WorldPay™

Hosted Payment Page (XML Redirect) Guide

Version 4.1 – March 2012

Corporate Gateway

Table of Contents

About this Guide

This guide describes the specifications for XML orders sent to WorldPay using the Hosted Payment Page (XML Redirect) service. It explains how to interpret the information WorldPay supplies to redirect a shopper to the payment selection environment and when directing the shopper back to the shop environment. The intended audience is the merchant's technical staff or the merchant's system integrator.

Because almost all communication between the merchant's system and the payment service is realised through predefined XML messages over the Internet using standard protocols, you will need basic XML programming skills and knowledge of HTTP(S). Furthermore it is recommended that you are familiar with the basics of the payments service, as described in our Introduction and Setup guide. Where applicable, this document refers to the related documentation with further details.

Update History

Version	Change description	Date	Affected Pages
4.1	statementNarrative element added. New alternative payment method codes added.	March 2012	Pages 6-10 Page 25
4.0	Gateway and guide name added to navigation path	December 2011	All pages
3.0	WorldPay rebrand	July 2011	All pages

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Introduction

What is the Hosted Payment Page (XML Redirect) Service?

The Hosted Payment Page (also known as XML Redirect) service is an integration method to the WorldPay payment service, suited for Internet shop environments, call centres or reservation centres, and multi-channel sales situations. It allows for real-time processing of payments and ensures a maximum number of up-to-date payment methods. The Hosted Payment Page service is secure, provides WorldPay with required information to perform active fraud risk assessment, and is the fastest way to get up and running with on-line payments.

Overview of the Hosted Payment Page (XML Redirect) Service

The Hosted Payment Page service requires that a merchant’s system must first collect order and shopper information; and then generate an order in XML format that is delivered to the WorldPay payment service.

Upon receipt of the XML order WorldPay sends a reply to the merchant's system. The reply contains the information required to redirect the web browser of the shopper (or operator) from the shop to the secure WorldPay environment to submit the payment details.

After the shopper has entered the payment details WorldPay redirects the shopper's browser back to the shop environment.

The merchant's system should be able to send and interpret the XML messages as specified in this guide, and be set-up for the required HTTP(S) connections to our payment service.

Creating an XML Order

Introduction

Orders submitted to the WorldPay payment service are required to be valid XML files as specified in this guide and in the Document Type Definition (DTD) available at

http://dtd.worldpay.com/paymentService_v1.dtd

XML files are valid if they are well-formed, that is, they have a correct XML syntax, and conform to a Document Type Definition. The content of the XML orders should always be in compliance with your contract with WorldPay and should not exceed 4k in size.

The topics covered in this chapter are listed below.

Structure of an XML Order

A typical Hosted Payment Page (XML Redirect) order contains a number of key elements: `description`, `amount`, `orderContent`, `paymentMethodMask` and `shopper`.

The sections listed here describe the general structure of an XML order. Please note that not all possible elements for an XML order are listed here. Refer to the WorldPay DTD for a complete overview of the possible order elements.

The topics covered in this section are listed below.

XML and Document Type Declaration (DTD)

As with all well-formed valid XML documents, an XML order submission begins with an XML declaration and a document type declaration, containing the root element `paymentService` and the reference to the our public payment DTD:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE paymentService PUBLIC "-//WorldPay/DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.com/paymentService_v1.dtd">
```

Merchant and Service-specific Information

The `paymentService` root element has two required attributes: the version number of the Payment Service DTD and your merchant code. The merchant code is issued by WorldPay and is always in capitals. An example for merchant code MYMERCHANT is:

```
<paymentService version="1.4.1" merchantCode="MYMERCHANT">
  <submit>
...
  </submit>
</paymentService>
```

The `paymentService` element contains the child element `submit` to classify the XML message as a submission.

Order Description and Amount

Within the `submit` element the `order` element and its content describe the goods or services that are being ordered. The `order` element has an `orderCode` attribute whose value must be *unique*. Order codes can be up to 64 characters long; neither spaces, nor quotes nor the “<” and ”>” characters are allowed.

Please ensure that the order code you supply is unique. An order with a previously used order code cannot be processed correctly.

The first two child elements of the order element are `description` and `amount`. The `description` element should contain a simple one-line description of the order and can be up to 50 characters long. The `amount` element has the attributes: `value` (no decimal point or comma), the `currencyCode` (ISO 4217 code) and `exponent` (specifies where the decimal point or comma should be placed, counting from the right).

The amount value is the total amount the shopper is expected to pay. A list of currency codes and their respective exponents can be found in the appendix ISO Currency Codes.

```
<order orderCode="T0211010">
    <description>20 English roses from MYMERCHANT
Webshop</description>
    <amount value="2600" currencyCode="GBP" exponent="2"/>
...
</order>
```

Order Content

The third child element of the `order` element is `orderContent`. You can deliver the order content in HTML format. When supplying HTML order content the *only* HTML tags allowed are the tags permitted between the `<body>` and `</body>` tags of a valid HTML document. No form of scripting is allowed in the order content.

The order content must be less than 10 kilobytes and should always be included in a `CDATA` section to avoid parsing problems.

```
<orderContent>
  <![CDATA[content here]]>
</orderContent>
```

The order content in the `CDATA` section is what the shopper sees when redirected to the Payment Method Selection pages. The order content is also visible in the order details screen of the order in the Merchant Interface. It will be displayed when checking a purchase at the WorldPay website (in the “Consumer info” section).

Our payments service runs in a secure environment. If you include an image in your HTML order content and the image resides on a non-secure environment the WorldPay HTTPS proxy should be used. This is achieved by putting the string

```
https://secure.worldpay.com/servlet/HTTPSProxy?
```

in front of the URL of the image.

The order content should reflect a traditional invoice and contains the following information, where applicable:

- order code
- product(s) and/or service(s) ordered
- item price
- total amount
- shopper billing address
- shopper shipping address
- contact details merchant

- the fact that WorldPay processes the payment
- the fact that the name WorldPay may appear on the shopper's bank or credit card statements.

Any additional information is optional.

The exact details of the order content depend on your contract with WorldPay verifies the mandatory information in the order content during acceptance testing, i.e. before going live the first time.

Payment Method Mask

The fourth `order` child element is `paymentMethodMask`. It limits the available payment methods to be shown to the shopper. The `paymentMethodMask` element must have at least one `include` element that defines a single specific payment method to be included, for example: `<include code="VISA-SSL"/>`, where `VISA-SSL` is the included payment method code.

For every payment method available for your account a separate `include` element must be specified. To include all payment methods available, you can use one include element with the payment method code "`ALL`". To include only on-line payment methods use the payment method code "ONLINE".

With the optional `exclude` element you then can exclude a particular payment method from the list of payment methods, for example: `<exclude code="AMEX-SSL"/>` excludes the payment method AMEX-SLL (American Express).

A list of payment method codes can be found in the appendix Payment Method Codes.

An example of the paymentMethodMask is:

```
<paymentMethodMask>
  <include code="ALL"/>
  <exclude code="AMEX-SSL"/>
</paymentMethodMask>
```

In this example all available payment methods will be offered to the shopper, except American Express (AMEX).

Please note that you can use different payment method masks for different orders.

Shopper Information

The fifth order child element is `shopper` and it is used to provide extra information about the shopper in the XML order, for example the `shopperEmailAddress`. If applicable, its value can be used by WorldPay for risk assessment purposes or to send an email to the shopper when the payment is authorised or refused.

```
<shopper>
  <shopperEmailAddress>jshopper@myprovider.int</shopperEmail
Address>
</shopper>
```

Statement Narrative

Use the statementNarrative element to specify text that can be displayed on the shopper's statement. The statementNarrative element is the twelfth order child element.

This element is currently supported only by the AliPay and China Union pay (CUP) payment methods.

