SMARTVISTA EXCHANGE PROTOCOL OF CMS (SVXP CMS)

API developer reference

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1. PREFACE
   1. Revision history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Revision | Date | Author | | Details |
| 1.0 | 21.09.2018 | | Kolodkina Y. | Initial version |

* 1. Document purpose

SVXP CMS is a reference manual for developers who are implementing API of the SmartVista solution. This document is written for internal use of BPC. The document describes the content and the structure of the API.

It is supposed document users to be familiar with financial transactions, communications and XML data format.

1. SMARTVISTA INTEGRATION SERVICES OVERVIEW
   1. General concepts

SmartVista exchange protocol of CMS (SVXP CMS hereafter) provides a description of the file formats of information load or uploaded into/from SmartVista. File format xml. For each format will be described in this document, XML Schema Definition language (XSD) and provided examples.

* 1. Data types, Occurrence, Dictionaries

For SVXP CMS methods the standard XML data types are used. Those are fully described in the following document**XML Schema Part 2: Datatypes Second Edition and** t can be found here: [***http://www.w3.org/TR/xmlschema-2/***](http://www.w3.org/TR/xmlschema-2/)

Within the current document all the SVXP CMS messages are described in the table structure below.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Tag name | Data type | | Length | | Occurrence (min-max) | | | Description | |
| card\_black\_list | | | | | | | | |
| card | Card | |  | | 1-\* | | | Information about card status changing. |
| card | | | | | | | | |
| card\_number | | string | | 13-19 | | 1-1 | Card number which status was changed. | |

**Data Type:** SVXP CMS tags can be of Primitive XML Data Types (string, long, boolean, etc ) or Complex Data Types (Aggregates).

**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 (last digit)

e.g. 1-1 = minOccurs="1" maxOccurs="1"

Documentation is provided along with Examples of the Request messages for all of the methods described below.

1. CARD BLACK LIST FILE STRUCTURE
   1. Overview

File is used to loading black list of cards. Data is loading at any time.

The direction of the file is INCOMING.

* 1. References

Format of card black list file described by XSD file: svxp\_card\_black\_list.xsd

Example of xml document:

svxp\_card\_black\_list.xml

* 1. List of elements

| Tag name | Data type | Size | Occurs | Description |
| --- | --- | --- | --- | --- |
| card\_black\_list | | | | |
| card | Card |  | 1-\* | Information about card status changing. |
| card | | | | |
| card\_number | string | 13-19 | 1-1 | Card number which status was changed. |

* + 1. CARD\_BLACK\_LIST

This is a root element of the black list of card file. It contains a list of cards.

* + 1. CARD

The element contains the information about one particular card.

CARD\_NUMBER

Card number, which must be loaded into the black list.

1. CARD STATUS FILE STRUCTURE
   1. Overview

File is used to update the status of cards after their migration from the external system. The data is loaded before switching from the migrating system to SmartVista to get the actual state of the cards.

The direction of the file is INCOMING.

* 1. References

Format of card status change file described by XSD file: svxp\_card\_status.xsd

Example of xml document:

svxp\_card\_status\_example.xml

* 1. List of elements

| Tag name | Data type | Size | Occurs | Description |
| --- | --- | --- | --- | --- |
| card\_statuses | | | | |
| card\_status | card\_status |  | 1-\* | Information about card status changing. |
| card\_status | | | | |
| card\_number | string | 13-19 | 1-1 | Card number which status was changed. |
| card\_id | long | 12 | 0-1 | Card identifier |
| expiration\_date | date |  | 1-1 | Expiration date of card. |
| seq\_number | int | 1 | 1-1 | Card instance serial number which status was changed. |
| change\_date | dateTime |  | 0-1 | Date of status changing. |
| status | string | 8 | 1-1 | Status code. Dictionary. |
| state | string | 8 | 0-1 | State code. Dictionary. |
| initiator | string | 8 | 0-1 | Initiator of status changing. Dictionary. |
| status\_reason | string | 8 | 0-1 | Reason of card status. Dictionary. |
| change\_id | string | 200 | 0-1 | Unique identifier of card status change request. Used only in incoming files and in response on incoming files. |
| result\_code | string | 8 | 0-1 | Result of processing incoming currency rate. Filled only in response file. |
| error\_code | string | 200 | 0-1 | Error code of processing incoming currency rate. Filled only in response file if status not successful. |

* + 1. CARD\_STATUSES

This is a root element of the card status file. It contains a list of cards and information about their status changing.

