

Online Payment Switching Gateway (OPSG) Technical Specification

For Malaysia Only

Version 1.6.4.4

Change Log:

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1.6.4.2	<ul style="list-style-type: none">Added new parameter Optional “carddetails” into request parameter list.Added new parameter optional “carddetails” into response parameter list.	Kahsoon 24/November/2022
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1.0 Introduction

1.1 ePayment

This document describes the following functionalities of iPay88's Online Payment Switching Gateway (OPSG) system:

- ePayment: Multiple payment methods for merchant e-commerce website
- Reports: Online view transaction report

1.2 Objective

Enable iPay88's OPSG merchant to perform multiple payment types for their customers to make online purchase(s).

1.3 Pre-requisite of Merchant Integration

Follow the guidelines below before integration.

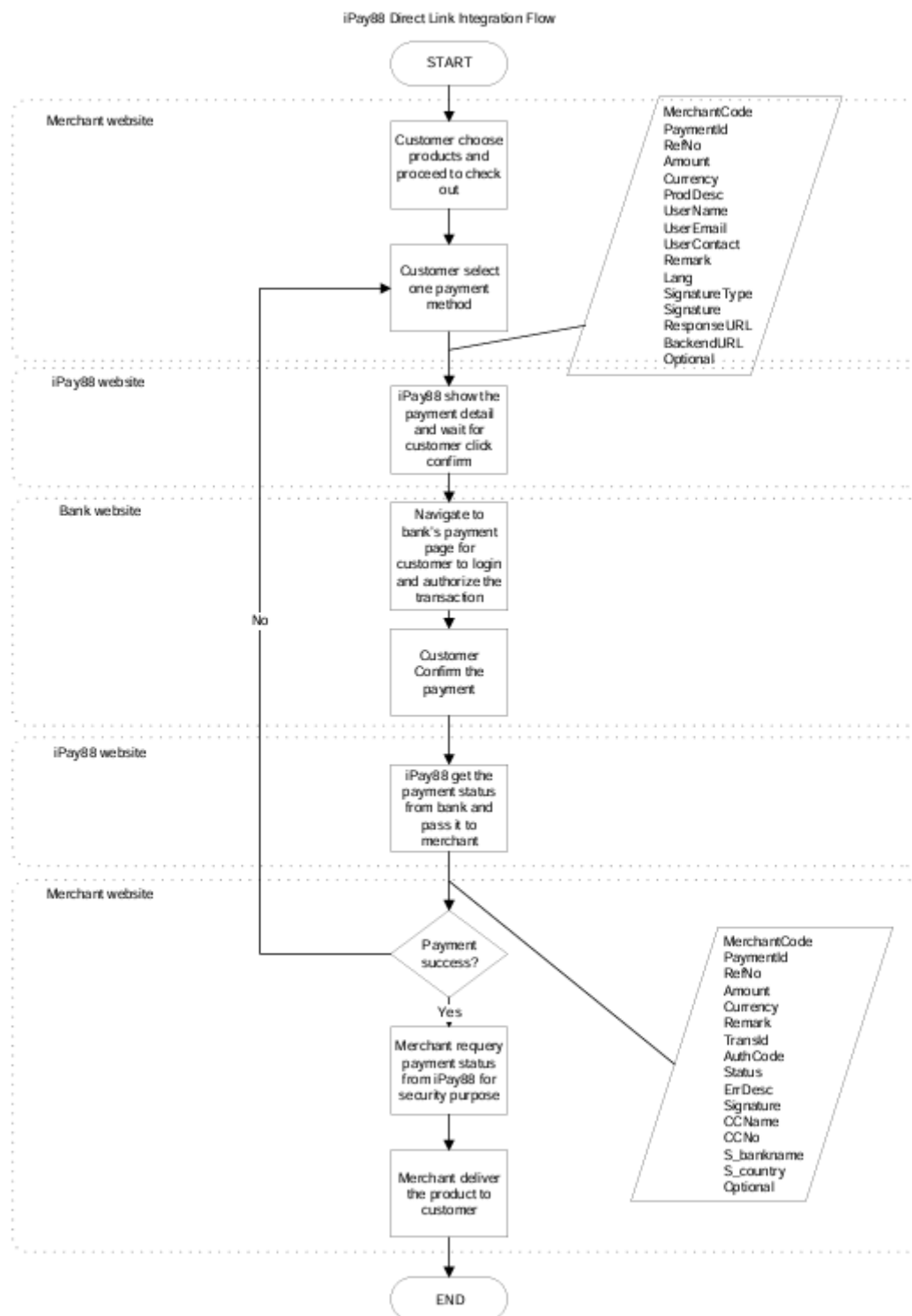
- Merchant Code and Merchant Key from iPay88 are required.
- Merchant to provide Request URL to iPay88 Support team.
- Registered Request URL must be either IP or domain based.
- Merchant to provide IP address for Response URL and Backend URL to iPay88 Support Team to whitelist.

Note: LocalHost is not allowed.

