thredd
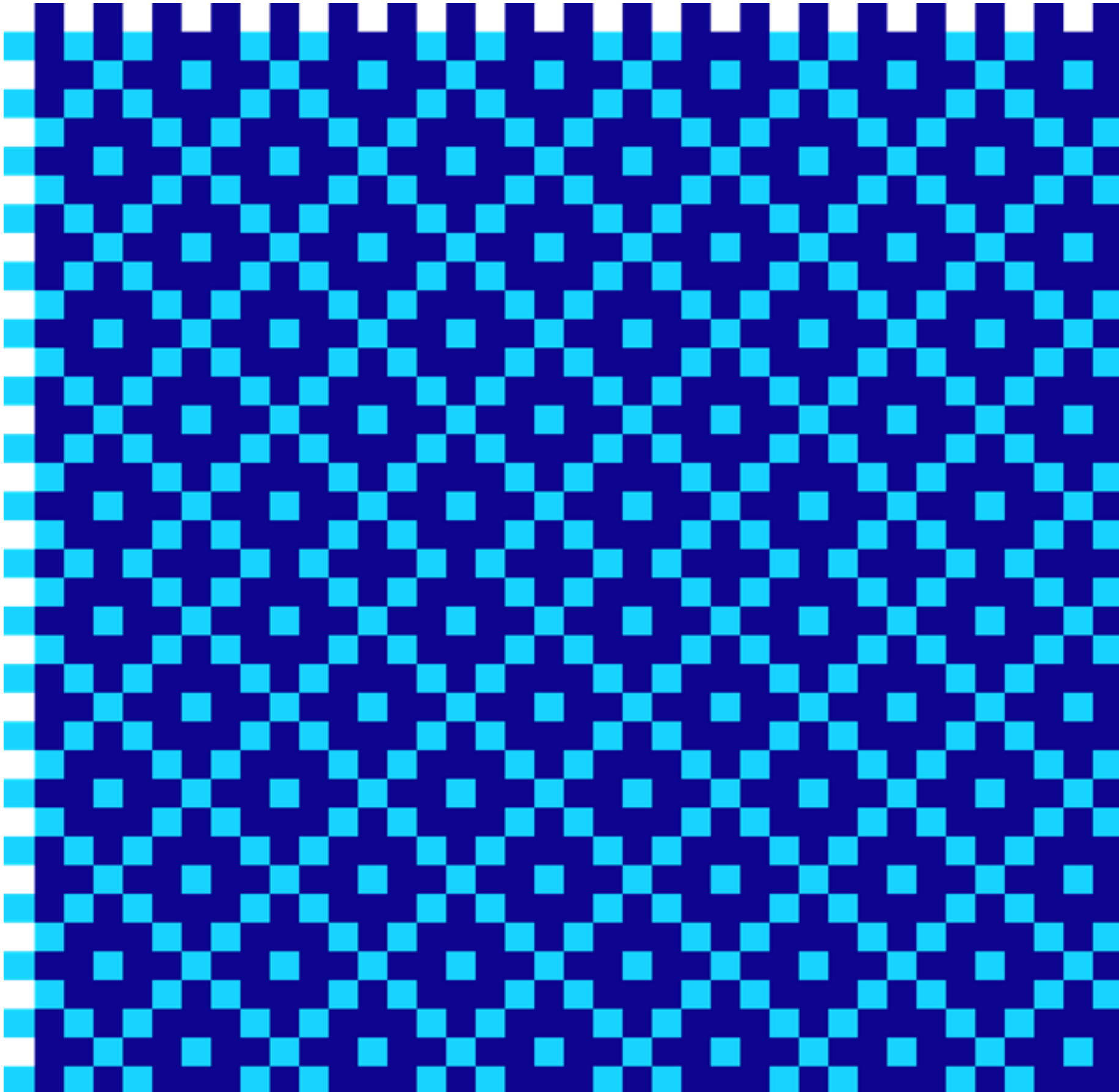
Virtual Cards Guide

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For the latest technical documentation, see the Documentation Portal.

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About This Document

This document describes how to set up a virtual card and configure the virtual image which is displayed to your customers on your website or customer app.

Target Audience

This document is intended for Thredd clients (Program Managers) who are interested in implementing Thredd virtual card functionality.

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 are new to the Thredd virtual card creation service and want to understand how it works, see the Introduction.

To find out about virtual card configuration options, see Virtual Card Setup.

For details of using the Thredd API to create and manage your virtual cards, see Using the Thredd Cards API.

