mPay (VM) Service
Merchant Setup Guide
Version 2.2.2

Merchant Setup Guide
Java

(Java API for J2SE 1.5 platform)

Copyright

Quality Policy

mPay develops, manufactures, markets and supports innovative business solutions. The objective of the management of mPay is to provide solutions that meet or exceed customer expectations.

The assurance of quality is fundamental to all work undertaken by mPay and its suppliers, and is practised by all staff members in their daily activities for the company.

Control Information

Item #	Key	Value
1	Target Audience	Both
2	Original Author	Se
3	Distribution List	

Executive Summary

mPay is a modern payment service from mPay Limited and specifically designed for Internet merchants.

The service offers secure channels to mPay and Financial Institutes, over which a merchant is merchant client request messages (MCRQ) are transmitted and processed. Upon process completion, mPay will return a merchant client response message (MCRP) with a payment status code.

To use the service, a merchant web server has to install an mPay client that facilitates the above service. In this guide, the mPay client for J2SE 1.5 is discussed.

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Assumptions

AS #	Description
AS01	Using standard-based HTTPS channel, Merchant WebStore Server connects to mPay service to send MCRQ and receive MCRP.

Project Information

Item	Key	Description	Remarks
Section A) Filled by User			
A01	User Name		
		<More contacts, if any>	
Section B) Filled by Consultant			
B01	Consultant	Tel: (852) 3590 8136 Fax: (852) 3590 4179	

Overview

mPay is a global Internet payment solution operated by mPay Limited. Selling at a distance requires a comprehensive, flexible, reliable and secure payment solution. mPay Internet payment service meets these requirements. mPay is designed to provide a proven and secure payment service to meet your business needs on the Internet.

mPay Internet payment service offers a secure channel over which a merchant merchant client request message (MCRQ) is transmitted and processed. Upon process completion, mPay will return a digital receipt (MCRP) with an approval code. To use the service, the merchant web server will have to install an mPay client, which starts the service flow. In this guide, the mPay client for J2SE Version 1.5 is discussed.

Installation Procedure

1. Read the Notice section and send the corresponding information to us
2. Extract the sample code provided (Appendix A shows the description of files included in the compressed file)
3. Modified the sample code to fit with your environment (See Appendix B to E)
4. Place the modified files to an JSP server to test the result. (Note: you can use the modified sample codes directly OR migrate the sample codes to your system to test the payment service.)

Notice

Information (From Merchant to us)

Terms	Definition
IP address of the server that will call our mPay(VM) service (e.g. SendMsg.jsp)	The IP (address that will call our mPay(VM) service. That is the ip address of your web server storing the page (e.g. SendMsg.jsp) calling our mPay(VM) link
Default URL address of return page (e.g. RecvMsg.jsp)	The default URL address of the return page (e.g. RecvMsg.jsp) at your web server. This URL is used only in Exception cases

Information (To Merchant)

Terms	Definition
Certificate files (merchant.p12, server.crt, password.txt)	The certificate files needed for authorization
Merchant ID	The merchant ID that we created for you
Merchant Password	The merchant password that we created for you
Testing card Details	Testing card details used in the payment page including card number, expiry date and password
mPay(VM)_Test_URL	The mPay(VM) URL that can call our mPay(VM) service in testing environment (used in SendMsg.jsp)
mPay(VM)_URL	The mPay(VM) URL that can call our mPay(VM) service in production environment (used in SendMsg.jsp)

Note:

1. To ensure the security level of mPay(VM) service, the JSP pages (with Java classes for encryption and decryption) are needed. Please use our API(MerchantClient.jar) to perform the required tasks.
2. Put the certificate files we send you later in the directory and change the value of corresponding parts in both SendMsg.jsp and RecvMsg.jsp
3. **We will give you the above information after we have received your corresponding information (as we need your information for configuration).**
4. In testing environment, the payment page (page for entering card's information) will have checking only for the card number and password. Other field (if required) should input non empty value.

