



EMV[®] Chip Cards Payments

EMV: Strengthen Your Business Through Secure Payments

As EMV chip-based technology gains coverage around the world, it gets easier for you to migrate to EMV and minimize the risk of fraud. It also gives your customers safer ways to pay and, therefore, greater confidence when spending worldwide. What's more, when you upgrade your system to acquire American Express chip cards, you're establishing added security for new payment technologies, such as contactless and mobile.

A global security standard for card payments.

EMV is an industry standard set of specifications for chip cards and terminals heightening the level of authentication at the point of sale. EMV chip cards have an embedded microprocessor chip which increases transaction security by exchanging authentication data with terminals. This makes the cards difficult to counterfeit, combatting fraud at the point of sale.

The specification is referred to as EMV because EMVCo, the standards body for contact and contactless specifications, was originally established by Europay, MasterCard and Visa. Currently, EMVCo is jointly owned by American Express, Discover, JCB, Mastercard, UnionPay, and Visa.

A transaction process with greater security.

Working in tandem with EMV-enabled terminals, American Express chip cards can provide your Card Members with added security through:



Card Approval

When the chip card is inserted into the terminal, the embedded microchip exchanges card data with the terminal to verify the card is genuine.



Card Member Verification

When a Card Member's identity is verified with PIN or Signature, the card then securely passes information to the Issuer to perform additional authentication.



Transaction Authorization

The microchip and terminal interact to assess the transaction details, providing Issuers and Merchants better ability to control risk on every purchase.

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Powerful Security for Merchants

You're not in this alone, and as you move to American Express chip cards and payment terminals, you can count on the payments know-how and global experience that have helped countless Merchants like you migrate to these new technologies.

Protect your business against fraud.

American Express chip cards and terminal specifications help protect against the impacts of fraud by:

- Increasing security for all card present transactions by heightening the level of card authentication
- Deterring counterfeiting and lost/stolen card fraud at the point of sale
- Deploying EMV specifications, which are becoming the standard for emerging payment technologies around the world

Strengthen Card Member relationships.

With American Express chip cards and terminals, you have the ability to better serve your customers by:

- Providing additional security
- Enabling them to feel confident using their card for purchases, potentially driving greater preference and spend
- Giving them the freedom to purchase securely and seamlessly around the world

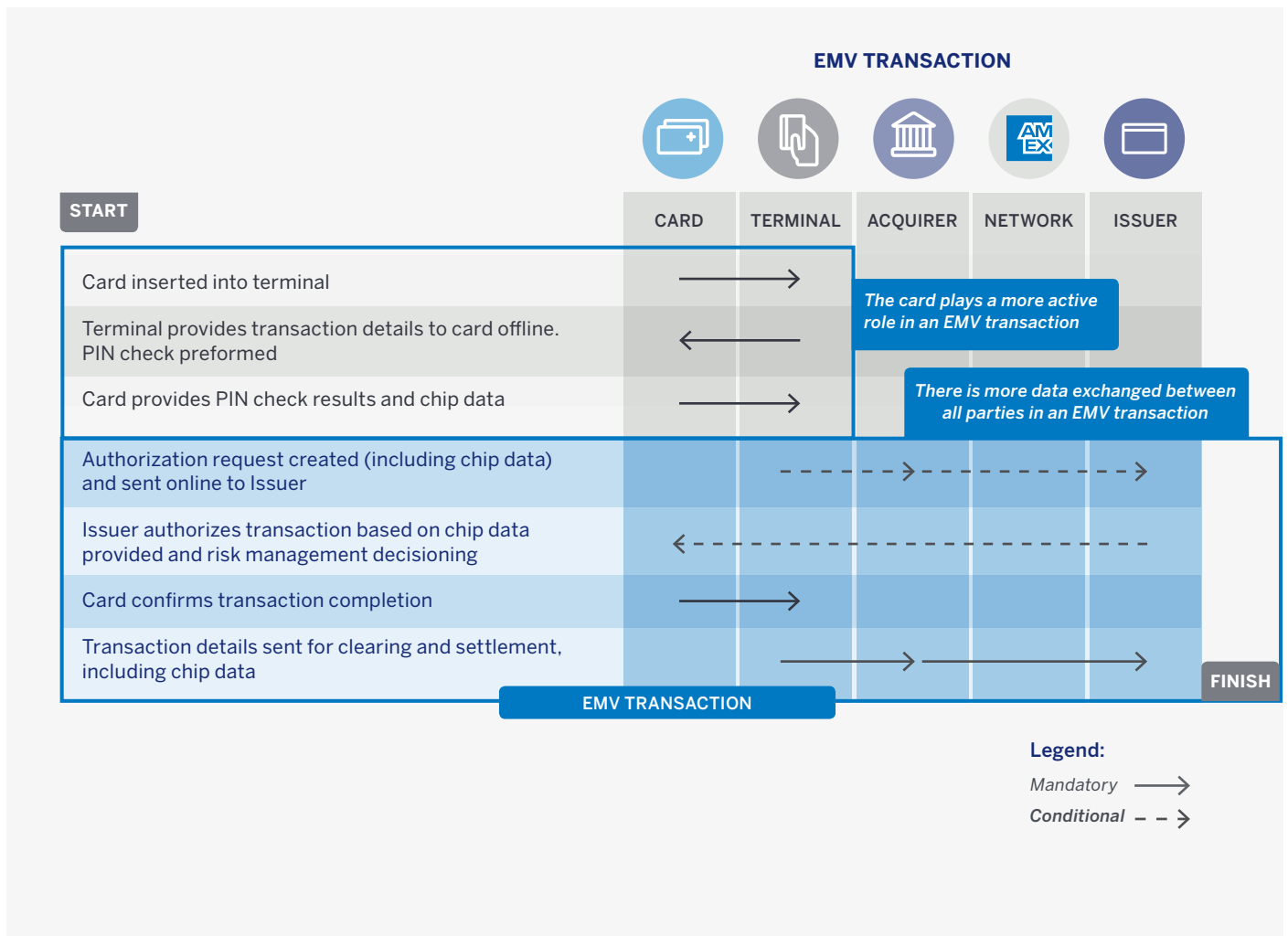
Leverage a global standard for card present security.

