

ACR3901U-S1 ACS Secure Bluetooth® Contact Card Reader

User Manual V1.03

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1.0. Introduction

The ACR3901U-S1 ACS Secure Bluetooth® Contact Card 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 the ACR3901U-S1 ACS Secure Bluetooth Contact Card Reader.

The topics covered in this user manual are as follows:

- Section <u>2.0</u> provides procedures on how to install the ACS Bluetooth driver, pair Bluetooth devices and use the ACS Bluetooth Device Management Tool
- Section <u>3.0</u> provides procedures on how to install and use the BLE demo application with the ACR3901U-S1 using an iOS device and the ACS SmartCardIO library (*with Extended APDU Support; FW 1.22 and above*)
- Section <u>4.0</u> provides procedures on how to install and use the BLE demo application with the ACR3901U-S1 using an Android device and the ACS SmartCardIO library (*with Extended APDU Support; FW 1.22 and above*)
- Section <u>5.0</u> provides procedures on how to install and use the BT demo application with the ACR3901U-S1 using an iOS device and the ACS library
- Section <u>6.0</u> provides procedures on how to install and use the BT demo application with the ACR3901U-S1 using an Android device and the ACS library



2.0. For Windows®

2.1. Installing ACS Unified Bluetooth driver

To install the driver:

- 1. Run the ACS Unified Bluetooth Driver.
- 2. The Setup Wizard will appear. To start the installation, click OK.

📌 Setup	×
Choose your language:	
English ~	
OK	

3. Then click Next.



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4. Click Next to install the driver to the default destination, located at X:\Program Files\Advanced Card Systems Ltd\ACS Unified Bluetooth Driver 2.1.0.0\, with X as your local Windows drive.

General ACS Unified Bluetooth Driver 2.1.0.0 Setup −	×
Destination Folder	
Click Next to install to the default folder or click Change to choose another.	
Install ACS Unified Bluetooth Driver 2.1.0.0 to:	
C:\Program Files\Advanced Card Systems Ltd\ACS Unified Bluetooth Driver 2.1.0.0\	
<u>C</u> hange	
<u>B</u> ack <u>Next</u> Cance	I

5. Click Install.



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6. Wait while the driver installs.

H ACS Unified Bluetooth Driver 2.1.0.0 Setup	_		×
Installing ACS Unified Bluetooth Driver 2.1.0.0			
Please wait while the Setup Wizard installs ACS Unified Bluetooth Drive	er 2.1.0.	0.	
Status: Validating install			
<u>B</u> ack <u>N</u> ex	t	Cano	el

7. Once the installation is complete, click **Finish**.



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2.2. Setting up device pairing with built-in Bluetooth adapter

Note: This procedure only applies to Windows 8 and later. Windows 7 does not support devices using Bluetooth 4.0/Bluetooth Low Energy interface.

To pair using this setup:

1. Enable the Bluetooth mode of the ACR3901U-S1 to make it discoverable. To do this, slide the toggle switch to the right.



- 2. Go to **PC Settings** , choose **Devices**, and then click **Bluetooth & other devices**.
- 3. Turn on **Bluetooth**.
- 4. Click Add Bluetooth or other device



5. At the Add a device pane, click Bluetooth and select the ACR3901U-S1 reader to pair.

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6. The pairing is complete when you see the ACR3901U-S1 is connected.



7. To complete the installation of the Bluetooth card reader, go to <u>ACS Bluetooth Device</u> <u>Management Tool</u>

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2.3. Setting up device pairing with Bluetooth USB dongle

Note: This procedure will use the TI USB dongle as the Bluetooth adapter. Make sure that you have installed the ACS Bluetooth driver before performing this procedure (see <u>Installing ACS Unified</u> <u>Bluetooth driver</u>).

To pair using this set up:

- 1. Plug in the TI Bluetooth USB dongle to your computer.
- 2. Windows will automatically install the device driver.
- 3. Wait while the device driver installs.
- 4. When it is ready, you will see the dongle in Device Manager.



5. When you open the <u>ACS Bluetooth Device Management Tool</u>, it will automatically pair the dongle with your system.



2.4. Using the ACS Bluetooth Device Management Tool

ACS Bluetooth Device Management Tool is an application that enables you to easily manage device pairings between ACS Bluetooth card readers and computers.

