SmartVista Exchange Protocol: BOFM. (Back Office with Fraud Monitoring)

Version 1.0 (october 2016)

Contents

[1 INTRODUCTION 3](#_Toc464828638)

[1.1 Revision history 3](#_Toc464828639)

[1.2 Purpose of this Document 3](#_Toc464828640)

[1.3 References 3](#_Toc464828641)

[2 OVERVIEW 5](#_Toc464828642)

[2.1 File types 5](#_Toc464828643)

[2.2 XML Data types 6](#_Toc464828644)

[3 CARDS FILE STRUCTURE 7](#_Toc464828645)

[3.1 Overview 7](#_Toc464828646)

[3.2 File naming convention 7](#_Toc464828647)

[3.3 List of tags 7](#_Toc464828648)

[3.3.1 Card instance statuses 15](#_Toc464828649)

[3.3.2 ID types 16](#_Toc464828650)

[3.3.3 Limit types 17](#_Toc464828651)

[4 ACQUIRING FILE STRUCTURE 20](#_Toc464828652)

[4.1 Overview 20](#_Toc464828653)

[4.2 File naming convention 20](#_Toc464828654)

[4.3 List of tags 20](#_Toc464828655)

[5 CLEARING FILE STRUCTURE 27](#_Toc464828656)

[5.1 Overview 27](#_Toc464828657)

[5.2 File naming convention 27](#_Toc464828658)

[5.3 List of tags 27](#_Toc464828659)

[6 CURRENCY RATES FILE STRUCTURE 50](#_Toc464828660)

[6.1 Overview 50](#_Toc464828661)

[6.2 File naming convention 50](#_Toc464828662)

[6.3 List of tags 50](#_Toc464828663)

[7 TRANSACTION CONTROL V.1 FILE STRUCTURE 52](#_Toc464828664)

[7.1 Overview 52](#_Toc464828665)

[7.2 File naming convention 52](#_Toc464828666)

[7.3 File structure 52](#_Toc464828667)

[8 TRANSACTION CONTROL V.2 FILE STRUCTURE 54](#_Toc464828668)

[8.1 Overview 54](#_Toc464828669)

[8.2 File naming convention 54](#_Toc464828670)

[8.3 List of tags 54](#_Toc464828671)

1. INTRODUCTION
   1. Revision history

| Version | Date | Author | Details |
| --- | --- | --- | --- |
| 0.9 | 01.08.2016 | A. Zabrodin | Initial version has been created from a SmartGuard documentation template |
| 0.9 | 03.08.2016 | A. Zabrodin | First completed draft version. Describes the current state-of-the-art. |
| 1.0 | 21.10.2016 | A. Zabrodin | Next version describes changes in the scope of the 2.9 release:   * Transaction control v.2 added   Amendments to card info structure (added description for already existent cardholder contacts and flexible\_data).  Little amendments to acquiring structure (added description for already existent ff fields). |

* 1. Purpose of this Document

This document describes the structure and content of the exchange interface between SmartVista Back Office (SVBO) and SmartVista Fraud Monitoring (SVFM). The interface is thus referred to as BOFM.

The document is intended for developers and analysts. It is assumed that readers of the document are familiar with the XML data format.

* 1. References

| # | Reference name | Document title and location |
| --- | --- | --- |
| 1. | XML Schema Datatypes [1] | XML Schema Part 2: Datatypes Second Edition  <http://www.w3.org/TR/xmlschema-2/> |
| 2. | SVFM Host2Host Spec. [2] | SmartVista Fraud Management Host2Host Interface Specification  SVFM\_Interfaces\_Host2Host\_v14.docx |
| 3. | SVXP Interfaces reference [3] | SMARTVISTA EXCHANGE PROTOCOL (SVXP). API developer reference  [http://gitlab.bt.bpc.in/BackOffice/spec/blob/](http://gitlab.bt.bpc.in/BackOffice/spec/blob/master/ExchangeProtocol/svxp_interfaces_eng.docx)  master/ExchangeProtocol/svxp\_interfaces\_eng.docx |
| 4. | SVAP Acquiring specification [4] | Acquiring applications. Structure of file and web-service  [http://gitlab.bt.bpc.in/BackOffice/spec/blob/](http://gitlab.bt.bpc.in/BackOffice/spec/blob/master/AcquiringApplications/svap_acquiring_eng.docx)  master/AcquiringApplications/svap\_acquiring\_eng.docx |

1. OVERVIEW
   1. File types

The SmartVista BOFM interface uses several types of file:

|  |  |  |  |
| --- | --- | --- | --- |
| File type | File format | Direction | Purpose |
| Cards | XML | SVBO -> SVFM | Issuing objects: cards, cardholders, contacts, issuer limits etc. |
| Acquiring | XML | SVBO -> SVFM | Acquiring objects: merchants, terminals, contacts, acquirer limits etc. |
| Clearing | XML | SVBO -> SVFM | Offline transactions registered by SVBO |
| Currency rates | XML | SVBO -> SVFM | Currency exchange rates |
| Transaction control v.1 | BER-TLV | SVFM -> SVBO | Transaction processing control file version 1. It enables SVFM to control transaction processing in SVBO1 as a result of decisions taken on the SVFM side.  Note: this file is used in the interface with SVBO v.1. |
| Transaction control v.2 | XML | SVFM -> SVBO | Transaction processing control file version 2. It enables SVFM to control transaction processing in SVBO2 as a result of decisions taken on the SVFM side.  Commands in this file are used to react to near-online and offline rules of fraud monitoring.  Note: this file is used in the interface with SVBO v.2. |

The XML Data Types chapter below refers to all XML file types above.

* 1. XML Data types

The standard XML data types are used in BOFM. They are fully described in XML Schema Datatypes [1].

In this document all BOFM tags are described according to the following example table structure.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Tag name* | *Data type* | *Length* | *Occurs* | *Description* |
| *AccountsRequest* | | | | *Request for accounts* |
| *customer\_number* | *string* | *200* | *0-1* | *Customer number* |
| *inst\_id* | *long* | *4* | *1-1* | *Institution identifier* |
| *card\_number* | *string* | *24* | *0-1* | *Card number* |
| *status* | *string* | *8* | *0-1* | *Account status. Please refer to ACST dictionary* |

**Data Type:** BOFM tags can have Primitive XML Data Types (string, long, boolean, etc.) or Complex Data Types (aggregates). If the type is complex it is surrounded in parentheses and its description follows in the same table.

**Occurrence**: This field defines if the field is mandatory or optional (first number) as well as maximum number occurrences of this tag in the message (second number)

e.g. *“1-1”* means *minOccurs="1" maxOccurs="1"*

The ‘\*’ maximum occurrence number means “unlimited”.

1. CARDS FILE STRUCTURE
   1. Overview

This file is used to export from SVBO to SVFM information about cards and entities relating to cards: customers, cardholders (with person and identity card) and accounts.

* 1. File naming convention

File is named according to the following format:

*CARD\_<id>\_<inst\_id>\_<additional\_number>.xml*

* *id* – can be a timestamp or other ID of a file
* *inst\_id* – the institution of cards contained in the file
* *additional\_number* – an additional number
  1. List of tags

As of the current version, the same structure is described in the common SVXP Interfaces reference [3], chapter **Cards information interface**. The following table is provided for convenience reasons.

