ADAPTIVE **RECOGNITION**

Combo Smart Kiosk
User Manual

This manual contains instructions on accessing
the device, system settings and setup guidelines,
as well as usage and maintenance.

COMBO SMART KIOSK
USER MANUAL

Passport Reader Software Package v.2.2.0.1

Document version: 19.05.2025.

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3 **USB 2.0 (A-B) Cable (1.8 m)**

4 **EUR Type Power Cord and Power Supply**

2. HOW TO GET STARTED

1. Connect the **USB cable** to the scanner (USB-B) and to the PC (USB-A).

2. Connect the **power supply** to the reader.

3. Connect the **power cord** to the power supply and to the wall socket.

4. The device powers on automatically once power is supplied.

5. Then, the device starts booting, which may take a few minutes. The status LEDs installed on the front of the body will indicate the current status of the process. For more information on it, see the LED Statuses of the Combo Smart Kiosk Device chapter.

6. Install our latest **Passport Reader Software Package** on Windows or Linux. The Software Package is available from our portal. For more information on it, see Software Installation chapter.

> 📑 Note
>
> In case of **installation rollback**, reinstall the Passport Reader Software Package **as admin**. For more information on the installation process, see Software Installation chapter.

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7. The **default PR OCR** engine is embedded to the **Passport Reader Software MSI**, there are no other tasks to perform. However, in case of purchasing **VIZ OCR** or **VIZ AUTH OCR engine**, download the required VIZ OCR or VIZ AUTH OCR engine from the ADAPTIVE RECOGNITION website and perform the installation. For more information on it, see VIZ OCR and VIZ AUTH OCR Engine Management chapter.

8. The **default license** valid for the basic software functions is **pre-installed** on the device. In this case the license is up to date, thus there are no other tasks to perform. However, **license upload is required**, when:

  – Purchasing **VIZ OCR** or **VIZ AUTH OCR** engine,
  – Purchasing **Autofill** application,
  – Purchasing **license update**,
  – Purchasing other **additional software**,
  – The ordered software license was **supplied separately**.
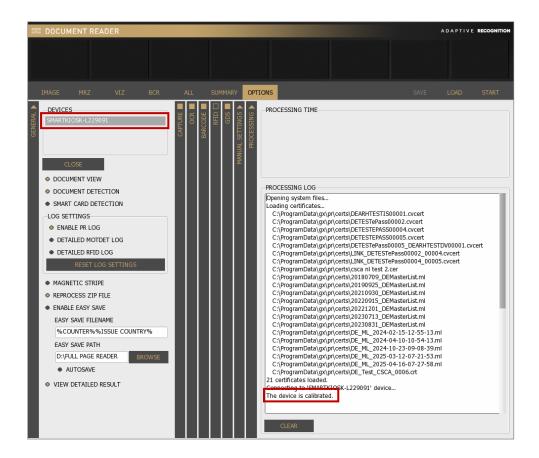
For more information on license upload, see License Management chapter.

9. **Operating the device** according to application areas:

  9.1. **For end-user, or testing the software setup:**

  – Full Page Reader application (**default operation mode**) (included in the PR Software Package)
  – Authentication Checker application (included in the PR Software Package)

  9.2. **For quick integration:**

  – Autofill application (sold separately)

  9.3. **For solution developer:**

  – API
  – Twain
  – NetAPI

10. Check if the **setup was successful**:

In case of the default application, **Full Page Reader (FPR)**, the steps are the following:

– If in the opened FPR application the device is **displayed in the DEVICES list** and it is **highlighted in grey** as well as in the **PROCESSING LOG** field "**The device is calibrated.**" message appears, then the reader is **connected** and **ready to use**.
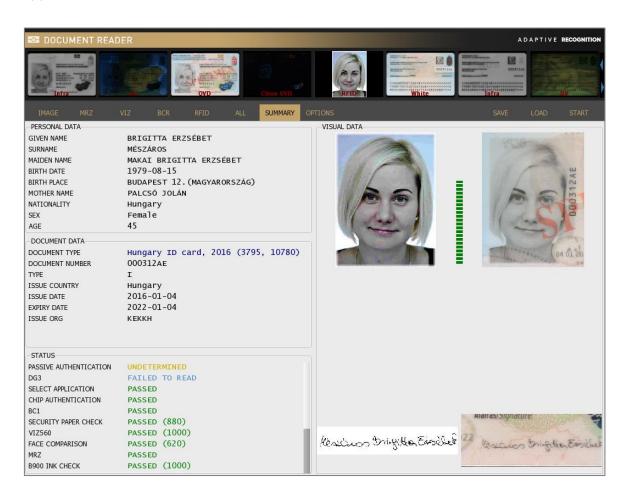
> 📄 Note
>
> If a **device is connected** to the computer, but it is **not displayed** in the **DEVICES** list, then try to **change the USB port** and/or **USB cable**. If the issue is not resolved after these changes, **reinstall** the Passport Reader Software Package **as admin**. For more information on the installation process, see Software Installation chapter.

– After the device is connected successfully, **place a document on the scanning surface** of the reader. The device starts the scanning process automatically.

– After the scanning process is finished, the **extracted data can be examined** in the application.

> 📰 Note
>
> For more information on **Combo Smart Kiosk** device and its operation, see the following chapters of this manual.

II. INTRODUCTION

Combo Smart Kiosk is a full-page **passport** and **ID** reader for kiosks and automated border control gates. It has a compact design with mounting points, recessed connections and status LEDs in order to facilitate the installation and the built-in use. This physical form is optimized for **e-gates**, **airline check-in**, **utility payment**, **ATM/VTM kiosks** and **other self-service stations**. The device has a full-size, ID-3 type document reading glass surface and removable document holder, which is 180 degrees reversible during installation, allowing more convenient use and better access to the glass surface. The reader is able to perform a broad-spectrum authentication and data reading tasks. A free software library is included, allowing easy integration into any system. The device performs automatic image processing, MRZ, VIZ, barcode and RFID chip data reading as well as authentication of standard safety features. The high-resolution images are captured under LED based **visible white**, **IR** and **UV** illuminations. The **OVD** visualization, **Reflection Removal** (**RR**) and **Adaptive Light Control** technology aid OCR and verification processes. Maintenance-free operation is ensured by the no moving parts design.

The following models are available:

- **Combo Smart Kiosk L**: USB base model with UV illumination
- **Combo Smart Kiosk RL**: USB device with UV illumination and built-in RFID module

For more information on the technical specifications of the Combo Smart Kiosk device, click on this link to access a comprehensive tech datasheet.

III. DEVICE OVERVIEW

1. PACKAGE CONTENTS

- Combo Smart Kiosk ID and passport scanner device
- USB cable
- Power cord and power supply
- 1 pc of glass cleaning wipe

1 **Combo Smart Kiosk Passport Reader**

2 **Glass Cleaner Wet Wipe**

3 **USB 2.0 (A-B) Cable (1.8 m)**

4 **EUR Type Power Cord and Power Supply**
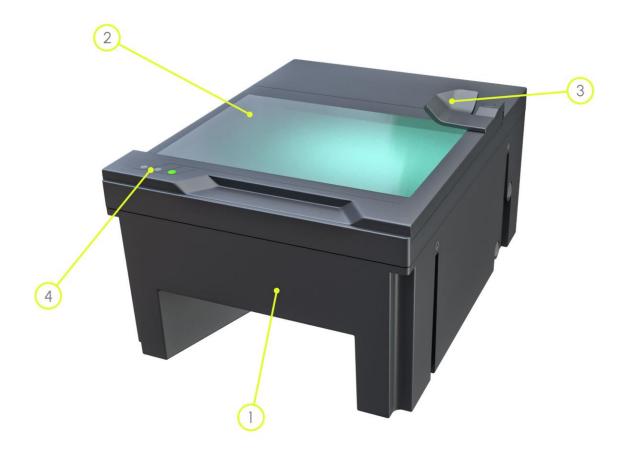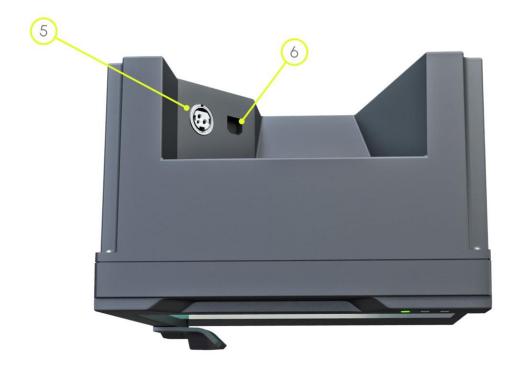
2. PARTS AND COMPONENTS

The device is produced in a sturdy **(ABS-PC) plastic housing** (**1**). The **object-plate** (**2**) is equipped with a **document holder** (**3**) in order to facilitate the placing of the document. The **status LEDs** (**4**), indicating the various states of the device, are installed on the front of the body.

The **power supply socket** (**5**) and the **USB socket** (**6**) are located at the bottom of the device.

IV. HARDWARE SETUP

In this section instructions and recommendations concerning the hardware integration are described, which are the following:

- Do not throw or drop the device.
- Avoid bright, alternating lights, which can interfere with image capture. For example, do not illuminate the scanner surface with a lamp, especially when scanning ID-1 size documents.
- Avoid heavy dust in the ambience of the device. The devices are to be used indoors, in an office environment only (SOHO).
- It is recommended to maintain the device in certain intervals. Wipe the dust and grease off the glass with the wipe provided with the reader, see Maintenance appendix with its subchapters.
- The most efficient way to place the documents on the scanning surface is to put the ID in the left corner, and avoid placing the card at an angle close to 45 degrees. For more information, see Correct Document Placement chapter.
- You should avoid wearing rings and nail extensions. Avoid placing grainy documents on the surface of the reader. Pay attention to prevent getting grains of sand or other materials inside the device.

V. SAFETY

> ⊘ **Important!**
>
> **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.

> ⊘ **Important!**
>
> Only operate the device with the power supply it was shipped with.

> ⊘ **Important!**
>
> The device should not be operated with its object-plate exposed to direct sunlight.

> ⊘ **Important!**
>
> Do not look directly into the UV-A and INFRA lights during scanning process. They may cause damage to the eye.

> ⊘ **Important!**
>
> Do not use abrasive cleaners or solvents when cleaning the device. These may scratch the glass or damage the plastic.

VI. INSTALLATION

Combo Smart Kiosk models are USB devices and they can be used with the Full Page Reader or Authentication Checker applications as well as our SDK.

> 📄 Note
>
> For more information on the Full Page Reader or Authentication Checker application, see the Full Page Reader Application or the Authentication Checker Application chapters.

1.   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 Windows 7/8.1/10/11/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.

> 📄 Note
>
> In case of an **authentication engine**, the recommended system requirements are the following:
> - 64-bit system,
> - 4+ GB RAM.

> 📄 Note
>
> In case of purchasing **VIZ OCR engine**, it is strongly recommended to use 64-bit operating systems.

2. HARDWARE INSTALLATION

2.1. CABELING

Follow the next steps to connect the device to the PC:

1. Connect the device to one of the **USB 2.0 or 3.0 ports** of the PC with the **supplied USB cable**.

> 📋 Note
>
> It is strongly recommended to use the USB ports of the motherboard. When connecting the USB cable to the front panel USB port, use shielded cable between the motherboard and the USB panels.

2. Connect the power supply to the unit.

> 📋 Note
>
> Only use the power supply that was shipped with the device.

3. The reader powers on automatically once power is supplied.

> 📋 Note
>
> Once the device is connected, the status LEDs flash, then the green LED will stay on.

> 📋 Note
>
> 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).

Supported operating systems:

- **Windows**: 11, 10, 8.1, 8, 7, Vista (32/64 bit, WHQL certified), 32/64-bit Server 2008 R2 and Server 2003
- **Linux**: Ubuntu, Debian, OpenSUSE, CentOS
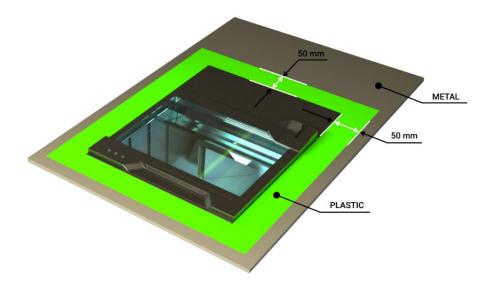
2.2. ON-SITE INSTALLATION

Any metal components nearby the antenna of the RFID may cause issues in the RFID performance.
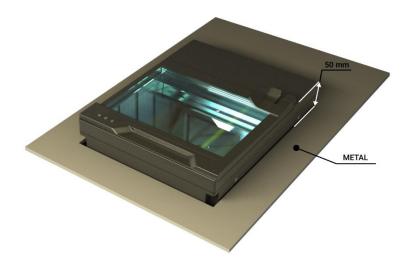
> **Note**
>
> The RFID antenna is around the scanning window along the top part of the device.

To avoid such impairment in devices with RFID, establish a distance of at least 50 mm using a non-metallic frame between the scanner's glass surface and the metal.
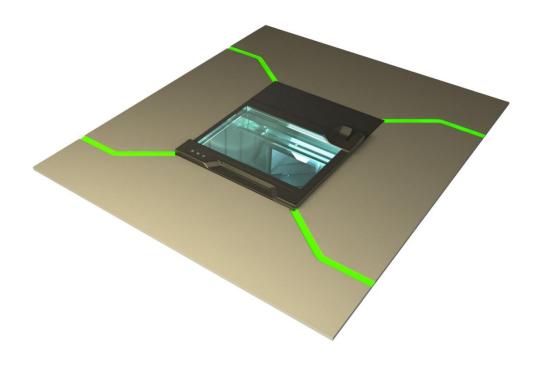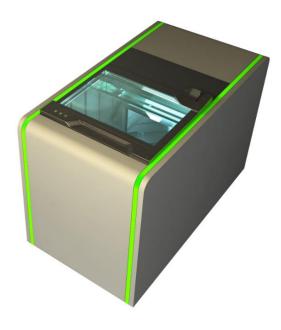
You can also create 50 mm distance between the two, by lifting the device above the metal.
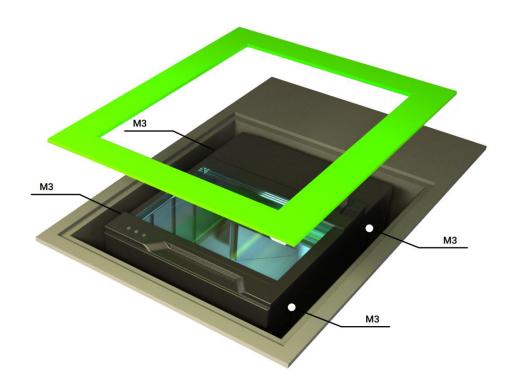
Another way to install the device:
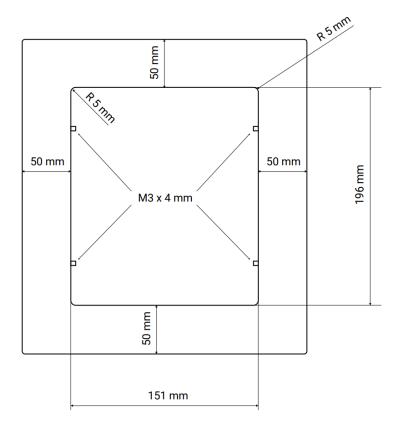
When plastic parts are not admissible on surface, please be sure metallic parts around the device are not connected to each other. Below you can see the illustration of this type of mounting. Green parts are plastic or other non-conductor material.

To maintain a smooth surface between the Combo Smart Kiosk scanner and the ABC (Automated Border Crossing) gate or a kiosk, mount the device using a frame. The frame surrounds the top shell of the device. It is not provided by ADAPTIVE RECOGNITION.

3.   SOFTWARE INSTALLATION

In order to operate the Combo Smart Kiosk device, the ADAPTIVE RECOGNITION driver package is necessary.

The Passport Reader software package is available in the following ways:

–   Check the automatic notification email which was sent on the day of the dispatch and use the link to download the latest passport reader software.

–   Alternatively,   check   our   [portal]   (https://adaptiverecognition.com/doc/id-scanners-readers/passport-reader-software/#software/) to access our software modules.

The **Passport Reader Software Package** includes the following components:

- 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 Application
- Authentication Checker Application
- Passport Reader utility programs (License Manager, PRDTool)
- NetAPI SDK (from PR Software Package 2.1.11.1)

📰 Note

Silent installation can also be performed. There is an example below, the actual command may differ.

For example:

```
msiexec.exe /i pr-2.1.11.2-x64.msi /qn
ADDLOCAL="certificates,gxsddriver,drivers,prddriver,fxmcusbdriver,
omnikeydriver,arhftdidriver,gx,pr,fullpagereader,apps,authchecker,
pcsc,tools,fpsdemo,license_tools,ocr,prdt,prwebsrv,qtgx,VCRedist8,
VCRedist8Policyx64,VCRedist10,VCRedist14"
```

3.1.   INSTALLATION ON WINDOWS OPERATING SYSTEMS

> ⊘ **Important!**
>
> Administrator rights are needed for installation.
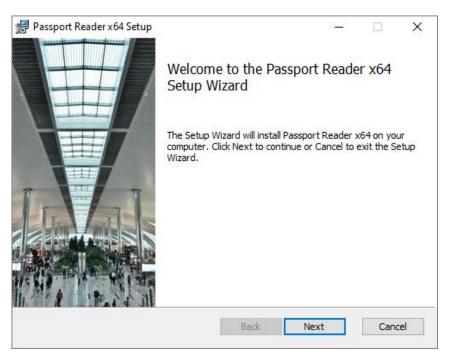
> ⊘ **Important!**
>
> Upon installation of the 32-bit version to a 64-bit PC, the 64-bit device drivers are installed automatically. For 32-bit application development on 64-bit PCs, install the 32-bit version of the Passport Reader software as well.
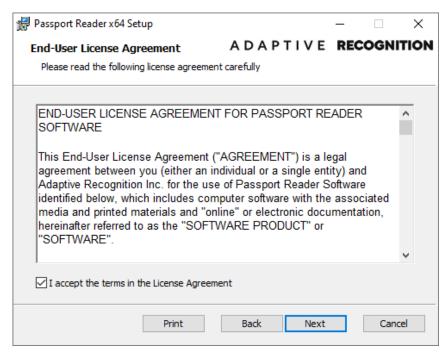
1. Before installing the Passport Reader software, all previous versions of the software must be uninstalled from the system. This process differs depending on the version that is currently installed on the system.

   – 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.

2. Once all previous versions of the software have been uninstalled, restart the computer.

3. Next, locate the downloaded software package and run **pr-2.x.x-x86.msi** (in case of 32-bit operating systems) or **pr-2.x.x-x64.msi** (in case of 64-bit operating systems).

4. The installation starts with the following window:
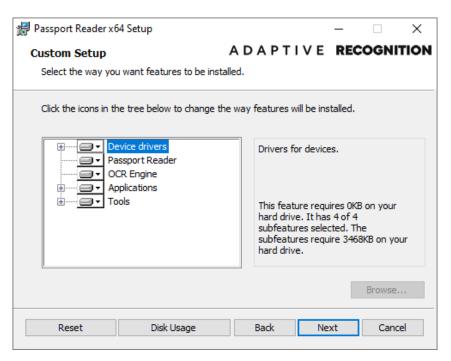
Welcome Page of Passport Reader x64 setup

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

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

End-User License Agreement (EULA)
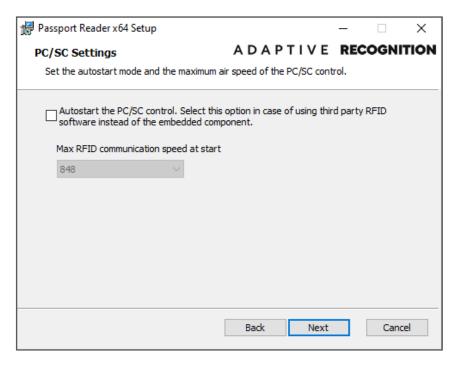
7. In the **Custom Setup** window, select the modules you wish to install on the PC.

    Installing the **Device Drivers** and the **Passport Reader** modules are necessary for device operation, the installation of all other modules is optional.

Custom Setup
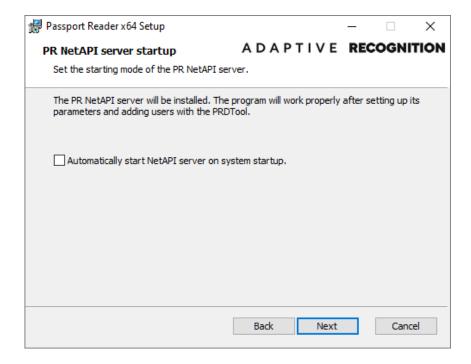
> 📑 Note
>
>   SDK and Documentation are available in the "sdk" folder of the PR Software Package.

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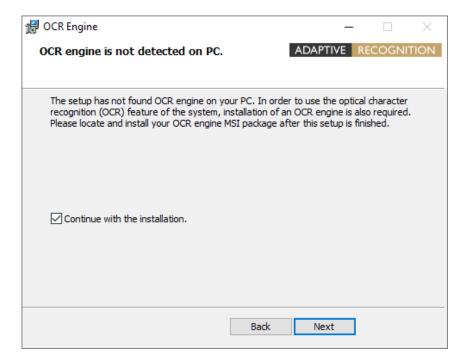
> ⊘ **Important!**
>
> Please select the **Autostart** option only if you intend to use your document reader device via the PC/SC interface. This setting can also be modified after the installation is finished. For more information, please see the PC/SC section.

> **⚠ Important!**
>
> Please select the **Automatically start NetAPI server on system startup** option only if you intend to use your document reader device in NAI mode. In this mode the device is used with the Passport Reader Network API. This setting can also be modified after the installation is finished. For more information, please see the NetAPI section.
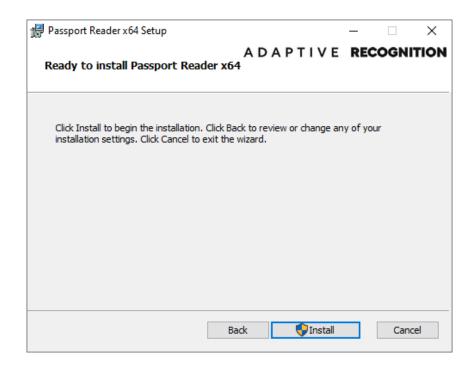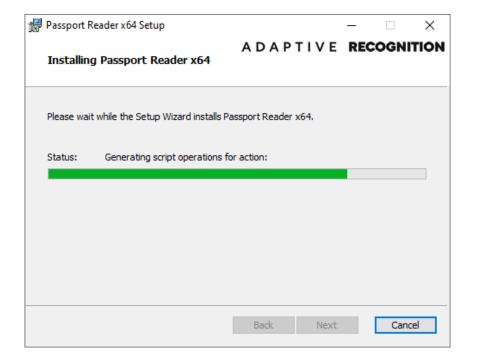
> **⚠ Important!**
>
> If the PR Software Package version is **below 2.1.11**, then in order to use the OCR functionality of your document reader device, please also install the **procr-2.0.x.xx.msi** package located in the **win** folder of the Passport Reader install package, after current installation is finished.
>
> In the case of **version 2.1.11 and above**, the OCR engine is embedded to the Passport Reader Software MSI. Therefore, when performing the software installation, the OCR engine is also installed.
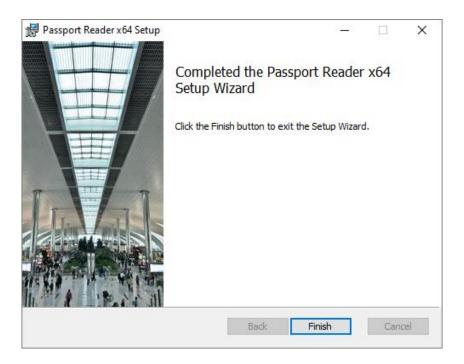
8. Clicking on **[Install]** will begin installation.

Adaptive Recognition **America**

Adaptive Recognition **Hungary**

Adaptive Recognition **Nordic**

Adaptive Recognition **Singapore**

REQUESTINFO@ADAPTIVERECOGNITION.COM

WWW.ADAPTIVERECOGNITION.COM
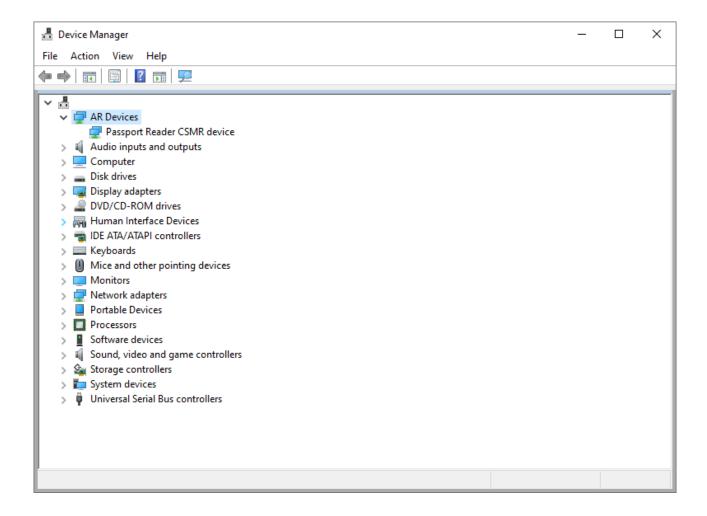
9. Click **[Finish]** to complete the installation.

10. After the installation has finished, open the **Device Manager**. If the installation was successful, a group named **AR Devices** together with **Passport Reader CSMR device** (Combo Smart Kiosk) should be listed:

3.2. INSTALLATION ON LINUX OPERATING SYSTEM

> 📑 Note
>
> Please read through this manual carefully!

The Passport Reader is a travel document reader and analyzer system by AdaptiveRecognition Inc., which bases on the GX system and provides for software developers an easy-to-program interface through its Application Programming Interface.

3.2.1. BEFORE YOU INSTALL THE PACKAGES

The system was built under Ubuntu 20.04 and has been tested on:

– Ubuntu 22.04 LTS
– Ubuntu 20.04 LTS
– Fedora 36
– Debian 8

> 📑 Note
>
> Please read the license agreement before installing the packages.

For the installation you need "GNU Make", "GNU C/C++" compiler and the corresponding GLIBC. The kernel headers and configuration files must be installed as well.

3.2.2. CONTENTS OF THE INSTALL PACKAGE

GX

`gx-7.2.x-x.tar.gz`   GX system

Passport Reader

`pr-2.1.x-x.tar.gz`	Passport Reader system
`prd-2.1.x-x.tar.gz`	PRDDRV driver for Passport Reader devices
`procr-2.x.x-x.tar.gz`	OCR engine
`fxmcusb-7.x.x-x.tar.gz`	USB Neural Network Controller devices
`licutils-7.x.x-x.tar.gz`	License Manager
`pr-fullpagereader-2.x.x-x.tar.gz`	Full Page Reader application
`pr-authenticationchecker-2.x.x-x.tar.gz`	Authentication Checker application
`pr-certificates-x.tar.gz`	German master list certificate collection
`pr-udev-2.x.x-x.tar.gz`	Scripts and udev rules for automatic driver loading

3.2.3. THE INSTALLATION PROCEDURE

1. **Unpack and copy all files into your system:**
   - `use_install.sh`

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 (`libSDL-gfx1.2-4` if the `libSDL1.2-5` is available only then make a symbolic link in the `/usr/lib/x86_64-linux-gnu` folder with the following command `ln -s libSDL_gfx.so.15 libSDL_gfx.so.13`)
- SDL image
- FreeType (TrueType font rendering library)
- libpcsclite1
- pcscd
- Qt

GX: none

Passport Reader: GX

2. **Compile kernel modules:**

- Download a kernel source from https://github.com/torvalds/linux and unpack into `/usr/src` directory.

  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 `/lib/modules/$(KERNEL_VERSION)/build` directory.

