



Cross Border mobile website Payment API Specification

Service Name : create_forex_trade_wap

Version : 1.0

Cross border mobile website payment specification



Table of Content

1 Document Description	4
1.1 Overview	4
1.2 Reader	4
1.3 业务术语	4
2 Function Demo	5
3 Interaction mode	9
4 Request Parameters Description	10
4.1 Defination	10
4.2 List of Parameters	10
4.3 example	13
5 Asynchronous Response Parameters Description	13
5.1 Definition	13
5.2 List of Parameters	13
5.3 Example	15
6 通知返回数据处理	15
6.1 Features of Sever Asynchronous Response Mode	15
6.2 Notification Trigger Condition	16
6.3 Partner Business Process Cautions	16
7 Signature Algorithms	17
7.1 Generate Pre-sign string	17
7.1.1 Parameters to sign	17
7.1.2 Generate Pre-sign string	17
7.2 Signature Generation	18
7.2.1 MD5 Signature	18
7.2.2 DSA、RSA Signature	19
8 How to Verify Alipay Request	19
9 Appendix	20
9.1 Cross border payment error code	20

Cross border mobile website payment specification



9.2 System Error	21
9.3 Currency List.....	21

1 Document Description

This document is aimed at foreign merchants implement Alipay WAP cashier. All the information in this document are the property of alipay company and strictly confidential. Without the written consent of alipay company, partners receive this document cannot copy, disclose, expose partial or all of the content of the manual.

1.1 Overview

This interface is used for wireless cross border trade, that is a China local customer buy items in a foreign website, the overseas partner's system will use this interface to offer cross-border payment service. This API display Alipay login page if the integration is correct otherwise throw an exception to reminder the user, this API is an instant payment type which support both foregin currency and RMB to execute a payment, but the settlement currency will always be foreign currency.

1.2 Reader

This document is meant for web developer, maintenance staff and manager with substantial website development capability, who understands not only at least one of following programming language, ASP, PHP, JAVA and ASP.net, but also the SQL database language.

1.3 业务术语

表1-1 业务术语

术语	解释
Cross border service	Domestic customer buy items via RMB from overseas website through Alipay channel
request	The process of transmitting data using HTTP protocol.
Return	The Website Synchronous Redirect Mode. Under this mode, after the buyer finish the payment, the Alipay website redirects back to the partner website and returns the result data to partner synchronously and automatically.

Cross border mobile website payment specification



Notify	The Server Asynchronous Response Mode. Under this mode, after the trade status changes, the Alipay server posts the notification to the partner server asynchronously and initiatively.
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2 Function Demo

Step1: customer choose to pay by Alipay on a foreign mobile website, then click pay.

Step2: Redirect the customer from merchant's website to Alipay mobile cashier.

Cross border mobile website payment specification



The screenshot displays the Alipay mobile payment interface. At the top, the status bar shows a speed of 0.26K/s, signal strength, and the time 16:07. The app header is dark blue with the Alipay logo, the text '手机支付密码' (Mobile Payment Password), and the email 'new***@alitest.com'. Below the header, the payment amount '0.07 元' is shown on the left, and '付款详情 >' (Payment Details) is on the right. A horizontal line separates this from the payment method '账户余额付款' (Pay from account balance) on the left, with a right arrow '>'. The main area contains a six-digit password input field with empty boxes, followed by a large '付款' (Pay) button. The bottom navigation bar includes icons for '返回' (Back), '关闭' (Close), '开发者' (Developer), a menu icon, and a refresh icon.

图2-1 Alipay wap cashier UI

Step3: user input password then submit。

Cross border mobile website payment specification



图2-2 Alipay mobile cashier:user confirm the payment

Step4 : Alipay display success after the payment is done.

