

**Mobile Payment Interface SDK2.0 Standard Version**

**Service Name: Alipay**

**Version No.: 1.2**

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# File Description

## Function Description

Alipay Mobile Payment SDK2.0 Standard Version is mainly used for provding convenient, safe and reliable payment service to third-party application. This document mainly describes the application mode of SDK payment interface available for the developers of merchants.

## Target Reader

This file is geared to the developers and administrators with certain capacity to explore Android/iOS client and knowledge of Android/iOS client.

## Business Terms

Table 1-1 Business Terms

|  |  |
| --- | --- |
| Term | Interpretation |
| Request | A process of transmitting data required in the form of character string by Android/iOS client to receipient party. |
| Notification | Asynchronous notification from server. Alipay server takes the initiative to notify merchant’s website and feeds back the processing result to merchant’s website after the data received is processed by Alipay. |
| Return | Alipay returns the processing result data in the form of character string to Android/iOS client directly. |

# Function Demo

Client of External Merchant

Mobile Express SDK Client

Mobile Express Server

Server of External Merchant

用户

User

1. Use Alipay to make payment

2. Call payment interface

3. Payment request

4. Complete payment

5. Send payment notification asynchronously

6. Return payment result

7. Interface returns payment result

8. Show transaction result

Figure 2-1 Flow Chart of Mobile Express Payment

Process Instruction: (take Android platform as an example):

* + - * 1. **Step 2 Call payment interface:** this information is the payment object “PayTask” provided by SDK decribed in this interface, Alipay checkout counter will be aroused by transmitting the order information of merchant to pay; for the format of order, please refer to “5 Request Parameter Description”.
        2. **Step 3:** mobile express SDK will send payment request according to the parameter provided by the merchant’s APP.
        3. **Step 5 Send payment** **notification asynchronously**: mobile express server sends asynchronous notification to the merchant’s server, please refer to “7 Description of Asynchronous Notification Parameter from Server”.
        4. **Step 7 Interface returns payment result:** merchant’s application client acquires payment result through the Handler object of Acitity of payment called at that time and its callback function, please refer to “6 Synchronous Notification Parameter Description”.

# Data Interation



2.1.2: Return payment result

2.1.1: Complete payment

2.1.3: Send payment advice asynchronously

2.1.4: Receive response

Movable Shortcut SDK Client

Merchant

Client

Movable Shortcut SDK Server

2.2.1: Process corresponding data

Merchant

Server

2.2: Return payment result synchronous

2: Send request data

2.1: Build up business data

1: Build up order data and sign

Figure 3-1 Interactive Pattern between Merchant’s Client and Alipay Mobile Payment SDK

* + - * 1. Build up order data and sign

Merchant’s client generates signature result and data set to be transmitted to Alipay mobile payment SDK through relevant application according to the interface rules provide by Alipay mobile payment SDK.

* + - * 1. Send request data

Transmit the data set built-up to Alipay mobile payment SDK.

* + - * 1. Process request data by Alipay mobile payment SDK

Alipay mobile payment SDK transmits the request data to Alipay server after packing up the same according to business rules; server will conduct a series of verification, such as safety verification, after which the server will process the data request sent in this time.

* + - * 1. Result data returned for process

For the transaction processed completely, Alipay will feed back the data to merchant’s App and merchant’s server respectively in two different ways.

* For Android/iOS client, SDK client will feed back the processed data result to Merchant’s client directly;
* Alipay server takes the initiative to send notification, and calls the page path set by merchant at request (parameter is notify\_url; if merchant fails to set the page path, this operation can not be executed.).
  + - * 1. Process the returned result data acquired

Merchant may process the result data according to their own business logic (such as order update, recharge to member ID automatically)after receiving the same returned by Alipay from client snychronous notification receiving module or server asynchronous notification receiving module. Synchronous notification result shall be only for result exihibition, the data to be input in database shall be subject to asynchronous notification.

