



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR122U

User Manual

ACR122U User Manual V1.01



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1.0. Introduction

The ACR122U is a reader (IFD and PCD) reader which supports contactless (PICC) smart cards.

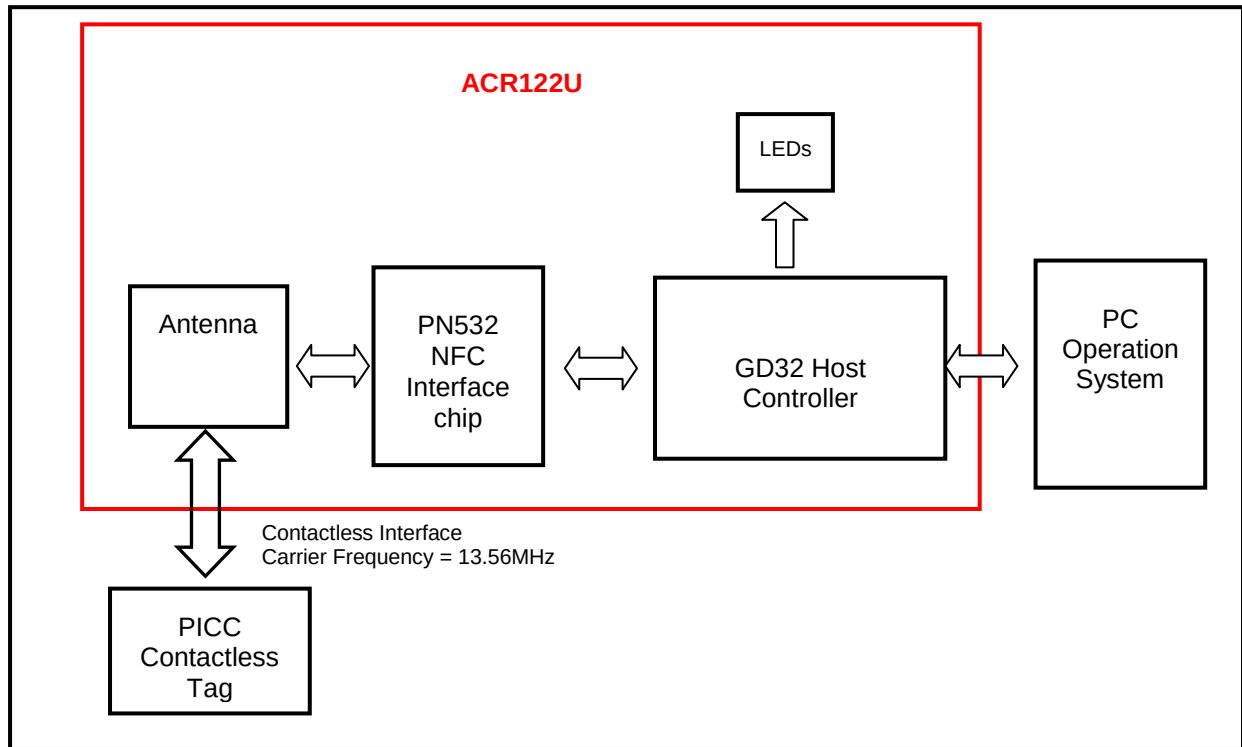


2.0. Features

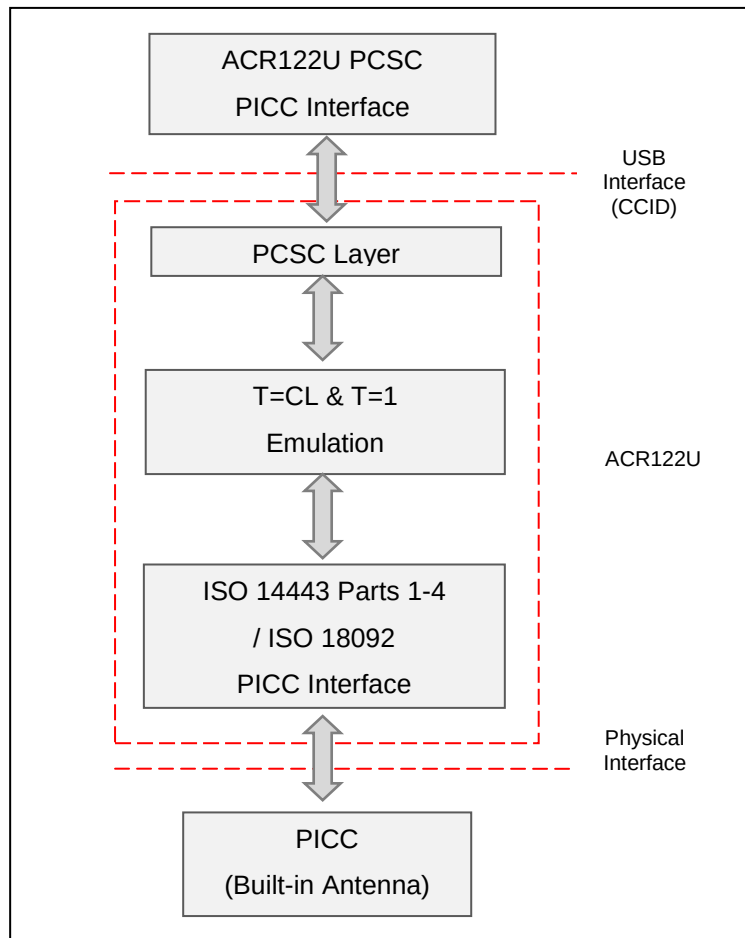
- ISO 14443 Parts 1-4 Compliant for Contactless Smart Card Interface.
- ISO 18092 Compliant for Contactless Smart Card Interface.
- An external antenna for PICC contactless access applications.
- Supports the following Tag Types:
 - MIFARE Classic. E.g. MIFARE 1K, 4K, MINI and Ultralight.
 - ISO14443-4 Type A and B.
 - ISO18092 FeliCa, NFC tag
- T=CL emulation for MIFare 1K/4K PICCs
- High Speed (424 kbps) Communication for PICCs
- Energy saving modes for turning off the antenna field whenever the PICC is inactive, or no PICC is found. It prevents the PICC from exposing to the field all the time.