Related Documents

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

Document	Description
Cards API Website	Provides details of the Thredd Cards API (REST-based API) used for creating and managing both physical and virtual cards.
Web Services Guide	Provides details of the Thredd Web Services (SOAP API) used for creating and managing both physical and virtual cards.

Tip: For the latest technical documentation, see the Documentation Portal.

1 Introduction

Thredd supports the creation of two types of cards:

- Physical cards
- Virtual cards

A *Virtual Card* is a card that does not have any physical plastics generated and can only be used to pay for purchases online or via Mail and Telephone Order (MOTO). Virtual cards are set up at the Card Scheme (payment network) (e.g., Mastercard, Visa or Discover) with restricted usage and cannot be used at a Point of Sale (POS) terminal or for ATM withdrawals, though they can be used with digital wallets. You can define on the Thredd system further restrictions as to how and where the virtual card can be used. See Virtual Card Setup.

When a virtual card is created, it functions like a normal card record on the Thredd system, however the card record is not sent to print. This means it can be issued instantly to your customers, as there is no need to wait for physical card delivery.

To issue a virtual card all relevant card details, such as the card Primary Account Number (PAN), Expiry Date and CVV number must be delivered to the cardholder. Options for delivery include your own customer mobile app or portal, SMS, or email. The card Primary Account Number (PAN) and CVV number can be retrieved using our REST APIs. Alternatively a masked PAN

can be displayed with the middle six digits delivered by Thredd SMS.

1.1 Thredd Virtual and Physical Card Options

Thredd provides a number of options for setting up your virtual card program:

- Virtual Cards only
- Both Virtual and Physical Cards – set up as different products with different PANs
- Virtual Cards can be converted to physical – keeping the same PAN

Both virtual and physical cards are created using the Thredd API. At the time of submitting card creation instructions using the API, you can specify whether to create a physical or virtual card.

2 Virtual Card Setup

Below are details of the steps you need to complete to set up a virtual card product:

- Decide how you want to set up your Virtual Card Product
- Complete Issuer (BIN Sponsor) Forms for Virtual Cards
- Choose how to show card details to the cardholder
- Set up your Virtual Card Usage Groups
- Select How Card Details are Displayed

Optional setup:

- SMS Message Configuration
- Set up PGP-Encryption for Virtual Card Images

Each of these steps is described in further detail below.

2.1 Overview of Steps

The following section covers the steps required to set up a virtual card product.

2.1.1 Decide How You Want to Set Up Your Virtual Card Product

Discuss with your Implementation Manager how you want Thredd to set up your virtual card product. Virtual and physical card settings are applied at the internal Thredd scheme level. Options available include:

- **Physical cards only** — all cards are created as physical cards.
- **Virtual cards only** — all cards are created as virtual cards.
- **Conversion of virtual cards to physical cards** — all cards are created initially as virtual cards and need to be converted to physical cards using the Thredd API. See Converting Virtual Cards to Physical Cards.
- **Both physical and virtual cards** — for this option you require separate internal Thredd schemes set up for both physical and virtual cards.

For more information about the Thredd setup and configuration, see Summary of Thredd Virtual Card Setup Options.

2.1.2 Complete Issuer (BIN Sponsor) Forms for Virtual Cards

To support virtual cards, your card issuer (BIN sponsor) will need to complete the relevant Mastercard or Visa card setup forms and specify virtual card creation; they will need to assign a sub-BIN range for the use of virtual cards. All card transactions on this sub-BIN range will be restricted to online usage only.

For details of which scheme forms to complete, please check with your Implementation Manager.

2.1.3 Choose how to show card details to the cardholder

You can obtain the virtual card details from Thredd by using your the encrypted endpoint to receive the masked PAN and then send the masked part of the PAN using Thredd SMS. If you are fully PCI compliant you can receive the full PAN in your webservices response

> **Note:** This solution is dependant on your level of PCI compliance and, if you have an Issuer, that your Issuer is happy to sign off full PAN in webservices.

2.1.4 Confirm whether you are able to display Full Card PAN

If you want to display the full PAN in the virtual image you must be PCI Compliant.

To remove the need for full PCI compliance, you can use a number of options:

- You can request a virtual card image that replaces the PAN with a *customer account number* that you supply. When you submit a Create Card request using the Thredd API, you can then populate your customer account number: in SOAP web services, this is done using the `<CustAccount>` field; In REST-based Cards API, this is done using the `customerReference` field.

- The masked PAN (middle 6 numbers of the PAN) and the CVV could be sent to the cardholder via another means (e.g., SMS). See SMS Message Configuration .

- Thredd can display the Thredd Public Token in place of the PAN.

