# First Data Global Gateway API® Integration Guide

Version 3.0

# Table of Contents

## Revision History

**DOCUMENT:** *First Data Global Gateway API*

The following table lists the additions, updates/modifications, and deletions made to this specification during the last one year. All the additions and updates/modifications for the most current version have been notated in yellow highlighted text.

| Page | Description of Change | Version | Revision Date |
|------|----------------------|---------|---------------|
| 54 & 65 | Removed Test Account Credit Card numbers | 2.6 | 10.15.2011 |
| 28 | tdate – "you may need to pass the tdate field to identify the specific transaction you want to void." Correction: "pass the tdate field to identify the specific transaction you want to void." | 3.0 | 10.31.11 |
| 5 | Updated the Sample Code URL | 3.0 | 10.31.11 |
| 63 | Updated CTE verbiage & link | 3.0 | 10.31.11 |
| | | | |
| | | | |

# 1    Introduction

First Data Global Gateway API is an Application Programming Interface. An Application Programming Interface consists of several classes or sets of related functions or procedures. First Data Global Gateway API is a collection of functions for securely processing payment transactions over the Internet.

The API offers merchants a simple payment solution.  It helps connect an online store to the secure payment gateway with Secure Sockets Layer (SSL) protection.

Merchants can begin payment processing within 24 hours of setting up the API.  Contact your sales representative to set up First Data Global Gateway API.

By using Secure Sockets Layer (SSL), version 3.0, the API provides the following:

- Data encryption
- Server authentication
- Message integrity
- Optional client authentication

SSL is a protocol developed by Netscape® to provide the secure transmission of private information sent over the Internet.  This process prevents the data from being compromised.

SSL protocols use public and private key pairs to encrypt data.  The public key is distributed to the merchant, Internet service providers (ISP), or commerce service providers (CSP) in the form of a digital certificate.  The digital certificate contains information that can verify the key holder identity and the key's validity.  The private key is kept confidential and remains on the secure payment

gateway server.  Once the data is encrypted with the private key, only the public key can decrypt it.

The API supports the following languages.  Choose the language you want to use for the API:

- C++
- C#
- COM Object technology (allows you to develop in Visual Basic, VBScript, or ASP)
- PHP
- PERL
- Java$^{TM}$
- Macromedia
- ColdFusion
- .NET

There is sample code for the following languages:

- C++
- COM Object technology
- Java
- .NET/C#
- ColdFusion
- .NET/Visual Basic
- PHP
- PERL

For the sample code, go to the following URL:


**https://www.firstdata.com/en_us/customer-center/merchants/support/first-data-global-gateway-api-software-landing.html**


## 1.1    About the API

You can use the API software modules to build a payment solution for your needs.  The API contains the following modules:

- Payment
- Shipping Calculator
- Tax Calculator
- TeleCheck
- Recurring Payments

All credit card payments are managed using the Payment module, and all TeleCheck transactions are managed using the TeleCheck module.  When you integrate the Payment module with your web site all payment details are processed automatically.  To review transaction activities utilize the Payment module.

# 1.1.1 The Payment Process

The following steps describe the payment process for the API:

1. A customer purchases items at your online store.
2. The order information is sent to the API payment module through the Secure Sockets Layer (SSL) pipeline to the secure payment gateway.
3. The secure payment gateway transmits the order and payment information to the credit card processing network through a secure line and receives a response. Within 6 seconds, the customer can review the transaction results.
4. The customer reviews the receipt page and then confirms the details of the approved credit card transaction.
5. The merchant reviews online orders by logging in to the First Data Global Gateway Virtual Terminal. Transaction data is downloaded and imported into the merchant's order management database

# 1.2    Requirements

Requirements for using the API depend upon the language used. For the following languages, you need to install OpenSSL libraries as shared objects on your web servers.

- C or C++
- C#
- COM Object technology
- .NET technology
- Java

OpenSSL Libraries:

- libssl.so
- libcrypto.so

> If you are using HP-UX, the file extension for the OpenSSL libraries is .sl.

## Java Requirements

For Java, you will need to convert your PEM file to pkcs12 format. Run the following command in a command prompt window:

```
openssl pkcs12 -export -in YOURPEM.pem -inkey YOURPEM.pem -out
YOURPEM.p12 -passout pass:YOURPASS -name "YOURNAME"
```

- YOURPEM is the name of your PEM file.
- YOURPASS is any password.
- YOURNAME is any name.

For example:

```
openssl pkcs12 -export -in 1234567.pem -inkey 1234567.pem -out
1234567.p12 -passout pass:987654321 -name "First Data Global
Gateway"
```

The output *.p12 file and the password are used as parameters.  If you have a
problem converting your PEM file, please contact Support.

## Perl Requirements

Choose one of the following options:

1.  Use cURL with OpenSSL. With this option, you do not use the shared libraries
    provided with the PERL module when using cURL.  This is the default
    installation option for most cURL installations.  To use this option, you must
    have cURL and OpenSSL available on your web server.

    BSDiTM, FreeBSD® 3.3, and HPUX® PERL users should use the cURL option
    because shared libraries are not supported for BSDi, FreeBSD version 3.3, or
    HPUX with PERL.

2.  Use the provided shared libraries if you are not using cURL. This option
    requires:

    *   The two shared libraries lpbspssl.so and liblphp.so to be installed.
    *   You have OpenSSL built with shared object support on your web server.

    This option is recommended for users who have admin privileges on their web
    server.

## PHP Requirements

Choose one of the following options:

1.  Build the XML string yourself and send it directly to the secure payment
    gateway.

    This option requires a PHP version higher than 4.0.2 and cURL support to be
    compiled into PHP. (This is the default setup for Red Hat® Linux® server
    installations.)

    This option does not use the PHP module to build the XML string.  You need to
    manage your own XML output.  This option is demonstrated in the PHP sample
    program pass_xml_direct.php.

2.  Use cURL (with OpenSSL) along with the lphp.php module.

    Use this option with older versions of PHP or where PHP has not been
    compiled to support cURL.  This object accepts either hash-style input or XML.

3.  Use the PHP built-in cURL methods along with the lphp.php module.

    This is the easiest option to use.  It requires PHP version higher than 4.0.2 and
    that cURL support is compiled into PHP.  (This is the default setup for Red Hat
    Linux server installations.)  This option accepts either hash-style input or XML.

4.  Use the lphp.php module with the provided shared libraries and OpenSSL.

    This option requires the provided shared libraries libspssl.so and liblphp.so to
    be installed, and that you have OpenSSL libraries built with shared object
    support on your web server.

    This option uses the lphp.php module to accept either hash-style input or XML.
    It is recommended for users, with admin privileges on their server, to install the

shared libraries.  FreeBSD 3.3 PHP users should not attempt to use the shared libraries option.  Shared libraries are not supported for FreeBSD 3.3 with PHP.

5.  Build the XML stream yourself and send it through cURL or the shared libraries provided with the PHP module.

This option requires the provided shared libraries libspssl.so and liblphp.so to be installed, and that you have OpenSSL libraries built with shared object support on your web server.

This option is demonstrated in the PHP sample program pass_xml_lib.php.  To determine whether PHP cURL support is installed, enter the command **php -m** in the command prompt window.

If you use cURL on a Windows® platform, follow these steps to complete your PHP installation.

1.  In Notepad, open the file php.ini located in the winnt folder.
2.  Remove the semicolon from the following line:

```
extension=php_cURL.dll
```

3.  Copy **php_cURL.dll** into **c:\php\**.
4.  Verify that cURL works in PHP by doing the following:
    a. Open Notepad.
    b. Copy and paste this script into the file:

```
// script phpinfo() ?>
```

5.  Save the file in your local web directory as **phpinfo.php**.
6.  Type the following URL in your web browser:

```
http://localhost/phpinfo.php.
```

7.  Look for the word cURL on the page displayed.

## ColdFusion Requirements

ColdFusion requires the following:

- ColdFusion server running on a Windows operating system.
- Access to process (CFOBJECT).
- Administrator rights to configure the server.

Installing ColdFusion:

1.  Copy ssleay32.dll and libeay32.dll to the %ROOT%/system32 directory (C:\WINNT\system32\).
2.  Copy LPICOM_6_0.dll to the %ROOT%/system32 directory (C:\WINNT\system32\).
3.  Register the LPICOM_6_0.dll file.  (regsvr32 c:\winnt\system32\lpicom_6_0.dll).

Use the sample code provided on the following web site:

**http://www.firstdata.com/support/software_downloads/global_gateway/api_downloads.htm**

- All samples rely on the following templates to process correctly and should all be loaded into the same directory.

a. CONFIG.inc - This file needs to be modified to reflect your account-specific information.

b. FormatOutput.cfm - This file contains a formatted table output of the return variables for ease of reading.

c. lpcfm.cfm - This file builds the XML to be sent.  Do not edit this file.

d. status.cfm - This file processes the transactions and sets the responses for output.  Do not edit this file.

- When the above files are uploaded to your server, you can process any of the other sample files included.
- For a sample of form input and output use sample_sale.htm which relies on sample_sale.cfm to process.

   **Note**: You can easily remove FormatOutput.cfm and replace the output results in your own format.  Available return variables are listed below.  They include call can be found at the end of each sample script except for shipping.cfm which does not rely on this file.

Response Variables Returned:

- #R_APPROVED# - Contains the transaction response.
- #R_CODE# - Contains the approval code for an approved transaction.
- #R_ERROR# - Contains an error message for a failed transaction.
- #R_ORDERNUM# - Contains the order number.  If you enter an order number, it will be returned. If you do not enter an order number, the secure payment gateway will return one to you.
- #R_TIME# - Contains the time and date of the transaction.
- #R_REF# - Contains the order reference number.
- #R_AVS# - Contains the Address Verification System code.
- #R_MESSAGE# - Contains an order message.
- #R_APIVERSION# - Contains the version of the cuff wrapper.

# 1.3   OpenSSL

OpenSSL is open source software that provides the following:

- Encryption and decryption.
- SSL communications.
- Digital signature capabilities.

For more information, see the OpenSSL web site:

**http://www.openssl.org/**

Obtaining OpenSSL:

1. Make sure the secure web server you are using has the latest version of OpenSSL installed with shared libraries.
2. If you do not have OpenSSL installed, download the source code from:

**http://www.openssl.org/source**

3. Follow the instructions for installing from the following sites:
    - API Software Wrappers:
      **http://www.firstdata.com/support/software_downloads/global_gateway/api_downloads.htm**
    - Global Gateway Manuals;
      **http://www.firstdata.com/support/manuals_and_guides/global_gateway.htm**
4. Make sure you have root permissions on your web server to use OpenSSL.

OpenSSL is required to use the API.  The required files for each operating system are listed in the Migration Step by Step Instructions located at the following site:

**http://www.firstdata.com/support/software_downloads/global_gateway/api_downloads.htm**

# 1.4 cURLs

cURL is a tool for transferring files using URL syntax.  cURL is open source code that supports a range of common Internet protocols, including:

- http
- https
- ftp
- ftps
- gopher
- ldap
- dict
- telnet
- file

Use cURL with the following operating systems:

- Unix
- Windows
- Amiga
- BeOS
- OS/2
- OS X
- QNX

### 1.4.1   Installing cURL

1.  If you do not have the correct version of cURL installed, download the appropriate cURL binaries or source code from the following site:

    **http://cURL.haxx.se/download.html**

2.  Install cURL by following the installation instructions on the web site listed above.
3.  If you choose to use source code, install OpenSSL first, and then cURL.  Enable SSL in the installation.

### 1.5.1   Email

When an order is processed successfully, the system automatically sends both the merchant and the customer an email receipt.  The receipt comes from gateway@linkpt.net.  This feature can be disabled.

To disable the customer or merchant email receipts function, call Support at 1-888-477-3611.

### 1.5.1.1  Customizing the Email Footer

You have the option to include text at the end of each customer email receipt.  If you want to use this feature, save the text you want in a file named contact.txt using any text editor.  Email the file to Support with your store number.

### 1.5.2  Processing Transactions Manually

To process a transaction manually, one keys in the information using the virtual point-of-sale terminal available in the First Data Global Gateway Virtual Terminal.  Log in to the First Data Global Gateway Virtual Terminal to display the Virtual Terminal page.  To reach this page any time, click **Virtual Terminal** on the **Main Menu Bar** .  From the Virtual Terminal Page, enter the information for the transaction.

To learn how to post-authorize several transactions simultaneously using the First Data Global Gateway Virtual Terminal, click Support on the **Main Menu Bar** for the First Data Global Gateway Virtual Terminal User Manual.

## 1.6    Support

First Data Global Gateway API has a variety of support options for its products, including:

- Searchable online help files.
- User manuals.
- Frequently asked questions (FAQs).
- Email and telephone support.

If you have questions about your merchant account, please contact your merchant account provider.

If you would like to purchase First Data Global Gateway products or services, please contact an authorized reseller.  For more information, please visit:

**www.firstdata.com/ecommerce**

If you are experiencing issues with your gateway account, please consult the Gateway Status page to see if your issue is being processed at:

**http://www.firstdata.com/global_gateway/gateway_status.htm**


## 1.6.1   FAQ

There is a helpful list of FAQs for each product.  The FAQs are located at the following site:

**http://www.firstdata.com/support/faq/global_gateway.htm**


## 1.6.2   Contact Information

If you have read the documentation and consulted the Gateway Status page and still need assistance, contact Support at globalgateway.support@firstdata.com or 1-888-477-3611.


# 2   Transactions

The secure payment gateway uses XML to describe each transaction.  The XML is usually generated by First Data Global Gateway API, but you have the option to generate the XML and send it to the secure payment gateway in XML format.

To process a transaction, the API connects to the secure payment gateway using SSL protocols.  The API sends a transaction in the form of an XML request and waits for the response.  The response will be in the form <response>.  It will contain a set of response fields that may vary depending on the type of transaction requested and whether the transaction was successful.

The XML request includes various entities to provide the server with inputs to the function being performed.  Some of these entities are required for any transaction, while others are optional and specific for particular transaction types.

See "Entities and Data Fields" on page 20 for more information on which entities and fields are required for each transaction type.

# 2.1    Transaction Types

It is important to understand the terminology for processing transactions so that you use the appropriate transaction type for your orders and returns.  A Chargeback is fraud.  in addition, what can a merchant do to prevent a fraud.

