

# Multicurrency Service for Chase Paymentech Solutions

Using the Simple Order API

Supplement to  
*Credit Card Services Using the Simple Order API*

September 2012

**CyberSource<sup>®</sup>**  
the power of payment

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# Recent Revisions to This Document

Release	Changes
September 2012	Separated <i>Multi-Currency Service: Chase Paymentech Solutions</i> into two documents: <ul style="list-style-type: none"><li>■ <a href="#">Multicurrency Service for Chase Paymentech Solutions Using the Simple Order API</a></li><li>■ <a href="#">Multicurrency Service for Chase Paymentech Solutions Using the SCMP API</a></li></ul>
January 2011	This revision contains only editorial changes and no technical updates.
February 2010	Updated the processor name: Changed “Paymentech New Hampshire” to “Chase Paymentech Solutions.”

# Multicurrency Service

## Introduction

The CyberSource multicurrency service obtains current, guaranteed exchange rates. This service enables you to list your product prices in your customers' local currencies on your web site. It also enables your customers to pay using their local currencies, while allowing you to do business and settle transactions in your desired currency.

On your web site, you can present your customers with guaranteed localized prices. When the transaction is approved, the customer knows the exact amount that will be charged to their account in their local currency. Additionally, you know the exact amount that you will receive in your own funding currency.

Each exchange rate has an identifier called a quote ID that guarantees the rate between two currencies for a given period of time.

## Requirements

Before you can use the multicurrency service, you must have your account configured with both CyberSource and E4X.

When you sign up to use the multicurrency service, you need to provide this information:

- Funding currencies to use with your merchant ID
- Currencies for which you want to obtain exchange rate quotes

# Ways to Use the Multicurrency Service

You can use the multicurrency service in two ways: Variable Price Mode and Fixed Price Mode.

## Variable Price Mode

In this mode, you can use the multicurrency service to dynamically display local prices on your web site. The local prices you display will vary with the exchange rates.

These are the general steps to follow:

- Step 1** Send a request at least once per hour to CyberSource to obtain the latest exchange rate information, which you store locally.
- Step 2** When a customer uses your web site, use your stored exchange rate information to display your product prices in the customer's local currency.
- Step 3** In your authorization request, include the relevant quote ID and the total authorization amount in the funding currency.

When converting prices and calculating the total authorization amount, use the procedure ["Calculating a Unit Price," page 8](#).

In the authorization reply, CyberSource returns the quote ID used for the transaction, the transaction amount in both currencies, and additional exchange rate information.

## Fixed Price Mode

In this mode, you can show fixed local prices on your web site and determine on your own the fixed prices of your products in the local currencies.

If you are an existing CyberSource merchant, this mode does not require you to change your existing code to use any new API request fields or services. In your authorization request, the currency that you specify is the customer's local currency and the offer amounts that you specify are in the customer's local currency.

CyberSource determines the appropriate quote ID to use. In the authorization reply, CyberSource returns the quote ID that was used, the transaction amount in both currencies, and additional exchange rate information.

## Funding Currency

With the multicurrency service, your business can use more than one funding currency. When you configure your account with E4X, you specify which funding currencies you want to use. The way you specify the funding currency for a particular order depends on the mode you are using:

- **Variable Price Mode:** The quote ID that you send in your authorization request specifies the funding currency to use for the order.
- **Fixed Price Mode:** By default, CyberSource uses the funding currency configured for your CyberSource account. You can override this currency by specifying in your authorization request the funding currency that you want to use for the order.

## Captures and Credits

To perform a capture or credit of an authorization that used the multicurrency service, you do not need to send any additional fields in your request. For credits, you can override the funding currency configured for your merchant ID.

The quote ID used for the capture or credit is determined by E4X based on your agreement with them. Typically a capture that occurs within five to seven days after the authorization will use the same quote ID that was used for the authorization.

In the capture reply, CyberSource returns the quote ID used for the transaction, the transaction amount in both currencies, and additional exchange rate information.

In the credit reply, CyberSource returns the amount of the credit in the customer's currency.

# Requesting Services

## Variable Price Mode

In Variable Price Mode, use **fxRatesService** to obtain current exchange rate quotes. See ["Multicurrency Service: fxRatesService," page 13](#) for the API information for the service. For each quote, **fxRatesService** returns the quote ID and additional information.

