CEM SYSTEMS
From Tyco Security Products

AC2000 Smartcard Utility

User Defined Keys

Features that make a difference:

- AC2000 Smart card key management utility
- Advanced Encryption Standard (AES)-128-bit
- Random & Manual Key generator
- Create, encode and manage user defined AES-128-bit Keysets
- Seamless smartcard encoding/enrolment process
- Option for both Private Secure Number (PSN) or Public Unique Identifier (UID) card number encoding
- Hardcopy printout for 3rd party system compatibility.
- Key rolling provision for extra level of security redundancy
- Minimal impact on day to day operations
- Organisations obtain full ownership of key management functions
- Convenient approach to key management; no requirement for configuration cards
- Auditable system logs

The AC2000 Smartcard Utility is a dedicated, Advanced Encryption Standard (AES)-128-bit, key management application.

The Smartcard Utility allows users to securely define, manage, and encode card reader and blank DESfire EV1 smartcards with user defined encryption keysets. Keysets are then downloaded via a secure Ethernet network to all CEM readers.

A fail-safe solution is also provided in the form of the "AC2000 Key Rolling" feature. AC2000 key rolling involves the CEM Smart Card Utility providing an additional secondary Keyset, which is also encoded during the smartcard encoding/enrolment process.

The secondary/redundant keyset, with its own unique encryption keys, can be implemented (Key rolled) via the AC2000 smart card utility application. All CEM connected readers will be updated via the secure Ethernet network to begin utilising the secondary keysets encryption keys.

The CEM smartcard utility allows organisations to take full ownership of their smartcard personalisation process; independently of third party card manufacturers.

Organisations will also be offered a convenient approach to smartcard key management, without the need for configuration cards. If the organisation's encryptions keys become compromised, this flexible approach to smart card key management and encryption key updates insures minimal impact to day-to-day operations.

Key set generation

A keyset template is provided within the AC2000 smart card utility. System administrators can manually enter the encryption keys or use a randomised key generator. All keys will be generated or manually entered in hexadecimal format. Each keyset is made up the following keys:

PICC/Master Key – 16 Character Hex Number (64 bits) - Access to the DESfire EV1 smartcard, is managed via the PICC/ Master key. Used for administration of all operations on the card.

Application Key – 32 Character Hex Number (128 bits) - Used to authenticate access to an application area on a DESfire EV1 card.

Read Key – 32 Character Hex Number (128 bits) - Used for authentication before reading the Private Secure Number (PSN) or Unique Identifier number (UID)

Write Key – 32 Character Hex Number (128 bits) - Used for Authentication before writing PSN to an application area

Change File Access Key – 32 Character Hex Number (128 bits) – for future use

Key Rolling

The AC2000 Smart card utility encodes two keysets into the blank DESfire EV1 smart card during the encoding/ enrolment process. Only one keyset will be active at any one time. The secondary keyset will remain dormant. If keyset one becomes compromised, system administrators can then use the smart card utility to update the CEM connected readers to begin using the second keyset on the DESfire EV1 smart card.

Card encoding/enrolment

The AC2000 smart card utility encoding process, involves AC2000

creating two unique application areas within the blank DESfire EV1 smart card. Both application areas are secured using unique AES-128-bit keysets. Within each secure application area, a 32-bit PSN will be written to a secure file area. Each application area will have the same 32-bit PSN.

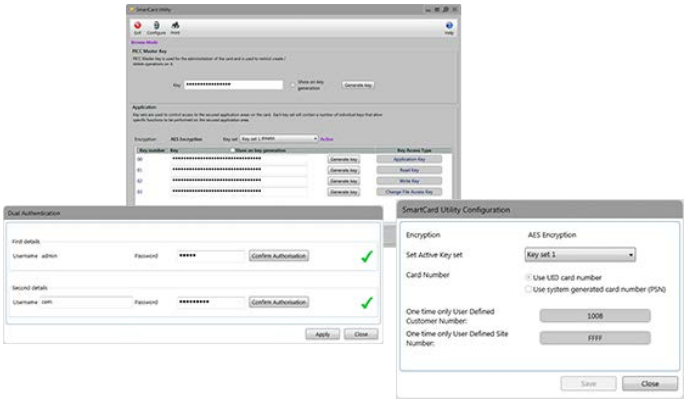
Prior to card enrolment/encoding, administrators must choose the card number they would like to validate against the cardholder. Administrators will have a choice to validate either a UID, sometimes known as the card serial number (CSN), or the PSN.

Once a selection has been made, all cardholders will be enrolled against either the PSN or UID. All blank DESfire EV1 cards will be encoded /enrolled via the HID Omnikey 5321 encoder.

Third Party Compatibility

There are two options available for third party systems to utilise the customer specific DESfire EV1 smart card.

Option One – Shared public card number (UID)
This option can be used if the UID option was chosen as the validation number, prior to card enrolment using the AC2000 smart card utility. The CEM access control readers will use AES-128-bit authentication before reading the UID from the DESfire EV1 smart card. Third party readers would read the DESfire EV1 smart card UID without any encryption. This option would typically be used by third party biometric readers, where the risk of card cloning is minimal due to biometric authentication.



Option Two – Private system card numbers (PSN)
Third party systems will be able to access the customer specific DESfire EV1 smartcards, if authorised to do so by the customer. To access the DESfire EV1 smart cards memory, third party systems would need to have authorised access to the PICC/ Master Key. Customers will be provided with a keyset report/ print option to share keysets with third parties if they wish to do so. This option is only available via dual authorisation. Once third part systems have access to the DESfire EV1 smart cards PICC/Master key, they will then have the ability to create their own application folders. This option would typically be used by third party cashless vending or secure printing systems.

Dual Authentication

Any changes to the AC2000 SmartCard Utility will require two system administrators with an authorisation level of four; to enter their username and passwords before the changes will take place.

Requirements

- AC2000 v6.9 upwards
- AC2000 Airport v6.9 upwards
- HID Omnikey 5321 v2
- Blank DESfire EV1 Smart Cards 8k Bytes

Ordering Information

Product Code	Description
SW-SCUTILITY	AC2000 Smart Card Utility (User defined keys)
RDR/015/321	HID OMNIKEY 5321 v2
CRD/218/000	Blank DESfire EV1 Smart cards 8k Bytes

Related Products

AC2000
AC2000 Airport

S610e MiFare/DESfire
S610s MiFare/DESfire
S610 Exit MiFare/DESfire

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