



# Implementing EMV<sup>®</sup> at the ATM:

Requirements and Recommendations for the U.S. ATM Community

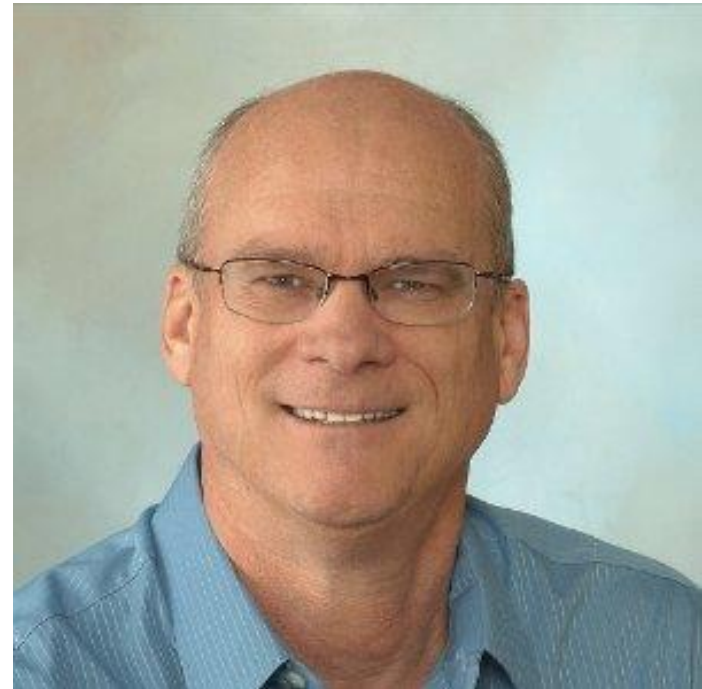
A white paper produced by members of the U.S. EMV Migration Forum

14 July 2015

# Implementing EMV at the ATM:

## Requirements and Recommendations for the U.S. ATM Community

- Randy Vanderhoof, Director, EMV Migration Forum
  - Welcome
  - Overview of the EMV Migration Forum
  - The focus of today's webinar



# Implementing EMV at the ATM:

Requirements and Recommendations for the U.S. ATM Community

## Our presenters today

### Marc Cleven

Senior Director,  
EMV Implementation, Visa



### Deborah Spidle

Director of EMV Solutions,  
Paragon Application Systems



# Implementing EMV at the ATM:

## Requirements and Recommendations for the U.S. ATM Community

- White paper from EMV Migration Forum
- Version 1.0 published in August 2014
- Version 2.0 published in June 2015
- Can be downloaded from the EMV-CONNECTION web site (see link below)
- Free



**Implementing EMV® at the ATM:  
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Version 2.0

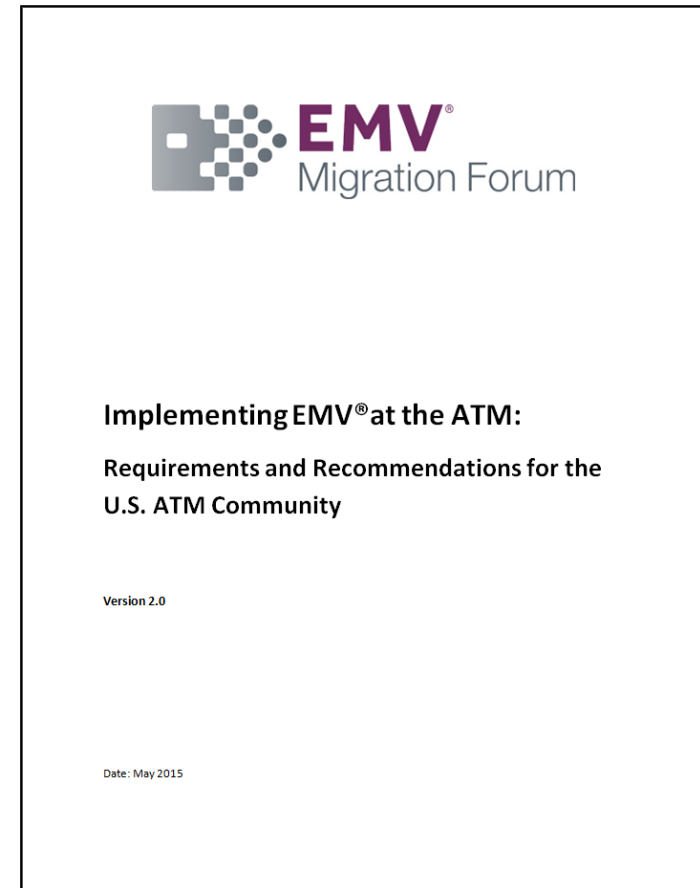
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<http://www.emv-connection.com/implementing-emv-at-the-atm-requirements-and-recommendations-for-the-u-s-atm-community/>