- The Thredd MeaWallet service provides an alternative option for displaying full PAN and other card details to the cardholder if you are not PCI Compliant. See MeaWallet Integration.

2.1.5 Set up your Virtual Card Usage Groups

Each of your card products is linked to a default set of card usage groups in the Thredd system. The usage groups enable you to control how your virtual cards can be used.

Examples of card groups include: *Velocity limits* and *Card Usage*.

Velocity Limits Groups

For a virtual card product, cash limits are set zero, so the card cannot be used at a Point of Sale (POS) terminal.

Card Usage Groups

For a virtual card product, card use at Point of Sale (POS) terminal is disabled. The following methods of using the card are typically enabled for a virtual card:

- Card Not Present (Ecommerce)
- Card Not Present (MOTO)
- Manual Key entry transaction - Card Not present

You can decide whether to enable the following transactions:

- Card Not Present (Recurring)
- Allow Manual Key entry transaction - Cardholder Not present

The following transaction types are usually enabled for a virtual card:

- Credits / Refunds transactions
- Purchase of Goods & Services
- Credits Auth

See the example below of setup of card usage groups on the *Product Setup Form*:

Figure 1: Card Usage Groups on the Product Setup Form

Include Flag for Tokenisation

If a virtual card is tokenised into a digital wallet, the token will have it's own separate usage group which can enable usage at POS terminals. See the Tokenisation Guide for more details.

2.2 Optional Setup

Below are additional options you can set up for your virtual cards.

2.2.1 SMS Message Configuration

Thredd provides a default SMS message that can be enabled at the time when you create the virtual card (using the Thredd API). If you choose to display the masked PAN then you will need to send the remaining digits via SMS

If you want to change the wording on the default SMS message, Thredd can optionally configure the dynamic field content included in the SMS message sent to the cardholder when you use the SOAP web services API to create a virtual card or renew a card image. This is set at a Program level and applies to all products under a Thredd Scheme.

> **Note:** For a full list of parameters that can be used, see the Mobile Text Messaging (SMS) Guide.

Example of Default SMS

```
"3 digit Security Code : %CVV% and the middle 6 digits of your Virtual Card is %PAN6%. Thank you"
```

Important code lines:

- %CVV% is the card's CVV
- %PAN6% is the middle 6 digits of the PAN.

Enabling SMS messages

Once set up, to enable this option in your Create a Card web service request, you must set the `<sms_required>` field in your request, to 1. The phone number to where to send the SMS is defined in the `<Mobile>` field of the Create a Card request.

> **Note:** Speak to your account manager regarding SMS support if using the Cards API (REST).

> **Note:** Thredd charge a fee for sending SMS messages. Refer to your Contract for details.

2.2.2 Set up PGP-Encryption for Virtual Card Images

Where Thredd provides the virtual image, we support PGP-encrypted images. Pretty Good Privacy (PGP) is an encryption program that provides cryptographic privacy and authentication and is used for signing, encrypting, and decrypting graphic files to increase the security of email communications.

PGP Keys must be exchanged between the Program Manager and Thredd. Normally, we ask you to generate the PGP key and provide it to us. Separate keys are required for Thredd Test and Production environments.

Thredd use the PGP key to encrypt the virtual card image. The encrypted virtual image of the card (with details such as PAN, CVV and expiry date embossed on it) will be returned in the response to a card create or image regenerate web service request. For details, see Using the Web Services API.

You then use your PGP key to decrypt the image.

> **Note:** PGP keys are required for full PAN to be returned in the `GetCardImage` data.

> **Note:** PGP keys currently only work in Web Services (SOAP) and do not work in the Cards API (REST).

2.3 Converting Virtual Cards to Physical Cards

This section is relevant to Program Managers who are converting a virtual card to a physical card. You can convert a card using either the SOAP web services (see Converting a Virtual Card to a Physical Card) or using the REST Cards API (see Converting a Virtual Card to a Physical Card).

On card convert, the virtual and physical card share the same PAN and Thredd token. Virtual and physical card share the same card record in the Thredd system, so cardholders can track their transactions on the card and view both physical card and historical virtual card transactions[1].

> **Note:** If you want to convert a virtual card to a physical card, you need to use the same card keys (e.g., MDK, CVK, PKI keys) as supplied by the card manufacturer for both the virtual card and physical card.

2.3.1 Printing of Physical Cards

When your card product is set up, it is linked to a card manufacturer (card bureau). You will need to go through the integration and testing process of setting up your physical cards via your chosen card manufacturer: get your card design approved by your Card Scheme (payment network), create test card plastics, test CHIP profiles and create live base cards for use. This needs to be done in advance, so your cards will be ready for personalisation and printing when the virtual card is converted to a physical card.

