SHIFT4™

API Specifications

# Alternative Payment Methods

Version 2.1 rev 3 | August 2024

# Contents

# Introduction

The purpose of this document is to provide an in-depth description of *Shift4*'s Alternative Payment Methods (APM) Gateway API. *Shift4's* APM Gateway is a proprietary platform for processing Alternative Payment Method transactions.

The APM API is a simple-to-use RESTful API. The API operates as a basic request-response service where the client instructs the gateway to perform an operation and the gateway replies with the operation's status. There are, however, situations where the merchant will have to carry out a follow-up action in order to complete the transaction.

## *Useful Documents / References*

The following documents may also be useful in understanding the *Shift4* API:

- *Shift4 Payment API*: an in-depth description of Shift4's Payment Gateway API.
- *Shift4's Hosted Payment Page API*: an in-depth description of *Shift4*'s Hosted Payment Page services solution.
- *Shift4's Data Transfer Interface*: an in-depth description of the ePower Data Transfer Interface that lists the available reports' formatting specifications.

These documents can be found on the Shift4 Developer Portal.

## *API Version Control*

The information provided in this document is accurate and reliable for standard processing as of its publication date. Any new implementations should thus avoid using previous versions of the API specification.

The API version number is a sequence-based identifier. Changes to the first part thus indicate major specification updates, while changes to the second part indicate minor updates.

The revision number reflects smaller specification changes, the correction of typing errors, or corrections that do not affect the API protocol itself.

## *Certification*

All new implementations must go through a certification process in order to ensure the quality of their integrations and the integrity of merchant data.

An additional certification process will be required if new operation codes or features are introduced.

## *Publisher Information*

# Gateway Interface

## *Introduction*

Transaction requests are sent online and in real-time using the HTTPS (Hypertext Transfer Protocol - Secure) protocol. The Gateway protocol, in turn, exposes multiple operation types, including sale (Authorisation and Capture), Authorisations, Reversals, Refunds and Past Transaction Enquiries.

## *Uniform Resource Locator (URL) Addresses*

| | |
|---|---|
| Integration URL | https://pay.int.sourcepayments.com/payments/rest |
| Production URL | https://pay.sourcepayments.com/payments/rest |

## *Security/Authentication*

All HTTP requests must be sent over a secure TLS (Transport Layer Security) 2.0 channel. The *Shift4* APM Gateway does not authenticate the TLS/SSL (Secure Sockets Layer) session using a client-based certificate, and thus does not employ a regular type of session authentication. Instead, the client is first authenticated by its source IP alongside a secondary authentication check that employs a cipher sent in the request header and used for pre-processing verifications. See Appendix A: SHA512 Transaction Signature for further details.

## *Health Checks*

The health of the *Shift4* Alternative Payment Methods Gateway and Integration Environments can be checked by accessing the following URLs:

| **Production** | | |
|---|---|---|
| Production Environment | Payment Server | https://pay.sourcepayments.com/rest/health |
| Production Environment | Notification Server | https://notification.sourcepayments.com/rest/health |

| **Integration** | | |
|---|---|---|
| Integration Environment | Payment Server | https://pay.int.sourcepayments.com/rest/health |
| Integration Environment | Notification Server | https://notification.int.sourcepayments.com/rest/health |

The service will then respond with a JavaScript Object Notation (JSON) message. One of the following responses will be provided:

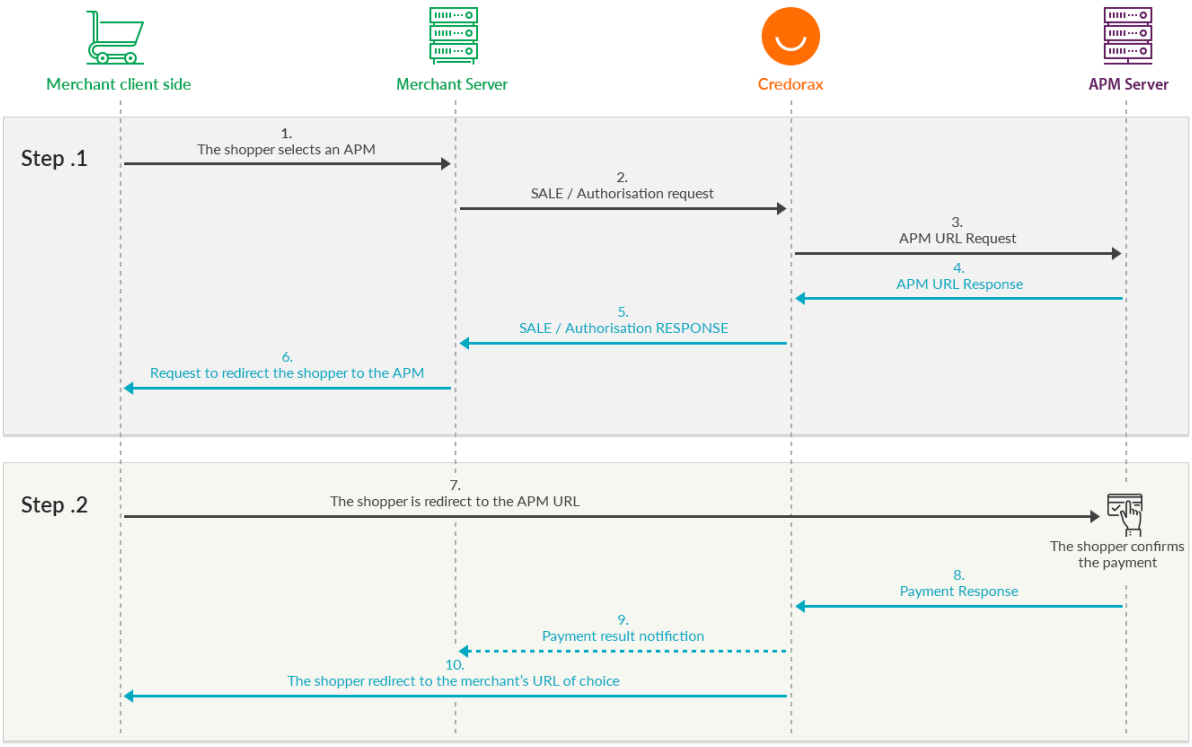
- {"health":"OK"}

- {"health":"FAIL"}

Follow the following guidelines when using this service:

- A **maximum** of one health check is permitted every 10 seconds
- A time-out should be recorded if no response has been received within 20 seconds
- The *Shift4* processing service should be considered unavailable after 3 consecutive service failures
- Please contact the Shift4 Support Team immediately in the event of any unexpected service interruption at support.europe@shift4.com

# APM Payment Workflow




### *Step 1*

1. The shopper selects the APM they wish to use in order to complete the checkout on the merchant's website.
2. The merchant initiates a call, typically a **Sale** API request; if the APM supports an Authorisation and Capture flow, the call could involve separate **Authorisation** and **Capture** API requests. These requests, in turn, would contain all the payment-related information. Furthermore, the most important parameters in this request are the *payment_method* and *redirect_urls* objects (For further information, see the Objects & Fields chapter.
3. *Shift4* routes the payment to the requested Payment Method and returns a URL to which the merchant must redirect the shopper. If the shopper is not redirected to this URL, the payment cannot be completed and no funds will be transferred to the merchant's account.

### *Step 2*

1. The payment process is completed only after the shopper has confirmed the payment at the payment URL. *Shift4* then redirects the shopper to the merchant landing page specified in the applicable *redirect_urls* object URL.
2. *Shift4* then sends the merchant a webhook (optionally) with the payment's result. The merchant can refund this payment if necessary by using the link specified in the webhook it just received.

### *Synchronous Flow*

There are some payment methods that behave in single, synchronous request-response flow. For those payment methods, Step 1 returns a final, absolute answer, and the entire Step 2 is not performed.

# Business Flows

The *Shift4* APM Gateway supports the following business operations:

**Note:**

Each payment method supports specific business flows.

## *General Business Flows*

### Sale

A Sale request performs both Authorisation and Capture transactions at the same time, i.e. sends an Authorisation request to the shopper's account and Captures the funds immediately upon its approval.

### Refund

A Refund is the decline of a previously Captured transaction (or Sale transaction). A Refund request can be sent up to 180 days from the relevant transaction's Date of Capture.

**Note:**

Refer to Appendix C: Available Payment Methods for payment methods that support refunds

### Retrieval Call (GET)

A Retrieve Call operation retrieves information regarding a previous transaction. This call can be initiated for any type of transaction.

## *Business Flows for Specific Payment Methods*

### Authorisation

An API call that generates an online Authorisation request.

An authorisation (auth) request is sent from a merchant portal (such as a website, mobile phone or Interactive Voice Response (IVR) service) to the Gateway in order to verify that sufficient funds are available and reserved for settling the payment transaction in due time.

### Capture

A capture request causes the transfer of funds from the shopper's account to the merchant's account. This transaction is always performed after an auth transaction. Note that an Authorisation

transaction does not guarantee the transfer of funds to a merchant unless it is followed by a capture transaction.

| | |
|---|---|
| **Note** | Capture requests are only supported by PayPal, Apple Pay and Google Pay. |

## Re-Authorisation

A re-authorisation request extends the timeframe during which funds are guaranteed to the merchant after a Capture transaction.

| | |
|---|---|
| **Note** | Re-authorisation requests are only supported by PayPal. |

## Authorisation Void

A Void request causes the cancellation of an authorised transaction and the release of the funds reserved during the Auth request.

| | |
|---|---|
| **Note** | Void requests are only supported by Apple Pay, Google Pay, MobilePay and PayPal. |

## Payout

A Payout request initiates funds movement from the merchant account to the shopper account.

| | |
|---|---|
| **Note** | Payout is currently supported only by Apple Pay, Google Pay and MobilePay. Payout for these payment methods is processed as a referral transaction that refers to a previous original transaction, and relies on the information sent in the original transaction. |

# General Message Format

## *General*

The *Shift4* APM API is a JSON-formatted REST API.

The request type is sent as part of the gateway URL.

For example:

…/payments/rest/sale

…/payments/rest/authorize

## *Headers*

Authentication header: contains the hashed string that signs the request. See Appendix A: SHA512 Transaction Signature for more information.

Content-Type: application/json

### *Example*:

Authentication: Bearer A21AAGqwTe-vsPxp3DisIZ5siOrfyaj0bTsRi7NqK3SJWxSvMs_tgK-L7AGHdLW7BZXttjPFDcl9ajpfl03EO2z_LUskR5E2g

Content-Type: application/json

## *Body*

Valid JSON message. For more details about the possible objects and attributes in a message, see the Description of Objects and Fields chapter.

## *Links*

The *Shift4* APM API calls return a result code and relevant descriptions. Some API calls also return JSON response bodies that include information about the resource, including one or more contextual HATEOAS links ("Links" objects). It is recommended that these links be used for requesting more information and for constructing an API flow that is suited to a particular request. The following table explains how you can build the destination URLs yourself:

| Required Operation | URL format |
|---|---|
| Capture *(for* | …/payments/rest/capture/{sub_merchant_id*}/*{original_transaction_id}* |
| Void*)* | …/payments/rest/void/{sub_merchant_id*}/*{original_transaction_id}* |
| Refund | …/payments/rest/refund/{sub_merchant_id*}/*{original_transaction_id}* |

| Required Operation | URL format |
|---|---|
| Re-authorisation | …/payments/rest/re-Authorisation/{sub_merchant_id*}/*{original_transaction_id}* |
| Payout | …/payments/rest/payout/{sub_merchant_id*}/*{original_transaction_id}* |

**Note** If not required, there is no need to fill in the sub merchant id value.

Some of these request types are only supported by certain payment methods

# Server-2-Server Notification

## *General*

APM flows are based on a two-step process requiring shopper action, *Shift4* payments platform supports an automated notification to update about the transaction's status after the shopper's action.

We strongly recommend you implement this notification functionality to support your business flow.

| | |
|---|---|
| **Note** | To set up the notification functionality contact your Solution Architect and provide the URL to which you wish to receive the notifications |

## *How it works*

- The gateway will send the notification and will immediately redirect the shopper's browser to the relevant URL.
- The gateway expects to receive a "200: OK" response from the shopper's browser

The gateway will retry sending the notification in a 15 minutes interval, and a maximum of 192 retries, until a successful HTTP response message (200:OK) is received.

You can also transmit a GET request to in order to query a transaction if you wish to get an update on this transaction without waiting for the automatic notifications.

### *Notification Format*

The notification format is similar to the Sale/Authorisation response format.

### *IP Whitelisting*

In order to receive notifications in Production environment make sure to whitelist the following IP on your system: 199.233.202.0/23

# Description of Objects and Fields

This chapter describes all the API objects and fields. Refer to the Required Parameters Chapter for a mapping of mandatory/optional parameters according to different business use cases

**Note** Field names are case-sensitive.

## *Root-Level Fields*

| Parameter Name | Type | Min | Max | Description |
|---|---|---|---|---|
| request_id | [a-zA-Z0-9] | 8 | 32 | Merchant-generated unique Request ID |
| payment_method | [a-zA-Z0-9] | 4 | 20 | The selected Payment Method. See the available options in Appendix C- Available Payment Methods |
| payment_id | [a-zA-Z0-9] | 16 | 32 | *Shift4*-generated unique Payment ID. Connects all the transactions associated with the same payment. |
| reference_transaction_id | [a-zA-Z0-9] | 16 | 32 | The transaction ID in question |
| create_token | [a-z] | 4 | 5 | Indicates whether a token should be created. Accepted values are:<br>• true<br>• false |

## *Object Name: merchant_info*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| gw_mid | [a-zA-Z0-9] | 3 | 8 | The *Shift4* gateway Merchant ID |
| descriptor | [a-zA-Z0-9] | 0 | 22 | The business descriptor that appears on the shopper's payment statement |
| sub_merchant_id | [a-zA-Z0-9] | 1 | 15 | The sub-merchant ID |
| reference_number | [a-zA-Z0-9] | 1 | 32 | Merchant Reference Number. This optional field is a secondary Transaction Reference Number which can be transmitted to add another identifier of the transaction.<br>Note: No cardholder data should be provided in this field. |

## *Object Name: amount*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| amount | [a-zA-Z0-9] | 1 | 10 | The requested Billing Amount<br>Two exponents without a decimal are implied apart from currencies with zero exponents.<br>For example, a value of 1000 should be transmitted for an amount of 10.00 GBP, but a value of 10 should be transmitted for an amount of 10 JPY. |
| currency | 3 character ISO 4217-alpha-3 currency code | 3 | 3 | Transaction currency. Indicates the currency that should be used in the transaction.<br><br>NOTE: Every currency you wish to use must be preconfigured on the Shift4 payments platform. |

## *Object Name: purchase_info*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| free_field | [a-zA-Z0-9] | 0 | 127 | Free field for the merchant's use |
| purchase_order | [a-zA-Z0-9] | 0 | 127 | The purchase order number or ID. Identifies this payment. |
| description | [a-zA-Z0-9] | 0 | 127 | Description of the purchase |
| invoice_number | [a-zA-Z0-9] | 0 | 127 | Purchase invoice number |
| mobile_view | Boolean (true/false) | 4 | 5 | Indicates if mobile variant of a scheme is enabled |
| number_of_items | [0-9] | 1 | 2 | the number of items purchased |
| discount_code | [a-zA-Z0-9] | 1 | 12 | The discount code used in the purchase |

## *Object Name: shipping_address*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| line_1 | [a-zA-Z0-9] | 4 | 64 | The shopper's Shipping Address |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| line_2 | [a-zA-Z0-9] | 4 | 64 | The second line of the address. This could include a suite, an apartment number, and so on. |
| country_code | two-character ISO-3166-1 country codes | 2 | 2 | The shipping address' country code |
| city | [a-zA-Z0-9] | 4 | 32 | The shopper's city as noted in the shipping address |
| phone_number | [0-9,-] | 4 | 50 | The shopper's phone number |
| state | [a-zA-Z0-9] | 2 | 40 | The state code,. Required for transactions if the shipping address is in one of the following countries: Argentina, Brazil, Canada, India, Italy, Japan, Mexico, Thailand, or United States.<br>The maximum length is 40 single-byte characters. |
| postal_code | [a-zA-Z0-9] | 2 | 16 | The shipping address' postal code |
| shipping_method | [a-zA-Z0-9] | 1 | 32 | The shipping method used for this purchase |
| shipping_class | [a-zA-Z0-9] | 1 | 32 | The shipping class |
| expected_delivery_date | DATE | 8 | 8 | The expected delivery date |

## *Object Name: billing_address*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| line_1 | [a-zA-Z0-9] | 4 | 64 | The shopper's billing address, including street name and number |
| line_2 | [a-zA-Z0-9] | 4 | 64 | The second line of the billing address. |
| country_code | two-character ISO-3166-1 country codes | 2 | 2 | The billing address' country code |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| city | [a-zA-Z0-9] | 4 | 32 | The billing address city |
| phone_number | [0-9] | 4 | 50 | The billing address phone number |
| state | [a-zA-Z0-9] | 2 | 40 | The state code or name. Required for transactions if the address is in one of the following countries: Argentina, Brazil,<br>Canada, India, Italy, Japan, Mexico, Thailand, or the United States.<br>The maximum length is 40 single-byte characters. |
| postal_code | [a-zA-Z0-9] | 2 | 16 | The billing address' postal code |

## *Object Name: shopper_info*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| country_code | two-character ISO-3166-1 country codes | 2 | 2 | The shopper's country code |
| birth_date | [0-9,-] | 3 | 32 | The shopper's date of birth in YYYY-MM-DD format. |
| last_name | [a-zA-Z0-9] | 3 | 32 | The shopper's last name.<br>Note: If the shopper's last name is shorter than three characters, you must add additional characters |
| shopper_id | [a-zA-Z0-9] | 4 | 128 | The specific payment method's shopper ID |
| phone_number | [0-9,-] | 4 | 32 | The shopper's personal phone number |
| mobile_phone | object | - | - | The shopper's personal mobile phone number. Constructed from two parts:<br>• number<br>• country<br>For example:<br>`"mobile_phone":{ "number":"51111111", "country":"111" }` |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| home_phone | Object | - | - | The shopper's home phone number. Constructed from two parameters:<br>• number<br>• country: 3-digit numeric country code<br>For example:<br>`"home_phone":{ "number":"51111111", "country":"111" }` |
| work_phone | Object | - | - | The shopper's work phone number. Constructed from two parameters:<br>• number<br>• country: 3-digit numeric country code<br>For example:<br>`"work_phone":{ "number":"51111111", "country":"111" }` |
| ip_address | [a-zA-Z0-9] | 7 | 15 | The IP address of the device the shopper is using to initiate the purchase |
| first_name | [a-zA-Z0-9] | 3 | 32 | The shopper's first name. If shorter than three characters, you must add additional characters |
| email | [a-zA-Z0-9] | 3 | 127 | The shopper's email address |
| language | [a-z] | 2 | 2 | The 2-letter language code (e.g. en for English) that should be preferred when presenting payment pages to the consumer |
| bic | [a-zA-Z0-9] | 8 | 11 | BIC (bank identification code) |
| iban | [a-zA-Z0-9] | 30 | 34 | Consumer bank account IBAN |
| personal_id | [a-zA-Z0-9/-] | 8 | 16 | The end-user's personal identification number (e.g. social security number, identification number, birth number). Useful for some banks for identifying |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | transactions and for KYC/AML purposes. |
| id_type | [A-Z] | 1 | 4 | Beneficiary's personal identification type.<br>Possible values depend on buyer's country:<br>• Colombia possible values:<br>o CC (citizen identification document),<br>o CE (foreigner identification document),<br>o PASS (passport)<br>o NIT (Tax number)<br>• Peru possible values:<br>o DNI (Identification document)<br>o RUC (Tax number)<br>o CE foreigner identification document)<br>o PASS(Passport) |
| bank_code | [a-zA-Z] | 3 | 3 | The bank code of the selected bank for the transfer<br>See more details in the GET Banks API |

## *Object Name: redirect_urls*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| success_url | URL | 0 | 1024 | The URL to which the user is redirected in case of a successful transaction |
| cancel_url | URL | 0 | 1024 | The URL to which the user is redirected in case of a cancelled transaction |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| fail_url | URL | 0 | 1024 | The URL to which the user is redirected in case of a failed transaction |
| pending_url | URL | 0 | 1024 | The URL to which the user is redirected in case of a pending transaction |
| redirect_url | URL | 0 | 2048 | Received in the response message and indicates to which URL to redirect the shopper. Contains one of the following values:<br>• From a payment method: The URL to which the user is redirected in order to complete the purchase<br>• From the issuer (for 3D Secure): The issuer's URL for the 3D secure authentication process |
| redirect_url_app | URL | 0 | 2048 | Received in the response message of MobilePay transactions and indicates to which mobile application link to redirect the shopper in case your app can't redirect to URLs (special cases). See further details in MobilePay Specifications and Response Parameters. |

## *Object Name: additional_information*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| account_type | [a-z] | 1 | 1 | The type of account.<br>Possible values:<br>C: for Current accounts<br>S: for Savings accounts<br>I: International accounts |
| bank_branch | [a-zA-Z0-9] | 1 | 45 | Shopper's bank branch name |

## *Object Name: payment_details*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| pan | [0-9] | 8 | 19 | PAN – Primary Account Number |
| expiry_month | [0-9] | 2 | 2 | Card expiration month in two-digit format (mm) |
| expiry_year | [0-9] | 2 | 2 | Card expiration year in two-digit format (yy) |
| authorization_code | [a-zA-Z0-9] | | | Authorisation Code |
| rrn | [0-9] | 1 | 10 | The transaction's Retrieval Reference Number (RRN). The RRN may be provided by the processor as an additional identifier of the transaction. Every refund transaction will receive a unique RRN, different from the initial transaction RRN. |
| initial_transaction_id | [a-zA-Z0-9] | 13 | 15 | Initial transaction ID. Received as part of the initial transaction response parameters. Must be sent for every subsequent 'merchant initiated transaction'. |
| fast_funds_indicator | [A-Z] | 1 | 1 | Fast funds indicator. Indicates whether the issuer supports fast funds functionality. Possible values are:<br>Y – Supports fast funds for domestic & cross-border payments<br>C – Supports fast funds for cross-border payments<br>D – Supports fast funds for domestic payments<br>N – No result |
| recurring | [A_Z] | 5 | 10 | Indicates whether the transaction is the first of a recurring series of payments or a subsequent payment in the series. Possible values:<br>• FIRST<br>• SUBSEQUENT |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| token | JSON | 0 | 4096 | Used for the following:<br>• The token created if the create_token parameter was used<br>• The assigned payment token for mobile payments. |
| partial_capture_indicator | [a-z] | 4 | 5 | Partial capture indicator<br>Accepted values:<br>• true<br>• false<br>Used with Israeli processors only |
| cardholder_name | [a-zA-Z0-9] | 3 | 32 | Cardholder full name |
| agreement_id | [a-zA-Z0-9] | 16 | 35 | SEPA Agreement ID. Received as part of the initial transaction response parameters if SEPA Agreement is created as part of the transaction. Must be sent for every subsequent SEPA recurring payment. |

## *Object Name: recipient_info*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| first_name | [a-zA-Z0-9] | 3 | 32 | The recipient's First Name. If shorter than three characters, you must add additional characters |
| surname | [a-zA-Z0-9] | 3 | 32 | The recipient's Last Name, if shorter than three characters, you must add additional characters |
| address.line_1 | [a-zA-Z0-9] | 1 | 30 | The recipient's street address |
| address.city | [a-zA-Z0-9] | 1 | 25 | The recipient's city |
| address.state | [a-zA-Z0-9] | 2 | 3 | The recipient's state (for US and Canada) |
| address.country_code | [A-Z] | 3 | 3 | The recipient's in a 3-letter ISO Country Code. |