- User-Controllable Peripherals. E.g. LED.
- PCSC Compliant for Contact and Contactless Interfaces.
- USB V2.0 Interface. (12M bps)
- Device Firmware Upgradeable through the USB Interface.

3.0. Architecture

GD32 is for main processor for communication with PC, and control the contactless chip and peripherals. PN532 acts as a contactless chip to perform the communication between contactless tags and GD32.



For communication architecture, the protocol between ACR122U and PC is using CCID protocol. All the communication between PICC is PCSC Compliant.



4.0. ACR122U Operating Procedure

4.1. Driver installation Procedure

Hardware requires:

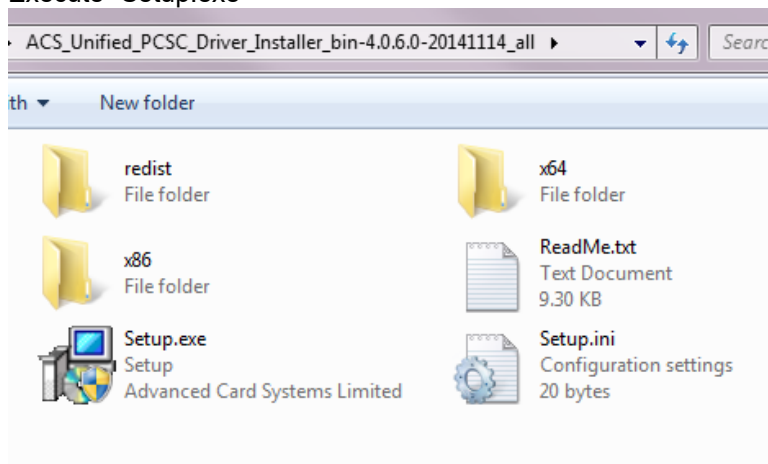
- ❖ ACR122U
- ❖ PC with OS window XP or above

Software requires:

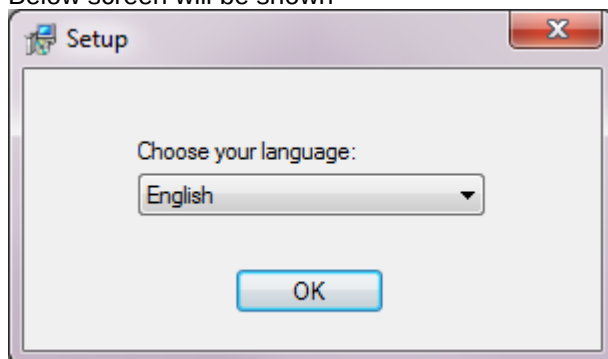
- ❖ Driver installer “ACS_Unified_PCSC_Driver_Installer_bin-4.0.6.0-20141114_all.zip”

