Advanced Card Systems Limited

Card and Reader Technologies

ACR128 SDK User Manual

ACR128 Dual Interface Reader

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1.0 Introduction

The ACR128 is a secure, economically designed dual interface reader that complies with ISO 7816 Part 1-3 Class A and B for the Contact Cards and ISO 14443 Part 1-4 Type A and B for Contactless Cards. Having this you will also have a seamless transition from Contact to Contactless Technology and can also support the existing contact cards applications and will also have the capability to integrate contactless technology in the system.

The ACR128 Dual Interface Reader is a powerful and efficient dual interface smart card reader which can be used to access ISO 7816 MCU cards and Mifare, ISO14443 Type A and B Contactless Cards. It makes use of the USB interface to connect to a PC and accepts card commands from the computer application.

The ACR128 Dual Interface Reader Software Development Kit enables you to efficiently develop customized applications and systems or incorporate both contact and contactless smart card technology to your application. Included in this package are sample codes, tools and utilities, demo application, sample cards and reference materials that will allow you to create a system using the ACR128 Dual Interface Reader so you can now develop your smart card-based application faster and easier. You can now bring the convenience that ACR128 Dual Interface Reader offers to your solution.

Together with its compact size, trendy design, and various features, the ACR128 Dual Interface Reader offers users a different experience of convenience by using it for applications such E-passport, Home Banking, Home Shopping, E-commerce, Digital signature, Stored value Parking and toll collection Vending Machines etc.

2.0 Installation Guide

2.1 System Requirements

The ACR128 Dual Interface Reader SDK requires the following system requirements:

- 800 MHz Processor or higher;
- Microsoft Windows: 2000 / 2003 / XP / VISTA;
- CD-ROM Drive;
- 500MB Hard Disk Space;
- One available USB port.

If you have installed the previous version of ACR128 Dual Interface Reader SDK, you must uninstall the previous version via Add/Remove Programs in Control Panel before installing this new SDK version. Make sure that all folders have been deleted.

For non VISTA users, you need to install the .NET Framework to be able to use the ACR128 Dual Interface Reader Tool and Demo Application. This can be downloaded via:

Microsoft .NET Framework Version 2.0 (x86)
http://www.microsoft.com/downloads/details.aspx?FamilyID=0856EACB-4362-4B0D-8EDD-AAB15C5E04F5&displaylang=en

Microsoft .NET Framework Version 2.0 (x64)
http://www.microsoft.com/downloads/details.aspx?familyid=B44A0000-ACF8-4FA1-AFFB-40E78D788B00&displaylang=en

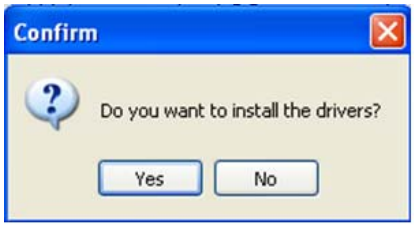
2.2 Driver Installation

You must first install the Drivers before connecting the device to your computer terminal.

1. On the ACR128 Dual Interface Reader SDK CD, Click on the Install Smart Card Driver Option.

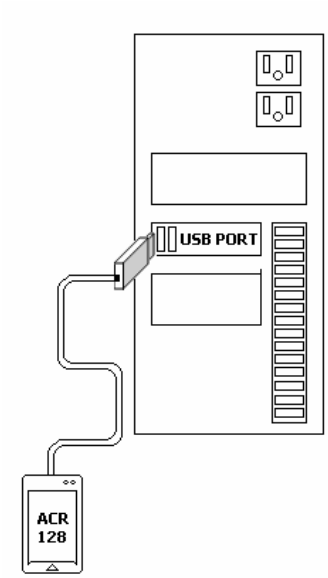
2. A pop-up window will appear. Click on Install.

3. Confirm that you want to install the drivers by clicking on the Yes button.

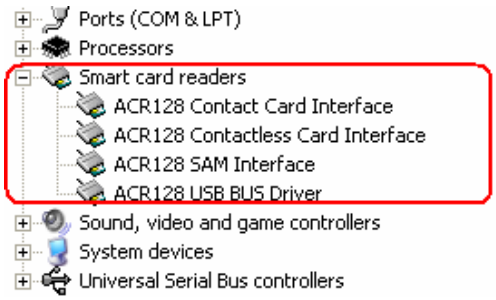


3. Wait for the Installation to finish. Click on the Finish button once the drivers have been successfully installed.

4. Plug in the device as shown below.



5. When you plug in the reader, the drivers will automatically be installed. You can check in the device manager to see if the device has been properly installed.