When you convert a virtual card to a physical card, the card instructions are sent to your card manufacturer, to print and despatch the card to the specified address. The cardholder can continue to use the virtual card until they have received and activated the physical card[2].

2.3.2 Card CVV and Card Expiry

When converting to a physical card, you can optionally keep the same expiry date and CVV2. Note that a new expiry date and CVV2 will be generated if the conversion falls in a different calendar month to the virtual card creation.

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[1] Thredd provide an option to create a separate PAN and Thredd token on card convert. In this case, the system creates two linked card records, and both cards can continue to be used. If you want this option, we recommend you ask your implementation manager to set up separate physical and virtual card products.

[2] For security reasons, we recommend you either set the card to an inactivate status or ensure that the card usage groups linked to the card enforce virtual only usage on the physical card until the cardholder has received and activated the card.

The CVV is calculated by encrypting the bank card number and the expiration date with keys, so if the expiry date for the physical and virtual card is different, the CVV will also be different.

- If using the REST-based Cards API : You can set the expiry date for the virtual card, using the `expiryDate` field in the **Create a Card** API. When converting a virtual to physical card, you can use the `newExpiryDate` field in the **Convert Card** API to set the expiry date.
- If using SOAP web services: You can set the expiry date for the virtual card, using the `<ExpDate>` field in the **Create a Card** web service. When converting a virtual to physical card, you can use the `<ExpDate>` field in the **Convert Card** web service to set the expiry date.

2.3.3 How to use the Card Convert API

For more information, if using SOAP web services, see Converting a Virtual Card to a Physical Card; if using the REST Cards API, see Converting a Virtual Card to a Physical Card.

> **Note:** Thredd charge a fee for converting virtual cards to physical cards. Refer to your Contract for details.

2.4 Summary of Thredd Virtual Card Setup Options

The table below provides a summary of the configuration options for a virtual card product:

Setup Option	Virtual Only	Virtual converted to Physical	Both Virtual and Physical cards offered
Thredd Scheme setup	1 Thredd Scheme	1 Scheme	2 Thredd schemes required
Product setup	1 Thredd Product	1 Thredd Product	2 Thredd products required if Virtual and Physical cards have different sub-BINs. If Virtual and Physical cards share the same PANs, then one product is required per currency and country of issue.
Card Manufacturer	Not required	Required for the physical card	Required for the physical card
Key exchange	Required Required CVV key, optional PGP key if virtual card image is required	Required for the physical card	Required for the physical card
Mastercard/Visa Card validation	Not required	Required for the physical card	Required for the physical card
PAN	Unique per card	Virtual and physical card have the same PAN.	Unique per card
REST-based Cards API	Use Card Create	Use the **Create a Card** API to create the virtual card and the **Convert Card** API to convert to a physical card[3].	Use Card Create
SOAP Web Services API	Use Card Create	Use the **Create a Card** web service to create the virtual card and the **Convert Card** web service to convert to a physical card[4].	Use Card Create
Card Activation[5]	On card create	Physical card set to inactive and must	Virtual card activated on card create

---

[3]Cards can be set up to convert with a different PAN if required (not recommended).

[4]Cards can be set up to convert with a different PAN if required (not recommended).

[5]Set via Thredd API on card create or card convert.

Setup Option	Virtual Only	Virtual converted to Physical	Both Virtual and Physical cards offered
		be activated on delivery. When activated, the virtual card is upgraded to a physical card, so the virtual card can no longer be used.	Physical card activated on delivery.

3 Using Web Services (SOAP API)

The Thredd SOAP Web Services API can be used to create physical or virtual card and retrieve virtual card details. For a full description, see the Web Services Guide.

> **Note:** Thredd provides two alternative API for creating and managing cards: REST-based Cards API or SOAP web services. This page describes use of the SOAP web services. If you are using our REST-based Cards API, see Using the Thredd Cards API.

Below is a summary.

3.1 Create a Card

API: Ws_CreateCard

This web service is used to create both virtual cards and physical cards.

See the example code snippet below: (only key fields are shown)

```
1    <hyp:Ws_CreateCard>
2      <hyp:WSID>1234</hyp:WSID>
3      <hyp:IssCode>ABCD</hyp:IssCode>
4      <hyp:TxnCode>10</hyp:TxnCode>
5    ---------
6      <hyp:CreateType>1</hyp:CreateType>
7      <hyp:ActivateNow>1</hyp:ActivateNow>
8      <hyp:CardName>Virtual Card</hyp:CardName>
9
10      <hyp:Sms_Required>1</hyp:Sms_Required>
11
12    ------------
13    </hyp:Ws_CreateCard>
```

Notes

- <Sms_Required> indicates whether an SMS is sent to the cardholder with the card's CVV. 1 = yes; 0 =No. The default is '0'. The SMS is configurable.

