PASSPORT READER





INSTALL GUIDE

WWW.ARH.HU

PASSPORT READER INSTALL GUIDE

For versions 2.1.6 or later

Document version: 2016-12-14

Table of Contents

PRODUCT OVERVIEW 5

1. PACKAGE CONTENTS 9

2. SYSTEM REQUIREMENTS 10

HARDWARE INSTALLATION 11

SOFTWARE INSTALLATION 13

1. THE PASSPORT READER SOFTWARE PACKAGE 13

2. INSTALLATION ON WINDOWS OPERATING SYSTEMS 14

2.1. PC/SC DRIVER 20

3. SOFTWARE INSTALLATION ON LINUX OPERATING SYSTEM 22

3.1. INTRODUCTION 22

3.2. CONTENTS OF THE INSTALL PACKAGE 23

3.3. THE INSTALLATION PROCEDURE 24

3.4. AFTER INSTALLATION 26

3.5. INSTALLATION OF A DIFFERENT ENGINE 26

3.6. UNINSTALLATION 26

3.7. DEVICE ENTRIES IN /DEV DIRECTORY 27

3.8. TROUBLESHOOTING - KNOWN BUG(S) 27

TROUBLESHOOTING 28

TECHNICAL SPECIFICATIONS* 29

CONTACT INFORMATION 32

Declaration of RoHS Compliance for Electrical and Electronic Products:

ARH Inc. ("the Company") hereby declares that the Passport Readers placed on the European Community market by the Company after 1st July 2006 are compliant with EC Directive 2002/95/EC on the Restrict of Certain Hazardous Substances in Electrical and Electronic Equipment (commonly known as the EU RoHS Directive.)

Compliance with RoHS means that where the product falls under the scope of the EU RoHS Directive, the product does not contain the following substances:

- Mercury (Hg) 0.1%
- Lead (Pb) 0.1%
- Cadmium (Cd) 0.01%
- Hexavalent Chromium (Cr+6) 0.1%
- Polybrominated Biphenyls (PBB) 0.1%
- Polybrominated Diphenyl Ethers (PBDE) 0.1%

above the indicated maximum concentration values by weight in homogeneous materials unless the substance is subject to an exemption specified in the Directive or in subsequent Commission Decisions.

This declaration represents the Company's best knowledge, which is partially based on information provided by third party suppliers.

Equipment modifications:

This equipment must be installed and used according with the instructions given in its documentation. This equipment contains no serviceable components. Unauthorized equipment changes or modifications cause warranty to void.

PRODUCT OVERVIEW

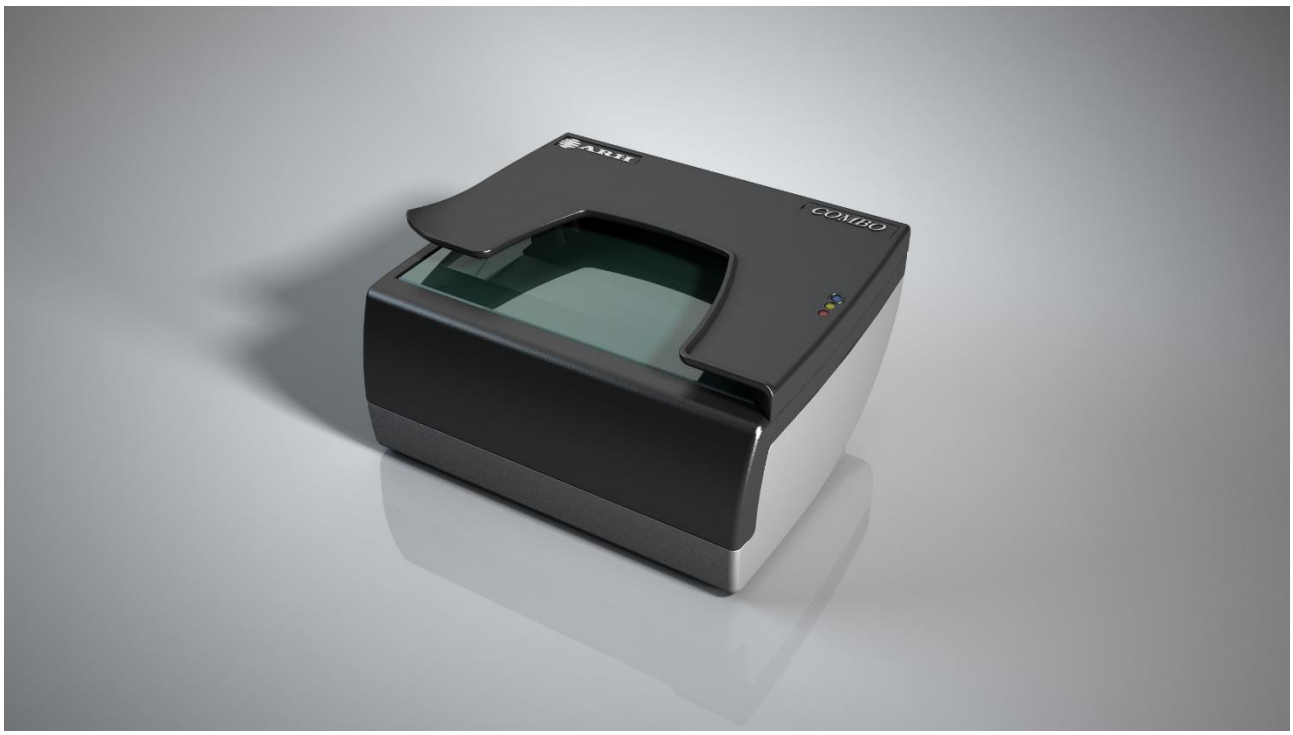
> **Note**
>
> The devices listed here are base models which are available in various configuration setups.