2.4.1. Installing a device

To establish full connection, you must install the Bluetooth card reader in the ACS Bluetooth Device Management Tool.

Note: The TI USB dongle can only work on a one-to-one connection with an installed ACS Bluetooth card reader. If there is a previously installed Bluetooth card reader in the tool, uninstall it first (see **Uninstalling a device**).

To begin:

1. Turn on the Bluetooth mode of the ACR3901U-S1 and make it discoverable. To do this, slide the toggle switch to the right.



- 2. Run the ACS Bluetooth Device Management Tool.
- Wait while the tool scans for Bluetooth devices within range.
 Note: If the device is not immediately discovered, click Refresh.
- 4. Once the tool discovers the ACR3901U-S1, it will appear in the list.

🧟 ACS Bluetooth Device Management Tool - 🗆 X								
Reader Name ACR 390 1U-S 1-0000 50	Bluetooth Address C5273A11064A	Serial Number 305-000050	FW Version V1.22	Status Not Installed	BT Adapter Not Set	Pairing Paired	Connectivity Connected	
show logs					 Built 	In 🔿 Ti Dongle	<u>R</u> efresh	
Ready							Built-In	

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5. Right-click on the device, and then click Install.

🗟 ACS Bluetooth Device Management Tool - 🗆 X							
Reader Name	Bluetooth Address	Serial Number	FW Version	Status	BT Adapter	Pairing	Connectivity
ACR3901U-S1-000050	C5273A11064A	305-000050	V1 22	Not Installed	Not Set	Paired	Connected
			Install				
			Uninstall				
			Enable				
			Disable				
show logs					Built	In 🔿 Ti Dongle	Refresh
Ready							Built-In

6. Type in a 16-byte hexadecimal key for authentication, or use the default value. Click Install.

🧟 ACS Bluetooth Device Management Tool – 🗆 🗙								
Reader Name	Bluetooth Address	Serial Number	FW Version	Status	BT Adapter	Pairing	Connectivity	
ACR3901U-S1-000050	C5273A11064A	305-000050	V1.22	Not Installed	Not Set	Paired	Connected	
		Driver Installation - Devi Enter 16 byte key for Sr 00 00 00 00 00 00 Use Default Va	ce Key nart Card Reader A 10 00 00 00 00 00 00 Ilue Install C	uthentication (HEX): 0 00 00 00 00 ancel	×			
show logs) Built In	🔿 Ti Dongle	<u>R</u> efresh	
Ready							Built-In	

- 7. Wait while the application installs the driver.
- 8. A message will appear confirming a successful installation. Click **OK**, and then restart your computer.

ACS Bluetooth Reader	×
Successfully installed device driver. Please reset the device	
ОК	

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9. After a successful driver installation, you can now use the ACR3901U-S1 with various smart card applications. Below is a sample of the ACR3901U-S1 connected in **QuickView**.

🛎 ACS QuickView Tool			- D X			
Connected Readers		Reader Details				
Slot List ACS ACR3901U-51-000050 0	Card Status Present	Vendor Name: Device Name: Device System Name: Firmware Version: Default Clock: Max Clock: Default Data Rate: Max Data Rate: Interface Status:	ACS ACS ACR3901U-S1-000050 0 ACS ACR3901U-S1-000050 0 V1.22 4800 kHz 4800 kHz 12903 bps 600000 bps Active			
		Card Details Card Status: ATR:	Card Inserted 3B BE 11 00 00 41 01 28 00 00 00 00 00 00 00 00 00 00 90 00			
4	Ľ	Card Type / Card Name: Current Protocol: Current Clock: Current EBC Encoding: Current F: Current D: Actual Data Rate:	ACOS3 v1.28 T=0 4800 kHz Longitudinal Redundancy Check 372 1 12903			
Operating System: Windows 10 10.0.17763 64-bit			Save Logs Quit 1			

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2.4.2. Uninstalling a device

To uninstall a device:

1. Right-click on the device, and then click Uninstall.

Reader Name	Bluetooth Address	Serial Number	FW Version	Status	BT Adapter	Pairing	Connectivity
R3901U-S1-000050	C5273A11064A	305-000050	V1.22	Installed	Built-In	Paired	Connected
		Install					
		Uninstall					
		Enable					
		Disable					
	_						

2. Click Yes to confirm uninstallation.



3. The device will be removed from the reader list.

Note: The TI USB dongle will work with multiple reader connections when using the ACS Unified Bluetooth Driver v2.1.0.0 and above ONLY.