| *Tag name* | *Data type* | *Size* | *Occurs* | | *Description* |
| --- | --- | --- | --- | --- | --- |
| cards\_info | | | | | The root tag of the cards file. Contains a set of “card\_info” records. |
| file\_type | string | 8 | 1-1 | | File type code. Must be the constant value “FLTPCINF” |
| inst\_id | int | 8 | 1-1 | | The institution of cards contained in this file. |
| tokenized\_pan | int | 1 | 0-1 | | Tokenized PAN downloading:  1 - PANs are tokenized 0 - PANs are clean |
| card\_info | “card\_info” |  | 1-\* | | Encapsulates all information about a single card instance. |
| card\_info | | | | | Card instance data |
| card\_number | string | 24 | 1-1 | | Card number (PAN) |
| card\_mask | string | 24 | 0-1 | | Masked card number |
| card\_id | string | 200 | 0-1 | | Internal card instance identifier(UID) |
| card\_iss\_date | date | 12 | 0-1 | | Card instance issued date |
| card\_start\_date | date |  | 0-1 | | Card validity start date |
| expiration\_date | date | 12 | 0-1 | | Expiration date of the card instance |
| instance\_id | int | 12 | 0-1 | | Card instance identifier |
| preceding\_instance\_id | int | 12 | 0-1 | | Preceding card instance identifier |
| sequential\_number | int | 1 | 0-1 | | Sequential number of the card instance |
| card\_status | string | 8 | 0-1 | | Card instance status code. “CSTS” dictionary value. Possible values are listed in **3.3.1 Card instance statuses**. |
| card\_state | string | 8 | 0-1 | | State of a card. Value from dictionary CSTE |
| category | string | 8 | 0-1 | | Category of card. Value from dictionary CRCG. |
| sec\_word | “sec\_word” |  | 0-1 | | Secret word |
| pvv | int | 4 | 0-1 | | PIN verification value |
| pin\_offset | int | 4 | 0-1 | | PIN offset value |
| pin\_update\_flag | boolean | 1 | 0-1 | | PIN update flag |
| card\_type\_id | int | 4 | 0-1 | | Card type identifier |
| prev\_card\_number | string | 24 | 0-1 | | Old (previous) card number (PAN) |
| agent\_number | string | 200 | 0-1 | | Agent external number |
| product\_number | string | 200 | 0-1 | | Product external number |
| agent\_name | string | 200 | 0-1 | | Name of the agent that issued the card instance |
| product\_name | string | 200 | 0-1 | | Name of the product in which the card instance was issued. |
| customer | “customer” |  | 0-1 | | Encapsulates all information about card’s customer |
| cardholder | “cardholder” |  | 0-\* | | Encapsulates all information about the cardholder of the card |
| account | “account” |  | 0-\* | | Encapsulates all information about the account that the card is connected to. |
| preceding\_instance | “preceding\_instance” |  | 0-\* | | Preceding instance |
| limits | “limit” |  | 0-1 | | Encapsulates all the information about this card’s limits |
| notification | “notification” |  | 0-\* | | Notifications |
| personalization\_info | “personalization\_info” |  | 0-1 | | Data for personalization system |
| company\_name | string | 200 | 0-1 | | Company name for corporate cards |
| service\_code | string | 3 | 0-1 | | Service code according to ISO/IEC 7813. |
| service | “service” |  | 0-\* | | Services of card |
| flexible\_data | “flexible\_data” |  | 0-\* | | Flexible data |
| sec\_word | | | | |  |
| secret\_question | string | 8 | 1-1 | | Secret question. Value from dictionary SEQU. |
| secret\_answer | string | 200 | 1-1 | | Secret answer. |
| customer | | | | |  |
| customer\_number | string | 200 | 0-1 | | Unique customer number |
| customer\_category | string | 8 | 0-1 | | Customer category. Dictionary value. |
| customer\_relation | string | 8 | 0-1 | | Relation between institute and customer. Dictionary value. |
| resident | int | 1 | 0-1 | | 1 – customer is resident of institution country 0 – not resident |
| nationality | int | 3 | 0-1 | | Country code of nationality of customer |
| credit\_rating | string | 8 | 0-1 | | Credit rating. Dictionary value. |
| money\_laundry\_risk | string | 8 | 0-1 | | Money laundry risk. Dictionary value. |
| money\_laundry\_reason | string | 8 | 0-1 | | Reason of money laundry risk. Dictionary value. |
| flexible\_data | “flexible\_data” |  | 0-\* | | Flexible data |
| cardholder | | | | | Encapsulates all information about the cardholder of the card |
| cardholder\_number | string | 200 | 0-1 | | Unique number of cardholder. |
| cardholder\_name | string | 200 | 0-1 | | Cardholder embossed name. |
| person | “person” |  |  | | Contains information about the person of the cardholder |
| address | “address” |  | 0-\* | | Cardholder addresses |
| contact | “contact” |  | 0-\* | | Cardholder contacts |
| person | | | | | Information about the cardholder’s person |
| person\_title | string | 8 | 0-1 | | Person title. Dictionary value. |
| person\_name | “person\_name” |  | 1-1 | | Encapsulates information about name of person. The tag must have attribute “language” with values such as “LANGRUS” or “LANGENG”. |
| suffix | string | 8 | 0-1 | | Suffix of person. Dictionary value. |
| birthday | date |  | 0-1 | | Person’s birth date |
| place\_of\_birth | string | 200 | 0-1 | | Place of birth |
| gender | string | 8 | 0-1 | | Person’s gender:  “GNDRFEML” – Female  “GNDRMALE” – Male |
| identity\_card | “identity\_card” |  | 0-\* | | Contains information about identifying documents of the person |
| person\_name | | | | | Person’s first, middle, and last names. |
| surname | string | 200 | 1-1 | | Surname |
| first\_name | string | 200 | 1-1 | | First name |
| second\_name | string | 200 | 0-1 | | Second name |
| identity\_card | | | | | Contains information about identifying documents of a person |
| id\_type | string | 8 | 1-1 | | Type of identity card. “IDTP” dictionary value. Possible values are listed in **3.3.2 ID types**. Usually the value “IDTP0045” (National ID) is used. |
| id\_series | string | 200 | 0-1 | | Series of identity card. |
| id\_number | string | 200 | 1-1 | | Number of identity card. |
| id\_issuer | string | 200 | 0-1 | | Identity card’s issuer name |
| id\_issue\_date | date |  | 0-1 | | Date of issuing |
| id\_expire\_date | date |  | 0-1 | | Date of expiring |
| id\_desc | string | 2000 | 0-1 | | Description |
| contact | | | | | The element contains all the customer contact details. There may be several communication methods for a customer. Also a customer can have several contacts. The contact type defines its purpose. |
| contact\_type | string | 8 | 0-1 | | Contact type. Possible values:  “CNTTPRMC” – Primary contact  “CNTTSCNC” – Secondary contact |
| contact\_data | “contact\_data” |  | 0-\* | | The informational part of the contact |
| contact\_data | | | | | The informational part of a contact |
| commun\_method | string | 8 | 1-1 | | Communication method. Possible values:  “CMNM0001” – Mobile phone  “CMNM0002” – E-mail |
| commun\_address | string | 200 | 1-1 | | Communication address in accordance with the specified communication method. |
| address | | | | | The element contains customer address data. There may be several addresses of different purposes for a customer. The address type defines its purpose. |
| address\_type | string | 8 | 1-1 | Address type. Possible values:  “ADTPBSNA” - Business address.  “ADTPHOME” – Home address.  “ADTPLGLA” – Legal address. | | |
| country | string | 3 | 1-1 | Country (3 digit ISO code). | | |
| address\_name | “address\_name” |  | 1-2 | Address text data which could be provided as multilingual. Should contain an attribute “language” to display language in which the data is. | | |
| house | string | 200 | 1-1 | House number | | |
| apartment | string | 200 | 0-1 | Office or apartment number | | |
| postal\_code | string | 5-10 | 0-1 | Postal code | | |
| place\_code | string | 200 | 0-1 | Place code | | |
| region\_code | string | 8 | 0-1 | Region code | | |
| latitude | float | 10 | 0-1 | Location coordinates – latitude (N) | | |
| longitude | float | 10 | 0-1 | Location coordinates – longitude (W) | | |
| address\_name | | | | |  | |
| region | string | 200 | 0-1 | Region name | | |
| city | string | 200 | 1-1 | | City | |
| street | string | 200 | 1-1 | | Street address (including building, street, etc.) | |
| personalization\_info | | | | |  |
| pin\_request | string | 64 | 1-1 | | Request to generate PIN. Value from PNRQ dictionary. | |
| pin\_mailer\_request | string | 64 | 1-1 | | Request to print PIN mailer. Value from PMRQ dictionary. | |
| embossing\_request | string | 64 | 1-1 | | Request to personalize a payment token. Value from EMRQ dictionary. | |
| perso\_priority | string | 64 | 0-1 | | Personalization priority. Value from PRSP dictionary. | |
| perso\_batch\_id | int | 8 | 0-1 | | Batch identifier. | |
| notification | | | | |  |
| service\_id | long | 16 | 1-1 | | Service identifier. | |
| notification\_event | string | 8 | 1-1 | | A notification event the settings passed relate to. If not set then settings will used for all events. | |
| delivery\_channel | int | 4 | 1-1 | | A method of notification delivery. Values are taken from dictionary. | |
| delivery\_address | string | 200 | 1-1 | | An address of notification delivery according to a method. | |
| is\_active | int | 1 | 1-1 | | Indicates whether a notification is active or not. | |
| service | | | | |  |
| service\_type | string | 8 | 1-1 | | Service type | |
| service\_type\_name | string | 200 | 1-1 | | Service name | |
| service\_external\_code | string | 200 | 0-1 | | Service external code | |
| service\_number | string | 200 | 0-1 | | Service number | |
| is\_active | int | 1 | 1-1 | | Sign of service activity | |
| service\_attribute | “service\_attribute” |  | 0-\* | | Attribute of service | |
| service\_attribute | | | | |  |
| service\_attribute\_name | string | 200 | 1-1 | | Service attribute name (only for type DTTPCHAR) | |
| service\_attribute\_value | string | 200 | 0-1 | | Service attribute value | |
| account | | | | | Encapsulates the information about the account that a card is connected to. |
| account\_number | string | 32 | 0-1 | | Account number |
| currency | int | 3 | 0-1 | | Currency code of account |
| account\_type | string | 8 | 0-1 | | Type of account |
| account\_status | string | 8 | 0-1 | | Current status of account |
| is\_pos\_default | int | 1 | 0-1 | | Default account for POS |
| is\_atm\_default | int | 1 | 0-1 | | Default account for ATM |
| **preceding\_instance** | | | | |  |
| card\_number | string | 24 | 0-1 | | Card number (PAN) |
| card\_mask | string | 24 | 0-1 | | Masked card number |
| card\_id | int | 12 | 0-1 | | Internal card identifier |
| expiration\_date | date |  | 0-1 | | Expiration date of card instance |
| instance\_id | int | 12 | 1-1 | | Card instance identifier |
| preceding\_instance\_id | int | 12 | 0-1 | | Preceding card instance identifier |
| reissue\_reason | string | 8 | 0-1 | | Reason for reissue card. Dictionary value. |
| **limits** | | | | |  |
| limit | “limit” |  | 0-\* | | Account limit |
| **limit** | | | | | Encapsulates information about a card limit |
| limit\_type | string | 8 | 0-1 | | Type of limit. “LMTP” dictionary value. Possible values are listed in **3.3.3 Limit types**. |
| sum\_limit | int | 22 | 0-1 | | Value of sum limit |
| count\_limit | int | 16 | 0-1 | | Value of count limit |
| sum\_current | int | 22 | 0-1 | | Current value of sum |
| currency | int | 3 | 0-1 | | Currency code for sum value |
| next\_date | date |  | 0-1 | | Next cycle date |
| length\_type | string | 8 | 0-1 | | Date calculation unit (Year, Month, Week, Day) |
| cycle\_length | int | 4 | 0-1 | | Cycle length in defined units |
| **flexible\_data** | | | | | Flexible fields are user-defined fields with different names. Field names can be registered in the SVBO web interface. |
| field\_name | string | 200 | 1-1 | | Name of flexible field |
| field\_value | string | 200 | 1-1 | | Value of flexible field |

* + 1. Card instance statuses

Card instance statuses define whether an instance can be used in operations as well as some limitations to the operations.