COMBO SERIES:

Desktop devices:



Combo Smart ePassport Reader device

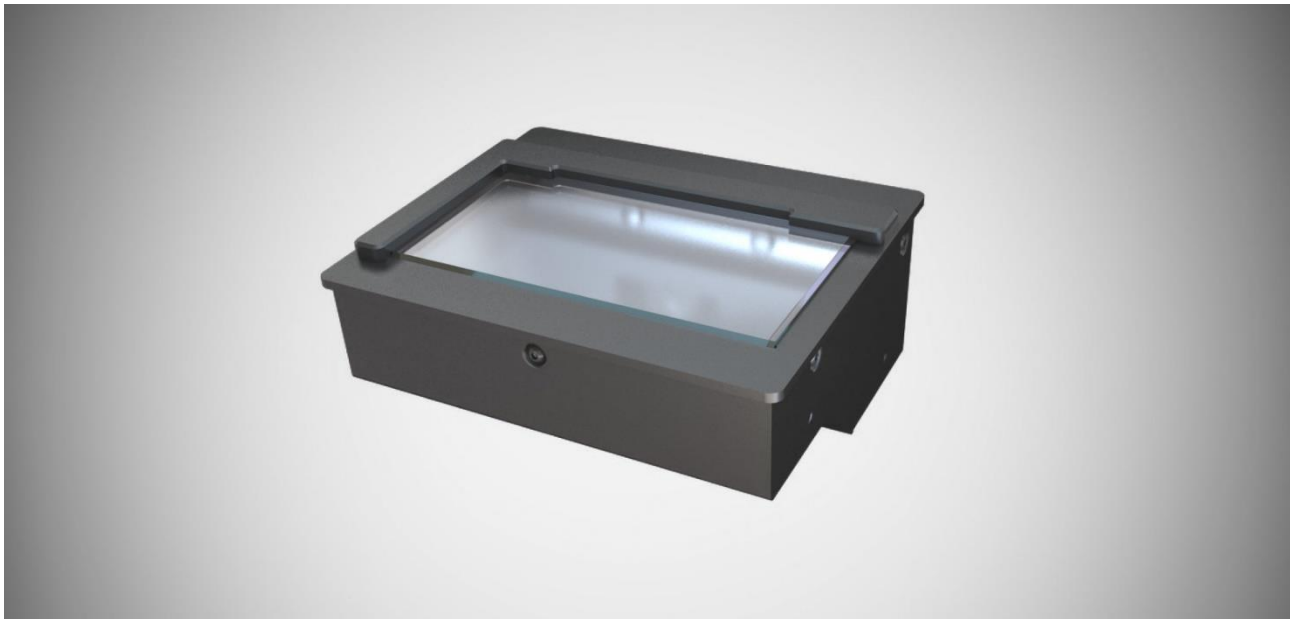


Combo Scan device

Kiosk devices:

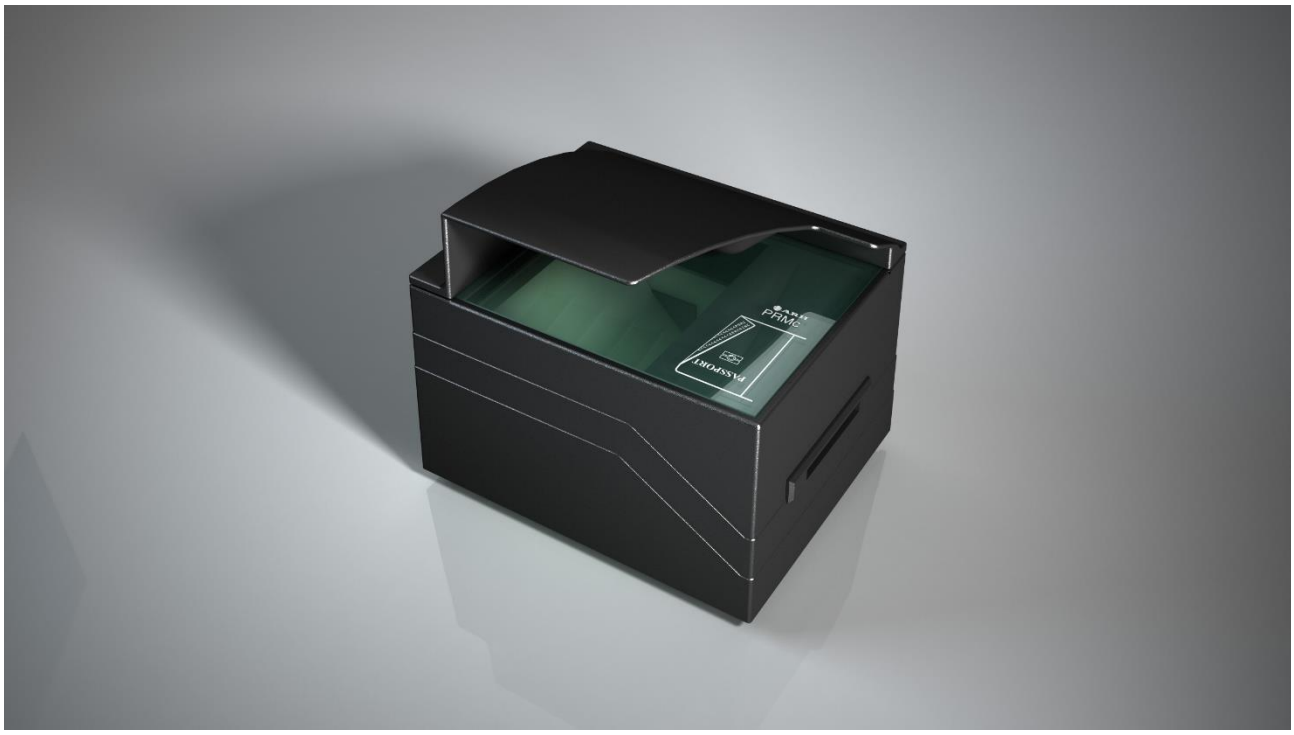


Combo Smart Kiosk ePassport Reader device



Combo Scan Kiosk device

PRMc:



PRMc ePassport Reader device

Fingerprint Scanner:



AFS 510 Fingerprint Scanner device

1. PACKAGE CONTENTS

- Passport Reader Device
- Power Supply (if applicable, please see the table below)
- USB 2.0 Hi-speed cable
- Glass cleaning wipes (1pcs)

DEVICE	COMBO SMART, KIOSK SMART, PRMC	AFS 510*	COMBO SCAN, KIOSK SCAN	COMBO SMART USB**
POWER SUPPLY	SUN-1200500 Switching Power Adaptor • Input: 100-240V ~ 50/60Hz • Input Current: Max. 1.7A • Output: 12V – 5.0A • Output Power Max: 60W	GM-050200 Switching Power Adaptor • Input: 100-240V ~ 50/60Hz • Input Current: 0.50A • Output: 5V – 2.0A • Output Power: 10W	USB powered	CGSW-0506000 • Input:100-240 V ~50/60 HZ • Input Current: 1.5 A • Output: 5v – 6A • Output Power Max: 30W

! Important

Only operate the device with the power supply it was shipped with.