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2.5. Checking if Bluetooth card reader is correctly installed

- 1. Go to Device Manager.
- 2. Under Smart card readers, the ACR3901U-S1 reader should show as ACR3901 BLE ICC Reader.



3. Right-click on the device, and then click Properties.



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4. The Bluetooth reader and driver are installed correctly if the sevice status shows *"This device is working properly"*.

ACR3901 BLE ICC Reader Properties					
General	Driver	Details	Events		
-	ACR39	901 BLE I	CC Reader		
	Device	etype:	Smart card readers		
	Manufa	acturer:	Advanced Card Systems Ltd.		
	Locatio	on:	Unknown		
Devic	e status				
This	device is	working	properly.	^	
				\sim	
			ОК	Cancel	

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3.0. For iOS (BLE Test Application)

3.1. Installing the BLE Test application

- 1. You can access the device library by downloading the <u>iOS BLE EVK (SmartCardIO)</u> from the ACS website.
- 2. Using the XCode application, open BLETest.xcodeproj.

000			BLETest		
\sim		₩ ~ ★ ~		Q Search	
Favorites (6) AirDrop E Recents	•				
Applications Control C	ACSSmartCardIO. framework	BLETest	BLETest.xcodepro j	BLETestTests	BLETestUITests
iCloud iCloud Drive	SmartCardIO.fram ework				
Locations					
Tags					
e Red					

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.

🔴 🔷 🕨 🚺 (MLETest) 🚺	ACS DEV's iPhone	Finished running BLETest on ACS DEV's iPhone		1	Wales		10 Aug
	😥 < 🔿 No Selection				Take a	quick tour to learn about great	snow
 Buttrati Buttration But		No f	ditor			No Selection	Later
			Coading the settings Transmit Options - t0GetResponse: true - t1GetResponse: true - t1StripLe: false				



3.2. Using the ACS Bluetooth demo application

This section provides a simple step-by-step procedure on how to use the ACR3901U-S1 using the BLE Test application.

3.2.1. Connecting a device

1. Turn on the Bluetooth mode of the ACR3901U-S1 to make it discoverable. To do this, slide the toggle switch to the right.



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

No SIM 🗢	12:31 PM	€ 65% ■ , +
	BLE Test	Scan

5. Select the terminal type ACR3901U-S1/ACR3901T-W1.



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

No SIM 奈	12:36 PM	④ 67% () +
Cancel	Scan Terminals	Scan Done
ACR3901U	-S1-000050	~

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

٨	Io SIM 🗢	12:36 PM	🕑 67% 🔳	• 4
		BLE Test	Sca	an
	Terminal	ACR39010	J-S1-000050	>
	Master Key		Default Key	>
	Protocol		T=0 or T=1	>
	Control Code		3500	
	Script File			>
	Get Battery Statu	IS		
	Get Battery Level			
	Transmit			
	Control			
	Disconnect			
1 1 -	oading the setti ransmit Options t0GetResponse: t1GetResponse:	ngs true true		

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3.2.2. Getting the battery status

To get the battery status, tap Get Battery Status.

The status should be displayed as part of the logs.



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3.2.3. Transmitting an APDU command

To transmit APDU commands:

- 1. Connect the mobile device to iTunes and locate the File Sharing tab.
- 2. Under Apps section, click on **BLETest app** and add a text file (.txt) containing the APDU commands.

< >	acam	nodev8's iPhone		
acsmnodev8's iPhone ▲ 6408 87% ↔	File Sharing The apps listed below can transfer of	locuments between your iPhone and this co	omputer.	
Summary	Apps	BLETest Document	s	
I movies ☐ TV Shows ☐ TV Shows ④ Indo ④ Indo In My Device. ☐ Masic ☐ Movies ☐ TV Shows ■ Dools E2 Audobools ↓ Times	BLETest CarageBand CarageBand CarageBand Reynote CarageBand Numbers Pages	COSS.txt Miarc.txt Logs	84	к на таколгана (12-14. 146 2900/2016, 12-12. 4 КВ Today 12:52 РМ

- 3. Insert a smart card into the ACR3901U-S1 reader.
- 4. In the demo application on the mobile device, tap **Script File**, and then locate the .txt file you want to run.