# Implementing EMV at the ATM:

## Requirements and Recommendations for the U.S. ATM Community

- Topics covered in the white paper
  - Executive summary
  - Fundamental EMV concepts
  - Basic EMV requirements for ATMs
  - Migration planning
  - Certifications
  - General Considerations
  - Recommendations and suggested best practices
  - Detailed, technical description of EMV ATM transaction processing
  - Publication acknowledgements
  - References
  - Glossary of terms



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# Agenda for Today's Webinar:

## Highlights from the White Paper

- **Why Migrate to EMV?**
- Fundamental EMV concepts
- Basic EMV Requirements for ATMs
- Migration Planning
- Special Considerations
- Suggested Best Practices
- References and Resources
- Q&A



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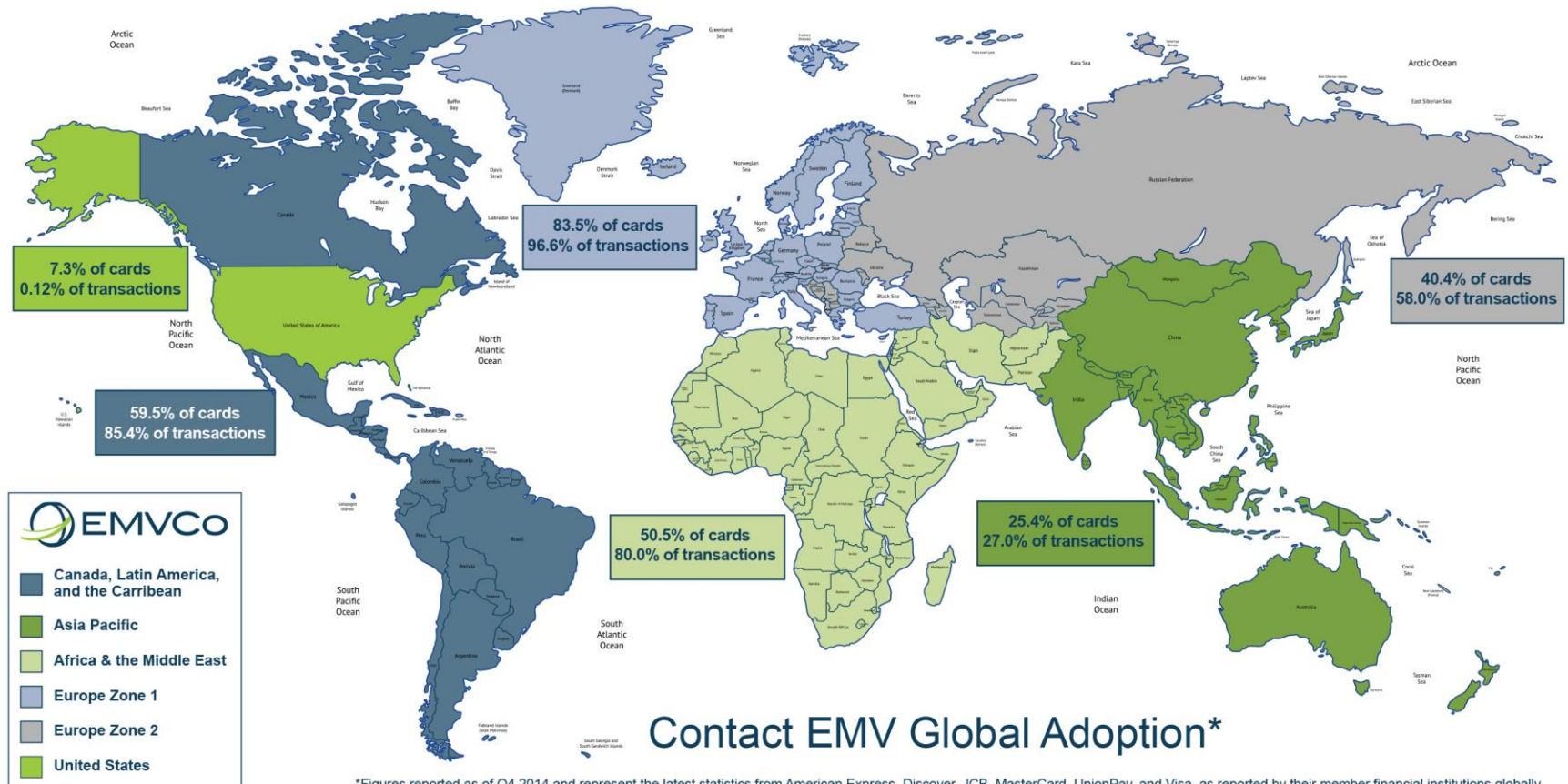
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# Why Migrate to EMV?