# Mode of Interface Calling

## iOS

### Interface Description

SDK interface on iOS platform is as follows:

Table 4-1 iOS SDK Interface Table

| Interface Name | Interface Description |
| --- | --- |
| AlipaySDK | Provide payment function. |

Alipay interface is mainly used for providing order payment function to merchant. The modes provided by this interface are as follows:

Table 4-2 Alipay Interface Mode Table

| Mode Name | Mode Description |
| --- | --- |
| +(Alipay \*)defaultService; | Obtain service examples. |
| -(BOOL)hasAuthorized; | Check if there is local authenticated account. |
| - (void)payOrder:(NSString \*)orderStr fromScheme:(NSString \*)schemeStr callback:(PaymentCallbackBlock)callbackBlock; | Pay and return result through callback. |

Table 4-3 Pay Mode Description Table

|  |  |
| --- | --- |
| Mode Prototype | - (void)payOrder:(NSString \*)orderStr fromScheme:(NSString \*)schemeStr callback:(PaymentCallbackBlock)callbackBlock; |
| Mode Function | Provide express order payment function to merchant. |
| Parameter | **NSString\* scheme**  URL protocol registered by merchant’s application, which is used for calling back merchant’s application after payment.  **PaymentCallbackBlock callbackBlock**  Callback function, login exemption upon return, payment result of express payment SDK. Please refer to “6 Synchronous Notification Parameter Description” for relevant results.  **NSString\* info**  Mainly contains order information of merchant, the form is key="value", link with others by &.  Examples of payment parameter are as follows:  **partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="test test "&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&sign="lBBK%2F0w5LOajrMrji7DUgEqNjIhQbidR13GovA5r3TgIbNqv231yC1NksLdw%2Ba3JnfHXoXuet6XNNHtn7VE%2BeCoRO1O%2BR1KugLrQEZMtG5jmJIe2pbjm%2F3kb%2FuGkpG%2BwYQYI51%2BhA3YBbvZHVQBYveBqK%2Bh8mUyb7GM1HxWs9k4%3D"&sign\_type="RSA"**  Please refer to “5 Request Parameter Description” for the implications of all fields. |

### Callback Interface

Upon completion of payment process, payment result will be returned synchronously through **callbackBlock.**

Returned result shall be judged synthetically by **resultStatus** and the value of **result** fields, by which the payment result can be determined. If the verifications on **resultStatus=9000** and **success="true"** as well as **sign="xxx"** are approved, we can know the payment succeeds, otherwise, the payment shall be deemed to fail. For the occasion with lower security level, the payment result can be judged only from **resultStatus** and **success="true".** The following is an information example of successful order payment:

resultStatus={9000};memo={};result={partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="test test "&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&success="true"&sign\_type="RSA"&sign="hkFZr+zE9499nuqDNLZEF7W75RFFPsly876QuRSeN8WMaUgcdR00IKy5ZyBJ4eldhoJ/2zghqrD4E2G2mNjs3aE+HCLiBXrPDNdLKCZgSOIqmv46TfPTEqopYfhs+o5fZzXxt34fwdrzN4mX6S13cr3UwmEV4L3Ffir/02RBVtU="}

## Android

Express payment SDK interface on Android platform is as follows:

Table 4-4 Android SDK Interface Table

| Interface Name | Interface Description |
| --- | --- |
| PayTask | SDK provides object interfaces of payment and query. |

PayTask object is mainly used for providing order payment function to merchant, querying whether there is authenticated Alipay account on this device terminal, and acquiring current SDK verision number.

