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| Interface Design Specifications  Trade Feed (IDS-TF)  Version 0.2 ● Proposed |
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# Document history

The following table contains the document revisions, including references to specific comments.

| Version | Notes |
| --- | --- |
| V 0.1 | Draft |
| V 0.2 | * FN00006200 'Trade amendment': removed requirement * FN00006507 'CSV load': changed mandatory fields * FN00006130 'Uniqueness check': Unique trade is recognized based on the combination of ISIN + Trade Number + Market. |

# Document Control

The following table contains the complete list of business requirements described in this document, together with their own identification code and status attributes.

For each requirement the following attributes are provided:

1. **Priority**: describes the importance of the requirement using the MoSCoW standard. More specifically, "Must" is a category used for business critical requirements,"Should" is specified for important but not "show-stopping" requirements, "Could" is used for "nice-to-have" requirements.
2. **Analysis**: expresses the level of completeness of the analysis. In particular the flag "Unknowns" means that there are still topics not covered by workshops and interviews, while "No unknowns" means that the analysis can be considered complete from the client perspective.
3. **Stability**: this flag describe the requirements stability in terms of changes connected to external stakeholder influence. A requirement is "Not Stable" if, for example, the team is waiting for an external feedback that could impact it (changing regulations, changing external systems, changing standards...)

| Code | Name | Priority | Analysis status | Stability |
| --- | --- | --- | --- | --- |
| FN00006124 | Transfer process | Must | No unknowns | Stable |
| FN00006120 | Transfer frequency | Must | No unknowns | Stable |
| FN00006125 | File naming convention | Must | No unknowns | Stable |
| FN00006195 | File rejection | Must | No unknowns | Stable |
| FN00006129 | File format | Must | No unknowns | Stable |
| FN00006127 | Header row | Must | No unknowns | Stable |
| FN00006139 | Trade Data rows | Must | No unknowns | Stable |
| FN00006141 | Order Data rows | Must | No unknowns | Stable |
| FN00006133 | Termination row | Must | No unknowns | Stable |
| FN00006199 | Cumulative format | Must | No unknowns | Stable |
| FN00006197 | ISIN Filtering | Must | No unknowns | Stable |
| FN00006130 | Record uniqueness | Must | No unknowns | Stable |
| FN00006128 | Record validation | Must | No unknowns | Stable |
| FN00006206 | Trade cancellation | Must | No unknowns | Stable |
| FN00006506 | Late delivery | Must | No unknowns | Stable |
| FN00006507 | CSV Load | Must | No unknowns | Stable |
| FN00006134 | Direct transfer | Must | No unknowns | Stable |
| FN00006135 | Transfer from workstations | Must | No unknowns | Stable |

# Overview

Trade records are generated and collected by the Exchange and transferred to the CCP for Clearing purposes.

The Exchange stores trade records in plain text files in fixed length format.

Each file includes header and termination records. Each trade is represented by three rows: the main trade record and the buy and sell side details.

Trade files can be provided by the Exchange multiple times per day. The file name convention include a counter that is incremented at each delivery. A specific flag is given for the EOD file.

Each file contains the trade done in the business day (cumulative data). Trade cancellations and amendments are done providing amended trades in the cumulative files.

# Requirements

## File transfer

### FN00006124 - Transfer process

The protocol supports the batch transfer of trade data between a feed Provider, the Exchange, and a feed Consumer, the CCP (Clearing System). The Trade file, located in the Provider node, is transferred to the Consumer node through the SFTP protocol. The diagram represents the process steps with a specific focus on the interactions among Business Actors.

|  |  |
| --- | --- |
| 1:Trade transfer process | |
| Diagram details | |
| 1.0 - Trade File | The information exchange is initiated by the Provider that, acting as SFTP Client, puts it in a remote directory located in the Consumer node. |
| 1.1 - MD5 Exchange Rate | After the trade file, the corresponding MD5 file is generated and put in the same directory. |
| 1.2 - Processing | The Consumer monitors (polling) the local directory. The trade file is processed when the corresponding MD5 file is detected. |
| 1.3 - Archiving | The Consumer moves the processed file and the corresponding MD5 to its internal archive (archiving) where it is safe-kept for further review. |

### FN00006120 - Transfer frequency

1. The protocol supports the possibility to process a variable number of files each day.
2. There should be a minimum of 30 mins delay between deliveries.

