

# Tokenization

## Overview

Tokenization is the process of protecting sensitive data by replacing it with algorithmically generated characters called tokens. It is a foundational technology enabling secure and simple eCommerce.

The Verifone Global Proprietary Tokenization Service is available globally to all merchants in all regions, allowing for transactions with stored credentials and cross-channel cardholder visibility.

To utilize the stored credentials feature, you should use a Merchant Site organization with an active Payment Provider Contract and a token scope assigned. Your user should be assigned to the Merchant Site organization to perform the API calls.

## Concepts

### VF Reuse Token

Verifone's proprietary Reuse Token is a multi-use two-way token of a payment instrument that allows linking payment data to a token for payments-related future use.

### VF Analytics Token

Verifone's proprietary Analytics Token is a multi-use one-way token that allows linking card data to a token to identify cardholders across sales channels. A VF Analytics Token cannot be used for payments. For security reasons, VF Analytics Tokens are one-way tokens. Verifone does not offer the possibility to de-tokenize a token into clear cardholder data once it was tokenized.

### Possible use cases for VFI Proprietary Tokens

Token type	Use cases
VF Reuse Token	Capture a payment instrument for future use for transactions with stored credentials, or for omnichannel refunds, you can request a VF Reuse Token. Store this token in your systems for future payments-related use.
VF Analytics Token	Group transactions done using same PAN without any interest in the PAN number itself, you can request a VF Analytics Token. Store this token in your own systems.

### Token Scope

The Token Scope was created to enhance Verifone's Global Proprietary Tokenization Service security. A Token Scope for individual tokens provides the possibility for a merchant to limit the validity and the type of generated tokens. By linking a Token Scope to an organisation, any individual token that is generated is only valid within the Token Scope requested for generation.

