CardGate

The Future of Online Credit Card Transactions

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OVERVIEW

Introducing CardGate, the internet-based software gateway for processing credit card transactions on your own servers. The CardGate gateway enables usage by multiple clients for their consumer credit card charges. CardGate also supports multiple banking relationships. To accommodate your changing needs, the design is modular and expandable. Transaction reporting services are built into the software.

WHAT CAN CARDGATE DO?

CardGate provides support for "one-to-one scenario" and "many-to-one scenario" types of processing capabilities. "One-to-one scenario" means one client, one merchant account. "Many-to-one scenario" means many clients to one merchant account. The banking connection design is modular, enabling the additional support of other financial institutions by inserting new components and configuring the system to use these components.

GateCard's transaction filtering capability can stop bogus transactions before they are financially processed. This isn't all; the system is also designed to allow integration with commercially available fraud screening services. You can follow a transaction from start to finish with the reporting feature that allows you to view periodic summaries of processing, and details on individual transactions.

With the administrator interface, you can set up new banks, new clients and new users. Client-specific configurations can be established. Of course, there is transaction security by requiring client passwords on transactions. A monitoring system has been built into the software so that database failures, security failures, or connectivity failures will result in notifications to appropriate personnel.

CARDGATE – YOUR UNIQUE FIT

The gateway software has a basic yet modular system operation. All database considerations have been accommodated, so customizations can be performed as needed without requiring a re-write of the code or a restructure of the database design.

A complete database schema has been developed prior to coding, and the CardGate transaction system resides on top of that database. The client database contains all information required to process transactions for the given client. The gateway accepts transactions submitted by either the HTTP GET or HTTP POST protocols, and supports normal or SSL (https) requests.

Transaction filtering has been implemented using the standards, such as LUHN MOD10 algorithms and expiration date validation, and is easily expandable as required. The administrator interface is capable of allowing merchant setup and configuration, as well as client/user login management.

When new banking support is desired, the administrator interface is capable of setting up new bank processing by configuring the appropriate modules to use for that bank. The client interface provides a subset of the administrator interface, whereby the client can view information on processing and set up users for their specific account.

The software verifies the client userid/password prior to processing any transactions. Errors in either of these data are captured and the appropriate notification system is triggered.

HARDWARE/ OS / SOFTWARE

The gateway software is easily maintainable, scalable, and adaptable. A high volume of transactions can be accommodated; the limits on throughput are generally governed by external resources (such as leased line speed, external processor speed, etc). Thus, the web hosting systems, database systems, and the reporting system won't become the bottleneck in system throughput.

Here are the specifics:

- The system runs on PC-based server(s)
- The system requires the Microsoft Windows 2000 platform
- The system runs under the IIs Web Server
- The system uses the Microsoft SQL Server database, with stored procedures for speed
- The system uses a combination of ASP and DLLs to provide modifiability and efficiency
- The system uses COM+ services to allow multi-machine operation

DESIGN

As mentioned earlier, the CardGate system is modular so that the addition of new functions doesn't require a re-write of existing components. In particular, the database is structured in an expandable fashion, with a degree of normalization, to promote enhancements and upgradability.

The reporting system has been designed and implemented to allow customization of the output presentation, without affecting the functionality of the transaction processing. And transaction filtering can be customized for your needs without requiring the system to be re-implemented.

The bank processing modules are separate from the filtering, reporting, logging, and notification systems insuring seamless customizing of functions, without affecting the rest of the working modules.

