



ALEPAY TOKENIZATION INTEGRATION

version 3.0

Hà Nội, Nov-2021

TABLES OF DOCUMENTARY CHANGES

*A – Creat, M – edit, D – Delete

Date	Position	A* M, D	Old version	Description	Phiên bản mới	Author
11/2021	total	A	Version 3.0	Standardizing information connection	Version 1.1	Nganluong

CONCEPTS, TERMINOLOGIES

Terms	define	Note

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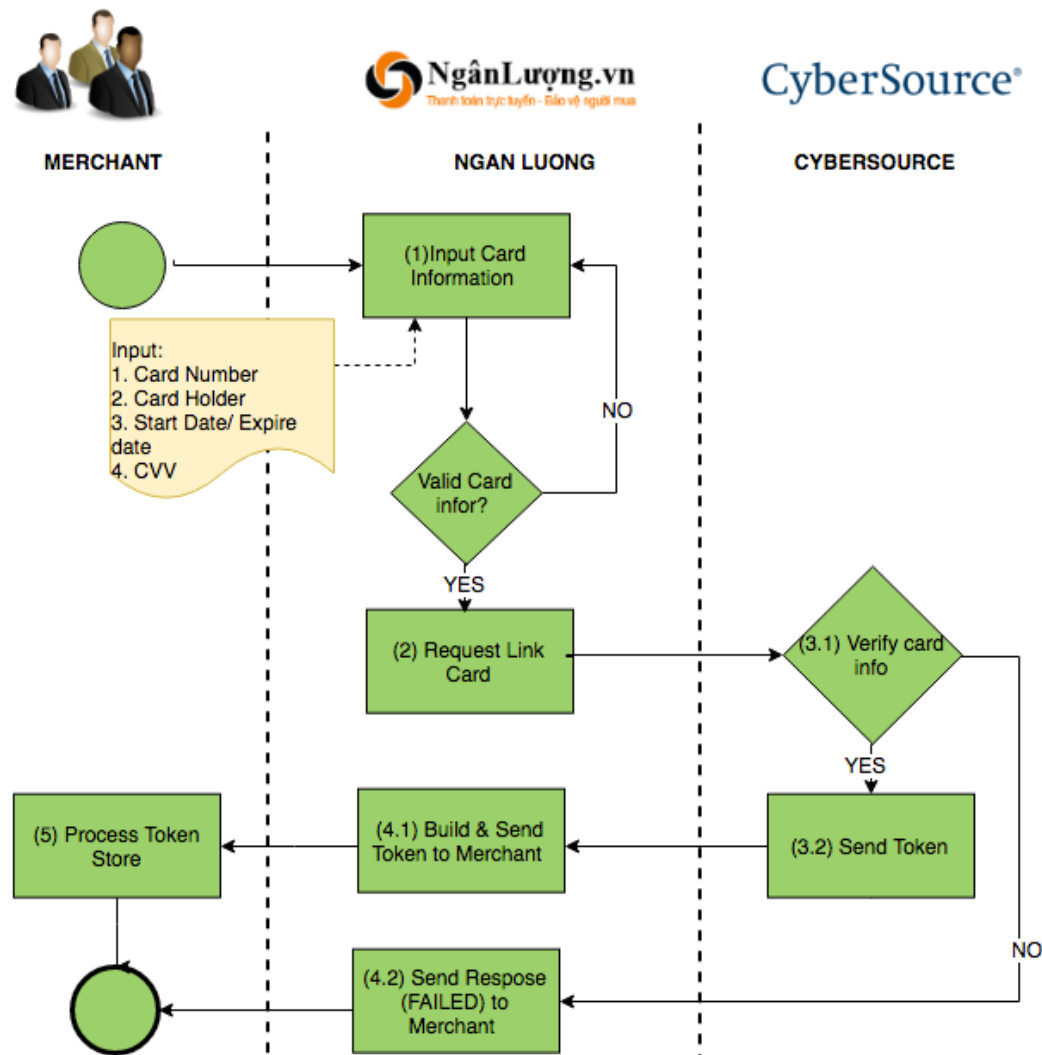
I. Introduction

When Card holders request link their card (via Merchant), Alepay returns to Merchant's Web/App a meaningless character string (called Token code – this code can not be reversely translated), this Token is linked mapped 1-1 to card holder's card which is stored at his/her bank or international card organization.