For the money associated with a transaction to transfer to and from your account, the batch of transactions for the day first have to be settled (this is also called closing the batch).  This automatically occurs by default at 7:00 PM (PST).

| Transaction Types | |
| --- | --- |
| **Name** | **Description** |
| Sale | A Sale transaction is a credit card transaction that immediately charges a customer's credit card.  Create a recurring Sale transaction to process a specified dollar amount at specified intervals; this is referred to as a periodic bill.  To validate a credit card, a transaction value of $0.00 can be submitted for processing.  A Sale transaction can be made recurring only during the entry of the Sale transaction and not after it has been approved |
| **Authorize Only** | A credit card transaction that reserves funds on a customer's credit card. An Authorize Only transaction does not charge the card until you perform a Ticket Only transaction and confirm shipment of the order.<br>**Note**: Authorizations reserve funds for varying periods, depending on the issuing credit card company's policy. The period may be as little as three days or as long as several months. For your protection it is recommended that you confirm shipment as soon as possible after authorization. |
| **Ticket Only** | A Ticket Only transaction is a post-authorization transaction that captures the funds from an Authorize Only transaction, reserving funds on the customer's card for the amount specified.  Funds are transferred when your batch of transactions is settled.  If you enter a larger total in the Ticket Only transaction than was specified for the Authorize Only transaction, the Ticket Only transaction may be declined.<br>If you enter a smaller amount than was authorized, an adjustment is made to the authorization to reserve only the smaller amount of funds on the customer's card for the transaction.  Ticket Only transactions must be completed within 30 days of the Authorization being obtained. |
| **Forced Ticket** | A Forced Ticket transaction is a credit card transaction used similarly to a Ticket Only transaction, except it is specifically for authorizations obtained over the phone.  It requires a reference number (or approval code) that you should have received when you did the phone authorization. |
| **Return** | A return transaction returns funds to a customer's credit card for an existing order on the system.<br>To perform a return, you need the order number, which you can find in your reports.  If you perform a return of the full order amount, the order will appear in your reports with a transaction amount of 0.00. |
| **Credit** | A credit transaction returns funds to a customer's credit card for orders where you do not have an order number.  This transaction is intended for returns on orders processed outside the system. |
| **Void** | A void transaction cancels the transaction.  Only transactions in the current batch (that have not been sent for settlement) can be voided. |

## 2.2    Sending Transactions

To send a transaction to the secure payment gateway, follow the steps below:

1. Create an instance of the **LinkPointTransaction** object.
2. Build an XML request directly or by using the **LPOrderPart** object to build XML fragments and combine them into a complete order.
3. Use the **LinkPointTransaction send()** method to send the transaction to the secure payment gateway for processing.
4. Evaluate the values returned in the response entity.  If there are errors, they are returned in the **r_error** field.

To build XML requests, you need to determine which entities and fields are required for your transaction.

Information on the entities and data fields to include for each transaction is included in the Entities and Data Fields section.  See "Entities and Data Fields" on page 20.

Look for information about payment gateway responses and error messages in the Response Fields section.  See "Response Fields" on page 52.


## 2.3    Shipping Calculator

With the shipping calculator, you can set rules for calculating shipping charges.

To use the shipping calculator module, create a shipping and carrier file on the secure payment gateway server.  When the shipping file is created, send it to Support along with your store number.  The shipping calculator uses the shipping address and other information sent in the shipping entity along with the appropriate pricing data defined in the shipping file to calculate the charges.

The shipping file is a plain text file consisting of sets of code called zone type and zone definition lines.  An example of how these lines might appear in a shipping file is shown below.

```
zone type line
zone definition line
zone definition line
zone type line
zone definition line
```

The fields within both types of lines go together to define the shipping charges.  The zone type line describes the general shipping scheme, such as whether costs are based on item count, weight, or price.

The zone definition line gives specific parameters on pricing for each element in that pricing scheme.  One or more zone definition lines must immediately follow each zone type line.  Use zone definition lines to set shipping prices based on specific geographic areas or types of carriers to determine where price breaks occur.  The fields within each line of code are separated by double colons.  For fields with multiple values, use commas (countries, states) or single colons (range definitions, prices).

Each zone type line is formatted with three fields:

- The tag name.
- A calculation code.
- Merchant-created range definitions.

```
zone type::calculation method::range1:range2...
```

You can create as many zone type lines as you need for your business.  You can use a separate zone type line for:

- Different shipping-cost calculations, such as the total weight or total cost of an order.
- Separate freight or air transport carrier methods.
- Division of the world shipping-zone prices.

## 2.3.1  Creating Zone Type Lines

To create zone type lines:

1. Enter the following tag name.  The zone type line must precede two colons:

```
zone type::
```

2. Determine how to charge customers for shipping your products and enter an applicable code number after the tag name followed by double colons with no spaces.

```
zone type::1::
zone type::3::
```

3. Create quantity ranges that share common pricing.  Enter each range followed by a single colon or a comma.

```
zone type::1::1-3,4-5,6+
zone type::3::1-24,25-50,51+
```

## 2.3.2  Calculation Method

There are five choices for calculating the shipping charges.  Select the applicable calculation methods for your business.  Enter the code number after the tag name for each zone type line.

| Method | Description |
|--------|-------------|
| 1 | Charges are based on the total number of items. |
| 2 | Charges are based on each item, then totaled. |
| 3 | Charges are based on the total weight of the order. |
| 4 | Charges are based on the weight of each item, then totaled. |
| 5 | Charges are based on the total price of the order. |

## 2.3.3  Assigning Ranges

A range is defined as a value or a set of values representing all items within a predetermined category, which use the same shipping charge.  A range can be a single number, two numbers separated by a hyphen, or a number followed by a plus sign.  You can specify an infinite number of ranges.  The number of ranges in a zone type line must correlate exactly with the number of prices in the zone definition lines.

The following restrictions apply:

- Range definitions must be contiguous - you cannot skip numbers.
- Range definitions must start with the integer 1.
- The last range defined in each line must end with **+**.

A zone definition line specifies data that is required by the preceding zone type line of code.  Several fields are specific to each business including the zone name, the shipping carrier code, and the shipping-cost codes for each range.  See the example below.

```
zone name::country::carrier::range cost::range cost
```

## 2.3.4  Creating Zone Definition Lines

To create zone definition lines:

1. Enter a zone name for each shipping situation followed by two colons.

   ```
   northamerica::
   ```

2. Select the applicable countries for your zone name followed by double colons.  Use the two-digit country codes.  See "Country Codes" on page 38.

   ```
   northamerica::US,MX,CA::
   ```

   For the U.S. only, enter each applicable two-letter state code after the country code, followed by two colons.

   ```
   westcoast::US::CA,OR,WA,HI::
   ```

3. Determine the different shipping methods for your business.  Enter one merchant-defined shipping carrier code only.

   ```
   northamerica::US,MX,CA::1::
   ```

4. Determine the shipping cost for each range you specified in the zone type line.  Enter the applicable shipping cost, followed by a colon or a comma.

   ```
   zone type::1::1-3,4-5,6+
   northamerica::US::MX::CA::1::25,40,75 NOTE:
   ```

   Each shipping cost value in the zone definition line must match a range in the zone type line.

You determine the zone name for each zone definition line.  Each name is an alphabetic string containing less than 20 letters and cannot include blank spaces.

If you offer different types of shipping, such as courier, overnight, two day, or ground transport, the zone definition line can list a shipping carrier option in the form of an integer. This will allow you to charge different amounts for premium shipping services.

The zone definition contains the actual charges for shipping items in the range specified by the preceding zone type. Merchants determine the charges for their products.

The following rules apply when you are creating zone definition code:

- If you are shipping internationally, the U.S. state codes in a zone definition line are ignored.
- If shipping prices are the same for all U.S. states, you do not need to name the states individually.
- If you have a few exceptions for shipping, such as AK and HI, you can define a zone for them and include the remaining states in a non-specific U.S. zone.
- Any number of zone definition lines may follow a zone type line.
- The zone name and range charges must have values; all other fields can be blank.
- When the shipping calculator looks for a shipping file match, a blank field, such as carrier type, is treated as a match.

## 2.3.5  Calculating Shipping Charges

The shipping entity is the data structure used to convey the shipping address, price, weight, item count, and carrier-type data to the shipping calculator for computing the shipping charge.

To calculate shipping charges, the **Ordertype** field should be set to Calcshipping. The shipping computation is based upon the number of items, the weight, the carrier, or the order total. To calculate shipping charges, you should enter the appropriate information (for your shipping calculation method) in the shipping entity. You should also enter the state and country, although the country will default to U.S. if not entered. The calculated value for shipping charges will be returned in the **r_shipping** tag.

If you are going to include the shipping amount in the order amount that you submit for approval, you must transfer the shipping amount to the secure payment gateway. Set the value of the **shipping** data field in the payment entity to the calculated shipping charges for the order.

## 2.4    The Tax Calculator

The Tax Calculator module calculates state and municipal sales tax.

To use the tax calculator module, create a fulltax line in your configuration file on the secure payment gateway. You will need to send the fulltax line to Support in order to load it to the secure payment gateway.

The fulltax line provides information needed for the tax module to calculate sales tax for an order. The line includes entries for states where the sales tax must be charged. Entries are separated by a comma which may be followed by a space.

Example:

```
fulltax: TX 8.25, AL 7.00, FL 7.00, UT mun
```

Most entries in the list consist of the two-digit code for the state, followed by a space and the tax rate to be charged for that state.  See "U.S. State Codes" on page 37 for state codes.

```
TX 8.25
```

If the tax includes municipal tax, the listing is the two-digit state code followed by mun.

```
UT mun
```

Municipal taxes are calculated according to the salestax.txt file on the secure payment gateway server.  The salestax.txt file is updated monthly to ensure accuracy.


## 2.4.1  Calculating Taxes

To calculate the sales tax, the **Ordertype** field should be set to Calctax.  The tax computation is based on the shipping state and the shipping zip code.  You should use the state and zip code for the area where you are shipping the product.  If the shipping state is present, but the shipping zip code is not, the secure payment gateway will return an error.  If you do not pass, (enter) the shipping state or zip code, the secure payment gateway uses the billing state and zip code as the basis for tax computations.  The calculated value for sales tax will be returned in the **r_tax** tag.

You must transfer the tax amount to the secure payment gateway to include it in the order, regardless if you use the API tax calculator or another method.  Make sure you set the value of the **tax** data field in the payment entity to the calculated sales tax charges for the order.


## 2.5   Check Transactions

TeleCheck is a way to process Automated Clearing House (ACH) transactions using the Internet.  ACH transactions debit a customer's account and transfer the funds to a merchant's account.  To enable TeleCheck, contact your merchant service provider.

There are rules that apply when initiating a debit to a customer's bank account.  These rules are established and maintained by the National Automated Clearing House Association (NACHA).  They are published ACH Rules: A Complete Guide to Rules & Regulations Governing the ACH Network.  You can view these rules here:

**http://www.nacha.org/**

It is each merchant's responsibility to understand and abide by the published rules and regulations.

The rules for authorization differ depending on whether the transaction is:

- E-commerce
- Retail or Mail Order

- Telephone Order

During a check transaction, a real-time response will be provided by TeleCheck whether the check is accepted or not. Based on the response from TeleCheck, a transaction is marked as **Submitted** or **Declined**.

If the check was declined for credit reasons, a message will appear with some information for the customer, including a phone number for the customer to call with questions. When this occurs, you must give the information, word-for-word, to the customer. If the check was submitted successfully, the transaction status will be **Submitted**.

If an error occurred, the reason for the error will appear here. If the error was due to data entry, you may have an opportunity to re-enter the data.

**Error message:**

> We are sorry that we cannot accept your check at this time. Our decision is based, in whole or in part, on information provided to us by TeleCheck. We encourage you to call TeleCheck at 1-877-678-5898 or write TeleCheck Customer Care at P.O. Box 4513, Houston, TX 77210-4513. Please provide TeleCheck your driver's license number and the state where it was issued, and the complete banking numbers printed on the bottom of your check. Under the Fair Credit Reporting Act, you have the right to a free copy of your information held in TeleCheck's files within 60 days from today. You may also dispute the accuracy or completeness of any information in TeleCheck's customer report. TeleCheck did not make the adverse decision NOT to accept your check and is unable to explain why this decision was made.

## 2.5.1 E-commerce Transactions

When processing e-commerce check transactions, the merchant must obtain electronic authorization from the customer to debit the account. Before the merchant web site or system submits the payment for processing, it must present the customer with an authorization form where consent language is displayed, along with **Authorize** and **Cancel** buttons.

The **Authorize** button continues processing the transaction. The **Cancel** button discontinues processing the check transaction.

The authorization form must include:

- Merchant's DBA name.
- Transaction Amount
- Date the customer's account will be debited.
- Date of the customer's authorization
- Merchant's Customer Service Phone Number.
- Consent language stating the customer is authorizing the merchant to debit the customer's bank account
- An **Authorize** and a **Cancel** button

## 2.5.2 Telephone Order Transactions

Requirements for a telephone order include the same information and consent language as retail and mail order transactions.  The difference is that the merchant has the option to tape-record the customer's authorization and retain the recording as proof of authorization for a period of four years.

For an oral authorization to be valid, the merchant must state clearly that the customer is authorizing an ACH debit entry to the account, and express the terms of the authorization in a clear manner.

If the merchant is not recording the conversation, the merchant must send written notification to the customer confirming the verbal authorization prior to settlement.  API email receipts fulfill the requirement to send written notification.  If the merchant chooses not to use API email receipts, the notification must include the following information.

- Merchant's DBA name.
- Date the customer's account will be debited.
- Date of the customer's authorization.
- Merchant's Customer Service Phone Number.
- Consent language similar to that below.

**Sample of Verbal authorization for telephone order transactions:**

> On [insert today's date], [insert customer's First and Last Name] authorizes an electronic debit in the amount of [insert amount].  This withdrawal will be processed using the regular banking system.  If your payment is returned unpaid, you will be charged a returned item fee up to the maximum allowed by law.  If you have any questions at any time, you may call us at [insert Merchant Customer Care Phone Number] during business hours.  Do you authorize the transaction?  (Please answer Yes or No)

## 3    Entities and Data Fields

The table below shows which XML entities are used for each transaction type or function.

| XML Entity | Credit Card Transaction | Recurring Credit Card Transaction | TeleCheck Transaction | Shipping Calculation | Sales Tax Calculation |
|---|---|---|---|---|---|
| merchantinfo | Required | Required | Required | Required | Required |
| orderoptions | Required | Required | Required | Required | Required |
| transactiondetails | Optional | Optional | Optional | Optional | Optional |
| payment | Required | Required | Required | Required | Required |
| creditcard | Required | Required | N/A | N/A | N/A |
| telecheck | N/A | N/A | Required | Required | N/A |
| shipping | Optional | Optional | Optional | Required | Required |
| billing | Required | Optional | Required | N/A | N/A |
| periodic | N/A | Required | N/A | N/A | N/A |
| items | Optional | Optional | N/A | N/A | N/A |
| option | Optional | Optional | N/A | N/A | N/A |
| notes | Optional | Optional | Optional | N/A | N/A |

## 3.1 Billing Entity

The billing entity contains thirteen (13) data fields. The following table shows all the data fields in the billing entity.

If you are using the following languages, all billing fields will be preceded with a lower-case "b", such as bzip for zip.