- Global interoperability



\*Figures reported as of Q4 2014 and represent the latest statistics from American Express, Discover, JCB, MasterCard, UnionPay, and Visa, as reported by their member financial institutions globally. Figures are reported by region and do not imply country-by-country statistics.

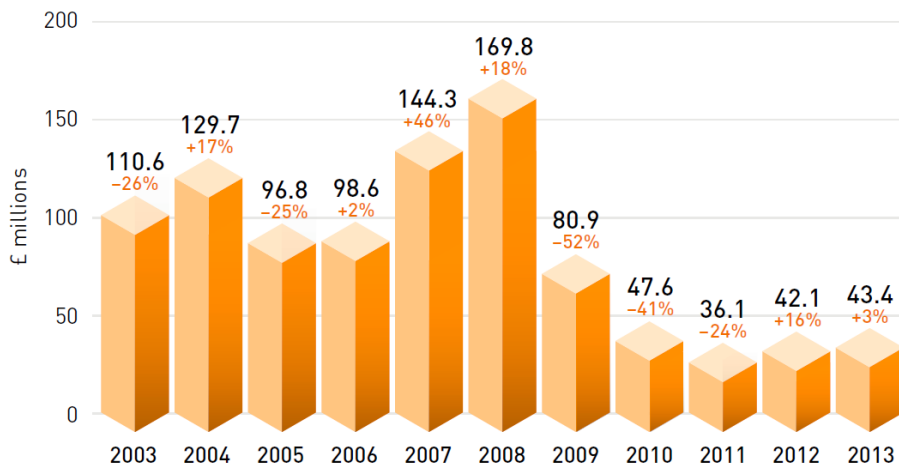
[www.emvco.com](http://www.emvco.com)

# Why Migrate to EMV?

- Counterfeit card fraud reduction
  - Proven results in other regions

Counterfeit card fraud losses on UK-issued cards 2003-2013

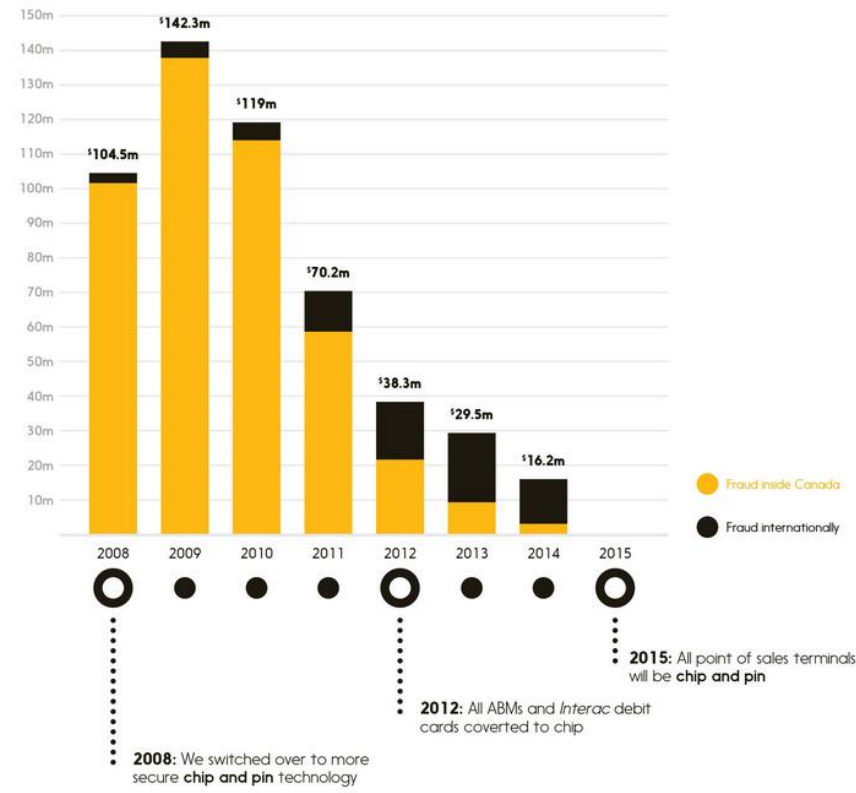
Figures in orange show percentage change on previous year's total