Cross border mobile website payment specification

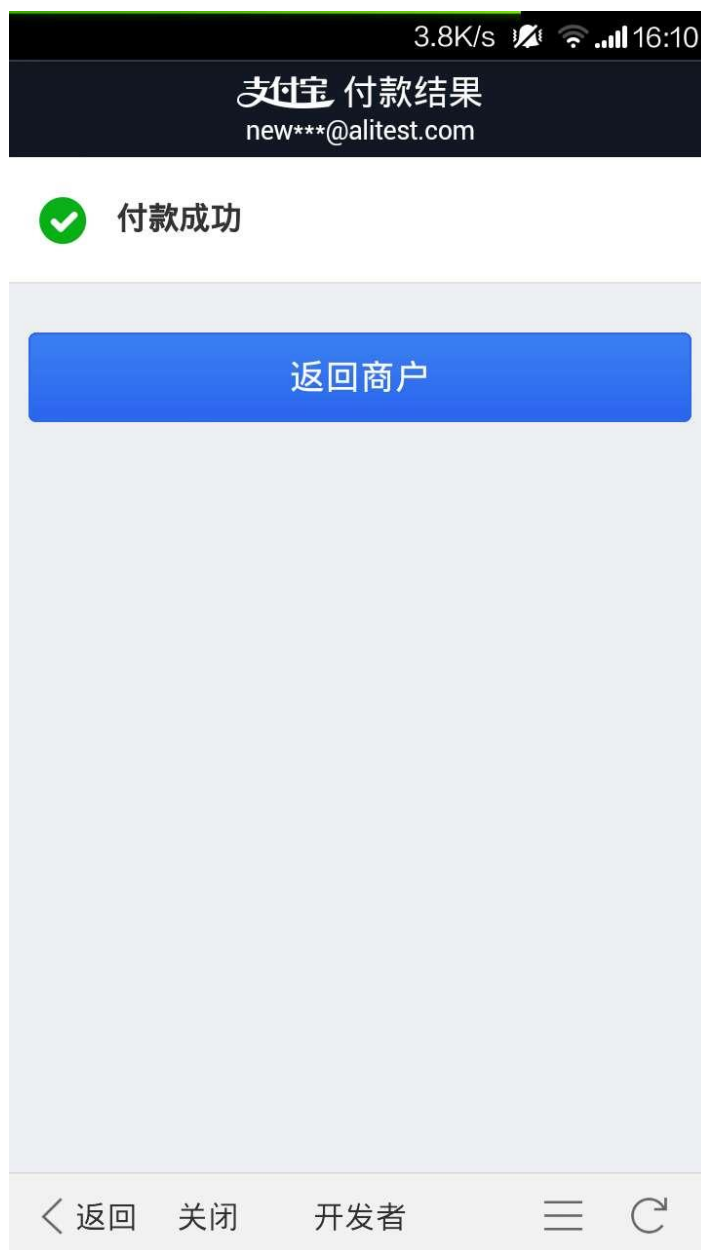


图2-3 Alipay display success message

Step5:redirect back to merchant's page automatically 。

Alipay will redirect back to partner's page which is specified by return_url parameter if partner set it in the request URL, the performance of the return_url page is totally decorated by partner's webpage designer

3 Interaction mode

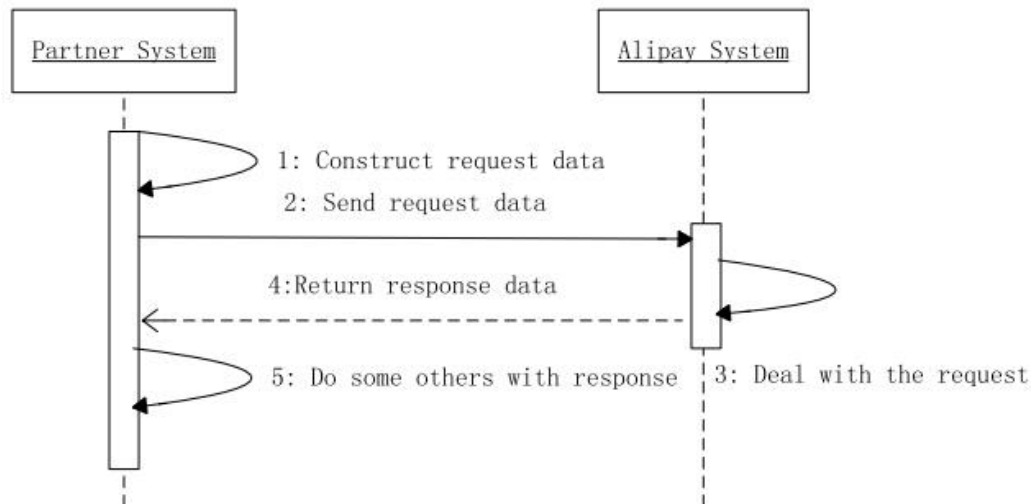


图3-1 Request/response model

(2) Construct Request Data

Partner, based on Alipay API specification, generate a data set and the signature through programming.