- Compile the AdaptiveRecognition Inc. drivers:

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

  - `/usr/src/gx/kernel/gxsd`
  - `/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.x86_64 b_prddrv.o
  > ```
  >
  > 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
   ```

4. **Automatic driver loading is enabled by the pr-udev module.**

   This module enables the automatic installation of the driver modules upon connecting the reader to the PC. As a result, there is no need to start the driver manually.

   > **☰ Note**
   >
   > If this feature is unnecessary, then the user should remove the `98-ar.rules` from the `/etc/udev/rules.d` directory.

3.2.4. AFTER INSTALLATION

Once installation is complete, you can find the manual for the GX and PR systems under `/usr/share/doc/gx`. The header files can be found in the SDK, the library files in `/usr/lib64/gx`.

The basic GX library is in `/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 under `/proc/gx`.

3.2.5. INSTALLATION OF ANOTHER ENGINE

The engine comes in a `.tar.gz` file. Type the following command to start the installation:

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

3.2.6. UNINSTALLATION

If you want to uninstall the AdaptiveRecognition Inc. files simply type:

```
_unistall.sh.
```

4. AUTHENTICATION CHECKER APPLICATION

ADAPTIVE RECOGNITION provides its Authentication Checker application included in the 2.1.9 and above Passport Reader (PR) software packages.

This software offers full-spectrum ID document authentication with a range of security checks and visualization features. After each scanning, the software informs the user about the authenticity of the scanned document in a comprehensive way, with 4 views on one display.

The app works with fixed values to facilitate its use.

It provides:

- images scanned by different illumination sources (white, infra, UV)
- OCR mode to reach MRZ, VIZ data and read different barcode types
- optical and RFID authentications as well as comparison of their results

The main emphasis is on the authentications to maximize the result of the examination.

This chapter is going to show you the functions of the app and the methods of the use.

The structure of this section is the following:

- First, the app overview and its accessing will be discussed.
- Next, a closer look will be taken at the Dashboard of the application.
- Finally, the user will be guided through the Sections of the application.

4.1. REQUIREMENTS

- An ADAPTIVE RECOGNITION scanner connected to your PC
- ADAPTIVE RECOGNITION Passport Reader Software version 2.1.10.2 or later
- PC: min. 2GB RAM, full HD display resolution (1920 x 1080)
- OS: 32/64-bit Windows 7/8/8.1/10/11 or Linux

📋 Note

To make the most of the ADAPTIVE RECOGNITION document reader device and the application, it is recommended to use the VIZ AUTH engine on 64-bit operating systems.

4.2. START AUTHENTICATION CHECKER

Windows

After installing ADAPTIVE RECOGNITION software package on your computer, you will be able to open Authentication Checker from **Windows Start menu > Adaptive Recognition > (Passport Reader) > Authentication Checker x86** or **x64** (based on your computer architecture and previous installation).

Linux

Depending on your distribution, you can open command terminal and insert: **AuthenticationChecker** or use dashboard search bar: **Linux Start menu > Applications > Adaptive Recognition Apps > Authentication Checker 64-bit version** (based on your computer architecture and previous installation).

4.3. CONNECTION

In order to scan with any ADAPTIVE RECOGNITION reader device, you have to make sure that there is an available reader connected to your computer and it is turned on.

You can check the **DEVICES** list in the **OPTIONS** menu.
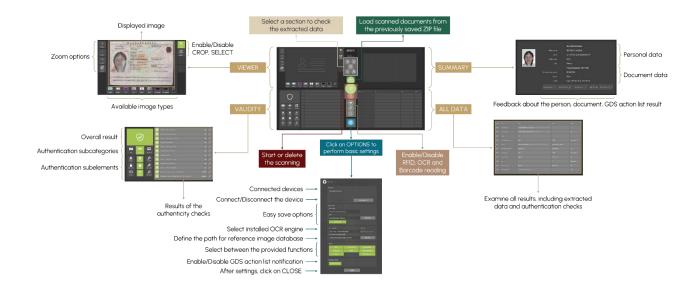
> **Note**
>
> By default, the app is connecting automatically to the document reader.

> **Note**
>
> If the device is connected properly, the **SCAN** button turns green. If the connection is unsuccessful, the **SCAN** button remains grey.

4.4. OVERVIEW

4.5.   DASHBOARD

You can direct the operation of the program, change views, start or delete a scanning as well as perform some basic settings.

📑 Note

In **ALL VIEW** mode the Dashboard is located in the middle of the opened window, while in the selected view (**VIEWER**, **VALIDITY**, **SUMMARY**, **ALL DATA**) on the right side of the window.

ALL VIEW

Use the **ALL VIEW** button to check all results (**VIEWER**, **VALIDITY**, **SUMMARY**, **ALL DATA**) on one display.

VIEWER

Select **VIEWER** to examine the scanned images under several illuminations on full screen.

VALIDITY

Select **VALIDITY** to view the results of the authenticity checks, including optical checks, digital data verification and comparison checks on full screen.

SUMMARY

Select **SUMMARY** to look at the selection of the extracted personal and document data on full screen.

ALL DATA

Select **ALL DATA** to examine all results, including extracted data and authentication checks on full screen.

OPEN ZIP

Load scanned documents, including images illuminated by various light sources, as well as corresponding data. When loading **.zip** files saved earlier, the program displays the original saved data.

> 📑 Note
>
> This functionality is supported only for **.zip files** that have been saved earlier by ADAPTIVE RECOGNITION passport reader software.

SCAN

Click on the **[SCAN]** button to start the scanning process, if the **AUTO DETECTION** mode is not selected. The status signal around the **SCAN** button indicates the progression of the scanning process.

> 📑 Note
>
> **AUTO DETECTION** mode is switched on by default, thereby the scanning will start automatically.

CLEAR

Use the **[CLEAR]** button to delete the extracted data of the previously scanned document.

RFID

Click on the **[RFID]** button to enable/disable RFID reading.

> 📑 Note
>
> The green outline around the button indicates that the function is turned on.

> 📑 Note
>
> The MRZ reading is part of the OCR, but since it is needed for RFID reading in the most cases of the documents, the **RFID** and **OCR** buttons impact the enabling of MRZ reading. To turn on/off MRZ reading separately, click on **OPTIONS** and enable/disable **MRZ** by clicking on it at the **TASKS**.

OCR

Click on the **[OCR]** button to enable/disable optical character recognition.

> 📄 Note
>
> The green outline around the button indicates that the function is turned on.

> 📄 Note
>
> The MRZ reading is part of the OCR, but since it is needed for RFID reading in the most cases of the documents, the **RFID** and **OCR** buttons impact the enabling of MRZ reading. To turn on/off MRZ reading separately, click on **OPTIONS** and enable/disable **MRZ** by clicking on it at the **TASKS**.

BARCODE
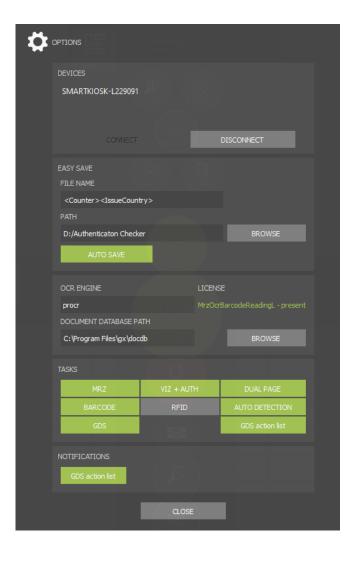
Click on the **[BARCODE]** button to enable/disable barcode recognition.

> 📄 Note
>
> The green outline around the button indicates that the function is turned on.

OPTIONS

Click on the **[OPTIONS]** button to perform some fundamental settings, customize the scanning process.

4.5.1. OPTIONS

1. DEVICES

You can see the list of the document scanners connected to your computer.

> **Note**
>
> By opening the app, the device is connected automatically.

> **Note**
>
> You can work with only one device at a time.

2. EASY SAVE

The **EASY SAVE** can make frequent document saving simpler. Turn **AUTOSAVE** on and set the **FILE NAME** and **PATH** to save the results of all scanning process automatically. After that, the software creates the filename automatically based on the configured template, then saves the .zip to the path specified.

> 📑 Note
>
> When using **EASY SAVE**, determine the filename syntax and path before first scanning. This option will save every scanning into the same path.

> ⓘ Important!
>
> If the **AUTOSAVE** is not turned on, the saving process is skipped.

> 📑 Note
>
> If you want to save encrypted files which can only be decoded in ADAPTIVE RECOGNITION's network, then, when saving the file select **.ecz** extension.
> For more information on encrypted autosave, see the Encrypted Autosave in Authentication Checker chapter.

3. OCR ENGINE

The optical character recognition process of each document is performed by the **OCR ENGINE**. Select between **installed OCR engines on your computer**, if you have several installed engines. A dropdown list shows your available engine(s). With a left-click you can select your appropriate one. After selection, the software displays a status message about the required engine-license and its availability.

The **DOCUMENT DATABASE PATH** is set by default as you install VIZ OCR+Auth engine to your computer. The purpose of this function is to allow visual comparison of the authenticated document sections with images stored in a reference database. If the document database is not set or installed, the authentication feature still operates and its results are returned.

> **▤ Note**
>
> The non-default settings of the **OCR ENGINE** and **DOCUMENT DATABASE PATH** are not saved. If you close and reopen the app, the default settings will be valid again.

> **▤ Note**
>
> The "**procr-cloud**" engine is found among the OCR engines. This engine makes cloud OCR and authentication available for AR document reader users. For more information on the cloud service and its setting, see Quick Guide for Using Carmen® ID Recognition service with Passport Reader chapter.
>
>

> **▤ Note**
>
> For availability and more information on OCR engines and software licenses, please contact your ADAPTIVE RECOGNITION sales representative.

4. TASKS

Select between the provided functions: **MRZ**, **VIZ+AUTH**, **DUAL PAGE**, **BARCODE** and **RFID** reading as well as **AUTO DETECTION**, **GDS** and **GDS ACTION LIST**.

- **MRZ**: Select this task to get the data of the Machine Readable Zone.

- **VIZ+AUTH**: Enable this task to read document-specific data and verify the optical authentications from the Visual Inspection Zone of different national documents.

- **DUAL PAGE**: Enable this task to read double paged documents automatically. When this function is enabled, after scanning the front side of the document, the application asks the user if the back side of the document is needed. In case of clicking on the **[OK]** button, Authentication Checker waits 10 seconds for the second side of the document.

> 📃 Note
>
> **DUAL PAGE** function operates automatically, on the condition of the document being recognized by the default OCR engine (procr) or VIZ OCR engine. For more information on VIZ OCR engine, see ADAPTIVE RECOGNITION website.

- **BARCODE**: Select this task to enable barcode data reading. If you scan a document with barcode on it, image of the barcode and its decoded data are displayed in the **VALIDITY** section.

- **RFID**: Choose this task to read the data from the document's built-in RFID chip.

- **AUTO DETECTION**: Enable/Disable the automatic document presence detection mode (motion detection). This feature senses documents placed on the scanner glass surface. Whenever a document is present, the software captures images of the document.

- **GDS**: Select this task to enable **GDS** upload.

    The Globessey Data Server (GDS) is a universal data collection, storage and visualization middleware that comes with an advanced front-end GUI and works out-of-the-box with Adaptive Recognition ANPR cameras and identity document readers. GDS is a combination of a database layer, authentication and transaction layer, and a front-end layer in one complete package that is tested end-to-end. If enabled, the scanning results (document data and images) will be uploaded to this interface.

    > 📄 Note
    >
    > Before using GDS, it is required to perform certain settings. The description of this setup process can be found in the chapter Quick Guide for Using GDS with Passport Reader.

- **GDS ACTION LIST**: Enable/Disable **GDS ACTION LIST**.

    If enabled, blacklist and whitelist check can be applied during document scanning.

    > 📄 Note
    >
    > The number of enabled active lists determines the number of the queries and returned results.

5. **NOTIFICATIONS**

- **GDS ACTION LIST**: Enable/Disable notification about the result of the **GDS ACTION LIST**.

    If **GDS** and **GDS ACTION LIST** functions are enabled, notification about the result of the blacklist and whitelist check can also be selected. In that case, the application informs the user about the result of the list query in a pop-up window.

    If the notification function is disabled, the result of the query is displayed in the **SUMMARY** section.
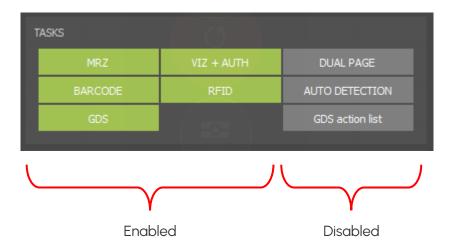
    > 📄 Note
    >
    > For more information on using GDS with Authentication Checker application, see the Testing with Authentication Checker Application chapter.

> **▤ Note**
>
> Click on the button of the given task to enable (green background) or disable (grey background) it.

Enabled   Disabled

> **▤ Note**
>
> After performing settings, close the window with the **[CLOSE]** button to start document reading.

4.6. SECTIONS

4.6.1. VIEWER

In the **VIEWER** section the scanned and/or selected images are displayed. Observe the images under various illuminations, zoom in/out, crop and fit the image to screen as well as perform manual security feature checks.

1. **ZOOM OPTIONS**

- **Zoom in (+)**
- **Zoom out (-)**
- **1:1 Zoom**: shows scanned image in actual size
- **Fit Zoom**: fits scanned image to screen

> 📃 Note
>
> - You can zoom in by left-clicking inside the image and dragging your mouse over the area you wish to enlarge.
> - You can use the scroll to zoom in and out.
> - To return to the original (fit) view, double-click in the picture.
> - When the image is zoomed in, drag the document with the right mouse button to observe the entire document.

2. CROP

Enable/Disable **CROP** by clicking on the button.

It crops and rotates documents into upright position.

3. SELECT

The **SELECT** function shows you the read authentication and OCR fields.

> 💡 Hint
>
> If **SELECT** is turned on and the cursor is over the **SELECT** button, at that time the frame of every read field will appear.
>
> If **SELECT** is turned on and the cursor is over the buttons of the different image types, at that time the frames of the read data by the given illumination will appear.

By moving the mouse inside the scanned picture, frames close to the cursor will appear around the read fields. If you click on one of them in **ALL VIEW** mode, in the **VALIDITY** and **ALL DATA** sections the related check(s) to the data in the frame will be highlighted in grey. In these sections you can check the meaning of the given data, how it has been read and the result of the reading.

> 📑 Note
>
> If you click on the **Dashboard**, the selection will be cancelled.

4. IMAGE TYPES

- **WHITE**: visible white illumination (with reflection removal)

Enable/Disable **WHITE** illumination by right-clicking on its button.

An image scanned in white light is a simple photo of the document – as it can be seen by the human eye. It is usable for human inspection and for examination of background pattern or face photo.

- **INFRA**: B900 infrared illumination

Enable/Disable **INFRA** illumination by right-clicking on its button.

In this illumination, the background patterns are not visible, so optical recognition algorithms provide better results.

- **UV**: ultraviolet (UV-A) illumination

Enable/Disable **UV** illumination by right-clicking on its button.

Images scanned in ultraviolet illumination can be used to check authenticity features (graphics and text printed with special fluorescent ink) which are only visible under UV light. These authenticity features can be observed by viewing the **UV** image or the **UV pattern (clean UV)** image. In the case of the latter one, the background is darker so the authenticity features can be seen more clearly.

UV

UV pattern

- **OVD**

  Enable/Disable **OVD** illumination by right-clicking on its button.

  The Passport Reader system is capable of visualizing and removing simple holograms and most types of OVI patterns. Holograms can be observed by viewing the **OVD** image or the **OVD pattern (clean OVD)** image. In the case of the latter one, just the hologram can be seen from the document.
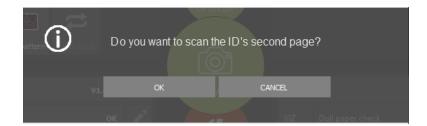
OVD

OVD pattern

- **Other page**

  Enable/Disable **Other page** by left-clicking on its button.

  Select this option to check the back side of the read double paged documents. When the **DUAL PAGE** function is enabled, after scanning the front side of the document, the application asks the user if the back side of the document is needed. In case of clicking on the **[OK]** button, Authentication Checker waits 10 seconds for the second side of the document.
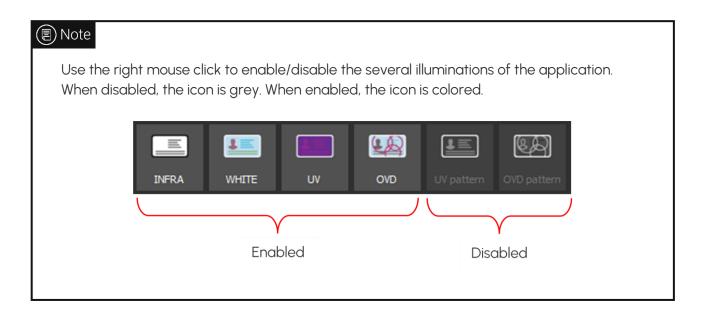
  When the scanning of both sides is finished, enable the **Other page** option and select the illumination source (e.g., white, infra, UV, OVD, UV pattern, OVD pattern) under which the back side of the scanned document is to be checked.

> **Note**
>
> **DUAL PAGE** function operates automatically, on the condition of the document being recognized by the default OCR engine (procr) or VIZ OCR engine. For more information on VIZ OCR engine, see ADAPTIVE RECOGNITION website.

In the **VIEWER** section two image types can be examined alternately. Select one of the required image types by clicking on its icon, then click on the other and continue clicking on it as long as it is necessary. Thereby the two selected images will alternate. This way both lights can be observed without diverting the attention of the operator or moving the mouse.

📄 Note

Use the right mouse click to enable/disable the several illuminations of the application. When disabled, the icon is grey. When enabled, the icon is colored.

Enabled   Disabled

📄 Note
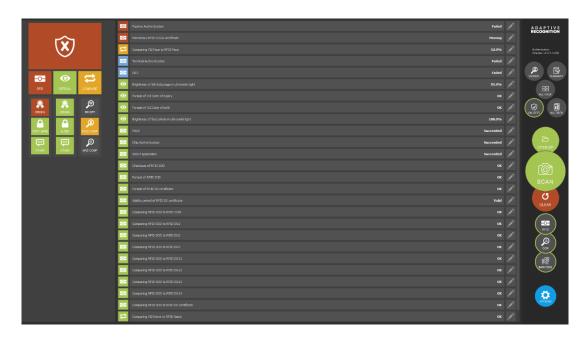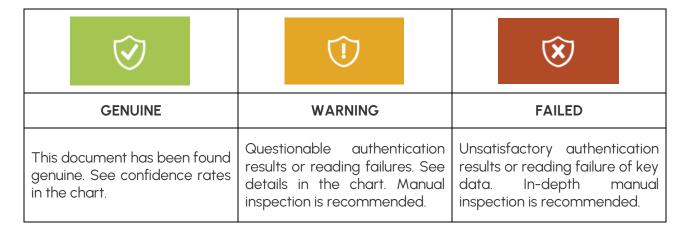
If you click on the **ALL VIEW** button, you will get back to the divided view.

4.6.2. VALIDITY

In the **VALIDITY** section the results of the authenticity checks are displayed, including digital data verification (**RFID**), optical (**OPTICAL**) and comparison checks (**COMPARE**).

1. OVERALL RESULT

GENUINE	**WARNING**	**FAILED**
This document has been found genuine. See confidence rates in the chart.	Questionable authentication results or reading failures. See details in the chart. Manual inspection is recommended.	Unsatisfactory authentication results or reading failure of key data. In-depth manual inspection is recommended.

> 📋 Note
>
> If you click on the symbol, you will get the results of every extracted data in the chart.

> 📋 Note
>
> Some tests are not executed by the Passport Reader System, but by this program. The results of these tests currently do not count into the overall result and do not appear in this panel. They only appear in the **SUMMARY** section.

2. AUTHENTICATION CATEGORIES

- **RFID**: authentications in relation to e-documents (performing various access control functions and checking data integrity/genuineness of the chip)
- **OPTICAL**: security checks of optical security features, including ink, paper material, pattern matching using various illuminations, etc.
- **COMPARE**: printed vs. digital data comparison checks (including MRZ and face photo)

> 📄 Note
>
> If you click on one of the categories, you will get exclusively its results in the chart.

3. AUTHENTICATION ELEMENTS

Each category has 3 elements:

RFID

- **ORIGINALITY**: Checks if the data on the RF chip of the electronic document is authentic and unforged
- **COPY SAFE**: Uncovers cloned RF chips
- **OTHER**: Checks which do not belong to the previous two elements

OPTICAL

- **ORIGINALITY**: Checks if the physical document is authentic
- **ALTERATION**: Checks if the document data has been tampered with
- **OTHER**: Checks which do not belong to the previous two elements

COMPARE

- **RF/OPT**: –
- **FACE COMPARISON**: Compares the VIZ face (the printed face photo on the document) to the RFID face (stored in the chip)
- **MRZ COMPARISON**: Compares MRZ (on the document) to RFID MRZ (stored in the chip)

> 📄 Note
>
> If you click on one of the elements, you will get exclusively its results in the chart.

4. THE CHART

In the chart the different checks and their results are displayed. By clicking on a check, a short description about the given check as well as the interpretation of its result, image(s) from the reference database (if the **OCR ENGINE** and the **DOCUMENT DATABASE PATH** are set), picture(s) about the given data on the document (optional) and the read data (optional) can be seen.

On the left side of the chart the authentication categories' symbols can be seen, that shows you which category the given check belongs to. The background colors of the symbols indicate the given check's result, except blue, which means test results unrelated to document security. On the right side of the chart the given check's result can be seen.

The display of the results can be filtered by the following:

- displays the results of every extracted data (by clicking on the symbol of the overall result)
- displays just the results of a chosen category (by clicking on a category)
- displays just the results of a chosen element (by clicking on an element)
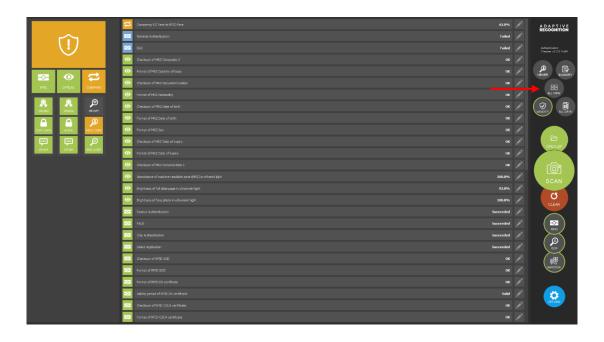
> 🗎 Note
>
> More checks may be highlighted at the same time in the chart, if on the given data can be performed different inspectorial processes.

📄 Note

If you click on the **ALL VIEW** button, you will get back to the divided view.

📄 Note
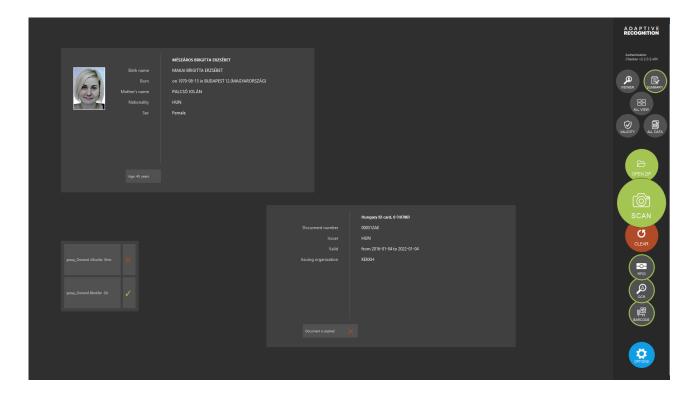
If you click on a certain data in the **VALIDITY** section in **ALL VIEW** mode, a red frame will be displayed around the original location of the data in the **VIEWER** section as well as in the **ALL DATA** section the related check(s) to the data will be highlighted in grey. To cancel the selection, click on the **Dashboard**.

4.6.3. SUMMARY

In the **SUMMARY** section, selection of the essential personal and document data is displayed. The scanned data is displayed in two separate windows depending on the data type (personal or document data). In addition, if the **GDS action list** task is enabled, the result of the query is also displayed in a third separate window located in the left corner.

SUMMARY section summarizes the result of the scanning process.

It displays:

- essential personal information: name, birth name, date of birth, nationality, sex, face photo
- essential document information: document type, document number, document issuer country, document validity, issuing organization
- feedback:
  - document is expired/document is not expired/document with a close expiry date
  - age
  - document is a specimen
  - unknown document
- GDS action list result
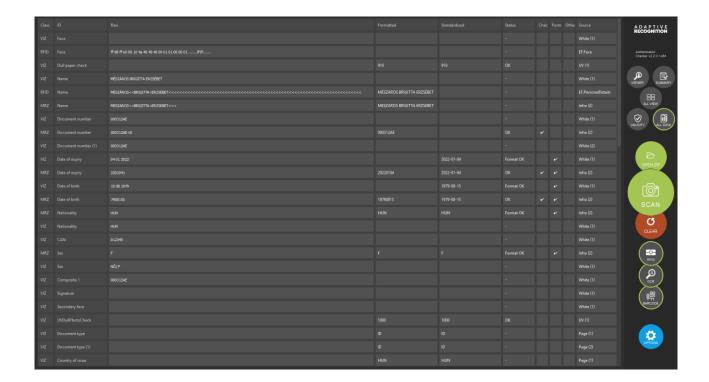
> 📋 Note
>
> If you click on the **ALL VIEW** button, you will get back to the divided view.

4.6.4. ALL DATA

The **ALL DATA** section displays all available data retrieved from the document.

> 📑 **Note**
>
> More details (e.g., more columns) can be found in the **ALL DATA** panel than in the **ALL VIEW** mode.
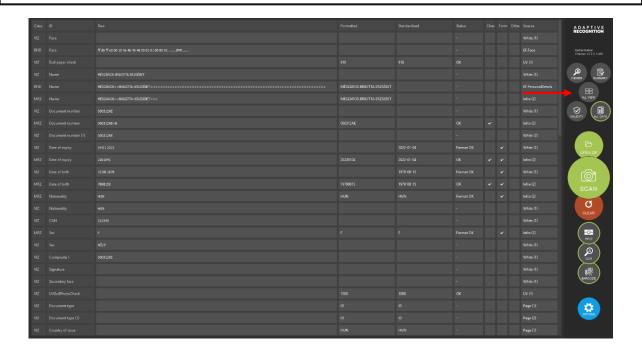
> 📑 **Note**
>
> If you click on the header of the columns, the data order will be reversed as well as the aspect of the order can be modified because the app categorizes the related ones.

📄 Note

If you click on the **ALL VIEW** button, you will get back to the divided view.

📄 Note

If you click on a certain data in the **ALL DATA** section in **ALL VIEW** mode, a red frame will be displayed around the original location of the data in the **VIEWER** section as well as in the **VALIDITY** section the related check(s) to the data will be highlighted in grey. To cancel the selection, click on the **Dashboard**.