Response Code Snippet Example

Below is an example of the response to the create card request.

```
1    <Ws_CreateCardResult>
2            <WSID>1234</WSID>
3            <IssCode>ABCD</IssCode>
4            <TxnCode>10</TxnCode>
5            <PublicToken>123456789</PublicToken>
6            <ExternalRef/>
7            <LocDate>2013-01-01</LocDate>
8            <LocTime>120000</LocTime>
9            <ItemID>1234</ItemID>
10           <ClientCode>0</ClientCode>
11           <SysDate>2013-01-01</SysDate>
12           <ActionCode>000</ActionCode>
13           <LoadValue>10</LoadValue>
14           <IsLive>true</IsLive>
15           <ExpDate>03/14</ExpDate>
16           <CVV>123</CVV>
17           <MaskedPAN>987654******0123</MaskedPAN>
18        </Ws_CreateCardResult>
```

Notes

- <PublicToken> is the unique 9-digit internal Thredd token that can be used for all SOAP web services queries on the card.
- <MaskedPAN> is returned if you are not PCI Compliant. You can use the SMS service to provide your cardholder with the masked digits of the card. See SMS Message Configuration .

3.2 Converting a Virtual Card to a Physical Card

When you convert a virtual card to a physical card it will adopt the same settings as the virtual card. The card is created with the same PAN[1]. A new expiry date and CVV2 are generated if the conversion falls in a different calendar month to the virtual card creation. The card instructions are sent to your card manufacturer for printing and despatch to the cardholder.

Following successful conversion, any replacement or renewal cards are generated as physical cards. The cardholder can still continue to use their virtual card until the physical card is activated, after which the virtual card will stop working.

How to convert a card

- Prior to converting the card, you should update any cardholder details, using the Update Cardholder Details web service API (Ws_ Update_Cardholder_Details or Ws_Update_Cardholder_Details_V2). For details, see the Web Service Guide.
- To convert the card, you can use the Convert Card web service (Ws_Convert_Card).

See the example code snippet below: (only key fields are shown)

```
<hyp:Ws_Convert_Card>
        <hyp:PublicToken>123456789</hyp:PublicToken>
        <hyp:ConvertDate>2013-01-01</hyp:ConvertDate>
        <hyp:Apply_Fee>0</hyp:Apply_Fee>
        <hyp:ExpDate>2015-03-31</hyp:ExpDate>
</hyp:Ws_Convert_Card>
```

Notes

- <ConvertDate> can be used to specify the date on which to convert the card
- <ExpDate> can be used to specify the expiry date of the new physical card

Response Code Snippet Example

Below is an example of the response to the convert card request.

```
<Ws_Convert_CardResult>
        <ActionCode>000</ActionCode>
        <PublicToken>123456789</PublicToken>
        <ConvertDate>2013-01-01</ConvertDate>
</Ws_Convert_CardResult>
```

3.2.1 Activating the Physical Card

Where a virtual card has been activated, the physical card will also be active in transit. We therefore recommend you set the status of the physical card to inactive and enforce virtual only usage until the cardholder has received their card and activated it.

You should use the Card Activate web service (Ws_Activate) to activate the physical card.

---

[1] Thredd has an option to generate a different PAN on card convert; we recommend that if you require different PANs, you ask your implementation manager to set this up as separate card products. See Virtual Card Setup.

4 Using the Cards API (REST)

The Thredd Cards API can be used to create physical or virtual cards, regenerate virtual card images and retrieve virtual card details using our REST service. For a full description, see the Cards API Website. Below is a summary.

> **Note:** Thredd provides two alternative API for creating and managing cards: REST-based Cards API or SOAP web services. This page describes use of the REST-based Cards API. If you are using our SOAP web services, see Using Web Services (SOAP API).

4.1 Create a Card

Use the Create Card API to create both virtual cards and physical cards.

