



**Daily Prices**

**bulk file**

**File format specifications**

|  |  |
| --- | --- |
| Author | FIT |
| Version | 0.4.1 |
| Date | 07/01/2020 |
| Status | draft |
| Classification |  |
| Accessible |  |
| Classified until |  |

History of releases

|  |  |  |  |
| --- | --- | --- | --- |
| Release | Date | Issues | Status[[1]](#footnote-1) |
| 0.1.0 | 10/04/2019 | First draft based on requirements from CR654. | draft |
| 0.2.0 | 07/06/2019 | Review following internal 4CB comments | draft |
| 0.3.0 | 30/09/2019 | Delivery as part of CR654 Scope-defining documents update | draft |
| 0.4.0 | 29/11/2019 | Update with CRG comments and additional character to specify create/update operation | draft |
| 0.4.1 | 07/01/2020 | Typo correction | draft |

Applicable documents

|  |  |  |
| --- | --- | --- |
| Reference | | Object |
| 1 | None |  |
|  |  |  |

Reference documents

|  |  |  |
| --- | --- | --- |
| Reference | | Object |
| 1 | CR654 | CR654: T2S Penalty Mechanism |

|  |  |
| --- | --- |
| Owner domain | SDMG |
| Owner module | Securities |

# Table of Contents

[Table of Contents 3](#_Toc5816173)

[Introduction 4](#_Toc5816174)

[Context 4](#_Toc5816175)

[Purpose 4](#_Toc5816176)

[Files technical Specification 4](#_Toc5816177)

[Identification and routing 4](#_Toc5816178)

[XML schema 5](#_Toc5816179)

[XML example: 5](#_Toc5816180)

[Encoding 5](#_Toc5816181)

[Default Values 5](#_Toc5816182)

[Character Set 5](#_Toc5816183)

[Format of Structured Files 6](#_Toc5816184)

[Format types 6](#_Toc5816185)

[Format of records 6](#_Toc5816186)

[Format of “Enriched Files” from T2S to CSDs 7](#_Toc5816187)

[Status and error supplementary fields 7](#_Toc5816188)

# Introduction

## Context

The Daily Prices data (from here on DP) is communicated by CSDs to T2S on a daily basis, in time for the daily computation of new penalties for the previous business date. In addition, data can be provided for previous business dates if missing.

CSDs provide DPs via “flat files” for creation and update operations, while U2A screens are used for the creation, update and deletion of specific individual instances.

## Purpose

The document provides a description of the structure of the “flat file” used by CSDs to send DPs to T2S. The same structure applies to the file  (so called “enriched” file) sent back from T2S to the original sender and containing status and error information.

# Files technical Specification

The file has a simple XML format (in order to allow the network signature). All the records are included into a single “store and forward” message conveyed by the VAN provider. No business signature of the message is needed.

Within the message, the whole file is embedded in a single XML tag (<File> </File>).

Between these tags the file has fixed-length records, with no header and footer. Each record has a length of 199 characters/bytes, with the last character being a record separator (LF).

## Identification and routing

The messages transporting DP files are identified by a specific RequestType[[2]](#footnote-2) set by each VAN provider.

Only authorized CSDs[[3]](#footnote-3) included in a “white list” are allowed to send the DP files.

They must be known in advance by the T2S system and, moreover, T2S must know in advance the technical addresses, expressed in form of standard “Distinguished Names”, used when sending the messages by each authorized party.

Therefore the T2S system must have a pre-loaded configuration table, a “White list”, structured as follows:

|  |  |  |
| --- | --- | --- |
| **Parent BIC** | **BIC** | **Sending DN** |
| BIC1 | BIC2 | DN1 |
| BIC1 | BIC3 | DN2 |
| BIC1 | BIC4 | DN3 |
| … | … | … |

BIC2, BIC3 and BIC4 are the BICs identifying[[4]](#footnote-4) the CSD in T2S and DN1, DN2 and DN3 are the technical senders that are authorised to send DP files for the three CSDs.

This configuration table must include all the parties authorized to send DP files and, for each party, the DN of the authorised technical sender.

The DP file is rejected by T2S when it refers (in field 1 and 2 of the file, see below) to data provided by a party not present in the configuration table. It is also rejected if the XML message hasn’t been sent using a DN linked, in the same table, to the party providing the data.

In addition, CSDs are only allowed to send DPs for Securities for which they have an active and open Security CSD Link with Maintenance Flag = TRUE.

Finally, all standard business validations defined in the « Create Daily Prices » and « Update Daily Prices » IDFS are applied to the individual DP creation/update operations.

For each row included in the file, T2S performs a Create or Update operation depending on the value specified in the row.

In case the file format is not aligned to the file specification or its processing is not possible because of an internal T2S technical error, the whole file is rejected and a response message is sent back to the sender.