No SIM 🗢	2:34 PM	🕑 100% 🔲 /
Kenter State	Select File	
acos3.txt		~
mifare.txt		
Get Firmware	e Command.txt	

5. Go back to the main page then tap the **Transmit** button.

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

No SIM 🗢	2:31 PM	🕑 99% 💻
	BLE Test	Scan
Control Code		3500
Script File		acos3.txt >
Get Battery Sta	itus	
Get Battery Lev	vel	
Transmit		
Control		
Disconnect		
Command: 80 B2 01 00 04 Response: 12 34 56 78 90 Bytes Sent : Bytes Received: Transfer Time : Transfer Rate : Expected: 12 34 56 78 90 Compare OK Disconnecting t S1-000050)	00 5 6 92.58 ms 118.81 bytes 00 he card (ACR3	/second 901U-

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

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3.2.4. Transmitting an escape command

To transmit an escape command:

- 1. Connect the mobile device to iTunes and locate the File Sharing tab.
- 2. Under the Apps section, click on **BLETest app** and add a text file (.txt) containing the APDU commands.

	000 <i>m</i>	odev8's iPhone	
acsmnodev8's iPhone ▲ (sace) 87% ●••	File Sharing The apps listed below can transfer d	ocuments between your iPhone and this co	omputer.
Summary	Apps	BLETest Document	s
II more II to More II to Shows II to Sho	BLETest CorsgeBand CorsgeBand Movie Correction Reynote Numbers Pages	ACOS3.bt Milare.bt Logs	4 KB 360022018, 12:14 4 KB 36022018, 12:12 044 KB Today 12:52 PM

3. In the demo application on the mobile device, tap **Script File**, and then locate the .txt file you want to run.

No SIM 🗢	2:34 PM	المراجع المحالية المحالية محالية المحالية المحالي محالية المحالية المح المحالية المحالية محالية المحالية المحالية محالية محالية محالية محالية محالية محالي محالي محالي محاليية المحالية المحالية محالي محاليي
Kenter Steel BLE Test	Select File	
acos3.txt		
mifare.txt		
Get Firmware	e Command.txt	×

4. Go back to the main page then tap the **Control** button.

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5. <u>The Escape Response will be displayed as part of the logs.</u>

No SIM 🗢	2:34 PM	@ 100% 🛑 /
	BLE Test	Scan
Control Code		3500
Script File	Get Firmware C	ommand.txt >
Get Battery St	tatus	
Get Battery Le	evel	
Transmit		
Control		
Disconnect		
Command: 04 00 Response:		
84 05 56 31 2E Bytes Sent Bytes Received Transfer Time Transfer Rate Expected: 84 05 yy yy yy	: 32 32 : 2 : 7 : 37.46 ms : 240.28 bytes/	second
Compare OK Disconnecting S1-000050)	the card (ACR39	01U-

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4.0. For Android (BLE Test Application)

4.1. 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 ACR3901U-S1 BLE Test will be placed.
- 3. You can access the device library by downloading the <u>Android BLE EVK (SmartCardIO)</u> from the ACS website.
- 4. In the Android library, copy the **BLETest.apk** and the **test scripts(.txt)** files to the previously created folder.

📌 Quick access	BLETest APK File	BTDemo APK File		
Desktop	1.69 MB	1.34 MB		
Downloads	~			

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



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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.



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4.2. Using the ACS Bluetooth demo application

4.2.1. Connecting a device

1. Turn on the Bluetooth mode of the ACR3901U-S1 to make it discoverable. To do this, slide the toggle switch to the right.



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



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5. Select the terminal type ACR3901U-S1/ACR3901T-W1.



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



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4.2.2. Transmitting an APDU command

To transmit APDU commands:

- 1. Insert a smart card into the ACR3901U-S1 reader.
- 2. In the demo application on the mobile device, tap **Select File**, and then locate the .txt file you want to run.