### FN00006125 - File naming convention

The filename pattern is described by the following schema:

“bogaMKTYYYYMMDD\_NN.dat” format.

1. MKT is the Market ID ("vie" for the Vienna Market, "pra" for the Prague Market)
2. YYYYMMDD is file generation date
3. NN is a two digit incrementing number (01, 02,...) for each file produced in the given date. For the last file of the business day the value is 'ff'

Examples:

First intraday file on the Vienna Stock Exchange: bogavie20180102\_01.dat

EOD File on the Prague Stock Exchange: bogapra20180102\_ff.dat

The MD5 file has the same file name with the extension “md5” (and not "dat") (E.g. "bogapra20180102\_ff.md5")

### FN00006195 - File rejection

The file is rejected if:

1. doesn't match the corresponding MD5 file
2. the sequential number NN in the file name is numeric and is not strictly greater than the one of the last processed file.
3. a file with sequential number "ff" has been already received in the specific day.

## File processing

### FN00006129 - File format

The file content is formatted using a fixed length format.

The file structure is the following

* Header row
* Trade rows (3 rows per trade)
* Termination row

Each single Trade is represented by the following 3 rows:

* Trade Data
* Trade Order (BUY SIDE)
* Trade Order (SELL SIDE)

### FN00006127 - Header row

The header row has the following format:

1. **header record indicator** AlphaNumeric(1) Always ‘A’
2. **type of data** AlphaNumeric(3) Always ‘TRD’
3. **day of file transfer** Numeric(8,0) Date on which the file is created in the format 'YYYYMMD'
4. **time of file transfer** Numeric(8,0) Time on which the file is created in the format 'HHMMSSSS'
5. **trade code** Numeric(10,0) Always 'Zeroes'
6. **filler** AlphaNumeric(1) Always 'Space'

*Example: 'ATRD20180427235900000000000000'*

*where:*

1. *Header Record Indicator: 'A'*
2. *Type of Data:'TRD'*
3. *Day of file transfer: '20180427'*
4. *Time of file transfer: '23590000'*
5. *Trade code: '0000000000'*
6. *Filler:' '*

### FN00006139 - Trade Data rows

The trade row has the following format:

1. **record indicator** AlphaNumeric(1) Always ‘S’
2. **exchange id** AlphaNumeric(3) Name of the exchange system where the trade has been generated (‘EAE’).
3. **trade generation date**  Numeric(8,0) Date when the corresponding buy and sell orders have been executed in the format 'YYYYMMDD'.
4. **trade generation time** Numeric(8,0) Time when the corresponding buy and sell orders have been executed in the format 'HHMMSSSS'.
5. **trade number**  Numeric(7,0) Unique system generated trade identifier for a trade
6. **trade code suffix** Numeric(3,0) Indicates the actual version number of the trade (e.g., after trade modification).
7. **filler** AlphaNumeric(1) Always 'Space'
8. **ISIN Code**  AlphaNumeric(12) ISIN number representing the instrument traded. This is the recommended key for the interface.
9. **wkn number** Numeric(7,0) Wertpapierkennummer representing the instrument traded. This is supported only for compatibility reasons.
10. **market status indicator** AlphaNumeric(1) The code/ identifier of the type of price (‘O’pening Auction, ‘C’ontinuous Trading, ‘V’ola Interruption in CT, ‘A’uction, ‘F’ - Closing Auction). Blank for OTC trades.
11. **trade type**  AlphaNumeric(3) Indicates that the trade is an exchange trade, always XP + ‚SPACE‘
12. **trade price**  Numeric(13,5) Price at which the orders have been executed (assumed currency is settlement currency for instruments listed per unit and denomination currency for instruments listed in percentage).
13. **trade quantity** Numeric(15,3) Quantity of equities, warrants or bonds which has to be delivered by the seller.
14. **market value** Numeric(14,2) Trade quantity multiplied with trade price.
15. **denomination currency code** AlphaNumeric(3) ISO code for the currency (e.g., ”DEM” for DM and ”EUR” for EURO). For equities and warrants this field is not filled.
16. **settlement currency code**  AlphaNumeric(3) Currency in which the trade has to be settled (i.e., equal to Trading Currency).
17. **settlement currency exchange rate**  Numeric(10,5) Exchange rate between the Denomination Currency and the Settlement Currency for non EMU currencies, i.e. always 0 for Release 3.
18. **settlement currency conversion**  Numeric(10,5) Conversion factor between the Denomination Currency and the Settlement Currency for EMU currencies. factor
19. **settlement amount** Numeric(14,2) Amount which has to be paid by the buyer of the trade.
20. **settlement code**  AlphaNumeric(3) blank for on-exchange trades.
21. **settlement period**  AlphaNumeric(1) Number of days after the trading date when the trade has to be settled: ‘2’ (because settlement period is T + 2)
22. **settlement date**  Numeric(8,0) Date when the trade has to be settled in the 'YYYYMMDD' format
23. **instrument subtype** AlphaNumeric(3) Defines the type of the bond, e.g., ANL for federal bonds (”Bundesanleihen”).
24. **issuer** AlphaNumeric(4) Issuer short code of the bond, e.g.,” Bundesbank” for federal bonds (”Bundesanleihen”).
25. **coupon** Numeric(9,7) Display % of the Coupon Rate
26. **maturity date**  Numeric(8,0) Date when the bond is redeemed ('YYYYMMDD')
27. **rate of interest** Numeric(9,7) Percentage of the bonds face value that is paid as interest
28. **divergent interest payment** Numeric(1,0) Interest payment date different from standard
29. **deposit option** AlphaNumeric(3) Deposit option (e.g., Girosammelverwahrung, Streifbandverwahrung, Wertpapierrechnung, AKV)
30. **accrued interest** Numeric(12,2) Part of the next interest payment that belongs to the seller
31. **accrued interest days** Numeric(3,0) Number of days since the last interest payment
32. **member kv number buy**  Numeric(4,0) The DKV account number of the buyer exchange member
33. **settlement account buy**  Numeric(4,0) The DKV account of the buyer clearing member
34. **member kv number sell**  Numeric(4,0) The DKV account number of the seller exchange member
35. **settlement account sell**  Numeric(4,0) The DKV account of the seller clearing member

Example: 'SEAE20180427093643190002874999 AT00004911700000000AXP 000001046300{0000000020000000000000020926{EUREUR000000000{00000000000000000021522F 220180502ANLHYP 03250000{2020060103250000{0GS 00000000596F33E2133513322762276'

*Record indicator:'S'*

*Exchange id:'EAE'*

*Trade generation date:'20180427'*

*Trade generation time:'09364319'*

*Trade number:'0002874'*

*Trade code suffix:'999'*

*Filler:' '*

*ISIN code:'AT0000491170'*

*WKN number:'0000000'*

*Market status indicator:'A'*

*Trade type:'XP '*

*Trade price:'000001046300{'*

*Trade quantity:'000000002000000'*

*Market value:'0000000020926{'*

*Denomination currency code:'EUR'*

*Settlement currency code:'EUR'*

*Settlement currency exchange rate:'000000000{'*

*settlement currency conversion factor:'0000000000'*

*Settlement amount:'0000000021522F'*

*Settlement code:'000'*

*Settlement period:'2'*

*Settlement date:'20180502'*

*Instrument subtype:'ANL'*

*Issuer:'HYP '*

*Coupon:'03250000{'*

*Maturity date:'20200601'*

*Rate of interest:'03250000{'*

*Divergent interest payment:'0'*

*Deposit option:'GS '*

*Accrued interest:'00000000596F'*

*Sccrued interest days:'33E'*

*Member kv number buy:'2133'*

*Settlement account buy:'5133'*

*Member kv number sell:'2276'*

*Settlement account sell:'2276'*

### FN00006141 - Order Data rows

The Order row has the following format:

1. **record indicator** AlphaNumeric(1) Always ‘O’
2. **order code** Numeric(13,0) Generated identifier for the buy order of a trade. For OTC trades this number is filled with a placeholder.
3. **user group code** AlphaNumeric(3 User group to which the user belongs (e.g., TRD).
4. **user id code** AlphaNumeric(3) ID of the user who has entered the order resulting in this trade. (e.g., 001).
5. **trade number**  Numeric(7,0) System generated trade identifier for a matched trade or an OTC trade.
6. **trade code suffix** Numeric(3,0) Indicates the version number of the trade (always ‘000’ by default).
7. **buy / sell indicator** AlphaNumeric(1) Indicates whether the following order is a buy or a sell order (Expected values: ‘B’uy, ‘S’ell).
8. **member internal order nbr**  AlphaNumeric(16) Identifier for the order assigned by the member which has entered the order.
9. **text** AlphaNumeric(12) Text field
10. **account type code** AlphaNumeric(1) The Account Type where the trade was booked on (‘A’: Agent, ‘P’: Principal, ‘M’: Betreuer).
11. **account type number** AlphaNumeric(1) The number pertaining to the Account Type (e.g., 1, 2).
12. **order quantity**  AlphaNumeric(12,3) The quantity of the order which has been executed for this trade.

Example for BUY Side: 'O9002580931298CABKLH0002874999B I1000002000000'

1. Record indiator: 'O'
2. Order code: '9002580931298'
3. User group code: 'CAB'
4. User id code: 'KLH'
5. Trade number: '0002874'
6. Trade code suffix: '999'
7. Buy/Sell Indicator: 'B'
8. Member Internal order number: ' '
9. Text: ' '
10. Account type code: 'I'
11. Account type number: '1'
12. Order quantity: '000002000000'

Example for SELL Side: 'O9002580931298CABKLH0002874999B I1000002000000'

1. Record indiator: 'O'
2. Order code: '9002580856352'
3. User group code: 'ORA'
4. User id code: 'FIX'
5. Trade number: '0002874'
6. Trade code suffix: '999'
7. Buy/Sell Indicator: 'S'
8. Member Internal order number: '2018-04-27 '
9. Text: '44513405 '
10. Account type code: 'A'
11. Account type number: '1'
12. Order quantity: '000002000000'

### FN00006133 - Termination row

The termination row has the following format:

1. **termination record indicator** AlphaNumeric(1) Always ‘Z’
2. **number of records sent** Numeric(12,0) Total number of data records included in this file excluding header and termination row.
3. **filler-1** AlphaNumeric(7) Always Spaces
4. **trade-code**  Numeric(10,0) Always '9999999999'
5. **filler-2** AlphaNumeric(1) Always 'Space'

*Examples: 'Z000000053483 9999999999 '*

1. *Termination record indicator: 'Z'*
2. *Number of record sent: '000000053483'*
3. *Filler-1:' '*
4. *Trade-code:'9999999999'*
5. *Filler-2:' '*

### FN00006199 - Cumulative format

Each trade file contains all the records already delivered in addition to the trades done in the last time window.

The last delivered file "ff" contains the trades done in the entire business day.

### FN00006197 - ISIN Filtering

A trade record is filtered out (without generating any warning) if the ISIN code is not present in the instrument reference data of the specific market.

### FN00006130 - Record uniqueness

Unique trade is recognized based on the following combination: ISIN + Trade Number + Market.

The field ‘Trade Number’ is not unique in a Business Day, duplicate trade numbers for a given market for the trade date should be expected.

Each unique trade key not previously received during the same business day is considered a new record.

If a trade key has been previously received during the same business day, the record is yet present and no operation is made (validation included).

### FN00006128 - Record validation

The following validation rules are applied to the received file during the processing phase.

1. Header, Termination, Trade, Order rows length check
2. Field format check
3. Field value domain check (e.g. currency ISO codes)
4. Validity of account codes
5. Duplicate Trade Number check

In case of validation errors in the processing phase, an error report is generated by the Consumer and made available in a local directory for further dissemination.

