



Card Generation Interface Specification

Version: 12.8

11 April 2024

Publication number: CGIS-12.8-4/11/2024

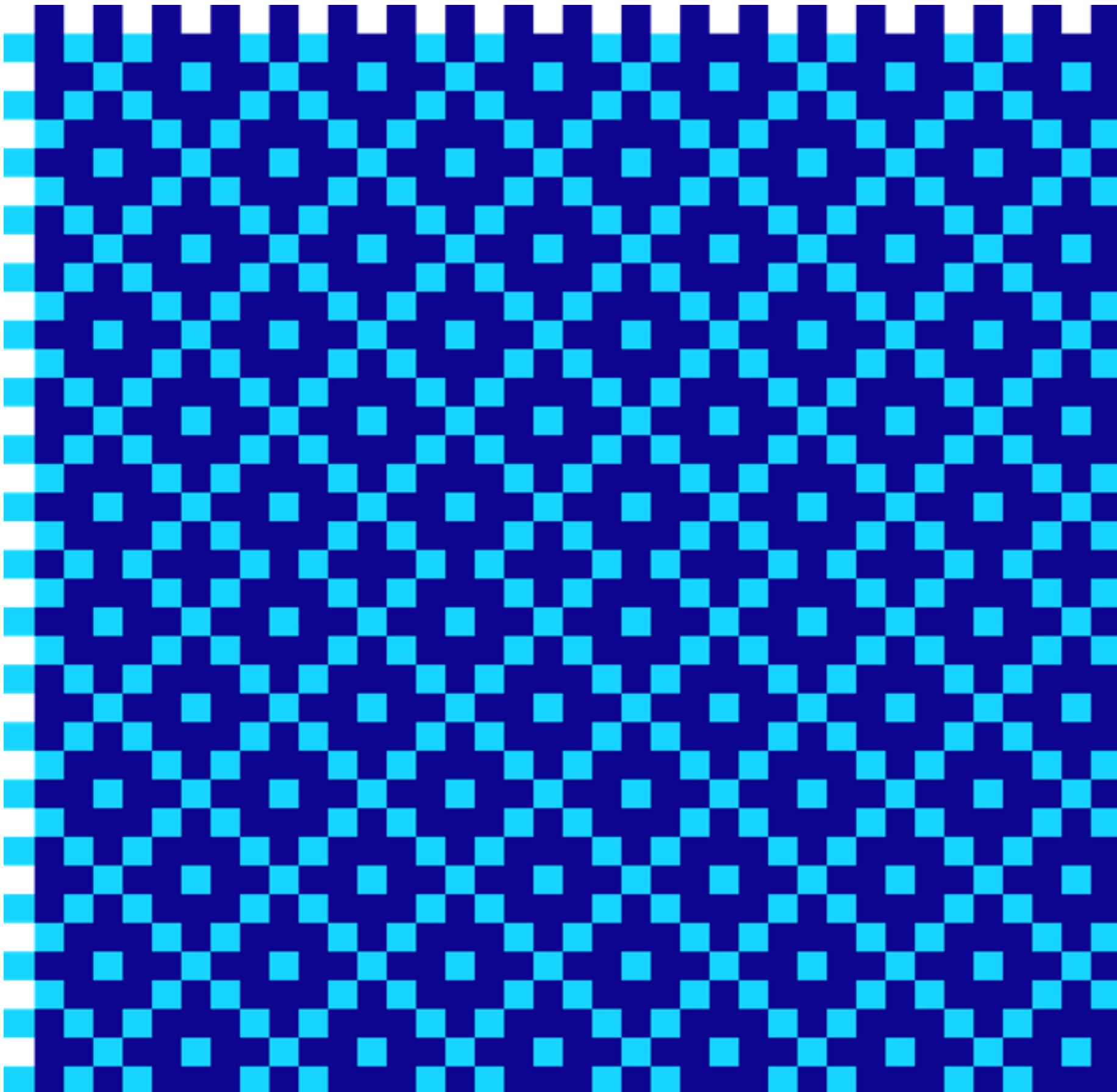
For the latest technical documentation, see the [Documentation Portal](#).

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About this Document

This document describes the format for the Thredd Card Generation XML Interface.
The interface allows card manufacturers to accept card generation files from Thredd.

What’s Changed?

If you want to find out what's changed since the previous release, see the [Document History](#) section.

How to use this Guide

If you want to find out about the file naming convention and different file format options available, see [About the Card Generation File](#).
To view example files, see [Example Files](#).
To view details of the fields in the XML files, see [XML Fields](#).
For details of field differences between file formats, see [File Format and File Versions](#).

Related Documents

Refer to the table below for other documents which should be used in conjunction with this guide.

Document	Description
Cards API Website	Describes how to use the Thredd REST-based API to create cards.
Web Services Guide	Describes how to use the Thredd SOAP Web Services API to create cards.
EHI Guide	Provides details of the Thredd External Host Interface (EHI).
Smart Client Guide	Describes Smart Client, which is an administration application that can be used to view and manage cards and transactions in your program.

Tip: For the latest technical documentation, see the [Documentation Portal](#).

Other Relevant Documents

The following ISO standard documents provide additional information on some card fields. These are available at [iso.org](#).

Document	Description
ISO 9564-1 Specification	Specifies PIN block formats.
ISO 7813 Specification	Specifies Magnetic Stripe Data formats.
ISO 4217 Specification	Specifies currency codes (but note that Thredd may differ slightly, in cases where Visa/Mastercard differ from the ISO specification).
ISO 8583 Specification	Specifies PAN and PAN sequence number.



