

Shopping Cart Interface

Version 1.0

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Introduction

Shopping Cart Interface (SCI) is a part of the Volet system that allows a payment from Buyer's to Merchant's accounts. It is utilized for processing payments for products or services offered by the Merchant. SCI and Merchant's web site utilize simple HTML forms to transmit information between each other, which allows the Buyer to complete transfer and the Merchant to receive and properly process received payment.

Shopping Cart Interface Workflow

To accept online payments, Merchant's web site should redirect the Buyer to SCI to perform the payment for products or services ordered on the Merchant's web site. Once the payment is successfully complete, the Buyer will be redirected back to Merchant's web site.

Complete process of accepting payments via SCI contains the following steps (figure 1):

1. **Merchant Checkout page.** Buyer selects products or services from an online store and decides to purchase it. Merchant displays the total amount of purchase and Buyer, in turn, proceeds to pay for his order by clicking an appropriate link. Merchant's web site redirects the Buyer to the Volet SCI and sends payment request form.
2. **Volet Login page.** Next, Buyer appears on the SCI authentication web page. Buyer will have to enter his Volet account email and password. At this time, Buyer will also have an opportunity to cancel the payment. In this case, Buyer will be forwarded back Merchant's web site to payment failed page. If the authentication process is successful, then the Buyer will proceed to the SCI payment page.
3. **Payment settings page.** On this page, he will have an opportunity to enter the amount of payment, select the wallet and, in some cases, comment (if Merchant doesn't fill it). At this stage, Buyer will have an opportunity to cancel payment and as before, will be redirected to Merchant's web site to see the payment failed page.

4. **Payment preview page.** Buyer is shown complete payment details so that he can verify all payment details. Buyer has an opportunity to edit details of this payment or confirm this payment.
5. **Additional security page.** If Buyer has additional mechanisms of security (e.g. Code cart, payment password and SMS verification) he will be redirected to the security page for entering authentication data. Once Buyer confirms the payment and enters needed authentication data, SCI system will attempt to transfer funds from Buyer's to Merchant's account.
6. **Status processing verification page.** As soon as the payment is finalized, SCI will transmit payment status form to the Merchant's web site. Buyer won't be redirected back to Merchant's web site, as this data will be transmitted in the background using POST or GET request via HTTP to payment confirmation page or module.
7. **Result page.** If payment is successful, the user will see complete transaction details, including transaction id. Once users click on the Continue link, they are moving on to the Payment successful page.
8. **Success page.** This page is located at the Merchant's web site and informs Buyer that his payment has been accepted.
9. **Failed page.** If payment was not successful, then Buyer receives any applicable error information and by clicking on Continue link, moves on to the payment failed page. This page is located on Merchant's web site and informs Buyer that his payment has failed.

