

Integrating payments with EMV: Choosing the right path forward

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Overview

With the rapidly approaching fraud chargeback liability shift in October 2015, many merchants are asking their POS solution providers about their plans to support EMV. In turn, POS developers want to understand what their options are for supporting EMV in the U.S. market. This paper discusses the certification requirements and alternatives to certification available to enable EMV processing. POS developers looking to enable acceptance of EMV cards have three main options: direct certification, moving to stand alone terminals, and an EMV out of scope integration.



EMV certification

First, it is important to understand the different types of EMV certifications and what they mean for POS developers. There are three levels of EMV certification that a solution must undergo before it can be deployed. Level 1 and Level 2 certifications pertain to the terminal device and are the responsibility of the point of entry device manufacturer. Level 1 certification addresses the mechanical and electrical protocols used for transferring data between the terminal and the payment card. The device manufacturer is also responsible for receiving a Level 2 certification, which addresses the software application residing inside the device that performs EMV processing. Once the manufacturer has achieved both Level 1 and Level 2 certification, a POS developer can then use the certified device to create an EMV solution for its POS system. The POS developer must then undergo a Level 3 certification for the complete solution.

You may have heard the terms “EMV ready” and “EMV capable.” When a merchant is using a device that has been through Level 1 and 2 certifications, they are EMV ready. Once that device and the payment applications and systems that it is connected to have completed a Level 3 certification, the POS solution becomes EMV capable.

Level 3 certification, also called end to end or network certification, tests each unique EMV path to the networks. The testing starts from a Level 1 and 2 certified device and moves from there to the POS application, on to any middleware or gateway in use, on to the processor, and out to the card brands. Each card brand has a set of defined EMV test cases that must be run to satisfy their EMV certification requirements. In addition, each processor may have their own test cases that they want POS developers to run as part of their host message certification. This process must be completed individually for each device the POS is using.

For example, a POS developer using two devices and with integrations to four different payment processors would need to complete a total of eight Level 3 certifications. Once certified, if any part of the transaction flow changes, a new level 3 certification is required. It gets even more cumbersome if the POS developer has multiple POS applications for different industries.

Does all of this sound overwhelming? If so, you are not alone. EMV has been implemented around the world over the past 20 years. The U.S. is the last major market to implement EMV, due in large part to the complexity of our payments infrastructure. Just look at the number of hardware, software, gateway, switch and middleware providers at play,

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and the multitude of combinations that are in place across the millions of merchant locations in the U.S. Factor that with the number of processors, merchant acquirers, and debit networks, and it is easy to see the scaling problem when it comes to the necessary certifications that EMV requires.

The direct certification option, as outlined above, would mean certifying each solution brought to market with each EMV entry device you choose to go to market with, to each processor you choose to work with, for each of the four card brands. If you choose to enable debit in the solution, that would add debit network certifications. The benefit of this option is that it enables the greatest degree of customization, allowing you to choose which device you want to take through certification and how you want to configure terminal transaction flows. The drawbacks include having the longest time to market and the highest degree of complexity. It also comes with a high cost, both from development and QA resource time, as well as the purchase of the necessary test cards, kits, and tools needed to complete the certifications. We anticipate that many tier 1 retailers will look to complete direct EMV certifications to support their unique POS environments and in store business process flows.

Alternative Solutions

A second option is to remove the payments application from the integrated POS. Stand-alone terminal EMV solutions are already on the market today because they are the simplest to deliver, both from a functionality and certification standpoint. The transaction path from the terminal application to the processor is shortened, which reduces the complexity of the Level 3 certification. This simplicity, however, comes with a loss of business functionality. Merchants are taking a step back by leveraging these solutions. Without integrated payments, transaction reconciliation becomes challenging, as payments capabilities are removed from the POS. Merchants may also be taking a step back from an overall security perspective if they choose an EMV capable terminal that is not capable of end to end encryption. Where they may benefit from the card authentication that EMV provides, they lose the benefit of protecting data in flight.

A third option that we expect to gain a lot of traction in the U.S. is an EMV out of scope solution, also known as “semi-integrated.” In this case, the POS is integrated to the payment application, but is removed from most of the EMV transaction flow and the complicated integration and interaction between the EMV device and chip card. In an EMV out of scope solution the transaction process flow is simplified for the POS developer. The POS initiates the transaction



request and passes the purchase amount and other basic information such as the merchant credentials, to a payment application running on the POS. That payment application then communicates with the EMV device, which actually handles the transaction, then returns the necessary information back to the POS for printing an EMV compliant receipt, and for reporting purposes.

There are many benefits to the EMV out of scope solution for POS developers. Most importantly, it puts the burden of the Level 3 certification on the payment application provider. It is up to the EMV out of scope solution provider to take each device through certification with the various processors and networks. It will also speed up the time to market for the POS provider, as integrating to the EMV out of scope solution is similar to the payment integration process they are familiar with. It is also cost effective for the POS developer because the cost of EMV device integration is taken on by the EMV out of scope solution provider. However, there are tradeoffs, such as lack of customization in terms of the EMV devices available and a limited amount of terminal screen flows that come with EMV.

Looking Ahead

Mercury® is actively working on a number of EMV out of scope solutions for various use cases, such as retail countertop and pay at table applications. These solutions will support both EMV contact and contactless transactions. More importantly, we are working to enable end to end encryption with EMV, which will provide developers with a fully secure solution. Due to the cost and time it takes to complete the certification process, we need to limit the number of devices that we go to market with initially. We are focusing our efforts on the devices that address the greatest number of use cases, are sold at competitive prices, and allow us to offer solutions that pair EMV and encryption technologies.

To learn more about our EMV solutions, please contact us by phone at 800.846.4472, or stop by the Developer Portal at developer.mercurypay.com.



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About Mercury Payment Systems

Mercury works with thousands of resellers and developers to offer small and medium size businesses a comprehensive portfolio of integrated payment products and services that help control costs and increase revenue.

Founded in 2001, Mercury's mission is to provide tech-enabled services that help small-to-medium-sized merchants compete and thrive. We are dedicated to providing our merchant and partners with the best customer service and technical expertise in the industry, 24/7.

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