



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1552U Series

Smart Card Reader

Software Development Kit

ACR1552U Series SDK User Manual V1.01



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1.0. Introduction

Continuing the success of the ACR1252U Series, ACR1552U Series is the USB NFC Reader developed based on 13.56Mhz contactless technology. It is a contactless reader that can access contactless smart cards following the ISO 14443, ISO 15693 & ISO 18092 standards, MIFARE® (T=CL), FeliCa, NFC Tags, SRI/SRIX, CTS, Innovatron, Picopass and Topaz Card are also supported.

ACR1552U Series is capable of the three modes of NFC, namely: card reader/writer, card emulation and keyboard emulation. It also has a built-in SAM slot for added security in both contact and contactless applications.

Compliant with both CCID and PC/SC, this plug-and-play USB NFC device allows interoperability with different devices and applications. It is thus ideal for unconventional marketing and advertising applications like smart posters.

With additional features such as Keyboard Emulation, ACR1552 Series is a highly cost-effective, powerful all-in-one device that offers convenience and flexibility to many smart card applications.

The ACS ACR1552U Smart Card Reader Software Development Kit (SDK) is an easy-to-use software package that contains sample codes, tools, utilities, and reference materials. It enables developers to build smart card applications using the reader. This document provides the specifications and file structure of the SDK and its components.



2.0. SDK Specifications

This section enumerates the contents as well as the supported cards and systems of the software development kit:

2.1. SDK Contents

- One (1) ACR1552U Smart Card Reader
- Five (5) ACOS3 Contactless Smart Cards
- Five (5) MIFARE Classic 1K Cards
- One (1) ACOS6-SAM Secure Access Module Card

2.2. Supported Readers

- ACR1552U-M Series Smart Card Reader
- ACM1552U-Y Series Smart Card Reader Module
- ACM1552U-Z Series Smart Card Reader Module

2.3. Supported Cards

- ACOS3 Contactless Smart Cards
- MIFARE Classic 1K Cards
- ACOS6-SAM Secure Access Module Card
- MIFARE Ultralight Cards
- MIFARE Ultralight C Cards
- MIFARE DESFIRE Cards
- ISO15693 Cards

2.4. Supported Operating Systems

- Windows® 10 x64
- Windows® 11 x64
- Ubuntu 16.04.6 LTS or above
- Debian 10 or above
- Fedora 39 or above
- Raspbian 10 or above
- SUSE SLE 12 or above
- OpenSUSE 15.5 or above
- EPEL 7 or above
- MacOS 10.7 or above
- Android 4.1 or above
- iOS & iPadOS 16 or above



3.0. SDK Components

3.1. Windows

3.1.1. ACS CCID Driver for Windows

The ACS CCID Driver is a single driver installer that enables all generic ACS smart card readers to run with various Windows® operating systems via a USB connection. It is certified by Microsoft® WHQL and automatically downloads updates when you are connected to the Internet.

To install this driver:

1. In the SDK installer interface, click on the **Install ACS CCID Driver** link.
2. Follow the instructions in the **Setup Wizard** to proceed with the installation.

3.1.2. ACS Smart Card and Reader Tool

The ACS Smart Card and Reader Tool enables you to perform both smart card reader and card-related commands.

Note: This tool requires Microsoft.NET Framework 4.7.2 or later. You can download the framework from this link:

<https://dotnet.microsoft.com/download/dotnet-framework>

3.1.2.1. ACR1552U Reader Tool

The ACR1552U Reader Tool is a widget within ACS Smart Card and Reader Tool. It enables you to access, control and execute most of the commands available in the ACR1552U Series. Check the Help menu to know more on how to use this tool.