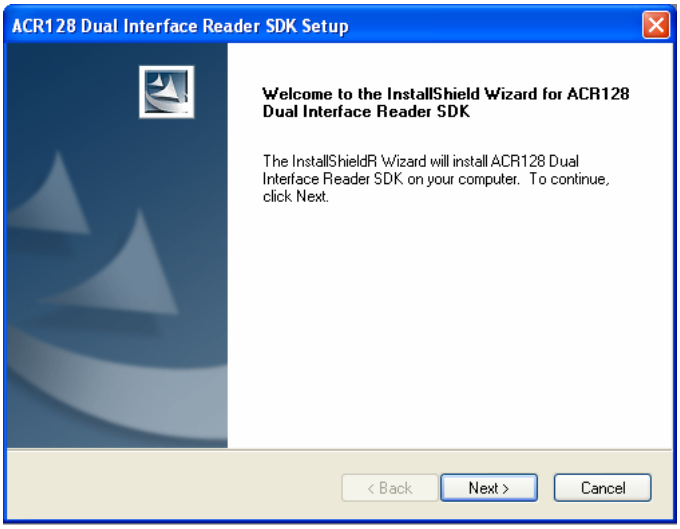
2.3 Installation of SDK Components

Perform the following steps in installing the ACR128 Dual Interface Reader SDK Components.

1. You can click on the Getting Started Option to check the procedure on how to install the ACR128 Dual Interface Reader SDK components.

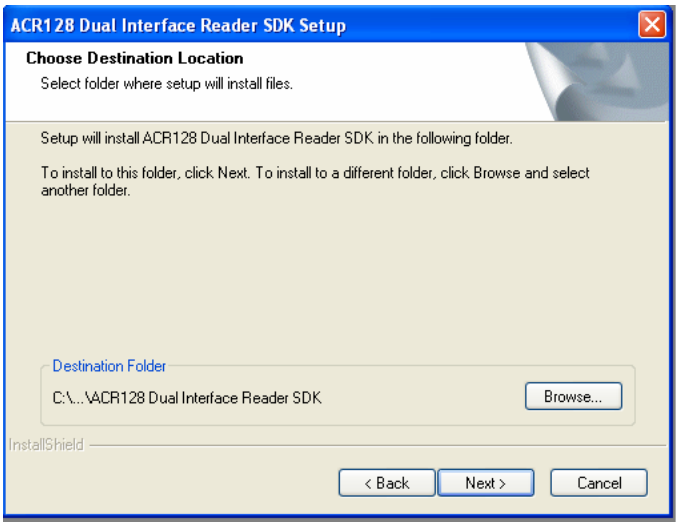
2. Click on the Install SDK components.

4. Click on Next

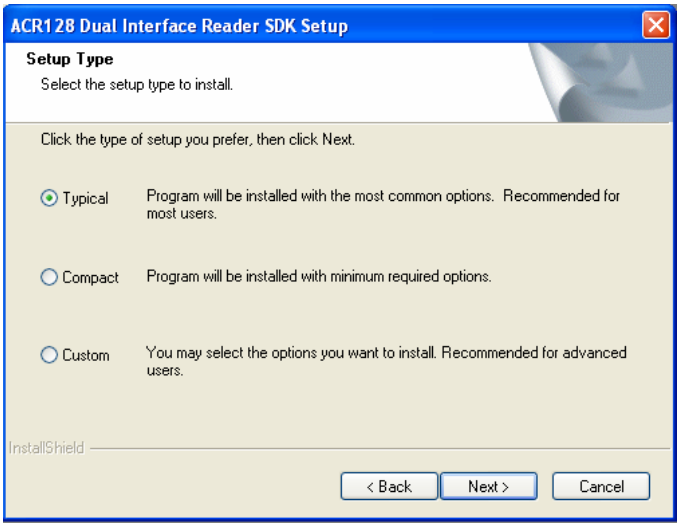


5. You can choose the destination where you want to save the SDK or choose to save to its default location. The default location is: x:\Program Files\Advanced Card Systems Ltd\ACR128 Dual Interface Reader SDK where x is the drive letter of your local drive.