Important Notice

- Test transaction must from registered Request URL.
- Test transaction with amount MYR 1.00.
- Response URL can be set in request page with ResponseURL field.
- Backend post URL can be set in request page with BackendURL field.
- Email notification is NOT guarantee by iPay88 OPSG as it is ISP dependant. (Refer section 4.3 Email Notification Disclaimer)
- Email notification should not use as action identifier by merchant instead use iPay88 Merchant Online Report to check for payment status.
- Ensure a technical person is assigned by merchant before integration.
- Merchant must notify iPay88 Support team the intended live date of merchant account minimum 3 working days in advance.

1.4 Transaction Flow Diagram



End

1.5 Transaction Processing Steps

Step 1. Merchant sends HTTPs Post Request containing payment details to iPay88 OPSG payment page. Payment Details contain the following fields:

- MerchantCode
- PaymentId
- RefNo
- Amount
- Currency
- ProdDesc
- UserName
- UserEmail
- UserContact
- Remark
- SignatureType
- Signature (refer to 3.1)
- Response URL
- Backend URL
- Optional

Step 2. User views and confirms payment details entered in Step 1. For credit card payment, the user will need to key-in credit card information.

Step 3. User continues to fill in Username and Password at bank website (for non-credit card payment) Step 4. User selects the account to debit the payment. (for non-credit card payment)

Step 5. User confirms the payment. If yes, go to next step. (for non-credit card payment) Step 6. User views and prints the payment detail. (for non-credit card payment)

Step 7. Response is returned to the iPay88 OPSG website indicating a successful or failed transaction. Step 8. iPay88 OPSG response back the payment status to merchant with a signature

Step 9. For successful payment transaction, the merchant needs to compare the signature from iPay88 OPSG. Refer to (3.2)

1.6 Rule, Limitation and Constraint

- Service Hours: 7x24 exclude host down time

2.0 Merchant Integration

2.1 URL

iPay88 OPSG payment posting URL (payment page)

URL: <https://payment.ipay88.com.my/epayment/entry.asp>

iPay88 OPSG payment re-query

URL: <https://payment.ipay88.com.my/epayment/enquiry.asp>

iPay88 OPSG webservice payment requery

URL:

[https://payment.ipay88.com.my/epayment/webservice/TxInquiryCardDetails/TxDetailsInquiry.asmx?](https://payment.ipay88.com.my/epayment/webservice/TxInquiryCardDetails/TxDetailsInquiry.asmx?op=TxDetailsInquiryCardInfo)
[op=TxDetailsInquiryCardInfo](https://payment.ipay88.com.my/epayment/webservice/TxInquiryCardDetails/TxDetailsInquiry.asmx?op=TxDetailsInquiryCardInfo)

Merchant Request URL: [provided by merchant before the integration]

Definition: Merchant Request URL is a checkout page at merchant website that submits the required parameter/value to iPay88 OPSG.

Merchant Response URL: [can be specify with ResponseURL in request page]

Definition: Response page URL is the page at merchant website that will receive payment status from iPay88 OPSG.

2.2 Logo

iPay88's OPSG allow merchant logo/banner to appear in payment page and email notification.

Merchant can provide the logo to iPay88 Support team and upload to merchant account.

The maximum allow size for the logo is 600 pixel (width) by 100 pixel (height) and the allow format are JPG, BMP, and GIF.

2.3 Payment Request Parameters

Merchant HTTPS POST payment request parameters to iPay88 OPSG

Field Name	Data Type	Size	M/O	Description
MerchantCode	String	20	M	The Merchant Code provided by iPay88 and use to uniquely identify the Merchant.
PaymentId	Integer		O	Refer to Appendix I.pdf file for MYR gateway . Refer to Appendix II.pdf file for Multi-currency gateway .
RefNo	String	30	M	Unique merchant transaction number
Amount	Currency		M	Payment amount with two decimals and thousand symbols. Example: 1,278.99
Currency	String	5	M	Refer to Appendix I.pdf file for MYR gateway . Refer to Appendix II.pdf file for Multi-currency gateway .
ProdDesc	String	100	M	Product description
UserName	String	100	M	Customer name
UserEmail	String	100	M	Customer email for receiving receipt
UserContact	String	20	M	Customer contact number
Remark	String	100	O	Merchant remarks
Lang	String	20	O	Encoding type "ISO-8859-1" – English "UTF-8" – Unicode "GD18030" – Chinese Simplified "BIG5" – Chinese Traditional
SignatureType	String	10	M	Signature type = "HMACSHA512"
Signature	String	128	M	HMACSHA512 signature (refer to 3.1)
ResponseURL	String	200	M	Payment response page
BackendURL	String	200	M	Backend response page URL (refer to 2.7)
Optional	JSON Object		O	Sample value: Optional = {"carddetails":"Y"} If this value is passed in, Card Details will be returned in the response parameters.
				Sample value: Optional = {"MDRValues":"Y"} If this value is passed in, Finance Charges Values will be returned in the response parameters.

