Frequently Asked Questions

EMV For Card Payments
What Does It Do?

What is EMV?

The terms EMV and chip are often used interchangeably. EMV is an open-standard set of specifications for smart card payments and acceptance devices which was developed by Europay, MasterCard®, and Visa® in 1993 to ensure interoperability between chip-based payment cards and terminals.

What are the benefits of an EMV chip card?

Reduction in card fraud resulting from counterfeit cards.

• It is nearly impossible to counterfeit an EMV card because the microchip is encrypted.

Interoperability with the global payments infrastructure.

• U.S. travelers are reporting trouble using their magnetic stripe cards internationally.

What is a chip card?

A chip card, (also known as a smart card) is a standard-size plastic card with a magnetic stripe and a small microprocessor embedded into the card that contains an operating system and one or more applications, such as EMV.
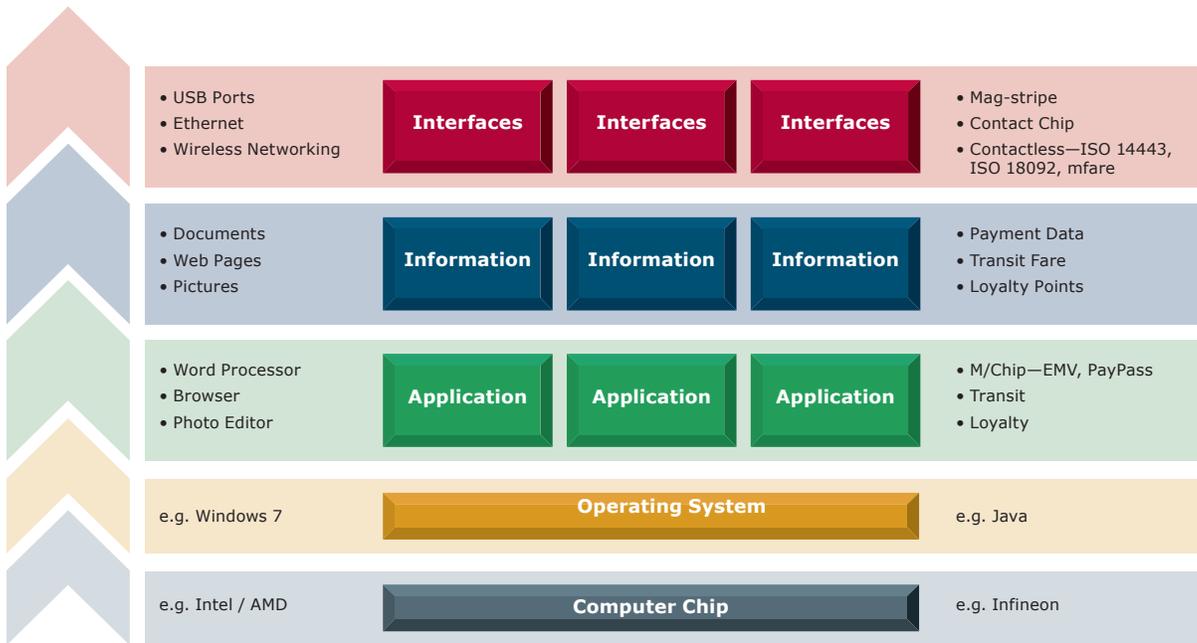
Where are chips cards used today?

Chip Card Support Either In Place or In Progress	Chip Cards NOT Supported
• Most of Europe • Most of the Middle East • Most of Asia • Canada • Mexico • Brazil • Chile • Most of North, East, West and South Africa	• USA • Most of Latin America • Central Asia • Mongolia • Greenland

FAQ

How Does It Work?

How does EMV work?

Chip cards are miniature computers with an operating system and multiple interfaces and applications that can process information through the use of an embedded microprocessor. The following is a comparison grid showing how chip cards work comparable to a PC.

	Interfaces	Interfaces	Interfaces	
• USB Ports • Ethernet • Wireless Networking				• Mag-stripe • Contact Chip • Contactless—ISO 14443, ISO 18092, mfare
• Documents • Web Pages • Pictures	Information	Information	Information	• Payment Data • Transit Fare • Loyalty Points
• Word Processor • Browser • Photo Editor	Application	Application	Application	• M/Chip—EMV, PayPass • Transit • Loyalty
e.g. Windows 7	Operating System			e.g. Java
e.g. Intel / AMD	Computer Chip			e.g. Infineon

1. In an EMV scenario, a cardholder inserts an EMV card into the reader.

2. The card and terminal enter into a dialog and determine whether the transaction should be performed offline or online. (Currently in the U.S. only Online Authorization is available)

3. The issuer indicates their preferences for authorization and authentication on the card profile on the chip.

How is the cardholder verified?

