RBS WorldPay™

Submitting Transactions in the Direct Model Guide

Version 2 – March 2009

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About this Guide

This guide describes the specifications of XML orders sent to the RBS WorldPay system in the XML Direct model. 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 RBS WorldPay 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 Payment system, as described in our Introduction and Setup guide. Where applicable, this document refers to the related documentation with further details.

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Introduction

What is XML Direct?

Merchants who collect and store their customers' payment details on their own platform can use the XML Direct model as an effective payment-processing gateway. With this model the merchant should gather both the order details as well as the payment details. The merchant then communicates these payment details on a per order basis with RBS WorldPay. RBS WorldPay then processes the payment.

The XML Direct model enables acceptance of a whole range of online payment methods, such as cards and bank transfers (offline methods such as cheques and cash on delivery are not supported by this model - refer to the XML Redirect model for such support).

Security

The core issue in the XML Direct model is security. The collection and storage of payment information such as card numbers and cardholder names has to be done in a secure environment.

RBS WorldPay will advise you of the level of security needed to use our XML Direct model. Due to the sensitive nature of this information privacy legislations apply in most countries.

Creating an XML Order

Introduction

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

```
http://dtd.wps.rbsworldpay.com/
```

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 RBS WorldPay and should not exceed 4k in size.

Structure of an XML Order

Structure of an XML Direct Order

A typical XML Direct order contains a number of key elements: `description`, `amount`, `orderContent`, `paymentDetails` and `shopper`.

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

XML and Document Type Declaration

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

```
<?xml version="1.0"?>
<!DOCTYPE paymentService PUBLIC
"-//RBS WorldPay//DTD RBS WorldPay PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.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 RBS WorldPay and is always in capitals. An example for merchant code MYMERCHANT is:

```
<paymentService version="1.4" 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
Webshops</description>
  <amount value="1400" 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 visible in the order details screen of the order in the Merchant Interface. It will be displayed when checking a purchase at the RBS WorldPay website (in the “Consumer info” section).

The Payment 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 RBS WorldPay HTTPS proxy should be used. This is achieved by putting the string https://secure.wp3.rbsworldpay.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 RBS WorldPay processes the payment
- the fact that the name RBS 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 RBS WorldPay. RBS WorldPay verifies the mandatory information in the order content during acceptance testing, i.e. before going live the first time.

Payment Details and Session Information

The fourth `order` child element is `paymentDetails` and contains the details of the selected payment method. Each payment method has its own set of sub-elements and attributes. Please refer to the specifications of the `paymentDetails` element in the DTD for an up-to-date list of available payment method codes for the Direct model and their child elements. The payment method codes are listed in the appendix Payment Method Codes.

In addition to the regular payment details you need to provide information about the shopper browser session in the `paymentDetails` child element `session`, containing the `shopperIPAddress` and `session id`. This is mandatory for

ecommerce transactions. RBS WorldPay uses the session information for risk assessment.

An example of the `paymentDetails` for a VISA payment, where `VISA-SSL` is the payment method code, is:

```
<paymentDetails>
<VISA-SSL>
<cardNumber>4444333322221111</cardNumber>
<expiryDate>
<date month="09" year="2009"/>
</expiryDate>
<cardHolderName>J. Shopper</cardHolderName>
<cvc>123</cvc>
<cardAddress>
<address>
<firstName>John</firstName>
<lastName>Shopper</lastName>
<street>47A Queensbridge Rd</street>
<!-- Please note that if no house or apartment number is
included
then a house name can be included using the <houseName>
element.-->
<postalCode>CB94BQ</postalCode>
<city>Cambridge</city>
<countryCode>GB</countryCode>
<telephoneNumber>0123456789</telephoneNumber>
</address>
</cardAddress>
</VISA-SSL>
<session shopperIPAddress="123.123.123.123"
id="02l5ui8ib1"/>
</paymentDetails>
```

Note that the `cvc` element contains the Card Verification Code, for details please refer to the appendix CVC Checks And Responses.
Also note that the numeric parts (if there are any) of the `street` element are used in the AVS check. The non-numeric parts are ignored.

The following two examples show `paymentDetails` in use by two other payment methods.