1 About the Card Generation File

1.1 File Naming Conventions

The file naming convention is flexible but by default, card interface files have the following naming convention:

1.1.1 On-Premise Customers (P0)

XXXX_PPPP_rrrr_bbbb.xml

1.1.2 Thredd Cloud (P1 and P2)

XXXX_PPPP_rrrr_bbbb_Pn.xml

Where:

- XXXX – is the Institution name as held by Thredd
- PPPP– is the first PRODUCT_REF (product reference) in the file
- Rrrr – is the number of records in the file
- Bbbb – is the unique Thredd batch number
- Pn – is the production environment (2 digits), such as P1 and P2. (Not applicable to customers in our UK data centre production environment)

1.1.3 Example

CLI_PRODUCT1_124_1571_P1.xml

Note: The production environment variable is relevant to customers in one of our AWS Cloud-based production environments (P1 and P2) and does not apply to existing customers in our UK data centre production environment (P0). For details of which production environment applies to your programme, please check with your Thredd implementation manager or account manager.

1.2 File Formats

The Card Generation XML file is available in the following formats:

File Format	Description	Fields removed from this file
1 – Cut-Down Format	By default, you are provided with this format, which is similar to the file sent to the card bureau but with sensitive information removed.	• <TRACK1>, <TRACK2>, <CVV2>, <PAN> and <EMBOSS_PAN> • The CHIP element which includes the fields: <CHIP>, <CHIP_TRACK_1>, <CHIP_TRACK_2>, <CHIP_TRACK_1_MSD_CL>, <CHIP_TRACK_2_MSD_CL> and <PINBLOCK>
2 – Full Format	This format is provided on request and only to fully PCI-compliant clients. This file is the same as the one sent to the card manufacturer. It includes the fields not available with the cut-down format.	
3 – Cut Down Format with masked PAN	This format is provided on request and is the same as the Cut-Down Format but includes the masked PAN in the <PAN> element.	• <TRACK1> , <TRACK2>, <CVV2> and <PAN> • <CHIP>, <CHIP_TRACK_1> ,<CHIP_TRACK_2> ,<CHIP_TRACK_1_MSD_CL> ,



File Format	Description	Fields removed from this file
		<CHIP_TRACK_2_MSD_CL> and <PINBLOCK>
4 – Cut Down Format with clear PAN	This format is provided on request and is the same as the Cut-Down Format but includes the full PAN in the <EMBOSS_PAN> element.	• <TRACK1> , <TRACK2>, <CVV2> and <EMBOSS_PAN> • <CHIP>, <CHIP_TRACK_1> ,<CHIP_TRACK_2>, <CHIP_TRACK_1_MSD_CL>, <CHIP_TRACK_2_MSD_CL> and <PINBLOCK>

Note: For examples of full and cut-down formats, see [Example Files](#). For more information on the fields included with each file format, see [File Format and File Versions](#).



1.3 Data Format Version Number

This indicates the data version number. Newer data format versions may include new fields. Currently supported data format versions are: 10, 11 and 12. For more information on the fields included with each data format version, see [File Format and File Versions](#).



2 XML Fields

This section provides details of the fields included in the XML file.

XMLTAG	Type	Length	Description	Nulls Allowed
<CARDGEN>			Header tag	N/A
<CARDSUM>			Summary file opening tag	N/A
<DATA_FORMAT_VERSION>	Varchar	5	File version	No
<FILEDATE>	dd-mm-yyyy	10	File date	No
<FILETIME>	hh-mm-ss	10	File time	No
<NO_OF_CARRIERS>	Integer		Number of carriers	No
<NO_OF_CARDS>	Integer		Number of cards	No
<NO_OF_PRODUCTS>	Integer		Number of different products in the file (Mag stripe/chip etc)	No
<TXREF>	varchar	30	Transmission_Reference This is an incrementing reference number and may not be consecutive.	No
<ORDER_REF>	varchar	30	Customer order reference number	Yes
<PRODUCT>			Defines a product set	N/A
<PRODUCT_REF>	varchar	50	Identifies the product. Note: This is the physical card Design reference as used by the card printer.	No
<RECORD>			Defines a record within a Product	N/A
<REQUEST_TYPE>	varchar	15	Indicates whether the card is a “New” or “Replacement” card request For PIN Mailers, can be one of: PIN_MAILER NEW_WITH_PINM REPL_WITH_PINM	No
<UID>	Varchar	20	Unique identifier to identify the record. You can use this in error tracking.	No
<CARRIER>			Defines the Carrier section within a Record	N/A
<TITLE>	Varchar	10	Cardholder title	Yes
<FNAME>	Varchar	20	Cardholder first name	Yes
<SNAME>	Varchar	30	Cardholder surname	Yes



XMLTAG	Type	Length	Description	Nulls Allowed
<ADD1>	Varchar	50	Cardholder address line 1	Yes
<ADD2>	Varchar	50	Cardholder address line 2	Yes
<ADD3>	Varchar	50	Cardholder address line 3	Yes
<ADD4>	Varchar	50	Cardholder address line 4	Yes
<CITY>	Varchar	50	Cardholder address city	Yes
<POSTCODE>	Varchar	10	Cardholder address postcode	Yes
<MOBILE>	Varchar	50	Mobile phone number linked to the card	Yes
<COUNTRY>	Varchar	3	Cardholder address country. Numeric 3-digit ISO 3166-1 Country code (e.g. 052 for Barbados). (Always 3 digits, use leading zeros if needed.)	Yes
<BULK_ADD1>	Varchar	50	Alternative delivery address line 1. If present, should be used in preference to carrier address.	Yes
<BULK_ADD2>	Varchar	50	Alternative delivery address line	Yes
<BULK_ADD3>	Varchar	50	Alternative delivery address line 3	Yes
<BULK_CITY>	Varchar	50	Alternative delivery address city	Yes
<BULK_COUNTY>	Varchar	20	Alternative delivery address count	Yes
<BULK_POSTCODE>	Varchar	10	Alternative delivery address postcode	Yes
<BULK_COUNTRY>	Varchar	3	Alternative address country. Numeric 3-digit ISO 3166-1 Country code (e.g. 052 for Barbados). (Always 3 digits, use leading zeros if needed.)	Yes
<CARRIER_TYPE>	Varchar	30	Defines carrier product. Note: This is the Carrier Product Design reference as used by the card printer.	No
<CARRIER_LOGO_ID >	Varchar	20	Defines an optional carrier logo.	Yes
<DELV_METHOD>	Char	1	The delivery method for the card: 0 = Standard mail (default) 1 = Registered mail 2 = Direct delivery (Courier) 3 = Customized Delivery Method 1 4 = Customized Delivery Method 2 5 = Customized Delivery Method 3 6= Customized Delivery Method 4 7 = Customized Delivery Method 5	No