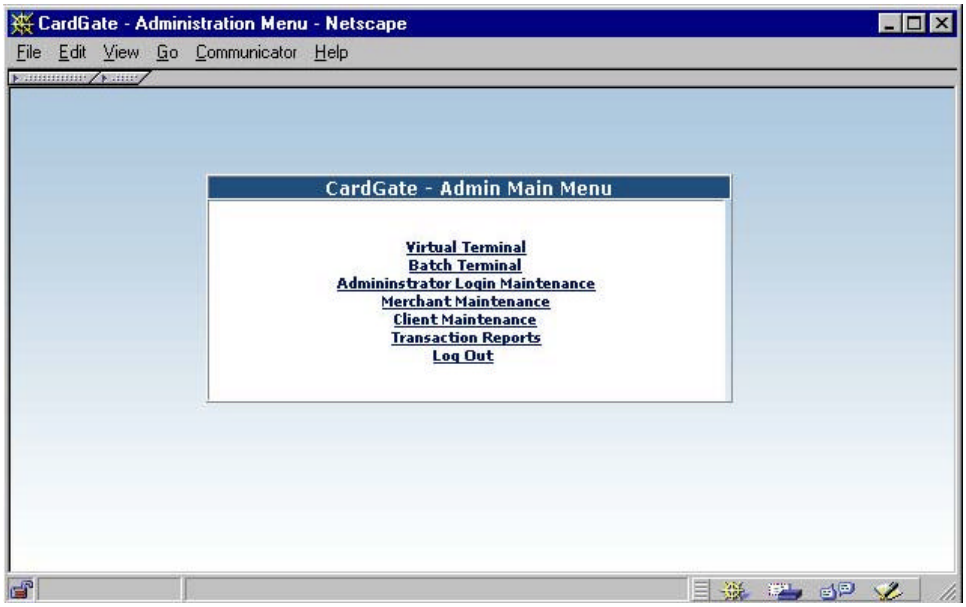
INTEGRATED SUB-SYSTEMS – THE STRENGTH AND FLEXIBILITY OF CARDGATE

CardGate provides the strength and flexibility to process credit card transaction for as many websites as you may require. The administration menu allows you to have complete control over CardGate's operations.

Main Menu

From the Main Menu, you can move with ease to any operation necessary.

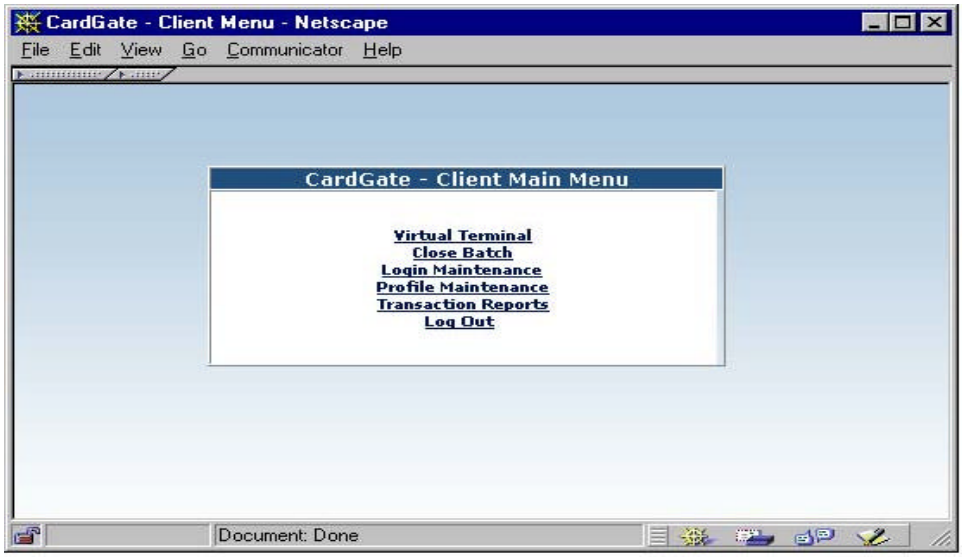
CardGate's Administrative Main Menu:



Client Menu

CardGate provides a simplified interface for clients, who have less permissions than CardGate administrators.

