**PIN Block... What and How??**

When a cardholder enters his PIN into any PED [POS, ATM, etc.], we need to make sure that the PIN is safe and secure during its journey from the acquirer to the issuer.

**[The What]**

So the first step is to build a bock of data [Pin Block] which combines the PIN and the card PAN using one of the standards for building such data.

one of the commonly used standards for encoding a PINBlock is ISO 9564-1 Format 0 [i.e. ANSI X9.8, VISA-1]. The ISO-0 PINblock format supports a PIN length of 4 to 12 digits.

**[The How]**

Steps for calculating this type of encoding by example:

1.      Format a 16 byte PIN as follows: [0] [Length][PIN] [Padding]

where [0] indicates using ISO-0 format, [Length] is one byte Length, [PIN] is the provided PIN, and [Padding] is usually 'F'

So, for a PIN= '**123456**' the padded PIN should be:'06**123456**FFFFFFFF'

2.      format a 16 byte PAN as follows:[0000][12 digit PAN]

get the 12 rightmost digits of the PAN [excluding the check digit] and left pad the result with zeros.

So, for a PAN= '543**210123456789**0' the padded PAN should be: '0000**210123456789**'

3.      XOR the 2 values:

06123456FFFFFFFF XOR

0000210123456789 =

[06121557DCBA9876] This is the clear PIN block.

There are several other PINBlock formats out there, you may want to check out ISO 9564 for more details.

**[What Is Next]**

The Next step in our journey is to pass this PinBlock [using various methods of encryption] from acquirer to issuer, making a few stops at the institutions [payment gateways] in between, and without being compromised.

Stay Tuned...

Link to the next article:

<https://www.linkedin.com/pulse/journey-pinblock-part-ii-ahmed-hemdan-farghaly/>

**Abbreviations**

**PIN**: personal identification number

**PED**: pin entry device

**POS**: Point Of Sale

**ATM**: Automated Teller Machine

**Acquirer**: bank or payment institution which accept card payment

**Issuer**: bank or payment institution which manage the cardholder account

**PAN**: Primary account number