The modes provided by this interface are as follows:

Table 4-5 payTask.pay Description Table

|  |  |
| --- | --- |
| Mode Prototype | PayTask payTask = new PayTask(activity);  payTask.pay(orderInfo); |
| Mode Function | Provide order payment function to merchant |
| Mode Parameter | Instantiated PayTask, a living example for transmitting parameter activity.  String orderInfo  Mainly contains order information of merchant, the form is key="value",linked with others by &.  Examples of payment parameter are as follows:  partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="test test "&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&sign="lBBK%2F0w5LOajrMrji7DUgEqNjIhQbidR13GovA5r3TgIbNqv231yC1NksLdw%2Ba3JnfHXoXuet6XNNHtn7VE%2BeCoRO1O%2BR1KugLrQEZMtG5jmJIe2pbjm%2F3kb%2FuGkpG%2BwYQYI51%2BhA3YBbvZHVQBYveBqK%2Bh8mUyb7GM1HxWs9k4%3D"&sign\_type="RSA"  Please refer to “5 Request Parameter Description” for the implications of all fields. |
| Return Value | Result of callback by this mode. In general, the format of character string is as follows:  resultStatus={9000};memo={};result={partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="test test "&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&success="true"&sign\_type="RSA"&sign="hkFZr+zE9499nuqDNLZEF7W75RFFPsly876QuRSeN8WMaUgcdR00IKy5ZyBJ4eldhoJ/2zghqrD4E2G2mNjs3aE+HCLiBXrPDNdLKCZgSOIqmv46TfPTEqopYfhs+o5fZzXxt34fwdrzN4mX6S13cr3UwmEV4L3Ffir/02RBVtU="}  Please refer to “6 Synchronous Notification Parameter Description” for the implications of all fields. |

Table 4-6 payTask.checkAccountIfExist Description Table

|  |  |
| --- | --- |
| Mode Prototype | PayTask payTask = new PayTask(activity);  payTask.checkAccountIfExist (); |
| Mode Function | Query whether there is authenticated Alipay account on this terminal. |
| Mode Parameter | Instantiated PayTask, a living example for transmitting parameter activity. |
| Return Value | Boolean type value |

 Attention:

payTask.checkAccountIfExist mode is not required to be called prior to payment interface PayTask pay mode, merchant shall use so according to its own need.

Table 4-7 payTask.getVersion Description Table

|  |  |
| --- | --- |
| Mode Prototype | PayTask payTask = new PayTask(activity);  payTask.getVersion(); |
| Mode Function | Acquire current SDK version number. |
| Mode Parameter | Instantiated PayTask, a living example for transmitting parameter activity. |
| Return Value | String type value, such as “2.0.0”. |

# Request Parameter Description

## Implication

Request parameter is the request data provided to Alipay by merchant in conducting data interaction with Alipay so that further process can be conducted by Alipay based on these data.