Appdeeplink	String	100	O	App Deeplink path for merchant mobile app. Note: This parameter is mobile app only. Refer to 2.8 Appdeeplink Implementation for detail
Xfield1	String	100	O	Custom field

Legend:

M: Mandatory field

O: Optional field, value can be empty but parameter must exist

2.4 Sample HTML Source (Payment Request)

HTTP POST method

Example

```
<HTML>
<BODY>
<FORM method="post" name="ePayment" action="https://payment.ipay88.com.my/ePayment/entry.asp">
<INPUT type="hidden" name="MerchantCode" value="M00003">
<INPUT type="hidden" name="PaymentId" value="">
<INPUT type="hidden" name="RefNo" value="A00000001">
<INPUT type="hidden" name="Amount" value="1.00">
<INPUT type="hidden" name="Currency" value="MYR">
<INPUT type="hidden" name="ProdDesc" value="Photo Print">
<INPUT type="hidden" name="UserName" value="John Tan">
<INPUT type="hidden" name="UserEmail" value="john@hotmail.com">
<INPUT type="hidden" name="UserContact" value="0126500100">
<INPUT type="hidden" name="Remark" value="">
<INPUT type="hidden" name="Lang" value="UTF-8">
<INPUT type="hidden" name="SignatureType" value="HMACSHA512">
<INPUT type="hidden" name="Signature"
value="c41859fed9b4ac135990cc10737ff3a37ad1e0eaa3e0f2235a652172fe3465413449b2e73acb782bb14a1b2e32792e91
dc03fd2da355432de86df6730ed70e9a">
<INPUT type="hidden" name="ResponseURL" value="https://www.YourResponseURL.com/payment/response.asp">
<INPUT type="hidden" name="BackendURL" value="https://www.YourBackendURL.com/payment/backend_response.asp">
<INPUT type="hidden" name="Optional" value="{\"carddetails\":\"Y\",\"MDRValues\":\"Y\"}">
<INPUT type="hidden" name="appdeeplink" value="app://open.my.app/receipt/RefNo=A00000001">
<INPUT type="hidden" name="Xfield1" value="">
<INPUT type="submit" value="Proceed with Payment" name="Submit">
</FORM>
</BODY>
</HTML>
```

Note: Do not copy and paste the code above as it just a reference only

2.5 Payment Response Parameters

HTTPS POST response from iPay88 OPSG after performing payment

Field Name	Data Type	Size	M/O	Description
MerchantCode	String	20	M	The Merchant Code provided by iPay88 and use to uniquely identify the Merchant.
PaymentId	Integer		M	Refer to Appendix I.pdf file for MYR gateway . Refer to Appendix II.pdf file for Multi-currency gateway .
RefNo	String	30	M	Unique merchant transaction number
Amount	Currency		M	Payment amount with two decimals and thousand symbols. Example: 1,278.99
Currency	String	5	M	Refer to Appendix I.pdf file for MYR gateway . Refer to Appendix II.pdf file for Multi-currency gateway .
Remark	String	100	O	Merchant remarks
TransId	String	30	O	iPay88 OPSG Transaction ID
AuthCode	String	20	O	Bank's approval code
Status	String	1	M	Payment status "1" – Success "0" – Fail
ErrDesc	String	100	O	Payment status description (Refer to Appendix I.pdf or Appendix II.pdf)
Signature	String	128	M	HMACSHA-512 signature (refer to 3.2)
CCName	String	200	O	Credit card/account holder name
CCNo	String	16	O	Applicable for credit card payment only. Masked credit card number. First six and last four of credit card number. Eg: 492159xxxxxx4941
S_bankname	String	100	O	Applicable for credit card payment only. Credit card issuing bank name
S_country	String	100	O	Applicable for credit card payment only. Credit card issuing country
TranDate	Datetime	20	O	Transaction date
Optional	JSON Object		O	Applicable for credit card payment only. Credit card type and expiry date details. Sample value: {"carddetails": {"paymenttype": "LOCAL DEBIT CARD", "cardtype": "VISA", "expirydate": "07/23"}} Finance Charges Values. Sample value: {"MDRValues": {"finance": "0.00", "GSTAmount": "0.00", "total": "0.00"}}
Xfield1	String	100	O	Custom Field

Legend:

M: Mandatory field

O: Optional field, value can be empty but parameter must exist

2.6 Sample HTML Source (Payment response)

2.6.1 ASP Sample Code

```
<%  
MerchantCode = Request.Form("MerchantCode")  
PaymentId = Request.Form("PaymentId")  
RefNo = Request.Form("RefNo")  
Amount = Request.Form("Amount")  
eCurrency = Request.Form("Currency")  
Remark = Request.Form("Remark")  
TransId = Request.Form("TransId")  
AuthCode = Request.Form("AuthCode")  
eStatus = Request.Form("Status")  
ErrDesc = Request.Form("ErrDesc")  
Signature = Request.Form("Signature")  
CCName = Request.Form("CCName")  
CCNo = Request.Form("CCNo")  
S_bankname = Request.Form("S_bankname")  
S_country = Request.Form("S_country")  
TxnDateTime = Request.Form("TranDate")  
Optional = Request.Form("optional")  
%>  
<Add your programming code here>  
  
IF eStatus=1 THEN  
    COMPARE Return Signature with Generated Response Signature  
    // update order to PAID  
    response.write "Thank you for payment."  
  
ELSE  
    // update order to FAIL  
    response.write "Payment fail."
```

Continue next page...