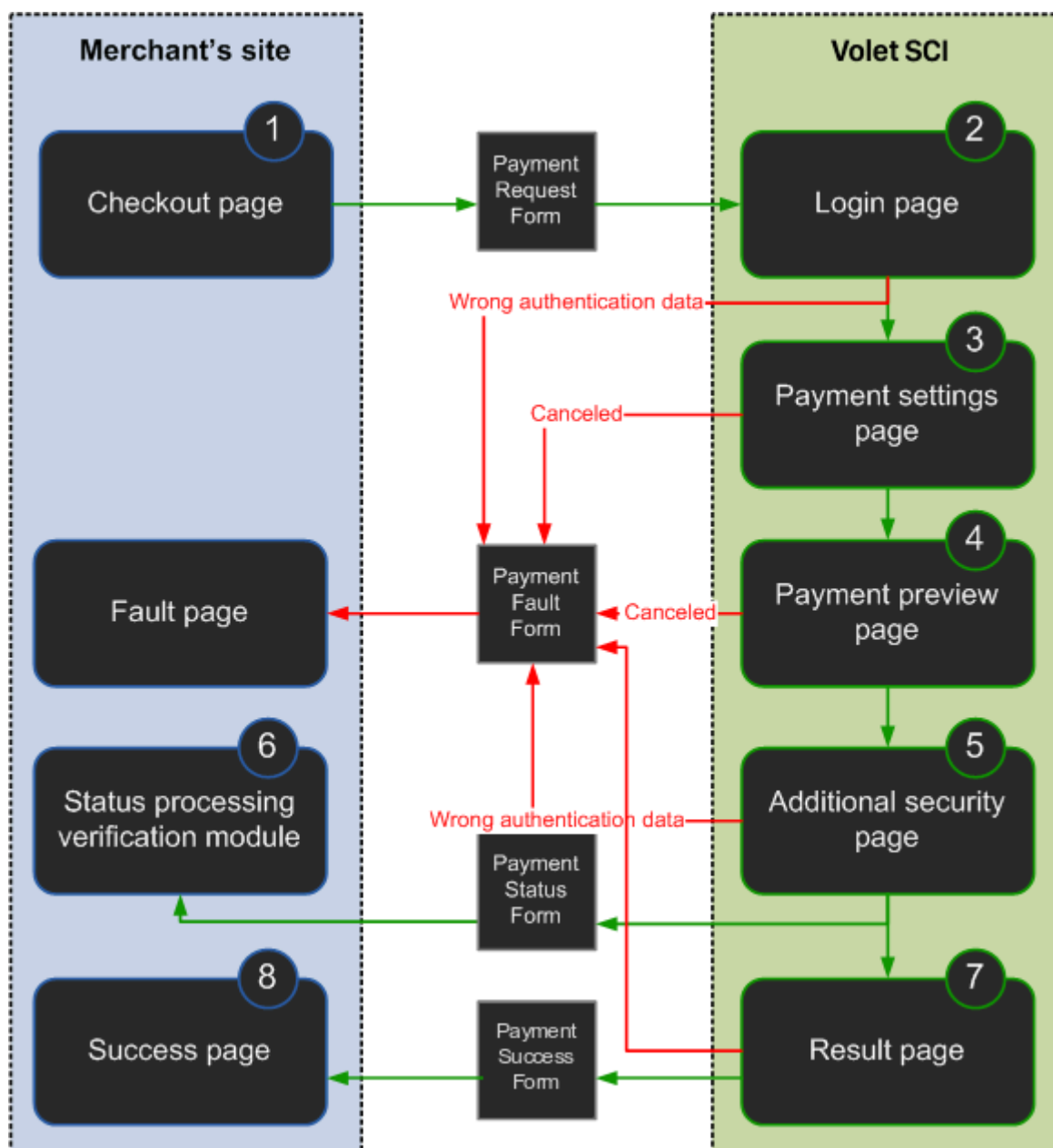


figure 1

Preparation steps

You need to create an SCI store entry in your Volet account. The proper way to do it is to login to your Volet account and click on the "Manage SCI" button in Profile->API, SDK. Click on the "Create" button to create a new SCI. Your SCI will not work properly if you do not follow these steps.

Setup your web site for proper work with Volet SCI. You will need to specify the following:

1. **SCI name.** This is the name of your store that SCI will use when transmitting payment request form.
2. **SCI password.** This parameter is used by the authentication system when SCI transfers data to Merchant's web site.
3. **Success URL.** This is the URL address where the Buyer will be redirected by SCI upon successful payment execution. Usually, this page will notify the Buyer that payment has been processed successfully. You may omit this parameter and/or specify it in payment request form.
4. **Success URL HTTP method.** As a method of redirect to Merchant's success page, Merchant can use of the following:
 - POST — payment successful form are redirected to Merchant's success page via HTTP POST request,
 - GET — payment successful form is redirected to Merchant's success page via HTTP GET request.
5. **Fail URL.** This is the URL address of a web page that the Buyer will be redirected to by SCI, when he cancels his payment or when his payment has failed.
6. **Fail URL HTTP method.** As a method of redirect to Merchant's fail page, Merchant can use of the following:

- POST — payment failed form are redirected to Merchant's fail page via HTTP POST request,
 - GET — payment failed form is redirected to Merchant's fail page via HTTP GET request.
7. **Status URL.** This is the web page address on Merchant's server, where SCI sends payment status form. This form is transmitted in the background while Buyer is on SCI web site.
8. **Status URL HTTP method.** As a method of data transmit, Merchant can use of the following:
- POST — payment status form data are transmitted via HTTP POST request,
 - GET — payment status form data is transmitted via HTTP GET request.

Merchant may create up to 20 stores in his Volet account.