(3) Send Request Data

Send data set to Alipay system through the way of page re-direction or posting form.

(4) Alipay deal with the request

When receiving the data set, Alipay perform a set of security validation before dealing with these data.

(5) Return response data

Alipay will response the processed data to partner in the following two manners:

- The program reconstructs the URL link automatically, then the buyer current page redirects automatically and synchronously to the partner pre-set URL address with response data(Parameter name: return_url, if partner does not set it, this operation will be ignored.).
- Alipay server posts the notification to the partner server asynchronously and initiatively (Parameter name: notify_url, if partner does not set it, this operation will be ignored.)

(6) Partner deal with the response

Cross border mobile website payment specification



After partner receive the response data from return page (the parameter return_url identified) or notify page (the parameter notify_url identified), its own business logic (i.e. acquire token, order update) can be continued.

4 Request Parameters Description

4.1 Defination

Request parameters are sent to Alipay for data transmission, which can help Alipay to carryout data processing.

4.2 List of Parameters

Figure 4-1 Request Parameters Description

Parameter	Parameter Name	Type(byte length)	Description	Optional	Example
基本参数					
service	API Name	String	API Name	N	create_forex_trade_wa p
partner	Partner ID	String(16)	A unique partner ID to identify a contracted Alipay Account. A 16 digit number starts with 2088	N	2088002464631181
_input_charset	Encode Charset	String	The charset on partner website like utf-8、gbk、gb2312 etc.	N	utf-8
sign_type	Sign Type	String	DSA, RSA or MD5, capital letter	N	DSA
sign	Sign	String	Refer to Chapter 7 "Signature Algorithm"	N	7d314d22efba4f336fb187697793b9d2

Cross border mobile website payment specification



Parameter	Parameter Name	Type(byte length)	Description	Optional	Example
notify_url	Notify URL	String(200)	The URL for receiving Asynchronous Notification from Alipay server.	Y	http://www.test.com/alipay/notify_url.php
return_url	Return URL	String(200)	<p>The URL the partner set, which the Alipay page redirects to after the trade, it doesn't append to any result parameters</p> <p>Tips:</p> <ul style="list-style-type: none"> ➢ Internal address cannot be used for this field just like localhost. ➢ Self-defined query string is not allowed to be appended to the return_url like(http://www.test.com/return?param=xx&param=xx) <p>Any special characters cannot be used in the return_url exclude "&","=","_","-"</p>	Y	http://www.test.com/alipay/return_url.php
业务参数					
out_trade_no	Out Trade Number	String(64)	A unique number to identify a transaction in partner system, special character cannot be used here exclude "-" and "_"	N	6340824406334062
currency	Currency	String(8)	Abbreviated currency name.	N	GBP
subject	Subject	String(256)	Goods name/trade name/order name/order key words etc.	N	iphone6
body	Body	String(400)	The hyperlink for goods show on the cashier page.	Y	perfect phone

Cross border mobile website payment specification



Parameter	Parameter Name	Type(byte length)	Description	Optional	Example
total_fee	Total Fee (foreign currency)	Number	A floating number ranging 0.01~1000000.00, specify the foreign price of the items If use the total_fee, don't use the rmb_fee	Y	800.00
rmb_fee	Rmb fee (RMB pricing)	Number	A floating number ranging 0.01~1000000.00, specify the RMB price of the items If use the rmb_fee, don't use the total_fee	Y	100.25
supplier	supplier	String(100)	supplier	Y	USA
timeout_rule	timeout_rule	String(10)	Set time limit for an unfinished transaction, if expired, the transaction will be closed automatically. Options :5m、10m、15m、30m、1h、2h、3h、5h、10h、12h Default is 12h.	Y	2h

description:

Attention1: In the case a merchant wish to price their products in RMB, the merchant shall not change the value of the currency parameter, instead he shall just replace the total_fee with rmb_fee, and then his trade will appears in RMB in front of user.