4.7. CERTIFICATES

For successful authentication, the reader needs digital certificates from the document issuer authorities. This software contains these certificates for currently used passports, but in order to support the latest documents, the certificates should be updated from time to time.

> 💡 Hint
>
> The Passport Reader software package is implemented with German Master List that includes CSCA certificates of hundreds of documents.
>
> You may download and use the latest version of this master list from https://www.bsi.bund.de/SharedDocs/Downloads/DE/BSI/ElekAusweise/CSCA/GermanMasterList.html

5. FULL PAGE READER APPLICATION

ADAPTIVE RECOGNITION provides its Full Page Reader (FPR) application included in the Passport Reader (PR) software package. Full Page Reader application is able to fully exploit the ADAPTIVE RECOGNITION document reader devices' capabilities on user level.
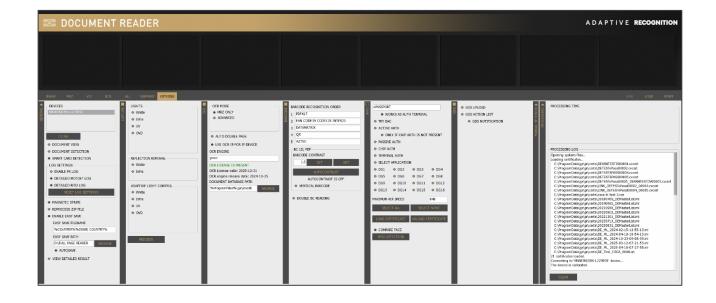
It provides:

- images scanned by different illumination sources (white, infra, UV)
- OCR mode to reach MRZ, VIZ data and read different barcode types
- optical and RFID authentications
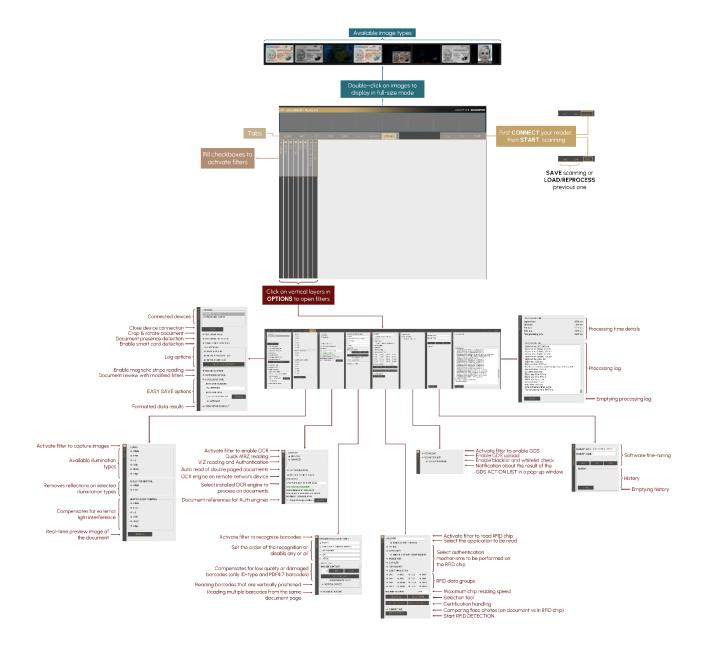
This chapter is going to show you the functions of the app and the methods of the use.
The structure of this section is the following:

- First, the device overview and its accessing will be discussed.
- Next, a closer look will be taken at the tabs of the application.
- Then, the user will be guided through the settings of the Options tab menu.
- Finally, a list of frequently asked questions is expounded.

5.1. OVERVIEW

Available image types

Double-click on images to display in full-size mode

Tabs

Fill checkboxes to activate filters

First **CONNECT** your reader, then **START** scanning

SAVE scanning or **LOAD/REPROCESS** previous one

Click on vertical layers in **OPTIONS** to open filters

Connected devices

Close device connection
Crop & rotate document
Document presence detection
Enable smart card detection

Log options

Enable magnetic stripe reading
Document review with modified filters

EASY SAVE options

Formatted data results

Processing time details

Processing log

Emptying processing log

Activate filter to capture images

Available illumination types

Removes reflections on selected illumination types

Compensates for external light interference

Real-time preview image of the document

Activate filter to enable OCR
Quick MRZ reading
VIZ reading and Authentication
Auto read of double paged documents
OCR engine on remote network device

Select installed OCR engine to process on documents

Document references for Auth engines

Activate filter to enable GDS
Enable GDS upload
Enable blacklist and whitelist check
Notification about the result of the GDS ACTION LIST in a pop-up window

Software fine-tuning

History

Emptying history

Activate filter to recognize barcodes

Set the order of the recognition or disable any or all

Compensates for low quality or damaged barcodes (only 1D-type and PDF417 barcodes)

Reading barcodes that are vertically positioned
Reading multiple barcodes from the same document page

Activate filter to read RFID chip
Select the application to be read

Select authentication mechanisms to be performed on the RFID chip

RFID data groups
Maximum chip reading speed
Selection tool
Certification handling
Comparing face photos (on document vs in RFID chip)
Start RFID DETECTION

5.2.   REQUIREMENTS

- ADAPTIVE RECOGNITION ID/Passport Reader device(s) connected to the PC

- PC: minimum 2 GHz CPU and 1GB RAM

- OS: 32/64-bit Windows XP/Vista/7/8/8.1/10/11 or Linux

📑 Note

> To make the most of the ADAPTIVE RECOGNITION document reader device and the application, it is recommended to use the VIZ AUTH engine on 64-bit operating systems.

5.3.   START FULL PAGE READER

- **Windows**

  After installing ADAPTIVE RECOGNITION software package on your computer, you will be able to open Full Page Reader from **Windows Start menu > Adaptive Recognition > (Passport Reader) > Full Page Reader x86 or x64** (based on your computer architecture and previous installation).

- **Linux**

  Depending on your distribution, you can open command terminal and insert: **FullPageReader** or use dashboard search bar: **Linux Start menu > Applications > Adaptive Recognition Apps > Full Page Reader 64-bit version** (based on your computer architecture and previous installation).

5.4. CONNECTION

In order to scan with any ADAPTIVE RECOGNITION reader device, you have to make sure that there is an available reader connected to your computer and it is turned on. You can check the **DEVICES** list in the **OPTIONS** tab at **GENERAL** layer.
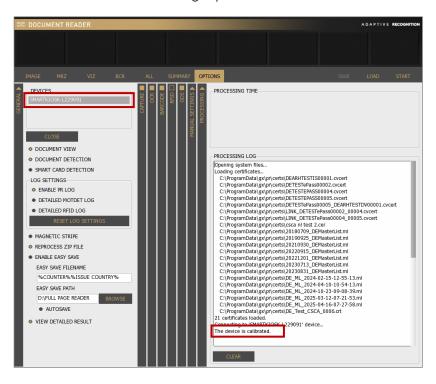
> **Note**
>
> If a device is connected to the computer, but it is not displayed in the **DEVICES** list, then try to change the USB port and/or USB cable. If the issue is not resolved after these changes, reinstall the Passport Reader Software Package as admin. For more information on the installation process, see Software Installation chapter.

Connect your device by clicking on **[CONNECT]** or clicking on the selected reader in the **DEVICES** list.

Readers hold a factory default calibration file. Reading this file from the device for the first time may take some time, which consequently slows down the system startup. In order to save time, the file is automatically copied to the local file system on the first attempt of using the device to speed up communication. In this case "**Reading calibration file...**" message appears in the **PROCESSING LOG** field.

If your reader is displayed in the **DEVICES** list highlighted in grey and in the **PROCESSING LOG** field you get the "**The device is calibrated.**" message, your reader is connected and ready to use.

> 📑 Note
>
> The Product Name contains the following information: the device name, configuration (components) and serial number (without 1st digit).
> E.g., SMARTKIOSK-RL189032

5.5. TABS

| IMAGE | MRZ | VIZ | BCR | RFID | MSR | ALL | SUMMARY | OPTIONS | | SAVE | LOAD | START |
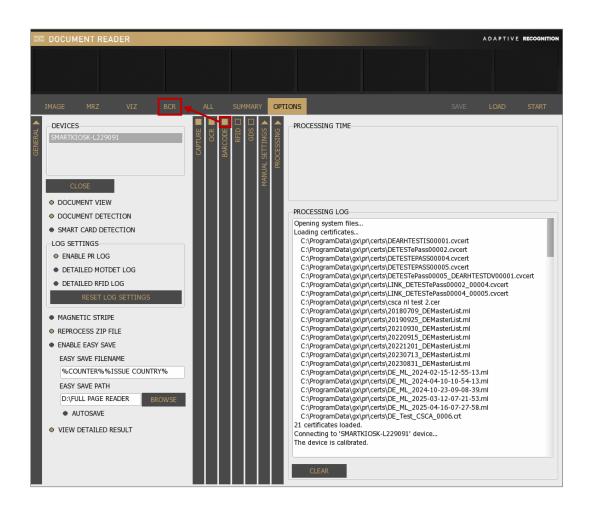
Enable/Disable any of the checkboxes on vertical layers (columns) in the **OPTIONS** tab. These checkboxes switch on/off software functions like image capturing, OCR, barcode and RFID reading. By switching on functions, you will make visible the corresponding tab menu and related data as well.

📑 Note

These columns can open and close like a vertical accordion menu.

✓ Example

Enable barcode reading by filling in the checkbox on the vertical grey layer in the **OPTIONS** tab. This also enables the **BCR** tab to display barcode data after a successful reading process.
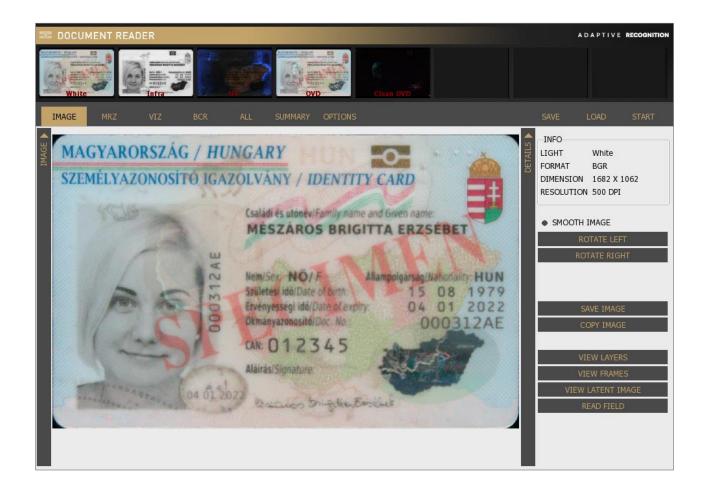
5.5.1.   IMAGE

1.   IMAGE

On the **IMAGE** layer, the scanned and/or selected images are displayed. Navigate among images by clicking on the thumbnail view on top or double clicking on the ones at details of the document field. Zoom in by left-clicking inside the image and dragging your mouse over the area you wish to enlarge.

> 📑 Note
>
> All images (even the ones at details of the document fields) can be zoomed out by double-clicking.

2. DETAILS

INFO

Light or field ID, format, dimension and resolution information about the selected image are displayed.

SMOOTH IMAGE

Use linear filtering for zooming by estimating intermediate points among end points automatically. This results a smooth image to display.

ROTATE LEFT/RIGHT

Rotate the image by pressing **[ROTATE LEFT]** or **[ROTATE RIGTH]** button. You can rotate the image by 90 degrees in one direction with one click.

SAVE IMAGE

Save the scanned image to your system by clicking on the **[SAVE IMAGE]** button.

COPY IMAGE

Copy the selected image to clipboard by clicking on the **[COPY IMAGE]** button.

📃 Note
The **COPY IMAGE** function is available only for Windows OS.

VIEW LAYERS

By selecting between UV (**VIEW UV FLASHLIGHT**) and OVD flashlights (**VIEW OVD FLASHLIGHT**) on the right, you can check the document under these two illumination types separately. If you do not choose from these flashlights, you can grab the corner/edge of a given layer (except for infra) to optically remove each and every layer from the image of the scanned ID document by left-click. Check slider view too by holding-right-click.
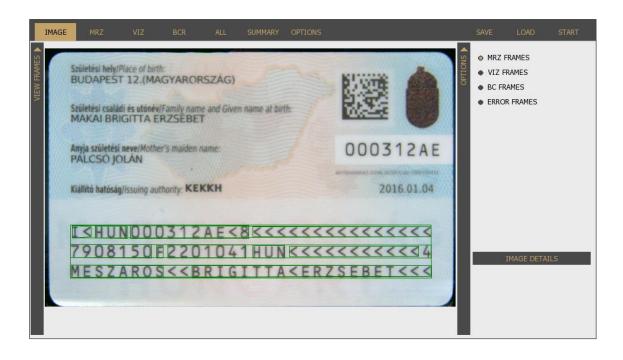
> 📑 Note
>
> After optically removing the UV or OVD layer, the order of the remaining optically removable layers is fix following a natural order.

VIEW FRAMES

This function displays a frame of the selected reading field. **MRZ**, **VIZ**, **BARCODE** and **ERROR FRAMES** can be displayed around the original location of the data. Select the frame you wish to display from the available options.

VIEW LATENT IMAGE

> ⚠️ **Important!**
>
> **VIEW LATENT IMAGE** function works well on high-resolution images (e.g., images scanned by Osmond devices).

It displays the JURA IPI security feature. IPI is encrypted information in the face photo part of the document (passport or ID) that can be made visible either by special lenses or ADAPTIVE RECOGNITION document reader devices.

> 📄 Note
>
> To check the JURA IPI security feature, enable **Photo** camera on **CAPTURE** layer in the **OPTIONS** tab and click on the **Photo** image from the thumbnail images.
>
> The **Photo** light is only available **for Osmond USB models** manufactured from December 2022.

> 📄 Note
>
> You need to specify the **FREQUENCY** and **ANGLE** values to make this security feature visible. These values can vary by documents.

Specify these values by filling out the corresponding fields.

READ FIELD

> 📑 Note
>
> This function is only available with engines 2.0.6.xx.

The **READ FIELD** function is equivalent to manual OCR. It can be used on **White** and **Infrared** images. Draw a rectangle around any text or barcode and its content will be displayed in the field at the bottom-right corner of the window. Adjust height/width properties to optimize recognition rate.

> 📑 Note
>
> It is suitable for trying out the manual OCR.
> This function has limited ability (only recognizes a few fonts).
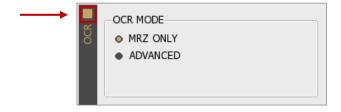
> 📑 Note
>
> In order to go back to the **DETAILS** layer, please click on the **IMAGE DETAILS** button.
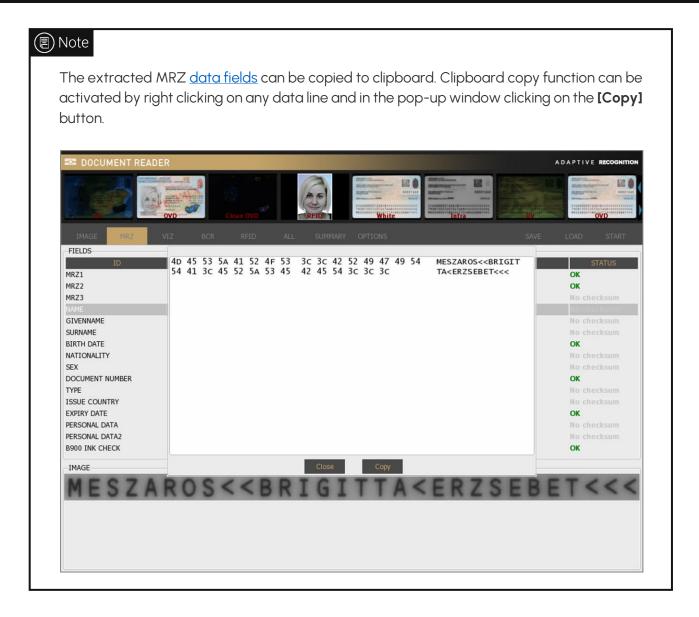
5.5.2. MRZ

Displays processed MRZ data and a photo of each field.

This tabulator option is displayed when OCR checkbox is filled in on the **OPTIONS / OCR** (vertical) layer and **MRZ ONLY** or **ADVANCED** mode is selected.

> 📑 Note
>
> The extracted MRZ data fields can be copied to clipboard. Clipboard copy function can be activated by right clicking on any data line and in the pop-up window clicking on the **[Copy]** button.
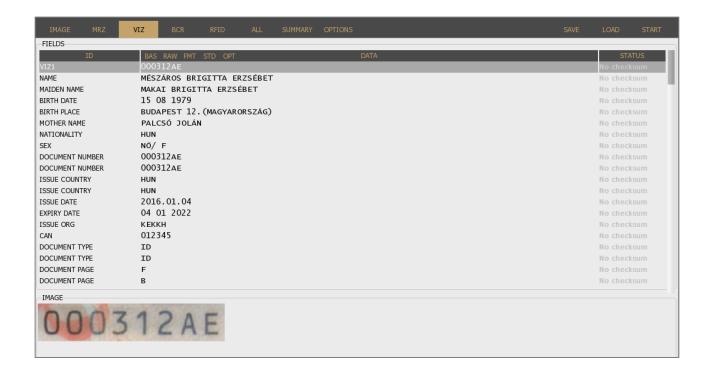
5.5.3. VIZ
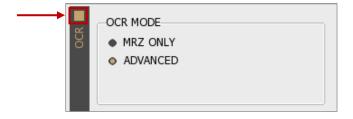
Displays processed VIZ data and a photo of each field.

> 📑 Note
>
> The results of the authentication will be displayed in **VIZ** tab. The VIZ and AUTH results will be displayed only if you have special engine, that supports the scanned document.
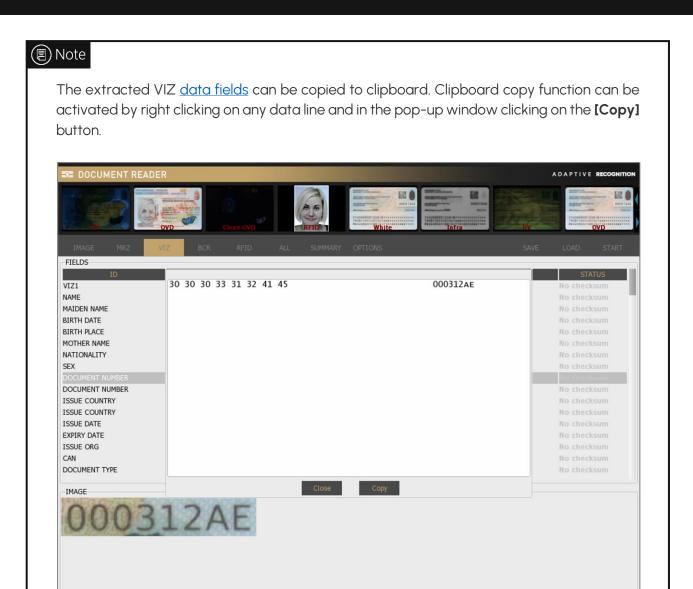
To see this tab, fill in OCR checkbox on the **OPTIONS / OCR** layer and select **ADVANCED** filter therefore MRZ and VIZ tabs are enabled.
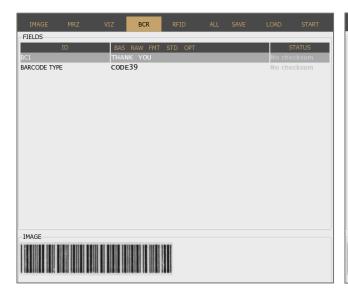
Select [VIEW DETAILED RESULT](#) filter to review formatted data. Choose format in the header of the **DATA** column.

> 🗎 Note
>
> The extracted VIZ data fields can be copied to clipboard. Clipboard copy function can be activated by right clicking on any data line and in the pop-up window clicking on the **[Copy]** button.
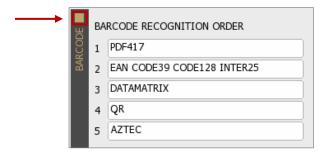
5.5.4. BCR

BCR displays barcode data and a photo of the barcode itself.
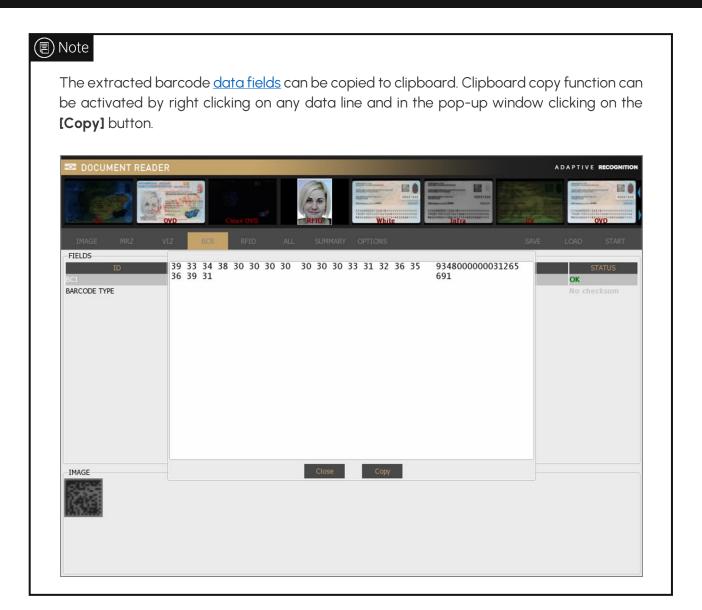
To see this option, enable barcode recognition on **OPTIONS / BARCODE** layer by filling in the checkbox on the vertical layer.
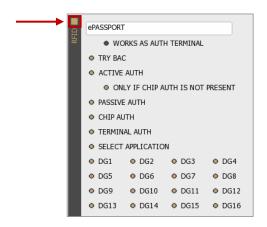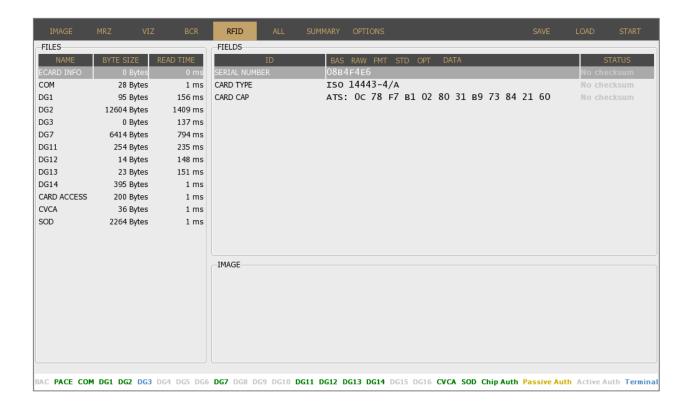
> 📃 Note
>
> For more information on customizing the barcode settings, see Barcode chapter.

> ### 📑 Note
>
> The extracted barcode data fields can be copied to clipboard. Clipboard copy function can be activated by right clicking on any data line and in the pop-up window clicking on the **[Copy]** button.

🇺🇸 Adaptive Recognition **America**
🇩🇰 Adaptive Recognition **Nordic**
🇭🇺 Adaptive Recognition **Hungary**
🇸🇬 Adaptive Recognition **Singapore**

REQUESTINFO@ADAPTIVERECOGNITION.COM
WWW.ADAPTIVERECOGNITION.COM

5.5.5. RFID

Displays RFID chip data. To see this option, enable RFID reading in **OPTIONS** by filling in the checkbox of the **RFID** vertical layer.
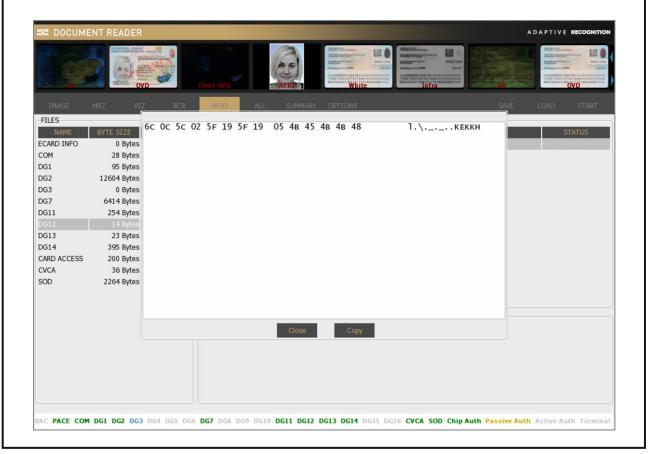
> 🛈 Note
>
> RFID function turns off automatically, if there is no RFID reader module built in the device.

> 📰 **Note**
>
> The extracted RFID data fields can be copied to clipboard. Clipboard copy function can be activated by right clicking on any data line and in the pop-up window clicking on the **[Copy]** button.
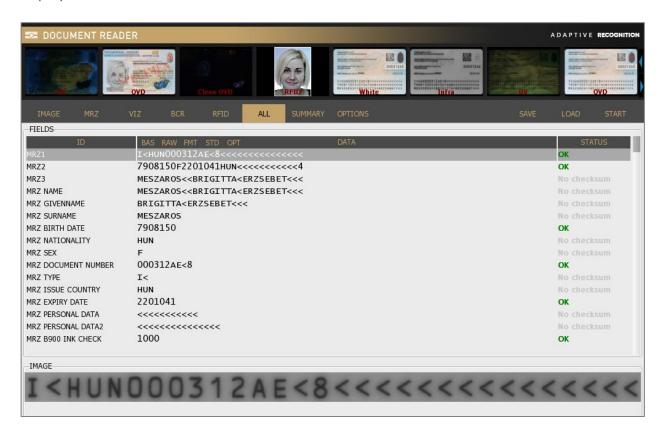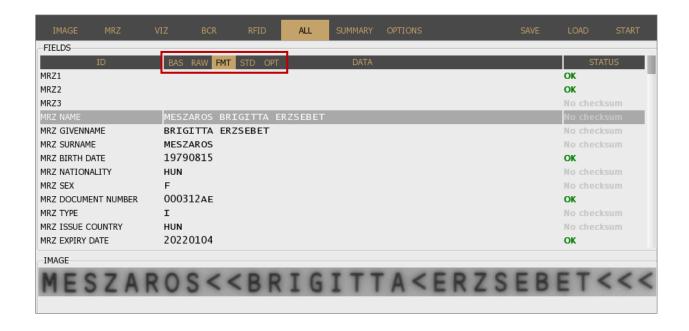
> 📰 **Note**
>
> For more information on customizing the settings of the RFID reading, see RFID chapter.
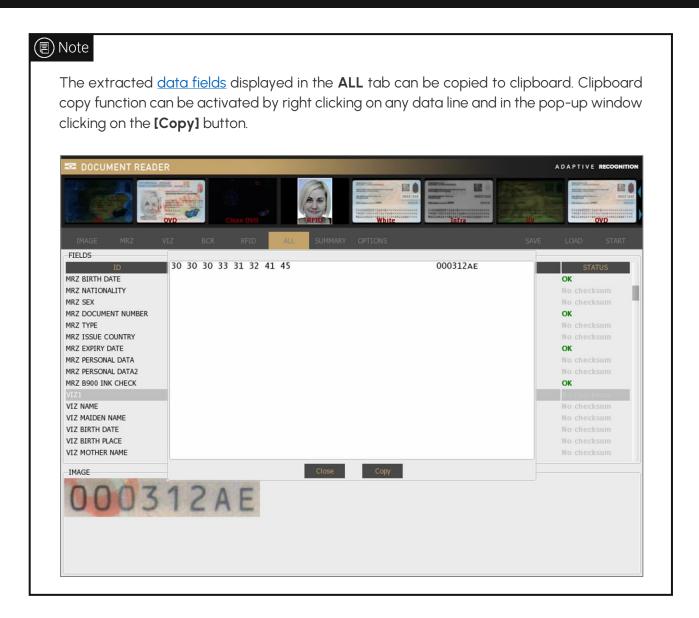
5.5.6. ALL

Displays all available data retrieved from the document.
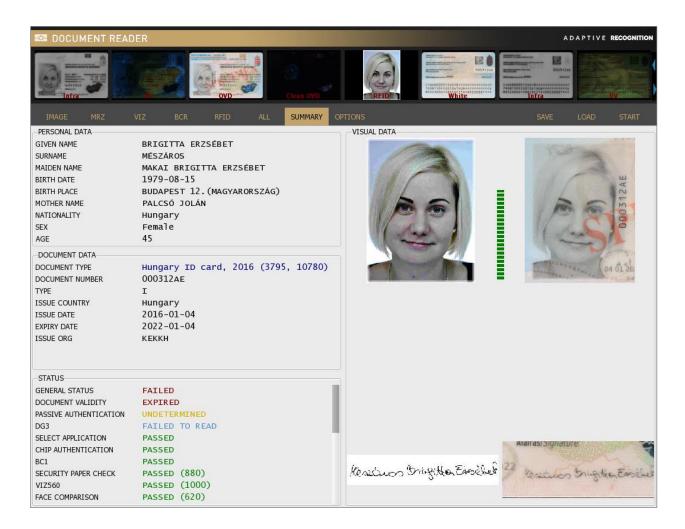
Select VIEW DETAILED RESULT filter to review formatted data. Choose format in the header of the **DATA** column.

> ### 📑 Note
>
> The extracted data fields displayed in the **ALL** tab can be copied to clipboard. Clipboard copy function can be activated by right clicking on any data line and in the pop-up window clicking on the **[Copy]** button.

5.5.7. SUMMARY

Brief summary of the personal data, document data and the results of the security crosschecks. Face compare and GDS action list results are also displayed in the **SUMMARY** tab.

5.5.8. OPTIONS

Customize application properties, lights, logs and much more on the **OPTIONS** tab. For more details, please check the OPTIONS chapter.

5.5.9. SAVE

After a reading process, you have the option to save the given document. By default, the software compresses all available images and corresponding data into one **ZIP**, **PDF**, **XML**, **CSV** or **ECZ** file that can be saved to a custom location.

> 🗐 Note
>
> The application is able to save encrypted ZIP (ECZ) file. Such files can be decrypted if the appropriate private key is available. Not recommended for personal use.
> For more information on encrypted save, see the Encrypted Saving chapter.

5.5.10. LOAD

Load scanned documents, including images illuminated by various light sources, as well as corresponding data.

> 🗐 Note
>
> This functionality is supported only for **.zip files** that have been saved earlier by ADAPTIVE RECOGNITION passport reader software.

5.5.11. CONNECT/START

Use the **[CONNECT]** button to access the selected document reader device or click on **[START]** to begin the scanning process after the device is connected successfully.

> 🗐 Note
>
> When reading contact chip card, click on **[START]** to begin the scanning process.

5.6. OPTIONS

5.6.1. GENERAL

DEVICES

OPTIONS > GENERAL > DEVICES

You can see the list of document scanners connected to your computer.

> **Note**
>
> You can work with only one device at a time. Also, you can navigate across devices by clicking on the chosen one.

DOCUMENT VIEW

OPTIONS > GENERAL > DOCUMENT VIEW

It crops and rotates documents into upright position.

> **Note**
>
> Automatic document rotation is performed properly if the **DOCUMENT VIEW** mode and **ADVANCED OCR MODE** are both selected before the starting of the scanning process.

DOCUMENT DETECTION

OPTIONS > GENERAL > DOCUMENT DETECTION

Enable/Disable the automatic document presence detection mode (motion detection). This feature senses documents placed on the scanner glass surface. Whenever a document is present, the software scans images of the document, as configured in **OPTIONS / CAPTURE**.

SMART CARD DETECTION

OPTIONS > GENERAL > SMART CARD DETECTION

Devices equipped with smart card reader can execute automatic detection of smart cards when they are inserted into the smart card reader by enabling the **SMART CARD DETECTION** option.

> 📄 Note
>
> **SMART CARD DETECTION** is not performed when RFID reading is disabled.

LOG SETTINGS

OPTIONS > GENERAL > LOG SETTINGS

The Full Page Reader application is equipped with a configurable logging feature to support any troubleshooting activities with ADAPTIVE RECOGNITION support team. By enabling different log options, you can include various events of the passport reader software in the log files.

> 📄 Note
>
> Enabling detailed RFID logging is increasing processing time.

- **ENABLE PR LOG**: Enable/Disable logging
- **DETAILED MOTDET LOG**: Enable/Disable detailed logs for motion detection
- **DETAILED RFID LOG**: Enable/Disable detailed logs for RFID communication

> 💡 Hint
>
> Your log file is located at:
>
>   Windows: c:\ProgramData\gx\pr\pr.log
>   Linux: ~/tmp/pr.log

REPROCESS ZIP FILE
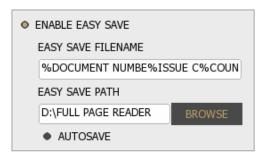
OPTIONS > GENERAL > REPROCESS ZIP FILE
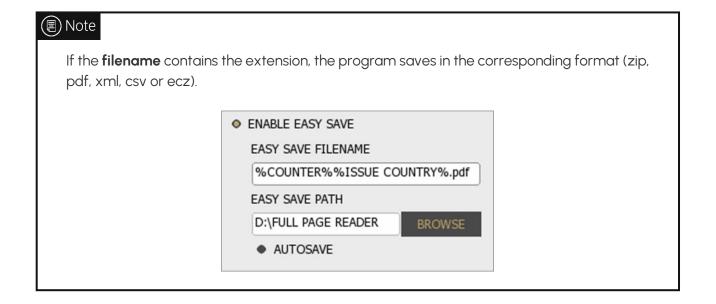
When loading **.zip** files saved earlier, the program either process them again with your current software version (**REPROCESS ZIP FILE** is enabled) or displays the original saved data (**REPROCESS ZIP FILE** is disabled). This option enables to perform OCR process and optical authentications using the current FPR application setup.

ENABLE EASY SAVE

OPTIONS > GENERAL > ENABLE EASY SAVE

The easy save option is designed to make frequent document saving simpler. Just select **ENABLE EASY SAVE**, then set the **filename** and **path**. Afterwards there is no need to browse path and specify filename when saving **.zip** files: the software creates the filename automatically based on the configured template, then saves the .zip to the path specified.

ENABLE EASY SAVE
EASY SAVE FILENAME
%DOCUMENT NUMBE%ISSUE C%COUN
EASY SAVE PATH
D:\FULL PAGE READER BROWSE
AUTOSAVE

> 📄 Note
>
> If the **filename** contains the extension, the program saves in the corresponding format (zip, pdf, xml, csv or ecz).
>
> | ENABLE EASY SAVE |
> | --- |
> | EASY SAVE FILENAME |
> | %COUNTER%%ISSUE COUNTRY%.pdf |
> | EASY SAVE PATH |
> | D:\FULL PAGE READER BROWSE |
> | AUTOSAVE |

If you turn **AUTOSAVE** on, results of all scanning process will be saved automatically. By using this option, there is no need to click on the **[SAVE]** button anymore.

> 📃 Note
>
> When using easy save, determine the filename syntax and path before first scanning. This option will save every scanning into the same path.

Through easy save the ZIP files cannot only be saved to the local file system, but they can be sent to remote systems through **ftp**, **ftps**, **http**, **https**, **smtp** protocols. To use this option, the matching URL must be typed to the path (e.g., ftps://ftp.myserver.com/shares). Afterwards the user settings can be entered by pressing the settings button.

> 📃 Note
>
> The given password is not saved in the computer, you have to type it after every program launch.

> 📃 Note
>
> If you want to save encrypted files which can only be decoded in ADAPTIVE RECOGNITION's network, then, when saving the file select **.ecz** extension.
> For more information on encrypted autosave, see the Encrypted Autosave in Full Page Reader chapter.
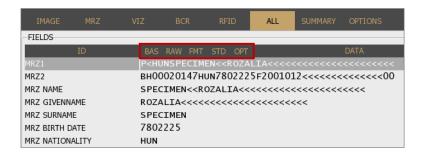
VIEW DETAILED RESULT

OPTIONS > GENERAL > VIEW DETAILED RESULT

Formatted data can be displayed on **MRZ**, **VIZ**, **BCR**, **RFID** and **ALL** tabs.

The following formatting types are available:

- Basic (**BAS**)
- Raw (**RAW**)
- Formatted (**FMT**)
- Standardized (**STD**)
- Optimal (**OPT**)
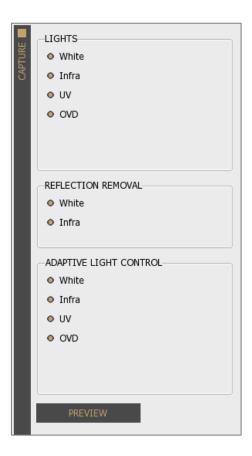
5.6.2. CAPTURE

1. LIGHTS

OPTIONS > CAPTURE > LIGHTS

The available lights can be checked at the **OPTIONS / CAPTURE / LIGHTS.**

- **White**

<mark>OPTIONS > CAPTURE > LIGHTS > WHITE</mark>

Enable **White** illumination by filling in the checkbox.

An image scanned in white light is a simple photo of the document – as it can be seen by the human eye. It is usable for human inspection and for examination of background pattern or face photo.

- **Infra**

<mark>OPTIONS > CAPTURE > LIGHTS > INFRA</mark>

Enable **Infra** illumination by filling in the checkbox.

The [ICAO](#) 9303 document specifies that for reading text and barcodes, images shall be scanned in infrared light (wavelength: 900 nm). In this illumination, the background patterns are not visible, so optical recognition algorithms provide better results.

- **UV**

Enable **UV** illumination by filling in the checkbox.

Images scanned in ultraviolet illumination can be used to check authenticity features (graphics and text printed with special fluorescent ink) which are only visible under UV light.

- **OVD**

Enable **OVD** illumination by filling in the checkbox.

The Passport Reader system is capable of visualizing and removing simple holograms and most types of OVI patterns. Holograms can be observed by viewing the **OVD** image or the **clean OVD** image. In the case of the latter one, just the hologram can be seen from the document.

OVD

Clean OVD

2. REFLECTION REMOVAL (RR)

OPTIONS > CAPTURE > REFLECTION REMOVAL

Improve OCR processing by eliminating glare on the scanned image of the document. By enabling **RR**, the device takes two pictures of the document from two different angles.

> 📑 Note
>
> Using **RR** is increasing total processing time, because the device takes more pictures.

- **White**

OPTIONS > CAPTURE > REFLECTION REMOVAL > WHITE

Enable **RR** on white images by filling in the checkbox.

- **Infra**

OPTIONS > CAPTURE > REFLECTION REMOVAL > INFRA

Enable **RR** on infra images by filling in the checkbox.
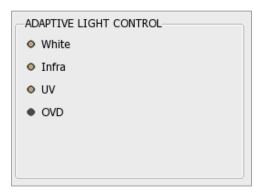
3. ADAPTIVE LIGHT CONTROL

ADAPTIVE RECOGNITION's **ADAPTIVE LIGHT CONTROL** feature compensates for external light interference and makes routine operation independent of the environment. In order to use this feature, fill in the checkbox(es) you wish to apply before starting the illumination process.

> 📑 **Note**
>
> Using **ADAPTIVE LIGHT CONTROL** is increasing total processing time, because the device takes more pictures.

4. PREVIEW

Enable **PREVIEW** mode to get a live stream from the camera sensor of the document reader. When clicking on the **PREVIEW** button at **OPTIONS / CAPTURE** layer, the application displays the broadcast in a pop-up window. A dropdown list to change lighting can be found on the top-left corner.
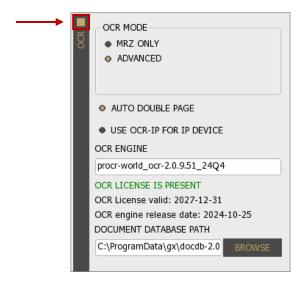
The available light sources are the following:

- White
- Infra
- UV
- OVD

5.6.3. OCR

Enable **OCR** process by filling in the checkbox on top-left corner of the layer.

1. OCR MODE

OPTIONS > OCR > OCR MODE

Select between two OCR modes to configure the OCR tasks to be performed.

- **MRZ ONLY**

OPTIONS > OCR > OCR MODE > MRZ ONLY

Select **MRZ ONLY** mode to get the data of the MRZ field from any ICAO-9303 standard document. When using this filter, no other OCR-related task is performed in order to ensure the fastest processing time. This option does not return any data from the Visual Inspection Zone (VIZ).

- **ADVANCED**
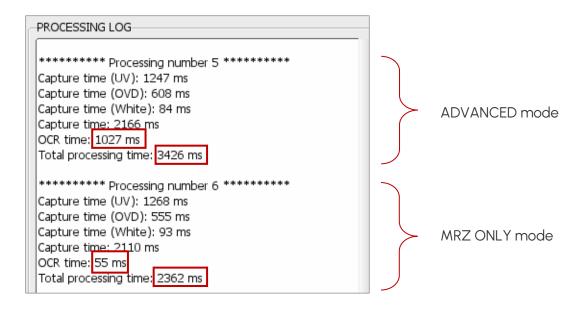
OPTIONS > OCR > OCR MODE > ADVANCED

Select **ADVANCED** mode to enable (if you have installed before) VIZ (or VIZ+AUTH) engine besides MRZ to read document-specific data from the Visual Inspection Zone of different national documents. When using the device in **ADVANCED** mode, the following OCR-related functionalities are performed automatically:

- UV dull paper check (if the device has a built-in UV illumination source)
- B900 ink check
- Automatic document cropping and rotation
- Face photo cropping and face comparison
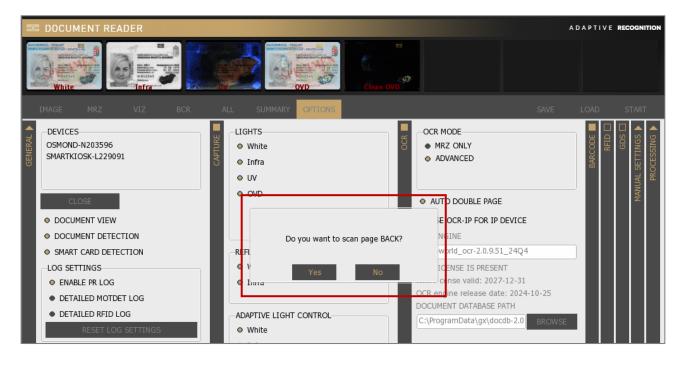
> **📄 Note**
>
> **ADVANCED** mode is increasing processing time.

PROCESSING LOG