```
<statementNarrative>STATEMENT NARRATIVE
TEXT</statementNarrative>
```

XML Validation

When creating XML documents it is good practice to check the syntax of the candidate XML document and determine whether it conforms to its schema, expressed in the DTD. We strongly recommend that you validate the XML your system creates before submitting it to our payments service. XML that does not conform to the WorldPay DTD is not accepted.

Numerous on-line and off-line tools are available to help you check and validate XML. For example, please refer to: http://xml.coverpages.org/check-xml.html.

Order Example

An example of a complete XML order for the Hosted Payment Page service (XML Redirect) is shown below. The order is for 20 English roses and has an order code: T0211010. The merchant is the MYMERCHANT Webshop with merchant code MYMERCHANT, the shopper is Mr. J. Shopper and the allowed payment methods are all methods except for American Express.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE paymentService PUBLIC "-//WorldPay/DTD WorldPay PaymentService
v1//EN"
"http://dtd.worldpay.com/paymentService_v1.dtd">
<paymentService version="1.4.1" merchantCode="MYMERCHANT">
    <submit>
         <order orderCode="T0211010">
             <description>20 English roses from MYMERCHANT
Webshop</description>
             <amount value="2600" currencyCode="GBP" exponent="2"/>
             <orderContent>
                 <![CDATA[<center><table>
                       <tr><td class="one width190" align="left"
valign="top"><span style=" font-family: Arial, Helvetica, sans-serif;
font-size: 12pt; color:
                       #002469;">Product:</span>  </td>
                       <tr><td class="one" align="left"
valign="top"><span style=" font-family: Arial, Helvetica, sans-serif;
font-size: 12pt; color: #002469;"><strong>Product
                       title</strong></span></td></tr>
                  </table></center>]]>
             </orderContent>
              <paymentMethodMask>
                       <include code="ALL"/>
                       <exclude code="AMEX-SSL"/>
              </paymentMethodMask>
             <shopper>

<shopperEmailAddress>jshopper@myprovider.int</shopperEmailAddress>
              </shopper>
              <shippingAddress>
                  <address>
                      <firstName>John</firstName>
                      <lastName>Shopper</lastName>
                      <address1>Shopperstreet</address1>
                      <address2>Shopperaddress2</address2>
                      <address3>Shopperaddress3></address3>
                      <postalCode>1234</postalCode>
                      <city>Shoppercity</city>
                      <countryCode>NL</countryCode>
                      <telephoneNumber>0123456789</telephoneNumber>
                 </address>
              </shippingAddress>
             <statementNarrative>STATEMENT NARRATIVE
TEXT</statementNarrative>
         </order>
     </submit>
</paymentService>
```

Note that the numeric parts (if there are any) of the `houseNumber` and `houseNumberExtension` elements are used in the AVS check. The non-numeric parts are ignored.

The `CDATA` section in the `orderContent` element contains a complete invoice in HTML.

Posting an XML Order

Introduction

To submit the XML order you have to set up an HTTP(S) connection to our payments service. How you create a connection to our payments service depends on the specifications of your platform.

The topics covered in this chapter are listed below.

Setting-up the Connection

When setting up the connection, use your merchant code (always in capitals) as the login and your XML password as the password. The XML password can be set in the Profile page of the Merchant Interface (for more details, please refer to our Merchant Interface User Guide).

Once you have set up the connection to the WorldPay payment service, your system has to post the XML order.

Make sure the HTTP content type is “text/xml”! *It is important to check that ‘content length' is specified correctly. Not specifying the content length will not create errors, while specifying it incorrectly will.*

The URLs to post orders to are:

- Test environment: https://secure-test.wp3.rbsworldpay.com/jsp/merchant/xml/paymentService.jsp
- Production/Live environment: https://secure.worldpay.com/jsp/merchant/xml/paymentService.jsp

Security Requirements

Global Gateway (Corporate) supports the following protocols and encryption ciphers for secure connections to our payment service:

- Protocols: Secure Socket Layer (SSL) 3.0 or higher, or Transport Layer Security (TLS) 1.0 or higher
- Ciphers: Encryption key length equal to 128 bits (MEDIUM), or larger than 128 bits (HIGH).

Whilst MEDIUM encryption ciphers are supported, we recommend you use HIGH encryption ciphers, i.e. an encryption key length LARGER than 128 bits, to guarantee transaction security. Messages encrypted with LOW encryption ciphers (smaller than 128 bits) are not supported.

Originating IP Address

The WorldPay payment service checks incoming connections on the originating IP address, it will only accept XML where the originating IP address is registered for the merchant.

You can register up to four separate IP address ranges for connecting to each of the test and production environments per merchant code.

You can edit an IP address range to connect to the test environment yourself in the Profile page of the Merchant Interface. This must be done in the Merchant Interface for the *production* environment (for more details, please refer to our Merchant Interface User Guide). The IP address to connect to the production environment can only be changed by WorldPay.

when a merchant accesses our payment service we check which IP address they're trying to access us from. By default, our payments service checks on the first 3 octets of the IP address, thus ignoring the last octet of the IP address.

Sometimes a router or a firewall can mask the IP address of the originating machine and replace it by another IP address used for all outgoing IP traffic from your network. It is important that the IP address used by your network, for the machines used to send the orders to our payment service, is registered with WorldPay.

Please keep WorldPay informed of any change in IP addresses of the originating machines. This is simply done by creating an incident with the corresponding information in the Support console at

```
http://www.worldpay.com/support
```

Payment Method Selection

Introduction

When the WorldPay payment service has received a valid order, it will send an XML response to your system. The response includes the URL to redirect the shopper to the WorldPay Payment Method Selection pages and has to be parsed by your system.

It is important that you use an industry standard XML parser for this. Do not depend on a home-made one, which may not be able to correctly interpret the messages received from WorldPay. Different XML parsers exist for various platforms, for example please refer to: http://www.xml.org.

You can customize the appearance of the Payment Method Selection pages by appending parameters and values to the redirection URL you receive.

The topics covered in this chapter are listed below.

Redirecting the Shopper to the Payment Method Selection Pages

A typical XML response to an order is shown below. For example, this might be a response to the order example shown earlier.

The redirect information is contained in the `reply` element, which contains the order code to match it to the order in your back-office system.

```
<?xml version="1.0"?>
<!DOCTYPE paymentService PUBLIC "-//WorldPay/DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.compaymentService_v1.dtd">
                          <paymentService
merchantCode="MYMERCHANT" version="1.4">
  <reply>
    <orderStatus orderCode="T0211010">
      <reference id="1234567">
https://secure.worldpay.com/jsp/shopper/SelectPaymentMethod.
jsp?orderKey=MYMERCHANT^T0211010
      </reference>
    </orderStatus>
  </reply>
</paymentService>
```

The redirect URL is contained in the `reference` element. This URL must be used literally when redirecting the shopper. If the shopper needs to be redirected in the test environment the example redirect URL will be:

```
https://secure.worldpay.com/jsp/shopper/SelectPaymentMethod.
jsp?orderKey=MYMERCHANT^T0211010
```

The `id` attribute of the `reference` element can be used as a payment reference. If the shopper is expected to make a payment with an off-line payment method like a bank transfer or Accept Giro. In the latter case, this number (reference id) should be printed on the Accept Giros as the payment reference. If you are sending the order solely to acquire this reference id, there is no need to use the redirection URL and redirect the shopper. Shoppers who have paid for an order using an off-line payment method sometimes refer to this number instead of the order code.

How the actual redirection is performed depends on the implementation of your system. It can be done by providing the shopper with a simple link or by using a redirection method like the META refresh method.

Please note that the shopper's browser should be set to accept cookies from WorldPay (secure.worldpay.com) in order to perform a payment on the Payment Method Selection pages.

