



# Advanced Card Systems Limited

Card and Reader Technologies

## SDK User Manual

### ACR122U NFC Reader

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### 1.0 Introduction

The ACR122U is a PC-linked Contactless Smart Card Reader/Writer developed on the 13.56MHz Contactless Technology. This device is designed to support not only MiFare and ISO14443 Type A and B Cards but also FeliCa and NFC tags.

This reader follows the CCID Standard so for Windows OS, the Microsoft CCID drivers can be used however ACS also provides WHQL drivers that can be installed in your machine. Furthermore, read and write operations to contactless tags are faster and more efficient since the device makes use of high-speed card access and full USB speed of 12 Mbps.

The ACR122U NFC Reader SDK provides the user the following: sample applications, sample codes, tools and utilities that can be used to experience the features and capabilities of ACR122U, the world's first CCID compliant NFC Card Reader. This manual gives the summary of how to install the SDK and what can be found in the SDK.

Together with its compact size and trendy design and with the various features the ACR122U offers users can experience the convenience of using ACR122U for applications such as payment, mass transit, physical access control, time attendance, etc

### 1.1 Typical Applications

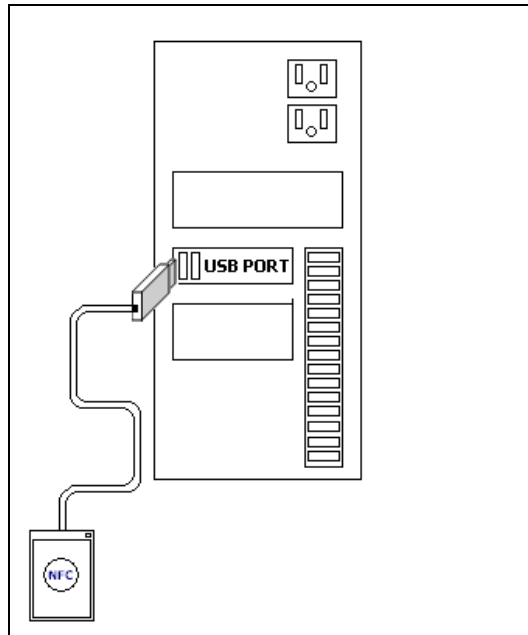
- Network access control
- Micro-payment
- NFC mobile tag
- Public Transportation Terminals
- Automatic Fare Collection
- Physical access control
- Customer Loyalty
- Time attendance
- Contactless public phones
- Vending machines



## 2.0 Installation Guide

### 2.1 Connecting the Device

Connect the device as shown below:



The ACR122U is a CCID compliant device. Microsoft provides these drivers for Windows 2000, XP, 2003 thru Windows Update and is built-in in the VISTA OS. To know more about setting Automatic Updates in your PC, visit <http://update.microsoft.com/microsoftupdate/>

Check in device manager if properly detected



You can also use the ACS CCID Drivers if you do not have access to the internet.



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1. Click on "Install Smart Card Reader Driver".

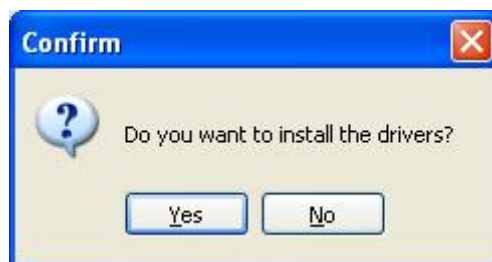


2. When you see the "ACS Smart Card Reader Driver Installation Wizard" window, click on "Install".

To check the driver version or read installation tips, click on the note icon (located at the left of the buttons) to view **Readme File**.



3. When prompted whether you want to install the drivers, click "Yes".





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4. Please wait while the ACS Driver Installation Wizard prepares the installation.



5. Please plug in the reader. When done, click on "**Finish**" to exit program.



## 2.2 Installation of SDK Components

1. You can click on the Getting Started Option to check the procedure on how to install the ACR122U SDK components.







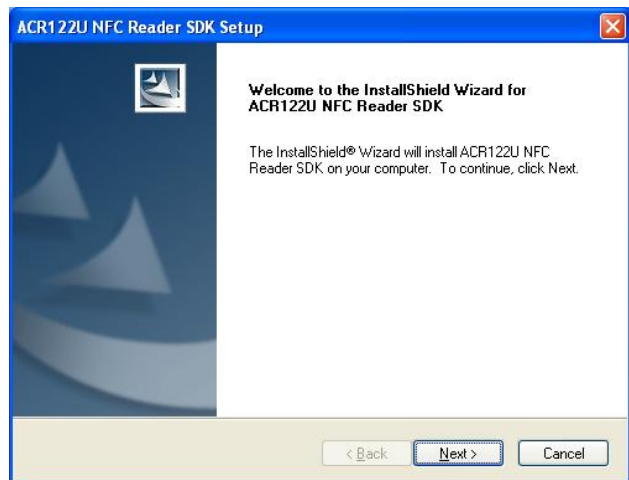
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2. Click on the Install SDK components.

