
Bfopay General Payments API Specification

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1.Introduction

1.1. Overview

The Bfopay General Payments API Specification is a set of interfaces between the Client-side System and the Bfopay Payments platform, including the Bfopay General Interaction Interface, Payments Interface and the Notifying Interaction Interface.

The specification also sets the unified standard for modes of interactions, data exchange and security between the Client-side System and the Bfopay Payments System. General business support for payments and workflow process is also described in this documentation.

1.2. About This Specification

This document describes basic Bfopay payment interface specification

1.3. Intended Audience

This document is for merchants and developers who want to integrate Bfopay as an alternative payment method to your merchant website

1.4. Documentation Feedback

Help us improve this document by sending feedback to: services@bfopay.com

2.Interaction Modes

Bfopay system will interact with partner system in following two modes: request/response mode and active notifying mode.

The former is often used in constructing requests, invoking Bfopay service or transfer user from a page on partner website to another page on Bfopay, so they may perform actions like making a payment.

The latter one is often used when Bfopay sends notification, update partner systems about changes made in their business; usually it occurs when a transaction is complete.

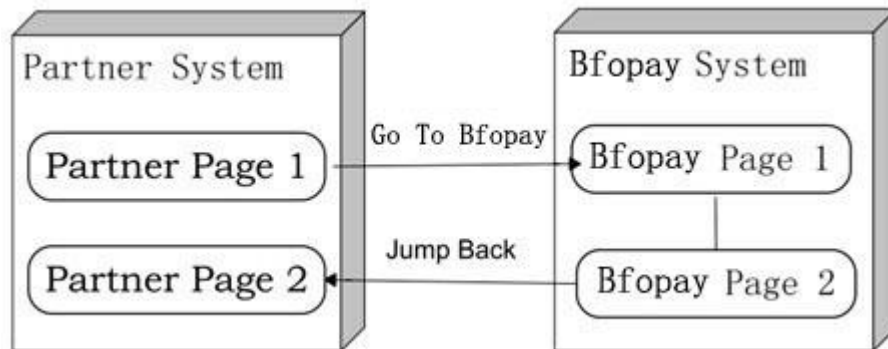
2.1. The Request/Respond Mode

The request/respond is the most frequently used interaction mode. Under the mode, the Oversea Merchant Partner System (partner system) sends request data to the Bfopay Oversea Acquiring System (Bfopay system), and synchronously wait for the response from the Bfopay system after the request has been processed.

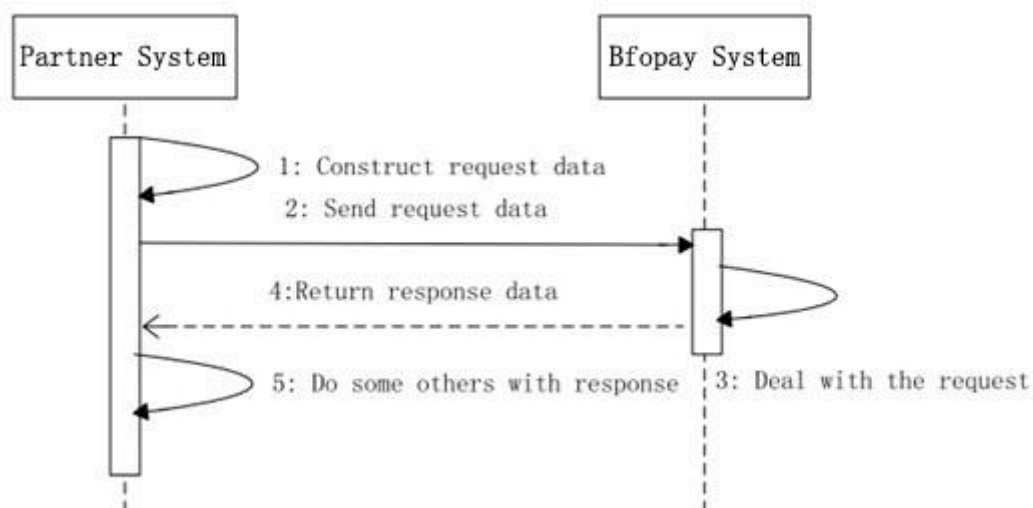
The request/respond mode can be further classified into two types: system invocation and page re-directed. The system invocation type only needs to invoke the relevant API to perform the business operation, the page re-directed type on the other hand needs the operation to be done on the Bfopay system' s web page.