XMLTAG	Type	Length	Description	Nulls Allowed
<DELV_CODE>	Varchar	12	The delivery code for the card: If specified, all cards with the same delivery code are to be sent together to the specified BULK delivery address. Carriers with the same DELV_CODE will be grouped together in the file.	Yes
<FULFIL1>	Varchar	50	RFU (Reserved for Future Use)	Yes
<FULFIL2>	Varchar	50	RFU	Yes
<LANG>	Char	2	Defines the language of the carrier product, if it is not already defined by the <CARRIER_TYPE> elements. Uses ISO 639-1 language code. Examples: English is “en”, French is “fr”	Yes
<CARD>			Card definition opening tag within a Record	N/A
<TYPE>	varchar	20	Defines the product: “Mag” “Chip&PIN” “Chip&PIN&Contactless”	No
<CURRENCY>	Char	4	4-digit ISO currency code. For example: “0826”= GBP	No
<TRACK1>	Varchar	76	Track 1 data for magnetic stripe, excluding the Start Sentinel, End Sentinel and LRC characters. Note: The ISO standard allows for maximum of 76 (excluding the Start Sentinel, End Sentinel and LRC characters). Track Layout MASTERCARD: B + PAN + ^ + Name + ^ + Expiry date in “yyMM” format + Service Code + 00000 + CVV1 + 0000000 VISA: B + PAN + ^ + Name + ^ + Expiry in “yyMM” format + Service Code + 00 + CVV1 + 000000	No
<TRACK2>	Varchar	37	Track 2 data for the magnetic stripe, excluding Start Sentinel, End Sentinel and LRC characters. MASTERCARD: PAN + = + Expiry date in “yyMM” format + Service Code + 000000 + Validity in months + CVV1 + PAN Sequence No VISA: PAN + = + Expiry Date in “yyMM” format + Service Code + CVV1 + 00000	No



XMLTAG	Type	Length	Description	Nulls Allowed
<TRACK3>	Varchar	104	Track 3 data for the magnetic stripe, excluding Start Sentinel, End Sentinel and LRC characters. ISO standard allows for a maximum of 104 characters (excluding Start Sentinel, End Sentinel and LRC). By default, Thredd will put the Card 9-digit token in this element.	Yes
<EMBOSS_PAN>	Integer	19	Embossed card Primary Account Number (PAN)	No
<EMBOSS_NAME>	varchar	27	Embossed card name. Actual maximum length will depend on the card design.	Yes
<EMBOSS_START>	Varchar	10	Embossed card start date (MM/YY)	No
<EMBOSS_EXPIRY>	Varchar	10	Embossed card expiry date (MM/YY)	No
<EMBOSS_CVC2>	varchar	10	Embossed card Verification Code 2 (CVC2)	No
<EMBOSS_LINE4>	Varchar	27	Embossed card line 4. Actual maximum length will depend on the card design.	Yes
<THERMAL_LINE1>	Varchar	70	Example, Company name	Yes
<THERMAL_LINE2>	Varchar	120	RFU	Yes
<IMAGE_ID>	Varchar	20	Identifies the image file that will be printed on the face of the card.	Yes
<LOGO_FRONT_ID>	Varchar	30	Identifies the logo file that will be printed on the face of the card.	Yes
<LOGO_BACK_ID>	Varchar	30	Identifies the image file that will be printed on the back of the card, if supported.	Yes
<QRCODE>	Varchar	100	Identifies the QR code that will be printed on the card, if supported. You can add separate values to each card using Thredd API. For details, see the Url field in the SOAP Web Services Guide > Card Create . (Note: functionality currently not available if using our REST-based Cards API).	Yes
<PINBLOCK>	Hexadecimal	16	Optional. Will only be present if the card is Mag stripe and the card requester requires online PIN. Used for PIN mailers. Format is the same as <PINBLOCK> in the <CHIP> section; see below.	Yes
<CHIP>			Defines the chip details within a Record. This element may not be present, depending on Card Type.	N/A
<TYPE>	varchar	10	Possible values: Maestro	Yes



XMLTAG	Type	Length	Description	Nulls Allowed
			Mastercard VisaCard Euro Cirrus EuroCard Cirrus Maestro PLUS Card	
<PAN>	Integer	16-19	Primary Account Number ISO 8583 bit 2	Yes
<PAN_SEQ>	Integer	2	PAN Sequence number. ISO 8583 bit 23. Value from 00 to 99.	Yes
<NAME>	Varchar	26	Must match name embedded in Track 1	Yes
<START_DATE>	Integer	6	YYMMDD	Yes
<EXPIRY_DATE>	Integer	6	YYMMDD	Yes
<SERVICE_CODE>	Integer	3	Three decimal digits as defined in ISO 7813. First digit: Use and Technology: 1 = International 2 = International, Chip 5 = National Use Only 6 = National Use Only, Chip 7 = Private Label 9 = Test Card Second digit: Authorisation requirements: 0 = Normal 2 = Online Authorisation Required 4 = Online Authorisation required unless special agreement Third digit: Service and PIN requirements: 0 = PIN Required 1 = No restrictions 2 = Purchases only 3 = ATM Only, PIN required 4 = Cash only 5 = Purchases only, PIN required 6 = Use PIN if possible 7 = Purchases only, use PIN if possible	Yes
<CHIP_TRACK_1>	varchar	76	This is the entire chip track 1 for EMV transactions. It permits the derivation of EMV tag hex 9F1F (track 1 discretionary data as defined in ISO 7813) which is part of this. MASTERCARD: B + PAN + ^ + Name + ^ + Expiry date in "yyMM" format + Service Code + 00000 + iCVV + 0000000	Yes



