



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1555U-A1

Secure Bluetooth® NFC Reader

User Manual V1.03



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1.0. Introduction

ACR1555U-A1 ACS Secure Bluetooth® NFC Reader combines the latest technology in the world of smart card readers with Bluetooth connectivity. This compact and wireless smart card reader brings together sophisticated technology with fresh design to meet different requirements in various smart card-based applications using Bluetooth-enabled devices, such as smart phones and tablets.

This document provides general procedures for installation of drivers and applications when using ACR1555U-A1 ACS Secure Bluetooth NFC Reader.

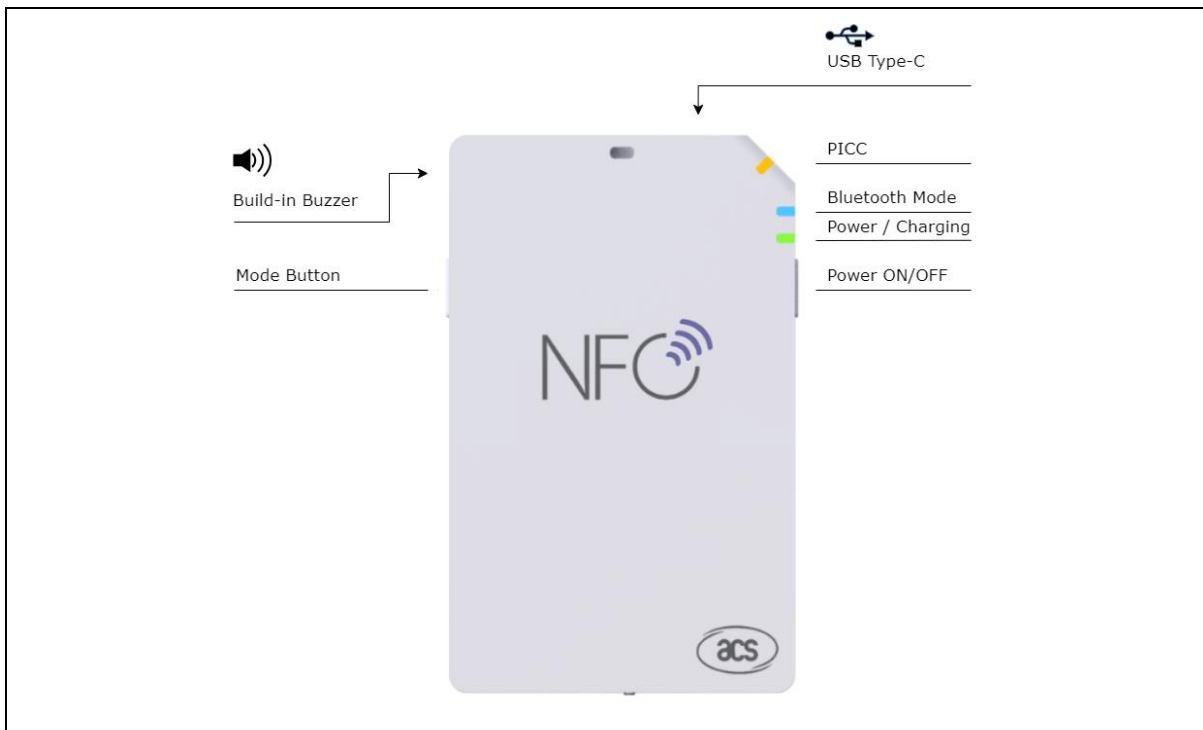
The ACR1555U supports two operation modes:

- NFC Card Reader
- Bluetooth HID Keyboard Emulation

When switching to Bluetooth HID mode, pairing (bonding) will be required to connect the device. This process differs from the connection procedure used for the NFC Card Reader. Make sure to follow the appropriate steps for establishing a connection based on the selected mode.

