker	string	The instrument ticker.
isin	char(12)	International security identification number.
language	char(2)	The document's main language, denoted by a two-letter language code conforming to ISO 639-1.
pages	integer	The number of pages in the document.
releasedate	date	The document's release date. Format: yyyymmdd
suffix	string	The filename suffix. ".pdf" is the only suffix currently in use.

Prospectus type codes:

Code	Description
LA	Loan agreement
LD	Loan description
GP	General prospectus (infrequently used)

Example:

```
2013_LD_NO_LANDK12 PRO_NO0013462786_NO_4_20130812.pdf
```

5. The document index file

When the first document of the day is distributed, an index file is created and distributed to the client's /data/ directory. The index file is updated incrementally during the day, and contains information about the distributed documents. The purpose of the file is to inform the client about new files, as well as amended , replaced and deleted files.

Each record in the file has a sequence number, making it possible for the client to keep track of new records when polling the file.

The document index file is a tabulator separated text file with the following columns:

Column number	Description
1	Record sequence number. Starting at 1 each day and increases by one for each new record added.
2	Distribution timestamp. Format: yyyymmdd-hhmmss Timestamps are in accordance with time zone CET (GMT+1)
3	The document status, denoted by a single character. See description of status codes below.
4	The document filename, including path relative to the client's /data/ directory.
5	The filename of the new document, in case of a replacement (status 'R'). Not used for other record types (field empty).

Status codes:

Code	Description
N	New document
A	Amended document (the document is changed, its name unchanged)
R	Replaced document (both the document and its name is changed)
D	Deleted document

Example:

```
1  20130505-134845  N  reports_annual/2012_12_31_NO_NAO_NO0123456789_EN_P1_16_20130505.pdf
2  20130505-134846  N  reports_interim/2013_03_31_NO_OPP_NO0234567890_EN_P1_16_20130505.pdf
3  20130505-134847  D  reports annual/2012 12 31 NO NAO NO0123456789 EN P1 16 20130505.pdf
4  20130505-134848  A  prospectuses equities/2013 6 PEO NO ULO NO345678901 NO 30 20130505.pdf
```

Document index file name convention:
documents_yyyymmdd.dat (example: documents_20050823.dat)

5.1 Handling of new documents

When a new document is distributed to the client's FTP directory, a new record is added to the document index file. The status field (column 3) will have the value 'N'. The path and filename (column 4) denotes the location of the file, relative the client's /data/ path.

5.2 Handling amendment and replacement of documents

If a distributed document is amended (due to corrections or updates) the amended document will be distributed, replacing the original document.

Note that also documents distributed the day before or earlier may be amended. In such case, the "new document" record for this document will not be found in the current day's document index file.

5.2.1 When the filename remains unchanged – Amendment, 'A'

If the amendment does not cause the filename to change, the amended document will replace (overwrite) the original document. This is represented in the document index file by a Amendment record (status 'A'). If the client has downloaded the document to a local archive prior to the amendment, the amended document should be downloaded and replace the existing document in the client's local archive.

5.2.2 When the filename is changed – Replacement, 'R'

If the amendment causes the filename to change, e.g. if the number of pages is changed the original document will be removed and the amended document distributed. This is represented in the document index file by a Replacement record (status 'R'), containing both the name of the original document (column 4) and the name of the replacing document (column 5). If the client has downloaded the document to a local archive prior to the amendment, the original document should be deleted from the client's local archive (or marked as obsolete) and be replaced by the new document specified in the Replacement record.

5.3 Handling deletion of documents

If a document is distributed by mistake, or if a document is distributed with an incorrect filename, deletion of the file will be necessary. When deleting a document, the following actions will be performed:

- A record with status 'D' will be added to the document index file
- The document, if it still exists, will be removed from the client's FTP directory

If the client has downloaded the document to a local archive prior to the deletion, the deleted document should be removed from the client's local archive.

Note that also documents distributed the day before or earlier may be deleted. In such case, the "new document" record for this document will not be found in the current day's document index file.

6. Suggested client-side implementation

Below follows a description of suggested principles of operation for a client-side system receiving the Oslo Børs Document Feed.

It is assumed that the client will create a local archive (a file system or database) for storing the documents.

1) Poll the FTP server, e.g. once every minute during the day.
2) Download today's document index file, using the current date (documents_yyyymmdd.dat).
3) Scan the document index file for new records by comparing the sequence numbers with the highest sequence number found in the previous polling session.
4) Handle new records according to section 5 in this document:
    - "New document" record: Download the file (using the path and filename reference)
    - "Amended" record: Download the file and replace the old file in the local archive
    - "Replaced" record: Delete the old file (specified in column 4) or mark it as obsolete, and replace it with the new file (specified in column 5)
    - "Deleted" record: Delete the file from the local archive
5) Store the last record's sequence number, and use it when looking for new records in the next polling session.

The client system should as a minimum be able to handle the following error situations:

- A file referenced in the document index file is not found on the FTP site: Generate a warning.
- A file to be amended is not found in the client's local archive: Download the referenced (new) file.
- A file to be deleted is not found in the client's local archive: Do nothing.