ZaloPay APIs QuickPay Integration Document

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A. Overview

Introduction

- This document provides APIs for merchants to integrate payment solution to their applications.

Environment information

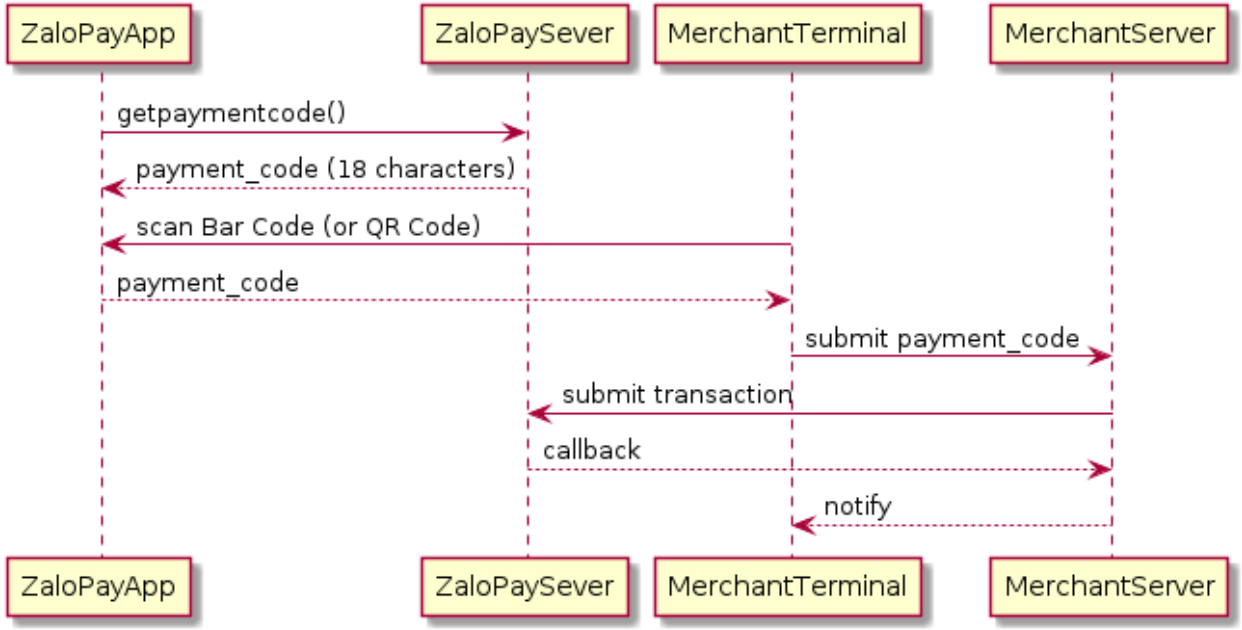
Environment	Link
Sanndbox	https://sb-openapi.zalopay.vn
Prod	https://openapi.zalopay.vn

Interface Name	Entry Point	Direction
Create Order	/v2/quick_pay	Merchant to ZaloPay
Get Order's Status	/v2/query	Merchant to ZaloPay
Refund Order	/v2/refund	Merchant to ZaloPay
Refund Order's Status	/v2/query_refund	Merchant to ZaloPay
Payment Notification	Provided by the Merchant	ZaloPay to Merchant

B. APIs description

1.Create Order

- **Sequence Diagrams**



- **Entry Point**

Name	Description
Protocol	HTTPS
URI	/v2/quick_pay
Method	POST
Content-Type	application/x-www-form-urlencoded application/json

- **Request Parameters**

No	Parameter	Data Type	Max Length	Required	Description	Example data
1	app_id	Int		✔	The app identifier is provided by ZaloPay.	1727
2	app_user	String	50	✔	Identification information of the application user: Id / Username / Name / Phone Num / Email. If you cannot identify the user, you can use the default information, such as the application name	user123