2.6.2 PHP Sample Code

```
<?PHP
$merchantcode    = $_REQUEST["MerchantCode"];
$paymentid       = $_REQUEST["PaymentId"];
$refno           = $_REQUEST["RefNo"];
$amount          = $_REQUEST["Amount"];
$currency        = $_REQUEST["Currency"];
$remark          = $_REQUEST["Remark"];
$transid         = $_REQUEST["TransId"];
$authcode        = $_REQUEST["AuthCode"];
$status          = $_REQUEST["Status"];
$errdesc         = $_REQUEST["ErrDesc"];
$signature       = $_REQUEST["Signature"];
$ccname          = $_REQUEST["CCName"];
$ccno            = $_REQUEST["CCNo"];
$s_bankname      = $_REQUEST["S_bankname"];
$s_country       = $_REQUEST["S_country"];
$xfield1         = $_REQUEST["Xfield1"];
$xfield2         = $_REQUEST["Xfield2"];
$xfield3         = $_REQUEST["Xfield3"];

PHP?>
<Add your programming code here>

IF ($status=1) {
    COMPARE Return Signature with Generated Response Signature
    // update order to PAID
    echo "Thank you for payment.";
}

ELSE {
    // update order to FAIL
    echo "Payment fail.";
```

2.7 Backend Post Feature

The Backend POST feature is server to server technology where it does not depend on the user's web browser to return payment response data to merchant website.

With this feature implemented, your system still can get the payment status on the backend (asynchronously) even if the merchant normal response page fails to get status from iPay88 OPSG which may be due to a closed web browser, internet connection timeout and etc.

Note

- This Backend post feature will **ONLY** return status if the transaction is a payment success. No status will return if the payment is failed.
- The Backend page should implement checking same like response page such as signature checking, and etc to prevent user hijack merchant system.
- The backend page should not have session related code so that merchant systems are still able accept payment status from iPay88 OPSG even if the user is logged out or the session is expired.
- Ensure to implement a **check to determine** either "response page" or "backend page" to update the order so it won't update order status in merchant system **more than 1 time**.
Note: After receiving the payment success status, iPay88 OPSG will simultaneously return payment status to "response page" and "backend page".
- The backend page is not a replacement for the response page. You will still need to continue to use the normal response page as usual.

Implementation

On the merchant website, create another page to accept backend post response parameters from iPay88 OPSG.

The return backend post response parameters are same like normal response page parameters. **(Refer to 2.5)**

On the request page, specify the backend post URL by using "**BackendURL**" parameter. **(Refer to 2.3)**

Example:

```
<input name="BackendURL" value="http://www.abc.com/backend_response.asp">
```

On the 'backend_response.asp' page you need to write out the word '**RECEIVEOK**' only (without quote) as an acknowledgement once the backend page success get the payment status from iPay88 OPSG and update status to success on merchant system.

Ensure just the word '**RECEIVEOK**' only on the backend page and without any HTML tag on the page.

iPay88 OPSG will re-try send the payment status to the 'backend_response.asp' page up to 3 times on different interval if no '**RECEIVEOK**' acknowledgement detected.

Example:

In ASP >> response.write "RECEIVEOK"
In PHP >> echo "RECEIVEOK";

2.8 Appdeeplink Implementation

This appdeeplink parameter is for merchant mobile app to mobile app link only and to handle payment method like TNG eWallet and Boost Wallet.

If the payment flow is not via merchant mobile app, e.g. user use Mobile Safari or Mobile Chrome browser to checkout/payment then not require to post appdeeplink parameter.

Once the user completes the payment flow, user will redirect from eWallet app back to merchant mobile app by calling merchant mobile app deeplink, do note that when redirect back to merchant mobile app there no response data will return.

Upon return to merchant app deeplink URL, use webservice requery to get payment status (Refer to section 2.12)

iPay88 will also return success status to merchants BackendURL and then merchants can update the order to Paid.

2.9 Additional Implementation for eWallet

2.9.1 ShopeePay

Unable redirect to Shopee App from Merchant App

Issue: All native android application redirection to Shopee app will face this error, ERR_UNKNOWN_URL_SCHEME in webview re-direction unless the ShopeePay link is opened using external browser (Chrome).

Affected Parties:

- All merchants that redirect to iPay88 from Android app .
- Merchants that only use mweb are not affected

Sample Code

```
1 mWebView.setWebViewClient(new WebViewClient() {
2     @Override
3     public boolean shouldOverrideUrlLoading(WebView view, String url) {
4         if(url.startsWith("shopeemy://") ||
5            url.startsWith("https://wsa.wallet.airpay.com.my/")) {
6             Intent intent = new Intent(Intent.ACTION_VIEW);
7             intent.setData(Uri.parse(url));
8             mWebView.getContext().startActivity(intent);
9             return true;
10        }
11        return super.shouldOverrideUrlLoading(view, url);
12    }
13});
```

Instructions for Sample Code

Override the `shouldOverrideUrlLoading` method in your `WebViewClient` implementation method as shown here. For URL start with `shopeemy://` or `https://wsa.wallet.airpay.com.my/` open them with custom intent, outside of webview.