Card instance statuses can be as follows:

| Code | Description |
| --- | --- |
| CSTS0000 | Valid card |
| CSTS0001 | Call issuer |
| CSTS0002 | Warm card |
| CSTS0003 | Do not honor |
| CSTS0004 | Honor with ID |
| CSTS0005 | Not permitted |
| CSTS0006 | Lost card, capture |
| CSTS0007 | Stolen card, capture |
| CSTS0008 | Call security, capture |
| CSTS0009 | Invalid card, capture |
| CSTS0010 | Pick up card, special condition |
| CSTS0011 | Call acquirer security |
| CSTS0012 | Card is not activated |
| CSTS0013 | PIN attempts exceeded |
| CSTS0014 | Forced PIN change |
| CSTS0015 | Credit debts |
| CSTS0017 | PIN activation |
| CSTS0018 | Personification waiting |
| CSTS0019 | Fraud prevention |
| CSTS0020 | Temporary blocked by client |
| CSTS0021 | Permanent blocked by client |

* + 1. ID types

ID types are used in “identity\_card” elements. Its possible values are the following. Most often, the “IDTP0045 Nasional ID” value is used.

| Code | Description |
| --- | --- |
| IDTP0001 | Passport |
| IDTP0002 | Foreign passport |
| IDTP0003 | Military certificate |
| IDTP0004 | Sailor certificate |
| IDTP0005 | Army officer certificate |
| IDTP0006 | Citizen temporary certificate |
| IDTP0010 | Taxpayer ID |
| IDTP0011 | Main state registration number |
| IDTP0012 | Bank Identification Code |
| IDTP0013 | Foreign Organization Code |
| IDTP0014 | License |
| IDTP0015 | KPP |
| IDTP0016 | OKPO |
| IDTP0020 | Driver license |
| IDTP0030 | Social insurance |
| IDTP0040 | Passport (Foreign citizen) |
| IDTP0041 | Migratory card (Foreign citizen) |
| IDTP0042 | Permanent resident card (Foreign citizen) |
| IDTP0043 | Temporary residence permit (Foreign citizen) |
| IDTP0044 | Visa (Foreign citizen) |
| IDTP0045 | National ID |

* + 1. Limit types

These values are used in “limit\_type” elements. Its possible values are as follows.

| Code | Description |
| --- | --- |
| LMTP0100 | Cash withdrawal limit |
| LMTP0101 | Wrong PIN entry counter/limit |
| LMTP0102 | Card usage limit |
| LMTP0103 | Card usage periodic limit |
| LMTP0104 | Total expense limit on contract |
| LMTP0105 | Total available balance limit |
| LMTP0106 | Card spend month limit |
| LMTP0107 | Card cash withdrawal day limit |
| LMTP0108 | Card cash withdrawal month limit |
| LMTP0109 | Card purchase day limit |
| LMTP0110 | Card purchase month limit |
| LMTP0111 | Card MOTO/E-commerce operation day limit |
| LMTP0112 | Card MOTO/E-commerce operation month limit |
| LMTP0113 | Card spend on-us day limit |
| LMTP0114 | Card spend on-us month limit |
| LMTP0115 | Card cash withdrawal on-us day limit |
| LMTP0116 | Card cash withdrawal on-us month limit |
| LMTP0117 | Card purchase on-us day limit |
| LMTP0118 | Card purchase on-us month limit |
| LMTP0119 | Card MOTO/E-commerce operation on-us day limit |
| LMTP0120 | Card MOTO/E-commerce operation on-us month limit |
| LMTP0121 | Card spend on-them day limit |
| LMTP0122 | Card spend on-them month limit |
| LMTP0123 | Card cash withdrawal on-them day limit |
| LMTP0124 | Card cash withdrawal on-them month limit |
| LMTP0125 | Card purchase on-them day limit |
| LMTP0126 | Card purchase on-them month limit |
| LMTP0127 | Card MOTO/E-commerce operation on-them day limit |
| LMTP0128 | Card MOTO/E-commerce operation on-them month limit |
| LMTP0129 | Card spend day limit |
| LMTP0130 | Limit for cashback amount on us |
| LMTP0131 | Card spending credit limit value |
| LMTP0135 | Limit for cashback amount on domestic |
| LMTP0136 | Limit for cashback amount on them |
| LMTP0137 | Limit for cashback amount on partner |
| LMTP0200 | Limit for Merchant service charge |
| LMTP0201 | One time cash withdrawal with other cards limit |
| LMTP0300 | Total top up account limit |
| LMTP0301 | Total expense limit |
| LMTP0302 | Cash withdrawal cyclic limit |
| LMTP0303 | Debit account cyclic limit |
| LMTP0304 | Credit account cyclic limit |
| LMTP0305 | Cash IN account cyclic limit |
| LMTP0306 | One-time expense limit |
| LMTP0307 | One-time top up account limit |
| LMTP0308 | Limit for Account maintenance fee |
| LMTP0309 | Account total expense day limit |
| LMTP0310 | Account total expense month limit |
| LMTP1101 | Limit for Loyalty points rate |

1. ACQUIRING FILE STRUCTURE
   1. Overview

This file is used to export from SVBO to SVFM information about the acquiring structure: the merchants and terminals.

* 1. File naming convention

File with merchant data is named according to the following format:

*MERCHANT\_<id>\_<inst\_id>.xml*

* *id* – can be timestamp or another ID of a file
* *inst\_id* – institution of merchants (and terminals) in file

It’s possible that a file with merchant data also contain terminal data. Otherwise there should be additional file just with terminal data. File with terminal data is named according to the following format:

*TERMINAL\_<id>\_<inst\_id>.xml*

* *id* – can be timestamp or another ID of a file
* *inst\_id* – institution of terminals in file
  1. List of tags

As of the current version, the structure is identical to that described in SVAP Acquiring specification [4]. The following table is provided for convenience reasons.

| *Tag name* | *Data type* | *Size* | *Occurs* | *Description* |
| --- | --- | --- | --- | --- |
| application | | | | The root tag that contains all other tags and the application parameters. |
| application\_number | string | 200 | 0-1 | A unique number of applications generated by an external system. |
| application\_date | date |  | 0-1 | Date when an application was created via an external system. |
| application\_flow\_id | int | 4 | 1-1 | Describes a purpose of an application (creation of a new merchant or terminal, modification of personal data, etc.). It is selected by means of the drop-down box. |
| application\_type | string | 8 | 1-1 | An application type. The ‘APTPACQA’ constant indicates the registration of acquiring structure. |
| application\_status | string | 8 | 1-1 | An application status to assign to a newly created application. |
| operator\_id | string | 200 | 0-1 | A system name of a user who created the application. |
| institution\_id | int | 4 | 1-1 | An institution ID |
| agent\_id | int | 8 | 0-1 | An ID of an agent a contract is going to be associated with. |
| agent\_number | string | 200 | 0-1 | Agent number |
| agent\_name | string | 200 | 0-1 | Agent name |
| customer\_type | string | 8 | 0-1 | A customer type: person or company. Values are taken from the dictionary. |
| customer | “customer” |  | 1-1 | Encapsulates parameters that describe the customer as well as all other elements except the application. |
| customer | | | | Encapsulates parameters that describe the customer as well as all other elements except the application. |
| command | string | 8 | 1-1 | The action to perform over the object. Constant value is required:  “CMMDCRUP” - Create or update |
| customer\_number | string | 200 | 0-1 | An external ID of a customer. It must be unique in the scope of an institution. |
| contract | “contract” |  | 1-\* | Encapsulates parameters that describe the contract as well as the hierarchy of merchants and terminals. |
| contact | | | | The universal structure for contacts. |
| command | string | 8 | 1-1 | The action to perform over the object. Must be the constant value:  “CMMDCRUP” - Create or update |
| contact\_type | string | 8 | 1-1 | A purpose of a contact. Possible values:  “CNTTPRMC” - Primary contact  “CNTTSCNC” - Secondary contact |
| preferred\_lang | string | 8 | 0-1 | Preferred language of communication. |
| person | “person” |  | 0-1 | Contact person |
| contact\_data | “contact\_data” |  | 1-\* | Contact information |
| person | | | | The universal structure for persons. |
| command | string | 8 | 1-1 | The action to perform over the object. Must be the constant value:  “CMMDCRUP” - Create or update |
| person\_name | “person\_name” |  | 1-\* | Person’s names. |
| person\_name | | | | Person’s first, middle, and last names. |
| surname | string | 200 | 1-1 | Person’s surname. |
| first\_name | string | 200 | 1-1 | Person’s first name. |
| second\_name | string | 200 | 0-1 | Person’s middle name. |
| contact\_data | | | | The informational part of a contact |
| commun\_method | string | 8 | 1-1 | Communication method. Possible values:  “CMNM0001” - Mobile phone  “CMNM0002” - E-mail |
| commun\_address | string | 200 | 1-1 | Communication address in accordance with the specified communication method. |
| address | | | | Address data. |
| command | string | 8 | 1-1 | The action to perform over the object. Must be the constant value:  “CMMDCRUP” - Create or update |
| country | string | 3 | 1-1 | Numeric ISO country code. |
| address\_name | “address\_name” |  | 1-1 | Part of address data. This tag must contain the “language” attribute to display them in the appropriate language. |
| house | string | 200 | 1-1 | Building number |
| postal\_code | string | 10 | 0-1 | Postal code |
| address\_name | | | | Part of address data. This tag must contain the “language” attribute to display them in the appropriate language. |
| city | string | 200 | 1-1 | City |
| street | string | 200 | 1-1 | Street address line, excluding city, building, and postal code. |
| contract | | | | Encapsulates parameters that describe the contract as well as the merchants and terminals hierarchy. |
| command | string | 8 | 1-1 | The action to perform over the object. Must be the constant value:  “CMMDCRUP” - Create or update |
| contract\_number | string | 200 | 0-1 | Contract number |
| contract\_type | string | 8 | 0-1 | Contract type: Merchant registration, Terminal installation, etc. Values are taken from the CNTP dictionary. |
| merchant | “merchant” |  | 0-\* | Merchant attributes |
| terminal | “terminal” |  | 0-\* | Terminal attributes |
| merchant | | | | Encapsulates merchant attributes |
| command | string | 8 | 1-1 | The action to perform over the object. Must be the constant value:  “CMMDCRUP” - Create or update |
| merchant\_number | string | 15 | 0-1 | Merchant number (id) to pass to the IPS. |
| merchant\_name | string | 200 | 0-1 | Merchant name that is used in an operation description. Must be specified in English only. |
| merchant\_type | string | 8 | 0-1 | A merchant type. Defines a merchant position in the merchant hierarchy. Values are taken from the dictionary. |
| mcc | string | 4 | 0-1 | Merchant category code. Values are taken from the dictionaries. |
| merchant\_status | string | 8 | 0-1 | Merchant status. Values are taken from the dictionary. |
| merchant\_desc | string | 2000 | 0-\* | Extended description of the merchant in different languages (using the “language” attribute). |
| ff\_xxx | flexible field\* |  | 0-\* | Flexible fields |
| contact | “contact” |  | 0-\* | Merchant contact information |
| address | “address” |  | 0-\* | Merchant location |
| terminal | “terminal” |  | 0-\* | Terminal attributes |
| terminal | | | | Encapsulates terminal attributes. |
| command | string | 8 | 1-1 | The action to perform over the object. Must be the constant value:  “CMMDCRUP” - Create or update |
| terminal\_number | string | 8 | 0-1 | A terminal number. |
| terminal\_type | string | 8 | 0-1 | A terminal type. Values are taken from the dictionary. |
| standard\_id | int | 4 | 0-1 | A communication standard. Values are taken from the dictionary. |
| version\_id | int | 4 | 0-1 | A communication standard version. |
| mcc | string | 4 | 0-1 | Merchant category code. Values are taken from the dictionary. |
| terminal\_template | int | 8 | 0-1 | A reference to a terminal template. |
| plastic\_number | string | 16-19 | 0-1 | An imprinter number. |
| card\_data\_input\_cap | string | 8 | 0-1 | Available methods of reading the card data. |
| crdh\_auth\_cap | string | 8 | 0-1 | Available methods of cardholder authentication. |
| card\_capture\_cap | string | 8 | 0-1 | Available methods of card capture. |
| term\_operating\_env | string | 8 | 0-1 | Terminal environment. |
| crdh\_data\_present | string | 8 | 0-1 | Cardholder presence. |
| card\_data\_present | string | 8 | 0-1 | Card data presence. |
| card\_data\_input\_mode | string | 8 | 0-1 | Card data input mode. |
| crdh\_auth\_method | string | 8 | 0-1 | A method of cardholder authentication. |
| crdh\_auth\_entity | string | 8 | 0-1 | An entity to use for cardholder authentication. |
| card\_data\_output\_cap | string | 8 | 0-1 | Available methods of card data output. |
| term\_data\_output\_cap | string | 8 | 0-1 | Available methods of terminal data output. |
| pin\_capture\_cap | string | 8 | 0-1 | PIN input capability. |
| cat\_level | string | 8 | 0-1 | A terminal category. |
| terminal\_status | string | 8 | 0-1 | A terminal status. |
| device\_id | int | 8 | 0-1 | An ID of a communication device used by a terminal. |
| gmt\_offset | int | 2 | 0-1 | Time zone offset. |
| is\_mac | int | 1 | 0-1 |  |
| cash\_dispenser\_present | int | 1 | 0-1 | Indicates the cash withdrawal capability. |
| payment\_possibility | int | 1 | 0-1 | Indicates the payment capability. |
| use\_card\_possibility | int | 1 | 0-1 | Indicates the card use capability. |
| cash\_in\_present | int | 1 | 0-1 | Indicates the cash-in capability. |
| available\_network | int | 8 | 0-1 | A reference to the list of available payment networks. |
| available\_operation | int | 8 | 0-1 | A reference to the list of available operations. |
| available\_currency | int | 8 | 0-1 | A reference to the list of available currencies. |
| terminal\_quantity | int | 4 | 0-1 | Number of the same type terminals to create on the basis of respective parameters. |
| mcc\_template\_id | long | 12 | 0-1 | A reference to an MCC redefinition group depending on operation parameters. |
| instalment\_support | int | 1 | 0-1 | Indicates the instalment support of POS terminal |
| pos\_batch\_support | int | 1 | 0-1 | Indicates the POS batch support of POS terminal |
| terminal\_profile | int | 9 | 0-1 | FE terminal profile identifier |
| pin\_block\_format | string | 8 | 0-1 | PIN-block encryption format |
| tcp\_ip | “tcp\_ip” |  | 0-1 | TCP/IP protocol connection parameters. |
| encryption | “encryption” |  | 0-3 | Encryption key parameters. |
| contact | “contact” |  | 0-\* | Contact information |
| address | “address” |  | 0-1 | Address of the terminal |
| encryption | | | |  |
| encryption\_key\_type | string | 8 | 1-1 | An encryption key type. Values are taken from the dictionary. |
| encryption\_key\_prefix | string | 50 | 0-1 | An encryption key prefix. |
| encryption\_key | string | 64 | 1-1 | An encryption key. |
| encryption\_key\_length | int | 4 | 1-1 | Encryption key length. |
| encryption\_key\_check\_value | string | 6 | 1-1 | An encryption key check value. |
| tcp\_ip | | | |  |
| remote\_address | string | 15 | 1-1 | Remote device address. |
| local\_port | string | 5 | 0-1 | Local port number. |
| remote\_port | string | 5 | 0-1 | Remote device port number. |
| initiator | string | 8 | 1-1 | Initiator of the connection. |
| format | string | 8 | 1-1 | Data transfer format. Define messages length and coding. |
| keep\_alive | int | 1 | 0-1 | Keep connection alive flag. |
| monitor\_connection | int | 1 | 0-1 | Inform the opening / closing the connection. |
| multiple\_connection | int | 1 | 0-1 | Multiple connection allowed (1 - Yes, 0 - No). |