When needed, Merchant's Website/ App will call Alepay with Token code to deduct money from Card holder's corresponding card or bank with strictly confidential payment information.

II. PROCESS

1. Create token process

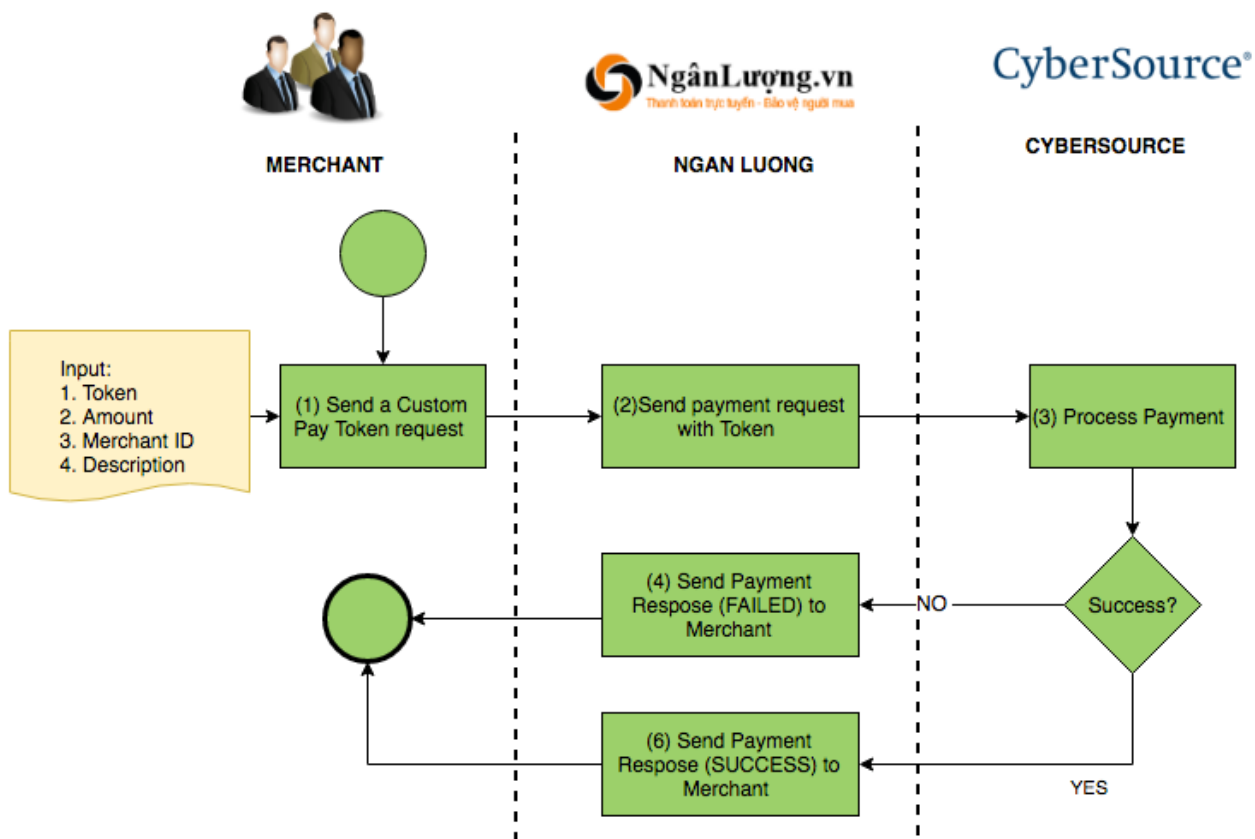


- (1) : Customer enter card information on Alepay site
- (2) : If card information is correct, Alepay will send request of link card to Cyber
- (3) : Cyber check card information, if correct Cyber will send Tokenization to Alepay
- (4) Alepay create a Token and returns to Merchant

If the result Cyber sent is failed, Alepay will receive and return corresponding results to Merchant

- (5) Merchant save Token in their DB

2. Payment process with token



- (1): Merchant send 1 payment request by Token of Customer
- (2): Alepay decode Token and send payment request to Cyber
- (3): Cyber review
- (4): Alepay receive and send payment result: failed to Merchant (including detailed error code)

(5): Alepay receive and send payment result: successful to Merchant, recorded the increasing of money in Alepay account of Merchant)