USB mode Keyboard Emulation is not supported

Description of parts

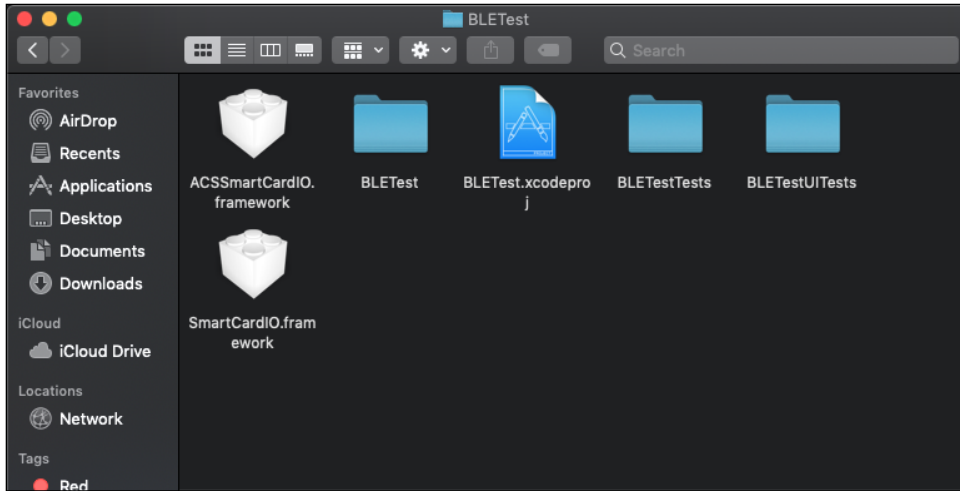




2.0. For iOS (BLE Test Application)

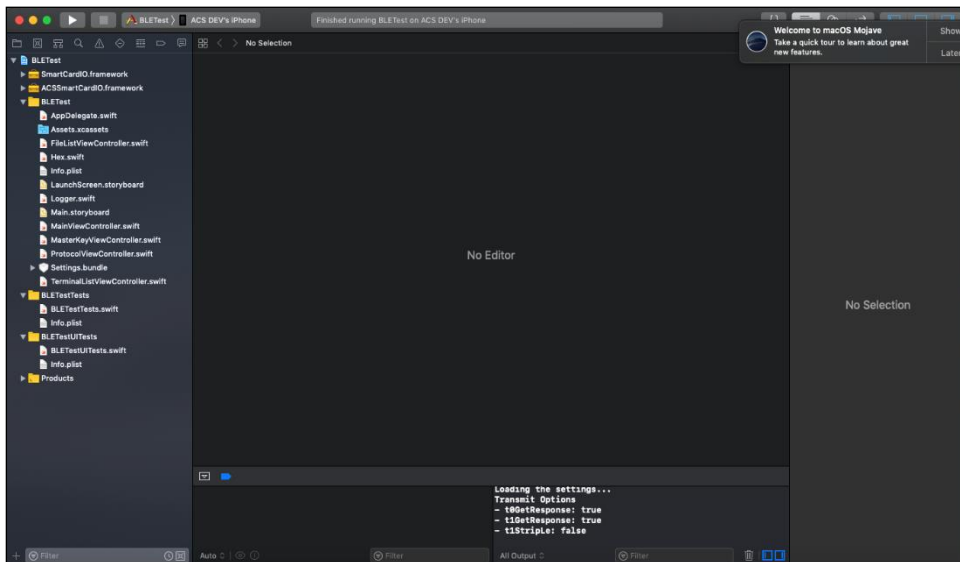
2.1. Installing the BLE Test application

1. You can access the device library when you download the **iOS BLE EVK (SmartCardIO)** from the ACS website.
2. Using XCode application, open **BLETest.xcodeproj**.



3. Transfer **BLETest.xcodeproj** to your mobile device. Choose your mobile device, and then click **Play**.

Note: Make sure that your mobile device is connected to your computer.





2.2. Using the ACS Bluetooth demo application

This section provides a simple step-by-step procedure on how to use the ACR1555U-A1 using the BLETest application.

2.2.1. Connecting a device

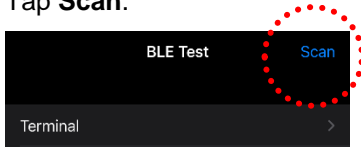
1. Turn on the ACR1555U-A1 and enter Bluetooth mode for make it discoverable. To do this, press and hold the power button for 3sec. The Green LED will be On and Blue LED will be start Blinking. (if Green LED is on, but Blue LED is not Blinking), Follow the instruction at **step 2**



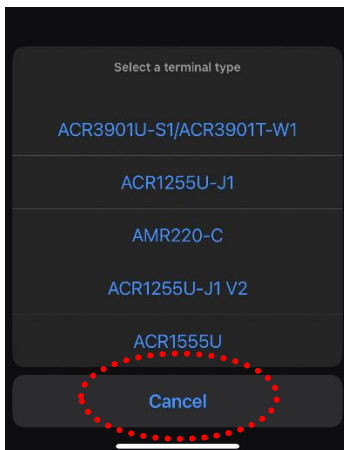
2. Turn on the Bluetooth mode of ACR1555U-A1 and make it discoverable. To do this, press the mode button 3 sec for enter Bluetooth mode.



3. Turn on your device's Bluetooth by going to **Settings > Bluetooth**.
4. Open **BLE Test application**.
5. Tap **Scan**.

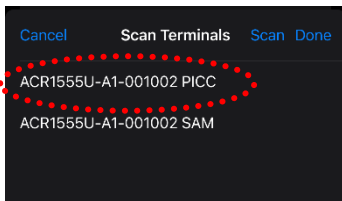


6. Select the terminal type **ACR1555U-A1**

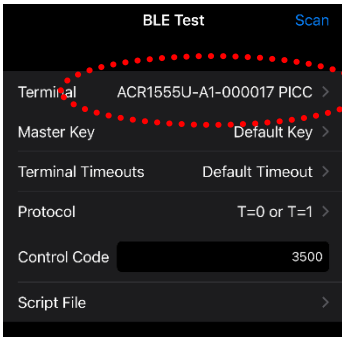




7. Choose the reader to pair your iOS device with, then tap **Done**.

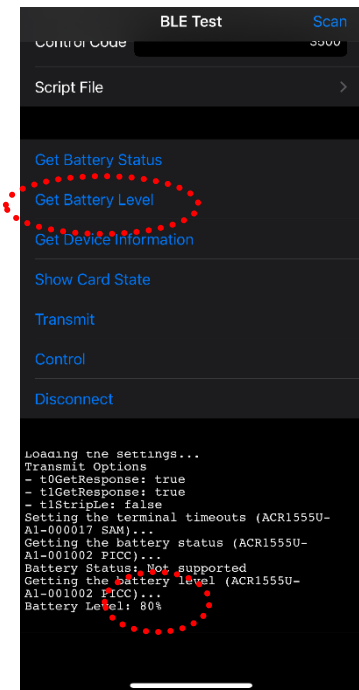


8. When the pairing is successful, the main page will be displayed.



2.2.2. Getting the battery level

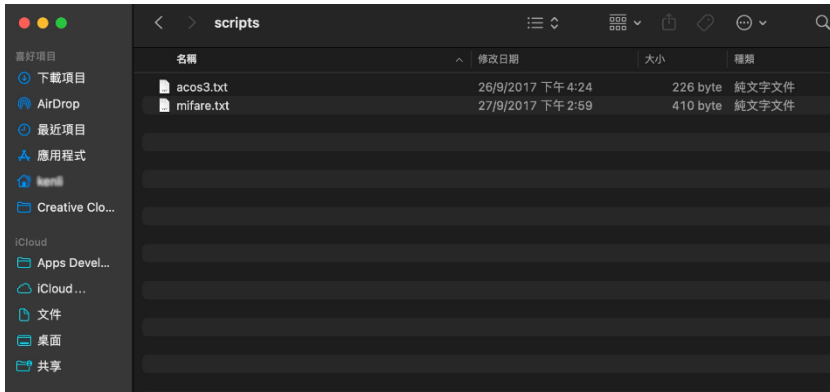
To get the battery status, tap **Get Battery Level**. The status should be displayed as part of the logs.