XMLTAG	Type	Length	Description	Nulls Allowed
			VISA: B + PAN + ^ + Name + ^ + Expiry Date in "yyMM" format + Service Code + 00 + iCVV + 000000	
<CHIP_TRACK_2>	varchar	38	This is the EMV Track 2 equivalent data, for EMV tag hex 57. It is for EMV-based (including qVSDC) transactions (both contact and contactless) MASTERCARD: PAN + D + Expiry in "yyMM" format + Service Code + 000000 + Validity in months + iCVV + PAN Sequence No (If the length of CHIP_TRACK_2 is odd then will add "F" at the end) VISA: PAN + D + Expiry Date in "yyMM" format + Service Code + iCVV + 00000 (If the length of CHIP_TRACK_2 is odd then will add "F" at the end)	Yes
<CHIP_TRACK_1_MSD_CL>	Varchar	76	Optional. This element will only be present if the product type supports Contactless Magnetic Stripe Transactions. It is the base Track 1 for Contactless Magnetic Stripe (which is not EMV) transactions. MASTERCARD: For Mastercard, this is for tag hex 56 (PayPass Magstripe Track 1 Data.) (See Mastercard "PayPass MagStripe Technical Specifications v3.2 Oct 2006".) VISA: For Visa, if there is a separate data item on the ICC for the Track 1 exclusively for Magnetic Stripe Data (not EMV or qVSDC) then use this for it. Format is same as <CHIP_TRACK_1> except Name is replaced with space and forward slash i.e. " /", and discretionary data may be different.	Yes
<CHIP_TRACK_2_MSD_CL>	Varchar	37	Optional. This element will only be present if the product type supports Contactless Magnetic Stripe transactions. It is the base Track 2 for contactless Magnetic Stripe (which is not EMV) transactions. MASTERCARD: For Mastercard, this is for tag hex 9F6B (PayPass Magstripe Track 2 Data.) (See Mastercard "PayPass MagStripe Technical Specifications v3.2 Oct 2006".) VISA: For Visa, if there is a separate data item on the ICC for the Track 2 exclusively for Magnetic Stripe Data (not EMV or qVSDC) then use this	Yes



XMLTAG	Type	Length	Description	Nulls Allowed
			for it. Format is same as <CHIP_TRACK_2> but discretionary data may be different.	
<PINBLOCK>	Hexadecimal	16	Holds the encrypted PIN to be placed on the chip card. Format is ISO 9564-1 Format 0 (same as ANSI X9.8 Format 0), triple DES encrypted with the double-length Zone PIN Key, expressed as 16 hex digits (with 2 hex digits representing 1 binary byte.) This is formed as: Plaintext PIN field = '0'+ PIN length (4-C) + PIN + 'F's padding to 16 hex digits. Account number field = '0000' + rightmost 12 digits of the PAN excluding the check digit. Then XOR the 'Plaintext PIN field' and 'Account number field'. This is 16 hex digits representing 8 binary bytes. Then Triple-DES encrypt the resultant 8 binary bytes with the double length Zone PIN Key. Example: PAN = 5299887766554439 PIN = 223344 Zone PIN Key = 3B6870987613107CFB1F4C6EC17F3483 Plaintext PIN field = 06223344FFFFFFFF Account Number Field = 0000988776655443 Result of XOR = 0622ABC3899AABBC Encrypting this with the Zone PIN key gives result: 7553DAA289620533 So PINBLOCK is 7553DAA289620533	Yes

Additional Fields (In Cut-Down File Version for Program Manager)

XMLTAG	Type	Length	Description	Nulls Allowed
<CUST_ACCNO>	Varchar	25	Cardholder account number or reference number. You can use this reference to find the cards linked to a cardholder. Also displayed in Smart Client as <i>Customer Reference</i>. (Note: This corresponds to the customerReference parameter set using the Thredd REST-based Cards API or the CustAccount parameter set using Thredd SOAP web services (SOAP API). See the Cards API Website > Create a Card or the Web Services Guide > Card Create.	Yes



XMLTAG	Type	Length	Description	Nulls Allowed
<PASSCODE>	Varchar	6	Code which can be used to validate the card when a card activation request is received from the cardholder. (Note: This corresponds to the parameter set using the AccCode parameter in Thredd web services (SOAP API). See the Web Services Guide > Card Create . (Note: equivalent functionality is currently not available in the REST-based Cards API).	Yes

2.1 XML Markup

Please note that certain characters are reserved for XML markup. When an XML parser encounters a reserved character, it assumes it has encountered an element, entity or markup statement. The following examples of reserved characters, and what you should replace this with if you need to include that character as data in the XML file:

Reserved character	What you should use
<	<
>	>
&	&
'	'
"	"



3 Example Files

Note: The contents in this file may differ, depending on the card type, data format version number and file format. For more information on the fields included with each data format version and file type, see [File Format and File Versions](#).