- ASP
- .NET/Visual Basic
- .NET/C#

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| Name | string - up to 96 numbers and letters only (no symbols) | Customer's name. | Required for AVS and fraud blocking. | `<name>Joe Customer</name>` |
| Company | string - up to 96 numbers and letters only (no symbols) | Company name. | No | `<company>SomeWhere, Inc.</company>` |
| Address1 | string - up to 96 numbers and letters only (no symbols) | The first line of the customer's billing street address. | Required for e-commerce, telephone, and mail order transactions. Required for TeleCheck telephone or web transactions. | `<address1>123 Broadway</address1>` |
| Address2 | string - up to 96 numbers and letters only (no symbols) | The second line of the customer's billing address. | No | `<address2>Suite 23</address2>` |
| City | string - up to 96 numbers and letters only (no symbols) | Billing City. | No Required for TeleCheck telephone or web transactions. | `<city>Moorpark</city>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| State | string - up to 96 numbers and letters only (no symbols) | U.S. state of billing address. Use 2-letter state code for U.S. states. For international addresses, you can use this field for the province or territory, as applicable. | Required for e-commerce or MOTO transactions. Required for TeleCheck telephone or web transactions. | `<state>CA</state>` |
| Zip | string - up to 5 numbers only (no symbols or spaces) | Billing zip or postal code. | Required for telephone and mail order transactions (MOTO). Required for TeleCheck telephone or web transactions. | `<zip>87123</zip>` |
| Country | 2-letter country code | Billing country. | May be required for post-authorization transactions. | `<country>US</country>` |
| Phone | string - up to 32 numbers and letters only (no symbols or spaces) | Billing phone number. The number should not contain dashes. For example: 18004773611 | Required for e-commerce, telephone, and mail order transactions. Required for TeleCheck telephone or web transactions. | `<phone>8051234567</phone>` |
| Fax | string - up to 32 numbers and letters only (no symbols or spaces) | Fax number. The number should not contain dashes. For example: 18004773611 | No | `<fax>8885551212</fax>` |
| Email | string - up to 64 numbers and letters only (no symbols or spaces) | Email address. | Required if you want to send the customer an email receipt. | `<email>joe.customer@somewhere.com</email>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| Addrnum | string - up to 96 numbers only | The numeric portion of the street address. | Required for e-commerce, telephone, and mail order transactions. Required for TeleCheck transactions. | `<addrnum>1245</addrnum>` |
| Userid | string - up to 32 numbers and letters only (no symbols or spaces) | The **userid** field is an optional custom field to track customers. | No | `<userid>customer1</userid>` |

## 3.2   Shipping Entity

The table below describes each data field in the shipping entity.  If you are using the following languages, all shipping fields will be preceded with a lower-case "s," such as "sname" for name.

- PERL
- PHP
- ASP
- .NET/Visual Basic
- .NET/C#

See "Shipping Calculator" on page 14 for more information about shipping methods.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| Name | up to 96 numbers and letters only (no symbols) | Name of the person where the order will be shipped. | No | `<name>Joe Customer</name>` |
| Address1 | up to 96 numbers and letters only (no symbols) | Shipping address. Cannot be all spaces. | No | `<address1>123 Broadway</address1>` |
| Address2 | up to 96 numbers and letters only (no symbols) | Second line of the shipping address. | No | `<address2>Suite 23</address2>` |
| City | up to 96 numbers and letters only (no symbols) | Shipping City. Cannot be all spaces. | No | `<city>Moorpark</city>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| State | string - up to 96 numbers and letters only (no symbols) | U.S. state of shipping address. Use 2-letter state code for U.S. states.  For international addresses, you can use this field for the province or territory, as applicable. | Required for shipping and tax calculations. | `<state>CA</state>` |
| Zip | up to 5 numbers only (no symbols or spaces) | Shipping zip or postal code. | No | `<zip>87123</zip>` |
| Country | 2-letter country code | Country of shipping address. International addresses are not supported on TeleCheck orders. | May be required for post-authorization transactions. | `<country>US</country>` |
| Phone | up to 32 numbers and letters only (no symbols or spaces) | The phone number of the person where the order will be shipped.  The phone number cannot include spaces or dashes. Example: 8884773611 | No | `<phone>8051234567</phone>` |
| Email | up to 64 numbers and letters only (no symbols or spaces) | The email address of the customer where the order is being shipped. | No | `<email>joe.customer@somewhere.com</email>` |
| weight | decimal - numbers only | The total weight of the order to be shipped.  This field is used when the shipping calculation method is based on the total weight of the order. | Required for shipping methods 3 and 4. | `<weight>5.0</weight>` |
| Items | decimal - numbers only | Total number of items in the order. This field is used when the shipping calculation method is based on the number of items in the order. | Required for shipping methods 1, 2, and 4. | `<items>3</items>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| Carrier | integer - numbers only | The carrier for shipping the order, such as ground or overnight.  This field is used when the merchant is specifying the carrier.  The merchant should assign integer values to each carrier. | Required if merchant is using carrier types. | `<carrier>2</carrier>` |
| Total | numbers only - up to 12 and 2 decimal places | The Order Total before the shipping charges are added. | Required for shipping method 5. Must be > $0.00 | `<total>5.00</total>` |

## 3.3　Transaction Details Entity

The purpose of the transactiondetails entity is to communicate all the general information about the payment transaction.

The table below describes each data field in the transactiondetails entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| Transaction Origin | up to 10 letters and numbers only | The source of the transaction.  The possible values are Eci (if the order was received via email or Internet), MOTO (mail order/telephone order), Telephone (telephone order), and Retail (face to face).  For credit card transactions, mail order and telephone order transactions are treated the same.  However, for TeleCheck transactions, Internet orders, email orders, mail orders, and telephone orders are treated differently, and the merchant should take care to identify them separately. | Required for e-commerce, retail, mail, and telephone orders. Defaults to Eci. | `<transactionorigin>RETAIL</transactionorigin>` |
| OID | up to 100 numbers and letters including dashes and underscores, but no other symbols | The Order ID to be assigned to the transaction.  For Sale and pre-authorization transactions, this field must be unique.  For void, credit, and post-authorization transactions, this field must be a valid Order ID from a prior Sale or pre-authorization transaction.  For a Forced Ticket (a post-authorization transaction where the authorization was given over the phone), the **oid** field is not required, but the **reference_number** field is required. | Required for credit card void, credit, and post-authorization transactions. | `<oid>order1234</oid>` |
| Taxexempt | 1 letter only | An indicator field representing whether the order is tax exempt.  Values are Y and N. | Required for Level 2 purchasing card transactions. | `<taxexempt>y</taxexempt>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| PONumber | up to 128 letters and numbers only | The purchase order number, department number, or other customer-supplied number for the transaction.  The value is supplied by the customer. | Required for Level 2 purchasing card transactions. | `<ponumber>123456</ponumber>` |
| Invoice_ number | up to 48 numbers and letters only (no symbols or spaces) | The invoice number. | Required for Level 2 purchasing card transactions. | `<invoice_number>12345564</invoice_number>` |
| Terminaltype | up to 32 characters only | The type of terminal that is sending the transaction.  Set the value to Standalone for a point-of-sale credit card terminal, POS for an electronic cash register or integrated POS system, Unattended for a self-service station, or Unspecified for e-commerce, general, CRT, or other applications. | Required for retail transactions when the card is present. | `<terminaltype>POS</terminaltype>` |
| IP | up to 254 numbers and letters only (no symbols or spaces) | The IP address of the consumer | Not required, but needed for fraud blocking by IP address. | `<ip>127.0.0.1</ip>` |
| Reference_number | up to 128 letters or numbers only | Used for Forced Ticket transactions where a reference number was obtained over the phone.  Set the reference number value to the word NEW (all caps) followed by the reference number given over the phone. For example, if the reference number given over the phone was 123456, you would set **reference_number** to NEW123456. | Required for Forced Ticket transactions only. | `<reference_number>NEW123456</reference_number>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| recurring | letters only | A flag to indicate whether the transaction is a recurring transaction or not.  If this transaction is recurring (and if the merchant is not using the recurring processor provided here), this flag must be set to Yes. | No | `<recurring>Yes</recurring>` |
| tdate | up to 32 numbers only | This field is returned with every successful transaction.  If you need to run a void or other transaction against an existing Order ID, pass the **tdate** field to identify the specific transaction you want to void. | No | `<tdate>1195175793</tdate>` |

## 3.4   Order Options Entity

The Orderoptions entity contains specific instructions on how to process the order.  The table below describes each data field in the Orderoptions entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| ordertype | letters only | The type of transaction.  The possible values are Sale, Preauth (for an Authorize Only transaction), Postauth (for a Forced Ticket or Ticket Only transaction), Void, Credit, Calcshipping (for shipping charge calculations), and Calctax (for sales tax calculations). | Yes | `<ordertype>SALE</ordertype>` |
| result | up to 15 letters or numbers only | This field puts the account in live mode or test mode.  Set to Live for live mode, Good for an approved response in test mode, Decline for a declined response in test mode, or Duplicate for a duplicate response in test mode. | No | `<result>live</result>` |

## 3.5  Payment Entity

The payment entity contains the transaction totals.  The table below describes each data field in the payment entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| subtotal | numbers only up to 14 and 2 decimal places | The transaction subtotal, before shipping and tax. | No | `<subtotal>12.99</subtotal>` |
| tax | numbers only up to 14 and 2 decimal places | Sales tax dollar amount. | Required for Level 2 purchasing card transactions only. | `<tax>1.00</tax>` |
| vattax | numbers only up to 14 and 2 decimal places | Amount of VAT (typically, only tax or vattax is used).  This is a tax sometimes applied to international orders. | No | `<vattax>1.00</vattax>` |
| shipping | numbers only up to 14 and 2 decimal places | Shipping charge dollar amount. | No | `<shipping>1.02</shipping>` |
| chargetotal | numbers only up to 14 and 2 decimal places | The total dollar amount of this transaction including subtotal, tax, and shipping | Yes Tot. $ Amt ≥ $0.0 | `<chargetotal>10.00</chargetotal>` |

## 3.6  Credit Card Entity

The credit card entity contains details about the credit card order. The table below describes each data field in the creditcard entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| cardnumber | up to 48 numbers only | The customer's credit card number. | Required for credit card transactions if track is not provided. | `<cardnumber>4111111111111111</cardnumber>` |
| cardexpmonth | 2-digit number from 01 to 12 | The numeric expiration month of the credit card. | Required for credit card transactions if track is not provided. | `<cardexpmonth>01</cardexpmonth>` |
| cardexpyear | 2-digit number from 00 to 99 | The two-digit expiration year of the credit card. | Required for credit card transactions if track is not provided. | `<cardexpyear>10</cardexpyear>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| Track | string | Contains the data swiped from the credit card track 1 or track 2. | Required for credit card transactions if cardnumber, cardexpmonth, and cardexpyear are not provided. | `<track>%B4012000033330026^FDM S TEST CARD/VISA^051210054321 00000000000000 150A?;4012000033330026= 0512101100001245678?</track>` |
| Cvmvalue | 3 or 4-digit number from 0000 to 9999 | 3 or 4-digit numeric value printed on the front or back of the credit card.  The number typically appears at the end of the signature panel for Visa, MasterCard, and Discover cards, and on the front of American Express cards.  See "Card Codes" on page 69 for more information. | Not required, but recommended for fraud prevention. | `<cvmvalue>123</cvmvalue>` |
| Cvmindicator | letters or numbers only | Indicates whether the card code was supplied.  Possible values:<br>• provided<br>• not_provided<br>• illegible<br>• not_present<br>• no_imprint | Yes | `<cvmindicator>provided</cvmin dicator>` |
| Cavv | 28 letters or numbers | Authenticate value required for Verified By Visa and MasterCard SecureCode protection.  Value is returned from FirstData MPI | Not required, but recommend for chargeback protection | `<cavv>jA2NisSBmBQsAREACXu1m1N 53Fs=</cavv>` |
| eci | 2 digits | Electronic Commerce Indicator Value is returned from FirstData MPI | Not required, but recommend for chargeback protection | `<eci>02</eci>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| xid | 28 letters or numbers | Authenticate value required for Verified By Visa and MasterCard SecureCode protection.  Value is returned from FirstData MPI | Not required, but recommend for chargeback protection | `<xid>8mCGBXM9UCYf5i+JYdwT8TLtpUE=</xid>` |

## 3.7   Telecheck Entity

The Telecheck entity contains information required by TeleCheck to process the check payment. The table below describes each data field in the Telecheck entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| account | up to 18 numbers only | The customer's bank account number. | Yes | `<account>1234567</account>` |
| routing | up to 9 numbers only | The transit routing number for the customer's bank. | Yes | `<routing>123456</routing>` |
| checknumber | up to 6 numbers only | The check number from the customer's check. A TeleCheck transaction does not use the check number; the customer can still use the paper check for another purchase. | No | `<checknumber>1234</checknumber>` |
| bankname | up to 40 numbers and letters only (no symbols) | The name of the customer's bank. | Yes | `<bankname>Bank of America</bankname>` |
| bankstate | string - up to 96 numbers and letters only (no symbols) | The state where the customer's bank is located. Use 2-letter state code for U.S. states.  For international addresses, you can use this field for the province or territory, as applicable. | Yes | `<bankstate>CA</bankstate>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| dl | up to 24 numbers and letters only (no symbols or spaces) | The customer's driver's license number or state-issued ID card number. | Required for web or telephone transactions. | `<dl>A12345678</dl>` |
| dlstate | string - up to 96 numbers and letters only (no symbols) | Use 2-letter state code for U.S. states. For international addresses, you can use this field for the province or territory, as applicable. | Required for web or telephone transactions. | `<dlstate>CA</dlstate>` |
| void | integer - 1 number only | To void an unsettled check, enter a 1 in this tag. Otherwise, do not include this data field. | Required for void transactions. | `<void>1</void>` |
| accounttype | up to 4 letters or numbers only | The type of account used for the purchase. Possible values are:<br>• pc for personal checking<br>• ps for personal savings<br>• bc for business checking<br>• bs for business savings | Yes | `<accounttype>PC<accounttype>` |
| ssn | up to 24 numbers and letters only (no symbols or spaces) | Social security number of the customer | No | `<ssn>123456789</ssn>` |