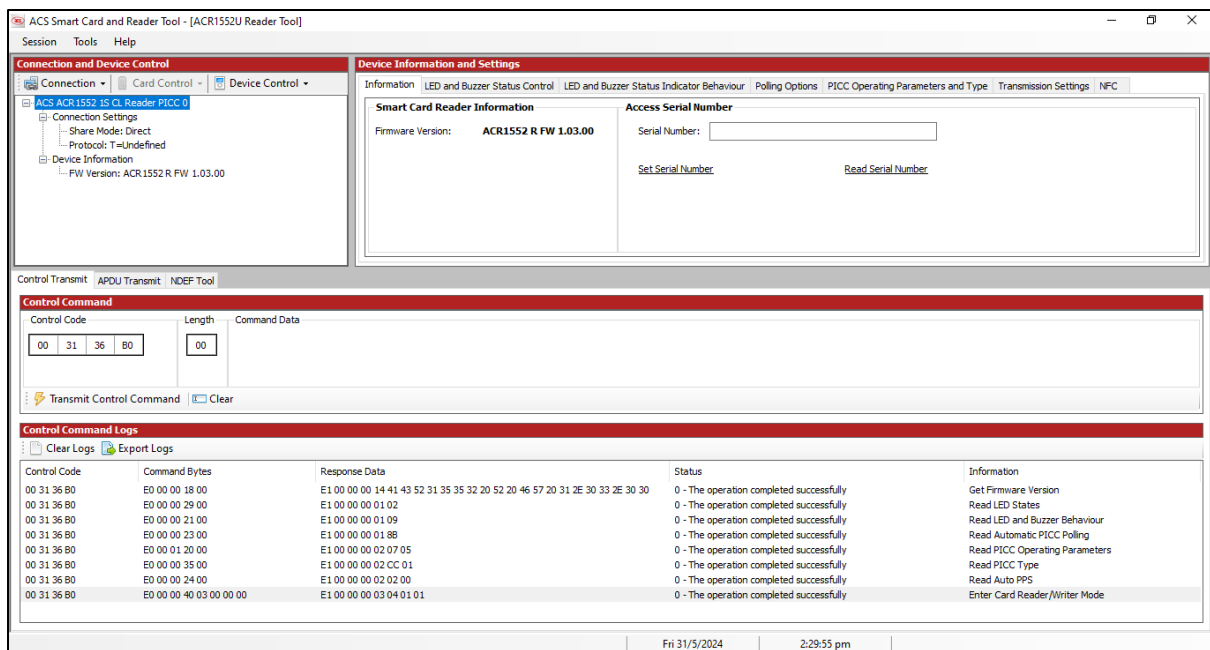


Figure 1: ACR1552U Reader Tool

3.1.2.2. ACOS3 Card Tool

ACOS3 Card Tool is a widget within ACS Smart Card and Reader Tool. It gives you access to most of the ACOS3 card commands. It can handle simultaneous multiple connections to different smart card readers, but it supports only PC/SC-compliant readers. Check the Help menu to know more on how to use this tool.

