SR3 INSTALLATION GUIDE & USER MANUAL

UniKey's Bluetooth Smart Reader

POWERED BY UNIKEY™

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SR3 Overview

The UniKey SR3 is a 125kHz Prox and Bluetooth Low Energy all-in-one commercial reader for access control systems. The reader can retrofit legacy PACS systems using proximity, otherwise known as prox and easily implement optional features such as Touch-To-Open® and Inside/Outside Intelligence™ for an enhanced user experience at the door. The reader is both cost-effective and easy to install, without requiring any rewiring or paneling.

The SR3 is intended to be used in conjunction with an access controller as part of the access control system to provide secure access to buildings or areas. The reader is installed and communicates an access request to the controller using the standard Weigand protocol. This request is made by the end user presenting either prox card or fobs using ASK or FSK modulated Wiegand formats; the user can also use a Bluetooth enabled device storing mobile credentials powered by UniKey mobile application.

SR3 Installation Guide

Introduction

This guide will walk a professional installer through the steps needed to attach a UniKey Smart Reader 3 (or SR3) to an access control panel. The SR3 supports 125 KHz proxy cards as well as UniKey mobile credentials. Please review the information below to ensure the reader is installed quickly and properly.

Grounding

- Shield must run continuously from the reader to the panel. At the panel, the reader ground, shield line, and earth ground must be connected together at a single point.
- Do not ground the shield line at the reader end as this will create a potential ground loop.

Power

- Please be aware that when searching for the power source or controller, this may not be readily accessible depending on the building or door you are installing the SR3 reader to. We recommend contacting your building tenant or owner for access to the power source or controller to ensure proper installation. If access to the controller is not possible, do not proceed with removing the previous reader.
- It is recommended to find the data sheet for the currently installed reader to better understand the current reader to ensure proper connection for SR3.
- A non-switching power supply at the panel is recommended to power the reader for the highest noise immunity and best performance.
- For UL 294 Compliance, the readers shall be connected to a class two power limited power supply or control panel output.
- The minimum wire gauge is 24 AWG with a maximum length of 500ft (150m).
  Note: Performance will likely be unreliable if these standards are not met.

Voltage

- The minimum reader voltage required is +6 VDC to a maximum of +16.0 VDC, and 12.0 VDC is recommended.
- The reader will require 100 mA (typical @ 12 VDC)

Connection

- Connections must be in accordance with NFPA 70. DO NOT connect to a receptacle controlled by a switch.

Mounting the Reader

- Prior to installation, a voltage meter is recommended to check the input voltage of the reader. Connect the meter to the power and ground lines to verify that at least 6 volts is supplied by the controller.
- DO NOT remove an existing reader before matching up function/purpose of each wire (regardless of wire color) so that in the event that the wires do not match, functionality is still clear.
- If the unit is used to control a door or pedestrian gate, locate the unit as near as practical to the entry point. If the unit is mounted on or in a wall adjacent to the entry point, be sure the wall is sturdy. The repeated shock and vibration from a slamming access door or spring- loaded pedestrian gate must be isolated from the unit.
- Never mount the reader directly on a moving door or gate.
- Choose a well-lit location near the controlled opening. Wiring access for power, network, and earth ground must be available to the mounting location.
- Both the Mullion and Single-gang readers can be mounted on a wall or any suitable flat surface.

Mounting Instructions

Note: Ensure power supply is not energized until all wires are properly connected and terminated.

1. Identify and mark location on wall for mounting screws approximately 3 inches apart. Before drilling, confirm that the power supply wires are in the center.
2. Drill two holes and install wall anchors to support mounting screws.
3. Feed power cable through mounting bracket's center opening.
4. Place mounting bracket on wall, aligning screw mounting positions with wall anchors and inserting screws.
5. Connect reader wires to corresponding Wiegand wiring on panel.
6. Connect the power supply wires to reader and feed excess cable back into wall.
7. Mount reader into upper and lower mounting points.

Reader Wiring - Wiegand

Be advised that the colors for the SR3 readers and the colors for the connections to the controller may not be the same. Please be sure to obtain the proper information regarding the connections from the building's controller.