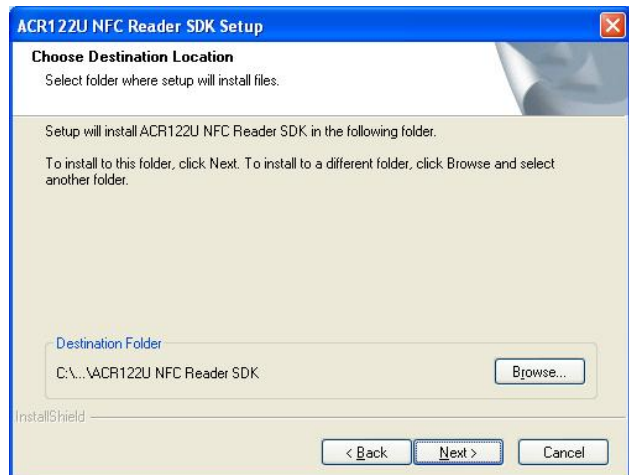


3. Click on Next



4. You can choose the destination where you want to save the SDK or you can leave it to save to its default location.  
x:\Program Files\Advanced Card Systems Ltd\ACR122U NFC Reader SDK where x is the drive letter of your local Windows drive.

Click on Next.

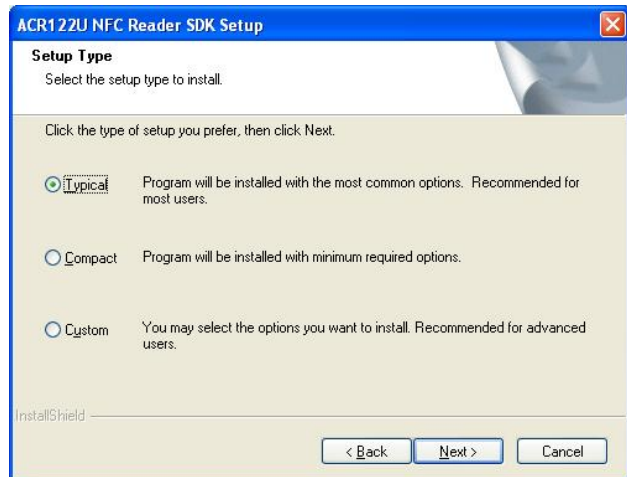




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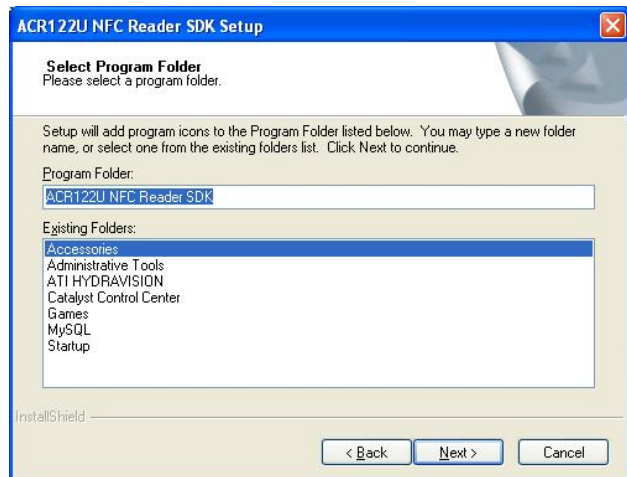
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5. Choose Typical Install. Click on Next.

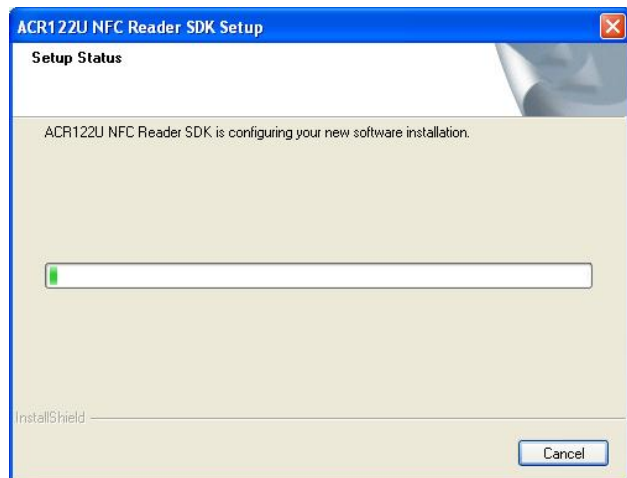


6. You can change the folder name or leave the default name as is.

Click on next.