2.10 Sample HTML Source (Backend Post - Payment response)

2.10.1 ASP Sample Code

```
<%  
MerchantCode = Request.Form("MerchantCode")  
PaymentId = Request.Form("PaymentId")  
RefNo = Request.Form("RefNo")  
Amount = Request.Form("Amount")  
eCurrency = Request.Form("Currency")  
Remark = Request.Form("Remark")  
TransId = Request.Form("TransId")  
AuthCode = Request.Form("AuthCode")  
eStatus = Request.Form("Status")  
ErrDesc = Request.Form("ErrDesc")  
Signature = Request.Form("Signature")  
CCName = Request.Form("CCName")  
CCNo = Request.Form("CCNo")  
S_bankname = Request.Form("S_bankname")  
S_country = Request.Form("S_country")  
TxnDateTime = Request.Form("TranDate")  
Optional = Request.Form("optional")  
  
%>  
<Add your programming code here>  
  
IF eStatus=1 THEN  
    COMPARE Return Signature with Generated Response Signature  
    // update order to PAID  
    response.write "RECEIVEOK"  
ELSE  
    // update order to FAIL
```


2.10.2 PHP Sample Code

```
<?PHP
$merchantcode      = $_REQUEST["MerchantCode"];
$paymentid         = $_REQUEST["PaymentId"];
$refno             = $_REQUEST["RefNo"];
$amount            = $_REQUEST["Amount"];
$currency          = $_REQUEST["Currency"];
$remark            = $_REQUEST["Remark"];
$transid           = $_REQUEST["TransId"];
$authcode          = $_REQUEST["AuthCode"];
$estatus           = $_REQUEST["Status"];
$errdesc           = $_REQUEST["ErrDesc"];
$signature          = $_REQUEST["Signature"];
$ccname            = $_REQUEST["CCName"];
$ccno              = $_REQUEST["CCNo"];
$s_bankname        = $_REQUEST["S_bankname"];
$s_country          = $_REQUEST["S_country"];
$txndatetime       = $_REQUEST["TranDate"];
$optional           = $_REQUEST["optional"];

PHP?>
<Add your programming code here>

IF ($estatus=1) {
    COMPARE Return Signature with Generated Response Signature
    // update order to PAID
    echo "RECEIVEOK";
}

ELSE {
    // update order to FAIL
}
```

2.11 Re-query Payment Status Parameters

Merchant HTTPS POST re-query payment status parameters to iPay88 OPSG

URL: <https://payment.ipay88.com.my/epayment/enquiry.asp>

Field Name	Data Type	Size	M/O	Description
MerchantCode	String	20	M	Merchant Code assigned by iPay88
RefNo	String	30	M	Unique merchant transaction number / Order ID
Amount	Currency		M	Payment amount with two decimals

Legend:

M: Mandatory field

O: Optional field, value can be empty but parameter must exist

Possible message reply on the page from iPay88 OPSG

Possible reply from iPay88 OPSG	Description
00	Successful payment
Invalid parameters	Parameters pass in incorrect
Record not found	Cannot found the record
Incorrect amount	Amount different
Payment fail	Payment fail
M88Admin	Payment status updated by iPay88 Admin(Fail)

2.11.1 Sample source code for re-query function in PHP

```
<?PHP

function Requery($MerchantCode, $RefNo, $Amount){

$query = "https://payment.ipay88.com.my/epayment/enquiry.asp?MerchantCode=" .
$MerchantCode . "&RefNo=" . $RefNo . "&Amount=" . $Amount;

$url = parse_url($query);
$host = $url["host"];
$sslhost = "ssl://" . $host;
$path = $url["path"] . "?" . $url["query"];
$timeout = 5;
$f = fsockopen ($sslhost, 443, $errno, $errstr, $timeout);
if ($f) {
    fputs ($f, "GET $path HTTP/1.0\nHost: " . $host . "\n\n");
    while (!feof($f)) {
        $buf .= fgets($f, 128);
    }
    $lines = preg_split("/\n/", $buf);
    $Result = $lines[count($lines)-1]; fclose($f);
} else {
    # enter error handling code here
}
return $Result;
}

?>
```

2.12 Webservice Requery Payment Status Parameters

Merchant HTTPS POST requery payment status request parameters to iPay88 OPSG.

URL:

<https://payment.ipay88.com.my/epayment/webservice/TxInquiryCardDetails/TxDetailsInquiry.aspx?op=TxDetailsInquiryCardInfo>

Field Name	Data Type	Size	M/O	Description
MerchantCode	String	20	M	Merchant Code assigned by iPay88
ReferenceNo	String	50	M	Unique merchant transaction number / Order ID
Amount	Currency		M	Payment amount with two decimals
Version	String	2	M	Version of requery. Please use 4 as the value. E.g. Version = 4

Legend:

M: Mandatory field

O: Optional field, value can be empty but parameter must exist

Webservice requery payment status response parameters

Field Name	Data Type	Size	M/O	Description
MerchantCode	String	20	M	The Merchant Code provided by iPay88 and use to uniquely identify the Merchant.
PaymentId	Interger		M	Refer to Appendix I.pdf file for MYR gateway. Refer to Appendix II.pdf file for Multi-curency gateway.
RefNo	String	50	M	Unique merchant transaction number
Amount	Currency		M	Payment amount with two decimals and thousand symbols. Example: 1,278.99
Currency	String	5	M	Refer to Appendix I.pdf file for MYR gateway. Refer to Appendix II.pdf file for Multi-curency gateway.
Remark	String	100	O	Merchant remarks
TransId	String	30	O	iPay88 OPSG Transaction ID
AuthCode	String	50	O	Bank's approval code
Status	String	2	M	Transaction status "1" – Success "0" – Fail "6" – Payment Pending "20" – Authorised
Errdesc	String	100	O	Payment status description (Refer to Appendix I.pdf or Appendix II.pdf)
CCName	String	200	O	Credit card/account holder name
Creditcardno	String	16	O	Applicable for credit card payment only. Masked credit card number. First six and last four of credit card number. Eg: 492159xxxxxx4941
CardType	String	20	O	Card Type, e.g. VISA, MASTERCARD, AMEX
S_bankname	String	100	O	Applicable for credit card payment only. Credit card issuing bank name
S_country	String	100	O	Applicable for credit card payment only. Credit card issuing country
BankMID	String	100	O	Bank MID process the transaction
TranDate	Datetime	20	O	Transaction date