<http://www.financialfraudaction.org.uk/Fraud-the-Facts-2014.asp>

## INTERAC® DEBIT CARD FRAUD LOSSES

Losses to financial institutions

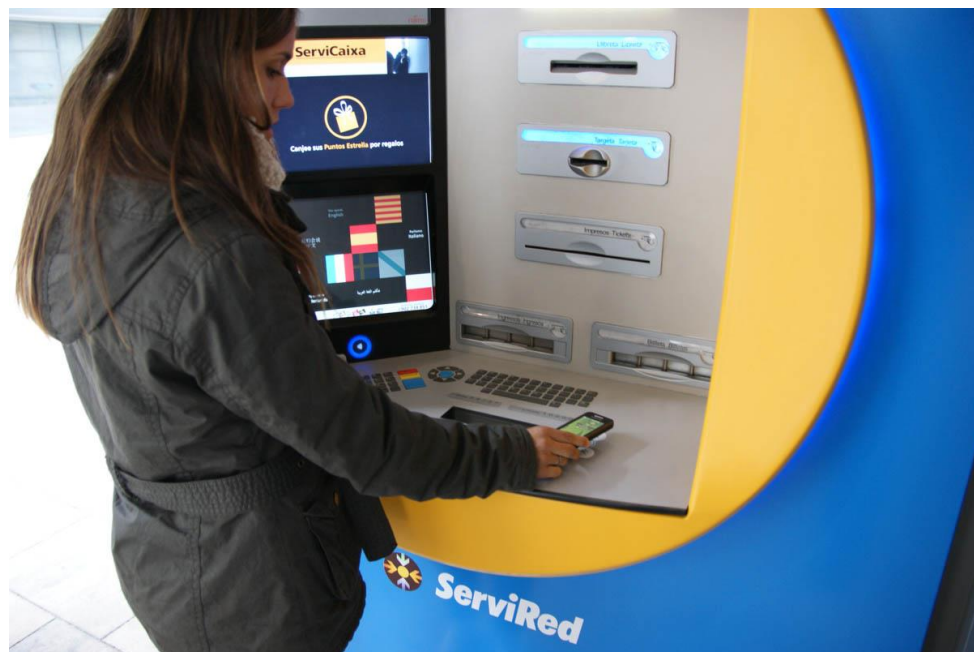
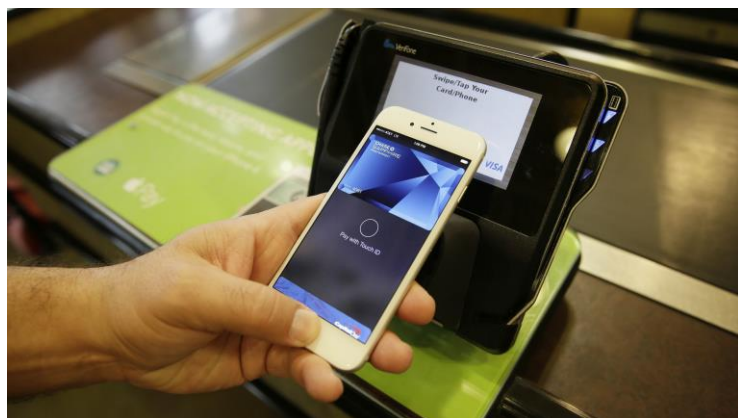


<http://www.interac.ca/en/stat-fraud>



# Why Migrate to EMV?

- Magnetic stripe: unchanging (“static”) set of information
- EMV supports dynamic creation of “one time” data, which is a key component in emerging payment trends, e.g., contactless, mobile payments



