

**Virtual Card Platform and Mobile Virtual Card Specification****Manufacturer - Matrix Research Limited****Product Brand - ACX****1. Virtual Card Platform and Mobile Virtual Card**

The Virtual Card Platform generates a Bluetooth and/or Scramble QR Code as Virtual Credential and delivers the identity to the user's mobile phone through email.

Users can download the APP from the Android and iOS stores, after inputting the activation code sent by the operator, a virtual card number will be generated on the mobile. The mobile virtual card can be running under no internet connection.

The Virtual Card Platform shall comply with the following requirements as a minimum: -

- a. Virtual Card Platform shall have a central database installed in Cloud (Internet) or On-premises (Intranet). The virtual card platform is a cloud-based application and provides a Web portal for data entry.
- b. The VCP shall install an SSL certificate
- c. The operator login shall have a login name, password, and catcher code protection.
- d. The operator can Add, Edit, Delete and Re-use the virtual card
- e. The virtual card number has 26 / 32 / 34 / 56 / 64 bits and a custom format that can work for a wide range of access controllers.
- f. The Virtual Card Platform allows data import and export, through excel file format
- g. The Virtual Card Platform shall use two sets of 64 bits customer keys as the data exchange key on mobile and reader communication.
- h. The Virtual Card Platform shall generate a unique identifier representing the encrypted virtual card number and deliver the identity to the user's mobile device through e-mail or SMS.
- i. The Virtual Card Platform shall prohibit the same virtual card number to register on more than one mobile device.
- j. The mobile virtual card shall include Bluetooth & scramble and/or dynamic QR code, the QR code image shall be changed in every second.
- k. The mobile virtual card can be re-used
- l. The mobile virtual card has an expiry date
- m. The operator can disable the virtual card number on the registered mobile in real-time.
- n. The Platform shall include a Mobile Virtual Card APP which is available at the Android and iOS stores. The Mobile Virtual Card APP shall have Bluetooth & Scramble QR code feature for short-range and mid-range access control applications.
- o. The default screen captured QR code validation time is 5 seconds.
- p. The Scramble QR code validation time can be configured from 2 seconds to 255 seconds.

- 
2. The Mobile Virtual Card shall comply with the following requirements as a minimum: -
- a. The Mobile Virtual Card APP can be running at off-line mode (no internet connection)
  - b. The VCP shall include a Mobile Virtual Card APP which is available at the Android and iOS stores. The Mobile Virtual Card APP shall have Bluetooth and/or Scramble QR code feature for short-range and mid-range access control applications.
  - c. Bluetooth virtual card generated by Mobile Virtual Card APP can be used for mid-range access control applications. Smart lock reader to mobile device read range can be configured from 0.3 meters to 10 meters depending on the environmental condition.
  - d. Bluetooth virtual card can be triggered by BUTTON, SWING, and HANDS-FREE mode, the effective read range between smart lock reader and mobile can be configured individually.
  - e. Mobile Bluetooth communication to smart lock reader shall have scramble encryption to ensure the data cannot be played back by other devices.
  - f. Scramble QR code virtual card by mobile APP shall be scrambled every second, and the copied QR code will be expired after a specified time period. The specified time period shall be less than 5 seconds and different time periods can be set for each virtual card.