Click on Next.

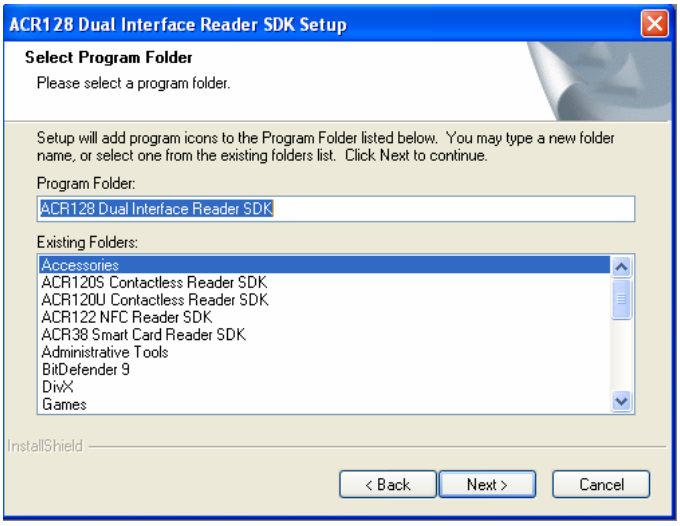


6. Choose Typical Install. Click on Next.

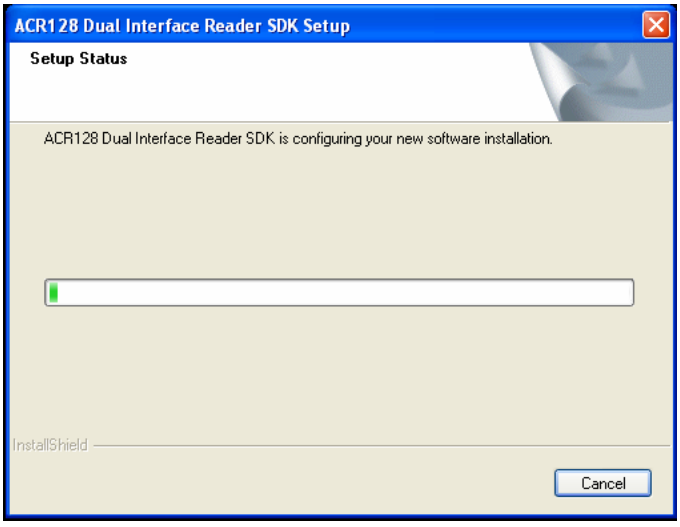


7. You can change the folder name or leave the default name as is.

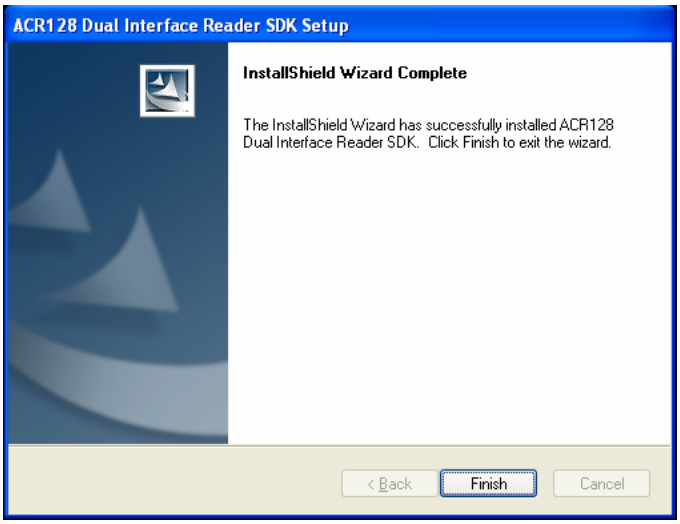
Click on Next.



