RBS WorldPay™

Order Notifications Guide

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About this Guide

This Guide describes the RBS WorldPay Order Notification Service, which offers a variety of methods to report the status of orders electronically over the Internet. It describes the order notifications, also referred to as 'confirmation messages', a method of reporting status changes of individual payments. It specifies the requirements to the communication between your system and RBS WorldPay, and explains how to interpret the (XML) content of the notifications.

The intended audience are merchants and their technical staff who use the RBS WorldPay Payment Service for the processing of payments. It is assumed that the reader is familiar with the basics of the RBS WorldPay Payment system and the definitions of the different payment statuses (for more information, please refer to the Payment Status Definitions Guide). Where applicable, this document refers to the related document or module.

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Introduction

What is the Payment Service?

The RBS WorldPay Payment Service offers a variety of methods to report the status of payments electronically over the Internet.

This document describes the order notifications, also referred to as 'confirmation messages', a method of reporting status changes of individual payments. It specifies the requirements to the communication between your system and RBS WorldPay, and explains how to interpret the (XML) content of the notifications.

The Payment Status Reporting Methods

Below is an overview of the different payment status reporting methods and tools RBS WorldPay offers:

- **Order Notifications**: For a large number of payment statuses RBS WorldPay can send an email or an HTTP message whenever a payment changes status. Order notifications are available in a number of formats allowing for integration with your back-office system.
- **Merchant Interface**: The online Merchant Interface is a tool for looking up all orders and payments, including the current status of the payments and their history. Additionally, financial status information on all authorised, captured and settled payments is available. The Merchant Interface also provides a tool to view or download a range of standard tables and graphs, in a choice of formats. For more information, refer to the Merchant Interface User Guide.
- **Signed Hosted Payment Page (XML Redirect) Message**: For the RBS WorldPay XML Redirect service model only. After completing an on-line payment the shopper's browser is redirected to the merchants success or failure URL. RBS WorldPay can digitally sign the corresponding redirect messages that include the payment status. This method applies only to the statuses AUTHORISED and REFUSED. For further details about the signed redirect message, refer to Submitting Transactions in the Redirect Model.
- **Financial Reports**: RBS WorldPay can send a number of financial reports to give an overview of all payments that reached a particular status for the corresponding period. These reports are available in a variety of formats and can be sent via email or http.
- **Order Inquiry**: Merchants can send XML order inquiries to actively request the status of a payment on an existing order, or on a batch of orders. Similar to order notifications, this method allows for integration with your back-office system.

Delivery of Order Notifications

Order Notifications Delivery

Order notifications provide a reliable mechanism for updating the status of payments in your back-office system. When your system receives an order notification it should be able to interpret it and distribute the data to the appropriate process or processes.

This section describes what types of order notifications are available and what their requirements are to the communication between your system and RBS WorldPay.

Payment Statuses Reported

The RBS WorldPay Payment Service is capable of sending an order notification when a payment reaches one of the following statuses:

- SIGNED_FORM_RECEIVED
- AUTHORISED
- CANCELLED
- CAPTURED
- SETTLED
- CHARGED_BACK
- CHARGEBACK_REVERSED
- INFORMATION_REQUESTED
- EXPIRED
- SENT_FOR_REFUND
- REFUNDED
- REFUSED

Other payment statuses are not reported through order notifications. To check any possible status for a payment you can consult its payment details in the Merchant Interface (for details, refer to the Merchant Interface User Guide) or send an information request in the form of an XML order inquiry (for details, refer to the Order Modifications and Order Inquiries Guide). The status SETTLED is also reported in the financial report type 'transfer report' and through the Status page of the Merchant Interface.

Order notifications for the statuses AUTHORISED and REFUSED are sent immediately when a payment has obtained one of these statuses. Order notifications for the other payment statuses are handled by a different mechanism and are sent at least an hour after a payment has obtained the status.

For more information about the definitions of the different payment statuses, please refer to the Payment Status Definitions Guide.