\*Flexible fields are user-defined fields with different names. Name of each tag is “ff\_<flex. field name>”. Field names can be registered in the SVBO web interface. Flexible field tags with variable names like these ones are absent in the XSD.

1. CLEARING FILE STRUCTURE
   1. Overview

This file is used to export offline transactions from SVBO to SVFM. These transactions are then checked in SVFM in offline monitoring mode.

* 1. File naming convention

File is named according to the following format:

*CLEARING\_<id>\_<inst\_id>.xml*

* *id* – can be timestamp or another ID of a file
* *inst\_id* – institution of cards in file
  1. List of tags

As of the current version, the same structure is described in the common SVXP Interfaces reference [3], chapter **Clearing file structure**. The following table is provided for convenience reasons.

| *Tag name* | *Data type* | *Size* | *Occurs* | *Description* |
| --- | --- | --- | --- | --- |
| clearing | | | | |
| file\_id | long | 16 | 0-1 | Unique identifier of outgoing file |
| file\_type | string | 8 | 1-1 | Type of incoming/outgoing file. Describe the purpose of data in file. Dictionary FLTP |
| original\_file\_id | long | 16 | 0-1 | Reference to outgoing file if file is response on another file. |
| start\_date | date |  | 0-1 | Start date of period which represented in file. The date include the date and time. |
| end\_date | date |  | 0-1 | Represented period end date. The date include the date and time. |
| inst\_id | int | 4 | 0-1 | Identifier of partner (system) which related with operations. |
| operation | operation |  | 1-\* | Operation data |
| operation | | | | |
| oper\_id | long | 16 | 0-1 | Operation identifier |
| oper\_type | string | 8 | 1-1 | Operation type. Dictionary OPTP |
| msg\_type | string | 8 | 0-1 | Message type. Dictionary MSGT |
| sttl\_type | string | 8 | 0-1 | Settlement type. Dictionary STTT |
| reconciliation\_type | string | 8 | 0-1 | Reconciliation type. Dictionary RCLM |
| oper\_date | date |  | 0-1 | Date when operation occurs |
| host\_date | date |  | 0-1 | Processing date |
| oper\_count | long | 16 | 0-1 | Operations count |
| oper\_amount | amount |  | 0-1 | Original operation amount |
| oper\_request\_amount | amount |  | 0-1 | Operation requested amount in operation currency |
| oper\_surcharge\_amount | amount |  | 0-1 | Operation surcharge amount |
| oper\_cashback\_amount | amount |  | 0-1 | Operation cashback amount |
| sttt\_amount | amount |  | 0-1 | Settlement operation amount |
| interchange\_fee | amount |  | 0-1 | Interchange fee amount |
| originator\_refnum | string | 36 | 0-1 | Reference number generated by originator of operation |
| network\_refnum | string | 36 | 0-1 | Reference number incoming from external network |
| acq\_inst\_bin | string | 12 | 0-1 | Acquirer BIN |
| response\_code | string | 8 | 0-1 | Code of operation processing result. Dictionary RCLM |
| oper\_reason | string | 8 | 0-1 | Operation reason. Dictionary ADJR, PMRS, BLTP, LMTP |
| status | string | 8 | 0-1 | Authorization status. Dictionary OPST |
| status\_reason | string | 8 | 0-1 | Reason of status. Dictionary value. Dictionary OPST |
| is\_reversal | int | 1 | 0-1 | 0 – operation is not reversal  1 – operation is reversal |
| merchant\_number | string | 15 | 0-1 | Merchant number |
| mcc | string | 4 | 0-1 | Merchant category code |
| merchant\_name | string | 200 | 0-1 | Merchant name |
| merchant\_street | string | 200 | 0-1 | Merchant street address |
| merchant\_city | string | 200 | 0-1 | Merchant’s city |
| merchant\_region | string | 3 | 0-1 | Region of merchant |
| merchant\_country | string | 3 | 0-1 | Country of merchant |
| merchant\_postcode | string | 10 | 0-1 | Merchant’s postal code |
| terminal\_type | string | 8 | 0-1 | Terminal type. Dictionary TRMT |
| terminal\_number | string | 8 | 0-1 | Terminal number |
| sttl\_date | date |  | 0-1 | Settlement date |
| match\_status | string | 8 | 0-1 | Matching status |
| clearing\_sequence\_num | int | 2 | 0-1 | Multiple Clearing Sequence Number |
| clearing\_sequence\_count | int | 2 | 0-1 | Multiple Clearing Sequence Count |
| payment\_order | payment\_order |  | 0-1 | Describe payment order parameters |
| transaction | transaction |  | 0-\* | Financial transaction made by operation |
| document | document |  | 0-1 | Banking document associated with operation |
| issuer | participant |  | 0-1 | Operation participant - issuer |
| acquirer | participant |  | 0-1 | Operation participant - acquirer |
| destination | participant |  | 0-1 | Operation participant - destination |
| aggregator | participant |  | 0-1 | Operation participant – payment aggregator |
| service\_provider | participant |  | 0-1 | Operation participant – service provider |
| participant | participant |  | 0-\* | Custom participant |
| note | note |  | 0-\* | Note |
| auth\_data | auth\_data |  | 0-1 | Authorization |
| ipm\_data | ipm\_data |  | 0-1 | MasterCard financial message |
| baseII\_data | baseII\_data |  | 0-1 | VISA financial message |
| additional\_amount | additional\_amount |  | 0-\* | Operation’s additional amounts |
| processing\_stage | processing\_stage |  | 0-\* | Processing stages that are associated with an operation |
| participant | | | | |
| participant\_type | string | 8 | 0-1 | Custom participant type. Dictionary PRTY |
| client\_id\_type | string | 8 | 0-1 | Type of customer identification. Dictionary CITP |
| client\_id\_value | string | 200 | 0-1 | Customer identifier in accordance with identification type |
| card\_number | string | 19 | 0-1 | Card number |
| card\_id | long | 12 | 0-1 | Internal card identifier |
| card\_instance\_id | long | 12 | 0-1 | Internal card instance identifier |
| card\_seq\_number | int | 4 | 0-1 | Card sequential number |
| card\_expir\_date | date |  | 0-1 | Card expiration date |
| card\_country | string | 3 | 0-1 | Card country |
| inst\_id | int | 4 | 0-1 | Identifier of participant institution. |
| Network\_id | int | 4 | 0-1 | Network id |
| auth\_code | string | 6 | 0-1 | Auth code |
| account\_number | string | 32 | 0-1 | Account number |
| account\_amount | long | 16 | 0-1 | Amount addressed to participant account |
| account\_currency | string | 3 | 0-1 | Account currency |
| payment\_order | | | | |
| payment\_order\_id | long | 16 | 0-1 | Payment order identifier |
| payment\_order\_status | string | 8 | 0-1 | Status of payment order. Dictionary POSA |
| payment\_order\_number | string | 200 | 0-1 | Payment order number from external system |
| purpose\_id | int | 8 | 0-1 | Purpose id |
| purpose\_number | string | 200 | 0-1 | External purpose id |
| payment\_amount | amount |  | 0-1 | Payment order amount |
| payment\_parameter | “payment\_parameter” |  | 0-\* | Payment order parameter |
| participant\_type | string | 8 | 0-1 | Participant type for using as customer in payment order. Dictionary:  PRTYACQ – acquirer  PRTYDST – destination  PRTYISS – issuer  PRTYPAGR – aggregator  PRTYSRVP – service provider  Participant of that type must be present in the operation |
| document | “document” |  | 0-1 | Banking document associated with payment order |
| payment\_parameter | | | | |
| payment\_parameter\_name | string | 200 | 1-1 | Name of parameter |
| payment\_parameter\_value | string | 2000 | 1-1 | Parameter value |
| transaction | | | | |
| transaction\_id | long | 16 | 1-1 | Internal identifier of transaction |
| transaction\_type | string | 8 | 0-1 | Type of transaction. Dictionary TRNT |
| posting\_date | date |  | 0-1 | Transaction posting date |
| debit\_entry | entry |  | 0-1 | Debit part of transaction |
| credit\_entry | entry |  | 0-1 | Credit part of transaction |
| document | document |  | 0-1 | Document associated with transaction |
| conversion\_rate | float |  | 0-1 | Conversion rate |
| amount\_purpose | string | 8 | 0-1 | Amount purpose. Fee type. |
| entry | | | | |
| entry\_id | long | 16 | 1-1 | Internal identifier of entry |
| account | account |  | 1-1 | Account that affected by entry |
| amount | amount |  | 1-1 | Transaction amount |
| account | | | | |
| account\_number | string | 32 | 1-1 | Account number |
| currency | string | 3 | 1-1 | Account currency |
| agent\_number | string | 200 | 0-1 | Agent number when account was opened |
| amount | | | | |
| amount\_value | long | 16 | 1-1 | Amount value expressed in minimal currency units |
| currency | string | 3 | 1-1 | Amount currency |
| document | | | | |
| document\_id | long | 16 | 1-1 | Document identifier |
| document\_type | string | 8 | 1-1 | Document type. Dictionary DCMT |
| document\_date | date |  | 1-1 | Document date |
| document\_number | string | 200 | 1-1 | Document number |