No	Parameter	Data Type	Max Length	Required	Description	Example data
3	app_trans_id	String	40	✔	Order's transaction code. Must be preceded by **yymmdd** of the current date. The transaction-code's format should be **yymmddOrder identifier** **yymmdd** is correct TimeZone Vietnam (GMT+7) (Because of cross check transactions is in Vietnam time and date)	2001148007242
4	app_time	Long		✔	The time of order creation, which calculated in milliseconds, and couldn't over 15 minutes from the time of payment	1459823610957
5	amount	Long		✔	The amount of the order (VND)	50000
6	title	String	256		Optional title of order.	
7	description	String	256	✔	The description of the order, used to display to users on the ZaloPay app	<Name Merchant/Service> - Payment order #<trans_id> Ex: ZLP - Payment order #180208_007242

No	Parameter	Data Type	Max Length	Required	Description	Example data
8	callback_url	String			ZaloPay will notify to this URL only when the payment is success; If not provided, the default app Callback URL will be used.	
9	device_info	String	256		JSON string describes the device specification.	
10	sub_app_id	String	50		Identification of the service / service group that partner was registered with ZaloPay (only applicable to special partners)	sub123
11	item	String	2048	✔	Additional data, defined by Merchant. Use "[]" when empty.	[{"itemid":"knb","itename":"kim nguyen bao","itemprice":198400,"itemquantity":1}]
12	embed_data	String	1024	✔	Merchant's item data. Use "{}" when empty.	{"promotioninfo":"","merchantinfo":""}
13	mac	String		✔	Authentication information of the order, see how to create authentication information for orders	c8f49d523336f0a182586a70b71c20da964d37954711de9273152b500df74c0d
14	currency	String			The currency of order. Default is VND.	VND

No	Parameter	Data Type	Max Length	Required	Description	Example data
15	payment_code	String		✔	Scanned from ZaloPay by Merchant's terminal and encrypted by Public Key provided by ZaloPay **=RSA(paymentCode Raw, publicKey**)	
16	userIP	String			User IP address	

Specific embed_data's fields

No	Parameter	Data Type	Format	Description	Example
1	Redirecturl	String	URL	Redirect to this url after successful / failure payment via ZaloPay Gateway (This will override the merchant's redirect url registered with ZaloPay)	{"redirecturl": "https://docs.zalopay.vn/result"}

No	Parameter	Data Type	Format	Description	Example
2	Columninfo	JSON String	{"column_name": "value"}	Add information into the section **Management of transaction details** on Merchant site, If the column does not yet exist, please go to the **Display data configuration** setting to configure ***Note***: For offline payment, it is necessary to transmit information such as branch_id, store_id, store_name, ...	{"columninfo": "{\"branch_id\": \"HCM\",\"store_id\": \"CH123\",\"store_name\": \"Saigon Centre\"}"}
3	Promotioninfo	JSON String	{"campaigncode":"code"}	Use to launch promotions campaign	{"promotioninfo": "{\"campaigncode\":\"blackfriday\"}"}
4	zlppaymentid	String		-Payment information -Only needed when you need to receive money for different accounts. -ZaloPay system will generate a Payment code (corresponding to each partner bank account provided) and send it back to the partner to set up.	{"zlppaymentid": "P4201372"}

- **Create authentication information**

  mac = HMAC (hmac_algorihtm, mackey, hmacinput)

- **With:**

  - ✓ **hmac_algorithm**: is a security method registered by Merchant with ZaloPay, the default is HmacSHA256
  - ✓ **mackey**: provided by ZaloPay at registration
  - ✓ **hmacinput**: app_id +"|"+ app_trans_id +"|"+ app_user +"|"+ amount +"|"+ app_time +"|"+ embed_data +"|"+ item+"|"+ paymentCodeRaw

- **Response Parameters**

No	Parameter	Data Type	Description
1	return_code	Int	1: Success 2: Failure
2	return_message	String	Description of status code
3	sub_return_code	Int	Status code detail
4	sub_return_message	String	Detail description of status code
5	is_processing	Boolean	Process's status
6	zp_trans_id	String	ZaloPay's transaction code

