ICMI LEARNING

Basic segregation of EMV transactions

Basic segregation of EMV transactions

On us transaction

Owned by the same payment network

Off us transaction

ICMI LEARNING

Basic segregation of EMV transactions

On us transaction

VISA

VISA

Off us transaction

Owned by the different payments network

ICMI LEARNING

Basic segregation of EMV transactions

On us transaction

Off us transaction

ICMI LEARNING

Basic segregation of EMV transactions

Off us transaction

Initiate transaction

Transaction complete

Received

Approval forwarded

Switch

(Acquirer Bank)

Approves the transaction

(Card Issuing Bank)

Switch

Approved

Forword info.

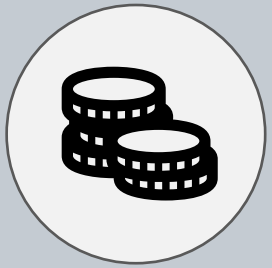
Approval forwarded

Forward info.

ICMI LEARNING

Authentication and authorization in EMV transactions

Authentication and authorization in EMV transactions

Card authentication		The card being used is genuine
Cardholder authentication		Cardholder's identity is genuine
Funds for the transaction		Funds required for the transaction

ICMI LEARNING

Authentication and authorization in EMV transactions

Card Authentication

It is the process of verifying that the card being used for a transaction is legitimate

Payment terminal communicates with the card's embedded microprocessor chip to confirm the card's authenticity

ICMI LEARNING

Authentication and authorization in EMV transactions

Card Authentication

Card is physically present

Card is not physically present

ICMI LEARNING

Authentication and authorization in EMV transactions

Card Authentication, when card is physically present at the terminal

Magstripe Data Mode (MSD)

It is for infrastructures that are not yet upgraded to process full-grade EMV transactions but want to use the chip's capabilities to increase security

EMV mode

It is used in full-grade EMV infrastructure using asymmetric and symmetric keys embedded in the chip

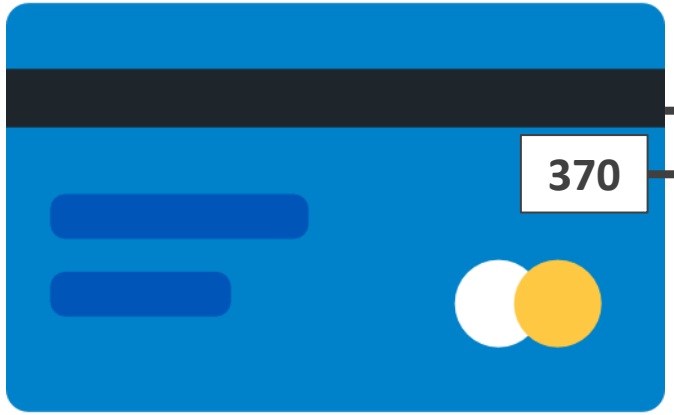
ICMI LEARNING

Authentication and authorization in EMV transactions

Card Authentication, when card is physically present at the terminal

Magstripe Data Mode (MSD)

It uses the Integrated Card Verification Value (ICVV), **"dynamic CVV"**



CVV

Embedded into the tracks

CVV2

Embedded into the tracks

ICMI LEARNING

Authentication and authorization in EMV transactions

Card Authentication, when card is physically present at the terminal

Magstripe Data Mode (MSD)

It uses the Integrated Card Verification Value (ICVV), **"dynamic CVV"**

Request for CVV →

← Dynamic CVV sent

VisaNet Payment Network

The dynamic CVV is calculated based on	PAN	Expiration date	Application Transaction Counter (ATC)

ICMI LEARNING

Authentication and authorization in EMV transactions

Card Authentication, when presented physically at the terminal

Magstripe Data Mode (MSD)

The Application Transaction Counter (ATC) is incremented for each new transaction

For the 1st transaction

ACT = 01

For the 2nd transaction

ACT = 02

So on

ICMI LEARNING

Authentication and authorization in EMV transactions

Card Authentication, during online transaction or MOTO

Card issuers will typically provide their customers with a Card Authentication Program (CAP) device

It generates a token number when a card is inserted into the device and a pin is entered

Token number

Token No. can be used for website

ICMI LEARNING

Authentication and authorization in EMV transactions

Cardholder authentication: When the *cardholder is physically present at the terminal* or *through the merchant's website*

Cardholder is present at the terminal

Signature verification

Pin verification

Biometric verification

Device verification

ICMI LEARNING

Authentication and authorization in EMV transactions

Cardholder authentication: When the *cardholder is physically present at the terminal* or *through the merchant's website*