2.2.3. Transmitting an APDU command

To transmit APDU command:

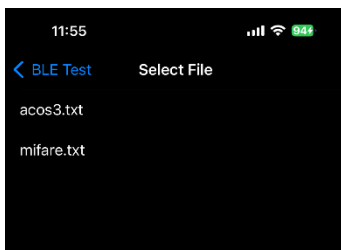
1. Connect the mobile device to mac and locate the App folder “BLETest” in finder.



2. Drag and drop the **acos3.txt** and **mifare.txt** from script folder into “BLETest” folder

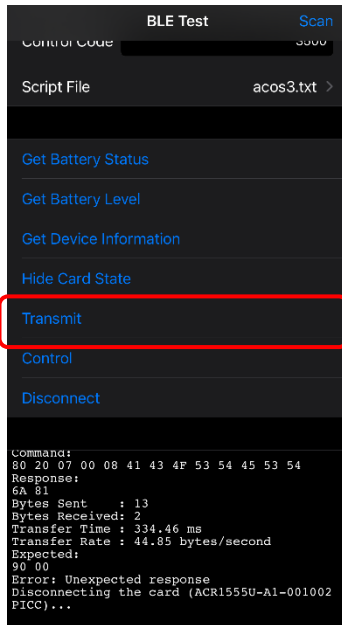


3. Under Apps section, click on **BLETest app** and add a text file (.txt) containing the APDU commands.
4. Tap a contactless smart card on the ACR1555U-A1 reader
5. In the demo application on the mobile device, tap **Script File**, and then locate the .txt file to run.





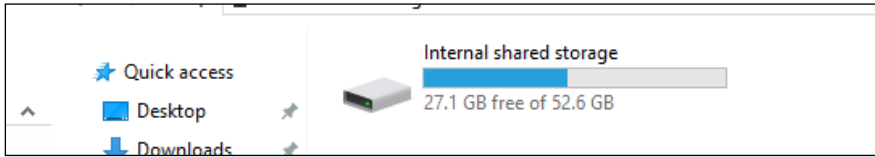
- Go back to the main page then Tap **Transmit** button. The Response APDU will be displayed as part of the logs.



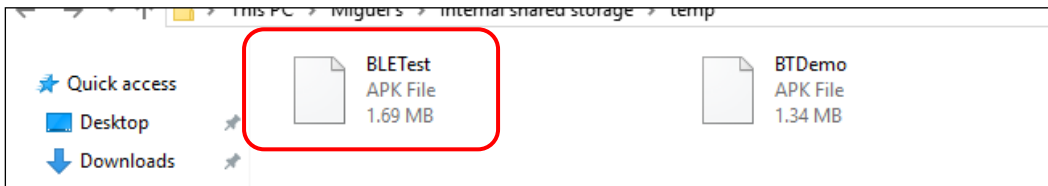
3.0. For Android (BLE Test Application)

3.1. Installing the BLE Test application

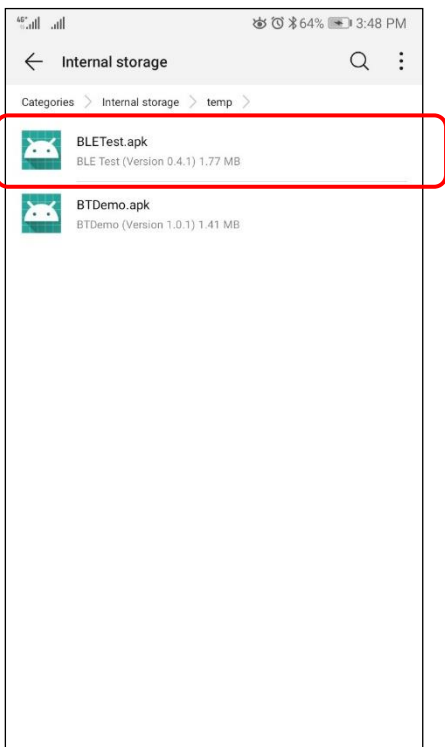
1. Connect your mobile device to the computer.



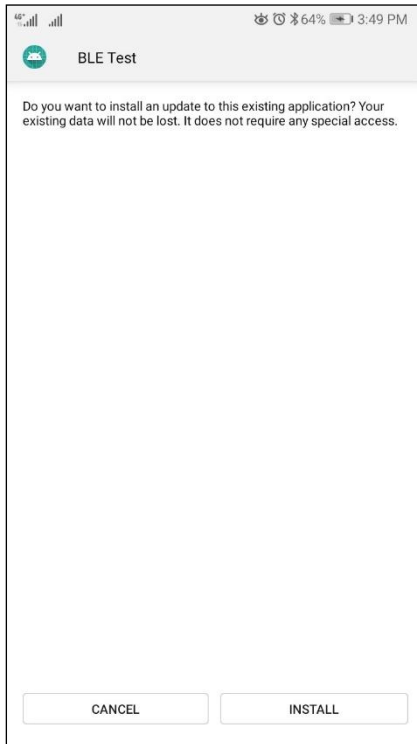
2. In the internal storage of your device, create a folder where the ACR1555U-A1 BLETest will be placed.
3. You can access the device library by downloading the **Android BLE EVK (SmartCardIO)** from the ACS website.
4. In the Android library, copy the **BLETest-0.6.0.apk** and the **test scripts(.txt)** files to the previously created folder.



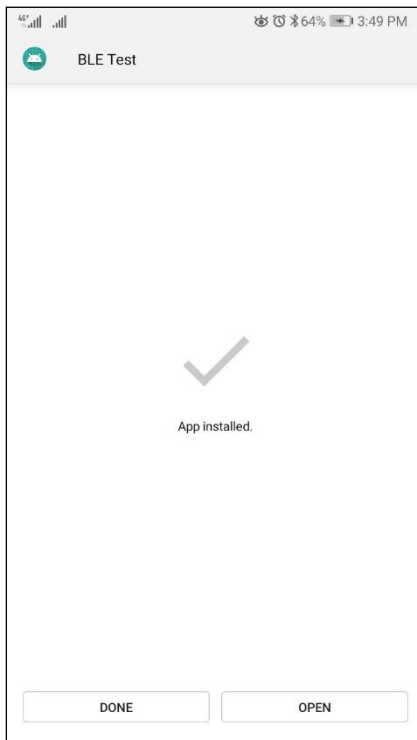
5. Disconnect your mobile device from the computer. Locate the **BLETest-0.6.0.apk** using a file manager application.
6. To start the installation, tap the **BLETest-0.6.0.apk** file.