| document\_content | document\_content |  | 0-\* | Document content. Structural parts of document. |
| document\_content | | | | |
| content\_type | string | 8 | 1-1 | Document content type. Dictionary value: DCCT0010 – printable form |
| content | base64Binary |  | 1-1 | BASE64 encoded content of the document |
| note | | | | |
| note\_type | string | 8 | 1-1 | Note type: NTTPUSER – user comment;  NTTPRSTR - Notes for registry of opened and closed accounts;  NTTPDLVR – Delivery notes. |
| note\_content | note\_content |  | 1-\* | Content of the note |
| note\_content | | | | |
| language | string | 8 | 1-1 | Attribute. Dictionary LANG. For example:   * LANGENG * LANGRUS * LANGBUL |
| note\_header | string |  | 0-1 | Header of the note |
| note\_text | string |  | 0-1 | Text of the note |
| auth\_data | | | | |
| resp\_code | string | 8 | 0-1 | Response code. Dictionary RESP |
| proc\_type | string | 8 | 0-1 | Type of authorization processing. Dictionary AUPT |
| proc\_mode | string | 8 | 0-1 | Mode of authorization processing. Dictionary AUPM |
| is\_advice | int | 1 | 0-1 | Flag shows if authorization is advice. |
| is\_repeat | int | 1 | 0-1 | Flag shows if authorization is repeat. |
| bin\_amount | long | 16 | 0-1 | Account billing amount in BIN currency |
| bin\_currency | string | 3 | 0-1 | BIN currency |
| bin\_cnvt\_rate | long | 16 | 0-1 | Converting rate from BIN currency into transaction currency. |
| network\_amount | long | 16 | 0-1 | Account billing amount in network BIN currency |
| network\_currency | string | 3 | 0-1 | Network BIN currency |
| network\_cnvt\_date | date |  | 0-1 | Date of network conversion |
| network\_cnvt\_rate | long | 16 | 0-1 | Converting rate from network BIN currency into transaction currency. |
| account\_cnvt\_rate | long | 16 | 0-1 | Converting rate from account(billing) currency into transaction currency. |
| addr\_verif\_result | string | 8 | 0-1 | Result of address verification if it was performed. Dictionary AVRS |
| acq\_resp\_code | string | 8 | 0-1 | Response code that was sent to authorization source. |
| acq\_device\_proc\_result | string | 8 | 0-1 | Result of response processing by device. |
| cat\_level | string | 8 | 0-1 | CAT level. Dictionary F22D |
| card\_data\_input\_cap | string | 8 | 0-1 | Card data input capability. Dictionary F221 |
| crdh\_auth\_cap | string | 8 | 0-1 | Cardholder authentication capability. Dictionary F222 |
| card\_capture\_cap | string | 8 | 0-1 | Card capture capability. Dictionary F223 |
| terminal\_operating\_env | string | 8 | 0-1 | Operating environment. Dictionary F224 |
| crdh\_presence | string | 8 | 0-1 | Cardholder presence indicator. Dictionary F225 |
| card\_presence | string | 8 | 0-1 | Card presence indicator. Dictionary F226 |
| card\_data\_input\_mode | string | 8 | 0-1 | Card data input mode. Dictionary F227 |
| crdh\_auth\_method | string | 8 | 0-1 | Cardholder authentication method. Dictionary F228 |
| crdh\_auth\_entity | string | 8 | 0-1 | Cardholder authentication entity. Dictionary F229 |
| card\_data\_output\_cap | string | 8 | 0-1 | Card data output capability. Dictionary F22A |
| terminal\_output\_cap | string | 8 | 0-1 | Terminal output capability. Dictionary F22B |
| pin\_capture\_cap | string | 8 | 0-1 | Pin capture capability. Dictionary F22C |
| pin\_presence | string | 8 | 0-1 | Pin presence indicator. Dictionary PINP |
| cvv2\_presence | string | 8 | 0-1 | CVC2/CVV2 presence indicator. Dictionary CV2P |
| cvc\_indicator | string | 8 | 0-1 | CVC validation code result. |
| pos\_entry\_mode | string | 3 | 0-1 | POS entry mode |
| pos\_cond\_code | string | 2 | 0-1 | POS condition code |
| emv\_data | string | 2000 | 0-1 | EMV raw data |
| atc | string | 4 | 0-1 | Application transaction counter |
| tvr | string | 200 | 0-1 | Terminal verification results |
| cvr | string | 200 | 0-1 | Card verification results |
| addl\_data | string | 2000 | 0-1 | Additional authorization data. |
| service\_code | string | 3 | 0-1 | Service code |
| device\_date | date |  | 0-1 | Date on device when authorization was recieved |
| cvv2\_result | string | 8 | 0-1 | CVV2 result. Dictionary CV2R |
| certificate\_method | string | 8 | 0-1 | Certificate method (Secured, 3Ds, UCAF, etc.). Dictionary CRTM |
| certificate\_type | string | 8 | 0-1 | Type of data encryption in E-Commerce transactions. Dictionary CRTT |
| merchant\_certif | string | 100 | 0-1 | Contains a value assigned to a VSEC merchant certificate issued by the acquirer's certificate authority. |
| cardholder\_certif | string | 100 | 0-1 | Contains a value assigned to a VSEC cardholder certificate issued by the acquirer's certificate authority. |
| ucaf\_indicator | string | 8 | 0-1 | Indicator of supporting UCAF data. This field indicate supporting MasterCard e-commerce Universal Cardholder Authentication data. |
| is\_early\_emv | int | 1 | 0-1 | Early EMV option |
| is\_completed | string | 8 | 0-1 | Flag shows if authorization is completed. Dictionary CMPF |
| amounts | string | 4000 | 0-1 | Authorization amounts for online authorization processing |
| system\_trace\_audit\_number | string | 6 | 0-1 | System Trace Audit Number |
| transaction\_id | string | 15 | 0-1 | Transaction identifier |
| external\_auth\_id | string | 30 | 0-1 | External authorization identifier |
| external\_orig\_id | string | 30 | 0-1 | External authorization identifier of original |
| agent\_unique\_id | string | 5 | 0-1 | Agent unique ID (Digital entity identifier for VISA checkout) |
| native\_resp\_code | string | 2 | 0-1 | Authorization response code in native format |
| auth\_purpose\_id | long | 16 | 0-1 | Authorization purpose identifier. It is additional attribute of an operation that specifies purpose of a payment |
| auth\_tag | auth\_tag |  | 0-\* | Authorizations tags |
| auth\_tag | | | | |
| tag\_id | int | 8 | 0-1 | Tag identifier. This tag optional if present tag\_name |
| tag\_name | string | 200 | 0-1 | Tag name. This tag optional if present tag\_id |
| tag\_value | string | 2000 | 0-1 | Tag value |
| ipm\_data | | | | |
| is\_incoming | int | 1 | 0-1 | Incoming indicator |
| is\_reversal | int | 1 | 0-1 | Reversal indicator |
| is\_rejected | int | 1 | 0-1 | Rejected indicator |
| impact | int | 1 | 0-1 | Message impact |
| mti | string | 4 | 0-1 | The Message Type Identifier (MTI) is a four-digit numeric field describing the type of message being interchanged |
| de024 | string | 3 | 0-1 | DE 24 (Function Code) indicates a messages specific purpose. |
| de002 | string | 19 | 0-1 | DE 2 (Primary Account Number [PAN]) is a series of digits that identify a customer account or relationship. |
| de003\_1 | string | 2 | 0-1 | Cardholder Transaction Type |
| de003\_2 | string | 2 | 0-1 | Cardholder "From" Account Type Code |
| de003\_3 | string | 2 | 0-1 | Cardholder "To" Account Type Code |
| de004 | long | 12 | 0-1 | Amount, Transaction |
| de005 | long | 12 | 0-1 | Amount, Reconciliation |
| de006 | long | 12 | 0-1 | Amount, Cardholder Billing |
| de009 | string | 8 | 0-1 | Conversion Rate, Reconciliation |
| de010 | string | 8 | 0-1 | Conversion Rate, Cardholder Billing |
| de012 | date |  | 0-1 | Date and Time, Local Transaction |
| de014 | date |  | 0-1 | DE 14 (Date, Expiration) specifies the year and month after which a card expires. |
| de022\_1 | string | 1 | 0-1 | Terminal Data: Card Data Input Capability |
| de022\_2 | string | 1 | 0-1 | Terminal Data: Cardholder Authentication Capability |
| de022\_3 | string | 1 | 0-1 | Terminal Data: Card Capture Capability |
| de022\_4 | string | 1 | 0-1 | Terminal Operating Environment |
| de022\_5 | string | 1 | 0-1 | Cardholder Present Data |
| de022\_6 | string | 1 | 0-1 | Card Present Data |
| de022\_7 | string | 1 | 0-1 | Card Data: Input Mode |
| de022\_8 | string | 1 | 0-1 | Cardholder Authentication Method |
| de022\_9 | string | 1 | 0-1 | Cardholder Authentication Entity |
| de022\_10 | string | 1 | 0-1 | Card Data Output Capability |
| de022\_11 | string | 1 | 0-1 | Terminal Data Output Capability |
| de022\_12 | string | 1 | 0-1 | PIN Capture Capability |
| de023 | int | 3 | 0-1 | Card Sequence Number |
| de025 | string | 4 | 0-1 | Message Reason Code |
| de026 | string | 4 | 0-1 | Card Acceptor Business Code (MCC) |
| de030\_1 | long | 12 | 0-1 | Original Amount, Transaction |
| de030\_2 | long | 12 | 0-1 | Original Amount, Reconciliation |
| de031 | string | 23 | 0-1 | Acquirer Reference Data |
| de032 | string | 11 | 0-1 | Acquiring Institution ID Code |
| de033 | string | 11 | 0-1 | Forwarding Institution ID Code |
| de037 | string | 12 | 0-1 | Retrieval Reference Number |
| de038 | string | 6 | 0-1 | Approval Code |
| de040 | string | 3 | 0-1 | Service Code |
| de041 | string | 8 | 0-1 | Card Acceptor Terminal ID |