Notification Channels

The 'Merchant Channels' functionality in the Merchant Interface allows you to configure for which of the above-mentioned statuses you would like to receive order notifications, through what channel (protocol) and in what format. Order notifications can be sent through two different channels: email (SMTP) and HTTP(S) and in different formats: CGI, text and XML.

For more information, refer to the Merchant Interface User Guide.

Email (SMTP) Notifications

Email order notifications can be sent to one or more valid email addresses that you specify through the Merchant Interface. The recipient does not reply to these messages.

HTTP(S) Notifications

HTTP(S) order notifications are sent to a URL on your system that can process the information contained in the message. Such a URL usually points to a page with some sort of script (ASP, PHP, Perl, CGI) that interprets the content of the notification and sends the interpreted result through to your back-office system.

The HTTP(S) channel provides guaranteed delivery: you can be sure that your system receives all order notifications sent by RBS WorldPay. Order notifications sent through HTTP(S) **must** be acknowledged. If the RBS WorldPay system does not receive an acknowledgement it assumes the notification did not reach your system and a retry mechanism is activated that resends the notification.

If your system uses a firewall or other construction to restrict incoming traffic it should always accept incoming messages from RBS WorldPay, such as, HTTP(S) order notifications, from the RBS WorldPay domain (http://www.rbsworldpay.com). The IP address should not be used as this might change without notice.

[OK] reply to HTTP(S) Notifications

After the RBS WorldPay payment system has sent an HTTP(S) order notification to your server it will wait for an acknowledgement that the message has been received. The appropriate acknowledgement expected for any received order notification is: ”[OK]”. Your system’s [OK] reply is *only* to acknowledge the receipt of the notification! It is not confirming your agreement with the content.

If the RBS WorldPay system does not receive an [OK] in reply to an HTTP(S) order notification it waits for approximately an hour to deliver the notification again. Then it will resend the order notification approximately every five minutes for a week until it is acknowledged. RBS WorldPay places order notifications in a queue and the first notification in the queue will be resent until it is acknowledged. If acknowledged, or if after a week still no [OK] is returned, the retry mechanism stops sending the message and proceeds with the next order notification from the queue.

The retry mechanism guarantees the delivery of order notifications for a week, however it does not provide certainty on the time of delivery.

In summary, when replying with an [OK] make sure that:

- it is an **unconditional [OK]**,
- [OK] is the literal string as shown here in quotation marks: "[OK]", i.e. in capital letters and between square brackets
- it is used as a confirmation of the receipt of the order notification and does not convey any validation of its content
- the HTTP response code of the reply is 200. Other codes will be interpreted as errors

Please note that appending other characters to the [OK], such as "not [OK]" or "233wss[OK]sskjeKLD", are interpreted by the RBS WorldPay system as an unconditional [OK]. RBS WorldPay will verify the proper implementation of the unconditional [OK] during the acceptance test, i.e. before going live the first time.

Interpreting Order Notifications

XML Order Notifications

When interpreting XML order notifications it is helpful to have some understanding of the internal processes of the Payment Service.

Accounts and Journals

Payments are represented in the RBS WorldPay Payment system by *journals*. When a payment is processed transactions are performed between different *accounts* in the system. Transfers to and from these accounts are called *account transactions* and reflect a change in payment status. The resulting payment status is also referred to as the *journal type*. Since order notifications report on a change in status of a payment, details are supplied in the journal information of the notification.

The various stages of a payment during its processing correspond to various journals and related account transactions. The accounts reported on in the XML order notifications are: `IN_PROCESS_AUTHORISED, IN_PROCESS_CAPTURED, SETTLED_BIBIT_NET, SETTLED_BIBIT_COMMISSION and DEPOSIT.` The definitions of these accounts can be found in the table below.

account type	*description*
IN_PROCESS_AUTHORISED:	The balance on the IN_PROCESS_AUTHORISED account represents the money that is reserved (authorised) for the merchant by the financial institutions. This amount is the amount that can (still) be captured.
IN_PROCESS_CAPTURED	The balance on the IN_PROCESS_CAPTURED account represents the amount that is captured with the financial institutions on behalf of the merchant. It will be settled in the merchant's SETTLED_BIBIT_NET and SETLLED_BIBIT_COMMISSION accounts, which are described below.
SETTLED_BIBIT_NET	The SETTLED_BIBIT_NET account contains the net amount due to the merchant. The actual amount transferred is the balance of this account adjusted for a

	DEPOSIT correction.
SETTLED_BIBIT_COMMISSION	The SETTLED_BIBIT_COMMISSION account contains the financial institution cost, or commission, withheld from the captured amount at the time of settlement.
DEPOSIT	The DEPOSIT account represents the amount RBS WorldPay holds in deposit for you. The amount is kept at a preset level. The Profile page in the Merchant Interface shows the required deposit amount.