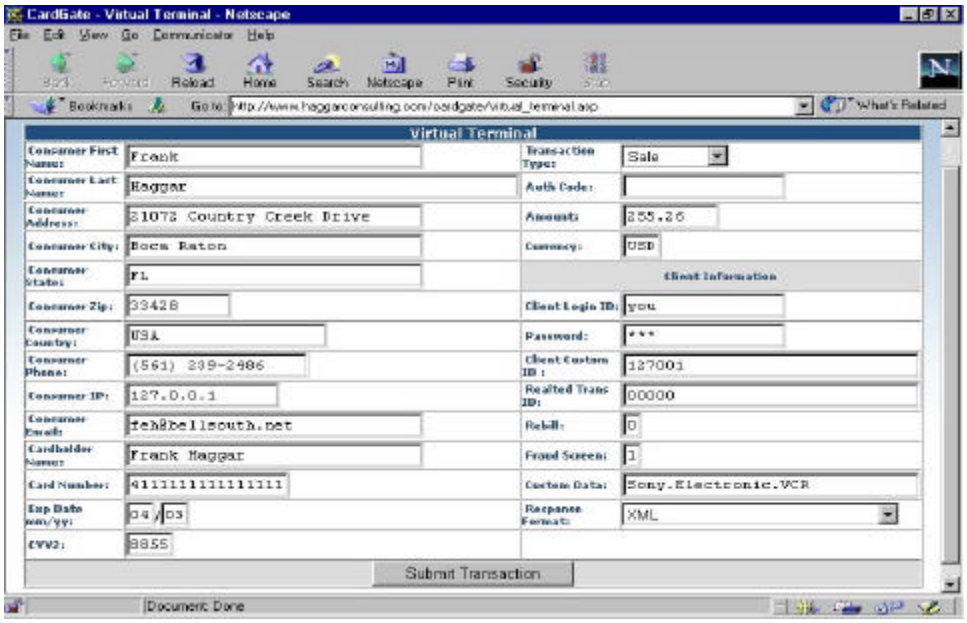
CardGate's Client Main Menu:



Virtual Terminal

From the Virtual Terminal you can process gateway transactions, such as AVSOnly, AuthOnly, Force, Sale, Credit, and Void.

CardGate's Virtual Terminal:

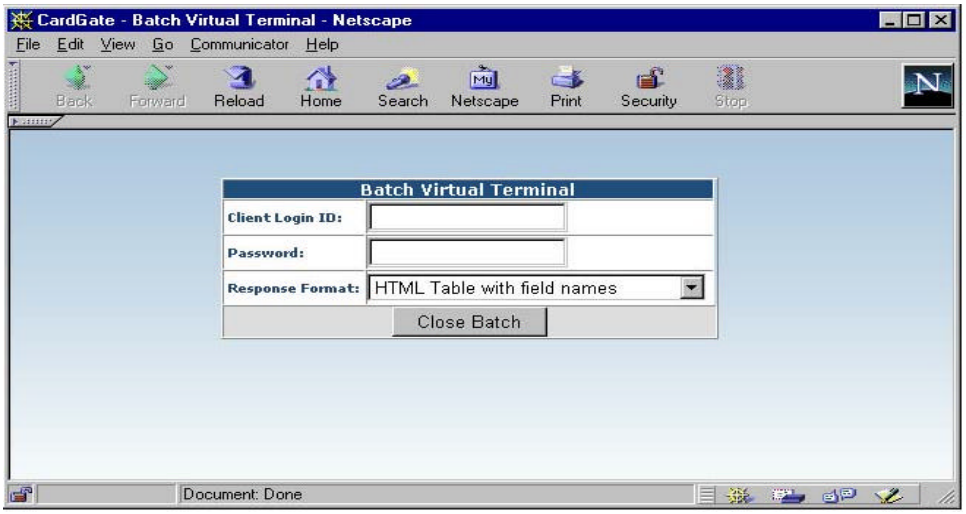


Replies can be returned in a variety of formats, including HTML, XML, and ASCII.

Batch Terminal

The Batch Terminal allows supervisors to close batches interactively.

CardGate's Batch Terminal:

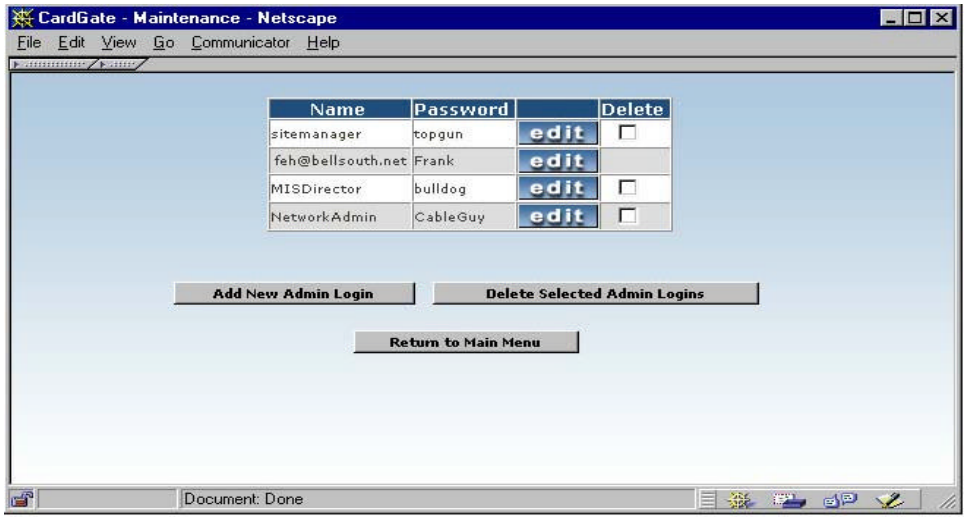


Replies can be returned in a variety of formats, including HTML, XML, and ASCII.

Administrator Login Maintenance

The Administrator Login Maintenance Screen allows system administrators to add, edit and delete system user logins. Users can be given different levels of permission.

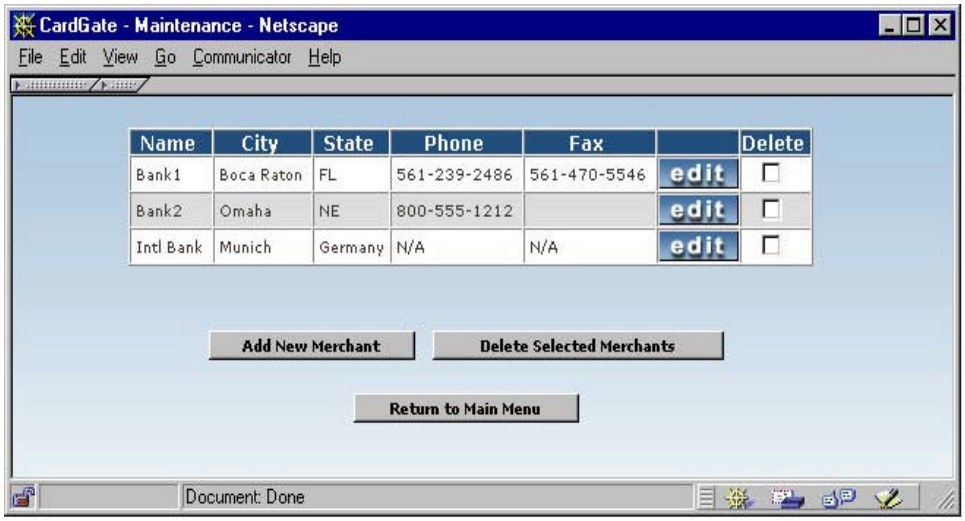
CardGate's Administrator Login Maintenance:



Merchant Maintenance

The Merchant Maintenance screen allows merchant accounts and banking relationship to be added, edited and deleted.

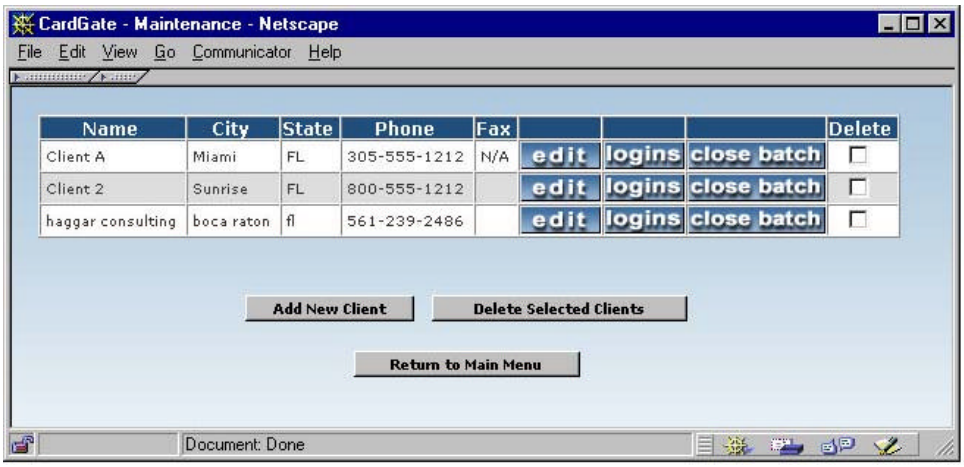
CardGate's Merchant Maintenance:



Client Maintenance

The CardGate Client Maintenance allows clients to be added, edited and deleted. In addition, this screen allows userids to be created for individual client accounts and batches to be closed.

