

Reference Manual

Passport Reader Property list



Passport Reader Reference Manual

Property List

v. 2.1.10 and above

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Table of Contents

- 1. Introduction 3
- 2. Detailed Property Descriptions..... 5
 - 2.1. PR 2.1 SDK Properties.....20
- CONTACT INFORMATION23

1. INTRODUCTION

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.

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

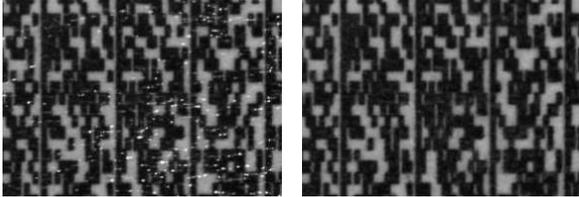
The following properties can only be set when the device is already in use:

- properties starting with ctrl/
- preview_light
- testdoc_mode
- uvwarm_quality
- freerun_mode

When connecting the device again, these properties will be reset.

2. 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. These images can only be decoded in ADAPTIVE RECOGNITION's offline network. 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/keepime	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. These images can only be decoded in ADAPTIVE RECOGNITION's offline network. NOTE: The autosave/filter property must be set too.

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	<p>NOTE: This property applies only to 1D and PDF417 barcodes.</p> <p>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).</p>
barcode/degliner	Boolean F / R / W	False	<p>There are some special cases when the barcode/degliner 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 deglintering process works only if the height of the noise line is significantly smaller than the size of the barcode signs.</p> 
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		<p>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.</p> <pre><recog_order value="51789a"/></pre> <p>1 – for all 1D codes 5 – PDF417 7 – DataMatrix 8 – QR code 9 – AZTEC a – UPU</p>
calib_file	Path R		It returns the name and path of the used calibration file.
calib_path	Path F / R / W		<p>Path of the calibration file. If not specified, the calibration file is searched at the following default locations:</p> <ul style="list-style-type: none"> • 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.
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	<p>Obsolete.</p> <p>Enables the low-resolution image capturing. Certain bits represent corresponding lights. Instead of this property, use the capture_style property.</p>

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/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	<p>NOTE: The number of the window is to be written in place of #, deviating from the regular, numbered from 1.</p> <p>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.</p>
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.
dorect/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

dorect/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: <ul style="list-style-type: none"> • 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 0-0 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		<p>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'.</p> <p>Example:</p> <pre><default> <pr> <document> <log> <logprocess value="timing"/> <file value="prdoc.log"/> <filter value="6"/> <format value="\$h:\$m:\$s (\$l:\$L) [\$i] > \$M\r\n"/> </log> </document> </pr> </default></pre>
document/mqc/#qprops#	... F / R / W		This path contains not a single, but multiple properties, which are described in the MRZ Quality Assurance Reference Manual.
document/tip_century	Integer F / R / W	0 min: 0 max: 1	<p>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.</p> <p>0 – Turned off 1 – Default algorithm</p>
document/tip_names	Integer F / R / W	0 min: 0 max: 3	<p>Tip algorithms related to names. At present it works only with Australian documents.</p> <p>0 – Turned off 1 – Division of the name parts 2 – Transformation of lowercase/uppercase</p> <p>NOTE: The values can be combined.</p>
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. <ul style="list-style-type: none"> • 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.
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.

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 <code>rwdata_dir</code> 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		<p>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):</p> <ul style="list-style-type: none"> • 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 <p>Example:</p> <pre><default> <pr> <log> <logprocess value="apierror,initialization"/> <file value="prapi.log"/> <filter value="6"/> <format value="\$h:\$m:\$s (\$l:\$L [\$i] > \$M\r\n"/> </log> </pr> </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: 6780	Speed of communication with the RFID chip.
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/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.

<p>rfid/log/logprocess</p>	<p>String F / R / W</p>	<p>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):</p> <ul style="list-style-type: none"> • 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 <p>Example:</p> <pre> <default> <pr> <rfid> <log> <logprocess value="cardinfo,timing,rfidstream"/> <file value="prrfid.log"/> <filter value="7"/> <format value="\$h:\$m:\$s (\$l:\$L) [\$i] > \$M\r\n"/> </log> </rfid> </pr> </default> </pre>
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rfid/pref_ext_ds	Integer F / R / W	0 min: -1 max: 2	<p>This property controls the priority of document signer certificates Cert.DS during the checking process:</p> <p>If 0, the checking process is executed with the file in the RFID chip first.</p> <p>If 1, the checking process is executed with the external certificate first.</p> <p>If -1, the checking process is executed only with the file in the RFID chip.</p> <p>If 2, the checking process is executed only with the external certificate only.</p>
rfid/try_bac	Boolean F / R / W	False	<p>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.</p>
rfid/use_serial_port	String F / R / W		<p>Obsolete. Internal property.</p>
rodata_dir	Path R		<p>Path to read only data directory.</p> <ul style="list-style-type: none"> on Windows systems: <code>System32\gx\pr</code> on Linux systems: <code>/usr/share/gx/pr</code>
rwwdata_dir	Path R		<p>Path to read/write data directory.</p> <ul style="list-style-type: none"> on Windows systems: <code>ProgramData\gx\pr</code> on Linux systems: <code>/var/gx/pr</code>
save_cleanovd	Boolean F / R / W	False	<p>Black OVD image is saved in the ZIP file.</p>
save_cleanuv	Boolean F / R / W	False	<p>Enhanced UV image is saved in the ZIP file.</p>
save_fieldimage	String F / R / W		<p>List separated by commas with codes of fields. Corresponding pictures of those fields are to be individually saved to the document file.</p>

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 rwddata_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.

<p>uvwarm_quality</p>	<p>Integer F / R / W</p>	<p>0 min: 0 max: 1000</p>	<p>This property is applicable only for PRM, CLR and PRMc devices equipped with UV tubes.</p> <p>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.</p> <p>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.</p>
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2.1. 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	<p>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.</p> <p>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.</p> <p>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.</p> <p>There are three different types of events: LED, capture and I/O.</p> <p>Elements between 100 and 199 are capture events. Elements between 200 and 299 are I/O events.</p>
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	<p>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:</p> <p>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.</p> <p>NOTE: Certain combinations can be combined. E.g., 3 or 6.</p> <p>Possible values:</p> <p>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.</p>

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.



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