The flowchart below gives an overview of the different accounts and account transactions involved in processing a payment in the RBS WorldPay Payment system. The solid arrows show the flow for a typical payment that is authorised and captured., settled and paid out to the merchant. The direction of an arrow indicates whether the corresponding account transaction is a transfer to or from the account.

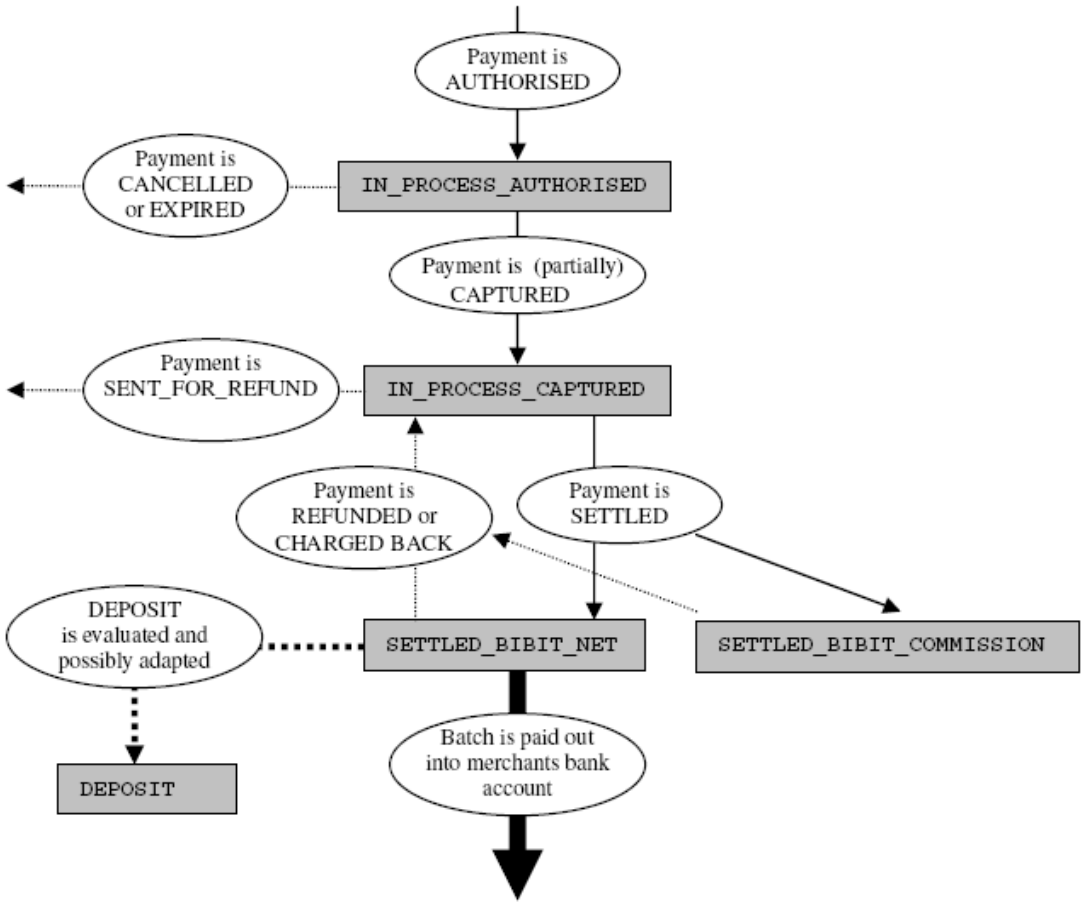

Figure: Payment Processing Flowchart

Some merchants may still have their integration based on an older version of the RBS WorldPay Payment Service that used slightly different accounts. RBS WorldPay recommends all merchants to use the latest version. The information below gives a brief description of the differences in version and what steps to take to migrate to the current version:

In the specifications of version 1.3 (and earlier) of the RBS WorldPay Payment Service XML the accounts were organised differently. The system used one single account IN_PROCESS for both the authorised amounts and the captured amounts. From version 1.4 on these amounts are transferred to the separate accounts IN_PROCESS_AUTHORISED and IN_PROCESS_CAPTURED.

To make your system compatible to version 1.4, make sure it is able to interpret the account types accounts IN_PROCESS_AUTHORISED and IN_PROCESS_CAPTURED correctly. Once your system is ready to interpret these messages you should make the following change to the merchant environment properties in the Merchant Interface (http://www.rbsworldpay.com/admin). Go to the Profile page, click on the "Environment properties" button at the bottom of the page. In "Production specific properties" and "Test specific properties" set the values of "Production XML reply/orderStatusEvent version" and "Test production XML reply/orderStatusEvent version" to Standard latest XML version' for both the production and test environment.

General Structure XML Order Notifications

When parsing the information from the XML order notification it is important to use an industry standard XML parser. **Do not** rely on a homemade one. As the RBS WorldPay DTD changes over time the homemade parser might not be in synch with the changes and thus will not be able to correctly interpret the messages received from RBS WorldPay. This will not happen when you use a proper XML parser. For different platforms different XML parsers exist.

Note that there are a lot of resources on the Internet about platform-specific parsers, for example, http://www.xml.org

XML order notifications have the following general structure:

1. **XML and document type declaration**

   The XML order notification starts with an XML declaration and a document type definition, containing the RBS WorldPay root element `paymentService` and the reference to the public RBS WorldPay DTD.

```
<?xml version="1.0"?>
<!DOCTYPE paymentService PUBLIC "-//RBS WorldPay//DTD
RBS WorldPay PaymentService v1//EN"
"http://dtd.wp3.rbsworldpay.com/paymentService_v1.dtd">
```

2. Merchant and service specific information

The `paymentService` root element has the attributes `version` and `merchantCode` specifying the version number of the Payment Service DTD and your merchant code. All other elements and their attributes are contained within the `paymentService` element. An example for merchant ”DEMO” is:

```
<paymentService version="1.4" merchantCode="DEMO">
...
</paymentService>
```

3. Order information

Within the `paymentService` element, the XML message first reveals itself as a notification (`notify` element) on a status change of a specific order (`orderStatusEvent` element). The `orderStatusEvent` element contains the `orderCode` attribute:

```
<notify>
<orderStatusEvent orderCode="DEMO-ORDER-123">
...
</orderStatusEvent>
</notify>
```

Within the `orderStatusEvent` element the payment and journal information is specified.

4. Payment information

The `payment` element contains the payment details for the order. Included are the payment method used, the original payment amount details, and the last payment status change (event). The `balance` element shows the current balance for the order at the appropriate account(s) in the RBS WorldPay system. Below is an example of the payment information for a MasterCard (ECMC-SSL) payment for the amount of EUR 24 that has been authorised:

```
<payment>
<paymentMethod>ECMC-SSL</paymentMethod>
<amount value="2400" currencyCode="EUR" exponent="2"
      debitCreditIndicator="credit"/>
<lastEvent>AUTHORISED</lastEvent>
<balance accountType="IN_PROCESS_AUTHORISED">
<amount value="2400" currencyCode="EUR" exponent="2"
      debitCreditIndicator="credit"/>
</balance>
<cardNumber>5255********2490</cardNumber>
<riskScore value="0"/>
</payment>
```

The `riskScore` element shows the result of the checks of the RBS WorldPay Risk Management Module, if applicable. Please refer to the Risk Management Module (advanced) guide.