```
********** Processing number 5 **********
Capture time (UV): 1247 ms
Capture time (OVD): 608 ms
Capture time (White): 84 ms
Capture time: 2166 ms
OCR time: 1027 ms
Total processing time: 3426 ms
```
→ ADVANCED mode

```
********** Processing number 6 **********
Capture time (UV): 1268 ms
Capture time (OVD): 555 ms
Capture time (White): 93 ms
Capture time: 2110 ms
OCR time: 55 ms
Total processing time: 2362 ms
```
→ MRZ ONLY mode

2. AUTO DOUBLE PAGE

OPTIONS > OCR > AUTO DOUBLE PAGE

Enable **AUTO DOUBLE PAGE** to read double paged documents automatically. When this option is enabled, after scanning the front side of the document, the application asks the user if the back side of the document is needed. In case of clicking on the **[Yes]** button, FPR waits 10 seconds for the second side of the document.
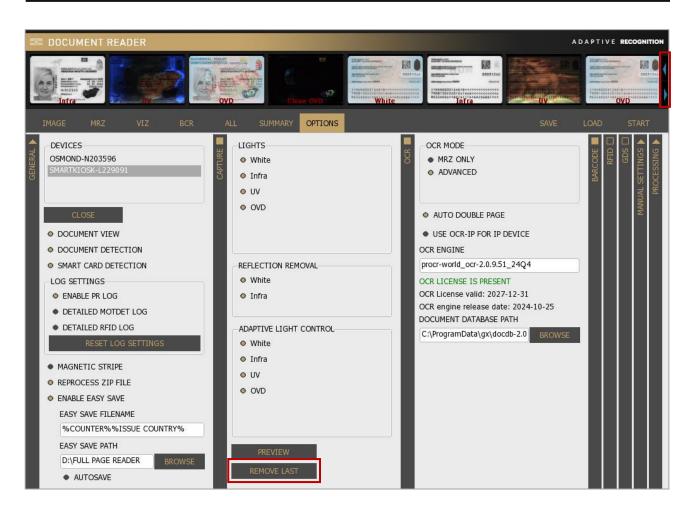
When the scanning of both sides is finished, use the blue colored left and right arrows to navigate among the scanned images.

📑 Note

Left and right arrows are displayed, when more than 8 images are scanned from a document.

📑 Note

The images from the last scanning can be removed by clicking on the **[REMOVE LAST]** button located at **CAPTURE** layer.

📑 Note

AUTO DOUBLE PAGE function only operates automatically, on the condition of the document being recognized by the VIZ OCR engine. For more information on VIZ OCR engine, see ADAPTIVE RECOGNITION website.

3. USE OCR-IP FOR IP DEVICE

When enabling **USE OCR-IP FOR IP DEVICE** option, for performing OCR, the FPR application uses the OCR engine that can be found on the remote network device.

> 📄 Note
>
> The "**procr-ip**" engine can be selected from the **OCR ENGINE** list, but if selected the document reading will **not be performed with local USB devices**. Therefore, in case of a locally run prwebsrv, do not select the "**procr-ip**" engine from the **OCR ENGINE** list.
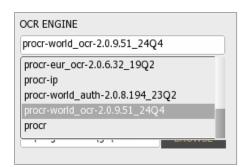
4. OCR ENGINE

The Optical Character Recognition process of each document is performed by the **OCR ENGINE**. The default package contains the PR OCR engine, which reads the MRZ field from any ICAO 9303 standard document.

In some cases, OCR engines are trained for specific documents in order to provide additional information for authentication and/or VIZ reading (e.g., on ID type). Using such engines involves changing the PR OCR engine.

Select among **installed OCR engines on your computer**, if you have several installed engines. A dropdown list shows your available engine(s). With a left-click you can select your appropriate one. After selection, the software displays a status message about the availability as well as validity and release date of the given engine license.

> 📄 Note
>
> In the case of getting the "**NO OCR ENGINE INSTALLED**" message, please install your OCR engine package.

> 📄 Note
>
> The "**procr-cloud**" engine is found among the OCR engines. This engine makes cloud OCR and authentication available for AR document reader users. For more information on the cloud service and its setting, see Quick Guide for Using Carmen® ID Recognition service with Passport Reader chapter.
>
> OCR ENGINE
>
> procr-cloud
>
> OCR LICENSE IS NOT REQUIRED
> OCR License valid: N/A
> OCR engine release date: N/A

The passport reader software package and OCR engine are protected by software license. You need valid license to use **PR Software features** (Image capturing, RFID reading), as well as for performing **MRZ OCR+Barcode Reading**. Optionally, you also need license to use any specific OCR engine trained to perform **VIZ reading and Authentication** of certain documents. Licenses are stored on the document scanner device.

The green status message (displayed under OCR engine) indicates valid license.

Possible error messages in processing log, referring to licenses:

- ``(3:ERRO) [prapi] > (cmd:2008006f) (1012) - Hardware key does not work properly [prapi] (license).``

  → It is referring to the **missing PR software license**.
  Please, contact your ADAPTIVE RECOGNITION sales representative to ask for license update.

- ``(3:ERRO) [prdoc] > Ocr read: FAILED: Hardware key does not work properly [gxmodule].``

  → It is referring to the **missing VIZ OCR and/or MRZ OCR+Barcode Reading license**.
  Please, contact your ADAPTIVE RECOGNITION sales representative to update your licenses.
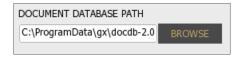
> 📄 Note
>
> For availability and more information on OCR engines and software licenses, please contact your ADAPTIVE RECOGNITION sales representative.

5. DOCUMENT DATABASE PATH
OPTIONS > OCR > DOCUMENT DATABASE PATH

Define the path for reference image database for authentication purposes. The reference images are displayed in the **AUTH** check fields at **VIZ** tab. This path is set by default as you install VIZ OCR+AUTH engine to your computer. The purpose of this function is to allow visual comparison of authenticated document sections with images stored in a reference database. If document database is not set or installed, the authentication feature still operates and its results are returned.
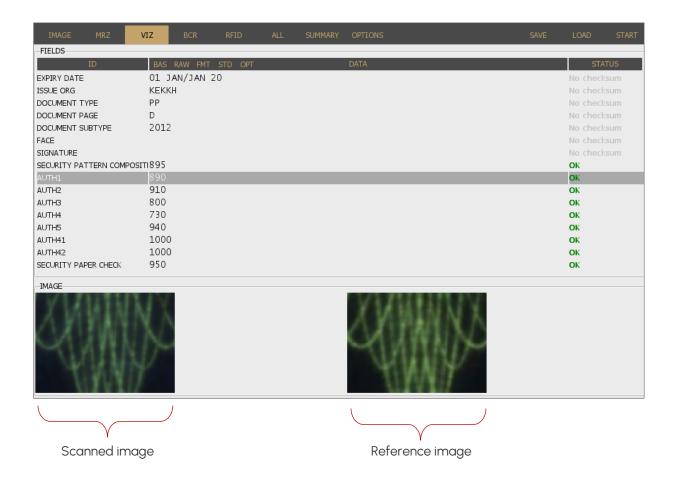
The values of the AUTH fields are in thousandths.

The limits are the following:

- 0-329: **ERROR**
- 330-659: **WARNING**
- 660-1000: **OK**

> 📑 Note
>
> These limits are ADAPTIVE RECOGNITION standard values.

Scanned image

Reference image

> **Hint**
>
> By double clicking on the corresponding AUTH field, the accurate place of the image fragment will be shown in the complete image.

5.6.4.   BARCODE

Enable **BARCODE** recognition by filling in the checkbox on top left corner of the layer.
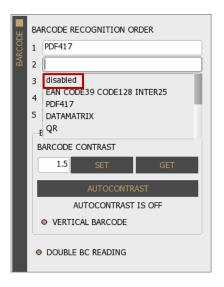
> 📄 Note
>
> If you do not need barcode recognition, disable this option to speed up processing.

1.   BARCODE RECOGNITION ORDER
OPTIONS > BARCODE > BARCODE RECOGNITION ORDER

Set the order of tries in recognizing barcodes. Different types of barcodes are available to read. You can select your appropriate ones from the dropdown lists. Use **disabled** value for not needed types.

> 📄 Note
>
> Unnecessary barcode detection increases processing time. Select only necessary/possible types.

2. BARCODE CONTRAST
OPTIONS > BARCODE > BARCODE CONTRAST

> 📄 Note
>
> The following properties affect only 1D-type (EAN, CODE39, CODE128, INTER25) and PDF417 barcodes.

Set **BARCODE CONTRAST** to improve the accuracy of reading of low quality or damaged barcodes.

- Possible values: **0.3 – 7.0**

- Default value: **1.5**

- Recommended value: **1.2**

- Autocontrast values: **-1**, **-2** and **-3**

> 💡 Hint
>
> By clicking on the **[GET]** button, you will get the current value.

> 📄 Note
>
> For more information on **BARCODE CONTRAST**, please contact ADAPTIVE RECOGNITION support team.

AUTOCONTRAST

It is recommended to use instead of manual settings. To utilize this function, click on the button. During operation the automation may turn off, thus the current status of the function is displayed below the **AUTOCONTRAST** button.

VERTICAL BARCODE

Enable/Disable recognition of barcodes that are positioned on the document in vertical orientation.
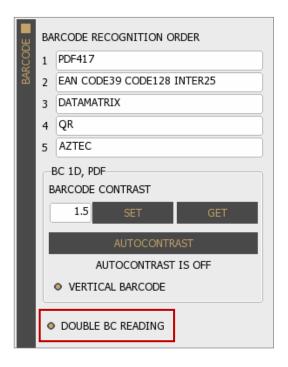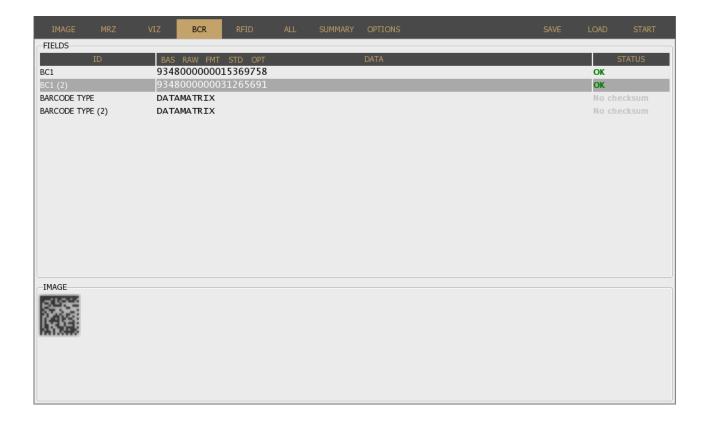
> 📄 Note
>
> Enable this function to maximize the efficiency of barcode reading.

3. DOUBLE BC READING

Enable the **DOUBLE BC READING** function in order to scan multiple barcodes from the same document page in a single scanning attempt.

5.6.5. RFID

View the **RFID** layer in the **OPTIONS** tab to customize the parameters of RFID chip reading: authentications to perform and data groups to read.

RFID Authentication is a process that validates claimed identity of a participant in an electronic transaction. RFID chips may support different types of authentication methods.

> 📖 Note
>
> In the case of **contact chip reading**, the extracted data is displayed in the **RFID** tab.

1. ePassport / eID
OPTIONS > RFID > ePassport / eID
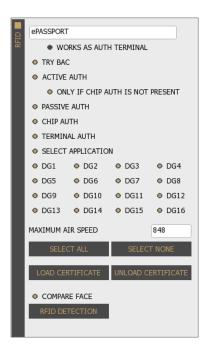
Select the application to be read which can be eID or ePassport.

2. TRY BAC
OPTIONS > RFID > TRY BAC

Enable/Disable **TRY BAC** authentication.

TRY BAC forces the Basic Access Control (BAC) in case of appropriate and also inappropriate messages received by the document. The protocol for Basic Access Control is specified by ICAO. When performing Basic Access Control, the terminal authenticates the user by confirming they have physical access to the MRTD's data page. Such confirmation is done by requesting MRZ data (document number, birth date and expiry date) from user to start the BAC process.

3. ACTIVE AUTH

OPTIONS > RFID > ACTIVE AUTH

Enable/Disable **ACTIVE AUTHENTICATION**.

Active Authentication protects against chip cloning by verifying if DG15 is not a copy. It is basically a two-way interaction between the reader and the document that involves communication with the non-accessible memory of the chip. AA result is valid only after the Passive Authentication has been executed successfully.

4. PASSIVE AUTH

OPTIONS > RFID > PASSIVE AUTH

Enable/Disable **PASSIVE AUTHENTICATION**.

Passive Authentication is used to check if the data on the RF chip of the electronic document is authentic and unforged.

The authentication process includes two main steps:

- Authenticating the SOD

- Verifying the hashes of each DG file by comparing them to the hashes stored in SOD

For authenticating the SOD, the CSCA certificate of the document is required. Such certificate should be downloaded from the website of the document issuing authority, from ICAO PKD or via other trustworthy source. Once downloaded, it should be copied to: **C:\ProgramData\gx\pr\certs** (Windows) or **/var/gx/pr/certs** (Linux) or loaded manually with the **[LOAD CERTIFICATE]** button.

Supported certificate formats:

- .cer
- .crt
- .crl
- .cvcert
- .der
- .ldif
- .ml
- .pem

> **Note**
>
> The corresponding private key must have the same name as the cvcert it belongs to, only with pkcs8 extension.

> 💡 Hint
>
> The Passport Reader software package is implemented with German Master List that includes CSCA certificates of hundreds of documents.
> You may download and use the latest version of this Master List from https://www.bsi.bund.de/SharedDocs/Downloads/DE/BSI/ElekAusweise/CSCA/GermanMasterList.html

5. CHIP AUTH

OPTIONS > RFID > CHIP AUTH

Enable/Disable **CHIP AUTHENTICATION**.

Chip Authentication is used to uncover cloned RF chips: it is a more advanced alternative to Active Authentication. Similarly to AA, CA also involves communication with the secure memory of the chip. CA is obligatory in EU passports.

6. TERMINAL AUTH

OPTIONS > RFID > TERMINAL AUTH

Enable/Disable **TERMINAL AUTHENTICATION**.

TA is designed to provide additional protection to sensitive data (fingerprint (DG3) and iris (DG4)) stored in the RFID chip. Without performing TA, the passport denies access to such biometric information as TA requires the inspection system to prove that it is authorized to access the sensitive information within the RFID chip.

TA consists of two major phases:

1. Building the certificate chain of public keys
2. Verifying if the terminal has the private key using the certificate chain

In order to perform both phases, the DV public and IS public certificates as well as the IS private key are required. These files can be loaded in the same way as PA certificates (see above). If all certificates are loaded, TA is performed automatically by the FPR and the sensitive data is displayed in the **RFID** and **SUMMARY** tabs.

> 📄 Note
>
> FPR is only able to perform TA if the private key is available and loadable in file format.

7. SELECT APPLICATION

OPTIONS > RFID > SELECT APPLICATION

Enable/Disable **SELECT APPLICATION** function. If it is selected, the Passport Reader software automatically selects a supported application on the RFID chip: ePassport, eID, eDL or IDL.

8. DG1-16

OPTIONS > RFID > DG1-16

Enable/Disable document's RFID data groups to read.

Some of the data groups need to have certificate to access its data. Required certificates can be obtained from the authority of the local national government.

9. MAXIMUM AIR SPEED

OPTIONS > RFID > MAXIMUM AIR SPEED

Set the maximum baud-rate for communication with the RFID chip.

10. LOAD/UNLOAD CERTIFICATE

OPTIONS > RFID > LOAD/UNLOAD CERTIFICATE

Browse and select your certification file that enables you to run RFID security mechanisms (PA and TA).
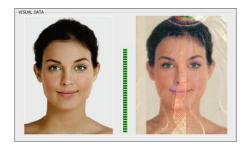
> 📖 Note
>
>   Private keys (.pkcs8) cannot be loaded with **[LOAD CERTIFICATE]** button.

11. COMPARE FACE

OPTIONS > RFID > COMPARE FACE
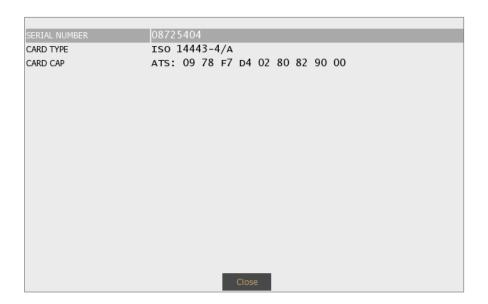
Enable/Disable comparing the face photo stored in chip against the one printed on the data page.

12. RFID DETECTION

OPTIONS > RFID > RFID DETECTION

Use the **RFID DETECTION** feature to determine if there is an eDocument positioned onto the document reader device. If you click on this button, a window will pop up with the fundamental data of the document/chip.

> **Note**
>
> This feature works only when the document is within 10 mm from the RFID antenna of the device.

5.6.6. GDS

Enable **GDS** upload by filling in the checkbox on top left corner of the layer.

> 📄 Note
>
> Before using GDS, it is required to perform certain settings. The description of this setup process can be found in the chapter Quick Guide for Using GDS with Passport Reader.

1. GDS UPLOAD

OPTIONS > GDS > GDS UPLOAD

Enable/Disable **GDS UPLOAD**.

The Globessey Data Server (GDS) is a universal data collection, storage and visualization middleware that comes with an advanced front-end GUI and works out-of-the-box with Adaptive Recognition ANPR cameras and identity document readers. GDS is a combination of a database layer, authentication and transaction layer, and a front-end layer in one complete package that is tested end-to-end.

If enabled, the scanning results (document data and images) will be uploaded to this interface.

2. GDS ACTION LIST

OPTIONS > GDS > GDS ACTION LIST

Enable/Disable **GDS ACTION LIST**.

If enabled, blacklist and whitelist check can be applied during document scanning.

> 📄 Note
>
> The number of enabled active lists determines the number of the queries and returned results.

3. GDS NOTIFICATION

Enable/Disable **GDS NOTIFICATION**.

If **GDS ACTION LIST** is enabled, the **GDS NOTIFICATION** function can also be selected. In that case, FPR informs the user about the result of the list query in a pop-up window.

If the notification function is disabled, the result of the query is displayed in the **SUMMARY** tab.

> 📄 Note
>
> For more information on using GDS with Full Page Reader application, see the Testing with Full Page Reader Application chapter.

5.6.7. MANUAL SETTINGS

Fine-tune your software by changing default system property values to customize operation according to your preferences.

> 📄 Note
>
> Changing parameters may have negative effect on system performance and operation. If in doubt with the proper value, please consult with ADAPTIVE RECOGNITION support team.

1. PROPERTY NAME
OPTIONS > MANUAL SETTINGS > PROPERTY NAME

Every property has a name and most properties have path as well. When referring to a property (e.g., in the FPR application) the path must be specified as well.

2. PROPERTY VALUE
OPTIONS > MANUAL SETTINGS > PROPERTY VALUE

The property value is a number or text that determines the effect of the property.

> 📄 Note
>
> For more information on possible property values, please check the Passport Reader Property List chapter.

5.6.8. PROCESSING

1. PROCESSING TIME
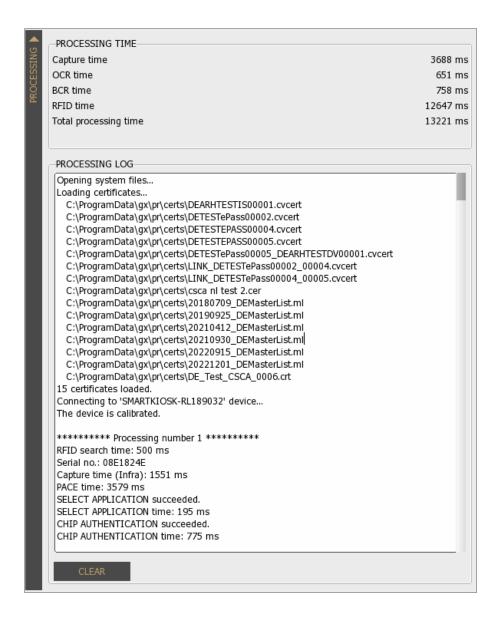
OPTIONS > PROCESSING > PROCESSING TIME

Brief summary of the **PROCESSING TIME** of each processing phase.

2. PROCESSING LOG

OPTIONS > PROCESSING > PROCESSING LOG

The **PROCESSING LOG** displays the main events of each document reading process.
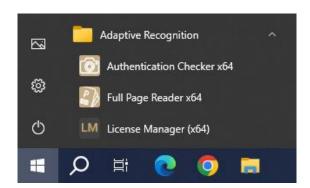
5.7. FAQ

5.7.1. BASICS

How to connect reader before scanning?

1. Open Full Page Reader (FPR) app.

2. View **GENERAL** layer in **OPTIONS** tab to see available reader(s).
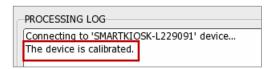
3. Connect reader to your system to gain access its features by

    a. clicking on the **[CONNECT]** button or

    b. clicking on the selected reader in the **DEVICES** list.

4. Check the status of the reader in the **PROCESSING LOG**.
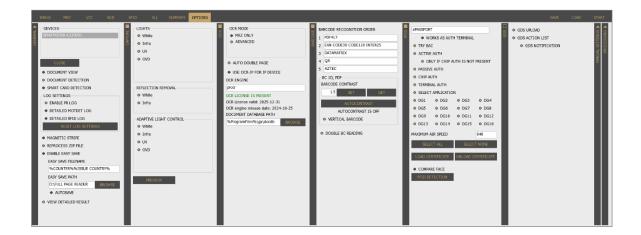
    If you get the "**The device is calibrated**." message, your reader is ready to use.
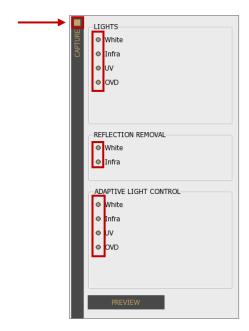
5.7.2. SCANNING

How to scan?

1. Connect reader.
2. Open vertical layers in **OPTIONS** tab and enable/disable filters to customize the FPR's operation according to your needs.
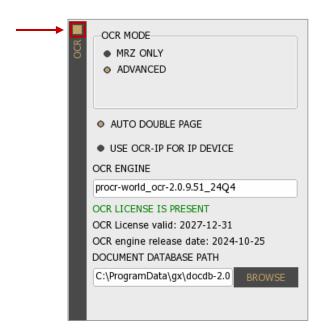
a. Activate **CAPTURE** layer for scanning documents by filling in the checkbox and set the illumination types you wish to apply.
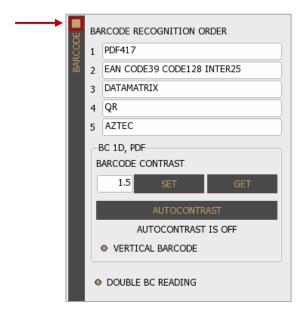
b.   Activate **OCR** layer by filling in the checkbox and select your **OCR ENGINE** for performing character recognition.

> 📑 Note
>
> Select **ADVANCED** mode to read data from **MRZ and VIZ fields** as well.

c.   Activate **BARCODE** layer by filling in the checkbox to read barcode(s) from documents. If you expect different barcode types, you can set an order for faster process time.

d. Activate **RFID** layer by filling in the checkbox to read RFID chip data from e-documents. Select the data groups to read and the authentication mechanisms to execute.

e. Activate **GDS** layer by filling in the checkbox to upload document data and images.

3. Start scanning by pressing the **[START]** button or use **DOCUMENT DETECTION**.

How to enable document presence detection (aka Motion Detection, Freerun Mode, Auto-scan)?

Select **DOCUMENT DETECTION** option on **OPTIONS / GENERAL** layer to enable document presence detection. This feature automatically scans images using the selected filters whenever a document is available on the surface of the reader.

How to crop and rotate document?

Select **DOCUMENT VIEW** option before the starting of the scanning process on **OPTIONS / GENERAL** layer to crop and rotate documents into upright position.

How to read VIZ fields?

- Select **ADVANCED** mode on **OPTIONS / OCR** layer to read data from **VIZ**.

- Select your **VIZ-OCR** engine to use.

- Check the processed VIZ data of a given document on the **VIZ** tab.

> **Note**
>
> **VIZ** tab is only visible if you have activated on the **OCR** layer.
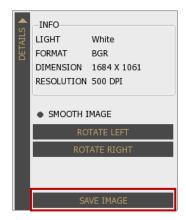
5.7.3. SAVE, LOAD, REPROCESS

How to save a scanning?

1. Select filters and scan a document.

2. Choose from the **following saving methods**:

    a. Click on **[SAVE]** and browse the path as well as specify the filename to finish the saving process.

    b. Click on **[SAVE IMAGE]** on **IMAGE / DETAILS** layer to save the selected image. Browse the path and specify the filename to finish the saving process.

> 📄 Note
>
> **SAVE IMAGE** function is only able to save into **image format**.
> ZIP, PDF, XML or CSV formats are not available options.

    c. Select **ENABLE EASY SAVE** and click on **[SAVE]** to preserve the selected scanning.
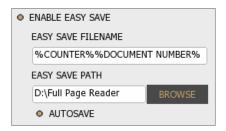
> 📄 Note
>
> At the first saving, you have to browse the path and define the filename, if the **EASY SAVE PATH** is not specified.

d. Select **ENABLE EASY SAVE** and turn on **AUTOSAVE** to perform automatic saving.
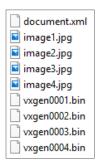
> ⚠ **Important!**
>
> If the **EASY SAVE PATH** is not specified, the automatic saving is not performed.

3. If you have selected **ENABLE EASY SAVE**, you will find the images of the scanned document in the folder that you have selected at **OPTIONS / GENERAL / EASY SAVE PATH.**

What is included in the saved file?

- All **images** scanned by different light sources are available in original view.
- XML file with the **processed data** from document.
- Corresponding **binary data** for each image in .bin files.
- Copy of the **face photo** from RFID chip (if available).
- Copy of the **signature photo** from RFID chip (if available).
- Copy of the **biometric data** from RFID chip (if RFID and CVCA certificate is available).

> 📑 Note
>
> If the following properties are enabled, the **cleanovd**, **cleanuv** and certain **field images** are also saved in the ZIP file:
> - save_cleanovd – save cleanovd image,
> - save_cleanuv – save cleanuv image,
> - save_fieldimage – save field image.
>
> For more information on these properties, see Passport Reader Property List chapter.

How to load or reprocess a previous scanning? What is the difference?

- **LOAD**

  1. Click on the **[LOAD]** button.
  2. Browse for your .zip file and click on it.
  3. Open the selected file.
  4. You get the original data and images in the app as it was processed earlier.

- **REPROCESS**

  1. Select **REPROCESS ZIP FILE** option on **GENERAL** layer in **OPTIONS** tab.

  2. Set different filters to review same document in different conditions.

     I.e.: Select different OCR engine or barcode setting.
  3. Click on the **[LOAD]** button.
  4. Browse for your .zip file and click on it.
  5. You get the reprocessed data as it was modified with new filters.
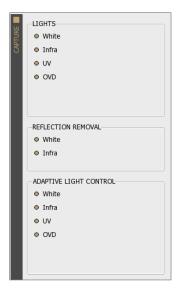
The difference between the two is that with the **LOAD** you get the original saved data in the app (you do not have to check the ZIP file) and with the **REPROCESS ZIP FILE** the saved data is processed again according to the actual or selected engine.

How to make a collection of sample documents to send to ADAPTIVE RECOGNITION?

1. Open Full Page Reader.
2. Select **all available illumination types** for both **LIGHTS** and **REFLECTION REMOVAL**.

> 📄 Note
>
> **REFLECTION REMOVAL** ensures glare-free images that provides higher OCR accuracy.

3. Scan the document based on the following:
    *   Make sure that the document is in standstill position while scanning is performed.
    *   Protect the scanning window from direct sunlight or strong ambient light from the environment.
    *   Scan both sides of the document.
    *   In case of ID-1 and ID-2 size documents:
        For the best OCR quality, please make scans with rotating the cards by 90° and 180° or positioning them randomly.
4. Save document(s) by clicking on the **[SAVE]** button – for training purposes, minimum 15 different scans needed from the same document type.

> 💡 Hint
>
> If you wish to scan more documents, using of **ENABLE EASY SAVE** and **AUTOSAVE** options are recommended to use to minimize the saving time.

VII. MAINTENANCE

The device has no moving parts – except for the motorized, auto-focus module – which ensures maximum reliability and low maintenance. However, in order to ensure that the device remains in a satisfactory operating condition, the following actions should be performed regularly.

1. CLEANING THE DEVICE

ADAPTIVE RECOGNITION document reader devices generally do not need any kind of special maintenance; however, they should be regularly cleaned in order to ensure that they are fully operational and are able to extract data from the IDs properly.

> ⚠ **Important!**
>
> The devices are to be used indoors, in an office environment only (SOHO).

Combo Smart Kiosk document reader package includes:

- 1 piece of **Passport Reader Glass Wet Wipe (alcoholic virucide wipe)**,

> 📄 Note
>
> However, any kind of soft cleaning wipe and **standard mild glass cleaner liquid** can be used to clean the devices.

The glass window (the ID reading surface) should be cleaned regularly with mild glass cleaner and a soft cloth. Lint-free microfiber cloth is recommended for the best results.

Cleaning the reading surface **frequently** is of utmost importance, as contamination and stains on the glass surface could negatively impact the accuracy of the optical data reading, and shorten the lifespan of the glass itself.

> ⚠ **Important!**
>
> Abrasive materials (e.g., sand) are to be avoided by any means.

Hard materials can also shorten the lifespan of the reading surface (for example metal objects (e.g., rings) touching the window glass). This kind of contact with the scanning window should be avoided.

1.1.1. DISINFECTION

Isopropyl alcohol (70%) can be used to safely clean and disinfect the surface of the document reader devices, both the scanning window glass and plastic parts. For the exact concentration of isopropyl alcohol which is sufficient to eliminate COVID19, please consult WHO and other trusted sources.

VIII. APPENDIX

1. LED STATUSES OF THE COMBO SMART KIOSK DEVICE

The following table summarizes the meaning of the LED statuses, which represent the several states of the device.

Device Status	Green LED	Orange LED	Red LED
Boot seq. + powered	🟢	🟠	🔴
Connected	🟢		
Copying calibration file	🟢	🟠(blinking)	
Detecting motion	🟢	🟠	
Image processing	🟢		🔴
Ready to scan	🟢		
Suspended		🟠	

2.   CORRECT DOCUMENT PLACEMENT

The following section provides a short guide on how different types of documents should be placed on the scanning surface of the Combo Smart Kiosk device in order to acquire the best OCR and authorization results.

In case of **ID1** and **ID2 size cards** (like national ID cards, driver licenses, EHIC – European Health Insurance Card, name/business cards or any other 86x54mm = 3.4"x2.1" sized (or smaller) printed document), place them in the middle of the scanning surface. The cards can be placed vertically and horizontally as well. However, please avoid placing the card at close to the angle of 45 degrees.

> 🗏 Note
>
> In most cases the optimal position of the ID is not necessarily in the corner of the scanning surface. However, certain authentication or reflection elements can make an exception to this.

In case of **passports**, place them horizontally in the upper left corner of the scanning surface.

3. LICENSE MANAGEMENT

This short description will guide you through the steps of uploading ADAPTIVE RECOGNITION Passport Reader licenses to your document reader device.

In case of a new order, license upload is required only when the ordered software license was supplied separately (not pre-installed on the scanner).

Purpose of licenses

Each software module has its own related license file, storing:

- Issuing date
- Expiry date
- Device serial number

The update service period of the given software module is controlled by the expiry date. All software versions that are issued prior to this date, will run on the device.

License storage

In case of all scanner models that were manufactured in 2014 or later, the licenses are stored on the scanners.

Ways of uploading licenses

1. In case of **USB** devices:

   - For uploading licenses to a small number of specific scanners, our suggestion is using the License Manager application.

   - In case of uploading licenses to a larger quantity of scanners, we offer an automated license upload feature (MSI installer). For more information on it, see Automated Ways for License Upload chapter.

Migrating licenses between devices

License migration is not possible, as all issued licenses are linked to one scanner, based on its serial number.

3.1.   LICENSE UPLOAD USING LICENSE MANAGER

The License Manager application is designed to upload ADAPTIVE RECOGNITION passport reader license files to a specific document reader device.

3.1.1.   INSTALLATION
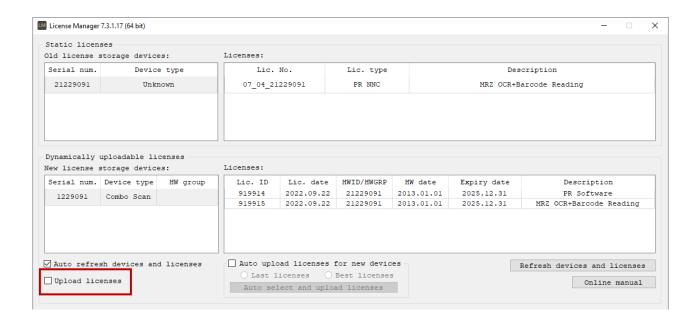
The application gets automatically installed by installing Passport Reader version 2.1.7. and above versions.

3.1.2.   STEPS OF LICENSE UPLOAD

1.   **Enable the** "**Upload licenses**" option to view functions for uploading licenses.

> 📑 Note
>
> If "**Auto upload licenses for new devices**" is enabled, the function is greyed out.
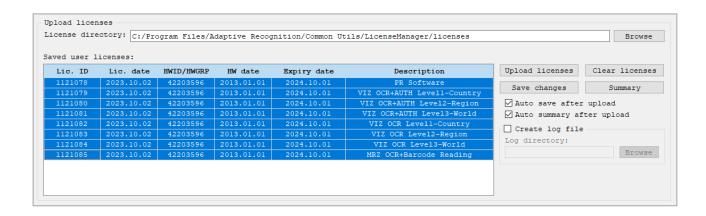
2.   Make sure that the new license files are copied under the path specified at "**License directory**".

3. **Select the license(s) to upload** to your device.

> 📑 Note
>
> In order to select more licenses at the same time, use **Ctrl + left click**.
> In order to select all the licenses at the same time, use the **Ctrl + A** keyboard shortcut.
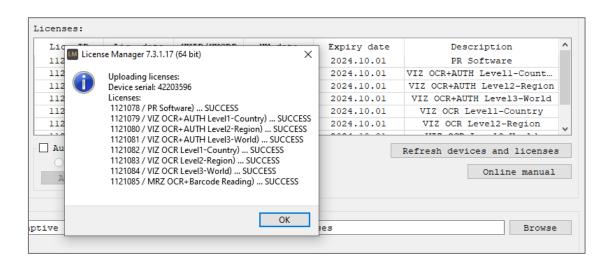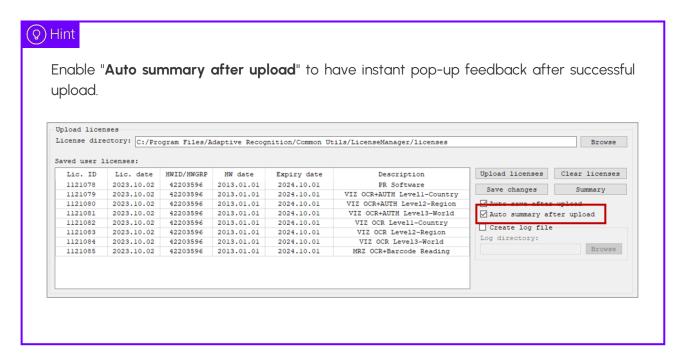
> 💡 Hint
>
> By enabling the "**Auto upload licenses for new devices**" option, licenses can be uploaded automatically, according to one of the following logics:
>
> a. **Last licenses**: Automatically upload the latest license file for the connected device (license update).
>
> b. **Best licenses**: Automatically upload licenses that provide support for the maximal number of documents/region (license upgrade).
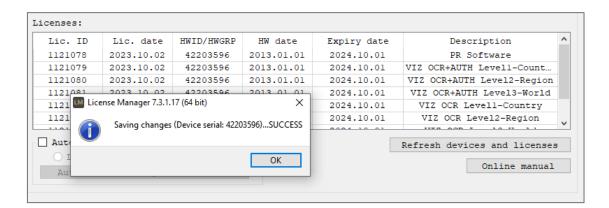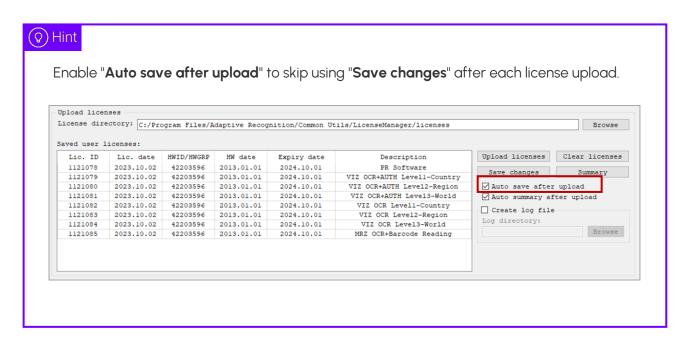
4. **Click** "**Upload licenses**" to copy the selected license(s) to your device and check their presence in the "**Licenses**" textbox.

> ### 💡 Hint
>
> Enable "**Auto summary after upload**" to have instant pop-up feedback after successful upload.
>
>

5. **Click on** "**Save changes**" and exit the application.

Hint

Enable "**Auto save after upload**" to skip using "**Save changes**" after each license upload.

3.2. AUTOMATED WAYS FOR LICENSE UPLOAD

For uploading licenses to multiple devices, we offer automated methods instead of using License Manager one-by-one with each scanner.

> 📑 Note
>
> This functionality is only available for USB document scanners or devices operating in USB mode.

3.2.1. STEPS

Automated upload can be activated in the following way:

1. Set the **update_licenses** property to 1. This can be done via **gxsd.dat** (within the <pr> and </pr> nods) or by using the **SetProperty()** function.

2. Move the license files to:
   - **ProgramData\GX\pr** folder on **Windows** systems.
   - **/var/gx/pr** directory on **Linux** systems.

3. Once that is completed, upload will be performed automatically, by the **UseDevice()** function. In practice, it happens when the scanner is started by either ADAPTIVE RECOGNITION Full Page Reader or any end user application.

More information about update_licenses property
- **0**: automatic license update is disabled
- **1**: automatic license update is enabled
- **2**: automatic license update is enabled but only once. After a successful update, the value of **update_licenses** property is automatically changed to 0. This value is designed to skip checking hundreds of licenses upon each **UseDevice()** function that may require few seconds.
- **3**: Only if "**licupd.txt**" file is present in the **license_path** or **rwdata_dir** path. Upon successful update, it deletes the file. The file can contain a request date in YYYYMMDD format, thus former licenses also can be uploaded.

3.2.2. USING MSI PACKAGE

The above logic can be implemented in a special MSI package that performs exactly the same automated license upload tasks on your passport reader devices. This special MSI package is available on request from ADAPTIVE RECOGNITION Support Team.

4. VIZ OCR AND VIZ AUTH OCR ENGINE MANAGEMENT

This short description will guide you through the steps of uploading ADAPTIVE RECOGNITION Passport Reader engines to your document reader device.

OCR engines are add-on modules of the Passport Reader software. They are required for reading and identifying the VIZ (Visual Inspection Zone) fields of the documents.

The following types can be distinguished based on zone coverage:

- country (L1 / Level 1 Single Country)
- region (L2 / Level 2 Region)
- world (L3 / Level 3 World)

📰 Note

The use of OCR engine is license-bound.

📰 Note

For availability and more information on OCR engines and software licenses, please contact your ADAPTIVE RECOGNITION sales representative.

📰 Note

VIZ OCR and VIZ AUTH OCR engines are available and can be downloaded from the ADAPTIVE RECOGNITION website.

📰 Note

In case of purchasing **VIZ OCR or VIZ AUTH OCR engine**, it is strongly recommended to use 64-bit operating systems.

Ways of uploading OCR engines

1. In case of **USB** devices:

    - OCR engines can be uploaded with MSI installer. For more information on this, see Uploading OCR Engines to USB Devices chapter.
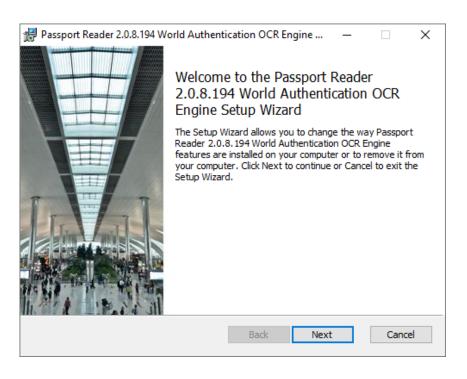
4.1. UPLOADING OCR ENGINES TO USB DEVICES

> ⓘ **Important!**
>
> Administrator rights are needed for installation.

OCR engines are available and can be downloaded from the ADAPTIVE RECOGNITION website.

1. On the website click on **Engines** and click on the **[Download]** button belonging to the selected OCR engine (VIZ OCR or VIZ AUTH OCR).

2. By clicking on the **[Download]** button, the webpage redirects you to the **VIZ OCR Software Add-On for VIZ reading** (in case of VIZ OCR) or **Authentication Software Add-Ons for AR ID reading** (in case of VIZ AUTH OCR) page.

3. Under **Engines** select the required version and click on its **[Download]** button.

4. Open the downloaded package and select the appropriate folder depending on the OS and device.

5. Run the **procr-XXX_ocr-2.0.X.XX.msi** (in case of VIZ OCR) or **procr-XXX_auth-2.0.X.XX.msi** (in case of VIZ AUTH OCR) installer.

6. The installation starts with the following window:
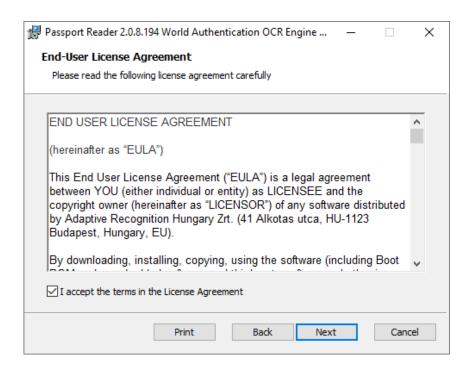
7. Click **[Next]** to launch installation.
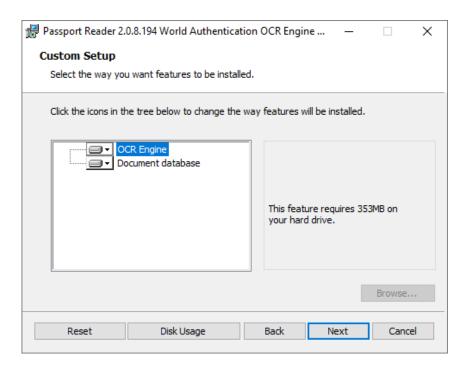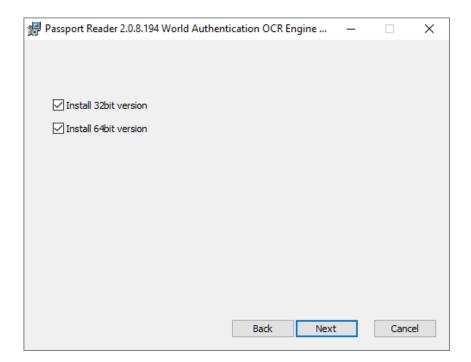
8. Accept the EULA (by ticking the checkbox) and start the custom installation process by clicking on **[Next]**.
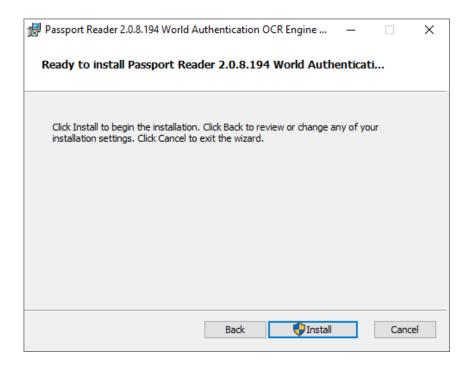
9. In the **Custom Setup** window, select the modules to be installed according to your preferences.
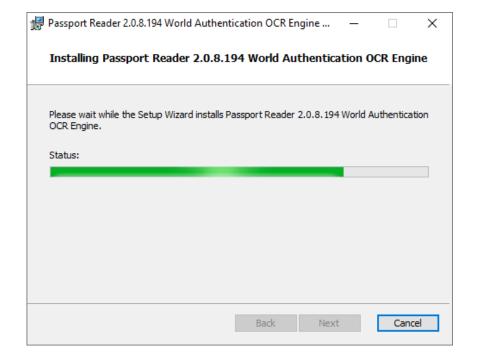
10. Select the bit version of the engine to be installed according to your system architecture.

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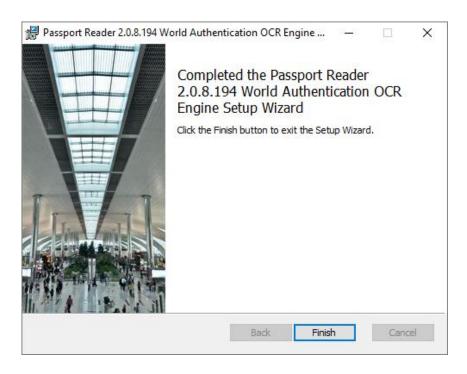
11. Clicking on **[Install]** will begin installation.
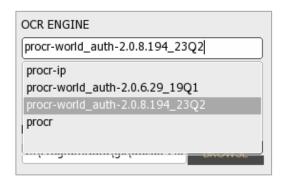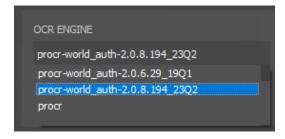
12. Click **[Finish]** to complete the installation.

13. After finishing the installation, select the installed OCR engine in the Full Page Reader or Authentication Checker application.

In case of Full Page Reader   In case of Authentication Checker

5. PASSPORT READER PROPERTY LIST

The property list contains the short descriptions of the passport reader properties according to the following:

Property Path and Name

Every property has a path and a name. When referring to a property (e.g., in the Full Page Reader application) the path must be specified as well.

> 📑 Note
>
> If you write in the **gxsd.dat** file, pay attention to type between the <pr> and </pr> elements.

Value type/Values

The property types are specified to help to make managing them easier. Use values of the specified type when setting property values.

> 📑 Note
>
> For **boolean** values use 0 or 1.
> For **integer** values use decimal numbers only.

Accessibility

– **F (File)**: means the initialization from the gxsd.dat file.

It can be found:

- in the **ProgramData/gx** hidden directory on **Windows** systems,

- in the **var/gx** directory on **Linux** systems.

– **R (Read)**: means that the **getProperty** method can be called in the program.

– **W (Write)**: means that the **setProperty** method can be called in the program.

Default Value

The values marked bold represent the values applied by default.

Description

In the following sections the short description of the properties will be provided.

> 📑 Note
>
> All properties located under the **docimageprops** and **log** tabs are described in the **GX Reference Manual**. Most of these advanced properties are not required to be adjusted in typical user applications.