## List

Table 5-1 Request Parameter Description

| Parameter | Parameter Name | Type (Byte Length) | Parameter Description  Y for Yes  N for No | Nullable | Example |
| --- | --- | --- | --- | --- | --- |
| **Basic Parameter** | | | | | |
| service | Interface name | String | Interface name. Fixed value. | N | mobile.securitypay.pay |
| partner | Merchant ID | String(16) | Unique Alipay user number corresponding to authorized Alipay account number.  Be composed of 16 numbers beginning with 2088. | N | 2088101568358171 |
| \_input\_charset | Parameter encoding character set | String | Encoding format used in merchant’s website; fixed format is utf-8. | N | utf-8 |
| sign\_type | Signature type | String | Signature type, only support RSA currently. | N | RSA |
| sign | Signature | String | Please refer to “9 Signature Mechanism”. | N | lBBK%2F0w5LOajrMrji7DUgEqNjIhQbidR13GovA5r3TgIbNqv231yC1NksLdw%2Ba3JnfHXoXuet6XNNHtn7VE%2BeCoRO1O%2BR1KugLrQEZMtG5jmJIe2pbjm%2F3kb%2FuGkpG%2BwYQYI51%2BhA3YBbvZHVQBYveBqK%2Bh8mUyb7GM1HxWs9k4%3D |
| notify\_url | Page path of asynchronous notification from sever | String(200) | Alipay server takes the initiative to notify the page http path designated by merchant’s website. | N | http://notify.msp.hk/notify.htm |
| app\_id | Client ID | String | Identify client. | N | external |
| appenv | Client source | String | Identify client source. Parameter value is agreed as follows:  appenv=”system=client platform name ^version=business system version”, for example:  appenv=”system=iphone^version=3.0.1.2”  appenv=”system=ipad^version=4.0.1.1” | N | appenv=”system=android^version=3.0.1.2” |
| **Business Parameter** | | | | | |
| out\_trade\_no | Unique order ID in merchant’s website | String(64) | Unique order ID in merchant’s website of Alipay | N | 0819145412-6177 |
| subject | Product name | String(256) | Product title/transaction tile/order title/order keywords, etc.  The length of this parameter is up to 128 Chinese characters. | N | Test |
| payment\_type | Payment type | String(4) | Payment type. The default value is 1 ( purchase of goods) | N | 1 |
| seller\_id | Seller ID | String(16) | Seller ID (in the format of email or mobile phone) or the corresponding unique user ID (16 numbers beginning with 2088) | N | xxx@alipay.com |
| total\_fee | Total fee | Number | Total fee of this order, the unit is RMB-Yuan. The range of values is [0.01, 100000000.00], such value can have up to two digits after the decimal point. | N | 0.01 |
| rmb\_fee | RMB pricing amount | Number | 0.01～1000000.00  Use this parameter to replace total\_fee if partner wish to price their product in RMB.  If use the total\_fee, don’t use the rmb\_fee. | Y | 1 |
| body | Product details | String(1000) | Specific description of the transaction. In case of a variety of goods, please accumulate the character strings descrbing the goods, and transmit the same to body. | N | testtest |
| currency | Currency | String(10) | Please refer to the abbreviation set out in Currency List. | N | USD |
| forex\_biz | Forex\_biz | String(10) | “FP” is the only value | N | FP |
| it\_b\_pay | Overtime of non-payment transaction | String | Set the overtime of non-payment transaction, the transaction will be closed automatically once the time is up.  Range of values: 1m～15d, or absolute time (for example: 2014-06-13 16:00:00)  m-minute, h-hour, d-day, 1c-current day (Whenever the transaction is created, it will be closed at 0:00).  Demical point of the numerical value of this parameter is rejected, for example, 1.5h can be converted into 90m.  To realize this function, Alipay is needed to be advised to set close time. | Y | 30m |
| paymethod | Pay by bank cards | String | Can work with checkAccountlfExist function form PayTask to check if Alipay authorized account existed on this device, if return false, can use this to trigger bank cards payment page. Fixed value. | Y | expressGateway |
| extern\_token | Authorization token | String(32) | Token (including account information) returned by open platform (authorization token, a right for merchant to access to some services of Alipay within specified period). | Y | 1b258b84ed2faf3e88b4d979ed9fd4db |

🕮 Illusration:

Part of parameter type is String, range of length is not specified, which means the system will not check out the length of this parameter.

## Example

https://www.notifyurl.com/web/alipaydatafeed.do?notify\_id=4c14ed0a8147c82f795a70dc5906c0a63z&notify\_type=trade\_status\_sync&sign=saxishyye6u1k2makagevu3t80fo9x0h&trade\_no=2014121091227635&total\_fee=31.00&out\_trade\_no=5012338025&currency=USD&notify\_time=2014-12-10 17:47:16&trade\_status=TRADE\_FINISHED&sign\_type=MD5

# Description of Synchronous Notification Parameters

## Implication

Alipay will notify merchant of the result data it processed directly after it completes the processing of request data of merchant. These result data are synchronous notification parameters.