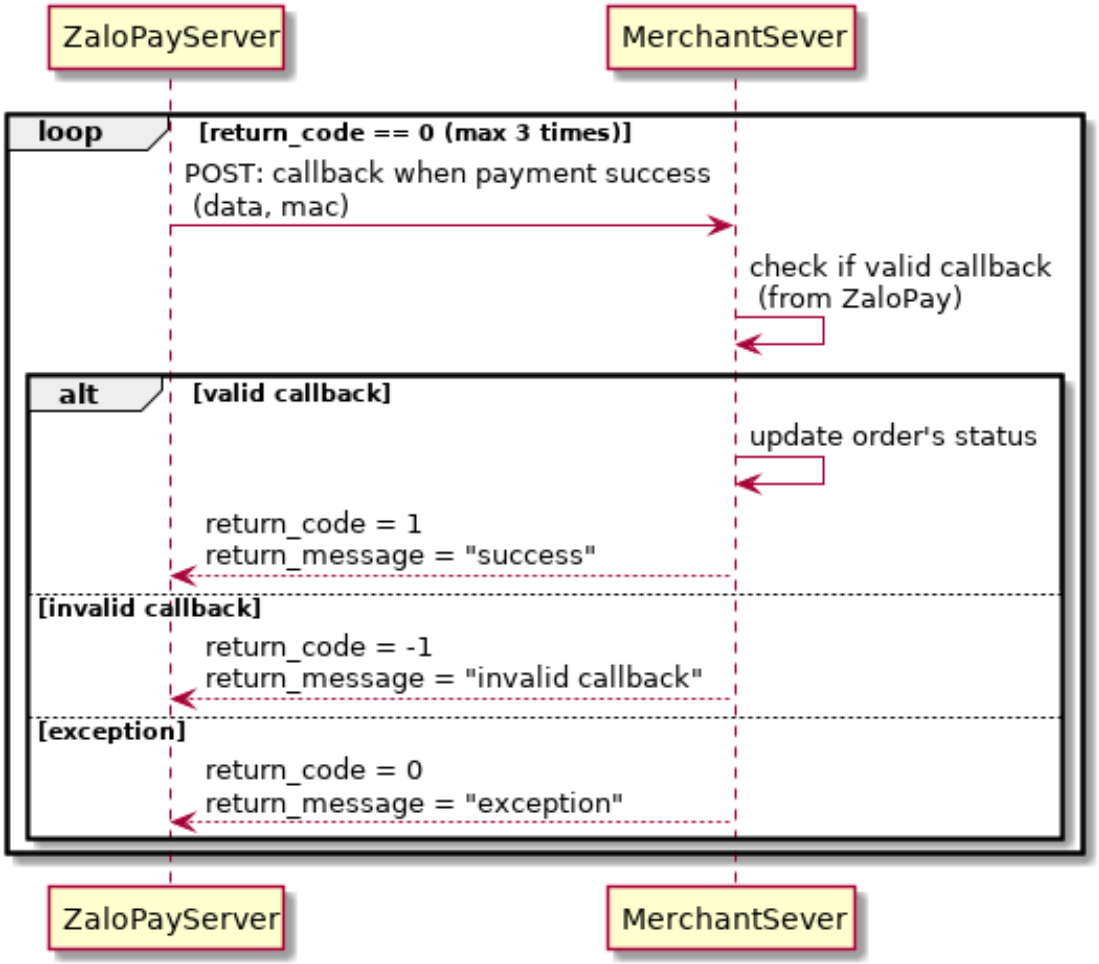
Example:

Request	Response

{
"amount": "69000",
"app_id": "124705",
"app_time": "1652694044613",
"app_trans_id": "220516_16404400234",
"app_user": "ZaloPay",
"description": "ZaloPay Demo",
"embed_data": "{}",
"item": "[]",
"payment_code": "541080213600000311",
"mac": "e0f7394178511e911782b9aa9d54bd722637ad32bd601287f6c6ecf542aaab1d"
}
	{
	"return_code": 3,
	"return_message": "[Pending] Giao dịch vẫn đang được xử lý",
	"sub_return_code": 10,
	"sub_return_message": "[Pending] Giao dịch vẫn đang được xử lý",
	"is_processing": true,
	"zp_trans_id": 220516000060744
	}

2.Callback

- **Sequence Diagrams**



API specification

If ZaloPay successfully get money from user, then ZaloPay Server will notify to MerchantServer via CallbackURL which had been registered with ZaloPay or from callback_url. MerchantServer use callbackkey (provided by ZaloPay) to validate callback's data.

- **Entry Point**

Name	Description
Protocol	HTTPS
URI	provided by the merchant
Method	POST
Content-Type	application/json

- **Request Parameters**

No	Parameter	Data Type	Description
1	Data	JSON String	ZaloPay transaction data callback to the application
2	Mac	String	Confirmation of order information, using callbackkey (had been provided) to verify the order
3	Type	String	Callback type 1: Order 2: Agreement

Callback_order_data

No	Parameter	Data Type	Description	Example Data
1	app_id	Int	The app identifier is provided by ZaloPay.	1727
2	app_trans_id	String	Order's app_trans_id	180208181007242
3	app_time	Long	Order's app_time	1460543835849
4	app_user	String	Order's app_user	user123
5	amount	Long	Amount received (VND)	50000
6	embed_data	JSON String	Order's embed_data • Required json string	{"promotioninfo":"","merchantinfo":""} Data empty: {}
7	item	JSON Array String	Order's item • Required json array string	[{"itemid":"knb","itename":"kim nguyen bao","itemprice":198400,"itemquantity":1}] Data empty: []
8	zp_trans_id	Long	ZaloPay's Transaction code	160413000003083
9	server_time	Long	ZaloPay's Transaction trading time (unix timestamp in milliseconds)'	1460543836370

No	Parameter	Data Type	Description	Example Data
10	channel	Int	Payment channel	38
11	zp_user_id	String	The identifier of ZaloPay user per Merchant app_id	7ZMSl3nEg5sOUJzOLSoUFT8xKNQVaLOLXHB--8Eytqc
12	user_fee_amount	Long	Fee (VND)	220
13	discount_amount	Long	Discount (VND)	10000

- **Check if callback is valid**

```
reqmac = HMAC(hmac_algorithm, callbackkey, callback_data.data)
if (reqmac == callback_data.mac) {
 // valid callback
} else {
 // invalid callback
}
```

- **With:**

  - ✓ **hmac_algorithm**: is a security method registered by Merchant with ZaloPay, the default is HmacSHA256
  - ✓ **callbackkey**: provided by ZaloPay at registration
  - ✓ **callback_data**: is data requested by ZaloPay to Merchant's callback API when ZaloPay has successfully collected money from customers.

Supported payment channels:

No	Value	Channel
1	36	Visa/Master/JCB
2	37	Bank Account
3	38	ZaloPay Wallet
4	39	ATM
5	41	Visa/Master Debit

- **Response Parameters:** The data that AppServer returns to ZaloPayServer after got the callback

No	Parameter	Data Type	Description
1	return_code	Int	1: Success 2: ZaloPay zptransid or apptransid is duplicated <>: failure (not callback again)
2	return_message	String	Details of the status code

Note

After **15 minutes** from the time of the order establishment, if merchant still do not receive callback from ZaloPay, merchant need to call API Get order status proactively to get the final result.

3.Query Order Status

When the payment is successful, ZaloPay will call the callback (notify) to the Merchant, then the Merchant updates the status of Successful orders on the Merchant's system. But in reality, the callback may be missed due to Network timeout, Merchant Service unavailable Internal error,... so Merchant needs to make the call of the API to query the order status.