| de042 | string | 15 | 0-1 | Card Acceptor ID Code |
| de043\_1 | string | 99 | 0-1 | Card Acceptor Name |
| de043\_2 | string | 99 | 0-1 | Card Acceptor Street Address |
| de043\_3 | string | 99 | 0-1 | Card Acceptor City |
| de043\_4 | string | 99 | 0-1 | Card Acceptor Postal (ZIP) Code |
| de043\_5 | string | 3 | 0-1 | Card Acceptor State, Province, or Region Code |
| de043\_6 | string | 3 | 0-1 | Card Acceptor Country Code |
| de049 | string | 3 | 0-1 | Currency Code, Transaction |
| de050 | string | 3 | 0-1 | Currency Code, Reconciliation |
| de051 | string | 3 | 0-1 | Currency Code, Cardholder Billing |
| de054 | string | 20 | 0-1 | DE 54 (Amounts, Additional) are additional amounts and related account data for which specific data elements have not been defined |
| de055 | base64Hex | 350 | 0-1 | BASE64 encoded. Integrated Circuit Card (ICC) System-Related Data. Result’s length <= 256 |
| de063 | string | 16 | 0-1 | Transaction Life Cycle ID |
| de071 | int | 7 | 0-1 | Message Number |
| de072 | string | 999 | 0-1 | Data Record |
| de073 | date |  | 0-1 | Date, Action |
| de093 | string | 11 | 0-1 | Transaction Destination Institution ID Code |
| de094 | string | 11 | 0-1 | Transaction Originator Institution ID Code |
| de095 | string | 10 | 0-1 | Card Issuer Reference Data |
| de100 | string | 11 | 0-1 | Receiving Institution ID Code |
| de111 | long | 12 | 0-1 | Amount, Currency Conversion Assessment |
| p0002 | string | 3 | 0-1 | PDS 0002 (GCMS Product Identifier) identifies the product recognized by GCMS. |
| p0023 | string | 3 | 0-1 | PDS 0023 (Terminal Type) identifies the type of terminal used at the point of interaction. |
| p0025\_1 | string | 1 | 0-1 | Message Reversal Indicator |
| p0025\_2 | date |  | 0-1 | Central Site Processing Date of Original Message |
| p0043 | string | 3 | 0-1 | Program Registration ID |
| p0052 | string | 3 | 0-1 | Electronic Commerce Security Level Indicator |
| p0137 | string | 20 | 0-1 | Fee Collection Control Number |
| p0148 | string | 60 | 0-1 | Currency Exponents |
| p0146 | string | 432 | 0-1 | Amounts, Transaction Fee |
| p0146\_net | long | 12 | 0-1 | Net value of p0146 Amounts, Transaction Fee |
| p0147 | string | 576 | 0-1 | Extented Fee Amounts |
| p0149\_1 | string | 3 | 0-1 | Currency Code, Original Transaction Amount |
| p0149\_2 | string | 3 | 0-1 | Currency Code, Original Reconciliation Amount |
| p0158\_1 | string | 3 | 0-1 | Card Program Identifier |
| p0158\_2 | string | 1 | 0-1 | Business Service Arrangement Type Code |
| p0158\_3 | string | 6 | 0-1 | Business Service ID Code |
| p0158\_4 | string | 2 | 0-1 | Interchange Rate Designator |
| p0158\_5 | date |  | 0-1 | Business Date |
| p0158\_6 | int | 2 | 0-1 | Business Cycle |
| p0158\_7 | string | 1 | 0-1 | Card Acceptor Classification Override Indicator |
| p0158\_8 | string | 3 | 0-1 | Product Class Override Indicator |
| p0158\_9 | string | 1 | 0-1 | Corporate Incentive Rates Apply Indicator |
| p0158\_10 | string | 1 | 0-1 | ATM Special Conditions Indicator |
| p0159\_1 | string | 11 | 0-1 | Settlement Service Transfer Agent ID Code |
| p0159\_2 | string | 28 | 0-1 | Settlement Service Transfer Agent Account |
| p0159\_3 | int | 1 | 0-1 | Settlement Service Level Code |
| p0159\_4 | string | 10 | 0-1 | Settlement Service ID Code |
| p0159\_5 | string | 1 | 0-1 | Settlement Foreign Exchange Rate Class Code |
| p0159\_6 | date |  | 0-1 | Reconciliation Date |
| p0159\_7 | int | 2 | 0-1 | Reconciliation Cycle |
| p0159\_8 | date |  | 0-1 | Settlement Date |
| p0159\_9 | int | 2 | 0-1 | Settlement Cycle |
| p0165 | string | 30 | 0-1 | Settlement Indicator |
| p0176 | string | 6 | 0-1 | MasterCard Assigned ID |
| p0208\_1 | string | 11 | 0-1 | Payment Facilitator ID |
| p0208\_2 | string | 15 | 0-1 | Sub-Merchant ID |
| p0209 | string | 11 | 0-1 | Independent Sales Organization ID |
| p0228 | int | 1 | 0-1 | Retrieval Document Code |
| p0230 | int | 1 | 0-1 | Fulfillment Document Code |
| p0241 | string | 7 | 0-1 | MasterCom Control Number |
| p0243 | string | 38 | 0-1 | MasterCom Retrieval Response Data |
| p0244 | string | 12 | 0-1 | MasterCom Chargeback Support Documentation Dates |
| p0260 | string | 4 | 0-1 | Edit Exclusion Indicator |
| p0261 | long | 11 | 0-1 | Risk Management Approval Code |
| p0262 | int | 1 | 0-1 | Documentation Indicator |
| p0264 | int | 4 | 0-1 | Original Retrieval Reason for Request |
| p0265 | string | 110 | 0-1 | Initial Presentment/Fee Collection Data |
| p0266 | string | 127 | 0-1 | First Chargeback/Fee Collection Return Data |
| p0267 | string | 127 | 0-1 | Second Presentment/Fee Collection Resubmission Data |
| p0268\_1 | long | 12 | 0-1 | Amount, Partial Transaction |
| p0268\_2 | string | 3 | 0-1 | Currency Code, Partial Transaction |
| p0375 | string | 50 | 0-1 | Member Reconciliation Indicator |
| emv\_9f26 | string | 16 | 0-1 | Application Cryptogram. Cryptogram returned by the ICC in response of the GENERATE AC command |
| emv\_9f02 | long | 12 | 0-1 | Amount, Authorised. Authorised amount of the transaction (excluding adjustments) |
| emv\_9f27 | string | 2 | 0-1 | Cryptogram Information Data. Indicates the type of cryptogram and the actions to be performed by the terminal |
| emv\_9f10 | string | 64 | 0-1 | Issuer Application Data. Contains proprietary application data for transmission to the issuer in an online transaction |
| emv\_9f36 | string | 4 | 0-1 | Application Transaction Counter (ATC) |
| emv\_95 | string | 10 | 0-1 | Terminal Verification Results. Status of the different functions as seen from the terminal |
| emv\_82 | string | 4 | 0-1 | Application Interchange Profile. Indicates the capabilities of the card to support specific functions in the application |
| emv\_9a | date |  | 0-1 | Transaction Date. Local date that the transaction was authorised |
| emv\_9c | int | 2 | 0-1 | Transaction Type. Indicates the type of financial transaction, represented by the first two digits of ISO 8583:1987 Processing Code |
| emv\_9f37 | string | 8 | 0-1 | Unpredictable Number. Value to provide variability and uniqueness to the generation of a cryptogram |
| emv\_5f2a | int | 3 | 0-1 | Transaction Currency Code. Indicates the currency code of the transaction according to ISO 4217 |
| emv\_9f33 | string | 6 | 0-1 | Terminal Capabilities. Indicates the card data input, CVM, and security capabilities of the terminal |
| emv\_9f34 | string | 6 | 0-1 | CVM Results. Indicates the results of the last CVM performed |
| emv\_9f1a | int | 3 | 0-1 | Terminal Country Code. Indicates the country of the terminal, represented according to ISO 3166 |
| emv\_9f35 | int | 2 | 0-1 | Terminal Type. Indicates the environment of the terminal, its communications capability, and its operational control |
| emv\_9f53 | string | 2 | 0-1 | Transaction Category Code |
| emv\_84 | string | 32 | 0-1 | Dedicated File (DF) Name. Identifies the name of the DF as described in ISO/IEC 7816-4 |
| emv\_9f09 | string | 4 | 0-1 | Application Version Number. Version number assigned by the payment system for the application |
| emv\_9f03 | int | 4 | 0-1 | Amount, Other (Numeric). Secondary amount associated with the transaction representing a cashback amount |
| emv\_9f1e | string | 16 | 0-1 | Interface Device (IFD) Serial Number. Unique and permanent serial number assigned to the IFD by the manufacturer |
| emv\_9f41 | int | 8 | 0-1 | Transaction Sequence Counter. Counter maintained by the terminal that is incremented by one for each transaction |
| p0042 | string | 1 | 0-1 | Merchant Capability |
| p0158\_11 | string | 1 | 0-1 | MasterCard Assigned ID Override Indicator |
| p0158\_12 | string | 1 | 0-1 | Account Level Management Account Category Code |
| p0158\_13 | string | 1 | 0-1 | Rate Indicator |
| p0158\_14 | string | 1 | 0-1 | Merchant Capability |
| p0198 | string | 2 | 0-1 | Device Type |
| p0200\_1 | date |  | 0-1 |  |
| p0200\_2 | Number | 22 | 0-1 |  |
| p0210\_1 | string | 2 | 0-1 | Transit Transaction Type Indicator |
| p0210\_2 | string | 2 | 0-1 | Transportation Mode Indicator |
| p0302 | string | 1 | 0-1 | Reconciled, Member Activity |
| p0368 | String | 2 | 0-1 | Reconciled, Transaction Function Group Code |
| p0505 | String | 992 | 0-1 | Passenger Name |
| p0506 | String | 992 | 0-1 | Ticket Number |
| p0508 | String | 992 | 0-1 | Customer Code |
| p0520 | String | 992 | 0-1 | Travel Date (format YYMMDD) |
| p0521 | String | 992 | 0-1 | Carrier Code |
| p0523 | String | 992 | 0-1 | Service Class Code |
| p0524 | String | 992 | 0-1 | City of Destination/Airport Code |
| p0544 | String | 992 | 0-1 | Rental Agreement Number |
| p0545 | String | 992 | 0-1 | Renter Name |
| p0546 | String | 992 | 0-1 | Rental Return City |
| p0550 | String | 992 | 0-1 | Rental Return Date |