# 3.8    Periodic Entity

The periodic entity is used for recurring Sale transactions. The table below describes each data field in the periodic entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| action | letters or numbers only | Indicates which action to take regarding the periodic transaction. Possible values are Submit (to submit the recurring transaction for processing), Modify (to edit a previously submitted recurring transaction), or Cancel (to cancel a previously submitted recurring transaction). | Yes | `<action>SUBMIT</action>` |
| installments | integer from 0 to 99 | Identifies how many recurring payments to charge the customer. | Yes | `<installments>50</installments>` |
| threshold | integer from 1 to 5 | Indicates how many times to retry the transaction (if it fails) before contacting the merchant. | No | `<threshold>3</threshold>` |
| periodicity | letters or numbers only | Indicates how often to charge the payment. Possible values are:<br>• daily<br>• monthly<br>• yearly<br>Use the code XN. X can be d for day, m for month, or y for year. N can be any integer from 1 to 99.  Example: m3 indicates to charge the customer once every 3 months. | Required for all recurring transactions. | `<periodicity>m1</periodicity>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| startdate | numbers only | Specifies the date to begin charging the recurring payments. Should be in the format YYYYMMDD, where YYYY is the four-digit year, MM is the two-digit month, and DD is the two-digit day. Example: 20070910 is September 10, 2007. If you want to start payments immediately, set this tag to immediate. | Yes | `<startdate>20081107</startdate>` |
| comments | up to 100 numbers and letters including dashes and underscores, but no other symbols | Space to enter optional comments about the transaction. | No | `<comments>Repeat customer.</comments>` |

## 3.9   Merchant Info Entity

The merchantinfo entity contains details about the merchant.  This entity is required for every transaction or function using the secure payment gateway.  The table below describes each data field in the merchantinfo entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| configfile | up to 20 numbers only | This field should contain the merchant store name or store number, which is generally a six- to ten-digit number assigned when the account is set up. If this is a test account, the store name may be a text string. | Yes | `<configfile>123456</configfile>` |
| keyfile | letters or numbers only | This field contains the path and filename of the digital certificate (or PEM file) issued for a given store. | Required for all API processing. | `<keyfile>100005.pem</keyfile>` |

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| host | letters or numbers only | This is the URL or IP address of the secure payment gateway server. This information is provided in the merchant's Welcome email. | Required for all API processing. | `<host>secur e.linkpt.ne t</host>` |
| port | integer - numbers only | The port that the application uses to communicate to the secure payment gateway. | Required for all API processing. | `<port>1129< /port>` |

## 3.10    Items Entity

The items entity contains one or more item sub-entities.  Each item sub-entity contains up to seven data fields. All the data fields used in the item sub-entity are listed in the table below.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| id | up to 128 numbers and letters only (no symbols or spaces) | Item ID number. | Yes | `<id>123456</id>` |
| description | up to 128 numbers and letters only (no symbols or spaces) | Description of the item. | No | `<description>Logo T-Shirt</description>` |
| price | numbers only up to 12 and 2 decimal places. | Price of the item. | Yes | `<price>12.00</price>` |
| quantity | numbers only | Quantity of the item to include in the order. | Yes | `<quantity>1</quantity>` |

## 3.10.1  Example of the Items Entity

For example, you are selling bowling-related products.  You might receive an order like this:

1.   Two (2) T-shirts.  Red.  XL.
2.   One (1) Bowling Ball.  Weight: 12 lb.
3.   One (1) eBook on How to Bowl

To describe this order using the items entity, use the order shown in the sample code below.

```
<items>
<item>
<description>Logo T-Shirt</description>
<id>123456</id>
<price>12.00</price>
<quantity>1</quantity>
<serial>0987654322</serial>
<options>
```

```
<option>
<name>Color</name>
<value>Red</value>
</option>
<option>
<name>Size</name>
<value>XL</value>
</option>
</options>
</item>
</items>
```

## 3.11   Option Sub-Entity

Each item sub-entity may contain an option sub-entity.  Each option sub-entity can contain two data fields.  The data fields used in the option sub-entity are listed in the table below.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| name | up to 128 numbers and letters only (no symbols) | Name of the option. | Yes | `<name>Size</name>` |
| value | up to 128 numbers and letters only (no symbols or spaces) | Value of the option. | Yes | `<value>XL</value>` |

## 3.12   Notes Entity

The notes entity contains optional comments about the transaction.  The table below describes each data field in the notes entity.

| Field Name | Field Length and Characters | Description | Required | Example |
|---|---|---|---|---|
| comments | up to 1024 (100 for periodic bills or recurring transactions) numbers and letters including dashes or underscores, but no other symbols | Optional comments about the transaction. | No | `<comments>Repeat customer.</comments>` |
| referred | up to 128 letters or numbers only | Intended for merchants to track how the customer was referred to them. A URL is often passed in this field. | No | `<referred>newsletter</referred>` |

## 3.13    U.S. State Codes

When passing a value for a U.S. State in the billing or shipping entity, you must use the two-digit codes specified below.

| State | Code |
|---|---|
| Alabama | AL |
| Alaska | AK |
| Arizona | AZ |
| Arkansas | AR |
| California | CA |
| Colorado | CO |
| Connecticut | CT |
| Delaware | DE |
| District of Columbia | DC |
| Florida | FL |
| Georgia | GA |
| Hawaii | HI |
| Idaho | ID |
| Illinois | IL |
| Indiana | IN |
| Iowa | IA |
| Kansas | KS |
| Kentucky | KY |
| Louisiana | LA |
| Maine | ME |
| Maryland | MD |
| Massachusetts | MA |
| Michigan | MI |
| Minnesota | MN |
| Mississippi | MS |
| Missouri | MO |
| Montana | MT |
| Nebraska | NE |
| Nevada | NV |
| New Hampshire | NH |
| New Jersey | NJ |
| New Mexico | NM |
| New York | NY |
| North Carolina | NC |
| North Dakota | ND |
| Ohio | OH |
| Oklahoma | OK |
| Oregon | OR |
| Pennsylvania | PA |
| Rhode Island | RI |

| State | Code |
|-------|------|
| South Carolina | SC |
| South Dakota | SD |
| Tennessee | TN |
| Texas | TX |
| Utah | UT |
| Vermont | VT |
| Virginia | VA |
| Washington | WA |
| Wisconsin | WI |
| West Virginia | WV |
| Wyoming | WY |

## 3.14 Country Codes

Whenever entering a value for country in the shipping or billing entity, you must use the following two-letter abbreviations.

| Country | Code |
|---------|------|
| **Africa** | |
| Algeria | DZ |
| Benin | BJ |
| Burkina Faso | BF |
| Burundi | BI |
| Cameroon | CM |
| Cape Verde | CV |
| Central African Republic | CF |
| Chad | TD |
| Comoros | KM |
| Congo | CG |
| Cote D'Ivoire | CI |
| Djibouti | DJ |
| Equatorial Guinea | GQ |
| Eritrea | ER |
| Ethiopia | ET |
| Egypt | EG |
| Gabon | GA |
| Gambia | GM |
| Ghana | GH |
| Guinea- Bissau | GW |
| Kenya | KE |
| Lesotho | LS |
| Liberia | LR |
| Madagascar | MG |
| Mali | ML |
| Mauritania | MR |

| Country | Code |
|---|---|
| **Africa** | |
| Mayotte | YT |
| Morocco | MA |
| Mozambique | MZ |
| Malawi | MW |
| Namibia | NA |
| Niger | NE |
| Nigeria | NG |
| Reunion | RE |
| St. Helena | SH |
| Sao Tome and Principe | ST |
| Senegal | SN |
| Sierra Leone | SL |
| Somalia | SO |
| South Africa | ZA |
| Sudan | SD |
| Swaziland | SZ |
| Tanzania | TZ |
| Togo | TG |
| Uganda | UG |
| Western Sahara | EH |
| Zaire | ZR |
| Zambia | ZM |
| Zimbabwe | ZW |

| Country | Code |
|---|---|
| **Antarctica** | |
| Antarctica | AQ |

| Country | Code |
|---|---|
| **Asia** | |
| Afghanistan | AF |
| Bangladesh | BD |
| Bhutan | BT |
| Brunei | BN |
| Cambodia | KH |
| China | CN |
| Hong Kong | HK |
| India | IN |
| Indonesia | ID |
| Japan | JP |
| Kazakhstan | KZ |
| Kyrgyzstan | KG |
| Laos | LA |
| Macau | MO |

| Country | Code |
|---------|------|
| **Asia** | |
| Malaysia | MY |
| Maldives | MV |
| Mongolia | MN |
| Nepal | NP |
| Pakistan | PK |
| Philippines | PH |
| Republic of Korea | KR |
| Russia | RU |
| Seychelles | SC |
| Singapore | SG |
| Sri Lanka | LK |
| Taiwan | TW |
| Tajikistan | TJ |
| Thailand | TH |
| Turkmenistan | TM |
| Uzbekistan | UZ |
| Vietnam | VN |

| Country | Code |
|---------|------|
| **Australia** | |
| American Samoa | AS |
| Australia | AU |
| Federated States of Micronesia | FM |
| Fiji | FJ |
| French Polynesia | PF |
| Guam | GU |
| Kiribati | KI |
| Marshall Islands | MH |
| Nauru | NR |
| New Caledonia | NC |
| New Zealand | NZ |
| Northern Mariana Islands | MP |
| Palau | PW |
| Papua New Guinea | PG |
| Pitcairn | PN |
| Solomon Islands | SB |
| Tonga | TO |
| Tuvalu | TV |
| Vanuatu | VU |

| Country | Code |
|---------|------|
| **Caribbean** | |
| Anguilla | AI |
| Antigua and Barbuda | AG |

| Country | Code |
|---|---|
| **Caribbean** | |
| Aruba | AW |
| Bahamas | BS |
| Barbados | BB |
| Bermuda | BM |
| British Virgin Islands | VI |
| Cayman Islands | KY |
| Dominica | DM |
| Dominican Republic | DO |
| Grenada | GD |
| Guadeloupe | GP |
| Haiti | HT |
| Jamaica | JM |
| Martinique | MQ |
| Netherlands Antilles | AN |
| Puerto Rico | PR |
| St. Kitts and Nevis | KN |
| St. Lucia | LC |
| St. Vincent and the Grenadines | VC |
| Trinidad and Tobago | TT |
| Turks and Caicos Islands | TC |

| Country | Code |
|---|---|
| **Central America** | |
| Belize | BZ |
| Costa Rica | CR |
| El Salvador | SV |
| Guatemala | GT |
| Honduras | HN |
| Nicaragua | NI |
| Panama | PA |

| Country | Code |
|---|---|
| **Europe** | |
| Albania | AL |
| Andorra | AD |
| Armenia | AM |
| Austria | AT |
| Azerbaijan | AZ |
| Belarus | BY |
| Belgium | BE |
| Bulgaria | BG |
| Croatia | HR |
| Cyprus | CY |
| Czech Republic | CZ |

| Country | Code |
|---------|------|
| **Europe** | |
| Denmark | DK |
| Estonia Faroe Islands | EE |
| Faroe Islands | FO |
| Finland | FI |
| France | FR |
| Georgia | GE |
| Germany | DE |
| Gibraltar | GI |
| Greece | GR |
| Greenland | GL |
| Hungary | HU |
| Iceland | IS |
| Ireland | IE |
| Italy | IT |
| Latvia | LV |
| Liechtenstein | LI |
| Lithuania | LT |
| Luxembourg | LU |
| Malta | MT |
| Metropolitan France | FX |
| Moldova | MD |
| Netherlands | NL |
| Norway | NO |
| Poland | PL |
| Portugal | PT |
| Romania | RO |
| Slovakia | SK |
| Slovenia | SI |
| Spain | ES |
| Svalbard and Jan Mayan Islands | SJ |
| Sweden | SE |
| Switzerland | CH |
| The former Yugoslav Republic of Macedonia | MK |
| Turkey | TR |
| Ukraine | UA |
| United Kingdom | GB |
| Vatican City | VA |
| Yugoslavia | YU |

| Country | Code |
|---------|------|
| **Middle East** | |
| Israel | IL |
| Jordan | JO |
| Kuwait | KW |

| Country | Code |
|---|---|
| **Middle East** | |
| Lebanon | LB |
| Oman | OM |
| Qatar | QA |
| Saudi Arabia | SA |
| Syria | SY |
| United Arab Emirates | AE |
| Yemen | YE |

| Country | Code |
|---|---|
| **North America** | |
| Canada | CA |
| Mexico | MX |
| United States | US |

| Country | Code |
|---|---|
| **South America** | |
| Argentina | AR |
| Bolivia | BO |
| Brazil | BR |
| Chile | CL |
| Colombia | CO |
| Ecuador | EC |
| Falkland Islands | FK |
| French Guiana | GF |
| Guyana | GY |
| Paraguay | PY |
| Peru | PE |
| Suriname | SR |
| Uruguay | UY |
| Venezuela | VE |

| Country | Code |
|---|---|
| **Other** | |
| Bahrain | BH |
| Bouvet Islands | BV |
| British Indian Ocean Territory | IO |

# 4  Minimum Required Fields

For all transactions, there are minimum required entities and data fields.  The minimum required entities and data fields change depending on the type of transaction.  For more information about the fields and entities, see "Entities and Data Fields" on page 20.

The following transaction types have different minimum required fields to complete the transaction.

- Credit Card Transactions
- Check Transactions
- Calculating Shipping
- Calculating Sales Tax
- Recurring Credit Card Transactions
- Level 2 Purchasing Card Transactions
- AVS and Card Code Fraud Prevention

## 4.1 Credit Card Transaction

The table below shows the minimum required entities and data fields to perform a credit card transaction.

For transactions where the card is not present, you must include the billing entity for address verification (AVS).

For more information about the fields and entities, see "Entities and Data Fields" on page 20.

If you are using the following languages, all billing fields will be preceded with a lower-case "b," such as bzip for zip.

- ASP
- .NET/Visual Basic
- .NET/C#

| Minimum Required Fields for a Credit Card Transaction ||
| Field Name | Entity |
| --- | --- |
| configfile | merchantinfo |
| ordertype | orderoptions |
| chargetotal | payment |
| cardnumber | creditcard |
| cardexpmonth | creditcard |
| cardexpyear | creditcard |
| track | creditcard |
| oid | transactiondetails |
| reference_number | transactiondetails |
| addrnum | billing |
| zip | billing |

## 4.1.1 XML Stream

The sample XML stream for credit card transactions with the minimum required fields:

```
<!-- Minimum Required Fields for a Credit Card Sale-->
<order>
 <merchantinfo>
 <!-- Replace with your STORE NUMBER or STORENAME-->
 <configfile>1234567</configfile>
 </merchantinfo>
 <orderoptions>
 <ordertype>Sale</ordertype>
 </orderoptions>
 <payment>
 <chargetotal>12.99</chargetotal>
 </payment>
 <creditcard>
 <cardnumber>4111-1111-1111-1111</cardnumber>
 <cardexpmonth>03</cardexpmonth>
 <cardexpyear>05</cardexpyear>
 </creditcard>
</order>
```

## 4.2    Check Transaction

The required fields for a TeleCheck transaction depend on the transaction type.  TeleCheck transaction types are pre-authorized, telephone, or web orders.

For more information about the fields and entities, see "Entities and Data Fields" on page 20.

