VeriSign Payment Services

Payflow Pro Developer's Guide

USER GUIDE

VeriSign Payment Services Payflow Pro Developer's Guide

VeriSign, Inc. 00000013/Rev. 3

Trademark Notices

Note   This document may describe features and/or functionality that are not present in your software or your service agreement. Contact your account representative to learn more about what is available with this VeriSign product.

Contents

Summary of Revisions

Document 00000013/Rev. 3

The following change has been made to this document since revision 1:

Processors added	Wells Fargo Bank, First Data Client Services, and Global Payments Central processors support Payflow. See "Processor Contact Information: Transaction Settlement" on page 5.
ACH Transactions	Information on Automated Clearing House (ACH) transactions has been removed from this document. For information on performing ACH transactions, contact your VeriSign Sales Representative at **paymentsales@verisign.com** or visit **http://www.verisign.com/products/payflow/ach/findoutmore.html**
Referenced Transactions	The list of fields copied from the referenced transaction to the new transaction has been enlarged. See "Fields Copied From Reference Transactions" on page 29.

Introduction

VeriSign Payflow Pro is a high performance TCP/IP-based Internet payment solution. Payflow Pro is pre-integrated with leading e-commerce solutions and is also available as a downloadable software development kit (SDK).

About Payflow Pro

The Payflow Pro client resides on your computer system and is available on all major Web server platforms in a variety of formats to support integration requirements. It is available as a C library (.dll/.so), binary executable, Java library, COM object, Java Native Interface, and Perl Module Interface.

Payflow Pro is multi-threaded and allows multiple concurrent transactions from a single client. It can be integrated as a Web-based or a non-Web-based application. It does not require the HTTP protocol to run, which allows for greater flexibility in configuration and reduced processing overhead for higher performance.

How Payflow Pro Works

Payflow Pro uses a client/server architecture to transfer transaction data from you to the processing networks, and then returns the authorization results to you.

Payflow Pro can process real-time credit card transactions and other transaction types to most of the financial processing centers in the United States.
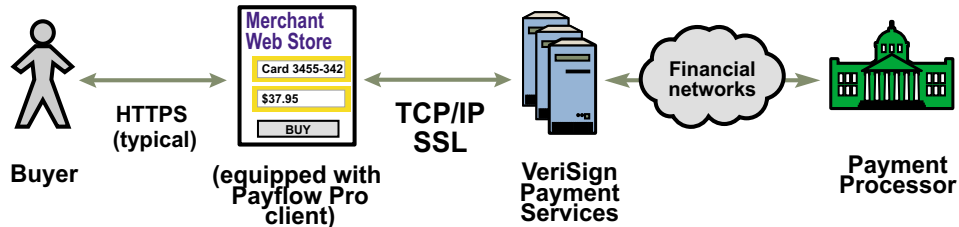
1   The Payflow Pro client encrypts each transaction request using the latest Secure Sockets Layer (SSL) encryption and establishes a secure link with the VeriSign processing server over the Internet.

2   The VeriSign server, a multi-threaded processing environment, receives the request and transmits it (over a secure private network) to the appropriate financial processing network for real-time payment authorization.

3   The response (approved/declined, and so on) is received from the financial network and is returned via the same session to the Payflow Pro client.

4   The Payflow Pro client completes each transaction session by transparently sending a transaction receipt to the VeriSign server before disconnecting the session.

The entire process is a real-time synchronous transaction. Once connected, the transaction is immediately processed and the answer returned in about three seconds. Payflow Pro does not affect or define the time periods of authorizations, nor does it influence the approval or denial of a transaction by the issuer.

When integrating with Payflow Pro, you need only be concerned with passing all the required data for transaction authorization. For transactions that you want to be settled (close batch), the operation is handled by VeriSign.

Payflow Pro Advantages

■   **Configurable to any e-commerce application**. Payflow Pro is ideal for enterprise merchants who require complete customizability for a controlled buyer experience.

- **Easy to install and implement.** Downloadable from VeriSign's Web site, Payflow Pro can be easily integrated into a customized e-commerce solution in a matter of hours.

- **Integration versatility.** Payflow Pro can be integrated as an application library or can be run using CGI scripts.

Pre-integrated Solutions

Payflow Pro is integrated with the majority of third-party shopping carts and ecommerce applications. Some VeriSign integrations are included with the third-party solution, and others are available from the download section of the VeriSign Manager Web site (**https://manager.verisign.com)**. Some of the supported solutions are:

- BEA Weblogic

- IBM Websphere Payment Manager

- Intershop

- Macromedia Cold Fusion

- Microsoft Commerce Server 2000

- Miva

- Oracle iPayment

For a detailed list of shopping carts compatible with Payflow Pro, see **http://www.verisign.com/products/payflow/partners/cartPartners.html**.

For a detailed list of e-commerce applications compatible with Payflow Pro, see **http://www.verisign.com/products/payflow/partners/devPartners.html**.

Supported Processors

Payflow Pro supports the following processors:

- American Express

- EDS Aurora

- FDMS Nashville

- FDMS South

- First Data Client Services
- Global Payments Central (MAPP)
- Global Payments East (NDCE)
- Nova
- Paymentech
- TeleCheck
- Vital
- Wells Fargo Bank

Supported Credit Cards

Payflow Pro supports multiple credit card types, including:

- Visa
- MasterCard
- American Express/Optima
- Diners Club
- Discover/Novus
- JCB

Supported Payment Types

Payflow Pro supports multiple payment types in a single installation, including:

- Credit cards
- Electronic check (TeleCheck)
- Delayed shipment billing
- Purchase cards Level II (also known as corporate purchase or procurement cards) and Level III
- Automated Clearing House (ACH). For information on performing ACH transactions, contact your VeriSign Sales Representative at

paymentsales@verisign.com or visit
http://www.verisign.com/products/payflow/ach/findoutmore.html

VeriSign's Recurring Billing Service

VeriSign's Recurring Billing Service is a sevrice for which you enroll separately. Using Payflow Pro to define and manage recurring transactions is fully described in *VeriSign Payment Services Recurring Billing Guide*.

Customer Support

For problems with transaction processing or your connection to VeriSign, contact:

VeriSign Payment Services

Online Information:	**http://www.verisign.com/products/payment.html** **http://www.verisign.com/support/payflow/pro/index.html**
E-mail:	vps-support@verisign.com
Mail:	VeriSign Payment Services Attn: Customer Support 487 E. Middlefield Rd. Mountain View, CA 94043
Phone:	**1.888.883.9770**

Processor Contact Information: Transaction Settlement

For questions regarding transaction settlement, contact your processor:

American Express
19640 N. 31st Avenue
Phoenix, AX 85027
(800) 297-5555

EDS Aurora
5400 Legacy Drive
M/S B1-2A-19
Plano, TX 75024
(800) 526-9839

FDMS Nashville
First Data Corporation

2525 Perimeter Place Drive
Suite 123
Nashville, TN 37214
(800) 647-3722

FDMS South

First Data Corporation
Business Payment Services Group
4000 Coral Ridge Drive
Coral Springs, FL 33065
(800) 326-2217

First Data Client Services - Merchant Service Team

Level 9, 168 Walker Street
NORTH SYDNEY NSW 2060
Phone : +61 2 1-300-136-433 (24hrs-7days)
Facsimile :+61 2 9954 1042
merchant_service@firstdata.com.au

Global Payments, Inc.

Four Corporate Square
Atlanta, Georgia 30329-2010
800-622-2318
Main corporate number: 404-235-4400

Global Payments Central (MAPP)

Global Payments Inc.
2045 Westport Center Dr
St Louis, MO 63146
(314) 989-3300
product.integration@globalpay.com

Nova Information Systems, Inc.

Knoxville Operations Center
7300 Chapman Highway
Knoxville, TN 37920-6609
(800) 725-1243

Paymentech, Inc.

4 Northeastern Blvd.
Salem, NH 03079
(800) 782-1266

TeleCheck Merchant Services

P.O. Box 4513
Houston, TX 77210-4513
(800) 366-1054 (Merchant Services)

Vital

Visanet Processing Services
8320 South Hardy Road
Tempe, AZ 85284
(800) 847-2772 (Merchant Help Desk)

Wells Fargo Bank

Merchant Card Services
1200 Montego Way
Walnut Creek, California 94598

About this Document

This document is organized as follows:

- Chapter 2, "Installing and Configuring the Payflow Pro SDK," shows a typical Payflow Pro installation procedure for NT and UNIX.

- Chapter 3, "Performing Credit Card Transactions," discusses credit card transaction syntax and parameters and describes how to perform transactions.

- Chapter 4, "Responses to Credit Card Transaction Requests," describes the responses to credit card transaction requests.

- Chapter 5, "Testing Payflow Pro Credit Card Transactions," describes how to test your Payflow Pro integration for credit card transactions.

- Chapter 6, "Going Live," specifies the steps you follow when you are ready to go live with Payflow Pro.

- Appendix A, "Processors Requiring Additional Transaction Parameters," lists processors and their processor-specific parameters.

- Appendix B, "Performing TeleCheck Electronic Check Transactions," discusses TeleCheck transaction syntax and parameters and describes how to perform transactions. In addition, this chapter describes testing your TeleCheck integration.

- Appendix C, "Responses to TeleCheck Transaction Requests," describes the responses to TeleCheck transaction requests.

- Appendix D, "VeriSign Reporting Parameters," details the parameters that can be passed to VeriSign for reporting purposes.

- Appendix E, "XMLPay," briefly describes XMLPay and tells where you may obtain a copy of *VeriSign Payment Services XMLPay 2.0 Core Specification*.

- Appendix F, "Country Codes, Units of Measure, and Currency Codes (FDMS South Only)," lists Country Codes, Units of Measure, and Currency Codes.

- Appendix H, "Frequently Asked Questions," contains answers to the most commonly asked questions about Payflow Pro.

Related Documents

For descriptions of all VeriSign Payment Services products and definitions of terms used in the transaction processing field, see *VeriSign Payment Services Introduction*.

VeriSign Manager User's Guide describes the use of VeriSign **Manager**.

About Security

It is your responsibility to protect your passwords and other confidential data and to implement security safeguards on your Web site and in your organization, or to ensure that your hosting company or internal Web operations team is implementing them on your behalf. You or your ISP/shopping cart provider should be able to adhere to security requirements as protective as those described at: **http://www.verisign.com/support/payflow/security.html**

IMPORTANT! To enable you to test Payflow Pro, VeriSign provides sample transaction scripts that you customize with your VeriSign account information and password. Because the password is initially stored in the text of the program, it is vulnerable.

Do not use VeriSign's test scripts in your production environment. To minimize fraud, machine passwords should always be encrypted. You must write a program that encrypts and decrypts your Payflow Pro account password.

Appendix G, "Ensuring Safe Storage and Use of Passwords," describes an example method for encrypting your Payflow Pro password and enabling your application to access and decrypt the password when submitting Payflow Pro transactions.

VeriSign CHAPTER 2
The Value of Trust™

Installing and Configuring the Payflow Pro SDK

Before You Begin

If you plan to configure and customize Payflow Pro SDK yourself

You should be familiar with Web development tools and procedures. If you are not, consider letting one of VeriSign's Web development partners help you. You can find a VeriSign Web development partner at
http://www.verisign.com/products/payflow/partners/solution.html

If you do not have Web development expertise and you do not want to hire someone to help you

Consider using one of the shopping carts that integrate Payflow Pro. You can find more information at
http://www.verisign.com/products/payflow/partners/carts.html

Preparing the Payflow Pro Client Application

Payflow Pro is available on all major Web server platforms in a variety of formats to support your integration requirements. It is available as a C library (.dll/.so), binary executable, Java library, COM object, Java Native Interface, and Perl Module Interface.

Step 1   Download the Payflow Pro SDK

From the **Download** section of the VeriSign Manager
https://manager.verisign.com, download the Payflow Pro SDK to your hard drive.

Step 2   Extract the files to a local directory

Step 3   Configure your firewall

Enable inbound traffic for SSL (port 443).

Step 4   Set the certificate path

To enable the client to authenticate the VeriSign Payment Services server, you must set the path to the **certs** directory (included with the SDK that you downloaded).

For specific information on setting the certificate path, see the Readme file and example applications in the SDK.

Step 5   Read the Readme file

The Readme file includes information on samples that illustrate how to use the client in your development environment.

Performing Credit Card Transactions

This chapter describes the process of performing credit card transactions.

Responses to transaction requests are described in Chapter 4, "Responses to Credit Card Transaction Requests."

Using Payflow Pro to define and manage recurring transactions is fully described in *Recurring Billing Service Guide*.

Note For information on TeleCheck transactions, skip this chapter and see Appendix B, "Performing TeleCheck Electronic Check Transactions."

For information on ACH transactions, see *ACH Transaction Guide*.

In This Chapter

About Credit Card Processing

Credit card processing occurs in two steps — a real-time authorization and a capture (settlement) of the funds that were authorized. As discussed below, you perform these two steps either as a single transaction or as two transactions, depending on your business model.

For an authorization, VeriSign sends the transaction information to a credit card processor who routes the transaction through the financial networks to the cardholder's issuing bank. The issuing bank checks whether the card is valid, evaluates whether sufficient credit exists, checks values such as Address Verification Service and Card Security Codes (discussed below), and returns a response: Approval, Decline, Referral, or others.

You receive the response a few seconds after you submit the transaction to VeriSign. If the authorization is approved, the bank temporarily reserves credit for the amount of the transaction to prepare to capture (fulfill) the transaction. The hold on funds typically lasts for about a week.

Note You cannot remove a hold on funds through the processing networks—you must contact the issuing bank to lift a hold early.

Capturing a transaction (also known as settling a transaction) actually transfers the funds to your bank. At least once a day, VeriSign gathers all transactions that are flagged to be settled and sends them in a batch file to the processor. The processor then charges the issuing bank and transfers the funds to your bank. It typically takes a few days before the money is actually available in your account, depending on your bank.

Obtaining an Internet Merchant Account

To accept credit cards over the Internet, you need a special account called an Internet Merchant Account. Your account provider or acquiring bank works with a VeriSign-supported credit card processor, such as First Data, Vital, or Paymentech. To use Payflow Pro to accept live credit cards, you must provide certain details about your account to VeriSign during the "Go Live" part of the enrollment process.

> **Note**   An Internet Merchant Account is separate from a merchant account used for in-person retail transactions due to the different risk profile for card-not-present (ecommerce) transactions.

VeriSign has partnered with several Internet Merchant Account providers to make applying easy. See
http://www.VeriSign.com/products/payflow/merchant.html

Planning Your Payflow Pro Integration

In designing your Payflow Pro integration, you should evaluate the following:

■   Whether to use a one-step or two-step transaction process. One-step: Submit a Sale transaction, which performs the authorization and (if successful) then flags the transaction for settlement. Two-step: Perform an Authorization-only transaction and then later perform a Delayed Capture transaction. The Delayed Capture transaction can be for the same amount as the original transaction or for a lower amount. (In the case of a split shipment, you can perform a Delayed Capture transaction for the initial shipment and a reference transaction for the final payment. These transaction types are described in this chapter.)

According to card association rules, most physical goods merchants should use a two-step process, since settlement should occur when the goods are fulfilled or shipped. A two-step process is also useful if you want to evaluate information in the response, such as whether the issuer verifies the billing address, and so on. Electronic goods merchants, who fulfill the order immediately, can use the one-step process. Check with your Internet Merchant Account provider for suggestions on the best method for you.

■   Whether or how to use risk management tools such as Address Verification Service (AVS) and card security code (CSC).

For AVS, if the data is submitted with the initial transaction, the issuer checks the street address and/or the postal code against the billing address on file for the consumer. AVS is described on page 33.

CSC refers to a 3- or 4-digit number that appears on the back of credit cards. (CSC is known by other names, such as CVV2 and CID, depending on the type

of card.) If CSC data is submitted, the issuer can notify you whether the number matches the number assigned to the card. CSC is described on page 34.

It may also be possible to implement additional safeguards yourself or to use a fraud service from VeriSign. You might want to discuss risk management with your Internet Merchant Account provider.

■ Store information in your local database or use VeriSign Manager reports to manage the data. You may want to store shipping information in your system, or you may prefer to send the information to VeriSign with the transaction and report on it later.

> **Note** VeriSign recommends that you do not store credit card numbers. If you must store numbers, encrypt and store them behind properly configured firewalls. You should also consider whether and how to use the merchant-defined fields **Comment1** and **Comment2** to help tie VeriSign reports to your orders/customers or to report on other information about the transaction.

■ If or how you want to integrate with other systems, such as order fulfillment, customer service, and so on. You may wish to connect these systems directly to Payflow Pro for capturing funds, issuing refunds/credits, and so on. Alternatively, you may prefer to perform these steps manually using VeriSign Manager. Either way, VeriSign recommends that you monitor transaction activity using VeriSign Manager.

■ You may want to discuss, with your Internet Merchant Acquirer, practices that help you to obtain the most advantageous rates.

E-commerce Indicator (ECI)

Some processors support a software flag called E-commerce Indicator (ECI) that indicates that the associated transaction is an Internet transaction. Payflow Pro complies with ECI basic requirements for all supported processors.

If you use VeriSign's Buyer Authentication Service, then the ECI values reflects the Authentication status. See *Fraud Protection Services Guide*.

Credit Card Transaction Format

Note The examples in this chapter use the syntax of the **pfpro** executable client. Other Payflow Pro clients differ in where and how the parameter values are set, but the meaning and uses are the same.

