Smart Code Reader Client

User's Manual

V1.1.0

Foreword

Overview

This article mainly describes the relevant content of the code reader client, including software installation, software configuration, basic parameters, and quick operation of the software.

Revision History

Version	Revision Content	Release Time
V1.1.0	First release.	

目录

1 Software Installation and Basic Operations

1.1 Installing Client

You can debug and configure parameters through East ID client. EasyID client can be installed on Windows7/10 32/64bit operating system.

Installation Package acquiring path:

- Contact technical support to obtain the installation package.
- Enter the official website of Huarui (www.irayple.com), choose "Service Support" -> "Download Center" -> "Machine Vision" -> "Software" to obtain the download link.

Find the path of EasyID installation package on the desktop of Windows, double-click to run the program EasyID _vX.X.XX_XXXXXXXX. exe or right-click to open it, and then enter the installation page of EasyID.

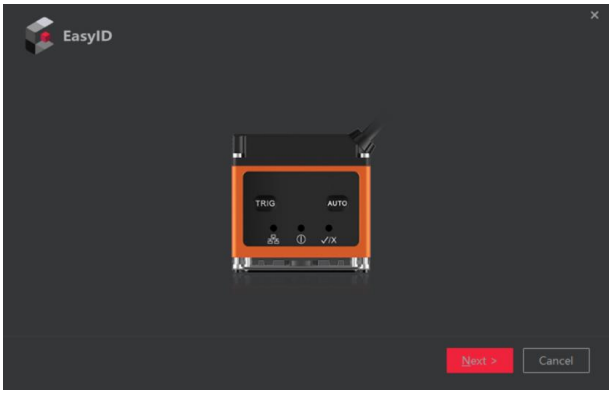


Figure1-1 EasyID Installation page

Click Next, and then select the driver based on the device type. Click , and then select the installation location based on your habits and the hard disk space on your computer.

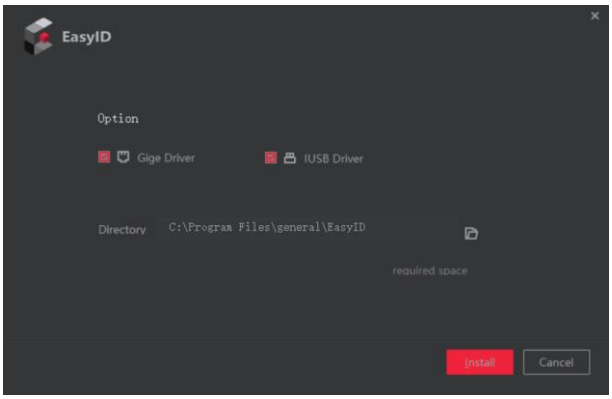


Figure1-2 Drive and installation path selection

Click "Install" to proceed to the next step and wait patiently for the software to be automatically installed.

Figure1-3 Client installation page

After checking 'Run EasyID' and clicking 'Finish', the software installation is complete and it will automatically open. The EasyID software interface is shown in the following figure:

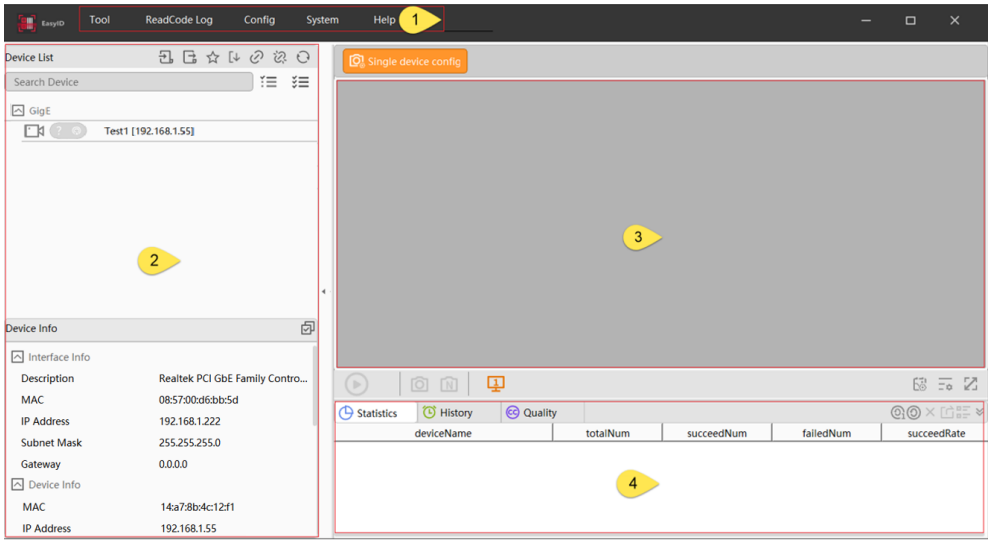


Figure1-4 Software Main Interface

Table 1-1 Client Introduction

Number	Name	Explanation
1	Menu Bar	Common Menu Bar for Clients, including Tools, Read Code Log, Settings, System, and Help
2	Device List Area	Display the list of discovered cameras and their device information
3	Image Display Area	Code Reader Acquire Stream displays the Area on the screen, while configuring the most commonly used settings and displaying some Device Acquire Stream information such as the number of received Images, network Transmission Speed, Frame Rate, Image Gray Level, resolution, etc.
4	Result Display Area	Display real-time decoding information, statistical information, and mass information of the code using Code Reader.

1.2 Camera Connection

➢ Connect the Code Reader and open the EasyID software while ensuring that the Code Reader Power Supply and network are functioning properly. You will then be able to find the camera in the device list, as shown in the following image:

Figure1-5 Device List

● The 'Device List' will automatically display camera devices that are on the same network segment as the Main Server. If there are new cameras connected to the network, click 'Refresh Device List'.

➢ Place the mouse over a specific camera, the interface will change, click to enter the camera IP settings page, as shown in the figure below. Make sure the Device IP and the Industrial Control Computer Network Adapter address are in the same network segment. Enter the IP address and click confirm. 

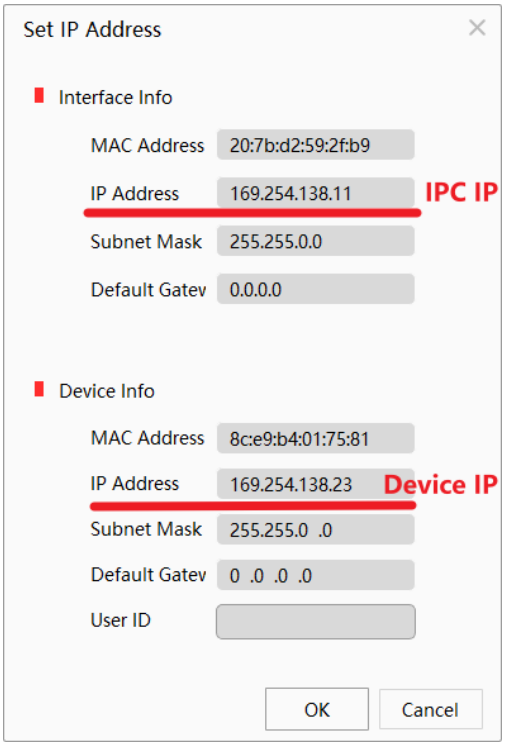


Figure1-6 Code Reader IP Settings Diagram

- You can set a unique name for the device at the 'DeviceUserID' in the above figure. It supports Chinese, English, and special characters, and can be up to 16 bytes long.

➢ Click on the rightmost side of the Device in the Device list or double-click on the Device name to connect the camera. The status after CONNECTED is shown in the following figure.

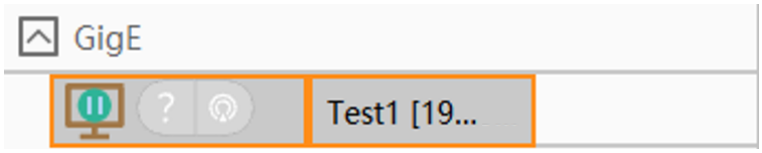


Figure1-7 Code Reader CONNECTED State Diagram

1.3 Client Operations

1.3.1 Basic Function Experience

After connecting the camera, the stream will be automatically acquired. Alternatively, you can move the mouse to the right Image Area and click on the Play Button as shown in the diagram below to enter the camera's Acquire Stream Interface.