7. Complete the action using **Package Installer**.



8. A prompt will ask for hardware control access. Tap **Install** to proceed.
9. Once the installation is complete, you can now open the BLE Test application.





3.2. Using the ACS Bluetooth demo application

3.2.1. Connecting a device

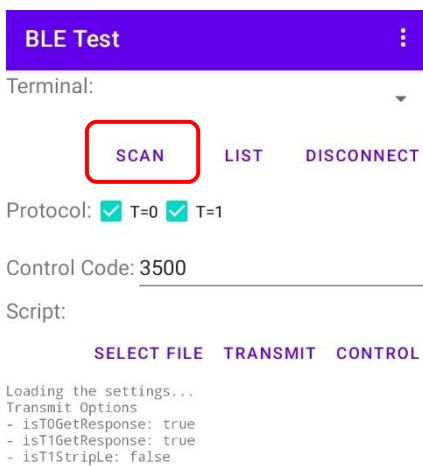
1. Turn on the ACR1555U-A1 and enter Bluetooth mode for make it discoverable. To do this, press and hold the power button for 3sec. The Green LED will be On and Blue LED will be start Blinking. (if Green LED is on, but Blue LED is not Blinking) , Follow the instruction at **step 2**



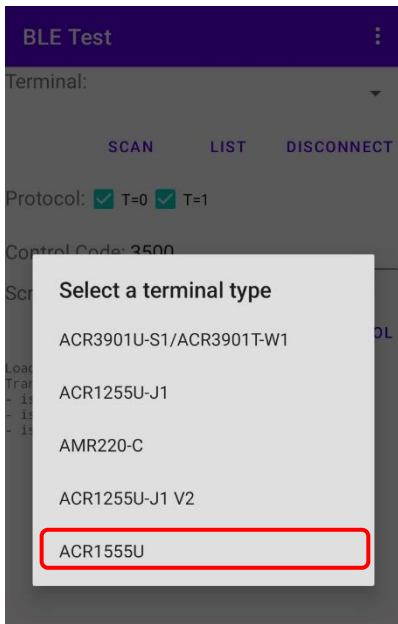
2. Turn on the Bluetooth mode of ACR1555U-A1 and make it discoverable. To do this, press the mode button 3 sec for enter Bluetooth mode.



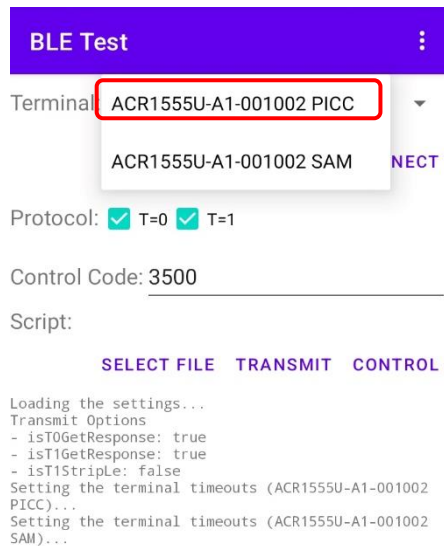
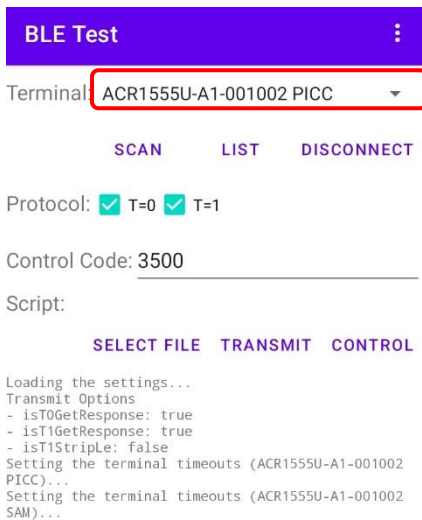
3. Turn on your device's Bluetooth by going to **Settings | Bluetooth**.
4. Open **BLE Test** application.
5. Tap **Scan**.



6. Select the terminal type **ACR1555U**



7. Available devices will be displayed. Tap the drop down button to show the complete list of available devices

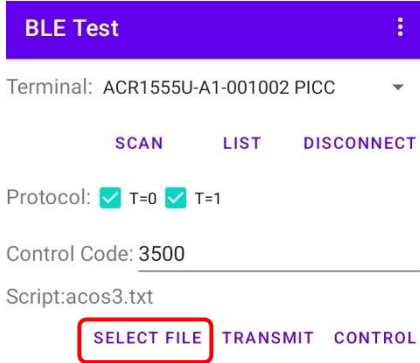




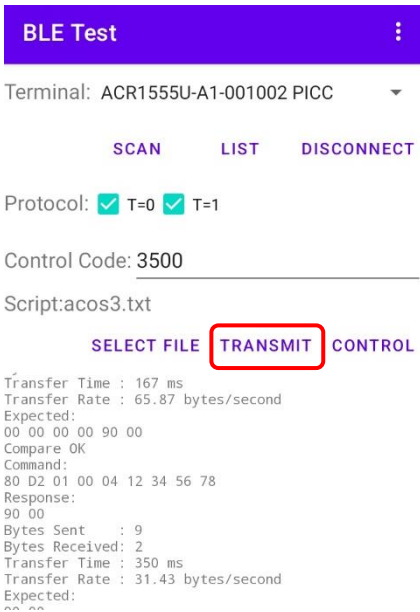
3.2.2. Transmitting an APDU command

To transmit APDU commands:

1. Tap a contactless smart card on the ACR1555U-A1 reader
2. In the demo application on the mobile device, tap **Select File**, and then locate the .txt file to run.



