



GiftCardXpress™ Executive Overview

CFXWORKS, INC

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<http://www.cfxworks.com>

GiftCardXpress™ Executive Overview

GiftCardXpress (Elavon)

GiftCardXpress (Embedded)

Two closed loop gift card solutions that support users of Windows, Linux, UNIX, IBM iSeries and IBM mainframes.



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1. Introduction

GCX Acronym

GiftCardXpress™ is referred to in this document either by its formal name “*GiftCardXpress*” or as **GCX**. CFXWorks offers two closed loop gift card solutions. One uses Elavon as the provider of the gift card engine. We call this offering *GiftCardXpress (Elavon)*. With this offering Elavon functions as the processor of the gift card transactions and they keep book on the status of each gift card. Our second gift card solution uses our embedded gift card processing engine. We call this offering *GiftCardXpress (Embedded)*. This offering allows the merchant to function as their own processor using our embedded gift card processing engine.

Background

Both of our *GiftCardXpress* offerings are closed loop gift card solutions. The key difference between open loop and closed loop gift cards are as follows:

Open loop gift cards allow customers to redeem the card at an establishment different from the one from which they purchased the card. An organization external to the merchant acts as the processor of the gift card transactions and charges the merchant a fee for processing the transactions.

Closed loop cards can be redeemed only by the issuing merchant. The merchant can engage a 3rd party to handle the processing or can function as their own processor. If they engage a 3rd party, they must pay this organization processing fees.

Both these gift card solutions can coexist with our ***CreditCardXpress***® payment card solution but neither have a dependency on ***CreditCardXpress***. Merchants using ***GiftCardXpress*** are not required to use ***CreditCardXpress***.

GCX Overview

GiftCardXpress Features

CFXWorks' *GiftCardXpress (GCX)* offering targets merchants, who want to implement a close loop gift solution to attract new business or establish loyalty programs that bring buyers back to their store. *GiftCardXpress* features include:

	GiftCardXpress (Elavon):	GiftCardXpress (Embedded):
	Closed Loop Solution	CLOSED LOOP SOLUTION
1.	Processor fees but no banking fees.	NO processor or banking fees.
2.	Processor regulations but no banking regulations.	NO processor or banking regulations.
3.	Processor assistance	NO processor assistance
	NO PCI DSS regulations	NO PCI DSS regulations
	Deploy internally or to the cloud.	Deploy internally or to the cloud.
	Platform independence	Platform independence
	Database independence	Database independence
	Server independence	Server independence
	Designed to scale	Designed to scale
	Many integration options	Many integration options
4.		Added security features for mobile
	Multiple location support	Multiple location support
	Audit trail	Audit trail
	Report capability	Report capability
	Option - INTEGRATED WITH CreditCardXpress ®	Option - INTEGRATED WITH CreditCardXpress ®

Table 1 - Offering Features

Significant differences between these two offerings are highlighted above in red. They are as follows:

1. GiftCardXpress (Elavon) uses Elavon as the processor. The merchant pays Elavon a fee for handling the processing. With GiftCardXpress (Embedded) the merchant acts as their own processor. Therefore there are no processing fees.
2. GiftCardXpress (Elavon) uses Elavon as the processor. The merchant is subject to Elavon's rules and regulations. With GiftCardXpress (Embedded) the merchant acts as their own processor. Therefore there are no 3rd party regulations.
3. With GiftCardXpress (Elavon) Elavon assists the merchant in the design, manufacture and purchase of the gift cards. With GiftCardXpress (Embedded) the merchant is on their own.
4. CFXWorks added to GiftCardXpress (Embedded) several security features intended to eliminate compromise and fraud. These added features are especially useful to merchants planning to issue eGift cards.

GiftCardXpress Internal Components

Both our GCX offerings internally are very similar. The internal components are illustrated in the following figure.