It is possible that for certain off-line payment methods a status change has occurred *after* the event that is reported on but before the notification is sent. This can also happen when a notification is sent via the retry mechanism. The `payment` element contains balance information at the time the order notification is sent. Hence, the accounts involved in the last status change are shown here.

5. **Journal information**

   The *key information* in the XML order notification is enclosed in the `journal` element. This element specifies the payment event (`journalType`), the date of the event and the details of corresponding transactions (`accountTx`) between the different accounts in the system. In the `accountTx` element, the amounts, the currency and the exponent of the transferred amounts are specified. The `debitCreditIndicator` indicates whether the transfer is positive (credit) or negative (debit).

   Below is an example of an authorisation: the status of the payment changes to AUTHORISED and an amount of EUR 24 is transferred to the account IN_PROCESS_AUTHORISED.

```
<journal journalType=AUTHORISED" sent="n">
<bookingDate>
<date dayOfMonth="11" month="05" year="2004"/>
</bookingDate>
<accountTx accountType="IN_PROCESS_AUTHORISED">
<amount currencyCode="EUR"
debitCreditIndicator="credit" exponent="2"
      value="2400"/>
</accountTx>
</journal>
```

   For other events, more than one (or even no) `accountTx` may show up within the `journal` element. An example of an event that has no associated account transaction is REFUSED.

Journal Information Examples

This section provides typical examples of the journal information for different status changes.

The next example shows the journal information for a payment of EUR 365 that has been captured. The `journal` element of the corresponding order notification reports that this amount is transferred from the account IN_PROCESS_AUTHORISED to the account IN_PROCESS_CAPTURED:

```
<journal journalType="CAPTURED" sent="n">
<bookingDate>
<date dayOfMonth="11" month="05" year="2004"/>
</bookingDate>
<accountTx accountType="IN_PROCESS_CAPTURED" batchId="29">
<amount value="36500" currencyCode="EUR" exponent="2"
      debitCreditIndicator="credit"/>
</accountTx>
<accountTx accountType="IN_PROCESS_AUTHORISED" batchId="30">
<amount value="36500" currencyCode="EUR" exponent="2"
      debitCreditIndicator="debit"/>
</accountTx>
</journal>
```

RBS WorldPay processes payments in groups, or batches. The `batchId` attribute in the `accountTX` element refers to the batch in which the transfer to the corresponding account has been processed.

For partial captures the amount in the above account transaction will be smaller than the payment amount in the payment element.

The journal information for a refund request of a payment will look like this:

```
<journal journalType="SENT_FOR_REFUND" sent="n">
<bookingDate>
<date dayOfMonth="11" month="05" year="2004" />
</bookingDate>
<accountTx accountType="IN_PROCESS_CAPTURED" batchId="428">
<amount value="4465" currencyCode="EUR" exponent="2"
      debitCreditIndicator="debit" />
</accountTx>
</journal>
```

Below is an example of the journal information for a REFUNDED event: the amount of a previously settled payment is transferred from the SETTLED_BIBIT_NET account to the IN_PROCESS_CAPTURED account. This transfer to the latter account clears its balance since both the earlier refund request and the settlement, for which no order notification is sent, resulted in debiting IN_PROCESS_CAPTURED.

```
<journal journalType="REFUNDED" sent="n">
<bookingDate>
<date dayOfMonth="11" month="05" year="2004" />
</bookingDate>
<accountTx accountType="SETTLED_BIBIT_NET" batchId="10">
<amount value="9995" currencyCode="EUR" exponent="2"
      debitCreditIndicator="debit" />
</accountTx>
<accountTx accountType="IN_PROCESS_CAPTURED" batchId="17">
<amount value="9995" currencyCode="EUR" exponent="2"
```

```
      debitCreditIndicator="credit" />
</accountTx>
</journal>
```

An order notification for the event CHARGED_BACK contains a transfer from the account SETTLED_**BIBIT**_NET:

```
<journal journalType="CHARGED_BACK" sent="n">
<bookingDate>
<date dayOfMonth="11" month="05" year="2004" />
</bookingDate>
<accountTx accountType="SETTLED_BIBIT_NET" batchId="95">
<amount currencyCode="EUR" debitCreditIndicator="debit"
exponent="2"
      value="47900"/>
</accountTx>
</journal>
```

CGI Order Notifications

A CGI order notification contains the following parameters:

- PaymentId
- PaymentCurrency
- OrderCode
- PaymentMethod
- PaymentStatus
- PaymentAmount

The PaymentId is an internal parameter in the RBS WorldPay system that is not related to your system and can be ignored.

