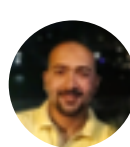




EMV Application Specification, a closer look...



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In this article we'll talk about EMV transaction flow and how it is done on payment terminals [POS, ATM, etc..]

EMV stands for [Europay, MasterCard, and Visa], The companies that came together to create a standard for ICC cards and how it should work from card manufacturing to security and key management to application specification and transaction flow.

The standard is now widely used all over the world, [EMVCo] the chip card standards organization owned by the major card networks, said that as of the end of 2017, 54.6% of payment cards globally were chip cards. The card count grew by more than 1 billion, or 18.4%, to 7.19 billion from 6.07 billion in 2016. EMVCo obtained its data from Visa, Mastercard, American Express, Japan-based JCB, and China-based UnionPay.

<https://www.digitaltransactions.net/nearly-two-thirds-of-global-pos-card-transactions-now-involve-emv-chip-cards-and-terminals/>

Why ICC based cards?

Two words [improved security], the way magnetic cards were used was very predictable and involved fewer steps of card data authentication and cardholder verification [it may comes down to signature only as a verification method].

With ICC based card, and the power of EMV standard, the card now have several methods of data authentication and validation and several methods of cardholder verification.

How it works?

before going into details about EMV application specifications and transaction flow, you may want to check the below Wikipedia page for an overview of the subject.

https://en.wikipedia.org/wiki/EMV#Transaction_flow

Basically, An EMV transaction will involve the following steps:

- Application selection:

card may contain one or more payment application, this is the process of selecting the required application from the card.

- Read application data:

the process of reading the selected application data from the card to be ready for the next steps

- Offline data authentication:

the process of ensuring the authenticity and validity of application card data read from the card.

- Cardholder verification:

the process of validating the cardholder himself, whether this person is authorized to use the card or not.

- Terminal risk management [device specific]:

If the terminal will be involved in the decision of whether the transaction should be processed offline [i.e. under floor limit] or online, then this process is important to make some validation on the data collected throughout the previous steps to be able to have a more precise decision.

- Action analysis [Terminal Vs Card]:

as the previous step stated, we came to the step where we should have a decision which should be one of the following 3 decision:

- 1- Offline approved.
- 2- Go online for authorization.
- 3- Offline decline.

the decision is made first by the terminal, then the terminal ask the ICC card to take the final decision.

- Online transaction authorization: (if required by the previous step)

the step where we let the issuer decide whether to approve or decline the transaction.

- Card action analysis [second round]:

after receiving the issuer response, the card will make his final call on whether to approve or decline the transaction.

- Issuer script processing:

when a card issuer want to modify something in the card application [i.e. applicaion block, change pin, etc.], the card issuer will send issuer script to be processed by the card to carry out the required modification.

In the next article we'll go into details of every step and how it is done on EMV enabled terminals.

Next article: Application selection.

<https://www.linkedin.com/pulse/emv-application-specification-selection-ahmed-hemdan-farghaly/>

stay tuned...

#EFTPOS #EPayment #FinTech #EMV

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Antworten

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go ahead prince good job

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Antworten









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