If the acquiring buyer completes the operation after being transferred to the Bfopay' s webpage, the Bfopay system will return the results to the partner system' s website; the user will continue the buying process on the partner' s site.

The parameter `return_url`(the next-step page url on the partner' s website) for the must be specified



2.1.1. Process workflow

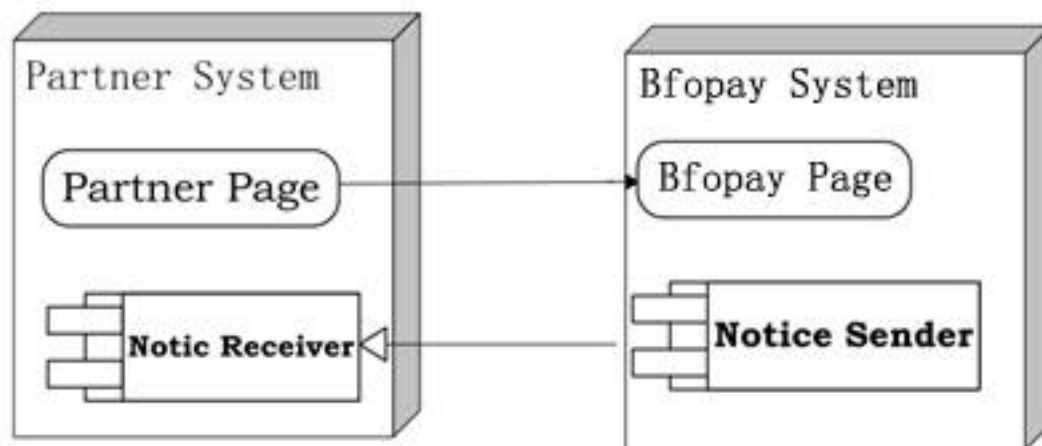


The gateway URL :

<https://gw.bfopay.com/payindex>

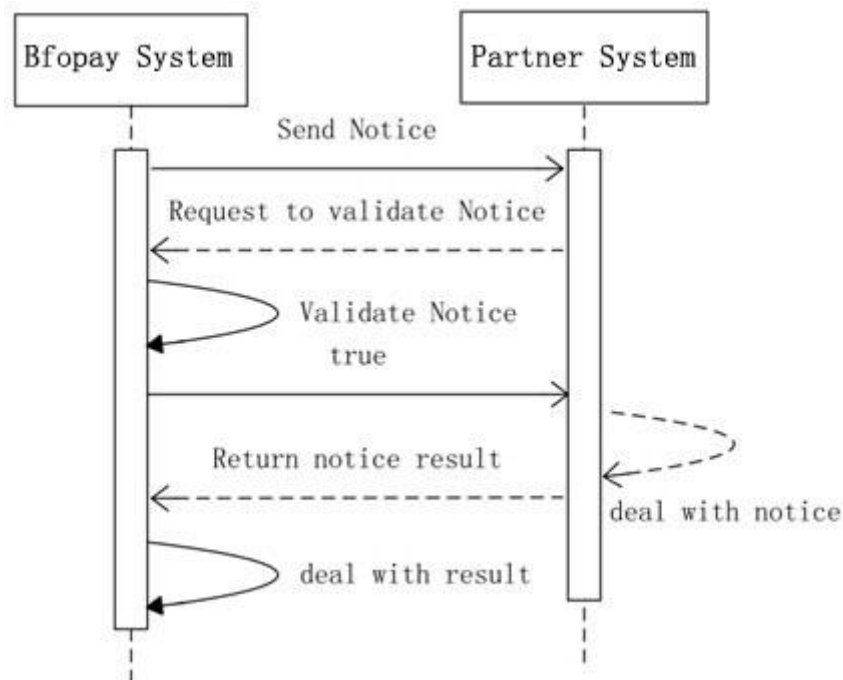
2.2. Active Notifying Interaction Mode

In the case acquiring buyers are sent to the Bfopay' s website from the partner' s site. After completing the transaction, those buyers will be sent back to the partner' s site. Also, the Bfopay system will actively notify the partner' s site on the buyer-related events.