There are also specific rules that apply to each type of transaction.  See "Check Transactions" on page 18.

| Minimum Required Fields for a Check Transaction ||
| Field Name | Entity |
| --- | --- |
| configfile | merchantinfo |
| ordertype | orderoptions |
| chargetotal | payment |
| account | telecheck |
| routing | telecheck |
| bankname | telecheck |
| bankstate | telecheck |
| dl | telecheck |
| dlstate | telecheck |
| void | telecheck |
| name | billing |
| address1 | billing |
| city | billing |
| state | billing |
| zip | billing |
| phone | billing |
| email | billing |
| transactionorigin | transactiondetails |

## 4.2.1   XML Stream

The sample XML stream for a TeleCheck Sale transaction with the minimum fields.

```
<!-- Minimum Required Fields for a TeleCheck Sale-->
<order>
 <merchantinfo>
 <!-- Replace with your STORE NUMBER or STORENAME-->
 <configfile>1234567</configfile>
 </merchantinfo>
 <orderoptions>
 <ordertype>Sale</ordertype>
 </orderoptions>
 <payment>
 <chargetotal>12.99</chargetotal>
 </payment>
 <telecheck>
 <!-- Customer's Driver's license # and DL state.-->
 <dl>120381698</dl>
 <dlstate>CA</dlstate>
 <!-- Transit routing number for the customer's bank -->
 <routing>123456789</routing>
 <!-- Customer's bank account number -->
 <account>2139842610</account>
 <!-- Is this a business or consumer (personal) account? personal =
pc, business = bc -->
 <accounttype>pc</accounttype>
 <account>2139842610</account>
 <!-- Bank name and 2-letter bank state -->
 <bankname>MyBank</bankname>
 <bankstate>CA</bankstate>
 /telecheck>
 <billing>
 <name>Bill Johnson</name>
 <address1>123 Broadway</address1>
 <city>Camarillo</city>
 <state>CA</state>
 <zip>93010</zip>
 <phone>8051234567</phone>
 <email>bjohnson@somewhere.com</email>
 </billing>
 <transactiondetails>
 <!-- Required for Retail, Mail, or Telephone orders only -->
 <transactionorigin>TELEPHONE</transactionorigin>
 </transactiondetails>
</order>
```

## 4.3   Calculate Shipping

The table below displays the minimum required entities and data fields to calculate shipping charges.

Before you can calculate shipping charges, you need to send information on how to calculate shipping to the secure payment gateway.  Create a shipping file that describes the calculation

method and amounts to charge.  There are several different shipping methods available.  Contact support to send your shipping file to the secure payment gateway.

See "Shipping Calculator" on page 14 for more information on shipping files.

For more information about the fields and entities, see "Entities and Data Fields" on page 20.

If you are using the following languages, all shipping fields will be preceded with a lower-case "s," such as "sname" for name.

- PERL
- PHP
- ASP
- .NET/Visual Basic
- .NET/C#

| Minimum Required Fields for Calculating Shipping | |
|---|---|
| Field Name | Entity |
| configfile | merchantinfo |
| ordertype | orderoptions |
| chargetotal | payment |
| state | shipping |
| weight | shipping |
| items | shipping |
| carrier | shipping |
| total | shipping |

## 4.3.1  XML Stream

The sample XML stream for a shipping calculation with the minimum required fields:

```
<!-- Minimum Required Fields to Calculate Shipping Charges -->
<order>
 <merchantinfo>
 <!-- Replace with your STORE NUMBER or STORENAME-->
 <configfile>YOURSTORE</configfile>
 </merchantinfo>
 <orderoptions>
 <ordertype>Calcshipping</ordertype>
 </orderoptions>
 <shipping>
 <!-- Include the factors needed for your shipping method -->
 <carrier>1</carrier>
 <weight>2.00</weight>
 <items>2</items>
 <total>15.00</total>
 <state>TX</state>
 </shipping>
</order>
```

## 4.4    Calculate Sales Tax

The table below shows the minimum required entities and data fields to calculate the sales tax.

For more information about the fields and entities, see "Entities and Data Fields" on page 20.

If you are using the following languages, all shipping fields will be preceded with a lower-case "s", such as "sname" for name.

- PERL
- PHP
- ASP
- .NET/Visual Basic
- .NET/C#

| Minimum Required Fields for Calculating Sales Tax ||
|---|---|
| **Field Name** | **Entity** |
| configfile | merchantinfo |
| ordertype | orderoptions |
| subtotal | payment |
| state | shipping |

### 4.4.1   XML Stream

The sample XML stream for the minimum required fields to calculate the sales tax:

```
<!-- Minimum Required Fields to Calculate Sales Tax on an Order -->
<order>
 <merchantinfo>
 <!-- Replace with your STORE NUMBER or STORENAME-->
 <configfile>YOURSTORE</configfile>
 </merchantinfo>
 <orderoptions>
 <ordertype>CALCTAX</ordertype>
 </orderoptions>
 <shipping>
 <carrier>1</carrier>
 <weight>1.000000</weight>
 <zip>91504</zip>
 <total>26.99</total>
 <state>CA</state>
 </shipping>
 <payment>
 <subtotal>26.99</subtotal>
 </payment>
</order>
```

## 4.5    Recurring Credit Card Transaction

The table below shows the minimum required entities and data fields to perform a recurring credit card transaction.

For transactions where the card is not present, you must include the billing entity for address verification (AVS).

For more information about the fields and entities, see "Entities and Data Fields" on page 20.

If you are using the following languages, all billing fields will be preceded with a lower-case "b", such as bzip for zip.

- ASP
- .NET/Visual Basic
- .NET/C#

| Minimum Required Fields for a Recurring Credit Card Transaction ||
| Field Name | Entity |
| --- | --- |
| configfile | merchantinfo |
| ordertype | orderoptions |
| chargetotal | payment |
| cardnumber | creditcard |
| cardexpmonth | creditcard |
| cardexpyear | creditcard |
| track | creditcard |
| action | periodic |
| installments | periodic |
| periodicity | periodic |
| startdate | periodic |
| addrnum | billing |
| zip | billing |

## 4.5.1  XML Stream

The sample XML stream for a recurring credit card transaction with minimum required fields:

```
<!-- Minimum Required Fields for a Credit Card Sale-->
<order>
 <merchantinfo>
 <!-- Replace with your STORE NUMBER or STORENAME-->
 <configfile>1234567</configfile>
 </merchantinfo>
 <orderoptions>
 <ordertype>Sale</ordertype>
 </orderoptions>
 <payment>
 <chargetotal>12.99</chargetotal>
 </payment>
 <creditcard>
 <cardnumber>4111-1111-1111-1111</cardnumber>
 <cardexpmonth>03</cardexpmonth>
 <cardexpyear>05</cardexpyear>
 </creditcard>
 <periodic>
 <!-- Submits a recurring transaction charging the card 3 times, once
```

```
a month, starting today -->
 <action>SUBMIT</action>
 <installments>3</installments>
 <threshold>3</threshold>
 <!-- If you don't want it to start today, pass a date in the format
YYYYMMDD -->
 <startdate>immediate</startdate>
 <periodicity>monthly</periodicity>
 </periodic>
</order>
```

## 4.6    Level 2 Purchasing Card Transaction

The table below shows the minimum required entities and data fields to perform a Level 2 purchasing card transaction.

For transactions where the card is not present, you must include the billing entity for address verification (AVS).

For more information about the fields and entities, see "Entities and Data Fields" on page 20.

If you are using the following languages, all billing fields will be preceded with a lower-case "b," such as bzip for zip.

- ASP
- .NET/Visual Basic
- .NET/C#

| Minimum Required Fields for Level 2 Purchasing Card ||
|---|---|
| **Field Name** | **Entity** |
| configfile | merchantinfo |
| ordertype | orderoptions |
| chargetotal | payment |
| tax | payment |
| taxexempt | transactiondetails |
| ponumber | transactiondetails |
| invoice_number | transactiondetails |
| cardnumber | creditcard |
| cardexpmonth | creditcard |
| cardexpyear | creditcard |
| track | creditcard |
| addrnum | billing |
| zip | billing |

## 4.6.1  XML Stream

The sample XML stream for a Level 2 purchasing card with the minimum required fields:

```
<!-- Minimum Required Fields for a Level 2 Purchasing Card Sale-->
<order>
```

```
<merchantinfo>
<!-- Replace with your STORE NUMBER or STORENAME-->
<configfile>1234567</configfile>
</merchantinfo>
<orderoptions>
<ordertype>Sale</ordertype>
</orderoptions>
<payment>
<!-- Tax is required for purchasing cards. If the tax is $0.00, pass
a value of 0 for tax -->
<tax>0.32</tax>
<chargetotal>47.32</chargetotal>
</payment>
<creditcard>
<cardnumber>4111-1111-1111-1111</cardnumber>
<cardexpmonth>03</cardexpmonth>
<cardexpyear>05</cardexpyear>
</creditcard>
<transactiondetails>
<!-- If there is no PO Number for this order, pass a department code
or other value, but make sure the value you pass is supplied by the
customer -->
<ponumber>1203A-G4567</ponumber>
<!-- If the purchase is tax exempt, pass a value of Y for taxexempt-
-> <
taxexempt>N</taxexempt>
</transactiondetails>
</order>
```

## 4.7   AVS and Card Code

The table below shows the minimum required entities and data fields to perform a credit card transaction using the Address Verification System (AVS) and the card code. AVS and card code results are located in the **r_avs** response field. For more information about the fields and entities, see "Entities and Data Fields" on page 20.

If you are using the following languages, all billing fields will be preceded with a lower-case "b", such as bzip for zip.

- ASP
- .NET/Visual Basic
- .NET/C#

| Minimum Required Fields for AVS and Card Code Fraud Prevention | |
|---|---|
| **Field Name** | **Entity** |
| configfile | merchantinfo |
| ordertype | orderoptions |
| chargetotal | payment |
| cardnumber | creditcard |
| cardexpmonth | creditcard |
| cardexpyear | creditcard |
| track | creditcard |

| Minimum Required Fields for AVS and Card Code Fraud Prevention | |
|---|---|
| **Field Name** | **Entity** |
| cvmvalue | creditcard |
| cvmindicator | creditcard |
| oid | transactiondetails |
| name | billing |
| addrnum | billing |
| zip | billing |

## 4.7.1  XML Stream

The sample XML stream for AVS and Card Code fraud prevention with the minimum required fields:

```
<!- Minimum Required Fields for a Credit Card Transaction using AVS
and Card Code Fraud Prevention-->
<order>
 <merchantinfo>
 <!-- Replace with your STORE NUMBER or STORENAME-->
 <configfile>1234567</configfile>
 </merchantinfo>
 <orderoptions>
 <ordertype>Sale</ordertype>
 </orderoptions>
 <payment>
 <chargetotal>12.99</chargetotal>
 </payment>
 <creditcard>
 <cardnumber>4111-1111-1111-1111</cardnumber>
 <cardexpmonth>03</cardexpmonth>
 <cardexpyear>05</cardexpyear>
 <cvmvalue>123</cvmvalue>
 <cvmindicator>provided</cvmindicator>
 </creditcard>
 <billing>
 <!-- Required for Address Verification -->
 <addrnum>123</addrnum>
 <zip>87123</zip>
 </billing>
</order>
```

## 5   Response Fields

The secure payment gateway transaction engine will return a set of response codes for each successful transaction.  The response codes are returned in a set of XML tags preceded by **r_**.

The following table represents possible response tags.  Note that if an error occurs, the response may contain only the **r_error** tag, although it is possible that other tags will be returned if additional information is available.

See "Errors" on page 54 for more information about errors you might receive.

## 5.1    Response examples

### 5.1.1  Approved XML Response:

```
<r_csp>CSI</r_csp>
<r_time>Mon Oct 1 17:17:35 2007</r_time>
<r_ref>0280908040</r_ref>
<r_error></r_error>
<r_ordernum>CDA53434-4753453-255-13453C</r_ordernum>
<r_message>APPROVED</r_message>
<r_code>00845302354353453:YYYM:1005354353888:</r_code>
<r_tdate>1191280650</r_tdate>
<r_authresponse></r_authresponse>
<r_approved>APPROVED</r_approved>
<r_avs>YYYM</r_avs>
```

### 5.1.2  Declined XML Response

```
<r_csp></r_csp>
<r_time>Mon Oct 1 00:56:16 2007</r_time>
<r_ref></r_ref>
<r_error>SGS-000001: D:Declined:XXUX:</r_error>
<r_ordernum>CDA78C0B-47009A0F-319-17231C</r_ordernum>
<r_message>DECLINED</r_message>
<r_code></r_code>
<r_tdate>1191221775</r_tdate>
<r_authresponse></r_authresponse>
<r_approved>DECLINED</r_approved>
<r_avs></r_avs>
```

| Response Field | Description |
|---|---|
| r_avs | The Address Verification System (AVS) response for the transaction. |
| r_ordernum | The order number associated with the transaction. |
| r_error | Any error message associated with the transaction. |
| r_approved | The result of the transaction, which may be approved, declined, or blocked because of fraud. |
| r_code | The approval code for the transaction. |
| r_message | Any message returned by the processor, such as "Call Voice Center". |
| r_time | The time and date of the transaction server response. |
| r_ref | The reference number returned by the credit card processor. |
| r_tdate | A server time-date stamp for the transaction. Used to uniquely identify a specific transaction where one order number may apply to several individual transactions. See "Transaction Details Entity" on page 25 for more information and an example of tdate. |
| r_tax | The calculated tax for the order, when the **ordertype** field is calctax. |
| r_shipping | The calculated shipping charges for the order, when the **ordertype** field is calcshipping. |
| r_authresponse | Authentication results returned from Verified By Visa and MasterCard SecureCode |

## 5.2    Errors

There are many different response messages or codes you may receive from the secure payment gateway.  All response error or decline messages are passed in the **r_error** data field.  Some responses indicate an error; some indicate a decline response from the issuing bank.  To understand the error messages you receive, it helps to understand the transaction process when you submit a transaction to the secure payment gateway.

Throughout the transaction process, errors and declines can occur at any point.  Error codes are generated when transactions cannot be completed because of machine error, incomplete data types, or connection/transmission problems.

Decline messages occur when a transaction is declined for any reason, including when a transaction fails a fraud check.

### 5.2.1   Fraud and Error Checks

This version of the FDGG API Solution does not support the advanced fraud detection feature, Fraud FlexDetect.  To access Fraud FlexDetect[SM], upgrade to the Web Service API solution.  Please contact support at 888.467.3611 or visit www.firstdata.com/ecommerce to get more information about the service.  The following information only pertains to Basic Fraud Settings.

Fraud and error checks are performed by the secure payment gateway module, Fraud Protection.  Fraud messages and declines occur when the information submitted by the customer is either incomplete, incorrect, or has failed the fraud checks.

### 5.2.2   Payment Handler Interface

Transaction processing starts in the secure payment gateway server and then passes to the payment handler.  From the payment handler, the transaction passes to a card processor, and then to a card-issuing bank.  Every transaction produces a return value, indicating the following:

- Transaction completed and approved.
- Transaction completed and declined.
- Transaction did not complete.  It failed a specific error check at any point in the process.