* The AFS510 can be powered with the supplied USB Y cable as well.

** The power supply for the Combo Smart USB is optional.

2. SYSTEM REQUIREMENTS

Recommended minimum system requirements:

- Intel Pentium 2 GHz CPU or higher (or equivalent x86 compatible CPU),
- 1 GB RAM or more (depending on application),
- 32 or 64-bit Microsoft Windows7/8.1/10/Vista operating system or Linux operating system (kernel version 3.2),
- Integrated USB 2.0 port (on motherboard).

Note

The speed of image processing highly depends on the type of hardware used. In general, the shorter recognition time is needed, the more powerful machine you are advised to use.

HARDWARE INSTALLATION

Please follow the steps below to connect the PR device to the PC.

1. Connect the PR device to one of the USB 2.0 or 3.0 ports of your PC with the supplied USB cable.
2. Connect the power supply* to the device.
3. If the device is equipped with a power button, switch it on. Models that do not have power buttons will power on automatically once power is supplied.

> **Note**
>
> It is strongly recommended to use the USB ports found on the motherboard of your computer. When connecting the USB cable to a front panel USB port, make sure that the cable connecting the front panel and the motherboard is shielded

Make sure that the USB cable has a USB certification label on it, and/or a printed 8 character long TID number.



USB certification label



USB TID

If the device is used with a laptop, please make sure that the output voltage of the USB ports is not less than 5V. For this reason, it is highly recommended that you use the laptop on AC power (with the power cord connected).

* Only applicable to the devices shipped with a power supply.

!Important

To unplug the device (Combo Smart), firmly grasp the plug, not the cord, and pull it to disconnect as shown below:



Step 1



Step 2

Do not pull the cord, it can easily brake.



Do not operate the unit if it has a damaged cord or plug.

SOFTWARE INSTALLATION

1. THE PASSPORT READER SOFTWARE PACKAGE

!Important

The Passport Reader software package is available for download from our technical support website. Please register at atssregistration.arh.hu and submit a ticket for any ARH software requests.

The Passport Reader Software Package includes the following:

- Drivers for Passport Reader devices and AFS510 Fingerprint Scanner devices.
- Software Development Kit for C/C++, Visual Basic, Delphi, C#, VB.NET and Java programming languages:
  - Interface files
  - Sample programs
  - Manual in HTML and CHM format
- Full Page Reader Demo application.
- Passport Reader utility programs.

2. INSTALLATION ON WINDOWS OPERATING SYSTEMS

Administrator rights are needed for installation.

!Important

Upon installation of the 32-bit version to a 64bit PC, the 64bit device drivers are installed automatically. For 32-bit application development on 64bit PCs, install the 32bit version of the Passport Reader software as well.

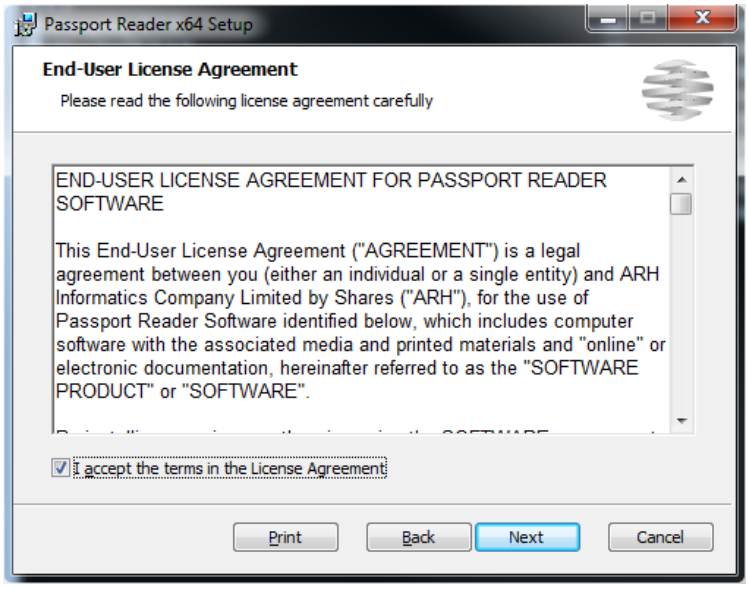
- Before installing the Passport Reader software, all previous versions of the software have to be uninstalled from the system. This process differs depending on the version that is currently installed on the system.
  - For versions 2.1.5-26W or earlier, go to **Start Menu / Programs / GX / UNINSTALL** and run **– FULL UNINSTALL –** as well as **Start menu / Programs / GX / 32 bit version / - FULL UNINSTALL –** if applicable.
  - For versions 2.1.6 or later, go to **Control Panel / Add/Remove Programs** and remove all versions of the Passport Reader software.
- Once all previous versions of the software have been uninstalled, restart the computer.

- Next, locate the downloaded software package and run **pr-2.1.6.X-x86.msi** (in case of 32-bit operating systems) or **pr-2.1.6.X-x64.msi** (in case of 64-bit operating systems). These files are located within the **win** folder of the Passport Reader package**.**
- The installation starts with the following window.