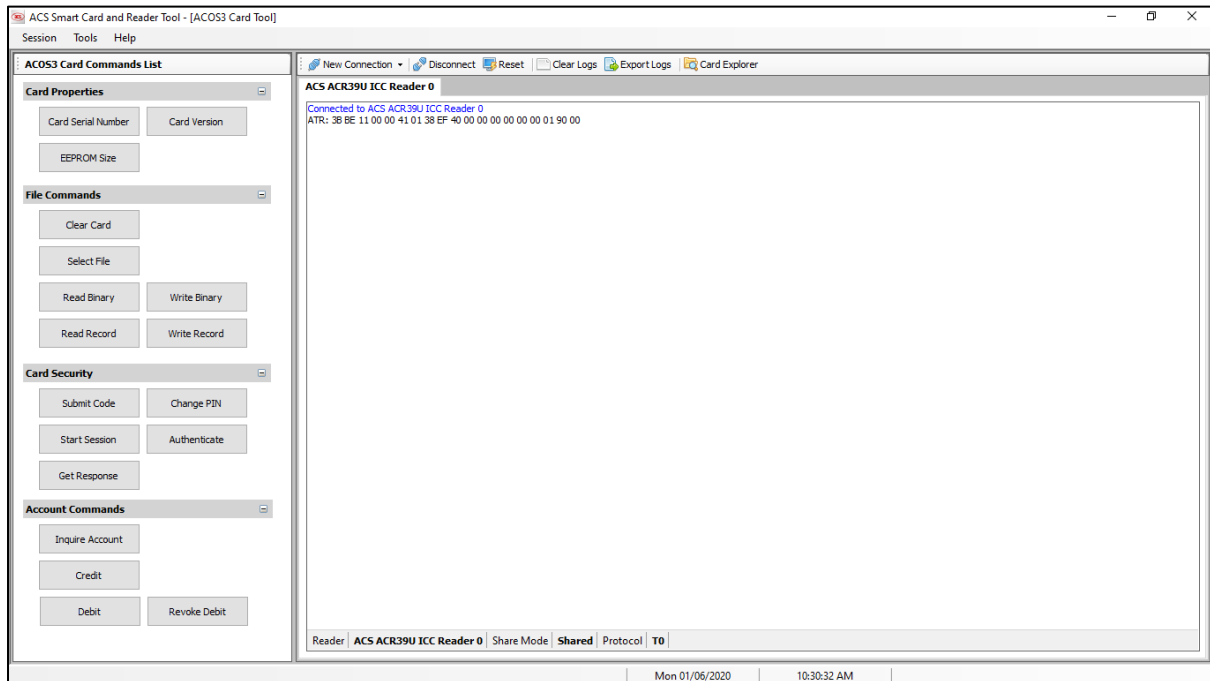


Figure 2: ACOS3 Card Tool

3.1.2.3. ACOS6-SAM Card Tool

ACOS6-SAM Card Tool is a widget within ACS Smart Card and Reader Tool. It gives you access to most of the ACOS6-SAM card commands. It can handle simultaneous multiple connections to different smart card readers, but it supports only PC/SC-compliant readers. Check the Help menu to know more on how to use this tool.