### XML schema

The following is the XML schema used to embed the file into a “store and forward” message:

<?xml version="1.0" ?>

<xs:schema xmlns="urn:T2S:DailyPriceBulkFile" xmlns:xs="http://www.w3.org/2001/XMLSchema"

targetNamespace="urn:T2S:DailyPriceBulkFile"

elementFormDefault="qualified">

<xs:simpleType name=”RestrictedFileType”>

<xs:restriction base=”xs:string”>

<xs:pattern value=”(.{199,199}\n)+”/>

<xs:restriction>

</xs:simpleType>

<xs:element name="File" type="File"/>

<xs:complexType name="File">

<xs:simpleContent>

<xs:extension base="RestrictedFileType">

<xs:attribute name=”fileId” type=”xs:string” default=”” />

</xs:extension>

</xs:simpleContent>

</xs:complexType>

</xs:schema>

### Example of XML request:

<?xml version="1.0" encoding="UTF-8"?>

<File fileId=”T2SDPFile20200630” xmlns=”urn:T2S:DailyPriceBulkFile">

**Record1**

**Record2**

**…**

**Recordn**

</File>

### XML schema for the response

<?xml version="1.0" ?>

<xs:schema xmlns="urn:T2S:DailyPriceBulkFileResponse" xmlns:xs="http://www.w3.org/2001/XMLSchema"

targetNamespace="urn:T2S:DailyPriceBulkFileResponse"

elementFormDefault="qualified">

<xs:simpleType name="RestrictedFileType">

<xs:restriction base="xs:string">

<xs:pattern value="(.{199,199}\n)\*"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="File" type="File"/>

<xs:complexType name="File">

<xs:simpleContent>

<xs:extension base="RestrictedFileType">

<xs:attribute name="fileId" type="xs:string" default="" />

</xs:extension>

</xs:simpleContent>

</xs:complexType>

</xs:schema>

When the XML is sent back from T2S to the CSD (“enriched” file) and no records have been rejected, the embedded file is empty:

### Example of empty XML response

<?xml version="1.0" encoding=”UTF-8”?>

<File fileId=”T2SDPFile20200630” xmlns=”urn:T2S:DailyPriceBulkFileResponse"></File>

If the flat file cannot be processed due to an invalid format or due to internal T2S technical reasons, the response message will have the following formats depending on the underlying reason:

### Example of rejection for invalid file format reason XML response

<?xml version="1.0" encoding=”UTF-8”?>

<File fileId=”T2SDPFile20200630” xmlns=”urn:T2S:DailyPriceBulkFileResponse"> 0001-01-01 0000000000000000000000000000000000000000000000000000000000000000000000FERRFile not processed because of invalid file format

</File>

### Example of rejection for internal T2S technical reason XML response

<?xml version="1.0" encoding=”UTF-8”?>

<File fileId=”T2SDPFile20200630” xmlns=”urn:T2S:DailyPriceBulkFileResponse"> 0001-01-01 0000000000000000000000000000000000000000000000000000000000000000000000TERRFile not processed because of T2S technical error

</File>

### Encoding

The encoding of the flat file is UTF-8 with no Byte Order Mark (BOM).

### Default Values

Default values are not used because there are no optional fields outside of the fileId reference..

### Character Set

All characters belong to the **SWIFT X Character Set**. The character set is as follows:

a b c d e f g h i j k l m n o p q r s t u v w x y z

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9

/ - ? : ( ) . , ' + { }

CR LF Space

# Format of Structured Files

## Format types

The values appear in the format as in the table below:

|  |  |
| --- | --- |
| **Format type** |  |
| DATE | The format is « dd-mm-yyyy » with no timezone indication. Example: “30-06-2020” |
| CHAR(n) | String with exactly n characters. |
| NUMERIC(p) | Number with maximum p integer places and no decimal places. |