## *Object Name: seller_information*

This object is required for marketplaces, to provide information about the seller fulfilling the transaction

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| id | [a-zA-Z0-9\-] | 4 | 64 | The seller's ID.<br>The ID should be a unique identifier such as the seller name or an internal registration number. |
| country | [A-Z] | 3 | 3 | The seller's country. |
| city | [a-zA-Z\-] | 3 | 30 | The seller's city. |
| line_1 | [a-zA-Z0-9\-] | 4 | 50 | The seller's address. |
| postal_code | [a-zA-Z0-9\-] | 1 | 9 | The seller's postal code. |
| state | [a-zA-Z0-9] | 3 | 3 | The seller's state. |

## *Object Name: sender_info*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| first_name | [a-zA-Z0-9] | 1 | 30 | Sender first name |
| surname | [a-zA-Z0-9] | 1 | 30 | Sender last name |
| address.line_1 | [a-zA-Z0-9] | 1 | 30 | Sender street address |
| address.city | [a-zA-Z0-9] | 1 | 25 | Sender city |
| address.state | [a-zA-Z0-9] | 2 | 3 | Sender state code. Mandatory for US and Canada |
| address.country_code | [A-Z] | 3 | 3 | Sender country code by ISO … |
| account_number | [0-9] | 1 | 19 | Sender's PAN |
| reference_number | [a-zA-Z0-9] | 1 | 16 | a merchant's ID represents the sender entity |
| source_of_funds | [0-9] | 2 | 2 | Source of funds used to make the funds transfer<br>possible values:<br>01 - credit card<br>02 - debit card<br>03 - prepaid card |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | 04 - cash<br>05 - Debit/deposit account<br>06 - Credit account<br>25 - Mobile Money account |

## *Object Name: threed_secure*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| threeds_status | [A-Z] | 1 | 1 | The result of the authentication process. Possible values:<br>• A – Attempts Processing Performed; Not Authenticated/Verified, but a proof of attempted authentication/verification is provided<br>• Y – Authentication/ Account Verification Successful<br>• N – Not Authenticated /Account Not Verified; Transaction denied<br>• C – Challenge Required; Additional authentication is required<br>• R – Authentication/ Account Verification Rejected; Issuer is rejecting authentication/verification and requests that authorisation not be attempted.<br>• U – Authentication/ Account Verification Could Not Be Performed, Technical or other problem<br>• I – Informational Only; Merchant challenge preference acknowledged. |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • D – Challenge Required; Decoupled Authentication confirmed |
| valid_payment | [yn] | 1 | 1 | Shift4 recommendation whether to initiate payment following the authentication results. Possible values:<br>• y – yes<br>• n – no |
| initiate | [0-4] | 2 | 2 | Indicates whether to initiate the Shift4 3D Secure Authentication process. Possible values are:<br>• 01: Initiate 3D Secure before completing the payment<br>• 02: Process payment without initiating 3D Secure<br>• 03: Initiate 3D Secure according to the 3DS Adviser result (see 3DS Adviser)<br>For additional information about the 3D Secure process, see Appendix D: SCA & 3D Secure.<br>Note: If the transaction contains all the following parameters, it will be declined: threed_secure.initiate, threed_secure.eci and threed_secure.cavv. |
| trxid | [a-zA-Z0-9] | 36 | 36 | The assigned 3D transaction ID |
| channel | [0-3] | 2 | 2 | Indicates the type of channel interface being used to initiate the transaction. The accepted values are:<br>• 01 - App-based (APP)<br>• 02 - Browser (BRW)<br>• 03 - 3DS Requestor Initiated (3RI) |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| category | [0-3] | 2 | 2 | Identifies the category of the message for a specific use case. The accepted values are:<br>• 01 - PA (Payment authentication)<br>• 02 - NPA (NON-payment authentication)<br>• 80 – Data only (Mastercard only, valid only for threed_secure.channel = 01 or 02) |
| completion_ind | [Y,N,U] | 1 | 1 | Relevant only if threed_secure.channel = 02. Received as part of the 3DS completion flow. The accepted values are:<br>• Y – Successfully completed<br>• N – Did not successfully complete<br>• U – Unavailable |
| redirect_url | URL | 0 | 2048 | The merchant URL to which the browser should be redirected after the challenge session |
| merchant_name | String | 4 | 40 | The 3DS merchant name as assigned by the acquirer |
| acquirer_bin | Numeric | 6 | 12 | The acquirer BIN number |
| acquirer_password | String | 4 | 32 | The 3D Secure authentication password as assigned by the acquirer |
| acquirer_mid | String | 4 | 32 | The 3D Secure merchant ID as assigned by the acquirer |
| merchant_url | URL | 4 | 256 | The merchant URL (website) |
| merchant_country | Numeric | 3 | 3 | The merchant country as a 3-digit numeric country code |
| merchant_mcc | Numeric | 4 | 4 | The merchant category code (MCC) as assigned by the acquirer |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| requestor_id | Alphanumeric | 0 | 35 | The unique 3D Secure requestor id. Depends on whether you are:<br>• Providing 3DS Standalone to Multiple Merchants<br>• Using 3DS Standalone as a Single Merchant |
| requestor_name | Alphanumeric | 0 | 40 | The unique 3D Secure requestor name. Depends on whether you are:<br>• Providing 3DS Standalone to Multiple Merchants<br>• Using 3DS Standalone as a Single Merchant |
| version | [0-9] | 3 | 5 | Indicates the 3D Secure protocol version. Possible values:<br>• 1.0<br>• 2.0<br>• 2.1.0<br>• 2.2.0 |
| threedsmethod | URL | - | - | The issuer's URL that should be used to trigger the collection of the device fingerprint by the issuer |
| cavv | [a-zA-Z0-9] | 0 | 64 | The authentication value received from the issuer |
| eci | [0-9] | 1 | 2 | The ECI assigned to the authentication |
| xid | [a-zA-Z0-9] | 28 | 28 | XID generated as part of the authentication. Relevant only for 3D Secure version 1.0.2 |
| dstrxid | [0-9A-Za-z,-] | 34 | 34 | 3DS Directory server transaction ID. Must be sent if threed_secure.version = 2.0 or higher and threed_secure.eci, threed_secure.cavv are used.<br>Refer to Appendix E: How to provide 3D secure Authentication Data |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| pareq | [a-zA-Z0-9] | 0 | 2048 | Relevant only for 3D secure 1.0 flows. Used when accessing the redirect_urls.redirect_url |
| acstansid | [a-zA-Z0-9\-] | 36 | 36 | Unique transaction identifier assigned by the ACS to identify a single 3D secure transaction. |
| white_list_status | [A-Z] | 1 | 1 | • Y: Merchant is whitelisted by cardholder<br>• N: Merchant is not whitelisted by cardholder<br>• E: Not eligible as determined by issuer<br>• P: Pending confirmation by cardholder<br>• R: Cardholder rejected<br>• U: Whitelist status unknown, unavailable, or does not apply |
| exemption | Object | - | - | See the exemption object |
| smart_3d | Object | - | - | See the smart_3d object |
| threeds_requestor | Object | - | - | See the threeds_requestor object |
| cardholder_account | Object | - | - | See the cardholder_account object |
| purchase | Object | - | - | See the purchase object |
| sdk | Object | - | - | See the sdk object |

## *Object Name: exemption*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| action | [0-9] | 2 | 2 | Indicates the merchant preference regarding SCA exemption. Possible values are:<br>• 01: Do not request exemption. This is the default behaviour for the Shift4 Gateway. If the field is absent from the transaction request, no exemption will be applied. |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • 02: Request an exemption as part of the payment request.<br>• 03: Request an exemption as part of the 3D Secure request<br>• 04: Request exemption by default. Shift4 will apply for exemption as part of the 3D Secure request if possible.<br>Note: If no value is provided, and you are using the 3DS Adviser module, the Shift4 Payment Gateway requests an exemption (if applicable) as part of the 3D secure process. |
| reason | [0-9] | 2 | 2 | This field is required when exemption.action= 02 or 03.<br>Possible values:<br>• 01: Low value transaction (below 30 EUR or equivalent)<br>• 02: Low risk transaction (TRA)[1]<br>• 03:Request Trusted Beneficiary Indicator (Whitelisting) [2]<br>• 04: Secure Corporate Cards[3]<br>• 05: Delegated Authentication[4]<br>• 06: MIT – Recurring same amount<br>• 07: MIT – other[5]<br>• 08: Trusted Beneficiary Indicator (Whitelisting) – Done[6]<br>[1] Requires real-time fraud monitoring solutions<br>[2] Use this value to indicate to the ACS to obtain confirmation from the cardholder to whitelist the merchant for future purchases<br>[3] This is not a standard exemption you can request. If you know the card used for the transaction is a secure corporate card, use this |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | value to indicate so to Shift4. This will help the 3DS Adviser determine the optimal 3D Secure employment.<br>[4] This exemption option can be used if you implemented an alternative SCA solution as part of your checkout process. This requires your solution be pre-approved and registered with the card schemes.<br>[5] Any MIT transaction must be sent with this flag to make sure the transaction will not require SCA.<br>[6] This is not a standard exemption you can request. If you receive an indication you were whitelisted by a cardholder, use this value on any subsequent transaction by that cardholder to indicate back to the Shift4 gateway that this is a potential whitelisting card. This will help the 3DS Adviser determine the optimal 3D Secure employment. |
| TRA_score | [0-9,AZa-z] | 1 | 8 | Indicates the transaction risk analysis result calculated by a third party provider as a basis for exemption.reason=02 |

## *Object Name: smart_3d*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| result | [0-4] | 2 | 2 | Describes the 3DS Adviser module recommendation:<br>• 01: Do 3D secure<br>• 02: Skip 3D secure<br>• 03: Request an exemption as part of the 3D Secure request<br>• 04: Request an exemption as part of the payment request |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| result_reason | [a-zA-Z0-9] | 0 | 128 | Includes the rule id which was executed as part of the Smart 3D rule engine |

## *Object Name: threeds_requestor*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| threeds_requestor_challenge_ind | [0-4] | 2 | 2 | Indicates whether a challenge is requested for this transaction. For example: For threed_secure. category 01-PA, a merchant may have concerns about the transaction, and request a challenge. For threed_secure.category 02-NPA, a challenge may be necessary when adding a new card to a wallet.<br>• 01 - No preference<br>• 02 - No challenge requested<br>• 03 - Challenge requested by merchant<br>• 04 - Challenge requested: Mandate<br>• 05 - No Challenge Requested, transactional risk analysis is already performed<br>• 06 - No Challenge Requested, Data share only<br>• 07 - No Challenge Requested, SCA is already performed<br>• 08 - No challenge requested (utilise whitelist exemption if no challenge required)<br>• 09 - Challenge requested (whitelist prompt requested if challenge required) |
| threeds_requestor_dec_req_ind | [YN] | 1 | 1 | Indicates whether the merchant requests the ACS to utilise Decoupled |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | Authentication and agrees to utilise Decoupled Authentication if the ACS confirms its use. Accepted values are:<br>• Y - Decoupled Authentication is supported and preferred if challenge is necessary<br>• N - Do not use Decoupled Authentication. |
| threeds_requestordec_max_time | [0-9] | 1 | 5 | Indicates the maximum amount of time (in minutes) that the merchant will wait for an ACS to provide the results of a Decoupled Authentication transaction. Valid values are between 1 and 10080. |
| threeds_requestor_authentication_info | Object | - | - | See the threeds_requestor_authentication_info object |
| threeds_requestor_prior_authentication_info | Object | - | - | See the threeds_requestor_prior_authentication_info object |

## *Object Name: threeds_requestor_authentication_info*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| threeds_req_auth_method | [0-6] | 2 | 2 | Information about how the cardholder was authenticated before or during the transaction.<br>The mechanism used by the Cardholder to authenticate to the merchant. Accepted values are:<br>• 01 - No authentication occurred (i.e., cardholder "logged in" as guest)<br>• 02 - Login to the cardholder account at the merchant system using merchant's own credentials |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • 03 - Login to the cardholder account at the merchant system using federated ID<br>• 04 - Login to the cardholder account at the merchant system using issuer credentials<br>• 05 - Login to the cardholder account at the merchant system using third party authentication<br>• 06 - Login to the cardholder account at the merchant system using FIDO Authenticator<br>• 07 - Login to the cardholder account at the merchant system using FIDO Authenticator (applicable for 3DS version 2.2 and above)<br>• 08 - SRC Assurance Data. (applicable for 3DS version 2.2 and above) |
| threeds_req_auth_timestamp | [0-9] | 12 | 12 | Date and time in UTC of the cardholder authentication. Field is limited to 12 characters and the accepted format is YYYYMMDDHHMM |
| threeds_req_auth_data | [a-zAZ0-9] | 0 | 255 | Data that documents and supports a specific authentication process. The intention is that for each merchant Authentication Method, this field contains data that the issuer can use to verify the authentication process. |

## *Object Name: threeds_requestor_prior_authentication_info*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| threeds_req_prior_ref | [a-zA-Z0-9] | 36 | 36 | This data element provides additional information to the issuer to determine the best approach for handling a request. The element contains the issuer's Transaction ID for a prior authenticated transaction (for example, the first recurring transaction that was authenticated with the cardholder). |
| threeds_req_prior_auth_method | [0-4] | 2 | 2 | Mechanism used by the Cardholder to previously authenticate to the merchant. Accepted values for this field are: |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • 01 - Frictionless authentication occurred by issuer<br>• 02 - Cardholder challenge occurred by issuer<br>• 03 - AVS verified<br>• 04 - Other issuer methods |
| threeds_req_prior_auth_timestamp | [0-9] | 12 | 12 | Date and time in UTC of the prior authentication. Accepted date format is YYYYMMDDHHMM. |
| threeds_req_prior_auth_data | [a-zAZ0-9] | 0 | 2048 | Data that documents and supports a specific authentication process. In the current version of the specification this data element is not defined in detail, however the intention is that for each merchant Authentication Method, this field carry data that the issuer can use to verify the authentication process. In future versions of the application, these details are expected to be included. Field is limited to a maximum of 2048 characters. |

## *Object Name: purchase*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| merchant_risk_indicator | Object | - | - | See the merchant_risk_indicator object |
| purchase_date | [0-9] | 14 | 14 | Date and time of the purchase expressed in UTC. The field is formatted as YYYYMMDDHHMMSS. |
| recurring_expiry | [0-9] | 8 | 8 | Date after which no further authorisations shall be performed. This field is limited to 8 characters, and the accepted format is YYYYMMDD. This field is required if payment_details.recurring=1 or 2 |
| recurring_frequency | [0-9] | 0 | 4 | Indicates the minimum number of days between authorisations. The field is limited to 4 characters. This field is required if payment_details.recurring=1 or 2 |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| trans_type | [0-9] | 2 | 2 | Identifies the type of transaction being authenticated. The values are derived from ISO 8583. Accepted values are:<br>• 01 - Goods / Service purchase<br>• 03 - Check Acceptance<br>• 10 - Account Funding<br>• 11 - Quasi-Cash Transaction<br>• 28 - Prepaid activation and Loan |

## *Object Name: merchant_risk_indicator*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| ship_indicator | [0-7] | 2 | 2 | Indicates shipping method chosen for the transaction. Merchants must choose the Shipping Indicator code that most accurately describes the cardholder's specific transaction. If one or more items are included in the sale, use the Shipping Indicator code for the physical goods, or if all digital goods, use the code that describes the most expensive item. Accepted values are:<br>• 01 - Ship to cardholder's billing address<br>• 02 - Ship to another verified address on file with merchant. In this case, shipping information is required even though threed_secure.cardholder.addr_match = true.<br>• 03 - Ship to address that is different from the cardholder's billing address. In this case, shipping information is required even though threed_secure.cardholder.addr_match = true.<br>• 04 - "Ship to Store" / Pick-up at local store (store address is populated in the shipping address fields). In this case, shipping information is required even though threed_secure.cardholder.addr_match = true.<br>• 05 - Digital goods (includes online services, electronic gift cards and redemption codes)<br>• 06 - Travel and Event tickets, not shipped |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • 07 - Other (for example, Gaming, digital services not shipped, emedia subscriptions, etc.) |
| delivery_timeframe | [0-4] | 2 | 2 | Indicates the merchandise delivery timeframe. Accepted values are:<br>• 01 - Electronic Delivery<br>• 02 - Same day shipping<br>• 03 - Overnight shipping<br>• 04 - Two-day or more shipping |
| delivery_email_address | Email | 7 | 64 | For electronic delivery, the email address to which the merchandise was delivered. |
| reorder_items_ind | [0-2] | 2 | 2 | Indicates whether the cardholder is reordering previously purchased merchandise. Accepted values are:<br>• 01 - First time ordered<br>• 02 - Reordered |
| preorder_purchase_ind | [0-2] | 2 | 2 | Indicates whether the cardholder is placing an order for merchandise with a future availability or release date. Accepted values are:<br>• 01 - Merchandise available<br>• 02 - Future availability |
| preorder_date | [0-9] | 8 | 8 | For a pre-ordered purchase, the expected date that the merchandise will be available.<br>Date format must be YYYYMMDD. |
| gift_card_amount | [0-9] | 1 | 12 | For a prepaid or gift card purchase, the purchase amount total of the prepaid or gift card(s) in major units (for example, USD 123.45 is 123). |
| gift_card_curr | [0-9] | 3 | 3 | For a prepaid or gift card purchase, the currency code of the card as defined in ISO 4217-alpha-3 except for 955 - 964 and 999. |
| gift_card_count | [0-9] | 0 | 2 | For a prepaid or gift card purchase, the total count of the individual prepaid or gift cards/codes purchased. Field is limited to 2 characters. |

## *Object Name: cardholder_account*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| acctinfo | Object | - | - | See the acctinfo object |
| acc_id | [a-zAZ0-9] | 0 | 64 | Additional information about the account optionally provided by the merchant |
| pay_token_ind | [a-z] | 4 | 5 | This field has a value of "true" if the transaction was de-tokenised prior to being received by Shift4. |
| addr_match | [a-z] | 4 | 5 | Indicates whether the Cardholder Shipping Address and Cardholder Billing Address are identical. Accepted values:<br>• True - Shipping Address matches Billing Address<br>• False - Shipping Address does not match Billing Address Note: the default value of this field is 'false' |

## *Object Name: acctinfo*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| chacc_date | [0-9] | 8 | 8 | Date that the cardholder opened the account with the merchant. Date format = YYYYMMDD. |
| chacc_change_ind | [0-4] | 2 | 2 | Length of time since the cardholder's account information with the merchant was last changed. Includes Billing or Shipping address, new payment account, or new user(s) added. Accepted values are:<br>• 01 - Changed during this transaction<br>• 02 - Less than 30 days<br>• 03 - 30 - 60 days<br>• 04 - More than 60 days |
| chacc_change | [0-9] | 8 | 8 | Date that the cardholder's account with the merchant was last changed. Includes Billing or Shipping address, new payment account, or new user(s) added. Date format = YYYYMMDD. |
| chacc_pw_change_ind | [0-5] | 2 | 2 | Length of time since the cardholder's account with the merchant had a password change or account reset. The accepted values are:<br>• 01 - No change<br>• 02 - Changed during this transaction |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • 03 - Less than 30 days<br>• 04 - 30 - 60 days<br>• 05 - More than 60 days |
| chacc_pw_change | [0-9] | 8 | 8 | Date that cardholder's account with the merchant had a password change or account reset. Date format must be YYYYMMDD |
| ship_address_usage_ind | [0-4] | 2 | 2 | Indicates when the shipping address used for this transaction was first used with the merchant. Accepted values are:<br>• 01 - This transaction<br>• 02 - Less than 30 days<br>• 03 - 30 - 60 days<br>• 04 - More than 60 days |
| ship_address_usage | [0-9] | 8 | 8 | Date when the shipping address used for this transaction was first used. Date format must be YYYYMMDD. |
| txn_activity_day | [0-9] | 0 | 10 | Number of transactions (successful and abandoned) for this cardholder account with the merchant across all payment accounts in the previous 24 hours. |
| txn_activity_year | [0-9] | 0 | 10 | Number of transactions (successful and abandoned) for this cardholder account with the merchant across all payment accounts in the previous year. |
| provision_attempts_day | [0-9] | 0 | 10 | Number of Add Card attempts in the last 24 hours. |
| nbpurchase_account | [0-9] | 0 | 10 | Number of purchases with this cardholder account during the previous six months |
| suspicious_acc_activity | [0-2] | 2 | 2 | Indicates whether the merchant has experienced suspicious activity (including previous fraud) on the cardholder account. Accepted values are:<br>• 01 - No suspicious activity has been observed<br>• 02 - Suspicious activity has been observed |
| ship_name_indicator | [0-2] | 2 | 2 | Indicates whether the Cardholder Name on the account is identical to the shipping Name used for this transaction. Accepted values are:<br>• 01 - Account Name identical to shipping Name<br>• 02 - Account Name different from shipping Name |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| payment_acc_ind | [0-5] | 2 | 2 | Indicates the length of time that the payment account was enrolled in the cardholder's account with the merchant. Accepted values are:<br>• 01 - No account (guest check-out)<br>• 02 - During this transaction<br>• 03 - Less than 30 days<br>• 04 - 30 - 60 days<br>• 05 - More than 60 days |
| payment_acc_age | 8 | 8 | [0-9] | Date that the payment account was enrolled in the cardholder's account with the merchant. Date format must be YYYYMMDD. |

## *Object Name: browser_info*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| browser_java_script_enabled | [a-z] | 4 | 5 | Boolean that represents the ability of the cardholder browser to execute JavaScript. Accepted values are true / false |
| browser_java_enabled | [a-z] | 4 | 5 | Boolean (true/false) that represents the ability of the cardholder browser to execute Java.<br>This field is required for requests where threed_secure. channel = 02 (Browser). |
| browser_color_depth | [0-9] | 1 | 2 | Value representing the bit depth of the colour palette for displaying images, in bits per pixel. Accepted values are:<br>• 1 - 1 bit<br>• 4 - 4 bits<br>• 8 - 8 bits<br>• 15 - 15 bits<br>• 16 - 16 bits<br>• 24 - 24 bits |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • 32 - 32 bits<br>• 48 - 48 bits |
| browser_screen_height | [0-9] | 1 | 6 | Total height of the Cardholder's screen in pixels. |
| browser_screen_width | [0-9] | 1 | 6 | Total width of the Cardholder's screen in pixels. |
| browser_tz | [0-9,-] | 1 | 5 | Time difference between UTC time and the Cardholder browser local time, in minutes. |
| browser_accept_header | [a-zAZ0-9] | 0 | 2048 | Exact content of the HTTP accept headers. |
| challenge_window_size | [0-5] | 2 | 2 | Dimensions of the challenge window that will be displayed to the cardholder. The issuer replies with content that is formatted to appropriately render in this window to provide the best possible user experience. Preconfigured window sizes are given in “width x height” in pixels. Accepted values are:<br>• 01 - 250 x 400<br>• 02 - 390 x 400<br>• 03 - 500 x 600<br>• 04 - 600 x 400<br>• 05 - Full screen |
| user_agent | [a-zAZ0-9] | 5 | 300 | Exact content of the HTTP user-agent header. |
| accept_language | [a-zA-Z,] | 5 | 16 | Accept-Language header, comma-separated set of locales |
| version | [a-zA-Z0-9] | 1 | 64 | Browser version |