When you migrate to EMV, you can be confident that you are:

- Adopting a dominant global standard in payment security, one that continues to gain greater acceptance
- Working with American Express who is fully committed to EMV and aligned with other major networks to drive EMV standards, interoperability, and acceptance globally
- Preparing your business for emerging payments such as contactless and mobile

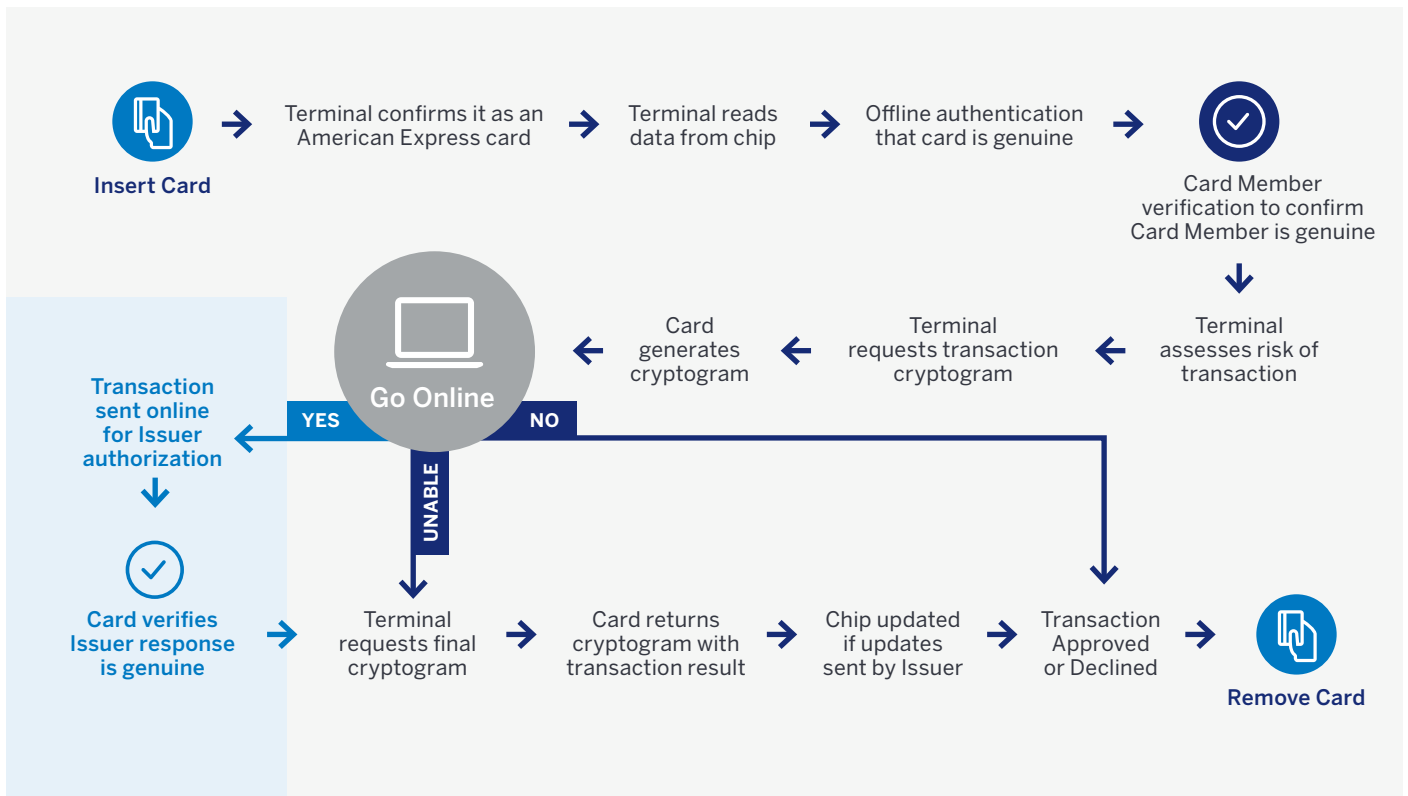
How EMV Works

The EMV transaction process engages all elements of the transaction process including the card and terminal as well as the Acquirer, Network and Issuer. The difference between an EMV and magnetic stripe transaction is that the card plays a more active role in the transaction process. Also, there is more data exchanged between all parties in an EMV transaction.



EMV Card/Terminal Interaction

The diagram below provides additional insight into the card and terminal interaction. The card and terminal interact to authorize the transaction directly or to do further authentication, either online with the Issuer or offline. One of the key benefits of EMV is that Merchants do not need to immediately send all transactions online to authorize. With EMV, Merchants have the ability to approve the transaction offline, which benefits industries such as transit, where batch authorization is used at a time that is convenient, or devices that have poor connectivity and cannot go online to authorize for every transaction.



Implementation Considerations

To enable Issuers and Acquirers to best leverage EMV technology, the American Express ICC Payment Specifications (AEIPS) defines the implementation of the EMV specification as applicable to American Express Issuers and Acquirers, to produce products. AEIPS has been divided into two separate specifications: AEIPS Chip Card Specifications and AEIPS Terminal Specifications.

Implementation and investment considerations—Issuer.

Implementation:

- Card production – manufacturing of cards with an embedded chip module in the cards
- Data/systems preparation – developing cryptographic material for personalization
- Card personalization – securely loading data into chip and delivering to Card Member
- Chip Card Personalization Infrastructure Certification – Process by which American Express confirms issuance capability
- Certification to support American Express Network messaging

Investment Components*:

- Chip procurement, card design, and personalization
- Issuance systems to include one time and ongoing costs of a chip bureau for chip cards
- Upgrades to host systems to use chip data, e.g., Authorization, Risk Management, Clearing and Settlement, and Disputes
- PIN Management Systems for support of various Card Member Verification Methods

Implementation and investment considerations—Acquirer.

Implementation:

- EMV and AEIPS terminal certification (Level 1, Level 2, and end-to-end testing)
- Training, Servicing, Merchant information
