



Cross Border mobile website Payment API Specification

Service Name : create_forex_trade_wap

Version : 1.1

Table of Content

1 Document Description	4
1.1 Overview	4
1.2 Reader	4
1.3 Terminology	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
9.2 System Error	21

Cross border mobile website payment specification



9.3 Currency List.....	21
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1 Document Description

This document is aimed at foreign merchants integrating with Alipay WAP cashier. All the information in this document is the property of alipay company and strictly confidential. Without the written consent of alipay company, partners receiving 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, which is a Chinese local customer buying items from a foreign website, the overseas partner's system will use this interface to offer cross-border payment service. This API displays Alipay login page if the integration is correct. Otherwise it throws an exception to reminder the user. This API is an instant payment type which supports both foregin currency and RMB to execute a payment, but the settlement currency can be a foreign currency.

1.2 Readers

This document is aimed for web developers with substantial website development knowledge, who understands not only at least one of following programming language, ASP, PHP, JAVA and ASP.net.

1.3 Terminology

表1-1 Terms

Terms	Explanantion
Cross border service	Chinese domestic customers buy items from overseas website through Alipay channel using RMB
request	The process of transmitting data using HTTP protocol.
Return	The Website Synchronous Redirect Mode. Under this mode, after the buyer finishes the payment, the Alipay website redirects back to the partner website and returns the result data to partner synchronously and automatically.

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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.
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2 Function Demo

Step1: The customer chooses to pay by Alipay on a foreign mobile website, then clicks pay.

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

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图2-1 Alipay wap cashier UI

Step3: The user inputs the payment password then submit.

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图2-2 Alipay mobile cashier: The user confirms the payment

Step4 : Alipay displays success after the payment is done.

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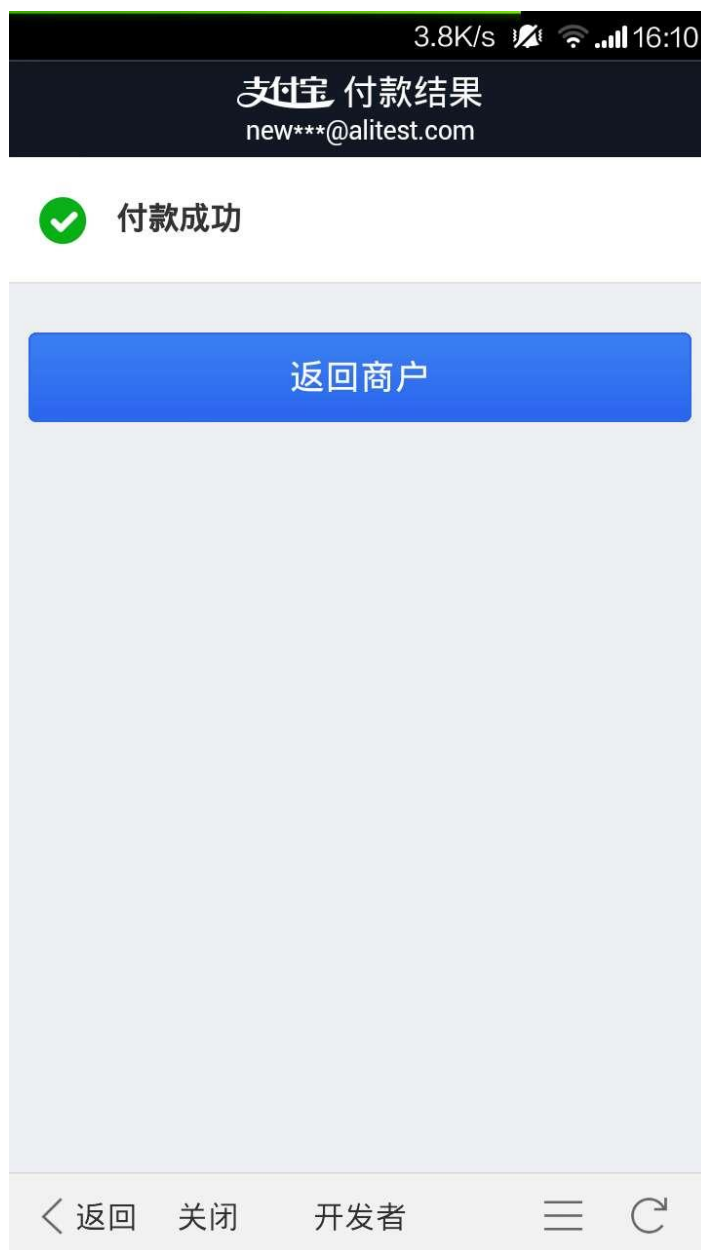