In your authorization request:

- Set **ccAuthService\_fxQuoteID** to the relevant quote ID.
- The item's unit price must be in the customer's local currency.
- Set **fundingTotals\_grandTotalAmount** to the total amount of the authorization in the funding currency.

Use the guidelines in ["Calculating a Unit Price," page 8](#) when calculating the amounts.

In the authorization reply, CyberSource returns:

- The quote information in several fields that begin with **ccAuthReply\_fxQuote**.
- The total amount of the authorization in both currencies:
  - **ccAuthReply\_amount** is in the customer's local currency.
  - **ccAuthReply\_fundingTotals\_grandTotalAmount** is in your funding currency.

### Calculating a Unit Price

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To calculate the product's unit price in the customer's local currency:

**Step 1** Multiply the unit price in the funding currency by the exchange rate.

**Step 2** Round up.

Round up when converting a unit price to the customer's local currency. Rounding up prevents discrepancies with E4X.

For all the supported currencies except Japanese yen, round to the second digit after the decimal point. For Japanese yen, round to the next whole number.

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**Example Calculating a Product's Unit Price**

Given values for the example:

- The product's unit price in the funding currency (U.S. dollars) = \$2.00.
- The exchange rate (**ccAuthReply\_fxQuoteRate**) = 0.7523 British pound per U.S. dollar.

To calculate the product's unit price in British pounds:

**Step 1** Multiply the unit price by the exchange rate:

$$2.00 * 0.7523 = 1.5046 \text{ British pounds.}$$

**Step 2** Round up:

Round 1.5046 up to 1.51 British pounds.

**Calculating the Total Funding Amount**

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To calculate the total funding amount (**fundingTotals\_grandTotalAmount**) when you have multiple items:

**Step 1** Convert each item's unit price to the customer's local currency.

**Step 2** Sum the unit prices of all the items to get the total amount in the customer's local currency.

**Step 3** Convert the total amount in the customer's local currency to the total amount in the funding currency.

**Step 4** Round down.

Convert each item's unit price separately before calculating the sum of the items. Round down when converting an amount to the funding currency. Rounding down prevents calculation discrepancies with E4X.

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**Example Calculating the Total Funding Amount**

Given values for the example:

- **item\_0** unit price in U.S. dollars = \$2.00
- **item\_1** unit price in U.S. dollars = \$9.00
- The exchange rate (**ccAuthReply\_fxQuoteRate**) = 0.7523 British pound per U.S. dollar.

To calculate the total funding amount:

**Step 1** Convert each item's unit price to the customer's local currency:

$$\text{item\_0: } 2.00 * 0.7523 = 1.5046. \text{ Round up to 1.51 British pounds.}$$

$$\text{item\_1: } 9.00 * 0.7523 = 6.7707. \text{ Round up to 6.78 British pounds.}$$

**Step 2** Sum the unit prices of all the items to get the total amount in the customer's local currency:

$$1.51 + 6.78 = 8.29 \text{ British pounds.}$$

**Step 3** Convert the total amount to the funding currency:  
 $8.29 / 0.7523 = 11.0195$  U.S. dollars.

**Step 4** Round down to get the total funding amount:  
 Round 11.0195 down to 11.01 U.S. dollars.

## Fixed Price Mode

In Fixed Price Mode, your authorization request does not need to include any new request fields specific to the multicurrency service. In your authorization request:

- Set **purchaseTotals\_currency** to the customer's local currency.
- The item's unit price must be in the customer's local currency.

CyberSource determines the appropriate quote ID based on the funding currency associated with your CyberSource merchant ID. If you are configured with E4X to use more than one funding currency, you can use the **fundingTotals\_currency** request field to specify a different funding currency for the order.

In the authorization reply, CyberSource returns:

- The quote information in several fields that begin with **ccAuthReply\_fxQuote**.
- The total amount of the authorization in both currencies:
  - **ccAuthReply\_amount** is in the customer's local currency.
  - **ccAuthReply\_fundingTotals\_grandTotalAmount** is in your funding currency.

## Captures

To capture an authorization that used the multicurrency service, you do not need to send any additional fields in your capture request. The quote ID for the capture is determined by E4X based on your agreement with them. Typically, a capture that occurs within five to seven days after the authorization will use the same quote ID that was used for the authorization.