Steps:

1. Extract the file “ACS_Unified_PCSC_Driver_Installer_bin-4.0.6.0-20141114_all.zip”
2. Execute “Setup.exe”



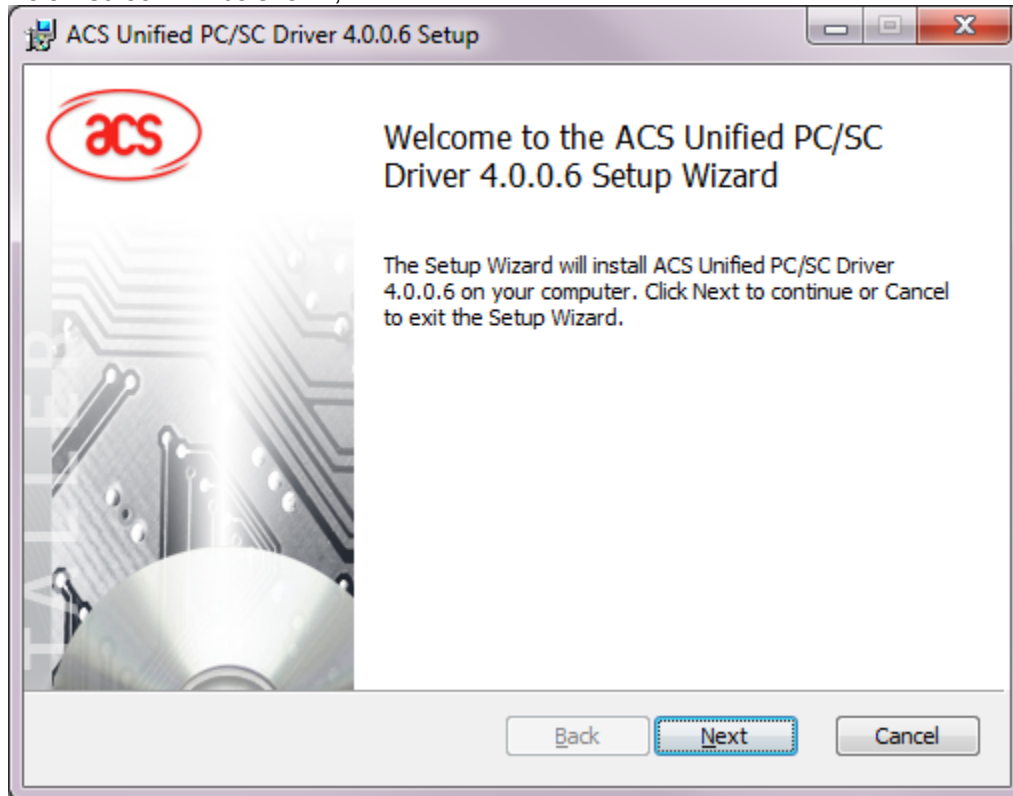
3. Below screen will be shown