This example shows `paymentDetails` for the German payment method ELV-SSL:

```
<paymentDetails>
<ELV-SSL>
<accountHolderName>Johannes Kaufer</accountHolderName>
```

```
    <bankAccountNr>1234567</bankAccountNr>
    <bankName>My bank</bankName>
    <bankLocation>Berlin</bankLocation>
    <bankLocationId>12345678</bankLocationId>
</ELV-SSL>
</paymentDetails>
```

For the Solo (SOLO_GB-SSL) payment method either the issue number or the start date must be included in the `paymentDetails`, depending on the issuer policy. For the Maestro (MAESTRO-SSL) payment method either the issue number or the start date may optionally be requested for inclusion in the `paymentDetails`, depending on the issuer policy. Please note that the issue number can be up to three digits, including possible zeros in front. This example shows `paymentDetails` for SOLO_GB-SSL:

```
<paymentDetails>
<SOLO_GB-SSL>   <cardNumber>6333333333333333336</cardNumber>
<expiryDate><date month="05" year="2009"></expiryDate>
<cardHolderName>J. Shopper</cardHolderName>
<issueNumber>07</issueNumber>
</SOLO_GB-SSL>
</paymentDetails>
```

Shopper Information

You can provide extra information about the shopper in the XML order within the `order` child element `shopper`. Its `shopperEmailAddress` element can be used by RBS WorldPay to identify possible fraudulent transactions, or to send an email to the shopper when the payment is authorised or refused.

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

Billing Address

A sixth `order` child element is `shippingAddress`. It is an optional element that enables you to pre-populate the billing address fields that are part of the Payment Page we present to your customers when they indicate that their billing address is the same as the shipping address they have already supplied you.

Typically this would be done by offering a button to the shopper on your web pages to indicate that the billing and shipping address are the same and, hence, add the convenience that they don't have to key the address twice unless the addresses are different. You would then populate the `shippingAddress` element with the

supplied shipping address and when you send it to the payment service its content is used to pre-populate the billing address fields on the Payment Page.

> But please note: shoppers can change the address on the Payment Page - it is not 'fixed' - so you cannot assume it will be the address we use to carry out fraud-screening checks such as AVS (address verification) or that it is the same as the billing address your own system / shopping cart may record for a given order.
>
> If you pre-populate the billing address fields on the payment page with data collected on your own system and the shopper then changes that data on the payment page, your system and ours will have different address data.

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 the Payment Service. XML that does not conform to the RBS 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.

XML Direct Order Example

An example of a complete XML order for the XML Direct model is shown below. The order is for 20 English Roses at £0.50 each and has an order code: T0211010. The merchant is the MYMERCHANT Webshop with merchant code MYMERCHANT, the shopper is Mr. J. Shopper and the used payment method is VISA.