Merchant Client Message Definition

Merchant Client Request Message (Merchant to mPay)

Name	Definition	Allow Empty
merchantid	Merchant ID provided by mPay.	N
merchant_tid	Merchant Terminal ID provided by mPay.	N
ordernum	Order number of transaction. The value should be unique for each payment.	N
datetime	Order date of transaction. The value should be in the format of "yyyyMMddHHmmss".	N
amt	Payment amount of transaction.	N
currencycode	Payment currency code of transaction allowed for the merchant. "HKD" - Hong Kong Dollar "USD" - US Dollar	N
cardtype	Card type value to identify the payment method in mPay. "9" represent VM.	N
customizeddata	As a remark message of merchant. This value will be returned to merchant at the response page.	Y
returnurl	The return URL of merchant which payment response will passed to in normal cases. (e.g. successful and fail payments)	N
failurl	The return URL of merchant which payment response will passed to in abnormal cases. In normal, it can be same as the return URL. (e.g. system error)	N
locale	The language used in mPay and FI side (if allowed). "en_US" - English "zh_TW" - Traditional Chinese "zh_CN" - Simplified Chinese	N

Merchant Client Response Message (mPay to Merchant)

Name	Definition
merchantid	Merchant ID provided by mPay.
merchant_tid	Merchant Terminal ID provided by mPay.
ordernum	Order number of transaction. The value should same as that passed in the request message.
sysdatetime	System date time at mPay when creating the response message. The value should be in the format of "yyyyMMddHHmmss".
refnum	Transaction ID at mPay.
amt	Payment amount of transaction. The value should same as that passed in the request message.
currencycode	Payment currency code of transaction. The value should same as that passed in the request message.
settledate	Settlement date time of the transaction. The value should be in the format of "yyyyMMddHHmmss".
rspcode	Response code which represent the payment status of transaction. See Appendix for further description.
authcode	Authentication code provided by Financial Institution.

Appendix A – Merchant API package content description

Following list content of the Sample program

File	Description
MertInput.jsp	Sample jsp file that simulate the checkout page at merchant side. It contains information required and post the parameters to SendMsg.jsp.
SendMsg.jsp	Sample jsp file that encrypt request data, generate signature, get certificate serial and send request to mPay for payment service.
RecvMsg.jsp	Sample jsp file that decrypt response data, verify signature when receiving success payment response from mPay and post the result to DisplayResult.jsp
DisplayResult.jsp	Sample jsp file that simulate result page at merchant side which display the decrypted response data from RecvMsg.jsp.
WEB-INF/lib/bcprov-jdk.jar	Jar file that provide security feature.
WEB-INF/lib/MerchantClient.jar	mPay API jar file that provide encrypt, decrypt , generate signature, verify signature, get certificate serial features.

Following describe the 3 security related files

File	Description
merchant.p12	Merchant keystore file (pkcs12 format) which store Merchant private key and Merchant client certificate.
server.crt	mPay server certificate(X509 format).
password.txt	Password of merchant keystore file.

Appendix B- Sample JSP Program: MertInput.jsp

Purpose of MertInput.jsp is a sample page for calling the SendMsg.jsp in order to use our mPay (VM) service. It simulate the checkout page at merchant side which contains all the required information. Please noted that the fields are not required to be shown in the web page.

The page should contain the following attributes in the form:

(Note: In order to ensure the security level, do not pass the parameters to the SendMsg.jsp in the form of calling "SendMsg.jsp?merchantid=....". Please put your parameters as HTML form attributes and submit the form through "POST" method)

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
  pageEncoding="UTF-8"
  page session="true"
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=BIG5">
<title>mPay(VM) Sample</title>
</head>
<body>
<%
  String datetime = "<Order Date>";  //In format yyyyMMddHHmmss
  String merchantid = "<Merchant ID>";
  String merchant_tid = "<Terminal ID>";
  String ordernum = "<Order Number>";
  String amt = "<Amount>";
  String currency = "<Currency Code>";
  String returnurl = "<Your Return URL>";
  String cardtype = "9";
  String locale = "<Locale>";
  String customizeddata = "<Customized Data>";
%>
<form name=form1 action="SendMsg.jsp" method="post">
  <img src="../image/MobileTech.jpg"><br>
  <b>mPay(VM) Sample Payment Page</b><br>
  <table>
    <tr>
      <td>Merchant ID:</td>
      <td><input type="text" name="merchantid" value="<%=
merchantid %>"></td>
    </tr>
    <tr>
      <td>Terminal ID:</td>
      <td><input type="text" name="merchant_tid" value="<%=
merchant_tid %>"></td>
    </tr>
    <tr>
      <td>Order Number:</td>
      <td><input type="text" name="ordernum" value="<%= ordernum
%>"></td>
    </tr>
    <tr>
      <td>Date time:</td>
      <td><input type="text" name="datetime" value="<%= datetime
%>"></td>
    </tr>
```