An example of a CGI order notification delivered via HTTPS, using the GET method, is:

```
https://www.demoshop.com/rbsworldpay/confirmation.jsp?OrderC
ode=DEMO_ORDER123456789&PaymentId=15390&PaymentStatus=AUTHOR
ISED&PaymentAmount=1000&PaymentCurrency=EUR&PaymentMethod=VI
SA-SSL
```

This is a notification for an authorised VISA payment of EUR 10 for order "DEMO_ORDER123456789" which is sent to the URL https://www.demoshop.com/rbsworldpay/confirmation.jsp of merchant DEMO While this example shows an HTTPS message, the messages will look similar when sent through HTTP.

On your system the above notification might look like this:

```
Protocol: HTTP/1.1
Method: GET
```

```
Headers:
content-type: application/x-www-form-urlencoded
user-agent: Jakarta Commons-HttpClient/2.0rc2
host: www.demoshop.com
content-length: 121
Parameters:
PaymentId: 22188746
PaymentCurrency: EURGBP
OrderCode: DEMO_ORDER123456789
PaymentMethod: VISA-SSL
PaymentStatus: AUTHORISED
PaymentAmount: 1000
```

Text Order Notifications

Below you find an example of an order notification in simple plain text format that has been sent as email to the address: merchant@demoshop.com. This is a notification for an authorised American Express payment of 330 for order ”DEMO_ORDER987654321”.

```
Subject:        Payment Result for order DEMO_ORDER987654321
Date:           Thu, 27 May 2004 12:21:44 +0200 (CEST)
From:           support@rbsworldpay.com
To:             merchant@demoshop.com

Body:
************
OrderCode: DEMO_ORDER987654321
PaymentId: 1204080971
PaymentAmount: 330,00
PaymentCurrency: EURGBP
PaymentStatus: AUTHORISED
PaymentMethod: AMEX-SSL
Date: Thu May 27 12:07:47 CEST 2004
**************
```

Authenticity

Ensuring Messages are Genuine

As order notifications sent to your system may have direct impact on your delivery process, RBS WorldPay advises you to put some measures in place to ensure the messages are genuine. Possible measures are: receiving the messages on a secure server, checking RBS WorldPay client certificate for authenticity and checking the sender's domain name.

Secure Server (HTTPS)

Using a secure server on your side will enable you to use the *Secured* HTTP (HTTPS) protocol to receive the RBS WorldPay order notifications. HTTPS is a standard protocol for transmitting messages securely over the Internet and can be implemented on most web servers. Even though the connection is secured, using the HTTPS protocol does not imply that it was actually RBS WorldPay ho sent the message.

Please note that the use of the HTTPS protocol for receiving messages from RBS WorldPay Payment Service is optional.

Authenticating the Sender (RBS WorldPay Certificate)

To verify that it was RBS WorldPay who sent the order notifications you can check the RBS WorldPay certificate. This feature has to be switched on per merchant; certificates are not sent by default. You can do this in the Merchant Interface when you configure the HTTP channel via the Merchant Channels functionality under the Profile option.

The RBS WorldPay Payment Service can send its certificate with all communications. You can then check the authenticity of the certificate to ensure that the information has not been tampered with during communication and that the sender was indeed RBS WorldPay.

RBS WorldPay client certificates can be obtained through the on-line support console www.rbsworldpay.com/support.

Your HTTP(S) URLs where you receive the order notifications should only be accessible by RBS WorldPay. When configuring your system to only accept incoming traffic from RBS WorldPay for that URL, your system should check on the domain name of the sender via a reversed (DNS) lookup of its IP address. The domain name should be: rbsworldpay.com This is important because the range of IP addresses of the different systems that make up the RBS WorldPay Payment Service are subject to change without prior notice.