Conductor	RED	BLACK	GREEN	WHITE	PURPLE	ORANGE	YELLOW	BLUE	DRAIN
Purpose	DC +6-16 VDC	Ground	Data 0	Data 1	Red LED	Beeper	Card Present	Green LED	Shield Ground

Current Draw: 100mA (typical @ 12VDC)

UL 294 Performance Levels

MODEL #	ACCESS CONTROL LINE SECURITY LEVEL	DESTRUCTIVE ATTACK LEVEL	ENDURANCE LEVEL	STANDBY POWER LEVEL	CONDITION
UniKey SR3	Level I	Level I	Level III	Level I	N/A

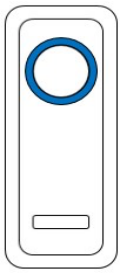
Additional Troubleshooting

Reader Behavior	Root Cause
The reader is flashing orange and/or flashing white and beeping repeatedly	• Enough voltage is present but not enough current. Apply additional power from the controller or external power supply. Check condition of wiring.
Reader boots but does not beep after presenting prox card	• The prox card may not be a supported format, or the reader is likely getting >5V but <6V
Power is present, but no response occurs when a card is presented	• Recommended voltage for the SR3 is 12V, but 6-16V is supported. Verify that the voltage between the red and black wires is greater than 6V under all conditions.
Reader beeps after presenting mobile credential but doesn't open the door	• The card number may not be enrolled in the controller database. Verify the card number that was issued to the mobile credential. • If the reader did not flash green, check that the white and green wires are connected correctly.
Power is 12V and reader beeps when a card is presented but door does not open	• The green and white Wiegand lines might be not connected to the controller or are connected backwards, or the reader may not be Weigand at all (this should be verified). • The cable may be longer than 500ft
Power is 12V and door opens when a card/mobile credential is presented but reader does not display green animation	• LED line (Blue wire) from controller may not be connected to the reader. • If it is connected, try disconnecting the blue wire and touching it to the black wire while the reader is powered up. Does the line turn green? If so that means the reader hardware is functioning properly. • Check the configuration on the controller, it may be in a mode that operates the Blue line differently than is expected. For the Green LED to operate correctly, the Blue line needs to be pulled down to 0V when access is granted.

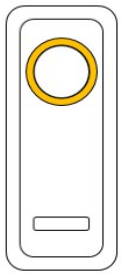
The reader is not getting any power at all	• The wires may have not been connected properly. The installer needs to verify that each wire is coming from the SR3 reader and coming from the controller. • The power from the controller is not sufficient. Please use a voltage meter to verify a minimum voltage of +6 VDC coming from the controller. This is the minimum proper power rating for the reader.

SR3 Animations

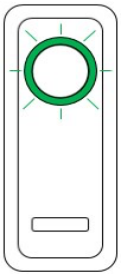
Each animation corresponds with a specific response from the SR3 and can be customized individually for the user's commercial organization. Other animation colors as well as various presentation styles are just some of the alternatives available for the UniKey SR3.



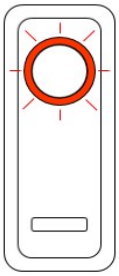
Blue Idle:
The reader is properly enrolled and is idly waiting for an access attempt.



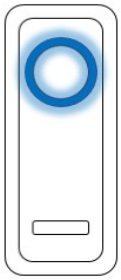
Amber Idle:
The reader is connected to power but not enrolled to an organization.



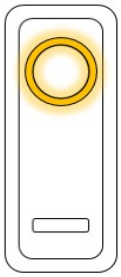
Green Flash:
The reader has granted entry to the access attempt.



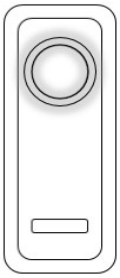
Red Flash:
The reader has denied entry to the access attempt.



Blue Spin:
An access attempt has been made and the reader is processing.



Amber Spin:
The reader is going through the booting process of powering on.



White Spin:
The reader is going through the reboot process of a factory reset.