8. Wait for the Set up to be completed.

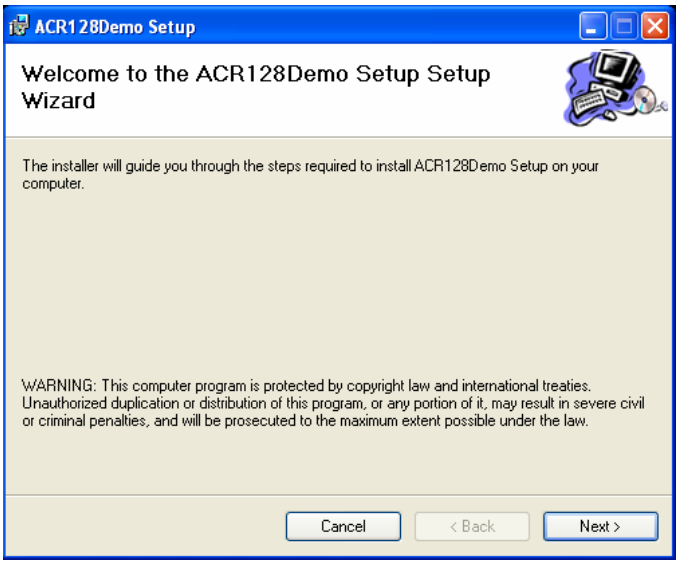


9. Once completed, click on finish

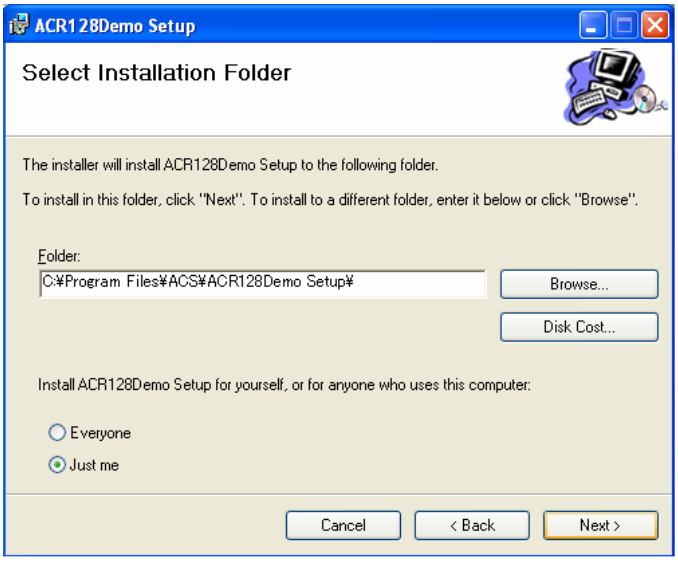


10. Click on Install Multi-Application Demo.

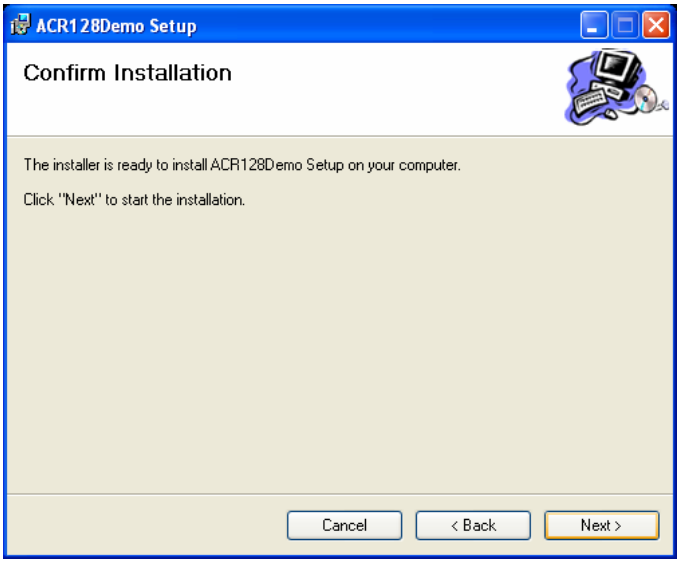
11. You can choose the destination where you want to save the SDK or choose to save to its default location. Click on Next