Attention2: The request parameters can only be accepted by the Alipay system if they are signed according to the signature mechanism specified in this document. The parameter "timeout_rule", the default value is 12h. If you want to use this parameter to change timing, you need to contact Alipay technical. Otherwise you will have an error.

https://mapi.alipay.com/gateway.do?body=perfect+phone&subject=iphone6&sign_type=DSA&sign=pwIhj0bgdaejia7nko4m%2Fuwj3nxs kmxus9hoxgyrlunlpmma29tq==&out_trade_no=6340824406334062¤cy=GBP&total_fee=800.00&partner=2088002464631181&supplier=USA¬ify_url=http%3A%2F%2Fwww.test.com%2Falipay%2Fnotify_url.php&timeout_rule=2h&return_url=http%3A%2F%2Fwww.test.com%2Falipay%2Freturn_url.php&input_charset=UTF-8&merchant_url=http%3A%2F%2Fwww.yoursite.com%2Fpartnerurl.htm&service=create+forex+trade+wap



<https://mapi.alipay.com/gateway.do>。

Description

When Alipay finish processing partner's requests, it will notify partner system initiatively by server with this data set. This set of data is the Asynchronous Response Parameters.

Figure 5-1 Asynchronous Response Parameters Description

Parameter	Parameter Name	Type (byte length)	Description	Optional	Example
Basic Parameter					


Cross border mobile website payment specification



Parameter	Parameter Name	Type (byte length)	Description	Optional	Example
notify_type	通知类型	String	通知的类型。	不可空	trade_status_sync
notify_time	Notify Time	Date	Notify Time (Alipay showed time) Format: yyyy-MM-dd HH:mm:ss。	N	2009-08-12 11:08:32
notify_id	Notify ID	String	Alipay Notify ID, partner may use this ID to verify the request is valid or not.	N	70fec0c2730b27528665af4517c27b95
sign_type	Sign Type	String	DSA, RSA or MD5, capital letter	N	MD5
sign	sign	String	Refer to Chapter 7 "Signature Algorithm"	N	_p_w_l_h_j0b_gd_aej ia7n_ko4_m%2Fu_w _jd3_nx_s_k_mxus9_ hoxg_y_r_lunli_pmm a29_t_q==
notify_register_time	Notification register time	Date	Notification register time in Alipay Database	Y	2009-08-12 11:06:32
Business Parameter					
out_trade_no	Out Trade Number	String	A unique number to identify a transaction in partner system	N	3824701800653976
trade_no	Trade Number	String	The unique trade number in Alipay system. Length from 16 to 64.	N	2010012489527852
trade_status	Trade Status	String	The status of this transaction. , please refer to “错误!未找到引用源。TRADE STATUS”。	N	TRADE_FINISHED
total_fee	Foreign amount	Number	Foreign amount	N	15
currency	currency	String	Settlement currency	N	GBP

5.3 Example

http://www.merchant.com/alipay/notify_url.php?trade_status=TRADE_FINISHED&trade_no=2010012489527852&out_trade_no=3824701800653976&total_fee=15¤cy=GBP¬ify_reg_time=2009-08-12+11%3A06%3A32¬ify_type=trade_status_sync¬ify_time=2009-08-12+11%3A08%3A32¬ify_id=70fec0c2730b27528665af4517c27b95&sign_type=DSA&sign=_p_w_l_h_j0b_gd_aej_ia7n_ko4_m%252Fu_w_jd3_nx_s_k_mxus9_hoxg_y_r_lunli_pmma29_t_q%3D%3D

 description:

For reference only, the gateway address will be each specific callback page.