Please note that a browser-view picture of the order is shown below the XML code.

```
<?xml version="1.0"?>
<!DOCTYPE paymentService PUBLIC "-//WorldPay/DTD
RBS WorldPay PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com//paymentService_v1.dtd">
<paymentService version="1.4" merchantCode="MYMERCHANT">
<submit>
<order orderCode="T0211010">
<description>20 English Roses from MYMERCHANT
Webshops</description>
<amount value="1400" currencyCode="GBP" exponent="2"/>
<orderContent>
<![CDATA[
```

```
<center><table>
<tr><td bgcolor="#ffff00">Your Internet Order:</td><td
colspan="2" bgcolor="#ffff00"
align="right">T0211010</td></tr>
<tr><td bgcolor="#ffff00">Description:</td><td>20 English
Roses</td><td align="right">0,50</td></tr>
<tr><td colspan="2">Subtotal:</td><td
align="right">10,00</td></tr>
<tr><td colspan="2">VAT: 17.5%</td><td
align="right">1,75</td></tr>
<tr><td colspan="2">Shipping and Handling:</td><td
align="right">2,25</td></tr>
<tr><td colspan="2" bgcolor="#c0c0c0">Total cost:</td><td
bgcolor="#c0c0c0" align="right">GBP 14,00</td></tr>
<tr><td colspan="3"> </td></tr>
<tr><td bgcolor="#ffff00" colspan="3">Your billing
address:</td></tr>
<tr><td colspan="3">Mr. J. Shopper<br>47A Queensbridge
Road<br>Cambridge<br>CB9 4BQ<br>United Kingdom</td></tr>
<tr><td colspan="3"> </td></tr>
<tr><td bgcolor="#ffff00" colspan="3">Your shipping
address:</td></tr>
<tr><td colspan="3">Mr.J. Shopper<br>
47A Queensbridge Road<br>Cambridge<br>CB9
4BQ<br>UK</td></tr>
<tr><td colspan="3"> </td></tr>
<tr><td bgcolor="#ffff00" colspan="3">Our contact
information:</td></tr>
<tr><td colspan="3">MYMERCHANT Webshops International<br>461
Merchant Street <br>Merchant Town<br>ZZ1 1ZZ<br>UK
<br>mymerchant@webshops.int<br>01234 567 890</td></tr>
<tr><td colspan="3"> </td></tr>
<tr><td bgcolor="#c0c0c0" colspan="3">Billing
notice:</td></tr>
<tr><td colspan="3">Your payment will be handled by
WorldPay<br>This name may appear on your bank
statement<br>http://www.rbsworldpay.com</td></tr>
</table></center>
]]>
</orderContent>
<paymentDetails>
<VISA-SSL>
<cardNumber>4444333322221111</cardNumber>
<expiryDate>
<date month="09" year="2007"/>
</expiryDate>
```

```
<cardHolderName>J. Shopper</cardHolderName>
<cvc>123</cvc>
<cardAddress>
<address>
 <firstName>John</firstName>
 <lastName>Shopper</lastName>
 <street>47A Queensbridge Rd<street/>
<!-- Please note that if no house or apartment number is
included
then a house name can be included using the <houseName>
element.-->
 <postalCode>CB94BQ</postalCode>
 <city>Cambridge</city>
 <countryCode>GB</countryCode>
 <telephoneNumber>01234567890</telephoneNumber>
</address>
</cardAddress>
</VISA-SSL>
<session shopperIPAddress="123.123.123.123" id="0215ui8ib1"
/>
</paymentDetails>
<shopper>
<shopperEmailAddress>jshopper@myprovider.int</shopperEmailAd
dress>
</shopper>
<shippingAddress>
<address>
 <firstName>John</firstName>
 <lastName>Shopper</lastName>
 <street>47A Queensbridge Rd<street/>
<!-- Please note that if no house or apartment number is
included
  then a house name can be included using the <houseName>
element.-->
 <postalCode>CB94BQ</postalCode>
 <city>Cambridge</city>
 <countryCode>GB</countryCode>
 <telephoneNumber>01234567890</telephoneNumber>
</address>
</shippingAddress>
</order>
</submit>
</paymentService>
```

The CDATA section in the `orderContent` element contains a complete invoice in HTML. The image below shows what this order content looks like when viewed with a web browser.

Your Internet Order:		T0211010
Description:	20 English Roses	0,50
Subtotal:		10,00
VAT: 17.5%		1,75
Shipping and Handling:		2,25
Total cost:		GBP 14,00

Your billing address:

Mr. J. Shopper
47A Queensbridge Road
Cambridge
CB9 4BQ
United Kingdom

Your shipping address:

Mr.J. Shopper
47A Queensbridge Road
Cambridge
CB9 4BQ
UK

Our contact information:

MYMERCHANT Webshops International
461 Merchant Street
Merchant Town
ZZ1 1ZZ
UK
mymerchant@webshops.int
01234 567 890

Billing notice:

Figure 1: Example HTML order content as viewed with a browser.

Posting an XML Order

Introduction

To submit the XML order you have to set up an HTTP(S) connection to the Payment Service. How you create a connection with another RBS WorldPay server depends on the specifications of your platform.

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 guide).

Once you have set up the connection to the 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.wp3.rbsworldpay.com/jsp/merchant/xml/paymentService.jsp

Originating IP Address

The 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 an IP address range with RBS WorldPay to connect to the test environment and another one to connect to the production environment. You can edit the 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 guide). The IP address to connect to the production environment can only be changed by RBS WorldPay.

When a merchant accesses our servers we check which IP address they're trying to access us from. By default, the Payment 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 the Payment Service is registered with RBS WorldPay.

Please keep RBS 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.rbsworldpay.com/support

Response from Our Systems

Introduction

When the Payment Service has received a valid order with payment details, it will send the information to the financial institutions (acquirers) for authorisation. The result of the authorisation request is reported to RBS WorldPay on-line. This is called the payment status of the order and can be either AUTHORISED or REFUSED. In the XML Direct model RBS WorldPay sends an XML response to your system that contains the payment status for the order.

When parsing RBS WorldPay reply it is important that you use an industry standard XML parser. Do not depend on a homemade one, which may not be able to correctly interpret the messages received from RBS WorldPay. For various platforms different XML parsers exist. Please refer to http://www.xml.org.