> 📑 Note
>
> All properties located under **document/mqc** tab are described in the **MRZ Quality Assurance Reference Manual**. Most of these advanced properties are not required to be adjusted in typical user applications.

> 📑 Note
>
> The following properties can only be set when the device is already in use:
>
> - properties starting with ctrl/
> - preview_light
> - testdoc_mode
> - uvwarm_quality
> - freerun_mode
>
> When connecting the device again, these properties will be reset.

5.1. DETAILED PROPERTY DESCRIPTIONS

Property Path and Name	Value type/ Accessibility	Default Value	Description
act_page	Integer R		The ordinal number of the last scanned page.
api_date	String R		The date required for the PRSoftware license.
autosave/enddate	String F / R / W		Date after which the automatic saving is discontinued. E.g., 2020-12-02
autosave/filter	Integer F / R / W	**0** min: 0 max: 2	Enables the automatic encrypted saving. Such files can be decrypted if the appropriate private key is available. **NOTE**: The **autosave/path** property must be set too. **Possible values**: **0** – The automatic encrypted saving is turned off. **1** – The saving of every image after scanning. **2** – The saving of the images recommended by the engine.
autosave/keeptime	Integer F / R / W	min: 1	Number of days, after which the images are deleted automatically. **NOTE**: Check and Delete algorithm only runs with the saving next in line.
autosave/maxfilenum	Integer F / R / W	min: 1	The automatic saving saves up to this number of images. It always deletes the oldest ones, if it is needed. The files saved manually are not counted into this value. **NOTE**: Check and Delete algorithm only runs with the saving next in line.
autosave/path	Path F / R / W		The path of the automatic encrypted saving. Such files can be decrypted if the appropriate private key is available. **NOTE**: The **autosave/filter** property must be set too.

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autosave/skip_text	Boolean F / R / W	False	In case of "autosave/filter" = 2, it enables or disables the system to generate txt files.
barcode/contrast	Float F / R / W	**1.5f** min: –3.f max: 10.f	**NOTE**: This property applies only to **1D** and **PDF417** barcodes. The **barcode/contrast** property controls the contrast compensation level. The default value is **1.5**. Changing this value affects the barcode reading accuracy. If it is set to **–2**, an automatic contrast adjustment is launched. If set to **–3**, an appropriate contrast setting is searched, but not preserved (used for the actual reading process only).
barcode/deglinter	Boolean F / R / W	False	There are some special cases when the **barcode/deglinter** property can be useful. It reduces the noise caused by the damages of the covering foil. It is specially developed to eliminate the light horizontal thin lines produced by the glinting of the broken foil. The deglinting process works only if the height of the noise line is significantly smaller than the size of the barcode signs.
barcode/enable_vertical	Boolean F / R / W	False	Note, that this property applies only to 1D and PDF417 barcodes. Basically, barcodes can be read only in horizontal direction. This behavior can be changed with the **barcode/enable_vertical** property.
barcode/interchar_space	Boolean F / R / W	False	This property is needed for reading a particular barcode located in the inner side of the Mexican documents. (Code 39 with large gap between characters.)

barcode/recog_order	String F / R / W		The barcode reading process can be sped up by specifying this property. The order in which certain barcode types are read can be specified. The not needed types can be omitted. <recog_order value="51789a"/> **1** – for all 1D codes **5** – PDF417 **7** – DataMatrix **8** – QR code **9** – AZTEC **a** – UPU
calib_file	Path R		It returns the name and path of the used calibration file.
calib_path	Path F / R / W		Path of the calibration file. If not specified, the calibration file is searched at the following default locations: • A directory specified by the **calib_path** property. • `%SystemRoot%\system32\gx\pr` directory on Windows systems, • `/usr/share/gx/pr` directory on Linux systems. • `%CommonProgramFiles%\gx\pr` directory on Windows systems • `Programdata\gx\pr` on Windows operating systems • `/var/gx/pr` directory on Linux systems.
cloud/api_key	String F / W		API key for using Carmen® ID Recognition service.
cloud/connected	Boolean R		Returns the connection status to Carmen® ID recognition cloud service. **0** – Not connected, plus an error message is returned that can be retrieved after function return, using **ThrowException** or **GetError** call. **1** – Connected, service is available.

cloud/enabled	Boolean R / W	True	This property is designed to temporarily suspend cloud service. When set to **0**, cloud service is not available from current application. Note that service restriction has effect on current application only: other apps can still use the service.
cloud/gds_forwarding	Boolean R		If **1**, data sent to Carmen® ID recognition engine is automatically forwarded to GDS. In such cases, local GDS settings are not applied.
cloud/url	String F / R / W		URL for Carmen® Cloud ID Recognition Service.
ctrl/always_gray	Boolean F / R / W	False	If **1**, it provides gray output images. Recommended for time-critical applications.
ctrl/autoread_calib	Boolean F / R / W	True	Internal property.
ctrl/capture_mode_mask	Integer R / W	0	Obsolete. Enables the low-resolution image capturing. Certain bits represent corresponding lights. Instead of this property, use the **capture_style** property.
ctrl/detdark	Boolean F / R / W	False	This property is specially developed for capturing dark documents (e.g., front cover of certain passports). By setting this property to **1**, the motion detector of the device will detect dark documents as well.
ctrl/ip or **ctrl/ip/#**	String R		In case of composite USB/network device, it returns the IP address of the device. In place of # ordinal number or connector type can be written. E.g., eth0.
ctrl/mdarea	String F / R / W		The area examined by the motion detection can be specified in thousandths using the following methods: **Example**: "400" → the middle 40% x 40% area "left,top-right,bottom" → the area specified by the left, top, right, bottom values (in thousandths).

ctrl/mddelay	Integer F / R / W	**0** min: 0 max: 1000	Delays „document in" motion detection status (ms). Recommended to use when reading RFID chips via PC/SC for improved chip detection.
ctrl/photo/adjust	Boolean F / R / W	False	This property is applicable for PRMc devices. The software correction of the accidental displacement of the photo image.
ctrl/raw_delay	Integer F / R / W	**1000/50** min: 10 max: 1600	**NOTE**: This value is applicable only for Combo Scan devices in order to control the speed of image capturing and transferring to the PC. The higher this value is, the slower the image transfer will be. Adjust this value according to the performance of your PC: Low values are preferred on fast PC-s, while high values are applicable on slow ones. Default value: 1000 or 50 depending on the device type.
ctrl/resolution	Integer F / R / W	**0** min: 0 max: 100000	The default resolution of the captured images can be set with this property (in pixel/meter). Setting the resolution to lower values results in smaller image size, which e.g., eases the insertion into a database. If it is set to **0**, the default resolution of the device will be applied.
ctrl/resolution_#	Integer F / W	**0** min: 0 max: 100000	**NOTE**: The number of the window is to be written in place of #, deviating from the regular, numbered from 1. This property is applicable for multi-window devices (e.g., devices equipped with photo camera). Single step setup of all resolutions belonging to a single window of a multi-window device.
ctrl/shield	Integer F / R / W	**0** min: -1 max: 4	The devices with cover colored white are indicated with this property, in order to recognize semi-transparent documents.

ctrl/white/ ctrl/infra/ ctrl/uv/ ctrl/coax/ ctrl/edge/	**resolution**	Integer F / R / W	**0** min: 0 max: 100000	Resolution of the captured image under the light specified in the Path. This value is provided in pixel/meter.
	capture_style	Integer F / R / W	**0**	The **capture_style** property can set different settings that modify certain elements of the captured image.
	rr	Boolean R		Defines, that the applied device supports the **Reflection Removal** on the given light.
debug/failures		Boolean F / R / W	False	Helps to discover the program freezes. If it is turned on, at every reading the (encrypted) image is saved temporarily, then deleted. It can increase significantly the processing time.
debug/floats		Boolean F / R / W	False	The **debug/floats** property enables/disables the tracking of invalid floating-point operations. When it is set to **1**, the system disables the floating-point exceptions for each API call and restores the state before exiting the function. This property also enables saving images in case of OCR error.
debug/memory		Boolean F / R / W	False	This property applies only to Windows operating systems. Enables memory test when entering or leaving the API code.
debug/path		Path F / R / W		The **debug/path** property specifies the directory for saving debug info if some internal image processing exception occurs. The occurrence of such errors is shown by the creation of one or more debug files containing images that caused the specific exception and/or error descriptions. Please send back these files to our support team in order to help us improving the recognition engine.
debug/recog		Boolean F / R / W	False	The **debug/recog** property enables/disables the tracking of image processing errors in some well-known situations. The system saves data when the failure is exactly known. E.g., checksum failed.

docimageformat	Integer F / R / W	**GX_JPEG** min: GX_BMP max: GX_WSQ	File format of the images which are saved in ZIP archives: **1**=BMP format (GX_BMP) **2**=JPEG format (ISO/IEC 10918-1) (GX_JPEG) **3**=JPEG-2000 Code stream syntax ISO/IEC 15444-1 (GX_JPEG2K_JPC) **4**=JPEG-2000 JP2 format syntax ISO/IEC 15444-1 (GX_JPEG2K_JP2) **5**=RAW format (uncompressed pixel data without header) (GX_RAW) **6**=PNG format – Portable Network Graphics (GX_PNG) **7**=WSQ format – Wavelet Scalar Quantization (GX_WSQ)
docimageprops/ #imageprops#	... F / R / W		Saving parameters for the images which are saved in ZIP archives. This path contains not a single, but multiple properties, which are described in the GX Reference Manual.
docrect/algorithm	Integer F / R / W	**0** min: 0 max: 2	**0** – First algorithm **1** – Second algorithm **2** – Both, if the first one is not successful
docrect/modify	Integer F / R / W	**MOD_DR_YES** min: MOD_DR_NO max: MOD_DR_ROTATION+MOD_DR_LS	This property enables the recalculation of "document views" by the result of the OCR functions. This option is necessary for e.g., recognition of upside-down documents. It is recommended to leave it turned on (1). **0** – Turned off **1** – Using new frame **2** – Only using the rotation **4** – Landscape in case of ID cards. It can be combined with **0**, **1**, **2** values.
document/database	Path F / R / W		Location of the automatic database. Such database contains sample images for authentication. Default: • Windows: `%ProgramFiles%\gx\docdb"` • Linux: `/var/gx/docdb`

document/fonttypes	String R		Returns a comma separated list of fonts usable for manual OCR.
document/icao_0o	Integer F / R / W	**0** min: 0 max: 3	During MRZ reading, the occasional 0-O character reading error (mix-up) is restored by pattern fitting algorithm. The property offers the option to skip the steps of the algorithm. **0** – Checksum based exchange **1** – Use of the direct OCR result **2** – Database based exchange **3** – Exchange, considering the environment
document/log/#logprops#	... F / R / W		Properties for logging. This path contains not a single, but multiple properties, which are described in the GX Reference Manual.
document/log/logprocess	String F / R / W		With the help of the logging option of the document processing module, performance logs can be created by setting the **log/logprocess** property to 'timing'. Example: ```\n<default>\n <pr>\n <document>\n <log>\n <logprocess\n value="timing"/>\n <file\n value="prdoc.log"/>\n <filter value="6"/>\n <format\n value="$h:$m:$s\n ($l:$L)\n[$i] > $M\r\n"/>\n </log>\n </document>\n </pr>\n</default>\n```
document/mqc/#qcprops#	... F / R / W		This path contains not a single, but multiple properties, which are described in the MRZ Quality Assurance Reference Manual.

document/permanent_ocr	Boolean W	False	If enabled, OCR engine is not deleted from memory after device close. This is designed to speed up applications that open and close PR device frequently.
document/tip_century	Integer F / R / W	**0** min: 0 max. 1	In the case of the dates which do not contain the century, the algorithm tries to figure it out from the year and current date. **0** – Turned off **1** – Default algorithm
document/tip_names	Integer F / R / W	**0** min: 0 max: 3	Tip algorithms related to names. At present it works only with Australian documents. **0** – Turned off **1** – Division of the name parts **2** – Transformation of lowercase/uppercase **NOTE**: The values can be combined.
document/ weak_char_confidence	Integer F / R / W	**0** min: 0 max: 1000	If the confidence of a character is less than this value, then the character is replaced to **weak_char_value**. In most cases, this value can be applied for MRZ lines only.
document/ weak_char_value	Integer F / R / W	**'#'** min: 0x21 max: 0x7e	The value that replaces characters with confidence value below **weak_char_confidence**. Default value: # e.g., 65="A"
finger/cformat	Integer F / R / W	**0** min: 0 max: 1	Makes the saved fingerprint image more contrasted.
finger/check_hand	Boolean F / R / W	True	Enables hand swapping test. This test only gives signal when the four fingers of the scanned hand are present.
finger/check_upright	Float F / R / W	**-1.f** min: -1.f max: 4.f	Test upright position of the fingers. The value is the maximal allowed angle of fingers in radian. A negative value turns off the test.

finger/image_size	String F / R / W		Sets the size of the fingerprint images. • Fix size: xsize,ysize • All option: minx[-maxx][,miny[-maxy]][,prox/proy] • Minimal size: 80 pixels • Maximal size: 2048 pixels • Default size: 256 pixels • Default ratio: 2/3
finger/slap_quality	Boolean F / R / W	False	Use common quality for all fingers instead of individual qualities for each finger for collecting the best fingertips. Used when a slap image (that contains all fingers in one image) is required.
gds/connected	Boolean R		Returns connection status to GDS. **0** – Not connected, plus an error message is returned that can be retrieved after funtion return, using **ThrowException** or **GetError** call. **1** – Connected, service is available.
gds/device_name	String F / R / W		Device name for GDS. By default, GDS identifies Osmond by its device name. This can be changed using this property. **NOTE**: The new device name must be enabled via GDS dashboard.
gds/enabled	Boolean R / W	True	This property is designed to temporarily suspend GDS service. When set to **0**, GDS service is not available from current application. Note that service restriction has effect on current application only: other apps can still use the service.
gds/max_package_num	Integer F / R / W	**50** min: 0 max: 200	Maximum number of documents to store in temporary offline mode.
gds/path	Path F / R / W		Path to store unencrypted documents in temporarily offline mode. If not specified, documents are stored in memory and can be lost upon unexpected PC shutdown.

gds/resend_interval	Integer F / R / W	**600** min: 60 max: 3600	Frequency of GDS upload attempts in temporarily offline mode.
gds/retry_counter	Integer F / R / W	**0** min: 0 max: 10	Maximum upload attempts in temporarily offline mode.
gds/store_on_disk	Boolean F / R / W	False	Enable or disable storing unencrypted documents on local disk in temporary offline mode. If disabled, documents are stored in memory and can be lost upon unexpected PC shutdown.
gds/url	String F / R / W		GDS URL.
gds/user	String F / R / W		User name for GDS.
gdsactlist/action_rules	String F / R / W		List of queriable GDS action rule names (lists), separated by comma. By default, search result is returned for each list. By placing an exclamation mark (!) before a list name, that is handled as „blacklist". Placing a hashmark "#" to the same place results in providing no search result for a table.
gdsactlist/connected	Boolean R		Returns connection status to GDS action lists. **0** – Not connected, plus an error message is returned that can be retrieved after function return, using **ThrowException** or **GetError** call. **1** – Connected, service is available.
gdsactlist/enabled	Boolean R / W	True	This property is designed to temporarily suspend GDS action list service. When set to **0**, GDS action list is not available from current application. Note that service restriction has effect on current application only: other apps can still use the service.
gdsactlist/password	String F / R / W		Password for GDS action lists.

gdsactlist/url	String F / R / W		GDS action list URL.
gdsactlist/user	String F / R / W		GDS action list user name.
hide_fieldimage	String F / R / W		The codes of the fields that should be hidden, are to be written into the **hide_fieldimage** property separated by commas or semicolons. E.g., 2400 – VIZ face photo. The local value 1000 can be omitted. In such cases the system covers the VIZ as well as the MRZ fields. Naturally, only the fields read by the engine can be covered. E.g., the VIZ face photo will not be covered upon running GetMRZ. Neither the barcodes nor the RFID images should be covered. The text or binary data are left unmodified, similar to field images cut earlier. The coverage does not work on the Photo camera as well as it may work improperly on multi-camera devices (e.g., Big-eye). But upon setting the property, the algorithm runs on the already existing complete images and the document images are regenerated.
icldev/password	String R / W		Master password to protect cloud **api_key** and GDS action list passwords (optional). If **0**, no need to enter. If **1**, master password should be entered.
ipdev/connected	Boolean R		Marks the connection status to NetAPI server: **0** – Not connected **1** – Connected
ipdev/password	String F / W		Password for NetAPI server.
ipdev/url	String F / R / W		NetAPI server IP address (or domain name) and port number.
ipdev/user	String F / R / W		Username for NetAPI server.

license_path	Path F / R / W		Path, where the system is searching for the licenses in order to upload automatically upon starting the device. Searches for them in the `rwdata_dir` regardless of the property.
log/#logprops#	... F / R / W		Properties for logging. This path contains not a single, but multiple properties, which are described in the GX Reference Manual.
log/logprocess	String F / R / W		By logging the prapi module, the user can keep track of the device handling events like motion detection results, image capture events or device initialization events. In order to enable logging, set the **log/logprocess** property to one or more of the following values (separated by commas): • **apierror** - logging api errors independent of the user application • **timing** - logging process timings • **initialization** - logging the events of the device initialization • **motdetonchange** - logs motion detection only upon change Example: <pre><default>\n <pr>\n <log>\n <logprocess\nvalue="apierror,initialization"/>\n <file\n value="prapi.log"/>\n <filter value="6"/>\n <format value="$h:$m:$s\n ($l:$L\n[$i] > $M\r\n"/>\n </log>\n </pr>\n</default></pre>
module_dir	Path R		The path of the pr modules.
ocr_module	Path F / R / W		Name of the OCR module to use. It can be edited. If the module cannot be opened, then the program tries to use the default procr module.

omit_task_loading	Boolean F / R / W	False	If set to **1**, only images are loaded in case of LoadDocument, without results.
pcsc/autostart	Boolean F	False	Sets the autostart mode of the PC/SC upon the connection of the device. The pcsccontrol.exe file must be run in order to set autostart mode.
pcsc/max_air_speed	Integer F	**1700** min: 0 max: 1700	The maximum communication speed of the autostarted PC/SC control.
preview_light	Integer F / R / W	**Infra** min: 1 max: 0xff	The lighting conditions of the preview image can be set by the **preview_light** property. **Possible values:** **1** – Visible light **2** – Infrared light **3** – Ultraviolet light **4** – Visible coaxial light **5** – OVD image **6** – Photo image
rfid/air_speed	Integer F / R / W	**848** min: 106 max: 848	Speed of communication with the RFID chip.
rfid/encryption_key	Path F / R / W		Path for user public key used for saving encrypted PR ZIP files. Besides path, the ID of the loaded certificate can also be provided.
rfid/extended_length	Boolean F / R / W	True	If **1**, fast RFID reading mode is enabled. This property may cause RFID reading errors in case of reading documents that do not comply with certain RFID standards, but they indicate incorrectly that they do. In these cases, the **extended_length** should be set to **0**. **NOTE**: This property is to be turned off in case of certain flawed cards.
rfid/input_timeout	Integer F / R / W	**120** min: 1 max: 1200	Maximal waiting time in seconds for MRZ/CAN in background RFID reading processes. When limit is reached, RFID reading process is terminated.

rfid/log/#logprops#	... F / R / W		Properties for logging. This path contains not a single, but multiple properties, which are described in the GX Reference Manual.
rfid/log/logprocess	String F / R / W		The prrfid module log can be used for logging the communication and work flow between the card and the device. It is useful during the development or the testing process when communication tracing is necessary. It should not be used in production systems because it may contain personal data in this way violating security norms. The **log/logprocess** property for the prrfid module can be set to one or more of the following values (separated by commas): • **cardinfo** - logging information about the RFID card capabilities • **timing** - logging process timings • **initialization** - logging the events of the device initialization • **rfidstream** - logging binary data of the communication • **cryptodata** - logging cryptographic data • **formatting** - generates separator lines to the log Example: <pre><default>\n <pr>\n <rfid>\n <log>\n <logprocess\nvalue="cardinfo,timing,rfidstream"/>\n <file\n value="prrfid.log"/>\n <filter value="7"/>\n <format\n value="$h:$m:$s\n ($l:$L) [$i]\n> $M\r\n"/>\n </log>\n </rfid>\n </pr>\n</default></pre>

rfid/pref_ext_ds	Integer F / R / W	**0** min: -1 max: 2	This property controls the priority of document signer certificates Cert.DS during the checking process: If **0**, the checking process is executed with the file in the RFID chip first. If **1**, the checking process is executed with the external certificate first. If **-1**, the checking process is executed only with the file in the RFID chip. If **2**, the checking process is executed only with the external certificate only.
rfid/try_bac	Boolean F / R / W	False	If set to **1**, all errors are assumed as BAC error message upon trying to access the document. This property is specially developed to read RFID information from those non-standard documents that return other error message than "Command not allowed security status not satisfied" when the RFID chip is accessed.
rfid/use_serial_port	String F / R / W		Obsolete. Internal property.
rodata_dir	Path R		Path to read only data directory. • on Windows systems: `System32\gx\pr` • on Linux systems: `/usr/share/gx/pr`
rwdata_dir	Path R		Path to read/write data directory. • on Windows systems: `ProgramData\gx\pr` • on Linux systems: `/var/gx/pr`
save_cleanovd	Boolean F / R / W	False	Black OVD image is saved in the ZIP file.
save_cleanuv	Boolean F / R / W	False	Enhanced UV image is saved in the ZIP file.
save_fieldimage	String F / R / W		List separated by commas with codes of fields. Corresponding pictures of those fields are to be individually saved to the document file.

testdoc_mode	Integer F / R / W	0	Internal property.
twain/devno	Integer F	0 min: 0 max: 8	Ordinal number of the device to use.
twain/docview	Boolean F	False	To scan cropped and rotated image.
twain/feeder_mode	Integer F	0 min: 0 max: 1	**Possible values**: **0** – It is enough to just move the document to repeat the scanning. **1** – The document must be removed to repeat the scanning.
twain/light	String F		The name of the light to scan.
twain/window	Integer F	1 min: 1 max: 2	The ordinal number of the window to scan from (numbered from 1).
update_licenses	Integer F / R / W	1 min: 0 max: 3	Upon connecting to the device, the system is able to upload the licenses automatically. **0** – The automatic update is turned off. **1** – The automatic update always runs. **2** – Always runs, but upon successful update it voids the property in the .dat file. **3** – Only if "licupd.txt" file is present in the license_path or rwdata_dir path. Upon successful update, it deletes the file. The file can contain a request date in YYYYMMDD format, thus former licenses also can be uploaded.

uvwarm_quality	Integer F / R / W	**0** min: 0 max: 1000	This property is applicable only for PRM, CLR and PRMc devices equipped with UV tubes. Although, acceptable images can be captured with less warming time, the best image quality is achieved when the UV tubes are warmed up completely. The necessary warming quality can be controlled by the **uvwarm_quality** property in range of 0 to 1000. If the quality is set to 1000 and the tubes are cool, it takes 25 seconds to capture an UV image. If the UV tube warming task is set in the freerun mode and the **uvwarm_quality** property is set as well, the system waits for the UV tube to warm up before the first capture and the warmed state of the UV tube is continuously maintained between consequent captures.

5.1.1. PR 2.1 SDK PROPERTIES

The following properties can only be used in the **Pr 2.1 SDK**.

In the new SDK these properties are set automatically or via methods.

> ⚠ **Important!**
>
> Do not set these properties from the **Pr 2.2 SDK**.

Property Path and Name	Value type/ Accessibility	Default Value	Description
api_version	String R		Returns the api version.
async_callback	Boolean F / R / W	False	The user implemented callback function has to be registered with the **SetEventFunction**. If the capture is started asynchronously by the **CaptureStart** function, then the callback function is called only while the **CaptureStatus** or the **CaptureWait** functions are called. This behavior can be changed with the **async_callback** property. Use this property with precaution because user programs might hang up in case of calling Windows functions from an internal capture thread that doesn't own a message queue.
document/ mrz_quality_check	Boolean F / R / W	False	If this property is set to **1**, then the quality of the MRZ line is checked and the results are saved into a variant. If **0**, then no checking is executed.
document/ ocr_version	String R		Returns the engine version. When starting the system or changing the engine, the new engine only loads at the first use. This property can be used to make the engine load earlier.
document/ test_fibres	Boolean F / R / W	True	Runs UV fiber search algorithm for unknown documents during **Recognize**.

event_types	Integer F / R / W	**0** min: 0 max: 15	There are two main event sources in the PR system: the **directly called processes** like the capture process, which can raise events to report their progress and the **parallel running freerun mode tasks**, which can raise events to report state changes like document detection or button testing. The raised event can be filtered with the **event_types** property. The event type values are defined in the PR_EVENT enumeration as well as the event values. Events in the PR system are arranged into groups. A bit signals a group. In the first group, there is only one event while the second group contains the rest of the events. There are three different types of events: **LED**, **capture** and **I/O**. Elements between **100** and **199** are **capture events**. Elements between **200** and **299** are **I/O events**.
fg_fail_mask	Integer R		List of finger positioning failures. The **FPS_FAILURE** enumeration contains its error flag bits.
freerun_mode	Integer F / R / W	**0** min: 0 max: 0x3f	Between two capturing processes the light and camera control modules are in a so called **freerun** mode. In this mode the system can run a set of the following tasks that the user can enable through the **freerun_mode** property: **UV tube warming** – for better UV image quality. **Motion test** – for autostarting the capturing process. **Lighting for preview capture** – for low resolution real-time preview capturing. **NOTE**: Certain combinations can be combined. E.g., 3 or 6. **Possible values:** **0** – Disable freerun activity. **1 –** Direct controlled lights for real-time preview image capturing. **2** – UV tube warming control. **4** – Lights controlled by the HW/SW object motion detection algorithm.

rfid/selected_files	String F / R / W		Contains ID codes of the RFID files separated by space. It is used when the file identification parameter of the RFID file reading method is set to "Selected".
trigger_event	Integer W	0	Triggers an event. Not all the event can be triggered. Connection 1<<9 MotionDetection 1<<6 Power 1<<8
use_virtual_light	Integer F / R / W	0 min: 0 max: 2	Enables the usage of the photo camera as "photo light" and OVD visualization on the scanned images.

6.   DATA FIELDS

The Passport Reader system returns all OCR, RFID, barcode and basically all kinds of results as fields. For better understanding, this document classifies fields into four logical groups:

- General data fields: results of OCR, barcode-, and RFID reading processes
- Authentication fields: results of optical and RFID authentications
- Document type identification fields: data returned from the OCR engine database
- Image only fields that contain biometric data

6.1.   FIELD VALUE

Most fields have textual values of three kinds: **raw**, **formatted** and **standardized**. It varies which value a field may contain. Even all three values can be available for the same field.

The following table will show you some typical examples. The detailed explanation can be found in the subchapters.

	Basic	Raw	Formatted	Standardized	Best
IssueCountry	SI<	SI<	SI	SVN	SVN
BirthDate	9201154	9201154	19920115	1992-01-15	1992-01-15
Authenticity 11	750		750	750	750
Name	KARPATI<<VIKTORIA<<<<<	KARPATI<<VIKTORIA<<<<<	KARPATI VIKTORIA		KARPATI VIKTORIA

6.1.1.   RAW

Raw: as it is read, including checksum and filler characters. Raw value is empty when the data of a field is not read but produced logically e.g., VIZ authentication field and Document type identification fields.

In the above example for Raw value: the checksum of the birthdate is 4.

6.1.2.   FORMATTED

Formatted: value without checksums and filler characters. Authentication fields and Document type identification field values are available in formatted form. The values of the authentication fields are in thousandths.

6.1.3.   STANDARDIZED

Standardized: Using a standard, the field is converted to a format to ease further processing of data. Such format is document type independent thus can be compared to other documents and/or converted to other forms easily.

6.1.4.   BASIC AND BEST

For getting data in any available text format, we introduced two format concepts called **Basic** and **Best**. When the **Basic** value is queried, the returned value is the least modified format: the first that is available in order of raw, formatted and standardized values. The **Best** value uses the opposite logic of selection. It returns the most processed format: the first that is available in order of standardized, formatted and raw values.

6.1.5.   BINARY

If the value of a field cannot be converted into text (e.g., 2D barcode data or RFID face photo image file), it is returned as a **binary** value.

6.1.6.   NO VALUE

Image only fields e.g., "VIZ Face" has no value.

6.2.   OTHER

6.2.1.   AMID

AMID refers to "Authentication Method Identifier" that is detailed in BSI TR-03135, section "spectrally selective check routines". The purpose of AMID is to describe all optical authentication fields.

7.   ENCRYPTED SAVING

From pr-2.1.11 version the user specific file can be set for encrypted saving. In such case the encrypted file cannot be decoded with the ADAPTIVE RECOGNITION key.

📄 Note

If you want to save encrypted files which can only be decoded in ADAPTIVE RECOGNITION's network, then, when saving the file in <u>Full Page Reader</u> or <u>Authentication Checker</u> application select .ecz extension and do not set anything else. This setting applies to autosave too.

7.1.   KEY GENERATION

Key pair can be generated from command line by issuing the `ssh-keygen -b 4096 -f keyfilename -N ""` command. This command creates two files:

- The .pub extension file is the **public key**.
  This file can be copied and shared, even through the Internet.

- The file without extension is the **private key**.
  The encrypted files can be decrypted with the private key.

📄 Note

The private key must be kept safe. Do not share it!

📄 Note

The user key must be of RSA type with a key length of minimum 4096 bytes.

7.2. PROCESS OF THE ENCRYPTION

There are multiple options to give the public key in the SDK. The certificate containing the key can be loaded from the memory as is used at the ecard handling (Certificates.Load() method). Then, the returned key ID number must be handed over to "**rfid/encryption_key**" property.

> 📑 Note
>
> For more information on property use and setting property values, please check the Passport Reader Property List chapter.

> 📑 Note
>
> The Certificates.Load() method only works as programmed in source code. Otherwise, the filename must be entered.

If the key is stored in file, the path of the file can be set in the property as well. Thereby, the new key can be set through the gxsd.dat file in any program which can save encrypted files.

For ease of use, not only the certificate file but the ssh public key file can be given as well. (Single line ssh key file and ssh2 file are also suitable.) However, these files cannot be loaded with the Certificates.Load() method.

> 📑 Note
>
> The value of the "**rfid/encryption_key**" property can be:
> - returned key ID number value of Certificates.Load() method
> - path to a certificate file
> - path to an ssh key file
> - path to an ssh2 file

7.3. PROCESS OF THE DECRYPTION

For decryption, the prdecrypt command line program is given by ADAPTIVE RECOGNITION.

> 📋 Note
>
> The prdecrypt program is located in:
> - **C:\Program Files\Adaptive Recognition\utils\prdecrypt** or
> - **C:\Program Files (x86)\Adaptive Recognition\utils\prdecrypt** folder.

The file containing the private key must be handed over to the program. When starting the program without parameters, the following text is displayed:

```
usage: prdecrypt encryptedfile keyfile [outputfile]
```

Meaning:

`encryptedfile` – name of the encrypted file

`keyfile` – name of the private key file

`outputfile` – name of the extracted file (optional)
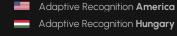
First, specify the name of the encrypted file as a parameter. Then, specify the name of the private key file as well. Optionally, the name of the extracted file can be specified too.

> 📋 Note
>
> The program does not manage password protected private key files.

The file format of the private key can be the following:

- PKCS #1 RSA PRIVATE KEY
- PKCS #8 PRIVATE KEY
- OPENSSH PRIVATE KEY
- putty ppk file
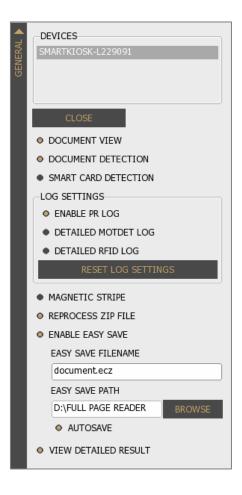
7.4. ENCRYPTED AUTOSAVE

This section provides a short description on how to save scanning results as encrypted files in the Full Page Reader and Authentication Checker applications.

7.4.1. ENCRYPTED AUTOSAVE IN FULL PAGE READER

In order to save the scanned data as encrypted file in Full Page Reader, turn on "**ENABLE EASY SAVE**" and "**AUTOSAVE**" options at "**GENERAL**" layer.

Then, enter a desired filename with **.ecz extension** and the path where the file will be saved.

> 📄 Note
>
> To make Full Page Reader write the same file during every reading, give a constant name of the file. **Do not use** any field name like "%DOCUMENT NUMBER%".

7.4.2. ENCRYPTED AUTOSAVE IN AUTHENTICATION CHECKER

In order to save the scanned data as encrypted file in Authentication Checker, turn on "**AUTO SAVE**" at "**OPTIONS**" menu.

Then, enter a desired filename with **.ecz extension** and the path where the file will be saved.

> 📄 Note
>
> To make Authentication Checker write the same file during every reading, give a constant name of the file. **Do not use** any field name like "<Counter>".
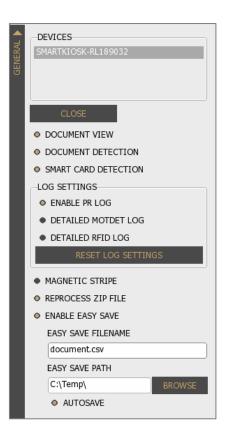
8.   FULL PAGE READER – SAVING IN CSV FORMAT

This chapter provides a short guide how to save scanning results in CSV format in Full Page Reader application.

8.1.   SETTINGS

In order to save the read data into a CSV file, you need to turn on "**ENABLE EASY SAVE**" and "**AUTOSAVE**" options in Full Page Reader's "**GENERAL**" layer.

Then, give a desired file name with **.csv extension** and the path where the file will be saved.
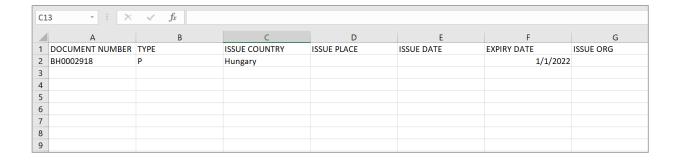
> 📄 Note
>
> To make Full Page Reader write the same file during every reading, give a constant name of the file. **Do not use** any field name like "%DOCUMENT NUMBER%".
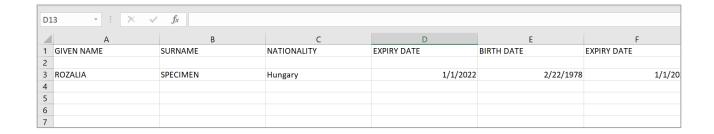
8.2. CSV STRUCTURE

With the above settings, the Full Page Reader will generate the set CSV file. If the file already exists, it will append each scanning result to it.

In the headline of the CSV file, there are keywords which represents the field type of the particular column.

	A	B	C	D	E	F	G
1	DOCUMENT NUMBER	TYPE	ISSUE COUNTRY	ISSUE PLACE	ISSUE DATE	EXPIRY DATE	ISSUE ORG
2	BH0002918	P	Hungary			1/1/2022	
3							
4							
5							
6							
7							
8							
9							

These headers are freely changeable or removable, so you can create a template which contains only the desired type of data in given order.

	A	B	C	D	E	F
1	GIVEN NAME	SURNAME	NATIONALITY	EXPIRY DATE	BIRTH DATE	EXPIRY DATE
2						
3	ROZALIA	SPECIMEN	Hungary	1/1/2022	2/22/1978	1/1/20
4						
5						
6						
7						

9. QUICK GUIDE FOR USING CARMEN® ID RECOGNITION SERVICE WITH PASSPORT READER

9.1. INTRODUCTION

Carmen® ID Recognition Service offers cloud OCR and authentication of IDs and passports scanned with Adaptive Recognition (AR) ID reader devices.

9.2. REQUIREMENTS

1. **ADAPTIVE RECOGNITION (AR) ID Reader Device**

> 📑 Note
>
> For more information on such products, visit the following website:
>
> https://www.adaptiverecognition.com/product-categories/personal-document-reading-and-verification/

2. **32/64-bit Windows 10 or 11 OS**

   For Carmen® ID Recognition Service, Windows x86 or x64 OS is required, either Windows version 10 or 11. Connect your AR document reader device to such PC or notebook and install pr-2.2.x-x64.msi or pr-2.2.x-x86.msi (see next step).

3. **ADAPTIVE RECOGNITION Passport Reader Software Package 2.2.0.1 or higher version** (pr-2.2.x-x64.msi or pr-2.2.x-x86.msi depending on your computer architecture)

   Install the Passport Reader Software Package 2.2.0.1 or higher version. The Software Package is available from our portal. For more information on the installation, see Software Installation chapter.

4. **Carmen® ID Recognition Service subscription**

   4.1. Visit Carmen Cloud website and click **[Sign Up]**.

4.2. Fill in your account details, then click **[Sign Up]**.

Adaptive Recognition **America**
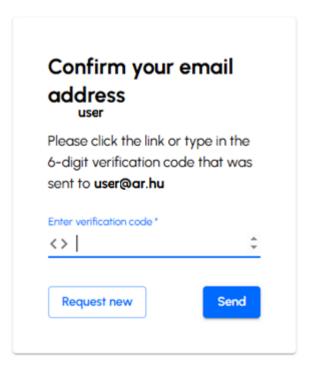
Adaptive Recognition **Hungary**

Adaptive Recognition **Nordic**

Adaptive Recognition **Singapore**

REQUESTINFO@ADAPTIVERECOGNITION.COM

WWW.ADAPTIVERECOGNITION.COM

4.3. Confirm your account using verification code received via email.
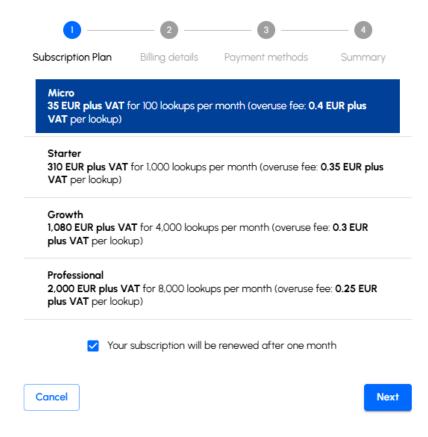
4.4. Log in at https://carmencloud.com/console/user/login.

4.5. Find **Carmen® ID Recognition Service** and click **[SUBSCRIBE]**.
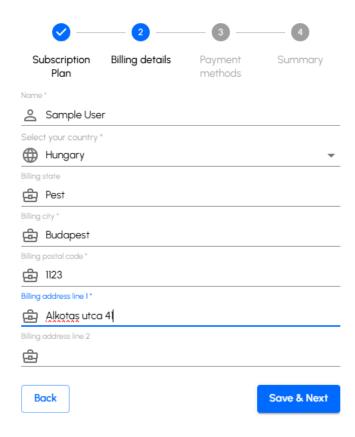
4.6.   Select **Subscription Plan**.

Create Subscription Wizard

① ——— ② ——— ③ ——— ④

Subscription Plan   Billing details   Payment methods   Summary

Micro
35 EUR plus VAT for 100 lookups per month (overuse fee: **0.4 EUR plus VAT** per lookup)

Starter
310 EUR plus VAT for 1,000 lookups per month (overuse fee: **0.35 EUR plus VAT** per lookup)

Growth
1,080 EUR plus VAT for 4,000 lookups per month (overuse fee: **0.3 EUR plus VAT** per lookup)

Professional
2,000 EUR plus VAT for 8,000 lookups per month (overuse fee: **0.25 EUR plus VAT** per lookup)

☑ Your subscription will be renewed after one month

Cancel   Next

4.7. Provide **Billing details**.

4.8. Add new **Payment**.
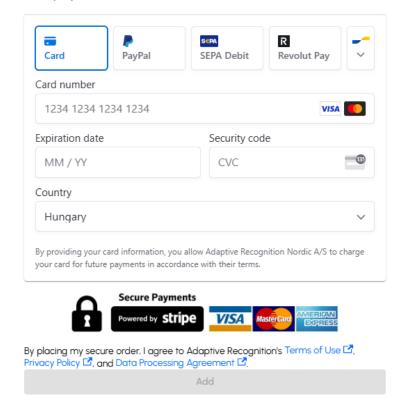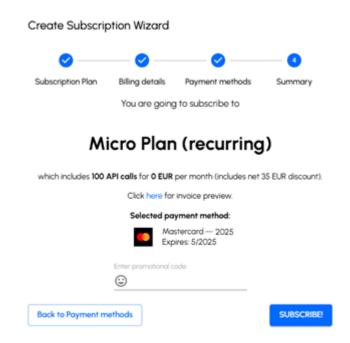
4.9. Specify **payment details**.
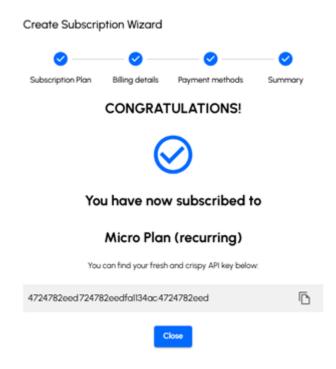
4.10. Verify **subscription details**.

4.11.   Copy the **API key**.

Create Subscription Wizard

Subscription Plan — Billing details — Payment methods — Summary

CONGRATULATIONS!

You have now subscribed to

Micro Plan (recurring)

You can find your fresh and crispy API key below:

4724782eed724782eedfa1134ac4724782eed

Close
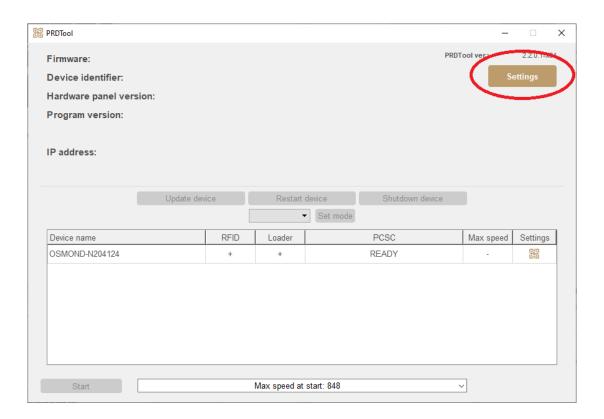
> **📑 Note**
>
> The above API key is for illustration purposes only.

9.3. CONFIGURING CARMEN® ID RECOGNITION
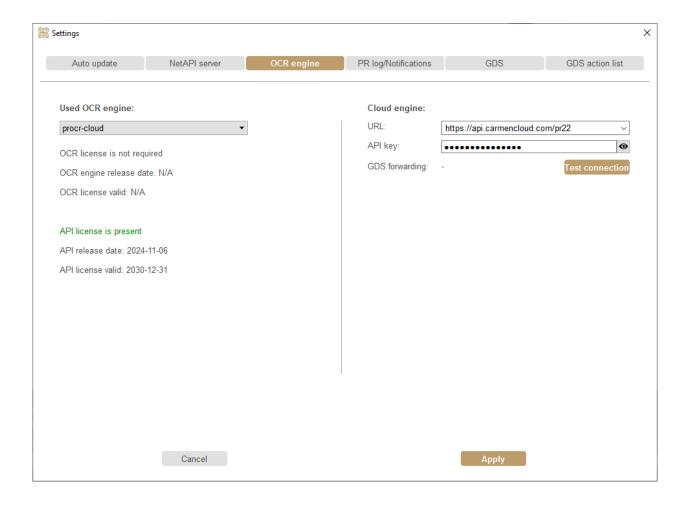
1. After installation of pr-2.2.x.*.msi (see chapter 9.2.), locate the **PRDTool** utility in Windows taskbar:

2. Right-click on the icon marked with red circle and select **[Show PRDTool]** then click **[Settings]**:
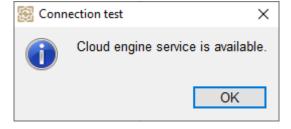
3. Navigate to **OCR engine** tab and set the followings:

    –   **Used OCR engine**: procr-cloud

    –   **Cloud engine**: https://api.carmencloud.com/pr22

    –   Insert the **API key** (step 4.11.)

4. After setting all the above, click **[Apply]**. At this point, you may specify a **master password** to protect the API key and GDS password. If you click **Save** without entering a password, the program generates one for you automatically. Such password is handled by the passport reader system automatically.
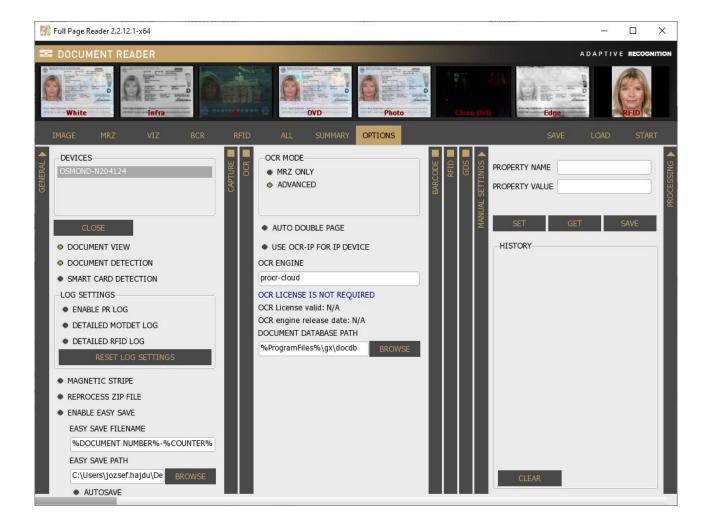
5. After master password is set, click **Test connection** to check connection to Carmen® ID recognition service. Upon successful connection, the following message is shown:
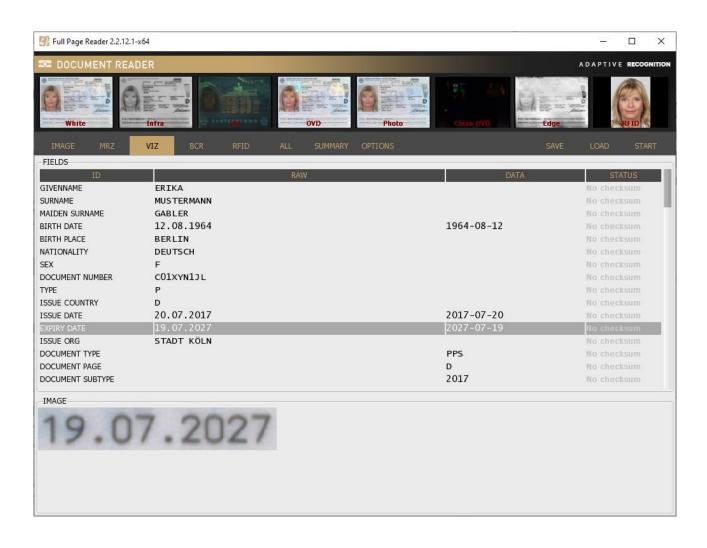
9.4. TESTING CARMEN® ID RECOGNITION SERVICE

9.4.1. TESTING WITH FULL PAGE READER APP

1. Navigate to **Start Menu / Adaptive Recognition** and select **Full Page Reader x64** or **x86.**

2. Make sure to select **ADVANCED** OCR mode and **pr-cloud** OCR engine under the **OPTIONS** tab.

3. Click **[START]** to launch the document reading process.
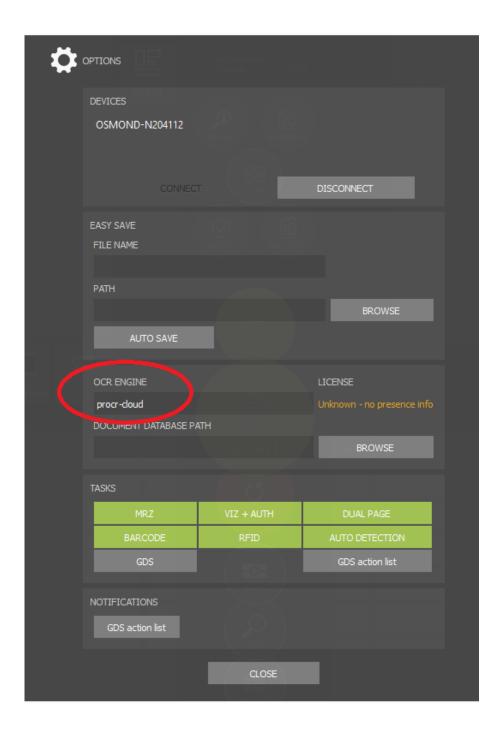
4. Verify OCR and authentication results under the **MRZ** and **VIZ** tabs:

9.4.2. TESTING WITH AUTHENTICATION CHECKER APP

1. Navigate to **Start Menu / Adaptive Recognition** and select **Authentication Checker x64** or **x86**.
2. Click **OPTIONS** and check if **OCR ENGINE** is **procr-cloud**.

3. Click **[SCAN]** and verify OCR and authentication results in **SUMMARY**, **VALIDITY** and **ALL DATA** tabs.

10. QUICK GUIDE FOR USING GDS WITH PASSPORT READER

10.1. INTRODUCTION

The Globessey Data Server is a universal data collection, storage and visualization middleware that comes with an advanced front-end GUI and works out-of-the-box with Adaptive Recognition ANPR cameras and identity document readers. GDS is a combination of a database layer, authentication and transaction layer, and a front-end layer in one complete package that is tested end-to-end.

10.2. REQUIREMENTS

1. **ADAPTIVE RECOGNITION (AR) Document Reader Device**

> 📑 Note
>
> For more information on the available models, visit the following website:
>
> https://www.adaptiverecognition.com/product-categories/personal-document-reading-and-verification/

2. **32/64-bit Windows 10 or 11 OS**

   For PR GDS, 32 or 64-bit Windows OS is required, either Windows version 10 or 11. Connect your AR document reader device to such PC or notebook and install pr-2.2.x-x64. or pr-2.2.x-x86.msi (see next step).

3. **ADAPTIVE RECOGNITION Passport Reader Software Package 2.2.0.1 or higher version** (pr-2.2.x-x64.msi or pr-2.2.x-x86.msi depending on your computer architecture)

   Install the Passport Reader Software Package 2.2.0.1 or higher version. The Software Package is available from our portal. For more information on the installation, see Software Installation chapter.
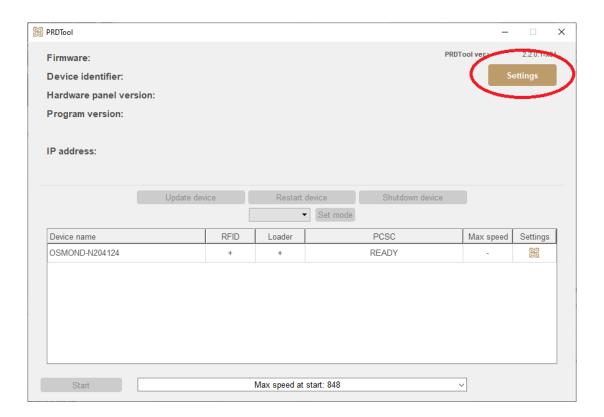
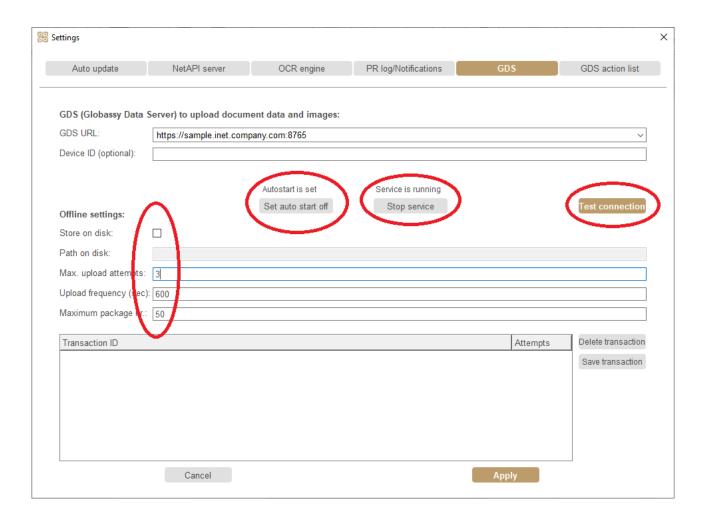4. **Installed and Configured GDS**

10.3. CONFIGURING PR GDS

1. After installation of pr-2.2.x.msi (see chapter 10.2.), locate the **PRDTool** utility in Windows taskbar:

2. Right-click on the icon marked with red circle and select **[Show PRDTool]** then click **[Settings]**:

3. Navigate to the **GDS** tab and specify **GDS URL** that is a path for your installed GDS. Then, click **[Apply]** and **[Start service]**. Finally, click **[Test connection]**.

4. Upon successful connection, the following message is shown:

> 📋 Note
>
> By default, GDS service is started automatically, upon system startup. You may use the **Set auto start off** button to disable automatic start.

5. The user may specify the following **optional settings**:

    –   **Store on disk**: Enable to save document data to local PC when connection to GDS is instable. When this option is disabled, document data is stored in PC memory only.

    –   **Path on disk**: Path to save documents (for **Store on disk** option)

    –   **Max. upload attempts**: If upload to GDS fails, document upload is attempted as many times as specified here.

    –   **Upload frequency (sec)**: Time elapsed between two upload attempts

    –   **Maximum package number**: Maximum number of document packages stored on disk or in PC memory.

> Note
>
> Each upload attempt is visible at **Transaction ID** with its assigned unique identifier along with a number showing the **number of upload attempts** performed so far.

10.4. CONFIGURING PR GDS ACTION LIST

1. Specify **GDS URL** as well as **User name** and **Password** for blacklist and whitelist cross-checks. Also, provide **GDS lists** for checking document data.

2. After setting all the above, click **[Apply]**. At this point, you may specify a **master password** to protect the API key and GDS password. If you click **Save** without entering a password, the program generates one for you automatically. Such password is handled by the passport reader system automatically.

3. Once master password is provided, click **[Test connection]**. If settings are correct, the following message appears:
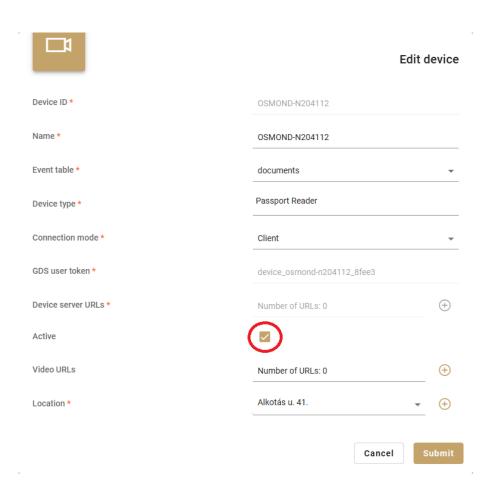
10.5. TESTING PR GDS SERVICE

10.5.1. ENABLING ID READER DEVICE IN GDS

1. In order to inspect document data in GDS, your ID reader device must be enabled. For this, open GDS dashboard and navigate to **Endpoints / Devices**.

2. Make sure to select filter criteria that shows results from document reader devices.
   In the sample below, it is the documents table.

3. Then, check if your scanner is **Accepted** and **Active** (marked with ⊘).
   If not, click ✎ to edit its properties.

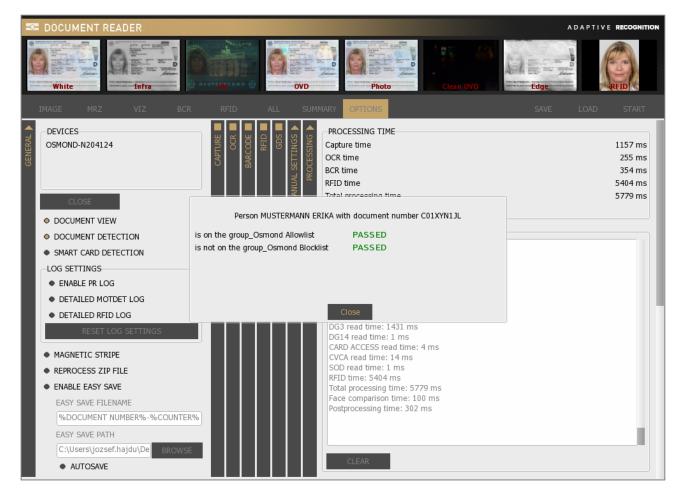4. Select the **Active** option to enable documents from your ID reader device appearing in event list.

Edit device

Device ID *　　　　　　　　OSMOND-N204112

Name *　　　　　　　　　　OSMOND-N204112

Event table *　　　　　　　documents ▾

Device type *　　　　　　　Passport Reader

Connection mode *　　　　Client ▾

GDS user token *　　　　　device_osmond-n204112_8fee3

Device server URLs *　　　Number of URLs: 0 　⊕

Active　　　　　　　　　　☑

Video URLs　　　　　　　　Number of URLs: 0 　⊕

Location *　　　　　　　　Alkotás u. 41. ▾ 　⊕

Cancel　　Submit

10.5.2. TESTING WITH FULL PAGE READER APPLICATION

1. Navigate to **Start Menu / Adaptive Recognition** and select **Full Page Reader x64** or **x86.**

2. Select the **GDS** tab in **OPTIONS** menu.

3. Upon opening the **GDS** menu, you may need to enter **Master password** if such password has been specified earlier in PRDTool.
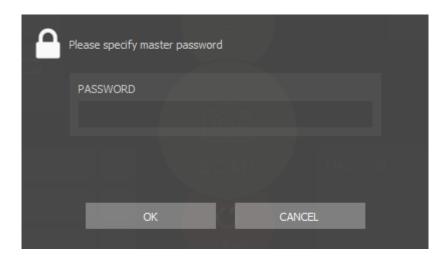

4. After that, enable **GDS UPLOAD**, **ACTION LIST** and **NOTIFICATONS**.

5. Finally, click **START** to launch the document reading and check **GDS** results.

10.5.3. TESTING WITH AUTHENTICATION CHECKER APPLICATION
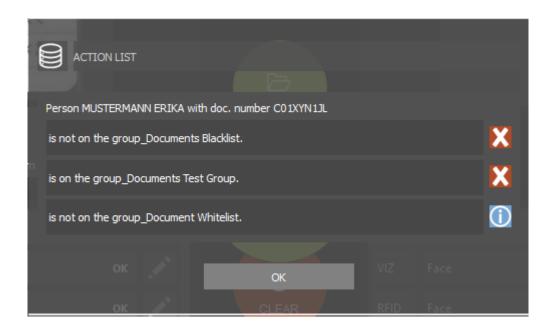
1. Navigate to **Start Menu / Adaptive Recognition** and select **Authentication Checker x64** or **x64.**

2. Upon starting the application, you may need to enter **Master password** if such password has been specified earlier in PRDTool.

3. After that, click **OPTIONS** and enable GDS functionalities: **GDS** and **GDS action list** (both at **TASK** and **NOTIFICATIONS** sections).
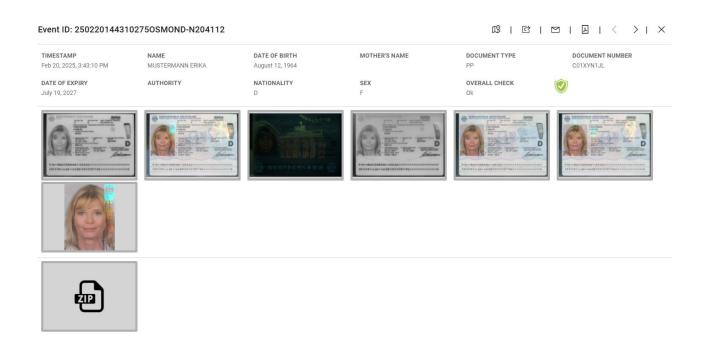
4. Click **[SCAN]** to launch the document reading process and check **GDS** results when scanning is finished.

10.6. CHECKING UPLOADED DATA IN GDS

In your GDS dashboard, navigate to **Event list** where each row represents an ID scanning result. Just click on any row to inspect its contents:

11. NETAPI

The NetAPI is the network version of the Passport Reader SDK. Its interface implements WebSocket communication with JSON-RPC format packages. This WebSocket channel is either provided by an Osmond N network device (in NAI mode) or by the NetAPI service (prwebsrv) running on PC.

The NetAPI is designed to control remote network devices via Ethernet connection as well as Windows/Linux connected legacy USB document scanners from not natively supported operating systems.

Additional uses:

- It supports running UWP programs on Windows via localhost connection.
- It helps to optimize memory usage by balancing load between client and server.
- The Passport Reader software package includes a NetAPI client that allows accessing all supported document reader devices through the conventional SDK as well.
- The standalone version of the .NET interface can be operated without the installation of the PR system as well.

> 📋 Note
>
> This chapter provides information on how to set up the server and the client.
> The sample code (SDK) is available in the "sdk" folder of the PR Software Package or it can be downloaded from the ADAPTIVE RECOGNITION website.

11.1. SETUP SERVER ON PC

1. Create a NetAPI user with the PRDTool program. The user needs admin or user role. Maximum 5 users can be logged in at the same time in order to use several connected devices. The user sessions can be managed with admin role.

2. The operation parameters can be set with the PRDTool program:

    – Port number (default: 8000)

    – SSL certificate file and SSL private key file for encrypted communication
    If the encrypted communication is configured, the server cannot be accessed without encryption.