In the capture reply, CyberSource returns:

- The quote information in several fields that begin with **ccCaptureReply\_fxQuote**.
- The total amount of the capture in both currencies:
  - **ccCaptureReply\_amount** is in the customer's local currency.
  - **ccCaptureReply\_fundingTotals\_grandTotalAmount** is in your funding currency.

## Credits

For stand-alone credits and follow-on credits, E4X determines the appropriate quote ID based on your agreement with them. The default funding currency is the one associated with your CyberSource merchant ID. If you are configured with E4X to use more than one funding currency, you can use the **fundingTotals\_currency** request field to specify a different funding currency for the transaction.

In the credit reply, CyberSource returns the credit amount in the customer's local currency in the **ccCreditReply\_amount** field. The reply does not include the quote ID information or the credit amount in your funding currency.

## API Fields for Authorizations, Captures, and Credits



**Important**

When you send an authorization, capture, or credit request with multicurrency or funding data, you must include the basic fields required for every authorization, capture, or credit request. For information about these fields, see [Credit Card Services Using the Simple Order API](#).

## Request Fields

**Table 1 Request Fields for Authorizations, Captures, and Credits**

Field Name	Description	Used By (Required/Optional)	Data Type & Length
<b>ccAuthService_fxQuoteID</b>	Exchange rate quote identifier that was returned by the multicurrency service. See <a href="#">"Multicurrency Service: fxRatesService,"</a> page 13.	<b>ccAuthService</b> (O)	String (30)
<b>fundingTotals_currency</b>	Funding currency for the request. Overrides the funding currency that is associated with your CyberSource merchant ID. Use the <a href="#">ISO currency codes</a> .	<b>ccAuthService</b> (O) <b>ccCreditService</b> (O)	String (5)

Table 1 Request Fields for Authorizations, Captures, and Credits (Continued)

Field Name	Description	Used By (Required/Optional)	Data Type & Length
<b>fundingTotals_ grandTotalAmount</b>	Total amount of the authorization in the funding currency. See <a href="#">"Calculating a Unit Price," page 8</a> for information about calculating this amount.  This field is required if <b>ccAuthService_ fxQuoteID</b> is included in the request.	<b>ccAuthService</b> (See description)	String (15)
<b>purchaseTotals_ currency</b>	The customer's local currency.	<b>ccAuthService</b> (R) <b>ccCaptureService</b> (R) <b>ccCreditService</b> (R)	String (5)

## Reply Fields

Table 2 Reply Fields for Authorizations, Captures, and Credits

Field Name	Description	Returned By	Data Type & Length
<b>ccAuthReply_ amount</b>	Total amount of the authorization in the customer's local currency.	<b>ccAuthReply</b>	String (15)
<b>ccAuthReply_ fundingTotals_ currency</b>	Funding currency used for the authorization.	<b>ccAuthReply</b>	String (5)
<b>ccAuthReply_ fundingTotals_ grandTotalAmount</b>	Total amount of the authorization in your funding currency.	<b>ccAuthReply</b>	String (15)
<b>ccAuthReply_ fxQuoteExpiration DateTime</b>	Expiration date and time of the exchange rate quote.	<b>ccAuthReply</b>	String (20)
<b>ccAuthReply_ fxQuoteID</b>	Exchange rate quote identifier associated with the authorization. See <a href="#">"Multicurrency Service: fxRatesService," page 13</a> for more information.	<b>ccAuthReply</b>	String (30)
<b>ccAuthReply_ fxQuoteRate</b>	Exchange rate for the quote.	<b>ccAuthReply</b>	String (30)
<b>ccAuthReply_ fxQuoteType</b>	Type of quote. Indicates a single use or recurring usage for a subscription.	<b>ccAuthReply</b>	String (10)
<b>ccCaptureReply_ amount</b>	Total amount of the capture in the customer's local currency.	<b>ccCaptureReply</b>	String (15)
<b>ccCaptureReply_ fundingTotals_ currency</b>	Funding currency used for the capture.	<b>ccCaptureReply</b>	String (5)

Table 2 Reply Fields for Authorizations, Captures, and Credits (Continued)