## List

Table 6-1 Description of Synchronous Notification Parameters

| Parameter | Parameter Name | Type (Range of Length) | Parameter Description  Y for Yes  N for No | Nullable | Example |
| --- | --- | --- | --- | --- | --- |
| resultStatus | Status code | String | Status value returned from this operation, identifying the result of this call, please refer to “11.2 Client Error Code”. | N | 9000 |
| result | Result data returned from this operation | String | Result data returned from this operation.  Thereinto:  The part before &success="true"&sign\_type="RSA"&sign="xxx" is the original data of merchant.  success is used for identifying the result of this payment.  sign="xxx" is the signature of Alipay for the result of this payment, merchant may authenticate this signature by using the public key provided by Alipay at execution of contract. | N | partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="testtest"&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&success="true"&sign\_type="RSA"&sign="hkFZr+zE9499nuqDNLZEF7W75RFFPsly876QuRSeN8WMaUgcdR00IKy5ZyBJ4eldhoJ/2zghqrD4E2G2mNjs3aE+HCLiBXrPDNdLKCZgSOIqmv46TfPTEqopYfhs+o5fZzXxt34fwdrzN4mX6S13cr3UwmEV4L3Ffir/02RBVtU=" |
| memo | Prompt message | String | Parameter reserved, in general, there is no content. | Y |  |

## Example

resultStatus={9000};memo={};result={partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="testtest"&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&success="true"&sign\_type="RSA"&sign="hkFZr+zE9499nuqDNLZEF7W75RFFPsly876QuRSeN8WMaUgcdR00IKy5ZyBJ4eldhoJ/2zghqrD4E2G2mNjs3aE+HCLiBXrPDNdLKCZgSOIqmv46TfPTEqopYfhs+o5fZzXxt34fwdrzN4mX6S13cr3UwmEV4L3Ffir/02RBVtU="}

## Acquisition of Synchronous Notification Parameters

### iOS

Please refer to “4.1.2 Callback Interface”.

### Android

Instantiate PayTask object in new thread, call pay mode, and notify main thread to acquire payment result through Handler object. Please refer to the project realization of alipay\_sdk\_demo.

# Description of Asynchronous Notification Parameters from Server

## Implication

Alipay will notify merchant’s website of the result data it processed directly through initiative notification from server after it completes the processing of request data of merchant. These result data are asynchronous notification parameters from server.

## List

Table 7-1 Payment Asynchronous Notification Parameters Specification

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Parameter | Type | Description |
| Notify type | notify\_type | String | Unique value:  forex\_trade\_status\_sync. |
| Notify authentication ID | notify\_id | String(34) | Unqiue ID used for authenticating notify |
| Notify time | notify\_time | Timestamp | System notify time (Beijing time):  YYYY-MM-DD hh:mm:ss |
| Signature | sign | String | Please refer to signature algorithm |
| Encoding Charset | \_input\_charset | String | Encoding path for partner page: uft-8 GBK , gb2312 |
| Signature type | sign\_type | String | MD5 |
|  |  |  |  |
| Business Parameters | | | |
| Partner order ID | out\_trade\_no | String(64) | Unique oder ID in partner system |
| Transaction status | trade\_status | String(32) | There are two status as follows:  TRADE\_FINISHED  TRADE\_CLOSED |
| Alipay transaction number | trade\_no | String(16) | Unique oder ID in Alipay system |
| Currency | currency | String(10) | Please refer to enumeration value of currency as set out in Appendix |
| Amount | total\_fee | Number(8,2) | Range: 0.01～1000000.00 |

## Condition for Triggering Notification

Table 7-2 Condition for Triggering Notification

| Name of Condition | Description of Condition | Default Value of Condition |
| --- | --- | --- |
| TRADE\_FINISHED | Transaction succeeds | True (trigger notification) |
| TRADE\_SUCCESS | Payment succeeds | True (trigger notification) |
| WAIT\_BUYER\_PAY | Transaction is created | False (not trigger notification) |
| TRADE\_CLOSED | Transaction is closed | False (not trigger notification) |

🕮 Illusration:

true (trigger notification) / false (not trigger notification) value shall be consistant with the sign-up configuration.