# Why Migrate to EMV?

- EMV will assist in the event of a data breach
  - Devalues any data that is stolen
  - Makes it much more difficult to create counterfeit cards
    - Theft of magnetic stripe transaction data does not provide what is needed to generate a legitimate card-present EMV transaction
    - Theft of EMV transaction data will not provide what is needed to generate a subsequent legitimate card-present EMV transaction
    - Theft of EMV transaction data will not provide what is needed to generate a valid magnetic stripe transaction
- Dynamic data, unique to each transaction



# Why Migrate to EMV?

- Liability shift

- The party with the less secure technology is liable for the fraud loss
- Impact on U.S. ATM community

		ATM Capability	
		Mag Stripe Cards Only	Mag Stripe Cards and Chip Cards
Card	Mag Stripe Card		
	Chip Card	Acquirer Liable	

**Chip Liability Shift Chargeback**

# Key Liability Shift Dates for U.S. ATM Owners

- April 1, 2015
  - Visa mandate: U.S. third-party ATM acquirer processors and sub-processors must be able to support EMV data
- October 1, 2016
  - MasterCard: ATM transactions in the U.S. (all MasterCard-branded and Pulse co-branded MasterCard products)
- October 1, 2017
  - Visa: All U.S. ATM transactions across all Visa and/or PLUS-branded products



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# Fundamental EMV Concepts

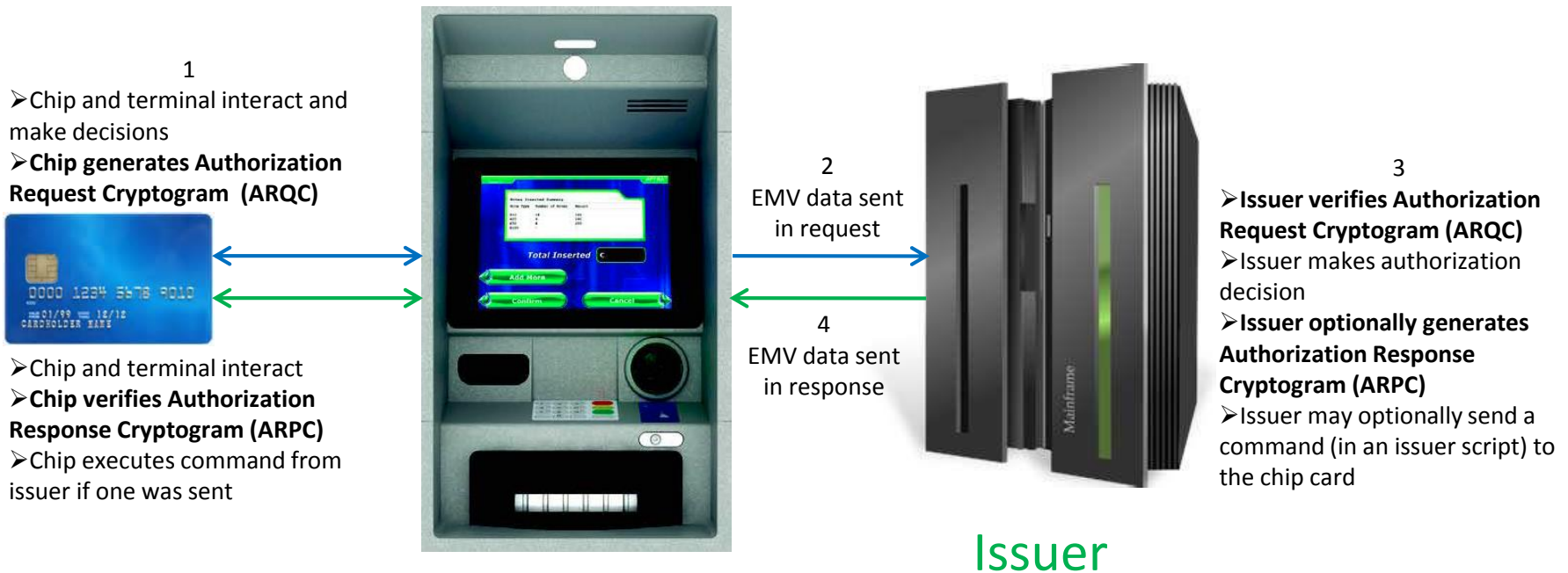
## Magnetic Stripe Transaction vs. EMV/Chip Transaction