Field Name	Description	Returned By	Data Type & Length
<b>ccCaptureReply_fundingTotals_grandTotalAmount</b>	Total amount of the capture in your funding currency.	<b>ccCaptureReply</b>	String (15)
<b>ccCaptureReply_fxQuoteExpirationDateTime</b>	Expiration date and time of the exchange rate quote.	<b>ccCaptureReply</b>	String (20)
<b>ccCaptureReply_fxQuoteID</b>	Exchange rate quote identifier associated with the capture.	<b>ccCaptureReply</b>	String (30)
<b>ccCaptureReply_fxQuoteRate</b>	Exchange rate for the quote.	<b>ccCaptureReply</b>	String (30)
<b>ccCaptureReply_fxQuoteType</b>	Type of quote. Indicates a single use or recurring usage for a subscription.	<b>ccCaptureReply</b>	String (10)

## Multicurrency Service: fxRatesService

Use **fxRatesService** if you are using the Variable Price Mode. The service returns the current guaranteed exchange rates between your funding currency and other local currencies. Request the service at least once per hour to obtain the latest exchange rate information, which you store locally.

In the multicurrency service reply, CyberSource returns quote information for each currency pair. The quotes are numbered from 0 to N. For example, if the reply returns quote information for three currency pairs, the reply fields for the quote IDs will be **fxRatesReply\_quote\_0\_id**, **fxRatesReply\_quote\_1\_id**, and **fxRatesReply\_quote\_2\_id**.

When a customer places an order, include the relevant quote ID in your authorization request. See "[Variable Price Mode](#)," page 8 for additional information about what to include in your authorization request.

In your request for **fxRatesService**, do not request any other CyberSource services.

## Request Fields for the Multicurrency Service

Table 3 Request Fields for the Multicurrency Service

Field Name	Description	Required /Optional	Data Type & Length
<b>fxRatesService_run</b>	Whether to include <b>fxRatesService</b> in your request. Possible values: <ul style="list-style-type: none"> <li>■ <code>true</code>: Include the service in your request.</li> <li>■ <code>false</code> (default): Do not include the service in your request.</li> </ul>	Required	String (5)
<b>merchantID</b>	Your CyberSource merchant ID.	Required	String (30)
<b>merchant ReferenceCode</b>	Merchant-generated order reference number or tracking number.	Required	String (50)

## Reply Fields for the Multicurrency Service

Table 4 Reply Fields for the Multicurrency Service

Field Name	Description	Data Type & Length
<b>decision</b>	Summarizes the result of the overall request. Possible values: <ul style="list-style-type: none"> <li>■ ACCEPT</li> <li>■ ERROR</li> <li>■ REJECT</li> </ul>	String (6)
<b>fxRatesReply_quote_0...N_currency</b>	Consumer's local currency that was used for the quote.	String (5)
<b>fxRatesReply_quote_0...N_expirationDateTime</b>	Expiration date and time for the quote.	String (20)
<b>fxRatesReply_quote_0...N_fundingCurrency</b>	Funding currency used for the quote.	String (5)
<b>fxRatesReply_quote_0...N_id</b>	Quote ID for the currency pair.	String (30)
<b>fxRatesReply_quote_0...N_rate</b>	Exchange rate between the two currencies.	String (30)
<b>fxRatesReply_quote_0...N_receivedDateTime</b>	Date and time when quote was received.	String (20)
<b>fxRatesReply_quote_0...N_type</b>	Type of quote. Indicates a single use or recurring usage for a subscription.	String (10)
<b>fxRatesReply_reasonCode</b>	Numeric value corresponding to the result of the multicurrency service request. For the possible values, see the reason codes listed in <a href="#">Credit Card Services Using the Simple Order API</a> .	Integer (5)

**Table 4 Reply Fields for the Multicurrency Service (Continued)**

<b>Field Name</b>	<b>Description</b>	<b>Data Type &amp; Length</b>
<b>invalidField_0...N</b>	Fields in the request that contained invalid data.	String (100)
<b>merchant ReferenceCode</b>	Order reference or tracking number that you provided in the request.	String (50)
<b>missingField_0...N</b>	Required fields that were missing from the request.	String (100)
<b>requestID</b>	Identifier for the request.	String (26)