图2-3 Alipay display success message

Step5: Re-direct back to merchant's page automatically.

Alipay will re-direct back to partner's page which is specified by "return_url" parameter if the partner sets it in the request URL.

3 Interaction mode

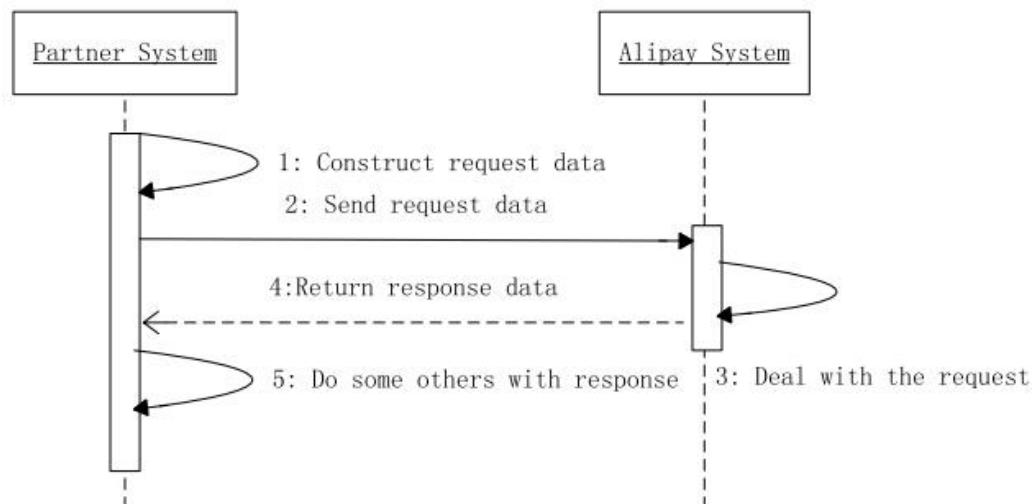


图3-1 Request/response model

(1) Constructing the request data

The partner, based on Alipay API specification, generates a data set and the signature through programming.

(2) Sending the request data

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

(3) Alipay handles with the request

On receiving the data set, Alipay performs a set of security validation before handling the data.

(4) Returning the response data

Alipay will respond in the following two ways:

- The program constructs the URL link automatically, then the buyer current page redirects automatically and synchronously to the partner pre-set URL address with response data in the URL(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.)

(5) Partner handles the response

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After partner receives 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 with the returned status.

4 Request Parameters Description

4.1 Defination

Request parameters are sent to Alipay for for the futher processing.

4.2 List of Parameters

Figure 4-1 Request Parameters Description

Parameter	Parameter Name	Type(byte length)	Description	Optional	Example
Basic Parameters					
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, in capital letter	N	DSA
sign	Sign	String	Refer to Chapter 7 "Signature Algorithm"	N	7d314d22efba4f336fb1 87697793b9d2

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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 sets, 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	N	6340824406334062
currency	Currency	String(8)	Abbreviated currency name	N	GBP
subject	Subject	String(256)	Item name/ order name/order key words etc.	N	iphone6
body	Body	String(400)	The detailed description for the item(s) show on the cashier page.	Y	perfect phone
total_fee	Total Fee (foreign currency)	Number	<p>A floating number ranging 0.01~1000000.00, specify the foreign price of the items</p> <p>If use the total_fee, don't use the rmb_fee</p>	Y	800.00

Cross border mobile website payment specification



Parameter	Parameter Name	Type(byte length)	Description	Optional	Example
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

remarks:

- Some parameters are in the form of String. If no length is specified, that means the system will not limit the length of the string. (However, in rare occasions, the lengthy value might hit the DB limit on the specific field.)
- The interface supports both RMB and foreign currency. If "total_fee" is not empty, the trade will be in foreign currency. If "rmb_fee" is not empty, then the trade will be in RMB.
- The two fields "total_fee" and "rmb_fee" can not be both empty, nor both non-empty. There must be one and only one of them to be non-empty.