## 5.3    Credit Card Errors

These errors occur when incomplete or erroneous credit card information is entered for a credit card transaction.  You may receive any of the following messages in the **r_error** field when this occurs.

| Response | Description | Reason | Data Field | Entity |
|---|---|---|---|---|
| Credit card expiration month must be selected. | Either no expiration month for the credit card was received, or the value received was outside of the allowed range. | Ensure you are passing a two-digit number from 01 through 12. | cardexpmonth | creditcard |
| Credit card expiration year must be selected. | Either no expiration year for the credit card was received, or the value received was outside of the allowed range. | Ensure you are passing a two-digit number from 00 through 99. | cardexpyear | creditcard |
| Credit card number must be filled in. | No credit card number was received by the secure payment gateway. | Ensure you are passing a non-empty credit card number.<br>• | cardnumber | creditcard |
| This is not a valid credit card. Please try another card. | The card number is not valid. | Prompt the customer to re-enter the card number or try a different card. | cardnumber | creditcard |
| Card number has too few digits. | The credit card number provided has fewer digits than allowed for that card type. | Check the number of digits for each credit card to make sure it is the correct length, or prompt the customer to re-enter the card number. | cardnumber | creditcard |
| Card number has too many digits. | The credit card number provided has more digits than allowed for that card type. | Check the number of digits for each credit card to make sure it is the correct length, or prompt the customer to re-enter the card number. | cardnumber | creditcard |
| Credit card number must be filled in. | No credit card number was provided for a credit card transaction. | Ensure that the **creditcard** field is not empty when submitting a credit card transaction to the secure payment gateway. | cardnumber | creditcard |
| This credit card appears to have expired. | The expiration date provided is in the past. | If the expiration date occurs in the past, tell the customer the credit card appears to have expired. | cardexpmonth and cardexpyear | creditcard |

## 5.4    Customer Information Errors

Customer Information error responses occur when the customer information supplied for a given transaction is incomplete or erroneous. You may receive any of the following messages in the **r_error** field when this occurs.

| Response | Description | Reason | Data Field | Entity |
|---|---|---|---|---|
| Invalid e-mail address. | Email address provided is not in the right format. | Ensure you are passing a valid email address in the format name@domain.com. | email | billing |
| E-mail address must be filled in. | A valid email address is required for the transaction. | Ensure you are passing a valid email address in the format name@domain.com. | email | billing |
| The ZIP code given does not match up with the city and state given. | The zip code appears to be in a different city and state than the one specified. | Prompt the customer to re-enter the zip code or check the city and state. | zip | billing or shipping |
| ZIP/postal code not found in state. | The zip code provided is not valid for the U.S. state value received. | Check the values for state and zip code. Prompt the customer to re-check the data entered. | zip | billing or shipping |
| State must be selected. | State is a required field for this transaction. | Make sure you are entering a valid state code. | state | billing or shipping |
| Name must be filled in. | Customer's name is required for this transaction. | Make sure a value is passed in the name field. | name | billing |
| IP address given does not match the city and state given. | IP address or location is invalid. | Check that you are entering a valid customer IP address. | ip | transactiondetails |

## 5.5   Fraud Block Messages

When a transaction is rejected because you have blocked that transaction data in your Basic Fraud settings, the transaction will not be processed.  The following messages may appear in the **R-error** data field.

| Message | Description |
|---|---|
| The host you are ordering from has been blocked. | The merchant has blocked the customer's host from making transactions. |
| The credit card you are using has been blocked. | The merchant has blocked the customer's credit card number from making transactions. |
| The domain of your host has been blocked. | The merchant has blocked the customer's domain name from making transactions. |
| The class C subnet for this IP has been blocked. | The merchant has blocked the customer's Class C address from making transactions. |
| The name that was entered has been blocked. | The merchant has temporarily blocked the customer's name from making transactions. |
| The host you are ordering from has been temporarily blocked. | The merchant has temporarily blocked the customer's host from making transactions. |
| The credit card you are using has been temporarily blocked. | The merchant has temporarily blocked the customer's credit card from making transactions. |
| The purchase amount exceeds the merchant approved limit. | The total amount of the order exceeds the maximum purchase limit set by the merchant. |
| Merchant transaction limit is less than the amount requested for that transaction. | The total amount of the order is less than the minimum purchase limit set by the merchant. |

| Message | Description |
|---------|-------------|
| Duplicate | A Transaction for the identical dollar amount and the identical credit card was processed within the last X hours. X is generally 24 hours, but can be altered by changing the duplicate lockout time in the merchant's fraud protection settings. |

## 5.6   Other Error Messages

There are other reasons that an error or decline may occur.  You may receive the following messages in the **r_error** field if a validation, transmission, or other error occurs.

## 5.6.1  Connection Errors

These errors may occur if the transaction cannot connect to the secure payment gateway XML processor.

| Response | Description | Action |
|----------|-------------|--------|
| Creating socket failed. | Cannot create a socket to connect to the secure payment gateway XML processor. | Check your host name, digital certificate, and port number. These items are included in the merchant's Welcome Email. If the host name, certificate, and port number are correct, retry the transaction. |
| Unable to connect to server. | The TCP/IP connection to the secure payment gateway XML server failed. | Check your host name, digital certificate, and port number. These items are included in the merchant's Welcome Email. If the host name, certificate, and port number are correct, retry the transaction. |
| Failed to resolve host | Unknown host name. | Check your host name. The host name is identified in the merchant's Welcome email. |
| Cannot find/load cert/key file. | The client certificate file is missing or invalid. | Check that you properly copied the digital certificate from the merchant's Welcome Email into a .PEM file on the web server. Compare the path to the file with the path and file name you provided to the secure payment gateway. |
| Unable to connect to SSL server. | Cannot establish SSL connection. | Check your host name, digital certificate, and port number. These items are included in the merchant's Welcome Email. If the host name, certificate, and port number are correct, retry the transaction. |
| SSL read failed. | One of the servers (either merchant-side or secure payment gateway-side) has dropped the SSL connection. | Check your host name, digital certificate, and port number. These items are included in the merchant's Welcome Email. If the host name, certificate, and port number are correct, retry the transaction. |
| Request rejected by SSL server. Make sure you supplied valid certificate. | The secure payment gateway server cannot verify the client server's credentials. | Check that you properly copied the digital certificate from the merchant's Welcome Email into a .PEM file on the web server. Compare the path to the file with the path and file name you provided to the secure payment gateway. |

## 5.6.2  Other Errors

These errors may occur after the merchant or CSP web server has made a connection to the secure payment gateway server.  In this case, the transmission or validity error is between the secure payment gateway server and the processor.

| Response | Description | Action |
|---|---|---|
| A file being accessed for opening does not exist. | A file is accessed for writing and it cannot be written to. | Retry the transaction. |
| Error timeout waiting for response. | The process timed out waiting for a response from the credit card processor. This message results when the credit card processor does not respond to the leased line transmission of the transaction data within 60 seconds. | Retry the transaction. |
| NetErr_Connect | Unable to connect to SSL Server. | Check network configuration and digital certificate. If your connection works, contact Support. |
| NetErr_SSL | Unrecoverable SSL error. Connection closed. | Retry the transaction. |
| NetErr_Decode | Unable to decode received message. | Check network configuration and digital certificate. If your connection works, contact Support. |
| ServerErr_Resource | Server unable to allocate required resources. | Retry the transaction. |
| ServerErr_Database | Server encountered a database error. | Check network configuration and digital certificate. If your connection works, retry the transaction or contact Support. |
| ServerErr_Encode | Server unable to encode client response. | Retry the transaction. |
| ServerErr_Decode | Server unable to decode client response. | Check network configuration and digital certificate. If your connection works, retry the transaction or contact Support. |
| ServerErr_Module | Unsupported server module. | Retry the transaction. |
| CoreErr_Trunc | Results truncated. | Retry the transaction. |
| CoreErr_Field_Format | Data contains invalid characters. | Check the format of your data fields. |
| CoreErr_Alloc | Unable to allocate memory. | Retry the transaction. |
| CoreErr_InvalidHandle | Uninitialized/invalid handle supplied as an argument. | Retry the transaction. |
| CoreErr_InvalidField | Unknown field name. | Check your data field names. |
| CoreErr_UnknownError | Error with unknown cause. | Retry the transaction. |
| ReqErr_InvalidRequest | Request context must be allocated. | Contact support. |

## 5.7   Shipping Calculation Errors

Shipping calculation errors may occur when invalid data is passed, using the secure payment gateway to do shipping charge calculations when. Alternatively, when the merchant's shipping file

is not properly configured.  You may receive any of the following messages in the **r_error** field for shipping calculation errors.

| Response | Description | Reason | Data Field | Entity |
|---|---|---|---|---|
| ShipErr_InvalidCriteria | Total, items, or weight must be specified to calculate the shipping charges. The data required depends on the shipping calculation method specified in the merchant's shipping file. | Check the shipping file for shipping method and provide valid data fields for that calculation method. | Weight or items depending on the calculation method | shipping |
| ShipErr_InvalidCountry | The shipping country code must be a valid two-letter country code. | Ensure you are using a valid two- letter country code as listed in the Country Codes section. See "Country Codes" on page 38. | country | shipping |
| ShipErr_InvalidState | The shipping state code must be a valid two-letter U.S. state code. | Ensure you are using a valid two- letter U.S. state code as listed in the State Codes section. See "U.S. State Codes" on page 37. | state | shipping |
| ShipErr_InvalidSyntax | The shipping file syntax is incorrect. | Check that the shipping file is properly formatted. Resubmit it to Support if necessary. See "Shipping Calculator" on page 14 for more information. | | |

## 5.8   Tax Calculation Errors

Tax calculation errors may occur when invalid data is passed using the secure payment gateway to perform tax calculations.  Alternatively, when the merchant's config file is not properly configured.  You may receive any of the following messages in the **r_error** field for tax calculation errors.

| Response | Description | Reason | Data Field | Entity |
|---|---|---|---|---|
| TaxErr_InvalidZip | The shipping zip code passed is invalid. | Check the zip code provided. | zip | shipping |
| TaxErr_InvalidState | The shipping state passed is invalid. | Ensure you are using a valid two-letter U.S. state code as listed in the State Codes section. See "U.S. State Codes" on page 37. | state | shipping |
| TaxErr_InvalidTotal | The total amount to be taxed is 0 or less. | Check the zip code provided. | zip | shipping |

| Response | Description | Reason | Data Field | Entity |
|---|---|---|---|---|
| TaxErr_InvalidFullTax | There is an invalid fulltax value in the merchant's config file on the secure payment gateway, or the config file is not set up to process tax calculations. | Check with Support that the merchant's config file is set up with the appropriate values for tax calculations. | | |

## 5.9    TeleCheck Errors

The errors below are returned from the API when a validation or transmission error occurs when processing a TeleCheck transaction.

| Error Code | Error Message | Comments |
|---|---|---|
| Status code 0 | duplicate txn, stop | Two identical transactions were received. This is the second, which will not be processed. |
| Status code 10 | Invalid parameters | Check input parameter format and validity. Check that all required parameters were included. |
| Status code 20 | Dig Sig invalid | Check the digital certificate for the merchant site. |
| Status code 30 | User Canceled auth -Or- incomplete data | User canceled the transaction, or not all required fields were provided. |
| Status code 40 | User account error -Or- We are sorry that we cannot accept your check at this time. Our decision is based, in whole or in part, on information provided to us by TeleCheck. We encourage you to call TeleCheck at 1-877-678- 5898 or write TeleCheck Customer Care at P.O. Box 4513, Houston, TX 77210- 4513. Please provide TeleCheck your driver's license number and the state where it was issued, and the complete banking numbers printed on the bottom of your check. Under the Fair Credit Reporting Act, you have the right to a free copy of your information held in TeleCheck's files within 60 days from today. You may also dispute the accuracy or completeness of any information in TeleCheck's customer report. TeleCheck did not make the adverse decision to not accept your check and is unable to explain why this decision was made. | If this text block is included with the response, the merchant has a legal obligation to display it to the customer. |
| Status code 50 | System not available | Contact customer support if the problem persists. |

| Error Code | Error Message | Comments |
|---|---|---|
| 110 | Payment Authorization Invalid | There is no matching authorization for this merchant, or the authorization has expired or is voided. This error message can also indicate the transaction cannot be voided because a payment has already been requested for the authorization. The merchant must correct the problem and resubmit the Clearing Request as appropriate. |
| 120 | Clearing entry invalid | One or more fields were missing or malformed. The merchant must correct the problem and resubmit the Clearing Request as appropriate. |
| 130 | Transfer amount invalid | The amount requested, or the sum of all partial payments up to and including this transaction, exceeds the original authorization amount. This error can also indicate the amount field was malformed. The merchant must correct the problem and resubmit the Clearing Request as appropriate. |
| 140 | Account Disabled | The user or merchant account has been disabled. The merchant should verify the account status or contact the user to find another payment method. |
| 180 | Authorization Void confirmation | Confirmation to the merchant that an Authorization Void was received and completed. This is initiated by the merchant or user. If initiated by the user, the **Message** field will contain additional information. |
| 210 | Account Invalid | User's checking account is no longer active. TeleCheck will attempt to contact the user to correct the problem. If contact is unsuccessful, the merchant will receive a Funds Transfer Notification with a debit or credit as necessary to reverse the transaction. |
| 220 | Stop Payment | The user has placed a stop payment on this specific transaction. No action required. This is a notification. |
| 230 | NSF | Insufficient funds notification. TeleCheck will attempt twice to transfer funds, as specified by the merchant. The user will also be contacted to correct the problem. If contact is successful, the merchant will not receive any other notifications. If funds cannot be obtained from the user, they will be reversed from the merchant's account. |
| 240 | Final NSF | Insufficient funds notification. Funds will be reversed from the merchant's account. The merchant will receive a Funds Transfer Notification with a debit or credit as necessary to reverse the transaction. |
| LP-8996 | Non-live TeleCheck transactions are not supported | TeleCheck account not set up yet. Check with your sales agent or merchant services on account status. Contact customer support if problem persists. |
| 32001 | CheckErr: Invalid order data | Invalid order data. |

| Error Code | Error Message | Comments |
|---|---|---|
| 32002 | CheckErr: Invalid check data | Invalid check data. |
| 32003 | CheckErr: Invalid request | Invalid request. |
| 32004 | CheckErr: Invalid account type | Invalid account type. |
| 32005 | CheckErr: Invalid transit routing | Invalid transit routing. |
| 32006 | CheckErr: Invalid MICR | Invalid MICR. |
| 32007 | CheckErr: Invalid check number | Invalid check number. |
| 32008 | CheckErr: Invalid check comment | Invalid check comment. |
| 32009 | CheckErr: Routing number does not match | Routing number does not match. |
| 32010 | CheckErr: Check order type is wrong | Check order type is wrong. |
| 32011 | CheckErr: Invalid check order data | Invalid check order data. |
| 32012 | CheckErr: Error inserting order | Error inserting order. |
| 32013 | CheckErr: Error inserting transaction | Error inserting transaction. |
| 32014 | CheckErr: Error inserting batch transaction | Error inserting batch transaction. |
| 32015 | CheckErr: Unable to verify check processing status | Unable to verify check processing status. |
| 32016 | CheckErr: Error deleting check batch entry | Error deleting check batch entry. |
| 32017 | CheckErr: Check sent for processing | You may be trying to void a check that has been sent for processing. |
| 32018 | CheckErr: Error voiding check | Error voiding check. |
| 32019 | CheckErr: Error updating transaction | Error updating transaction. |

## 5.9.1  Other TeleCheck Messages

- Session has expired.
- You have exceeded the maximum number of authorization attempts.  Please choose another payment option.
- We are unable to verify your checking account information. Please review the information you entered to ensure that all information is correct, then click Authorize.
- We are unable to verify your checking account information because your bank account may not be set up to handle electronic funds transfers through the Automated Clearing House (ACH). Please contact your bank to determine whether this account accepts Automated Clearing House (ACH) transactions. If you have another checking account, you may change your routing and account number information below.
- Please enter a First Name.
- Please enter a valid First Name.
- Please enter a Last Name.
- Please enter a valid Last Name.
- Please enter an Address.
- Please enter a valid Address (Address Line 1).