SR3 Reset

A reset is performed in order to clear the reader of existing organizations and corresponding end user credentials. Access to any specified organization will need to be re-established before continuing reader use.

1. To locate the reset button on the reader, dismount from the installation points. The reset button is located on the back of the reader, as depicted in Figure 1.
2. Confirm that the reader is still connected to power source; The LED ring should display a solid blue animation.
3. Hold down the reset button for a minimum of 5 seconds.
4. After the reader has successfully completed the reset, the LED ring will momentarily flash a series of red, white, and amber blinking. Once the amber is solid, the reset is complete.
5. The reader's enrollment has now been cleared and is ready to be enrolled at a specified organization.

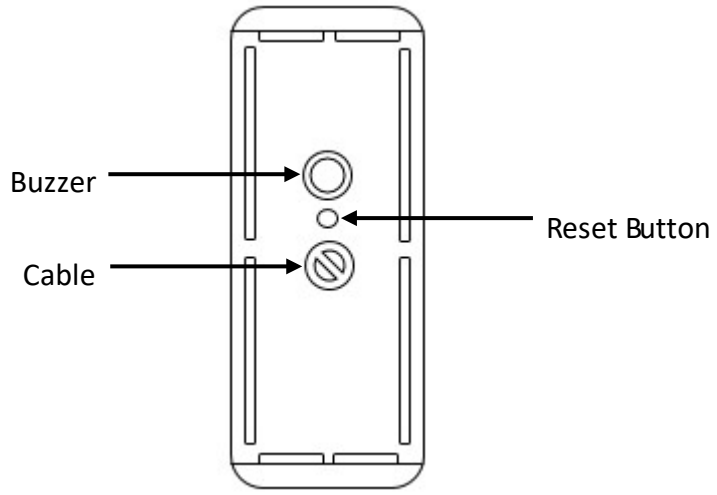


Figure 1: Reset button is located on the back of the reader between the buzzer and cable.

SR3 Factory Reset

A factory reset is performed in order to clear the reader of existing organizations and corresponding end-user credentials, as well as to clear any firmware updates initiated on the reader since manufactured. Access to any specified organization will need to be re-established, and firmware will need to be reinstalled to the latest version before using the reader.

1. To locate the reset button on the reader, dismount from the installation points. the reset button is located on the back of the reader, as depicted in Figure 1.
2. Disconnect the reader from the power source.
3. Begin holding down the reset button; while holding the reset button, reconnect the reader to the power source. [1]
4. Give the reader a minimum of 10 seconds to reset and release the reset button.
5. The LED on the front of the reader will momentarily be off while the reader reconfigures.
6. After the reader has completed the factory reset, the LED ring will momentarily flash white, then change to amber.
7. The reader's enrollment has now been cleared, along with any firmware updates that have been initiated since manufactured.

[1] It is important to be sure the reader is re-connected to power while simultaneously holding the reset button; not before or after.

UniKey Mobile Credentials

The purpose of this section is to provide an overview of commercial mobile credentials within the UniKey platform. The various actors in a typical deployment will be defined as well as a review of the typical lifecycle of the mobile credential. Once the partner has codes that they distribute them by any means of their choosing. Ultimately the codes will be consumed by the end customer. The end customer consumes a credential code in the portal. Once the process is completed, the credential code used will no longer be valid and the end customer will have a balance of credential credits within the portal. This process is outlined in the screenshots below from the perspective of the end customer.

Mobile Device and Software

- The SR3 utilizes BLE version 5.0 or greater.
- The UniKey SR3 is it to be used in conjunction with the UniKey Mobile App (Version 1.0 or higher).
- In order for the SR3 to function properly, the mobile device's software must be up to date.
- iOS Devices: iOS 10.0 or higher
- Android Devices: v5.0 (Lollipop) or higher and peripheral mode supported.