Payment process

Basic principles of interaction between Merchant's web site and SCI web site includes the following steps:

1. Redirecting of Buyer from Merchant's web page to SCI web page and transmittal of payment request form.
2. Receiving data of payment successful form and its analysis.
3. Receiving data of payment failed form and its analysis.
4. Receiving and processing of payment confirmation form.

You need to redirect the Buyer to Volet's SCI web site (and send payment request form) at the following URL address: <https://account.volet.com/sci/>

Payment Request Form is HTML form for payment request, generated by Merchant's web site and used to transmit data to Volet SCI. This form represents a set of hidden fields that contain information necessary to complete transfer through SCI.

Table below lists all acceptable fields for HTML form to properly interact with SCI.

Form field name	Required	Format	Description	Examples of values
ac_account_email	Y	Text string	Merchant's account number.	email@example.com
ac_sci_name	Y	Text field, up to 50 characters in length	Name of the Merchant's store.	My Shop
ac_amount	Y	Fraction with up to 2 digits in denominator	Amount to be transferred to the Merchant's account.	123.45 0.12
ac_currency	Y	ISO 4217	The currency in which the Buyer has to pay the order.	USD, EUR, BTC, ETH, USDT_TRX, USDT_ETH, USDC_ETH, XRP, TRX, LTC, TON, SOL, POL, AVAX, BNB

ac_order_id	Y	Text string, up to 64 characters, "A-z", "-", "_", "0-9"	In this field the seller sets the purchase identifier according to the system of the account. It is recommended that users choose a unique number for each payment.	123456, baf419d9-6c82-4 175-b870-5541b0 ff3794
ac_sign	Y / N (depending on the setting of SCI)	Hexadecimal	The control signature which is used for check of integrity of received information and unambiguous identification of the sender.	36b4c9ad29b61d 1c5996e3ef1a3af 0c3194e1971361 3b6bf26a9b905b8 019225
ac_ps	N	Text string	The payment system selected by default.	VOLET BITCOIN LITECOIN BITCOIN_CASH RIPPLE ETHEREUM USDTETHER VISA MASTERCARD USD_COIN TRON BNB TON DASH ETH_EURC SOL MATIC AVAX
ac_protocol	N	Text string	Default protocol for payment systems USDTETHER and USD_COIN	ETHEREUM TRON BINANCE_SMART_CHAIN MATIC SOLANA AVALANCHE OPTIMISM ARBITRUM TON
ac_comments	N	String of text, up to 255 characters	Comments that Merchant may want to include along with payment. This field is optional. If this field is specified Buyer can not edit any information in it.	Payment for audio system. Model #1234

ac_success_url	N	String of text, up to 100 characters	URL address of payment successful page at the Merchant's web site. This field is not required. Also it can be specified in SCI settings in your account.	http://www.merchant.com/success.html
ac_success_url_method	N	GET POST	Payment successful page redirect HTTP method. This field is not required. It can be specified in SCI settings in your account.	GET
ac_fail_url	N	String of text, up to 100 characters	URL address of payment failed page at the Merchant's web site. This field is not required. Also it can be specified in SCI settings in your account.	http://www.merchant.com/fail.html
ac_fail_url_method	N	GET POST	Payment failed page redirect HTTP method. This field is not required. It can be specified in SCI settings in your account.	POST
ac_status_url	N	String of text, up to 100 characters	URL address of payment status page at the Merchant's web site. This field is not required. It can be specified in SCI settings in your account.	http://www.merchant.com/status.html
ac_status_url_method	N	GET POST	Payment status form data transmit HTTP method. This field is not required. It can be specified in SCI settings in your account.	POST
ac_client_lang	N	Text string representing locale	Language which will be used on a web-page for client. 'ru' and 'en' values are supported.	en

ac_submerchant_url	N	Text string	Optional parameter, requested for specific merchant categories	http://www.merchant.com
Merchant's custom fields e.g. buyer_email or client_email	N	Up to 10 text strings, with 100 characters maximum each	Custom fields are set by the Merchant. These fields are not processed by SCI, but are included in all payment forms that SCI sends to the Merchant's web site. Custom fields allow Merchant to attach more information about the transfer. Invoice number, product code, Buyer's account at Merchant's web site may be specified in additional fields.	1234567890 #RX123456 ex@example.com

Formation of the digital signature

For generation of the digital signature (ac_sign) you must concatenate the following parameters of Payment Request Form with SCI password (**secret**), that was specified while creating SCI.

ac_account_email:ac_sci_name:ac_amount:ac_currency:**secret**:ac_order_id

Delimiter is ":".

ac_sign will be the SHA-256 hash of the string that was generated above.