4.3 example

https://mapi.alipay.com/gateway.do?body=perfect+phone&subject=iphone6&sign_type=DSA&sign=pwIhj0b_gd_aejia7n_ko4_m%2Fu_w_jd3_nx_s_k_mx_us9_hoxg_y_r_lunli_pmma29_t_q==&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

 description:

This sample is for reference only, Alipay gateway:
<https://mapi.alipay.com/gateway.do>.

5 Asynchronous Response Parameters Description

5.1 Definition

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

5.2 List of Parameters

Figure 5-1 Asynchronous Response Parameter 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	Type of the notification	String	The type of the notification.	N	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_aejia7n_ko4_m%2Fu_w_jd3_nx_s_k_mxus9_hoxg_y_r_lunli_pmma29_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 "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_aejia7n_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 Handling of the Response

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 the 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 the page would be redirected to partner website, but also Alipay would 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 should not be redirection operation on the page. Otherwise, Alipay would not recognize a “success” string, and it would be regarded as an error. Alipay system would keep sending notification.
- (9) The cookies、session would be invalid on this page, which means this data would not be captured.
- (10) The configuration and testing of this system must be with a server, via internet.
- (11) The main purpose of this mood is to present transaction lost, so even redirection failed, the order in partner system still update.
- (12) If the partner receives the asynchronous response and acknowledges “success”, Alipay will stop to re-send same asynchronous notification. While Alipay re-sends the asynchronous notification, the parameter "notify_id" will stay the same.

6.2 Notification Trigger Condition

表6-1 Notification Trigger Condition

Trigger condition	Description	Default Value
TRADE_FINISHED	The transaction is successful	true (trigger notification)
TRADE_SUCCESS	The Alipy payment is successful.	true (trigger notification)
WAIT_BUYER_PAY	The transaction is created	false (不触发通知)
TRADE_CLOSED	The transaction is closed	false (do not trigger notification)

6.3 Partner Business Process Cautions

When Alipay completes 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. The partner needs to determine whether e proper response validation is done. Otherwise, partner has to take the potential loss with that.

- (1) After the completion of a transaction, partner may call batch refund API, Alipay system will send a notification to partner. For more detailed information please refer to Batch Refund API Specification
- (2) When a partner use refund service, system will send 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 &:

Cross border mobile website payment specification



```
_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



Notice:

- Parameters without a value, must be excluded from data list to sign;
- Charset in sign must be consistent with the charset used previously
- If "_input_charset" is passed in, 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](mailto: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 which is from Alipay Server, ensure the authenticity of the response data.

- **mechanism**

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- 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%252BPfNMI8jwyZqMliXQWxhOCmQ5MQO%252FWd93rvCB%252BaiGg
- 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 the returned information is true, verification succeeds, otherwise it fails.

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_NOT_SUPPORT_THIS_CURRENCY	Cannot support this kind of currency
ILLEGAL_SECURITY_PROFILE	Cannot support this kind of encryption
REPEAT_OUT_TRADE_N	out_trade_no parameter is

Cross border mobile website payment specification



O	repeated
ILLEGAL_CURRENCY	Currency parameter is incorrect
ILLEGAL_PARTNER_EXT ERFACE	Service is not activated for this account
SYSTEM_EXCEPTION	Contact Alipay technical support 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

Cross border mobile website payment specification



HKD	Hong Kong Dollar	2
USD	U.S. Dollar	2
CHF	Confederation Helvetica Franc	2
SGD	Singapore Dollar	2
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
RUB	Russian Rouble	2
MOP	Macau Pataca	2