- Certification to support American Express Network messaging

Investment Components*:

- Terminal hardware/software upgrades to perform EMV transactions
- Acquiring host systems to handle chip-related fields and chip data in messages
- Terminal Management systems for chip functions
- Disputes and related processing for chip transactions

*Precise costs will depend on number of factors.

Related Product/Features

EMV Validation Service:

For years, EMV technology has offered improved security through the use of cryptographic algorithms which provide card authentication. Despite these proven advantages, Issuer host related costs to implement this technology can be an obstacle to entry. American Express offers a cryptogram validation solution to our strategic participants, with the following benefits:

- Cryptogram validation with reduced lead time
- Fewer system modifications
- Reduced costs

American Express Contactless Payments:

Contactless payments enable the card and terminal to interact and complete a transaction without inserting the card into the terminal. American Express Expresspay* is an EMV-based payment specification that uses a contactless interface to communicate with a terminal. American Express contactless payments deliver benefits such as:

- Enables faster transactions leading to increased operational throughput
- Allows different form factors e.g., fobs, mobile phones
- Reduces cash handling for merchants
- Increases convenience, making it easier to process a transaction

*For detailed information on Expresspay implementation, please consult the Acquirer chip card implementation guide.

Amex Quick Chip:

EMV contact chip card issuance and Merchant acceptance is gaining momentum in the U.S., helping to combat fraud. Many U.S. Merchants, specifically those for whom speed at the checkout is critical, rely on the user experience associated with existing card acceptance to meet their business needs. Amex Quick Chip is a modification of the EMV transaction flow for processing that is targeted to aid the business need for American Express branded cards. It allows an EMV contact chip card to be inserted before the final transaction amount is known, and does not require the card to remain in the reader during the online authorization process.

Resources:

- Business and Operational Policies
- Network Specifications
- Issuer Chip Card Implementation Guide
- Acquirer Chip Card Implementation Guide
- EMV Chip Card FAQs
- EMV Validation Service (on-behalf-of) Product Capability Guide
- AEIPS Terminal Implementation Guide
- Amex Quick Chip Implementation Guide
- Amex Quick Chip Technical Manual

To access Resources, log into Knowledge Base at www.amexglobalnetwork.com

Learn More: Ask your **American Express Global Network Representative** about how upgrading to EMV chip card technology can provide access to more American Express payment options.



Chip Card



Contactless



Mobile

Visit: <https://network.americanexpress.com/globalnetwork/emv>