7. Wait for the Set up to be completed.



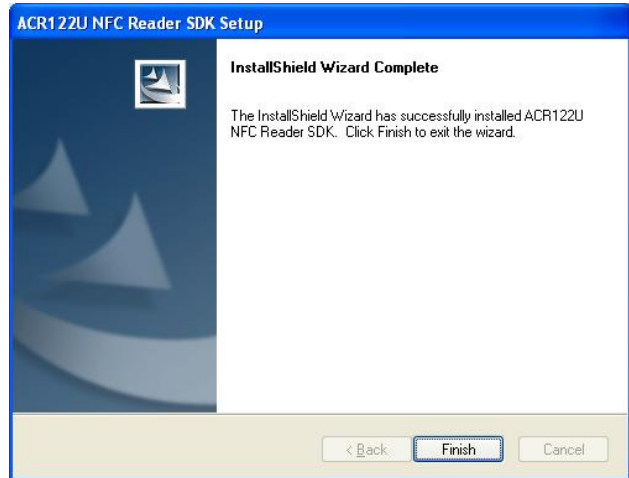




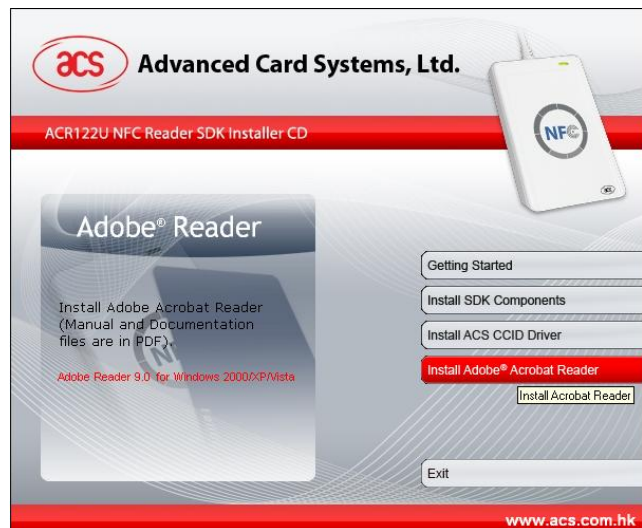
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## ACR122U NFC Reader

8. Once completed, click on Finish



9. If you have not installed Adobe Acrobat in your workstation, click on this option. You need this to view the manuals and other reference materials.



10. Click on this option to exit the application.





### 3.0 SDK Components

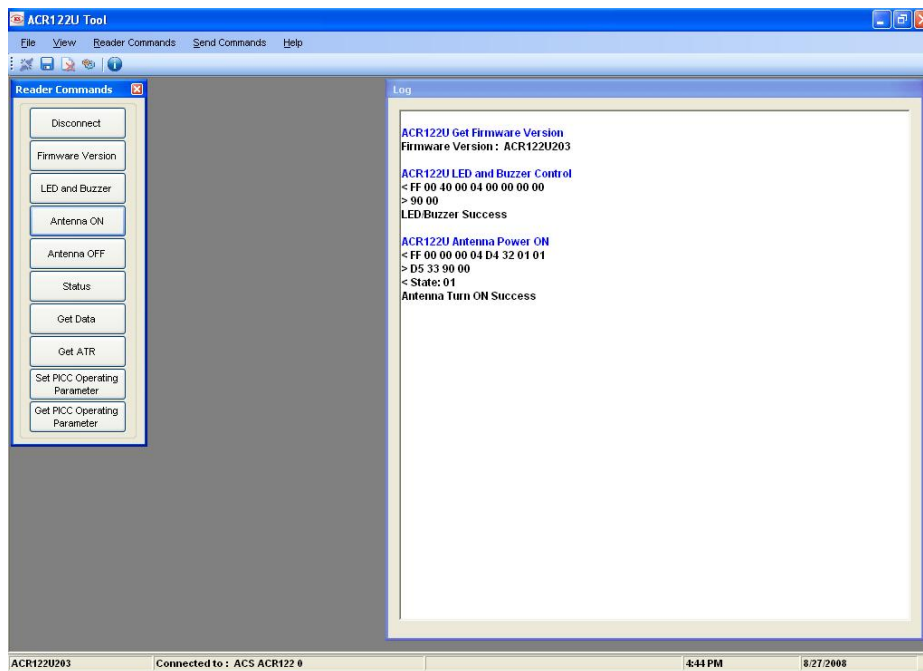
#### 3.1 Sample Codes

Sample codes written in different programming language are provided, namely, Java, Delphi 7, Visual Basic 6, Visual C++ 6, Visual C++ 2005 (x64), Visual C # 2005 and Visual Basic .Net 2005.