III. Enviornment

1. Live enviornment

- **Registry account site:** <https://alepay.vn>
- **Alepay api:** **<BASE_URL>** = <https://alepay-v3.nganluong.vn/api/v3/checkout>
- **Registry merchant:** To get Token key, Encrypt key and Checksum key
<https://alepay-merchant.nganluong.vn/vi/merchant/create>
- **Get Token key, Encrypt key and Checksum key:**
<https://alepay-merchant.nganluong.vn/vi/merchant-api-key/get-keys-merchant-user>

2. Sandbox Enviornment

- **Registry account site:**
<https://alepay-v3-dev.nganluong.vn/merchant/vi/dashboard/register>
- **Alepay api:** **<BASE_URL>** = <https://alepay-v3-sandbox.nganluong.vn/api/v3/checkout>
- **Registry merchant:** To get Token key, Encrypt key and Checksum key
<https://alepay-v3-dev.nganluong.vn/merchant/vi/merchant/create>
- **Get Token key, Encrypt key and Checksum key:**
<https://alepay-v3-dev.nganluong.vn/merchant/vi/merchant-api-key/get-keys-merchant-user>
- Notice:
+ Card test information:

Card type	Card number	Expire month (mm/yy)	CVV (3 digits)
Visa	445653 00 0000 1005	12/25	123
MasterCard	520000 00 0000 1005	12/25	123

JCB	333700 00 0000 0008	12/25	123
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+ OTP Code: **1234**

3. Key API

Alepay provides 2 types of key to connect:

Key	Description
Token key	To determine which account is used
Checksum key	To create checksum data.

Alepay keys will be generated automatically when an account is registered on Alepay.vn.

IV. DATA STRUCTURE

A. How to create signature

- Using **HMAC_SHA256** algorithm create signature.
- Data input of signature include Checksum key và data.
- Data structure: key1=value1&key2=value2... (key1: name of field, value1 = value of key1).
Data is string of input on each API below (not include signature)
- The signature is arranged in alphabetical order.
- Signature structure: **hash_hmac** ("sha256", **string \$data** , **string \$checksumkey**)
- Example:
+ data: amount=10000&buyerAddress=Tam Trinh&buyerCity=Ha Noi&buyerCountry=Viet Nam&buyerEmail=lam@gmail.com&buyerName=lam&buyerPhone=0312345678&cancelUrl=http://test/cancel¤cy=VND&customMerchantId=lam123&orderCode=orderTest000&orderDescription=mo ta don hang&returnUrl=http://test/return&tokenKey=0COVspcyOZRNrsMsbHTdt8zesP9m0y&totalItem=1
+ checksumkey: hjuEmsbcohOwgJLCmJlf7N2pPFU1Le

Signature: 4558e851f5e0babc388c1d9221e7627f3a6de725ac860d6db8f597a250aaff59

B. Checkout Payment

1. API create payment

This API allows Merchant to send payment request to Alepay.

- Http Request

POST <BASE_URL>/request-payment

- Request / Response data

Request data				
Parameter	Data type	Require	Default value	Description
tokenKey	String	T		Token Key provided by Alepay when Merchant registry an account
orderCode	String(255)	T	-	Order of Merchant. That is reference code from merchant to alepay
amount	Double	T	-	Order amount (If the currency is VND, then deposit the amount rounded up to 1 VND)
currency	String	T	-	The currency code. Please check at appendix
orderDescription	String	T	-	Order Description (Do not include special characters, will automatically remove special characters from the order description)
totalItem	Integer	T	-	Total item of order
checkoutType	Integer	F		0: Normal payment only and installment with international card 1: Normal payment only with international card 2: Installment payment only with international card
installment	Boolean	F	FALSE	- True : Installment only (month, bankCode, paymentMethod must be defined) - False : Installment or Normal payment

returnUrl	String	T	-	URL Alepay will callback to Merchant when payment is successful.
cancelUrl	String	T	-	URL Alepay will callback to Merchant when user cancel the payment.
buyerName	String	T	-	Buyer's name
buyerEmail	String	T	-	Buyer's email
buyerPhone	String	T	-	Buyer's phone number
buyerAddress	String	T	-	Buyer's address
buyerCity	String	T	-	Buyer's city
buyerCountry	String	T	-	Buyer's country
paymentHours	String	T	-	Time allowed for payment (in hours)
merchantSideUserId	String	F	-	ID of user on merchant
buyerPostalCode	String	F	-	postal code
buyerState	String	F	-	State
isCardLink	Boolean	F	FALSE	True: payment with card link request. False: only payment
signature	String	T		the signature, check on A index