Definitions

Term	Definition
Credential Credit	A mobile credential that has not yet been assigned to a mobile device
Mobile Credential	A digital key that contains card ID and facility code information that is transmitted from a mobile device to a reader for the purpose of entering a protected area
Redemption Codes	Two numbers that represent a quantity of credential credits. Redemption codes can be redeemed for credential credits within the portal. Partners can specify the number of credits that are assigned to each redemption code.
Partner	Organization that partners with UniKey to leverage our mobile credential solution in their products. Partners purchase redemption codes from UniKey.
Partner Customer	An entity that purchases redemption codes from the partner for resale to End Customers.
End Customers	An entity that manages mobile credentials and access rights to a protected area.
End User	An individual that uses a mobile credential to gain access to a protected area.

Typical Lifecycle

1. Partner orders redemption codes from UniKey by submitting a purchase order.
2. UniKey delivers spreadsheet containing redemption codes.
3. Partner sells redemption codes to partner customer.
4. Partner customer sells codes to end customer.
5. End customer enters redemption codes in UniKey portal and receives credential credits.
6. End customer consumes credential credits by issuing mobile credentials to end users.
7. End users use their mobile credential day to day to enter a door.

When a customer submits a purchase order to UniKey to procure redemption codes, information such as that in the example table below must be included. It is important to note that the number of credentials per code is arbitrary and is defined entirely by the partner.

Qty Redemption Codes	Credentials Per Code	Line Total Credentials
500	100	50,000
260	25	6,500
250	10	2,500
200	5	1,000
	Total Credentials Ordered	**60,000**

Once UniKey receives and processes the partner purchase order, we will deliver the redemption codes as a spreadsheet formatted similar to the one below.

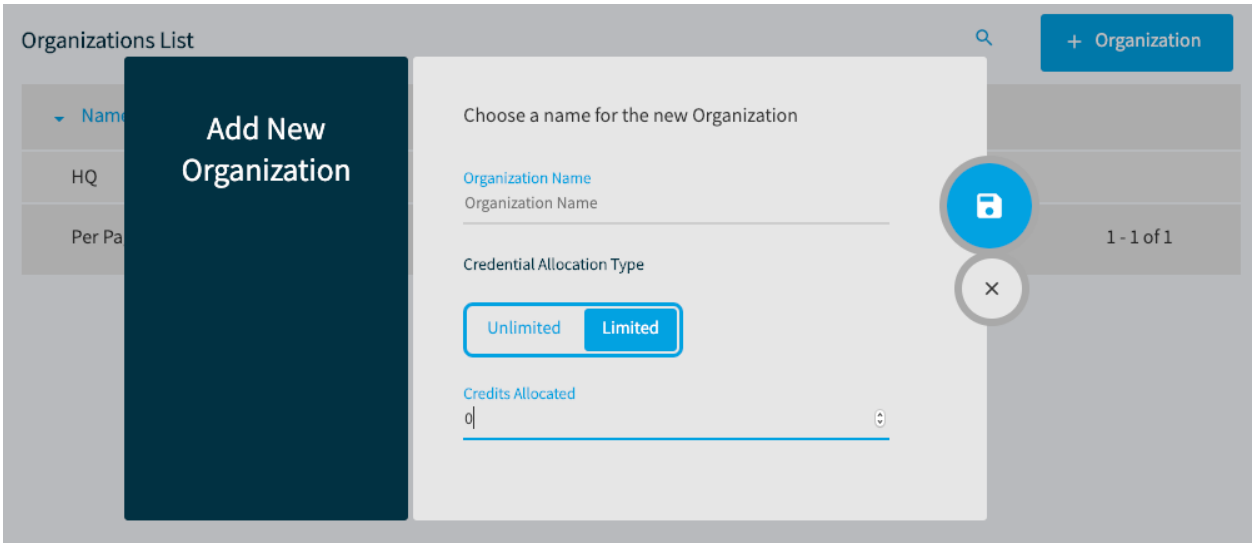
Example redemption codes delivered to partner:

Serial Number	Authorization Code	Number of Credentials
2000220563	123456	100
2000110088	887474	100
2000118831	898773	5