3.1 Full version for Card Manufacturer

Below is an example of a typical card generation XML file sent to the card manufacturer:

```
<?xml version="1.0" encoding="utf-8"?>
<CARDGEN>
  <CARDSUM>
    <DATA_FORMAT_VERSION>12</DATA_FORMAT_VERSION>
    <FILEDATE>02-01-2023</FILEDATE>
    <FILETIME>09-15-55</FILETIME>
    <NO_OF_CARRIERS>2</NO_OF_CARRIERS>
    <NO_OF_CARDS>2</NO_OF_CARDS>
    <NO_OF_PRODUCTS>1</NO_OF_PRODUCTS>
    <TXREF>1001</TXREF>
    <ORDER_REF>ABC-123</ORDER_REF>
  </CARDSUM>
  <PRODUCT>
    <PRODUCT_REF>DESIGN1</PRODUCT_REF>
    <RECORD>
      <REQUEST_TYPE>New</REQUEST_TYPE>
      <UID>123456789</UID>
      <CARRIER>
        <TITLE>Mr.</TITLE>
        <FNAME>Fred</FNAME>
        <SNAME>Jones</SNAME>
        <ADD1>Sample Company</ADD1>
        <ADD2>1 Sample Street </ADD2>
        <ADD3>Sample Borough </ADD3>
        <ADD4>Sample Address Line 4</ADD4>
        <CITY>Sample City</CITY>
        <POSTCODE>E1W2BS</POSTCODE>
        <MOBILE>44123456789</MOBILE>
        <COUNTRY>UK</COUNTRY>
        <BULK_ADD1></BULK_ADD1>
        <BULK_ADD2></BULK_ADD2>
        <BULK_ADD3></BULK_ADD3>
        <BULK_CITY></BULK_CITY>
        <BULK_COUNTY></BULK_COUNTY>
        <BULK_POSTCODE></BULK_POSTCODE>
        <BULK_COUNTRY></BULK_COUNTRY>
        <CARRIER_TYPE>CAR_1</CARRIER_TYPE>
        <CARRIER_LOGO_ID></CARRIER_LOGO_ID>
        <DELV_METHOD>0</DELV_METHOD>
        <DELV_CODE></DELV_CODE>
        <FULFIL1></FULFIL1>
        <FULFIL2></FULFIL2>
        <LANG>en</LANG>
      </CARRIER>
    </RECORD>
  </PRODUCT>
  <CARD>
    <TYPE>Mag</TYPE>
    <CURRENCY>0826</CURRENCY>
    <TRACK1>B1234567812345678^GIFTCARD/CORPORATE^1811122000009830000000</TRACK1>
    <TRACK2>1234567812345678=16102210000006064400</TRACK2>
    <TRACK3>953171211</TRACK3>
    <EMBOSS_PAN>1234 5678 1234 5678</EMBOSS_PAN>
    <EMBOSS_NAME>MR A B SAMPLE</EMBOSS_NAME>
    <EMBOSS_START>11/11</EMBOSS_START>
    <EMBOSS_EXPIRY>10/16</EMBOSS_EXPIRY>
    <EMBOSS_CVC2>1234 135</EMBOSS_CVC2>
    <EMBOSS_LINE4>A123 REG</EMBOSS_LINE4>
    <THERMAL_LINE1>Possible Company Name here</THERMAL_LINE1>
    <THERMAL_LINE2></THERMAL_LINE2>
```



```
<IMAGE_ID></IMAGE_ID>
<LOGO_FRONT_ID></LOGO_FRONT_ID>
<LOGO_BACK_ID></LOGO_BACK_ID>
<QRCODE>https://www.flex-e-card.com/balance/2909680989632389</QRCODE>
<PINBLOCK>3A56DFF541C12197</PINBLOCK>
</CARD>
</RECORD>
<RECORD>
  <REQUEST_TYPE>New</REQUEST_TYPE>
  <UID>52738098</UID>
  <CARRIER>
    <TITLE>Mr.</TITLE>
    <FNAME>AN</FNAME>
    <SNAME>Other</SNAME>
    <ADD1>Tall Pines</ADD1>
    <ADD2>1 Sample Road </ADD2>
    <ADD3>Sample Borough </ADD3>
    <ADD4></ADD4>
    <CITY>Sample City</CITY>
    <POSTCODE>E1W2BS</POSTCODE>
    <MOBILE>447734567679</MOBILE>
    <COUNTRY>UK</COUNTRY>
    <BULK_ADD1>General Manager</BULK_ADD1>
    <BULK_ADD2>The Big Company</BULK_ADD2>
    <BULK_ADD3>123 The High Street</BULK_ADD3>
    <BULK_CITY>Maintown</BULK_CITY>
    <BULK_COUNTY></BULK_COUNTY>
    <BULK_POSTCODE>MA1 1MA</BULK_POSTCODE>
    <BULK_COUNTRY>UK</BULK_COUNTRY>
    <CARRIER_TYPE>CAR_2</CARRIER_TYPE>
    <CARRIER_LOGO_ID>Logo1</CARRIER_LOGO_ID>
    <DELV_METHOD>2</DELV_METHOD>
    <DELV_CODE>B029</DELV_CODE>
    <FULFIL1></FULFIL1>
    <FULFIL2></FULFIL2>
    <LANG>en</LANG>
  </CARRIER>
  <CARD>
    <TYPE>Chip&PIN</TYPE>
    <CURRENCY>0826</CURRENCY>
    <TRACK1>B1234567890123456^GIFTCARD/CORPORATE^1811122000009830000000</TRACK1>
    <TRACK2>1234567890123456=16102210000006064400</TRACK2>
    <TRACK3>123456789</TRACK3>
    <EMBOSS_PAN>1234 5678 9012 3456</EMBOSS_PAN>
    <EMBOSS_NAME>MR AN OTHER</EMBOSS_NAME>
    <EMBOSS_START>11/11</EMBOSS_START>
    <EMBOSS_EXPIRY>10/16</EMBOSS_EXPIRY>
    <EMBOSS_CVC2>1234 157</EMBOSS_CVC2>
    <EMBOSS_LINE4></EMBOSS_LINE4>
    <THERMAL_LINE1></THERMAL_LINE1>
    <THERMAL_LINE2></THERMAL_LINE2>
    <IMAGE_ID>img00124</IMAGE_ID>
    <LOGO_FRONT_ID>logo_HSBC</LOGO_FRONT_ID>
    <LOGO_BACK_ID></LOGO_BACK_ID>
    <QRCODE>https://www.flex-e-card.com/balance/2909680989632389</QRCODE>
    <CHIP>
      <TYPE>MASTERCARD</TYPE>
      <PAN>1234567890123456</PAN>
      <PAN_SEQ>01</PAN_SEQ>
      <NAME>OTHER/MR AN</NAME>
      <START_DATE>111101</START_DATE>
      <EXPIRY_DATE>161031</EXPIRY_DATE>
      <SERVICE_CODE>221</SERVICE_CODE>
      <CHIP_TRACK_1>B1234567812345678^OTHER/MR AN ^1610221000004600000000</CHIP_TRACK_1>
      <CHIP_TRACK_2>1234567812345678D16102210000006046000F</CHIP_TRACK_2>
      <PINBLOCK>3A56DFF541C12197</PINBLOCK>
      <CHIP_TRACK_1_MSD_CL>B1234567812345678^ /^1610221000004600000000</CHIP_TRACK_1_MSD_CL>
      <CHIP_TRACK_2_MSD_CL>1234567812345678D161022100000001</CHIP_TRACK_2_MSD_CL>
    </CHIP>
  </CARD>
</RECORD>
```



```
</PRODUCT>  
</CARDGEN>
```

