



Internet Payment Gateway

Merchant Mall Interface Documentation Cardholder Initiated Payment (CIP) Method

Version 1.9
March 2008

Purpose of the document

This document describes the functional specifications for Internet merchants to interface with NSIA Payment Gateway payment services with CIP Method only. It discusses the payment flow and parameters required to connect to this payment system.

The information contained in this document is confidential and is released on the understanding that it will be used only by the staff of the respective Internet merchants for the purposes of integrating with Internet Payment Gateway payment services. The contents of this proposal may not be disclosed to any other third party without the prior written permission of NSIA.

History

- 1 Mar 07** Version 1.0, initial creation.
 - 16 Aug 07** Focusing on CIP (Nando)
 - 23 October 07** Version 1.8, Add Process function (Nando)
-

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1. Introduction

Scope

This document specifies the payment flow, interface configuration for merchants who wish to engage their businesses on the Internet via NSIA Payment gateway to their respective credit card companies.

Payment Initialization Methods

There are 2 kinds of payment initialization methods, namely Cardholder Initiated Payment (CIP) and Mall Initiated Payment (MIP). This document will concentrate on **CIP method only**.

Pre-requisite for Internet Merchant

To engage with NSIA Payment Gateway, the Internet merchant is required to obtain a valid merchant account from Acquirer Bank Card Center that are connected to NSIA Payment Gateway. Payment Gateway can only create the corresponding account for Internet merchant after the Acquirer Bank Card Center has notified to Payment Gateway Department in writing.

2. Visa 3D Secure (Verified by Visa / VBV) support from NSIA Payment Gateway for CIP

Visa 3D Secure installation **is not required** for Internet merchants using NSIA Payment Gateway as their payment gateway. Payment Gateway will handle the required Visa 3D transaction flow on behalf of the Internet merchants.

The Internet merchants will be notified of the status code returned from Visa 3D Inter-operable Domain for the option to decide the acceptance of a non-3D-authenticated transaction or a non-3D-enrolled card.

3. Required Parameter Names and Values for CIP Form POST

Method
<ul style="list-style-type: none">Form POST for CIP

URL for CIP Form Post
<ul style="list-style-type: none">https://www.nsiapay.com/ipg_payment/RegisterOrderInfo

Expected Parameters for RegisterOrderInfo

CIP (3D Secure)	PARAMETER	TYPE	SIZE	DESCRIPTION																				
<input checked="" type="checkbox"/>	TYPE	Alpha-numeric	9	Fulfillment type: IMMEDIATE or DEFERRED																				
<input checked="" type="checkbox"/>	BASKET	Alpha-numeric	250	<p>Shopping cart for order information. Every item will be described by 4 parts as:</p> <table border="1"> <thead> <tr> <th>ITEM</th> <th>UPRICE</th> <th>QTY</th> <th>STOTAL</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Each part will be separated by the comma “,” as the delimiter, and each item descriptions of 4 parts will be separated by the semicolon “;” as the delimiter. For example: <i>Palm Vx,600.00,1,600.00;PalmV,400.00,1,400.00</i> will be shown in the page:</p> <table border="1"> <thead> <tr> <th>ITEM</th> <th>UPRICE</th> <th>QTY</th> <th>STOTAL</th> </tr> </thead> <tbody> <tr> <td>Palm Vx</td> <td>600.00</td> <td>1</td> <td>600.00</td> </tr> <tr> <td>Palm V</td> <td>400.00</td> <td>1</td> <td>400.00</td> </tr> </tbody> </table>	ITEM	UPRICE	QTY	STOTAL					ITEM	UPRICE	QTY	STOTAL	Palm Vx	600.00	1	600.00	Palm V	400.00	1	400.00
ITEM	UPRICE	QTY	STOTAL																					
ITEM	UPRICE	QTY	STOTAL																					
Palm Vx	600.00	1	600.00																					
Palm V	400.00	1	400.00																					
<input checked="" type="checkbox"/>	MERCHANTID	Numeric	15	Merchant Identification (MID) and Terminal ID (TID) will be given by Acquirer Bank Center. This parameter will be forwarded by NSIAPay to merchant.																				
<input checked="" type="checkbox"/>	CHAINNUM	Numeric	8	Chain Merchant ID, if yes. If not applicable, the value is NA, otherwise chain merchants are required to fill in the assigned CHAINNUM including their master merchant MALLID. This will be given by NSIAPay																				
<input checked="" type="checkbox"/>	TRANSIDMERCHANT	Alpha-numeric	14	Merchant Invoice number.																				
<input checked="" type="checkbox"/>	AMOUNT	Numeric	12	Total amount of the transaction, including the decimal place (XXXXX.XX). Note: Do not include the dollar-\$ signage and commas. Decimal number must be filled (if no number, just put 00).																				
<input checked="" type="checkbox"/>	CURRENCY	Numeric	3	Currency used in the transaction. Please refer the Appendix A for ISO3166 A 3																				
<input checked="" type="checkbox"/>	PurchaseCurrency	Numeric	3	Currency used in the transaction. Please refer the Appendix A for ISO3166 3-digit details.																				
<input checked="" type="checkbox"/>	acquirerBIN	Numeric	6	First 6 digits of card number which is given bank. (Please insert NSIAPAY)																				
<input checked="" type="checkbox"/>	password	Alpha-numeric	12	Merchant ID password which is given by bank. (Please insert 123456)																				
<input checked="" type="checkbox"/>	URL	Numeric	250	The absolute URL to which Payment Gateway will redirect the cardholder's browser window to load for the response page. Eg: http://www.yourpage.com/response.php																				
<input checked="" type="checkbox"/>	MALLID	Numeric		This will be given by NSIAPay																				