    Example for generating SSL keypair:
    ```
    openssl req -x509 -new -nodes -key CA-AR.key -sha256 -days 400 -out
    CA-AR.pem -subj "/CN=AR Root CA/C=HU/ST=Budapest/L=Budapest/O=AR"
    ```

    – Enable external access
    If enabled, the server accepts requests from other devices. Otherwise, communication is restricted to localhost.

    – RFID certificate folder
    The path comprising files required for Passive and Terminal Authentications

3. The NetAPI service is realized by the prwebsrv program that can operate as a Windows service or Linux daemon. The server can be turned on/off with the PRDTool program as well.
    On Windows, the service state can be queried from command line with the `prwebsrv --svc-query` command. If the program is executed in foreground with the `prwebsrv --showlog` command, it displays the communication packages to assist developer.

4. The configuration files - prwebsrv.json and the webusr.json - can be copied freely between computers. Uninstalling the Passport Reader software package removes these files.

11.2. SETUP CLIENT

The NetAPI client is part of the Passport Reader software. In order to use it, set the following properties within the default/pr node in the gxsd.dat file manually, or by your client program:

- ipdev/url – Server IP address (or domain name) and port number.
- ipdev/user – Username.
- ipdev/password – Password. Not recommended, but possible to set it in the gxsd.dat file.
- ocr_module – OCR tasks can be performed on client side or on server side. Set this property to `procr-ip` to perform OCR on server side. If the server and the client are on the same PC (localhost connection), do not apply this setting in the gxsd.dat file.

> **Note**
>
> The gxsd.dat file is located in the "C:\Programdata\gx\" folder.
> When editing gxsd.dat, use a text editor, e.g., Notepad++.

11.3. USING FULL PAGE READER APPLICATION WITH USB PASSPORT READER DEVICES THROUGH NETAPI

Users have the possibility to use the Full Page Reader application through NetAPI. In this section the necessary steps to acquire this function will be described.

1. Navigate to **ProgramData/gx** hidden directory on Windows.
2. Open the **gxsd.dat** file.
3. Extend the gxsd.dat file with the appropriate user data in place of the blue highlighted text, according to the following example:
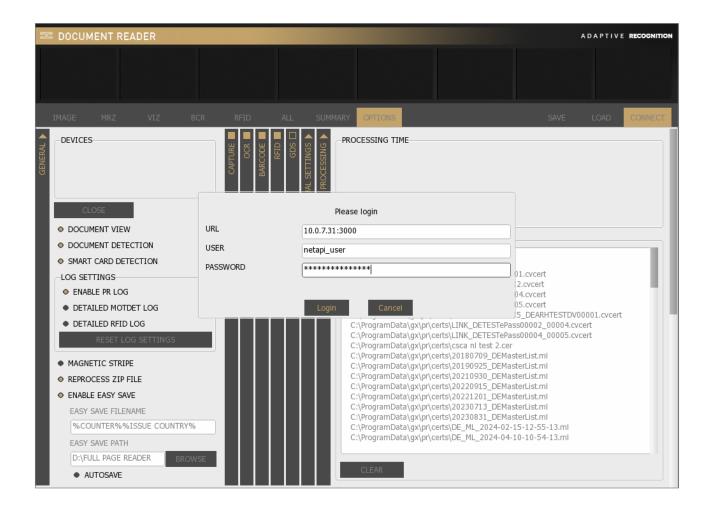
```
<pr>
.
.
.
   <ipdev>
        <url value="10.0.7.31:3000"/>
        <user value="netapi_user"/>
        <password value="netapi_password"/>
   </ipdev>
.
.
.
</pr>
```
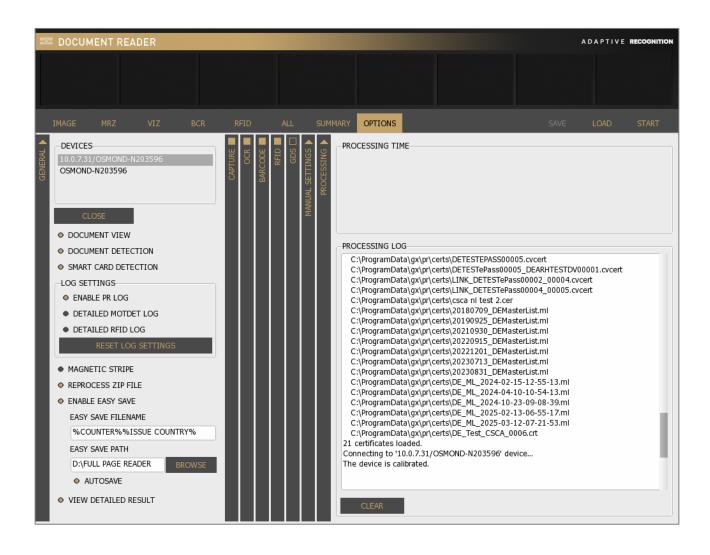
> 📄 **Note**
>
> The **URL value** consists of the **IP address** and the **port number**.

> 📄 **Note**
>
> When editing the **gxsd.dat** file, pay attention to type between the <pr> and </pr> elements.

4. Save the modifications.

5. Open Full Page Reader.

6. When the FPR application is opened, a login window pops up.

7. Enter the **PASSWORD** into this window.

8. After a few seconds, the device is calibrated and ready to be used in NetAPI mode.

12. PRDTOOL

PRDTool is a utility tool which is part of the Passport Reader software packages from version 2.1.9.1 and above. This program is for querying device information, as well as performing auto update configurations, NetAPI server settings and some low-level operations for PR devices connected via USB, especially for the Osmond device.

12.1. START PRDTOOL

- **Windows**

The PRDTool is usually located in **C:\Program Files\Adaptive Recognition\utils\PRDTool** or **C:\Program Files (x86)\Adaptive Recognition\utils\PRDTool**, depending on the architecture of the installed PR software.
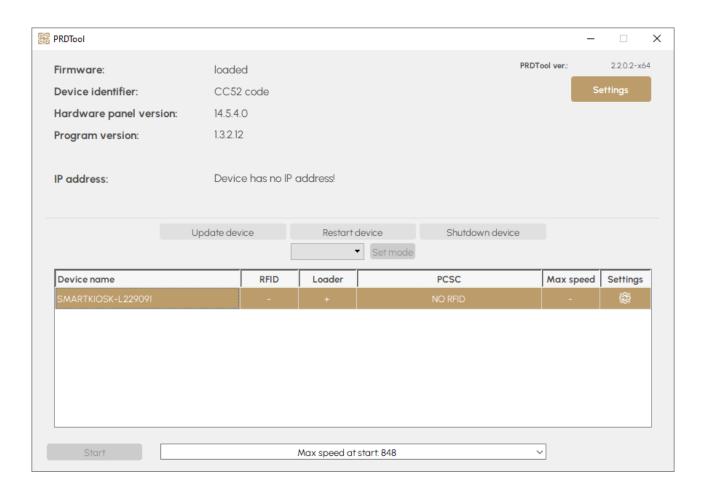
- **Linux**

Depending on your distribution, you can open command terminal and insert: **PRDTool** or use dashboard search bar: **Linux Start menu > Applications > Adaptive Recognition Apps > PRDTool**.

Only one instance of the program is running. If the window is not opened on the desktop, then it can be found on the notification area. The program can only be closed through the pop-up menu of the notification icon. After launch, the devices connected via USB are displayed in a list located in the lower part of the window. To manage a given device, it must be selected from the list. Once it is selected, the firmware version information of the device appears.

> 📄 Note
>
> In case of a dual USB/Network interface device (e.g., Osmond N, Osmond N Kiosk) the IP address of the device also can be seen. This feature can be useful if the set address is forgotten or the address set by DHCP cannot be extracted in any other way.

12.2. COMBO SMART KIOSK OPERATION MODE

Combo Smart Kiosk device operates in **USB mode**. In USB mode, the device operates as any other ADAPTIVE RECOGNITION passport reader. It can be used through our regular SDK, and with the Full Page Reader or Authentication Checker application as well.

> 📑 Note
>
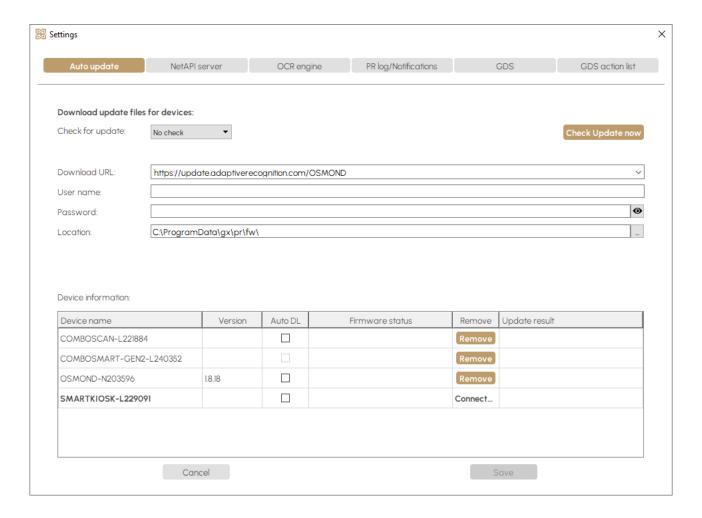> The Combo Smart Kiosk device is in USB mode by default. It cannot be modified.

12.3. SETTINGS

12.3.1. AUTO UPDATE SETTINGS

> 📑 Note
>
> **Auto update settings** can only be applied to Osmond N devices.

Osmond N devices are capable of downloading and installing update files automatically. Such updates can be configured in this menu. Set frequency of checking for updates at **Check for update**, specify update server with port (**Download URL**), and provide username and password if remote server uses basic authentication. Supported protocols for remote servers are the following: **HTTP/HTTPS** with or without basic authentication.

History of earlier updates and downloads as well as option for automatic (or manual) firmware download (**Auto DL**) and removal (**Remove**) is available for each connected device at **Device information**.
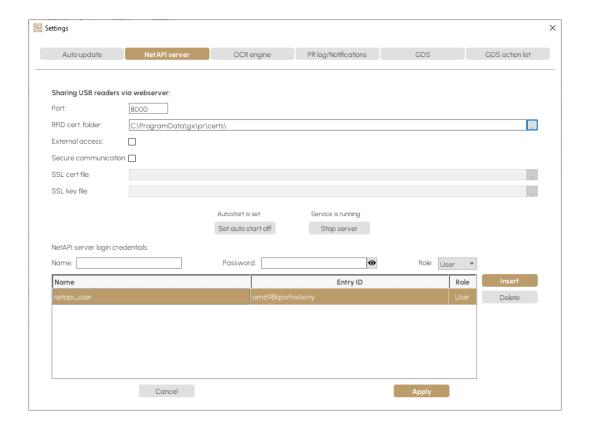
12.3.2. NETAPI SERVER SETTINGS

In the NetAPI server settings menu set the following values:

- **Port**: Port number of NetAPI
- **RFID Cert. folder**: Path of the certificates used for passive authentication
- **External access**: If it is enabled, NetAPI is not only available from localhost but from other network locations.
- **Secure connection**: By ticking the box, the connection can be secured. Upload the following certificates required for secure connection:
    - **SSL cert file**: Certificate for NetAPI use
    - **SSL key file**: Key belonging to the certificate
- **Set auto start on**: Starting prwebsrv automatically at Windows startup
- **Start/Stop server**: Starting or stopping the prwebsrv

At least one user and the belonging password are required to enter in order to use the NetAPI. Specify the username to the **Name** field and the password to the **Password** field. After that, click on the **[Insert]** button in order to add the entered user.
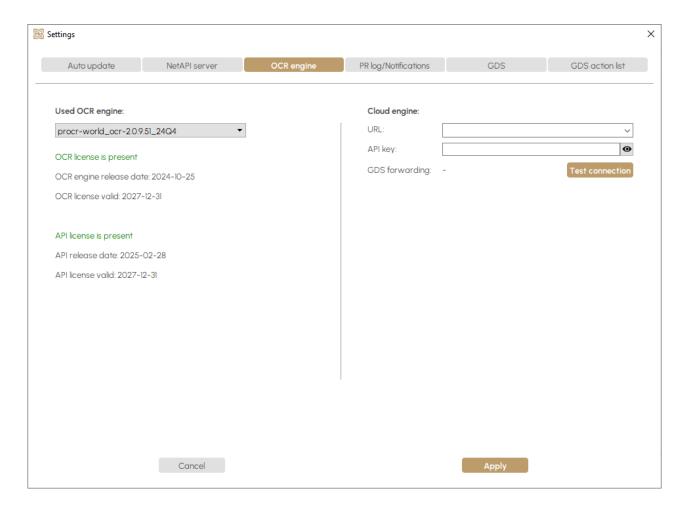
> ☰ Note
>
> Run PRDTool as **Admin** to create new user.

12.3.3. OCR ENGINE

OCR engine menu is designed to select the **Used OCR engine** and the **Cloud engine**.

1. **Used OCR engine**

The optical character recognition process of each document is performed by the **OCR engine**. Select between **installed OCR engines on your computer**, if you have several installed engines.

A dropdown list shows your available engine(s). The default package contains the PR OCR engine, which reads the MRZ field from any ICAO 9303 standard document. In some cases, OCR engines are trained for specific documents in order to provide additional information for authentication and/or VIZ reading (e.g., on ID type). Using such engines involves changing the PR OCR engine.

With a left-click you can select your appropriate one. After selection, the software displays a status message about the required engine-license and its availability.

The passport reader software package and OCR engine are protected by software license. You need valid license to use **PR Software features** (Image capturing, RFID reading), as well as for performing **MRZ OCR+Barcode Reading**. Optionally, you also need license to use any specific OCR engine trained to perform **VIZ reading and Authentication** of certain documents. Licenses are stored on the document scanner device.

The green status message (displayed under the selected OCR engine) indicates valid license.

> 📄 Note
>
> For availability and more information on OCR engines and software licenses, please contact your ADAPTIVE RECOGNITION sales representative.

2. Cloud engine

Carmen® ID Recognition Service offers cloud OCR and authentication of IDs and passports scanned with Adaptive Recognition (AR) ID reader devices. The data sent to Carmen® ID recognition engine can be automatically forwarded to GDS. In such cases, the local GDS settings are not applied.
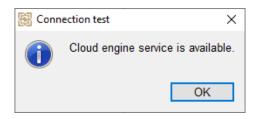
> ⚠ **Important!**
>
> When the data processed by Carmen® ID Recognition Service is forwarded to GDS, the local GDS upload shall not be executed.

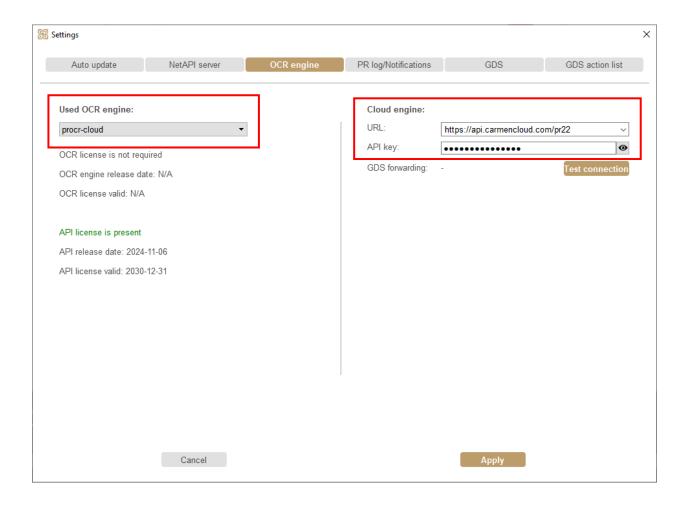To enable this function, set the following values:

- **URL**: URL for Carmen® Cloud ID Recognition Service.
- **API key**: API key for using Carmen® ID Recognition service
- **Used OCR engine**: procr-cloud

Click on the **[Test connection]** button to check connection to Carmen® ID recognition service. Upon successful connection, the following message is shown:

> **Note**
>
> For more information on setting the Carmen® ID Recognition Service, see chapter Quick Guide for Using Carmen® ID Recognition Service with Passport Reader.

12.3.4. PR LOG/NOTIFICATIONS

PRDTool is equipped with a configurable logging feature to support any troubleshooting activities with ADAPTIVE RECOGNITION Support Team. By enabling different log options, you can include various events of the passport reader software in the log files.
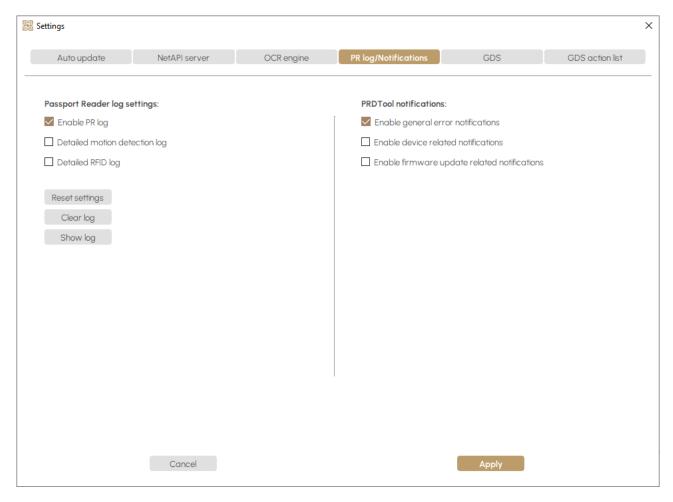
The following options can be selected:

- **Enable PR log**: Enable/Disable logging

- **Detailed motion detection log**: Enable/Disable detailed logs for motion detection

- **Detailed RFID log**: Enable/Disable detailed logs for RFID communication

In order to restore the default settings, click on the **[Reset settings]** button. By clicking on the **[Show log]** button, the created log will be displayed in a pop-up window. If the log file is not needed, click on the **[Clear log]** button in order to delete it.

The PRDTool can provide notifications about the following topics:

- **General error** notifications

- **Device related** notifications

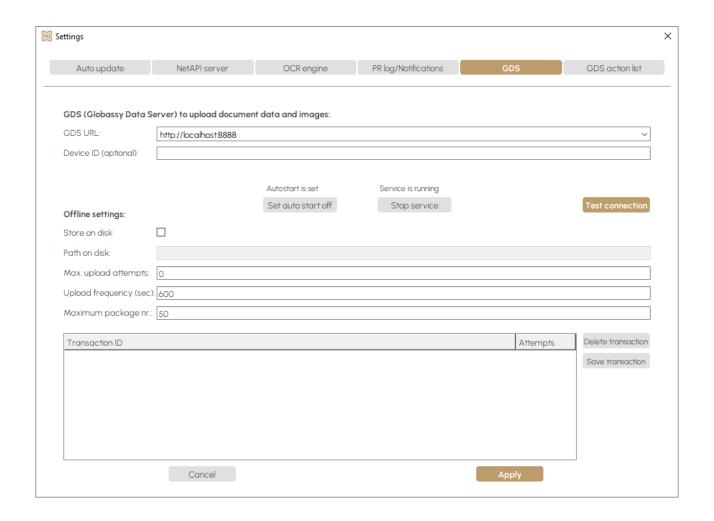- **Firmware update related** notifications

12.3.5. GDS

The Globessey Data Server is a universal data collection, storage and visualization middleware that comes with an advanced front-end GUI and works out-of-the-box with Adaptive Recognition ANPR cameras and identity document readers.

In order to configure the PR GDS, specify **GDS URL** that is a path for your installed GDS. Then, click **[Apply]** and **[Start service]**. Finally, click **[Test connection]**.

Entering the **Device ID** is optional. When the field is left blank, the device name is automatically set with its serial number. If the **Device ID** is specified the default name will be overwritten by the new value.

> 📋 Note
>
> In case the GDS is installed to the same PC as the PR system, then specify the localhost as the value of the **GDS URL** field. Otherwise, replace the localhost value with the host having the GDS.

Upon successful connection, the following message is shown:

> **Note**
>
> By default, GDS service is started automatically, upon system startup. You may use the **Set auto start off** button to disable automatic start.

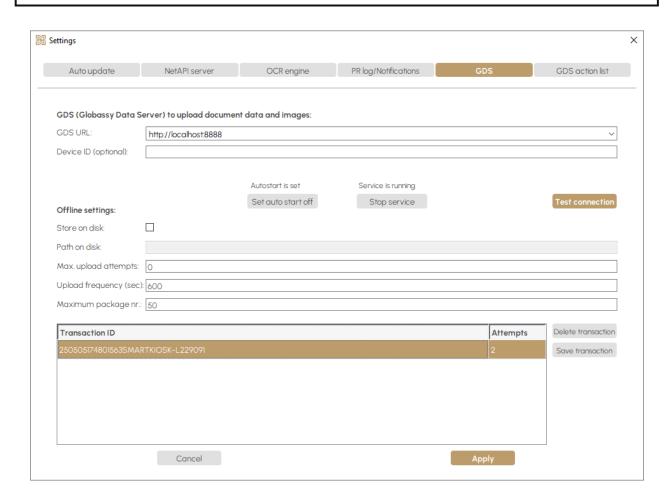The user may specify the following optional settings under **Offline settings**:

- **Store on disk**: Enable to save document data to local PC when connection to GDS is instable. When this option is disabled, document data is stored in PC memory only.

- **Path on disk**: Path to save documents (for **Store on disk** option)

- **Max. upload attempts**: If upload to GDS fails, document upload is attempted as many times as specified here.

- **Upload frequency (sec)**: Time elapsed between two upload attempts

- **Maximum package number**: Maximum number of document packages stored on disk or in PC memory.

Each upload attempt is visible at **Transaction ID** with its assigned unique identifier along with a number showing the **number of upload attempts** performed so far.

The read document data and images can be preserved in a zip file by clicking on the **[Save transaction]** button. Thereby, the compressed file is packed and prepared for uploading to remote server or local database. When clicking on the **[Refresh table]** button, the list of transactions can be refreshed with new elements or on the contrary cleared away with those elements which have been already uploaded to the GDS. In order to remove any document from queue, just click on the given transaction(s) and, then click **[Delete transaction]** button.

📋 **Note**

In order to select more transactions at the same time, use **Ctrl + left click**.
In order to select all the transactions at the same time, use the **Ctrl + A** keyboard shortcut.

📋 **Note**

For more information on setting the PR GDS, see chapter Quick Guide for Using GDS with Passport Reader.
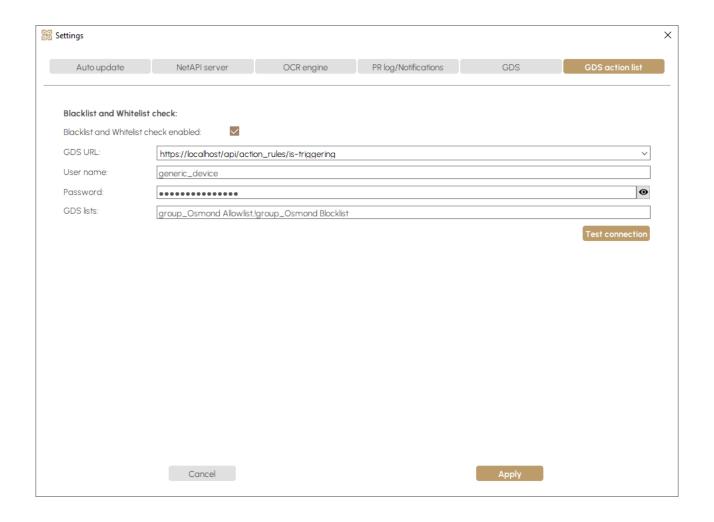
12.3.6. GDS ACTION LIST

Blacklist and whitelist check can be applied during document scanning. In order to enable **Blacklist and Whitelist check**, tick its box. Then, specify **GDS URL** as well as **User name** and **Password** for blacklist and whitelist cross-checks. Also, provide **GDS lists** for checking document data.

> 📑 Note
>
> In case the GDS is installed to the same PC as the PR system, then specify the localhost as the value of the **GDS URL** field. Otherwise, replace the localhost value with the host having the GDS.

> 📑 Note
>
> Two GDS lists are available by default.

After setting all the above, click **[Apply]**. At this point, you may specify a **master password** to protect the API key and GDS password. If you click **Save** without entering a password, the program generates one for you automatically. Such password is handled by the passport reader system automatically.

Please specify password

New password: ⊙

Retype password: ⊙

Save   Cancel

Once master password is provided, click **[Test connection]**. If settings are correct, the following message appears:
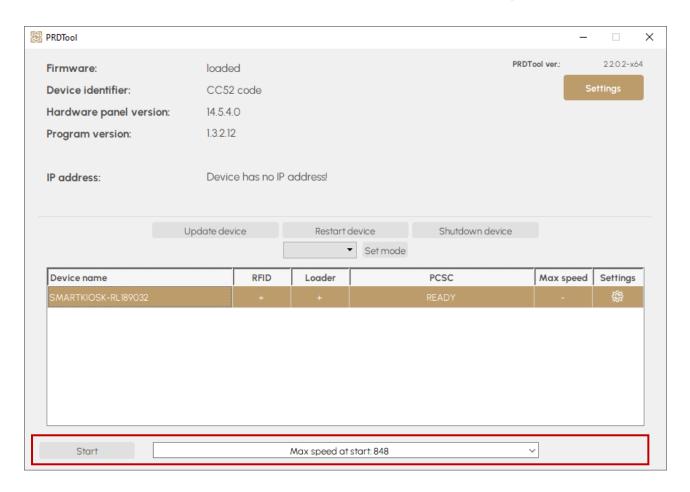
Connection test ✕

GDS service is available.

OK

📑 Note

For more information on setting the PR GDS, see chapter Quick Guide for Using GDS with Passport Reader.

12.4. PCSC CONTROL

> 📄 Note
>
> The PCSC control can only be used with type 'R' (RFID) devices.

The PCSC control is part of the PRDTool program. This is the command line version of the former PCSCCtrl.exe. The functions of the PCSC can be found at the bottom of the opened PRDTool window.
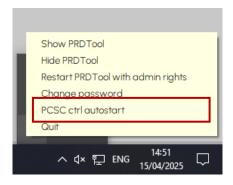

The default status is either **READY** or **STARTED** (if PCSC **Autostart** is enabled). The current status is displayed under the **PCSC** column. PCSC can be enabled or disabled by clicking on the device name, and then on **[Start]** or **[Stop]**. The "max RFID communication speed at start" can be selected under the **Max speed at start** drop-down menu.

> ⚠ Important!
>
> Please make sure to close any application that uses the Passport Reader device before starting or stopping the PCSC interface.

PCSC can be started automatically via the quick menu of PRDTool: right click on the **PRDTool** icon and click on **PCSC ctrl autostart**.

12.5. COMMAND LINE MODE

The PRDTool can also be used in command line mode to query device information. By calling the „--help" switch, the correct use is displayed. The device list, the device version and the IP address information can be queried. The file format of the output can be specified for the easier automatic processability.