Use the following syntax when calling the Payflow Pro client (**pfpro**) to process a transaction. Table 3-1 describes the arguments to the command.

```
pfpro <HostAddress> <HostPort> "<ParmList>" <TimeOut>
<ProxyAddress> <ProxyPort> <ProxyLogon> <ProxyPassword>
```

For example:

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=S&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&ACCT=5555555555554444&EXPDATE=03
08&AMT=123.00"30
```

Table 3-1 Arguments to the pfpro executable client

Argument	Required	Description
HOSTADDRESS	Yes	VeriSign's host name. For live transactions, use **payflow.verisign.com** For testing purposes use **test-payflow.verisign.com**
HOSTPORT	Yes	Use port 443
PARMLIST	Yes	The ParmList is the list of parameters that specify the payment information for the transaction. The quotation marks " " at the beginning and end are required. In the example, the ParmList is: "TRXTYPE=S&TENDER=C&PARTNER=VeriSign&VENDOR=Super Merchant&USER=SuperMerchant&PWD=x1y2z3&ACCT=55555555 55554444&EXPDATE=0308&AMT=123.00" The content of the ParmList varies by the type of transaction being processed. For example, a Void transaction requires a different set of parameters than does a Sale transaction. "Parameters Used in Credit Card Transactions" on page 19 defines the parameters used to create credit card transactions. "Values Required by All Transaction Types" on page 23 lists the parameters required by each transaction type.
TIMEOUT	Yes	Time-out period for the transaction. The minimum recommended time-out value is 30 seconds. The VeriSign client begins tracking from the time that it sends the transaction request to the VeriSign server.
PROXYADDRESS	No	Proxy server address. Use the **PROXY** parameters for servers behind a firewall. Your network administrator can provide the values.
PROXYPORT	No	Proxy server port
PROXYLOGON	No	Proxy server logon ID
PROXYPASSWORD	No	Proxy server logon password

Command Syntax Guidelines

Follow these guidelines:

- The command must be a single string with no line breaks.

- Spaces are allowed in values

- Enclose the **ParmList** in quotation marks (**""**).

- Quotation marks (**""**) are not allowed within the body of the **ParmList**.

- Separate all **name/value** pairs in the **ParmList** using an ampersand (**&**).

- Calling **pfpro** without the required parameters results in an error message.

Using Ampersand and Equal Sign Characters in Values

Because the ampersand (&) and equal sign (=) characters have special meanings in the ParmList, name/value pairs like **NAME=Ruff & Johnson**, and **COMMENT1=Level=5** are not valid.

To use the & and = characters in the value of a name/value pair, use a l*ength tag*. A length tag specifies the exact number of characters and spaces that appear in the value. The following name/value pairs are valid:

```
NAME[14]=Ruff & Johnson

COMMENT1[7]=Level=5
```

Note   Quotation marks (**""**) are not allowed even if you use a length tag.

Parameters Used in Credit Card Transactions

All credit card processors accept the parameters listed in Table 3-2 (required and optional parameters are noted). "Values Required by All Transaction Types" on page 23 lists the parameters required for each transaction type.

Note   Some processors require yet additional parameters. See Appendix A, "Processors Requiring Additional Transaction Parameters," for details on your processor's requirements.
Appendix D, "VeriSign Reporting Parameters," provides a list of parameters that you can pass for reporting purposes.

Table 3-2 Credit-card transaction parameters

Parameter	Description	Required	Type	Max. Length
ACCT	The credit card or purchase card number may not contain spaces, non-numeric characters, or dashes. For example, ACCT= 5555555555554444	Yes[1]	Numeric	19
AMT	Amount (US Dollars) U.S. based currency. Specify the exact amount to the cent using a decimal point—use 34.00, not 34. Do not include comma separators—use 1199.95 not 1,199.95. Your processor and/or Internet merchant account provider may stipulate a maximum amount.	Yes[1]	Numeric USD only	10
AUTHCODE	Used only when processing Voice Authorization transactions. AUTHCODE is the approval code obtained over the phone from the processing network. **Important:** For Test servers, the AUTHCODE contains alpha-numeric characters (for example, 123PNI). For Live servers, the AUTHCODE contains only numeric digits (for example, 123456). **Note:** AUTHCODE is also returned for approved transactions	No, except for Voice Authorizations.	Numeric	6
COMMENT1	User-defined value for reporting and auditing purposes.	No	Alpha-numeric	128
COMMENT2	User-defined value for reporting and auditing purposes.	No	Alpha-numeric	128
CVV2	A 3- or 4-digit code that is printed (not imprinted) on the back of a credit card. Used as partial assurance that the card is in the buyer's possession. See "Card Security Code Validation" on page 34.	No	Alpha-numeric	4
EXPDATE	Expiration date of the credit card in **mmyy** format. For example, 0308 represents March 2008.	Yes[1]	Numeric	4

Table 3-2 Credit-card transaction parameters (Continued)

Parameter	Description	Required	Type	Max. Length
NAME or FIRSTNAME	Account holder's name. This single field holds all of the person's name information.	No, but recom-mended	Alpha-numeric upper-case	30
ORIGID	The VeriSign Reference ID (PNREF) that is returned for all transactions. Use ORIGID when referring to a previous transaction. Case-sensitive.	Yes[1]	Alpha-numeric	12
PARTNER	The authorized VeriSign Reseller that registered you for the Payflow Pro service provided you with a **Partner ID**. If you registered yourself, use **VeriSign**. Case-sensitive.	Yes	Alpha-numeric	12
PWD	Case-sensitive 6- to 32-character password that you defined while registering for the account.	Yes	Alpha-numeric	32
STREET	The cardholder's street address (number and street name). The STREET address is verified by the AVS service (described in page 33.)	No	Alpha-numeric	30
TENDER	The tender type (method of payment). Use only the value **C** for credit card transactions.	Yes	Alpha	1
TRXTYPE	The kind of transaction, for example, Sale or Credit. Described in "Values Required by All Transaction Types" on page 23.	Yes	Alpha	1
USER	Case-sensitive login ID for the Payflow account that you defined while registering for the account. In the future, each account will allow multiple users. This parameter will specify the user.	Yes	Alpha-numeric	64
VENDOR	Case-sensitive Vendor ID that you defined while registering for the account.	Yes	Alpha-numeric	64

Table 3-2 Credit-card transaction parameters (Continued)

Parameter	Description	Required	Type	Max. Length
ZIP	Account holder's 5- to 9-digit postal code (called ZIP code in the USA). Do not use spaces, dashes, or non-numeric characters. The ZIP is verified by the AVS service (described in page 33.)	No	Alpha	9
1. Some transaction types do not require this parameter. See "Values Required by All Transaction Types" on page 23.				

Values Required by All Transaction Types

All transaction APIs require values for the TRXTYPE, TENDER, PARTNER, VENDOR, USER, and PWD parameters. Each transaction API has additional parameter requirements, as listed here. Transaction responses are described in Chapter 4, "Responses to Credit Card Transaction Requests."

Performing Sale Transactions

A Sale API (TRXTYPE=S) charges the specified amount against the account, and marks the transaction for immediate fund transfer during the next settlement period. VeriSign submits each merchant's transactions for settlement on a daily basis.

Additional Required Parameters for Sale Transactions

The set: [ACCT, EXPDATE, and AMT]

or

Set ORIGID to the PNREF (Transaction ID) value returned for the original transaction. When you use ORIGID, the Sale transaction uses the transaction referred to by the ORIGID as a reference transaction. See "Performing Reference Transactions" on page 29.

Example Sale Transaction

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=S&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&ACCT=5555555555554444&EXPDATE=03
08&AMT=123.00"30
```

Performing Credit Transactions

A Credit API (TRXTYPE=C) returns the specified amount to the account holder. It is not necessary to provide the credit card number (ACCT) if you have the Transaction ID (PNREF) that was returned for the original transaction. If you issue a credit using the PNREF and not specifying an amount, the amount of the original transaction is used.

IMPORTANT! For Test servers, the first and fourth characters in the PNREF value are alpha characters (letters), and the second and third characters are numeric (Example: V53A17230645). For Live servers, all of the first four characters are alpha characters, for example: VPNE12564395.

Additional Required Parameters for Credit Transactions

The set: [ACCT, EXPDATE, and AMT]

or

Set ORIGID to the PNREF (Transaction ID) value returned for the original transaction.

Example Credit Transaction

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=C&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&ACCT=5555555555554444&EXPDATE=03
08&AMT=123.00"30
```

or

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=C&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&ORIGID=VPNE12564395"30
```

Performing Void Transactions

A **Void** API (TRXTYPE=V) performs a reversal of a charge prior to the settlement process. A Void prevents a transaction from being settled, but does not release the authorization (hold on funds) on the cardholder's account.

Note You cannot void a Void transaction.

Additional Required Parameters for Void Transactions

Set ORIGID to the PNREF (Transaction ID) value returned for the original transaction.

Example Void Transaction

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=V&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&ORIGID=VPNE12564395"30
```

Performing Voice Authorization Transactions

Some transactions cannot be authorized over the Internet (for example, high dollar amounts)—processing networks generate Referral (Result Code 13) transactions. In these situations, you can phone the cardholder's issuing bank and provide the payment information. If the transaction is approved, the bank provides you with a voice authorization code (AUTHCODE) for the transaction. You include this AUTHCODE as part of a Voice Authorization (TRXTYPE=F) transaction.

IMPORTANT! For Test servers, the AUTHCODE contains alpha-numeric characters (for example, 123PNI). For Live servers, the AUTHCODE contains only numeric digits (for example, 123456).

Once a Voice Authorization transaction has been approved, it is treated like a Sale or a Delayed Capture transaction and is settled with no further action on your part.

Like Sale or Delayed Capture transactions, approved Voice Authorization transactions can be voided.

Additional Required Parameters for Voice Authorization Transactions

AUTHCODE
ACCT
EXPDATE
AMT

Example Voice Authorization Transaction

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=F&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&AUTHCODE=AB34RT56&ACCT=555555555
5554444&EXPDATE=0308&AMT=123.00"30
```

Performing Inquiry Transactions

An Inquiry API (TRXTYPE=I) checks the result and status of a transaction.

Additional Required Parameters for Inquiry Transactions

Set ORIGID to the PNREF (Transaction ID) value returned for the original transaction.

Example Inquiry Transaction

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=I&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&ORIGID=VPNE12564395"30
```

Performing Authorization/Delayed Capture Transaction

Visa/MasterCard regulations prohibit merchants from capturing credit card transaction funds until product has shipped to the buyer. Because of this rule, most processing networks implement a two-stage transaction solution. VeriSign refers to this as delayed capture processing. This process consists of an authorization (**TRXTYPE=A**) transaction followed (when the merchant is ready to collect funds) by a delayed capture (**TRXTYPE=D**) transaction.

An Authorization transaction does not transfer funds, rather it places a hold on the cardholder's open-to-buy limit, lowering the cardholder's limit by the amount of the transaction. A delayed capture transaction then captures the original authorization amount. The transaction is scheduled for settlement during the next settlement period.

IMPORTANT! Only one **Delayed Capture** transaction is allowed per **Authorization** transaction.

Additional Required Parameters for Authorization Transactions

The set: [ACCT, EXPDATE, and AMT]

or

Set ORIGID to the PNREF (Transaction ID) value returned for the original transaction. When you use ORIGID, the transaction uses the transaction

referred to by the ORIGID as a reference transaction. See "Performing Reference Transactions" on page 29.

Additional Required Parameters for Delayed Capture Transactions

Set ORIGID to the PNREF (Transaction ID) value returned for the original transaction. If the amount of the capture differs from the amount of the authorization, then you must specify a value for AMT.

Step 1   Perform the Authorization transaction

The Authorization transaction uses the same parameters as Sale transactions, except that the transaction type is **A**.

The return data for an Authorization transaction is also the same as for a Sale transaction. To capture the authorized funds, use the `PNREF` return value in a Delayed Capture transaction, as described in Step 2 on page 27.

IMPORTANT!   For Test servers, the first and fourth characters in the PNREF value are alpha characters (letters), and the second and third characters are numeric (Example: V53A17230645). For Live servers, all of the first four characters are alpha characters (letters), for example: VPNE12564395.

Example Authorization Transaction

Issue Authorization-only Transaction

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=A&TENDER=C&PWD=x1y2z3&PARTNER=VeriSign
&VENDOR=SuperMerchant&USER=SuperMerchant&ACCT=55555555555544
44&EXPDATE=0308&AMT=123.00&COMMENT1=Second purchase
&COMMENT2=Low risk customer&INVNUM=1234567890&STREET=5199
MAPLE&ZIP=94588"30
```

Example Authorization Response

```
RESULT=0&PNREF=VXYZ01234567&RESPMSG=APPROVED&AUTHCODE=123456
&AVSADDR=Y&AVSZIP=N
```

Step 2   Perform the Delayed Capture transaction

Set ORIGID to the PNREF value from the original authorization transaction. (There is no need to retransmit the credit card or billing address information—it is stored at VeriSign.)

If the capture succeeds, the amount of the sale is transferred to the merchant's account during the daily settlement process. If the capture does not succeed, the hold on the cardholder's open-to-buy is still in effect.

Example Delayed Capture Transaction

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=D&TENDER=C&PWD=x1y2z3&PARTNER=VeriSign&VENDOR=Super
Merchant&USER=SuperMerchant&ORIGID=VXYZ00887892" 30
```

Example Delayed Capture Response

```
RESULT=0&PNREF=VXYZ00895642&AUTHCODE=25TEST&AVSADDR=Y&AVSZIP
=N
```

Delayed Capture Transaction: Capturing Transactions for Lower Amounts

You can perform a delayed capture transaction for an amount lower than the original authorization amount (useful, for example, when you make a partial shipment).

Delayed Capture Transaction: Capturing Transactions for Higher Amounts

You can perform a delayed capture transaction for an amount higher than the original authorization amount, however, you are charged for an extra transaction. In addition, the cardholder's open-to-buy is reduced by the sum of the original authorization-only amount and the final delayed capture amount.

Delayed Capture Transaction: Error Handling and Retransmittal

If an error occurs while processing a delayed capture transaction, it is safe to retry the capture with values that allow the VeriSign server to successfully process it. Conversely, if a capture for a previous authorization succeeds, subsequent attempts to capture it again will return an error.

Performing Commercial Card Transactions

A commercial card (also referred to as a purchase card, corporate card, or business card) is a credit card that is issued at the request of an employer. It is usually reserved for business-related charges. The card issuer provides specialized reporting for this card type so the employer can monitor the use of the card. There is no method for determining whether a card is a purchase card or a commercial card based on the card number.

To obtain the best bank interchange rates for commercial cards, you must pass information in addition to the standard set for credit cards. Commercial card support and parameters vary from processor to processor. See the entry for your processor in Appendix A, "Processors Requiring Additional Transaction Parameters" for additional information.

Performing Reference Transactions

CAUTION   As a security measure, reference transactions are disallowed by default. Only your account administrator can enable reference transactions for your account. If you attempt to perform a reference transaction in an account for which reference transactions are disallowed, error 117 is returned. See *VeriSign Manager Guide* for instructions on setting this and other VeriSign Manager security features.

Sale and Authorization transactions can make use of a *reference* transaction as a source of transaction data. VeriSign looks up the reference transaction to obtain the transaction data that will be used by the new Sale or Authorization.

You can also initiate reference transactions from VeriSign Manager. See *VeriSign Manager User's Guide* for details.

IMPORTANT!   When VeriSign looks up the reference transaction to obtain the transaction data to be used by the new Sale or Authorization, neither the reference transaction nor any other transaction in the database is changed in any way. That is, a reference transaction is a read-only operation—only the new transaction is acted upon.

Fields Copied From Reference Transactions

The following fields are copied from the referenced transaction (if they exist in the the referenced transaction). If you provide a value for any of these parameters when submitting the new transaction, then the new value is used.

Account number
Amount
Billing City
Billing Country
Billing State
Billing Street
Billing Zip

City

Comment1

Comment2

Company Name

Country

CustIP

CVV2

DL Num

DOB

Duty amount

EMail

Expiration date

First Name

First name

Freight amount

Invoice number

Last Name

Last name

Middle Name

Middle name

Purchase order number

Ship To City

Ship To Country

Ship To First Name

Ship To Last Name

Ship To Middle Name

Ship To State

Ship To Street

Ship To Zip

SS Num

State

Street

Suffix

Swipe data

Tax amount

> **Tax exempt**
> **Telephone**
> **Title**
> **Zip**

Transaction Types that can be Used as Reference Transactions

You can reference the following transaction types to supply data for new sale or authorization transactions:

Authorization
Sale
Delayed Capture
Credit
Voice Authorization
Void

Example Reference Transaction

In this example, you authorize an amount of $100 for a shipment and charge $66 for the first partial shipment using a normal delayed capture transaction. You charge the $34 for the final part of the shipment using a reference transaction to draw credit card and shipping address information from the initial authorization transaction.

Step 1   Submit the Initial transaction (authorization in this example)

You use an authorization transaction for the full amount of the purchase of $100:

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=A&TENDER=C&PWD=x1y2z3&PARTNER=VeriSign&VENDOR=SuperMer
chant&USER=SuperMerchant&ACCT=5555555555554444&EXPDATE=0308&AMT
=100.00&INVNUM=1234567890&STREET=5199 MAPLE&ZIP=94588"30

RESULT=0&PNREF=VXYZ01234567&RESPMSG=APPROVED&AUTHCODE=123456&AV
SADDR=Y&AVSZIP=N
```

Step 2   Capture the authorized funds for a partial shipment of $66

When you deliver the first $66 worth of product, you use a normal delayed capture transaction to collect the $66.