## *Object Name: sdk*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| interface | [0-3] | 2 | 2 | Specifies the SDK Interface types that the device supports for displaying specific challenge user interfaces within the SDK. Accepted values are:<br>• 01 - Native<br>• 02 - HTML<br>• 03 - Both |
| ui_types | Comma separated list | 2 | 14 | Contains a list of all UI types that the device supports for displaying specific challenge user interfaces within the SDK. Accepted values for each UI type are:<br>• 01 - Text<br>• 02 - Single select<br>• 03 - Multi select<br>• 04 - OOB<br>• 05 - Html Other (valid only for HTML UI)<br>For Native UI SDK Interface accepted values are 01-04 and for HTML UI accepted values are 01-05 |
| sdk_appid | [0-9azA-Z] | 0 | 36 | Universally unique ID created upon all installations and updates of the merchant App on a customer device. This is newly generated and stored by the 3DS SDK for each installation or update. The field must have a canonical form as defined in IETF RFC 4122. |
| sdk_encdata | [0-9azA-Z] | 0 | 64k | JWE object, as a string containing data encrypted by the SDK for the DS to decrypt. The field is sent from the SDK. The data will be present when sending to DS, but not present from DS to ACS. |
| sdk_ephempubkey | [a-zA-Z0-9] | 0 | 255 | Public key component of the ephemeral key pair generated by the 3DS SDK and used to establish |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | session keys between the 3DS SDK and ACS |
| sdk_maxtimeout | [0-9] | 2 | 2 | The maximum amount of time (in minutes) for all exchanges. The value must be greater than or equal to 05. |
| sdk_referencenumber | [a-z0-9] | 0 | 32 | Identifies the vendor and version of the 3DS SDK that is integrated in a merchant app, assigned by EMVCo when the 3DS SDK is approved. |
| sdk_transid | [0-9] | 0 | 36 | Universally unique transaction identifier assigned by the 3DS SDK to identify a single transaction. The field must have a canonical form as defined in IETF RFC 4122. |

## *Object Name: fraud_service*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| threed_secure_threshold | [0-9] | 1 | 3 | Assigns an ad-hoc threshold that extends the regular fraud threshold, for authorised 3D secure transactions only. |

## *Object Name: routing*

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| request_processor | [a-zA-Z0-9] | 0 | 9 | Indicates the selected Processor for the specific transaction. The transaction is routed according to the transmitted value. |
| requested_processor_mid | [a-zA-Z0-9] | 0 | 32 | Indicates the Processor target MID for the specific transaction. The transaction is routed according to the transmitted value |
| routing_order | [1-9] | 1 | 2 | The routing sequence number |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| method | [a-zA-Z0-9] | 1 | 1 | Indicates the Processor Routing Method used for the transaction. Possible values are:<br>• 1 – Routing parameter<br>• 2 – Routing rules<br>• 3 – Processor priority |
| rule_id | [0-9] | 0 | 4 | The Processor Routing Rule ID that was responsible for the routing decision. Only required in cases where method=2. |
| processor | [A-Z] | 0 | 1,255 | The Payment Processor that processed the transaction |
| target_mid | [a-zA-Z0-9] | 0 | 1,255 | The Payment Processor MID |
| acquirer_transaction_id | [a-zA-Z0-9] | 0 | 1,255 | The Payment Processor Transaction ID. Used when corresponding with the Payment Processor or when reconciling transactions. |
| processor_response | [a-zA-Z0-9] | 0 | 1,255 | The original Response Code as transmitted by the Processor |
| reroute | [a-z] | 4 | 5 | Indicates whether Smart Routing reroute is applied to this transaction. |
| routed_processor | [A-Z] | 0 | 1,255 | The first Payment Processor to which the transaction was routed. Only populated in cases where all the following is true:<br>• Smart Routing is enabled<br>• The transaction was rerouted to a second processor<br>• routing.request_processor was not sent on the request<br>The response did not contain certain result.processor_response_code values |
| first_processor_response | [a-zA-Z0-9] | 0 | 1,255 | The original Response Code as transmitted by the first Payment Processor to which the transaction |

| Field name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | was routed (i.e., the routing.processor_response of the first Payment Processor to which the transaction was routed). Only populated in cases where all the following is true:<br>• Smart Routing is enabled<br>• The transaction was rerouted to a second processor<br>• routing.request_processor was not sent on the request<br>The response did not contain certain result.processor_response_code values. |

## *Object Name: result*

| Attribute Name | Type | Min | Max | Description |
|---|---|---|---|---|
| response_code | [0-9] | | | The Transaction Result Code. For more information, see Appendix B: Operation Result Codes. |
| response_description | [a-zA-Z0-9] | | | The transaction result code description. For more information, see Appendix B: Operation Result Codes. |
| response_details | [a-zA-Z0-9] | | | Additional, human readable error description. Providing more details about the error. |
| original_response_description | [a-zA-Z0-9] | | | The original Processor Response Message where a rejection does not originate from the *Shift4* Gateway.<br>Will be sent in transactions of payment methods that are nor card-based. |
| processor_response_code | [0-9] | 1 | 3 | Processing Response Reason Code<br>Will be sent in card-based transactions only. |

| Attribute Name | Type | Min | Max | Description |
|---|---|---|---|---|
| avs | [A-Z] | 1 | 2 | AVS response. The Address Verification Service (AVS) Authorisation response provided by the acquirer at the time of Authorisation. |
| merchant_advice_code | [0-9] | 2 | 2 | Merchant Advice Code (MAC)<br>Indicates whether an attempt to retry the transaction is advised.<br>Possible values:<br>• 01: Updated or additional information is needed<br>• 02: Try again later<br>• 03: Do not try again<br>• 04: Token requirements not fulfilled for this token type<br>• 21: Payment cancelation |
| stand_in_service | Object | - | | See the stand_in_service object |

## *Object Name: stand_in_service*

Returned in response to transactions handled by the stand-in service. If you are not registered to this service you will not receive this object.

| Attribute Name | Type | Min | Max | Description |
|---|---|---|---|---|
| status | [0-9] | 1 | 1 | Provides information about a transaction that was handled by the Shift4 stand-in service and the status of the transaction in the stand-in process.<br>Possible values:<br>• 1: Transaction pending Credorax stand-in service<br>• 2: Credorax stand-in service final response<br>• 3: Transaction does not meet Credorax stand-in max aggregated transaction amount threshold |

| Attribute Name | Type | Min | Max | Description |
|---|---|---|---|---|
| | | | | • 4: Transaction does not meet Credorax stand-in max transaction amount threshold<br>• 5: Unable to get final answer from the connector / processor. Credorax stand-in service terminated for this transaction |

# Required Parameters

This chapter describes the required parameters for all payment methods. Specific attributes that are only relevant to specific payment methods are described in Appendix C - Available Payment Methods.

NOTE: In the following tables, **M** indicates a mandatory parameter, **O** indicates an optional parameter, and **C** indicates a parameter that is mandatory in certain cases. Thus, for example, an **M** in the **Sale/Authorisation** column indicates that the parameter is mandatory for Sale and for Authorisation operations.

## *Root-Level Fields*

| Parameter Name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| request_id | The merchant's unique Request ID | M | M |
| payment_method | The selected Payment Method. See the available options in Appendix C - Available Payment Methods | C<br>(Mandatory for Sale/Authorisation only) | - |

## *Object Name: merchant_info*

| Field Name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| gw_mid | The *Shift4*-assigned GW MID | M | M |
| descriptor | The Descriptor displayed to the consumer on the proof of payment | O | - |
| sub_merchant_id | The Sub-Merchant ID | O | - |

## *Object Name: amount*

| Field Name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| amount | The requested Billing Amount<br>Two exponents without a decimal are implied apart from currencies with zero exponents.<br>For example, a value of 1000 should be transmitted for an amount of | C<br>(Mandatory for Sale/Authorisation; Optional for Payout) | O (Capture, Refund). If missing, the original amount will be considered |

| Field Name | Description | Sale/Authorisation/ Payout | Capture/Refund/Void/ Re-authorisation |
|---|---|---|---|
| | 10.00 GBP and a value of 10 should be transmitted for an amount of 10 JPY. | | |
| currency | The Presentment Currency that should be used in the transaction. Any presentment currency you wish to use must be preconfigured on the *Shift4* platform. Refer to the list of 3 character ISO 4217-alpha-3 currency codes for more information. | C<br>(Mandatory for Sale/Authorisation; Optional for Payout) | O (Capture, Refund). If missing, the original amount will be considered |

## *Object Name: purchase_info*

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| free_field | Free Field for the merchant's use | O | - |
| purchase_order | The Purchase Order number or ID. Identifies this payment. | C<br>(M for MobilePay) | - |
| description | Description of the purchase | O | - |
| invoice_number | The purchase's Invoice Number | O | - |
| mobile_view | Indicates if mobile variant of a scheme is enabled | O | - |

## *Object Name: shipping_address*

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| line_1 | The shopper's Shipping Address | C<br>(M for PayPal) | - |
| line_2 | The second line of the address. This could be a suite, an apartment number, and so on. | O | - |
| country_code | The Shipping Address Country Code | C<br>(M for PayPal) | - |
| city | City name | O | - |

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| phone_number | Phone Number | O | - |
| state | US State Code or the equivalent for other countries. **For PayPal transactions only -** Required for transactions if the address is in one of the following countries: Argentina, Brazil, Canada, India, Italy, Japan, Mexico, Thailand, or the United States. | O (C for PayPal) | - |
| postal_code | The Shipping Address' Postal Code | O | - |
| shipping_method | The Shipping Method used for this purchase | O | - |

## *Object Name: billing_address*

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| line_1 | The shopper's Billing Address | O | - |
| line_2 | The second line of the shopper's address. This can be a suite, an apartment number, and so on. | O | - |
| country_code | The Billing Address' Country Code | O | - |
| city | City name. | O | - |
| phone_number | Phone Number | O | - |
| state | US State Code or the equivalent for other countries. **For PayPal transactions only -** Required for transactions if the address is in one of the following countries: Argentina, Brazil, Canada, India, Italy, Japan, Mexico, Thailand, | O | - |

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/ Re-authorisation |
|---|---|---|---|
| | or the United States. Maximum length is 40 single-byte characters. | | |
| postal_code | The Billing Address' Postal Code | | - |

## *Object Name: shopper_Info*

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/ Re-authorisation |
|---|---|---|---|
| country_code | The shopper's Country Code | C<br>(Mandatory for Sale/Authorisation;<br>Optional for Payout) | - |
| birth_date | The shopper's Date of Birth | O | - |
| last_name | The shopper's Last Name | C<br>(Mandatory for Sale/Authorisation on most payment methods. Optional for<br>Bancontact, SOFORT, EPS, , iDEAL, P24,)<br>Optional for Payout | - |
| shopper_id | The specific Payment Method's Shopper ID | O<br>(M for, Trustly, Paysafecard, Entercash, Paysafecash) | - |
| home_phone | The shopper's home phone number. Constructed from two parameters:<br>• number<br>• country: 3-digit numeric country code<br>For example: | C (m for 3DS transaction if shopper email is not sent) | - |

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| | <pre>"home_phone":{<br>"number":"51111111",<br>"country":"111"<br>}</pre> | | |
| phone_number | The shopper's personal phone number | C (M for China Union Pay, M for 3DS Transaction if shopper email is not sent.) | - |
| mobile_phone | The shopper's personal mobile phone number | O | |
| ip_address | The IP address of the device the shopper is using to initiate the purchase | C, M for 3DS transactions | - |
| first_name | The shopper's First Name | C<br>(Mandatory for Sale/Authorisation on most payment methods. Optional for Bancontact, SOFORT, EPS, iDEAL, P24,;<br>Optional for Payout | - |
| email | The shopper's Email Address | C<br>• M for 3DS Transactions. O if phone_number is sent.<br>• M for Sale/Authorisation with the following payment methods:P24, China Union Pay, Zimpler, Safetypay, Itau, Santander, Webpay, Boleto;<br>• M for Payout | - |
| language | The 2-letter Language Code (e.g. de) that should be preferred | O (Not Relevant for PayPal) | - |

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| | when presenting payment pages to the consumer | | |
| iban | Consumer Account IBAN | O (M for SEPA DD) | - |
| bic | Valid BIC (8 or 11 alphanumeric letters) | O, relevant for Sofort, Ideal.<br>For Ideal send to skip bank selection step. | - |
| personal_id | The end-user's Social Security Number/ Personal Identification Number/Birth Number/<br>etc. Useful for some banks for identifying transactions and for KYC (Know Your Customer)/AML (Anti Money Laundering) purposes. | C<br>(Optional for Trustly;) Mandatory for Bradesco, Bank of Brasil, Itau, Santander, Webpay, Boleto) | - |
| id_type | Beneficiary's personal identification type. | O | |
| bank_code | The bank code of the selected bank for the transfer<br>See more details in GET Banks API | O<br>(See more details in GET Banks API) | |

## *Object name: additional_information*

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| account_type | The type of account.<br>C: for Current accounts<br>S: for Savings accounts<br>I: International accounts (Relevant only for AstroPay Direct) | M (for AstroPay Direct payouts) | M (for AstroPay Direct refund) |
| bank_branch | User's bank branch name<br>(Relevant only for AstroPay Direct) | O (for AstroPay Direct payouts) | M (for AstroPay Direct refund) |

## *Object name: redirect_urls*

| Field name | Description | Sale/Authorisation/ Payout | Capture/Refund/Void/ Re-authorisation |
|---|---|---|---|
| success_url | The URL to which the user is redirected in the event of a successful transaction | C<br>(Mandatory for Sale/Authorisation<br>Optional for Payout) | - |
| cancel_url | The URL to which the user is redirected in the event of a cancelled transaction | C<br>(Mandatory for Sale/Authorisation<br>Optional for Payout) | - |
| fail_url | The URL to which the user is redirected in the event of a failed transaction | C<br>(Mandatory for Sale/Authorisation<br>Optional for Payout) | - |
| pending_url | The URL to which the user is redirected in the event of a pending transaction | C<br>(Mandatory for Sale/Authorisation<br>Optional for Payout) | - |

## *Object Name: seller_information*

This object is required for marketplaces, to provide information about the seller fulfilling the transaction

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| id | The seller's ID.<br>The ID should be a unique identifier such as the seller name or an internal registration number.<br>This field is mandatory sending this the seller_information object. | C (Sale only) | C (Capture only) |
| country | The seller's country. | C (Sale only) | C (Capture only) |

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| city | The seller's city. | C (Sale only) | C (Capture only) |
| line_1 | The seller's address. | C (Sale only) | C (Capture only) |
| postal_code | The seller's postal code. | C (Sale only) | C (Capture only) |
| state | The seller's state. | C (Sale only) | C (Capture only) |

## *Object Name: threed_secure*

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| cavv | The authentication value received from the issuer | O | - |
| eci | The ECI assigned to the authentication | O | - |
| xid | XID generated as part of the authentication. Relevant only for 3D Secure version 1.0.2 | O | - |
| version | Indicates the 3D Secure protocol version Possible values:<br>• 1.0<br>• 2.0<br>• 2.1.0<br>• 2.2.0 | C (M if using cavv/eci/xid) | - |
| dstrxid | 3DS Directory server transaction ID. Must be sent if threed_secure.version = 2.0 or higher, and threed_secure.eci, threed_secure.cavv are used.<br>Refer to Appendix E: How to provide 3D secure Authentication Data | C (M if threed_secure.version = 2.0 or higher) | - |
| initiate | Indicates whether to initiate the Shift4 3D Secure Authentication process. Possible values are:<br>01: Initiate 3D Secure before completing the payment<br>02: Process payment without initiating 3D Secure | O (default value: 02 ) | - |

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| | 03: Initiate 3D Secure according to the 3DS Adviser result (see 3DS Adviser)<br>For additional information about the 3D Secure process, see Payments API Appendix D: SCA & 3D Secure.<br>Note: If the transaction contains all the following parameters, it will be declined: threed_secure.initiate, threed_secure.eci, and threed_secure.cavv | | |

## *Object name: payment_details*

| Field name | Description | Sale/Authorisation/Payout | Capture/Refund/Void/Re-authorisation |
|---|---|---|---|
| recurring | Indicates whether the transaction is the first of a recurring series of payments or a subsequent payment in the series. Possible values:<br>• FIRST<br>• SUBSEQUENT | O | - |
| partial_capture_indicator | Partial capture indicator<br>Accepted values:<br>• true<br>• false<br>To be used with Israeli processors only. | O | - |
| cardholder_name | Cardholder full name | C (m for 3D secure transaction) | - |

# Response Message Format

*Shift4* reserves the right to return an echo of the request parameters as well as additional response parameters at any time.

NOTE: In the following tables, **M** indicates a parameter that must be returned, **O** indicates a parameter that could optionally be returned, and **C** indicates a parameter that must be returned in certain cases.

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| payment_id | [a-zA-Z0-9] | M | The *Shift4*-generated Payment ID. Payment_id aggregates several transaction_ids. |
| transaction_id | [a-zA-Z0-9] | M | The *Shift4*-generated Transaction ID. Each request to results in a unique transaction_id. |
| request_id | [a-zA-Z0-9] | M | An echo of the unique transaction_id that the merchant had transmitted to *Shift4* when creating the payment request. |
| pr_transaction_id | [a-zA-Z0-9] | C | Payment Processor Transaction ID. The unique transaction_id created by the Payment Processor. |
| payment_method | [a-zA-Z] | M | The selected Payment Method. |
| operation | [a-zA-Z] | M | One of the following: Sale, Authorisation, Capture, Void, Refund, Re-Authorisation |
| transaction_time | string | M | Time of the Transaction in UTC format<br>dd-MM-yy HH:mm:ss:SSS |

## *Object Name: purchase_info*

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| invoice_number | [a-zA-Z0-9] | O | The Invoice Number used for tracking this payment |
| free_field | [a-zA-Z0-9] | O | Free Field for the shopper's use |
| purchase_order | [a-zA-Z0-9] | C | The Purchase Order number or ID. Identifies this payment.<br>**Note:**<br>• Optional for most payment methods<br>• Mandatory for MobilePay |
| description | [a-zA-Z0-9] | O | Description of the purchase |
| payment_type | | O | Indicates the payment type that was used<br>• 00 - Bank Transfer Online (EFT)<br>• 01 - Bank Transfer Offline<br>• 02 - Boleto / Invoice |

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| | | | • 03 - Debit or Credit Card<br>(Relevant only for AstroPay Direct) |
| funding | true\|false | O | This field has a value of "true" if the transaction is AFT.<br>Otherwise, the field does not appear in the response. |

## *Object Name: shopper_info*

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| shopper_id | [a-zA-Z0-9] | O | The relevant APM Shopper ID if applicable. This holds the payer_id in the case of PayPal transactions. |
| account_holder | [a-zA-Z0-9] | O | The Consumer Account's Account Holder |
| iban | [0-9] | O | Consumer Account IBAN |
| bic | [0-9] | O | Consumer Account BIC |
| bank_name | [a-zA-Z0-9] | O | Consumer Account Bank Name |
| bank_code | [A-Za-z] | O | The bank code of the selected bank for the transfer<br>See more details in the GET Banks API |

## *Object Name: result*

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| response_code | [0-9] | M | The Transaction Result Code. For more information, see Appendix B: Operation Result Codes. |
| response_description | [a-zA-Z0-9] | M | The transaction result code description. For more information, see Appendix B: Operation Result Codes. |
| response_details | [a-zA-Z0-9] | O | Additional, human readable error description. Providing more details about the error. |
| original_response_description | [a-zA-Z0-9] | O | The original Processor Response Message where a rejection does not originate from the *Shift4* Gateway.<br>Will be sent in transactions of payment methods that are nor card-based. |
| processor_response_code | [0-9] | m | Processing Response Reason Code<br>Will be sent in card-based transactions only. |
| avs | [A-Z] | o | AVS response. The Address Verification Service (AVS) Authorisation response provided by the acquirer at the time of Authorisation. |

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| merchant_advice_code | [0-9] | o | Merchant Advice Code (MAC)<br>Indicates whether an attempt to retry the transaction is advised.<br>Possible values:<br>• 01: Updated or additional information is needed<br>• 02: Try again later<br>• 03: Do not try again<br>• 04: Token requirements not fulfilled for this token type<br>• 21: Payment cancelation |
| stand_in_service | Object | - | See the stand_in_service object |

## *Object Name: stand_in_service*

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| status | [0-9] | O | Indicates whether the transaction was handled by the Shift4 stand-in service as well as the transaction status. Possible values are:<br>• 1: Transaction pending Credorax stand-in service<br>• 2: Credorax stand-in service final response<br>• 3: Transaction does not meet Credorax stand-in max aggregated transaction amount threshold<br>• 4: Transaction does not meet Credorax stand-in max transaction amount threshold<br>• 5: Unable to get final answer from the connector / processor. Credorax stand-in service terminated for this transaction |

## *Object Name: amount*

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| amount | [0-9] | O | The requested Billing Amount<br>Two exponents without a decimal are implied apart from currencies with zero exponents.<br>For example, a value of 1000 should be transmitted for an amount of 10.00 GBP, but a value of 10 should be sent for an amount of 10 JPY. |

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| currency | 3 character ISO 4217-alpha-3 currency code | O | The Presentment Currency that should be used in the transaction. Any Presentment Currency you wish to use must be preconfigured on the Shift4 Payments platform. |

## *Object Name: links*

| Attribute name | Type | M/O/C | Description |
|---|---|---|---|
| href<br>method<br>re | string | O | Object containing links to operations related to the executed operation. |

## *Object Name: additional_information*

This object includes fields used by certain payment methods.