```
    <tr>
      <td>Amount:</td>
      <td><input type="text" name="amt" value="<%= amt %>"></td>
    </tr>
    <tr>
      <td>Currency:</td>
      <td><input type="text" name="currency" value="<%= currency
%>"></td>
    </tr>
    <tr>
      <td>Return URL:</td>
      <td><input type="text" name="returnurl" value="<%= returnurl
%>"></td>
    </tr>
    <tr>
      <td>Card Type:</td>
      <td><input type="text" name="cardtype" value="<%= cardtype
%>" readonly></td>
    </tr>
    <tr>
      <td>Language:</td>
      <td><input type="text" name="locale" value="<%= locale
%>"></td>
    </tr>
    <tr>
      <td>Customized Data:</td>
      <td><input type="text" name="customizeddata" value="<%=
customizeddata %>"></td>
    </tr>
  </table>
  <input type="submit" name="submitbtn" value="Pay">
  <input type="reset" name="resetbtn" value="Reset">
</form>
</body>
</html>
```

The texts in blue color should be changed according to your environment.

Appendix C - Sample JSP Program: SendMsg.jsp

Purpose of SendMsg.jsp is to redirect the browser from merchant's website to mPay (VM) payment page where the debit card information will be entered and processed. During the redirect, the merchant client request message information is passed to the mPay (VM) payment page to process the payment request.

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
  pageEncoding="UTF-8"%>
<%@page session="true"
  import="com.mobiletech.mpay.client.v9.*,
      com.mobiletech.mpay.general.merchant.MerchantException,
      com.mobiletech.mpay.general.merchant.MerchantConstant,
      com.mobiletech.mpay.general.merchant.message.*,
      com.mobiletech.mpay.general.merchant.message.v9.*,
      com.mobiletech.mpay.general.merchant.message.field.*"
%>
<%
try {
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Merchant client Send Msg</title>
</head>
<body>
<%
  String merchantid = request.getParameter("merchantid");
  String merchant_tid = request.getParameter("merchant_tid");
  String ordernum = request.getParameter("ordernum");
  String datetime = request.getParameter("datetime");
  String amt = request.getParameter("amt");
  String currency = request.getParameter("currency");
  String returnurl = request.getParameter("returnurl");
  String failurl = returnurl;
  String cardtype = request.getParameter("cardtype");
  String locale = request.getParameter("locale");
  String customizeddata = request.getParameter("customizeddata");
  String encmsg = "";
  String sigmsg = "";
  String certserial = "";

  String mpayVMURL = "<mPay_Payment_URL>";
  String serverCertPath = "<cert_directory>/server.crt";
  String merchantCertPath = "<cert_directory>/merchant.p12";
  String certPassword = "<Certificate_Password>";

  try {
    MerchantClientReqMessage mertreqmsg = new
MerchantClientReqMessage(merchantid, merchant_tid, ordernum,
datetime, amt, currency, returnurl, failurl, cardtype, locale,
customizeddata);
    Merchant mert = new Merchant(merchantid, merchant_tid,
serverCertPath, merchantCertPath, certPassword);

    encmsg = mert.encrypt(mertreqmsg);
    sigmsg = mert.sign(mertreqmsg);
    certserial = mert.getCertserial();
%>
```

```
    <form name=form1 method=post action="<%= mpayVMURL %>">
      <input type=hidden name=encmsg value="<%=encmsg%>">
      <input type=hidden name=sigmsg value="<%=sigmsg%>">
      <input type=hidden name=certserial value="<%=certserial%>">
    </form>

    <SCRIPT LANGUAGE="JavaScript">
      document.form1.submit();
    </SCRIPT>

<%
  }
  catch (MerchantException e) {
    e.printStackTrace();
    return;
  }
%>
  </body>
  </html>
<%
}catch (Exception ex){
  System.out.println(ex);
}
finally
{
}
%>
```

The texts in blue color should be changed according to your environment.

Appendix D - Sample JSP Program: RecvMsg.jsp

Purpose of RecvMsg.jsp is used by merchant web server to process the payment information while payment process completes.

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
  pageEncoding="UTF-8"%>
<%@page session="true"
  import="com.mobiletech.mpay.client.v9.*,
      com.mobiletech.mpay.general.merchant.MerchantException,
      com.mobiletech.mpay.general.merchant.MerchantConstant,
      com.mobiletech.mpay.general.merchant.message.*,
      com.mobiletech.mpay.general.merchant.message.v9.*,
      com.mobiletech.mpay.general.merchant.message.field.*"
%>
<%
try {
%>
  <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
  <html>
  <head>
  <meta http-equiv="Content-Type" content="text/html;
charset=BIG5">
  <title>Merchant client Recv Msg</title>
  </head>
  <body>
  <%
  String merchantid = "<Merchant ID>";
  String merchant_tid = "<Terminal ID>";