4. Required VERIFY Order Parameter Names and Values

Purpose: Verify is intended to be used to verify that the order (based on order number/invoice number) is valid from Merchant so can be process further to the payment.

Note: The mall is required, prior to actual live operation, inform NSIA Payment Gateway of the merchant server side script that will verify the order using HTTP GET method. Internet merchant can use all kind of languages technology available.

Example (No SSL)

http://www.yourwebname.com/payment/nsiapay_verify.php?TRANSIDMERCHANT=210011&AMOUNT=2.00&CURRENCY=360

Example (With SSL Enabled)

https://www.yourwebname.com/payment/nsiapay_verify.php?TRANSIDMERCHANT=210011&AMOUNT=2.00&CURRENCY=360

Parameters that will be sent to merchant's web mall:

PARAMETER	TYPE	SIZE	DESCRIPTION
TRANSIDMERCHANT	Alpha-numeric	14	Merchant Invoice numbering.
AMOUNT	Numeric	12	Total amount of the transaction, including the decimal place (XXXXX.XX). Note: Do not include the dollar-\$ signage. Decimal number must be filled (if no number, just put 00).
CURRENCY	Numeric	3	Currency used in the transaction. Please refer the Appendix A for ISO3166 3-digit details.

Expected parameters / response from merchant's web mall:

PARAMETER	TYPE	SIZE	DESCRIPTION
RESULT	Alpha	NA	Value must be Continue if order info is correct otherwise value is Stop , NSIA Payment Gateway will not proceed to service this payment request. Error page will be shown to Cardholder.

a. Visa 3D Secure Activation

3D Secure

On the webpage where Payment Information is captured and posted to NSIA Payment for processing, the following is required:

- Form POST action=https://www.nsiapay.com/ipg_payment/VerifyCIP.jsp

b. If required parameters not present

Will be the screen displayed on the cardholder's browser if the required Parameters are not available.



Figure 1: NSIA Payment Gateway Error Response Page

c. If required parameters present and mall verify send 'Continue'

Will be the screen displayed on the cardholder's browser if the required Parameters are available.