3. Go back to the main page then tap **Transmit**.



The Response APDU will be displayed as part of the logs.

Note: The application is designed to get the ATR of the card before sending the APDU commands.

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The *Bluetooth*® word, mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Advanced Card Systems Ltd. is under license.
Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.



4.0. Bluetooth HID Keyboard Emulation

What is Bluetooth HID Keyboard Emulation?

Bluetooth HID Keyboard emulation is a feature of the ACR1555 card reader that allows it to function as a keyboard input device for reading Card UID.

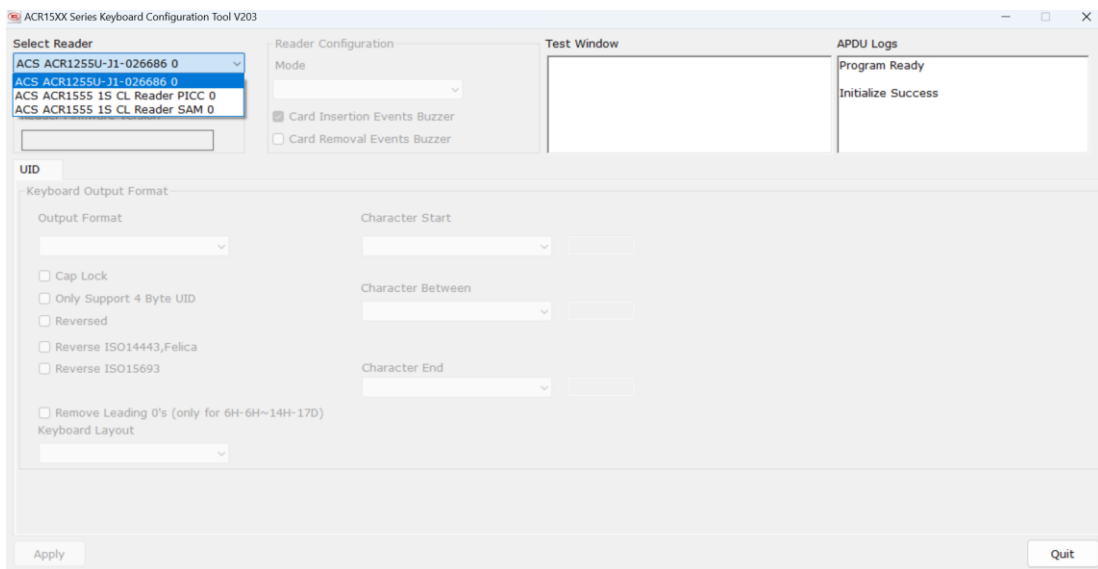
In this mode, the card reader can read the UID from smart cards and automatically input this information into any editable text field, just like a regular keyboard. This simplifies the process of entering card data, making it quick and efficient for users.

4.1. Configuring ACR1555U for Bluetooth HID Keyboard emulation

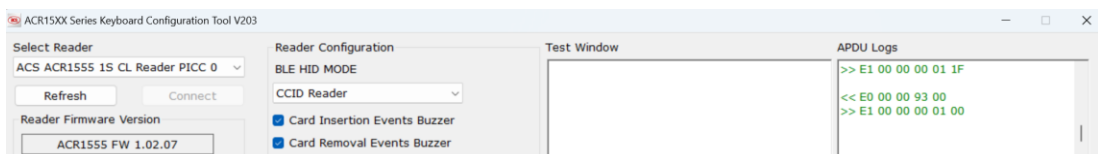
Download Link for the tools required: <https://www.acs.com.hk/en/utility-tools/>

1. Download Software: Get the ACS ACR15XX Keyboard Configuration Tool.
2. Connect Device: Use a USB cable to connect the ACR1555U to your computer.
3. Open Tool: Launch the ACR15XX Keyboard Configuration Tool.

This tool allows you to customize keyboard settings, including layout, language, and card UID reading patterns. (Please maintain the default settings.)

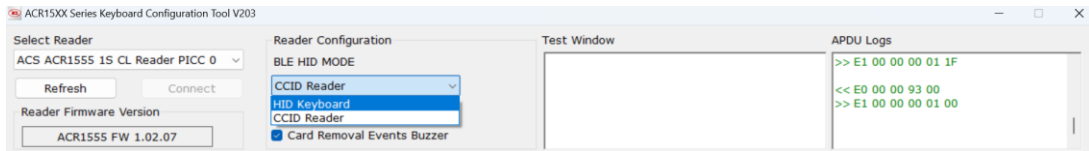


4. Select Device: Choose the ACR1555U from the list and click "Connect" to read the firmware version and current settings.

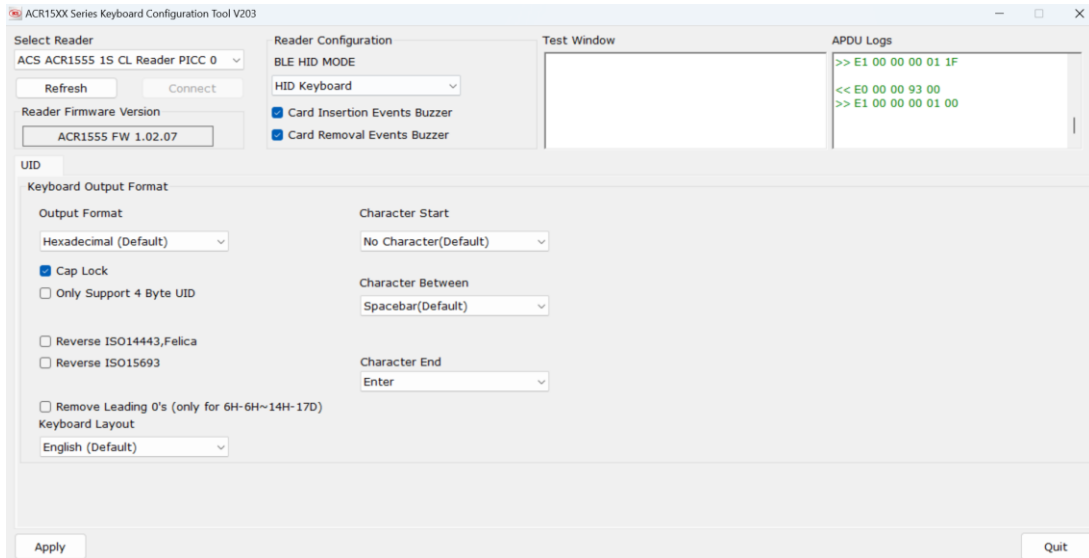




5. Change Mode: In the dropdown menu, select BLE HID MODE to switch to Bluetooth HID. You can revert to CCID mode using this tool as well.