## Format of records

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Flat file column** | **Column Name** | **Format** | **Description** | **Rules** |
|  |  |  |  |  |
| First row | | | | |
| 1 | Tag of start of file | CHAR(60) | “ “ or  “<File>” | The optional attribute FileId is a file reference that can be assigned by the sender. It is optional and it can be used to link the file returned by T2S and the file originally sent to T2S.  The length of value assigned to fileId is from 0 to 54 characters. |
| Rows from #2 on | | | | |
| 1 | Maintenance Type | CHAR(1) | Type of operation to be performed | Possible values:  ‘C’ for Create  ‘U’ for Update |
| 2 | Parent BIC | CHAR(11) | Parent BIC of the CSD providing the data | The BIC and Parent BIC must identify a Party defined as Security Maintaining Entity (SME) for the relevant ISIN (see above) |
| 3 | BIC | CHAR(11) | BIC of the CSD providing the data | The BIC and Parent BIC must identify a Party defined as Security Maintaining Entity (SME) for the relevant ISIN (see above) |
| 4 | ISIN | CHAR(12) | ISIN code of the securities | If this field, in combination with the Price Date, identifies an existing instance, T2S performs an Update operation.  If not, it performs a Create operation. |
| 5 | Currency Code | CHAR(3) | Price currency |  |
| 6 | Price Date | DATE (yyyy-mm-dd) | Validity date for the price | If this field, in combination with the ISIN, identifies an existing instance, T2S performs an Update operation.  If not, it performs a Create operation. |
| 7 | Price as coefficient | NUMERIC(31) | Price as coefficient without any decimal point/comma | Example:  If the price is 123,45 the following value must be provided:  000…00012345 (number of leading zeroes is 26) |
| 8 | Number of decimal digits for price as coefficient | NUMERIC(4) | Number of decimal digits for the price as coefficient (i.e. without currency) | Example:  If the price is 123,45 the following value must be provided:  0002 |
| 9 | Price as amount | NUMERIC(31) | Price as amount (i.e. with currency) without any decimal point/comma | Example as above |
| 10 | Number of decimal digits for price as amount | NUMERIC(4) | Number of decimal digits for the price as coefficient (i.e. with currency) | Example as above |
| 11 | Status | CHAR(4) | Status of the row | It must be blank in the input file  This information is updated by T2S in the file provided back to the sending CSD |
| 12 | Error description | CHAR(75) | Description of the error (if any) detected when the row was processed by SDMG | It must be blank in the input file  This information is updated by T2S in the file provided back to the sending CSD |
| 13 | Record separator | CHAR(1) | Fixed value: LF | LF = Line Feed (x’0A’) |
| Last row | | | | |
| 1 | Tag of end of file | CHAR(7) | “</File>” |  |

## Format of “Enriched Files” from T2S to CSDs

The format of the enriched files is based on the format of the flat files that have been submitted to T2S. The submitted data remains unchanged but is supplemented with “Status” and “Error description”.

### Status and error supplementary fields

These data are located right to the record data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Flat file column** | **Field** | **Possible values** | **Description** | **Rules** |
| 11 | Status |  | **Status of the processing for the row.** | n/a |
|  |  | REJT | Rejected | n/a |
|  |  | COMP | Completed | n/a |
| 12 | Error Description |  | **Description of the error.** | Occurs when Status is ‘REJT’. |
|  |  | Requestor not allowed | CSDs can only create Daily Prices for Securities for which they are defined as Securities-Maintaining Entity (SME). |  |
|  |  | Invalid Security | When performing a Daily Price creation request, the Security Identifier must refer to an existing and active Security. |  |
|  |  | Invalid Currency Code | When performing a Daily Price creation request, the Currency Code must must refer to an existing and active Currency in T2S. |  |
|  |  | Instance already exists | When performing a Daily Price creation request, there can be no more than one active instance for the same Security and Price Date. |  |
|  |  | Invalid number of decimals | When performing a Daily Price creation request, the number of decimals provided for the Price must be compliant with the specified Currency. |  |
|  |  | Requestor not allowed | Daily Prices can only be updated by T2S Operator and CSD.  CSDs can only update Daily Prices for Securities for which they are defined as Securities-Maintaining Entity (SME). |  |
|  |  | Invalid instance to be updated | When performing a Daily Price update request, it must refer to an existing and active instance. |  |
|  |  | Invalid Currency Code | When performing a Daily Price update request, the Currency Code must must refer to an existing and active Currency in T2S. |  |
|  |  | Instance already exists | When performing a Daily Price update request, there can be no more than one active instance for the same Security and Price Date. |  |
|  |  | Invalid number of decimals | When performing a Daily Price creation request, the number of decimals provided for the Price must be compliant with the specified Currency. |  |

The following errors refer to situations where the file is rejected due to format errors or internal technical errors.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Flat file column** | **Field** | **Possible values** | **Description** | **Rules** |
| 11 | Status |  | **Status of the processing for the file.** | n/a |
|  |  | FERR | File format error | n/a |
| 12 | Error Description | File not processed because of invalid file format | When sending the bulk file, it must be according to the file format. | n/a |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Flat file column** | **Field** | **Possible values** | **Description** | **Rules** |
| 11 | Status |  | **Status of the processing for the file.** | n/a |
|  |  | TERR | Internal technical error | n/a |
| 12 | Error Description | File not processed because of T2S technical error | When an internal technical error prevents the processing of the bulk file, a message is sent back to the sender | n/a |

**End of Document**

1. Status value : Draft, Open, Final, Dismiss [↑](#footnote-ref-1)
2. This value is assigned to specify the type of message exchanged in the network. For DP files a a new value must be used, to be agreed with VAN providers, dedicated to this message. [↑](#footnote-ref-2)
3. CSDs can only create Daily Prices for Securities they are defined as Securities-Maintaining Entity (SME) for. An attempt to create an instance the requestor CSD is not defined as SME for will result in the « Requestor not allowed » error listed in section « Status and error supplementary fields ». [↑](#footnote-ref-3)
4. As the sending parties are only CSDs, BIC1 is always the BIC of T2S Operator. [↑](#footnote-ref-4)