Orders received by our payment service are available for a maximum period of seven days during which the shopper has to be redirected to submit the payment details.

Customising the Payment Method Selection Pages

The Payment Method Selection pages display the order description and the order content, as specified in the XML order submission. Below the order content the shopper finds a list of available payment methods for this particular order as specified in the order's `paymentMethodMask`.

The redirect URL from WorldPay XML response is sufficient to redirect the shopper to the standard Payment Method Selection pages. However, you can customize the appearance of these pages and provide result URLs to inform the shopper of the result of the payment attempt, by appending parameters to the redirect URL. All appended parameters and their values must be URL-encoded to ensure correct processing. Many platforms have tools (built-in functions) that can automatically URL-encode information, such as the website http://www.blooberry.com/indexdot/html/topics/urlencoding.htm.

The attributes listed below can be used with redirect URLs.

- Country and Language
- Body Attribute
- Font Attribute
- Result URLs

Country and Language

The optional parameters `country` and `language` set the default country and the language of the Payment Method Selection pages. Allowed values are the two-letter ISO 3166 country code and the two-letter ISO 639-1 language code, respectively.

```
&country=GB&language=en
```

The language setting applies to the text originating from the WorldPay payments service, not to the order description and order content you supplied.

The country setting influences which of the available payment methods are presented to the shopper. Setting a country results in presenting the international credit cards and the country specific payment methods. Country and language can be specified independently from each other. For instance, you could present the payment methods for the country Netherlands in Swedish.

The shopper has the option to select a different language and country of the first Payment Method Selection page. The default position of the language and country selection boxes is at the bottom of the page, which can be changed by WorldPay on request. You can also switch the language and country selection off in the Profile page of the Merchant Interface (for more details, please refer to our Merchant Interface User Guide). It is switched on or off for *all* transactions, it cannot be done on a per transaction basis.

Body Attribute

The optional parameter `bodyAttr` sets the body attributes of the page. Allowed body attributes are anything that is valid in the `<BODY>` tag in HTML documents.

```
&bodyAttr=bgcolor%3D%22black%22
```

In this example the background colour has been set to black. Refer to external HTML documentation for more body attributes. Note that the value of the parameter is URL-encoded.

The `bodyAttr` parameter can also be used to define a background image to the Payment Method Selection pages. Please note that if you use a background image, the host of the URL of the image must have the same IP address as the order. The Payment Method Selection pages run in a secure environment. If the image resides on a non-secure environment the WorldPay HTTPS proxy should be used. This is achieved by putting the string

```
https://secure.worldpay.com/servlet/HTTPSProxy?
```

in front of the URL of the image.

Font Attribute

The parameter `fontAttr` sets the font attributes of the payment selection screen. In the example below, the font face is set to Arial and the font colour set to white. When the font indicated is not available on the shopper's system the browser's default font will be used. It is possible to define alternative fonts by separating them with a comma (for example Arial, Verdana, Helvetica).

```
&fontAttr=face%3D%22arial%22+color%3D%22white%22
```

Result URLs

The parameters `successURL`, `pendingURL` and `failureURL` set the success URL and failure URL. These URLs must reside on your server and are used to provide feedback about the payment to the shopper and in reporting the payment status to your system. Examples of result URL parameter values are:

```
&successURL=http%3A%2F%2Fwww.webshops.int%2Fsuccess.asp

&pendingURL=http%3A%2F%2Fwww.webshops.int%2Fpending.html

&failureURL=http%3A%2F%2Fwww.webshops.int%2Ffailure.php
```

You can append request variables and values to these URLs, which have to be URL-encoded as well.

Refer to the later sections on Reporting Payment Results and Payment Status for more details regarding the result URLs and the Message Authenticating Code (MAC).

Preferred Payment Method

The optional parameter `preferredPaymentMethod` sets the preferred payment method. You have the possibility to pre-select the payment method for the shopper.

```
&preferredPaymentMethod=VISA-SSL
```

In this example, the payment method is VISA. A preferred payment method can be used when you only want to accept one specific payment method (for this transaction) or when you want to bypass the payment methods presented by WorldPay because the shopper has already chosen a preferred payment method in the shopping application on your server.

When you have specified a preferred payment method, the shopper does not have the possibility to select a language and country at the bottom (or at the top) of the first Payment Method Selection page.

Example - with Parameters

This example of a redirect URL displays the use of parameters:

```
https://secure.worldpay.com/jsp/shopper/SelectPaymentMethod.
jsp?orderKey=MYMERCHANT^T0211010&country=
GB&language=en&bodyAttr=bgcolor%3D%22black%22&fontAttr=face%
3D%22arial%22+color%3D%22white%22&success
URL=http%3A%2F%2Fwww.webshops.int.com%2Fsuccess.asp&failureU
RL=http%3A%2F%2Fwww.webshops.int%2Ffailure.php
&pendingURL=http%3A%2F%2Fwww.webshops.int%2Fpending.html&pre
ferredPaymentMethod=VISA-SSL
```

Reporting Payment Results to the Shopper

Introduction

When the shopper has selected a payment method and has entered the corresponding payment details, the payment information is submitted to the WorldPay payment service. For on-line payment methods, like credit cards, WorldPay sends the payment information to the financial institutions (acquirers) for authorisation. The result of the authorisation request is reported to WorldPay on-line. This is called the payment status and can be either AUTHORISED or REFUSED. Transactions with off-line payment methods, like bank transfers, do not yet attain a payment status. Please refer to our Payment Status Definitions guide for more about these payment statuses.

The shopper must be informed about the result of the payment. Therefore WorldPay redirects the shopper's browser to a corresponding page on your system. Off-line payment methods have at that point not reached a payment status yet. The shopper must be redirected to another page on your system informing them that the order has been placed and that you will wait for the payment before shipping the merchandise.

If a shopper terminates the payment process before submitting the payment details, the order can stay in the WorldPay system without a payment status.

The topics covered in this chapter are listed below.

Redirecting the Shopper to the Result URLs

The types of payment results possible are:

- **Authorised** our payments service redirects the shopper to the `successURL` on your system where the successful authorisation of the payment is reported.
- **Pending** our payments service redirects the shopper to the `pendingURL` on your system with information that the order is placed but the payment result is not yet available (applies to off-line payment methods).
- **Refused** our payments service redirects the shopper to the `failureURL` on your system informs where the refused transaction is reported.

An example of a redirect URL, or message, to redirect the shopper to the success page of the merchant is:

```
https://www.webshops.int/success.asp?orderKey=MYADMINCODE^MY
MERCHANT^T0211010
&paymentStatus=AUTHORISED&paymentAmount=2600&paymentCurrency
=EUR
&mac=0083c47880f0533d773c350ee0d51cfc
```

Note that WorldPay appends a number of parameters to the URL (for details, please refer to Reporting the Payment Status). Any request variable that you appended to the result URLs is unaltered and will also be part of the above redirect message.

HTTPS Proxy

If a shopper is redirected from the secure location on the WorldPay payment service to a non-secure location on a merchant's system, the browser likely displays a security warning that may confuse the shopper. To avoid this warning our payment service provides an HTTPS proxy showing the result URL through the existing secure connection, instead of redirecting the shopper directly. This feature is activated by default but can be switched off in the Profile page of the Merchant Interface. If you already have a secure environment in place you need not use the proxy.

The proxy does have some restrictions:

- For security reasons the feature will only work directly after a payment has been done. This means that to test the proxy functionality you will have to go through the whole payment cycle.
- The result pages should reside on the same machine (IP address) that sends the orders our payment service.
- Pages that redirect through the 302 HTTP return code do not function in combination with the proxy.