- What's the same?
  - Online PIN verification
  - Online transaction authorization
- What's new?
  - Chip card must stay in the ATM for the duration of the transaction
  - Online request message contains more data
  - Online response message may contain more data



# Fundamental EMV Concepts

## Overview of an ATM EMV Transaction



# Fundamental EMV Concepts

## Chip Card Application and AID (Application Identifier)

- Chip card application: a program running on the chip card
  - Examples: MasterCard Cirrus, Visa PLUS
- AID: an identifier that is associated with a chip card application; allows access to data needed to initiate a transaction
  - Global AIDs: recognized by chip-enabled terminals around the world
  - Domestic AIDs (“U.S. Common Debit AIDs”): used within the U.S.
- Each AID has a short, descriptive phrase assigned by the issuer
  - May be displayed on terminal screen
  - Printed on receipts
- Refer to white paper for list of AIDs that will frequently be used in U.S. ATMs





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# Basic Requirements for ATMs

## Hardware and Software

- Hardware
  - Chip card reader
- EMV Kernel
- ATM payment application
- Upgrade kit may be available
- Work with your vendor, terminal provider, processor

ATM Payment Application

EMV Kernel  
(EMVCo Level 2 Approval)

EMV/Chip Card Reader  
(EMVCo Level 1 Approval)

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# EMV Migration Planning

- Evaluate existing ATM hardware
  - Upgrade or replace?
  - Does vendor have EMVCo Level 1 and Level 2 approvals?
- Evaluate existing ATM software
  - Does it support EMV?
- Evaluate your maintenance options
- Develop your migration strategy
- Make policy decisions related to EMV ATM requirements
  - Which payment networks and AIDs to support
  - Any proprietary ATM requirements
  - Special functions e.g. PIN Change
- Define impacts to online transaction processing, as well as clearing and settlement



# EMV Migration Planning

- Ask your hardware vendor/terminal provider and acquiring processor about
  - Chip card reader
  - Software kernel and integration with application
  - AIDs for payment networks
  - Alternate routing strategies, including support for U.S. Common Debit AIDs
  - Transaction log
  - EMV certifications
  - Availability of a pre-tested package



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# Cardholder Experience

## Special Considerations When Using “Dip” Card Readers

- Trap and hold the chip card for the duration of the transaction
- “Double dip” scenario
- Cardholder may try to remove the card too soon
  - Customers may try to forcibly remove the card, which may result in damage to the chip card and/or the chip card reader
- Screen messages and prompts are vital
  - When to insert card
  - Leave card in ATM until prompted to remove it
  - When to remove card



# Transaction Routing Considerations

- What networks will you support?
- U.S. Common Debit AIDs
  - Introduced to comply with Dodd-Frank Wall Street Reform and Consumer Protection Act, section 1075 (a.k.a. “the Durbin Amendment”) and preserve current routing choice
- U.S. debit cards that support a global payment network will initially contain two AIDs:
  - One global/internationally recognized AID from that global payment network
  - The U.S. Common Debit AID from the same global payment network
- For U.S. debit cards that do not support one of the global payment networks, an issuer may license the Shared Debit AID from the Debit Network Alliance (DNA)
- Work with your vendor or acquiring processor to ensure you support the appropriate AIDs to meet your business needs



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# Testing and Certification

- Testing
  - Regression testing
  - New feature and EMV testing
- Certifications
  - Talk with your vendor or processor; find out what they are doing
  - FI: talk with payment network representatives; find out their requirements
  - IAD: talk with equipment vendor and acquiring processor to see what they will provide



# How to Help the Cardholder

- New screens, messages, signage, decal
  - Show cardholder how to insert the card
  - Prompt cardholder to insert the card at the appropriate time
  - Display a “Transaction processing” message to indicate the transaction is underway
  - Prompt cardholder to remove the card at the appropriate time
- Cardholder selection
  - Prompt the cardholder to select the AID to use for the transaction
  - Refer to the white paper for more information