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| multibanco_reference | [a-zA-Z0-9] | O | The payment reference of the transaction. Relevant only for multibanco. |
| Multibanco_entity | [a-zA-Z0-9] | O | The entity reference of the transaction. Relevant only for multibanco. |
| P24_descriptor | [a-zA-Z0-9] | O | Przelewy24 doesn't allow setting a client specific payment descriptor, instead a payment identifier is generated. To allow supporting consumers this payment descriptor is returned in the specific output parameter. |

## *Object name: redirect_urls*

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| redirect_url | URL | C | Received in the response message and indicates to which URL to redirect the shopper. Contains one of the following values:<br>• From a payment method: The URL to which the user is redirected in order to complete the purchase<br>• From the issuer (for 3D Secure): The issuer's URL for the 3D secure authentication process |

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| redirect_url_app | URL | C<br>(M for MobilePay) | Received in the response message and indicates to which mobile application URL to redirect the shopper. Used in case your application can't redirect to the universal URL, due to security reasons or specific app rules. |

## *Object name: payment_details*

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| authorization_code | [a-zA-Z0-9] | O | Authorisation Code |
| rrn | [0-9] | O | The transaction's Retrieval Reference Number (RRN). The RRN may be provided by the processor as an additional identifier of the transaction. Every refund transaction will receive a unique RRN, different from the initial transaction RRN. |
| initial_transaction_id | [a-zA-Z0-9] | O | Initial transaction ID. Received as part of the initial transaction response parameters. Must be sent for every subsequent 'merchant initiated transaction'. |
| fast_funds_indicator | [A-Z] | O | Fast funds indicator. Indicates whether the issuer supports fast funds functionality. Possible values are:<br>• Y – Supports fast funds for domestic & cross-border payments<br>• C – Supports fast funds for cross-border payments |

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| | | | • D – Supports fast funds for domestic payments<br>• N – No result |
| token | JSON | O | Used for the following:<br>• The token created if the create_token parameter was used<br>• The assigned payment token for mobile payments. See token in Additional request parameters for Apple Pay & Google Pay |
| payment_account_reference | [a-zA-Z0-9] | O | PAR - Payment Account Reference |

## *Object name: payment_details.fraud*

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| score | [0-9] | O | Risk Score. The fraud-protection service's response. The transaction will be rejected if the risk score is greater than or equal to the threshold defined in the merchant setup, but will continue being processed if its risk score is lower than the merchant-defined threshold. |
| sent_to | [A-Z] | O | Indicates the result of the transaction's transmission to the fraud-protection service. |
| explanation_array | [a-zA-Z0- 9] | O | Fraud Explanation Array. Indicates the risk score and provides the list of rules that were triggered by the transaction in question. |

## *Object name: routing*

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| method | [a-zA-Z0-9] | O | Indicates the Processor Routing Method used for the transaction. Possible values are: |

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| | | | • 1 – Routing parameter<br>• 2 – Routing rules<br>• 3 – Processor priority |
| rule_id | [0-9] | O | The Processor Routing Rule ID that was responsible for the routing decision. Only populated in cases where method=2. |
| processor | [A-Z] | O | The Payment Processor that processed the transaction |
| target_mid | [a-zA-Z0-9] | O | The Payment Processor MID |
| acquirer_transaction_id | [a-zA-Z0- 9] | O | The Payment Processor Transaction ID. Used when corresponding with the Payment Processor or when reconciling transactions. |
| processor_response | [a-zA-Z0- 9] | O | The original Response Code as transmitted by the Processor |
| reroute | [a-z] | O | Indicates whether Smart Routing reroute is applied to this transaction. |
| routed_processor | [A-Z] | O | The first Payment Processor to which the transaction was routed. Only populated in cases where all the following is true:<br>• Smart Routing is enabled<br>• The transaction was rerouted to a second processor<br>• routing.request_processor was not sent on the request<br>• The response did not contain certain result.processor_response_code values |
| first_processor_response | [a-zA-Z0-9] | | The original Response Code as transmitted by the first Payment Processor to which the transaction was routed (i.e., the routing.processor_response of the first Payment Processor to which the transaction was routed). Only populated in cases where all the following is true:<br>• Smart Routing is enabled<br>• The transaction was rerouted to a second processor<br>• routing.request_processor was not sent on the request<br>• The response did not contain certain result.processor_response_code values. |

## *Object Name: threed_secure*

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| eci | [0-9] | O | The ECI assigned to the authentication |
| cavv | [a-zA-Z0-9] | O | The authentication value received from the issuer |
| xid | [a-zA-Z0-9] | O | XID generated as part of the authentication. Relevant only for 3D Secure version 1.0.2 |
| trxid | [a-zA-Z0-9] | O | The assigned 3D transaction ID |
| threeds_status | [A-Z] | O | The result of the authentication process. Possible values:<br>• A – Attempts Processing Performed; Not Authenticated/Verified, but a proof of attempted authentication/verification is provided<br>• Y – Authentication/ Account Verification Successful<br>• N – Not Authenticated /Account Not Verified; Transaction denied<br>• C – Challenge Required; Additional authentication is required<br>• R – Authentication/ Account Verification Rejected; Issuer is rejecting authentication/verification and requests that authorisation not be attempted.<br>• U – Authentication/ Account Verification Could Not Be Performed, Technical or other problem<br>• I – Informational Only; Merchant challenge preference acknowledged.<br>• D – Challenge Required; Decoupled Authentication confirmed |
| valid_payment | [yn] | O | Shift4 recommendation whether to initiate payment following the authentication results. Possible values:<br>• y – yes<br>• n – no |
| version | [0-9] | O | Indicates the 3D Secure protocol version Possible values:<br>• 1.0<br>• 2.0<br>• 2.1.0<br>• 2.2.0 |

| Field name | Type | M/O/C | Description |
|---|---|---|---|
| pareq | [a-zA-Z0-9] | O | Relevant only for 3D secure 1.0 flows. Used when accessing the URL provided in redirect_urls.redirect_url |
| acstansid | [a-zA-Z0-9\-] | O | Unique transaction identifier assigned by the ACS to identify a single 3D secure transaction. |

## *Retrieval (GET) Transaction Format Purpose*

The purpose of a GET transaction is to query the result of a certain transaction.

It is not recommended to create a GET transaction link on your own, but rather employ the returned links to this end. The following table describes the GET links' logic.

### Link Format

GET URLs:

| Operation | URL |
|---|---|
| GET Authorisation Info | https://sourcepayments.com/payments/rest/authorize/gw_mid/sub_merchant_id/transaction_id |
| GET Sale Info | https:// sourcepayments.com/payments/rest/sale/gw_mid/ sub_merchant_id/transaction_id |
| GET Capture Info | https:// sourcepayments.com/payments/rest/capture/gw_mid/ sub_merchant_id/transaction_id |
| GET Void Info | https:// sourcepayments.com/payments/rest/void/gw_mid/ sub_merchant_id/transaction_id |
| GET Refund Info | https:// sourcepayments.com/payments/rest/refund/gw_mid/ sub_merchant_id/transaction_id |

Note: The sub_merchant_id field is relevant only for PF transactions.

### Request Format

The GET request should be as described in the GET URLs table. There is no "Body" to the transaction retrieval request. Furthermore, the request headers are identical to the original request's headers.

#### *Example*

Headers:

Authentication: Bearer 3ebbc329f44b96abb20a560529e6df962dc67722bc5503d25ee561a4b83931330b8e5b98c8d23d711ed6f172e256459e468bafeb85256081561a6690ac5e859d

URL:

https:// sourcepayments.com/payments/rest/void/gw_mid//trx_id_123456

### Response Format

Identical to the original transaction response described in Response Message Format.

## Timeout Handling

If a transaction takes too long to return a response, a timeout is initiated by the Gateway application and result code “007” is returned. Nonetheless, a transaction may eventually be successfully processed by the payment processor, even though the gateway already returned a timeout response. In order to be informed of such cases, it is highly recommended to initiate a GET request after a transaction processing request if no Notifications are enabled.

# GET Banks API

When you initiate a Sale transaction with a payment method which requires to specify the bank code (bank_code), use the following 'GET Banks' API call to retrieve a list of the available banks in a specified country. You can then display the list of available banks to your shopper, based on the response of the API.

API name: get_banks

Request Method: POST

## *Request parameters*

| Parameter name | Type | M/O/C | Description |
|---|---|---|---|
| gw_mid | [0-9A-Za-z] | M | The *Shift4*-assigned gateway MID (Merchant ID) |
| payment_method | [0-9A-Za-z] | M | The selected Payment Method. See the available options in Appendix C - Available Payment Methods |
| request_id | [0-9A-Za-z] | M | Merchant-generated unique Request ID |

### Object name: shopper_info

| Parameter name | Type | M/O/C | Description |
|---|---|---|---|
| country_code | [A-Z] | M | The shopper's 2-letter ISO Country Code. Refer to ISO 3166-1-alpha-2 for a list. |

## *Response Format*

The response is JSON formatted, and can include more than a single object. Each object is constructed from the following parameters:

| Parameter name | Description |
|---|---|
| code | Bank code |
| name | Bank name |
| logo | URL pointing at bank's logo |
| Payment_type | bank's payment type code |

***Example:***


```
{
    "payment_id": "CPP-4ossss9dodd29495656593s20DZA",
    "transaction_id": "TCP-ossss9dodd29495656593s20JKTP",
```

```
    "request_id": "4ossss9dodd95656593s20",
    "transaction_time": "15-07-19 07:42:20:293",
    "payment_method": "astropay",
    "operation": "GET_BANKS",
    "result": {
        "response_code": "000",
        "response_description": "Request processed successfully."
    },
    "shopper_info": {
        "country_code": "AR"
    },
    "merchant_info": {
        "gw_mid": "10000510"
    },
    "allowed_banks": [
        {
            "name": "Itau",
            "code": "I",
            "logo":
"https://sandbox.astropaycard.com/images/logo_itau.jpg",
            "payment_type": "00"
        },
        {
            "name": "Dinero Mail - Transferencia",
            "code": "DD",
            "logo":
"https://sandbox.astropaycard.com/images/DMlogo.jpeg",
            "payment_type": "00"
        },
    ]
}
```

# PayPal Specifications

This chapter is relevant only to PayPal transactions.

## Web Experience Profile ID

The PayPal onboarding process requires you to define your own Web Experience Profile ID and register it during the onboarding process. The Web Experience Profile ID allows you to customise your PayPal page according to your preferences and offer your shoppers a seamless Checkout experience. In order to apply it, you need to send your Web Experience_Profile_ID when transmitting a PayPal Sale and Authorisation transaction.

You can define the following parameters of your Web Experience_Profile_ID during your *Shift4* onboarding process:

1. Present the shopper with either the Continue or Pay Now checkout flows.
2. The display of the Shipping Address
3. The source of the Shipping Address
4. A Brand Name (overrides the Business Name in the PayPal account)
5. Adding your logo to the PayPal checkout page
6. Choosing the language displayed on your PayPal checkout page.

| Field Name | Type | Min | Max | M/O | Description |
|---|---|---|---|---|---|
| experience_profile_id | string | 2 | 128 | O | The merchant's registered PayPal Web Experience ID. The merchant determines the experience profile and then registers it as part of the PayPal onboarding process. |

## *Special Processing Requirements*

The following are additional parameters that are unique to PayPal transactions:

| Field Name | Type | Min | Max | M/O | Description |
|---|---|---|---|---|---|
| final_capture | boolean | 1 | 1 | O | Indicates whether or not the Capture is final. Mostly relevant to cases in which the captured amount is lower than the authorisation amount and no further Captures are expected. |

## Object Name: merchant_info

| Field Name | Type | Min | Max | M/O | Description |
|---|---|---|---|---|---|
| order_url | URL | 32 | 2048 | O | The Merchant Site URL related to this payment |
| message_to_payer | [a-zA-Z0-9] | 0 | 165 | O | A Free-Form field that the merchant can use for sending a note to the shopper |

## Object Name: purchase_info

| Field Name | Type | Min | Max | M/O | Description |
|---|---|---|---|---|---|
| payment_options | string | 0 | 21 | O | One of the following:<br>• UNRESTRICTED: The merchant does not have a preference for a shopper Payment Method. This is the default value.<br>• INSTANT_FUNDING_SOURCE: The merchant requires that the shopper pay using an Instant Funding source, such as a credit card or PayPal balance. All payments are processed instantly. However, payments that require manual review are marked as pending. Merchants must handle the pending state as an incomplete payment.<br>• IMMEDIATE_PAY: Process all payments immediately. Any payment that requires manual review is marked as failed. |
| Items [quantity, price, name, description, currency, url] | array | 1 | 256 | M | An array containing information about the purchased item(s), which is made up of objects containing the detailed fields. Several items mean that the array contains several objects. |
| digital_goods | boolean | 1 | 1 | O | Indication of whether digital goods were purchased. |
| one_click | boolean | 1 | 1 | O | Indicates whether the transaction is of the “1-click” type. Relevant to the Express Checkout Shortcut flow. |
| user_action | String | 6 | 8 | O | Defines whether the shopper is to be presented with a Continue or Pay Now checkout flow.<br>For the Pay Now checkout flow, set user_action=commit<br>For the Continue checkout flow, set user_action=continue (default) |

## Object Name: amount.amount_details

| Field Name | Type | Min | Max | M/O | Description |
|---|---|---|---|---|---|
| subtotal | string | 1 | 10 | O | Item Subtotal amount |
| shipping | string | 1 | 6 | O | Shipping Fee |
| tax | string | 1 | 6 | O | Tax portion of the price |
| handling_fee | string | 1 | 6 | O | Purchase Handling Fee |
| discount | string | 1 | 6 | O | Shipping Fee Discount |
| insurance | string | 1 | 6 | O | Insurance Fee |
| gift_wrap | string | 1 | 6 | O | Gift Wrap Fee |

## PayPal Seller Protection Program (SPP)

The PayPal Seller Protection Program is a fraud-protection service that helps you to monitor fraud activity and reduce chargebacks. If you wish to use the SPP service, send the following fields as part of the Sale, Authorisation and Use Token requests.

Note that you need to contact PayPal in advance and request to enrol in the program in order to benefit from this service.

### *Object Name: OTA (Online Travel Agency)*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| Type | string | 3 | 32 | OTA (Online Travel Agency) type: hotel/train ticket/ferry/bus/multi-modal |
| service_start_date | ISO 8601 date format | 1 | 32 | OTA Service Start Date. A Service Start Date that is very close to the Transaction Date indicates an elevated level of risk. |
| service_end_date | ISO 8601 date format | 1 | 32 | OTA Service End Date. A consumer booking a service such as a hotel for an abnormally long period of time indicates an elevated level of risk. |
| changable | boolean | 1 | 1 | Whether or not the guest (the person being served) can be changed. Fraudsters tend to pay for services where the guest can be changed. |
| start_country | ISO Alpha-2 Country Code | 2 | 2 | OTA Start Country such as the hotel's country. PayPal compares this variable to the transmitter's Country / IP Country / Billing Country for risk management purposes. |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| end_country | ISO Alpha-2 Country Code | 2 | 2 | OTA End Country |
| start_city | string | 2 | 64 | Initial Service City |
| end_city | string | 2 | 64 | Final Service City |
| start_zipcode | string | 3 | 12 | Initial Service ZIP Code |
| end_zipcode | string | 3 | 12 | Final Service ZIP Code |
| start_adress_line1 | string | 2 | 64 | Address (Line 1) of initial service location |
| end_adress_line1 | string | 2 | 64 | Address (Line 1) of final service location |

### *Object Name: STC (Set Transaction Context)*

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| first_date | string | 1 | 32 | Date of the first interaction between the sender and receiver on the Partner/Merchant platform. An interaction can be defined as IM, Call, Money Transfer, Add as Friend, etc., depending on the partner. |
| txn_count_3_month | string | 1 | 10 | Number of transactions the shopper has completed on the Partner/Merchant platform (through PayPal or otherwise) in the last three months |
| txn_count_total | string | 1 | 12 | Total number of transactions the shopper has completed on the Partner/Merchant platform (through PayPal or otherwise) thus far |
| txn_count_24_hr | string | 1 | 5 | Number of transactions the shopper has completed on the Partner/Merchant platform (through PayPal or otherwise)in the past 24 hours |
| txn_count_1_hr | string | 1 | 4 | Number of transactions the shopper has completed on the Partner/Merchant platform (through PayPal or otherwise) in the past hour |
| transaction_is_tangible | boolean | 1 | 1 | The Merchant's transaction is for tangible rather than digital goods. An event ticket is only considered a tangible good only if it produces some proof of shipping such as a Tracking Number or Shipping Address. It is considered intangible in all other cases (e.g. email, pickup at venue). |

| Field Name | Type | Min | Max | Description |
|---|---|---|---|---|
| loyalty_flag_exists | boolean | 1 | 1 | Whether or not a Merchant Loyalty Flag is present |
| highrisk_txn_flag | boolean | 1 | 1 | Whether or not the transaction is for high-risk items such as Gift Cards or any cash equivalent |
| vertical | string | 1 | 32 | Transaction-level Vertical Identifier for Partner/Merchant transactions that are in several verticals such as “retail” |
| delivery_method | email, phone, venue_ pickup, kiosk_pi ckup | 1 | 32 | Delivery Method for an intangible item if there is an associated email/phone number. This serves as the Shipping Address for an intangible item. |

The following tables list the OTA and STC data fields required for particular industries or verticals. Merchants who belong to these particular industries or verticals must transmit those data fields in the OTA or STC payload respectively.

| Field Name | Retail/Food | OTA–Transportation / Car Rental | OTA-Travel package | Event and Ticketing |
|---|---|---|---|---|
| type | - | M | M | - |
| service_start_date | - | M | M | - |
| service_end_date | - | M | M | - |
| changable | - | M | M | - |
| start_country | - | M | M | - |
| end_country | - | M | - | - |
| start_city | - | M | - | - |
| end_city | - | M | - | - |
| start_zipcode | - | M | - | - |
| end_zipcode | - | M | - | - |
| start_adress_line1 | - | M | - | - |
| end_adress_line1 | - | M | - | - |

| Field Name | Retail/Food | OTA–Transportation / Car Rental | OTA-Travel package | Event and Ticketing |
|---|---|---|---|---|
| first_date | - | M | M | M |
| txn_count_3_month | M | M (transportation only) | - | M |
| txn_count_total | - | M (transportation only) | - | M |
| txn_count_24_hr | - | - | - | M |
| txn_count_1_hr | - | - | - | M |
| transaction_is_tangible | - | - | - | M |
| loyalty_flag_exists | M | M (transportation only) | - | M |
| highrisk_txn_flag | M | - | - | - |
| vertical | M | - | - | - |
| delivery_method | M | - | - | M |

## Fraudnet/Magnes SDK Information

PayPal requires the execution of Fraudnet or Magnes as part of the RDA (Risk Data Acquisition). This is the protection suite PayPal offers to merchants. More specifically, RDA improves fraud handling with dynamic data management and provides real-time controls for all merchant categories. In addition, RDA Improves PayPal merchants and partners' Seller Protection.

### *Fraudnet*

Needed for every Authorisation, Sale (with and without a Token) and Create Token scenario involving the presence of a shopper.

### *Magnes*

Needed for every Authorisation, Sale (with and without a Token) and Create Token scenario involving the presence of a shopper and the initiation of a transaction from a native mobile application.

# *Specific Processing Rules & Disclaimers*

1. PayPal displays a **Continue** button on its hosted pages by default. If there are no additional steps after the PayPal-hosted pages, the **Pay Now** button should be displayed on the last PayPal-hosted page.
2. When the Express Checkout Shortcut is applied:
   a. The shopper is not to be required to log into their account

b. No shipping address is requested to be displayed on the merchant's

3. Express Checkout Shortcut (Traditional PayPal Flow):
   a. The official *Checkout with PayPal* button must be located on the product page.
   b. The official *Checkout with PayPal* button must be located on the shopping cart page.
   c. The shopper can complete the purchase in two or fewer steps after being redirected from PayPal to the merchant's website.
4. Refunds can be performed by the merchant within 180 days of the day of payment.
5. Only full refunds are possible for disputed transactions. Attempting to transmit a partial refund will return an error from the PayPal side.

## *Branding*

1. The PayPal acceptance mark should be displayed alongside all other payment acceptance or payment services marks on your website. You can find the PayPal acceptance mark here: https://www.paypal.com/brandassets.
2. You can configure your PayPal account to display your logo on the checkout page in the following URL: https://www.paypal.com/webscr?cmd=_profile-page-styles&CALL_FORM_UPDATE=false
3. The PayPal pages may be localised in any PayPal-supported language. See the following URL for details: https://developer.paypal.com/docs/integration/direct/rest/locale-codes/. You can set the locale as part of your Web Experience Setup.
4. The PayPal *FAQ* popup should be displayed when a shopper clicks on the PayPal mark.
5. Always use the correct capitalisation of PayPal in text and images (and not "Paypal", "paypal", "Pay Pal", etc.)
6. Payment page best practices:
   d. Card payment fields are to be disabled or hidden upon the selection of PayPal as a payment option.
   e. No payment method is to be pre-selected by default
   f. The PayPal logo is to be displayed alongside and in the same size and manner as other payment methods

# Apple Pay Specifications

Apple Pay is Apple's alternative payment method allowing Apple users to pay with their devices.

How does it work?

Apple Pay uses device-specific tokenised credit or debit card credentials (DPAN) in place of a Payment Account Number (PAN). When a customer confirms the payment using Face ID, Touch ID or passcode, the tokenised card data is returned to your app or website. This token can then be passed on to your Payment Service Provider (PSP) to process as you would a typical online credit or debit card payment.

Any transaction type you support today for regular debit and credit cards can be performed with Apple Pay, including refunds. Apple Pay works on Apple devices running iOS, watchOS and iPadOS both in-app and in Safari, and on macOS devices in Safari.

## *Apple Pay integration*

You can integrate with Apple Pay either from in-app or from the web transaction. You need to implement Apple APIs to verify that Apple Pay can be offered as a payment method:

- Integrate with the PassKit SDK to offer Apple Pay from in-app, as described in PassKit.
- Integrate with Apple Pay JS to offer Apple Pay from a web transaction, as described in Apple pay js.

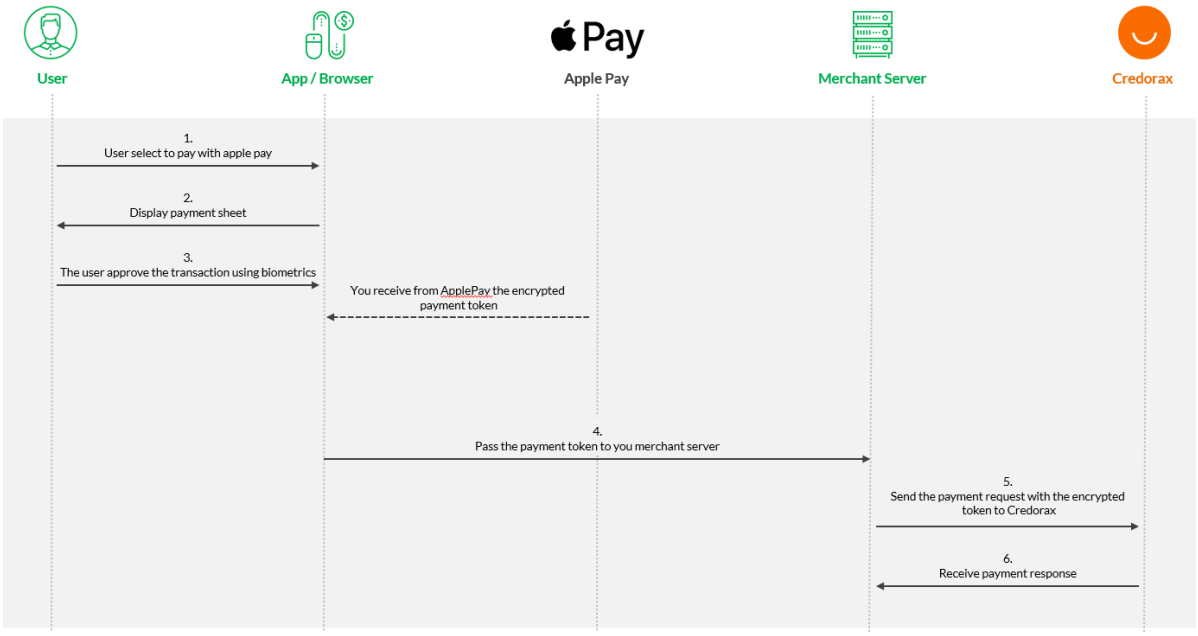
After integrating with Apple Pay, you will be able to request an encrypted payload from Apple. Apple in turn will create a "payment token" that includes an encrypted "payment data" object. You should pass this "payment data" object to the Shift4 gateway in the "token" field (described in token) for decryption and processing.

## *Registration with Apple*

Before starting, you need to make sure you complete the following steps on your Apple account:

1. Register for an Apple developer account. You need to enroll as an Apple Pay developer, and go through the Apple certification process as described here.
2. If you are integrating Apple Pay on the web (using Safari) make sure your server supports Apple's additional security requirements described here.
3. Get a CSR file from Shift4.
4. Upload the signed CSR to Shift4.
5. Add an Apple Pay button to your app or website. Use the appropriate PassKit or JavaScript APIs to render the button in your app or website so the button will always be up-to-date and localised. More details can be found in: https://developer.apple.com/design/human-interface-guidelines/apple-pay/overview/introduction/.