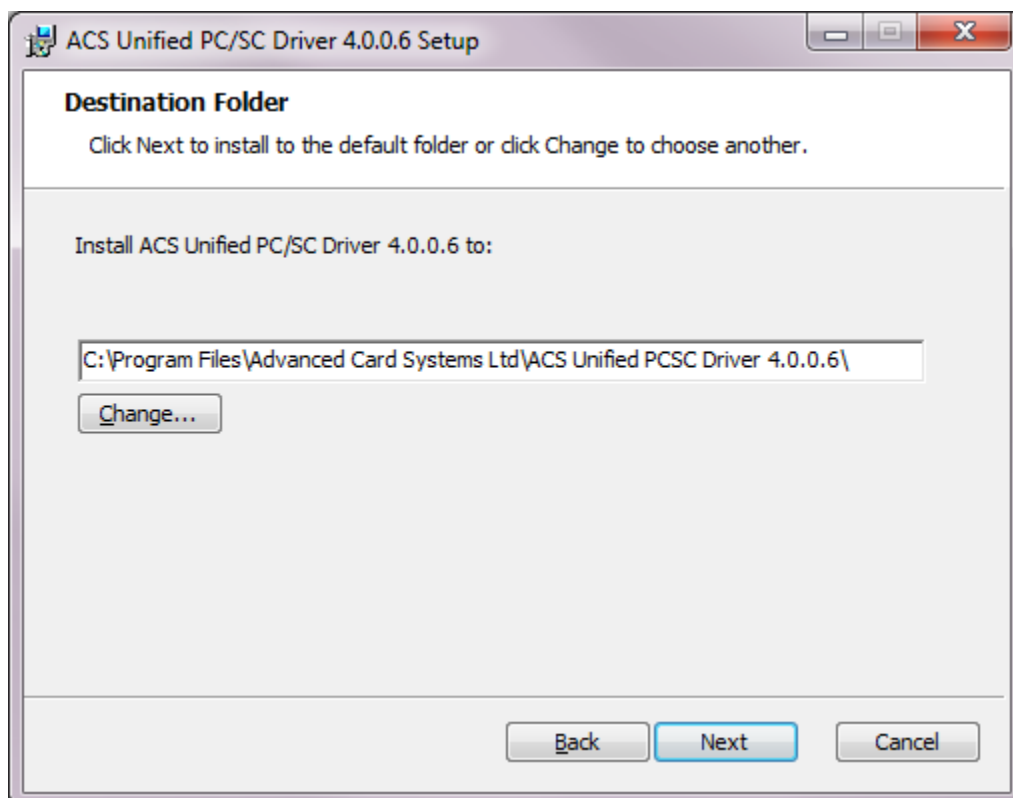
Select the language, then Click “OK”



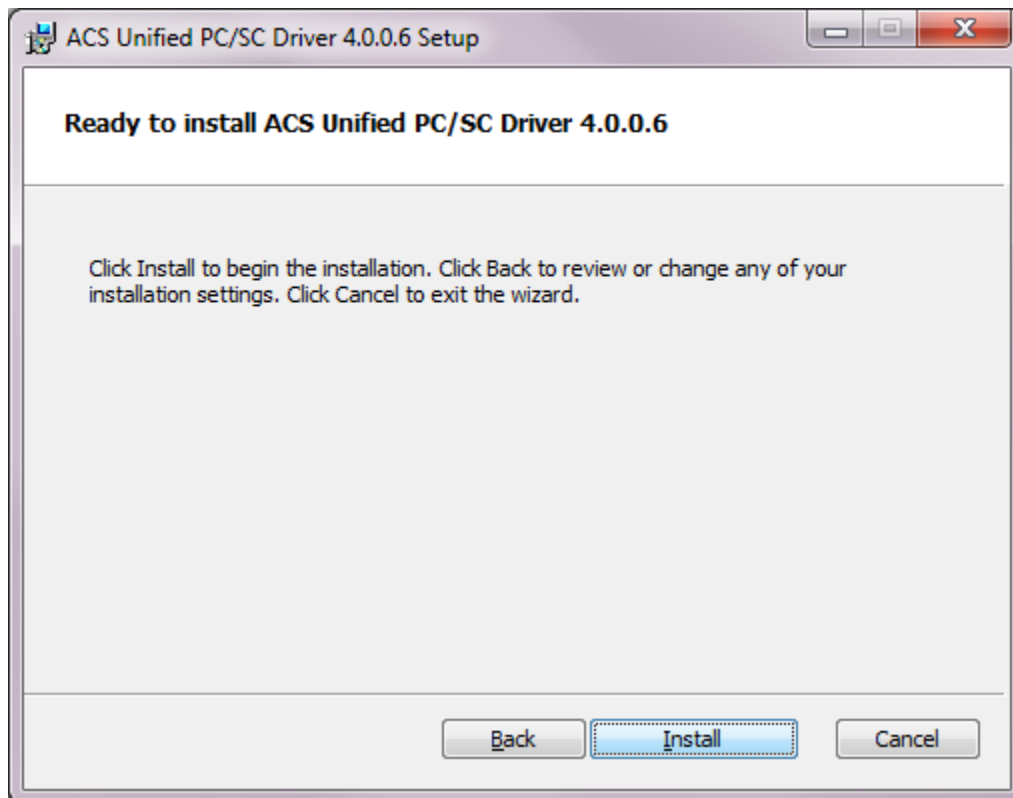
4. Below screen will be shown, "Next" to continue