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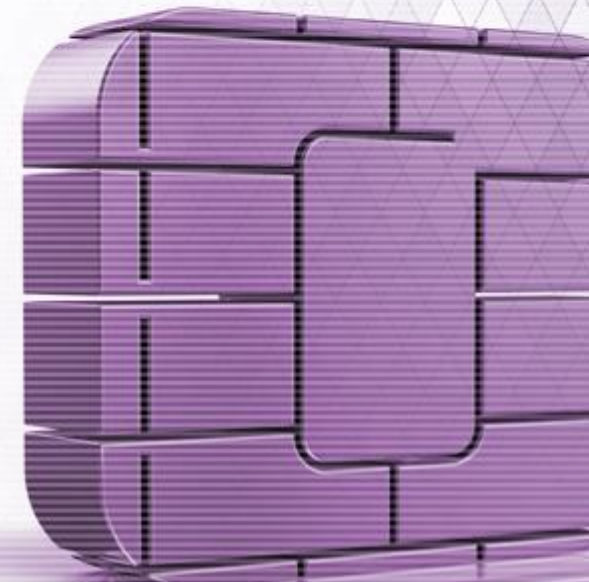
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# Additional Technical Topics Covered in the White Paper

- Detailed description of card-terminal interaction
- Considerations for terminal configuration, including
  - List of AIDs that will be used in many U.S. ATMs
  - List of Terminal Action Codes from payment networks



# References

- [www.emv-connection.com](http://www.emv-connection.com)
  - EMV Migration Forum
- Payment associations and networks
  - Web sites
  - Press releases
- [www.GoChipCard.com](http://www.GoChipCard.com)
- Industry associations
  - [www.smartcardalliance.org](http://www.smartcardalliance.org)
  - [www.atmia.com](http://www.atmia.com)
  - [www.natmc.org](http://www.natmc.org)
- [www.emvco.com](http://www.emvco.com)
  - Specifications
  - Status of worldwide EMV implementation



# EMV Migration Forum Resources

[www.emv-connection.com](http://www.emv-connection.com)

- Standardization of Terminology document
  - Common terms, acronyms, definitions
- Testing and Certification document
  - Current requirements per American Express, Discover, MasterCard, Visa
- U.S. Debit EMV Technical Proposal
  - U.S. Common Debit AIDs
- Knowledge Center

The screenshot displays the EMV Connection website. At the top is a navigation bar with the logo and links for Home, EMV Resources, EMV Migration Forum, EMV News, and Contact Us. The main content area features a large banner titled "CHIP CARDS ARE HERE IN THE U.S.!" with a sub-headline "CHIP CARD PAYMENT TRANSACTIONS ARE MORE SECURE." Below the banner are four columns of resources: Issuers, Merchants, Acquirers/Processors, and Consumers. Each column includes a brief description and a "Read More" button. At the bottom, there are four featured articles with images and titles: "EMV Migration Forum", "EMV Migration Forum Knowledge Center", "EMV, Encryption and Tokenization:", and "Smart Card Alliance".

**EMV CONNECTION** Home EMV Resources EMV Migration Forum EMV News Contact Us

## EMV in the United States

Secure EMV payments are coming to the United States! Payment brands have announced their roadmaps to accelerate adoption through merchant incentives, processing infrastructure migration and fraud liability shift. The migration to EMV will:

- Reduce counterfeit card fraud
- Enable cardholders to use secure EMV payment cards globally
- Prepare for NFC mobile contactless payments

The *EMV Connection* web site provides up-to-date information for all industry stakeholders on the status of EMV migration, along with tutorials and educational resources that will assist with migration.

**GoChipCard.com**  
Easy to use resources on chip cards for consumers, merchants and issuers

### Issuers

Get your EMV migration on track with tutorials and implementation guidance that take advantage of global best practices.

[Read More](#)

### Merchants

Learn from industry experts about the impact that EMV chip technology will have on the point-of-sale environment and key strategies for managing migration.

[Read More](#)

### Acquirers/Processors

Acquirers/processors need to consider the support that will be required to equip merchants with EMV-compliant POS solutions.

[Read More](#)

### Consumers

Learn how EMV chip technology helps to reduce fraud and protect payment transactions and how chip cards will be used in stores.

[Read More](#)

### EMV Migration Forum

EMV Migration Forum: The independent, cross-industry body promoting the migration to secure EMV contact and contactless technology in the U.S.

### EMV Migration Forum Knowledge Center

EMV Migration Forum Knowledge Center: A resource library for all stakeholders implementing EMV in the U.S.

### EMV, Encryption and Tokenization:

EMV, Encryption and Tokenization: An educational resource describing how the three technologies work together to secure the payments infrastructure

### Smart Card Alliance

Smart Card Alliance: Learn more about the smart card industry, technology, markets and applications.

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# Thank you!

## Be sure to download the white paper!

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