## *Transaction flow*




1. You (the merchant) offer Apple Pay as a payment method.
2. The shopper selects to pay with Apple Pay.
3. You trigger a call to Apple.
4. The payment sheet is displayed to the shopper. The merchant is responsible for the information that is displayed on the Apple payment sheet.
5. After shopper authentication via Face ID, Touch ID or passcode, your app or website receives the PKPayment or ApplePayPayment object.
6. You pass the token information from your client side to your server side.
7. You pass the payment token to Shift4 in the “token” field alongside other payment information.
8. Shift4 verifies the authenticity of the token, decrypts its values, and sends to the relevant processor.
9. After receiving a response from your payment service provider, you return a Success or Fail response to the Apple Pay API to inform the shopper and dismiss the payment sheet. After the payment sheet is dismissed, you display your general transaction confirmation screen.

**Note:**

In addition to the standard request parameters, Apple Pay may require additional parameters listed in the chapter

# Google Pay Specifications

Google Pay is a payment method allowing Google users to pay with their devices.

How does it work?

Google Pay uses both device-specific tokenised credit or debit card credentials (DPAN) in place of a Payment Account Number (PAN) and PAN. When a customer confirms the payment using Face ID, Touch ID or passcode, the tokenised card data is returned to your app or website. This token can then be passed on to the Shift4 gateway to process as you would a typical online credit or debit card payment.

Any transaction type you support today for regular debit and credit cards can be performed with Google Pay, including refunds. Google Pay works on all major web and mobile web browsers.

## *Google Pay integration*

You can integrate with Google Pay either from in-app or from the web transaction. You need to implement Google APIs in order to initiate the Google Pay transaction.

After integrating with Google Pay, you will be able to request an encrypted payload from Google. Google in turn will create a “payment token” that includes an encrypted “payment data” object. You should pass this object to the Shift4 gateway in the “token” field (described in token) for decryption and processing.

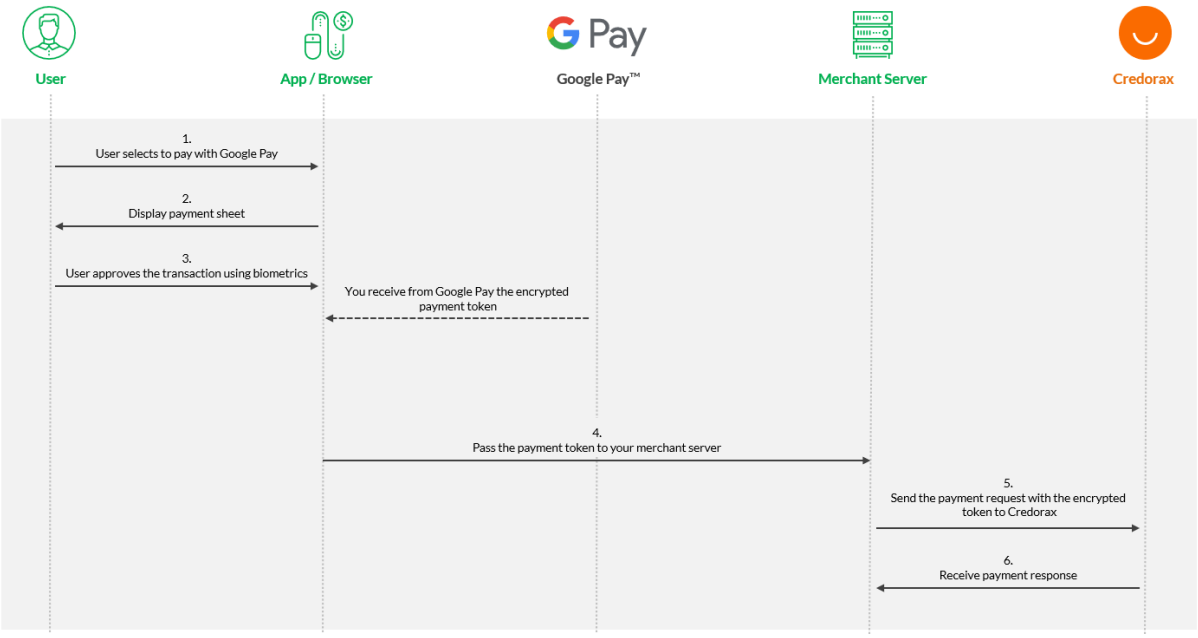
### Android Integrations

See more details on Google Pay Android developer documentation, Google Pay Android integration checklist and Google Pay Android brand guidelines.

### Web Integrations

See more details on Google Pay Web developer documentation, Google Pay Web integration checklist and Google Pay Web Brand Guidelines.

## *Transaction flow*




1. You (the merchant) offer Google Pay as a payment method.
2. The shopper selects to pay with Google Pay.
3. You trigger a call to Google from the device/web, specifying:
   g. Gateway: credorax
   h. gatewayMerchantID: refer to gw_mid
4. The payment sheet is displayed to the shopper.
5. After shopper authentication, your app or website receives the payment data object encrypted with the Shift4 unique key.
6. You pass the token information from your client side to your server side.
7. You pass the payment token to Shift4 in the “token” field alongside other payment information.
8. Shift4 verifies the authenticity of the token, decrypts its values, and sends to the relevant processor.
9. After receiving a response from Shift4, you display the confirmation page to the shopper.

# MobilePay Specifications

MobilePay is a local payment method popular in Nordics countries, mostly in Denmark but also in Finland and Greenland. It allows its users to store a payment card on the digital wallet and pay with it online.

| | |
|---|---|
| Supported Shopper Countries | Denmark, Finland, Greenland |
| Supported Operations | • Sale<br>• Authorization<br>• Capture<br>• Void<br>• Refund<br>• Payout |
| MobilePay features currently not supported | Checkout |
| Browsers | Supported by all major web and mobile web browsers |

## *How to prepare for processing MobilePay*

Before you begin processing MobilePay you have to complete the following steps:

1. Request to add MobilePay to your Shift4 account. See details in Appendix F: Setting up with MobilePay
2. Add the MobilePay button to your checkout page. Refer to MobilePay's website for guidelines

## *Sale Transaction Flow*

1. Offer MobilePay as a payment method in your checkout flow
2. The shopper selects to pay with MobilePay.
3. You trigger a Sale API call to Shift4 with all the details required in this document. Refer to chapters: General message format; Description of objects and fields; Required parameters
4. The response to this call contains a redirect URL that you should present to the shopper
5. The shopper identifies with mobilepay through the URL
6. The transaction is processed, and the shopper is redirected by mobilepay to the success/fail URL you defined according to the transaction result.
7. You receive a transaction response with indication on the result of the transaction.

**Note:**

- Make sure you send the purchase_info.purchase_order parameter with every transaction
  - As part of MobilePay's retry flow which allows the cardholder to retry the payment with another card through MobilePayu app, additional payment attempts can be initiated, and this value can be used as the identifier to all payment attempts.
- For using the MobilePay's feture pre-filled phone number, make sure you send the shopper_info.phone_number on the transaction.
- Use redirect_url for redirecting the shopper to MobilePay, and it will apply the appropriate logic to send the shopper to the mobile application or laptop based on the shopper used device.
  - In cases your application can't redirect the shopper to the universal URL due to security reasons or specific application rules, use the redirect_url_app to send the cardholder to MobilePay application directly.
- Payments with MobilePay require SCA (where applicable). MobilePay attempts to authenticate the shopper with their own SCA solution, but sometimes the transaction may require 3D Secure. To ensure a smooth processing experience, we recommend to include 3D Secure parameters with every transactrion. To do that, you have to be registered to Shift4 3D Secure service. Refer to Appendix D: SCA & 3D Secure for more details
- Redirecting the user to the return page should solely rely on data given in the redirect
- Processing the purchase should rely on the response received you PSP, and not on the interaction with the customer

## *Payout*

Payout is the process of paying funds to the shopper's account. You can process a referral payout against a previous original MobilePay transaction.

**Note:**

Payouts in MobilePay are not reflected on the shopper's MobilePay app. Since MobilePay is a wallet, the funds are transferred directly to the shopper's card which is connected to their MobilePay account.

# Additional Request Parameters for Card-Based Digital Wallets

Some payment methods require additional parameters to be included when processing transactions. This section provides information about them. The below fields are applicable for Apple Pay, Google Pay and MobilePay.

## *Object Name: payment_details*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| token | ^.+$ | 0 | 4096 | M | The assigned payment token. The payment token can be assigned by Shift4 or by the mobile digital payment platform such as Google Pay or Apple Pay. |
| pan | [0-9] | 8 | 19 | C (M for Independent Payout) | PAN – Primary Account Number |
| expiry_month | [0-9] | 2 | 2 | C (M for Independent Payout) | Card expiration month in two-digit format (mm) |
| expiry_year | [0-9] | 2 | 2 | C (M for Independent Payout) | Card expiration year in two-digit format (yy) |
| source_type | [A_Z] | 4 | 9 | M | Possible values:<br>• ECOMMERCE<br>• PHONE<br>• MAIL<br>• VPOS |

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| recurring | [A_Z] | 5 | 10 | O | Indicates whether the transaction is the first of a recurring series of payments or a subsequent payment in the series.<br>Possible values:<br>• FIRST<br>• SUBSEQUENT |
| card_on_file | [A_Z] | 4 | 9 | O | Indicates whether the transaction is Merchant Initiated or Cardholder Initiated.<br>This parameter is not required when a recurring transaction is sent.<br>Possible values:<br>• MIT<br>• CIT |
| card_validation | [A_Z] | 4 | 5 | O | Indicates whether the transaction is for card validation purposes. This parameter is not required if a recurring or card_on_file transaction is sent. By default the parameter's value is False.<br>Possible values:<br>• TRUE<br>• FALSE |
| authorization_type | [A_Z] | 3 | 5 | O | Authorisation Type. Possible values:<br>• FINAL<br>• PRE<br>Note that transactions referring to Pre-Authorisations must be sent with amount details. |
| expected_captures | [0-9] | 1 | 2 | O | Indicates the number of expected Captures. This parameter is only supported in Card-not-Present transactions.<br>The default value is 1. The maximum value is 98. The minimum merchant-settable value is 2. |
| skip_card_validation | [A_Z] | 4 | 5 | O | Relevant only when creating a *token*. This parameter can be used in cases where you wish to create the token on the Shift4 systems without pre-validating the card. This functionality requires obtaining Shift4 permission and performing some setup operations. |

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| card_type | [A_Z] | 3 | 10 | O | Card Brand. Possible values are:<br>• VISA<br>• MASTERCARD<br>• AMEX<br>• ISRACARD<br>• MAESTRO<br>• JCB<br>• DISCOVER<br>• DINERS |
| initial_transaction_id | [0-9] | 13 | 13 | C | Initial transaction ID. The same value received as part of the original transaction response parameters. This must be sent to ensure the transaction is considered a Merchant Initiated Transaction (MIT). |

## *Object Name: recipient_info*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| first_name | [a-zA-Z0-9] | 3 | 32 | c (m for CFT/ AFT) | The recipient's First Name. If shorter than three characters, you must add additional characters |
| surname | [a-zA-Z0-9] | 3 | 32 | c (m for CFT/AFT) | The recipient's Last Name, if shorter than three characters, you must add additional characters |
| address.line_1 | [a-zA-Z0-9] | 1 | 30 | c (m for AFT) | The recipient's street address |
| address.city | [a-zA-Z0-9] | 1 | 25 | c (m for AFT) | The recipient's city |
| address.state | [a-zA-Z] | 2 | 3 | c (m for AFT in US & Canada only) | The recipient's state (for US and Canada) |
| address.country_code | [A-Z] | 3 | 3 | c (m for AFT) | The recipient's in a 3-letter ISO Country Code. |

## *Object name: sender_info*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| first_name | [a-zA-Z0-9] | 1 | 30 | c,<br>m for AFT when the sender ≠ recipient<br>m for CFT p2p | Sender first name |
| surname | [a-zA-Z0-9] | 1 | 30 | c,<br>m for AFT when the sender ≠ recipient<br>m for CFT p2p | Sender last name |
| address.line_1 | [a-zA-Z0-9] | 1 | 30 | c,<br>m for AFT when the sender ≠ recipient<br>m for CFT p2p | Sender street address |
| address.city | [a-zA-Z0-9] | 1 | 25 | c,<br>m for AFT when the sender ≠ recipient<br>m for CFT p2p | Sender city |
| address.state | [a-zA-Z0-9] | 2 | 3 | c, m for US and Canada | Sender state code. |
| address.country_code | [A-Z] | 3 | 3 | c,<br>m for AFT when the sender ≠ recipient<br>m for CFT p2p | Sender country code , in ISO 3-letter country code format. |
| account_number | [0-9] | 1 | 19 | c,<br>o for AFT, m for CFT card-based transactions. | Sender's PAN |
| reference_number | [a-zA-Z0-9] | 1 | 16 | c, m for AFT in South Africa related transactions, m for CFT if sender account number is not available. | a merchant's ID represents the sender entity |
| source_of_funds | [0-9] | 2 | 2 | c, o for AFT, m for CFT p2p transactions when the merchant doesn't have the account_number available. | Source of funds used to make the funds transfer<br>possible values:<br>01 - credit card<br>02 - debit card |

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| | | | | | 03 - prepaid card<br>04 - cash<br>05 - Debit/deposit account<br>06 - Credit account<br>25 - Mobile Money account |

**Note** Processing **CFT P2P** (person to person) transactions requires further registration, consult with your Solution Architect to add this ability to your account.

## *Object Name: redirect_urls*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| success_url | URL | 0 | 1024 | C (M for Payout) | The URL to which the user is redirected in the event of a successful transaction |
| cancel_url | URL | 0 | 1024 | C (M for Payout) | The URL to which the user is redirected in the event of a cancelled transaction |
| fail_url | URL | 0 | 1024 | C (M for Payout) | The URL to which the user is redirected in the event of a failed transaction |
| pending_url | URL | 0 | 1024 | C (M for Payout) | The URL to which the user is redirected in the event of a pending transaction |
| redirect_url | URL | 0 | 2048 | C (m for mobile pay) | Received in the response message and indicates to which URL to redirect the shopper. Contains one of the following values:<br>• From a payment method: The URL to which the user is redirected in order to complete the purchase |

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| | | | | | • From the issuer (for 3D Secure): The issuer's URL for the 3D secure authentication process |
| redirect_url_app | URL | 0 | 2048 | | Received in the response message of MobilePay transactions and indicates to which mobile application link to redirect the shopper.<br>Used in case your app can't redirect to the universal URL, due to security reasons or specific app rules. |

## *Object Name: routing*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| request_processor | [a-zA-Z0-9] | 0 | 9 | O | Indicates the selected processor for the specific transaction. The transaction is routed according to the transmitted value.<br>Possible values:<br>• CREDORAX<br>• PIVOTAL<br>• ISRACARD<br>• LEUMICARD<br>• CAL<br>• NBK |
| requested_processor_mid | [a-zA-Z0-9] | 0 | 32 | O | Indicates the processor target MID for the specific transaction. The transaction is routed according to the transmitted value. |
| routing_order | [1-9] | 1 | 2 | O | The routing sequence number |

## *Object Name: fraud*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| active | [A-Z] | 4 | 5 | O | Boolean field specifying whether the fraud-protection service check should be bypassed. Default value is FALSE (Send to fraud check). Only available to merchants using the Smart Guard fraud-protection service. |
| threshold | [0-9] | 0 | 4 | O | Sets an ad-hoc threshold for the specific transaction. The threshold must be a value between 0 and 1000. Only available to merchants using the Smart Guard Plus fraud-protection service. |
| 3d_threshold | [0-9] | 1 | 3 | O | Assigns an ad-hoc threshold that extends the regular fraud threshold, for authorised 3D secure transactions only. |

## *Object Name: browser_info*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| user_agent | [a-zAZ0-9] | 5 | 300 | O | Exact content of the HTTP user-agent header. |
| accept_language | [a-zA-Z,] | 5 | 16 | O | Accept-Language header, comma-separated set of locales |
| version | [a-zA-Z0-9] | 1 | 64 | O | Browser version |

## *Object Name: device_info*

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| type | [a-zA-Z0-9] | 1 | 64 | O | Device type (mobile, tablet, iPad, desktop, etc.) |
| os_name | [a-zA-Z0-9] | 1 | 64 | O | Device Operating System name |
| os_version | [a-zA-Z0-9] | 1 | 64 | O | Device Operating System version |

# SEPA Direct Debit Specifications

SEPA is a payment method initiated by the European Union, which offers direct debit payments across all the European markets. Shoppers make payments by signing a mandate you provide them, to authorize the debit. This authorization creates an agreement, which can be than used for one-time payment, or for recurring payments.

| | |
|---|---|
| Supported Shopper Countries | Andorra, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Ireland, Isle of Man, Italy, Jersey, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, Romania, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, Vatican City, Wallis and Futuna |
| Supported Operations | • Sale<br>• Refund<br>o The use of refund requires prior approval. Contact your account manager for additional details. |
| Possible flows | • One time payment<br>• Recurring payment |

## *How to prepare for processing SEPA DD*

Before you begin processing SEPA you have to complete the following steps:

1. Request to add SEPA to your Shift4 account.
2. Add SEPA to your checkout page.
3. Add a Mandate step to authorize the debit and to create a SEPA agreement between you and the shopper.

## *Transactions Guidelines*

SEPA DD enables you to create an agreement for one-time payment, or for recurring payments.

The flow for these different agreements is identical and differentiates only in the required fields, as detailed in the parameters tables below.

The Sale flow is used for all of the scenarios:

- Creating SEPA agreement for one-time payment and processing this payment
- Creating SEPA agreement for recurring payment and processing the 1st recurring payment
- Processing of a recurring payment of an existing SEPA agreement

## Sale Transaction Flow

1. You offer SEPA as a payment method in your checkout flow and present legal disclaimer (see below)
2. The shopper selects to pay with SEPA and signs the mandate
3. You trigger a Sale API call to Shift4 with all the details required in this document. Refer to chapters: General message format; Description of objects and fields; Required parameters.
   - In this API call indicate the type of payment – *one-time*, *first recurring payment* or *subsequent recurring payments*. See details in the special request parameters chapter below: payment_details.agreement_id, payment_details.reccuring.
4. A SEPA agreement is created based on the information provided in the request. The agreement identifier is sent to you in a response.
5. A pre-payment notification is sent before the transaction is processed via email to the shopper or a webhook notification to you.
6. The transaction is processed
7. You receive a transaction response with an indication of the result of the transaction

**Note:**

- The SEPA DD flow is synchronic and doesn't include another step of payment result via webhook notification.
- There is no real-time authorization to check the balance of the consumer account. The transaction result is technical and does nott reflect the funds' status.
  - If the consumer doesn't have sufficient funds to complete the transaction there will be a chargeback.
- Decline transaction result indicates that the SEPA agreement was not created.

## *Pre-payment notification*

Before a SEPA payment is processed, a notification is sent. This notification can be sent via webhook to you, or as an email to the shopper. For more information on this notification and how to implement it, refer to your Solution Architect. Special Processing Requirements

The following are additional parameters that are unique to SEPA transactions:

## Object Name: payment_details

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| agreement_id | [a-zA-Z0-9] | 16 | 35 | c, m if sending a subsequent reccuring transaction of a previous SEPA agreement. | SEPA Agreement ID. created when creating an initial transaction. This value will be received as part of the transaction response parameters if a SEPA Agreement is created as part of the transaction.<br>Must be sent for every subsequent SEPA recurring payment. |
| recurring | [A_Z] | 5 | 10 | c, m for creating a recurring payments agreement | Indicates whether the transaction is the first of a recurring series of payments or a subsequent payment in the series. Possible values:<br>• FIRST<br>• SUBSEQUENT<br>To create a SEPA Agreement of single payment do not sent this parameter.<br>To create a SEPA Agreement of recurring payments send **FIRST**<br>When sending a recurring payment send **SUBSEQUENT** |

## Object Name: billing_address

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| line_1 | [a-zA-Z0-9] | 4 | 64 | c, m when creating a new SEPA agreement if the shopper_info.country_code is one of the following:<br>AD, BL, CH, GB, GG, GI, IM, JE, MC, PF, | Shopper's street address |

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| | | | | PM, SM, TF, VA, WF) | |

### Object Name: shopper_info

| Field Name | Type | Min | Max | M/O/C | Description |
|---|---|---|---|---|---|
| last_name | [a-zA-Z0-9] | 3 | 32 | c, m for new SEPA Agreement) | The shopper's Last Name |
| first_name | [a-zA-Z0-9] | 3 | 32 | c, m for new SEPA Agreement) | The shopper's First Name |
| email | [a-zA-Z0-9] | 3 | 127 | c, m for new SEPA Agreement) | The shopper's Email Address |
| iban | [a-zA-Z0-9] | 30 | 34 | c, m for new SEPA Agreement) | Shopper Account IBAN |

## *Response Fields*

### Object Name: payment_details

| Attribute Name | Type | M/O/C | Description |
|---|---|---|---|
| agreement_id | [a-zA-Z0-9] | c | M when a SEPA transaction is processed using existing recurring SEPA agreement |

# Appendix A: SHA512 Transaction Signature

Every APM request is associated with a package signature sent as an Authentication header in order to ensure the authenticity of data transfer. This package signature, in turn, contains the SHA512 hash of all the request values and the merchant's unique secret key.

## Calculating the Signature

1. Apply the HMAC-SHA512 hashing algorithm to the JSON body of the request and the merchant's secret key.
2. Append the result of step 1 to the request's *authentication* header

### *Signature Calculation Example*

Here is an example of how the signature is calculated using the following original request, with the secret key being: "secret":

```
{
    "payment_method": "paypal",
    "request_id": "123456789",
    "merchant_info": {
        "gw_mid": "Aa23456"
    },
    "amount": {
        "amount": "5000",
        "currency": "EUR"
    }
}
```

In this example, the JSON indentation is composed of 4 spaces.