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=D&TENDER=C&PWD=x1y2z3&PARTNER=VeriSign&VENDOR=SuperMer
chant&USER=SuperMerchant&ORIGID=VXYZ01234567&AMT=66.00"30

RESULT=0&PNREF=VXYZ01234568&AUTHCODE=25TEST&AVSADDR=Y&AVSZIP=N
```

Step 3   Submit a new sales transaction of $34 for the rest of the shipment

Once you have shipped the remainder of the product, you can collect the remaining
$34 in a sale transaction that uses the initial authorization as a reference
transaction. (This is a sale transaction because only one delayed capture transaction
is allowed per authorization.)

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=S&TENDER=C&PWD=x1y2z3&PARTNER=VeriSign&VENDOR=SuperMer
chant&USER=SuperMerchant&ORIGID=VXYZ01234567&AMT=34.00"30

RESULT=0&PNREF=VXYZ01234569&AUTHCODE=25TEST&AVSADDR=Y&AVSZIP=N
```

Note   In the case that your business model uses the authorization/delayed capture
cycle for all transactions, you could have chosen to use an authorization/delayed
capture to collect the $34 in this example. You would generate the authorization
for the $34 using the initial authorization as a reference transaction.

Using Address Verification Service (AVS)

To qualify for the lowest bank rate, you must pass Address Verification Service (AVS) information—street address and postal code (in the USA, the postal code is called ZIP code).

AVS compares the submitted street address and postal code with the values on file at the cardholder's bank. The response includes values for **AVSADDR** and **AVSZIP**: **Y**, **N**, or **X** for the match status of the customer's street address and postal code. **Y** = match, **N** = no match, **X** = cardholder's bank does not support AVS.

Note AVS checks only for a street number match, not a street name match, so 123 Main Street returns the same response as 123 Elm Street.

The International AVS response (**IAVS**) indicates whether AVS response is international (**Y**), USA (**N**), or cannot be determined (**X**). Client version 3.06 or later is required.

Note The AVS result is for advice only. Banks do not decline transactions based on the AVS result—the merchant makes the decision to approve or decline a transaction. AVS is supported by most US banks and some international banks.

Example AVS Request

This example request include the AVS request parameters **STREET** and **ZIP**:

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=A&TENDER=C&PWD=x1y2z3&PARTNER=VeriSign&VENDOR=Super
Merchant&USER=SuperMerchant&&ACCT=5555555555554444&EXPDATE=0
308&AMT=123.00&STREET=5199 Maple&ZIP=98765"30
```

Example AVS Response

In this example, the address value matches the value in the bank's records, but the postal code does not. The IAVS response is **X**.

```
RESULT=0&PNREF=VXW412345678&RESPMSG=APPROVED&AUTHCODE=123456
&AVSADDR=Y&AVSZIP=N&IAVS=X
```

Tip See your processor's information in Appendix A, "Processors Requiring Additional Transaction Parameters," for information on their handling of AVS.

Card Security Code Validation

The card security code (CSC) is a 3- or 4-digit number (not part of the credit card number) that appears on credit card. Because the CSC appears only on the card and not on receipts or statements, the CSC provides some assurance that the physical card is in the possession of the buyer.

Tip This fraud prevention tool has various names, depending on the payment network. Visa calls it CVV2, MasterCard calls it CVC2, and American Express calls it CID. To ensure that your customers see a consistent name, VeriSign recommends use of the term Card Security Code (**CSC**) on all end-user materials.

On most cards, the CSC appears on the back of the card (usually in the signature field). All or part of the card number appears before the CSC (**567** in the example). For American Express, the 4-digit number (**1122** in the example) is printed on the front of the card, above and to the right of the embossed account number. Be sure to explain this to your customers.

Processors Supporting CSC

The CSC validation service is not available for all processors. For more information, see: **http://www.verisign.com/support/payflow/cardSecurityCode.html**

Even though your processor may be certified for CSC, they may not be certified for all card types (for example, American Express (CID), or Discover). See **http://www.verisign.com/support/payflow/cardSecurityCode.html** to determine which card types your processor handles.

Before turning on CSC for American Express cards, make sure that your processor for American Express supports CSC and that you email **es.fraud.prevention@aexp.com** for more information. American Express

typically requires $1 million in annual American Express charge volume to qualify for using CID.

CSC Results

If you submit the **CVV2** parameter, the cardholder's bank returns a Yes/No response in the **CVV2MATCH** response value as follows:

CVV2MATCH Value	Description
Y	The submitted value matches the data on file for the card.
N	The submitted value does not match the data on file for the card.
X	The cardholder's bank does not support this service.

CSC results vary depending on your processor, as described in Table 3-3.

Table 3-3 CSC results by processor

Processor	Results
American Express	CSC mismatches cause a non-approved result (RESULT = 114). No CVV2MATCH value is returned.
Vital Nova Global Payments – East Global Payments – Central	CSC mismatches cause a non-approved result (RESULT = 114). The match or mismatch information is indicated in the CVV2MATCH value.
First Data Nashville First Data South Paymentech EDS Aurora	Transactions that have CSC mismatches can come back as an approved transaction (RESULT = 0). The match or mismatch information is indicated in the CVV2MATCH value. Similar to AVS, you must make a decision based on this information on whether you want to proceed with the order (the authorization was successful).

Example CVV2 Request

This example request includes the **CVV2** parameter:

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=A&TENDER=C&PWD=x1y2z3&PARTNER=VeriSign&VENDOR=Super
```

```
Merchant&USER=SuperMerchant&&ACCT=5555555555554444&EXPDATE=0
308&AMT=123.00&CVV2=567"30
```

Example CVV2MATCH Response

In this example result, the CSC value matches the value in the bank's records.

```
RESULT=0&PNREF=VXW412345678&RESPMSG=APPROVED&AUTHCODE=123456
&CVV2MATCH=Y
```

Logging Transaction Information

VeriSign maintains a record of all transactions executed on your account. This record is not the official bank statement. The credit card transaction summary that you receive from your acquiring bank is the official record.

Use VeriSign Manager at **https://manager.verisign.com** to view this record and use the information to help reconcile your accounting records.

VeriSign strongly recommends that you log all transaction results on your own system and that you do *not* store credit card information.

At a minimum, log the following data:

■ PNREF

IMPORTANT! For Test servers, the first and fourth characters in the PNREF value are alpha characters (letters), and the second and third characters are numeric (for example, V53A17230645). For Live servers, all of the first four characters are alpha characters (for example, VPNE12564395).

■ Transaction Date
■ Transaction Amount
■ AUTHCODE

IMPORTANT! For Test servers, the AUTHCODE contains alpha-numeric characters (for example, 123PNI). For Live servers, the AUTHCODE contains only numeric digits (for example, 123456).

If you have any questions regarding a transaction, refer to or search on the `PNREF` (also called the **Transaction ID**).

Responses to Credit Card Transaction Requests

This chapter describes the contents of a response to a credit card transaction request.

When a transaction finishes, VeriSign returns a response string made up of name/value pairs. For example, this is a response to a credit card **Sale** transaction request:

```
RESULT=0&PNREF=VXYZ01234567&RESPMSG=APPROVED&AUTHCODE=123456
&AVSADDR=Y&AVSZIP=N&IAVS=Y&CVV2MATCH=Y
```

Contents of a Response to a Credit Card Transaction Request

All transaction responses include values for RESULT, PNREF, RESPMSG. A value for AUTHCODE is included for Voice Authorization transactions. Values for AVSADDR and AVSZIP are included if you use AVS. Table 4-1 describes the values returned in a response string.

Table 4-1 Transaction response values

Field	Description	Type	Length
PNREF	VeriSign Reference ID, a unique number that identifies the transaction. PNREF is described in "PNREF Value" on page 39.	Alpha-numeric	12
RESULT	The outcome of the attempted transaction. A result of **0** (zero) indicates the transaction was approved. Any other number indicates a decline or error. RESULT codes are described in "RESULT and RESPMSG Values" on page 39.	Numeric	Variable

Table 4-1 Transaction response values (Continued)

Field	Description	Type	Length
CVV2MATCH	Result of the card security code (CVV2) check. This value does not affect the outcome of the transaction.	Alpha Y, N, X, or no response	1
RESPMSG	The response message returned with the transaction result. Exact wording varies. Sometimes a colon appears after the initial RESPMSG followed by more detailed information. Response messages are described in "RESULT and RESPMSG Values" on page 39.	Alpha-numeric	Variable
AUTHCODE	Returned for Sale, Authorization, and Voice Authorization transactions. AUTHCODE is the approval code obtained over the phone from the processing network. AUTHCODE is required when submitting a Force (**F**) transaction. **Important:** For Test servers, the AUTHCODE contains alpha-numeric characters (for example, 123PNI). For Live servers, the AUTHCODE contains only numeric digits (for example, 123456).	Alpha-numeric	6
AVSADDR	AVS address responses are for advice only. This process does not affect the outcome of the authorization. See "Using Address Verification Service (AVS)" on page 33.	Alpha Y, N, X, or no response	1
AVSZIP	AVS ZIP code responses are for advice only. This process does not affect the outcome of the authorization. See "Using Address Verification Service (AVS)" on page 33.	Alpha Y, N, X, or no response	1
IAVS	International AVS address responses are for advice only. This value does not affect the outcome of the transaction. Indicates whether AVS response is international (**Y**), US (**N**), or cannot be determined (**X**). Client version 3.06 or later is required. See "Using Address Verification Service (AVS)" on page 33.	Alpha Y, N, X, or no response	1

PNREF Value

The Reference ID value (`PNREF`) is a unique transaction identification number issued by VeriSign that identifies the transaction for billing, reporting, and the following transaction data purposes.

- `PNREF` is used as the `ORIGID` (Original ID) in delayed capture transactions (`TRXTYPE=D`), credits (`TRXTYPE=C`), inquiries (`TRXTYPE=I`), and voids (`TRXTYPE=V`).

- `PNREF` is used as the `ORIGID` (Original ID) in reference transactions for authorization (`TRXTYPE=A`) and Sale (`TRXTYPE=S`).

`PNREF` is 12 characters with the format `Vxxxxxxxxxxx`, for example, `V89Z01234567`.

Note   For Test servers, the first and fourth characters in the PNREF value are alpha characters (letters), and the second and third characters are numeric, for example V53A17230645. For Live servers, all of the first four characters are alpha characters (letters), for example: VPNE12564395.

RESULT and RESPMSG Values

The transaction result status response (RESULT) is the first value returned from the VeriSign server. This value indicates the overall status of the transaction attempt.

- A value of `0` (zero) indicates that no errors occurred and the transaction was approved.

- A value less than zero indicates that a communication error occurred. In this case, no transaction is attempted.

- A value greater than zero indicates a decline or error.

The response message (RESPMSG) provides a brief description for decline or error results.

RESULT Values for Communications Errors

A value for `RESULT` less than zero indicates that a communication error occurred. In this case, no transaction is attempted.

A value of -1 or -2 usually indicates a configuration error. Either the VeriSign server is unavailable, or incorrect server/socket pairs have been specified. A value of -1 can also result when there are Internet connectivity errors. Refer other errors to VeriSign at **vps-support@verisign.com.**

Result	Description
-1	Failed to connect to host
-2	Failed to resolve hostname
-5	Failed to initialize SSL context
-6	Parameter list format error: & in name
-7	Parameter list format error: invalid [ ] name length clause
-8	SSL failed to connect to host
-9	SSL read failed
-10	SSL write failed
-11	Proxy authorization failed
-12	Timeout waiting for response
-13	Select failure
-14	Too many connections
-15	Failed to set socket options
-20	Proxy read failed
-21	Proxy write failed
-22	Failed to initialize SSL certificate
-23	Host address not specified
-24	Invalid transaction type
-25	Failed to create a socket
-26	Failed to initialize socket layer
-27	Parameter list format error: invalid [ ] name length clause
-28	Parameter list format error: name
-29	Failed to initialize SSL connection
-30	Invalid timeout value
-31	The certificate chain did not validate, no local certificate found
-32	The certificate chain did not validate, common name did not match URL
-99	Out of memory

RESULT Values for Transaction Declines or Errors

A RESULT greater than zero indicates a decline or error.

For this type of error, a RESPMSG name/value pair is included. The exact wording of the RESPMSG (shown in **bold**) may vary. Sometimes a colon appears after the initial RESPMSG followed by more detailed information.

Table 4-2 VeriSign Transaction RESULTs/RESPMSGs

RESULT	RESPMSG/Explanation
0	**Approved**
1	User authentication failed
2	**Invalid tender type.** Your merchant bank account does not support the following credit card type that was submitted.
3	**Invalid transaction type.** Transaction type is not appropriate for this transaction. For example, you cannot credit an authorization-only transaction.
4	**Invalid amount format**
5	**Invalid merchant information.** Processor does not recognize your merchant account information. Contact your bank account acquirer to resolve this problem.
7	**Field format error**. Invalid information entered. See RESPMSG.
8	**Not a transaction server**
9	**Too many parameters or invalid stream**
10	**Too many line items**
11	Client time-out waiting for response
12	**Declined.** Check the credit card number and transaction information to make sure they were entered correctly. If this does not resolve the problem, have the customer call the credit card issuer to resolve.
13	**Referral.** Transaction was declined but could be approved with a verbal authorization from the bank that issued the card. Submit a manual Voice Authorization transaction and enter the verbal auth code.
19	**Original transaction ID not found.** The transaction ID you entered for this transaction is not valid. See RESPMSG.
20	**Cannot find the customer reference number**

Table 4-2 VeriSign Transaction RESULTs/RESPMSGs (Continued)

RESULT	RESPMSG/Explanation
22	**Invalid ABA number**
23	**Invalid account number.** Check credit card number and re-submit.
24	**Invalid expiration date.** Check and re-submit.
25	**Invalid Host Mapping.** Transaction type not mapped to this host
26	**Invalid vendor account**
27	**Insufficient partner permissions**
28	**Insufficient user permissions**
29	**Invalid XML document**. This could be caused by an unrecognized XML tag or a bad XML format that cannot be parsed by the system.
30	**Duplicate transaction**
31	**Error in adding the recurring profile**
32	**Error in modifying the recurring profile**
33	**Error in canceling the recurring profile**
34	**Error in forcing the recurring profile**
35	**Error in reactivating the recurring profile**
36	**OLTP Transaction failed**
50	**Insufficient funds available in account**
99	**General error.** See RESPMSG.
100	**Transaction type not supported by host**
101	**Time-out value too small**
102	**Processor not available**
103	**Error reading response from host**
104	**Timeout waiting for processor response.** Try your transaction again.
105	**Credit error.** Make sure you have not already credited this transaction, or that this transaction ID is for a creditable transaction. (For example, you cannot credit an authorization.)
106	**Host not available**

Table 4-2 VeriSign Transaction RESULTs/RESPMSGs (Continued)

RESULT	RESPMSG/Explanation
107	**Duplicate suppression time-out**
108	**Void error.** See RESPMSG. Make sure the transaction ID entered has not already been voided. If not, then look at the Transaction Detail screen for this transaction to see if it has settled. (The Batch field is set to a number greater than zero if the transaction has been settled). If the transaction has already settled, your only recourse is a reversal (credit a payment or submit a payment for a credit).
109	**Time-out waiting for host response**
111	**Capture error.** Only authorization transactions can be captured.
112	**Failed AVS check.** Address and ZIP code do not match. An authorization may still exist on the cardholder's account.
113	**Merchant sale total will exceed the sales cap with current transaction.** ACH transactions only.
114	**Card Security Code (CSC) Mismatch**. An authorization may still exist on the cardholder's account.
115	**System busy, try again later**
116	**VPS Internal error. Failed to lock terminal number**
117	**Failed merchant rule check**. An attempt was made to submit a transaction that failed to meet the security settings specified on the VeriSign Manager *Security Settings* page. See *VeriSign Manager User's Guide*.
118	**Invalid keywords found in string fields**
122	**Merchant sale total will exceed the credit cap with current transaction.** ACH transactions only.
125	Fraud Protection Services Filter — Declined by filters
126	Fraud Protection Services Filter — Flagged for review by filters
127	Fraud Protection Services Filter — Not processed by filters
128	Fraud Protection Services Filter — Declined by merchant after being flagged for review by filters
1000	**Generic host error.** See RESPMSG. This is a generic message returned by your credit card processor. The message itself will contain more information describing the error.