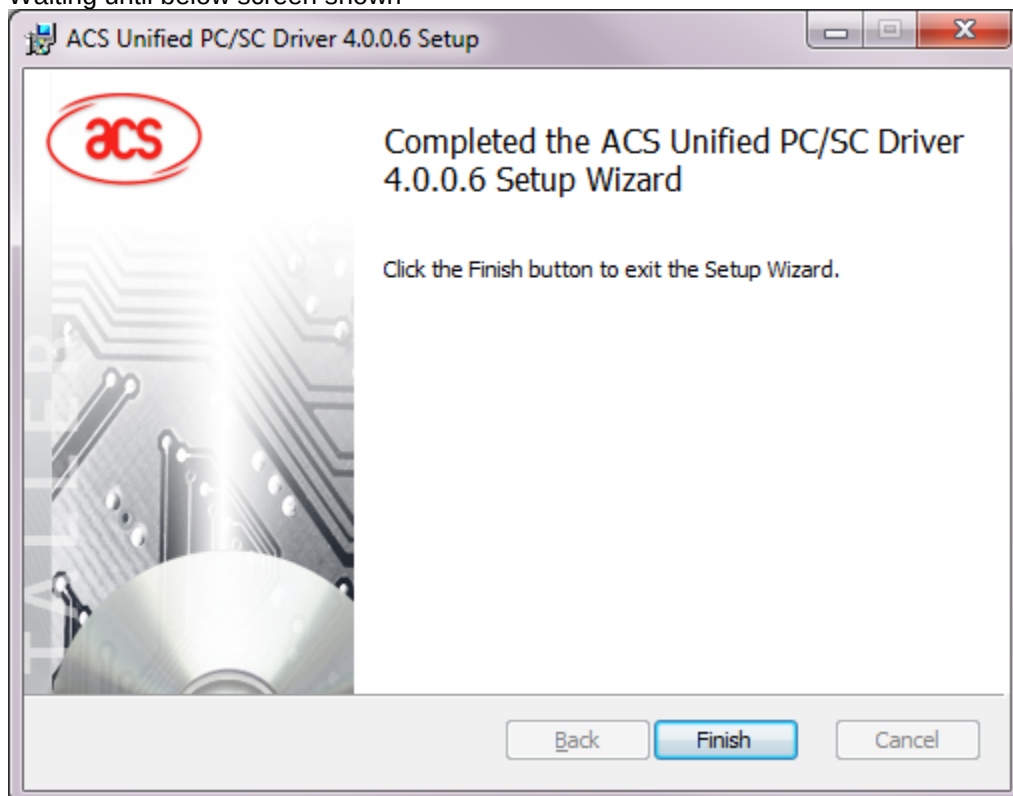
5. Below screen will be shown, configure the installation path, then "Next" to continue



6. Below screen will be shown, "Install" to continue



7. Waiting until below screen shown



Click "Finish"

8. Driver Installation Complete

4.2. Operation Example

Hardware requires:

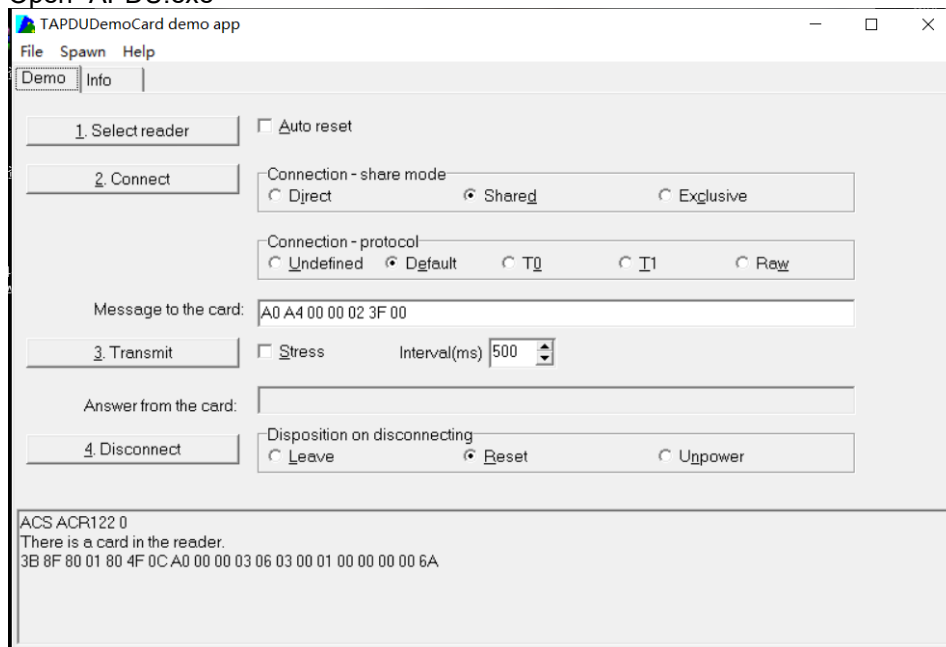
- ❖ ACR122U
- ❖ PC with OS window XP or above
- ❖ Test card x 1 (provided by ACS)