As the session requires the result to be sent asynchronously, the returnUrl has be to specified. For example, a transaction has been created by the partner system, when the transaction status (see: Transaction Status List) changes, the Bfopay system sends the updated status and related information on the transaction to the partner system according to the notify URL.

2.2.1. Process workflow



1. The Bfopay system sends notification to the partner system, i.e. the URL for partner system to receive future notifications (the returnUrl parameter)
2. The partner system receives the notification, sends back an authentication request to the Bfopay system.
3. The Bfopay system verifies the authentication, if genuine returns true, otherwise false.
4. Upon Bfopay's confirmation, the partner system processes the request, and sends the result back (String ok) to the Bfopay's system.
5. The Bfopay system reads the notification result from the partner system, and processes it.

Notice:

- *The Bfopay system delivers the data via HTTP/HTTPS POST method. The notify URL for the partner system can be configured statically in the API*

protocol, or it can be specified during each session dynamically via the returnUrl parameter, e.g. if the returnUrl is provided in the transaction creation request, all the future notification on this transaction will be sent through the specified returnUrl from Bfopay system to the partner system.

- *If the Bfopay system fails to deliver the notification data, or the merchandise system fail to respond, the billing system will actively retry according to a prescribed schedule to maximize the delivery success rate, however it is not guaranteed all the active notification will be eventually delivered.*
- *Due to this active notification mechanism, same notification can be sent multiple times to the partner system. Further, some ordered event active notification can be received asynchronously with different order. Therefore the partner system must be able to ignore repeated notification and re-order the notifications. It is recommended by Bfopay that upon receiving a notification, verification with relevant local data should be performed to determine if the notification has been already processed. The partner system is also expected to actively verify the correctness of notification order before processing the request, by data lock or time stamping to manage the concurrency.*

2.2.2. Notification Verification

It is necessary for the partner system to verify the integrity and correctness of Bfopay' s notification. In the interest of system' s healthiness, it is strongly recommended that the partner system apply such verification mechanism.