Table 4-2 VeriSign Transaction RESULTs/RESPMSGs (Continued)

RESULT	RESPMSG/Explanation
1001	Buyer Authentication Service unavailable
1002	Buyer Authentication Service — Transaction timeout
1003	Buyer Authentication Service — Invalid client version
1004	Buyer Authentication Service — Invalid timeout value
1011	Buyer Authentication Service unavailable
1012	Buyer Authentication Service unavailable
1013	Buyer Authentication Service unavailable
1014	Buyer Authentication Service — Merchant is not enrolled for Buyer Authentication Service (3-D Secure). To enroll, log in to VeriSign Manager, click Security, and then click the Buyer Authentication Service banner on the page.
1021	Buyer Authentication Service — Invalid card type
1022	Buyer Authentication Service — Invalid or missing currency code
1023	Buyer Authentication Service — Merchant has not activated buyer authentication for this card type
1041	Buyer Authentication Service — Validate Authentication failed: missing or invalid PARES
1042	Buyer Authentication Service — Validate Authentication failed: PARES format is invalid
1043	Buyer Authentication Service — Validate Authentication failed: Cannot find successful Verify Enrollment
1044	Buyer Authentication Service — Validate Authentication failed: Signature validation failed for PARES
1045	Buyer Authentication Service — Validate Authentication failed: Mismatched or invalid amount in PARES
1046	Buyer Authentication Service — Validate Authentication failed: Mismatched or invalid acquirer in PARES
1047	Buyer Authentication Service — Validate Authentication failed: Mismatched or invalid Merchant ID in PARES
1048	Buyer Authentication Service — Validate Authentication failed: Mismatched or invalid card number in PARES

Table 4-2 VeriSign Transaction RESULTs/RESPMSGs (Continued)

RESULT	RESPMSG/Explanation
1049	Buyer Authentication Service — Validate Authentication failed: Mismatched or invalid currency code in PARES
1050	Buyer Authentication Service — Validate Authentication failed: Mismatched or invalid XID in PARES
1051	Buyer Authentication Service — Validate Authentication failed: Mismatched or invalid order date in PARES
1052	Buyer Authentication Service — Validate Authentication failed: This PARES was already validated for a previous Validate Authentication transaction

VeriSign CHAPTER 5
The Value of Trust™

Testing Payflow Pro Credit Card Transactions

To test your application, direct all transactions to **test-payflow.verisign.com**. Transactions directed to this URL are processed through VeriSign's simulated payment network, enabling you to test the configuration and operation of your application or storefront — no money changes hands. (You must activate your account and configure your application for live transactions before accepting real orders.)

For detailed testing information, see the README file included with the downloaded SDK. The SDK also includes example applications with suggestions on including the client within your application.

Testing Guidelines

- VeriSign provides test card numbers. Other numbers produce an error.

- **Expiration Date** must be a valid date in the future (use the **mm/yy** format).

- To view the credit card processor that you have selected for testing, see **Account Info** → **Processor Info** in VeriSign Manager.

Differences Between Responses Returned by Live (Production) Servers and Test Servers

PNREF

For Test servers, the first and fourth characters in the PNREF value are alpha characters (letters), and the second and third characters are numeric, for example V53A17230645.

For Live servers, all of the first four characters are alpha characters (letters), for example: VPNE12564395.

AUTHCODE

For Test servers, the AUTHCODE contains alpha-numeric characters (for example, 123PNI).

For Live servers, the AUTHCODE contains only numeric digits (for example, 123456).

Credit Card Numbers Used for Testing

Use the following card numbers for testing. Any other card number produces a general failure.

Visa	4111111111111111
Visa	4012888888881881
Visa	4222222222222 **Note**: Even though this number has a different character count than the other test numbers, it is the correct and functional number.
MasterCard	5555555555554444
MasterCard	5105105105105100
American Express	378282246310005
American Express	371449635398431

Amex Corporate	378734493671000
Discover	6011111111111117
Discover	6011000990139424
JCB	3530111333300000
JCB	3566002020360505
Diners Club	38520000023237
Diners Club	30569309025904

Testing Result Codes Responses

You can use the amount of the transaction to generate a particular Result code. Table 5-1 lists the general guidelines for specifying amounts. Table 5-2 lists VeriSign result codes that are supported by this testing mechanism.

Note For all hosts except Global Payments Central (MAPP):
Credit (**C**) and Force (**F**) transactions will always be approved regardless of dollar amount or card number.

Table 5-1 Result codes resulting from amount submitted

Amount	Result (RESPMSG)
$0 – $1000	0 (Approved)
$1001 – $2000	Certain amounts in this range will return specific VeriSign result codes, and can be generated by adding $1000 to that result code. For example, for Result 13 (Referral), submit the amount 1013.
	If the amount is in this range but does not correspond to a VeriSign result code supported by this testing mechanism, result 12 (Declined) is returned.
$2001+	12 – Decline

VeriSign Result Codes Returned Based on Transaction Amount

This table lists the VeriSign Result codes that you can generate using the amount of the transaction. To generate a specific code, submit an amount of 1000 plus the code number (for example, submit an amount of **1013** for a Result code of **13**).

Table 5-2 VeriSign result codes supporting the amount control

Processor	Result Codes available for testing
FDMS Nashville	0, 12, 13, 104
Paymentech	0, 12, 13, 104
Vital	0, 4, 12, 13, 23, 104, 114, 1000
Nova	0, 12, 13, 104
EDS Aurora	0, 12, 13, 104
FDMS South	0, 12, 13, 104
Amex	0, 12, 13, 104, 1000
Global Payments East (NDCE)	0, 4, 5, 12, 13, 23, 24, 30, 100, 104, 114, 1000
Global Payments Central (MAPP)	0, 4, 5, 8, 12, 13, 23, 24, 104, 111, 114, 1000

Alternative Methods for Generating Specific Result Codes

This table shows another method for obtaining VeriSign result codes. Non-zero results from processors are not returned by VeriSign's servers, and therefore cannot be simulated using the amount. In some cases, you may get certain results using the result code plus 1000 even though this table suggests another means of obtaining the result code.

Table 5-3 Obtaining VeriSign result code

Result	Definition	How to test using Payflow Pro
0	Approved	Use an AMOUNT of $1000 or less
		For all hosts except Global Payments Central (MAPP), PBS, and FDRA: Credit (**C**) and Force (**F**) transactions will always be approved regardless of dollar amount or card number.
1	User authentication failed	Use an invalid PWD
2	Invalid tender	Use an invalid TENDER, such as G
3	Invalid transaction type	Use an invalid TRXTYPE, such as G
4	Invalid amount	Use an invalid AMOUNT, such as –1
5	Invalid merchant information	Use an AMOUNT of 1005. Applies only to the following processors: Global Payments East and Central, and American Express).
7	Field format error	Submit a Delayed Capture transaction with no ORIGID
10	Too many line items	Returned if 126 or more line items are passed for fraud scoring purposes – only applies to Payflow Fraud Screen customers.
12	Declined	Use an AMOUNT of 1012 or an AMOUNT of 2001 or more
13	Referral	Use an AMOUNT of 1013
19	Original transaction ID not found	Submit a Delayed Capture transaction with an invalid ORIGID
22	Invalid ABA number	Applies only to ACH transactions – submit an invalid ABA number (8 digits)
23	Invalid account number	Submit an invalid account number, for example, 000000000000000

Table 5-3 Obtaining VeriSign result code (Continued)

24	Invalid expiration date	Submit an invalid expiration date, for example, **0298**
25	Transaction type not mapped to this host	Submit a transaction for a card or tender you are not currently set up to accept, for example, a Diners card if you aren't set up to accept Diners.
29	Invalid XML document	Pass a bad XML document (XMLPay users only).
30	Duplicate Transaction	Use an AMOUNT of 1030. Only applies to Global Payments East and Central processors.
50	Insufficient funds available	Use an amount of 1050. Only applies to Paymentech.
99	General error	Use an AMOUNT of 1099. Only applies to Global Payments East.
100	Invalid transaction returned from host	Use an AMOUNT of 1100. Only applies to Global Payments East and Central.
101	Time-out value too small	Set timeout value to 1.
103	Error reading response from host	Use an AMOUNT of 1103.
104	Timeout waiting for processor response	Use an AMOUNT of 1104.
105	Credit error	Attempt to credit an authorization.
108	Void error	Attempt to void a captured authorization.
111	Capture error	Capture an authorization twice.
112	Failed AVS check	Use an AMOUNT of 1112. Note that in production this will only be encountered if you are configured by customer service to use the "AVS Deny" feature.
113	Cannot exceed sales cap	Applies to ACH transactions only.
114	CVV2 Mismatch	Use an AMOUNT of 1114. Only applies to Vital and Global Payments East and Central processors.
1000	Generic Host Error	Use an AMOUNT of 2000. Does not apply to Nova, EDS Aurora, American Express, or Global Payments East processors.

Testing Address Verification Service (AVS)

The VeriSign testing server simulates AVS by returning values for **AVSADDR** and **AVSZIP** based on the submitted values for **STREET** and **ZIP** as shown in the tables.

If **STREET** is 667 or higher or begins with a non-numeric character, the simulator returns **AVSADDR=X, AVSZIP=X**.

Submitted Value for STREET	Example STREET Value	AVSADDR Result
000-333	242 Elm	Y
334-666	493 Main	N
667 or higher or begins with a non-numeric character	792 Maple	X

Submitted Value for ZIP	Example ZIP Value	AVSZIP Result
00000-50000	00382	Y
50001-99999	94303	N
Any value (if street address is 667 or higher or begins with a non-numeric character)	792 Maple, 20304	X

Testing Card Security Code (CVV2)

If you submit a value for the card security code (**CVV2**), the cardholder's bank returns a **Yes / No / Not Supported**
(**Y / N / X**) response on whether the value matches the number on file at the bank. CSC is described in "Card Security Code Validation" on page 34.

Tip   Some processors decline failed card security code without returning a **CVV2MATCH** value. Test the results and check with your processor to determine whether they support CSC checking.

For the testing server, the first three characters of the **CVV2** value determine the **CVV2MATCH** result, as shown here.

CVV2 Value	CVV2MATCH Value
000-300	Y
301-600	N
601 or higher	X

Testing Payflow Fraud Screen

The Payflow Fraud Screen result is equal to the amount of the transaction for transactions under 1000.

Testing TeleCheck Transactions

See Appendix B, "Performing TeleCheck Electronic Check Transactions." for information on testing TeleCheck transactions.

CHAPTER 6

Going Live

When you are ready to go live, follow these steps:

1 Go to VeriSign Manager (**https://manager.verisign.com**).

2 Click the **Click Here to Go Live!** button and complete the VeriSign Registration/Enable Live Transactions screen.

3 Change **test-payflow.verisign.com** to **payflow.verisign.com**

   - Change **test-payflow.verisign.com** to **payflow.verisign.com** wherever `pfpro` is invoked. For the executable client, this is in your CGI script analogous to `cgitest.cgi` in the testing examples.

   - The individual Readme files for the other SDKs contain references to **test-payflow.verisign.com**. Change all of the references to **payflow.verisign.com**.

VeriSign®
The Value of Trust™

Processors Requiring Additional Transaction Parameters

American Express

Mail: American Express
19640 N. 31st Avenue
Phoenix, AZ 85027

Phone: 800-297-5555

Additional Credit Card Parameters

In addition to the "Parameters Used in Credit Card Transactions" on page 19, American Express accepts the following parameters:

Table A-1 American Express additional parameters

Parameter	Description	Required	Type	Length
SWIPE	Allows Track 1 and Track 2 data to be passed to enable a card-present transaction.	No	Alpha-numeric	80

Commercial Card Parameters

The following parameters are recommended to obtain the best rates for processing commercial purchasing cards with American Express:

Table A-2 American Express commercial card parameters

Parameter	Description	Required	Type	Length
PONUM	Up to 17 alphanumeric characters, specified by the cardholder to identify the order. Usually used as a Purchase Order number.	No	Alpha-numeric	17
DESC	General description of the transaction.	No (but provides best rate when used)	Alpha-numeric	23
DESC1-4	Up to 4 lines of additional description of the charge.	No	Alpha-numeric	40
INVNUM	Merchant invoice number. This reference number (PNREF—generated by VeriSign) is used for authorizations and settlements. The Acquirer decides if this information will appear on the merchant's bank reconciliation statement.	No	Numeric	9
SHIPTOZIP	Ship to postal code (called ZIP code in the USA).	No (but provides best rate when used)	Alpha-numeric	6
TAXAMT	Tax Amount. Do not include comma separators. Use 1199.95 instead of 1,199.95.	No (but provides best rate when used)	Currency	10

FDMS First Data Nashville

Mail:	First Data Corporation
	2525 Perimeter Place Drive
	Suite 123
	Nashville, TN 37214
Phone:	800-647-3722

Additional Credit Card Parameters

In addition to the "Parameters Used in Credit Card Transactions" on page 19, FDMS Nashville accepts the following parameters:

Table A-3 FDMS Nashville additional parameters

Parameter	Description	Required	Type	Length
INVNUM	Merchant invoice number. This reference number (PNREF—generated by VeriSign) is used for authorizations and settlements. The Acquirer decides if this information will appear on the merchant's bank reconciliation statement.	No	Numeric	10
SWIPE	Allows Track 1 and Track 2 data to be passed to enable a card-present transaction.	No	Alpha-numeric	80
RECURRING	Identifies the transaction as recurring. **Note:** This value does not activate VeriSign's Recurring Billing Service APIs.	No	Alpha-numeric **Y** or **N**	1

Commercial Card Parameters

The following parameters are recommended to obtain the best rates for processing commercial cards with FDMS Nashville.

Table A-4 FDMS commercial card parameters

Parameter	Description	Required	Type	Length
COMMCARD	One-character value representing type of commercial card account number sent. P Purchase Card C Corporate Card B Business Card U Unknown (default) N None	No (defaults to U - Unknown)	Alpha-numeric	1
DUTYAMT	Sometimes called import tax. Amount should always be a decimal. Exact amount to the cent (34.00, not 34). Do not include comma separators. Use 1199.95 instead of 1,199.95.	No	Currency	10
FREIGHTAMT	Freight Amount. Amount should always be a decimal. Exact amount to the cent (34.00, not 34). Do not include comma separators. Use 1199.95 instead of 1,199.95.	No	Currency	10
PONUM	Purchase Order Number.	No (but provides best rate when used)	Alpha-numeric	25
SHIPTOZIP	Ship to postal code (called ZIP code in the USA).	No (but provides best rate when used)	Numeric	9
TAXAMT	Tax Amount. Amount should always be a decimal. Exact amount to the cent (34.00, not 34). Do not include comma separators. Use 1199.95 instead of 1,199.95.	No (but provides best rate when used)	Currency	10
TAXEXEMPT	Is the customer tax exempt? Y or N	No	Alpha	1

FDMS First Data South

Mail: First Data Corporation
Business Payment Services Group
4000 Coral Ridge Drive
Coral Springs, FL 33065

Phone: 800-326-2217

Additional Credit Card Parameters

In addition to the "Parameters Used in Credit Card Transactions" on page 19, FDMS South accepts the following parameters:

Table A-5 FDMS South additional parameters

Parameter	Description	Required	Type	Length
SWIPE	Allows Track 1 and Track 2 data to be passed to enable a card-present transaction.	No	Alpha-numeric	80

Purchase Card Parameters

The following parameters are recommended to obtain the best rates for processing purchase cards (Level 2/3) with FDMS South:

Table A-6 FDMS South purchase card parameters

Parameter	Description	Required	Type	Length
CITY	Cardholder's city.	No	Alpha	13
COUNTRYCODE	Destination Country Code. Visa and MasterCard are different. Refer to Country Code tables. (See Appendix F, "Country Codes, Units of Measure, and Currency Codes (FDMS South Only).")	No	Alpha	3
CUSTCODE	Customer code/customer reference ID	No	Alpha-numeric	17
DISCOUNT	Discount amount on total sale	No	Currency	10

Table A-6 FDMS South purchase card parameters (Continued)

Parameter	Description	Required	Type	Length
DUTYAMT	Sometimes called import tax. If the currency uses a decimal, then this parameter should specify the exact amount to the last decimal place (for example, 34.00, not 34). See "FDMS South Currency Codes and Decimal Positions" on page 105. Do not include comma separators in the amount. Use 1199.95 instead of 1,199.95.	No	Currency	10
FIRSTNAME	Cardholder's first name.	No	Alpha	15
FREIGHTAMT	Freight Amount - If the currency uses a decimal, then this parameter should specify the exact amount to the last decimal place (for example, 34.00, not 34). See "FDMS South Currency Codes and Decimal Positions" on page 105. Do not include comma separators in the amount. Use 1199.95 instead of 1,199.95.	No	Currency	10
INVNUM	Merchant invoice number. This reference number (PNREF—generated by VeriSign) is used for authorizations and settlements. The Acquirer decides if this information will appear on the merchant's bank reconciliation statement.	No	Numeric	10
LASTNAME	Cardholder's last name.	No	Alpha	15
ORDERDATE	Order date: Format is **mmddyy** with no slashes or dashes. Example: July 28, 2003 would be 072803.	No	Numeric	6
PONUM	Purchase Order Number / Merchant related data	No (but provides best rate when used)	Alpha-numeric	25
SHIPFROMZIP	Ship from postal code (called ZIP code in the USA).	No (but provides best rate when used)	Numeric	9

Table A-6 FDMS South purchase card parameters (Continued)

Parameter	Description	Required	Type	Length
SHIPTOZIP	Ship to postal code (called ZIP code in the USA).	No (but provides best rate when used)	Numeric	9
STATE	Cardholder's state.	No	Alpha	2
SWIPE	Allows Track 1 and Track 2 data to be passed to enable a card-present transaction.	No	Alpha-numeric	80
TAXAMT	Tax Amount - If the currency uses a decimal, then this parameter should specify the exact amount to the last decimal place (for example, 34.00, not 34). See "FDMS South Currency Codes and Decimal Positions" on page 105. Do not include comma separators in the amount. Use 1199.95 instead of 1,199.95.	No (but provides best rate when used)	Currency	10
TAXEXEMPT	Is the customer tax exempt? Y or N	No	Alpha	1

Purchase Card Line Item Parameters

Line item data describes the details of the item purchased and can be can be passed for each transaction. The convention for passing line item data in name/value pairs is that each name/value starts with `L_` and ends with `n` where `n` is the line item number. For example `L_QTY0=1` is the quantity for line item 0 and is equal to 1, with `n` starting at `0`.