Response data		
Parameter	Data type	Description
code	String	error code
message	String	description
checkoutUrl	String	URL for user to checkout.

transactionCode	String	Transaction code on Alepay
signature	String	The signature, check on A index

2. Response data on merchant returnUrl

When user finishes payment on Alepay, Alepay will callback to “returnUrl” which Merchant provided when calling *Payment request* API. Then, Merchant has to call *Get transaction info* API to get transaction’s detail. Below is the description of responseparameters from Alepay when performing callback

- Http Request

GET <MERCHANT_RETURN_URL>

- Data response

Checkout only:

Parameter	Type	Description
code	String	Error code (detail at index V.1)
transactionCode	String	Transaction code on Alepay
cancel	String	Get value = True: if user hasn’t completed transaction, False: if user completed transaction.

Checkout and link card:

Parameter	Data type	Description
code	String	Error code (detail at index V.1)
merchantSideUserId	String	ID of user on merchant side
cancel	String	Get value = True: if user hasn’t completed transaction, False: if user completed transaction.

- URL callback to merchant structure :

<MERCHANT_RETURN_URL>?code=000&merchantSideUserId =XXXX&cancel=true

3. API check and get Transaction Detail info

API get transaction info by transaction code

- Method: post json

- *HTTP request*

POST <BASE_URL> /get-transaction-info

- *Request data*

Parameter	Data type	Require	Default value	Description
tokenKey	String	T		Token Key provided by Alepay when Merchant registry an account
transactionCode	String	T		Transaction code on Alepay
signature	String	T		The signature, check on A index

- *Response data*

Parameter	Type	Description
code	String	Error code. Using for checking request data
message	String	Error message
transactionCode	String	transaction Code on alepay
orderCode	String	order Code of merchant
amount	Double	amount of order (If the currency is VND, then deposit the amount rounded up to 1 VND)
currency	String	currency. Get value vnd or usd
buyerEmail	String	Buyer's email
buyerPhone	String	Buyer's phone number

cardNumber	String	Card number (First 6 digits and last 4 digits)
buyerName	String	Buyer's name
status	String	Status's code. Using for checking status of transaction (see V.1 index)
reason	String	fail Reason (any if)
description	String	Description of transaction
installment	boolean	True : Installment payment False: Normal payment
is3D	boolean	True : 3D secure Card False: 2D secure Card
month	Integer	Installment period
bankCode	String	Installment bank's code
bankName	String	name of installment bank
method	String	Card type
transactionTime	Long	Transaction time (millisecond)
successTime	Long	Success time (millisecond)
bankHotline	String	Installment bank's hotline
merchantFee	double	Merchant Fee
payerFee	double	Payer Fee
bankType	string	Type of card bank: - INTERNATIONAL - DOMESTIC
authenCode	string	the authorization code (any if)
signature	String	The signature, check on A index

C. Payment using tokenization

1. API create tokenization

To use 1-Click payment, customer needs to link payment card to Alepay. In the next payments, merchant just uses token that Alepay returns to make the payment. The customer doesn't need to re-enter the card info.

a. Creat linked card

- Http Request

POST <BASE_URL>/ request-profile

- Request / Response data

Request Data		
Parameter	Data type	Description
tokenKey	String	Token Key provided by Alepay when Merchant registry an account
id	String	Customer's ID of Merchant
firstName	String	Customer's first name
lastName	String	Customer's last name
street	String	Customer's address
city	String	Customer's city
state	String	Customer's state
postalCode	String	Customer's postal code
country	String	Customer's country
email	String	Customer's email
phoneNumber	String	Customer's phone number
callback	String	Callback URL
language	string	Language of checkout page. - vi: Vietnamese

Request Data		
- en: English		
signature	String	The signature, check on A index

Response data		
Parameter	Data type	Description
url	String	URL for customer link their card
code	string	Error code (detail at index V.1)
message	string	Error message

a. *Response linked card data*

When user finishes link their card to Alepay, Alepay will callback to “callback” URL which Merchant provided when calling *linked Card* API. Below is the description of responseparameters from Alepay when performing callback.