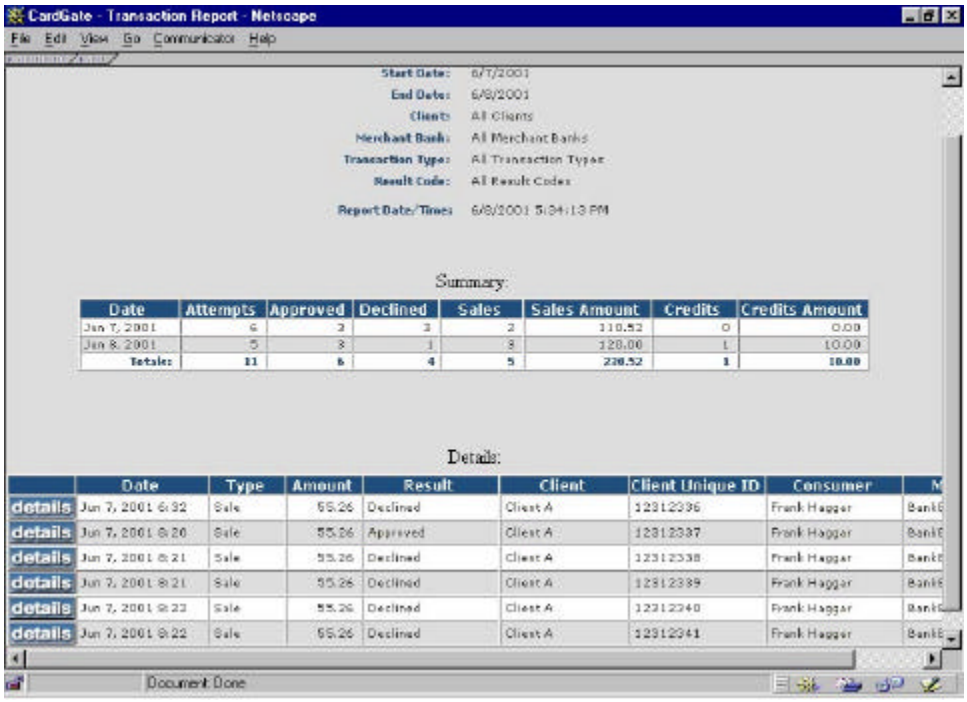
CardGate's Client Maintenance:



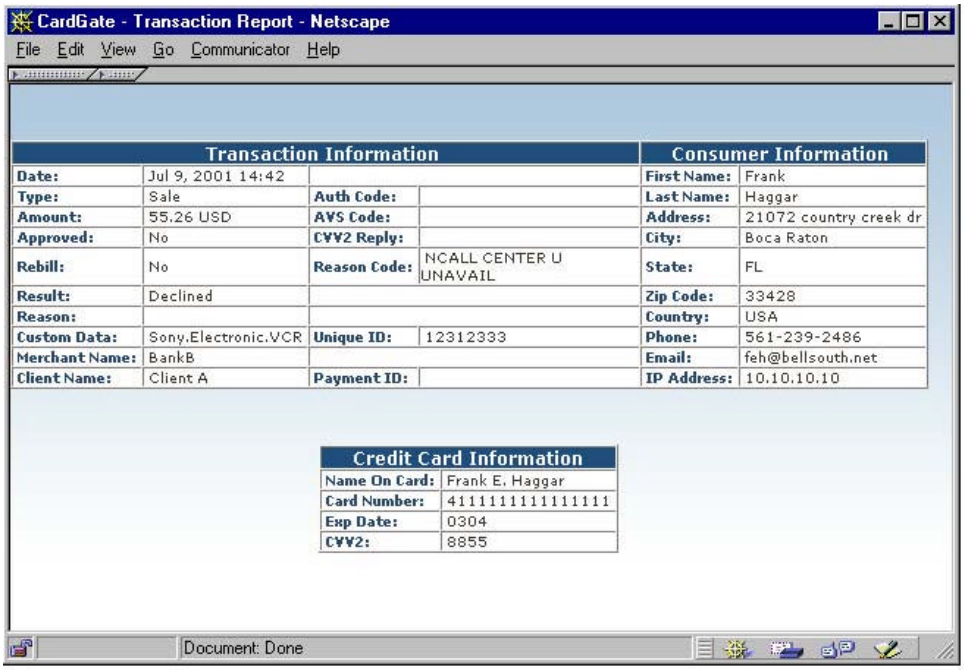
Online Reporting

The CardGate reporting system provides a variety of reports including summaries and drill-down reports for full transaction details.