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

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4. 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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4.2.3. Transmitting an escape command

To transmit an escape command:

1. In the demo application on the mobile device, tap **Select File**, and then locate the .txt file you want to run.



2. Go back to the main page then tap the **Control** button.

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3. The Escape Response will be displayed as part of the logs.



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5.0. For iOS (BT Demo Application)

5.1. Installing the Bluetooth demo application

- 1. You can access the device library by downloading the **<u>iOS & Mac BT EVK</u>** from the ACS website.
- 2. Using the XCode application, open BTDemo.xcodeproj.

			BTDemo	
$\boldsymbol{<}$		·		Q Search
Favorites (AirDrop Recents				
Applications Desktop Documents Documents Downloads	ACSBluetooth	BTDemo	BTDemo.xcodepr oj	BTDemoTests
iCloud iCloud Drive Locations				
NO NAME ≜ NO NAME ≜ No NAME ≜				

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

🗧 🗿 🕒 📄 🚺 🕅 ACS DEV's iPhon	Running BTDemo on ACS DEV's iPhone	
		Welcome to macOS Mojave Show
	o generation	new features.
T 🖸 BTDemo		
ACSRIvetoolh		Name ACSBluetooth
h All TAcr 126 buj 1Reader.h		Location Relative to Group
h ABTACT3901us1Reader.h		ACSBluetooth 📷
h ABTBluetoothReader.h		Full Path /Users/marcomm/Desktop/
ABTE State S		acsbt-1.0.1-los8- mecost0.7-20180503/iO5/
A A CONTRACT		BTDemo/ACSBluetooth O
h AL Seluctooth A		
BTD and		On Demand Resource Tags
All		TADA
		and the second se
ABD/Periorle/Marchaller h		Target Membership
ABDDeviceInfoViewController m		
ABDier b		albemotests
ABDHex.m		
AltDReaderViewController h		
ABDReaderViewController.m	No Editor	
ABDTxPowerViewController.h		
ABDTxPowerViewController.m		
h ABDViewController.h		
ABDViewController.m		
images.xcassets		
Main.storyboard		
Supporting Files		
UlTableViewCell+S8DetailCellFix.m		
🔻 🦰 BTDemoTests		
RTDemoTests.m		
Supporting Files		
► 🔚 Frameworks		
F C Products		
	0 1 1 0 ‰ √ 🖬 8T0emo	

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

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5.2. Using the ACS Bluetooth demo application

This section provides a simple step-by-step procedure on how to use the ACR3901U-S1 using the BT Demo application.

5.2.1. Connecting a device

1. Turn on the Bluetooth mode of the ACR3901U-S1 to make it discoverable. To do this, slide the toggle switch to the right.



- 2. Turn on your device's Bluetooth by going to **Settings > Bluetooth**.
- 3. Open the **BT Demo application**.
- 4. Tap Select.

●●●● Globe 穼	10:58 AM	֎ ≁ ∦ 100% 💼
Clear	BT Demo	Select

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



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6. When the pairing is successful, tap **OK** to close the prompt.



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5.2.2. Getting the device information

To get the reader's information, tap **Device Information**.

No SIM 🗢	11:33 AM	• 52% • • •
Back Devic	e Informatio	on
System ID		
Model Number	ACR3901U	-S1-0000
Serial Number	RR3	05-000015
Firmware Revis	sion	V1.22
Hardware Revi	sion	
Manufacturer		ACS

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5.2.3. Getting the battery status

To get the battery status, scroll down and tap Get Battery Status.

The battery status will be shown as below:

No SIM 🗢	11:49 AM	🕑 51% 🔳)
Clear	BT Demo	Select
Master Key	, FF FF FF FF FF FF FF FF	FF FF FF FF
STATUS		
ATR 3B BE 11 00 00 00 90 00	41 01 28 00 00 00 0	0 00 00 00 00
Card Status		Present
Battery Stat	us	Full
Battery Leve	el	
APDU		
Command A 80 84 00 00 08	APDU	
Response A CC 2E 58 9D 63	APDU 8 B2 98 C4 90 00	

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5.2.4. Getting the card's ATR (Answer ToReset)

To get the ATR of the card:

- 1. Insert a smart card into the ACR3901U-S1 reader.
- 2. In the demo application, scroll down and tap **Authenticate Reader**.
- 3. When the authentication is successful, tap **OK** to close the prompt.



