

Payment Gateway

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

How payment gateways work

A payment gateway facilitates the transfer of information between a payment portal (such as a website or IVR service) and the Front End Processor or acquiring bank.

When a customer orders a product from a payment gateway enabled merchant, the payment gateway performs a variety of tasks to process the transaction:

- A customer places order on website by pressing the 'Submit Order' or equivalent button, or perhaps enters their card details using an automatic phone answering service.
- If the order is via a website, the customer's web browser encrypts the information to be sent between the browser and the merchant's web server. This is done via SSL (Secure Socket Layer) encryption.
- The merchant then forwards the transaction details to their payment gateway. This is another SSL encrypted connection to the payment server hosted by the payment gateway.
- The payment gateway forwards the transaction information to the processor used by the merchant's acquiring bank.
- The processor forwards the transaction information to the card association (i.e., Visa/MasterCard)
- If an American Express or Discover Card was used, then the processor acts as the acquiring bank and directly provides a response of approved or declined to the payment gateway.
- The card association routes the transaction to the correct card issuing bank.
- The credit card issuing bank receives the authorization request and sends a response back to the processor (via the same process as the request for authorization) with a response code. In addition to determining the fate of the payment, (i.e. approved or declined) the response code is used to define the reason why the transaction failed (such as insufficient funds, or bank link not available)
- The processor forwards the response to the payment gateway.
- The payment gateway receives the response, and forwards it on to the website (or whatever interface was used to process the payment) where it is interpreted and a relevant response then relayed back to the cardholder and the merchant.
- The entire process typically takes 2-3 seconds
- The merchant must then ship the product prior to being allowed to request to settle the transaction.
- The merchant submits all their approved authorizations, in a "batch", to their acquiring bank for settlement.
- The acquiring bank deposits the total of the approved funds in to the merchant's nominated account. This could be an account with the acquiring bank if the merchant does their banking with the same bank, or an account with another bank.
- The entire process from authorization to settlement to funding typically takes 3 days.

Many payment gateways also provide tools to automatically screen orders for fraud and calculate tax in real time prior to the authorization request being sent to the processor. Tools to detect fraud include geolocation, velocity pattern analysis, delivery address verification, computer finger printing technology, identity morphing detection, and basic AVS checks.

Payment card industry

The payment card industry (PCI) denotes the debit, credit, pre-paid, e-purse, ATM, and POS cards and associated

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businesses.

The term is sometimes more specifically used to refer to the Payment Card Industry Security Standards Council, an independent council originally formed by American Express, Discover Financial Services, JCB, MasterCard Worldwide and Visa International on Sept. 7, 2006, with the goal of managing the ongoing evolution of the Payment Card Industry Data Security Standard.

International Payment Schemes

This article may require cleanup to meet Wikipedia's quality standards.
Please improve this article if you can. (November 2007)

Visa International

Visa is a private, membership association jointly owned by more than 20,000 member financial institutions around the world.

Regional and National Payment Schemes

Interac Association

The Interac Association is Canada's national organization linking Financial Institutions and enterprises that have proprietary networks to enable communication with each other for the purpose of exchanging electronic financial transactions. The Association was founded in 1984 by the big five banks. Today there are over 80 members. The Interac Association is the organization responsible for the development of Canada's national network of two shared electronic financial services: Shared Cash Dispensing (SCD) for cash withdrawals from any ABM not belonging to a cardholder's financial institution; and Interac Direct Payment (IDP) for Debit Card payments at the Point-of-Sale

External links

Payment card industry

- PCI Security Standards, the organization responsible the development, enhancement, storage, dissemination and implementation of security standards for account data protection.
- The European Payment Council (EPC) is the decision-making and coordination body of the European banking industry in relation to payments.
- PCI Answers Blog and Forum has different PCI experts demystifying the experience of compliance
- Society of Payment Security Professionals Industry professionals and CPISM industry certification

address verification

The Address Verification System (AVS) is a system used to verify the identity of the person claiming to own the credit card. The system will check the billing address of the credit card provided by the user with the address on file at the credit card company. The other security features for the credit card include the CVV2 number and the expiration date. AVS verifies the numeric portions of a cardholders billing address. For example, if your address is 101 Main Street, Highland, CA 92346, AVS will check 101 and 92346. Sometimes AVS checks additional digits such as an apartment number, other times it does not. As a result you may receive false negatives from e-commerce verification systems, which may require manual overrides or reprogramming of the AVS entries by the card issuing bank.

AVS Support

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At present, only a few countries support AVS on Visa and MasterCard, notably the USA, Canada and the United Kingdom. American Express does support AVS in more countries.

Cardholders with a bank that does not support AVS may receive an error from Internet stores due to the lack of data. Besides the Automated verification, some banks do provide merchants with a manual verification system. Usually this is done for foreign credit card accounts as the AVS only works in the same country. This facility helps the merchants to prevent fraud arising from other countries. The merchant's bank calls the customer banks (or sends a fax for banks that request them). Some countries like Denmark however prevent banks from verifying customer data.

Address Verification Service (AVS) Codes

Type of Codes

Codes

Description

Codes for American Express Cards

F, H, J, K, L, O, Q, T, V

For American express cards only.

International Visa Codes

B, C, D, G, I, M, P

The international and domestic alphabetic AVS codes are the Visa standard AVS codes.

Domestic Visa Codes

A, E, N, R, S, U, W, X, Y, Z

The international and domestic alphabetic AVS codes are the Visa standard AVS codes.

Code

Description

A

Street address matches, but 5-digit and 9-digit postal code do not match.

B

Street address matches, but postal code not verified. Returned only for non U.S.-issued Visa cards.

C

Street address and postal code do not match. Returned only for non U.S.-issued Visa cards.

D & M

Street address and postal code match. Returned only for non U.S.-issued Visa cards.

E

AVS data is invalid or AVS is not allowed for this card type.

F

Card member's name does not match, but billing postal code matches. Returns only for the American express card type.

G

Non-U.S. issuing bank does not support AVS.

H

Card member's name does not match. Street address and postal code match. Returns only for the American express card type.

I

Address not verified. Returned only for non U.S.-issued Visa cards.

J

Card member's name, billing address, and postal code match. Shipping information verified and chargeback protection guaranteed through the Fraud Protection Program. Returns only if you are signed up to use AAV+ with the American express Phoenix processor.

K

Card member's name matches but billing address and billing postal code do not match. Returns only for the American express card type.

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L

Card member's name and billing postal code match, but billing address does not match. Returns only for the American express card type.

M

See the entry for D & M.

N

Street address and postal code do not match.

Or Card member's name, street address and postal code do not match. Returns only for the American express card type.

O

Card member's name and billing address match, but billing postal code does not match. Returns only for the American express card type.

P

Postal code matches, but street address not verified. Returned only for non U.S.-issued Visa cards.

Q

Card member's name, billing address, and postal code match. Shipping information verified but chargeback protection not guaranteed (Standard program). Returned only if you are signed up to use AAV+ with the American Express Phoenix processor.

R

System unavailable.

S

U.S.-issuing bank does not support AVS.

T

Card member's name does not match, but street address matches. Returns only for the American express card type.

U

Address information unavailable. Returned if the U.S. bank does not support non-U.S. AVS or if the AVS in a U.S. bank is not functioning properly.

V

Card member's name, billing address, and billing postal code match. Returns only for the American express card type.

W

Street address does not match, but 9-digit postal code matches.

X

Street address and 9-digit postal code match.

Y

Street address and 5-digit postal code match.

Z

Street address does not match, but 5-digit postal code matches.