UniKey Admin Portal

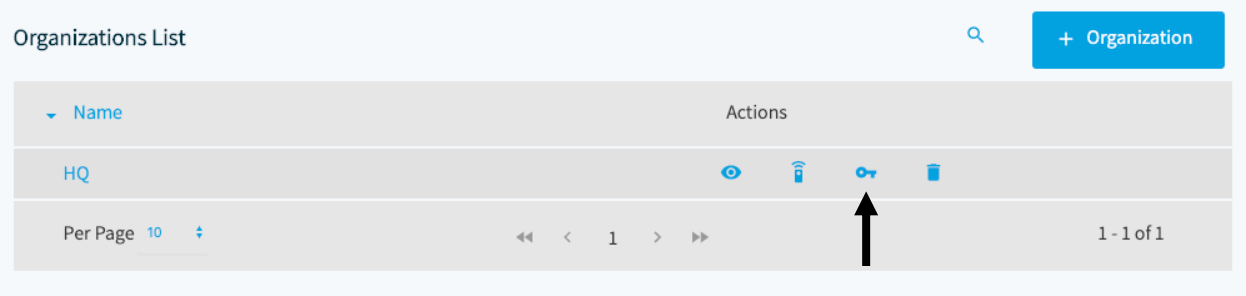
Once the credential process has been established, the Admin Portal is available for use. Please find the BlueKey admin portal here. Follow the steps to create the admin account and login. Once logged in, the admin is able to manage organizations, credentials, dealers, and more.

Step 1: Create an organization by selecting the blue icon in the top right corner of the Organizations tab. Choose a descriptive name for the organization (such as “Downtown Office” or “HQ”). This will be where the readers are grouped.

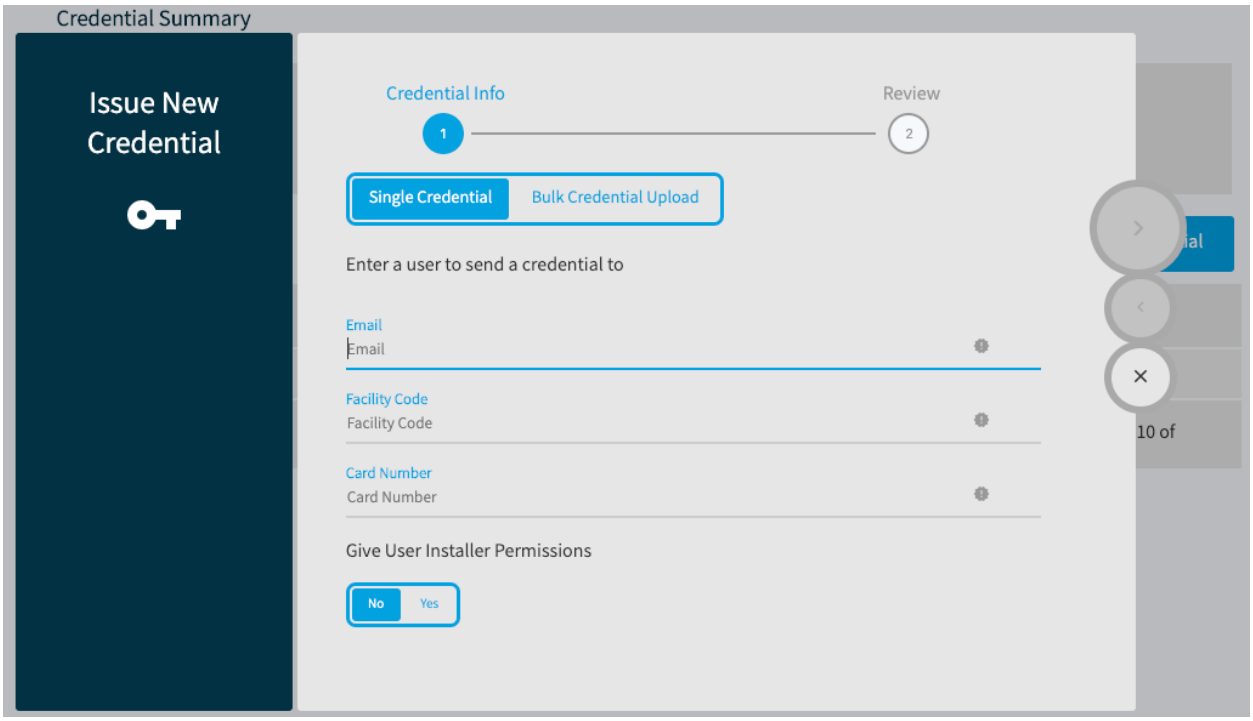


Note: For partners using the **Limited Credentials** model, be sure to decide here the number of credentials you plan to allocate for this specific organization. For partners using the **Unlimited Credentials** Model, please reflect that here.

