OmniScripting

A Milestone in the World of Payment Chips

The Chip Competence Center run by SIX has succeeded in developing an additional function for the EMVI'20 chip – OmniScripting. As a result, we can give debit card issuers more flexibility in the configuration of payment chips after the card has been issued.

Usually, the lifecycle of a card containing a chip is limited to three years. It is subsequently replaced by a new card. For the bank issuing the card, the challenge is to define the basic range of function of the chip for its lifecycle in advance. Later changes, i.e. the configuration of the chip, are only possible to a limited extent using standard issuer scripting.

Issuer Scripts – Restriction in the Maximum Data Size

Although the established, internationally applicable EMV standard for card payment facilitated by EMVCo (BOX) provides for issuer scripts for later changes to chip configuration, these are restricted to a maximum data size of around 100 bytes per card transaction.

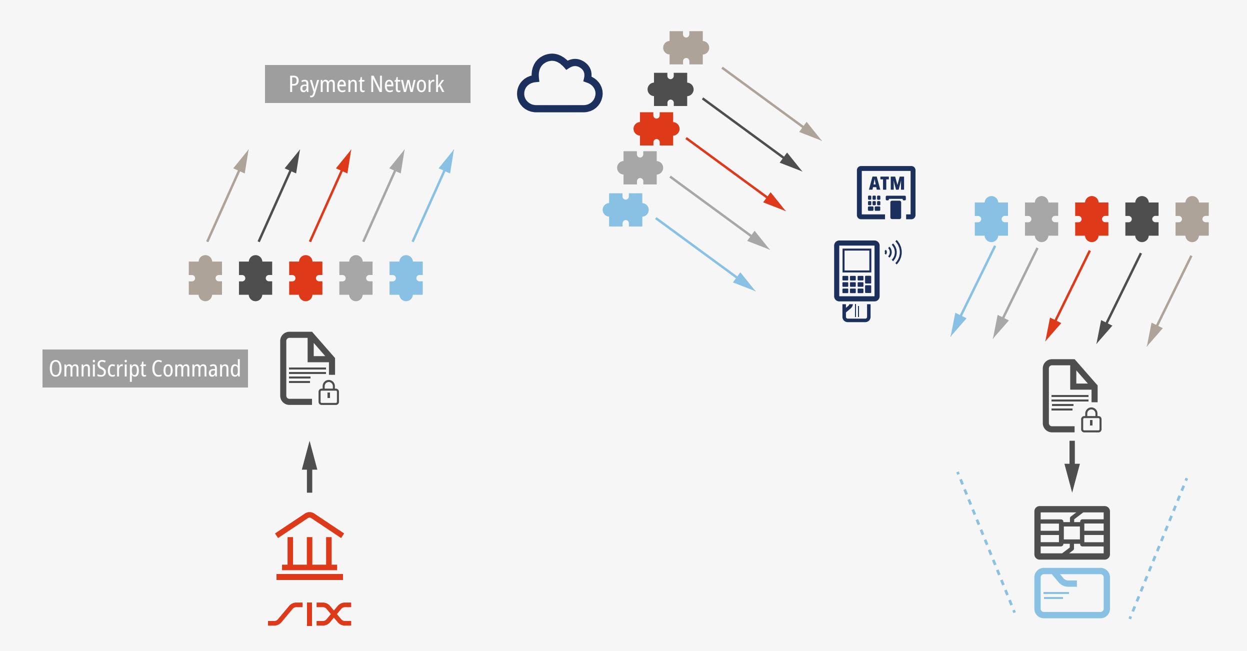
To allow the digital certificates on cards to be renewed, the key lengths for the RSA keys needed according to the applicable security requirements must be significantly longer than the restriction to 100 bytes.

However, this restriction does not only affect the card certificates themselves. Security-relevant card data must be signed with these certificates. In other words, it must be cryptographically protected. This means that each change also necessitates an amendment to the associated certificate. Consequently, essential card data cannot be amended using the standard issuer script.

OmniScripting Offers the Solution

With its OmniScripting function, SIX has now introduced new script commands, which comply with all requirements of the EMV standard. Such OmniScript commands are therefore also transmitted on the path between the SIX issuing host with the EMVI'20 chip like standard script commands.

How OmniScripting Works



An individual OmniScript command only contains part of the data to be amended on the chip in each case. Each additional OmniScript command contains additional parts of the amendment, which the chip combines in its internal memory. The amendment is not complete until all the information required is available in its entirety.

The entire process is cryptographically secured and can only be successfully carried out by the SIX issuing host. In this new process, data transmission is spread over multiple card transactions. This can take place in the background throughout the world with each transaction at a point of sale terminal or ATM and does not cost the card holder anything.

Advantages for Debit Card Issuers

OmniScripting means that issuers can make comprehensive changes to cards that are already in use. This gives banks more flexibility. It also means that the costs that would be incurred from replacing cards on an unscheduled basis can be reduced.

Once the card has been issued, a vast number of configurations are available. For example, functionality can be added such as support for contactless payments at Bancomats (ATMs). Or technical problems can be fixed, such as if the validity of a certificate does not match the expiry date for the card. OmniScripting allows the certificate to be exchanged without the card having to be exchanged.

EMVCo is the global technical body that facilitates the worldwide interoperability and acceptance of secure payment transactions by managing and evolving the EMV® Specifications. (EMVCo: https://www.emvco.com/about/overview/)

SIX BBS Ltd
Hardturmstrasse 201
P. O. Box
CH-8021 Zurich

pm.debit@six-group.com
www.six-group.com/cards

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