6. Apply Settings: Click "Apply" to save the changes, or "Quit" to exit without saving.



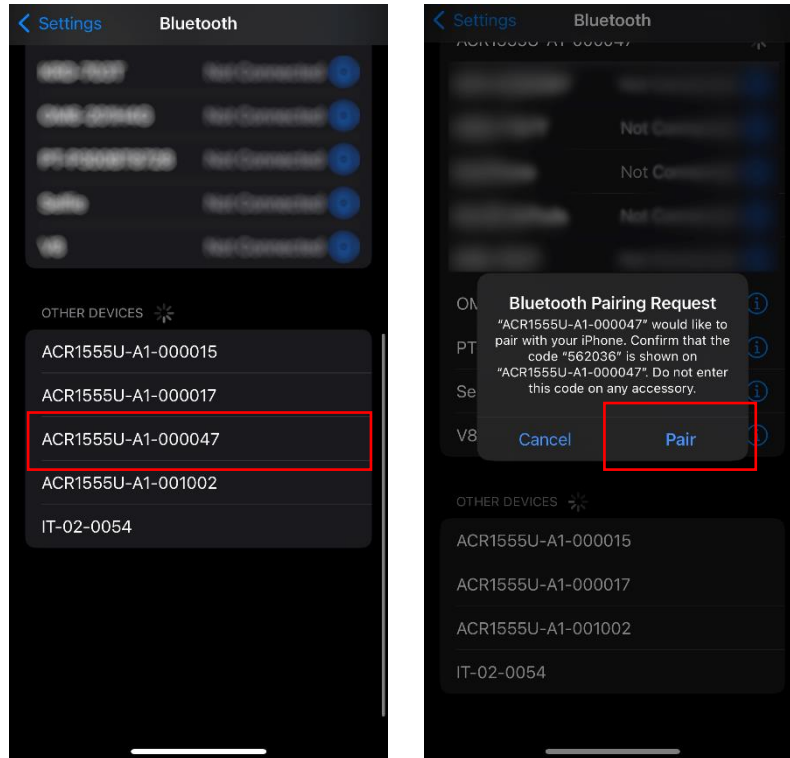
7. Restart ACR1555U Device to activate Bluetooth HID keyboard emulation mode. Once you switch the reader mode and HID mode. The mode button will be restart the ACR1555 when you press

Notes: To switch back to NFC card reader mode, follow the instructions to clear (pairing) bonding records (Chapter 4.2), or repeat the configuration steps to select the CCID reader (Chapter 4.2).

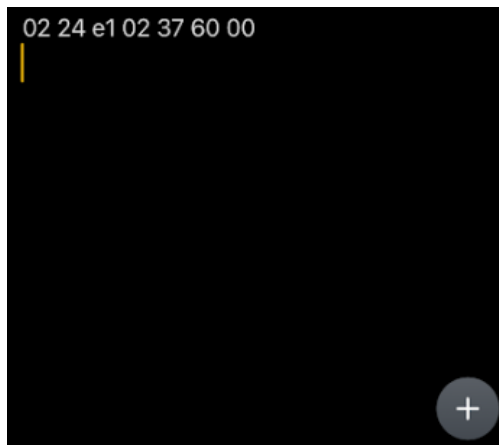


Test you ACR1555U under Bluetooth HID keyboard emulation mode

1. Open the mobile system settings and navigate to Bluetooth.
2. Turn on your Bluetooth card reader and locate "ACR1555U-A1-XXXXXXX" in the device list.



3. Select the card reader and click "Pair" in the Bluetooth pairing request dialog.
4. Confirm the connection by pressing the mode button on the left side.
5. Then, open a notepad app to read the UID from the card.



4.2. Clear Bond (Pair) record

Why you need to clear the Bond record?

Clearing the bonding records is essential to prevent unexpected reconnections. This process ensures that the ACR1555U only pairs with trusted devices, avoiding issues with previously connected devices that may interfere with the current setup. By starting fresh, you minimize connection errors and enhance overall security.

Instructions for Clearing Bonding Records on ACR1555U

Method 1

1. Check Bluetooth Device List:

- On your mobile device, go to the Bluetooth settings.
- Ensure that the ACR1555U is not listed. If it is, select it and choose "Forget" or "Remove." This will prevent automatic reconnection.

2. Disconnect ACR1555U:

- Wait for the blue LED on the ACR1555U to start blinking, indicating that it has been disconnected.
- Turn off Bluetooth on your mobile device to avoid the ACR1555U attempting to reconnect.

3. Clear Bonding Records:

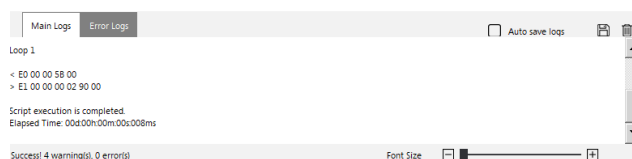
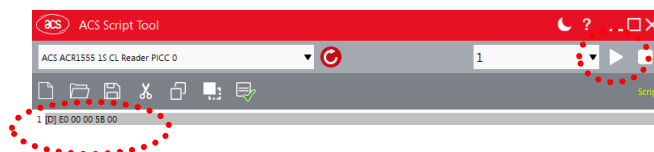
- Press and hold the "Mode" button for about 4 seconds until the blue LED flashes quickly (4 seconds). This will remove the bonding records from the ACR1555U.