Parameter	Description	Required	Type	Length
L_QTYn	Quantity (whole units only)	Yes	Numeric	10
L_UPCn	Item commodity code	No	Alpha-numeric	12
L_DESCn	Item description	No	Alpha-numeric	35
L_UOMn	Item unit of measure. See "Units of Measure" on page 100.	No	Alpha	3
L_COSTn	Cost per item, excluding tax	No	Currency	10

Parameter	Description	Required	Type	Length
L_PRODCODEn	Supplier specific product code	No	Alpha-numeric	12
L_DISCOUNTn	Discount per line item	No	Currency	10
L_AMTn	Total line item amount including tax and discount. + for debit, - for credits	Yes	Currency	10
L_TAXAMTn	Line item Tax amount	No	Currency	10

Purchase Card Level 2 and 3 Example

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=S&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&STATE=CA&FIRSTNAME=John&LASTNAME
=Smith&CITY=Redwood&COUNTRYCODE=USA&CUSTCODE=12345&DISCOUNT=
.25&DUTYAMT=34.00&FREIGHTAMT=12.00&INVNUM=1234567890&ORDERDA
TE=021700&PONUM=123456789012345678901234&SHIPFROMZIP=940151
234&SHIPTOZIP=94065&TAXAMT=1.00&TAXEXEMPT=Y"30
```

Line Item Parameter Example

```
pfpro test-payflow.verisign.com 443
"TRXTYPE=S&TENDER=C&PARTNER=VeriSign&VENDOR=SuperMerchant&US
ER=SuperMerchant&PWD=x1y2z3&STATE=CA&FIRSTNAME=John&LASTNAME
=Smith&CITY=Redwood&COUNTRYCODE=USA&CUSTCODE=12345&DISCOUNT=
.25&DUTYAMT=34.00&FREIGHTAMT=12.00&INVNUM=1234567890&ORDERDA
TE=021700&PONUM=123456789012345678901234&SHIPFROMZIP=940151
234&SHIPTOZIP=94065&TAXAMT=1.00&TAXEXEMPT=Y&L_QTY1=1&L_UPC1=
PN&L_DESC1=Test&L_UOM1=INQ&L_COST1=1.00&L_PRODCODE1=12345&L_
DISCOUNT1=.25&&L_AMT1=.75&L_TAXAMT1=0" 30
```

Nova

Mail:	Nova Information Systems, Inc.
	Knoxville Operations Center
	7300 Chapman Highway
	Knoxville, TN 37920-6609
Phone:	800-725-1243

Nova Commercial Card Parameters

The following parameters are recommended to obtain the best rates for processing commercial cards with Nova:

Parameter	Description	Required	Type	Length
COMMCARD	One-character value representing the type of commercial card. P Purchase Card C Corporate Card B Business Card U Unknown (default) N None	No (defaults to U - Unknown)	Alphanumeric	1
PONUM	Purchase Order Number	No (when used provides best rate)	Alphanumeric	25
TAXAMT	Tax Amount - The amount should always specify a decimal, and the exact amount, to the cent (34.00, not 34). Do not include comma separators in the amount. Use 1199.95 instead of 1,199.95.	No (when used provides best rate)	Currency	10

Paymentech

Mail: Paymentech
              4 Northeastern Blvd.
              Salem, NH 03079

Phone: 800-782-1266

Additional Credit Card Parameters

In addition to the "Parameters Used in Credit Card Transactions" on page 19, Paymentech accepts the following parameters. For best AVS results, pass the city and state parameters in the parameter list.

Parameter	Description	Required	Type	Length
CITY	Cardholder's billing city.	No	Alpha	20
INVNUM	Merchant invoice number. This reference number (PNREF—generated by VeriSign) is used for authorizations and settlements. The Acquirer decides if this information will appear on the merchant's bank reconciliation statement.	No	Numeric	10
STATE	Cardholder's billing state.	No	Alpha	2
SWIPE	Allows Track 1 and Track 2 data to be passed to enable a card-present transaction.	No	Alpha-numeric	80
RECURRING	Identifies the transaction as recurring. **Note:** This value does not activate VeriSign's Recurring Billing Service APIs.	No	Alpha-numeric **Y** or **N**	1

Vital

Mail:	Vital
	Visanet Processing Services
	8320 South Hardy Road
	Tempe, AZ 85284

Phone:	800-847-2772 (Help Desk)

Additional Credit Card Parameters

In addition to the "Parameters Used in Credit Card Transactions" on page 19, Vital accepts the following parameter:

Table A-7 Vital additional parameters

Parameter	Description	Required	Type	Length
SWIPE	Allows Track 1 and Track 2 data to be passed to enable a card-present transaction.	No	Alpha-numeric	80
RECURRING	Identifies the transaction as recurring. **Note:** This value does not activate VeriSign's Recurring Billing Service APIs.	No	Alpha-numeric **Y** or **N**	1

Performing TeleCheck Electronic Check Transactions

This chapter describes the process of performing electronic check transactions. Responses to transaction requests are described in Appendix C, "Responses to TeleCheck Transaction Requests."

VeriSign offers electronic check acceptance through TeleCheck. Before processing electronic check transactions, merchants must obtain an account through TeleCheck (*www.telecheck.com*).

Note   For information on credit card transactions, skip this chapter and see Chapter 3, "Performing Credit Card Transactions."

For information on performing ACH transactions, contact your VeriSign Sales Representative at **paymentsales@verisign.com** or visit **http://www.verisign.com/products/payflow/ach/findoutmore.html**

TeleCheck Contact Information

Mail:	TeleCheck Merchant Services PO Box 4513 Houston, TX 77210-4513
Phone:	800-366-1054 (Merchant Services)

TeleCheck Transaction Syntax

Note The examples in this chapter use the syntax of the **pfpro** executable client. Other Payflow Pro clients differ in where and how the parameter values are set, but the meaning and uses are the same.

Use the following syntax when calling the Payflow Pro client (**pfpro**) to process a TeleCheck transaction. Table B-1 describes the arguments to the **pfpro** executable client command

```
pfpro <HostAddress> <HostPort> "<ParmList>" <TimeOut>
<ProxyAddress> <ProxyPort> <ProxyLogon> <ProxyPassword>
```

For example:

```
pfpro test-payflow.verisign.com 443 "TRXTYPE=S&TENDER=K
&PARTNER=VeriSign&VENDOR=SuperMerchant&USER=SuperMerchant&PWD=x1y2
z3&AMT=123.00&MICR=12345678043908 50014321&CHKNUM=4321
&NAME=Lydia Chin&STREET=121 Park Street&CITY=Pleasanton&STATE=MA
&ZIP=123451234&DL=MA1234567&EMAIL=cchu@customer.com"30
```

Table B-1 Arguments to the pfpro executable client

Argument	Re-quired	Description
HOSTADDRESS	Yes	VeriSign's host name. For live transactions, use **payflow.verisign.com** For testing purposes use **test-payflow.verisign.com**
HOSTPORT	Yes	VeriSign host port number: Use port 443.
PARMLIST	Yes	The ParmList is the list of parameters that specify the payment information for the transaction. The quotation marks " " at the beginning and end are required. In the example, the ParmList is: "TRXTYPE=S&TENDER=K&PARTNER=VeriSign&VENDOR=SuperMerchant&USER=SuperMerchant&PWD=x1y2z3&AMT=123.00&MICR=12345678043908 50014321&CHKNUM=4321&NAME=Lydia Chin&STREET=121 Park Street&CITY=Pleasanton&STATE=MA&ZIP=123451234&DL=MA1234567&EMAIL=cchu@customer.com" All parameters used in TeleCheck transactions are described in Table B-2 on page 72.

Table B-1 Arguments to the pfpro executable client

Argument	Re-quired	Description
TIMEOUT	Yes	Time-out period for the transaction. The minimum recommended time-out value is 30 seconds. The VeriSign client begins tracking from the time that it sends the transaction request to the VeriSign server.
PROXYADDRESS	No	Proxy server address. Use the **PROXY** parameters for servers behind a firewall. Your network administrator can provide the values.
PROXYPORT	No	Proxy server port
PROXYLOGON	No	Proxy server logon ID
PROXYPASSWORD	No	Proxy server logon password

Command Syntax Guidelines

Follow these guidelines:

- The command must be a single string with no line breaks.

- Use spaces as argument separators.

- Enclose the `ParmList` in quotation marks (`""`).

- Quotation marks (`""`) are absolutely not allowed in the body of the `ParmList`.

- Separate all `name/value` pairs in the `ParmList` using an ampersand (`&`).

- Calling `pfpro` without the required parameters results in an error message.

Using Ampersand and Equal Sign Characters in Values

Because the ampersand (&) and equal sign (=) characters have special meanings in the ParmList, name/value pairs like `NAME=Ruff & Johnson`, and `COMMENT1=Level=5` are not valid.

To use the & and = characters in the value of a name/value pair, use a l*ength tag*. A length tag specifies the exact number of characters and spaces that appear in the value. The following name/value pairs are valid:

```
NAME[14]=Ruff & Johnson

COMMENT1[7]=Level=5
```

Note Quotation marks (**""**) are absolutely not allowed in the body of the ParmList.

TeleCheck Parameters

Parameters used for processing electronic checks through TeleCheck are described in Table B-2. Required and optional parameters are noted.

Note Appendix D, "VeriSign Reporting Parameters," provides a list of parameters that you can pass for reporting purposes.

Required Parameters

The following parameters are required for every electronic check transaction:

TRXTYPE
TENDER
PARTNER
VENDOR
USER
PWD
AMT
CITY
DL or SS
CHKNUM
EMAIL
MICR
NAME
STATE
STREET

Table B-2 TeleCheck Parameters

Parameter	Description	Required	Type	Length
AMT	This is the transaction amount in U.S. dollars. The transaction amount should always specify a decimal, and the exact amount to the cent (for example, 34.00, instead of 34). Do not include comma separators in the amount. Use 1199.95 not 1,199.95.	Yes	Numeric US Dollars only.	7
CITY	Account holder's city	Yes	Alpha	20

Table B-2 TeleCheck Parameters (Continued)

Parameter	Description	Required	Type	Length
COMMENT1	User-defined value for reporting and auditing purposes.	No	Alpha-numeric	128
COMMENT2	User-defined value for reporting and auditing purposes.	No	Alpha-numeric	128
CHKNUM	Account holder's next unused (available) check number	Yes	Numeric	7
DL	Driver's license number. Format: XXnnnnnnnn XX = State Code nnnnnnnn = DL Number	Yes	Alpha-numeric	33
DOB	Account holder's date of birth. Format: mmddyyyy. For example, July 28, 1965 is represented as 07281965.	No	Alpha-numeric	8
EMAIL	Account holder's e-mail address	Yes	Alpha-numeric	40
INVNUM	Check invoice number	No	Alpha-numeric	17
MICR	Magnetic Ink Check Reader. This is the entire line of numbers at the bottom of all checks. It includes the transit number, account number, and check number.	Yes	Alpha-numeric	35
NAME	Account holder's name as it appears on the check	Yes	Alpha-numeric	30
PARTNER	The authorized VeriSign Reseller that registered you for the Payflow Pro service provided you with a **Partner ID**. If you registered yourself, use **VeriSign**. This parameter is case-sensitive.	Yes	Alpha-numeric	12
PHONENUM	Account holder's telephone number	No	Numeric	20
PWD	Case-sensitive 6- to 32-character password that you created while registering for the account.	Yes	Alpha-numeric	32

Table B-2 TeleCheck Parameters (Continued)

Parameter	Description	Required	Type	Length
SS	Account holder's social security number	No	Alpha-numeric	35
STATE	Account holder's state	Yes	Alpha	2
STREET	Account holder's street address	Yes	Alpha-numeric	30
TENDER	Tender type (method of payment). Use only the value **K** (electronic check).	Yes	Alpha	1
USER	Case-sensitive login ID for the Payflow account that you created while registering for the account. In the future, each account will allow multiple users. This parameter will specify the user.	Yes	Alpha-numeric	12
VENDOR	Case-sensitive Vendor ID that you created while registering for the account.	Yes	Alpha-numeric	12
TRXTYPE	Type of transaction that should be processed. Allowed transaction types: Sale (S), Void (V), Inquiry (I).	Yes	Alpha	1
ZIP	Account holder's 5- to 9-digit postal code (called ZIP code in the USA). Do not use spaces, dashes, or non-numeric characters.	Yes	Alpha	9

Testing TeleCheck Transactions

VeriSign provides a test server to support testing and configuration. Use the following data for test transactions:

Parameter	Value to use for testing
HostAddress	test-payflow.verisign.com
HostPort	443
DL State	CA
DL Number	123456
CHKNUM	1001

MICR	Use a MICR value from Table B-3.
	Note: Multiple transactions sent in succession using the same MICR value do not return the predicted response due to the nature of the TeleCheck approval process.

Table B-3 MICR values for testing

MICR	HOSTCODE	TeleCheck Result
1234567804390850001001	000800	Check Approved ECA
1234567804390850011001	000801	Check Approved No ECA
1234567804390850021001	000802	Check Approved ECA, No Guarantee
1234567804390850031001	000803	Check Approved No ECA, No Guarantee
1234567804390850041001	000804	Check Decline Negative Data
1234567804390850051001	000805	Check Decline Scoring
1234567804390850071001	000807	Check Failed

Preparing for TeleCheck Production Transactions

Before going into production with your check integration, you must certify your storefront with TeleCheck. To begin the certification process, send an e-mail to **ica_certification@telecheck.com**. Be sure to include the following information:

- Your test Web site address where test transactions can be processed

- The name, e-mail address, and phone number of the person to contact about any needed corrections.

The certification process usually takes 2-3 days.

Use **HostAddress** value of **payflow.verisign.com** and **HostPort** of **443**

Logging Transaction Information

VeriSign maintains a record of all transactions executed on your account.

> **Note** This record is not the official bank statement. The transaction summary that you receive from TeleCheck is the official record.

Use VeriSign Manager at **https://manager.verisign.com** to view this record and use the information to help reconcile your accounting records.

In addition, VeriSign strongly recommends that you log all transaction results (except for check information) on your own system. At a minimum, log the following data:

- PNREF

- Transaction Date

- Transaction Amount

- HOSTCODE

If you have any questions regarding a transaction, reference the `PNREF` (also called the transaction ID).

Responses to TeleCheck Transaction Requests

This chapter describes the contents of a response to a TeleCheck transaction request.

When a transaction finishes, VeriSign returns a response string made up of name/value pairs. For example:

```
RESULT=0&PNREF=VXYZ01234567&HOSTCODE=000500&RESPMSG=Approved
```

Transaction response values are described in Table C-1.

Table C-1 Transaction responses common to all tender types

Field	Description	Type	Length
RESULT	The outcome of the attempted transaction. A result of **0** (zero) indicates the transaction was approved. Any other number indicates a decline or error. RESULT codes are described in "RESULT and RESPMSG Values" on page 39.	Numeric	Variable
PNREF	VeriSign Reference ID, a unique number that identifies the transaction. PNREF is described in "HOSTCODE Values" on page 78.	Alpha-numeric	12
HOSTCODE	TeleCheck's response code representing the results of the transaction authorization attempt. These values are described in "HOSTCODE Values" on page 78.	Numeric	6
RESPMSG	A descriptive message associated with decline or error RESULTs. Response messages are described in "RESULT and RESPMSG Values" on page 39.	Alpha-numeric	Variable

HOSTCODE Values

The HOSTCODE reflects the TeleCheck server result. The following tables describe the HOSTCODE values. TeleCheck requires that you display certain verbiage to the purchaser based on the returned HOSTCODE value—check with TeleCheck for details.

Note Many of these codes will not be encountered under normal operating conditions—they are included as a troubleshooting aid. In the tables, the **Frequency** column indicates the likelihood that you will encounter the code.

Table C-2 Sale Approved

Code	Response	Description	Frequency
000500	Sale Approved	Sale Approved by credit card network	Common
000501	Sale Time-out	Sale transaction time-out in credit card network	Common
000502	Test Card	Test card sale approved (never billed)	Common
000504	ANI Sale Approved	900/Telco sale approved	ANI bill only
000505	PB Sale Approved	Private billing sale approved	PB only
000800	Sale Approved	Direct Check Sale/ECA approved	Direct Check
000801	Sale Approved	Direct Check Sale approved (no ECA)	Direct Check
000802	Sale Approved	Direct Check Sale/ECA approved no guarantee	Direct Check
000803	Sale Approved	Direct Check Sale approved no ECA no guarantee	Direct Check

Table C-3 Sale Declined

Code	Response	Description	Frequency
000300	Sale Declined	Sale declined by credit card network	Common
000301	Sale Rejected	Sale does not meet risk standards	Common
000804	Check Declined	Direct Check Sale declined negative data	Direct Check
000805	Check Declined	Direct Check Sale Decline Scoring	Direct Check
000807	Check Failure	Direct Check Sale	Direct Check

Table C-4 Inquiry Approved

Code	Response	Description	Frequency
000400	OTB Approved	Preauth approved. AVS matches if provided.	Common
000401	No Response	No response from credit card network for preauth.	Common
000402	AVS Time-out	Preauth approved, AVS timed out	AVS only
000403	PB Approved	Private billing approved.	PB only
000410	Positive Record	Previous positive history.	Common
000420	Test card Approved	Test Card	Common
000421	OTB/AVS Approval	Preauth Approved, AVS match	AVS only
000503	ANI Bill approved	900/TELCO billing approved	ANI bill only

Table C-5 General Failure

Code	Response	Description	Frequency
000100	General Failure	General host based failure	Rare
000101	Invalid Value	Invalid for one or more fields in transaction	Common
999999	Unknown Response	TeleCheck received an unknown response	Rare

Table C-6 Inquiry Declined

Code	Response	Description	Frequency
000200	Preauth Declined	Declined by credit card or Telco network (LIDB)	Common
000201	PIN Mismatch	Mismatch on PIN stored in TeleCheck database	Not Used
000210	Negative Card Record	Temporary and permanent blocks. Prior OTB decline, sale decline or CS block Transaction falls below minimum scoring standards. Most frequently used for risk scoring declines, where a transaction falls below minimum standards.	Common
000215	Negative ANI Record	ANI previously blocked by CS	Common
000220	Chargeback Card	Card with chargeback history	Common
000225	Chargeback ANI	ANI with chargeback history	Common
000230	Exceed card profile[1]	Card has exceeded usage limits	Uncommon
000240	Too many Cards[1]	ANI has excessive number of cards	Uncommon
000250	Exceed ANI profile[1]	ANI has exceeded usage limits	Uncommon
000260	Too Many Phones[1]	Card has been used from excessive ANI	Uncommon
000270	OTB/AVS Decline	OTB decline and AVS mismatch	AVS OTB only
000271	OTB/AVS Decline	OTB approved and AVS mismatch	AVS OTB only
000272	OTB/AVS Decline	OTB decline and AVS match	AVS OTB only
000280	Risk Referral	Temporary Risk referral, AVS necessary	Common
000281	Card Not Qualified	Card does not meet minimum bank restrictions	Not Used
000282	PB Risk Referral	Private billing risk referral, AVS necessary	PB Only

[1] This data is included in risk scoring decisions and a response of 210 has higher precedence.

VeriSign Reporting Parameters

This appendix lists parameters whose values can appear in VeriSign Manager reports. For example, the *Shipping and Billing* report displays these values. Some of the following parameters may also have other purposes. The STREET and ZIP parameters, for instance, are also used for AVS.

Note   For regular credit card transactions, reporting parameters are normally not passed to the processor. See Appendix A, "Processors Requiring Additional Transaction Parameters" to learn which fields are sent to your processor.

Table D-1 VeriSign reporting parameters

Parameter	Description	Required	Type	Max Length
CITY	Cardholder's billing city	No	Alpha	20
COMMENT1	User-defined value for reporting and auditing purposes (VeriSign parameter only)	No	Alpha-numeric	128
COMMENT2	User-defined value for reporting and auditing purposes (Verisign parameter only)	No	Alpha-numeric	128
COMPANYNAME	Cardholder's company	No	Alpha-numeric	30
COUNTRY	Cardholder's billing country code	No	Alpha-numeric	3
CUSTCODE	Customer code	No	Alpha-numeric	30
DUTYAMT	Duty amount	No	Alpha-numeric	10

Table D-1 VeriSign reporting parameters (Continued)

Parameter	Description	Required	Type	Max Length
EMAIL	Cardholder's e-mail address	No	Alpha-numeric	64
FIRSTNAME	Cardholder's first name	No	Alpha	15
FREIGHTAMT	Freight amount	No	Currency	10
LASTNAME	Cardholder's last name	No	Alpha	15
NAME	Cardholder's name	No	Alpha-numeric	15
PONUM	Purchase Order Number	No	Alpha-numeric	15
SHIPTOCITY	Shipping city	No	Alpha-numeric	30
SHIPTOFIRSTNAME	First name in the shipping address	No	Alpha-numeric	30
SHIPTOLASTNAME	Last name in the shipping address	No	Alpha-numeric	30
SHIPTOSTATE	Shipping state. US = 2-letter state code. Outside US, use full name.	No	Alpha-numeric	10
SHIPTOSTREET	Shipping street address	No	Alpha-numeric	30
SHIPTOZIP	Shipping postal code (called ZIP code in the USA)	No	Alpha-numeric	9
STATE	Cardholder's billing state code	No	Alpha-numeric	2
STREET	Cardholder's billing street address (used for AVS and reporting)	No	Alpha-numeric	30
TAXAMT	Tax amount	No	Currency	10
ZIP	Account holder's 5- to 9-digit postal code (called ZIP code in the USA). Do not use spaces, dashes, or non-numeric characters. The postal code is verified by the AVS service.	No	Numeric	9

XMLPay

About XMLPay

XMLPay specifies an XML syntax for payment requests and associated responses in a payment-processing network. Instead of using name/value pairs, Payflow Pro allows for the use of XML documents via XMLPay.

The typical user of XMLPay is an Internet merchant or merchant aggregator who wants to dispatch credit card, corporate purchase card, Automated Clearinghouse (ACH), or other payment requests to a financial processing network.

Using the data type definitions specified by XMLPay, such a user creates a client payment request and dispatches it in the same fashion as using name/value pairs to an associated XMLPay-compliant server component. Responses are also formatted in XML and convey the results of the payment requests to the client.

XMLPay 2.0 Core Specification Document

VeriSign XMLPay 2.0 Core Specification defines an XML syntax for payment transaction requests, responses, and receipts in a payment processing network.

You may obtain a copy of this document from the **Downloads** page of VeriSign Manager (**https://manager.verisign.com**).

Note For specific examples of how to submit XML documents using the Payflow Pro client API, see the Payflow Pro SDK **Download** package.

Country Codes, Units of Measure, and Currency Codes (FDMS South Only)

MasterCard Country Codes

ALBANIA	ALB		BAHRAIN	BHR
ALGERIA	DZA		BANGLADESH	BGD
AMERICAN SAMOA	ASM		BARBADOS	BRB
ANDORRA	AND		BELARUS	BLR
ANGOLA	AGO		BELGIUM	BEL
ANGUILLA	AIA		BELIZE	BLZ
ANTARCTICA	ATA		BENIN	BEN
ANTIGUA	ATG		BERMUDA	BMU
AO PEOPLES DEMOCRATIC	LAO		BHUTAN	BTN
APHGANISTAN	AFG		BOLIVIA	BOL
ARGENTINA	ARG		BOSNIA AND HERZIGOVINA	BIH
ARMENIA	ARN		BOTSWANA	BWA
ARUBA	ABW		BOUVET ISLAND	BVT
AUSTRALIA	AUS		BRAZIL	BRA
AUSTRIA	AUT		BRITISH INDIAN OCEAN TERRITORY	IOT
AZERBAIJAN	AZE		BRUNEI	BRN
BAHAMAS	BHS		BULGARIA	BGR

BURKINA FASO	BFA		DOMINICAN REPUBLIC	DOM
BURUNDI	BDI		EL SALVADOR	SLV
CAMBODIA	KHM		EQUATORIAL GUINEA	GNQ
CANADA	CAN		ESTONIA	EST
CAPE VERDE	CPV		ETHIOPIA	ETH
CAYMAN ISLANDS	CYM		FAEROE ISLANDS	FRO
CENTRAL AFRICAN REPUBLIC	CAF		FALKLAND ISLANDS (MALVINAS)	FLK
CHAD	TCD		FIJI	FJI
CHILE	CHL		FINLAND	FIN
CHINA	CHN		FRANCE	FRA
CHRISTMAS ISLAND	CXR		FRENCH GUIANA	GUF
CMEROON, UNITED REP.	CMR		FRENCH POLYNESIA	PYF
COCOS (KEELING) ISLAND	CCK		FRENCH SOUTHERN TERRITORY	ATF
COLUMBIA	COL		GABON	GAB
COMOROS	COM		GAMBIA	GMB
CONGO	GOG		GEORGIA	GEO
COOK ISLANDS	COK		GERMAN DEMOCRATIC REP	DDR
COSTA RICA	CRI		GERMANY	DEU
COTED'IVOIRE	CIV		GHANA	GHA
CROATIA	HRV		GIBRALTER	GIB
CYPRUS	CYP		GRECE	GRC
CZECH REPUBLIC	CZE		GREENLAND	GRL
DENMARK	DNK		GRENADA	GRD
DJIBOUTI	DJI			
DOMINICA	DMA			

GUADALUPE	GLP	KYRGYZSTAN	KGZ
GUAM	GUM	LATVIA	LVA
GUATEMALA	GTM	LEBANON	LBN
GUINEA	GIN	LESOTHO	LSO
GUINEA-BISSAU	GNB	LIBERIA	LBR
GUYANA	GUY	LIBYAN ARAB JAMAHIRIYA	LBY
HAITI	HTI	LIECHTNSTIEN	LIE
HEARD & MCDONALDS ISLAND	HMD	LITHUANIA	LTU
HONDURAS	HND	LUXEMBOURG	LUX
HONG KONG	HKG	MACAU	MAC
HUNGARY	HUN	MALAYSIA	MYS
ICELAND	ISL	MALDIVES	MDV
INDIA	IND	MALI	MLI
INDONESIA	IDN	MALTA	MLT
IRAN	IRN	MANACO	MCO
IRAQ	IRQ	MARSHALL ISLANDS	MHL
IRELAND	IRL	MATINIQUE	MTQ
ISRAEL	ISR	MAURITANIA	MRT
ITALY	ITA	MAURITIUS	MUS
JAMAICA	JAM	MEXICO	MEX
JAPAN	JPN	MICRONESIA	FSM
JORDAN	JOR	MOLDOVA	MDA
KAZAKHSTAN	KAZ	MONGOLIA	MNG
KENYA	KEN	MONTSERRAT	MSR
KOREA, REPUBLIC OF	KOR	MOROCCO	MAR
KUWAIT	KWT	MOZAMBIQUE	MOZ

MYANMAR	MMR		PORTUGUL	PRT
NAMIBIA	NAM		PUERTO RICO	PRI
NAURU	NRU		QATAR	QAT
NEGEL	SEN		REUNION	REU
NEPAL	NPL		ROMANIA	ROM
NETHERLANDS	NLD		RUSSIAN FERERATION	RUS
NETHERLANDS ANTILLES	ANT		RWANDA	RWA
NEW CALDONIA	NCL		SAMOA	WSM
NEW ZEALAND	NZL		SAN MARINO	SMR
NICARAGUA	NIC		SAN TOME AND PRICIPEL	STP
NIGER	NER		SAUDI ARABIA	SAU
NIGERIA	NGA		SEYCHELLES	SYC
NIUE	NIU		SIERRA LEONE	SLE
NORFOLK ISLAND	NFK		SINGAPORE	SGP
NORTHERN MARIANA ISLAND	MNP		ST. HELENA	SHN
NORWAY	NOR		ST. KITTS-NEVIS-ANGUILLA	KNA
OMAN	OMN		ST. LUCIA	LCA
PAKISTAN	PAK		ST. PIERRE AND MIQUELON	SPM
PALAU	PLW		ST. VINCENT AND THE GRENADINES	VCT
PANAMA	PAN			
PAPAU NEW GUINEA	PNG		SUDAN	SDN
PARAGUAY	PRY		SURINAM	SUR
PERU	PER		SVALBARD & JAN MAYEN IS.	SJM
PHILIPPINES	PHI		SWAZILAND	SWZ
PITCAIRN ISLAND	PCN			
POLAND	POL			

SWEDEN	SWE		UZBEKISTAN	UZB
SWITZERLAND	CHE		VANUATU	VUT
SYRIAN ARAB REPUBLIC	SYR		VATICAN CITY STATE	VAT
TAIWAN, PROVIDENCE OF CHINA	TWN		VENEZUELA	VEN
			VIETNAM	VNM
TAJIKISTAN	TJK		VIRGIN ISLANDS BRITISH	VGB
TANZANIA, UNITED REPUBLIC	TZA		VIRGIN ISLANDS US	VIR
THAILAND	THA		WALLIS AND FUTUNA IS	WLF
TOGO	TGO			
TOKELAU	TKL		WESTERN SAHARA	ESH
TONGA	TON		YEMEN	YEM
TRINIDAD AND TOBAGO	TTO		YUGOSLAVIA	YUG
			ZAIRE	ZAR
TUNISIA	TUN		ZAMBIA	ZMB
TURKEY	TR		ZIMBABWE	RHO
TURKMENISTAN	TM			
TURKS & CAICOS ISLANDS	TC			
TUVALU	TUV			
U.S. MINOR OUTLYING ISL.	UMI			
UGANDA	UGA			
UKRAINIAN SSR	UKR			
UNITED ARAB EMIRATES	ARE			
UNITED KINGDOM	GBR			
UNITED STATES	USA			
URAGUAY	URY			

Visa Country Codes

ALBANIA	AL		BOSNIA AND HERZIGOVINA	BA
ALGERIA	DZ		BOTSWANA	BW
AMERICAN SAMOA	AS		BOUVET ISLAND	BV
ANDORRA	AD		BRAZIL	BR
ANGOLA	AO		BRITISH INDIAN OCEAN TERRITORY	IO
ANGUILLA	AI		BRUNEI	BN
ANTARCTICA	AQ		BULGARIA	BG
ANTIGUA	AG		BURKINA FASO	BF
APHGANISTAN	AF		BURUNDI	BI
ARGENTINA	AR		CAMBODIA	KH
ARMENIA	AM		CANADA	CA
ARUBA	AW		CAPE VERDE	CV
AUSTRALIA	AU		CAYMAN ISLANDS	KY
AUSTRIA	AT		CENTRAL AFRICAN REPUBLIC	CF
AZERBAIJAN	AZ		CHACOS (KEELING) ISLAND	CC
BAHAMAS	BS		CHAD	TD
BAHRAIN	BH		CHILE	CL
BANGLADESH	BD		CHINA	CN
BARBADOS	BB		CHRISTMAS ISLAND	CX
BELARUS	BY		CMEROON, UNITED REP.	CM
BELGIUM	BE		COLUMBIA	CO
BELIZE	BZ		COMOROS	KM
BENIN	BJ		CONGO	CG
BERMUDA	BM			
BHUTAN	BT			
BOLIVIA	BO			

COOK ISLANDS	CK	FRENCH SOUTHERN TERRITORY	TF
COSTA RICA	CR	GABON	GA
COTED'IVOIRE	CI	GAMBIA	GM
CROATIA	HR	GEORGIA	GE
CYPRUS	CY	GERMANY	DE
CZECH REPUBLIC	CZ	GHANA	GH
DENMARK	DK	GIBRALTER	GI
DJIBOUTI	DJ	GRECE	GR
DOMINICA	DM	GREENLAND	GL
DOMINICAN REPUBLIC	DO	GRENADA	GD
EAST TIMOR	TP	GUADALUPE	GP
ECUADOR	EC	GUAM	GU
EGYPT	EG	GUATEMALA	GT
EL SALVADOR	SV	GUINEA	GN
EQUATORIAL GUINEA	GQ	GUINEA-BISSAU	GW
ERITREA	ER	GUYANA	GY
ESTONIA	EE	HAITI	HT
ETHIOPIA	ET	HEARD & MCDONALDS ISLAND	HM
FAEROE ISLANDS	FO	HONDURAS	HN
FALKLAND ISLANDS	FK	HONG KONG	HK
FIJI	FJ	HUNGARY	HU
FINLAND	FI	ICELAND	IS
FRANCE	FR	INDIA	IN
FRENCH GUIANA	GF	INDONESIA	ID
FRENCH METROPOLITAN	FX	IRAN	IR
FRENCH POLYNESIA	PF	IRAQ	IQ

IRELAND	IE
ISRAEL	IL
ITALY	IT
JAMAICA	JM
JAPAN	JP
JORDAN	JO
KAZAKHSTAN	KZ
KENYA	KE
KIRIBATI	KI
KOREA, REPUBLIC OF	KR
KUWAIT	KW
KYRGYZSTAN	KG
LAO PEOPLES DEMOCRATIC	LA
LATVIA	LV
LEBANON	LB
LESOTHO	LS
LIBERIA	LR
LIBYAN ARAB JAMAHIRIYA	LY
LIECHTNSTIEN	LI
LITHUANIA	LT
LUXEMBOURG	LU
MACAU	MO
MACEDONIA	MK
MADAGASCAR	MG
MALAWI	MW
MALAYSIA	MY

MALDIVES	MV
MALI	ML
MALTA	MT
MANACO	MC
MARSHALL ISLANDS	MH
MATINIQUE	MQ
MAURITANIA	MR
MAURITIUS	MU
MAYOTTE	YT
MEXICO	MX
MICRONESIA	FM
MOLDOVA	MD
MONGOLIA	MN
MONTSERRAT	MS
MOROCCO	MA
MOZAMBIQUE	MZ
MYANMAR	MM
NAMIBIA	NA
NAURU	NR
NEPAL	NP
NETHERLANDS	NL
NETHERLANDS ANTILLES	AN
NEW CALDONIA	NC
NEW ZEALAND	NZ
NICARAGUA	NI
NIGER	NE
NIGERIA	NG

NIUE	NU	SEYCHELLES	SC
NORFOLK ISLAND	NF	SIERRA LEONE	SL
NORTHERN MARIANA ISLAND	MP	SINGAPORE	SG
NORWAY	NO	ST. HELENA	SH
OMAN	OM	ST. KITTS-NEVIS-ANGUILLA	KN
PAKISTAN	PK	ST. LUCIA	LC
PALAU	PW	ST. PIERRE AND MIQUELON	PM
PANAMA	PA	ST. VINCENT AND THE GRENADINES	VC
PAPAU NEW GUINEA	PG	SUDAN	SD
PARAGUAY	PY	SURINAM	SR
PERU	PE	SVALBARD & JAN MAYEN IS.	SJ
PHILIPPINES	PH	SWAZILAND	SZ
PITCAIRN ISLAND	PN	SWEDEN	SE
POLAND	PL	SWITZERLAND	CH
PORTUGUL	PT	SYRIAN ARAB REPUBLIC	SY
PUERTO RICO	PR	TAIWAN, PROVIDENCE OF CHINA	TW
QATAR	QA	TAJIKISTAN	TJ
REUNION	RE	TANZANIA, UNITED REPUBLIC	TZ
ROMANIA	RO	THAILAND	TH
RUSSIAN FERERATION	RU	TOGO	TG
RWANDA	RW	TOKELAU	TK