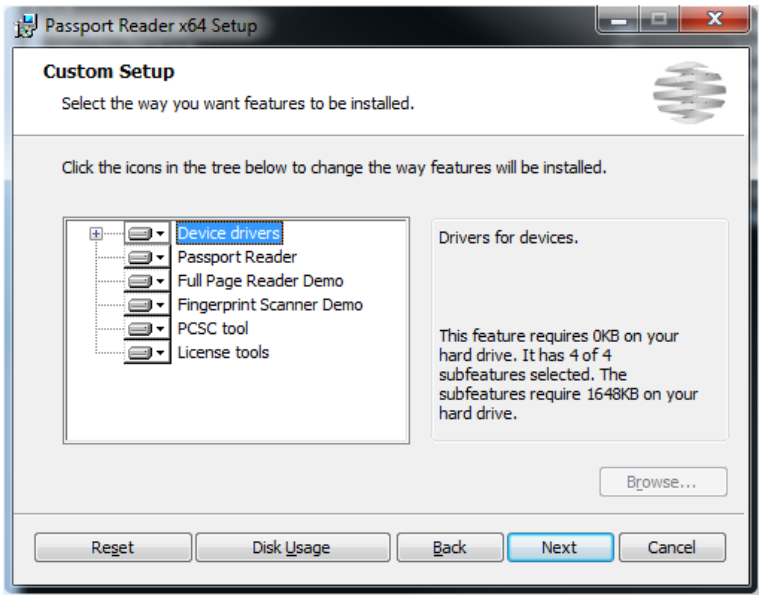
Welcome Page of Passport Reader x64 setup

- Click **[Next]** to launch installation.



End-User License Agreement

- Accept the EULA (by ticking the checkbox above) and start the custom installation process by clicking on **[Next]**.

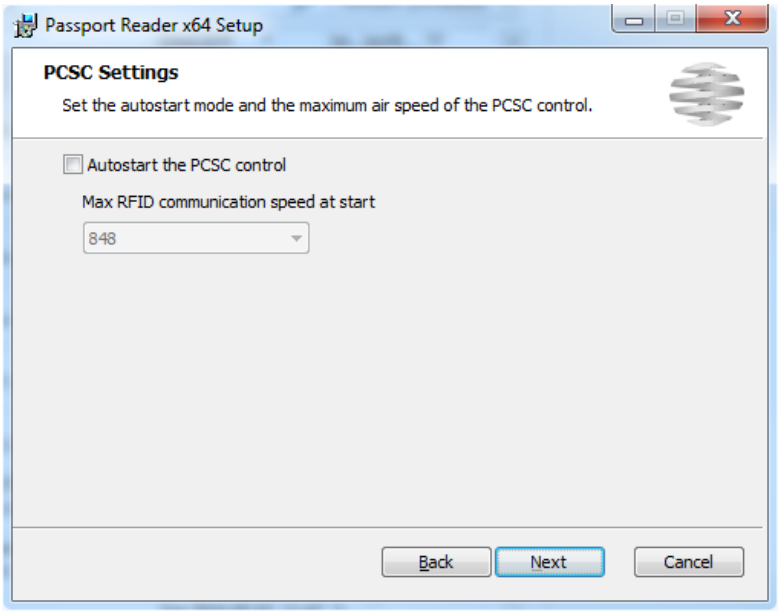


Custom Setup screen

- In the **Custom Setup** window, select the modules you wish to install on the PC.
- Installing the **Device Drivers** and the **Passport Reader** module is necessary for device operation, installation of all other modules is optional.

Note

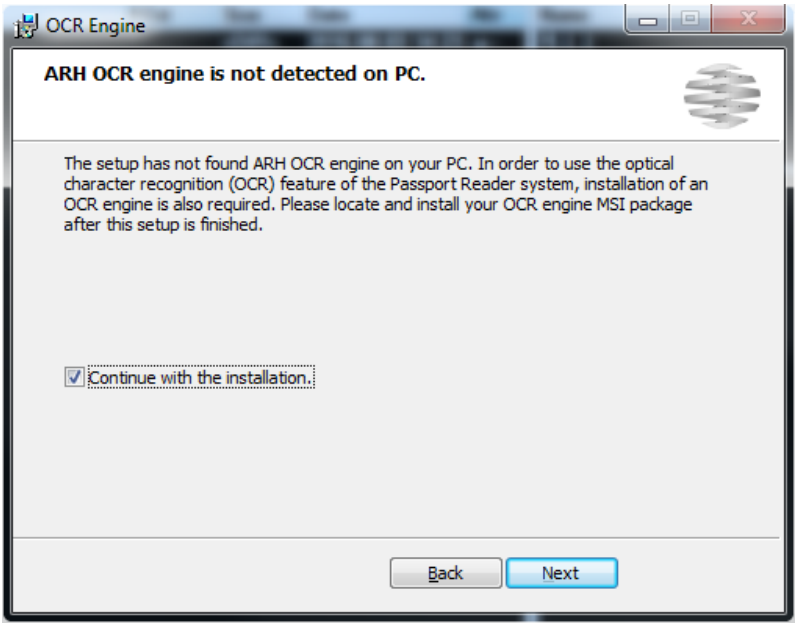
SDK and Documentation is available in the SDK folder of the PR Software package.



PCSC Settings

!Important

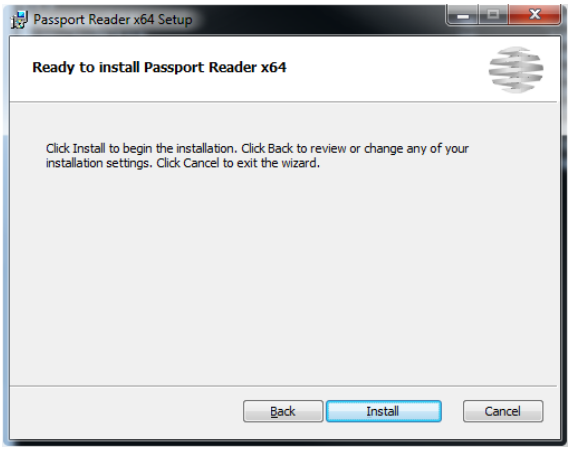
Please select the **Autostart** option only if you intend to use your document reader device via the PC/SC interface. This setting can also be modified after installation is finished. For more information please see the PC/SC section.