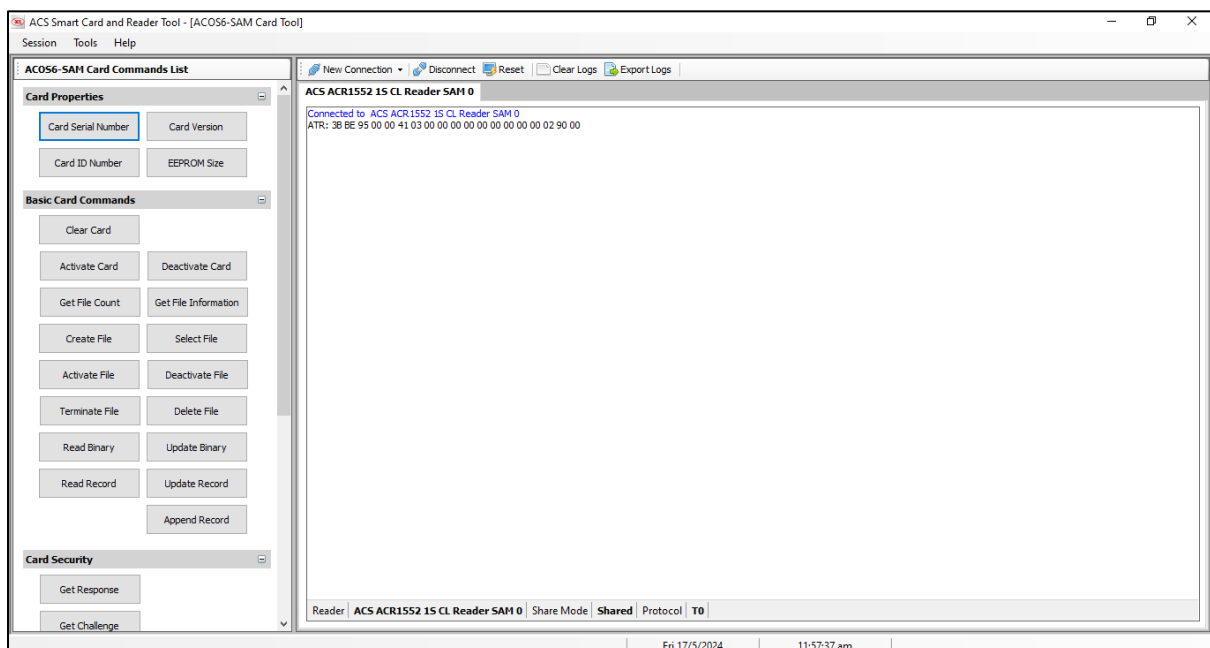


Figure 3: ACOS6-SAM Card Tool

3.1.2.4. MIFARE Classic Card Tool

MIFARE Classic Card Tool is a widget within ACS Smart Card and Reader Tool. It gives you access to most of the MIFARE Classic card commands. It can handle simultaneous multiple connections to different smart card readers, but it supports only PC/SC-compliant readers. Check the Help menu to know more on how to use this tool.

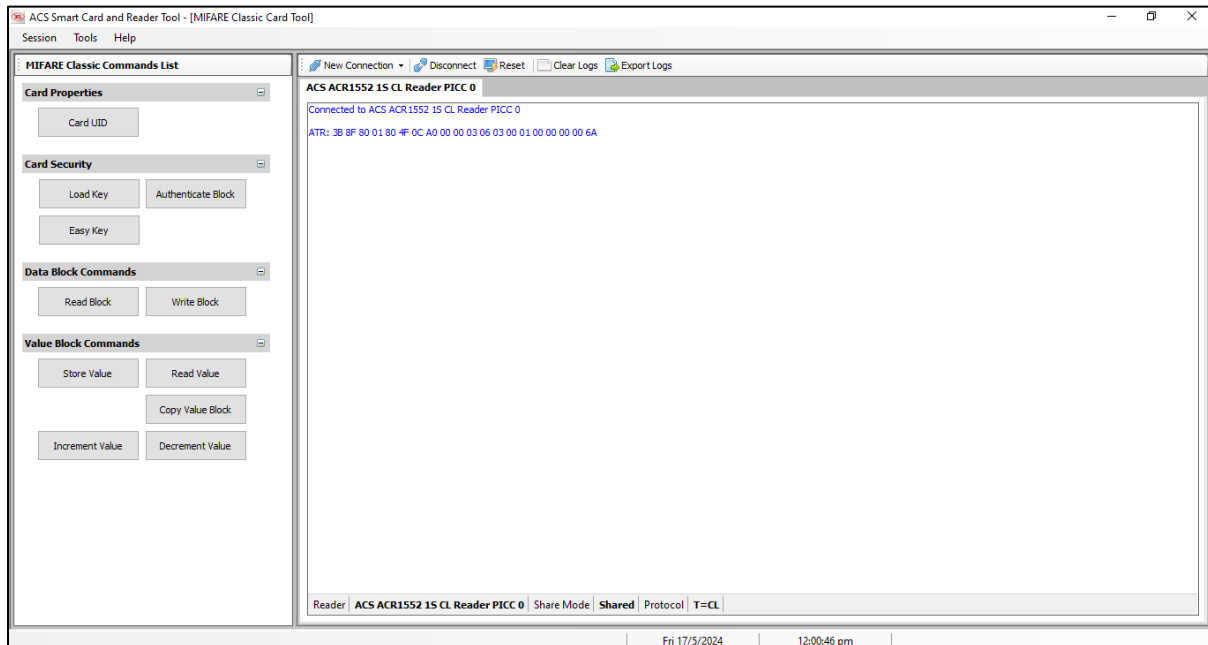


Figure 4: MIFARE Classic Card Tool

To install the ACS Smart Card and Reader Tool:

1. In the SDK installer interface, click on the **Install ACS Smart Card and Reader Tool** link.
2. Follow the instructions in the **Setup Wizard** to proceed with the installation.

3.1.3. QuickView

Please refer to [QuickView 2.15](#)

To install these utility programs to your computer:

1. In the SDK installer interface, click on the **Install ACS ACR1552U Reader SDK Package** link.
2. Follow the instructions in the **Setup Wizard** to proceed with the installation.