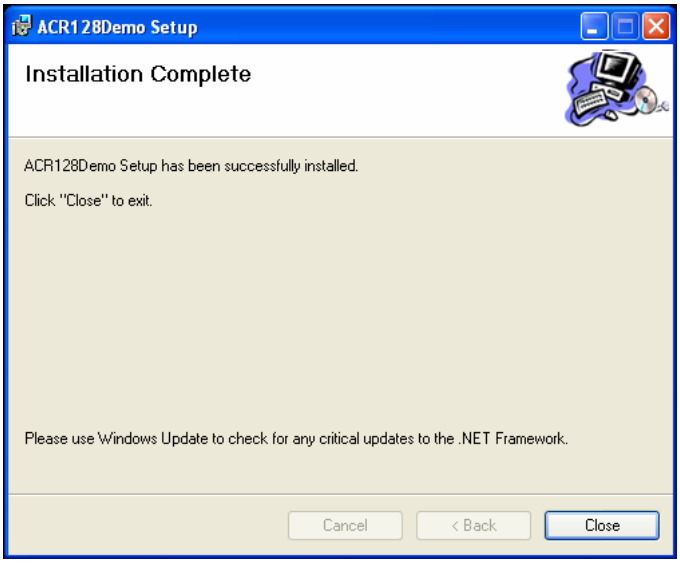
12. Click on Next



13. Click on Next to confirm the installation.



14. Wait until the entire process is finished. Click on close to exit wizard.



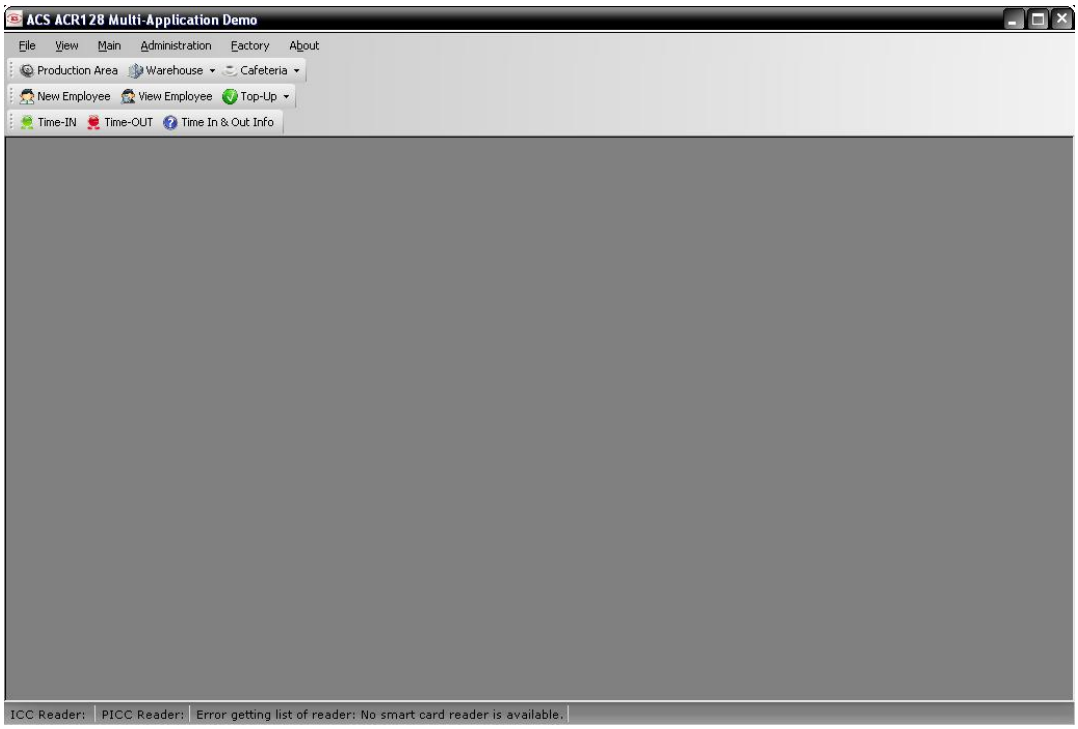
15. You need to install Acrobat to view the manuals and other reference materials.

16. Click on this option to exit the application.

3.0 SDK Components

3.1 Multi-Application Demo

The ACR128 is a dual interface card reader that can work with ISO 7816 MCU cards, ISO 14443 Type A and B and MiFare Cards. This demonstration program shows a real world business application where the ACR128 Dual Interface Reader can be used. It highlights the advantages of using the ACR128 Dual Interface Reader in a smart card based solution.