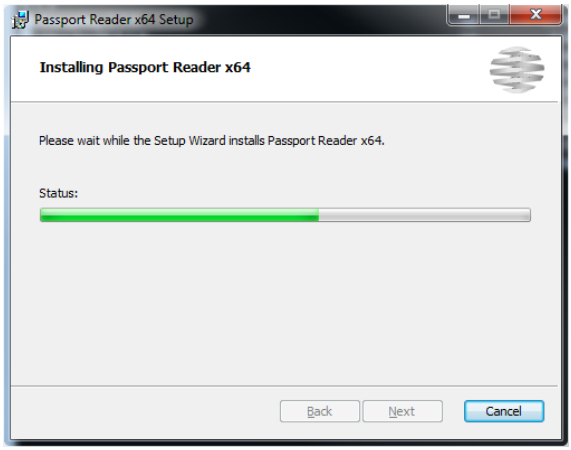


!Important

In order to use the OCR functionality of your document reader device via ARH OCR engine, please also install the procr-2.0.x.xx.msi package located in the **win** folder of the Passport Reader install package, after current installation is finished.

- Clicking on **[Install]** will begin installation.



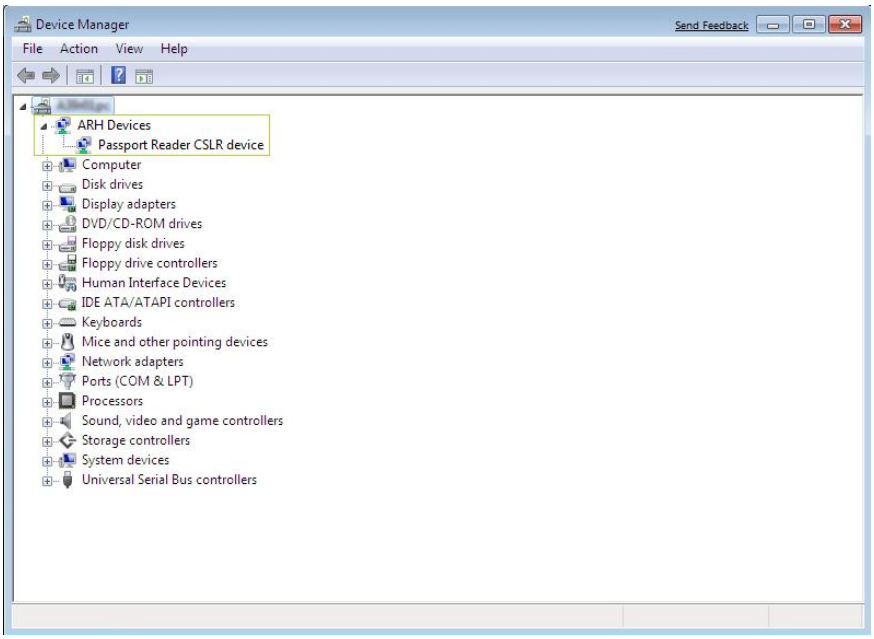


- Click **[Finish]** to complete the installation.



Installation is complete

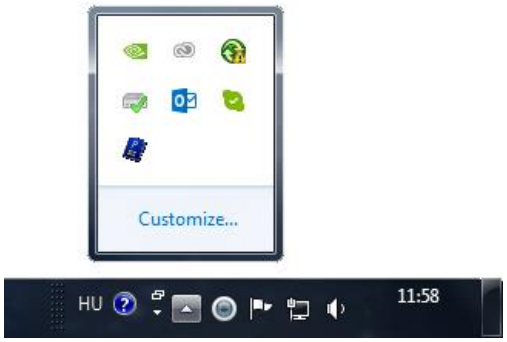
- After the installation has finished, open the Device Manager. If the installation was successful, a group named ARH Devices together with one of the following devices should be listed:
  - Passport Reader CSHR device (Combo Smart),
  - Passport Reader CSLR device (Combo Scan, Kiosk Scan),
  - Passport Reader CSMR device (Combo Smart USB, Combo Smart Kiosk, Combo Scan R),
  - Passport Reader PRMc device (PRMc models).



E.g. Combo Scan in Device Manager

2.1. PC/SC DRIVER

The PC/SC driver is part of the Passport Reader installer package. The icon of the PC/SC driver can be found in the toolbar.

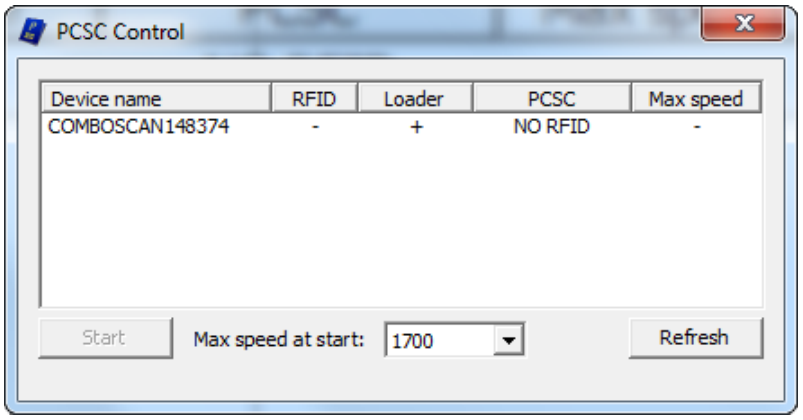


Windows toolbar

By double clicking on it, the PC/SC Control window appears. The default status is "STOPPED". It can be started by clicking on the **[START]** button.

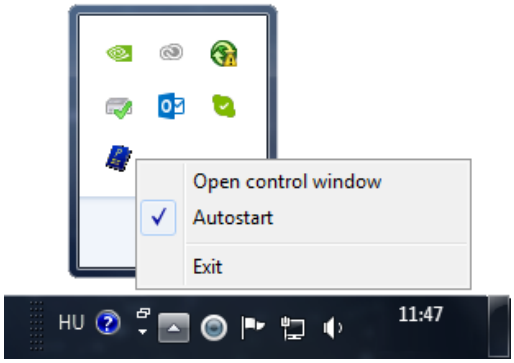
!Important

Please make sure to close the Passport Device before starting or stopping the PC/SC interface.



PC/SC Control Utility

The PS/SC driver can be started automatically via the **Autostart** menu (right click on the **PC/SC** icon and click on **Autostart**).