See the example code snippet below: (only key fields are shown)

```
1  {
2      "cardHolder": {
3          "title": "Mr",
4          "firstName": "Jon",
5          "lastName": "Smith",
6          "dateOfBirth": "1982-11-03"
7      },
8      "address": {
9          "addressLine1": "32 Western Drive",
10         "postCode": "S25 2BZ",
11         "country": "GBR"
12     },
13     "virtualCardImageDetails": {
14         "virtualCardImageId": "4155",
15         "imageSize": 1
16     },
17     "cardType": "Virtual",
18     "cardProduct": 10005,
19     "activateNow": true,
20     "designId": "New Card Brand",
21     "customerReference": "my ref 12345",
22     "activateNow": true
23 }
24
```

Response Code Snippet Example

Below is an example of the response to the create card request.

```
1  {
2      "publicToken": "103169946",
3      "customerReference": "CustNo12345A",
4      "embossName": "Mr John Smith",
5      "maskedPan": "999999******0134",
6      "startDate": "2023-02-28",
7      "expiryDate": "2026-02-27"
8  }
```

Notes

- <PublicToken> is the unique 9-digit internal Thredd token that can be used for all REST-based API queries on the card.

4.2 Retrieving a Card

Use the Retrieve Card API to return information on a card.

See the code snippet below for an example of the response returned by the Retrieve Card endpoint.

```
{
    "cardType": "Physical",
    "publicToken": "638050230",
      "status": "Active",
```

```
    "cardStatusCode": "00",
    "cardStatusDescription": "00 (Active)",
    "balance": {
        "currencyCode": "GBP",
        "cardBalance": 300.67,
        "pendingAmount": -74,
        "availableBalance": 226.67
    },
    "cardDetails": {
        "customerReference": "CustNo12345A",
        "fullNameOnCard": "Mr. Bruce Simms",
        "maskedPan": "531610******0462",
        "startDate": "2023-10-23",
        "expiryDate": "2028-10-31",
        "clearPan": null,
        "cvv": null,
        "activationDate": "2024-05-14 08:31:33Z"
    },
    "cardHolder": {
        "title": "Mr",
        "firstName": "John",
        "middleName": "",
        "lastName": "Smith",
        "dateOfBirth": "1963-11-22",
        "mobile": "",
        "email": ""
    },
    "cardProduct": {
        "scheme": "Sandbox Scheme",
        "product": 1234,
        "productShortName": "Sandbox",
        "ehiMode": 1
    },
    "controlGroups": {
        "limitsGroup": 1,
        "usageGroup": 0,
        "recurringFeeGroup": 0,
        "webServiceFeeGroup": -1,
        "authFeeGroup": 0,
        "mccGroup": 0,
        "cardLinkageGroup": 0,
        "calendarGroup": -1,
        "fxGroup": 0,
        "paymentTokenUsageGroup": 0,
        "cardAcceptorAllowList": 0,
        "cardAcceptorDisallowList": 0
    },
    "3DS": [],
    "designId": "Sandbox",
    "childCards": [],
    "siblingCards": [],
    "address": {
        "addressLine1": "32 Eastern Lane",
        "addressLine2": "",
        "addressLine3": "",
        "city": "",
        "state": "",
        "county": "",
        "postCode": "S11 7AA",
        "country": "826"
    },
    "fulfilment": {
        "addressLine1": "32 Eastern Lane",
        "addressLine2": "",
        "addressLine3": "",
        "city": "",
        "state": "",
        "county": "",
        "postCode": "S11 7AA",
        "country": "826"
    },
```

```
    "freetext1": "Comments for the card manufacturer here",
  "freetext2": "And in this field too.",
  "IsSingleUse" : "true",
  "IsNonReloadable" : "false",
  "cardAcceptorIds": {
      "allowCardAcceptors": [],
      "disallowCardAcceptors": []
   },
   "language3ds": null,
    "programManagerID": 78,
   "programManagerCode": "PMT"
 }
```

4.3 Converting a Virtual Card to a Physical Card

When you convert a virtual card to a physical card it will adopt the same settings as the virtual card. The card is created with the same PAN[2]. A new expiry date and CVV2 are generated if the conversion falls in a different calendar month to the virtual card creation. The card instructions are sent to your card manufacturer for printing and despatch to the cardholder.

Following successful conversion, any replacement or renewal cards are generated as physical cards. The cardholder can still continue to use their virtual card until the physical card is activated, after which the virtual card will stop working.

How to convert a card

- Prior to converting the card, you should update any cardholder details, using the Update Card API. For details, see the Cards API Website.
- To convert the card, you can use the Convert Card API.

See the example code snippet below: (only key fields are shown)

```
{
  "cardType": "Physical",
  "moveExpiryDate": true
}
```

Response Code Snippet Example

Below is an example of the response to the convert card request.

```
{
    "cardType": "Physical",
    "expiryDate": "2023-05"
}
```

4.3.1 Activating the Physical Card

Where a virtual card has been activated, the physical card will also be active in transit. We therefore recommend you set the status of the physical card to inactive and enforce virtual only usage until the cardholder has received their card and activated it.