3.1.4. Script Tool

Please refer to [Script Tool 5.02](#)

To install these utility programs to your computer:

1. In the SDK installer interface, click on the **Install ACS ACR1552U Reader SDK Package** link.
2. Follow the instructions in the **Setup Wizard** to proceed with the installation.

3.1.5. Keyboard Configuration Tool

The Keyboard Configuration tool enable you to set the reader into HID keyboard emulation mode in a more directly and user friendly way.

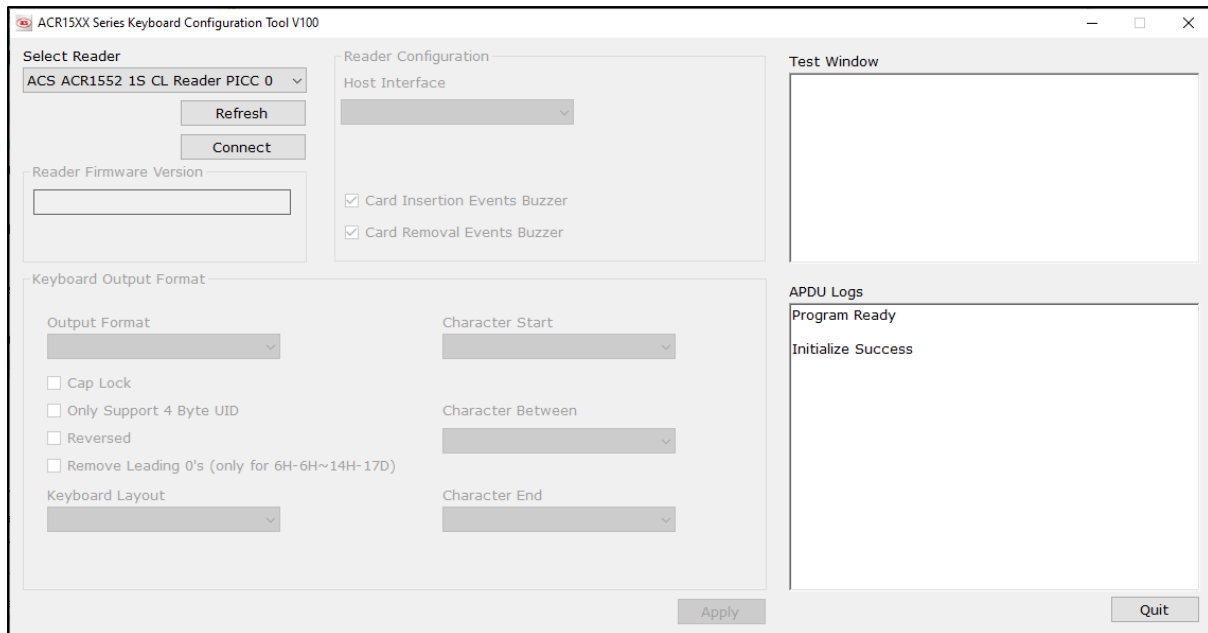


Figure 5: Keyboard Configuration Tool

To install these utility programs to your computer:

1. In the SDK installer interface, click on the **Install ACS ACR1552U Reader SDK Package** link.
2. Follow the instructions in the **Setup Wizard** to proceed with the installation.

3.2. Linux

3.2.1. ACS CCID Driver for Linux

The ACS CCID Driver is a single driver installer that enables all generic ACS smart card readers to run with various Linux operating systems via a USB connection.

To install this driver:

1. In the Linux folder, extract `acscid_linux_bin`
2. Find your current OS folder and install the driver

3.2.2. ACS CCID Driver for Linux source code

If your OS is not in the driver, you need to compile and install the driver by following steps:

1. In the Linux folder, extract `acscid_src`
2. Follow the instructions in the README and INSTALL file

3.2.3. QuickView

Please refer to **QuickView 2.15**

To run the QuickView:

1. Install `libfuse` and `pcscd`
2. Use `./ACS_QuickView_Tool-x86_64-2.15.ApplImage` to run QuickView



3.2.4. Script Tool

Please refer to **Script Tool 5.02**

To run the Script Tool:

1. Install libfuse and pcsd
2. Use `./ACS_Script_Tool-x86_64-5.02.ApplImage` to run Script Tool

3.3. MacOS

3.3.1. ACS CCID Driver for MacOS

The ACS CCID Driver is a single driver installer that enables all generic ACS smart card readers to run with various MacOS operating systems via a USB connection.