Example of form

Merchant's web site address - www.merchant.com

Merchant's Volet account email "**email@example.com**"

Merchant has created a store called "**My Shop**" in his Volet SCI settings, with the following settings:

- Security Word – **P@ssw0rd**

- Success URL of Merchant's web site – www.merchant.com/success.html
- Fail URL of Merchant's web site – www.merchant.com/fail.html

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:wsm="http://api.volet.com/">
  <soapenv:Header/>
  <soapenv:Body>
    <wsm:validateAccounts>
      <arg0>
        <apiName>api_name</apiName>
      </arg0>
      <authenticationToken>token</authenticationToken>
      <accountEmail>name@example.com</accountEmail>
      <arg1>name@example.com</arg1>
      <arg1>name@example.com</arg1>
      <arg1>name@example.com</arg1>
      <arg1>name@example.com</arg1>
      <arg1>name@example.com</arg1>
    </wsm:validateAccounts>
  </soapenv:Body>
</soapenv:Envelope>
```

Payment Successful Form is HTML-form that SCI generates and forwards to be displayed at Merchant's payment successful page (Success URL). This form contains a set of hidden fields that contain information about completed payment.

Please find the field descriptions in the table listed below.

Form field name	Format	Description	Examples of values
ac_src_wallet	Text string in a form Uxxxxxxxxxxxx, 12 characters in length	Buyer's Volet wallet number.	U123456789012
ac_dest_wallet	Text string in a form Uxxxxxxxxxxxx, 12 characters in length	Merchant's Volet wallet number.	U123456789012
ac_amount	Fraction with up to 2 digits in denominator	Amount that was funded to the Merchant's wallet.	123.45
ac_merchant_amount	Fraction with up to 2 digits in denominator	Amount paid by the Buyer.	123.45
ac_merchant_currency	ISO 4217	The currency of the amount that was funded to the Merchant's wallet.	USD, EUR, BTC, ETH, USDT_TRX, USDT_ETH, USDC_ETH, XRP, TRX, LTC, TON, SOL, POL, AVAX, BNB

ac_fee	Fraction with up to 2 digits in denominator	Commission that was deducted by Volet system from the Buyer's account when payment was received.	0.12
ac_buyer_amount_without_commission	Fraction with up to 2 digits in denominator	Buyer's payment amount without commission.	123.45
ac_buyer_amount_with_commission	Fraction with up to 2 digits in denominator	Buyer's payment amount with commission.	123.55
ac_buyer_currency	ISO 4217	The currency in which the Buyer paid the order.	USD, EUR, RUR, GBP, UAH, KZT, BRL, TRY,VND, AZN, BTC, ETH, USDT_TRX, USDT_ETH, USDC_ETH, XRP, TRX, LTC, TON, SOL, POL, AVAX, BNB
ac_transfer	Long number (64-bit integer)	Unique Volet transaction id.	235f9d0b-b48f-462c-9949-621c4930490c
ac_sci_name	Text string, up to 50 characters in length	Name of the Merchant's store.	My Shop
ac_start_date	YYYY-DD-MM HH:mm:SS format (GMT)	Date of transaction.	2012-06-23 12:30:00
ac_order_id	Text string, up to 64 characters, "A-z", "-", "_", "0-9"	In this field the seller sets the purchase identifier according to the system of the account. It is recommended that users choose a unique number for each payment.	123456, baf419d9-6c82-4175-b870-5541b0ff3794
ac_ps	Text string	Payment system that was used.	VOLET BITCOIN LITECOIN BITCOIN_CASH RIPPLE ETHEREUM USDTETHER VISA MASTERCARD USD_COIN TRON BNB TON DASH ETH_EURC SOL

			MATIC AVAX
ac_transaction_status	Text string	Transaction status. When money is credited to the account of the merchant, the transaction will have status COMPLETED.	PENDING PROCESS COMPLETED CANCELED
ac_buyer_email	Text string	Buyer's email.	buyer@exapmle.com
ac_buyer_verified	Boolean	Buyer's verification status.	true / false
ac_comments	Text string	Merchant's comments.	Comments
Merchant's custom fields	Up to 10 text strings, with 50 characters maximum each	Custom fields, if any, specified by the Merchant.	1234567890 #RX123456

Example of form

Below, you will find the fragment of sample form generated by Volet SCI and transmitted to payment successful page on the Merchant's web site:

```

<!--Payment successful HTML form-->
<form method="GET" action="http://www.merchant.com/success.html">
<input type="hidden" name="ac_src_wallet" value="U210987654321">
<input type="hidden" name="ac_dest_wallet" value="U123456789012">
<input type="hidden" name="ac_amount" value="123.45">
<input type="hidden" name="ac_merchant_amount" value="123.55">
<input type="hidden" name="ac_merchant_currency" value="USD">
<input type="hidden" name="ac_fee" value="0.10">
<input type="hidden" name="ac_buyer_amount_without_commission" value="123.45">
<input type="hidden" name="ac_buyer_amount_with_commission" value="123.55">
<input type="hidden" name="ac_buyer_currency" value="USD">
<input type="hidden" name="ac_transfer" value="235f9d0b-b48f-462c-9949-621c4930490c">
<input type="hidden" name="ac_sci_name" value="My Shop">
<input type="hidden" name="ac_start_date" value="2012-06-23 12:30:00">
<input type="hidden" name="ac_order_id" value="123456">
<input type="hidden" name="ac_ps" value="VOLET">
<input type="hidden" name="ac_transaction_status" value="COMPLETED">
<input type="hidden" name="ac_buyer_email" value="buyer@exapmle.com">
<input type="hidden" name="ac_buyer_verified" value="true">
<input type="hidden" name="ac_comments" value="Comments">
<!-- Merchant custom fields -->
<input type="hidden" name="login" value="denis">
</form>
<!--Payment successful HTML form-->

```

Payment Failed Form

This is an HTML form that SCI transmits to the Merchant's web site (Fail URL), in case of a failed payment. This form represents a set of hidden fields that contain key payment information that was expected to be received by the Merchant.

Field definitions are listed below:

Form field name	Format	Description	Examples of values
ac_dest_wallet	Text string in a form Uxxxxxxxxxxxx, 12 characters in length	Merchant's Volet wallet number.	U123456789012
ac_amount	Fraction with up to 2 digits in denominator	Order amount.	123.45
ac_currency	ISO 4217	Currency of the order.	USD, EUR, BTC, ETH, USDT_TRX, USDT_ETH, USDC_ETH, XRP, TRX, LTC, TON, SOL, POL, AVAX, BNB
ac_sci_name	Text string, up to 50 characters in length	Name of the Merchant's store.	Web store
ac_order_id	Text string, up to 64 characters, "A-z", "-", "_", "0-9"	In this field the seller sets the purchase identifier according to the system of the account. It is recommended that users choose a unique number for each payment.	123456, baf419d9-6c82-4175-b870-5541b0ff3794
Merchant's custom fields	Up to 10 text strings, with 50 characters maximum each	Custom fields, if any, specified by the Merchant.	1234567890 #RX123456

Payment Status Form

This is an HTML form that SCI transmits to the Merchant's payment confirmation page or module (Status URL). This form represents a set of hidden fields that contain key information about completed payment. Form fields and structure are identical to payment successful form but contain additional field 'ac_hash'.

Field definition is described below:

Form field name	Format	Description	Examples of values
ac_hash	String	HASH string compiled from information contained in this form and security word. This parameter is very helpful in verification of information received from the SCI server. See section Verification of SCI server's data.	1cd6c127c5c49b6d5060ce c4bdbf06608216c0c11cc7 6acebb546be0f7081afd

Example of form

This is an example of payment status form generated by Volet SCI and transmitted to the Merchant's payment status page or module.