- Please enter a valid Address (Address Line 2).
- Please enter a City.
- Please enter a valid City.
- Please enter your entire Driver's License or State ID Number.
- Please make sure all the information is entered correctly and submit your request again. You may also select another payment option.
- Please enter a valid Driver's License or State ID Number.
- Please select the state where your Driver's License or State ID was issued.
- Please select a State.
- Please enter a ZIP Code.
- Please enter a valid ZIP Code.
- Please enter an Email.
- Please enter a valid Email.
- Please enter a Home Phone Number.
- Please enter a valid Home Phone Number.
- Please enter the name of your Bank.
- Please enter valid information for the name of your Bank.
- Please select a Bank State.
- Please enter a Routing Number.
- Please enter a valid Routing Number.
- Please enter a Checking Account Number.
- Please enter a valid Checking Account Number.

# 6  Customer Test Environment (CTE)

The Customer Test Environment (CTE) allows your Development team to test applications and process transactions using the First Data Global Gateway API in a secure, no-cost environment. The CTE mimics the production environment.  There is not a setup fee or processing charges when using the CTE.

To **APPLY** for a Test Account, access the following site, complete the form, and click **Submit**. You will receive a Welcome Email within 24 hours

- http://www.firstdata.com/gg/apply_test_account.htm

## 6.1  Test Store Policy

Test stores are not be used for the following purposes:

- Reverse engineer the system to understand or breach security of the secure payment gateway
- Copy any of First Data Global Gateway products
- Abuse the staging server in any way.  First Data Global Gateway will frequently monitor test store usage.

Any breach of the above policies will result in suspension or permanent removal of a test store.

## 6.2    Setting-Up the CTE Account

When setting up your test account:

- The storename parameter will be a ten-digit number on the staging server.
- The posting url is:
    **https://staging.linkpt.net/lpc/servlet/lppay**
- The Admin url is:
    **https://staging.linkpt.net/admin/xxxxxxxxxx/hlpadmin**

  **xxxxxxxxxx** is your ten-digit store number.

## 6.3    Support

Contact support at globalgateway.support@firstdata.com or 1-888-477-3611 for First Data Global Gateway API technical support.

## 6.4    Going Live

When you apply for a live store account, the live store will be on a different server and will have a different store number. You will need to change your host name and store number in the HTML code.  When you want to go live, make sure the result field in the Orderoptions entity is set to Live.

## 6.5    Passwords

Your temporary password is included in your Welcome Email. Temporary passwords will be valid for 30 minutes after they are issued.  To protect your test account, you should change this password when you first log in.

Security specialists recommend that you avoid using common words or numbers as passwords. Avoid words or numbers that might be associated with you, like your name or your date of birth.

There are several different security measures in place to help ensure that your account information is protected and is compliant with Payment Card Industry (PCI) guidelines.

Password guidelines are listed below:

- Password must be 7-8 characters in length consisting at least one (1) letter and at least (1) numerical digit.
- New passwords must not be the same as any of the previous (4) passwords.
- Your login account will be locked for 30 minutes after (6) consecutive failed login attempts.
- Passwords will expire every 90 days.

The First Data Global Gateway Virtual Terminal provides you with a virtual terminal and order management functions. On the staging server, the First Data Global Gateway Virtual Terminal is available from http://www.firsdata.com/ecommerce. To log in, enter:

- Store Number - a ten (10) digit number for test accounts.
- User ID - a six (6) digit number.
- Password - initial password is 12345678.

### 6.5.1  LinkPoint Select API

- Set the **configfile** data field to your ten-digit test store number.
- The host is:

   **staging.linkpt.net**

- The keyfile is your digital certificate. It can be downloaded by logging in to the First Data Global Gateway Virtual Terminal. Click **Support** and **Download Center**, and then enter the requested information. Save this certificate to a file on your web server with a .pem extension. If you are using Java™, see "Requirements" on page 6.
- The port is 1129 for all APIs.

### 6.5.2  Downloading Software

For all API and Wrapper downloads, visit:

   http://www.firstdata.com/support/software_downloads/global_gateway/api_downloads.htm

For Sales please call 1-888-477-3611.

## 6.6    Testing with the Live Account

To perform tests with your live account, set the **result** field in the orderoptions entity to one of the following:

- Good - for an approved response.
- Decline - for a declined response.
- Duplicate - for a duplicate response.

It is not recommended to perform tests with your live account other than those necessary to validate correct functionality of your live account. Please request a test account if you need to do extensive testing.  When you are done testing, make sure you set the **result** field in the orderoptions entity to Live.

## 6.7    Test Responses

The test store generates different errors and messages depending on the dollar amount when you are testing transactions.

The following table displays the errors and messages generated by the test store.  The errors are in the **r_error** response variable and the messages are in the **r_message** response variable.

## 6.8  Consumer Test Environment (CTE) Simulator Responses:

Please copy and paste this link for the list of CTE Simulator Response Codes

- http://www.firstdata.com/downloads/marketing-merchant/cte-final.pdf

## 7    Fraud Protection

Internet merchants are at a higher risk of fraud due to an inability to authenticate a shopper's identify.  A common consequence of fraud is a chargeback.  A customer disputes a purchase, which results in the return of funds to the customer, lost merchandise, and additional fees assessed to the merchant.  As a step towards fraud identification and prevention, you can use the following basic techniques:

- Address Verification
- Card code validation
- Blocking and limiting

For additional information about advanced fraud detection management solutions known as Fraud FlexDetect $^{SM}$ and the Web Services API please contact 888.467.3611.

## 7.1    AVS Codes

For transactions where the card is not present, the secure payment gateway provides Address Verification System (AVS) codes to help protect you from costly chargebacks and fraud. Some credit cards, such as Discover, MasterCard, and Visa, request the use of AVS when you are processing card-not-present transactions, such as MOTO or e-commerce transactions.

Whenever you perform a credit card Sale or Authorize Only transaction, First Data Global Gateway API compares the customer's address you entered with the address the card-issuing bank has on file for the customer.  In order to take advantage of AVS, you must enter the first line of the customer's billing address and the zip code.  For retail keyed transactions, you only need to enter the customer's zip code.

The AVS code tells you how well the two addresses match. You will receive an AVS response whether the card is approved or declined. It is up to you to decide whether you want to accept the risk and continue with processing the order.

## 7.1.1  About AVS Codes

The following string is a transaction result code.  The AVS code is the first three letters in the middle of the number.

00978200000019564:YNAM:12345678901234567890123:

The AVS compares the numeric portion of the street address and the zip code with the information on file with the card-issuing bank.

If the AVS code indicates the address or zip code does not match, you can still complete the transaction.  However, your exposure to fraud will increase.

It is important to know that AVS has some limitations:

- The AVS system is not always reliable; bad results can be triggered unnecessarily because people move, or report five-digit zip codes and some report nine-digit zip codes.  This may generate a response stating that the address matches, but the zip code does not match.
- The AVS system does not process most addresses outside the United States. If you decide to ship only to addresses with good AVS results, you will leave out most international orders.

It is recommended you display a message similar to the following for AVS code mismatches.

"We are unable to process your credit card payment at this time. If you still want to purchase this product or service, please call us at 1-800….".

At this time you can obtain more information from the customer to verify why the address didn't match, such as recently moved, city changed zip codes, etc.  You can ship your product through registered mail with a returned, signed receipt to ensure it was received by the proper person.
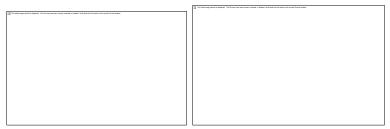
## 7.1.2 AVS Code Definitions

The following table lists the descriptions for AVS codes you might receive.  The letters in the credit card columns are the third letter of the AVS code and vary depending on the type of credit card you are using.

| AVS Code | Visa | MasterCard | Discover | American Express | Description |
|---|---|---|---|---|---|
| YY | Y | Y | A | Y | Address and zip code match. |
| NY | Z | Z | Z | Z | Only the zip code matches. |
| YN | A | A | Y | A | Only the address matches. |
| NN | N | N | N | N | Neither the address nor the zip code match. |
| XX | - | W | - | - | Card number not on file. |
| XX | U | U | U | U | Address information not verified for domestic transaction. |
| XX | R | - | R | R | Retry - system unavailable. |
| XX | S | - | S | S | Service not supported. |
| XX | E | - | - | - | AVS not allowed for card type. |
| XX | - | - | - | - | Address verification has been requested, but not received. |
| XX | G | - | - | - | Global non-AVS participant. Normally an international transaction. |
| YN | B | - | - | - | Street address matches for international transaction; Postal code not verified. |

| AVS Code | Visa | MasterCard | Discover | American Express | Description |
|---|---|---|---|---|---|
| NN | C | - | - | - | Street address and Postal code not verified for international transaction. |
| YY | D | - | - | - | Street address and Postal code match for international transaction. |
| YY | F | - | - | - | Street address and Postal code match for international transaction. (UK Only) |
| NN | I | - | - | - | Address information not verified for international transaction. |
| YY | M | - | - | - | Street address and Postal code match for international transaction. |
| NY | P | - | - | - | Postal codes match for international transaction; Street address not verified. |

## 7.2    Card Codes

The card code (CVV, CVS) is a three or four-digit security code.  For Visa, MasterCard, and Discover, the number typically appears at the end of the signature panel.  For American Express, the number appears on the front of the card.  This security card program helps validate that a genuine card is being used during a transaction.  By viewing and analyzing the Card code and AVS responses, you will be better informed on the relative risk of that transaction, and can make a decision on whether or not to continue processing the sales transaction.




The card code is circled.

Mail order, Telephone Order (MOTO), and other transactions when the card is not present have higher fraud rates than face-to-face transactions.  To help reduce fraud, use the card code.

Always enter the card code (if on the card) when processing an authorization for MOTO and e-commerce transactions.

For retail transactions, you may want to enter the card code printed on the card to ensure that the card was not fraudulently reproduced.

By using the Card Code results along with the Address Verification System (AVS), you can make better-informed decisions about whether to accept transactions.

## 7.2.1  Using the Card Code

Enter the card code on the when processing an order. The card code entered is compared to the code from the card-issuing bank. The results of this comparison show in the transaction approval code.

The following string is a typical transaction result.

0097820000019564:YNAM:12345678901234567890123:

The last alphabetic character in the middle (M) is a code indicating whether the card code matched the card-issuing bank's code.

## 7.2.2  Card Code Definitions

| Card Code | Description |
|-----------|-------------|
| M | Card code matches. |
| N | Card code does not match. |
| P | Not processed |
| S | Merchant has indicated that the card code is not present on the card. |
| U | Issuer is not certified and/or has not provided encryption keys. |
| X | No response from the credit card association was received. |
| A blank response indicates no code was sent and there was no indication the code was not present on the card. | |

## 7.3  Blocking and Limiting

First Data Global Gateway API can help prevent fraud by blocking and limiting. You can block anyone from purchasing at your store.  It is the merchant's responsibility to track blocked or limited transactions.

> *Tip: Blocking can help keep your competitors from buying your products.*

- You can set and change your Basic Fraud settings in the FDGG Virtual Terminal.  Go to the Administration tab in the Main Menu Bar, click Basic Fraud Settings in the popup menu, or from the Side Menu Bar.

- To change your fraud settings, log in to the First Data Global Gateway Virtual Terminal. For the Fraud Settings page in the First Data Global Gateway Virtual Terminal, mouse over **Administration** in the **Main Menu Bar**; then click **Fraud Settings** in the popup menu, or from the Administration section, click **Fraud Settings** on the **Side Menu Bar**.

### 7.3.1  Fraud settings

The following list contains the fraud settings you can control.

- Block credit card numbers.
- Block names.

- Block domain names.
- Block IP and Class C addresses.
- Set a maximum purchase limit.
  Auto lockout and Duplicate lockout times.

# Glossary

**Account Number**

The account number for a checking or savings account is a unique number that identifies the customer's account. The account number appears on the check next to the transit routing number. The numbers are usually separated by a non-alphabetic, non-numeric symbol.

**ACH**

ACH is an abbreviation for Automated Clearing House. Automated Clearing House (ACH) is the name of an electronic network for financial transactions in the United States. ACH processes large volumes of both credit and debit transactions which are originated in batches. ACH allows merchants to accept payments from a customer's checking or savings account.

**Acquiring Bank**

A bank which provides a service to its business customers allowing them to accept card payments for goods and services.

**Address Verification Service**

The Address Verification System (AVS) is a system used to verify the identity of the person claiming to own the credit card. The system will check the stated billing address of the credit card, with the address on file at the credit card company. The gateway provides an AVS code in each approved transaction result that tells you how well the two addresses match. If they match, there is a lower probability of fraud. If there is a discrepancy in either the address or zip code, the probability of fraud is higher. Merchants can use AVS codes to help protect themselves from Chargebacks and fraud.

**Antivirus Software**

Antivirus software consists of computer programs that attempt to identify, deter, and eliminate computer viruses and other malicious software. Antivirus software typically uses two different techniques to accomplish this: Examining (scanning) files to look for known viruses matching definitions in a virus dictionary, and identifying suspicious behavior from any computer program, which might indicate infection. Such analysis may include data captures, port monitoring, and other methods. Due to the risk of computer viruses harming your computer files, antivirus software is recommended for all Internet users.

**Application Programming Interface (API)**

First Data Global Gateway API is a tool that allows a merchant to create a customer commerce solution. Our Application Programming Interface (API) allows you to add payment functionality to custom built web sites or online applications.