You should use the Update Card Status API to activate the physical card.

4.3.2 Retrieve Card Details

You can retrieve card details by using the Retrieve Card endpoint.

You can retrieve card details by making a GET request to the Retrieve Card endpoint. For example, {{base-url}}/cards/{{publicToken}}

A successful response will return a HTTP 200 response code. Below is an example response:

```
{
    "cardType": "Virtual",
    "publicToken": "103170278",
    "status": "Inactive",
```

---

[2] Thredd has an option to generate a different PAN on card convert; we recommend that if you require different PANs, you ask your implementation manager to set this up as separate card products. See Virtual Card Setup.

```
"cardStatusCode": "02",
"cardStatusDescription": "02 (Inactive)",
"balance": {
    "currencyCode": "GBP",
    "cardBalance": 0,
    "pendingAmount": 0,
    "availableBalance": 0
},
"cardDetails": {
    "customerReference": "my ref 12345",
    "fullNameOnCard": "Mr Jon Smith",
    "maskedPan": "999999******3589",
    "startDate": "2024-03-21",
    "expiryDate": "2034-03-31",
    "clearPan": null,
    "cvv": null
},
"cardHolder": {
    "title": "Mr",
    "firstName": "Jon",
    "middleName": "",
    "lastName": "Smith",
    "dateOfBirth": "1982-11-03",
    "mobile": "",
    "email": ""
},
"cardProduct": {
    "scheme": "GPS VIRTUAL SCHEME TEST",
    "product": 10005,
    "productShortName": "GPSDUMMY"
},
"controlGroups": {
    "limitsGroup": 1201,
    "usageGroup": 0,
    "recurringFeeGroup": 0,
    "webServiceFeeGroup": 0,
    "authFeeGroup": 1137,
    "mccGroup": 0,
    "cardLinkageGroup": 0,
    "calendarGroup": 0,
    "fxGroup": 0,
    "paymentTokenUsageGroup": 20,
    "cardAcceptorAllowList": null,
    "cardAcceptorDisallowList": null
},
"3DS": [],
"designId": "New Card Brand",
"childCards": [],
"siblingCards": [],
"address": {
    "addressLine1": "32 Western Drive",
    "addressLine2": "",
    "addressLine3": "",
    "city": "",
    "state": "",
    "county": "",
    "postCode": "S25 2BZ",
    "country": "826"
},
"fulfilment": {
    "addressLine1": "32 Western Drive",
    "addressLine2": "",
    "addressLine3": "",
    "city": "",
    "state": "",
    "county": "",
    "postCode": "S25 2BZ",
    "country": "826"
},
"freetext1": null,
"freetext2": null,
```

```
    "isSingleUse": null,
    "isNonReloadable": null,
    "cardAcceptorIds": {
        "allowCardAcceptors": [],
        "disallowCardAcceptors": []
    },
    "language3ds": "en-GB"
}
```

Frequently Asked Questions

Virtual Card Usage

Q. When I convert a virtual card to a physical card, can the virtual card still be used?

The cardholder can continue to use the virtual card until the physical card has been activated. Once the physical card is activated, the virtual card cannot be used.

Q. Can the cardholder view the transaction history on the virtual card after it has been converted to a physical card?

Yes, both physical and virtual cards share the same card record, so card and transaction enquiries will return transaction details.

Q. Can a Virtual Card PAN be used for POS transactions?

If it is added to a Digital Wallet such as Apple Pay or Google Pay then it can be used for POS transactions through a cardholders device. Otherwise Virtual card usage is restricted at the Card Scheme (payment network) level to online (ecommerce) or Mail and Telephone Order (MOTO) transactions.

The Card Scheme (payment network) sets the BIN range for virtual cards issued by your Issuer (BIN sponsor), and further usage restrictions are applied when setting up card Usage for a virtual card. The scheme is able to differentiate a device payment and allow POS transactions for the device only.

Q. Why issue virtual cards?

Virtual cards allow your cardholders to transact from the moment they sign up. Additionally, single use virtual cards can be issued for increased security online as the card can be blocked by the time a fraudster can use it. Finally, a virtual card can replace a costly physical card if it is added to a digital wallet.

Virtual Card Setup

Q. Can I add restrictions to how the Virtual Card can be used?

Yes, you can set up card Usage Groups, which define how and where the virtual card can be used. Card usage groups are linked to a card product or can be linked to a card using the Thredd API. See Set up your Virtual Card Usage Groups

Virtual Cards and Other Thredd Digital Products

The FAQs below provide details of other Thredd products, which shouldn't be confused with virtual cards.