If the result page has a redirection itself, the way to achieve this in a manner compatible with the proxy would be to use a HTTP-refresh in the Meta tag of the document: <meta http-equiv="refresh" content="0; url=somewhere.asp">. A non-W3 supported redirection method that can be used in the result URL in combination with the WorldPay proxy is:

```
<html>
  <head>
    <script language="JavaScript">
      <!--
      self.location='/redirectedfolder/thankyou.asp/;
      //-->
    </script>
  </head>
</html>
```

This method is supported but only if implemented in the way shown above. You should replace the redirection URL with the desired URL.

Email Notification

In addition to the online reporting through the result pages, it is possible to send email notification to the shopper with information on the payment status. This can be done by your system or the WorldPay payment service. In both cases, the shopper's email address has to be available to the respective system.

1. **Sent by merchant system**
   Your system sends an email after it receives either a signed redirect message or an automated order notification from our payments service. Because such an email is initiated by your system, you can choose when to send it and what information is provided to the shopper. Please refer to the section Signed Redirect Message (MAC) and to our Order Notifications guide for more details.
2. **Sent by our system**
   You can have your account configured so that WorldPay sends an email to the shopper after a successful authorisation or a refusal. To use this method, you can change the settings and the text of the actual emails through the 'Edit Channels' functionality in the Merchant Interface. Please refer to our Merchant Interface guide for more details.

Reporting the Payment Status

Introduction

WorldPay's redirect message to the result URL contains a number of parameters, including `paymentStatus` and a digital signature, the Message Authentication Code (MAC). The MAC provides a digital signature that allows you to verify the redirect message, i.e. to ensure that the message originated from WorldPay and that it has not been modified since WorldPay signed it. After successful verification of the redirect message you can reliably use its information to update the order's payment status in your back-office system. This method applies to the payment statuses AUTHORISED and REFUSED.

It is possible to ignore the MAC, or even have this feature switched off. When switched off the redirect message contains less parameters and WorldPay advises you to use other payment status reporting tools, e.g. order notifications, to update the order's payment status in your back-office system. For more details, please refer to our Order Notifications guide.

The topics covered in this chapter are listed below.

Signed Redirect Message (MAC)

The Message Authentication Code (MAC) is created using a key-dependent one-way hash function. Calculating a hash value on the information in the redirect message alone is not sufficient, since anybody can do that if they know the hash algorithm. Therefore, a secret value (password), only known to WorldPay and the merchant, is added to the redirect parameters before the hash value is calculated. This hash value is then added to the redirect message when it is sent, but the secret value is not.

For this signed redirect message:

```
https://www.mymerchant.com/Success.jsp?orderKey=MYADMINCODE^
MYMERCHANT^T0211010
&paymentStatus=AUTHORISED&paymentAmount=1400&paymentCurrency
=GBP
&mac=25eefe952a6bbd09fe1c2c09bca4fa09
```

the signature (MAC) is added to the message as a hexadecimal representation of the hash value:

```
mac=25eefe952a6bbd09fe1c2c09bca4fa09
```

Upon receipt of the signed redirect message, you can calculate the hash value in exactly the same way, by adding the secret value to the parameters of the message and applying the hash function over it. The calculated hash value should exactly match the hash value that WorldPay has added to the redirect message.

Note that when we are directing the shopper from the payment pages to the result URLs, the definition of `orderKey` we use `(orderKey=ADMINCODE^MERCHANTCODE^orderCode)` is different to that used when we redirect the shopper to the Payment Method Selection pages `(orderKey=MERCHANTCODE^orderCode)` as described in Payment Method Selection.

Calculating the MAC

The MAC is not calculated over the entire redirect message, but only over the sensitive data in the message. To do this, the values of these parameters in the following order are concatenated:

```
orderKey+paymentAmount+paymentCurrency+paymentStatus+[mac
secret]
```

The last value is the MAC secret (password) that only WorldPay and you know. Please note that an actual redirect message can contain more variables than shown in the example, but only the above mentioned variables are included in the calculation of the MAC. Also note that the parameter `orderKey` as displayed in the redirect message is not necessarily the same as the `orderKey` as specified in the reference element of the WorldPay XML response to an order.

The concatenated message above is then fed into a MD5 hashing function, which returns a 128-bit value. The hexadecimal representation of this value must be compared with the value of the MAC provided by WorldPay in the signed redirect. WorldPay always uses lower-case hex characters.

Most development environments offer MD5 as a standard algorithm. If not, it is very likely that there is a library available to offer an MD5 implementation.

The redirect message is verified as follows. Take the variables:

```
MYADMINCODE^MYMERCHANT^T02110101400GBPAUTHORISED@p-plepie,
```

where the MAC secret is: `@p-plepie`. The hex representation of the resulting hash value is:

```
25eefe952a6bbd09fe1c2c09bca4fa09
```

This calculated MAC equals the value provided in the signed redirect message and thus guarantees that it corresponds to order code T0211010 with a successfully authorised payment for GBP 14.

Setting the MAC Secret

In order to use this functionality, you have to set the password (MAC secret) first. This can be done in the Merchant Interface, via the Profile menu. For more details, please refer to our Merchant Interface guide.

For new merchants the MAC feature is enabled with a system-generated password. You only need to enter a new password and save the profile to be able to check the MAC in the redirect message. Having the MAC feature enabled without checking the MAC does not affect the redirection of the shopper to your result URL.

You can also disable the MAC feature via the Merchant Interface. But please note that this will cause the previously set password to be lost!

Appendices

Introduction

The appendices available for this guide are listed below.

Payment Method Codes

You can use the `paymentMethodMask` or the `preferredPaymentMethod` variable to determine which payment method(s) the shopper will be able to choose. The following tables show the codes for supported payment methods. Please refer to the DTD for information about any additional data required.

Credit Cards

Name	*payment method code*	*area*	*remarks*
American Express SSL	AMEX-SSL	International	
VISA	VISA-SSL	International	Visa Credit/Debit/Electron.
MasterCard	ECMC-SSL	International	The name Eurocard is no longer in use.
Airplus	AIRPLUS-SSL	International	
Aurore	AURORE-SSL	International	
Carte Bancaire	CB-SSL	France	
Carte Bleue	CARTEBLEUE-SSL	France	

Name	*payment method code*	*area*	*remarks*
Dankort	DANKORT-SSL	Denmark	
Diners	DINERS-SSL	International	
Discover Card	DISCOVER-SSL	United States	
GE Capital	GECAPITAL-SSL	International	
Japanese Credit Bank	JCB-SSL	International, Japan	
Laser Card	LASER-SSL	Ireland	
UATP	UATP-SSL	International	

Online Debit Methods

Name	*payment method code*	*area*	*remarks*
Rabobank DirectBetalen	RABO-DIRECTBETALEN	Netherlands	For Rabobank shoppers only. Shopper is redirected to Rabobank server.
ING Homepay	HOMEPAY-SSL	Belgium	For ING shoppers only. Shopper needs to have a ING Homepay account at his bank.
Solo	SOLO_GB-SSL	UK	
Maestro	MAESTRO-SSL	UK	
WWW-Bon	ICCHEQUE-SSL	Netherlands	Internet voucher, will be discontinued.
Nordea Bank	SOLO-SSL (Fi) EBETALNING-SSL (Se)	Finland, Sweden	
Paybox	PAYBOX-SSL	Germany, Austria, Spain, UK	Payment method using mobile phone.
Elektronisches Lastschriftverfahren	ELV-SSL	Germany	
Switch	SWITCH-SSL	UK	