Software requires:

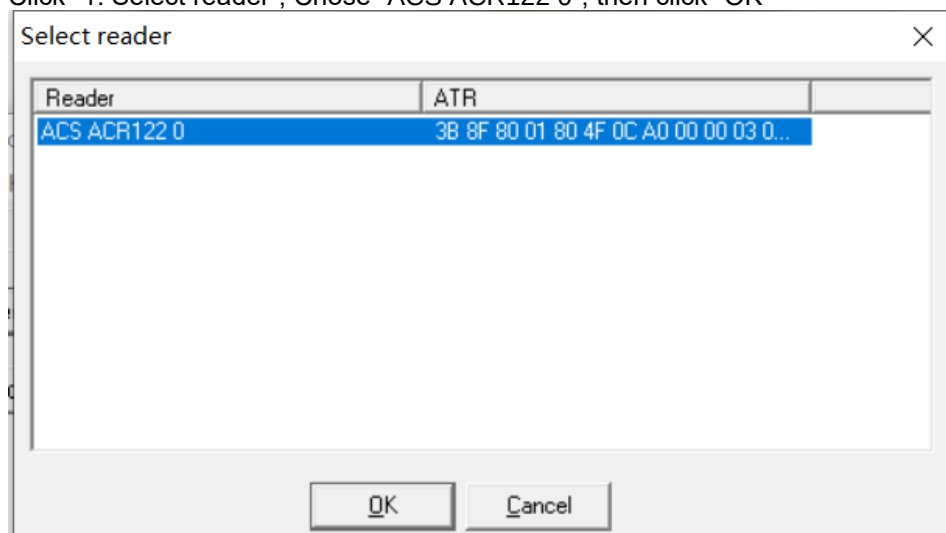
- ❖ APDU.exe (for example)

Steps:

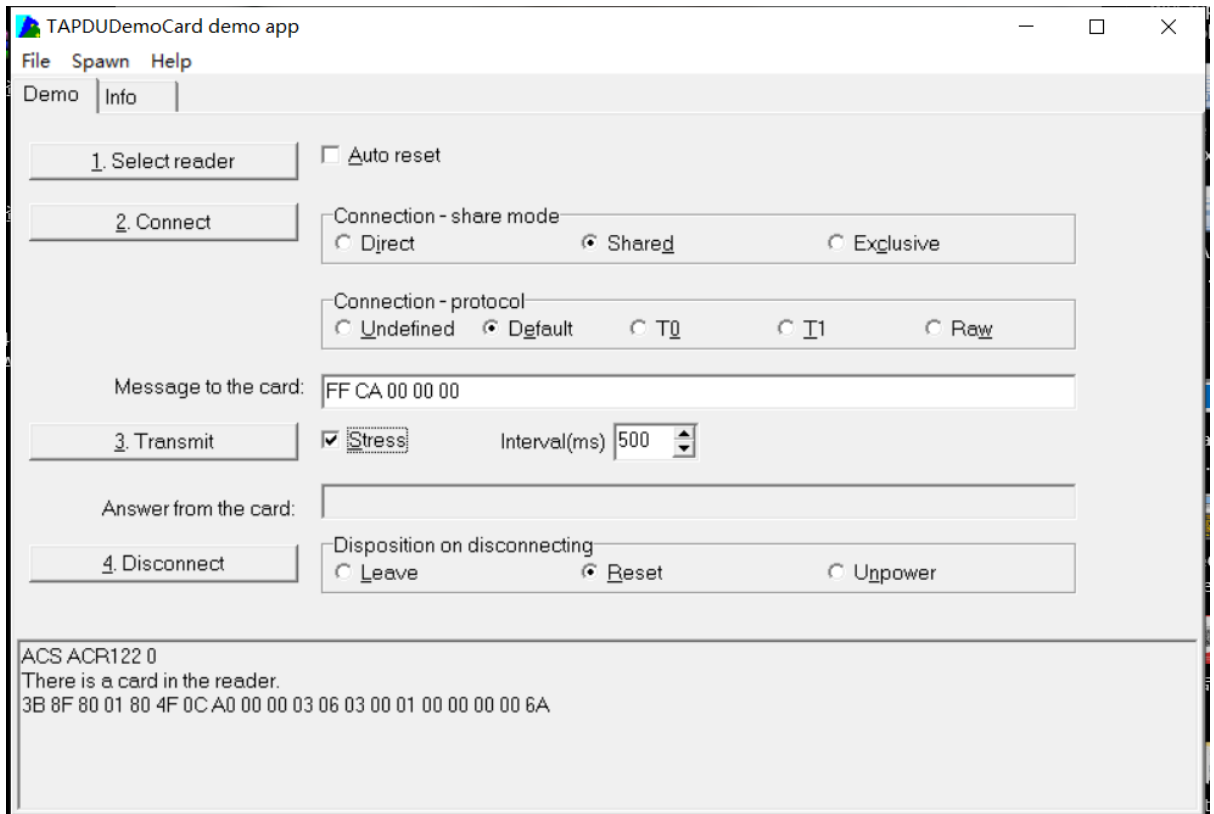
1. Plug in the reader into the PC
2. Place the Test Card on the top of the reader about 5cm
3. Open "APDU.exe"