The sample codes show the different capabilities of the ACR122U and showcases how to control the ACR122U Peripherals and how to communicate to a contactless tag.

#### 3.2 ACR122U Tool

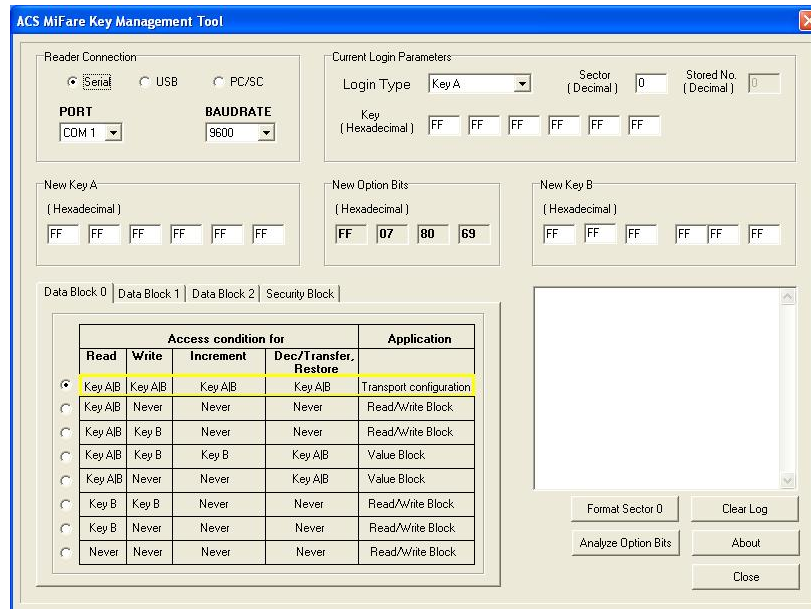
The ACR122U Tool is an application utility tool that enables the user to perform reader and card related commands. This tool is compatible with the ACR122U PCSC version and supports a variety of cards and can properly detect ISO 14443 and ISO 18092 cards. Moreover, this tool also allows the user to be able to perform a simple peer to peer communication between two ACR122U devices, showing the NFC capabilities of the device.





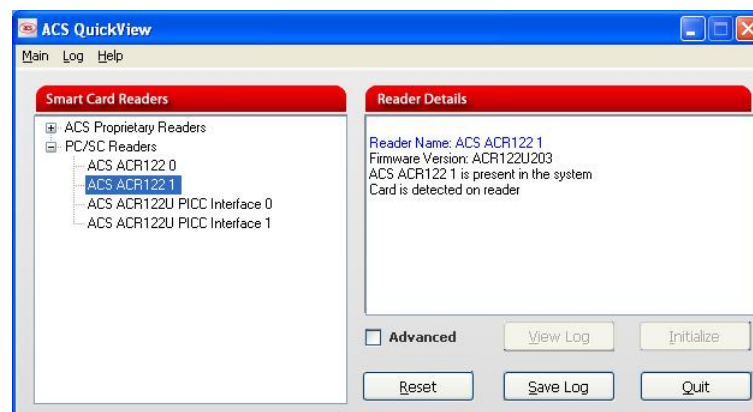
### 3.3 ACR122U EasyKey

ACS Easy Key is a utility program for changing MiFare security settings. Please refer to the MiFare Card Reference Manual to be able to efficiently utilize the ACS Easy Key.



### 3.4 ACS Quickview

The ACS Quickview is a utility program that will check if you have properly installed the ACR122U device. For detailed explanation on how to use the tool, you may check the Help Menu on the program.





### 3.5 List of User Manuals and Reference Materials

- ACR122U NFC Reader SDK User Manual
- ACR122U NFC Reader API
- ACR122U NFC Reader Technical Specification
- ACR122U NFC Reader Multi-Application Demo Manual
- Mifare Card Specification (1K)
- Mifare Card Specification (4K)
- Mifare Card Specification (Ultralight)

To know more about the PCSC standard, you can click this link to download the files: [PCSC Specifications](#)