6 通知返回数据处理

6.1 Features of Sever Asynchronous Response Mode

- (1) Make sure the Notification Page (notify_url) is absolutely blank, without space, html tag, or any error message threw from the program system.
- (2) Parameters in this page can be acquired with GET method, like request.Form("out_trade_no"), \$_POST['out_trade_no'].
- (3) This response will be used, if Alipay initiatively notify.
- (4) Alipay will notify when there is a real transaction in Alipay system and the status of that transaction has changed. (In Instant Payment service "Pending for payment" does not trigger notification).
- (5) Interaction between servers, unlike interaction between websites which is visible, is usually not displayable.
- (6) When the first time a transaction status is changed (in Instant Payment service is when transaction finished), not only page would redirect to partner website but also would Alipay notify partner system
- (7) After program is executed, the page must print "success" (without quote). If not, Alipay server would keep re-sending notification, until over 24 hour 22 minutes
Generally, there are 8 notifications within 25 hours (Frequency: 2m,10m,15m,1h,2h,6h,15h)

Cross border mobile website payment specification



- (8) After program is executed, there would not be redirection operation on the page, for Alipay would not recognize a “success” string, so it would be regarded as an error, and Alipay system would keep sending notification.
- (9) cookies、session would be invalid on this page, which means these data would not be captured.
- (10) The configuration and testing of this system must be on a server, via internet
- (11) The main effect of this mood is to present transaction lost, so even redirection failed, the order in partner system still update.
- (12) As long as the partner receives the sever asynchronous response and prints “success”, the parameter notify_id would be invalid. It means when Alipay send same asynchronous notification (include the re-sending notifications because of no “success”), the parameter notify_id would not change.

6.2 Notification Trigger Condition

表6-1 通知触发条件

触发条件名	触发条件描述	触发条件默认值
TRADE_FINISHED	交易成功	true（触发通知）
TRADE_CLOSED	交易关闭	false（不触发通知）

6.3 Partner Business Process Cautions

When Alipay complete a transaction, it will return back to, and notify partner website. Partner can acquire synchronous response data with GET method or asynchronous response data with POST method, and validate it with partner's business logic. Thus, partner need to determine whether the same operation has been done before. Otherwise, partner has to take the risk of the lost.

- (1) After the completion of a transaction, partner may call batch refund API, Alipay system will send a notification to partner, detail information please refer to Batch Refund API Specifiaction
- (2) When a partner use refund service, system will sent a notification includes parameter refund_status and gmt_refund to partner

7 Signature Algorithms

7.1 Generate Pre-sign string

7.1.1 Parameters to sign

In the list of request parameters, all of them need to be signed except sign、sign_type . (in some case even sign_type also need to be signed)

In the list of response parameters, all of them need to be signed except sign、sign_type.

7.1.2 Generate Pre-sign string

For following data set:

```
string[] parameters={  
    "service=create_forex_trade_wap",  
    "partner=2088002464631181",  
    "_input_charset=utf-8",  
    "notify_url=http://www.test.com/alipay/notify_url.php",  
    "return_url=http://www.test.com/alipay/return_url.php",  
    "out_trade_no=6340824406334062",  
    "subject=iphone6",  
    "currency=GBP",  
    "total_fee=800.00",  
    "merchant_url=http://www.yoursite.com/partnerurl.htm"  
};
```

Rearrange parameters in the data set alphabetically

And connect rearranged parameters with &:

```
_input_charset=utf-8&currency=GBP&merchant_url=http://www.yoursite.com/partnerurl.htm&notify_url=http://www.test.com/alipay/notify_url.php&out_trade_no=6340824406334062&partner=2088002464631181&return_url=http://www.test.com/alipay/return_url.php&service=create_forex_trade_wap&subject=iphone6&total_fee=800.00
```

This is the pre-sign string

Cross border mobile website payment specification



Notice:

- Parameters without a value, can be excluded from sign;
- Charset in sign must be consistent with the charset used previously
- If `_input_charset` is passed, it also shall be signed.
- According to HTTP protocol, special character like `&`, `@` needs to do URL encoding, therefore the request receiver can get correct value. In this situation, pre-sign string shall be the original value instead of encoded one. For example: calling a particular API need to sign the parameter email, the pre-sign string shall be [email=test@msn.com, rather](#) than `email=test%40msn.com`.

7.2 Signature Generation

7.2.1 MD5 Signature

Private Key is necessary for MD5 signature. The MD5 private key is the 32-byte string which is composed of English letters and numbers. Partner can log on the Merchant Service Center (<https://global.alipay.com>) to install the digital certificate and click "Trade Security Code" ("交易安全校验码") in the menu of "Technical Service" ("技术服务") to check the private key.