3.2 Sample Codes

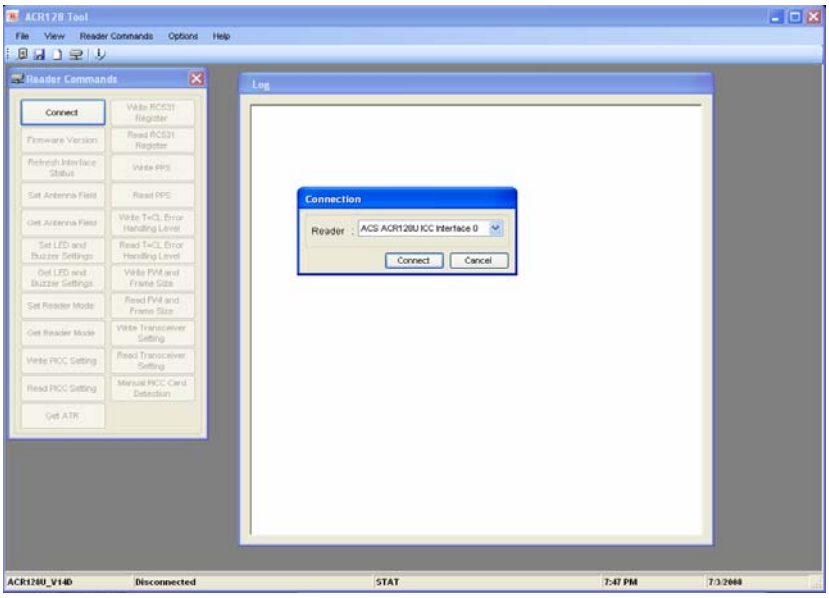
Each interface in the ACR128 Dual Interface Reader has a set of sample codes written in different programming languages namely;

- Java,
- Delphi 7,
- Visual Basic 6,
- Visual C++ 6,
- Visual C++ 2005 (x64),
- Visual C # 2005
- Visual Basic .Net 2005.

3.3 Tools and Utilities

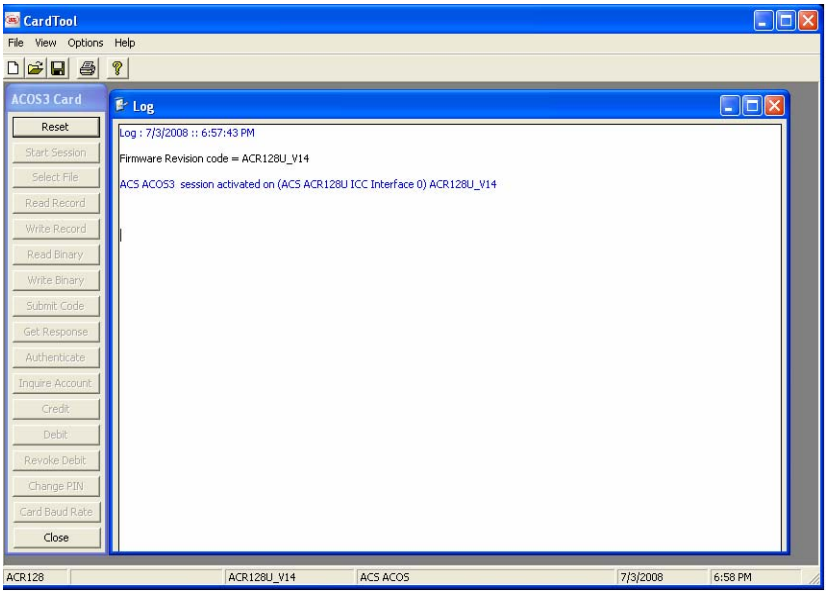
3.3.1 ACR128 Dual Interface Reader Tool

The ACR128 Dual Interface Reader Tool is an application utility tool that enables the user to perform reader and contactless card related commands. This tool supports a variety of cards and can properly detect ISO 14443 Type A and B and MiFare Cards. This utility tool allows the user to control the device peripherals such as the LED and buzzer.