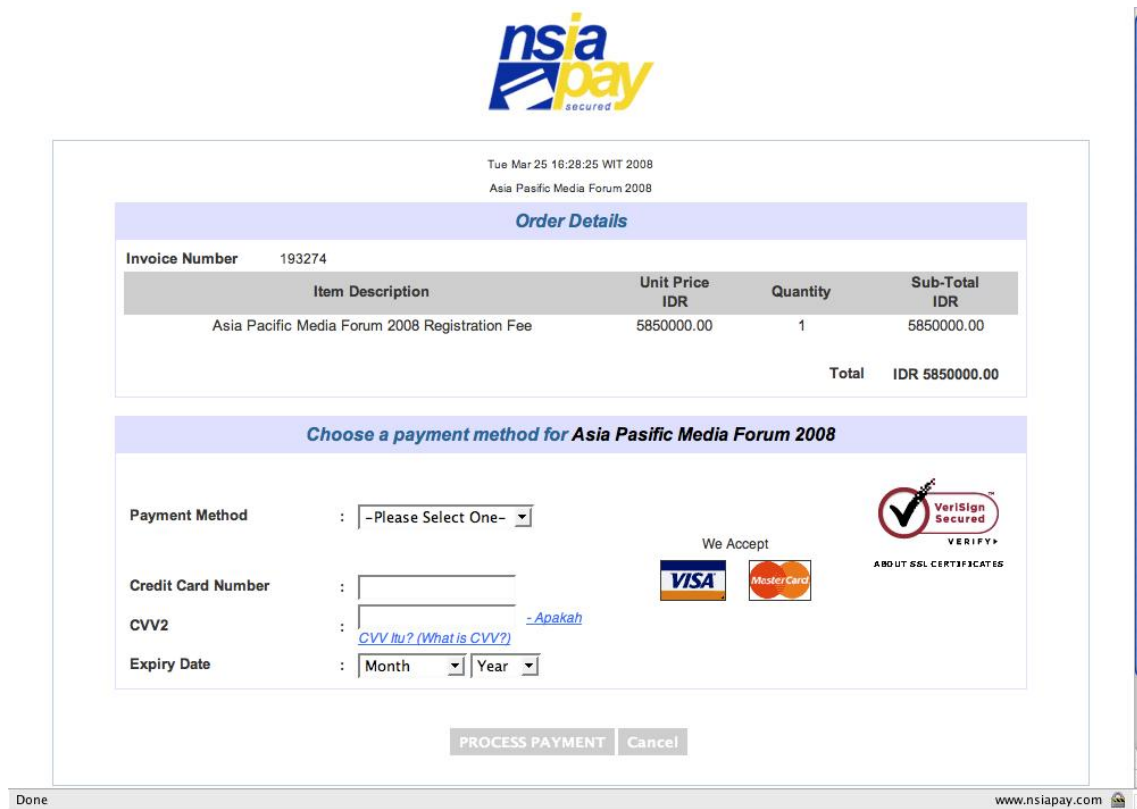


Figure 2: NSIA Payment Gateway Payment Page

5. Required NOTIFY Order Parameter Names and Values

Purpose: Notify is intended to be used to notify the merchant (through merchant web server/system) about the status of credit card payment of certain order (based on order number/invoice number) whether success or failed.

Note: The mall is required, prior to actual live operation, inform NSIA Payment Gateway of the merchant server side script that will verify the order using HTTP GET method. Internet merchant can use all kind of languages technology available.

Example (No SSL)

http://www.yourwebname.com/payment/nsiapay_notify.php?OrderNumber=210011&RESULT=Success

Example (With SSL Enabled)

https://www.yourwebname.com/payment/nsiapay_notify.php?OrderNumber=210011&RESULT=Success

Parameters that will be sent to merchant's web mall:

PARAMETER	TYPE	SIZE	DESCRIPTION
OrderNumber	Alpha-numeric	14	Merchant Invoice numbering.
RESULT	Alpha-numeric	125	Success or Fail.

Expected parameters / response from merchant's web mall:

PARAMETER	TYPE	SIZE	DESCRIPTION
RESULT	Alpha	NA	Value must be Continue if order info is correct otherwise Value is Stop , NSIA Payment Gateway will not proceed to service this payment request. Error page will be shown to Cardholder.

6. Required PROCESS Order Parameter Names and Values

Note: The mall is required, prior to actual live operation, inform NSIA Payment Gateway of the merchant server side script that will verify the order using HTTP GET method. Internet merchant can use all kind of languages technology available.

Example (No SSL)

http://www.yourwebname.com/payment/nsiapay_process.php?TRANSIDMERCHANT=123456&AMOUNT=123456.00&STATUSCODE=00

Example (With SSL Enabled)

https://www.yourwebname.com/payment/nsiapay_process.php?TRANSIDMERCHANT=123456&AMOUNT=123456.00&STATUSCODE=00

Parameters that will be sent to merchant's web mall:

PARAMETER	TYPE	SIZE	DESCRIPTION
TRANSIDMERCHANT	Alpha-numeric	14	Merchant Invoice numbering.
AMOUNT	Numeric	12	Total amount of the transaction, including the decimal place (XXXXX.XX). Note: Do not include the dollar-\$ signage. Decimal number must be filled (if no number just put 00).
STATUSCODE	Integer	2	00 for successful transaction, other code is decline or failed.