To install this driver:

1. In the MacOS folder, extract `acscid_macosx_bin`
2. Run `acscid_installer-1.1.11.dmg`
3. Follow the instructions to proceed with the installation

3.3.2. ACS CCID Driver for MacOS source code

If your application has issue with the driver, you need to compile and debug with the driver library by following steps:

1. In the MacOS folder, extract `acscid_src`
2. Follow the instructions in the README and INSTALL file

3.3.3. QuickView

Please refer to **QuickView 2.15**

To run the QuickView:

1. In the MacOS folder, run `ACS_QuickView_Tool.dmg`

3.3.4. Script Tool

Please refer to **Script Tool 5.02**

To run the Script Tool:

1. In the MacOS folder, run `ACS_Script_Tool.dmg`

3.4. Android

3.4.1. Android EVK

The ACS Smart Card Android Library provides classes and interfaces for communicating with ACS smart card readers.

To install the library to your development environment, see the section "Installation" in ReadMe.txt



3.5. iOS & iPadOS

3.5.1. AduTool source code

The sample code of AduTool.

For installation and more details about AduTool, please refer to [AduTool on the App Store \(apple.com\)](https://apps.apple.com/au/app/apdu-tool/id1443888888).

3.6. Sample Codes

The SDK Package comes with several sample codes. These are executable files that highlight the coding functionalities of the ACR1552U and serve as guides for building applications for the reader.

The sample codes consist of the following:

- Card Programming:
 - o ACOS3 – test mutual authentication, file creation and secure messaging
 - o ACOS6-SAM – key management and sample usage
 - o ISO15693 – optional commands
 - o MIFARE – change key and card programming
 - o MIFARE Ultralight C – card programming
 - o MIFARE DESFIRE – card programming (Excluding Java)
 - o Other_PICC – send APDU and get card information
 - o Others:
 - Simple PCSC Application – send commands to a smart card
 - PCSC Card Polling – test the reader's card detection capability
 - NDEF NTAG – read & write NDEF message from the NTAG
- Device Programming:
 - o Advanced Device Programming – Set UI behaviour and other device control

The sample codes are available in four languages for your convenience:

- Java
- MS Visual Basic .NET 2013
- MS Visual C# .NET 2013
- MS Visual C++ .NET

For Windows platform, to copy the sample codes to your computer:

1. In the SDK installer interface, click on the **Install ACS ACR1552U Reader SDK Package** link.
2. Follow the instructions in the **Setup Wizard** to proceed with the installation.

For Linux and Mac platform, directly copy the sample code from Sample Codes folder.



3.7. User Manuals and Reference Materials

The following documents are included in this kit:

- ACR1552U Smart Card Reader SDK User Manual
- ACR1552U Technical Specifications
- ACR1552U Series Reference Manual
- ACOS3 Reference Manual
- ACOS6-SAM Reference Manual
- MIFARE Classic Reference Manual
- MIFARE Classic Ultralight C Reference Manual



Appendix A. Tools and Utilities

The SDK Package comes with two utility programs for Windows, Linux and MacOS.

Appendix A.1. QuickView 2.15

This tool allows you to check if the smart card reader is properly installed in your system. Check the Help menu to know more on how to use this tool.