| p0551 | String | 992 | 0-1 | Rental Check-Out Date |
| p0568 | String | 992 | 0-1 | Rental Class ID |
| p0574 | String | 992 | 0-1 | Arrival Date (format YYMMDD) |
| p0575 | String | 992 | 0-1 | Departure Date (format YYMMDD) |
| p0576 | String | 992 | 0-1 | Folio Number |
| p0596 | String | 992 | 0-1 | Card Acceptor Tax ID |
| p0597 | String | 992 | 0-1 | Total Tax Amount |
| p0600 | String | 992 | 0-1 | Card Acceptor Reference Number |
| p0620 | String | 992 | 0-1 | Oil Company Brand Name |
| p0623 | String | 992 | 0-1 | Motor Fuel Information |
| p0629 | String | 992 | 0-1 | Odometer Reading |
| p0630 | String | 992 | 0-1 | Vehicle Number |
| p0631 | String | 992 | 0-1 | Driver Number/ID Number |
| p0632 | String | 992 | 0-1 | Product Type Code |
| p0641 | String | 992 | 0-1 | Product Code |
| p0642 | String | 992 | 0-1 | Item Description |
| p0643 | String | 992 | 0-1 | Item Quantity |
| p0646 | String | 992 | 0-1 | Unit Price |
| p0648 | String | 992 | 0-1 | Item Discount |
| p0664 | String | 992 | 0-1 | Start Station |
| p0665 | String | 992 | 0-1 | Destination Station |
| p0682 | String | 992 | 0-1 | Detail Tax Amount 1 |
| p0757 | String | 992 | 0-1 | Transportation Service Provider |
| baseII\_data | | | | |
| is\_reversal | int | 1 | 0-1 | Reversal flag. |
| is\_incoming | int | 1 | 0-1 | Incoming/Outgoing message flag. 1- incoming, 0- outgoing. |
| is\_returned | int | 1 | 0-1 | Rejected message flag. |
| is\_invalid | int | 1 | 0-1 | Is financial message loaded with errors. |
| rrn | string | 12 | 0-1 | Retrieval reference number. |
| trans\_code | string | 2 | 0-1 | VISA transaction code. |
| trans\_code\_qualifier | string | 1 | 0-1 | Transaction code qualifier. |
| card\_mask | string | 24 | 0-1 | Masked card number |
| oper\_amount | long | 22 | 0-1 | Source Amount. |
| oper\_currency | string | 3 | 0-1 | Source Currency Code. |
| oper\_date | date |  | 0-1 | Purchase Date. |
| sttl\_amount | long | 22 | 0-1 | Destination Amount. |
| sttl\_currency | string | 3 | 0-1 | Destination currency code. |
| network\_amount | long | 22 | 0-1 | Amount in network settlement currency. |
| network\_currency | string | 3 | 0-1 | Network settlement currency. |
| floor\_limit\_ind | string | 1 | 0-1 | Floor limit indicator. |
| exept\_file\_ind | string | 1 | 0-1 | CRB/Exception file indicator. |
| pcas\_ind | string | 1 | 0-1 | Positive Cardholder Authorization Service (PCAS) indicator. |
| arn | string | 23 | 0-1 | Acquiring reference number. |
| acquirer\_bin | string | 12 | 0-1 | Acquirer Bank Identification Number. |
| acq\_business\_id | string | 8 | 0-1 | Acquirer business identifier. |
| merchant\_name | string | 25 | 0-1 | Merchant name. |
| merchant\_city | string | 13 | 0-1 | Merchant city. |
| merchant\_country | string | 3 | 0-1 | Merchant country code (3 digits ISO code). |
| merchant\_postal\_code | string | 10 | 0-1 | Merchant postal code. |
| merchant\_region | string | 3 | 0-1 | Merchant region code. |
| merchant\_street | string | 200 | 0-1 | Merchant Street. |
| mcc | string | 4 | 0-1 | Merchant category code. |
| req\_pay\_service | string | 8 | 0-1 | Requested payment service. |
| usage\_code | string | 1 | 0-1 | Usage code. |
| reason\_code | string | 2 | 0-1 | Reason code. |
| settlement\_flag | string | 1 | 0-1 | Settlement flag. |
| auth\_char\_ind | string | 1 | 0-1 | Authorization characteristics indicator. |
| auth\_code | string | 6 | 0-1 | Authorization code. |
| pos\_terminal\_cap | string | 1 | 0-1 | POS terminal capability. |
| inter\_fee\_ind | string | 1 | 0-1 | International fee indicator. |
| crdh\_id\_method | string | 1 | 0-1 | Cardholder ID method. |
| collect\_only\_flag | string | 1 | 0-1 | Collection-only flag. |
| pos\_entry\_mode | string | 2 | 0-1 | POS entry mode. |
| central\_proc\_date | string | 4 | 0-1 | Central processing date (YDDD). |
| reimburst\_attr | string | 1 | 0-1 | Reimbursement attribute. |
| iss\_workst\_bin | string | 6 | 0-1 | Issuer workstation BIN. |
| acq\_workst\_bin | string | 6 | 0-1 | Acquirer workstation BIN. |
| chargeback\_ref\_num | string | 6 | 0-1 | Chargeback reference number. |
| docum\_ind | string | 1 | 0-1 | Documentation indicator. |
| member\_msg\_text | string | 50 | 0-1 | Member message text. |
| spec\_cond\_ind | string | 2 | 0-1 | Special condition indicators. |
| fee\_program\_ind | string | 3 | 0-1 | Fee program indicator. |
| issuer\_charge | string | 1 | 0-1 | Issuer charge. |
| merchant\_number | string | 15 | 0-1 | Card Acceptor ID (Merchant ISO number). |
| terminal\_number | string | 8 | 0-1 | Terminal ISO ID. |
| national\_reimb\_fee | string | 12 | 0-1 | National reimbursement fee. |
| electr\_comm\_ind | string | 1 | 0-1 | Mail/Telephone or Electronic commerce Indicator. |
| spec\_chargeback\_ind | string | 1 | 0-1 | Special chargeback indicator. |
| interface\_trace\_num | string | 6 | 0-1 | Interface trace number. |
| unatt\_accept\_term\_ind | string | 1 | 0-1 | Unattended acceptance terminal indicator. |
| prepaid\_card\_ind | string | 1 | 0-1 | Prepaid card indicator. |
| service\_development | string | 1 | 0-1 | Service development field. |
| avs\_resp\_code | string | 1 | 0-1 | AVS response code. |
| auth\_source\_code | string | 1 | 0-1 | Authorization source code. |
| purch\_id\_format | string | 1 | 0-1 | Purchase identifier format. |
| account\_selection | string | 1 | 0-1 | Account selection. |
| installment\_pay\_count | string | 2 | 0-1 | Installment payment count. |
| purch\_id | string | 25 | 0-1 | Purchase identifier. |
| cashback | string | 9 | 0-1 | Cashback. |
| chip\_cond\_code | string | 1 | 0-1 | Chip condition code. |
| pos\_environment | string | 1 | 0-1 | POS environment. |
| transaction\_type | string | 2 | 0-1 | Transaction Type. |
| card\_seq\_number | string | 3 | 0-1 | Card sequence number. |
| terminal\_profile | string | 6 | 0-1 | Terminal capability profile. |
| unpredict\_number | string | 8 | 0-1 | Unpredictable number. |
| appl\_trans\_counter | string | 4 | 0-1 | Application transaction counter. |
| appl\_interch\_profile | string | 4 | 0-1 | Application interchange profile. |
| cryptogram | string | 16 | 0-1 | Cryptogram. |
| term\_verif\_result | string | 10 | 0-1 | Terminal verification results. |
| cryptogram\_amount | string | 12 | 0-1 | Cryptogram amount. |
| card\_verif\_result | string | 8 | 0-1 | Card verification results. Dictionary CVRE |
| issuer\_appl\_data | string | 64 | 0-1 | Issuer application data. |
| issuer\_script\_result | string | 10 | 0-1 | Issuer script 1 results. |
| card\_expir\_date | string | 4 | 0-1 | Card expiration date. (YYMM) |
| cryptogram\_version | string | 2 | 0-1 | Cryptogram version. |
| cvv2\_result\_code | string | 1 | 0-1 | CVV2 result code. |
| auth\_resp\_code | string | 2 | 0-1 | Authorization response code. |
| cryptogram\_info\_data | string | 2 | 0-1 | Cryptogram Information Data. |
| transaction\_id | string | 15 | 0-1 | Network Transaction Identifier |
| merchant\_verif\_value | string | 10 | 0-1 | Merchant Verification Value |
| proc\_bin | string | 6 | 0-1 | Processing BIN |
| chargeback\_reason\_code | string | 4 | 0-1 | Chargeback Reason Code |
| destination\_channel | string | 1 | 0-1 | Destination Channel |
| source\_channel | string | 1 | 0-1 | Source Channel |
| acq\_inst\_bin | string | 12 | 0-1 | Acquirer institution BIN |
| spend\_qualified\_ind | string | 1 | 0-1 | Spend Qualified Indicator. |
| service\_code | string | 3 | 0-1 | Service code |
| sttl\_service | string | 3 | 0-1 | Settlement service identifier |
| sre\_id | string | 10 | 0-1 | Reporting For SRE Identifier. This is the identifier for the SRE being reported upon |
| up\_sre\_id | string | 10 | 0-1 | ID of the SRE which is directly superior to the Reporting For SRE in the settlement hierarchy. |
| jurisdict | string | 8 | 0-1 | Jurisdiction Code |
| routing | string | 1 | 0-1 | Inter - regional Routing Indicator. Y or N. |
| src\_region | string | 2 | 0-1 | Source Region Code |
| dst\_region | string | 2 | 0-1 | Destination Region Code |
| src\_country | string | 3 | 0-1 | Source Country Code |
| dst\_country | string | 3 | 0-1 | Destination Country Code |
| bus\_tr\_type | string | 2 | 0-1 | Business Transaction Type |
| first\_count | int | 15 | 0-1 | First Count |
| additional\_amount | | | | |
| amount\_value | long | 22 | 1-1 | Additional amount’s value |
| currency | string | 3 | 1-1 | Additional amount’s currency code |
| amount\_type | string | 8 | 1-1 | Amount’s type, it is a dictionary article (dictionaries AMPR, FETP, BLTP, LMTP, etc.) |
| processing\_stage | | | | |
| proc\_stage | string | 200 | 1-1 | Processing stage, an article of dictionary PSTG |
| status | string | 200 | 1-1 | Operation status, an article of dictionary OPST |