Expected response from merchant's web mall is a link to merchant's final webpage of buying process that confirm the payment is successful or not that will automatically redirect to the URL.

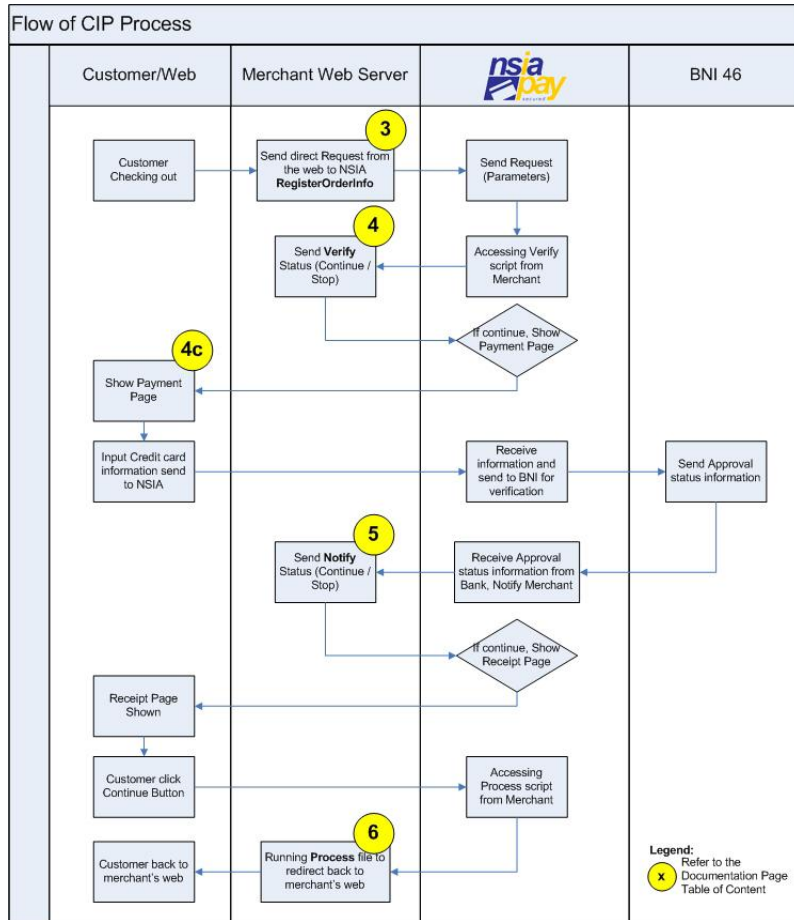


Figure 3: NSIA Flow of CIP Process

7. Required DATABASE NSIAPAY

Note: This database will be used for confirmation from NSIAPAY to merchant based on Invoice Number, Amount, and Currency. And also to acknowledge merchants the status of every transaction executed.

Structure:

```
SET SQL_MODE="NO_AUTO_VALUE_ON_ZERO";
--
-- Struktur dari tabel `nsiapay`
--

CREATE TABLE `nsiapay` (
  `nsia_id` int(11) NOT NULL auto_increment,
  `start_time` datetime NOT NULL default '0000-00-00 00:00:00',
  `finish_time` datetime NOT NULL default '0000-00-00 00:00:00',
  `status` varchar(50) NOT NULL default "",
  `amount` double NOT NULL default '0',
  `nsia_order_id` varchar(125) NOT NULL default '0',
  `session_id` varchar(50) NOT NULL default "",
  PRIMARY KEY (`nsia_id`,`nsia_order_id`)
) ENGINE=MyISAM DEFAULT CHARSET=utf8 AUTO_INCREMENT=0;
```

FIELDS	DESCRIPTION
Nsia_id	Simple numbering. Auto increment will be better. Just for indexing purposes.
Start_time	Time of transaction started.
Finish_time	Time of transaction ended.
Status	Requested, Verified, Notified, Success
Amount	Total amount of the transaction, including the decimal place (XXXXX.XX). Note: Do not include the dollar-\$ signage. Decimal number must be filled (if no number just put XXX.00).
Nsia_order_id	Merchant Invoicing Numbers
Session_id	Session ID used by the system. If system doesn't use session, can be cookies or other id.