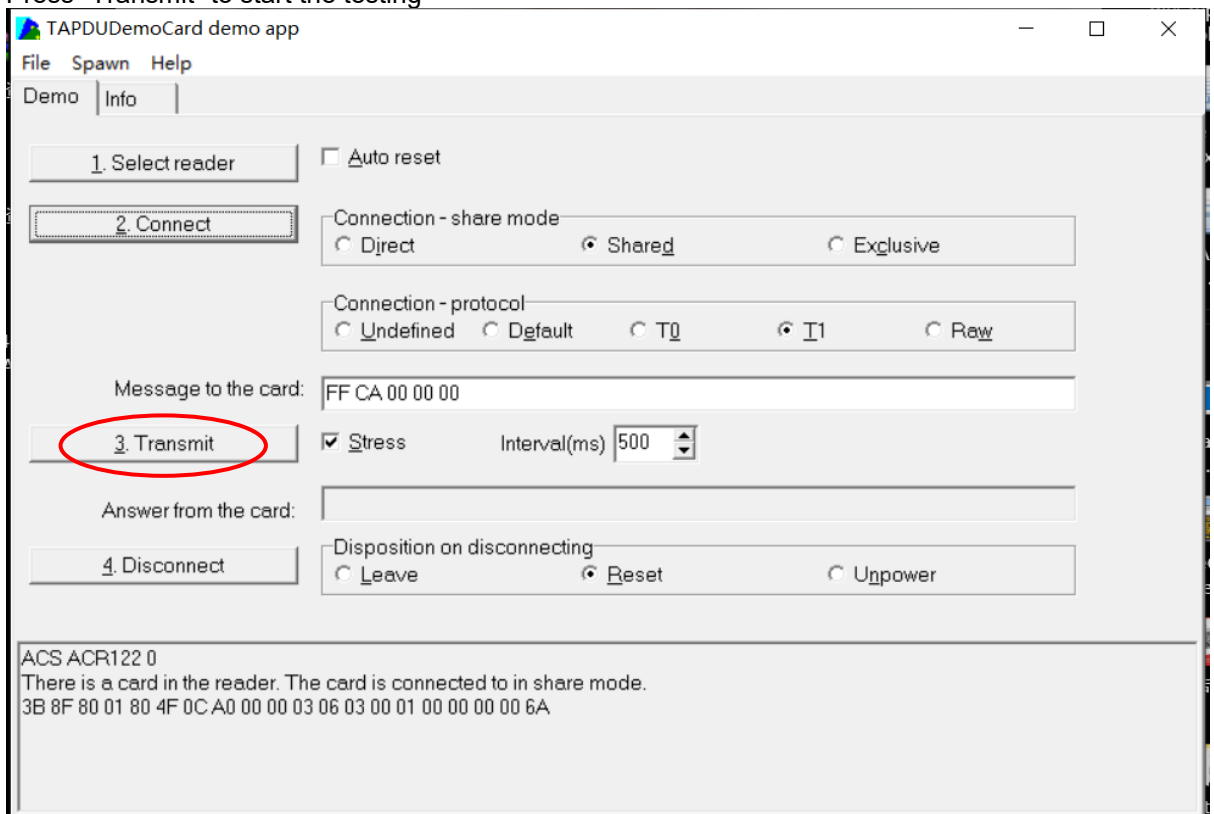
4. Click "1. Select reader", Chose "ACS ACR122 0", then click "OK"