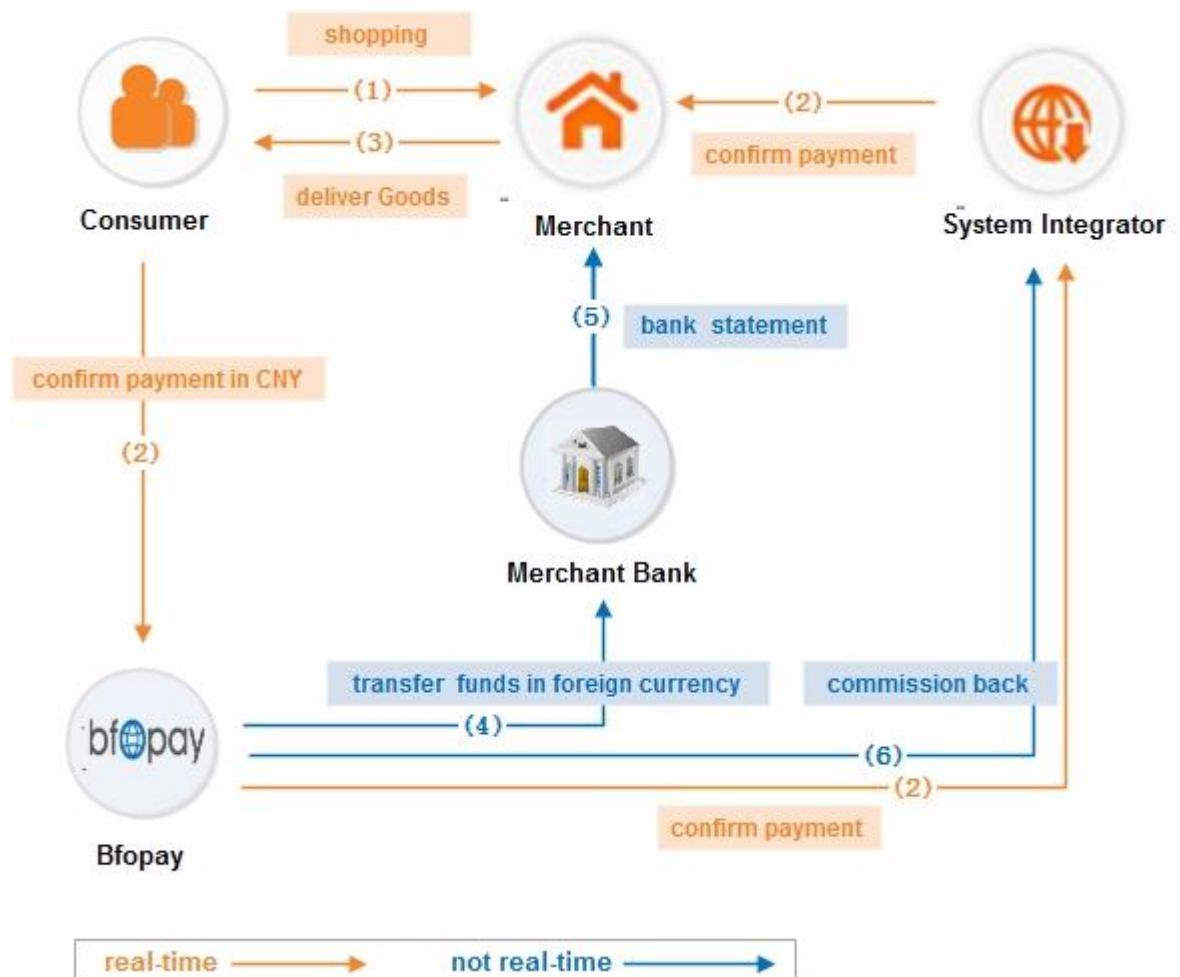
In order to guarantee the interface will be used legally, the partner system can only

verify the notifications within the last 1 minute (this configuration is subject to change, and such change will not be notified).

3.Interface

3.1. The payment interface

3.1.1. Business Process



3.1.2. Request Parameters

A Bfopay API request includes the following fields:

Field	Description	Type	e.g
MemberID	Mechant identification	String	MemberID=100000178
TerminalID	Terminal identification	String	TerminalID=10000001
InterfaceVersion	Payment Interface version_number	String(only version 4.0)	InterfaceVersion=4.0
KeyType	Encrytion Type Md5:1	Int	KeyType=1
PayID	Bank sign	String See appendix I	All banks: PayID= ICBC: PayID=3002
TradeDate	Transaction datetime	String(14), eg: YYYYMMDDHHmmss	eg: tradeDate=20140101010101
TransID	Merchant order number	String(20),unique	TransID=01000001781401011314
OrderMoney	Order amount	String	Eg.100.00 RMB OrderMoney=10000 Unit : RMB cent
ProductName	Name of goods	String (URL encode)	Limit length<50
Amount	Quantity of goods	Int	Amount=1
Username	username	String (URL encode)	
AdditionalInfo	Order attach information	String (URL encode)	Limit length<200
PageUrl	Page redirect url	String(255) (URL encode)	Eg:http://www.bfopay.com/demo/BusinessNotlFY.aspx

ReturnUrl	Notify Url	String(255) (URL encode)	Eg:http://www.bfopay.com/demo/UserNotIFy.aspx
Signature	Md5 signature	String(255)	
NoticeType	Notice type	Int 1 : notify PageUrl and ReturnUrl 0 : notify ReturnUrl only	Default : 0 NoticeType=0

NOTE :

- 1、 The yellow color is a required field, must be given value, an empty string is not allowed;
- 2、 Chinese character encoding format for UTF-8

3.1.3. The signature mechanism

The partner system needs to provide the following information : MemberID、TerminalID 、 PayID 、 InterfaceVersion 、 TradeDate 、 TransID 、 OrderMoney 、 ProductName、 Amount、 ProductLogo、 Username、 AdditionalInfo、 PageUrl、 ReturnUrl、 NoticeType、 Signature.