```
<!--Payment status HTML form-->
<form method="POST" action="http://www.merchant.com/status.html">
<input type="hidden" name="ac_src_wallet" value="U210987654321">
<input type="hidden" name="ac_dest_wallet" value="U123456789012">
<input type="hidden" name="ac_amount" value="123.45">
<input type="hidden" name="ac_merchant_amount" value="123.55">
<input type="hidden" name="ac_merchant_currency" value="USD">
<input type="hidden" name="ac_fee" value="0.10">
<input type="hidden" name="ac_buyer_amount_without_commission" value="123.45">
<input type="hidden" name="ac_buyer_amount_with_commission" value="123.55">
<input type="hidden" name="ac_buyer_currency" value="USD">
<input type="hidden" name="ac_transfer" value="235f9d0b-b48f-462c-9949-
621c4930490c">
<input type="hidden" name="ac_sci_name" value="My Shop">
<input type="hidden" name="ac_start_date" value="2012-06-23 12:30:00">
<input type="hidden" name="ac_order_id" value="123456">
<input type="hidden" name="ac_ps" value="VOLET">
<input type="hidden" name="ac_transaction_status" value="COMPLETED">
<input type="hidden" name="ac_buyer_email" value="buyer@exapmle.com">
<input type="hidden" name="ac_buyer_verified" value="true">
<input type="hidden" name="ac_comments" value="Comments">
<input type="hidden" name="ac_hash"
value="1cd6c127c5c49b6d5060cec4bdbf06608216c0c11cc76acebb546be0f7081afd">
<!-- Merchant custom fields -->
<input type="hidden" name="login" value="denis">
</form>
<!--Payment status HTML form-->
```

SCI server's data verification process

Merchant's web site receives data forms from SCI server. To verify data received in Status Form, this form includes a special hidden field `ac_hash`, that contains HASH strings concatenated from the form parameters.

Verification via `ac_hash`

`ac_hash` field contains HASH string concatenated from the following parameters:

- Transaction ID (`ac_transfer`)
- Date of transaction (`ac_start_date`)

- Merchant's SCI name (ac_sci_name)
- Buyer's wallet (ac_src_wallet)
- Merchant's wallet (ac_dest_wallet)
- Order ID (ac_order_id)
- Payment amount (ac_amount)
- Payment currency (ac_merchant_currency)
- SCI's password

To verify data you will need to perform the following:

1. By concatenating information you will receive a string that looks like:

ac_transfer:ac_start_date:ac_sci_name:ac_src_wallet:ac_dest_wallet:ac_order_id:ac_amount:ac_merchant_currency:SCI's password. You will need to use form data contained in hidden fields and security word to successfully complete this step. For this example, we will use the following security word: P@ssw0rd. Concatenation of data:

**235f9d0b-b48f-462c-9949-621c4930490c:2012-06-23 12:30:00:My
Shop:U123456789012:U210987654321:123456:123.45:USD:P@ssw0rd**