- Http Request

GET <MERCHANT_CALLBACK_URL>

- Response data

Response Data		
Parameter	Type	Description
code	String	Error code (see V.1 index)
id	String	ID of user on merchant side
cancel	String	True : User cancel transaction

		False : User complete transaction
--	--	-----------------------------------

- URL callback format :

`<MERCHANT_CALLBACK_URL>?code=000&id=XXXX&cancel=false`

2. 1- click Payment (payment using tokenization api)

After the customer links card successfully, merchant just uses token that Alepay returns to make the payment for that customer. Process of 1-Click payment is described as below

- Http Request

`POST <BASE_URL> /request-tokenization-payment`

a. Request data

Request Data		
Parameter	Data type	Description
tokenKey	String	Token Key provided by Alepay when Merchant registry an account
customerToken	String	Customer's card-linked token when they link their card to Alepay.
orderCode	String	Order's code
amount	Double	Order's amount (If the currency is VND, then deposit the amount rounded up to 1 VND)
currency	String	Currency
orderDescription	String	Order's description (Do not include special characters, will automatically remove special characters from the order description)
returnUrl	String	URL callback when success
cancelUrl	String	URL callback when fail
paymentHours	String	Time for payment checkout (hours)
language	string	Language of checkout page.

Request Data		
		<ul style="list-style-type: none"> - vi: Vietnamese - en: English
signature	String	The signature, check on A index

b. *Cấu trúc nhận dữ liệu*

Notice: Depending on the contract concluded between Merchant and Alepay, Alepay be configured according to the corresponding level of security.

Alepay provide 2 levels of security for 1-Click payment, include:

+ **Instant payment**: Transaction will be performed as soon as the Merchant sends the payment request to Alepay without confirmation from the cardholder.

Response data		
Parameter	Data type	Description
code	string	Error code (see V.1 index)
message	string	Error message
orderCode	String	the order code of Merchant
transactionCode	String	alepay transaction
success	String	False: Payment cancelled True: Payment was successful

+ **Authentication from cardholder**: Alepay will return authentication URL and card holder will authenticate the payment (by OTP or 3D-Secure). After authentication, Alepay will perform payment transactions that Merchant had submitted earlier:

Response data

Parameter	Data type	Description
code	string	Error code (see V.1 index)
message	string	Error message
transactionCode	String	alepay transaction
checkoutUrl	String	Authentication URL

****Response data when payment success**

When end user finished the authentication, Alepay will callback to “returnUrl” which Merchant sent to Alepay when call 1-Click payment API. Response parameters received from Alepay as follow.

- *HTTP Request*

GET <MERCHANT_CALLBACK_URL>

- *Response Data*

Response data		
Parameter	Data type	Description
errorCode	String	Error code (See V.1 index)
data	String	Transaction code of Alepay
cancel	String	True : Payment cancelled False : Payment wassuccessful

- These parameters will be converted to JSON string using RSA algorithm, **encrypted (using Encrypt key) & base64encoded**, and return “**data**” parameter of callback URL, belong with it’s checksum:

<MERCHANT_CALLBACK_URL>?data=XXXX&checksum=XXXX

3. API get list of linked cards

API to retrieve the list of linked cards of the customer

- HTTP Request :

POST <BASE_URL>/get-customer-info

- Request / response data:

Request Data		
Parameters	Data type	Description
tokenKey	String	Token Key provided by Alepay when Merchant registry an account
customerId	String	Customer's ID of Merchant
language	string	Language. <ul style="list-style-type: none"> - vi: Vietnamese - en: English
signature	String	the signature, check on A index to create signature

Response data		
Parameters	Data type	Description
code	String	Error code (described in Appendix V. 1)
message	String	Error description
firstName	String	Customer's first name
lastName	String	Customer's last name
email	String	Customer's email
phone	String	Customer's phone
listCardTokens	Array	List of linked cards

Parameters	Data type	Description
token	String	Card's payment token (Return only active status token)
cardNumber	String	Card number (First 6 digits and last 4 digits)
cardHolderName	String	Card's holder name
cardExpireMonth	String	Expire month
cardExpireYear	String	Expire year (Last 2 digits)
paymentMethod	String	Payment method
bankCode	String	Issue Bank's code

4. Cancel tokenization

Using to cancel linked card (tokenization).