3.2 Cut-down version for Program Manager

Below is an example of a copy of the card generation XML file sent to the program manager. Fields containing sensitive cardholder data have been removed.

Note: The `<EMBOSS_PAN>` field is only included in the *cut-down format with clear PAN*. See [File Formats](#).

```
<?xml version="1.0" encoding="utf-8"?>  
<CARDGEN>  
  <CARDSUM>  
    <DATA_FORMAT_VERSION>12</DATA_FORMAT_VERSION>  
    <FILEDATE>02-01-2023</FILEDATE>  
    <FILETIME>09-15-55</FILETIME>  
    <NO_OF_CARRIERS>2</NO_OF_CARRIERS>  
    <NO_OF_CARDS>2</NO_OF_CARDS>  
    <NO_OF_PRODUCTS>1</NO_OF_PRODUCTS>  
    <TXREF>1001</TXREF>  
    <ORDER_REF>ABC-123</ORDER_REF>  
  </CARDSUM>  
  <PRODUCT>  
    <PRODUCT_REF>DESIGN1</PRODUCT_REF>  
    <RECORD>  
      <REQUEST_TYPE>New</REQUEST_TYPE>  
      <UID>123456789</UID>  
      <CUST_ACCNO>  
      <CARRIER>  
        <TITLE>Mr.</TITLE>  
        <FNAME>Fred</FNAME>  
        <SNAME>Jones</SNAME>  
        <ADD1>Sample Company</ADD1>  
        <ADD2>1 Sample Street </ADD2>  
        <ADD3>Sample Borough </ADD3>  
        <ADD4>Sample Address Line 4</ADD4>  
        <CITY>Sample City</CITY>  
        <POSTCODE>E1W2BS</POSTCODE>  
        <COUNTRY>UK</COUNTRY>  
        <BULK_ADD1></BULK_ADD1>  
        <BULK_ADD2></BULK_ADD2>  
        <BULK_ADD3></BULK_ADD3>  
        <BULK_CITY></BULK_CITY>  
        <BULK_COUNTY></BULK_COUNTY>  
        <BULK_POSTCODE></BULK_POSTCODE>  
        <BULK_COUNTRY></BULK_COUNTRY>  
        <CARRIER_TYPE>CAR_1</CARRIER_TYPE>  
        <CARRIER_LOGO_ID></CARRIER_LOGO_ID>  
        <DELV_METHOD>0</DELV_METHOD>  
        <DELV_CODE></DELV_CODE>  
        <FULFIL1></FULFIL1>  
        <FULFIL2></FULFIL2>  
        <LANG>en</LANG>  
      </CARRIER>  
    </RECORD>  
  </PRODUCT>  
  <CARD>  
    <TYPE>Mag</TYPE>  
    <CURRENCY>0826</CURRENCY>  
    <TRACK3>953171211</TRACK3>  
    <EMBOSS_PAN>1234 5678 1234 5678</EMBOSS_PAN>  
    <PASSCODE>123456</PASSCODE>  
    <EMBOSS_NAME>MR A B SAMPLE</EMBOSS_NAME>  
    <EMBOSS_START>11/11</EMBOSS_START>  
    <EMBOSS_EXPIRY>10/16</EMBOSS_EXPIRY>  
    <EMBOSS_LINE4>A123 REG</EMBOSS_LINE4>  
    <THERMAL_LINE1>Possible Company Name here</THERMAL_LINE1>  
    <THERMAL_LINE2></THERMAL_LINE2>  
    <IMAGE_ID></IMAGE_ID>  
    <LOGO_FRONT_ID></LOGO_FRONT_ID>  
    <LOGO_BACK_ID></LOGO_BACK_ID>
```



```
<QRCODE>https://www.flex-e-card.com/balance/2909680989632389</QRCODE>
</CARD>
</RECORD>
<RECORD>
  <REQUEST_TYPE>New</REQUEST_TYPE>
  <UID>52738098</UID>
  <CUST_ACCNO>
  <CARRIER>
    <TITLE>Mr.</TITLE>
    <FNAME>AN</FNAME>
    <SNAME>Other</SNAME>
    <ADD1>Tall Pines</ADD1>
    <ADD2>1 Sample Road </ADD2>
    <ADD3>Sample Borough </ADD3>
    <ADD4></ADD4>
    <CITY>Sample City</CITY>
    <POSTCODE>E1W2BS</POSTCODE>
    <COUNTRY>UK</COUNTRY>
    <BULK_ADD1>General Manager</BULK_ADD1>
    <BULK_ADD2>The Big Company</BULK_ADD2>
    <BULK_ADD3>123 The High Street</BULK_ADD3>
    <BULK_CITY>Maintown</BULK_CITY>
    <BULK_COUNTY></BULK_COUNTY>
    <BULK_POSTCODE>MA1 1MA</BULK_POSTCODE>
    <BULK_COUNTRY>UK</BULK_COUNTRY>
    <CARRIER_TYPE>CAR_2</CARRIER_TYPE>
    <CARRIER_LOGO_ID>Logo1</CARRIER_LOGO_ID>
    <DELV_METHOD>2</DELV_METHOD>
    <DELV_CODE>B029</DELV_CODE>
    <FULFIL1></FULFIL1>
    <FULFIL2></FULFIL2>
    <LANG>en</LANG>
  </CARRIER>
  <CARD>
    <TYPE>Chip&PIN</TYPE>
    <CURRENCY>0826</CURRENCY>
    <TRACK3>123456789</TRACK3>
    <EMBOSS_PAN>1234 5678 9012 3456</EMBOSS_PAN>
    <PASSCODE>123456</PASSCODE>
    <EMBOSS_NAME>MR AN OTHER</EMBOSS_NAME>
    <EMBOSS_START>11/11</EMBOSS_START>
    <EMBOSS_EXPIRY>10/16</EMBOSS_EXPIRY>
    <EMBOSS_LINE4></EMBOSS_LINE4>
    <THERMAL_LINE1></THERMAL_LINE1>
    <THERMAL_LINE2></THERMAL_LINE2>
    <IMAGE_ID>img00124</IMAGE_ID>
    <LOGO_FRONT_ID>logo_HSBC</LOGO_FRONT_ID>
    <LOGO_BACK_ID></LOGO_BACK_ID>
    <QRCODE>https://www.flex-e-card.com/balance/2909680989632389</QRCODE>
  </CARD>
</RECORD>
</PRODUCT>
</CARDGEN>
```