SAMOA	WS	TONGA	TO
SAN MARINO	SM		
SAN TOME AND PRICIPEL	ST		
SAUDI ARABIA	SA		
SENEGAL	SN		

TRINIDAD AND TOBAGO	TT		ZAIRE	ZR
TUNISIA	TN		ZAMBIA	ZM
TURKEY	TR		ZIMBABWE	ZW
TURKMENISTAN	TM			
TURKS & CAICOS ISLANDS	TC			
TUVALU	TV			
U.S. MINOR OUTLYING ISL.	UM			
UGANDA	UG			
UKRAINIAN SSR	UA			
UNITED ARAB EMIRATES	AE			
UNITED KINGDOM	GB			
UNITED STATES	US			
URAGUAY	UY			
UZBEKISTAN	UZ			
VANUATU	VU			
VATICAN CITY STATE	VA			
VENEZUELA	VE			
VIETNAM	VN			
VIRGIN ISLANDS BRITISH	VG			
VIRGIN ISLANDS US	VI			
WALLIS AND FUTUNA IS	WF			
WESTERN SAHARA	EH			
YEMEN	YE			
YUGOSLAVIA	YU			

ISO Country Codes

The following International Standards Organization (ISO) country codes are used when filling the order fields COUNTRY, SHIPTOCOUNTRY, and CORPCOUNTRY.

Country Name	Code
Afghanistan	4
Albania	8
Algeria	12
American Samoa	16
Andorra	20
Angola	24
Anguilla	660
Antarctica	10
Antigua and Barbuda	28
Argentina	32
Armenia	51
Aruba	533
Australia	36
Austria	40
Azerbaijan	31
Bahamas	44
Bahrain	48
Bangladesh	50
Barbados	52
Belarus	112
Belgium	56
Belize	84

Country Name	Code
Benin	204
Bermuda	60
Bhutan	64
Bolivia	68
Bosnia-Herzegovina	70
Botswana	72
Bouvet Island	74
Brazil	76
British Indian Ocean Territory	86
Brunei Darussalam	96
Bulgaria	100
Burkina Faso	854
Burundi	108
Cambodia	116
Cameroon	120
Canada	124
Cape Verde	132
Cayman Islands	136
Central African Republic	140
Chad	148
Chile	152
China	156
Christmas Island	162
Cocos (Keeling) Islands	166
Colombia	170

Country Name	Code	Country Name	Code
Comoros	174	France, Metropolitan	249
Congo	178	French Guiana	254
Cook Islands	184	French Polynesia	258
Costa Rica	188	French Southern Territories	260
Cote D'ivoire (formerly Ivory Coast)	384	Gabon	266
Croatia (local name: Hrvatska)	191	Gambia	270
Cuba	192	Georgia	268
Cyprus	196	Germany	276
Czech Republic	203	Ghana	288
Denmark	208	Gibraltar	292
Djibouti	262	Greece	300
Dominica	212	Greenland	304
Dominican Republic	214	Grenada	308
East Timor	626	Guadeloupe	312
Ecuador	218	Guam	316
Egypt	818	Guatemala	320
El Salvador	222	Guinea	324
Equatorial Guinea	226	Guinea-Bissau	624
Eritrea	232	Guyana	328
Estonia	233	Haiti	332
Ethiopia	231	Heard and McDonald Islands	334
Falkland Islands (Malvinas)	238	Honduras	340
Faroe Islands	234	Hong Kong	344
Fiji	242	Hungary	348
Finland	246	Iceland	352
France	250	India	356

Country Name	Code	Country Name	Code
Indonesia	360	Lithuania	440
Iran (Islamic Republic of)	364	Luxembourg	442
Iraq	368	Macau	446
Ireland	372	Macedonia, the Former Yugoslav Republic of	807
Israel	376	Madagascar	450
Italy	380	Malawi	454
Jamaica	388	Malaysia	458
Japan	392	Maldives	462
Jordan	400	Mali	466
Kazakhstan	398	Malta	470
Kenya	404	Marshall Islands	584
Kiribati	296	Martinique	474
Korea, Democratic People's Republic of (formerly North Korea)	408	Mauritania	478
		Mauritius	480
Korea, Republic of (formerly South Korea)	410	Mayotte	175
Kuwait	414	Mexico	484
Kyrgyzstan	417	Micronesia, Federated States of	583
Lao People's Democratic Republic (formerly Laos)	418	Moldova, Republic of	498
Latvia	428	Monaco	492
Lebanon	422	Mongolia	496
Lesotho	426	Montserrat	500
Liberia	430	Morocco	504
Libyan Arab Jamahiriya (formerly Libya)	434	Mozambique	508
		Myanmar (formerly Burma)	104
Liechtenstein	438	Namibia	516

Country Name	Code	Country Name	Code
Nauru	520	Reunion	638
Nepal	524	Romania	642
Netherlands	528	Russian Federation	643
Netherlands Antilles	530	Rwanda	646
New Caledonia	540	Saint Kitts and Nevis	659
New Zealand	554	Saint Lucia	662
Nicaragua	558	Saint Vincent and the Grenadines	670
Niger	562		
Nigeria	566	Samoa	882
Niue	570	San Marino	674
Norfolk Island	574	Sao Tome and Principe	678
Northern Mariana Islands	580	Saudi Arabia	682
Norway	578	Senegal	686
Oman	512	Seychelles	690
Pakistan	586	Sierra Leona	694
Palau	585	Singapore	702
Panama	591	Slovakia (Slovak Republic)	703
Papua New Guinea	598	Slovenia	705
Paraguay	600	Solomon Islands	90
Peru	604	Somalia	706
Philippines	608	South Africa	710
Pitcairn	612	South Georgia and the South Sandwich Islands	239
Poland	616		
Portugal	620	Spain	724
Puerto Rico	630	Sri Lanka	144
Qatar	634	St. Helena	654
		St. Pierre and Miquelon	666

Country Name	Code
Sudan	736
Suriname	740
Svalbard and Jan Mayen Islands	744
Swaziland	748
Sweden	752
Switzerland	756
Syrian Arab Republic (formerly Syria)	760
Taiwan, Province of China	158
Tajikistan	762
Tanzania, United Republic of	834
Thailand	764
Togo	768
Tokelau	772
Tonga	776
Trinidad and Tobago	780
Tunisia	788
Turkey	792
Turkmenistan	795
Turks and Caicos Islands	796
Tuvalu	798
Uganda	800
Ukraine	804
United Arab Emirates	784
United Kingdom	826
United States	840

Country Name	Code
United States Minor Outlying Islands	581
Uruguay	858
Uzbekistan	860
Vanuatu	548
Vatican City State	336
Venezuela	862
Viet Nam	704
Virgin Islands (British)	92
Virgin Islands (U.S.)	850
Wallis and Futuna Islands	876
Western Sahara	732
Western Samoa	882
Yemen	887
Yugoslavia	891
Zaire	180
Zambia	894
Zimbabwe	716

Units of Measure

Acre (4840 yd2)	ACR		Centimetre*	CMT
Alcoholic strength by mass	ASM		Cord (3,63 m3)	WCD
Alcoholic strength by volume	ASV		Coulomb per kilogram*	CKG
Ampere*	AMP		Coulomb*	COU
Ampere=hour (3,6 kC)*	AMH		Cubic centimetre*	CMQ
Are (100 m2)	ARE		Cubic decimetre*	DMQ
Bar*	BAR		Cubic foot	FTQ
Barrel (petroleum) (158,987 dm3)	BLL		Cubic inch	INQ
Becquerel*	BQL		Cubic metre per hour*	MQH
Billion EUR	BIL		Cubic metre per second*	MQS
Billion US	MLD		Cubic metre*	MTQ
Board foot	BFT		Cubic millimetre*	MMQ
Brake horse power (245,7 watts)	BHP		Cubic yard	YDQ
British thermal unit (1,055 kilojoules)	BTU		Curie	CUR
Bushel (35,2391 dm3)	BUA		Day*	DAY
Bushel (36,36874 dm3)	BUI		Decade (ten years)	DEC
Candela*	CDL		Decare	DAA
Carrying capacity in metric tonnes	CCT		Decilitre*	DLT
Cental GB (45,359237 kg)	CNT		Decimetre*	DMT
Center, metric (100 kg) (syn.: Hectokilogram)	DTN		Decitonne*	DTN
Centigram*	CGM		Degree Celsius	CEL
Centilitre*	CLT		Degree Fahrenheit	FAH
			Degree Kelvin: Kelvin	
			Displacement tonnage	DPT
			Dozen	DZN
			Dozen packs	DZP

Dozen pairs	DZR	Hectare	HAR
Dozen pieces	DCP	Hectobar*	HBA
Dozen rolls	DRL	Hectogram*	HGM
Drachm GB (3,887935 g)	DRM	Hectokilogram*	DTH
Dram GB (1,771745 g)	DRI	Hectolitre of pure alcohol	HPA
Dram US (3,887935 g)	DRA	Hectolitre*	HLT
Dry Barrel (115,627 dm3)	BLD	Hectometre*	HMT
Dry gallon (4,404884 dm3)	GLD	Hertz*	HTZ
Dry pint (0,55061 dm3)	PTD	Hour*	HUR
Dry quart (1,101221 dm3)	QTD	Hundred	CEN
Farad*	FAR	Hundred boxes	BHX
Fluid ounce (28,413 cm3)	OZI	Hundred international units	HIU
Fluid ounce (29,5735 cm3)	OZA	Hundred leaves	CLF
Foot (0,3048 m)	FOT	Hundred packs	CNP
Gallon (4,546092 dm3)	GLI	Hundredweight US (45,3592 kg)	CWA
Gigabecquerel*	GBQ		
Gigawatt-hour (1 million kW/h)*	GWH	Inch (25,4 mm)	INH
		Joule*	JOU
Gill (0,142065 dm3)	GII	Kelvin*	KEL
Gill (11,8294 cm3)	GIA	Kilobar*	KBA
Grain GB, US (64,798910 mg)	GRN	Kilogram of caustic potash	KPH
		Kilogram of caustic soda	KSH
Gram of fissile isotopes	GFI	Kilogram of named substance	KNS
Gram*	GRM		
Great gross (12 gross)	GGR	Kilogram of nitrogen	KNI
Gross	GRO	Kilogram of phosphonic anhydride	KPP
Gross (register) ton	GRT		
Half year (six months)	SAN	Kilogram of phosphorus pentoxide	KPP

Kilogram of potassium hydroxide	KPH		Liquid quart (0,946353 dm3)	QTL
Kilogram of potassium oxide	KPO		Litre (1 dm3)*	LTR
Kilogram of sodium hydroxide	KSH		Litre of pure alcohol	LPA
Kilogram of substance 90 percent dry	KSD		Long ton GB, US (1,0160469 t)	LTN
Kilogram per cubic meter*	KMQ		(long) hundredweight GB (50,802345 kg)	CWI
Kilogram per second*	KGS		Lumen*	LUM
Kilogram*	KGM		Lux	LUX
Kilohertz*	KHZ		Megahertz*	MHZ
Kilojoule*	KJO		Megalitre*	MAL
Kilometre per hour*	KMH		Megametre*	MAM
Kilometre*	KMT		Megapascal*	MPA
Kilopascal*	KPA		Megavolt-ampere (1000 KVA)*	MVA
Kilorgram of uranium	KUR		Megawatt*	MAW
Kilotonne*	KTN		Megawatt-hour (100 kW/h)*	MWH
Kilovar	KVR		Metre per second squared*	MSK
Kilovolt*	KVT		Metre per second*	MTS
Kilovolt-ampere*	KVA		Metre*	MTR
Kilowatt*	KWT		Metric carat (200 mg=2,10-4 kg)	CTM
Kilowatt-hour*	KWH		Metric ton (1000 kg)	TNE
Knot (1 nautical mile per hour)	KNT		Milliard	MLD
Leaf	LEF		Millibar*	MBR
Liquid gallon (3,78541 dm3)	GLL		Millicurie	MCU
Liquid pint (0,473176 dm3)	PTL		Milligram*	MGM
			Millilitre*	MLT

Millimetre*	MMT		Pint (0,568262 dm3)	PTI
Million	MIO		Pound GB, US (0,45359237 kg)	LBR
Million cubic metres*	HMQ		Proof gallon	PGL
Million international units	MIU		Quart (1,136523 dm3)	QTI
Minute*	MIN		Quarter (of a year)	QAN
Month	MON		Quarter, GB (12,700586 kg)	QTR
Nautical mile (1852 m)	NMI		Quintal, metric (100 kg)	DTN
Net (register) ton	NTT		Revolution per minute*	RPM
Newton*	NEW		Revolution per second*	RPS
Number	NMB		Score	SCO
Number of articles	NAR		scruple, GB (1,2955982 g)	SCR
Number of bobbons	NBB		Second*	SEC
Number of cells*	NCL		Set	SET
Number of international units	NIU		Shipping ton	SHT
Number of packs	NMP		Short standard (7200 matches)	SST
Number of pairs	NMR		Short ton GB, US (0,90718474 t)	STN
Number of parcels	NPL		Siemens*	SIE
Number of parts	NPT		Square centimetre*	CMK
Number of rolls	NRL		Square decimetre*	DMK
Ohm*	OHM		Square foot	FTK
Ounce GB, US (28,349523 g)	ONZ		Square inch	INK
Ounce GB, US (31,103448 g) (syn: Troy ounce)	APZ		Square kilometre*	KMK
Pascal*	PAL		Square metre*	MTK
Pennyweight GB, US (1555174 g)	DWT		Square mile	MIK
Piece	PCE		Square millimetre*	MMK

Square yard	YDK		Weber	WEB
Standard	WSD		Week	WEE
standard atmosphere (101325 Pa)	ATM		Yard (0,9144 m)	YRD
(statue) mile (1609,344 m)	SMI		Year	ANN
Stone GB (6,350293 kg)	STI			
Technical atmosphere (98066,5 Pa)	ATT			
Ten days	DAD			
Ten pairs	TPR			
Thousand	MIL			
Thousand ampere-hour*	TAH			
Thousand board feet (2,36 m3)	MBF			
Thousand cubic metres per day*	TQD			
Thousand standard brick equivalent	MBE			
Ton of steam per hour	TSH			
Tonne (1000 kg)*	TNE			
Tonne of substance 90 percent dry	TSD			
Trillion EUR	TRL			
Trillion US	BIL			
Troy ounce	APZ			
Troy pound, US (373,242 g)	LBT			
Volt*	VLT			
Watt*	WTT			
Watt-hour*	WHR			

FDMS South Currency Codes and Decimal Positions

Currency Name	Currency Code	Decimal Positions
Argentine Peso	32	2
Australian Dollar	36	2
Austrian Schilling	40	2
Belgian Franc	56	0
Canadian Dollar	124	2
Chilean Peso	152	2
Czech Koruna	203	2
Danish Krone	208	2
Dominican Peso	214	2
Markka	246	2
French Franc	250	2
Deutsche Mark	280	2
Drachma	300	0
Hong Kong Dollar	344	2
Indian Rupee	356	2
Irish Punt	372	2
Shekel	376	2
Italian Lira	380	0
Yen	392	0
Won	410	0
Luxembourg Franc	442	0
Mexican Duevo Peso	484	2
Netherlands Guilder	528	2
New Zealand Dollar	554	2

Norwegian Frone	578	2
Philippine Peso	608	2
Portuguese Escudo	620	0
Rand	710	2
Spanish Peseta	724	0
Swedish Krona	752	2
Swiss Franc	756	2
Thailand Baht	764	2
Pound Sterling	826	2
Russian Ruble	810	2
U.S Dollar	840	2
Bolivar	862	2
New Taiwan Dollar	901	2
Euro Dollar	978	2
Polish New Zloty	985	2
Brazilian Real	986	2

Ensuring Safe Storage and Use of Passwords

You should always secure passwords and strive to eliminate unwanted access. Store passwords in encrypted form behind a properly configured firewall. This includes passwords in scripts, code, pages, logs, and databases.

This appendix describes the example Payflow Pro Encrypted Password program.

Overview of the Risks

Here is a partial list of the risks of exposing your Payflow Pro password:

- A hacker could issue fraudulent transactions using stolen credit cards.

- A hacker could buy a product using a sale transaction, receive the downloaded product, and then void the transaction before settlement.

- If the ability to issue credits is not disabled for your account, a hacker could fraudulently credit funds out of your account into:

    A stolen credit card's account (enabling further purchases)

    An offshore account accessible by the hacker. Such funds are not recoverable within the U.S. legal system.

Tip   VeriSign strongly recommends that you do not store credit card numbers at all. If you must store credit card numbers, then store them in encrypted form behind a properly configured firewall.

Fraud Prevention Resources

For more information about preventing fraud, see:

http://www.verisign.com/support/payflow/fraud/fraudPrevention.html

For information about VeriSign Manager security features that reduce unauthorized access to your account, see:

http://www.verisign.com/support/payflow/manager/selfHelp/security.html

Overview of the Example Password Encryption Program

CAUTION   Do not use VeriSign's example scripts in your production environment. You must write a program that encrypts and decrypts your PayFlow Pro account password.

In actual practice, you must ensure that the file containing the key and the file containing the encrypted password are kept where they cannot be accessed or read except by the application that submits transactions.

The Payflow Pro Encrypted Password program provides an example of the process of dynamically generating a symmetric key, then using the key to encrypt the password. The script then stores the encrypted password file in a newly created `lib` subdirectory in a dynamically generated jar file that will be accessed as a java resource whenever the password is required. In this example, the symmetric key and the encrypted password reside on the same host.

Included Files

Code listings for the following files appear in "Code Listings" on page 110.

File	Description
PFProEncrypt.java	Sample java file
encrypt.pl	Perl test script to encrypt and store the password.
PFProSecure.java	Sample java file
securetest.pl	Perl test script to decrypt the password and submit transactions with the decrypted password.

Requirements

Payflow Pro Java SDK Client version 3.06. You can download the code from the **Downloads** page in the VeriSign Manager: **https://manager.verisign.com**

Encrypting the Password

Step 1   Configure the Script

The example Perl scripts provided by VeriSign set the CLASSPATH, and call javac for the java file each time the script is run. The script finally runs the java command on the compiled java class passing any needed parameters.

To prepare the encrypt.pl script, you must specify actual merchant values for the account variables. Modify the encrypt.pl Perl script as follows:

Replace the default text values with actual merchant values for the following account variables: `$user`, `$vendor`, `$partner`, and `$password`.

Step 2   Encrypt the Password

Run the encrypt.pl Perl script once to initialize the key file and encrypt the password file. The script then stores the encrypted password file in a newly created `lib` subdirectory in a jar file that will be accessed as a java resource.