1. CURRENCY RATES FILE STRUCTURE
   1. Overview

This file is used to transfer currency rates from SVBO to SVFM.

1. To load the Bank Selling exchange rate (when the bank sells currency; it is used for debit transactions):

* Source currency (tag <src\_currency>) is transaction currency
* Destination currency (tag <dst\_currency>) is account currency

1. To load the Bank Buying exchange rate (When the bank buys currency; it is used for credit transactions):

* Source currency (tag <src\_currency>) is account currency
* Destination currency (tag <dst\_currency>) is transaction currency
  1. File naming convention

File is named according to the following format:

*<inst\_id>\_currates\_<additional id>.xml*

* *inst\_id* – institution
* *additional id* – can be timestamp or another ID of a file.
  1. List of tags

As of the current version, the same structure is described in the common SVXP Interfaces reference [3], chapter **Currency rates file structure**. The following table is provided for convenience reasons.

| *Tag name* | *Data type* | *Size* | *Occurs* | *Description* |
| --- | --- | --- | --- | --- |
| currency\_rates | | | | The root tag. Contains a set of currency rate records. |
| currency\_rate | “currency\_rate” |  | 1-\* | Currency rate record. |
| currency\_rate | | | | Currency rate record. Contains the exchange rate between two currencies on a particular date. |
| inst\_id | int | 4 | 1-1 | Financial institution ID for which the rate is applied. |
| rate\_type | string | 8 | 1-1 | Exchange rate type. Please refer to the dictionary RTTP (Rate types). |
| effective\_date | date |  | 1-1 | Start date of the rate |
| expiration\_date | date |  | 0-1 | End date of the rate |
| src\_currency | “currency\_scale” |  | 1-1 | Source currency |
| dst\_currency | “currency\_scale” |  | 1-1 | Destination currency |
| rate | float |  | 1-1 | Rate |
| inverted | int | 1 | 0-1 | Whether to invert the rate value or not when applying the rate. Default value is “0” – do not invert. |
| currency\_scale | | | |  |
| scale | int |  | 1-1 | Currency scale value in rate. |
| currency | string | 3 | 1-1 | Currency code. ISO code (3 digits). |
| exponent\_scale | float |  | 0-1 | Additional scale exponent that influences the result. |

1. TRANSACTION CONTROL V.1 FILE STRUCTURE
   1. Overview

This file is transferred from SVFM to SVBO1 on user’s demand. It allows SVFM to control transaction processing in SVBO1 (suspicious transactions can be suspended and not settled in the SVFM prevention mode).

Please note that this file only works in the interface with SVBO1. The analogous SVFM-SVBO2 interface uses the Transaction control v.2 file (see below).

* 1. File naming convention

File name has the following format:

<BIC>\_fms\_tr-control\_<YYMMDD>\_<n>. btf

where:

* *<BIC>* – is 4 chars Bank Identification Code in SV, source system of the file;
* *fms* – 3 chars abbreviation of the interface for fraud monitoring system (FM);
* *tr-control* – data identification for the interface (transactions monitoring control data);
* *<YYMMDD>* – is the date of file creation;
* *<n>* - file sequence for the current day, should be equal to 1.
  1. File structure

The file format is BER-TLV. Each file has a header, data fields and a trailer. They are described in the **File header**, **File trailer**, and **Data records** sections.

The encoding is UTF-8, line feed is LF.

Notation conventions

|  |  |  |
| --- | --- | --- |
| **Field** | **Notations** | |
| Type | X | Alpha-digit field |
| 9 | Numeric field |
| H | Bitmap or Hex format |
| Value | AD | Alpha-digits |
| LJ | Left Justified |
| NES | No Embedded Spaces |

Field presence requirements

M – mandatory,

P – conditional, if present.

File header

| **Field** | **Tag** | **Length** | **Description** | **Type** | **Field presence** | **Value** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | FF45 | 83 | File header tag | X | M | AD, LJ |
| 2 | DF8001 | 12 | Record Number | 9 | M | Leading Zeros |
| 3 | DF807D | 8 | File Type | X | M | AD, LJ |
| 4 | DF807C | 19 | File Date | X | M | AD, LJ  MM.DD.YYYY HH24:MI:SS |
| 5 | DF8079 | 12 | Institution Number | X | M | AD, LJ |

File trailer

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field** | **Tag** | **Length** | **Description** | **Type** | **Field presence** | **Value** |
| 1 | FF46 | 20 | File trailer tag | X | M | AD, LJ |
| 2 | DF8001 | 12 | Record Number | 9 | M | Leading Zeros |

Data records

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field** | **Tag** | **Length** | **Description** | **Type** | **Field presence** | **Value** |
| 1 | DF8001 | 12 | Record Number | 9 | M | Leading Zeros |
| 2 | DF8227 | 12 | BO utrnno. Transaction ID in BO | 9 | M | Leading Zeros |
| 3 | DF8668 | 1 | Type of control action. Action can be applied only for transactions in BO previously being suspended for settle (FM prevention mode) | 9 | M | 0 – settle transaction,  1 – not settle transaction |
| 4 | DF8226 | 40 | Description of decision for the type of control action. It can be operator comment or reason of transaction settle/not settle | X | M | AD, LJ |
| 5 | DF8273 | 19 | Date and time of decision in FM | X | M | DD.MM.YYYY HH24:MM:SS |
| 6 | DF8369 | 4 | Issuer Institution ID | X | M | D |

1. TRANSACTION CONTROL V.2 FILE STRUCTURE
   1. Overview

This file is transferred from SVFM to SVBO. It enables SVFM to control

1. authorization processing in SVBO in the “near-online” mode (authorizations can be suspended for settlement and resumed)
2. operation processing in SVBO in the “offline” mode (for example, transactions that require confirmation of settlement from SVFM can be confirmed through this interface; or the settlement can be suspended)

The authorizations are expected to come from SVFE to SVFM and be identified with the external\_auth\_id and the reversal flag.

The operations are expected to come from SVBO to SVFM through the clearing interface and be identified by oper\_id.

* 1. File naming convention

File is named according to the following format:

*FRAUD\_MONITORING\_CONTROL\_<id>.xml*

* *id* – can be timestamp or another ID of a file
  1. List of tags

| *Tag name* | *Data type* | *Size* | *Occurs* | *Description* |
| --- | --- | --- | --- | --- |
| fraud\_control | | | | |
| operation | “operation” |  | 0-\* | Commands over authorizations or operations |
| operation | | | | |
| oper\_id | long | 16 | 0-1 | OPER\_ID from the Clearing file (see 5 Clearing file structure) that came to SVFM.  If this value is specified, it is exclusively used for identification, and it has priority over external\_auth\_id and is\_reversal (both of which may be empty in this case). |
| external\_auth\_id | string | 200 | 0-1 | Unique authorization identifier from the authorization system.  If oper\_id is empty, this field is **mandatory** and is used for identification. |
| is\_reversal | int | 1 | 0-1 | 0 – operation is not reversal  1 – operation is reversal  If oper\_id is empty, this field is **mandatory** and is used for identification. |
| command | string | 8 | 1-1 | Values from OPCM “Operation commands” dictionary:  OPCM0000 – Process normally  OPCM0001 – Do not settle  OPCM0002 – Send presentment to the issuer but not pay the merchant  OPCM0003 – Pay the merchant but not send presentment to the issuer |