Step 2: Issue credentials first to the admin. On the Organizations tab, see the available actions list. Select *View Credentials*.



Step 3: Add **single** credentials by opening the *Issue New Credentials* pop up from the blue icon on the right side of the page. Input all required user information and designate Installer Permission if applicable to the user.

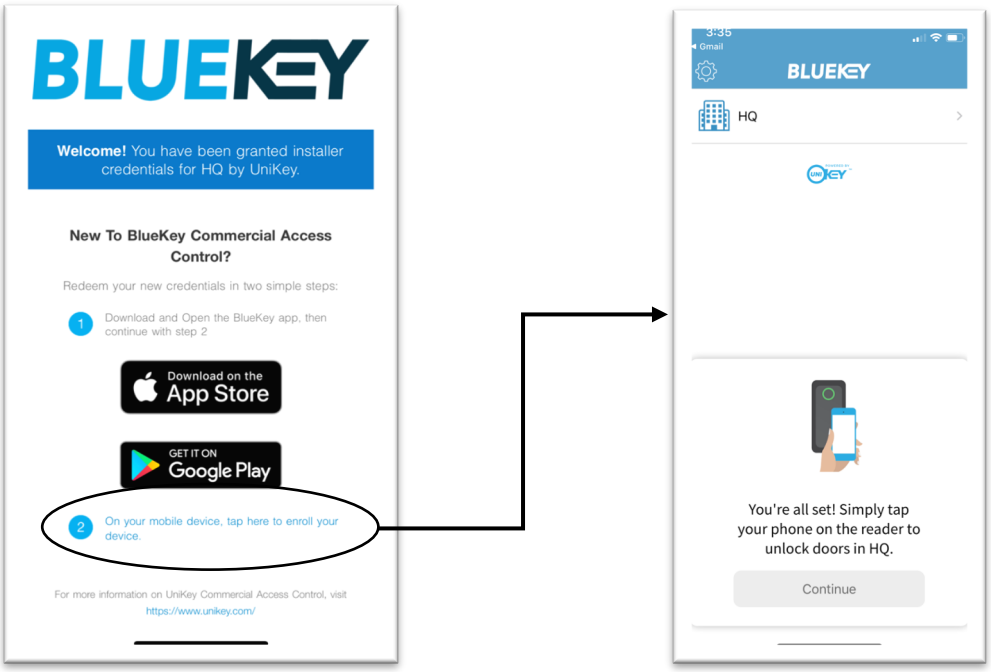


Note: Select the *Bulk Credential Upload* tab to upload a CSV file with a high volume of users at once. Formatting requirements are specified within.