```
>Perl encrypt.pl
```

Step 3   Delete the files used to encrypt the password

After encrypting the password, you must delete the files used to generate the password because both the password and method of encrypting it are contained within the files. Follow these steps:

1   Rename the `../lib/$encjar` file and move it to a unique location so that its location and filename are difficult to discover.

Delete `$encjar` from `../lib`.

Specify the new location and name in the `CLASSPATH` reference in the `securetest.pl` script. Alternatively, specify the path information from the command line when executing the `PFProSecure` java command.

> **2** To enable you to change the password in the future, move the following files to a safe location and then delete the files from their current location:
>
>> $keyfile (encrypt.pl provides the location)
>>
>> $encfile (encrypt.pl provides the location)
>>
>> PFProEncrypt.java
>>
>> PFProEncrypt.class
>>
>> readme.txt
>>
>> encrypt.pl

Submitting Transactions Using the Encrypted Password

Run the `securetest.pl` Perl test script for all test transactions.

```
>Perl securetest.pl
```

Code Listings

encrypt.pl Code Listing

```perl
#!/usr/bin/perl
###########################

use File::Copy;
use Config;
$: = $Config{path_sep};

# Set environment
$LIBS = "$:.$:..$:../lib";

$ENV{PATH} .=$LIBS;
$ENV{LD_LIBRARY_PATH} .=$LIBS;
$ENV{SHLIB_PATH} .=$LIBS;
$ENV{LIBPATH} .=$LIBS;

$ENV{CLASSPATH} .=
"$:../lib/Verisign.jar$:../lib/JSSE/jnet.jar$:../lib/JSSE/jcert.jar$:../l
ib/JSSE/jsse.jar$:.";
$ENV{PFPRO_CERT_PATH} = "../../dist/java/certs";

# Merchant Account values
```

```
#  => Change these to your account values
$user   = "user";
$vendor  = "vendor";
$partner  = "partner";
$password  = "password";
#  => Change the above to your account values

$JDKBIN="C:/j2sdk1.4.0/bin";

# Compile the code
print `$JDKBIN/javac PFProEncrypt.java`;

$encjar  = "eqabz.jar";
$keyfile  = "key";
$encfile  = "encrypted";

# Run the test
print `$JDKBIN/java PFProEncrypt -user $user -vendor $vendor -partner
$partner -password $password`;
print `$JDKBIN/jar cM0f $encjar $keyfile $encfile`;
mkdir("../lib",0744);
copy($encjar,"../lib");
print "\n";
```

PFProEncrypt.java Code Listing

```
// Verisign, Inc.
// http://www.verisign.com
// See contact.txt for additional contact information

// Verisign Payflow Pro Encrypted Password Sample

import java.security.GeneralSecurityException;
import java.security.KeyPair;
import java.security.KeyPairGenerator;
import java.security.NoSuchAlgorithmException;
import java.security.PrivateKey;
import java.security.PublicKey;
import java.security.cert.X509Certificate;
import java.security.interfaces.RSAKey;

import java.io.*;
import java.security.*;
import javax.crypto.*;
import javax.crypto.spec.*;
```

```
class PFProEncrypt {

   public static void encode(String user, String vendor,
               String partner, String password)
    throws Exception
   {
    System.out.println("Encrypting...\n");
    //
    // Generate a symmetric key using the DES algorithm.
    //
    System.out.println(" Generating key...\n");
      KeyGenerator kg = KeyGenerator.getInstance("DES");
      kg.init(new SecureRandom());
      SecretKey key = kg.generateKey();
      SecretKeyFactory kf = SecretKeyFactory.getInstance("DES");
      Class deskeyspec = Class.forName("javax.crypto.spec.DESKeySpec");
      DESKeySpec keyspec = (DESKeySpec) kf.getKeySpec(key, deskeyspec);
      ObjectOutputStream keyfile = new ObjectOutputStream(new
FileOutputStream("key"));
      keyfile.writeObject(keyspec.getKey());

      Cipher c = Cipher.getInstance("DES/CBC/PKCS5Padding");
      c.init(Cipher.ENCRYPT_MODE, key);
      CipherOutputStream pwdfile = new CipherOutputStream(
                    new FileOutputStream("encrypted"), c);
      PrintWriter pw = new PrintWriter( new OutputStreamWriter(pwdfile) );
    System.out.println(" writing encrypted values:\n");
    System.out.println("   user: " + user + "\n");
      pw.println(user);
    System.out.println("   vendor: " + vendor + "\n");
      pw.println(vendor);
    System.out.println("   partner: " + partner + "\n");
      pw.println(partner);
    System.out.println("   password: " + password + "\n");
      pw.println(password);
      pw.close();
      keyfile.writeObject(c.getIV());
      keyfile.close();

    System.out.println("Done.\n");
   }

   static private void usage()
   {
    java.io.PrintStream p = System.out;
    p.println("Syntactic usage:\n");
```

```
 p.println("java " + PFProEncrypt.class.getName()
   + "-user <user name>"
   + "-password <user password>"
   + "-vendor <vendor name>"
   + "-partner <partner name (case sensitive)>\n");
}

public static void main(String argv[])
{
 try {

    if (argv.length < 2 || argv[0].equals("-h")) {
     usage();
     return;
    }

    String user = findValue("-user", argv);
    String password = findValue("-password", argv);
    String vendor = findValue("-vendor", argv);
    String partner = findValue("-partner", argv);

    System.out.println(password);
    encode(user, vendor, partner, password);
    //password = null;
    //System.out.println(password);
    //password = decode();
    //System.out.println(password);

 } catch (Exception e) {
    System.out.println(e);
 }

}

static private String findValue(String toFind, String argv[]){
 return findValue(false, toFind, argv);
}

static private boolean find(String toFind, String argv[]){
 return find(false, toFind, argv);
}

static private String findValue(boolean required, String toFind, String
argv[]){
  for (int i = 0; i < argv.length; ++i){
     if (argv[i].equals(toFind)){
```

```
      return nextArgv(argv, i);
      }
    }
    if (required) {
      throw new IllegalArgumentException("'" + toFind +
                    "' argument missing in input");
    } else {
      return null;
    }
  }

  static private boolean find(boolean required,
        String toFind, String argv[]){
   for (int i = 0; i < argv.length; ++i){
      if (argv[i].equals(toFind)){
       String s = nextArgv(argv, i);
       return true;
      }
    }
    if (required) {
      throw new IllegalArgumentException("'" + toFind +
                    "' argument missing in input");
    } else {
      return false;
    }
  }

  /**
   * Returns the next entry in argv, unless it starts with
   * a '-' (to catch errors such as 'java xyz -a -b' where
   * '-a' needs a value 'java xyz -a value -b'
   */
  private static String nextArgv(String[] argv, int i){
   if ((argv[i+1] != null) && (!argv[i+1].startsWith("-"))){
      return argv[i+1];
    } else {
      return null;
    }
  }
 }
}
```

securetest.pl Code Listing

```
#!/usr/bin/perl
#########################
```

```
use Config;
$: = $Config{path_sep};

# Set environment
$LIBS = "$:.$:..$:../lib";

$ENV{PATH} .=$LIBS;
$ENV{LD_LIBRARY_PATH} .=$LIBS;
$ENV{SHLIB_PATH} .=$LIBS;
$ENV{LIBPATH} .=$LIBS;

# Directory containing the JSSE jar files
#  => Change this to your JSSE jar file directory
$JSSEDIR = "../lib/JSSE";
#  => Change above to your JSSE jar file directory

$JSSECLASSPATH =
"$:$JSSEDIR/jsse.jar$:$JSSEDIR/jcert.jar$:$JSSEDIR/jnet.jar";

$ENV{CLASSPATH} .= "$:../lib/eqabz.jar$:Verisign.jar$:..$:$JSSECLASSPATH";
$ENV{PFPRO_CERT_PATH} = "../certs";

$JDKBIN="C:/j2sdk1.4.0/bin";

# Compile the code
print `$JDKBIN/javac PFProSecure.java`;

# Run the test
print `$JDKBIN/java PFProSecure test-payflow.verisign.com 443
"TRXTYPE=S&TENDER=C&ACCT=4222222222222&EXPDATE=1209&AMT=14.42&COMMENT1[3]
=123&COMMENT2=Good Customer&INVNUM=1234567890&STREET=5199
JOHNSON&ZIP=94588" 30`;
print "\n";
```

PFProSecure.java Code Listing

```
// Verisign, Inc.
// http://www.verisign.com
// See contact.txt for additional contact information

// Verisign Payflow Pro Encrypted Password Sample

import com.Verisign.payment.PFProAPI;

import java.security.GeneralSecurityException;
```

```
import java.security.KeyPair;
import java.security.KeyPairGenerator;
import java.security.NoSuchAlgorithmException;
import java.security.PrivateKey;
import java.security.PublicKey;
import java.security.cert.X509Certificate;
import java.security.interfaces.RSAKey;

import java.io.*;
import java.security.*;
import javax.crypto.*;
import javax.crypto.spec.*;

class PFProSecure {

   public static class UserAuth {
    public String user= "user";
    public String vendor= "vendor";
    public String partner= "partner";
    public String password= "password";

    public String toString()
    {
       return ("&USER=" + user + "&PWD=" + password +
          "&VENDOR=" + vendor + "&PARTNER=" + partner);
    }
    }

   public static UserAuth decode()
    throws Exception
    {
    System.out.println("Decrypting...\n");
    System.out.println(" Retrieving key...\n");
      ObjectInputStream keyfile = new ObjectInputStream(
PFProSecure.class.getResourceAsStream("key") );
      DESKeySpec ks = new DESKeySpec((byte[]) keyfile.readObject());
      SecretKeyFactory kf = SecretKeyFactory.getInstance("DES");
      SecretKey key = kf.generateSecret(ks);

      Cipher c = Cipher.getInstance("DES/CBC/PKCS5Padding");
      c.init(Cipher.DECRYPT_MODE, key, new IvParameterSpec((byte[])
keyfile.readObject()));
      CipherInputStream pwdfile = new
CipherInputStream(PFProSecure.class.getResourceAsStream("encrypted"), c);
     BufferedReader br = new BufferedReader( new InputStreamReader(pwdfile) );
```

```
    System.out.println(" reading encrypted values:\n");
    UserAuth userauth = new UserAuth();
      userauth.user = br.readLine();
    System.out.println("   user: " + userauth.user + "\n");
      userauth.vendor = br.readLine();
    System.out.println("   vendor: " + userauth.vendor + "\n");
      userauth.partner = br.readLine();
    System.out.println("   partner: " + userauth.partner + "\n");
      userauth.password = br.readLine();
    System.out.println("   password: " + userauth.password + "\n");

    System.out.println("Done.\n");

      return userauth;
    }

    // Set defaults
    static String HostAddress  = "test-payflow.verisign.com";
    static Integer HostPort = Integer.decode("443");
    static String ParmList     = "";
    static Integer Timeout = Integer.decode("30");
    static String ProxyAddress  = "";
    static Integer ProxyPort = Integer.decode("0");
    static String ProxyLogon   = "";
    static String ProxyPassword = "";

    static UserAuth userauth   = null;

    // Help system
    static void help()
    {
        System.out.println( "Usage Error: \n" );

        System.out.println("pfpro <hostAddress> <hostPort> <parmList>
<timeout> <proxyAddress> <proxyPort> <proxyLogon> <proxyPassword>");
        System.out.println("<hostAddress>   host name
'test-payflow.verisign.com'");
        System.out.println("<hostPort>    host port number        '443'");
        System.out.println("<parmList>     parameter list
'ccNum=5105105105105100&ccExpDate=1299&amount=1.23'");
        System.out.println("<timeOut>     timeout(sec) - optional    '30'");
        System.out.println("<proxyAddress> proxy name - optional
'proxy'");
        System.out.println("<proxyPort>    proxy port - optional     '8080'");
        System.out.println("<proxyLogon>   proxy logon name - optional
'admin'");
```

```
      System.out.println("<proxyPassword> proxy password - optional
'password'");
    }

   public static void main(String[] args)
   {

      try {

         userauth = decode();

       } catch (Exception e) {
          System.out.println(e);
       }

      PFProAPI pn = new PFProAPI();

      // Check args, at least the first 3 must be there
      if (args.length < 3) {
          System.out.println( "\nPFPRO " + pn.Version() );

          try {
              if ( args[0].equalsIgnoreCase(new String("-version")) ) {
                  System.out.println();
                  return;
              }
          } catch (Exception e) { }

          help();
          return;
      }

      // Place the arguments in the correct variables
      // Once we get an OutOfBounds exception, parsing will stop
      // and the rest will retain their default values.
      try {
          HostAddress  = args[0];
          HostPort  = Integer.decode(args[1]);
          ParmList     = args[2];
          Timeout  = Integer.decode(args[3]);
          ProxyAddress = args[4];
          ProxyPort  = Integer.decode(args[5]);
          ProxyLogon   = args[6];
          ProxyPassword = args[7];
      } catch (Exception e) { }
```

```
    // Set the certificate path
    pn.SetCertPath("../certs");

     // Call the client.
     pn.CreateContext(HostAddress,
             HostPort.intValue(),
             Timeout.intValue(),
             ProxyAddress,
             ProxyPort.intValue(),
             ProxyLogon,
             ProxyPassword);

    String rc = pn.SubmitTransaction( ParmList + userauth );

    System.out.println(rc);

    pn.DestroyContext();
  }
}
```

![VeriSign logo — The Value of Trust]

Frequently Asked Questions

◆ **Where do I find online information about Payflow Pro?**

See: **http://www.verisign.com/support/payflow/pro/index.html**

◆ **How do I download the VeriSign SDK?**

Log in to VeriSign Manager and click **Downloads**. All VeriSign SDKs are listed by server platform and operating system. All SDKs are contained in downloadable WinZip files. You can download WinZip at **http://www.winzip.com**.

◆ **Do I need the VeriSign SDK if I already have a shopping cart?**

Refer to your shopping cart documentation to verify its compatibility with VeriSign. Your shopping cart documentation should specify if it is pre-integrated or requires a VeriSign SDK plug-in. Shopping cart SDKs are available on VeriSign's software downloads page.

◆ **How do I know my transactions are connecting to VeriSign?**

We send your server a 12-character transaction ID (for example, VX0198765432) for every transaction submitted to our servers. This transaction ID can also be referenced through VeriSign Manager Reports.

◆ **How do I process test transactions?**

Once you have registered with VeriSign and have completed the integration/configuration of your storefront use the following information to begin testing transactions:

HostAddress: *test-payflow.verisign.com*
HostPort: *443*
PARTNER: *Your partner ID or VeriSign*
VENDOR: *Your case-sensitive login*

USER: *Your case-sensitive login*
PWD: *Your case-sensitive password*

◆   **How do I process live transactions?**

Once you have successfully processed test transactions, use the following information to reconfigure your storefront:
HostAddress: *payflow.verisign.com*
HostPort: *443*
PARTNER: *Your partner ID or VeriSign*
VENDOR: *Your case-sensitive login*
USER: *Your case-sensitive login*
PWD: *Your case-sensitive password*

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