## Using Verifone Tokenization

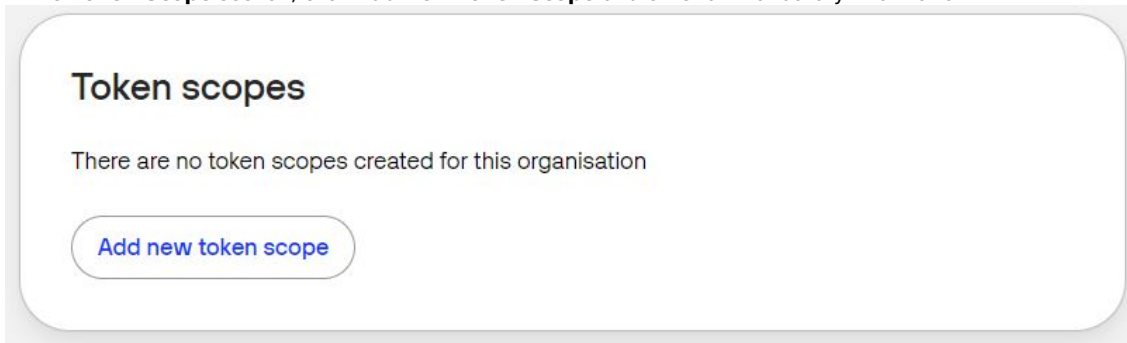


## Creating a Token Scope in Verifone Central

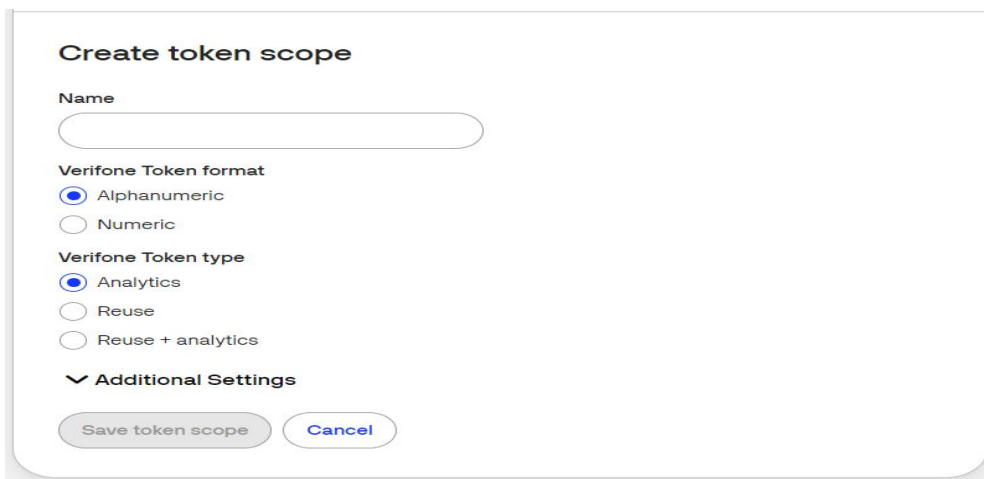
To start using Verifone Tokens, create at least one Token Scope on Verifone Central. Applicable Token Scopes need to be linked with an Organization. You can create any number of Token Scopes and link them to any number of Organizations, but while Requesting a Token (see details below), only one Token Scope can be used.

Once the organization is created, it is required to set up token scopes via Verifone Central. The token scopes can be managed from the *Organization details* page. **Token scopes can only be created against Organizations with type Merchant Company.** Token scopes can only be assigned to group with a different type. These scopes are inherited from the parent merchant company.

1. Log into Verifone Central.
2. Navigate to the organization with type **Merchant Company**.
3. In the **Token Scope** section, click **Add new token scope** and enter all mandatory information.



1. **Name** - the name for the token scope. Use this field for an easy identification of the Token Scope.
  - This Name is different from the Token Scope UUID that is being used within the Verifone system to recognize the token scope
2. **Token format** - to define whether the Reuse Tokens that are being generated should be alphanumeric or numeric only
  - This selection only affects Reuse Tokens, as the analytics token is fixed-form, 29-digits: 'VF' + 27 digit alphanumeric
3. **Token type** - to define which type of tokens are allowed to be created under this Token Scope
  - If 'Reuse + analytics' is selected, two Token values will be returned in one response (see below)



4. In the **Additional Settings** section, you can optionally influence the following technical details for Reuse Tokens. For example, you want to create format-preserved Tokens. If you leave the fields blank, the Verifone default settings will apply.
1. **Token length** - the token length can be a number between 1 and 255
  2. **Card prefix length** - determines how many digits from the original PAN are included as a prefix for tokens under this scope
  3. **Card suffix length** - determines how many digits from the original PAN are included as a suffix for tokens under this scope
  4. **Fixed prefix** - the provided value is left-padded with the tokens under this scope. The maximum length should not exceed 6 characters.
  5. **Fixed suffix** - the provided value is right-padded with the tokens under this scope. The maximum length should not exceed 4 characters.
  6. **Token expiration time** - the number of days before a token expires under this scope

^ Additional Settings

**Token length (Optional)**

The token length can be a number between 16 and 255

**Card prefix length (Optional)**

Determines how many digits from the original PAN are included as a prefix for tokens under this scope.

**Card suffix length (Optional)**

Determines how many digits from the original PAN are included as a suffix for tokens under this scope.

**Fixed prefix (Optional)**

The provided value is left padded with the tokens under this scope. The maximum length should not exceed 6 characters.

**Fixed suffix (Optional)**

The provided value is right padded with the tokens under this scope. The maximum length should not exceed 4 characters.

**Token expiration time (Optional)**

The default number of days before a token expires under this scope.

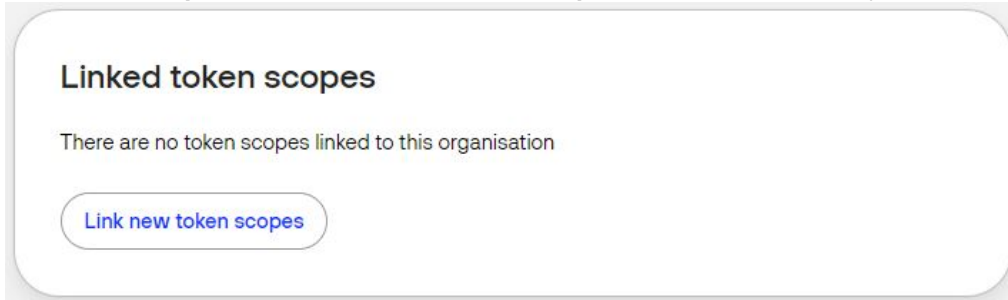
4. Save the token scope.