CardGate's Summary Report:



CardGate's Transaction Details:



The full credit card information is displayed based on the user's permission to view such information.

Notification System

CardGate's built-in notification system will automatically send alerts in the unlikely event of a database failure, security/login failures or bank connectivity failures. These alerts are automatically sent to the appropriate administration personnel.

Technical Client Interface Information on CardGate Gateway Protocol

OVERVIEW

This API can be called using either the HTTP POST or an HTTP GET protocol. The data should be sent to the following link:

http://www.yoursite.com/gateway/transactions.asp

INPUT

These are the names of the input fields:

cg_FirstName	String	30	The consumer's first name
cg_LastName	String	40	The consumer's last name
cg_Address	String	60	The consumer's street address (Required for AVS Processing)
cg_City	String	30	The consumer's city
cg_State	String	30	The consumer's state
cg_Zip	String	10	The consumer's zip code (Required for AVS Processing)
cg_Country	String	20	The consumer's country
cg_Phone	String	18	The consumer's telephone number
cg_IPAddress	String	15	The consumer's IP address used when performing the transaction
cg_Email	String	100	The consumer's email address
cg_NameOnCard	String	70	The name as it appears on the credit card
cg_CardNumber	String	16	The full cardnumber
cg_ExpMonth	String	2 (MM)	The 2-digit month the card expires
cg_ExpYear	String	2 (YY)	The 2-digit year the card expires
cg_CVV2	Numeric	(3 or 4 digits)	The 3 or 4 digit Card Verification Value (printed on front or back of card)
cg_TransType	String	20	"Sale", "AuthOnly", "Force", "Credit", "AVSOnly"
cg_AuthCode	String	10	The authorization code as returned by the "AuthOnly" or "Sale" transaction. This is only required when performing a "Force" on an "AuthOnly"
cg_Amount	Currency	(0.01 and up)	The amount of the transaction without currency symbols
cg_CurrencyCode	String	3 (USD)	The currency the transaction should be performed in (USD)
cg_ClientLoginID	String	24	The client's ID value
cg_ClientPassword	String	24	The password associated with the Client ID

cg_ClientUniqueID	String	64	A unique value used to track this transaction, assigned by the client's software
cg_TransactionID	Numeric	Numeric value of an unsigned 32 bit integer	The unique transaction value assigned by this gateway for any transaction. This field is required when performing a “Force”, and must contain the TransactionID value supplied in the response from the original “AuthOnly” transaction
cg_Rebill	Boolean	1 or 0	A value of 0, or 1 to indicate a rebill transaction
cg_FraudScreen	Boolean	1 or 0	Future Use
cg_CustomData	String	255	A field that will be passed back in the reply
cg_ResponseFormat	Numeric	0 through 6	A numeric value representing the requested format for the reply, as follows: 0 = Comma Delimited (the default) 1 = Comma Delimited with field names 2 = CRLF Delimited 3 = CRLF Delimited with field names 4 = XML 5 = HTML Table 6 = HTML Table with field names

REQUIRED FIELDS

The following fields are required for each transaction type:

“Sale”	cg_ClientID cg_ClientPassword cg_CardNumber cg_ExpMonth cg_ExpYear cg_Amount
“AuthOnly”	cg_ClientID cg_ClientPassword cg_CardNumber cg_ExpMonth cg_ExpYear cg_Amount
“Force”	cg_ClientID cg_ClientPassword, cg_CardNumber, cg_ExpMonth, cg_ExpYear, cg_Amount,

	cg_AuthCode cg_TransactionID
“Credit”	cg_ClientID cg_ClientPassword cg_CardNumber, cg_ExpMonth, cg_ExpYear, cg_Amount
“AVSOnly”	cg_ClientID, cg_ClientPassword, cg_CardNumber, cg_ExpMonth, cg_ExpYear, cg_Amount, cg_Address, cg_Zip

OUTPUT

The output is returned in one of 6 standard formats. The default is comma delimited, where each field is surrounded by double-quotes and separated by commas.