The result of applying HMAC-SHA512 to the request body and secret is:

```
880e84253f081ff5dd4209dc0e7f82f859aca7261c95668563492097f1080e5d35de838f8d97da5e9da
a90d2a74d7aac2b07d605e4f4d004974a3579531b6bdc
```

# Appendix B: Operation Result Codes

This appendix lists all the possible result codes that can returned in the “result” object and their corresponding descriptions:

**Note:**

The response code is 3 digits in length, and the first digit can be changed. This is done for internal purposes

| Result Description | Result Code |
|---|---|
| Transaction processed successfully. | *00 |
| Transaction has been denied. | *01 |
| Transaction has been denied by the Gateway due to its high fraud risk. | *02 |
| Rejected. Fraud Service is unavailable. | *03 |
| Rejected. Bypassing the Fraud Service is not allowed. | *04 |
| Rejected. Overriding the Fraud Threshold is not allowed. | *05 |
| Rejected. Risk score is above limit. | *06 |
| Transaction timeout. | *07 |
| Transaction has been denied. Duplicate transaction. | *08 |
| Transaction failed due to too many requests. | *09 |
| Transaction failed due to a technical reason. | *10 |
| The transaction in question is currently being processed. Please try again. | *11 |
| At least one of the input parameters is malformed. Parameter [X] is invalid. | *12 |
| At least one of the input parameters is missing. Parameter [X] is missing. | *14 |
| Transaction denied. Invalid account. | *15 |
| Authentication failed due to invalid authentication credentials. | *16 |
| Payment Method not allowed for this merchant. | *18 |
| Operation not allowed for this merchant. | *20 |
| Invalid Payment Method. | *21 |
| Payment Method missing. | *22 |
| Transaction Amount not within pre-defined threshold. | *50 |
| Insufficient funds. | *51 |

| Result Description | Result Code |
|---|---|
| Transaction Amount exceeds or does not match the Transaction amount referenced in the request. | *52 |
| Amount exceeds the Transaction Amount referenced in the request. | *53 |
| Expired card. | *54 |
| The grand total amount does not match the item total amount. | *55 |
| The operation on the transaction referenced in the request has already been executed successfully. | *64 |
| Referral operation not allowed. | *66 |
| Could not find the original transaction. Make sure that it exists and that its details were transmitted correctly. | *67 |
| Bank Account validation failed. | *80 |
| Partial capture for Debit card: Sale succeeded; Void failed | *86 |
| Partial capture for Debit card: Sale failed; Void succeeded | *87 |
| Partial capture for Debit card: Sale failed,; Void failed | *88 |
| The user aborted the payment process. | *98 |
| Transaction is pending. | *99 |

# Appendix C: Available Payment Methods

This appendix lists the currencies and countries supported by each payment method.

| APM | Payment Method Value | Supported Currencies | Permitted Shopper Countries | Refund |
|---|---|---|---|---|
| 7eleven | | MYR | MY | No |
| Alfamart via DOKU | | IDR | ID | No |
| Alipay In-Store | | CHF, DKK, EUR, GBP, NOK, SEK | AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, GB | Yes |
| Alipay Online | alipay | AUD, CAD, CHF, CNY, EUR, GBP, JPY, HKD, NZD, SGD, USD | CN | Yes |
| Apple pay | applepay | All | All, subject to the scheme acceptance policy | Yes |
| Bancontact | bancontact | EUR | BE | Yes |
| Bitpay | bitpay | EUR, GBP, USD | Worldwide, except: Algeria, Bangladesh, Bolivia, Cambodia, Crimea, Cuba, Ecuador, Egypt, Indonesia, Iran, Iraq, Kyrgyzstan, Morocco, Nepal, North Korea, Pakistan, Palestinian Teritorry, Syria, Sudan and Vietnam. | No |
| Blik | blik | PLN | PL | Yes |
| Blik OneClick | | PLN | PL | Yes |
| Boleto Bancário (Bradesco) | | BRL | BR | Yes |
| Boleto Bancário (Itau) | boleto | BRL | BR | Yes |
| Boost | | MYR | MY | yes |
| BRI VA via DOKU | | IDR | ID | no |
| CIMB Niaga via DOKU | | IDR | ID | no |

| APM | Payment Method Value | Supported Currencies | Permitted Shopper Countries | Refund |
|---|---|---|---|---|
| Danamon via DOKU | | IDR | ID | no |
| DOKU Wallet | | IDR | ID | no |
| Dragonpay | | PHP | PH | no |
| eNETS | | SGD | SG | no |
| EPS | eps | EUR | AT | Yes |
| Estonian Banks | estonianbanks | EUR | EE | No |
| Finnish Online Banking / Verkkopankki | verkkopankki | EUR | FI | Yes |
| FPX | | MYR | MY | yes |
| Google pay | googlepay | All | All, subject to the scheme acceptance policy | Yes |
| GoPay | | IDR | ID | yes |
| GrabPay (MY) | | MY | MY | yes |
| GrabPay (SG) | | SGD | SG | yes |
| iDeal | ideal | EUR | NL | Yes |
| Indomaret via DOKU | | IDR | ID | no |
| Jenius via DOKU | | IDR | ID | no |
| Klarna (Financing by Card) | | GBP | GB | yes |
| Klarna (Financing) | | EUR, GBP, NOK, SEK, DKK | AT, BE, ES, FI, FR, SE,DE, NO, DK, GB | yes |
| Klarna (Pay Later) | | CHF, GBP, EUR, NOK, SEK, DKK | AT, BE, CH, DK, ES, FI, FR, DE, IT, NL, NO, SE, GB | yes |
| Klarna Pay Now | | CHF, EUR, SEK | AT, BE, CH, DE, ES, IT, NL, SE, | yes |
| Konbini | | JPY | JP | no |

| APM | Payment Method Value | Supported Currencies | Permitted Shopper Countries | Refund |
|---|---|---|---|---|
| Kredivo via DOKU | | IDR | ID | No |
| Latvian Banks | latvianbanks | EUR | LV | No |
| LinkAja via DOKU | | IDR | ID | no |
| Lithuanian Banks | lithuanianbanks | EUR | LV | No |
| Mandiri Bank via DOKU | | IDR | ID | no |
| Maxima | maxima | EUR | LT | No |
| MayBank via DOKU | | IDR | ID | no |
| MobilePay | mobilepay | DKK, EUR, NOK, SEK, USD, GBP | All EU, EEA countries (including GB) | Yes |
| Multibanco | multibanco | EUR | PT | Yes |
| MyBank | mybank | EUR | IT | Yes |
| Narvesen | | EUR | LT | no |
| OVO via DOKU | | IDR | ID | no |
| OXXO Direct | | MXN | MX | yes |
| Pay by Bank app | | GBP | GB | yes |
| Payconiq | | EUR | BE, LU | yes |
| Pay-easy | | JPY | JP | No |
| Paypal | paypal | AUD, BRL, CAD, CZK, DKK, EUR, HKD, HUF, JPY, MYR, MXN, NOK, NZD, PHP, PLN, GBP, RUB, SGD, SEK, CHF, TWD, THB, USD | Global, except: AF,AO,BA,CD,CG,CG,CU,ER,GN,GW,GY, HT,IQ,IR,KP,LA,LY,MM,PK,SD,SO,SS,SY, TM,UG,UZ,VU,YE,ZW | Yes |
| Paypost | paypost | EUR | LT | No |
| Paysafecard | paysacecard | AUD, CAD, CHF, EUR, GBP, NOK, PLN, RON, SEK, USD | AT, AU, BE, BG, CA, CH, CY, CZ, DE, DK, ES, FI, FR, GB, GR, GE, GI, HR, HU, IE, IT, LI, LT, LU, MT, MX, NL, NO, NZ, PE, PL, PT, RO, SE, SI, SK, UY | Yes |

| APM | Payment Method Value | Supported Currencies | Permitted Shopper Countries | Refund |
|---|---|---|---|---|
| Paysafecash | paysacecash | EUR, RON, HUF, CZK, PLN, GBP, CAD, CHF, SEK, USD | AT, BE, BG, CA, CH, CY, CZ, ES, FR, GB, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK | Yes |
| Paysera | paysera | EUR | EE, LT, LV | No |
| PayU | payu | CZK, PLN | CZ, PL | Yes |
| Perlas Terminals | perlas | EUR | LT | No |
| Permata via DOKU | | IDR | ID | no |
| Postfinance (YellowPay) | | CHF, EUR | CH | yes |
| Przelewy24 | p24 | EUR, PLN | PL | Yes |
| Safetypay | safetypay | USD | BR, CL, EC, MX, PE | Yes |
| Satispay | | EUR | IT, BE, DE, FR, LU | yes |
| SEPA Direct Debit | sepa_dd | EUR | AD, AT, BE, BG, BL, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GG, GI, HR, HU, IE, IM, IS, IT, JE, LI, LT, LU, LV, MC, MT, NL, NO, PF, PL, PM, PT, RO, SE, SI, SK, SM, TF, VA, WF | Yes |
| Skrill | skrill | EUR, GBP, USD | Global | Yes |
| Sofort | sofort | EUR, GBP, CHF | DE, NL, BE, AT, ES,, PL, GB, CH | Yes |
| Tesco Lotus | | THB | TH | no |
| ThaiBanks | | THB | TH | no |
| Touch ‘n Go | | MY | MY | yes |
| Trustly | trustly | CZK, DKK, EUR, GBP, NOK, PLN, SEK | AT, CZ, DE, DK, EE, ES, FI, GB, LV, LT, NL, NO, PL, SE, SK | Yes |
| Unionpay SecurePay | | USD, EUR, HKD, SGD, CNY, CAD, GBP, CHF, AUD, NZD, JPY | CN, AU, JP, KR, NZ, SG, HK, MO, MY, TH, PH, ID, BN, VN, KH, PF, BD, NP, LK, MN, DE, FR, GB, HU, IT, GE, RU, TR, US, CA, SR, EC, DM, AZ, KG, TJ, MU, KE, SC, MG, ZA, NG, GH, KZ | Yes |
| WeChat Pay | wechatpay | EUR, USD, GBP, CHF, CNY | CN | Yes |
| WeChat Pay In-Store | | EUR, USD, GBP, CHF | CN | Yes |

# Appendix D: SCA & 3D Secure

This section describes the specifications for using the Shift4 Payment Gateway 3D Secure service. If you are using a third-party 3D Secure service, prior to sending the transaction to Shift4 Payment Gateway, please refer to Appendix E: How to provide 3D secure Authentication Data.

3D Secure (3-Domain Secure) is an advanced method of performing Strong Customer Authentication (SCA) in card-not-present transactions. Using 3D-secure successfully may protect you from fraud chargeback disputes raised by cardholders and issuers.

**Shift4 Payment Gateway offers two modules of 3D Secure:**

- Standard 3D Secure
- 3DS Adviser – a decision engine incorporated in the 3D Secure flow that determines whether to initiate the 3D Secure authentication process, based on risk, regulations and impact on approval rate.

**Note:**

- Shift4 3D Secure service supports all versions of the 3D Secure protocol, including: 3D Secure 1.0, 2.0, 2.1.0, and 2.2.0
- To use Shift4 3D Secure service, you must be registered to the service and have it activated on your account.

Contact your Shift4 account manager for more information

## *3D Secure and Customer Experience: Frictionless Experience vs. Cardholder Challenge*

With the introduction of the 3D Secure 2.0 protocol, issuers can better asses the authenticity of a transaction based on information included in the transaction itself. This ensures cardholders enjoy a frictionless shopping and payment experience. Cardholders are not exposed to the risk checks done by the issuer in the background and are not required to provide any password or other information as they used to in the past.

In some cases, the issuer may still want to perform more extensive checks and require the cardholder to respond to a 'challenge'. The challenge can be one or more of the following: entering a one-time-password or other credentials, answering a secret question and/or identifying yourself using a biometric based device (fingerprints, face recognition, etc.). Issuers that are still using the old 3D Secure 1.0 protocol require the cardholder to respond to a challenge for every 3D secure transaction. The Shift4 Payment Gateway 3D Secure service automatically selects the correct 3D Secure flow based on the 3D secure protocol supported by the Issuer.

## *3D Secure Transaction Flow*

The Shift4 Payment Gateway 3D Secure service is fully incorporated into the transaction flow of the payment request and supports both frictionless workflows as well as challenge flows.

**Note:**

- The 3D Secure transaction flow may require more steps to complete the transactions
- For the challenge flow, consider implementing the notification mechanism to automatically retrieve updates on the transaction processing progress without having to initate another API call to the gateway. Contact your Shift4 account manager for more details on how to enroll to this service.

## Initiating the 3D Secure process

To initiate the 3D secure process, send the 'threed_secure.initiate' parameter as part of the payment request (applicable for operations: Sale, Authorisation and CFT of all types).

The 'threed_secure.initiate' parameter can have one of the following values:

| Value | Description |
|---|---|
| 01 | Initiate 3D Secure before completing the payment |
| 02 | Process payment without 3D Secure |
| 03 | Initiate 3D Secure according to the 3DS Adviser result (see 3DS Adviser) |

**Note:**

- The transaction will only be processed if the 3D Secure process is completed successfully, whether in a frictionless flow or a challenge flow.
- When initiating the 3DS Advisre, if the decision engine determines the transaction should go through the 3D Secure process, then it can go through any of the standard 3D Secure flows.

## Standard 3D Secure Workflow

Once the 3D Secure workflow is initiated in a transaction the process can go through one of 4 possible sub-workflows:

- No challenge (frictionless experience)
- Device fingerprint assessment only (frictionless experience)
- Cardholder challenge only (without device fingerprint)
- Full authentication (both device fingerprint assessment and cardholder challenge)

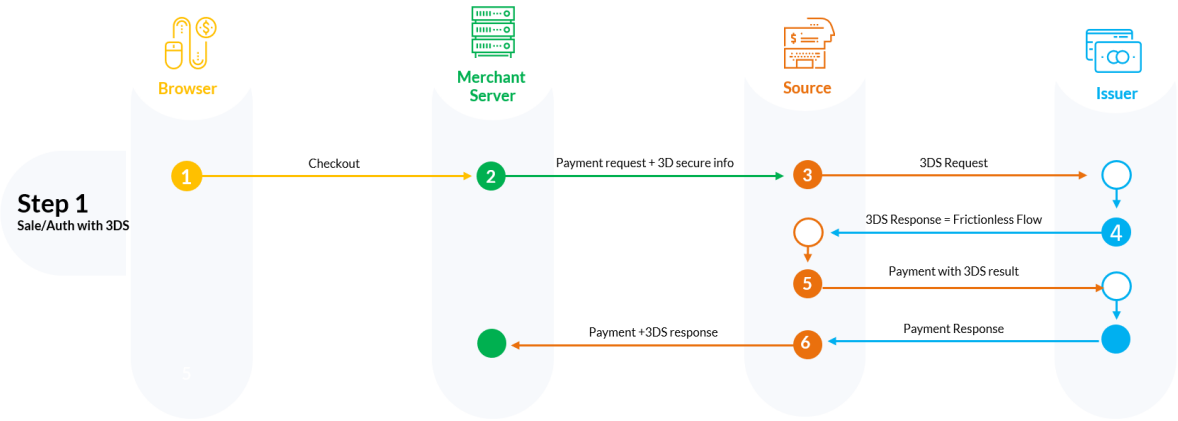
The entities participating in the 3D secure process are:

| Entity | Description |
|---|---|
| Browser | The cardholder's browser from which the process was initiated |
| Merchant Server | The merchant's server side |
| Shift4 | Shift4's Payment Gateway |
| Issuer | The issuer of the card used in the transaction |

### *Flow A: No challenge (frictionless experience) flow*

In this flow the cardholder is authenticated based on the information provided on the transaction itself, without any additional authentication (such as device fingerprint or other challenge method).

> **Note:**
>
> The more user information you provide on the initial transaction, the more likely it is that the cardholder will not have to go through additional authentication steps. See the full list of additional recommended parameters




Step 1: Cardholder goes through the checkout process on the Merchant's website.

Step 2: Merchant sends a payment request with the required 3D secure parameters to the Shift4 Payment Gateway.

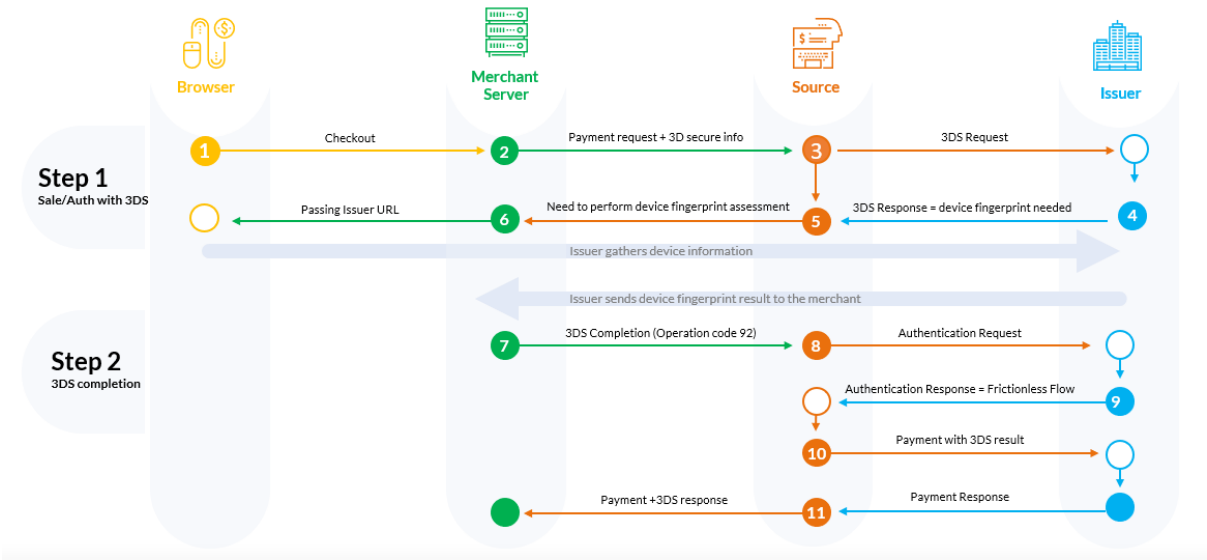
Steps 3-4: Shift4 initiates the 3D secure authentication process and receives a response from the issuer that no further authentication is required

Step 5: Shift4 instructs the issuer to perform the payment and receives the issuer response for the transaction

Step 6: Shift4 sends the transaction response with the result of the payment and the 3D secure process.

### *Flow B: 3D secure process requires device fingerprint assessment*

In this scenario the issuer requests more information about the device that initiated the transaction (depending on the issuer this can be the cardholder's browser or other information used for risk analysis). The information is transferred electronically without the cardholder experiencing any change in the flow (frictionless experience).




Step 1: Cardholder goes through the checkout process on the Merchant's website.

Step 2: Merchant sends a payment request with the required 3D secure parameters to Shift4 Payment Gateway.

Steps 3-5: Shift4 initiates the 3D Secure process and receives from the issuer the request for device fingerprint information.

Steps 6-7: Merchant initiates the device fingerprint process. Refer to the Device fingerprint information retrieval flow for more details

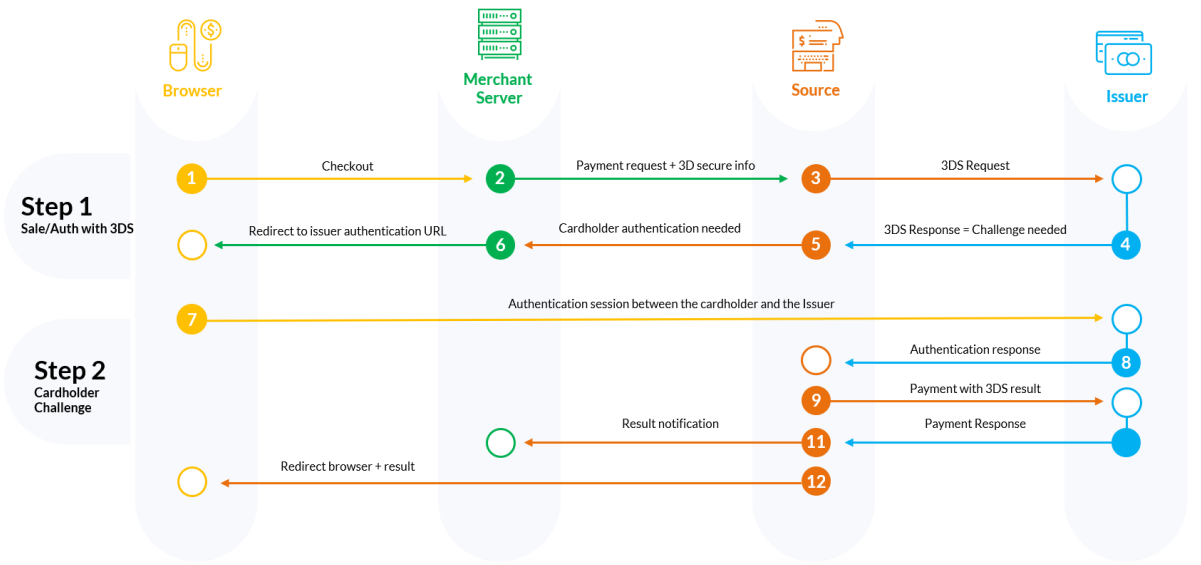
Steps 8-9: Shift4 re-initiates the 3D secure authentication process with the input received through the 3DS completion URL (/3dsmethod/{transaction_id}), and receives the authentication result from the issuer

Step 10: Shift4 initiates the payment

Step 11: Shift4 sends back to the merchant a response to the transaction initiated by operation [92] with the result of the payment and the 3D secure process.

### *Flow C: 3D secure requires a user challenge flow (redirection to issuer)*

In this scenario the issuer requires a user challenge flow where the cardholder is prompted with an authentication screen.




Step 1: Cardholder goes through the checkout process on the merchant's website.

Step 2: Merchant sends payment request with 3D secure to Shift4 Payment Gateway

Steps 3-4: Shift4 Payment Gateway initiates the 3D secure authentication process. Cardholder authentication is needed.

Step 5: Shift4 responds to the merchant with the URL for the authentication process. In the response the transaction status is listed as 'pending'.

Steps 6-7: Merchant initiates the authentication process in the cardholder's browser. See Cardholder challenge flow for more details.

Steps 8-9: Shift4 receives the authentication results from the Issuer.

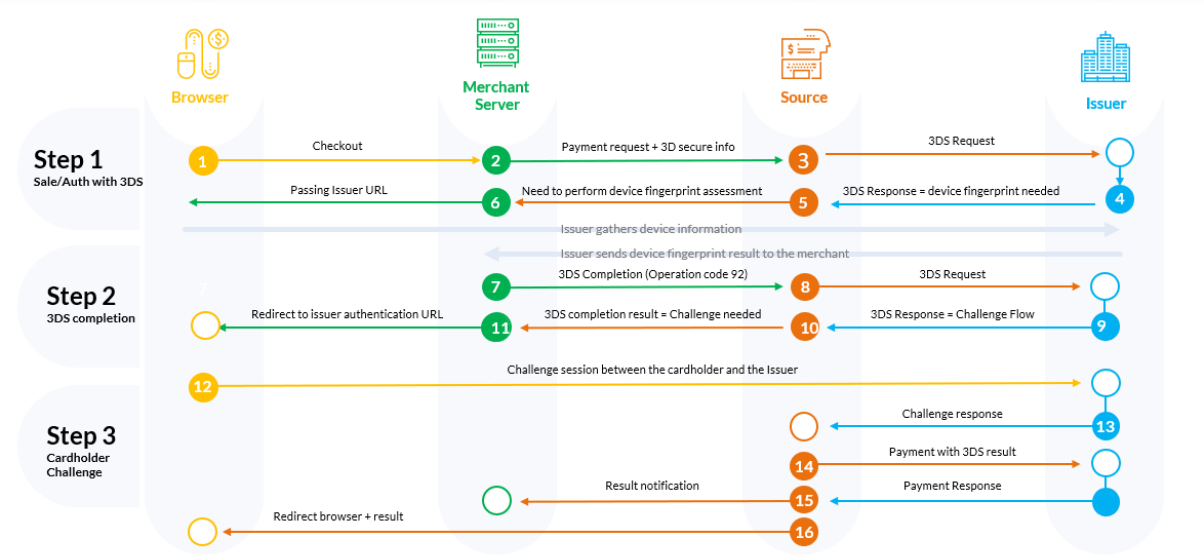
Step 10: Shift4 initiates the payment

Step 11: Shift4 sends notification to the merchant with all payment & authentication results.

Step 12: Shift4 redirects the browser to the merchant site.

### *Flow D: 3D secure flow requires fingerprint authentication and user challenge*

This scenario requires full authentication of the cardholder with both fingerprint flow and cardholder challenge.