### Linking a Token Scope in Verifone Central

For organizations other than the Merchant Company, Token Scopes can be linked. Linking Token Scopes to certain organizations can be done via the same interface on the Organization details page.

1. Log into Verifone Central.

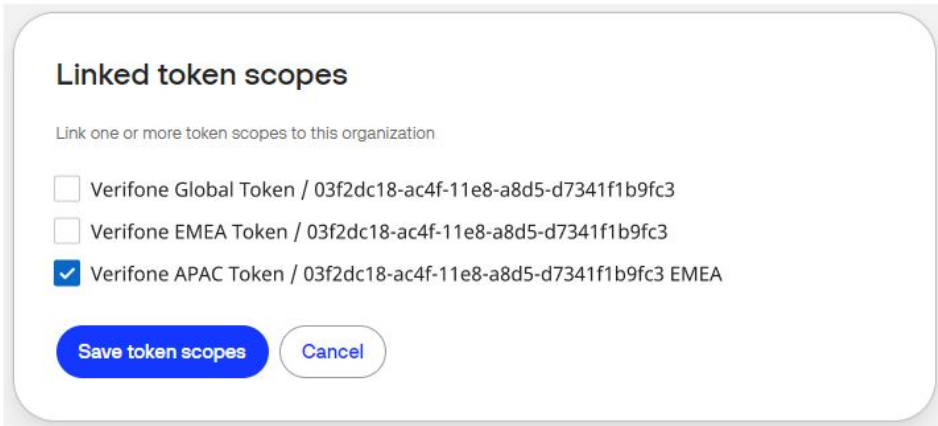
- Navigate to any organization with a type other than **'Merchant Company'**.
- In the **Token Scope** section, click **'Link new token scope'** and select the Token Scopes which should be added to the organization.



You can link any number of Token Scopes to any number of organizations, but when Requesting a Token, only one Token Scope can be used

- Save the token scope.

Once linking Token Scope(s), where you will see the Name you have given to this Token Scope and the Token Scope UUID that is being used within the Verifone system to recognize the token scope. It is the Token Scope UUID that you will need later, when Requesting a Token.



### Requesting a Token

Once at least one Token Scope is linked to at least one Organization, that Organization can request Token generation in either of the following ways:

- By filling out the token\_preference object in a Create a checkout request (please find the [API specifications here](#)), or
- By filling out the token\_preference object in an EncryptedCardPaymentRequest (please find the [API specifications here](#)), or
- By filling out the token\_preference object in an Initiate a wallet payment request (please find the [API specifications here](#)), or
- By submitting a Create/Update Token Details request (please find the [API specifications here](#))

Parameter	Description
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<b>token_scope</b>	(required field) - refers to the Token Scope UUID under which the Token is created
<b>encrypted_card</b>	(required field) - refers to the cardholder data encrypted using the Verifone provided public key (only in the Create/Update Token Details request)
<b>token_type</b>	(optional field) - allows you to optionally limit which type of Token(s) you would like to receive as a response to this call
<b>token_expiry_date</b>	(optional field) - allows you to optionally limit the expiry date of the Token you want to receive as a response to this call
<b>public_key_alias</b>	refers to the public key the cardholder data is encrypted with (only in the Create/Update Token Details request)

### Scenarios for Create/Update Token details requests

- if the `token_scope` allows for the creation of both a Reuse and an Analytics Token, but the Merchant decides that as a response to this call, an analytics Token is sufficient
- if the default `token_expiry_date` is further in the future than what the Merchant needs for this Token

The Create/Update Token Details request either creates a Token, if one does not yet exist for the given `encrypted_card details` in the requested Token Scope, or it updates the token details with the expiry date.