These are the names of the output fields:

ClientID	The Client ID field, returned as submitted
ClientUniqueID	The client's unique transaction ID, as submitted
TransactionID	A unique value supplied by the gateway for each transaction. This value would be supplied as input when performing a FORCE
Status	APPROVED, SUCCESS, DECLINED, or ERROR APPROVED – Returned to indicate an approved AuthOnly, Sale, Force, or Credit SUCCESS – Returned to indicate a successful AVSOnly or BatchClose transaction DECLINED – Returned to indicate a failed transaction ERROR – Returned to indicate an error condition

AuthCode	Upon approval, contains a 10 character AUTHCODE;
AVSCode	This field would contain the AVS character, as standardized to the gateway protocol Valid AVS responses are:'A','W','Y','X','Z','U','S','R', and a space for unknown or unavailable. A = The street address matches, the zip does not W = Whole 9 digit zip matches, the street does not Y = The 5 digit zip and the street both match X = Exact match to both the 9 digit zip and the street Z = Only the 5 digit zip matches, the street does not U = Issuer is unavailable S = Not Supported R = Retry
CVV2Reply	This field would contain the CVV2 response The result from performing a CVV2 check; optional field (If the CVV2 information was sent in on the transaction than the CVV2 response will be included on the transaction response. Valid Codes; M = CVV2 Match N = CVV2 No Match P = Not Processed U = Issuer is not certified and/or has not provided Visa the encryption keys
Reason	Text descriptions for declines and errors (see the lists below)
ErrCode	The numeric value of the error. This will be 0 for approvals and –1 for declines
ExErrCode	An extended error code for the error. This will be 0 for approvals and declines
CustomData	The value passed in by cg_CustomData

DECLINE REASON LIST

These are a standard set of Reason responses for Declines :

Decline	Financially declined
Referral	Request for a voice authorization (to be treated as a decline)
Call ####	Request to call a phone number (usually a security violation)
Lost/Stolen	A lost or stolen card. (This can also be an indication to PICK UP the card)
Timeout/Retry	The response from the bank was a timeout connecting to the issuer

Expired Card	The bank indicated that expiration date supplied is invalid
System error	Internal system error

ERROR REASON LIST

These are a standard set of ErrCodes, ExErrCodes, and Reason responses for Errors:

ErrCode	ExErrCode	Reason
-1100	1001	Invalid Expiration Date
-1100	1002	Expiration Date Too Old
-1100	1101	Invalid Card Number (Alpha Numeric)
-1100	1102	Invalid Card Number (Digits Count)
-1100	1103	Invalid Card Number (MOD 10)
-1100	1104	Invalid CVV2
-1100	1105	Invalid Auth Code/Trans ID
-1100	1106	Credit Amount Exceed Total Charges
-1100	1201	Invalid Amount
-1001	0	Invalid Login
-1002	0	Invalid Transaction Type Code
-1003	0	Error Locating Merchant Bank
-1004	0	Invalid Currency

BATCH CLOSING

Batches can be closed using the administrator login web site. Please log into the site and you will see a variety of reporting and maintenance options, including the ability to close batches.

Alternatively, batches can be closed by using an HTTP POST as follows:

http://www.yoursite.com/gateway/closebatch.asp

The close batch link will expect the following information as input fields:

cg_ClientID	The client's ID value
cg_ClientPassword	The password associated with the Client ID
cg_ResponseFormat	A numeric value representing the requested format for the reply, as follows: 0 = Comma Delimited (the default) 1 = Comma Delimited with field names 2 = CRLF Delimited 3 = CRLF Delimited with field names 4 = XML 5 = HTML Table 6 = HTML Table with field names

The close batch process will return the following output:

Response	SUCCESS or ERROR
Reason	The reason for the ERROR: INVALID LOGIN or BAD IP ADDRESS

CONTACT INFORMATION

Haggar Consulting Corporation is an e-commerce solution provider specializing in software licensing and development. The IC Card and CardGate Software Systems are available for licensing. Consulting services and custom programming services are available.

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