The report shall contain, for each row, the discarded record and the specific error code, which generated the rejection.

### FN00006206 - Trade cancellation

Cancellations of trades already processed are possible.

Each unique trade key received in a specific day which is not transmitted in the further file deliveries is considered as canceled.

The number of cancellations is stored for further reporting and dissemination.

## Contingency solution

### FN00006506 - Late delivery

The System shall be able to handle the situation in which the last trade file is not available before the EOD.

In such case the trade file is submitted the following business day.

The file submission shall respect the following rules:

1. The file shall refer to the business date that was active in the system at the moment in which the last EOD was executed.
2. The file shall be submitted before the SOD with the new business date.
3. The file format and filename shall be the original format of the EOD trade file expected for the day before (which includes all the trades done during the day).

### FN00006507 - CSV Load

The System shall be able to handle the situation in which the last trade file is not available before the EOD and the exchange cannot produce the file in the expected format.

In such case, the trade file is submitted the following business day in comma separated format.

The CSV submission shall respect the following conditions:

1. In case of submission after the EOD, the file shall refer to the business date that was active in the system at the moment in which the last EOD was executed.
2. The file shall be submitted before the SOD with the new business date.
3. The file should include all the trades done during the day.

The file format respect the following rules:

1. Semicolon separated fields
2. Single field format equal to the format of the original trade file.
3. One single row per trade
4. No header/footer row
5. ONLY A SUBSET OF FIELDS IS MANDATORY: optional fields can be provided as null (in a CSV file a null value is expressed as two consecutive semicolon separators)

The following list provide the details of the fields that are not mandatory (yes=mandatory, no=not mandatory).

1. record indicator (no)
2. exchange id (yes)
3. trade generation date (yes)
4. trade generation time (yes)
5. trade number (yes)
6. trade code suffix (yes)
7. filler (no)
8. ISIN Code (yes)
9. wkn number (no)
10. market status indicator (yes)
11. trade type (yes)
12. trade price (yes)
13. trade quantity Numeric(15,3) (yes)
14. market value (yes)
15. denomination currency code (yes)
16. settlement currency code (yes)
17. settlement currency exchange rate (yes)
18. settlement currency conversion (no)
19. settlement amount (yes)
20. settlement code (no)
21. settlement period (yes)
22. settlement date (yes)
23. instrument subtype (no)
24. issuer (no)
25. coupon (no)
26. maturity date (yes)
27. rate of interest (yes)
28. divergent interest payment (no)
29. deposit option (no)
30. accrued interest (yes)
31. accrued interest days (yes)
32. member kv number buy (yes)
33. settlement account buy (yes)
34. member kv number sell (yes)
35. settlement account sell (yes)
36. Buy Record indicator (no)
37. Buy Order code (yes)
38. Buy User group code (no)
39. Buy User id code (no)
40. Buy Trade number (no)
41. Buy Trade code suffix (no)
42. Buy Buy/Sell Indicator (yes)
43. Buy Member Internal order number (yes)
44. Buy Text (yes)
45. Buy Account type code (no)
46. Buy Account type number (no)
47. Buy Order quantity (no)
48. Sell Record indicator (no)
49. Sell Order code (yes)
50. Sell User group code (no)
51. Sell User id code (no)
52. Sell Trade number (no)
53. Sell Trade code suffix (no)
54. Sell Buy/Sell Indicator (yes)
55. Sell Member Internal order number (yes)
56. Sell Text (yes)
57. Sell Account type code (no)
58. Sell Account type number (no)
59. Sell Order quantity (no)

### FN00006134 - Direct transfer

To ensure in time data provision for the Clearing System also in contingency situations, a backup transfer mechanism is implemented, where the files are transferred in parallel directly to the consumer using an SFTP connection.

### FN00006135 - Transfer from workstations

Network rules are in place to enable a direct SFTP connection between the CCPA Ops subnet and the Consumer node (allowing the usage of FTP clients like FileZilla on the ops terminals).