Offline Payment Methods

name	*payment method code*	*area*	*remarks*
AcceptGiro	ACCEPTGIRO_NL-BANK	The Netherlands	Merchant has to use the 'reference id' as payment reference to be printed on the accept giro forms.
Cheque	CHEQUE-BANK	Belgium	For ING shoppers only. Shopper needs to have a ING Homepay account at his bank.
Cheque	CHEQUE_GB-BANK	UK	Regular cheque payments.
Commerz Bank Online Banking Web	COMLINE-BANK	Germany	
Deutsche Bank 24	DB24-BANK	Germany	
Direct Debit	INCASSO_NL-FAX INCASSO_DE-FAX	The Netherlands Germany	Forms have to be printed, signed and sent to WorldPay
Domestic Bank Transfer	TRANSFER_NL-BANK TRANSFER_BE-BANK TRANSFER_DE-BANK TRANSFER_FI-BANK TRANSFER_FR-BANK TRANSFER_IT-BANK TRANSFER_ES-BANK TRANSFER_GB-BANK TRANSFER_SE-BANK TRANSFER_AT-BANK TRANSFER_LU-BANK TRANSFER_CH-BANK TRANSFER_DK-BANK TRANSFER_GR-BANK	Netherlands Belgium Germany Finland France Italy Spain UK Sweden Austria Luxemburg Switzerland Denmark Greece	Shopper transfers the money using a bank transfer, either manually or through an electronic banking system. If bank transfers are used for international

name	*payment method code*	*area*	*remarks*
	TRANSFER_NO-BANK TRANSFER_JP-BANK	Norway Japan	payments, the shopper may be presented with extra charges (cross border fees) from the banks.
Dresdner Bank InternetBanking	DRESDNER-BANK	Germany	
Rembours / Cash on Delivery	CASH-DELIVERY	Netherlands, Germany	
	PERMANENT_SIGNED_DD_NL	The Netherlands	
	SINGLE_UNSIGNED_DD_FR SINGLE_UNSIGNED_DD_NL	France, The Netherlands	

Online Alternative Payment Methods

name	*payment method code*	*area*	*remarks*
Abaqoos	ABAQOOS-SSL	Hungary	E-wallet and pre-pay voucher
Alipay	ALIPAY-SSL	China	E-wallet
AstroPayCard	ASTROPAY-SSL	Brazil	
BanklinkNORDEA	BANKLINKNORDEA-SSL	Latvia	Real-time bank transfer
BillingPartner	BILLINGPARTNER-SSL	Germany	Real-time bank transfer
CashU	CASHU-SSL	Bahrain, Canada, Egypt, Israel, Italy, Jordan, Kuwait, Lebanon, Malaysia, Mauritania, Morocco, Oman, Qatar, Russia, Saudi Arabia,	

name	*payment method code*	*area*	*remarks*
		Tanzania, Tunisia, Turkey, Ukraine, United Arab Emirates, Uruguay, Venezuela	
China Union Pay	CHINAUNIONPAY-SSL	International	
eKonto	EKONTO-SSL	Czech Republic	Real-time bank transfer
ELBA	ELBA-SSL	Austria	Bank Transfer
ENETS	ENETS-SSL	Singapore	Bank Transfer
ePay	EPAY-SSL	Bulgaria	
EUTeller	EUTELLER-SSL	Finland	Real-time bank transfer
eWireDK	EWIREDK-SSL	Denmark	E-wallet
eWireNO	EWIRENO-SSL	Norway	E-wallet
eWireSE	EWIRESE-SSL	Sweden	E-wallet
HANSABANK	HANSABANK-SSL	Sweden	Bank Transfer
IDEAL	IDEAL-SSL	Dutch	Bank Transfer
InstaDebit	INSTADEBIT-SSL	Canada	
KBC	KBC-BANK	German	Transfer
MisterCash	MISTERCASH-SSL	Belgium	Card payment
Moneta	MONETA-SSL	Russia	E-wallet
Neosurf	NEOSURF-SSL	Belgium, France, Italy, Spain	
NETPAY	NETPAY-SSL	Austria	Wallet
PAYNOVA	PAYNOVA-SSL	International	Wallet
PAYOUT	PAYOUT-BANK	International	Bank Transfer
PaySafeCard	PAYSAFECARD-SSL	Austria, Belgium, Cyprus, Czech Republic, Denmark, France, Germany, Greece, Ireland, Italy,	Pre-pay voucher

name	*payment method code*	*area*	*remarks*
		Liechtenstein, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom	
POLi	POLI-SSL	Australia	Real-time bank transfer
POLiNZ	POLI-SSL	New Zealand	Real-time bank transfer
POP	POP-SSL	Austria	Proof of payment
PostePay	POSTEPAY-SSL	Italy	
Przelewy24	PRZELEWY-SSL	Poland	Real-time bank transfer
SID	SID-SSL	South Africa	
Sofort	SOFORT-SSL	Austria, France, Germany, Spain, Italy	Real-time bank transfer
Sporopay	SPOROPAY-SSL	Slovakia	Real-time bank transfer
ToditoCash Card	TODITOCASH-SSL	Mexico	Pre-pay voucher
Trustpay	TRUSTPAY_CZ-SSL TRUSTPAY_EE-SSL TRUSTPAY_SK-SSL	Czech Republic Estonia Slovakia	Real-time bank transfer
Yandex.Money	YANDEX-SSL	Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan	E-wallet

Offline Alternative Payment Methods

name	*payment method code*	*area*	*remarks*
Baloto	BALOTO-SSL	Columbia	
BancoSantander	BANCOSANTANDER-SSL	Chile	Post-pay voucher
Boleto Bancario	BOLETO-SSL	Brazil	Post-pay voucher
Lobanet	LOBANET_PE-SSL LOBANET_AR-SSL LOBANET_BR-SSL LOBANET_CL-SSL LOBANET_MX-SSL LOBANET_UY-SSL	Peru Argentina Brazil Chile Mexico Uruguay	Bank transfer
MultiBanco	MULTIBANCO-SSL	Portugal	Portugal

ISO Currency Codes

Currencies accepted by the WorldPay payment service are listed below.

Please note that amounts in the orders sent to WorldPay NEVER have any decimal delimiters. Merchants should use 'exponent' instead. Exponent is the number of decimals available in the currency. Also note that currency code is always in capitals.

In the following example the amount payable by the shopper is Euro 19,82:

```
<amount value="1982" currencyCode="EUR" exponent="2"/>
```

The full ISO 4217 list can be found at: `http://www.id3.org/iso4217.html`

ISO 4217 Currency Codes

code	*name*	*exponent*
ARS	Nuevo Argentine Peso	2
AUD	Australian Dollar	2
BRL	Brazilian Real	2
CAD	Canadian Dollar	2
CHF	Swiss Franc	2
CLP	Chilean Peso	2
CNY	Yuan Renminbi	2
COP	Colombian Peso	2
CZK	Czech Koruna	2
DKK	Danish Krone	2
EUR	Euro	2
GBP	Pound Sterling	2
HKD	Hong Kong Dollar	2
HUF	Hungarian Forint	2
IDR	Indonesian Rupiah	0
ISK	Iceland Krona	2
JPY	Japanese Yen	2
KES	Kenyan Shilling	2
KRW	South-Korean Won	2
MXP	Mexican Peso	2
MYR	Malaysian Ringgit	2
NOK	Norwegian Krone	2
NZD	New Zealand Dollar	2
PHP	Philippine Peso	2
PLN	New Polish Zloty	2
PTE	Portugese Escudo	2
SEK	Swedish Krone	2
SGD	Singapore Dollar	2

code	*name*	*exponent*
SKK	Slovak Koruna	2
THB	Thai Baht	2
TWD	New Taiwan Dollar	2
USD	US Dollars	2
VND	Vietnamese New Dong	2
ZAR	South African Rand	2

Country Selection - the `country` Parameter

The country codes used by our payment service are two-letter 'ISO 3166' standard codes, these are listed below.