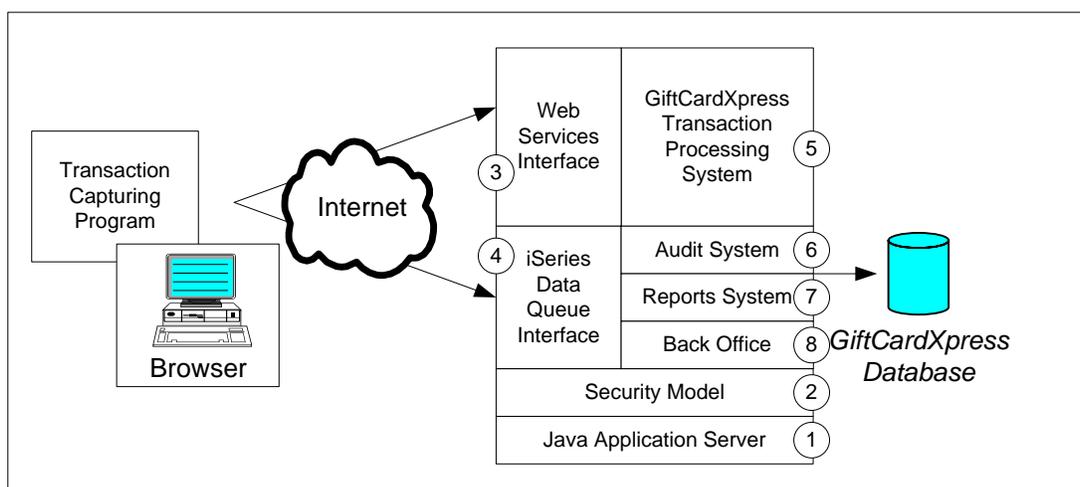


Figure 1 – GiftCardXpress Components

1. **Java Application Server** – GCX is built using Java Application Server (JAS) technology. Why JAS technology?

- **Cross Platform Compatibility** - JAS technology is portable across nearly all hardware and software platforms. For example, the same JAS application will run on Windows 2000, 2003, 2008, XP, Vista, Windows 7, Windows 8, Linux, UNIX, the MAC, IBM's iSeries and mainframes. In contrast many Windows 2000 and XP applications won't even run on Windows Vista or Windows 7 or Windows 8.
 - **JAS Provides An Architecture that Scales** - Java Application Server (JAS) technology runs every transaction in its own thread and can run many transactions in parallel. Therefore, JAS automatically provides an architecture that will scale (without programming changes) to meet the needs of a merchant as they grow. This explains why most high traffic transaction processing systems today are built using JAS technology.
 - **Enterprise Level Features** - Built into JAS are the features required by enterprise level organizations to run their business including web services, XML, database support, message queues, logging, cryptography, SSL, and multi-threading to mention only a few.
2. **Security Model** – The first order of business for any solution deployed across public or private networks is to design and implement a security model. The **GCX** security model addresses the following issues:
- **Data Security** - Securing sensitive transaction data including data at rest and data in flight. The **GCX** security model deploys strong encryption (256-bit AES) as defined by the National Institute of Standards and Technology (NIST).
 - **Identity Access Management System (IMAS)** – The **GCX** IAMS supports user authentication and authorization. It controls who has access to what within the solution. Our browser interface supports 2 factor authentication.
 - **Audit Trail** – **GCX** will create an audit trail that can be used to track every transaction initiated by each user.
 - **Security & Privacy Standards** - **GCX** adheres to all known security standards and privacy legislation defined at the state level.
 - **Application Level Security** – Most serious hacks today target application level security. The best known attack is known as SQL Injection. There are many techniques used by hackers to compromise systems. **GCX's** security model is attempts to address the known application level vulnerabilities.
3. **Web Services Interface** – Most merchants want to integrate their gift card solution using Internet or Intranet based technology. A web services interface provides any programmer who knows how to send an HTTP or HTTPS request a simple way to integrate their data capture capabilities and back office systems with **GCX**. **GCX's** web services interface supports submitting requests using simple name/value pairs or submitting XML documents.