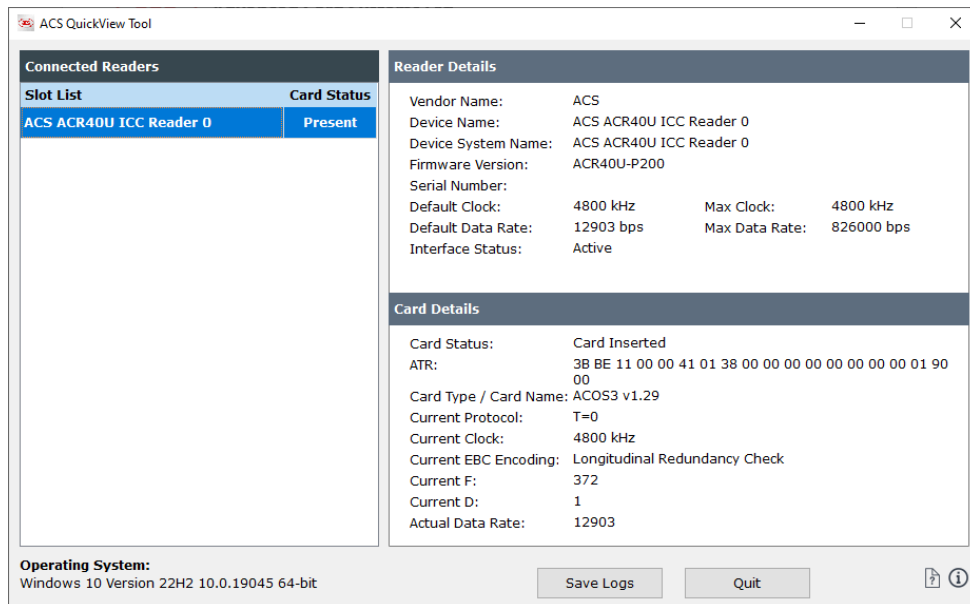


Figure 6: QuickView 2.15

Appendix A.2. Script Tool 5.02

This tool lets you execute various commands and communicate with a smart card with the help of script command files. Check the Help menu to know more on how to use this tool.

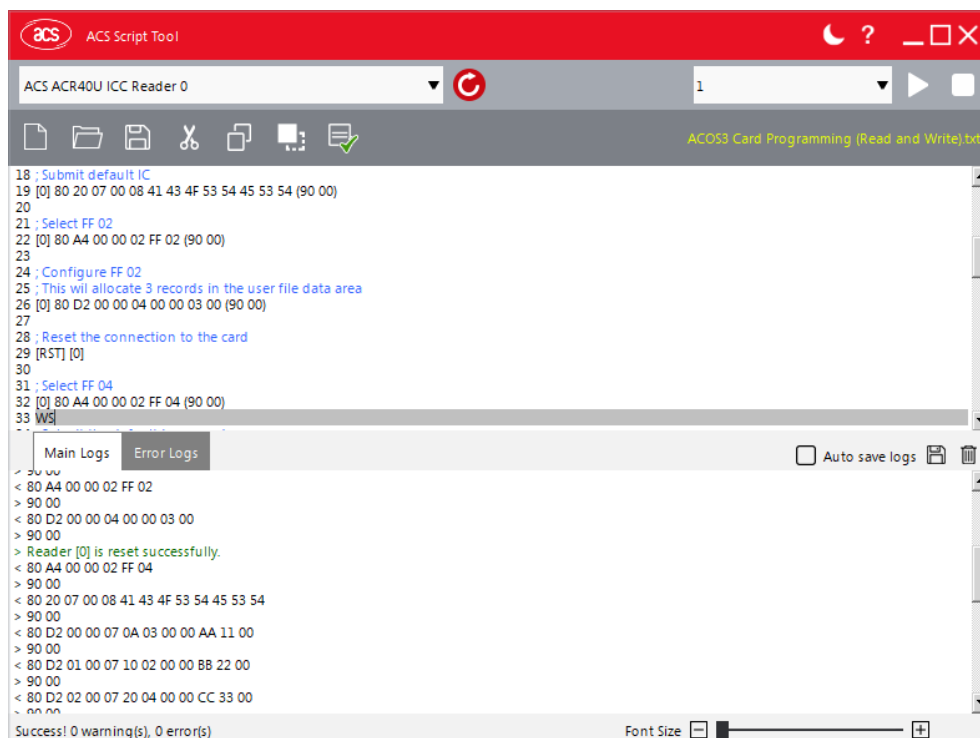


Figure 7: Script Tool 5.02