App Server send request to ZaloPay Server to get the transaction's payment status.

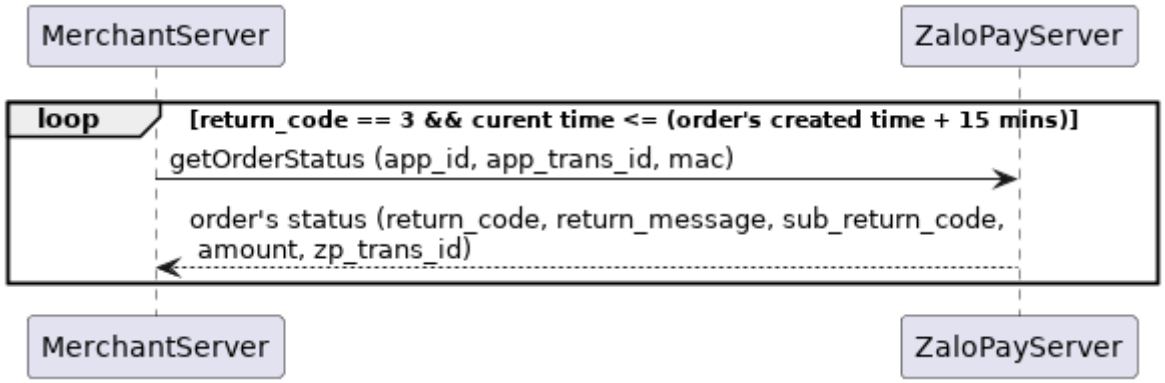
Note

1. A single order is valid only within **15 minutes** after create.

2. When it is less than **15 minutes** from the time of the order creation. In the following cases, It is necessary to repeat the API calling process to get the **final result**

- When return_code = 3 - User hasn't paid the order or transaction is processing

- **Sequence Diagrams**



- **Entry Point**

Name	Description
Protocol	HTTPS
URI	/v2/query
Method	POST
Content-Type	application/x-www-form-urlencoded application/json

- **Request Parameters**

No	Parameter	Data Type	Required	Description
1	app_id	Int	✔	The app identifier is provided by ZaloPay.
2	app_trans_id	String	✔	Order's app_trans_id
3	mac	String	✔	Authenticate data information mac = HMAC(hmac_algorithm, mackey, app_id+"|"+app_trans_id+"|"+mackey)

- **Response Parameters**

No	Parameter	Data Type	Description
1	return_code	Int	1 : SUCCESS 2 : FAIL 3 : PROCESSING
2	return_message	String	Order's status information
3	sub_return_code	Int	Detail transaction code
4	sub_return_message	String	Detail description of the order transaction
5	is_processing	Boolean	Process's status
6	amount	Long	Amount received (only make sense when the payment is successful)
7	zp_trans_id	Long	ZaloPay's transaction code
8	server_time	Long	ZaloPay's Transaction trading time (unix timestamp in milliseconds)

Example

Request	Response
{ "app_id": "124705", "app_trans_id": "220420_11232000092", "mac": "483cdbb1d4eae8a399a3d17a6793f6a93487b167be32c109adc2c70691c65802" }	{ "return_code": 1, "return_message": "Giao dịch thành công", "sub_return_code": 1, "sub_return_message": "Giao dịch thành công", "is_processing": false, "amount": 69000, "zp_trans_id": 220420000029880, "server_time": 1650428630520 }