* + 1. CARD\_STATUS

The element contains the information about one particular card.

CARD\_NUMBER

Card number for which the status/state changing is needed.

CARD\_ID

Unique internal card identifier that was assigned by SmartVista to card.

SEQ\_NUMBER

Serial number of the card instance to which the status changing is related. As there can be several instances for one card then the parameter is mandatory to define the exact instance.

CHANGE\_DATE

Date of the card status changing. It is set accurate to seconds.

STATUS

Card instance status that defines whether the instance can be used in operations and limitations of this operations.

| 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 |

STATE

Card instance state. It defines the card’s physical presence.

| Code | Description |
| --- | --- |
| CSTE0100 | Personalization required |
| CSTE0200 | Issued |
| CSTE0300 | Closed |

INITIATOR

Additional information field to display card status changing initiator.

| Code | Description |
| --- | --- |
| ENSICLNT | Client |
| ENSIOPER | Operator |
| ENSISSTM | System |

STATUS\_REASON

Event, used for card status change – **EVNT** dictionary.

CHANGE\_ID

Unique identifier of card status change request. Used only in incoming files and in response on incoming files.

RESULT\_CODE

Result of processing currency rate record in incoming file. Used in response file.

| Code | Description |
| --- | --- |
| IFRR0001 | Record implemented successfully. |
| IFRR0002 | Error. Record was not implemented. |

ERROR\_CODE

Error code when record was not implemented. Used in response file.

| Code | Description |
| --- | --- |
| CARD\_NOT\_FOUND | Card not found. |
| CARD\_INSTANCE\_NOT\_FOUND | Card instance not found (incorrect expiration date or sequential number). |
| ILLEGAL\_STATUS\_COMBINATION | Card status could not be changed. |
| UNHANDLED\_EXCEPTION | Unknown fatal error. |

1. CARD SECURITY DATA TRANSMISSION FILE STRUCTURE
   1. Overview

This file used to transmit secured card information, i.e. PIN related data, from an external system. Secured data is collected in a separate file since they are subject to increased safety requirements of storage and transmission.

The direction of the file is INCOMING.

* 1. References

Format of card security data transmission file described by XSD file: svxp\_card\_secure.xsd

Example of xml document:

svxp\_card\_pvv\_only\_example.xml

svxp\_card\_secure\_example.xml

svxp\_cards\_id\_number\_example.xml

* 1. List of elements

| Tag name | Data type | Size | Quantity | Description |
| --- | --- | --- | --- | --- |
| cards | | | | |
| card | aggregate |  | 1-\* | Card information |
| card |  |  |  |  |
| card\_id | long | 12 | 0-1 | Card identifier |
| card\_number | long | 19 | 0-1 | Card number |
| expiration\_date | date |  | 0-1 | Card expiration date |
| card\_sequental\_number | int | 2 | 0-1 | Card sequence number, card plastic or instance number |
| card\_instance\_id | long | 12 | 0-1 | Card instance identifier |
| state | string | 8 | 0-1 | State code. Dictionary. |
| card\_security | aggregate |  | 0-1 | Security parameters for card |
| cardholder\_name | string | 200 | 0-1 | Cardholder embossed name. |
| company\_name | string | 200 | 0-1 | Company name for corporate cards |
| personalization\_info | personalization\_info |  | 0-1 | Data from personalization system |
| card\_security | | | | |
| PVV | int | 4 | 1-1 | PIN verification value or pin offset value |
| PIN\_offset | int | 12 | 0-1 | PIN offset value |
| PIN\_block | hex | 16 | 0-1 | Encrypted PIN block |
| key\_index | int | 2 | 0-1 | PIN key index |
| PIN\_block\_format | string | 8 | 0-1 | PIN block format specification |
| personalization\_info | | | | |
| pin\_request | string | 64 | 1-1 | Flag of PIN generation. Value from PNRQ dictionary. |
| pin\_mailer\_request | string | 64 | 1-1 | Flag of PIN mailer printing. Value from PMRQ dictionary. |
| embossing\_request | string | 64 | 1-1 | Flag of payment token personalization. Value from EMRQ dictionary. |

* + 1. CARDS

Root element for cards sensitive data information transmission.

* + 1. CARD

Card data record consists of card instance identification information and sensitive card data. For card instance identification card\_instance\_id or following options may be used:

| One of |  | One of |
| --- | --- | --- |
| card\_id | AND | expiration\_date |
| card\_number | card\_sequental\_number |

CARD\_ID

Unique internal card identifier that was assigned by SmartVista to card.