PC/SC Menu

3. SOFTWARE INSTALLATION ON LINUX OPERATING SYSTEM

3.1. INTRODUCTION

The system was built on Debian 6.06 and has been tested on:

- Debian 7
- Ubuntu 10.04
- Ubuntu 12.04
- CentOS 6.3
- OpenSUSE 12.1

> **Note**
>
> Read the license agreement before installing the packages.

For the installation you need "GNU Make" (tested with "GNU Make 3.81"), "GNU C/C++" compiler (we have tested with "GNU C/C++ 4.6.3") and the corresponding GLIBC. The kernel headers and configuration files must be installed as well.

3.2. CONTENTS OF THE INSTALL PACKAGE

The Linux installation package contains both the 32-bit and the 64-bit files. Files ending **without** x86 or x64 are necessary for **both** 32-bit and 64-bit installations.

32-BIT PACKAGE

GX

`gx-7.2.x-x-x86.tar.gz`	GX system
`gx-sdk-7.2.x-x.tar.gz`	SDK

Passport Reader

`pr-2.1.x-x-x86.tar.gz`	Passport Reader system
`prd-2.1.x-x-x86.tar.gz`	PRDDRV driver for Passport Reader devices
`clr-2.x.x-x-x86.tar.gz`	CLRDRV driver for Passport Reader devices
`procr-2.x.x-x-x86.tar.gz`	OCR engine
`fxmcusb-7.x.x-x.tar.gz`	USB Neural Network Controller devices
`licutils-7.x.x-x-x86.tar.gz`	License management tools
`pr-demo-2.x.x-x.tar.gz`	Passport Reader demo application
`pr-udev-2.x.x-x.tar.gz`	Scripts and udev rules for automatic driver loading

64-BIT PACKAGE

GX

`gx-7.2.x-x-x64.tar.gz`	GX system
`gx-sdk-7.2.x-x.tar.gz`	SDK

Passport Reader

`pr-2.1.x-x-x64.tar.gz`	Passport Reader system
`prd-2.1.x-x-x64.tar.gz`	PRDDRV driver for Passport Reader devices
`clr-2.x.x-x-x64.tar.gz`	CLRDRV driver for Passport Reader devices
`procr-2.x.x-x-x64.tar.gz`	OCR engine
`fxmcusb-7.x.x-x.tar.gz`	USB Neural Network Controller devices
`licutils-7.x.x-x-x64.tar.gz`	License management tools
`pr-demo-2.x.x-x.tar.gz`	Passport Reader demo application
`pr-udev-2.x.x-x.tar.gz`	Scripts and udev rules for automatic driver loading

3.3. THE INSTALLATION PROCEDURE

1. UNPACK AND COPY ALL FILES INTO YOUR SYSTEM:

- use `_install.sh [32|64|all]`

> **Note**
>
> Optional parameters enforce the installation of the binaries.

Dependencies:
Please install the following libraries with your distribution package manager or manually (these libraries are apart from services):

- SDL (A library for portable low-level access to a video framebuffer, audio output, mouse, and keyboard),
- SDL ttf (A library that enables using TrueType fonts in your SDL applications),
- SDL net,
- SDL gfx,
- SDL image,
- freetype (TrueType font rendering library).

GX: none
Passport Reader: GX

2. COMPILE KERNEL MODULES:

- Download a kernel source (e.g. 2.6.x) from http://www.kernel.org and unpack into `/usr/src` directory (2.6.x series recommended).

  If you have an older GX version in the kernel tree, please remove it manually by using the script `_uninstall.sh`.

  You can use the kernel source package of your distribution (e.g. Ubuntu 10.04 -> linux-kernel-headers)

- Or make sure that the kernel config files are installed. Check the `/lib32/modules/$(KERNEL_VERSION)/build` directory

- Compile device drivers:

  Compile the drivers with 'make' command in the following order:

  - /usr/src/gx/kernel/gxsd
  - /usr/src/gx/kernel/clrdrv
  - /usr/src/gx/kernel/prddrv
  - /usr/src/gx/kernel/fxmc_usb

Note

If you get a "No rule to make target..." error message by typing "make":

if the output of "uname -i" is "unknown" and your system is either i386 or x86_64:

make a symbolic link to e.g. b_prddrv.o by typing:

```
ln -s b_prddrv.o.i386 b_prddrv.o OR

ln -s b_prddrv.o.x86_64 b_prddrv.o

(ln -sf b_prddrv.o.i386
/usr/src/gx/kernel/prddrv/b_prddrv.o.GenuineIntel by me)
```

according to your system.

3. INSTALL NEW KERNEL MODULES:

For PRDDRV:

```
/sbin/insmod /usr/src/gx/kernel/gxsd/gxsd.ko
/sbin/insmod /usr/src/gx/kernel/prddrv/prddrv.ko
```

For CLRDRV:

```
/sbin/insmod /usr/src/gx/kernel/gxsd/gxsd.ko
/sbin/insmod /usr/src/gx/kernel/clrdrv/clrdrv.ko
```

4. AUTOMATIC DRIVER LOADING IS ENABLED BY THE PR-UDEV MODULE.

This module enables the automatic installation of the driver modules when the reader is connected to the pc. As result, there is no need to start the driver manually. If this feature is not needed, then remove the 98-arh.rules from the `/etc/udev/rules.d` directory.

3.4. AFTER INSTALLATION

Once installation is complete, you can find the manual for the GX and PR systems in `/usr/share/doc/gx`. The header files can be found in `/usr/include/gx`, the library files in `/usr/lib32/gx` (and `/usr/lib64/gx` on 64 bit systems).

The basic GX library is in `/usr/lib32` and `/usr/lib64 (libgxsd.so.7)`. The file containing the property data is `/var/gx/gxsd.dat`.

After the kernel modules were started, you can check the state of the running drivers in `/proc/gx`.

Sample programs can be found in `/usr/src/gx` in the examples directory.