```
C:\Program Files\Adaptive Recognition\utils\PRDTool>PRDTool.exe --help

Usage: PRDTool.exe [options] [device]
This program is used for low level controlling in UI mode and getting information from Passport Reader devices.
Example: -h -l; Displays help of the devicelist command.

Options:
  -?, -h, --help         Displays this help.
  -p, --pcsc <pcsc cmd>  Controls accessing the RFID module of a device
                         through PCSC interface. See PRDTool -hp for details.
  -s, --speed <maxspeed> Maximal RFID data transfer rate parameter for PCSC
                         functionality.
  -e, --hide             Runs PRDTool in notification area.
  -l, --devicelist       Lists available devices.
  -d, --devicedetails    Reports the details of a device.
  -o, --output <format>  Output format of the result.
  -v, --version          Displays version information.

Arguments:
  [device]               The name of the device to query/control.

C:\Program Files\Adaptive Recognition\utils\PRDTool>
```

```
C:\Program Files\Adaptive Recognition\utils\PRDTool>PRDTool.exe -l -d

panel_version    14.5.4.0
program_version  1.3.2.12
standby -1
power_button_mode        -1
resolution       -1
connected_devices        SMARTKIOSK-L229091

C:\Program Files\Adaptive Recognition\utils\PRDTool>
```

13. ACRONYMS AND TECHNICAL TERMS USED IN THE DOCUMENT

API

Application Programming Interface

Aztec

One of the readable two-dimensional (2D) barcode types.

BAC

Basic Access Control: An RFID security mechanism.

BCR

Barcode Recognition. Barcodes are line drawings designed to be recognized easily by computers.

Code 39

One of the readable one-dimensional (1D) barcode types.

Code 128

One of the readable one-dimensional (1D) barcode types.

CSCA

Country Signing Certification Authority

EAC

Extended Access Control: An RFID security mechanism.

EAN

One of the readable one-dimensional (1D) barcode types.

DataMatrix

One of the readable two-dimensional (2D) barcode types.

ICAO

International Civil Aviation Organization

Interleaved 2 of 5

One of the readable one-dimensional (1D) barcode types.

ISO

International Organization for Standardization

MRTD

Machine Readable Travel Document

MRZ

Machine Readable Zone: Lower part of the travel document. It contains text designed for reading optically with a travel document reader device.

OCR

Optical Character Recognition: Recognizing characters from a digitalized image.

OVD

Optically Variable Device: Security feature which shows different information, depending on the viewing and/or lighting conditions.

OVI

Optically Variable Ink: Printing ink that contains microscopic pigments acting as interference filters, resulting in large color shifts (strong variations in color) depending on the angle of observation or lighting.

PDF417

One of the readable two-dimensional (2D) barcode types.

QR Code

One of the readable two-dimensional (2D) barcode types.

RFID

Radio Frequency Identification: System based on built in chip that contains data and can communicate through air.

SDK

Software Development Kit

SOD

Document Security Object

VIZ

Visual Inspection Zone: Upper part of the travel document. It may contain face photo image and textual, human readable data.

IX. CONTACT INFORMATION

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Adaptive Recognition Hungary Technical Support System (ATSS) is designed to provide you the fastest and most proficient assistance, so you can quickly get back to business.

Information regarding your hardware, latest software updates and manuals are easily accessible for customers via our Documents Site (www.adaptiverecognition.com/doc) after a quick registration.

New User
If this is your first online support request, please contact your sales representative to register you in our Support System. More help here (www.adaptiverecognition.com/support)!

Returning User
All registered ATSS customers receive a personal access link via e-mail. If you previously received a confirmation message from ATSS, it contains the embedded link that allows you to securely enter the support site.