Md5 signature:

Md5Sign = MemberID + "|" + PayID + "|" + TradeDate + "|" + TransID +
 "|" + OrderMoney + "|" + PageUrl + "|" + ReturnUrl + "|" + NoticeType
 + "|" + Md5Key;

A full payment request example:

```
http://tgw.bfopay.com/payindex?OrderMoney=1&TradeDate=20140115162903&PageUrl=http://test.bfopay.com/recv/bfopay/page.html&interfaceVersion=4.0&ReturnUrl=http://test.bfopay.com/recv/bfopay/result.html&requestType=1&MemberID=100000178&TransID=13092358&keyType=1&NoticeType=1&TerminalID=10000001&signature=d77b11a69e7c8a105dd42e5ac897b7bf&PayID=&ProductName=testProduct&Amount=1&Additional=testAdditionalInfo
```

3.2. The Active Notifying interface

The Bfopay system delivers the data via HTTP/HTTPS POST method. Notification Verification String case sensitive :

```
Md5Sign = "MemberID=" + MemberID + "~|~TerminalID=" + TerminalID  
+ "~|~TransID=" + TransID + "~|~Result=" + Result + "~|~ResultDesc=" +  
resultDesc + "~|~FactMoney=" + FactMoney + "~|~AdditionalInfo=" +  
additionalInfo + "~|~SuccTime=" + SuccTime + "~|~Md5Sign=" + md5key;
```

3.2.1. Request Parameters

Bfopay' s Page Notification Parameters:

Field	Description	Type	Example
MemberID	Merchant Identification	String	MemberID=100000178
TerminalID	Terminal Identification	String	TerminalID=10000001
TransID	Merchant order number	String (20) Unique	TransID=01000001781401011314
Result	Payment Result	Int 1 success 0 fail	Result=1
ResultDesc	Payment result description , eg: error code	String	resultDesc=01
FactMoney	amount	String	factMoney=10000 RMB unit :cent
AdditionalInfo	Attach information	String(200)	additionalInfo=virtual goods
SuccTime	The time point of successful payment	String(14), format: YYYYMMDDHHmmss	eg: tradeDate=20140101010203
Md5Sign	Md5 signature	String(255)	

Bfopay' s Backend System Notification Parameters:

Field	Description	Type	Example
MemberID	Merchant Identification	String	MemberID=100000178
TerminalID	Terminal Identification	String	TerminalID=10000001
TransID	Merchant order	String (20) Unique	TransID=01000001781401011314

	number		
Result	Payment Result	1 success 0 fail	Result=1
ResultDesc	Payment result description	Error code	resultDesc=01
FactMoney	amount	Unit cent RMB	factMoney=10000 RMB unit :cent
AdditionalInfo	Attach information	String(200)	additionalInfo=virtual goods
SuccTime	The time point of successful payment	String(14), format: YYYYMMDDHHmmss	eg: tradeDate=20140101010203
Md5Sign	Md5 signature	String(255)	

the partner system processes the request, and sends the result back (String ok) to the Bfopay' s system

Value	Description
OK	Send OK (In addition to the OK without anything)

Notification Md5Signature :

Md5Sign = "MemberID=" + MemberID + "~|~TerminalID=" + TerminalID
+ "~|~TransID=" + TransID + "~|~Result=" + Result + "~|~ResultDesc=" +
resultDesc + "~|~FactMoney=" + FactMoney + "~|~AdditionalInfo=" +
additionalInfo + "~|~SuccTime=" + SuccTime + "~|~Md5Sign=" + md5key;