4. Connect New Device:

- The ACR1555U is now ready to pair with a new mobile device.

Method 2

1. Download Software: Get the ACS Script Tool.
2. Connect Device: Use a USB cable to connect the ACR1555U to your computer.
3. Open Tool: Launch the ACS Script Tool.
4. Here is the command to remove the bonding record. **Input the command [D] E0 00 00 5B 00 and click "▶" for execute.**



5. Restart the ACR1555U; it is now ready to pair with a new mobile device.

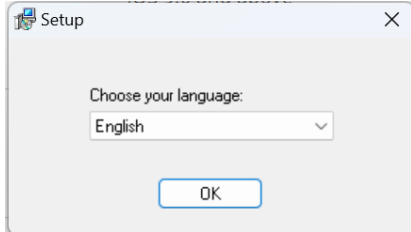


5.0. For Windows® (USB Mode and Bluetooth HID mode)

5.1. Installing ACS CCID PC/SC driver (USB)

To install the driver:

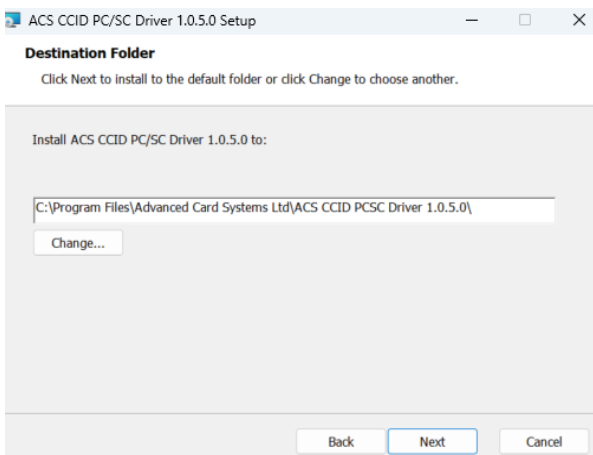
1. Run the ACS CCID PC/SC Driver Installer (USB)
2. The Setup Wizard will appear. To start the installation, click **OK**.



3. Then click **Next**.

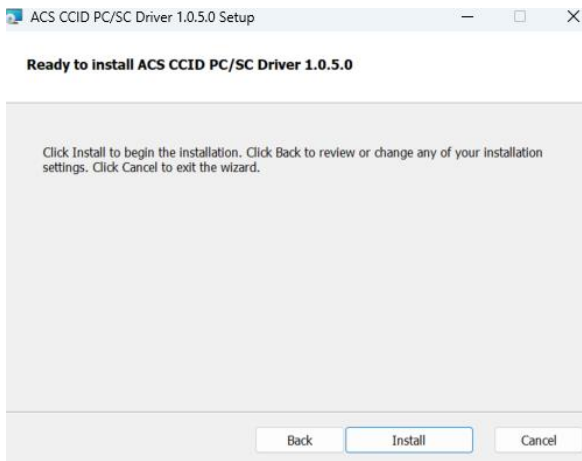


4. Click **Next** to install the driver to the default destination, located at **X:\Program Files\Advanced Card Systems Ltd\ACS CCID PCSC Driver 1.0.5.0**, with **X** being your local Windows drive.

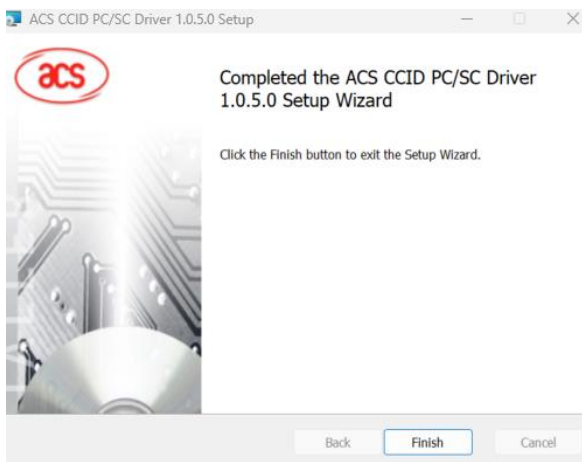




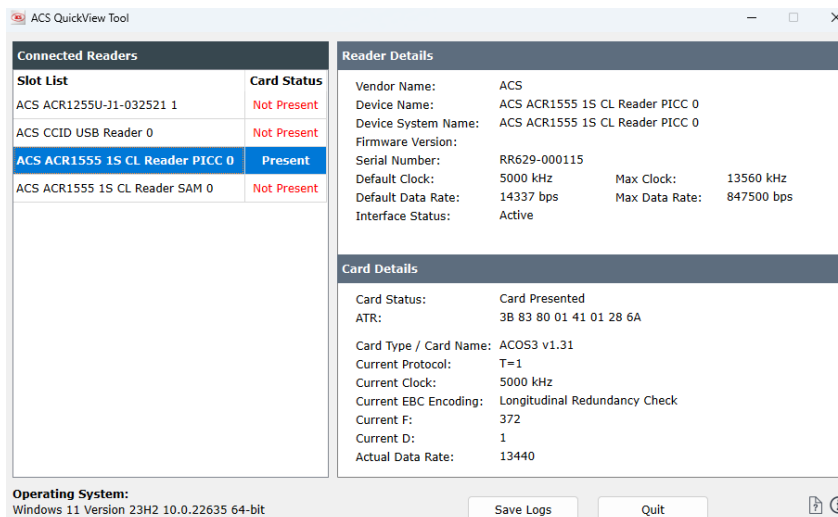
5. Click **Install**.



6. Wait while the driver installs. Once the installation is complete, click **Finish**.



7. Download and launch the ACS QuickView Tool.
8. Connect your ACR1555U using a USB cable.
9. Locate the ACR1555U in the list and click to select it.
10. Tap your card to read its parameters.





5.2. Bluetooth HID Keyboard emulation mode

Note: This procedure only applies to Windows 8 and later. Windows 7 does not support devices using Bluetooth 5.2 Bluetooth Low Energy interface.