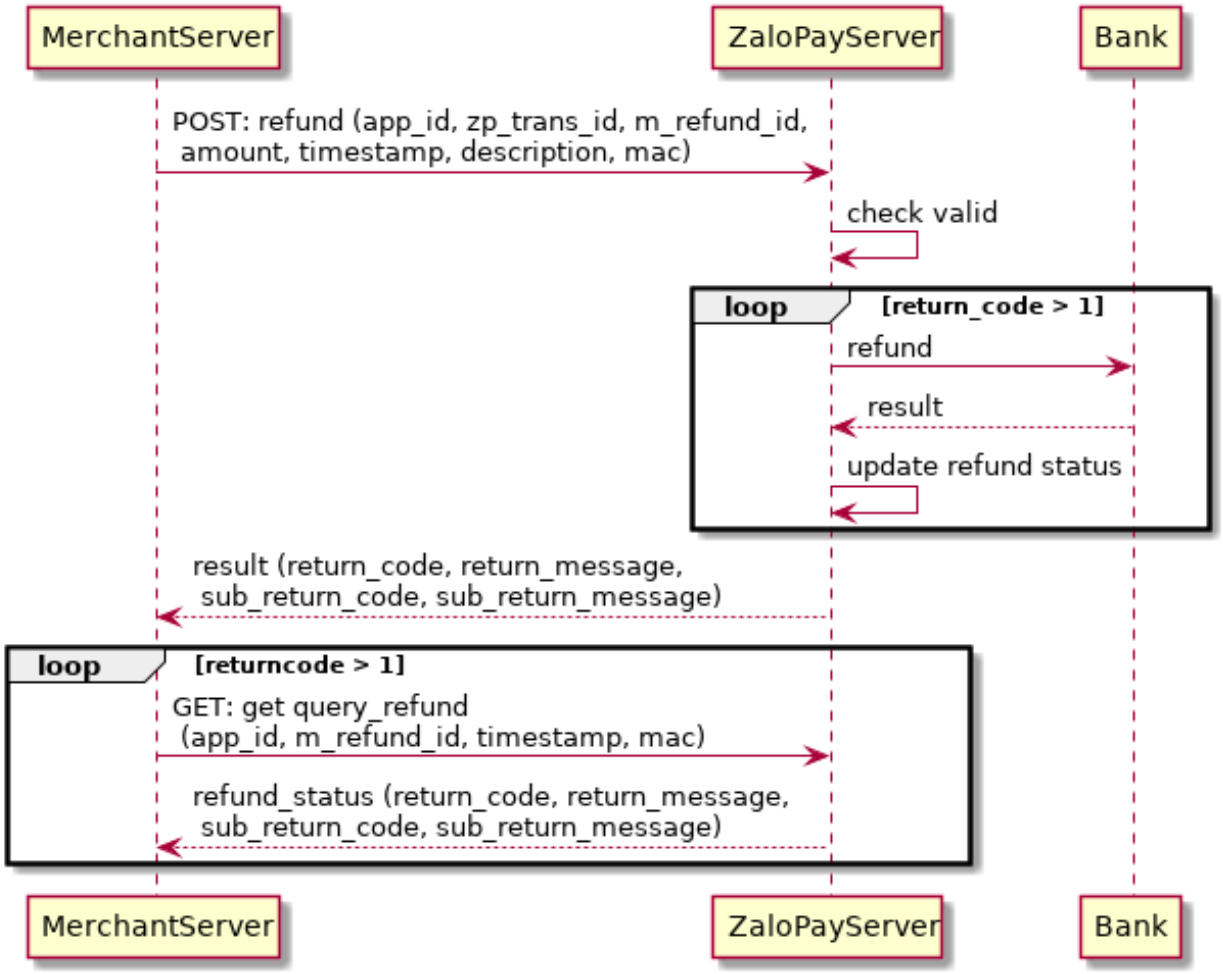
4.Refund Order

- **Refund Rules**

PAYMENT METHOD	WALLET	REFUND TO	REFUND TIME	SUPPORTED BANKS
ZaloPay App	ZaloPay Walet	ZaloPay Walet	Immediately	Vietcombank, Vietinbank, BIDV, Sacombank, Eximbank, SCB, Viet Capital Bank, JCB
	ATM / Bank Account	ZaloPay Walet	Immediately	
	Visa / Master / JCB	Card	5 - 7 working days	
Card payment / Bank Account via ZaloPay Gateway	ATM / Bank Account	Bank Account	3 - 5 working days (depend on the bank)	ABBank, ACB, Agribank, Bac A Bank, Bao Viet Bank, BIDV, DongA Bank, Eximbank, GP Bank, HD Bank, Lien Viet Post Bank, Maritime Bank, MB Bank, NamA Bank, NCB, Viet Capital Bank, OCB, Ocean Bank, PG Bank, Sacombank, Saigon Bank, SCB, SeA Bank, SHB, Techcombank, TP Bank, VIB
	Visa / Master / JCB	Card	5 - 7 working days (depend on the bank)	