- Http Request:

POST <BASE_URL>/cancel-profile

- Request/ Response Data:

Request Data		
Parameter	Data type	Description
alepayToken	String	Tokenization that want to cancel
tokenKey	String	Token Key provided by Alepay when Merchant registry an account
language	string	Language. <ul style="list-style-type: none"> - vi: Vietnamese - en: English
signature	String	the signature, check on A index to create signature

Response data		
Parameter	Data type	Description
code	string	Error code (See V.1 index)
message	string	Error message
id	String	Cancel card transaction ID

D. API search transaction

The API allows merchant can search one ore more transaction with orderCode

c. Http Request

POST <BASE_URL>/get-transaction-history

d. Request/ Response Data

Request Data				
Parameter	Data type	Require	Default value	Description
tokenKey	String	T		Token Key provided by Alepay when Merchant registry an account
orderCode	String	F	-	Order code
fromDate	long	F	-	Get transactions in <i>fromDate</i> - <i>toDate</i>
toDate	long	F	-	
customerName	String	F	-	Customer's name
customerEmail	String	F	-	Customer's email
customerPhone	String	F	-	Customer's phone
paymentMethod	String	F	-	Payment method

Request Data				
page	Integer	F	0	Page index
pageSize	Integer	F	20	Number of results per page (1-50)
language	String	F		Language. - vi: Vietnamese - en: English
signature	String	T		the signature, check on A index to create signature

Response data		
Parameter	Data type	Description
code	string	Error code (See V.1 index)
message	string	Error message
pageIndex	Integer	Current page index
pageSize	Integer	Number of results per page
pageCount	Long	Total page number
dataCount	Long	Total result number
data	Array	List transaction (The transaction information is described as in the Response Data of Get transaction detail API - Section B.3)

A. Callback transaction info to webhook

After a successful payment or a change in the status of a transaction (approve / not approve installment, approve / not approve Card review) or a successful card link, Alepay will return transaction info and/or card linked info via the URL callback that Merchant has declared on Alepay (*login alepay, go to account menu -> setting account -> tab “notification” -> click*

“Update transaction notification URL for each account” -> click “Update webhook” -> fill value to input “Webhook URL”).

a. HTTP Request

POST <MERCHANT_CALL_BACK_URL>

b. Response

Parameter	Data type	Description
transactionCode	String	Alepay’s transaction code
orderCode	String	Merchant’s order code
amount	Double	Order’s amount (If the currency is VND, then deposit the amount rounded up to 1 VND)
customerFeeAmount	Double	customer fee amount
merchantFee	Double	merchant Fee amount
currency	String	Currency. Get value vnd or usd
buyerEmail	String	buyer email
buyerPhone	String	Buyer’s phone number
cardNumber	String	Card number (First 6 digits and last 4digits)
buyerName	String	buyer name
status	String	Status’s code. Using for checking status of transaction (see V.1 index)
message	String	Status’s description
reason	String	reason of error transaction
installment	boolean	True : Installment payment False: Normal payment
is3D	boolean	True : 3D secure Card

		False: 2D secure Card
month	Double	Installment period
bankCode	String	Installment bank's code
bankName	String	Installment bank's name
method	String	Card type
transactionTime	Long	Transaction time (millisecond)
successTime	Long	Success time (millisecond)
bankHotline	String	Installment bank's hotline
authenCode	string	the authorization code (any if)
checksum	String	Checksum code to check the accuracy of the data. Checksum = md5 (orderCode + amount + transactionCode + checksumKey) With checksumKey is the checksum key code provided by alepay when registering an account on alepay

Response “cardTokenInfo”		
Parameter	Data type	Description
cardLinkStatus	String	Error Code (See V.1 index)
email	String	Customer's email
customerId	String	Customer's ID
token	String	Alepay Token for 1-Click payment
cardNumber	String	Card number (First 6 digits and last 4 digits)
cardHolderName	String	Cardholder's name

cardExpireMonth	String	expired Card month
cardExpireYear	String	expired Card year
paymentMethod	String	Card type
bankCode	String	Issue bank's code
checksum	String	<p>Checksum code to check the accuracy of the data.</p> <p>Checksum = MD5 (customerId + token + checksumKey)</p> <p>With checksumKey is the checksum key code provided by alepay when registering an account on alepay</p>