4. **iSeries Data Queue Interface** – iSeries programmers generally prefer using iSeries data queues to interface their RPG applications with external sources. **GCX** supports the use of iSeries data queues. Transaction requests can be formatted using data structures or XML documents.
5. **Transaction Processing System** – The heart of **GCX** is a controller servlet that acts as the traffic cop and gatekeeper for **GCX**. All transaction requests and responses pass through the controller. The controller enforces the security model and parses out work to the various sub-systems as necessary.
6. **Audit System** – The **GCX** audit system was designed to comply with the auditing requirements of PCI DSS. It captures detailed transaction data and optionally records this data to a log file or database. **GCX** currently supports the following databases: DB2, MySQL and SQL Server.
7. **Reports System** – Authorized users can log into **GCX** and generate detailed and summary reports. The reports are displayed in a browser using PDF format. They are intended to be used to track transaction detail and respond to customer inquiries. **GCX (Embedded)** can be configured to send emails to confirm gift card transactions. See *Section 10 Customer Confirmations of the GiftCardXpress Embedded Programmers Guide* for examples of these email confirmations.
8. **Back Office** – This sub-system keeps book on each card issued. For example it logs individual transactions and keeps track of the status and balance on the card.

General Comments

Card Design and Manufacture – **Users of GiftCardXpress (Elavon) would normally work with Elavon for their card design and manufacture. Users of GiftCardXpress (Embedded) can choose any supplier to design and manufacture their gift cards. The track data recorded on the card includes at a minimum a unique card account number. Normally, the card does not display an expiration date. An amount value may be displayed on the face of the card or this value may be assigned when the card is sold.**

Card Activation - **The card may be activated when it is sold or the user of the card may be required to activate the card at a later date.**

Card Purchase – When a gift card is purchased, the customer pays cash or uses a credit/debit card to make the purchase. Since a closed loop gift card has no dependency on any bank or processor, the merchant must have a separate payment card solution if they allow customers to

purchase the gift card using a credit or debit card. As an option the merchant can use our CreditCardXpress offering to process the purchase transaction.

Fraud Considerations - A merchant using a closed loop gift card solution can tailor the gift card process to fit their needs. An important consideration in defining this process is how to control fraud in environments where the intended user of the card is not present or the card is purchased over the web. The process, and security features, implemented by **GCX** were specifically designed to support the add security needs imposed by gift card sales and use across the web.

Sales Tax - Sales tax regulations vary by state however normally a customer does not pay sales tax when a gift card is purchased. When the card owner makes a purchase with a gift card, they are subject to sales tax.

Additional Security Related Considerations

If the public can find a way to steal from you, someone will! Here are some thoughts to consider:

1. In the card's track data record only the bare minimum information. For a gift card normally this includes only the card number and maybe an expiration date. No personal data is recorded on a gift card's track.
2. When the card is sold, activate the card only if you can physically hand the card to the intended user of the card.
3. If the card isn't handed directly to the intended user, assign a PIN # to the card. Require the intended user to activate the card using the card and PIN number. Provide an 800 number and/or web site that can be used for activation.
4. When a buyer purchases a gift card, record a purchase or invoice number so you can cross reference the sale of the gift card to the specific purchase transaction

Business Considerations

Why Merchants Love Gift Cards!

Here is some 2010 data that explains why merchants love gift cards:

- The largest selling single item for over 80% of the top 100 retailers in the United States is their gift card.
- Gift card sales in 2010 were \$73,000,000,000. Sales went up in 2011 but the final figures are not yet in.
- 6-10 % of the cards were never cashed. The percent never cashed are much higher for some merchants.
- Purchases made with gift cards averaged 20 – 50% higher than other sales.
- 72% of the consumers spent more than what was on the card averaging 58% more than what was on the card.
- 35% of the sales were during the holidays.
- 77% of the shoppers plan to give at least one gift card.

How gift cards differ from payment cards!