CARD\_NUMBER

Clear value of card number.

EXPIRATION\_DATE

Card expiration date. Only year and month specification is required, day is not taken into consideration.

CARD\_SEQUENTAL\_NUMBER

Card sequence number. The sequential number of card instance.

CARD\_INSTANCE\_ID

Unique internal card instance identifier.

STATE

Card instance state. It defines the card’s physical presence. If this tag isn’t present then process will use value of its input parameter.

| Code | Description |
| --- | --- |
| CSTE0100 | Personalization required |
| CSTE0200 | Issued |
| CSTE0300 | Closed |

CARDHOLDER\_NAME

Cardholder embossed name.

COMPANY\_NAME

Company name for corporate cards.

PERSONALIZATION\_INFO

Miscellaneous data from personalization system.

* + 1. CARD\_SECURITY

Card instance sensitive data information. Card issuance rules must be synchronized between systems before sensitive data transmission, e.g. PIN block format,. PIN calculation algorithm, etc.

PVV

PVV or PIN offset value depending on PIN calculation method which is used for card.

PIN\_offset

PIN offset value depending on PIN calculation method which is used for card.

PIN\_BLOCK

PIN Block value. By default HSM LMK encrypted PIN block is assumed.

KEY\_INDEX

PIN key index specifies number of key set that should be used for card sensitive data operating. By default is 0.

PIN\_BLOCK\_FORMAT

PIN block format specification. Must be specified as “PNBFANSI” or omitted in case of LMK encryption

* + 1. PERSONALIZATION\_INFO

This complex tag contains data from the personalization system, e.g. flag of PIN generation, PIN mailer printing, plastic card personalization, etc.

**PIN\_REQUEST**

Flag of PIN generation. Dictionary values:

| Code | Description |
| --- | --- |
| PNRQDONT | Don't generate |
| PNRQGENR | Generate |
| PNRQINHR | Inherit |

**PIN\_MAILER\_REQUEST**

Flag of PIN mailer printing. Dictionary values:

| Code | Description |
| --- | --- |
| PMRQDONT | Don't print |
| PMRQPRNT | Print |

**EMBOSSING\_REQUEST**

Flag of payment token (e.g. a classic plastic card) personalization. Dictionary values:

| Code | Description |
| --- | --- |
| EMRQCHIP | Write to chip |
| EMRQDONT | No plastic |
| EMRQEMBS | Plastic embossing |

1. NOTIFICATIONS FILE STRUCTURE
   1. Overview

The file is used to transmit notifications generated in the SmartVista to the external system to send them to recipients.

The direction of the file is OUTGOING.

* 1. Common description

The structure of the file is an XML document containing comprehensive information on notification messages. The document contains a complete list of all the tags are allowed in this file format. However, the final set of tags defined by the needs of a specific use and can be significantly reduced or exceeded.

XML file generates by running process "Export event notification".

Value of process parameter "Notification channel ID" can be one of following:

E-Mail

Hard Copy

SMS

Off-line SMS.

Exporting messages are filtered by selected value of Notification channel ID.

After file generating, messages becomes marked as delivered to the client.

* 1. References

Format of notification file described by XSD file: svxp\_notifications.xsd

Example of xml: svxp\_notifications\_example.xml

* 1. List of elements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tag | Type | Size | Occurs | Description |
| Notifications | | | | |
| File\_id | long | 16 | 0-1 | Unique identifier of outgoing file |
| file\_type | string | 8 | 0-1 | Dictionary file type name |
| channel\_type | number | 20 | 0-1 | Delivery channel type ID:  1 - E-Mail,  2 - Hard Copy  3 - SMS  4 - Off-line SMS |
| notification | notification |  | 1-\* | Notifications |
| Notification | | | | |
| delivery\_address | string | 100 | 1-1 | Clients phone number or E-mail address. Type depends of Delivery channel type. |
| text | string | 200 | 1-1 | Notification message |
| lang | string | 8 | 0-1 | Dictionary language name of notification message |
| delivery\_date | date |  | 1-1 | Date of notification needed to be delivered. Format DD.MM.YYYY |
| urgency\_level | number | 1 | 0-1 | Message urgency level (0 - high, 1- normal, 2 - low) |
| entity\_type | string | 8 | 0-1 | Entity type |
| object\_id | long | 16 | 0-1 | Entity’s object identifier |