  String serverCertPath = "<cert_directory>/server.crt";
  String merchantCertPath = "<cert_directory>/merchant.p12";
  String certPassword = "<Certificate_Password>";

  try {
    String encmsg = request.getParameter("encmsg");
    String sigmsg = request.getParameter("sigmsg");
    Merchant mert = new Merchant(merchantid, merchant_tid,
serverCertPath, merchantCertPath, certPassword);

    MerchantClientRspMessage mertrspmsg = mert.decrypt(encmsg);

    String ordernum = mertrspmsg.getOrdernum();
    String sysdatetime = mertrspmsg.getSysdatetime();
    String ref = mertrspmsg.getRef();
    String amt = mertrspmsg.getAmt();
    String currency = mertrspmsg.getCurrency();
    String settledate = mertrspmsg.getSettledate();
    String rspcode = mertrspmsg.getRspcode();
    String customizeddata = mertrspmsg.getCustomizeddata();
    String authcode  = mertrspmsg.getReturn_payno();
    %>
    <form name="form1" method="post" action="DisplayResult.jsp">
      <input name="ordernum" value="<%=ordernum%>" type="hidden">
      <input name="sysdatetime" value="<%=sysdatetime %>"
type="hidden">
      <input name="ref" value="<%=ref %>" type="hidden">
      <input name="amt" value="<%=amt %>" type="hidden">
      <input name="currency" value="<%=currency %>" type="hidden">
      <input name="settledate" value="<%=settledate %>"
```

```
type="hidden">
      <input name="rspcode" value="<%=rspcode %>" type="hidden">
      <input name="customizeddata" value="<%=customizeddata %>"
type="hidden">
      <input name="authcode" value="<%=authcode %>" type="hidden">
    </form>

    <SCRIPT LANGUAGE="JavaScript">
      document.form1.submit();
    </SCRIPT>

    </body>
    </html>
  <%
  } catch(Exception e) {
  %>
    <form name="form1" method="post" action="DisplayResult.jsp">
      <input name="rspcode" value="01" type="hidden">
    </form>

    <SCRIPT LANGUAGE="JavaScript">
      document.form1.submit();
    </SCRIPT>

    </body>
    </html>
  <%
  }
  %>
<%
} catch (Exception ex) {
  System.out.println(ex);
}
finally
{
}
%>
```

The texts in blue color should be changed according to your environment. The parameters in red color are result passed back from mPay(VM) and decrypted values are stored in the MerchantClientResponse class.

Appendix E - Sample JSP Program: DisplayResult.jsp

Purpose of DisplayResult.jsp is used by merchant web server to display the payment information from RecvMsg.jsp.

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
  pageEncoding="UTF-8"%>
<%@page session="true"
  import="java.text.*,
      java.util.*"
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=BIG5">
<title>mPay(VM) Sample</title>
</head>
<body>
<%
  String ordernum = request.getParameter("ordernum");
  String sysdatetime = request.getParameter("sysdatetime");
  String ref = request.getParameter("ref");
  String amt = request.getParameter("amt");
  String currency = request.getParameter("currency");
  String settledate = request.getParameter("settledate");
  String rspcode = request.getParameter("rspcode");
  String customizeddata = request.getParameter("customizeddata");
  String authcode = request.getParameter("authcode");
%>
<form name="form1" method="post">
  <img src="../image/MobileTech.jpg"><br>
  <b>mPay(VM) Sample Result Page</b><br>
  <table>
    <tr>
      <td>Ordernum:</td>
      <td><%=ordernum%></td>
    </tr>
    <tr>
      <td>System Date:</td>
      <td><%=sysdatetime %></td>
    </tr>
    <tr>
      <td>Ref Number:</td>
      <td><%=ref %></td>
    </tr>
    <tr>
      <td>Amoumt:</td>
      <td><%=amt %></td>
    </tr>
    <tr>
      <td>Currency:</td>
      <td><%=currency %></td>
    </tr>
    <tr>
      <td>Settle Date:</td>
      <td><%=settledate %></td>
    </tr>
    <tr>
      <td>Response Code:</td>
      <td><%=rspcode %></td>
```

```
    </tr>
    <tr>
      <td>Customized Data:</td>
      <td><%=customizeddata %></td>
    </tr>
    <tr>
      <td>Auth Code:</td>
      <td><%=authcode %></td>
    </tr>
  </table>
</form>
</body>
</html>
```

The parameters in red color are result passed back from RecvMsg.jsp.