4 File Format and File Versions

The table below lists the fields supported in each data format version and file format type of the card generation file.

XMLTAG	V10	V11	V12	Included in Full File?	Null Values Allowed?	Included in Customer Cut-down File ? **
<CARDGEN>				Yes	N/A	Yes
<CARDSUM>				Yes	N/A	Yes
<DATA_FORMAT_VERSION>				Yes	No	Yes
<FILEDATE>				Yes	No	Yes
<FILETIME>				Yes	No	Yes
<NO_OF_CARRIERS>				Yes	No	Yes
<NO_OF_CARDS>				Yes	No	Yes
<NO_OF_PRODUCTS>				Yes	No	Yes
<TXREF>				Yes	No	Yes
<ORDER_REF>				Yes	Yes	Yes
<PRODUCT>				Yes	N/A	Yes
<PRODUCT_REF>				Yes	No	Yes
<RECORD>				Yes	N/A	Yes
<REQUEST_TYPE>				Yes	No	Yes
<UID>				Yes	No	Yes
<CUST_ACCNO>				No	Yes	Yes
<CARRIER>				Yes	N/A	Yes
<TITLE>				Yes	Yes	Yes
<FNAME>				Yes	Yes	Yes
<SNAME>				Yes	Yes	Yes
<ADD1>				Yes	Yes	Yes
<ADD2>				Yes	Yes	Yes
<ADD3>				Yes	Yes	Yes
<ADD4>				Yes	Yes	Yes
<CITY>				Yes	Yes	Yes



XMLTAG	V10	V11	V12	Included in Full File?	Null Values Allowed?	Included in Customer Cut-down File ? **
<POSTCODE>				Yes	Yes	Yes
<MOBILE>				Yes	Yes	No
<COUNTRY>				Yes	Yes	Yes
<BULK_ADD1>				Yes	Yes	Yes
<BULK_ADD2>				Yes	Yes	Yes
<BULK_ADD3>				Yes	Yes	Yes
<BULK_CITY>				Yes	Yes	Yes
<BULK_COUNTY>				Yes	Yes	Yes
<BULK_POSTCODE>				Yes	Yes	Yes
<BULK_COUNTRY>				Yes	Yes	Yes
<CARRIER_TYPE>				Yes	No	Yes
<CARRIER_LOGO_ID >				Yes	Yes	Yes
<DELV_METHOD>				Yes	No	Yes
<DELV_CODE>				Yes	Yes	Yes
<FULFIL1>				Yes	Yes	Yes
<FULFIL2>				Yes	Yes	Yes
<LANG>				Yes	Yes	Yes
<CARD>				Yes	N/A	Yes
<TYPE>				Yes	No	Yes
<CURRENCY>				Yes	No	Yes
<TRACK1>				Yes	No	No
<TRACK2>				Yes	No	No
<TRACK3>				Yes	Yes	Yes
<EMBOSS_PAN>				Yes	No	Yes***
<PASSCODE>				No	No	Yes
<EMBOSS_NAME>				Yes	Yes	Yes
<EMBOSS_START>				Yes	No	Yes



XMLTAG	V10	V11	V12	Included in Full File?	Null Values Allowed?	Included in Customer Cut-down File ? **
<EMBOSS_EXPIRY>				Yes	No	Yes
<EMBOSS_CVC2>				Yes	No	No
<EMBOSS_LINE4>				Yes	Yes	Yes
<THERMAL_LINE1>				Yes	Yes	Yes
<THERMAL_LINE2>				Yes	Yes	Yes
<IMAGE_ID>				Yes	Yes	Yes
<LOGO_FRONT_ID>				Yes	Yes	Yes
<LOGO_BACK_ID>				Yes	Yes	Yes
<QRCODE>				Yes	Yes	Yes
<PINBLOCK>				Optional	Yes	No
<CHIP>				Conditional *	N/A	No
<TYPE>				Conditional *	Yes	No
<PAN>				Conditional *	Yes	No
<PAN_SEQ>				Conditional *	Yes	No
<NAME>				Conditional *	Yes	No
<START_DATE>				Conditional *	Yes	No
<EXPIRY_DATE>				Conditional *	Yes	No
<SERVICE_CODE>				Conditional *	Yes	No
<CHIP_TRACK_1>				Conditional *	Yes	No
<CHIP_TRACK_2>				Conditional *	Yes	No
<CHIP_TRACK_1_MSD_CL>				Conditional *	Yes	No
<CHIP_TRACK_2_MSD_CL>				Conditional *	Yes	No
<PINBLOCK>				Conditional *	Yes	No

* Conditional - depends on the card type whether present. Will not be present for Magstripe only cards.