Note that country values are always two letters in UPPER CASE; for example Germany = DE.

You can append a `country` parameter to your redirect URLs. This parameter enables pre-selection of the country (and so the payment methods shown to shoppers) for payment pages using the Hosted Payment Page (XML Redirect) service.

Shopper Selection of Country

When at our payment pages, shoppers can select a 'Country' (this then affects the range of payment methods shown).

If you have already set a default country for the payment pages (via a `country` parameter appended to the redirect URL), then this country will show as the pre-selected country in the list of countries.

If you hide the Country and Language selection boxes for all of your shoppers, then the country and language values appended to your redirect URL will fix the text and payment methods displayed on payment pages.

Note that if you supply `country` values that are not in the above list then the Country for the Payment Pages defaults to OTHER COUNTRY. We then show our international payment methods to the shopper.

When at our Payment pages, shoppers can currently select any country from this list:

ISO 3166 Two-Letter Country Codes

country parameter value	*country name*
	OTHER COUNTRY
AE	UNITED ARAB EMIRATES
AG	ANTIGUA AND BARBUDA
AI	ANGUILLA
AN	NETHERLANDS ANTILLES
AT	AUSTRIA
AU	AUSTRALIA
AW	ARUBA
BE	BELGIUM
CA	CANADA
CH	SWITZERLAND
CY	CYPRUS
CZ	CZECH REPUBLIC
DE	GERMANY
DK	DENMARK
EE	ESTONIA
ES	SPAIN
FI	FINLAND
FR	FRANCE

country parameter value	*country name*
GB	UNITED KINGDOM
GI	GIBRALTAR
GR	GREECE
HK	HONGKONG
HU	HUNGARY
IE	IRELAND
IL	ISRAEL
IS	ICELAND
IT	ITALY
JP	JAPAN
KE	KENYA
KR	KOREA, REPUBLIC OF
LT	LITHUANIA
LU	LUXEMBOURG
MT	MALTA
NL	NETHERLANDS
NO	NORWAY
NZ	NEW ZEALAND
PL	POLAND
PT	PORTUGAL

country parameter value	*country name*
SE	SWEDEN
SG	SINGAPORE
SI	SLOVENIA
SK	SLOVAKIA
TH	THAILAND
UA	UKRAINE
US	UNITED STATES

ISO Country Codes

The `countryCode` element is used in XML orders/communications, it is an upper-case two-letter 'ISO 3166' standard country code, as shown in the following example:

```
  ...
<address>
    <countryCode>GB</countryCode>
</address>
```

ISO source reference:

`http://www.iso.org/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/list-en1.html`

ISO 3166 Two-Letter Country Codes

country name	*<countryCode> or* ***country*** *parameter value*
AFGHANISTAN	AF
ÅLAND ISLANDS	AX

country name	*<countryCode> or* ***country*** *parameter value*
ALBANIA	AL
ALGERIA	DZ
AMERICAN SAMOA	AS
ANDORRA	AD
ANGOLA	AO
ANGUILLA	AI
ANTARCTICA	AQ
ANTIGUA AND BARBUDA	AG
ARGENTINA	AR
ARMENIA	AM
ARUBA	AW
AUSTRALIA	AU
AUSTRIA	AT
AZERBAIJAN	AZ
BAHAMAS	BS
BAHRAIN	BH
BANGLADESH	BD
BARBADOS	BB
BELARUS	BY
BELGIUM	BE
BELIZE	BZ

country name	*<countryCode> or* ***country*** *parameter value*
BENIN	BJ
BERMUDA	BM
BHUTAN	BT
BOLIVIA	BO
BOSNIA AND HERZEGOVINA	BA
BOTSWANA	BW
BOUVET ISLAND	BV
BRAZIL	BR
BRITISH INDIAN OCEAN TERRITORY	IO
BRUNEI DARUSSALAM	BN
BULGARIA	BG
BURKINA FASO	BF
BURUNDI	BI
CAMBODIA	KH
CAMEROON	CM
CANADA	CA
CAPE VERDE	CV
CAYMAN ISLANDS	KY
CENTRAL AFRICAN REPUBLIC	CF
CHAD	TD

country name	*<countryCode> or* ***country*** *parameter value*
CHILE	CL
CHINA	CN
CHRISTMAS ISLAND	CX
COCOS (KEELING) ISLANDS	CC
COLOMBIA	CO
COMOROS	KM
CONGO	CG
CONGO, THE DEMOCRATIC REPUBLIC OF THE	CD
COOK ISLANDS	CK
COSTA RICA	CR
CÔTE D'IVOIRE	CI
CROATIA	HR
CUBA	CU
CYPRUS	CY
CZECH REPUBLIC	CZ
DENMARK	DK
DJIBOUTI	DJ
DOMINICA	DM
DOMINICAN REPUBLIC	DO
ECUADOR	EC
EGYPT	EG

country name	*<countryCode> or* ***country*** *parameter value*
EL SALVADOR	SV
EQUATORIAL GUINEA	GQ
ERITREA	ER
ESTONIA	EE
ETHIOPIA	ET
FALKLAND ISLANDS (MALVINAS)	FK
FAROE ISLANDS	FO
FIJI	FJ
FINLAND	FI
FRANCE	FR
FRENCH GUIANA	GF
FRENCH POLYNESIA	PF
FRENCH SOUTHERN TERRITORIES	TF
GABON	GA
GAMBIA	GM
GEORGIA	GE
GERMANY	DE
GHANA	GH
GIBRALTAR	GI
GREECE	GR

country name	*<countryCode> or* ***country*** *parameter value*
GREENLAND	GL
GRENADA	GD
GUADELOUPE	GP
GUAM	GU
GUATEMALA	GT
GUINEA	GN
GUINEA-BISSAU	GW
GUYANA	GY
HAITI	HT
HEARD ISLAND AND MCDONALD ISLANDS	HM
HOLY SEE (VATICAN CITY STATE)	VA
HONDURAS	HN
HONG KONG	HK
HUNGARY	HU
ICELAND	IS
INDIA	IN
INDONESIA	ID
IRAN, ISLAMIC REPUBLIC OF	IR
IRAQ	IQ
IRELAND	IE

country name	*<countryCode> or* ***country*** *parameter value*
ISRAEL	IL
ITALY	IT
JAMAICA	JM
JAPAN	JP
JORDAN	JO
KAZAKHSTAN	KZ
KENYA	KE
KIRIBATI	KI
KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF	KP
KOREA, REPUBLIC OF	KR
KUWAIT	KW
KYRGYZSTAN	KG
LAO PEOPLE'S DEMOCRATIC REPUBLIC	LA
LATVIA	LV
LEBANON	LB
LESOTHO	LS
LIBERIA	LR
LIBYAN ARAB JAMAHIRIYA	LY
LIECHTENSTEIN	LI
LITHUANIA	LT

country name	*<countryCode> or* ***country*** *parameter value*
LUXEMBOURG	LU
MACAO	MO
MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF	MK
MADAGASCAR	MG
MALAWI	MW
MALAYSIA	MY
MALDIVES	MV
MALI	ML
MALTA	MT
MARSHALL ISLANDS	MH
MARTINIQUE	MQ
MAURITANIA	MR
MAURITIUS	MU
MAYOTTE	YT
MEXICO	MX
MICRONESIA, FEDERATED STATES OF	FM
MOLDOVA, REPUBLIC OF	MD
MONACO	MC
MONGOLIA	MN
MONTSERRAT	MS