Step 1: Cardholder goes through the checkout process on the Merchant's website.

Step 2: Merchant sends a payment request with the required 3D secure parameters to the Shift4 Payment Gateway.

Step 3-5: Shift4 initiates the 3D Secure process and receives from the issuer the request for device fingerprint information.

Step 6-7: Merchant initiates the device fingerprint process. Refer to device fingerprint information retrieval flow for more details.

Step 8-9: Shift4 re-initiates the 3D secure authentication process with the input received through the 3DS completion URL (/3dsmethod/{transaction_id}), and receives the authentication result from the issuer.

Step 10: Shift4 responds to the merchant with the URL for the authentication process. In the response the transaction status is listed as 'pending'.

Step 11-12: Merchant initiates the authentication process in the cardholder's browser. See Cardholder challenge flow for more details.

Step 13: Shift4 receives the authentication results from the Issuer.

Step 14: Shift4 Payment Gateway initiates the payment

Step 15: Shift4 sends notification to the merchant with all payment & authentication results.

Step 16: Shift4 redirects the browser to the merchant site.

### *Device fingerprint information retrieval flow*

When device fingerprint assessment is required by the issuer, Shift4 responds with the following parameters:

| Name | Type | Description |
|---|---|---|
| threed_secure.threedsmethod | URL | The issuer's URL that should be used to trigger the collection of the device fingerprint by the issuer |
| threed_secure.trxid | [a-zA-Z0-9, -] | Universally unique transaction identifier to identify a single 3DS transaction. |

1. Upon receiving the above parameters, create a JSON object with the 3DS Method Data elements:

```
threeDSMethodNotificationURL = <the URL to which the issuer will send his approval>
threeDSServerTransID = <threed_secure.trxid >
```

2. Encode the JSON object in Base64 URL encoding.
3. Render a hidden HTML iframe in the Cardholder's browser and send a form with a field named threeDSMethodData containing the **URL friendly** Base64url JSON Object via HTTP POST to the threed_secure.threedsmethod URL you received from Shift4.
4. At this stage you should get a response about the completion of the fingerprint collection process. The information is a POST response to the notification URL you provided in the threeDSMethodNotificationURL parameter in step 1. It contains a single encoded parameter called threeDSMethodData.

   **Take note**: If the notification is received within 10 seconds, then when executing the next step, set threed_secure.completion_ind = Y; otherwise, set threed_secure.completion_ind = N.
5. Use the information from the response to send a completion call to Shift4. This is done by sending the 3DS completion to /3dsmethod/{transaction_id} with the following parameters:

| Name | Description | Type | Length | M/O/C |
|---|---|---|---|---|
| merchant_info.gw_mid | *Shift4* assigned gateway Merchant ID | [A-Z0-9_] | 3,6 | m |
| request_id | Request ID<br>A unique transaction reference number. It should be unique to each transaction and to each MID. May be used when corresponding with the payment processor or reconciling transactions. | [a-zA-Z0-9-] | 1,32 | m |

| Name | Description | Type | Length | M/O/C |
|---|---|---|---|---|
| | Note: No plaintext cardholder data should be provided in this field. | | | |
| threed_secure.completion_ind | Relevant only if threed_secure.channel = 02. Received as part of the 3DS completion flow. The accepted values are:<br>Y – Successfully completed<br>N – Did not successfully complete<br>U – Unavailable<br><br>Received from the issuer. Indicates whether the device fingerprint collection completed successfully. | [Y, N, U] | 1,1 | m |

### *Cardholder challenge flow*

When a cardholder challenge is required by the issuer, redirect the browser to the issuer URL.

You will receive a redirect_urls.redirect_url parameter as part of the original payment request or as the response to 3DS Completion URL (depending on the 3D secure flow of the transaction). In order to reach the issuer's side, open a dynamic iFrame on the browser side, and refer to the address received in the redirect_urls.redirect_url parameter. However, for a 3DS 1.0 protocol, it is recommended to redirect to the address received in the redirect_urls.redirect_url parameter instead of using an iFrame since not all issuers support this functionality.

## 3DS Adviser

The 3DS Adviser module offers a smart recommendation engine that routes the transaction through the 3DSecure process only when it is necessary based on regulatory, business-impact and risk aspects. You can control the 3DS Adviser functionality with the following parameters:

| Name | Type | Min | Max | Description |
|---|---|---|---|---|
| fraud_service.threed_secure_threshold | [0-9] | 1 | 3 | Assigns an ad-hoc threshold that extends the regular fraud threshold, for authorised 3D secure transactions only. |

### Additional Response parameters for the 3DS Adviser Module

When using the 3DS Adviser module, additional response parameters are included in the transaction response format:

| Name | Type | Min | Max | Description |
|---|---|---|---|---|
| threed_secure.smart_3d.result | [0-4] | 2 | 2 | Describes the 3DS Adviser module recommendation:<br>01: Do 3D secure<br>02: Skip 3D secure<br>03: Request an exemption as part of the 3D Secure request<br>04: Request an exemption as part of the payment request |
| threed_secure.smart_3d.result_reason | [a-zA-Z0-9] | 0 | 128 | Includes the rule id which was executed as part of the Smart 3D rule engine |

## *Strong Customer Authentication (SCA)*

As a rule, SCA is mandatory for any electronic payment when both acquirer and issuer are in the EU.

However, some business cases do not require SCA, and in some cases you can request to exempt a specific transaction depending on the business model and the transaction's characteristics.

**SCA is not required in the following business cases:**

- MOTO (mail order/ telephone order) transactions
- Card is an anonymous prepaid card
- Some cases of merchant-initiated transactions (MIT)
- Transactions where either the issuer or the acquirer is based outside the EU

### Exemption management

In some cases you can request a specific transaction to be exempt from the SCA process, based on the transaction characteristics.

| Name | Type | o/m | Min, Max | Description |
|---|---|---|---|---|
| threed_secure.exemption.action | [0-9] | o | 2,2 | Indicates the merchant preference regarding SCA exemption.<br>Possible values are: |

| Name | Type | o/m | Min, Max | Description |
|---|---|---|---|---|
| | | | | 01: Do not request exemption. This is the default behaviour for the Shift4 Gateway. If the field is absent from the transaction request, no exemption will be applied.<br>02: Request an exemption as part of the payment request.<br>03: Request an exemption as part of the 3D Secure request<br>04: Request exemption by default. Shift4 will apply for exemption as part of the 3D Secure request if possible.<br>Note: If no value is provided, and you are using the 3DS Adviser module, the Shift4 Payment Gateway requests an exemption (if applicable) as part of the 3D secure process. |
| threed_secure.exemption.reason | [0-9] | o | 2,2 | This field is required when exemption.action = 02 or 03.<br>Possible values:<br>01: Low value transaction (below 30 EUR or equivalent)<br>02: Low risk transaction (TRA)[1]<br>03:Request Trusted Beneficiary Indicator (*Whitelisting*)[2]<br>04: Secure Corporate Cards [3]<br>05: Delegated Authentication [4]<br>06: MIT – Recurring same amount<br>07: MIT – other [5]<br>08: Trusted Beneficiary Indicator (*Whitelisting*) – Done[6]<br>[1] Requires real-time fraud monitoring solutions<br>[2] Use this value to indicate to the ACS to obtain confirmation from the cardholder to whitelist the merchant for future purchases<br>[3] This is not a standard exemption you can request. If you know the card used for the |

| Name | Type | o/m | Min, Max | Description |
|---|---|---|---|---|
| | | | | transaction is a secure corporate card, use this value to indicate so to Shift4. This will help the 3DS Adviser determine the optimal 3D Secure employment.<br>[4] This exemption option can be used if you implemented an alternative SCA solution as part of your checkout process. This requires your solution be pre-approved and registered with the card schemes.<br>[5] Any MIT transaction must be sent with this flag to make sure the transaction will not require SCA.<br>[6] This is not a standard exemption you can request. If you receive an indication you were whitelisted by a cardholder, use this value on any subsequent transaction by that cardholder to indicate back to the Shift4 gateway that this is a potential whitelisting card. This will help the 3DS Adviser determine the optimal 3D Secure employment. |
| threed_secure.exemption.TRA_score | [0-9,A-Za-z] | c | 1,8 | Indicates the transaction risk analysis result calculated by a third party provider as a basis for exemption.reason = 02 |

## Managing SCA for Merchant initiated transaction

Merchant initiated transactions can be part of two different business cases:

- **Recurring transactions**: where the first original transaction was initiated by the cardholder (for example, initiating a subscription to a product or service). In this case the initial transaction is subject to SCA, but any subsequent transaction can be exempted from SCA.
- **Periodic charges**: always initiated by the merchant, based on card details provided by the cardholder (for example, the cardholder provided their card details to pay for utility bills). In this case the cardholder is authenticated with SCA when they first provide the card, and all subsequent payments will be out of scope.

For a merchant-initiated transaction to be exempted of SCA, you must include the value of the "initial transaction ID" (received as part of the first authenticated transaction) with every subsequent transaction you initiate, in any of the above scenarios.

## Exemption – Response Parameters

| Name | Type | m/o | Min,Max | Description |
|---|---|---|---|---|
| threed_secure.white_list_status | [A-Z] | o | 1,1 | Y: Merchant is whitelisted by cardholder<br>N: Merchant is not whitelisted by cardholder<br>E: Not eligible as determined by issuer<br>P: Pending confirmation by cardholder<br>R: Cardholder rejected<br>U: Whitelist status unknown, unavailable, or does not apply |

## Additional Parameters for Improved 3D Secure Assessment

The 3D Secure process is based on data transferred to the issuer as part of the transaction details. The more information provided at an early stage, the higher probability for a frictionless experience for the cardholder.

### *Recommended Parameters*

To increase the probability for a frictionless 3D secure flow, it is **recommended** that each request contain as many of the following list of parameters as possible:

| Requested Data | Shift4 Parameters | Description |
|---|---|---|
| Brower IP address | shopper_info.ip_address | IP address of the browser as returned by the HTTP headers. In either ipv4 or ipv6 format |
| Buyer email address | shopper_info.email | Cardholder's email address in valid email address format, such as *joe@bloggs.com* |
| Billing Information | billing_address.line_2 | Cardholder Billing Address street number |
| | billing_address.line_1 | Cardholder Billing Address street name |
| | billing_address.city | Cardholder Billing Address city name |
| | billing_address.state | Cardholder Billing Address Territory Code, a level 2 country subdivision code according to ISO-3166-2. A reference list can be found at ISO 3166-1-alpha-2. |
| | billing_address.country_code | Cardholder Billing Address Country Code.<br>Please refer to ISO 3166-1-alpha-2 for a list |
| | billing_address.postal_code | Cardholder Billing Address Postal/ZIP Code |

| Requested Data | Shift4 Parameters | Description |
|---|---|---|
| Shipping information | shipping_address.city | City of the shipping address requested by the Cardholder |
| | shipping_address.country | Country of the shipping address requested by the Cardholder. Please refer to ISO 3166-1-alpha-2 for a list |
| | shipping_address.line_1 | First line of the street address or equivalent local portion of the shipping address associated with the card used for this purchase |
| | shipping_address.line_2 | Second line of the street address or equivalent local portion of the shipping address associated with the card used for this purchase |
| | shipping_address.postal_code | ZIP or other postal code of the shipping address associated with the card used for this purchase |
| | shipping_address.state | The state or province of the shipping address associated with the card used for this purchase. The value should be the country subdivision code defined in ISO 3166-2. |
| Do Shipping and Billing addresses match? | threed_secure.cardholder.addr_match | Indicates whether the Cardholder Shipping Address and Cardholder Billing Address are identical. |

### *Request parameters*

We recommend you add the following parameters to your transaction request when you use the 3D Secure functionality (threed_secure.initiate = 01 or 03):

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| threed_secure.channel | Indicates the type of channel interface being used to initiate the transaction. The accepted values are:<br>• 01 - App-based (APP)<br>• 02 - Browser (BRW)<br>• 03 - 3DS Requestor Initiated (3RI) | [0-3] | 2 | 2 | o |
| threed_secure.redirect_url | Contains the merchant URL to which the browser should be redirected after the challenge session | URL | 0 | 2048 | m |
| threed_secure.category | Identifies the category of the message for a specific use case. The accepted values are: | [0-3] | 2 | 2 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | • 01 - PA (Payment authentication)<br>• 02 - NPA (NON-payment authentication)<br>• 80 – Data only (Mastercard only, valid only for threed_secure.channel = 01 or 02) | | | | |
| threed_secure.completion_ind | Relevant only if threed_secure.channel = 02. Received as part of the 3DS completion flow. The accepted values are:<br>• Y – Successfully completed<br>• N – Did not successfully complete<br>• U – Unavailable | [YNU] | 1 | 1 | c<br>(m when threed_secure.channel = 02) |
| threed_secure.sdk.interface | Specifies the SDK Interface types that the device supports for displaying specific challenge user interfaces within the SDK. Accepted values are:<br>• 01 - Native<br>• 02 - HTML<br>• 03 - Both | [0-3] | 2 | 2 | c<br>m only when threed_secure.channel=01 (APP). |
| threed_secure.sdk.ui_types | Contains a list of all UI types that the device supports for displaying specific challenge user interfaces within the SDK. Accepted values for each UI type are:<br>• 01 - Text<br>• 02 - Single select<br>• 03 - Multi select<br>• 04 - OOB<br>• 05 - Html Other (valid only for HTML UI)<br>For Native UI SDK Interface accepted values are 01-04 and for HTML UI accepted values are 01-05. | Comma separated list | 2 | 14 | c<br>m only when threed_secure.channel=01 (APP). |
| threed_secure.threeds_requestor.threeds_requestor_authentication_info.threeds_req_auth_method | Information about how the cardholder was authenticated before or during the transaction. | [0-6] | 2 | 2 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | The mechanism used by the Cardholder to authenticate to the merchant. Accepted values are:<br>• 01 - No authentication occurred (i.e., cardholder "logged in" as guest)<br>• 02 - Login to the cardholder account at the merchant system using merchant's own credentials<br>• 03 - Login to the cardholder account at the merchant system using federated ID<br>• 04 - Login to the cardholder account at the merchant system using issuer credentials<br>• 05 - Login to the cardholder account at the merchant system using third-party authentication<br>• 06 - Login to the cardholder account at the merchant system using FIDO Authenticator<br>• 07 - Login to the cardholder account at the merchant system using FIDO Authenticator (applicable for 3DS version 2.2 and above)<br>• 08 - SRC Assurance Data. (applicable for 3DS version 2.2 and above) | | | | |
| threed_secure.threeds_requestor.threeds_requestor_authentication_info.threeds_req_auth_timestamp | Date and time in UTC of the cardholder authentication. Field is limited to 12 characters and the accepted format is YYYYMMDDHHMM | [0-9] | 12 | 12 | o |
| threed_secure.threeds_requestor.threeds_requestor_authentication_info.threeds_req_auth_data | Data that documents and supports a specific authentication process.<br>The intention is that for each merchant Authentication Method, this field contains data that the issuer can use to verify the authentication process. | [a-zA-Z0-9] | 0 | 255 | o |
| threed_secure.threeds_requestor.threeds_requestor_challenge_ind | Indicates whether a challenge is requested for this transaction. For example: For threed_secure.category 01- | [0-4] | 2 | 2 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | PA, a merchant may have concerns about the transaction, and request a challenge. For threed_secure.category 02-NPA, a challenge may be necessary when adding a new card to a wallet.<br>• 01 - No preference<br>• 02 - No challenge requested<br>• 03 - Challenge requested by merchant<br>• 04 - Challenge requested: Mandate<br>• 05 - No Challenge Requested, transactional risk analysis is already performed<br>• 06 - No Challenge Requested, Data share only<br>• 07 - No Challenge Requested, SCA is already performed<br>• 08 - No challenge requested (utilise whitelist exemption if no challenge required)<br>• 09 - Challenge requested (whitelist prompt requested if challenge required) | | | | |
| threed_secure.threeds_requestor.threeds_requestor_prior_authentication_info.threeds_req_prior_ref | This data element provides additional information to the issuer to determine the best approach for handling a request. The element contains the issuer's Transaction ID for a prior authenticated transaction (for example, the first recurring transaction that was authenticated with the cardholder). | [a-zA-Z0-9] | 36 | 36 | o |
| threed_secure.threeds_requestor.threeds_requestor_prior_authentication_info.threeds_req_prior_auth_method | Mechanism used by the cardholder to previously authenticate to the merchant.<br>Accepted values for this field are:<br>• 01- Frictionless authentication occurred by issuer<br>• 02 - Cardholder challenge occurred by issuer<br>• 03 - AVS verified | [0-4] | 2 | 2 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | • 04 - Other issuer methods | | | | |
| threed_secure.threeds_requestor.threeds_requestor_prior_authentication_info.threeds_req_prior_auth_timestamp | Date and time in UTC of the prior authentication. Accepted date format is YYYYMMDDHHMM. | [0-9] | 12 | 12 | 0 |
| threed_secure.threeds_requestor.threeds_requestor_prior_authentication_info.threeds_req_prior_auth_data | Data that documents and supports a specific authentication process. In the current version of the specification this data element is not defined in detail, however the intention is that for each merchant Authentication Method, this field carry data that the issuer can use to verify the authentication process. In future versions of the application, these details are expected to be included. | [a-zA-Z0-9] | 0 | 2048 | o |
| threed_secure.threeds_requestor.threeds_requestor_dec_req_ind | Indicates whether the merchant requests the ACS to utilise Decoupled Authentication and agrees to utilise Decoupled Authentication if the ACS confirms its use. Accepted values are:<br>• Y - Decoupled Authentication is supported and preferred if challenge is necessary<br>• N - Do not use Decoupled Authentication. | [YN] | 1 | 1 | o |
| threedSecure.threeds_requestor.threeds_requestor dec_max_time | Indicates the maximum amount of time (in minutes) that the merchant will wait for an ACS to provide the results of a Decoupled Authentication transaction. Valid values are between 1 and 10080. | [0-9] | 1 | 5 | o |
| threed_secure.cardholder_account.acctinfo.chacc_date | Date that the cardholder opened the account with the merchant. Date format = YYYYMMDD. | [0-9] | 8 | 8 | o |
| threed_secure.cardholder_account.acctinfo.chacc_change_ind | Length of time since the cardholder's account information with the merchant was last changed. Includes Billing or Shipping address, new payment account, | [0-4] | 2 | 2 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | or new user(s) added. Accepted values are:<br>• 01 - Changed during this transaction<br>• 02 - Less than 30 days<br>• 03 - 30 - 60 days<br>• 04 - More than 60 days | | | | |
| threed_secure.cardholder_account.acctinfo.chacc_change | Date that the cardholder's account with the merchant was last changed. Includes Billing or Shipping address, new payment account, or new user(s) added. Date format = YYYYMMDD. | [0-9] | 8 | 8 | o |
| threed_secure.cardholder_account.acctinfo.chacc_pw_change_ind | Length of time since the cardholder's account with the merchant had a password change or account reset. The accepted values are:<br>• 01 - No change<br>• 02 - Changed during this transaction<br>• 03 - Less than 30 days<br>• 04 - 30 - 60 days<br>• 05 - More than 60 days | [0-5] | 2 | 2 | o |
| threed_secure.cardholder_account.acctinfo.chacc_pw_change | Date that cardholder's account with the merchant had a password change or account reset. Date format must be YYYYMMDD. | [0-9] | 8 | 8 | o |
| threed_secure.cardholder_account.acctinfo.ship_address_usage_ind | Indicates when the shipping address used for this transaction was first used with the merchant. Accepted values are:<br>• 01 - This transaction<br>• 02 - Less than 30 days<br>• 03 - 30 - 60 days<br>• 04 - More than 60 days. | [0-4] | 2 | 2 | o |
| threed_secure.cardholder_account.acctinfo.ship_address_usage | Date when the shipping address used for this transaction was first used. Date format must be YYYYMMDD. | [0-9] | 8 | 8 | o |
| threed_secure.cardholder_account.acctinfo.txn_activity_day | Number of transactions (successful and abandoned) for this cardholder account | [0-9] | 0 | 10 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | with the merchant across all payment accounts in the previous 24 hours. | | | | |
| threed_secure.cardholder_account.acctinfo.txn_activity_year | Number of transactions (successful and abandoned) for this cardholder account with the merchant across all payment accounts in the previous year. | [0-9] | 0 | 10 | o |
| threed_secure.cardholder_account.acctinfo.provision_attempts_day | Number of Add Card attempts in the last 24 hours. | [0-9] | 0 | 10 | o |
| threed_secure.cardholder_account.acctinfo.nbpurchase_account | Number of purchases with this cardholder account during the previous six months. | [0-9] | 0 | 10 | o |
| threed_secure.cardholder_account.acctinfo.suspicious_acc_activity | Indicates whether the merchant has experienced suspicious activity (including previous fraud) on the cardholder account. Accepted values are:<br>• 01 - No suspicious activity has been observed<br>• 02 - Suspicious activity has been observed | [0-2] | 2 | 2 | o |
| threed_secure.cardholder_account.acctinfo.ship_name_indicator | Indicates whether the Cardholder Name on the account is identical to the shipping Name used for this transaction. Accepted values are:<br>• 01 - Account Name identical to shipping Name<br>• 02 - Account Name different from shipping Name | [0-2] | 2 | 2 | o |
| threed_secure.cardholder_account.acctinfo.payment_acc_ind | Indicates the length of time that the payment account was enrolled in the cardholder's account with the merchant. Accepted values are:<br>• 01 - No account (guest check-out)<br>• 02 - During this transaction<br>• 03 - Less than 30 days<br>• 04 - 30 - 60 days<br>• 05 - More than 60 days | [0-5] | 2 | 2 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| threed_secure.cardholder_account.acctinfo.payment_acc_age | Date that the payment account was enrolled in the cardholder's account with the merchant. Date format must be YYYYMMDD. | [0-9] | 8 | 8 | o |
| threed_secure.cardholder_account.acc_id | Additional information about the account optionally provided by the merchant. | [a-zA-Z0-9] | 0 | 64 | o |
| threed_secure.cardholder_account.pay_token_ind | This field has a value of "true" if the transaction was de-tokenised prior to being received by Shift4. | [a-z] | 4 | 5 | O |
| threed_secure.cardholder.addr_match | Indicates whether the Cardholder Shipping Address and Cardholder Billing Address are identical. Accepted values:<br>• True - Shipping Address matches Billing Address<br>• False - Shipping Address does not match Billing Address<br>Note: the default value of this field is 'false' | [a-z] | 4 | 5 | o |
| threed_secure.white_list_status | Sets the whitelisting status of the merchant. Accepted values are:<br>• Y - Merchant is whitelisted by cardholder<br>• N - Merchant is not whitelisted by cardholder | [Y, N] | 1 | 1 | o |
| shopper_info.home_phone.country | Country Code of the home phone. | [0-9] | 1 | 3 | c (m if shopper_info.home_phone.number exists) |
| shopper_info.mobile_phone.number | The mobile phone provided by the Cardholder, without the country code | [0-9] | 0 | 18 | O |
| shopper_info.mobile_phone.country | Country Code of the mobile phone. | [0-9] | 1 | 3 | c (m if shopper_info.mobile_phone.number exists) |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| shopper_info.work_phone.number | The work phone provided by the Cardholder, without the country code | [0-9] | 0 | 18 | O |
| shopper_info.work_phone.country | Country Code of the work phone. | [0-9] | 1 | 3 | c (m if shopper_info.work_phone.number exists) |
| shipping_address.city | City of the shipping address requested by the Cardholder. | [a-zA-Z] | 3 | 32 | O |
| shipping_address.country | Country of the shipping address requested by the Cardholder. Please refer to ISO 3166-1-alpha-2 for a list. | [A-Z] | 2 | 2 | c<br>m – if shipping_address.state exists or if shipping information is not the same as billing information |
| shipping_address.line_1 | First line of the street address or equivalent local portion of the shipping address associated with the card used for this purchase. | [a-zA-Z] | 0 | 50 | c<br>m – when threed_secure.cardholder.addr_match = false |
| shipping_address.line_2 | Second line of the street address or equivalent local portion of the shipping address associated with the card used for this purchase. | [a-zA-Z] | 0 | 50 | o<br>m – when threed_secure.cardholder.addr_match = false |
| shipping_address.postal_code | ZIP or other postal code of the shipping address associated with the card used for this purchase. | [a-z0-9] | 0 | 16 | o<br>m – when threed_secure.cardholder.addr_match = false |
| shipping_address.state | The state or province of the shipping address associated with the card used for | [0-9] | 1 | 3 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | this purchase. The value should be the country subdivision code defined in ISO 3166-2. | | | | m – when threed_secure.cardholder.addr_match = false |
| threed_secure.purchase.merchant_risk_indicator.ship_indicator | Indicates shipping method chosen for the transaction. Merchants must choose the Shipping Indicator code that most accurately describes the cardholder's specific transaction. If one or more items are included in the sale, use the Shipping Indicator code for the physical goods, or if all digital goods, use the code that describes the most expensive item. Accepted values are:<br>• 01 - Ship to cardholder's billing address<br>• 02 - Ship to another verified address on file with merchant. In this case, shipping information is required even though threed_secure.cardholder.addr_match = true.<br>• 03 - Ship to address that is different from the cardholder's billing address. In this case, shipping information is required even though threed_secure.cardholder.addr_match = true.<br>• 04 - "Ship to Store" / Pick-up at local store (store address is populated in the shipping address fields). In this case, shipping information is required even though threed_secure.cardholder.addr_match = true.<br>• 05 - Digital goods (includes online services, electronic gift cards and redemption codes) | [0-7] | 2 | 2 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | • 06 - Travel and Event tickets, not shipped<br>• 07 - Other (for example, Gaming, digital services not shipped, emedia subscriptions, etc.) | | | | |
| threed_secure.purchase.merchant_risk_indicator.delivery_timeframe | Indicates the merchandise delivery timeframe. Accepted values are:<br>• 01 - Electronic Delivery<br>• 02 - Same day shipping<br>• 03 - Overnight shipping<br>• 04 - Two-day or more shipping | [0-4] | 2 | 2 | o |
| threed_secure.purchase.merchant_risk_indicator.delivery_email_address | For electronic delivery, the email address to which the merchandise was delivered. | email | 7 | 64 | o |
| threed_secure.purchase.merchant_risk_indicator.reorder_items_ind | Indicates whether the cardholder is reordering previously purchased merchandise. Accepted values are:<br>• 01 - First time ordered<br>• 02 - Reordered | [0-2] | 2 | 2 | o |
| threed_secure.purchase.merchant_risk_indicator.preorder_purchase_ind | Indicates whether the cardholder is placing an order for merchandise with a future availability or release date. Accepted values are:<br>• 01 - Merchandise available<br>• 02 - Future availability | [0-2] | 2 | 2 | o |
| threed_secure.purchase.merchant_risk_indicator.preorder_date | For a pre-ordered purchase, the expected date that the merchandise will be available.<br>Date format must be YYYYMMDD. | [0-9] | 8 | 8 | o |
| threed_secure.purchase.merchant_risk_indicator.gift_card_amount | For a prepaid or gift card purchase, the purchase amount total of the prepaid or gift card(s) in major units (for example, USD 123.45 is 123). | [0-9] | 1 | 12 | o |
| threed_secure.purchase.merchant_risk_indicator.gift_card_curr | For a prepaid or gift card purchase, the currency code of the card as defined in ISO 4217-alpha-3 except for 955 - 964 and 999. | [0-9] | 3 | 3 | o |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| threed_secure.purchase.merchant_risk_indicator.gift_card_count | For a prepaid or gift card purchase, the total count of the individual prepaid or gift cards/codes purchased. Field is limited to 2 characters. | [0-9] | 0 | 2 | o |
| threed_secure.purchase.purchase_date | Date and time of the purchase expressed in UTC. The field is limited to 14 characters, formatted as YYYYMMDDHHMMSS. | [0-9] | 14 | 14 | m |
| threed_secure.purchase.recurring_expiry | Date after which no further authorisations shall be performed. This field is limited to 8 characters, and the accepted format is YYYYMMDD.<br>This field is required if payment_details.recurring=1 or 2 | [0-9] | 8 | 8 | c |
| threed_secure.purchase.recurring_frequency | Indicates the minimum number of days between authorisations. The field is limited to 4 characters.<br>This field is required if payment_details.recurring =1 or 2 | [0-9] | 0 | 4 | c |
| threed_secure.purchase.trans_type | Identifies the type of transaction being authenticated. The values are derived from ISO 8583. Accepted values are:<br>• 01 - Goods / Service purchase<br>• 03 - Check Acceptance<br>• 10 - Account Funding<br>• 11 - Quasi-Cash Transaction<br>• 28 - Prepaid activation and Loan | [0-9] | 2 | 2 | m |
| threed_secure.merchant_name | Assigned merchant name (with a prefix of “http://” or “https://”) | [a-zA-Z0-9] | 1 | 25 | o |
| browser_info.browser_accept_header | Exact content of the HTTP accept headers. | [a-zA-Z0-9] | 0 | 2048 | o<br>m if threed_secure.channel =02 |
| shopper_info.ip_address | IP address of the browser as returned by the HTTP headers. Supports both ipv4 & ipv6 formats. | ip | 7 | 48 | o<br>m for Visa 3D Secure transactions |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| | | | | | m if threed_secure .channel =02 |
| browser_info.browser_java_enabled | Boolean (true/false) that represents the ability of the cardholder browser to execute Java.<br>This field is required for requests where threed_secure.channel = 02 (Browser). | [a-z] | 4 | 5 | o<br>m if threed_secure .channel =02 |
| browser_info.browser_java_script_enabled | Boolean that represents the ability of the cardholder browser to execute JavaScript. Accepted values are true / false | [a-z] | 4 | 5 | o<br>m if threed_secure .channel =02 |
| browser_info.accept_language | Value representing the browser language as defined in IETF BCP47. For example: en-GB | [A-Za-z,-] | 2 | 16 | o<br>m if threed_secure .channel =02 |
| browser_info.browser_color_depth | Value representing the bit depth of the colour palette for displaying images, in bits per pixel. Accepted values are:<br>• 1 - 1 bit<br>• 4 - 4 bits<br>• 8 - 8 bits<br>• 15 - 15 bits<br>• 16 - 16 bits<br>• 24 - 24 bits<br>• 32 - 32 bits<br>• 48 - 48 bits | [0-9] | 1 | 2 | o<br>m if threed_secure .channel =02 |
| browser_info.browser_screen_height | Total height of the Cardholder's screen in pixels. | [0-9] | 1 | 6 | o<br>m if threed_secure .channel =02 |
| browser_info.browser_screen_width | Total width of the Cardholder's screen in pixels. | [0-9] | 1 | 6 | c if threed_secure .channel =02 |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| browser_info.browser_tz | Time difference between UTC time and the Cardholder browser local time, in minutes. | [0-9,-] | 1 | 5 | o<br>m if threed_secure .channel =02 |
| browser_info.user_agent | Exact content of the HTTP user-agent header. | [a-zA-Z0-9] | 5 | 300 | o<br>m if threed_secure .channel =02 |
| browser_info.challenge_window_size | Dimensions of the challenge window that will be displayed to the cardholder. The issuer replies with content that is formatted to appropriately render in this window to provide the best possible user experience. Preconfigured window sizes are given in “width x height” in pixels. Accepted values are:<br>• 01 - 250 x 400<br>• 02 - 390 x 400<br>• 03 - 500 x 600<br>• 04 - 600 x 400<br>• 05 - Full screen | [0-5] | 2 | 2 | o<br>m if threed_secure .channel =02 |
| threed_secure.sdk.sdk_appid | Universally unique ID created upon all installations and updates of the merchant App on a customer device. This is newly generated and stored by the 3DS SDK for each installation or update. The field must have a canonical form as defined in IETF RFC 4122. | [0-9a-zA-Z] | 0 | 36 | o<br>m if threed_secure .channel =01 |
| threed_secure.sdk.sdk_encdata | JWE object, as a string containing data encrypted by the SDK for the DS to decrypt. The field is sent from the SDK. The data will be present when sending to DS, but not present from DS to ACS. | [0-9a-zA-Z] | 0 | 64k | o<br>m if threed_secure .channel =01 |
| threed_secure.sdk.sdk_ephempubkey | Public key component of the ephemeral key pair generated by the 3DS SDK and used to establish session keys between the 3DS SDK and ACS. | [0-9a-zA-Z] | 0 | 255 | o<br>m if threed_secure .channel =01 |