Note:

1. **Please check the response code to identify if the transaction is successful or fail.**
2. **Response Code=D00 represents transaction successful.**
3. **Response Code=134 represents duplicate successful response for the same transaction. In this case, we suggest merchant to check if the transaction is already updated by previous response or not. If it is already updated, merchant can skip this response. If it is not updated, merchant can use our Enquiry API to verify the transaction status for security.**
4. **Others values represent transaction not success (Refer to Appendix F).**

Appendix F – Response Code of VISA/MasterCard

Following list all the possible status code generated by VISA/MasterCard. (**Response Code=D00 represent transaction successful.)**

Response Code	Description
D00	Approved or completed successfully
D02	Refer to card issuer
D03	Invalid merchant
D04	Do not honour
D05	Do not Honour
D06	Invalid Transaction for Terminal
D07	Honour with ID
D08	Time-Out
D09	No Original
D10	Unable to Reverse
D11	Partial Approval
D12	Invalid transaction card / issuer / acquirer
D13	Invalid amount
D14	Invalid card number
D17	Invalid Capture date (terminal business date)
D19	System Error; Re-enter transaction
D20	No From Account
D21	No To Account
D22	No Checking Account
D23	No Saving Account
D24	No Credit Account
D30	Format error
D34	Implausible card data
D39	Transaction Not Allowed
D41	Lost Card, Pickup
D42	Special Pickup
D43	Hot Card, Pickup (if possible)
D44	Pickup Card
D45	Transaction Back Off
D51	Not sufficient funds
D54	Expired card
D55	Incorrect PIN; Re-enter
D57	Transaction not permitted on card
D58	Txn Not Permitted On Term
D61	Exceeds amount limit
D62	Restricted card
D63	MAC Key Error
D65	Exceeds frequency limit
D66	Exceeds Acquirer Limit
D67	Retain Card; no reason specified
D68	Response received too late. Used to indicate the reason for sending a reversal - an authorisation response was not returned within the time limit
D75	Exceeds PIN Retry
D76	Invalid Account
D77	Issuer Does Not Participate In The Service
D78	Function Not Available
D79	Key Validation Error
D80	Approval for Purchase Amount Only
D81	Unable to Verify PIN
D82	Invalid Card Verification Value
D83	Not declined (AVS Only)

D84	Invalid Life Cycle of transaction
D85	No Keys To Use
D86	K M E Sync Error
D87	PIN Key Error
D88	MAC sync Error
D89	Security Violation
D91	Issuer not available
D92	Invalid Issuer
D93	Transaction cannot be completed
D94	Invalid originator
D96	System malfunction
D97	No Funds Transfer
D98	Duplicate Reversal
D99	Duplicate Transaction
DN3	Cash Service Not Available
DN4	Cash Back Request Exceeds Issuer Limit
DN7	N7 (visa), Decline CVV2 failure
DR0	Stop Payment Order
DR1	Revocation of Authorisation Order
DR3	Revocation of all Authorisations Order
DB1	Transaction Canceled by customer
DB2	Invalid Error

Appendix G – Response Code of mPay

Following list all the possible status code generated by the mPay client or server

Response Code	Description
1A1	Initial status of transaction. Transaction not success nor fail.
1A2	Transaction has been sent to Financial Institution
1A3	Transaction timeout at mPay
1A4	Transaction timeout at Financial Institution
1A9	Duplicate form submission
101	Invalid certificate
102	Data verification fail
103	Amount should be greater than zero
104	Invalid amount format
105	Invalid currency
106	Invalid order date
107	Invalid merchant IP address
108	Invalid merchant ID
109	Invalid merchant order number
110	Invalid system reference number
111	Invalid return URL
112	Invalid response code
113	Daily maximum amount of transactions exceed
114	Daily maximum number of transactions exceed
115	Maximum amount of transaction exceed
116	Merchant not exist
117	Merchant not enable
118	Merchant terminal not exist
119	Merchant terminal not enable
120	Duplicate form submission
121	Connection error
122	No merchant id found
123	Invalid password
124	Duplicate merchant order number
125	Invalid Recurring Amount
126	Invalid Recurring Period
127	Invalid Recurring Time
128	Invalid Recurring Number
129	Merchant Not Allow to perform Recurring Transaction
130	Merchant Not Allow to perform Recurring Transaction with Trial
131	Merchant Not Allow to perform Recurring Transaction with 2 Trials
132	Financial Institution is now temporary unavailable
133	Invalid payment request
134	Duplicate response for the same transaction
135	Transaction amount less than minimum amount limit
136	Duplicate payment request for the same transaction
187	Security error
196	System error