Appendix A: List of (commonly used) Currency & Country Codes according to ISO3166

Country	A 2	A 3	Number
-----	-----	-----	-----
AUSTRALIA	AU	AUS	036
BRUNEI DARUSSALAM	BN	BRN	096
CANADA	CA	CAN	124
CHINA	CN	CHN	156
FRANCE	FR	FRA	250
GERMANY	DE	DEU	276
HONG KONG	HK	HKG	344
INDIA	IN	IND	356
INDONESIA	ID	IDN	360
JAPAN	JP	JPN	392
MALAYSIA	MY	MYS	458
NEW ZEALAND	NZ	NZL	554
PHILIPPINES	PH	PHL	608
SINGAPORE	SG	SGP	702
UNITED KINGDOM	GB	GBR	826
UNITED STATES	US	USA	840
VIET NAM	VN	VNM	704

Remark: Referenced from <http://fotw.digibel.be/flags/index.html>.

Appendix B: Pseudo Step for Verify Script

Reason:

Payment Request is submitted to NSIA Payment Gateway via HTTP FORM POST, which is an easy task for HTML Programmer to perform. Anybody in the Internet, as long as he knows the parameters required for NSIA Payment Gateway to process payment, he can easily build up his order information with fake details such \$0 amount without going through the shopping process.

Purpose:

When NSIA Payment Gateway receives order information from Internet, Verify.script allows NSIA Payment Gateway to query whether the received information is really triggered by merchant server and has never been manipulated. If merchant server has never recorded such order or detected erroneous order information, straight-away NSIA Payment Gateway will reject the payment process.

Requirement and Assumption:

In order for Verify.script to function, merchant server is required to have
1) database and 2) script interpreter.

1. Database

The term "database" doesn't necessarily mean to be a real database. It represents a storage entity which is protected and untouched from Internet. Hence it can even be a recording text file as long as it serves the same purpose.

Let's define two types of sensitive information in a merchant server:-

- a) Unit price of product.
Data that keeps the information of every product and its price. This data is used to ensure the amount from processed shopping cart is valid and unchanged.
- b) Trace of the shopping process.
During the shopping process, merchant server may wish to keep track of the shopping cart information to make sure shopper is not making fun of it.

2. Script Interpreter

Script Interpreter represents server side logic component that is able to perform interactive communication between shopper and merchant server. There is no restriction on which type of "script interpreter" must be used. Mall server can freely choose Perl, Asp, Jsp, or any other products available in the market, as long as it serves the same purpose.

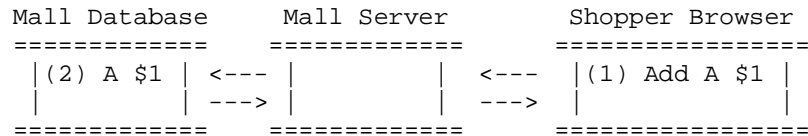
Why not using client side logic such as JavaScript and Cookie to trace shopping process? Because of the term "client side", hacker can still easily manipulate whatever information on his machine.

Process Flow:

Shopping Process:

That is where shopper browsing the merchant server shopping page, read catalogue, add items and so on.

Mall server doesn't necessarily required to implement exactly the following process flow. This process flow is an assumption from NSIA Payment Gateway on how the merchant server operates at the back end. NSIA Payment Gateway assumes merchant server keeps track of the shopping process and able to ensure the shopping cart information is not manipulated.



Generally...

- (1) Shopper performs whatever activity such as adding an item.
- (2) *** This is the important back end operation ***

Step 1:

Database receives the order(invoice, item, amount, currency)

Step 2: Check unit price of the product.

```
if item and amount valid
  Yes, continue.
else
  No, alert.
```

Step 3: Trace shopping process.

```
if order exists
  No, insert order(invoice, item, amount, currency, result=NOT_COMPLETE)
else
  Yes, update order(invoice, item, amount, currency, result=NOT_COMPLETE)
```

This shopping process continues until the point the shopper is satisfied and wants to checkout.

Checkout:

This is the page contains all the shopping cart information where shopper decides to make payment. Depends on mode of payment (CIP mode or MIP mode), all the information is submitted to merchant server and NSIA Payment Gateway.