country name	*<countryCode> or* ***country*** *parameter value*
MOROCCO	MA
MOZAMBIQUE	MZ
MYANMAR	MM
NAMIBIA	NA
NAURU	NR
NEPAL	NP
NETHERLANDS	NL
NETHERLANDS ANTILLES	AN
NEW CALEDONIA	NC
NEW ZEALAND	NZ
NICARAGUA	NI
NIGER	NE
NIGERIA	NG
NIUE	NU
NORFOLK ISLAND	NF
NORTHERN MARIANA ISLANDS	MP
NORWAY	NO
OMAN	OM
PAKISTAN	PK
PALAU	PW
PALESTINIAN TERRITORY,	PS

country name	*<countryCode> or* ***country*** *parameter value*
OCCUPIED	
PANAMA	PA
PAPUA NEW GUINEA	PG
PARAGUAY	PY
PERU	PE
PHILIPPINES	PH
PITCAIRN	PN
POLAND	PL
PORTUGAL	PT
PUERTO RICO	PR
QATAR	QA
RÉUNION	RE
ROMANIA	RO
RUSSIAN FEDERATION	RU
RWANDA	RW
SAINT HELENA	SH
SAINT KITTS AND NEVIS	KN
SAINT LUCIA	LC
SAINT PIERRE AND MIQUELON	PM
SAINT VINCENT AND THE GRENADINES	VC

country name	*<countryCode> or* ***country*** *parameter value*
SAMOA	WS
SAN MARINO	SM
SAO TOME AND PRINCIPE	ST
SAUDI ARABIA	SA
SENEGAL	SN
SERBIA AND MONTENEGRO	CS
SEYCHELLES	SC
SIERRA LEONE	SL
SINGAPORE	SG
SLOVAKIA	SK
SLOVENIA	SI
SOLOMON ISLANDS	SB
SOMALIA	SO
SOUTH AFRICA	ZA
SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS	GS
SPAIN	ES
SRI LANKA	LK
SUDAN	SD
SURINAME	SR
SVALBARD AND JAN MAYEN	SJ
SWAZILAND	SZ

country name	*<countryCode> or* ***country*** *parameter value*
SWEDEN	SE
SWITZERLAND	CH
SYRIAN ARAB REPUBLIC	SY
TAIWAN, PROVINCE OF CHINA	TW
TAJIKISTAN	TJ
TANZANIA, UNITED REPUBLIC OF	TZ
THAILAND	TH
TIMOR-LESTE	TL
TOGO	TG
TOKELAU	TK
TONGA	TO
TRINIDAD AND TOBAGO	TT
TUNISIA	TN
TURKEY	TR
TURKMENISTAN	TM
TURKS AND CAICOS ISLANDS	TC
TUVALU	TV
UGANDA	UG
UKRAINE	UA
UNITED ARAB EMIRATES	AE

country name	*<countryCode> or* ***country*** *parameter value*
UNITED KINGDOM	GB
UNITED STATES	US
UNITED STATES MINOR OUTLYING ISLANDS	UM
URUGUAY	UY
UZBEKISTAN	UZ
VANUATU	VU
Vatican City State - refer to HOLY SEE	VA
VENEZUELA	VE
VIET NAM	VN
VIRGIN ISLANDS, BRITISH	VG
VIRGIN ISLANDS, U.S.	VI
WALLIS AND FUTUNA	WF
WESTERN SAHARA	EH
YEMEN	YE
ZAIRE - refer to CONGO, THE DEMOCRATIC REPUBLIC OF THE	CG
ZAMBIA	ZM
ZIMBABWE	ZW

CVC Checks and Responses

You can use the CVC2 check (a check on the security code printed on credit/debit cards) on the orders submitted by your shoppers. To make use of this check, or to

test a transaction using the check, this functionality has first to be activated for your account. WorldPay Operations can do this.

Once the functionality has been activated for your account, a shopper at your website will be invited to enter their card's CVC code in a field on the payment page. The check will be made against this code.

Testing

You can also test various CVC2 scenarios by using test transactions. The following CVC2 scenarios can be tested using the codes listed below. Enter one of the test codes into the CVC field in the payment page.

CVC2 code	*simulated situation*	*numeric response*
Left blank	NOT SUPPLIED BY SHOPPER	1
111	NOT SENT TO ACQUIRER	2
222	NO RESPONSE FROM ACQUIRER	3
333	NOT CHECKED BY ACQUIRER	4
444	FAILED	5
555	APPROVED	6

Language Selection Codes

The language codes used by our payment service are two-letter 'ISO 639' standard codes, these are listed below.

Note that `language` values are always two letters in lower case; for example French = "`fr`"

Shopper Selection of Language

When at our payment pages, shoppers can select a 'Language' (this then affects the text shown).

If you have already set a default language for the payment pages (via a `language` parameter appended to the redirect URL), then this language will show as the pre-selected language in the list of languages.

If you hide the Country and Language selection boxes for all of your shoppers, then the `country` and `language` values appended to your redirect URL will fix the text and payment methods displayed on payment pages.

Note that if you try to use `language` values that are not in the above list then the language defaults to English.

When at our Payment pages, shoppers can currently select any language from this list.

ISO 639 Two-Letter Language Codes

language ***parameter*** *value*	*language*	*selection displayed on payment page*
cs	Czech	Cestina
da	Danish	Dansk
de	German	Deutsch
el	Greek	Greek
en	English	English
es	Spanish	Español
et	Estonian	Estonian
fi	Finnish	Suomi
fr	French	Français
hu	Hungarian	Magyar
it	Italian	Italiano
ja	Japanese	Japanese
ko	Korean	Korean
nl	Dutch	Nederlands
no	Norwegian	Norsk

language ***parameter*** *value*	*language*	*selection displayed on payment page*
pt	Portuguese	Português
sv	Swedish	Svenska
tr	Turkish	Turkish

Language Codes - ISO Values

The language codes used by our payment service are lower case two-letter 'ISO 639' standard codes, these are listed below.

ISO source reference: `http://www.w3.org/WAI/ER/IG/ert/iso639.htm`

ISO 639 Two-Letter Country Codes

language *value*	*language name*
ab	Abkhazian
aa	Afar
af	Afrikaans
ak	Akan
sq	Albanian
am	Amharic
ar	Arabic
an	Aragonese
hy	Armenian
as	Assamese

language value	*language name*
av	Avaric
ae	Avestan
ay	Aymara
az	Azerbaijani
bm	Bambara
ba	Bashkir
eu	Basque
be	Belarusian
bn	Bengali
bh	Bihari
bi	Bislama
bs	Bosnian
br	Breton
bg	Bulgarian
my	Burmese
ca	Catalan
ch	Chamorro
ce	Chechen
zh	Chinese
cv	Chuvash
co	Corsican

language value	*language name*
cr	Cree
hr	Croatian
cs	Czech
da	Danish
dv	Divehi
nl	Dutch
dz	Dzongkha
en	English
eo	Esperanto
et	Estonian
ee	Ewe
fo	Faroese
fj	Fijian
fi	Finnish
fr	French
fy	Frisian
ff	Fulah
gd	Gaelic
gl	Gallegan
lg	Ganda
ka	Georgian

language value	*language name*
de	German
el	Greek
gn	Guarani
gu	Gujarati
ht	Haitian
ha	Hausa
he	Hebrew
hz	Herero
hi	Hindi
ho	HiriMotu
hu	Hungarian
is	Icelandic
io	Ido
ig	Igbo
id	Indonesian
ia	Interlingua
ie	Interlingue
iu	Inuktitut
ik	Inupiaq
ga	Irish
it	Italian

language value	*language name*
ja	Japanese
jv	Javanese
kl	Kalaallisut
kn	Kannada
kr	Kanuri
ks	Kashmiri
kk	Kazakh
km	Khmer
ki	Kikuyu
rw	Kinyarwanda
ky	Kirghiz
kv	Komi
kg	Kongo
ko	Korean
kj	Kuanyama
ku	Kurdish
lo	Lao
la	Latin
lv	Latvian
li	Limburgan
ln	Lingala