Reply to an XML Direct Order

The example below is of a possible XML reply from RBS WorldPay for a successful authorisation of the example order, shown earlier.

```
<?xml version="1.0"?>
<!DOCTYPE paymentService PUBLIC "-//RBS WorldPay//DTD RBS
WorldPay PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com//paymentService_v1.dtd">
<paymentService merchantCode="MYMERCHANT" version="1.4">
  <reply>
    <orderStatus orderCode="T0211010">
      <payment>
        <paymentMethod>VISA-SSL</paymentMethod>
        <amount value="1400" currencyCode="GBP" exponent="2"
                  debitCreditIndicator="credit"/>
        <lastEvent>AUTHORISED</lastEvent>
        <CVCResultCode description="APPROVED"/>
        <balance accountType="IN_PROCESS_AUTHORISED">
           <amount value="1400" currencyCode="GBP"
exponent="2"
                   debitCreditIndicator="credit"/>
        </balance>
        <cardNumber>4444********1111</cardNumber>
        <riskScore value="0"/>
      </payment>
    </orderStatus>
  </reply>
</paymentService>
```

In the reply, the `payment` element holds the relevant payment details and status information. Its child elements `paymentMethod` and `amount` contain the payment method used and the amount, including the currency, its exponent and the `debitCreditIndicator` that indicates the amount is positive.

The payment status is specified by the `lastEvent` element. A CVC result description is reported through the `CVCResultCode` element. The `balance` element reports on the account IN_PROCESS_AUTHORISED in the RBS WordPay system whereto the amount is transferred. A description of the internal processing of payments and the related internal accounts in the RBS WorldPay system is available in our Order Notifications guide. For credit card payments the first and last four digits of the card number are returned in the `cardNumber` element. The `riskScore` element shows the score that the Risk Management Module assigned to the authorisation request.

Always refer to the RBS WorldPay DTD for an up-to-date list of child elements and attributes of the `reply` element.

The following example is a reply where a MasterCard transaction for the order T0211234 is refused (card expired):

```
<?xml version="1.0"?>
<!DOCTYPE paymentService PUBLIC "-//RBS WorldPay//DTD RBS
WorldPay PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com//paymentService_v1.dtd">
<paymentService merchantCode="MYMERCHANT" version="1.4">
  <reply>
    <orderStatus orderCode="T0211234">
      <payment>
        <paymentMethod>ECMC-SSL</paymentMethod>
        <amount value="162095" currencyCode="GBP"
exponent="2"
                debitCreditIndicator="credit"/>
        <lastEvent>REFUSED</lastEvent>
        <CVCResultCode description="NOT SUPPLIED BY
SHOPPER"/>
        <ISO8583ReturnCode code="33" description="CARD
EXPIRED"/>
        <riskScore value="0"/>
      </payment>
    </orderStatus>
  </reply>
</paymentService>
```

Note that for a refused transaction no further processing takes place and consequently no balance information is presented. The element `ISO8583ReturnCode` shows the refusal response code from the acquirer and a

mapped description (reason) from RBS WorldPay. Response codes and their mapping to a description can be found in the appendix Acquirer Response Codes.

Informing the Shopper

In addition to the reply message, the Payment Service can report the status of individual payments to your system in a number of ways. For instance, via HTTP(S) or email order notifications or via the Merchant Interface. Please refer to our Order Notifications guide and our Merchant Interface User Guide for details. Your system has to determine whether or not a payment was successful by interpreting this status information supplied by RBS WorldPay.

To inform the shopper of the payment result you can, for instance, send an email. Alternatively, you can have your account configured so that RBS WorldPay sends an email to the shopper after a successful authorisation or a refusal. To use the latter 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 User Guide for details.

Appendices

Payment Method Codes

The merchant can use the `paymentMethodMask` or the `preferredPaymentMethod` variable to determine which payment method(s) the shopper will be able to choose. The codes for the payment methods can be found in the tables below.