2.12.1 Sample request in XML schema

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <TxDetailsInquiryCardInfo xmlns="https://www.mobile88.com/epayment/webservice">
      <MerchantCode>M00003</MerchantCode>
      <ReferenceNo>225202175252AM</ReferenceNo>
      <Amount>1.00</Amount>
      <Version>4</Version>
    </TxDetailsInquiryCardInfo>
  </soap:Body>
</soap:Envelope>
```

2.12.2 Sample response in XML schema

```
<?xml version="1.0" encoding="utf-8"?>
<TransactionInquiry xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="https://www.mobile88.com/epayment/webservice">
  <MerchantCode>M00003</MerchantCode>
  <PaymentId>2</PaymentId>
  <RefNo>225202175252AM</RefNo>
  <Amount>1.00</Amount>
  <Currency>MYR</Currency>
  <Remark/>
  <TransId>T099959151521</TransId>
  <AuthCode>381710</AuthCode>
  <Status>1</Status>
  <Errdesc/>
  <Creditcardno>476671xxxxxx1306</Creditcardno>
  <S_bankname>HSBC BANK MALAYSIA BERHAD</S_bankname>
  <S_country>MY</S_country>
  <BankMID>9992008325</BankMID>
  <TranDate>2020-02-25</TranDate>
  <CCName>John Doe</CCName>
  <CardType>VISA</CardType>
</TransactionInquiry>
```

3.0 Security Control

To enhance security, please go through the following steps at the merchant's payment status receiving page (Response URL):

- Check the HTTP_REFERER value is from <https://payment.ipay88.com.my> (only applicable if the merchant web site is working with SSL Certificate).
- Check the payment amount from iPay88 OPSG is match with yours.
- Compare the Signature from iPay88 OPSG with your own generated Signature.

Data Integrity and Security using Hash Signature

HMACSHA-512 hash is a security feature that enables your script to identify the results of a transaction are actually from the appropriate authorization source and also for iPay88 OPSG to make sure the integrity of data received on a transaction request.

Using the HMACSHA-512 algorithm, a unique signature or fingerprint of the transaction can be created. This mathematical algorithm used to construct this signature is designed in such a way that any change to the information used in the calculation of the signature will cause a completely different signature to be created.

Also, the information used in the calculation of the signature cannot be discovered through any analysis of the signature itself.

This is done by using information from your account. Every transaction that is processed through the system has a corresponding hash signature of the transaction created during the transaction process.

3.1 Request Page Signature

This signature must be included in the request of every transaction. This hash signature for a request is a hash of the following five fields:

1. MerchantKey (Provided by iPay88 OPSG and share between iPay88 and merchant only)
2. MerchantCode
3. RefNo
4. Amount
5. Currency
6. Xfield1

The fields must set in the following order,

(MerchantKey & MerchantCode & RefNo & Amount & Currency & Xfield1)

Example:

MerchantKey = "apple" MerchantCode = "M00003" RefNo = "A00000001"

Amount = "1.00" (Note: Remove the "." and "," in the string before hash) Currency = "MYR"

Xfield1 = "xx11"

The hash would be calculated on the following:-

Key: apple

String: appleM00003A00000001100MYRxx11

The resulting has signature value equals to (using HMACSHA-512 algorithm)

d8e0b9807bdd10527267f6433f9487155f56d42fdd23d3d76f2315bf72fdb50806e81e5a42491c64eb3
68c9e9165364fa3b011dcc81963b2fd465cfcdade77288

To ensure the signature generated was correct, visit the link below for signature comparison.

<https://payment.ipay88.com.my/epayment/testing/TestSignatureIpay88.asp>

SignatureType = HMAC-SHA512

Key = Merchant Key (Supplied by iPay88 and share between iPay88 and the merchant only)

3.2 Response Page Signature

If the Merchant request is successful, the response message will contain as HMACSHA-512 hashed signature. The hash signature for the response is a hash of the following fields:

1. MerchantKey (Provided by iPay88 OPSG and share between iPay88 and merchant only)
2. MerchantCode
3. PaymentId
4. RefNo
5. Amount
6. Currency
7. Status

The fields must be set in the following order,

(MerchantKey & MerchantCode & PaymentId & RefNo & Amount & Currency & Status)

For Example:

MerchantKey = "apple" MerchantCode = "M00003" PaymentId = "2"

RefNo = "A00000001"

Amount = "1.00" (Note: Remove the "." and "," in the string before hash) Currency = "MYR"

Status = "1"

The hash would be calculated on the following: -

Key: apple

String: appleM000032A00000001100MYR1

The resulting has signature value equals to (using HMACSHA-512 algorithm)

2b8bcacf66881a9f02a7a2b470cbdf958a86d92f2169774de1062db0376545b061c98f78827db0dbe8a
acf908982d5777f577370e19658649a9794c7168b5a5d7

To ensure the signature generated was correct, visit the link below for signature comparison.

<https://payment.ipay88.com.my/epayment/testing/TestSignatureIpay88.asp>

SignatureType = HMAC-SHA512

Key = Merchant Key (Supplied by iPay88 and share between iPay88 and the merchant only)

When iPay88 OPSG receives the request or transaction order from the merchant, it will check the hash value it generates to match with the value you as a merchant have included. When your script receives the results of the transaction, you can create the hash on your side and be sure that matches ours. As you will already know your Merchant Key and the Merchant Code, and will receive the Ref No which will then be presented to us. Do take note that the signature in the response will only be present if the transaction is not in error, that is, for approved and declined transactions.

A developer would then take the results of the transaction AFTER it has been returned to your site, and run the hash algorithm on the fields mentioned above. The only way that the results of a developer's procession can match the signature included with the transaction results is if the password used in the hash on the developer's end MATCHES the one used in the transaction.

The iPay88 OPSG Merchant Key is a shared secret (between merchant and iPay88 OPSG), and is one of the key pieces of information in the hash. One can be assured that if the signature generated on your end matched the one sent with the transaction, then the transaction has in fact been processed by our system, and has not been posted back to the merchant's server from any other location.

The iPay88 OPSG Merchant Key is generated by us that it's send to you. The key will only recreate if iPay88 OPSG suspects that the key is not secure or any fraud cases happen.

3.3 Sample function code to generate iPay88 OPSG Signature

Using .NET, you can use the available libraries to perform this:

```
Imports System.Security.Cryptography
Imports System.Text
Module EncryptHmacSha512
    Function SecurityHmacSha512(toEncrypt As String, key As String) As String
        ' Convert key to byte array
        Dim keyBytes As Byte() = Encoding.UTF8.GetBytes(key)

        ' Create an instance of HMACSHA512 with the key
        Using hmacSHA512 As New HMACSHA512(keyBytes)
            ' Compute the hash
            Dim hashBytes As Byte() = hmacSHA512.ComputeHash(Encoding.UTF8.GetBytes(toEncrypt))

            ' Convert the byte array to a hexadecimal string
            Return ByteArrayToHex(hashBytes)
        End Using
    End Function
    Private Function ByteArrayToHex(bytes As Byte()) As String
        Dim hexString As New StringBuilder()
        For Each b As Byte In bytes
            hexString.Append(b.ToString("x2"))
        Next
        Return hexString.ToString()
    End Function
    Sub Main()
        Dim toEncrypt As String = "yourStringToEncrypt"
        Dim key As String = "yourSecretKey"
        Dim hmac As String = SecurityHmacSha512(toEncrypt, key)
        Console.WriteLine("HMAC-SHA512: " & hmac)
    End Sub
End Module
```

Using PHP, you can use the following code to perform this:

```
function securityHmacSha512($toEncrypt, $key) {
    // Compute the HMAC-SHA512 hash
    $hash = hash_hmac('sha512', $toEncrypt, $key);
    return $hash;
}
// Example usage
$toEncrypt = 'yourStringToEncrypt';
$key = 'yourSecretKey';
$hmac = securityHmacSha512($toEncrypt, $key);
echo "HMAC-SHA512: $hmac";
```

*Sample code can be found in the “Sample Code to Generate HMACSHA512 Signature” folder include:-

- C#
- Java
- javaScript
- PHP
- VB.Net

4.0 Reports and Notification

4.1 Objective

Allow merchants to login and view the reports online

4.2 Transaction Report

Step 1. Merchant can visit iPay88 OPSG report page by keying-in:

Report URL: <https://payment.ipay88.com.my/ePayment/report>

Login: [provided by iPay88 OPSG]

Password: [provided by iPay88 OPSG]

Step 2. After login, select transaction date

Step 3. The payment transaction report will display on the screen.

4.3 Email Notification Disclaimer

Note: Email notifications are NOT guaranteed by iPay88 OPSG as it is ISP dependent.

Online Report is the primary channel to obtain transaction status. Email notification should not be taken as a replacement of the primary channel.

E-mail transmissions cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. The sender therefore does not accept liability for any errors or omissions in the contents of the email, which arise as a result of e-mail transmission. iPay88 accepts no liability for the content of the email, or for the consequences of any actions taken on the basis of the information provided, unless that information is subsequently confirmed in writing.

4.3.1 Customer Payment Receipt Email

Customers will receive a payment detail's email after successful payment. Below is the email sample:

Subject: Payment Confirmation I&J Boutique (A00000001)

Date: Tues, 12 Dec 2017 09:59:30 GMT

From: iPay88 Notification (no-reply@ipay88.com.my)

To: John Tan (john@hotmail.com)



Dear John Tan,

We are pleased to inform you that your online payment via **iPay88** has been successful.

Transaction Detail

Date/time	: 12-Dec-2017 9:58:45 AM
Ref No	: A00000001
Transaction ID	: T131972476800
Bank approval code	: 728431
Amount	: MYR 1.00
Payment method	: Credit Card
Product Description	: Blue shirt
Remarks :	

Merchant support contact details:

Merchant's name	: I&J Boutique
Merchant's phone number	: 603-6691120
Merchant's e-mail	: support@i&j.com



www.ipay88.com

[Privacy Policy](#)

4.3.2 Merchant Payment Notification Email

The Merchant will also receive a payment notification email after successful payment.

In order to ensure you are able received all our mail; do make sure you proceed with the following steps:

- From your mailbox, please white-list iPay88 OPSG mail address by adding no-reply@ipay88.com.my
- into your friend list.
- Also, please make sure your mailbox has not blacklisted our address which is the following no-reply@ipay88.com.my
- Allow us to serve you better by whitelisting our email address and domain iPay88.com. Please verify or allow your technical personnel (at the webhosting or email server) to verify the status of your email.

Below is the email sample:

Subject: Payment Confirmation (A000000001)

Date: Tues, 12 Dec 2017 09:59:30 GMT

From: iPay88 Notification (no-reply@ipay88.com.my)

To: I&J Admin (admin@i&j.com)



Dear I & J Admin, Ref No:

A000000001

One new payment has been collected for I & J Inc. Please, check the payment report:

Customer's details:

Customer's name	: Ali Customer's
phone number	: 60112676xxxx
Customer's e-mail	: xxx@hotmail.com

Transaction details:

Date/time	: 12-Dec-2017 9:58:45 AM
Ref No	: A000000001
Transaction ID	: T131972476800
Bank approval code	: 728431
Amount	: MYR 1.00
Payment method	: Credit Card
Product Description	: Blue shirt
Remarks :	



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5.0 iPay88 OPSG Integration FAQs

1. What method use to pass payment parameters value to iPay88 OPSG?

By using the HTTP POST method.

2. What do I provide to iPay88 OPSG before the integration of a merchant account?

Return a copy of completed Merchant Checklist to support@ipay88.com.my and provide both the Request URL and Response URLs' of merchant website.

3. What are the merchant Request URL and Response URL?

Request URL is a checkout page at merchant website that passes in iPay88 OPSG parameters to request payment page.

Response URL is a page at merchant website that accepts payment status from iPay88 OPSG after transaction.

4. How do I perform a payment testing during the integration stage?

You can use any valid credit card for testing purpose. Details required are the credit card number, expiry date, CVV number and the card holder's name.

5. What transaction amount do I use for test payment?

Use the following amount for the respective currency code.

Currency Code	Amount
MYR	1.00
USD	1.00
AUD	1.00
CAD	1.00
EUR	1.00
GBP	1.00
SGD	1.00
HKD	2.50
IDR	3000.00
INR	15.00
PHP	15.00
THB	15.00
TWD	15.00

6. What if I get an error message and is unable to reach iPay88 OPSG payment page?

Below are the common error messages returned and its respective description:

Error Message	Description
Duplicate reference number	Do not re-use Reference Number that previously payment success for transaction.
Invalid merchant code	The merchant code does not exist or incorrect.
Invalid parameters	Some parameter posted to iPay88 OPSG is invalid or empty.
Overlimit per transaction	Payment amount exceeded the value per transaction that assigned to merchant account.
Payment not allowed	Payment method requested is not allowed for the merchant account.
Permission not allow	Referrer URL of transaction request is not same as registered with iPay88 OPSG.
Signature not match	Signature on request page which pass to iPay88 OPSG is incorrectly generated. Refer section 3.1 in iPay88 OPSG Technical Specification for more information about Signature for request page.
Status not approved	Merchant account was suspended or not active.

7. Why do I get 'The return page URL not exist' message display on web browser and is unable to see the iPay88 OPSG payment page?

- Make sure the correct merchant code is used.
- Provide the Request URL to support@ipay88.com.my before the integration.
- Make sure response URL is specify through ResponseURL field in request page or had updated in iPay88.

8. How do I ensure the integration is completed?

- Make sure parameters are properly passed to iPay88 OPSG and success reach iPay88 OPSG payment page.
- Success receives payment status from iPay88 OPSG after perform test transaction.
- Make sure implemented security control on the merchant response page. Example:
 - Compare the Signature from iPay88 OPSG with the generated merchant response page.

9. How can I change the merchant information such as Request URL, contact number, company name and bank account number?

Send an email to support@ipay88.com.my to request for these changes

10. What not to do after press “**Proceed Payment**” button at iPay88 OPSG payment page?

- a) Do not disconnect your Internet connection.
- b) Do not close the web browser while transaction being process.
- c) Do not click “Back” button on web browser to avoid duplicate payment.

11. I am getting error description “Fail (Card issuing bank do not honor the transaction)” returned by iPay88 OPSG, what does it mean?

Please contact credit card issuer bank to check whether the card can be used for online purchases.

12. Is there any function from iPay88 OPSG where I can query payment status if my system did not get payment status return from iPay88 OPSG?

You can use the iPay88 OPSG Server Requery function to query the transaction status. Please refer section 2.8 in iPay88 OPSG Technical Specification for more information about iPay88 server re-query.

Information Type: Choose an item. Choose an item.
Company: iPay88 (M) Sdn Bhd
Information Owner: Choose an item.