### Receiving a Token

If the API call is approved, Verifone will return a Token in the response.

After a first API call where a VF Reuse Token is requested and created, any following [API calls](#) with the same Token Scope and `encrypted_card details` will result in the same VF Reuse Token.

After a first API call where a VF Analytics Token is requested and created, any following API calls with the same `encrypted_card details` will result in the same VF Analytics Token.

An approved API will result in a '201' (or '200' for a Create/Update Token Details request) message, where in the `token_details` object, is a list of [possible responses](#).

Parameter	Definition
<code>reuse_token</code>	(if requested) - the VF Reuse Token that must be saved and stored
<code>analytics_token</code>	(if requested) - the VF Analytics Token that must be saved and stored
<code>token_expiry_date</code>	the expiration date for the Token(s)

Parameter	Definition
token_scope	stating under which Token Scope this Token(s) was created
token_status	the status of the Token(s)
created_at	the date when the Token(s) was first created
updated_at	the last date when the Token(s) was last updated and various card information-related fields

A Merchant can receive a non 'Active' status back if a Token was already created for this Token Scope and `encrypted_card details`, and it is already 'Deleted' or 'Suspended'. See the *Using the Token* section below to learn how to change the Token status.

### Storing the Token

Verifone currently does not offer features that allow the Merchant to view their available Tokens at once. That is why we recommend storing the Verifone Token ID yourself at the time you receive the response. There are two other ways how to obtain Token IDs after the approved response:

- If the Merchant knows the encrypted card details, they can submit a Create/Update Token Details request (please find the [API specifications here](#)), where the response will contain the Token Details associated with that Token Scope and with those encrypted card details.
- If the Merchant knows the Transaction UUID associated with the Transaction that originally resulted in a Token, they can search for the Transaction on Verifone Central. In the Transaction Details tab of the Transaction, the Reuse Token associated with that Transaction can be found.

### Stored Credential details

#### Type

Sign up


#### Status

Stored now


#### Model details

Recurring

#### Re-use Token ID

123e4567-e89b-12d3-a456-426614174000 

#### Scheme reference

123e4567-e89b-12d3-a456-426614174000 

### Using the Token

Verifone currently offers the following ways how a Merchant can use the VF Tokens:

- The Merchant can initiate a Transaction with a VF Reuse Token by submitting the TokenPaymentRequest API call (please find the [TokenPaymentRequest API specifications here](#))
  - A VF Reuse Token is linked to a Token Scope, therefore a VF Reuse Token provided as part of a Token Scope can only be reused by the Merchant Entity that is part of the same Token Scope
- The Merchant can do transactions with stored credentials where the VF Reuse Token might also be needed (please see Transactions with Stored Credentials for further information)
- The Merchant can do various Token Management activities via Token Management API calls (please find the [API specifications here](#))
- **Token scopes can only be used by Organizations with type Merchant Site**

### **Tokenization & Detokenization for Gift Cards/ Private Label Credit Cards (PLCC)**

Verifone also offers the possibility of tokenizing and detokenizing Gift Cards & Private Label Credit Cards (PLCC). The process is similar to tokenizing and detokenizing a regular card.

This functionality helps the customer perform cross-channel transactions which include the use of gift cards/ private label credit cards.

**Additional notes:**

- Expiration date of the gift card/PLCC is optional for the tokenization
- The gift card/ private label credit card PAN can have a length of minimum 4 digits
- The client needs to indicate in the payment request the card brand GIFT\_CARD/ PLCC and/or the account type STORED\_VALUE / PRIVATE\_LABEL along with the token
- Sale, Pre-auth, Void and Refund would be the supported request types using the re-use token generated for the gift cards/PLCCs
- At the moment the tokenization can be performed only via the PUT and PATCH /v2/card endpoints and not via the endpoints used for initiating a payment (e.g.: POST /v2/transactions/card endpoint). [Please check the eCom API public documentation.](#)
- Detokenization represents the conversion of the token back to the original form (PAN) and is performed during the payment processing.