Verify Order:

This is where Verify.script steps in. When NSIA Payment Gateway receives the shopping cart information, to double ensure the received information is valid, i.e. really triggered by merchant server and has never been manipulated, NSIA Payment Gateway queries Verify.script with the received information, namely TRANSIDMERCHANT, AMOUNT, CURRENCY and StatusCode.

The followings are the steps Verify.script may implement:-

Step 1:

Verify.script receives query (invoice, amount, currency, statuscode)

Step 2: Verify.script queries database.

```
select invoice, result from database where invoice=TRANSIDMERCHANT, amount=AMOUNT,
currency=CURRENCY
```

```
if only one invoice and invoice exists
```

```
{
```

```
  if result is NOT_COMPLETE
```

```
    Yes, Continue
```

```
  else
```

```
    This entry was completed before, possible that the shopper clicks the submit button twice.
```

```
}
```

```
else
```

```
  No, alert. Possible that hacker builds up this payment request.
```

Step 3: Visa 3D related authentication.

```
if StatusCode == 0 ( 3D authenticated)
```

```
  Yes, Continue
```

```
else if StatusCode == 5 ( Not 3D enrolled)
```

```
  Acceptable, Continue
```

```
else
```

```
  Merchant may not approve the rest of the status code...
```

Only when step 2 and 3 are fulfilled and merchant server replies Continue to NSIA Payment Gateway, just then NSIA Payment Gateway will carry out the payment process. Otherwise NSIA Payment Gateway will reject the process straight-away.

Appendix C: Pseudo Step for Notify Script

Reason:

To make sure merchant has been notified the status of the transaction and update to their database before displaying the Payment acknowledgement page to customer.

Purpose:

When NSIA Payment Gateway receives response from host, Notify.script allows NSIA Payment Gateway to reply the status of transaction to merchant. If merchant server has never recorded such order or detected erroneous order information, straight-away NSIA Payment Gateway will reject the payment process.

Requirement and Assumption:

Since merchant already keep all the transaction information in the database for verification purpose, all the same information will be using in Notify.script for notification purpose. The only thing need to be created is Notify.script

1. Script Interpreter

Script Interpreter represents server side logic component that is able to perform interactive communication between shopper and merchant server. There is no restriction on which type of "script interpreter" must be used. Mall server can freely choose Perl, Asp, Jsp, or any other products available in the market, as long as it serves the same purpose.

Why not using client side logic such as JavaScript and Cookie to trace shopping process? Because of the term "client side", hacker can still easily manipulate whatever information on his machine.

Process Flow:

Once Payment details have been submitted to NSIA Payment Gateway by customer, the transaction will be processed by BPG and reply the response to merchant. Merchant will be checked with their records either the notification transaction exists or not in their database. BPG will be waiting the reply from merchant within timeout period. If the merchant haven't reply, the transaction will be stopped immediately but if merchant given the reply with 'Continue' message, then BPG will be proceed to display the acknowledgement page at the customer's browser to display the status of the transaction.

Generally...

- (1) Transaction status from host received by BPG.
- (2) *** This is the important back end operation ***

Step 1:

Merchant received transaction status from BPG.

Step 2: Check the transaction ID (Invoice No.)

If exists

Yes, Continue.

else

No, stop.

Notify Transaction:

This is where Notify.script steps in. When NSIA Payment Gateway receives the reply from back-end system, to double ensure the received information is valid, i.e. really triggered by merchant server and has never been manipulated, NSIA Payment Gateway queries Notify.script with the received information, namely OrderNumber and RESULT.

The followings are the steps Notify.script may implement:-

Step 1:

Notify.script receives query (orderNumber, RESULT)

Step 2: Notify.script queries database.

select invoice, result from database where invoice=OrderNumber

if only one invoice and invoice exists

{

if result is NOT_COMPLETE

Yes, Continue

Update database(result=COMPLETE, with respective RESULT)

else

This entry was completed before, possible that the shopper clicks the submit button twice.

}

else

No, alert. Possible that hacker builds up this payment request.

Only when step 2 is fulfilled and merchant server replies Continue to NSIA Payment Gateway, just then NSIA Payment Gateway will carry out the acknowledgement process. Otherwise NSIA Payment Gateway will reject the process straight-away.

Confidential

End of documentation

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