** Cut-down file - sent on request to the Program Manager, excludes fields containing cardholder sensitive data. This file may contain an additional <CUST_ACCNO > field.

*** The <EMBOSS_PAN> field is only included in the *cut-down format with clear PAN*. See [File Formats](#).



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Technical Publications

If you want to contact our technical publications team directly, for queries or feedback related to this guide, you can email us at: docs@thredd.com.



Document History

Version	Date	Description	Revised by
12.8	08/04/2024	Updates to content to align with taxonomy updates on our Documentation Portal. Added details of Thredd REST-based Cards API fields which provide equivalent functionality to the web services SOAP API.	WS
	07/02/2024	Added details of additional values in the <DELV_METHOD> field. See XML Fields .	WS
	26/01/2024	Added details of changes to the available file formats. See File Formats .	WS
12.7	27/06/2023	Added details of relevant ISO specifications that provide additional details on some field formats. See About this Document .	WS
	31/05/2023	Updated Operations email address to be occ@thredd.com	MW
	27/04/2023	Guide rebrand to new company name and brand identity.	JB
12.6	07/01/2023	Added new Example Files of both cut-down and full file formats, and a new File Format and File Versions section with details of fields included with each file format and data format version.	WS
	21/12/2022	Updated numbering in the Table of Contents	MW
	01/12/2022	Updated Copyright Statement.	MW
12.5	12/10/2022	Added details of the file naming conventions for both cloud and on-premise Thredd solutions. See File Naming Conventions .	WS
	28/09/2022	Clarified customer file and data format options; updates to TYPE and CARRIER_TYPE elements.	AL
12.4	12/08/2022	New guide layout and HTML version now available	PC
12.3	11/08/2022	The values in the QRCode field can now be updated using Web Services. Field size updated from 50 to 100 characters.	WS
12.2	20/08/2021	PRODUCT_REF field maximum length updated to 50 characters.	WS
	07/09/2021	Thredd office address update	
12.1	24/05/2021	Review and update to language.	WS
12.0	13/05/2021	New Guide template and layout. Added section on XML reserved markup characters.	WS
11.01	17/12/2020	Clarification of usage of BULK_ADD fields and DELV_CODE (bulk address and delivery code) No change to file layout.	IF
11.00	10/03/2020	Added MOBILE to CARRIER section. Only appears for version 11.00 and higher.	IF



Version	Date	Description	Revised by
10.02	10/03/2020	Updated description of TRACK2 and CHIP_TRACK_2 for VISA. Added 00000 to each.	IF
10.01	16/01/2020	Clarified descriptions of all CHIP Track data fields, to aid understanding of the usage of them: CHIP_TRACK_1 , CHIP_TRACK_2 , CHIP_TRACK_1_MSD_CL , CHIP_TRACK_2_MSD_CL Corrected the description of the PINBLOCK field, and an example is supplied. Clarified COUNTRY and BULK_COUNTRY code values. Clarified SERVICE_CODE values. Added description for PAN and PAN_SEQ values. Table headings now repeated on each page and prevent rows from breaking across pages if possible.	MD
10.0	26/03/2019	Added BULK_COUNTRY to the CARRIER section	IF
9.03	21/03/2016	Corrected max length of TRACK1 and updated description Corrected max length of TRACK2 and updated description Corrected max length of TRACK3 and updated description Corrected max length of CHIP_TRACK_1 Corrected max Length of CHIP_TRACK_2 Corrected max length of CHIP NAME Corrected max length of CHIP_TRACK_1_MSD_CL Corrected max length of CHIP_TRACK_2_MSD_CL Updated list of possible CARD TYPEs. Updated list of possible CHIP TYPEs No change to file layout.	MD
9.02	4/03/2016	Clarified file naming convention further. No change to file layout.	IF
9.01	18/01/2016	Added documentation about PIN block format, no change to file layout.	IF
9	15/12/2015	Corrected File Naming convention Added new optional tag CHIP_TRACK_1_MSD_CL	
8.02	30/04/2015	Changed length and description of BULK_COUNTRY Increased length of REQUEST_TYPE and added new options for PIN Mailers	
8.01	19/01/2015	Corrections to spec: Track1 increased to 79	
8	9/10/2014	Added PINBLOCK as an optional element in the CARD structure	
7		Moved REQUEST_TYPE from <PRODUCT> container to <RECORD> CHIP_TRACK_1 will be present for Mastercard AND VISA Detailed contents of Track data Moved LANG to its correct position Added new optional tag CHIP_TRACK_2_MSD_CL	
6	03/09/2013	Added LANG to CARRIER element Added CARRIER_LOGO_ID to CARRIER element	IF



Version	Date	Description	Revised by
		Added QRCODE to CARD element Changed all CARRIER elements to allow NULLs Increased maximum length of Track 1 to show maximum length Thredd will currently output . N.B. ISO specifications allow for maximum of 79 in Track 1 Added CHIP_TRACK_1 (only for VISA cards) Changed COUNTRY from Varchar(20) to char(3) Numeric ISO Country code Added CVV1 to sample Track 1 layout	
5.01	26/03/2013	Added ORDER_REF to CARDSUM element	IF
5	08/02/2013	Added new fields to support Bulk Delivery Address	IF
4.01	10/09/2012	Replaced <ADD5> with <CITY> in the <CARRIER> element. Clarified Country ISO code. Added XML closing tags for clarity.	IF
4.0	28/02/2012	Added new fields to support Bulk Delivery, Simplex Line 4, Currency, Thermal Lines 1 & 2, Front & Logo images. Defined maximum field sizes that were not already defined.	IF