Cardholder is not present at the terminal

3D secure pin

VISA

MasterCard

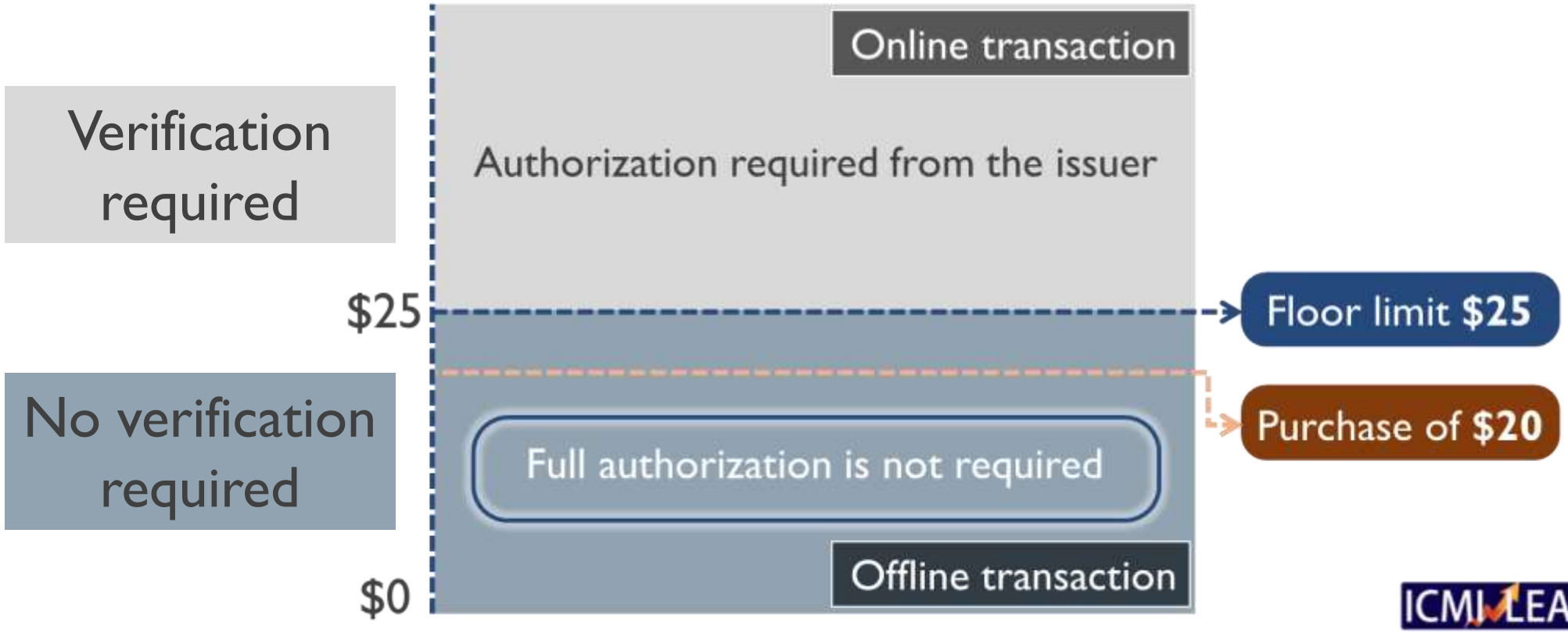
OTP (one-time password)

ICMI LEARNING

Authentication and authorization in EMV transactions

Authorization for the transaction

It is to determine whether the cardholder has sufficient funds to execute the transaction

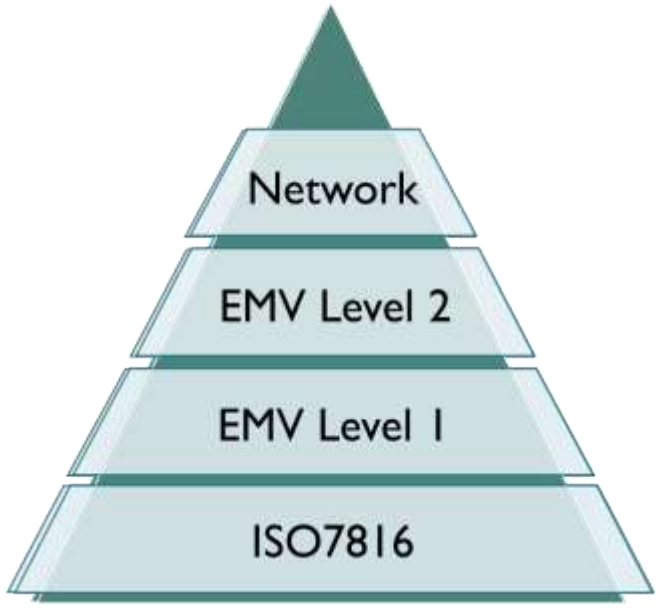


ICMI LEARNING

Summary

EMV

Europay | Mastercard | Visa



Managed by each payment network

Managed by EMVCo

Managed by ISO

ICMI LEARNING

Summary

On us

Off us

ICMI LEARNING

Summary

1 Cardholder is present at the terminal

2 Cardholder is not present at the terminal

ICMI LEARNING

Test Your Knowledge!

Which of the following Card Verification Value is embedded into the tracks of magnetic stripe?

1. CVV1
2. CVV2