## Acquisition of Asynchronous Notification Parameter from Server

* + - * 1. Make sure that there is no character on the page of asynchronous notification from server (notify\_url), such as spacing, HTML label, abnormal prompt message came with and from development system and so on;
        2. As Alipay sends notification information by means of POST, the mode of acquiring parameter from this page, such as

request.Form("out\_trade\_no"), $\_POST['out\_trade\_no'];

* + - * 1. This mode can be enabled only if Alipay takes the initiative to initiate notification;
        2. The interaction between servers is invisible; it is unlike synchrounous advice for page redirect, which can be shown on the pages.
        3. “success” (excluding quotation mark) must be printed out upon fully execution of the program. If the character fed back by merchant is not success, Alipay server will resend notification constantly till 24 hours and 22 minutes have passed.  
           In general, 8 notifications will be completed within 25 hours (the interval frequency for notification usually is 2m, 10m, 10m, 1h, 2h, 6h, 15h);
        4. This page can not conduct page reindrect upon fully execution of the application, otherwise, success character will not be received by Alipay, and Alipay server will judge this page program to be abnormal, and resend the processing result notice;
        5. cookies, session will become invalid on this page, that is to say these data can not be obtained;
        6. The debugging and operation of this mode shall be made on server, that is to say the same can be accessed to on internet;
        7. The role of this mode is to avoid the loss of order, that is to say if synchronous advice for page indirect does not process the order update, this mode will process the order update;
        8. Asynchronous notification parameter from server (notify\_id) will become invalid after merchant receives asynchronous notification from server and prints success out. That is to say, asynchronous notification parameter from server (notify\_id) will remain unchanged when Alipay sends the same asynchronous notification (including Alipay resends notice several times as merchant fails to print success out).

## Example

http://notify.java.jpxx.org/index.jsp?discount=0.00&payment\_type=1&subject=test&trade\_no=2013082244524842&buyer\_email=dlwdgl@gmail.com&gmt\_create=2013-08-22 14:45:23&notify\_type=trade\_status\_sync&quantity=1&out\_trade\_no=082215222612710&seller\_id=2088501624816263&notify\_time=2013-08-22 14:45:24&body=testtest&trade\_status=TRADE\_SUCCESS&is\_total\_fee\_adjust=N&total\_fee=1.00&gmt\_payment=2013-08-22 14:45:24&seller\_email=xxx@alipay.com&price=1.00&buyer\_id=2088602315385429&notify\_id=64ce1b6ab92d00ede0ee56ade98fdf2f4c&use\_coupon=N&sign\_type=RSA&sign=1glihU9DPWee+UJ82u3+mw3Bdnr9u01at0M/xJnPsGuHh+JA5bk3zbWaoWhU6GmLab3dIM4JNdktTcEUI9/FBGhgfLO39BKX/eBCFQ3bXAmIZn4l26fiwoO613BptT44GTEtnPiQ6+tnLsGlVSrFZaLB9FVhrGfipH2SWJcnwYs=

# Matters Needing Attention for Merchant’s Buiness Process

Alipay will return data result to merchant after it completes the processing. Merchant **must do the right processing according to the different types of notification given by Alipay, and filter out the duplicated data. Among Alipay notifications, only when transaction status notification is TRADE\_SUCCESS or TRADE\_FINISHED, Alipay will confirm the success of payment by the buyers.** If merchant needs to verify the return data, it must be done by the signature verification code on the server side. If merchant can’t process the notification in the right way, there will potential risks, merchant shall bear all losses arising there at its own expense.

 Attention:

* TRADE\_SUCCESS notification will be triggerred when signed product supports refund function and buyer’s payment is successful.
* TRADE\_FINISHED notification will be triggerrred when signed product doesn’t support refund function and buyer’s payment is successful; or signed product supports refund function and transaction is successful and passed the refundable period.
* After transaction is successful, merchant (Advanced real-time to account or air ticket sells) can call batch refund interface, system will send out refund notification to merchants, for details please refer to batch refund interface documentation.
* When merchant uses refund function, system will send out notification which includes fields: refund\_status and gmt\_refund to merchant.