EMV supports one of the following four cardholder verification methods (CVMs). The issuer determines the order of preference.

1. Online PIN, where the PIN is encrypted and verified online by the card issuer.
   • ATMs are typically required to support online PIN.
2. Offline PIN, where the PIN is verified offline by the EMV card. (This option not currently supported in the US)
   • Offline PIN is not sent to the host, only the result is passed.
3. Signature verification.
   • The cardholder signature on the receipt is compared to the signature on the back of the card.
4. No CVM.
   • Low value transactions or for transactions at unattended POS locations.

What is the difference between online and offline processing?

Offline means the terminal communicates with the chip in the card rather than using telecommunications to connect and communicate with the host.

Online PIN, online authorization:

• The terminal transmits the encrypted PIN (if applicable) payment information and a transaction-specific cryptogram to the host, which then authorizes or declines the transaction, similar to the magnetic stripe process today.

Offline PIN, online authorization:

• The PIN is validated offline using the chip, and the result is sent in the message with the payment data for online authorization.

• This is how some terminals are deployed around the world.

Offline PIN, offline authorization:

- PIN and transaction are verified and authorized offline (the card acts as a stand-in processor).
- Card is synced with the host the next time it goes online.
- Typically only unattended terminals, like train stations, parking garages, etc.

Does the cardholder do anything differently when using an EMV card?

No, there is no impact to the cardholder when using an EMV card, other than that many terminals require the card to remain inserted in the terminal for the duration of the transaction versus the swipe method with which most U.S. cardholders are familiar.

What does the merchant do?

To process an EMV transaction, the merchant must have a terminal with a chip reader and the appropriate EMV software application loaded. The merchant acquirer must also upgrade its systems to support EMV. If the merchant does not have an EMV enabled terminal, the transaction will be processed as a magnetic stripe transaction.

Where will the fraud liability fall if both merchant and issuer are EMV compliant and fraud occurs?

If both the issuer and merchant are EMV compliant, fraud liability will fall on the issuer as it does today.

Will changes need to be made with my host processor?

Perhaps. There are EMV values that will be sent to the host in existing ISO fields. The processor may or may not need to make changes to accept these values.

Is it mandatory?

EMV is not mandatory in the U.S., but both Visa and MasterCard are encouraging issuers and merchants to migrate to this technology over the next several years.

Both organizations have announced liability shifts.

Issuer EMV Announcements: Visa, MasterCard, Discover, American Express

- October 1, 2015: Liability shift for counterfeit POS fraud will be assessed to the party that did not enable the chip-to-chip (EMV) transaction.
  - — Issuer: If card is not EMV chip enabled
  - — Merchant's Acquirer: If the POS terminal is not chip enabled
- October 1, 2017: Same as above but for automated fuel dispensers.

Why is the cost of EMV so high?

Although card costs have come down, certification costs are still very high because it is such new technology. Early adopters generally pay a premium price for being first. CO-OP anticipates that as EMV in the U.S. becomes standardized, costs will decrease.

Why should I migrate to EMV?

Recent data breaches have increased the interest in EMV and have affected the planned adoption timelines for issuers, merchants, and ATM acquirers alike. Although EMV issuance for financial institutions may not have reduced the fraud associated with those breaches, it has directed more focus on EMV adoption by all parties. Although things are moving quickly, it is still not time for credit unions to begin converting their debit cards to EMV. Credit unions that move forward now on EMV debit will likely have to wait for the card vendors and ATM/POS terminal manufacturers to "catch up" in implementing this solution. Failing to wait for that phase of development work will mean that credit unions may need to reissue their cards for them to route correctly and be Durbin compliant. CO-OP is recommending that credit unions wanting to issue EMV cards right away do so initially with their credit card portfolios and targeting those customers with a history of overseas usage. This will allow you to set up most of the process and streamline the eventual debit EMV implementation.

How Do We Get Started?

What do I need to do get started?

The first steps are to contact your NRM, your card provider and your card network so that you can build your business case for when it is best for your credit union to move forward.

What are CO-OP's EMV plans?

CO-OP is implementing support for EMV in a phased approach. In Phase 1, CO-OP will offer full online EMV processing. This provides the ability to process online EMV transactions from a contact EMV card.

What are CO-OP's future EMV plans?

Future plans include Contactless (Dual interface) cards and offline PIN.

When should I move forward?

Since this is not a mandate, most of our credit unions are waiting until the market is ready, which is what CO-OP recommends as well. The new solution for the Durbin debit routing will need time to be deployed. Every credit union is different and should carefully evaluate their business case before moving forward.

Where can I learn more about EMV?