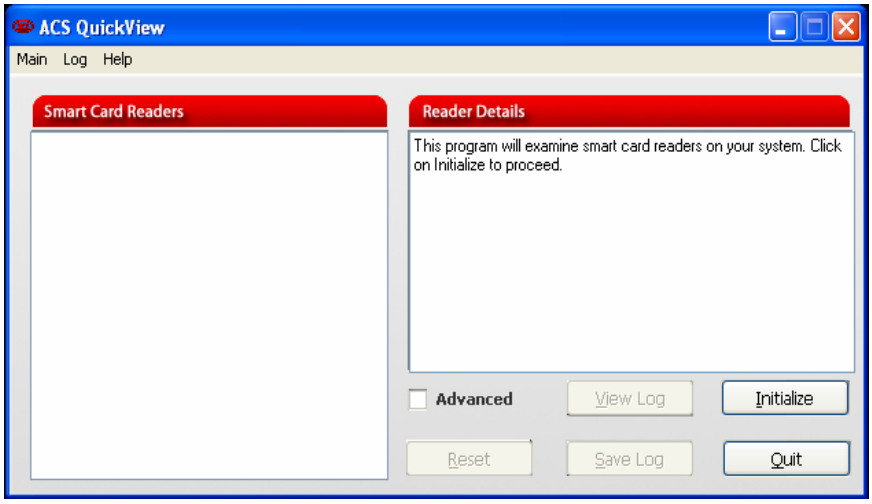
3.3.2 ACS Card Tool

The ACS Card Tool is a utility program that allows you to send commands from a PC/SC compliant smart card reader to an ISO 7816 compliant smart card. It is specially designed to work with the ACS ACOS MCU smart cards and supports the ACS Smart Card Readers namely, ACR38, ACR30, ACR80, ACR88, AET63, and ACR128.



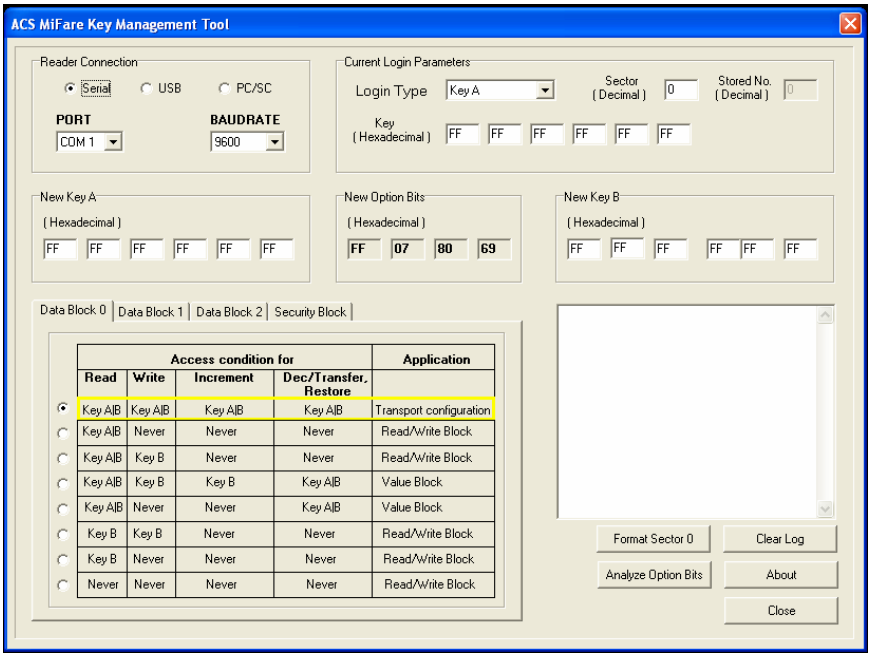
3.3.3 ACS Quick View

The ACS QuickView is a utility program that will check if you have properly installed the ACR128 Dual Interface Reader device. For a detailed explanation on how to use the tool, you may check the Help Menu on the program.



3.3.4 ACS Easy Key

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 List of User Manuals and Reference Materials

- ACR128 Dual Interface Reader SDK User Manual
- ACR128 Dual Interface Reader API
- ACR128 Dual Interface Reader Technical Specification
- ACR128 Dual Interface Reader Multi-Application Demo Manual
- Mifare Card Specification (1K)
- Mifare Card Specification (4K)
- ACOS3 Card Specification
- ACOS6 Card Specification

To know more about the PCSC standard, you can click this link to download the files: PCSC Specifications