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| threed_secure.sdk.sdk_maxtimeout | The maximum amount of time (in minutes) for all exchanges. The value must be greater than or equal to 05. | [0-9] | 2 | 2 | o<br>m if threed_secure .channel =01 |
| threed_secure.sdk.sdk_referencenumber | Identifies the vendor and version of the 3DS SDK that is integrated in a merchant app, assigned by EMVCo when the 3DS SDK is approved. | [0-9a-z] | 0 | 32 | o<br>m if threed_secure .channel =01 |
| threed_secure.sdk.sdk_transid | Universally unique transaction identifier assigned by the 3DS SDK to identify a single transaction. The field must have a canonical form as defined in IETF RFC 4122. | [0-9] | 0 | 36 | o<br>m if threed_secure .channel =01 |

***Response parameters***

| Name | Description | Type | min | max | m/o/c |
|---|---|---|---|---|---|
| threed_secure.white_list_status_source | Is populated by the Whitelist Status system setting. Possible values:<br>• 01 = 3DS Server<br>• 02 = DS<br>• 03 = ACS<br>• 04-79 = Reserved for EMVCo future use (values invalid until defined by EMVCo)<br>• 80-99 = Reserved for DS use<br>Note: This is a response parameter only | [0-9] | 2 | 2 | o |

## *Smart 3D Secure Standalone Services*

The Shift4 Gateway enables technical and business entities to use the Shift4 Smart 3D Secure service as a standalone service. The specifications below guide you on how to use Shift4 Smart 3D Secure services if you are connected to the Shift4 gateway and process transactions with other acquirers. The specifications also apply if you are connected to the Shift4 gateway for our 3D Secure services only and are interested in authentication in order to process the transactions using other gateways. Following initial setup of standalone 3D Secure to enable technical connectivity, there is no need to setup each and every business entity (merchant) that uses the service. Instead, you can send the

relevant information as part of the transaction and the Shift4 gateway will successfully process the authentication request.

## Initial Setup

If Credorax is not the acquirer, then in order to process non-Credorax acquirer BINs you must set up those BINs in the Shift4 systems prior to processing 3DS standalone transactions.

Please contact your Solution Architect for initial setup of standalone 3D Secure.

## Providing 3DS Standalone to Multiple Merchants

If you are providing 3DS standalone to multiple merchants, then:

- **threed_secure.requestor_name** must be a unique merchant name assigned by the partner
- **threed_secure.requestor_id** must be in the following format:
  - For Visa: 10067907*[partner prefix][merchant unique ID]
  - For Mastercard: CRE51138[partner prefix][merchant unique ID] where:
    - **[Partner prefix]** is the 4-character prefix assigned by Shift4 to the partner upon onboarding **[Merchant unique ID]** is a 21-character ID generated by the partner, unique for each merchant
- For Discover: CREDORAX_[merchant unique ID] where:
  - **[Merchant unique ID]** is a max 26-character ID generated by the partner, unique for each merchant

## Using 3DS Standalone as a Single Merchant

If you are a merchant using 3DS standalone yourself, and not providing it to others, then in the course of initial setup Shift4 will provide you with both of the following:

- threed_secure.requestor_name
- threed_secure.requestor_id

# Appendix E: How to Provide 3D Secure Authentication Data

This section describes the specifications of the threed_secure parameters 'eci', 'cavv', 'xid', used when running 3D secure with a third-party provider. If you are using the Shift4 Payment Gateway 3D Secure service, please refer to Appendix D: SCA & 3D Secure.

3D secure data is transmitted via the following parameters:

- threed_secure.eci - ECI (Electronic Commerce Indicator)
- threed_secure.cavv - CAVV/AAV
- threed_secure.xid – XID

**Note:**

If you have more than one payment processor configured with the Shift4 gateway, you must send the routing.request_processor parameter as part of the transaction. The value of the parameter should indicate the processor used for the 3D Secure authentication. A mismatch between the 3DS processor and the transaction processing processor may cause a transaction rejection.

If you only have one processor configured you do not have to provide the routing.request_processor parameter, but there should still be a match between the processor indicated in the 3DS authentication and the processor of the transaction.

## *ECI (Electronic Commerce Indicator)*

Valid ECI values are:

| ECI | Description |
|---|---|
| 00 | Mastercard/Maestro authentication is unsuccessful |
| 01 | Mastercard/Maestro authentication attempted |
| 02 | Mastercard/Maestro fully authenticated |
| 05 | Visa/JCB/American Express/Diners/Discover fully authenticated |
| 06 | Visa/JCB/American Express/Diners/Discover authentication attempted<br>MasterCard/ Maestro successful authentication (see comment) |
| 07 | Visa/JCB/American Express/Diners/Discover authentication is unsuccessful or unattempted, or successfully authenticated (see comment)<br>Mastercard/Maestro Recurring Payment fully authenticated |

**Note:**

Mastercard/Maestro ECI 06 and Visa ECI 07 with the presence of CAVV value implies that an exemption request was submitted by the acquirer as part of the 3D Secure request, and was approved by the issuer.

## *CAVV/AAV and XID*

### Mastercard AAV (UCAF)

Mastercard SecureCode transactions must include an Accountholder Authentication Value (AAV). This means that the AAV tag must be sent in the threed_secure.cavv parameter for every Mastercard SecureCode transaction that is transmitted to the *APM* API.

Transactions without an AAV will be automatically downgraded to a regular eCommerce transaction and will not benefit from the liability shift and other advantages of an attempted SecureCode transaction.

### Encoding - Visa/JCB/American Express/Diners/Discover

The Cardholder Authentication Verification Value (CAVV) and XID should be base-64 decoded (assuming the Merchant Plug-In (MPI) passes back a base-64 encoded value, which is usually the case). After base-64 decoding, the value should be hex-encoded and transmitted in threed_secure.cavv parameter (see Hex-encoding for Visa). If a CAVV value is not available, use "none" as a placeholder.

The XID is mandatory. If an XID value is not available from the MPI, a 40-byte numeric value (ASCII) should be generated and then hex-encoded.

Visa example:

- threed_secure.eci=05, threed_secure.cavv=070010090880880900001352988088105 8cb3a65, threed_secure.xid=30303030303030303030303030303030303030353030
- threed_secure.eci=06, threed_secure.cavv=0000010316617700000003030161770000000000, threed_secure.xid=30303030303030303030303030303030303030353030
- threed_secure.eci=06, threed_secure.cavv=none, threed_secure.xid=20202020202020202020313531333833303034

### Encoding – Mastercard / Maestro

The AAV (UCAF) should be transmitted in threed_secure.cavv parameter with base-64 encoding. This should mean simply passing the value received from the MPI, assuming the MPI passes back a base-64 encoded value. If a CAVV/AAV value is unavailable, use "none" as a placeholder.

**Note:**

For Mastercard, the AAV is required for MCCs 7995 and 6012. For Maestro, the AAV is required for all transaction.

The XID field is optional for Mastercard / Maestro transactions with an ECI of 01, but should either be populated with a 20-byte alphanumeric transaction identifier or with 'none'.

Mastercard example:

- threed_secure.eci=02, threed_secure.cavv=jJ81HADVRtXfCBATEp01CJUAAAA=, threed_secure.xid=00000000000000000501
- threed_secure.eci=01, threed_secure.cavv= jJ81HADVRtXfCBATEp01CJUAAAA=, threed_secure.xid=00000000000000000501

**Note:**

- Attempted Mastercard and Maestro authenticated transaction may not exceed 10% of the total number of Secure Code transaction.
- Shift4 does not participate in the Mastercard/Maestro Advanced Registration and Maestro Recurring Payments programs, and as such does not support static AAV. The gateway will reject Secure Code transaction where the UCAF transmitted via the threed_secure.cavv parameter is not unique to each received transaction request

## Hex-encoding for Visa

As mentioned above, we require that Visa 3D secure data be hex-encoded before transmission. Assuming the value is base-64 encoded, the hex-encoding process is carried out as follows:

1. Apply Base-64 decoding to the original value.
2. Hex-encode the resulting value
3. Transmit the result via the appropriate subfield.

Visa CAVV example:

Base-64 encoded CAVV: AAABAxZhdwAAAAMDAWF3AAAAAAA=

Base-64 decoding (step 1) results in value:

```
�� aw���
aw�����
Hex-encoding (step 2) results in value: 0000010316617700000003030161770000000000
```

## *Guidelines for 3D secure 2.0 and higher*

When authentication is done using 3-DSecure 2.0 or higher:

1. The threed_secure.xid parameter is not required. Instead send “none”.
2. In addition, send the following parameters as part of the request:

| Parameter name | Description | Format | Min,Max |
|---|---|---|---|
| threed_secure.version | Indicates the 3D Secure protocol version<br>Possible values:<br>• 1.0<br>• 2.0<br>• 2.1.0<br>• 2.2.0 | [0-9] | 3,5 |
| threed_secure.dstrxid | 3DS Directory server transaction ID. Must be sent if threed_secure.version = 2.0 or higher and threed_secure.eci, threed_secure.cavv is used. | [0-9A-Za-z,-] | 34 |

# Appendix F: Setting Up MobilePay

To use MobilePay as part of your Shift4 Payment service you must be registered with MobilePay. Contact your Shift4 Account Manager to initiate this process before you want to begin processing.

You will need to provide the following details:

- Merchant name to be displayed to the end-user
- URL of your website, where you are going to offer MobilePay as a payment method
- Logo URL to be shown to the end-user during the payment
  - 250X250 pixels
  - PNG or JPG
  - Hosted using a secure HTTPS connection
  - Set content-type in the HTTP header to MIME types (e.g. image/png or image/jpeg)

End-user's minimal age: required for merchants who restrict their services or goods to a certain age

# Revision History

| Version | Date/ Subject | Description |
|---|---|---|
| 2.1 rev 3 | August 2024 | • Addition of SEPA Direct Debit payment method and specifications<br>• Addition of sender_info object and fields<br>• Change of requirement for browser_info.browser_screen_height and browser_info.browser_screen_width (not mandatory for Visa 3DS transactions)<br>• Updated the requirements for redirect_urls.redirect_url_app and related best practices for MobilePay redirects URL.<br>• Removing Giropay payment method following Giropay closure. |
| 2.1 rev 2 | May 2024 | • Removed Poli from payment methods<br>• Added Mandatory fields for AFT in receipeint_info object:<br>o first_name<br>o surname<br>o address.line_1<br>o address.city<br>o address.state<br>o address.country_code<br>• Updated Sofort permitted shopper countries<br>• Changed the requirement of the following fields to Mandatory for Visa 3D Secure transactions:<br>o shopper_info.ip_address<br>o browser_info.browser_screen_height<br>o browser_info.browser_screen_width<br>o shopper_info.phone_number<br>o shopper_info.email<br>o payment_details.cardholder_name<br>• Added PAR field to payment_details object<br>Updated original_description field in result object to original_response_description |
| 2.1 rev 1 | November 2023 | Rebranding to Shift4 |
| 2.0 | New feature, new objects and parameters | • Added new supported payment method: MobilePay<br>• Added routing parameters<br>• Added Stand-In parameters<br>• Added Partial Capture (Israeli acquiring only) parameters<br>Added seller information object |

| Version | Date/ Subject | Description |
|---|---|---|
| 1.9 | New functionality, new objects and new parameters | • Added 3D Secure functionality (currently applicable to Google Pay)<br>• Added token management functionality (applicable to supporting payment methods)<br>• Added payout parameters for Google Pay and Apple Pay<br>• Fixed the signature calculation example, original request and result in Appendix A<br>• Fixed SCA for merchant-initiated transactions<br>Updated the list of supported payment methods |
| 1.8 rev 5 | Minor changes | Removed the following fields from the request fields table. They are only included in the response message fields.<br>• multibanco_entity<br>multibanco_reference |
| 1.8 rev 4 | New objects and parameters | Added merchant advice code to Object Name: Result in Response Message Format |
| 1.8 rev 3 | Minor changes | Removed New Zeland from permitted shopper country and currency for Poli payment method |
| 1.8 rev 2 | Various fixes | Updated production URL, fixed signature encoding in Retrieval Transaction example, updated signature calculation example in Appendix A |
| 1.8 rev 1 | Payout support for APMs & API fixes | Discontinuation of payout payment methods, and correction of the authorisation API URLs |
| 1.8 | Additional Payment methods | New supported payment methods: Itau, Santander, Bradesco, Bank of Brasil, Webpay, Boleto |
| 1.7 rev 4 | Requirement change | Changed minimum length of request_id |
| 1.7 rev 3 | Minor text fixes | Google Pay Specifications |
| 1.7 rev 2 | Minor text fixes | Updated Google Pay transaction flow<br>Added payment methods: BLIK, Paysafecash, TrustPay<br>Removed Zimpler payment method |
| 1.7 rev 1 | Minor changes | Added Google Pay integration information<br>Added an accurate description of the shopper_info.mobile_phone object structure |

| Version | Date/ Subject | Description |
|---|---|---|
| 1.7 | New features, objects and parameters | Added support for Apple Pay and Google Pay<br>Added support for additional **merchant_info**, **purchase_info**, **shipping_address** and **result** parameters<br>Added support for the new **payment_details**, **payment_details.fraud**, **routing**, **fraud**, **browser_info**, and **device_info** objects |
| 1.6 rev 1 | Minor changes | PCI environment |
| 1.6 | New features | Added support of PF model |
| 1.5 | New Features | New supported payment methods: Paysera, Estonian banks, SafetyPay, Skrill, BitPay, Polish Payout<br>Support of Astropay Direct integration and AstroPay Direct Payout<br>Get Banks API – retrieve a list of supported banks in a specified country (required for AstroPay Direct) |
| 1.4 rev 1 | New Feature & fixes | Support in Alipay, Zimpler, Qiwi<br>Fix in the description of the notification mechanism<br>Fix in the GET example<br>Fix in the response_code, response_description name field to match the actual API. |
| 1.3 rev 1 | New Feature | MyBank processing<br>Entercash processing<br>Change in shopper_info first_name & shopper_info last_name definitions |
| 1.2 rev 1 | New Feature | Przelewy24 processing<br>China union Pay processing |
| 1.1 rev 1 | New Feature | Sepa Payout processing<br>Astropay Card processing<br>Changed the transaction time to be under root in the response instead of purchase info. |
| 1.0 rev 2 | Fixes | Added information about the notification IP whitelist<br>Changed the transaction time format |

# Need Support?

Contact our Client Relations Centre 24/7 for any additional information or technical issue:

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