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.
Carte Bancaire	CB-SSL	France	
Carte Bleue	CARTEBLEUE-SSL	France	
Diners	DINERS-SSL	International	
Laser Card	LASER-SSL	Ireland	
Discover Card	DISCOVER-SSL	United States	
Japanese Credit Bank	JCB-SSL	International, Japan	
Dankort	DANKORT-SSL	Denmark	

Online Debit Methods

name	*payment method code*	*area*	*remarks*
Rabobank	RABO-	Netherlands	For Rabobank

DirectBetalen	DIRECTBETALEN		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	Depending upon the issuer policy, either the issuer number or the start date must be included in the paymentDetails.
Maestro	MAESTRO-SSL	UK	Depending upon the issuer policy, either the issuer number or the start date may need to be included in the paymentDetails.
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	

Offline Payment Methods

name	*payment method code*	*area*	*remarks*
Domestic Bank transfer	TRANSFER_NL-BANK TRANSFER_BE-BANK TRANSFER_DE-BANK TRANSFER_FI-BANK TRANSFER_FR-BANK TRANSFER_IT-BANK	Netherlands, Belgium, Germany, Finland, France, Italy,	Shopper transfers the money using a bank transfer,

	TRANSFER_ES-BANK TRANSFER_GB-BANK TRANSFER_SE-BANK TRANSFER_AT-BANK TRANSFER_LU-BANK TRANSFER_CH-BANK TRANSFER_DK-BANK TRANSFER_GR-BANK TRANSFER_NO-BANK	Spain, UK, Sweden, Austria, Luxemburg, Switzerland, Denmark, Greece, Norway	either manually or through an electronic banking system. If bank transfers are used for internationa l payments, the shopper may be presented with extra charges (cross border fees) from the banks.
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.
Direct Debit	INCASSO_NL-FAX INCASSO_DE-FAX	The Netherlands, Germany	Forms have to be printed, signed and sent to RBS WorldPay
Rembours / Cash on Delivery	CASH-DELIVERY	The Netherlands, Germany	
Deutsche Bank 24	DB24-BANK	Germany	
Dresdner Bank InternetBanking	DRESDNER-BANK	Germany	

Commerz Bank Online Banking Web	COMLINE-BANK	Germany	
AcceptGiro	ACCEPTGIRO_NL-BANK	The Netherlands	Merchant has to use the 'reference id' as payment reference to be printed on the accept giro forms.
	PERMANENT_SIGNED_DD_NL	The Netherlands	
	SINGLE_UNSIGNED_DD_FR SINGLE_UNSIGNED_DD_NL	France, The Netherlands	

ISO Currency Codes

Currencies accepted by the RBS WorldPay Payment Service are listed below.

Please note that amounts in the orders sent to RBS 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	0
IDR	Indonesian Rupiah	0
ISK	Iceland Krona	0
JPY	Japanese Yen	0
KES	Kenyan Shilling	2
KRW	South-Korean Won	0
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
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

Acquirer Response Codes

RBS WorldPayuses the ISO 8583 Response Codes in the orderStatusEvent messages to indicate the status of the payment: AUTHORISED, REFUSED, etc.

The Payment Service maps these responses to a simplified list. Below you will find all possible response codes, their numeric value and the mapping to a status.

ISO 8583 Response Codes

code message value	*status*
0 AUTHORISED	AUTHORISED
2 REFERRED	REFUSED
4 HOLD CARD	REFUSED
5 REFUSED	REFUSED
8 APPROVE AFTER	REFUSED

IDENTIFICATION	
13 INVALID AMOUNT	REFUSED
15 INVALID CARD ISSUER	REFUSED
17 ANNULATION BY CLIENT	REFUSED
28 ACCESS DENIED	REFUSED
29 IMPOSSIBLE REFERENCE NUMBER	REFUSED
33 CARD EXPIRED	REFUSED
34 FRAUD SUSPICION	REFUSED
38 SECURITY CODE EXPIRED	REFUSED
41 LOST CARD	REFUSED
43 STOLEN CARD, PICK UP	REFUSED
51 LIMIT EXCEEDED	REFUSED
55 INVALID SECURITY CODE	REFUSED
56 UNKNOWN CARD	REFUSED
57 ILLEGAL TRANSACTION	REFUSED
62 RESTRICTED CARD	REFUSED
63 SECURITY RULES VIOLATED	REFUSED
75 SECURITY CODE INVALID	REFUSED
76 CARD BLOCKED	REFUSED
85 REJECTED BY CARD	REFUSED