CO-OP has an EMV Resource Center that can help you. It has recorded webinars, white papers, blogs, Ask the Expert site and links to external resources. It can be found at www.co-opfs.org/EMV.

EMV At the ATM

What Does It Do?

What are the ATM components affected by EMV?

EMV affects the following ATM components:

- Integrated Chip Card Reader (ICC)
- Application software
- EMV Kernel
- Supported Application IDs (AID)

Is EMV mandatory for my ATM fleet?

- No, there are no mandates to implement EMV support at the ATM, only liability shifts.

- April 19, 2013—For (cross-border) ATM Maestro transactions, ATM Acquirers will assume counterfeit fraud-related liability if a non-U.S. issued EMV card is used at a non-EMV enabled ATM.
- October 2016—Liability shift applies to all MasterCard branded products across all transactions initiated at U.S. ATMs.
- October 2017—Liability shift for counterfeit ATM fraud will be assessed to the party that did not enable the chip-to-chip (EMV) transaction (Visa).

How Does It Work?

Do I need to certify my ATMs with CO-OP Network for EMV?

No, if CO-OP is currently driving your ATMs, CO-OP will be responsible for the acquirer end-to-end integration certification. This will include all the EMV ATM components for each ATM manufacturer (Diebold, NCR, etc.) and for each card application (MasterCard, Visa, etc.) including the U.S. Common AID.

I am currently upgrading my ATMs to Windows 7, should I also include EMV upgrades?

Credit unions that want to combine the Windows 7 upgrade with installation of the EMV kernel (application) and/or card reader can move forward with that installation. Credit unions that want to combine the Windows 7 and enabling of the EMV kernel (application) and/or card reader can move forward with that installation.

I am an intercept processor and I only use CO-OP for network access. Do I need to certify my ATMs for EMV?

Yes. Intercept processors will need to review Visa and MasterCard specifications to determine what will need to be formatted in the CO-OP ISO 8583 specification format and forwarded to the switch in the 0200 request message.

Processors must also perform MTIP Certification with MasterCard, and ADVT certification with Visa. CO-OP will facilitate the end-to-end testing. Standard certification fees may apply. Database changes to enable chip processing will also be required. Testing of intercept processor initiated by credit unions should be coordinated through CO-OP.

How do I know that the card reader or my ATM software version on my ATM is EMV capable?

Credit unions are encouraged to contact their ATM manufacturer representatives to assist with the review of all the card readers and ATM software version in your ATM fleet to ensure compliance.

How do I know my ATM is successfully processing EMV transactions?

End to end testing (ETED) is recommended to ensure that your ATM can support EMV transactions by performing required live transactions and checking the pass criteria using a live card.

How do I obtain a live test EMV card?

Obtain a live Visa or MasterCard test card. This can be any EMV Visa or MasterCard issued by any financial institution. A Debit Visa or MasterCard Chip Card will be required to test the U.S. Common AID.

How does the contact chip card communicate with the ATM?

The gold plated contacts on the cards are the electrical interface for the card that interfaces via the ATM to the reader.

My ATM fleets have dip card readers. Do I need to migrate them to motorized card reader for EMV?

Dip card readers can support EMV cards. However, when implementing it is important to note that there will need to be member education on how to use the EMV compliant dip card. The card will need to be in contact with the reader throughout entire transaction. This will change the member experience.

What do I need to upgrade my ATM to support EMV?

A contact chip card reader and the appropriate software kernel will be required when upgrading your ATM to support chip card at the ATM. Please contact your vendor to perform an analysis on what is required for your ATM.

FAQ

What Will It Cost?

What is the cost to upgrade or replace an ATM to be able to support EMV?

Budget considerations for upgrading versus replacing their ATMs will differ depending on the age of the ATM hardware and software. Cost can be incurred for installation and replacing or upgrading the software or hardware. Credit unions are encouraged to review their ATM fleets with their ATM vendor and request pricing for upgrades or replacement. Please refer to the EMV at the ATM Plan and Worksheet available in the EMV Resource Center.

How Do We Get Started?

When does CO-OP plan to support processing of EMV cards at the ATM?

CO-OP is announcing its readiness to support EMV at the ATM to allow live testing of chip card transactions. This will allow issuers to be able to test live Visa or MasterCard Debit and/ or Credit chip cards as they become available. On the CO-OP Extranet, open a Pricing Request. In the **Pricing Type** field, select **EMV at the ATM**. Include the terminal ID(s) in the Request Description.

If I upgrade my ATM software now to meet the MasterCard April 19, 2013 liability shifts date, do I need to upgrade my ATMs again?

Yes, software upgrades will be required as new applications are certified. CO-OP recommends that credit unions be contracted under a software maintenance program or subscription to ensure that your ATM fleets has the latest version of software.

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