Q. What is a Master Virtual Card (MVC)? Is it a type of Virtual Card?

No, the Master Virtual Card (MVC) is not a virtual card that is provided to a cardholder. The MVC is a card record that is restricted to loading or unloading and to card-to-card transfer. Physical card production, e-commerce transactions and ATM use are not permitted.

Q. What's the difference between a Virtual Card and a digital wallet token?

A virtual card is a real PAN that can only be used for ecommerce or MOTO transactions. A digital wallet token is a 16 digit number that is linked to the PAN of a physical or virtual card, and can be used at most POS terminals and only by the device it appears on. For more information, see the Tokenisation Service Guide.

Q. Is it possible to set up Tokenisation (Digital Wallets) on a Virtual Card?

Yes, provided that you have set up your card BIN range at Scheme level to support dual usage and set up your Virtual Card product to match that. The virtual card can then be tokenised and bound to a mobile device or other token device in the same way as with a normal physical card. When the token is activated, make sure your card velocity and usage groups are updated to enable usage at the locations and merchants you require.

Glossary

This page provides a list of glossary terms used in this guide.

B

BIN

The Bank Identification Number (BIN) is the first four or six numbers on a payment card, which identifies the institution that issues the card

C

Card Scheme (Network)

Card network, such as MasterCard or Visa, responsible for managing transactions over the network and for arbitration of any disputes.

Cardholder

Consumer or account holder who is provided with a card to enable them to make purchases.

CVV

The Card Verification Value (CVV) on a credit card or debit card is a 3 digit number on VISA, MasterCard and Discover branded credit and debit cards. Cardholder's are typically required to enter the CVV during any online or cardholder not present transactions. CVV numbers are also known as CSC numbers (Card Security Code), as well as CVV2 numbers, which are the same as CVV numbers, except that they have been generated by a 2nd generation process that makes them harder to guess.

CVV2

The Card Verification Value (CVV) on a credit card or debit card is a 3 digit number on VISA, MasterCard and Discover branded credit and debit cards. Cardholder's are typically required to enter the CVV during any online or cardholder not present transactions. CVV numbers are also known as CSC numbers (Card Security Code), as well as CVV2 numbers, which are the same as CVV numbers, except that they have been generated by a 2nd generation process that makes them harder to guess.

O

One Time Password (OTP)

A password that is valid for a single use only. During an authentication session (where the authentication type is with OTP SMS or OTP Email), the cardholder must enter this OTP to authenticate.

P

PAN

The card's 16-digit primary account number (PAN) that is typically embossed on a physical card.

PCI Compliance

The Payment Card Industry Data Security Standard (PCI DSS) is an information security standard for organisations that handle credit cards from the major Card Schemes. All customers who handle customer card data must be compliant with this standard. See: https://www.pcisecuritystandards.org/pci_security

Product Setup Form (PSF)

A spreadsheet that provides details of your Thredd account setup. The details are used to configure your Thredd account.

S

Second Payment Services Directive (PSD2)

PSD2 is a European regulation for electronic payment services. It seeks to make payments more secure, boost innovation and help banking services adapt to new technologies. The regulations are available here: https://ec.europa.eu/info/law/payment-services-psd-2-directive-eu-2015-2366_en

T

Thredd Public Token

A unique 9-digit number assigned by Thredd, to represent the linked card. The public token can be used instead of the PAN for all web services API requests.

Document History

Version	Date	Description	Revised by
1.5	13/02/2025	Added a glossary term for Thredd Portal, our new web application for managing your cards and transactions.	WS
	09/09/2024	Added section on how to show card details to cardholder, and added a new section on Using the Cards API (REST).	JB
	02/07/2024	Updated the company address.	PC
1.4	10/04/2024	Updates to content and graphics to align with taxonomy updates on our Documentation Portal. Added information on using the Thredd REST-based Cards API for creating and managing virtual cards.	WS
	01/02/2024	Added notes to indicate that PGP keys are required for full PAN to be returned in GetCardImage data and that PGP keys only work in web services (SOAP). See Set up PGP-Encryption for Virtual Card Images.	WS
	12/10/2023	Updated Smart Client images and Card Example images in Virtual Card Image Design.	MW
	07/06/2023	Updated Operations email address to be occ@thredd.com	MW
	27/04/2023	Guide rebrand to new company name and brand identity.	WS
1.3	01/12/2022	Updated the Copyright Statement	MW
1.2	12/08/2022	New guide layout and HTML version now available	PC
1.1	28/09/2021	Thredd Office address updates. Revised instructions for virtual to physical conversations. New FAQ on support for tokenisation (digital wallets)	WS
1.0	12/08/2021	First version	WS

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