e. Example:

```
{
  "transactionInfo": {
    "transactionCode": "ALE1501130624199",
    "orderCode": "1501130574",
    "amount": 1.374E7,
    "currency": "VND",
    "buyerEmail": "nva@gmail.com",
    "buyerPhone": "0987654321",
    "cardNumber": "411111-XXXX-1111",
    "buyerName": "Nguyen Van A",
    "status": "000",
    "message": "Thành công",
    "installment": false,
    "is3D": false,
    "month": 0,
    "bankCode": "SACOMBANK",
```



```
"bankName": "Sacombank",  
"bankHotline": "1900100",  
"method": "VISA",  
"transactionTime": 1501130648119,  
"successTime": 1501130650759,  
"merchantFee": 0.0,  
"payerFee": 398460.0  
},  
"cardTokenInfo": {  
    "cardLinkStatus": "000",  
    "email": "nva@gmail.com",  
    "customerId": "156",  
    "token": "e72d9eb3e9b1091131aa31238ea7c4ea",  
    "cardNumber": "411111-XXXX-1111",  
    "cardHolderName": "NGUYEN VAN A",  
    "cardExpireMonth": "12",  
    "cardExpireYear": "2020",  
    "paymentMethod": "VISA",  
    "bankCode": "SACOMBANK"  
}  
}
```

V. Appendix

1. ErrorCode

Error code	Description
------------	-------------

000	Success
101	Invalid checksum
102	Invalid encryption
103	IP don't have access permission
104	Invalid data
105	Invalid Token key
106	Token alepay not exists or cancelled
107	Transaction being processed
108	Data not found
109	Order code not found
110	Must have email or buyer phone number
111	Failure
120	Order amount must be greater than 0
121	Invalid currency
122	Order description not found
123	Total item must be greater than 0
124	Invalid URL format (http://, https://)
125	Invalid buyer's name
126	Invalid buyer's email
127	Invalid buyer's phone number

128	Invalid buyer's address
129	Invalid buyer's city
130	Invalid buyer's country
131	Payment hours must be greater than 0
132	Invalid email address
133	Invalid card information
134	Card payment limit reached
135	Transaction was declined by bank issues
136	Transaction code not exists
137	Invalid transaction
138	Merchant account not exists
139	Merchant account not active
140	Invalid Merchant account
142	Bank not support Installment
143	Card is not issued by selected bank
144	Invalid installment period
145	Invalid installment amount
146	Bank issued your card is not support installment
147	Invalid phone number
148	Invalid installment information

149	Invalid card type
150	Card is reviewing
151	Bank not support payment
152	Card number not match with selected card type
153	Transaction not exists
154	Amount limit exceeded
155	Waiting buyer's confirm installment to issued bank
156	Invalid payment amount
157	Email not match with existed profile
158	Phone number not match with existed profile
159	ID must not be empty
160	First name must not be empty
161	Last name must not be empty
162	Email must not be empty
163	City must not be empty
164	Country must not be empty
165	Phone number must not be empty
166	State must not be empty
167	Street must not be empty
168	Postal code must not be empty

169	URL callback must not be empty
170	OTP entered incorrectly more than 3 times
171	Customer's card has been linked on Merchant
172	Link card temporarily banned (exceeded number of times authentication)
173	Incorrect card linked status
174	Cardlink session not found
175	Payment amount of unauthenticated 2D-card exceeds the limit.
176	2D card authentication pending
177	The customer press the cancel button
178	Subscription payment success
179	Payment subscription failed
180	Register subscription success
181	Register subscription failed
182	Alepay token is invalid
183	Plan code is empty
184	URL callback is empty
185	Subscription Plan not existed
186	Subscription plan is inactive
187	Subscription plan expired
188	Subscription Record existed

189	Subscription Record not existed
190	Subscription Record status is invalid
191	Exceeded OTP authentication times
192	Wrong OTP
193	Registration subscription for customer success
194	Customers need to confirm subscription
195	Alepay token status is invalid
196	Send OTP failed
197	End date or maximum payment times invalid
198	Alepay token can not be empty
199	Alepay token is not active
200	Invalid Subscription Plan
201	The start time is invalid
202	The merchant's IP request has not been configured or allowed
203	The subscription file was not found
204	Alepay token is not authenticated
205	Invalid cardholder name
206	Merchant is not allowed to use this service
207	Domestic banks invalid
208	Verify token is invalid

209	Verify amount is invalid
210	Exceeded verify amount times
211	Buyer's name must contains first name and last name
212	Merchant is not allowed to link card
213	Customer not choosen to link card
214	Transaction is not process
215	Not approve card review
216	Card not support
217	Customer's profile is not exists
999	Unknown error. Please contact with Alepay's admin

2. Currency

Code	Currency
VND	Vietnam Dong
USD	US Dollar

3. Card type

Code	Card type
VISA	Visa Card
MASTERCARD	Master Card
JCB	JCB Card