language value	*language name*
lt	Lithuanian
lu	Luba-Katanga
lb	Luxembourgish
mk	Macedonian
mg	Malagasy
ms	Malay
ml	Malayalam
mt	Maltese
gv	Manx
mi	Maori
mr	Marathi
mh	Marshallese
mo	Moldavian
mn	Mongolian
na	Nauru
nv	Navaho
ng	Ndonga
ne	Nepali
nd	NorthNdebele
se	NorthernSami
no	Norwegian

language value	*language name*
nb	NorwegianBokmål
nn	NorwegianNynorsk
ny	Nyanja
oc	Occitan
oj	Ojibwa
or	Oriya
om	Oromo
os	Ossetian
pi	Pali
fa	Persian
pl	Polish
pt	Portuguese
pa	Punjabi
ps	Pushto
qu	Quechua
rm	Raeto-Romance
ro	Romanian
rn	Rundi
ru	Russian
sm	Samoan
sg	Sango

language value	*language name*
sa	Sanskrit
sc	Sardinian
sr	Serbian
sn	Shona
ii	SichuanYi
sd	Sindhi
si	Sinhalese
sk	Slovak
sl	Slovenian
so	Somali
nr	SouthNdebele
st	SouthernSotho
es	Spanish
su	Sundanese
sw	Swahili
ss	Swati
sv	Swedish
tl	Tagalog
ty	Tahitian
tg	Tajik
ta	Tamil

language value	*language name*
tt	Tatar
te	Telugu
th	Thai
bo	Tibetan
ti	Tigrinya
to	Tonga
ts	Tsonga
tn	Tswana
tr	Turkish
tk	Turkmen
tw	Twi
ug	Uighur
uk	Ukrainian
ur	Urdu
uz	Uzbek
ve	Venda
vi	Vietnamese
vo	Volapük
wa	Walloon
cy	Welsh
wo	Wolof

language value	*language name*
xh	Xhosa
yi	Yiddish
yo	Yoruba
za	Zhuang
zu	Zulu

Testing Transactions

A number of different cases can be tested by entering the following values as the card/accountholder name in the payment page:

- REFUSED - will simulate a refused payment
- REFERRED - will simulate a refusal with the refusal reason ‘referred'
- FRAUD - will simulate a refusal with the refusal reason ‘fraud suspicion'
- ERROR - will simulate a payment that ends in error.

All other card/accountholder names will simulate an authorised payment.

For test purposes we have provided a set of test credit and debit card numbers: please refer to Card Numbers below.

Captures and refunds can be simulated through the Merchant Interface. Use the "Capture" or "Refund" button in the Payment Details screen of an authorised or captured test payment. Alternatively, you can send an XML capture or refund order modification to the test environment.

Test Card Numbers

These test card numbers can only be used in the test environment and should be used in combination with an expiry date up to seven years in the future.

card scheme	*card numbers*
MAESTRO	6759649826438453 (this card has no issue number but uses a start date)
SOLO_GB	6767676767676767671 (this card has no issue number but uses a start date) and 6767622222222222222 (this

card scheme	*card numbers*
	card has a one-digit issue number)
VISA	4111 1111 1111 1111 and 4444 3333 2222 1111 (please don't enter the spaces)
AMEX	3434 3434 3434 34
ECMC	5555 5555 5555 4444 and 5454 5454 5454 5454 (please don't enter the spaces)
DINERS	36148900647913
DANKORT	5019717010103742
AIRPLUS	1220 0000 0000 003 and 1920 0000 0000 008 (please don't enter the spaces)
LASER	630490017740292441
CB/CARTEBLEUE	5555 5555 5555 4444 (please don't enter the spaces)

German ELV

To test German ELV payments in the test environment a correctly formatted account number (Kontonummer) and valid bank code (Bankleitzahl) should be used, for example:

Account number: 12345678
Bank code: 10000000
Bank name: Bundesbank
Bank residence: Berlin

card type	*bank code*	*account number*
ELV	20030000	92441196
ELV	43050001	122108525
ELV	30070024	5929120

Please note that ELV must be activated in the production environment for merchants who would like to test ELV transactions.

XML Error Codes

The list of XML error codes is as follows:

1. Internal error, a general error
2. Parse error, invalid xml

3. Invalid number of transactions in batch
4. Security error
5. Invalid request
6. Invalid content, occurs when xml is valid but content of xml is not
7. Payment details in the order element are incorrect

For full details of our DTD refer to: http://dtd.worldpay.compaymentService_v1.dtd

Examples

The following are some examples for these error codes.

Error Code 2

```
<?xml version="1.0" encoding="UTF-
8"?>
 <!DOCTYPE paymentService PUBLIC "-//WorldPay//DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.compaymentService_v1.dtd">
<paymentService version="1.3" merchantCode="MYCO">
<reply>
<error code="2"><![CDATA[Invalid bankAccount details :
Invalid payment
details : Account and bankcode combination is
incorrect]]></error>
</reply>
</paymentService>
```

Error Code 4

```
<?xml version="1.0" encoding="UTF-
8"?>
 <!DOCTYPE paymentService PUBLIC "-//WorldPay//DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.compaymentService_v1.dtd">
<paymentService merchantCode="MYCO" version="1.3">
<reply>
<error code="4"><![CDATA[IP check failed. Access
denied.]]></error>
</reply>
</paymentService>
```

Error Code 5

```
<?xml version="1.0" encoding="UTF-
8"?>
 <!DOCTYPE paymentService PUBLIC "-//WorldPay//DTD WorldPay
PaymentService v1//EN"
```

```
"http://dtd.worldpay.compaymentService_v1.dtd">
<paymentService version="1.3" merchantCode="MYCO">
<reply>
<orderStatus orderCode="12234">
<error code="5"><![CDATA[Cannot book payment to CANCELLED if
paymentstatus
is not AUTHORISED but : REFUSED]]></error>
</orderStatus>
</reply>
</paymentService>
```

```
<?xml version="1.0" encoding="UTF-
8"?>
 <!DOCTYPE paymentService PUBLIC "-//WorldPay//DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.compaymentService_v1.dtd">
<paymentService version="1.3" merchantCode="MYCO">
<reply>
<error code="5"><![CDATA[Duplicate Order]]></error>
</reply>
</paymentService>
```

```
<?xml version="1.0" encoding="UTF-
8"?>
 <!DOCTYPE paymentService PUBLIC "-//WorldPay//DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.compaymentService_v1.dtd">
                              <paymentService
merchantCode="MYCO" version="1.4">
<reply>
<orderStatus orderCode="11223">
<error code="5"><![CDATA[Requested capture amount (EUR
125,50) exceeds the
authorised balance for this payment (EUR 115,50)]]></error>
</orderStatus>
</reply>
</paymentService>
```

Error Code 7

```
<?xml version="1.0" encoding="UTF-
8"?>
 <!DOCTYPE paymentService PUBLIC "-//WorldPay//DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.compaymentService_v1.dtd">
<paymentService version="1.3" merchantCode="MYCO">
```

```
<reply>
<orderStatus orderCode="1112">
<error code="7"><![CDATA[Invalid payment details : Expiry
date =
012002]]></error>
</orderStatus>
</reply>
</paymentService>
```

```
<?xml version=“1.0” encoding=“UTF-
8”?>
 <!DOCTYPE paymentService PUBLIC "-//WorldPay//DTD WorldPay
PaymentService v1//EN"
"http://dtd.worldpay.compaymentService_v1.dtd">
<paymentService version="1.4" merchantCode="MYCO">
<reply>
<orderStatus orderCode="11223">
<error code="7"><![CDATA[Gateway error]]></error>
</orderStatus>
</reply>
</paymentService>
```