# Signature Mechanism

## Generate Character String to be Signed

### Parameter requiring signature

* In request parameter list, with the exception of sign and sign\_type, all other parameters used need to be signed.
* In synchronous notification parameter list, with the exception of sign and sign\_type, all parameters returned by notification shall participate in signature authentication.
* In the list of asynchronous notification parameter from server, with the exception of sign and sign\_type, all parameters returned by notification shall participate in signature authentication.
* utf-8 URLencode is needed for sign value.

### Generate character string to be signed

#### Generation of character string to be signed at payment interface

For the following parameter array:

string[] parameters={

"service=\"mobile.securitypay.pay\"",

"partner=\"2088101568338364\"",

"\_input\_charset=\"utf-8\"",

"notify\_url=\"http://notify.msp.hk/notify.htm\"",

"out\_trade\_no=\"0819145412-6177\"",

"subject=\"*Diablo III: Book of Cain*\"",

"payment\_type=\"1\"",

"seller\_id=\"alipay-test01@alipay.com\"",

"total\_fee=\"0.01\""

};

Combine all array values in the format of key= “value” and link them up by the character “&”, disorder is supported, for example:

service="mobile.securitypay.pay"&partner="2088101568338364"&\_input\_charset="utf-8"&notify\_url="http://notify.msp.hk/notify.htm"&out\_trade\_no="0819145412-6177"&subject="test"&payment\_type="1"&seller\_id="xxx@alipay.com"&total\_fee="0.01"

This character string is a character string to be signed.

#### Generation of character string to be signed for synchronous notification

For the contents of synchronous notification:

resultStatus={9000};memo={};result={partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="testtest"&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&success="true"&sign\_type="RSA"&sign="hkFZr+zE9499nuqDNLZEF7W75RFFPsly876QuRSeN8WMaUgcdR00IKy5ZyBJ4eldhoJ/2zghqrD4E2G2mNjs3aE+HCLiBXrPDNdLKCZgSOIqmv46TfPTEqopYfhs+o5fZzXxt34fwdrzN4mX6S13cr3UwmEV4L3Ffir/02RBVtU="}

Take out the part of result, get rid of sign and sign\_type:

partner="2088101568358171"&seller\_id="xxx@alipay.com"&out\_trade\_no="0819145412-6177"&subject="test"&body="testtest"&total\_fee="0.01"&notify\_url="http://notify.msp.hk/notify.htm"&service="mobile.securitypay.pay"&payment\_type="1"&\_input\_charset="utf-8"&it\_b\_pay="30m"&show\_url="m.alipay.com"&success="true"

The character string to be signed is generated.

#### Generation of character string to be signed for asynchronous notification

For the contents of asynchronous notification:

http://notify.java.jpxx.org/index.jsp?discount=0.00&payment\_type=8&subject=test&trade\_no=2013082244524842&buyer\_email=dlwdgl@gmail.com&gmt\_create=2013-08-22 14:45:23&notify\_type=trade\_status\_sync&quantity=1&out\_trade\_no=082215222612710&seller\_id=2088501624816263&notify\_time=2013-08-22 14:45:24&body=testtest&trade\_status=TRADE\_SUCCESS&is\_total\_fee\_adjust=N&total\_fee=1.00&gmt\_payment=2013-08-22 14:45:24&seller\_email=xxx@alipay.com&price=1.00&buyer\_id=2088602315385429&notify\_id=64ce1b6ab92d00ede0ee56ade98fdf2f4c&use\_coupon=N&sign\_type=RSA&sign=1glihU9DPWee+UJ82u3+mw3Bdnr9u01at0M/xJnPsGuHh+JA5bk3zbWaoWhU6GmLab3dIM4JNdktTcEUI9/FBGhgfLO39BKX/eBCFQ3bXAmIZn4l26fiwoO613BptT44GTEtnPiQ6+tnLsGlVSrFZaLB9FVhrGfipH2SWJcnwYs=