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- 4. Tap Power On Card.
- 5. The card's ATR will be displayed.

No SIM 🗢	11:49 AM	51%
Clear	BT Demo	Select
Master Ke	y FF FF FF FF FF FF FF FF	FF FF FF FF
STATUS		
ATR 3B BE 11 00 00 00 90 00) 41 01 28 00 00 00 0	0 00 00 00 00
Card Statu	s	Present
Battery Sta	itus	Full
Battery Lev	vel	
APDU		
Command 80 84 00 00 0	APDU 8	
Response CC 2E 58 9D 6	APDU 3 B2 98 C4 90 00	

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5.2.5. Transmitting an APDU command

To transmit APDU commands:

- 1. Insert a smart card into the ACR3901U-S1 reader.
- 2. In the demo application, scroll down and tap Authenticate Reader.
- 3. When the authentication is successful, tap **OK** to close the prompt.
- 4. Tap Power On Card, and then tap Transmit APDU.
- 5. The Response APDU will be displayed.

Clear BT Demo Select	
Select	
Master Key FF FF	
STATUS	
ATR 3B BE 11 00 00 41 01 28 00 00 00 00 00 00 00 00 00 00 90 00	
Card Status Present	
Battery Status Full	
Battery Level	
APDU	
Command APDU 80 84 00 00 08	
Response APDU CC 2E 58 9D 63 B2 98 C4 90 00)

Note: You can edit the APDU command by tapping Command APDU.

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5.2.6. Transmitting an escape command

To transmit an escape command:

- 1. In the demo application, scroll down and tap Authenticate Reader.
- 2. When the authentication is successful, tap **OK** to close the prompt.
- 3. Tap Transmit Escape Command.
- 4. The Escape Response will be displayed.

No SIM 🗢	11:49 AM	51%
Clear	BT Demo	Select
CONTROL		
Escape C 04 00	ommand	
Escape R 84 05 56 31 2	esponse 2E 32 32	
ACR3901U-5	51	
Use Defa	ult Key	
Get Batte	ry Status	
ACR1255U-J	1	
Use Defa	ult Key	
Get Batte	ry Level	
Enable Po	olling	
Disable D	olling	

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6.0. For Android (BT Demo Application)

6.1. Installing the Bluetooth demo application

1. Connect your mobile device to the computer.



- 2. In the internal storage of your device, create a folder where the ACR3901U-S1 BTdemo will be placed.
- 3. You can access the device library by downloading the <u>Android BT EVK</u> from the ACS website.
- 4. In the Android library, copy the BTDemo.apk file to the previously created folder.

	> This PC > Iviiguers >	internal shared storage > temp
✤ Quick access ■ Desktop ■ Downloads	BLETest APK File 1.69 MB	APK File 1.34 MB
- Downloads	7	

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



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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 BT demo application.



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6.2. Using the ACS Bluetooth demo application

6.2.1. Connecting a device

1. Turn on the Bluetooth mode of the ACR3901U-S1 to make it discoverable. To do this, slide the toggle switch to the right.



- 2. Turn on your device's Bluetooth by going to Settings | Bluetooth.
- 3. Open the ACS BT Demo application.
- 4. Choose the reader to pair with your Android device.



5. Once pairing is complete, the ACR3901U-S1 is now ready to be used with the mobile device.



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6.2.2. Getting the device information

To get the reader's information, tap Get Device Info.

← ACR	3901U-S1-0	DISCONNECT	
Device Info System ID: Model Num: Serial Num: FW revision: HW revision: Manufacturer: Battery service Battery service Battery service Battery status: Card Status:	ACR3901U-S1-000050 305-000050 V1.22 ACS		
	CLEAR		
	AUTHENTICATE		
	START POLLING		
	STOP POLLING		
	POWER ON CARD		
	POWER OFF CARD		
	TRANSMIT APDU		
	TRANSMIT ESCAPE COMM	MAND	
	GET DEVICE INFO		

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6.2.3. Getting the battery status

To get the battery status, tap Get Battery Status.