- **Sign for request**

After the partner receives the pre-sign string during requesting, the private key should be appended to the pre-sign string to generate the new string. Then this new string would be calculated with the MD5 signature algorithm by the MD5 signature function. Thus, the result 32-byte string is the signature result string. (the value is given to parameter "sign")

- **Signature Verification for response**

After receiving the pre-sign string during responding from Alipay system, the next step is the same as the procedure of Sign for request. When the 32-byte signature result string is generated, it

should be verified whether the value is equal to the value of the parameter “sign”. If equal, the verification would be passed.

7.2.2 DSA、RSA Signature

Both private key and public key are necessary for DSA or RSA signature. Both private key and public key are generated with OPENSSL by partner. Partner and Alipay need to exchange their own public key. Therefore, partner uses Alipay public key and partner private key.

- **Sign for request**

After the partner receives the pre-sign string during requesting, the partner private key and the pre-sign string are used in the RSA or DSA signature algorithm by the RSA or DSA signature function to get the result string. (the value is given to parameter “sign”)

- **Signature Verification for response**

After receiving the pre-sign string during responding from Alipay system, the Alipay public key, the pre-sign string and the parameter “sign” are used in the RSA or DSA signature asymmetric algorithm by the RSA or DSA signature function to accomplish the signature verification.

8 How to Verify Alipay Request

- **Purpose**

Validate a notification is from Alipay Server, ensure the authenticity of the response data.

- **mechanism**

- Acquire the parameter notify ID (notify_id), assemble it into a URL according to Alipay requirement, e.g.:
- https://mapi.alipay.com/gateway.do?service=notify_verify&partner=2088002396712354¬ify_id=RqPnCoPT3K9%252Fvwbh3l%252BFioE227%252BPfNMl8jwyZqMliXQWxhOCmQ5MQO%252FWd93rvCB%252BaiGg

Cross border mobile website payment specification



- Through this request URL, partner can acquire result data from Alipay server with the method of programming to simulate the http request interacting with Alipay server.
- If returned information is true, verification success, otherwise fail.

9 Appendix

9.1 Cross border payment error code

Error Code	Description
ILLEGAL_SIGN	Illegal signature
ILLEGAL_EXTERFACE	incorrect service name
ILLEGAL_ARGUMENT	Illegal parameters
HASH_NO_PRIVILEGE	No sufficient rights to complete the query
ILLEGAL_SERVICE	Service Parameter is incorrect
ILLEGAL_PARTNER	Incorrect Partner ID
ILLEGAL_SIGN_TYPE	sign_type parameter is incorrect
FOREX_MERCHANT_NO T_SUPPORT_THIS_CURR ENCY	Cannot support this kind of currency
ILLEGAL_SECURITY_PR OFIE	Cannot support this kind of encryption
REPEAT_OUT_TRADE_N O	out_trade_no parameter is repeated
ILLEGAL_CURRENCY	Currency parameter is incorrect
ILLEGAL_PARTNER_EXT ERFACE	Service is not activated for this account
SYSTEM_EXCEPTION	Contact Alipay technical support

Cross border mobile website payment specification



	for help
ILLEGAL_TIMEOUT_RULE	Timeout_rule parameter is incorrect

9.2 System Error



notice:

Please contact Alipay technical support if you encounter these error code

错误代码 (error_code)	含义
SYSTEM_ERROR	Alipay system error
SESSION_TIMEOUT	Session timeout
ILLEGAL_TARGET_SERVICE	Incorrect target_service
ILLEGAL_ACCESS_SWITCH_SYSTEM	Partner do not has the permission to access this system
ILLEGAL_SWITCH_SYSTEM	System switch error
EXTERFACE_IS_CLOSED	Interface is closed

9.3 Currency List

Abbreviation	Currency	Decimal
GBP	British Sterling	2
HKD	Hong Kong Dollar	2
USD	U.S. Dollar	2
CHF	Confederation Helvetica Franc	2
SGD	Singapore Dollar	2

Cross border mobile website payment specification



SEK	Swedish Krona	2
DKK	Danish Krone	2
NOK	Norwegian Krone	2
JPY	Japanese Yen	0
CAD	Canada Dollar	2
AUD	Australian Dollar	2
EUR	Euro	2
NZD	New Zealand Dollar	2
THB	Thailand Baht	2