Get rid of sign and sign\_type, sort other parameters in alphabetical order from a to z, and link up all array values by the character of “&”:

body=testtest &buyer\_email=dlwdgl@gmail.com&buyer\_id=2088602315385429&discount=0.00&gmt\_create=2013-08-22 14:45:23&gmt\_payment=2013-08-22 14:45:24&is\_total\_fee\_adjust=N&notify\_time=2013-08-22 14:45:24&notify\_type=trade\_status\_sync&out\_trade\_no=082215222612710&payment\_type=8&price=1.00&quantity=1&seller\_email=alipayrisk18@alipay.com&seller\_id=2088501624816263&subjecttest&total\_fee=1.00&trade\_no=2013082244524842&trade\_status=TRADE\_SUCCESS&use\_coupon=N

This character string is one to be signed.

 Attention:

* The parameter without value needs not to be transmitted, nor to be included in the data to be signed;
* At signing, the character set designated at the time when the character turns into byte stream shall be consistent with \_input\_charset;
* If the parameter of \_input\_charset is transmitted, it shall also be included in the data to be signed.

## RSA Signature

Private key and public key are needed for RSA signature. Both private key and public key are generated from OPENSSL by customer. Customer interchanges the public key generated with the Alipay public key configured by Alipay technical personnel. Therefore, customer shall use the private key of customer and the public key of Alipay at signing.

* **Signature at request**

Conduct signature algorithm by putting character string to be signed and private key of customer into RSA signature function upon obtaining character string to be signed at request, from which signature result character string can be generated.

* **Signature authentication upon notificationing return**

Conduct asymmetrical signature algorithm by putting character string to be signed, public key provided by Alipay and sign value in return parameter notified by Alipay into RSA signature function upon obtaining character string to be signed, from which we can judge whether the signature authentication is passed or not.

# How to Verify Whether Requested by Alipay or not?

* **Purpose**

Verify whether this notification information is sent by Alipay server in order to check out the truth or falsehood of the data fed back.

* **Operating Principle**

Acquire notification verification ID (notify\_id) as a piece of the data returned by Alipay, put them together into a request link according to the format required by Alipay, for example:

<https://mapi.alipay.com/gateway.do?service=notify_verify&partner=2088002396712354&notify_id=RqPnCoPT3K9%252Fvwbh3I%252BFioE227%252BPfNMl8jwyZqMIiXQWxhOCmQ5MQO%252FWd93rvCB%252BaiGg>

Access to this request link, simulate the interaction between http request and Alipay server by means of programming, acquire the result processed by Alipay server.

If the information acquired is ture, the verification succeeds; otherwise, the verification fails.

# Appendix

## Business Error Code

Table 11-1 Business Error Code

| Error Code (error\_code) | Implication |
| --- | --- |
| 9000 | Order payment succeeds |
| 8000 | Under processing |
| 4000 | Order payment fails |

## Client Error Code

Table 11-2 Client Error Code

| Error Code (error\_code) | Implication |
| --- | --- |
| 9000 | Order payment succeeds |
| 8000 | Under processing |
| 4000 | Order payment fails |
| 6001 | Cancel by user |
| 6002 | There is mistake in network connection |

## Transaction Status

Table 11-3 Transaction Status List

| Enumeration Name | Enumeration Description |
| --- | --- |
| TRADE\_CLOSED | * Transaction closed within specified period due to non-payment |
| TRADE\_FINISHED | Transaction succeeds, operations can be done to this transaction, such as refund, etc. |

## Currency List

|  |  |  |
| --- | --- | --- |
| Currency Symbol | Currency Name | Number of Decimal Places Retained |
| GBP | British Sterling | 2 |
| HKD | Hong Kong Dollar | 2 |
| USD | U.S. Dollar | 2 |
| CHF | Swiss 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 Ruble | 2 |
| MOP | Macao Pataca | 2 |