To pair using this setup:

1. Turn on the ACR1555U-A1 and enter Bluetooth mode for make it discoverable. To do this, press and hold the power button for 3sec. The Green LED will be On and Blue LED will be start Blinking. (if Green LED is on, but Blue LED is not Blinking), Follow the instruction at **step 2**




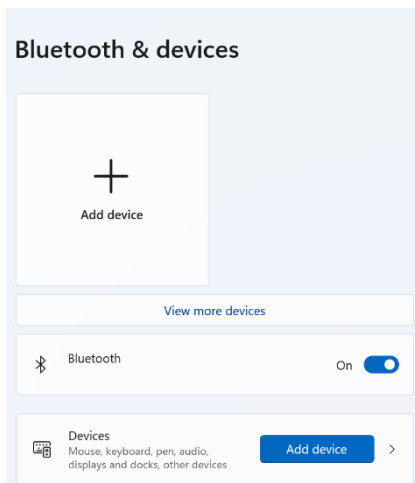
Fig 1 Power Button

2. Turn on the Bluetooth mode of ACR1555U-A1 and make it discoverable. To do this, press the mode button 3 sec for enter Bluetooth mode.



Fig 2 Mode Button

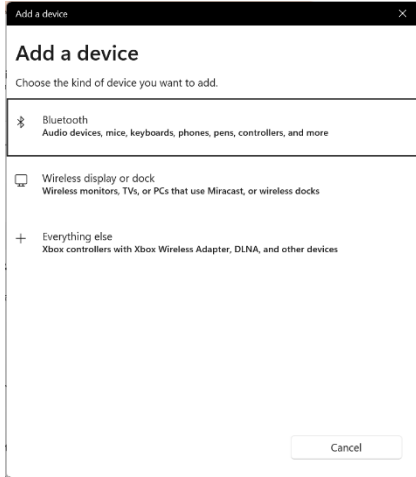
3. Go to **Settings**  choose **Bluetooth & devices**,
4. Turn on **Bluetooth**.
5. Click **Add device**





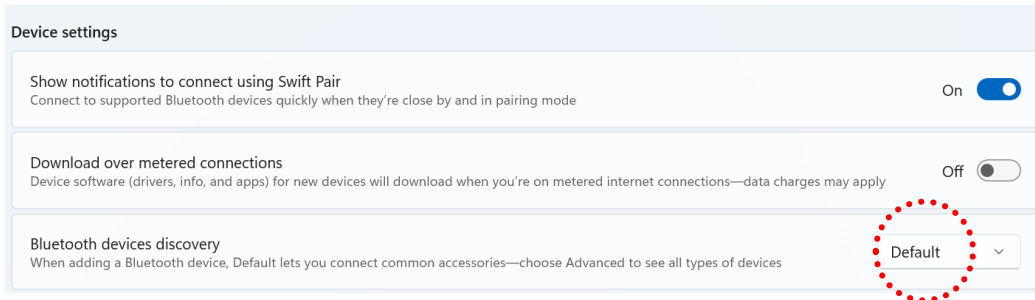
- In the "Add a device" pane, click on "Bluetooth" and select an **ACR1555U-A1** reader for pairing.

(If you are unable to find the ACR1555 in **Windows 11**, proceed to step 6.)

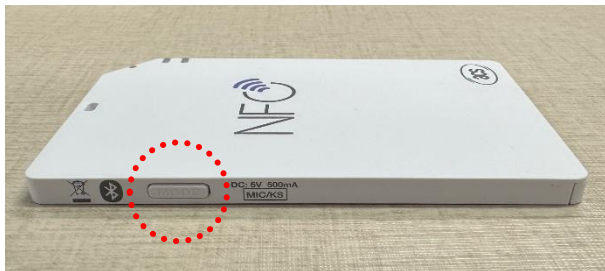


- For **Windows 11** or if you are unable to see the Bluetooth device displayed
(if you can see ACR1555U, simply skip this step and proceed to Step 8)

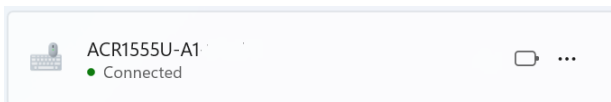
By default, Windows 11 is set to not show uncommon devices. Therefore, you need to switch the "Bluetooth devices discovery" to **advanced**. The Bluetooth device discovery option can be found in the Settings menu under "**Bluetooth & devices**" > "**Devices**"



- Press the Mode button to complete the Bluetooth bonding process.

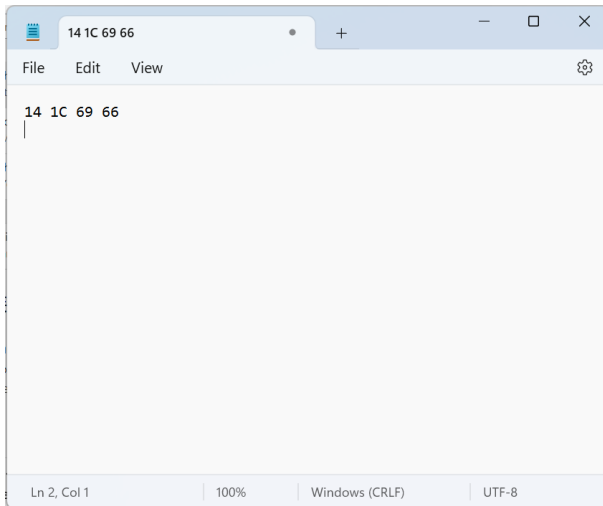


The bonding process is complete when you see that the ACR1555U-A1 is connected. The Blue LED on ACR1555U-A1 will be go steady when the device is well connected.





9. The ACR1555U-A1 will start with HID mode when bonding process complete. Please open the notepad for reading card UID.



Notes: To config the ACR1555U as HID Keyboard Emulation mode, you will need the **ACS script tools** or **ACS ACR15XX keyboard configuration tool**. Please see the instruction on Chapter 5