You can use these environment variables:

- `LD_LIBRARY_PATH:` for shared objects (*.so) (`/usr/lib32`, `/usr/lib64`, `/usr/lib32/gx`, `/usr/lib64/gx`)
- `GX_VAR_PATH:` for properties (`gxsd.dat`) and global locks (`/var/gx`)
- `GX_SHARE_PATH:` for shared data (`procr-2.xx.dat`) (`/usr/share/gx`)

3.5. INSTALLATION OF A DIFFERENT ENGINE

The engine is packed to a .tar.gz file. Type the following command to start installation:

```
tar xvfz engine.tar.gz -C /
```

3.6. UNINSTALLATION

If you want to uninstall the device driver files simply type:

```
rm -Rf /usr/include/gx /usr/lib32/gx /usr/lib64/gx /var/gx /usr/src/gx
rm -Rf /usr/share/gx /usr/share/doc/gx
rm -f /usr/lib32/libgx* /usr/lib64/libgx*
```

Alternatively you can also use `_unistall.sh`.

3.7. DEVICE ENTRIES IN /DEV DIRECTORY

Similar entries can be found in /dev if you connect the device and load the desired driver. This entry point will be created by udev in the new 2.6.x kernel series.

```
crw-rw---- 1 root root    189,   2 2009-11-26 15:49 usbdev1.3
crw-rw---- 1 root root    252,  14 2009-11-26 15:49 usbdev1.3_ep00
crw-rw---- 1 root root    252,  13 2009-11-26 15:49 usbdev1.3_ep81
crw-rw---- 1 root root    189,   5 2009-11-26 15:49 usbdev1.6
crw-rw---- 1 root root    252,  17 2009-11-26 15:49 usbdev1.6_ep00
crw-rw---- 1 root root    252,  15 2009-11-26 15:49 usbdev1.6_ep02
crw-rw---- 1 root root    252,  16 2009-11-26 15:49 usbdev1.6_ep84
```

3.8. TROUBLESHOOTING - KNOWN BUG(S)

1. PERMISSION DENIED FAILURE

Solution:

```
/sbin/rmmod prddrv
/sbin/rmmod gxsd
/sbin/insmod /usr/src/gx/kernel/gxsd/gxsd.ko
/sbin/insmod /usr/src/gx/kernel/prddrv/prddrv.ko
```

TROUBLESHOOTING

ISSUE	CAUSE	SOLUTION
There is a "!" next to the Passport Reader {XXX} device in the Device manager.	The driver of the controller(s) is not installed properly.	Update the drivers. If automatic refreshing fails, fully uninstall the software and reinstall it.
Drivers failed to install.	The user has no administrator rights.	The drivers have to be installed with administrator rights.
TWAIN does not work on 64-bit operating system	lack of 64-bit Windows drivers	Copy the twaindsm.dll located in the PR install package to your Windows directory.

TECHNICAL SPECIFICATIONS*

	PRMc 135 RPL	KIOSK SCAN	KIOSK SMART	COMBO SCAN	COMBO SMART
IMAGING					
Image sensor [Mpixels]	5	5	5	5	5
Resolution [DPI]	475	500	500	500	500
Active scan area [mm]	98 x 130	55 x 125	90 x 130	125 x 55	125 x 88
Active scan area [inch]	3,86 x 5,12	2,17 x 4,92	3,54 x 5,11	4,96 x 2,17	4,92 x 3,46
Automatic document detection	yes	yes	yes	yes	yes
ILLUMINATION SOURCES					
Normal white light	yes	yes	yes	yes	yes
Infra red (IR) light	yes	yes	yes	yes	yes
UV-A light	yes	-	yes	-	optional
OCR READING					
ICAO MRZ 1,2,3 line	yes	yes	yes	yes	yes
ID 1 Document Type	yes	yes	yes	yes	yes
ID 2 Document Type	yes	yes	yes	no	yes
ID 3 Document Type	yes	yes	yes	no	yes
Visual Inspection Zone (VIZ)/user defined	optional	optional	optional	optional	optional
BARCODE READING					
1D UPC-A	yes	yes	yes	yes	yes
1D EAN8	yes	yes	yes	yes	yes
1D EAN13	yes	yes	yes	yes	yes
1D Code39	yes	yes	yes	yes	yes
1D Code128	yes	yes	yes	yes	yes
1D ITF	yes	yes	yes	yes	yes
1D UPU	-	-	yes	-	
2D PDF 417	yes	yes	yes	yes	yes
2D Data Matrix	yes	yes	yes	yes	yes
2D QR Code	yes	yes	yes	yes	yes
2D Aztec Code	yes	yes	yes	yes	yes
From paper and mobile device screen	yes	yes	yes	yes	yes
AAMVA compliant PDF417 2D barcodes	yes	yes	yes	yes	yes
RFID READING					
RFID module	optional	-	optional	optional	optional
RFID detection in any position	yes	-	yes	-	yes
Single-step reading	yes	-	yes	-	yes
Supporting ISO 14443 A/B compliant IC-s up to 848 Kbps	yes	-	yes	yes	yes
Supporting ICAO D 9393 / LDS 1.7 IC-s	yes	-	yes	-	yes
Max. RFID speed data reading	yes	-	yes	yes	yes
SUPPORTED RFID AUTHENTICATIONS					
AA, PA	yes	-	yes	yes	yes
BAC	yes	-	yes	yes	yes
EAC (CA,TA)	yes	-	yes	yes	yes
PACE (EAC2)	yes	-	yes	yes	yes
MAGNETIC STRIPE READING					
Magnetic Stripe Reader Module	-	-	-	-	optional
Related ISO reading	-	-	-	-	yes
ANSI reading	-	-	-	-	yes
AAMVA reading	-	-	-	-	yes

CONTACT SMART CARD READING					
Contact Smart Card Module	optional	-	-	-	optional
ISO 7816 & EMV2 2000 standards	yes	-	-	-	yes
ISO 7816 Class A, AB and C (optional) card types	yes	-	-	-	yes
ENHANCED PHOTO READING					
Photo Camera	optional	-	-	-	-
JURA IPI decoding	optional	-	-	-	-
Background printing check	optional	-	-	-	-
Microprinting check	optional	-	-	-	-