- **Different stripe data** – The data recorded on the card, and the syntax of that data, normally differs from that recorded on a payment card. Here is an example of track data from a gift card:

```
;6032610153782714=4912120?
```

Here is another gift card:

```
%B6035710041419111401^07675002826$02500$^49120004300?;6035710041419111401=49120004300?
```

Here is an example of track data from a typical credit card:

```
%B4123456789012349^JONES/ROBERT E  
^0206101000000000000000120000000?;  
4123456789012349=02061010000001200000?
```

Data recorded on payment cards must follow an industry standard. However, with gift cards the only rules we are aware of are as follows:

- The card number starts immediately following the ";" character. It ends with the "=" character.
 - The two digits immediately following the "=" character is the expiration year. On many gift cards the expiration year is coded as "49" indicating that there is NO expiration date recorded on the card.
 - The two digits immediately following the expiration year is the expiration month.
 - All three values are mandatory including the card number, an expiration year and an expiration month.
 - Following the expiration month there must be a "?" character however the merchant might include some other values before the "/" character.
 - The year and month values must be valid.
- **Different settlement requirements** – For payment cards settlement is the process that ultimately causes funds to be transferred to or from the merchant's bank account. Funds flow through the normal banking channels using **Automatic Clearing House (ACH)**. Strictly speaking, this process doesn't occur with gift card transactions. Of course, if the card is originally purchased using a payment card that payment card transaction flows through the normal banking channels using ACF. The gift card side of the transaction is handled differently. First, the gift card must be "Activated". When it is "Activated" virtual funds are added to an "account balance". The provider of the gift card engine, keeps the books on the account balance. When a purchase is made using the gift card, the account balance is reduced by the amount of the sale. No funds flow through the banking channels to complete the sales transaction. Therefore, there is no "settlement" process with a gift card.
 - **Different security issues** – When a customer makes a purchase using a payment card, information is collected from the card that can expose the customer to identity theft. Therefore, the merchant must be extremely careful how this data is transported and stored and who has access to this information. This is also why merchants using a payment card solution are subject to PCI-DSS regulations. Since the only data physically recorded on most gift cards is the account number and perhaps the face value, the risk associated with a gift card is low in comparison to credit and debit cards. With gift cards:
 - There is no identity theft exposure because there is no data recorded on the card that allows the perpetrator to identify the owner of the card.
 - If no personal data is recorded on the gift card, and the merchant is processing their own cards, the solution is not exposed to PCI-DSS although a wise merchant will follow the PCI DSS security guidelines.
 - If the card is stolen, the maximum loss exposure to the customer is the balance that remains on the card.

- **By the way, most merchants benefit from lost gift cards because the balance remaining on the card is never used and the merchant pockets the money.**

Magnetic Card Readers

We tested **GCX** using a device called a keyboard swipe reader manufactured by Magtek. They come in many models, sizes, shapes and colors. Some are USB type devices. Some actually plug into your keyboard cable. You can test a keyboard reader using Notepad. Simply put, if Notepad accepts input from the device, it should work with our software.

Magnetic Card Stripe Data

As noted in *Section 1.5* of this document, the stripe data on a gift card may not be formatted consistent with any standard. If you have any trouble processing the stripe data recorded on your cards, please contact us immediately. We will attempt to customize the parsing algorithm to make our software work with your cards.

Regulations

In the past, uniform standards concerning gift cards did not exist. However, as a result of the [Credit CARD Act of 2009](#), the federal government created consumer-friendly standards pertaining to gift cards. **Most notably, the new regulations prohibit retailers from setting expiration dates unless they are at least 6 years after the date that the card is loaded. In addition, retailers are no longer able to assess dormancy, inactivity, or service fees unless the card has been inactive for at least 12 months, and if fees are added after that period, the details of such fees must be clearly disclosed on the card. Additionally, retailers are unable to levy more than one fee per month. The new provisions took effect on August 22, 2010.**

Open loop cards are governed by rules of the [Comptroller of the Currency](#). **Closed loop gift cards** are subject to rules set by different state regulations, and issuing authorities vary widely in the rules they set for the consumer. Rules can be changed by the issuer without notifying the consumer

Closed loop gift card programs do not expose a merchant to PCI-DSS. In fact, nowhere in the PCI-DSS regulations does the word “gift card” even appear. On the other hand, gift card programs may expose a merchant to privacy legislation. Therefore, CFXWorks follows PCI-DSS guidelines in our offerings including encrypting all data in flight and encrypting any sensitive data at rest. We use

strong encryption as defined by the National Institute of Standards and Technology (NIST). We deploy 256-bit AES encryption.