- **Note:** For transactions that apply promotions of ZaloPay or partners. The refund amount must be a full refund. Depend on the bank, the refund time will be vary.

- **Sequence Diagrams**



- **Entry Point**

Name	Description
Protocol	HTTPS
URI	/v2/refund
Method	POST
Content-Type	application/x-www-form-urlencoded application/json

- **Request Parameters**

No	Parameter	Data Type	Max Length	Required	Description
1	m_refund_id	String	45	✔	• Merchant must be generate merchant own transaction code when submit refund requirement. • Format: yymmdd_appid_xxxxxxxxxx
2	app_id	Int		✔	The app identifier is provided by ZaloPay.
3	zp_trans_id	Long	15	✔	• Transaction code, which want to be refund. • Transaction code of ZaloPay, retrieved from callback data
4	amount	Long		✔	Refund amount for users
5	timestamp	Long	13	✔	• Time to refund (unix timestamp in millisecond). • The time of making the refund, is calculated in milliseconds

No	Parameter	Data Type	Max Length	Required	Description
6	mac	String		✔	Authenticate information (See how to create authenticate information)
7	description	String	100		Refund reason

- **Create authentication information**

  mac = HMAC(hmac_algorithm, mackey, hmacinput)

- **With:**

  - ✓ **hmac_algorithm**: is a security method registered by Merchant with ZaloPay, the default is HmacSHA256
  - ✓ **mackey**: provided by ZaloPay at registration
  - ✓ **hmacinput**: app_id +"|"+ zp_trans_id +"|"+ amount +"|"+ description +"|"+ timestamp

- **Response Parameters**

No	Parameter	Data Type	Description
1	return_code	Int	1 : Successful refund 2 : Refund failure, need to redo 3 : Refunding processing, call getRefundStatus API to get final result
2	return_message	String	Status code information
3	sub_return_code	Int	Detailed status codes
4	sub_return_message	String	Order status details

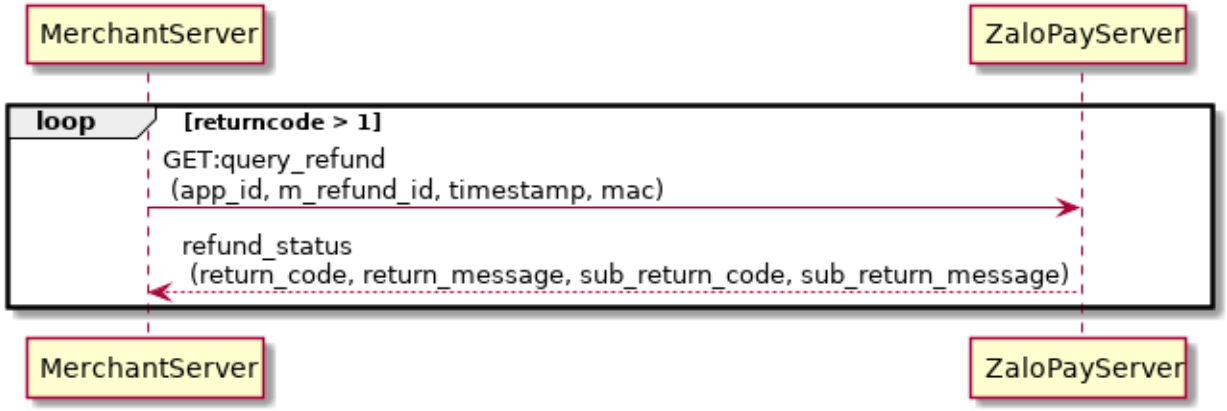
No	Parameter	Data Type	Description
5	refund_id	Long	ZaloPay refund's transaction code, need to save for cross-check then