AUTHENTICATION (ADAM*)					
MRZ checksum validation	yes	yes	yes	yes	yes
MRZ comparing to VIZ	optional	optional	optional	optional	optional
Expiry date check, B900 ink check	yes	yes	yes	yes	yes
Automatic pattern matching under normal and IR light	optional	optional	optional	optional	optional
Automatic pattern matching under normal, IR and UV light	optional	-	optional	-	optional
Comparing printed data to data in RFID chip	yes	-	optional	optional	yes
UV dull paper check (UV required)	yes	-	optional	-	optional
EXTENDED HIGH COLOR FIDELITY (XCF)					
Automatic color calibration	yes	yes	yes	yes	yes
Outstanding deltaE value (ref. Q-60R2 Kodak Target)	yes	-	-	-	-

OPERATING SYSTEMS					
Windows 10 (32/64bit)	yes	yes	yes	yes	yes
Windows 8.1 (32/64bit)	yes	yes	yes	yes	yes
Windows 8 (32/64bit)	yes	yes	yes	yes	yes
Windows 7 (32/64bit)	yes	yes	yes	yes	yes
Windows Vista (32/64bit)	yes	yes	yes	yes	yes
Windows Server 2003 (32/64bit)	yes	yes	yes	yes	yes
Windows Server 2008, R2 (32/64bit)	yes	yes	yes	yes	yes
Linux	optional	optional	optional	optional	optional
SDK					
C/C++	yes	yes	yes	yes	yes
Visual Basic 6.0	yes	yes	yes	yes	yes
Delphi	yes	yes	yes	yes	yes
Java	yes	yes	yes	yes	yes
VB.NET	yes	yes	yes	yes	yes
C#	yes	yes	yes	yes	yes
ACCESSIBLE IMAGES					
Visible	yes	yes	yes	yes	yes
IR captured	yes	yes	yes	yes	yes
UV induced	yes	-	optional	-	optional
OVD	yes	yes	yes	yes	yes
Glare-free image (Reflection Removing Function)	yes	yes	yes	yes	yes
IMAGE FORMATS					
Color depth (RGB)	24 bits/pixel	24 bits/pixel	24 bits/pixel	24 bits/pixel	24 bits/pixel
BMP format	yes	yes	yes	yes	yes
JPG format	yes	yes	yes	yes	yes
JPG2000 format	yes	yes	yes	yes	yes
PNG format	yes	yes	yes	yes	yes
RAW format	yes	yes	yes	yes	yes

GENERAL INTERFACES					
ARH native	yes	yes	yes	yes	yes
TWAIN	yes	yes	yes	yes	yes
PC/SC (for devices with RFID)	yes	-	yes	-	yes
BioAPI 2.0 (for devices with RFID)	yes	-	yes	-	yes
AssureID™	yes	yes	yes	yes	yes
Number of programmable status LEDs	3	0	3	3	4

COMPUTER CONNECTIONS					
USB 2.0 high speed	yes	yes	yes	yes	yes
Extra USB2.0 port for connecting external device	-	-	-	-	yes
PHYSICAL PROPERTIES					
Width x Height x Depth mm	213 x 173 x 179	125 x 123 x 68	150 x 195 x 117	152 x 130 x 82	180 x 175 x 145
Width x Height x Depth inches	8.39 x 6.81 x 7.05	4.92 x 4.84 x 2.68	5.90 x 7.67 x 4.60	5.98 x 5.12 x 3.23	7.09 x 6.89 x 5.71
Weight kg	1,9	0,6	1,01	0,6	1,1
Weight pounds	4,19	1,32	2,15	1,32	2,43
Case	Sturdy ABS-PC plastic	Metal case	Sturdy ABS plastic	Sturdy ABS-PC plastic	Sturdy ABS-PC plastic
IP rate	IP 51	IP 53	IP 53	IP 53	IP 53
Operating temperature Celsius	5 to 45	5 to 45	5 to 40	5 to 45	5 to 45
Operating temperature Fahrenheit	41 to 113	41 to 113	41 to 104	41 to 113	41 to 113
Operating humidity	0-95% (non-condensing)	0-95% (non-condensing)	0-90% (non-condensing)	0-95% (non-condensing)	0-95% (non-condensing)
External power supply (universal)	100-240V AC, 50/60Hz	-	100-240V AC, 50/60Hz	-	100-240V AC, 50/60Hz
Power from USB	-	yes	-	yes	optional

CONFORMITY					
CE	yes	yes	yes	yes	yes
FCC	yes	yes	yes	yes	yes
RoHS	yes	yes	yes	yes	yes
IEC 62471	yes	yes	yes	yes	yes
MISCELLANEOUS					
Firmware upgrade	yes	yes	yes	yes	yes
SIO_2 glass	yes	optional	optional	optional	optional
Flip-top cover	optional	-	-	-	-
Easily accessible SAM slots	-	-	-	-	1
Secured SAM slots	-	-	-	-	1
Kensington security slot	yes	yes	yes	yes	yes

* Technical specifications are subject to change without prior notice.

CONTACT INFORMATION

HEADQUARTERS	ARH AMERICA	INNOVATION CENTER
ARH Inc. Hungary, EU	Adaptive Recognition America Corp. Florida, USA	ARH Innovations Hungary, EU
Alkotás utca 41 Budapest, 1123 Hungary	28059 US Highway 19 North, Suite 203 Clearwater, Florida 33761	Perbál, Hungary
Phone: +36 1 201 9650 Fax: +36 1 201 9651 Web: www.arh.hu	Phone: +1 727 724 4219 Fax: +1 727 724-4290 Web: www.arh.hu	Phone: +36 1 201 9650 Fax: +36 1201 9651

The ARH Technical Support System (ATSS) is designed to provide clients with fast and proficient assistance.

Information regarding hardware, software, manuals and FAQs are easily accessible for clients who are already registered in ATSS. In addition to offering assistance, the system is also designed to provide high levels of protection while managing your business information.

NEW USERS

If this is your first online support request, please create an account by clicking on this link.

RETURNING USERS

All registered ATSS customers receive a personal access link by email. If you previously received a confirmation message from ATSS, it contains an embedded link that allows you to securely enter the support site.

If you need assistance with login or registration, please contact atsshelp@arh.hu for help.