ISSUER	
91 CREDITCARD ISSUER TEMPORARILY NOT REACHABLE	REFUSED
97 SECURITY BREACH	REFUSED
3 INVALID ACCEPTOR	ERROR
12 INVALID TRANSACTION	ERROR
14 INVALID ACCOUNT	ERROR
19 REPEAT OF LAST TRANSACTION	ERROR
20 ACQUIRER ERROR	ERROR
21 REVERSAL NOT PROCESSED, MISSING AUTHORISATION	ERROR
24 UPDATE OF FILE IMPOSSIBLE	ERROR
25 REFERENCE NUMBER CANNOT BE FOUND	ERROR
26 DUPLICATE REFERENCE NUMBER	ERROR
27 ERROR IN REFERENCE NUMBER FIELD	ERROR
30 FORMAT ERROR	ERROR
31 UNKNOWN ACQUIRER ACCOUNT CODE	ERROR
40 REQUESTED FUNCTION NOT SUPPORTED	ERROR

58 TRANSACTION NOT PERMITTED	ERROR
64 AMOUNT HIGHER THAN PREVIOUS TRANSACTION AMOUNT	ERROR
68 TRANSACTION TIMED OUT	ERROR
80 AMOUNT NO LONGER AVAILABLE, AUTHORISATION EXPIRED	ERROR
92 CREDITCARD TYPE NOT PROCESSED BY ACQUIRER	ERROR
94 DUPLICATE REQUEST ERROR	ERROR

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
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
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	CF

AFRICAN REPUBLIC	
CHAD	TD
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
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
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
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
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,	MD

REPUBLIC OF	
MONACO	MC
MONGOLIA	MN
MONTSERRAT	MS
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, OCCUPIED	PS
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
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
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	TC

CAICOS ISLANDS	
TUVALU	TV
UGANDA	UG
UKRAINE	UA
UNITED ARAB EMIRATES	AE
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 individual direct orders. To make use of this check, or to test a transaction using the check, this functionality has first to be activated for your account. RBS WorldPay Operations can do this.

Only orders containing a valid CVC code fragment will be checked, as shown in the example below. An order without the CVC code fragment will not be checked.

```
   <cardHolderName>J. Shopper</cardHolderName>
   <cvc>123</cvc>
   <cardAddress>
...
```

Results of the check can be examined, on a per order basis, by sending an XML order inquiry for each order. For more details, please refer to our Order Modifications and Order Inquiries guide.

Testing

The following CVC2 scenarios can be tested using the codes listed below.

CVC2 code	*simulated situation*	*numeric response*
Left blank	NOT SUPPLIED BY SHOPPER	1
111	NOT SENT TO ACQUIRER	2
222	NO RESPONSE	3

	FROM ACQUIRER	
333	NOT CHECKED BY ACQUIRER	4
444	FAILED	5
555	APPROVED	6

Testing Transactions

A number of different cases can be tested by entering the following values as the card/accountholder name (<cardHolderName>) in the order:

- 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, these are listed below in Test Card Numbers.

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 has a one-digit issue number)
VISA	4111 1111 1111 1111 (please don't enter the spaces) and 4444 3333 2222 1111 (please don't enter the spaces)
AMEX	3434 3434 3434 34

ECMC	5555 5555 5555 4444 (please don't enter the spaces) and 5454 5454 5454 5454 (please don't enter the spaces)
DINERS	36148900647913
DANKORT	5019717010103742
AIRPLUS	1220 0000 0000 003 (please don't enter the spaces) 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.wp3.rbsworldpay.com/v1

Examples

The following are some examples for these error codes.

Error Code 2

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE paymentService PUBLIC "-//RBS WorldPay//DTD RBS
WorldPay
PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.comm/paymentService_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"?>
<!DOCTYPE paymentService PUBLIC "-//RBS WorldPay//DTD RBS
WorldPay|
PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com/paymentService_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 "-//RBS WorldPay//DTD RBS
WorldPay
PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com/paymentService_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 "-//RBS WorldPay//DTD RBS
WorldPay
PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com/paymentService_v1.dtd">
<paymentService version="1.3" merchantCode="MYCO">
<reply>
<error code="5"><![CDATA[Duplicate Order]]></error>
</reply>
</paymentService>
```

```
<?xml version="1.0"?>
<!DOCTYPE paymentService PUBLIC "-//RBS WorldPay//DTD RBS
WorldPay
PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com/paymentService_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 "-//RBS WorldPay//DTD RBS
WorldPay
PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com/paymentService_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 "-//RBS WorldPay//DTD RBS
WorldPay
PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com/paymentService_v1.dtd">
<paymentService version="1.4" merchantCode="MYCO">
<reply>
<orderStatus orderCode="11223">
<error code="7"><![CDATA[Gateway error]]></error>
</orderStatus>
</reply>
</paymentService>
```