GCX Terms and Conditions

Deployment Options

GCX can be installed on nearly any Java (1.5, 1.6 or 1.7) enabled platform capable of running Apache Tomcat or WebSphere. We have tested it on numerous Windows, Linux, UNIX and IBM platforms.

GCX can communicate with IBM iSeries applications written in RPG, or any other iSeries programming language, using either a web services or iSeries data queue interface.

The bottom line is that you have many deployment options to consider. Call us and we can help you make the decision of what works best for you.

Minimum System Requirements

GCX should run on any system capable of running Java Release 1.5.0 or a more recent version of Java. It also requires either WebSphere 6.0 or Apache Tomcat 5.0 or more recent versions of this software. **GCX** has been tested on Windows 2000, XP, Windows 7, SUSE Linux, RedHat Linux and several IBM platforms including the iSeries and Power. WebSphere is an IBM Java Application Server built from the Apache Tomcat standard. Apache Tomcat is an open source Java Application Server.

Software License

The license agreement is contained in the product distribution zip file. Please read the “**GCX_Embedded_License.pdf**” file for detailed license information.

Export Limitations

This software contains encryption technology that is subject to the U.S. Export Administration Regulations and other U.S. law, and may not be exported or re-exported to certain countries (currently Afghanistan (Taliban-controlled areas), Cuba, Iran, Iraq, Libya, North Korea, Serbia (except Kosovo), Sudan and Syria) or to persons or entities prohibited from receiving U.S. exports

(including Denied Parties, entities on the Bureau of Export Administration Entity List, and Specially Designated Nationals). For more information on the U.S. Export Administration Regulations <http://www.bxa.doc.gov/Encryption/regs.htm>, 15 C.F.R. Parts 730-774, and the Bureau of Export Administration U. S. Department of Commerce. Please see the home page www.bxa.doc.gov

Support

GiftCardXpress is available on a subscription basis. The subscription price includes support and upgrades. Please call CFXWorks (678-455-0952) for pricing information.

Warranty

Please read the license file "*GCX_Embedded_License.pdf*" in the distribution zip file.

Appendix A. Definitions

Gift card	A gift card is a card with a magnetic stripe on it that identifies at a minimum the card number and expiration date of the card. When the card is purchased, the sales person “Activates” the card for a given value. For example a card “Activated” for \$25.00 entitles the user to make purchases of up to \$25.00. The organization that processes the gift card (a bank, a credit card processor or the merchant themselves) is responsible for keeping track of the value remaining on the card after each transaction. Generally speaking, the owner of the card is not identified on the card. Because no personal information is recorded on the card, the only exposure if lost or stolen is that the owner off the card may lose the value left on the card.
Open loop gift card	A gift card normally issued by a processor and designed to be redeemed by multiple merchants. A 3rd party organization, a processor, handles the processing of these cards and charges the merchant a fee for doing so.
Closed loop gift card	A gift card issued by a specific store or merchant that can only be redeemed by the organization issuing the card. The merchant issuing a closed loop gift card may or may not charge an activation fee. Since they perform their own processing, they pay no bank or processing fees.
Gift certificate	Gift certificates differ from gift cards in that gift certificates are usually sold as a paper. The certificate serves as a voucher for future service. There may not be any electronic authorization or computer tracking of individual certificates or transactions.
Loyalty card	A loyalty card, rewards card, points card, advantage card, or club card is a plastic or paper card that visually looks similar to a credit card or debit card that identifies the card holder as a member in a loyalty program. In the United States these cards are usually called a discount card, a club card or a rewards card. By presenting the card, the purchaser is entitled to either a discount on the current purchase, or an allotment of points that can be used for future purchases.
Mystery or lottery cards	Similar to a loyalty card but in general the value of the card isn’t known until the card is presented to the merchant.

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