**Authorization**

An authorization reserves funds on a customer's credit card. An authorization does not charge the card until you perform a Ticket Only transaction or confirm shipment of the order. The period during which funds are reserved may be as little as three days or as long as several months.

**Authorize Only**

An Authorize Only transaction reserves funds on a customer's credit card. An Authorize Only transaction does not charge the card until you perform a Ticket Only transaction and confirm shipment of the order using an option available in the Reports section. Authorize-only transactions reserve funds for varying periods, depending on the issuing credit card company's policy. The period may be as little as three days or as long as several months. For your protection, you should confirm shipment as soon as possible after authorization.

**Batch**

Credit Card or Check transactions that is combined and submitted as a group to the payment gateway for settlement.  On the payment gateway, batches are submitted automatically once a day.

**Blocking and Limiting**

If you suspect certain transactions might be fraudulent, you can block further purchases by blocking credit card numbers, persons' names, domain names, and IP addresses or Class C addresses from purchasing at your store. You can limit the amount that any customer can spend at your store by setting a maximum purchase amount. You can set how long automatic lockouts and duplicate lockouts will continue to be blocked.

**Browser**

Short for web browser, a browser is a software application that enables a user to display and interact with text, images, videos, music, and other information typically located on a web page at a web site on the Internet.

**Cable Modem**

A cable modem is a type of modem that provides access to the Internet through the cable television infrastructure. Cable modems are primarily used to deliver broadband Internet access, taking advantage of unused bandwidth on a cable television network. If the cable network is shared with many other Internet subscribers, Internet access speed may go down.

**Card Code**

The card code is the card security code, sometimes called Card Verification Value or Code (CVV or CVC).  It is a security feature for credit or debit card transactions, giving increased protection against credit card fraud.  This code (also known as a CCID or Credit Card ID) is often asked for by merchants to secure transactions when the card is not present, usually occurring over the Internet, by mail, fax, or over the phone.  The payment gateway will compare the card code with the code on file at the card-issuing bank.  Results of this comparison will show in the transaction approval code.  By using the card code results along with the Address Verification Service (AVS), you can make a more informed decision about whether to accept transactions.  MasterCard, Visa, and Discover credit and debit cards have a three-digit code, called the "CVC2" (card validation code), "CVV2" (card verification value), and "CID" (card identification number), respectively.  It is always the final group of numbers printed on the back signature panel of the card.  New North American MasterCard and Visa cards feature the card code in a separate panel to the right of the signature strip.  American Express cards have a four-digit code printed on the front side of the card above the number, referred to as the CID.

**Card-Issuing Bank**

The financial institution or bank that issues a credit, debit, or purchasing card to a business or consumer. The card-issuing bank has an address on file for the card which the Address Verification System (AVS) compares to the address given to the merchant.

**Chargeback**

A chargeback is a forced refund to the customer through your bank account. Chargebacks can occur with any type of business whether it is online or at an actual store location. Each fraudulent credit card transaction typically results in a chargeback. Credit card associations penalize merchant banks for Chargebacks. Naturally, the bank passes the fines on to the responsible merchant, and these penalties can be severe. While consumers are provided with a certain degree of protection if their credit card numbers are stolen and misused, Internet merchants are fully liable for all transactions because Internet transactions are classified as "card-not-present."

**Check Number**

The check number is a number unique to each check. The check number is always found in the top right corner of the check. The check number is only provided as a reference to process the ACH transaction.

**Commerce Service Provider (CSP)**

The commerce service provider (CSP) supplies businesses with the tools and services they need to buy and sell products and services over the Internet, and to manage their online enterprises. CSPs can generally host a secure web site that could be connected to a secure payment gateway for selling products or services over the Internet.

**Credit**

A Credit transaction returns funds to a customer's credit card on orders without an order number. This transaction is intended for returns against orders processed outside the system. Credit transactions are marked as Returns in your reports.

**Credit Card**

A credit card is a card (usually plastic) that assures a seller that the person using it has a satisfactory credit rating, and that the issuer will see to it that the seller receives payment for the merchandise delivered.

**CVC2**

The CVC2 is the card validation code or card code for MasterCards. See the definition for card codes for more information.

**CVV2**

The CVC2 is the card verification value or card code for Visa cards. See the definition for card codes for more information.

**Data Field**

A data field is an area on a web form or software application where you can enter information relevant to the name of the field. For example, you would enter the zip code in the data field named zip code.

**DDA Number**

The DDA (demand deposit account) number is the deposit account held at a bank or other financial institution for the purpose of securely and quickly providing frequent access to funds on demand.

**Dial-Up Connection**

A dial-up connection is a way to access the Internet through a telephone line. A modem is connected to a computer and a telephone line to dial into an Internet service provider's (ISP) node to establish a modem-to-modem link, which is then routed to the Internet. The speed of dial up connections is usually slower than other Internet access options.

**Digital Certificate**

A digital certificate is an electronic certificate that establishes the merchant's credentials for performing business on the Internet. It is an encrypted set of information issued by an Internet certification authority such as Thawte. Digital certificates are required for merchants who choose to use the API. For other products, the merchant does not need a digital certificate.

**Domain Name**

A name that identifies a computer or computers on the internet. These names appear as a component of a web site's URL, such as microsoft.com. This type of domain name is also called a hostname.

**DSL**

DSL (Digital Subscriber Line) is a technology for bringing fast Internet service to homes and small businesses over the wires of a local telephone network.

**E-commerce (ECI)**

E-commerce (ECI) or electronic commerce consists of the buying and selling of products or services over electronic systems, such as the Internet and other computer networks.

**Electronic Check Acceptance (ECA)**

With electronic check acceptance (ECA), the check is electronically submitted as a check. The check is no longer usable and the paper check must be voided. The customer signs and receives a paper receipt. ECA services may include a check guarantee service. ECA is used for retail payments only.

**Field**

A field is an area on a web form or software application where you can enter information relevant to the name of the field. For example, you would enter the zip code in the field named zip code.

**Firewall**

A firewall is a hardware or software device which is configured to permit, deny, or proxy data through a computer network which has different levels of trust. A firewall protects the resources of a private network from users of other networks.

**First Data Global Gateway Connect**

The First Data Global Gateway Connect service is an e-Commerce solution using a hosted payment page. This eliminates some of the complexity and is great for a merchant with limited resources or expertise.

**Forced Ticket**

A Forced Ticket transaction is a credit card transaction for authorizations you obtained over the phone. It requires a reference number (or approval code) that you should have received when you made the phone authorization.

**Hierarchy**

A term used to describe the organizational tree structure for multi-store reports. Merchants describe their organization by defining an org chart in the form of a tree structure. The structure is used for combining store reports into groups at different levels. The term hierarchy refers to the entire organizational tree structure containing levels and elements.

**HTML**

HTML is short for HyperText Markup Language. HTML is a markup language used to structure text and multimedia documents and to set up hypertext links between documents used extensively on the Internet. Other than manually entering transactions using the virtual POS terminal, HTML is the simplest way to send payment transactions to the payment gateway.

**HTTP**

HTTP (Hypertext Transfer Protocol) is a communications protocol used to transfer or convey information on the Internet. For example, when you enter a URL in your browser, it sends an HTTP command to the web server directing it to receive and transmit the requested web page.

**Hyperlink**

A hyperlink is a reference or navigation element in a document or web page linking to another section of the same document or web page or to another document or web page that may be on a different web site.

**Internet Check Acceptance (ICA)**

Internet Check Acceptance (ICA) is the type of check service provided on the payment gateway. ICA uses the Automated Clearing House (ACH) to transfer funds from the customer's account. The account information is entered in an online payment form, and no check is used. The customer may or may not sign a payment form. In either case, the merchant needs a documented record of the customer's authorization to transfer funds from the account. ICA includes an electronic receipt. There is no check guarantee service

with ICA. ICA is typically used for mail orders/telephone orders (MO/TO) or e-commerce transactions, but may also be used for retail.

**Internet Service Provider (ISP)**

An Internet service provider (ISP) is a business or organization that provides consumers or businesses access to the Internet and related services. An ISP can also host a web site.

**IP Address**

IP address is short for Internet Protocol address. An IP address is a number that is used to identify a specific computer on a network or on the Internet. The format of an IP address is written as four numbers separated by periods. Each number can be from 0 to 255. For example, 1.160.10.240 could be an IP address.

**Issuing Bank**

The financial institution or bank that issues a credit, debit, or purchasing card to a business or consumer. The issuing bank has an address on file for the card which the Address Verification System (AVS) compares to the address given to the merchant.

**Level**

A level is a single tier in the hierarchy or organizational tree structure for multi-store users. The top level (1) is typically the root (or corporate) level containing 1 element. The lowest level of the tree is always the User level; the next level up from the lowest is the Store level. Merchants define the number of levels and names of each level for their own organization up to 10 total levels.

**Local Area Network (LAN)**

A local area network (LAN) is a computer network covering a small geographic area, like a home, office, or group of buildings. The defining characteristics of LANs, in contrast to Wide Area Networks (WANs), include their much higher data transfer rates, smaller geographic range, and lack of a need for leased telecommunication lines.

**Log In**

To log in is the process by which individual access to a computer system is controlled by identification of the user in order to obtain credentials to permit access. It is an integral part of computer security. A user can log in to a system to obtain access, and then log out when the access is no longer needed.

**Log Out**

To log out (also: to log off, sign out, or sign off) is to close off one's access to a computer system after previously having logged in. To log out of the system, click Log Out on the Main Menu Bar. To prevent unauthorized users from accessing their account, merchants should always log off and close the browser window when they are finished using the system.

**Multi-Store**

Multi-stores are multiple accounts with different store numbers.

**Network**

A network is a group of two or more computer systems linked together.

**Password**

A password is a form of secret authentication data that is used to control access to a resource. It is recommend that users change their password frequently and do not share it with anyone to prevent unauthorized access to their accounts.

**Payment Gateway**

A payment gateway is an e-commerce application service that authorizes payments for e-businesses and online retailers. It is the equivalent of a physical POS (Point-of-sale) terminal located in most retail outlets. Payment gateways encrypt sensitive information, such as credit card numbers, to ensure that information passes securely between the customer and the merchant.

**PDF File**

PDF is short for Portable Document Format. It is the file format created by Adobe Systems in 1993 for document exchange. PDF is used for representing two-dimensional documents in a device-independent and display resolution-independent fixed-layout document format. Internet users need an Adobe Acrobat viewer to open a PDF file, which can be downloaded for free at http://www.adobe.com.

**Periodic Billing**

Periodic billing is recurring payments or the capability to charge customers on a recurring basis according to merchant-defined rules. Gateway products allow a merchant to charge a customer's card in exchange for products and services one or more times every day, week, month, or year.

**Plug-In**

A plug-in is a hardware or software module that adds a specific feature or service to a larger system. For example, there are a number of plug-ins for the Netscape Navigator browser that enable it to display different types of audio or video files.

**Point of Sale (POS)**

The consumer is purchasing a product from the merchant and the merchant is processing the payment transaction.  POS is commonly used to refer to the payment terminals or software merchants use to process the payment transaction.

**Protocol**

A Protocol is a set of guidelines or rules that help in governing an operation on the Internet and communications over it. There are several different protocols. HTTP is the protocol used for the Internet.

**Purchasing Card**

A purchasing card is a corporate card used by some companies for their business purchases. When a customer pays for goods or services using a purchasing card, the following information must be included with the order information. This information is optional for a regular credit card transaction: An indication of whether the order is tax exempt. The amount of tax applied to the order. If the order is tax exempt, the tax amount should be zero. A purchase order number associated with the order. One purchase order can apply to several individual orders to allow for delivery of goods over time. If there isn't a purchase order associated with the order, the customer must supply some value for the order.

**Recurring Payment**

The capability to charge customers on a recurring basis according to merchant-defined rules. Gateway products allow a merchant to charge a customer's card in exchange for products and services one or more times every day, week, month, or year.

**Return**

A Return transaction returns funds to a customer's credit card for an existing order on the system. To perform a return, you need the order number (which you can find in your reports). After you perform a Return for the full order amount, the order will appear in your reports with a transaction amount of 0.00.

**Sale**

A sale transaction immediately charges a customer's credit card when the batch of transactions is closed.

**Secure Shell (SSH)**

Secure Shell (SSH) is a network protocol that allows data to be exchanged over a secure channel between two computers.

**Secure Sockets Layer (SSL)**

Secure Sockets Layer (SSL) are cryptographic protocols that provide secure communications on the Internet, such as transmitting credit card data and other data transfers.

**Settlement**

Settlement is the completion of a payment transaction. When a transaction is settled, it has been funded and the funds deposited in the merchant account.

**Store Name**

The store name (also called storename or store number) is a six to ten-digit number needed to identify the merchant. The store name is given to the merchant in the Welcome E-mail. Merchants need the store name, user ID, and password to access the virtual point-of-sale terminal, as well as reports, admin, and customization functions. The store name is also needed for using the API and other products.

**Ticket Only**

A Ticket Only transaction is a post-authorization transaction that captures funds from an Authorize Only transaction. Funds are transferred when your batch of transactions is settled. If you enter a larger total for the Ticket Only transaction than was specified for the Authorize Only transaction, the Ticket Only transaction may be blocked. If you enter a smaller amount than was authorized, an adjustment is made to the Authorization to reserve only the smaller amount of funds on the customer's card for the transaction.

**Transit Routing Number**

A transit routing number is a nine-digit bank code, used in the United States, which appears on the bottom of checks. This code is used by the Automated Clearing House to process direct deposits and other automated transfers.

**URL**

URL is short for Uniform Resource Locator. The URL is the address for documents and other pages on the Internet. The first part of the address indicates what protocol to use, and the second part specifies the IP address or the domain name where the resource is located.

**User ID**

For accounts with multiple users, each individual user will be assigned a User ID. The user will need this User ID, along with the store name and password, to log in to the system.

**Virtual**

Virtual is often used on the Internet to denote a web-based program that functions similarly to a physical device or system. For example, a virtual point-of-sale terminal is a computer program that performs the same functions as a physical point-of-sale terminal.

**Void**

To void a transaction is to cancel a payment transaction. Merchants can void transactions prior to settlement. Once the transaction has settled, the merchant has to perform a return or credit to reverse the charges and credit the customer's card.

**WAN**

A WAN is a wide-area computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more local-area networks (LANs). Computers connected to a wide-area network are often connected through public networks, such as the telephone system. They can also be connected through leased lines or satellites.

**Web Server**

A web server is a computer program responsible for accepting HTTP requests from clients and serving HTTP responses along with optional data contents. The responses are usually web pages, such as HTML documents and linked objects (images, etc.).

**XML**

XML is the Extensible Markup Language, which is a universal format for the representation of documents and data. It is classified as an extensible language because it allows its users to define their own tags. Its primary purpose is to facilitate the sharing of structured data across different information systems, particularly through the Internet.