2. You then will need to HASH this string via SHA256. HASH SHA256 from compiled data:

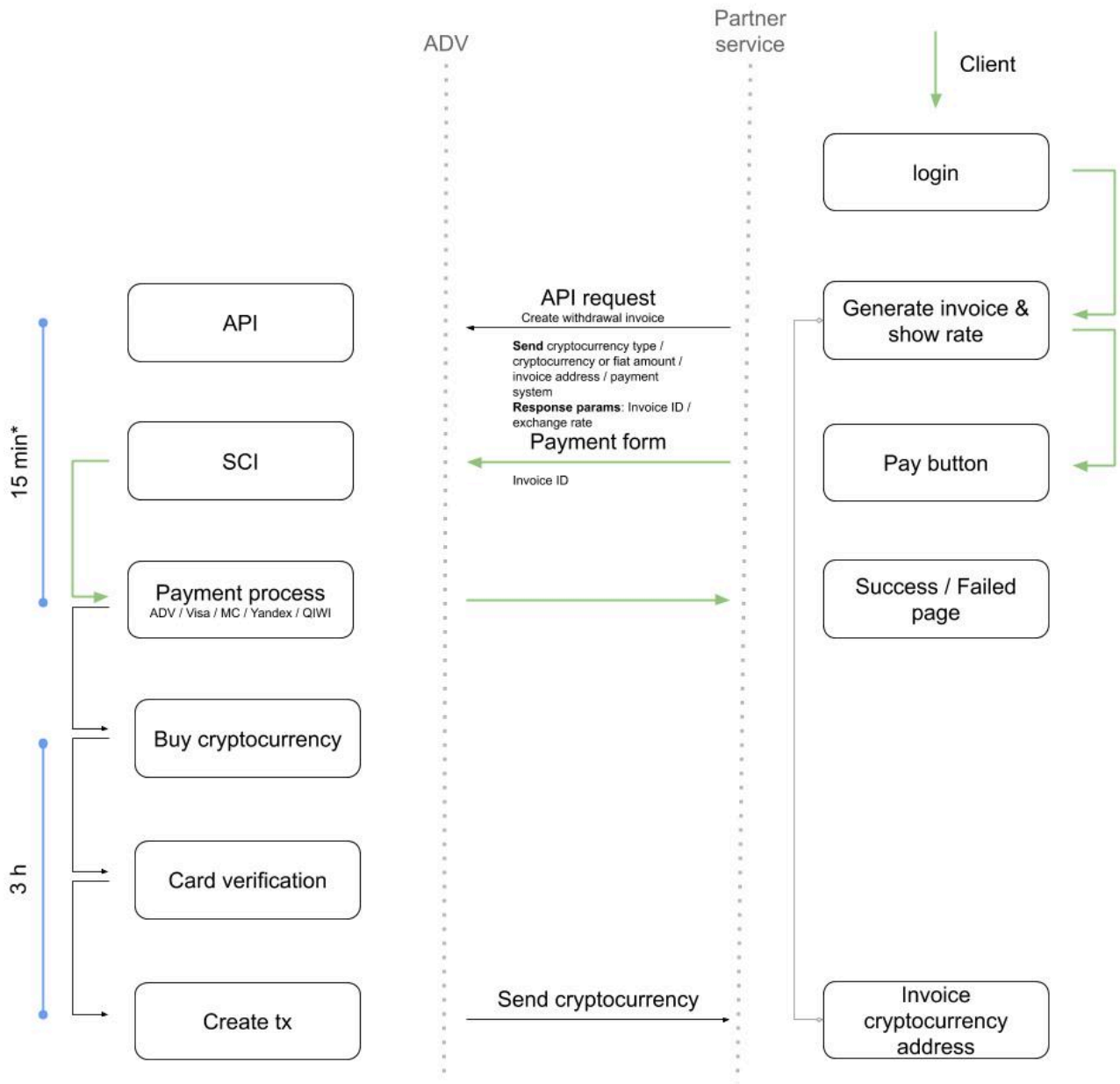
1cd6c127c5c49b6d5060cec4bdbf06608216c0c11cc76acebb546be0f7081afd

3. Compare the received HASH string with the string contained in hidden field ac_hash. Both strings should be identical.

Using the SCI to Buy Crypto

This set of features lets the Seller offer cryptocurrency purchase services to their Customers. The Customer can buy crypto using the VOLET, VISA, MASTERCARD payment methods.

SCI Crypto Purchase Workflow



* Invoice validity period is calculated from the moment of its creation through an API request until successful cardholder authorization. After the time is up, the invoice is considered to be expired and unpayable.

SCI Crypto Purchase Payment Flow

Interaction between the Seller's website and the SCI when a Customer is making a crypto purchase include these basic stages:

1. Creating a cryptocurrency withdrawal invoice via the API, saving a unique invoice ID (see the API manual for `createCryptoCurrencyWithdrawalInvoice`). Invoices expire in 15 minutes
2. Redirecting the Customer from the Seller's website to the SCI web page to make the crypto purchase, and submitting the payment request form. In addition to standard fields, the payment request form should include the ID of the invoice obtained on step 1. If the form is submitted with an expired invoice, the 'Withdrawal address is not defined for withdrawal invoice with ID' error will be returned
3. Receiving data from the successful payment form, data analysis.
4. Receiving data from the unsuccessful payment form, data analysis.

Please redirect your Customer to the Volet SCI page (and send the payment request form) at this URL: <https://account.volet.com/sci/crypto-exchange>

The Payment Request Form is an HTML form to request a payment, generated by the Seller's website. It is used to send data to the Volet SCI. This form is a set of hidden fields that contain information required for the Customer to complete the crypto purchase via the SCI.

The table below shows all acceptable fields for the HTML form to make sure the form interacts with the SCI properly.

Form field name	Required	Format	Description	Example values
ac_account_email	Yes	Text string	Volet account email.	email@example.com
ac_sci_name	Yes	Text string up to 50 characters	Seller shop name.	My Store
ac_crypto_currency_withdrawal_invoice_id	Yes	Text string in uuid v4 format	cryptocurrency withdrawal invoice ID.	02f134e8-35ff-46cb-84b0-26da3741ffea

IP addresses of the notification servers

50.7.115.5, 51.255.40.139, 13.53.55.89