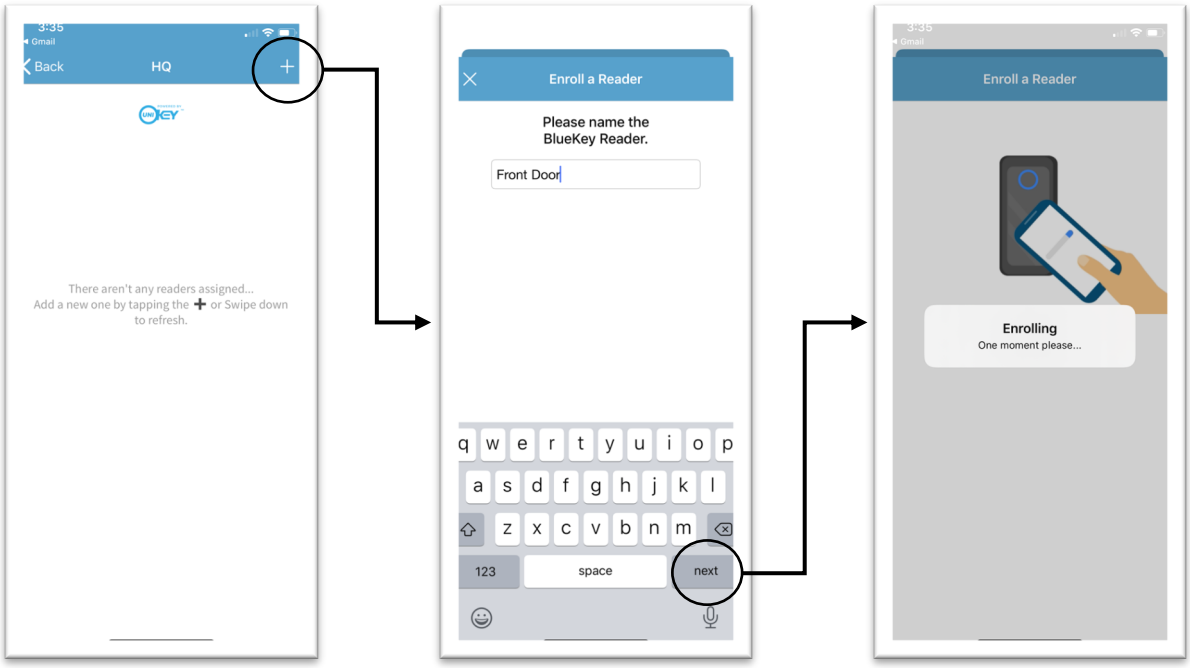
UniKey Mobile App

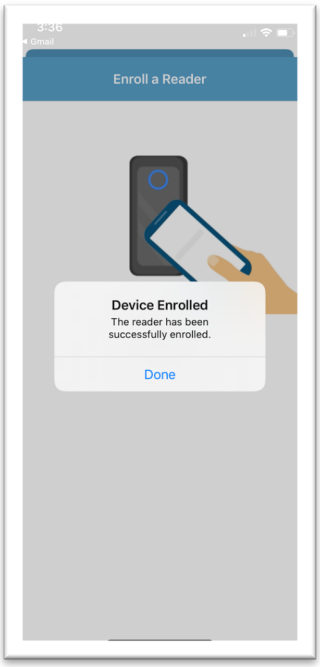
The credential email has now been sent to the admin and the portal is configured and ready for the reader(s) to be enrolled via the app. To add more users, simply repeat steps 2 and 3 until all users are added or credential credits are used up completely.

Step 1: The admin should download the mobile app through the credential email received. Once the app is downloaded, navigate back to the email on the admin's mobile device and select step 2 to enroll the device to the organization. The installed reader will then be eligible as well for enrollment to the organization.