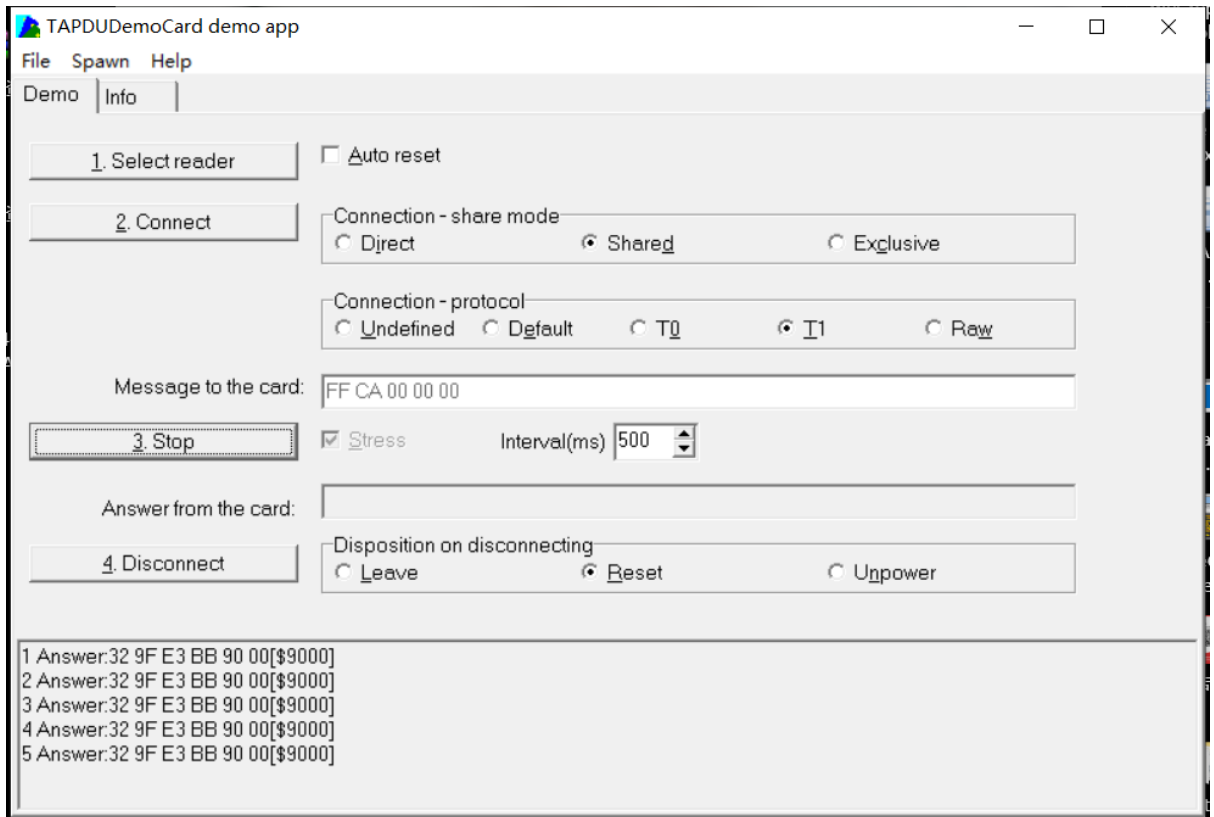
5. Select "T1", "Stress", Message = "FF CA 00 00 00", Interval = "500"



6. Press "Connect"
7. Press "Transmit" to start the testing



8. Below screen will be shown



9. Can start the Lab Test

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

IMPORTANT NOTE:

Note: 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 or more 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.