Appendix I : Bank list

Bank name	Bank code (PayID)	Remarks
China unionpay online(C&D)	1080001	Big pay a special channel
China Merchant Bank(D)	3001	According to the regulations of the China Bank Policy
Industrial and Commercial Bank of China (D)	3002	According to the regulations of the China Bank Policy
China Construction Bank (D)	3003	According to the regulations of the China Bank Policy
Shanghai Pudong Development Bank (D)	3004	According to the regulations of the China Bank Policy
Agricultural Bank of China (D)	3005	According to the regulations of the China Bank Policy
China Minsheng Bank (D)	3006	According to the regulations of the China Bank Policy

China Industrial Bank (D)	3009	According to the regulations of the China Bank Policy
Bank of Communications (D)	3020	According to the regulations of the China Bank Policy
China Everbright Bank (D)	3022	According to the regulations of the China Bank Policy
Bank of China (D)	3026	According to the regulations of the China Bank Policy
Bank of Beijing (D)	3032	According to the regulations of the China Bank Policy
Pinan Bank(D)	3035	According to the regulations of the China Bank Policy
Guangdong Development Bank (D)	3036	According to the regulations of the China Bank Policy
Shanghai Rural Commercial Bank (D)	3037	According to the regulations of the China Bank Policy
China Post Saving	3038	According to the regulations of the China Bank Policy

Bank(D)		
China Citic Bank (D)	3039	According to the regulations of the China Bank Policy
Bank of Ningbo(D)	3046	According to the regulations of the China Bank Policy
Huaxia Bank(D)	3050	According to the regulations of the China Bank Policy
Bank of Shanghai(D)	3059	According to the regulations of the China Bank Policy
China Merchant Bank (C)	4001	According to the regulations of the China Bank Policy
Industrial and Commercial Bank of China (C)	4002	According to the regulations of the China Bank Policy
China Construction Bank (C)	4003	According to the regulations of the China Bank Policy
Shanghai Pudong Development Bank (C)	4004	According to the regulations of the China Bank Policy 定

Agricultural Bank of China (C)	4005	According to the regulations of the China Bank Policy
China Minsheng Bank (C)	4006	According to the regulations of the China Bank Policy
China Industrial Bank (C)	4009	According to the regulations of the China Bank Policy
Bank of Communications (C)	4020	According to the regulations of the China Bank Policy
China Everbright Bank (C)	4022	According to the regulations of the China Bank Policy
Bank of China(C)	4026	According to the regulations of the China Bank Policy
Beijing Bank(C)	4032	According to the regulations of the China Bank Policy
Pinan Bank(C)	4035	According to the regulations of the China Bank Policy
Guangdong Development Bank (C)	4036	According to the regulations of the China Bank Policy
Shanghai Rural	4037	According to the regulations of the

Commercial Bank (C)		China Bank Policy
China Post Saving Bank (C)	4038	According to the regulations of the China Bank Policy
China Citic Bank (C)	4039	According to the regulations of the China Bank Policy
Ningbo Bank(C)	4046	According to the regulations of the China Bank Policy
Huaxia Bank(C)	4050	According to the regulations of the China Bank Policy
Bank of Shanghai(C)	4059	According to the regulations of the China Bank Policy

NOTE: C-Credit Card , D-Debit Card, C&D-Credit Card & Debit Card

Appendix II: The following information use only test

- MemberID : 100000178
- TerminalID : 10000001
- key : abcdefg
- Gateway url: <http://tgw.bfopay.com/payindex>

Appendix III: Result Code List

- Transaction flag (Result)

Return value	Description
1	success
0	fail

- Result Code list :

Result code	Description
01	The Payment has been made successfully
0000	Fail
0001	System exception
0002	Timeout
0011	Routine maintenance
0012	Illegal merchant
0013	Sorry, your credit is running low
0014	More than pay limitation
0015	Bank card number or password is wrong
0016	Illegal IP address
0017	Repeat order amount differ



0018	God has been used
0019	The amount of the order error