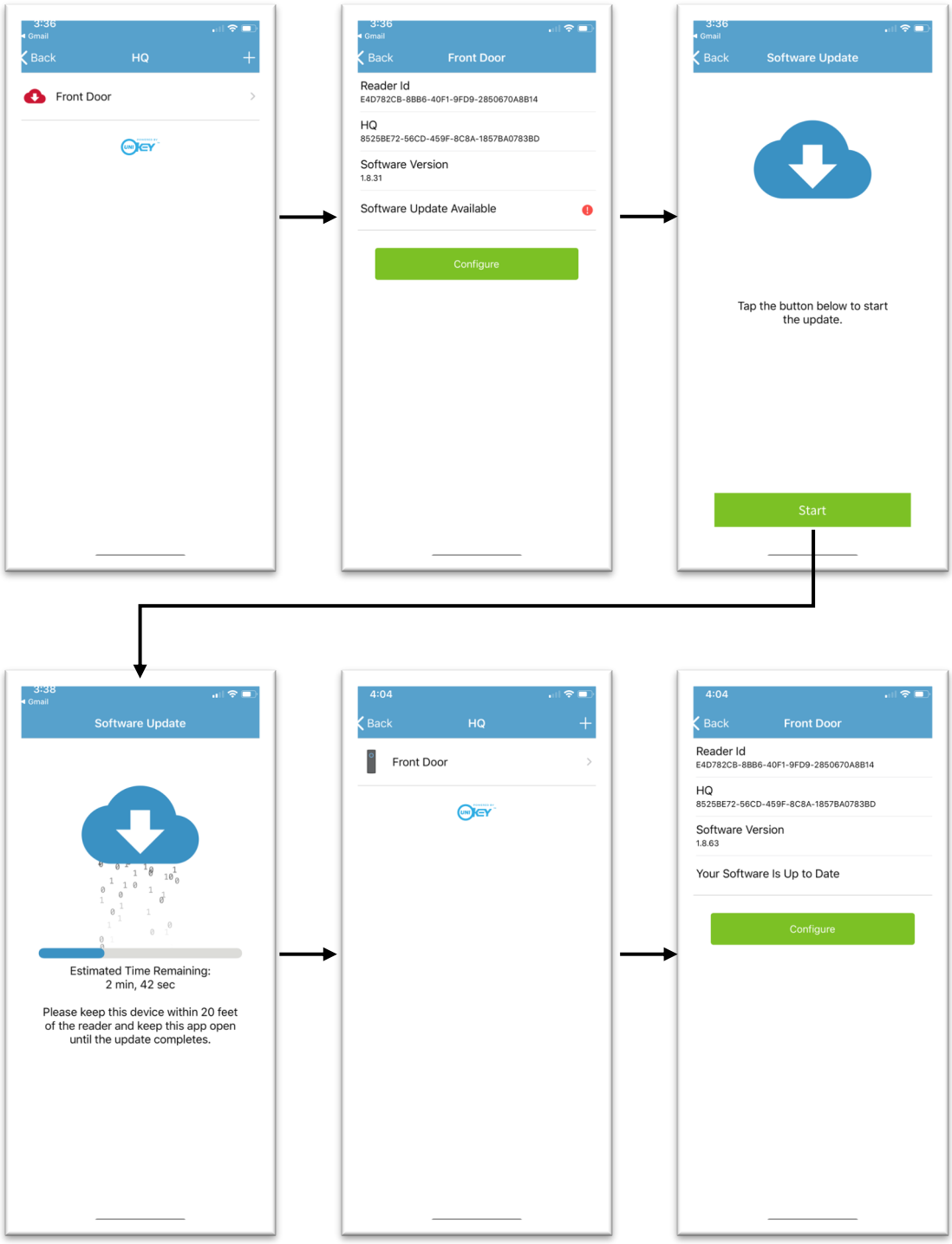


Step 2: Enroll the reader through the installer's mobile device.





Note: If a firmware update is available, a red icon will appear next to the reader name. Follow the steps illustrated below. Once the update is complete, the red icon will disappear and the reader details screen will confirm that the reader's software version is up to date.



Certifications

FCC

- FCC Compliance Statement: This device complies with Part 15.105 (b) of the FCC rules.
    1. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
        - Reorient or relocate the receiving antenna
        - Increase the separation between the equipment and receiver
        - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
        - Consult the dealer or an experienced radio/TV technician for help
    2. FCC Part 15 Clause 15.21 [Do not Modify warning]:
        - Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment
        - FCC Part 15.19(a) [interference compliance statement], unless the following statement is already provided on the device label
            - This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
    3. RF Exposure Guidance:
        - In order to comply with FCC RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.

ISED

- ISED RSS Gen Notice:
    1. This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
        - This device may not cause interference; and
        - This device must accept any interference, including interference that may cause undesired operation of the device.
    2. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
        - l'appareil ne doit pas produire de brouillage;
        - l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- ISED Canada ICES Compliance: CAN ICES-3 (B)/NMB-3(B)
- ISED RF Exposure Guidance:
    1. In order to comply with FCC / ISED RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.
    2. Afin de se conformer aux exigences d'exposition RF FCC / ISED, cet appareil doit être installé pour fournir au moins 20 cm de séparation du corps humain en tout temps.

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