ో.all_atl & ७ ३ ५९% 💌 ३:०४ Pl		PM	
← ACR	3901U-S1-0	DISCONNECT	ł
Battery service Battery level: Battery status: Card Status Card status:	The battery is low.		
	CLEAR		
	AUTHENTICATE		
	START POLLING		
	STOP POLLING		
	POWER ON CARD		
	POWER OFF CARD		
	TRANSMIT APDU		
	TRANSMIT ESCAPE COMM	IAND	
	GET DEVICE INFO		
	GET BATTERY LEVEL		
	GET BATTERY STATUS	3	
	GET CARD STATUS		

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6.2.4. Getting the card's ATR (Answer To Reset)

To get the ATR of the card:

- 1. Insert a smart card into the ACR3901U-S1 reader.
- 2. In the demo application, tap Authenticate.
- 3. Once it is finished, it will show an Authentication Success message.

Sal al		b 🛈 🕏 59% 💷) 3:05	PM
← ACF	R3901U-S1-0	DISCONNECT	
Battery status:The Authentication	battery is low. Key		
FF FF FF FF FF	FF FF FF FF FF FF FF FF	F FF FF FF	
Authentication Suc ATR	cessl		
APDU commar	nd		
90.94.00.00.0	8		
00 04 00 00 0	0		
Escape comm	and		
02			
02			-
Device Info System ID: Model Num:	ACR3901U-S1-000050		
Serial Num: FW revision: HW revision:	305-000050 V1-22		
Manufacturer: Battery service	ACS		
Battery status: Card Status Card status:	The battery is low.		
	CLEAR		
	AUTHENTICATE	i	
and the second			-

4. Tap **Power On Card** to display the ATR.

Sal al	té	0 🕈 59% 📧 🛙 3:05	PM
← ACR	3901U-S1-0	DISCONNECT	8
Authentication Succ ATR 3B BE 11 00 00 41 01 APDU command	28 00 00 00 00 00 00 00 00 00 10 j	00 90 00	
80 84 00 00 08			_
Escape comma	nd		
02			_
Device Info System ID: Model Num: FW revision: HW revision: HW revision: HW revision: Battery service Battery service Battery service Battery service Card Status: Card Status:	ACR3901U-S1-000050 305-000050 V1.22 ACS The battery is low.		
	CLEAN		
	AUTHENTICATE		
	START POLLING		
	STOP POLLING		
	DOWED ON CADD		

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6.2.5. Transmitting an APDU command

To transmit APDU commands:

- 1. Insert a smart card into the ACR3901U-S1 reader.
- 2. In the demo application, tap Authenticate.
- 3. Once it is finished, it will show an Authentication Success message.
- 4. Tap Power On Card, and then tap Transmit APDU Command.
- 5. The APDU command response will be displayed.

Stat at	to to \$59% III) 3:05 P		PM
← ACR	3901U-S1-0	DISCONNECT	
00 04 00 00 00			
09 80 F2 C9 F5 D5 05	65 90 00		
02	id .		
Device Info System ID: Model Num: Senal Num: FW revision: HW revision: Manufacturer: Battery service Battery service Battery service Card Status Card status:	ACR3901U-S1-000050 305 000050 V1.22 ACS The battery is low.		
	CLEAR		
	AUTHENTICATE		
	START POLLING		
	STOP POLLING		
	POWER ON CARD		
	POWER OFF CARD	1	
	TRANSMIT APDU		

Note: You can edit the APDU command by tapping Command APDU.

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6.2.6. Transmitting an escape command

To transmit an escape command:

- 1. In the demo application, tap Authenticate.
- 2. Once it is finished, it will show an Authentication Success message.
- 3. Tap Transmit Escape Command.
- 4. The Escape Response will be displayed.

	3901U-S1-0	DISCONNECT	8
Escape comma	and		
02			
82 0A 33 30 35 2D 3	10 30 30 30 35 30		
Device info			
System ID: Model Num: Serial Num:	ACR3901U-S1-000050 305-000050		
HW revision: Manufacturer:	ACS		
Battery service Battery level: Battery status	The bettervie low		
Card Status Card status:	The battery is tow.		
	CLEAR		
	AUTHENTICATE		
	START POLLING		
	STOP POLLING		
	POWER ON CARD		
	POWER OFF CARD		
	TRANSMIT APDU		
		MAND	

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