Example

Request	Response
{ "app_id": "124705", "m_refund_id": "220420_124705_11360700093", "zp_trans_id": "220420000029880", "amount": "69000", "timestamp": "1650429367066", "mac": "1772f6fe1dd3ac6b1c52d12ff4cb3349707abe697d628c06319f82a3052fa524", "description": "ZLP - Refund TransID 220420000029880" }	{ "return_code": 3, "return_message": "Giao dịch đang refund!", "sub_return_code": 2, "sub_return_message": "Giao dịch đang refund!", "refund_id": 220420000028403 }

5.Query Refund Order Status

- **Sequence Diagrams**



- **Entry Point**

Name	Description
Protocol	HTTPS
URI	/v2/query_refund
Method	POST
Content-Type	application/x-www-form-urlencoded application/json

- **Request Parameters**

No	Parameter	Data Type	Max Length	Required	Description
1	app_id	string		✔	The app identifier is provided by ZaloPay.
2	m_refund_id	string	45	✔	• The transaction code, which was generated by merchant when querying refund transaction. • Format: yymmdd_appid_xxxxxxxxxx
3	timestamp	long		✔	The time call API (timestamp in millisecond)
4	mac	string		✔	= HMAC(hmac_algorithm, mackey, app_id+"|"+m_refund_id+"|"+timestamp)

- **Response Parameters**

No	Parameter	Data Type	Description
1	return_code	int	status code
2	return_message	string	status information
3	sub_return_code	int	status code detail
4	sub_return_message	string	detail description of status code

Example

Request	Response

{
"app_id": "124705",
"m_refund_id": "220420_124705_11360700093",
"timestamp": "1650429570877",
"mac":
"f689e80854fbc7d3473eb558a8f415628160e46e238af307d5f2c24cc3151211"
}
	{
	"return_code": 1,
	"return_message": "Giao dịch thành công!",
	"sub_return_code": 1,
	"sub_return_message": "Giao dịch thành công!"
	}

C. Error Code Information

1.Return_code

No	Status code	Short description	Type
1	1	SUCCESS	Successful
2	2	FAIL	Error
3	3	PROCESSING	Pending

2.Sub_return_code codes

No	Error Code	Short Description	Meaning	Type
1	1	SUCCESS	Success	Successful
2	-2	APPID_INVALID	Missing or misspelled **app_id**. Correct: **app_id**. Wrong appid: appId, Appid,...	Merchant Error
3	-53	HMAC_INVALID	Params request is wrong or Mac key wrong	Merchant Error
4	-54	TIME_INVALID	App_time param of request order not **unix timestamp in milisecond format**	Merchant Error
5	-63	ZPW_BALANCE_NOT_ENOUGH	User balance not enough for paymet	User Error

6	-68	DUPLICATE_APPS_TRANS_ID	Transaction is duplicate	Merchant Error
7	-92	APPTRANSID_INVALID	App_trans_id param of request order format wrong, need begin yyMMdd (GMT+7)	Merchant Error
8	-101	ORDER_NOT_EXISTS	Order not exists	Merchant Error
9	- 217	ZPBANK_CHARGE_FAIL	Payment fail	User and System Error
10	-401	ILLEGAL_DATA_REQUEST	Invalid data	Merchant Error
11	-402	ILLEGAL_APP/ SIGNATURE_REQUEST	Invalid app code/ signature	Merchant Error
12	-405	ILLEGAL_CLIENT_REQUEST	Invalid request	Merchant Error
13	-429	LIMIT_REQUEST_REACH	Limit request	Merchant Error
14	-500	SYSTEM_ERROR	The system is error	System Error