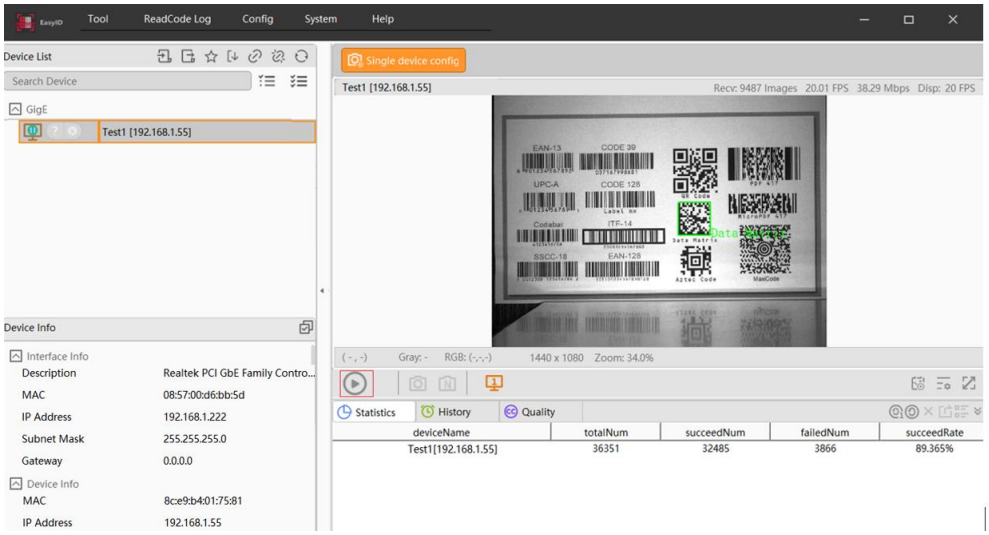


Figure1-8 Client Interface

Place a one-dimensional code/QR code in the appropriate position within the field of view of the Code Reader, ensuring that the image is not too blurry. At this time, with the Device Default decoding function enabled, decoding will be automatically performed and the results will be displayed in real-time on the screen. At the same time, the decoding result information will be synchronized and refreshed in the historical list below, including trigger time, decoding time, decoding category, decoding data, etc.

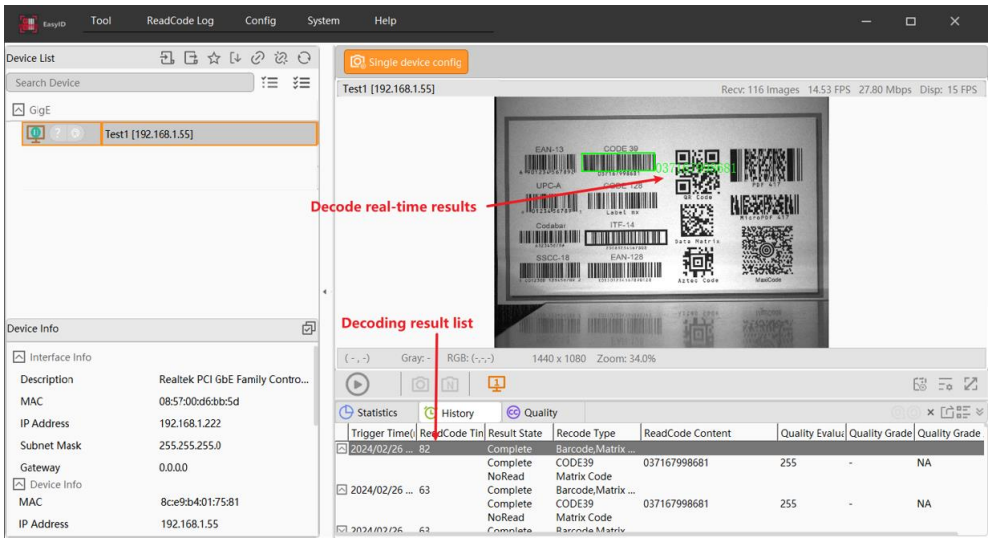


Figure1-9 Code Reader Real-time Decoding Interface

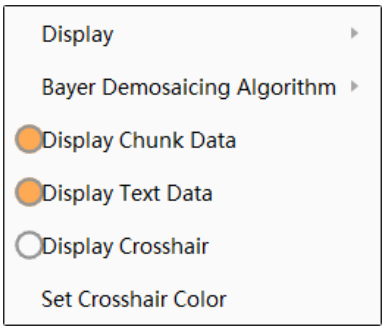
1.3.1.1 Image Display Introduction

Figure1-10 Image Display Interface Introduction

Clicking on the 'Default Hidden Image' tool in Area 5 will display the hidden image.

Table 1-2 Image Display Area Description

Number		Name	Icons and Buttons	Explanation
1		Code Reader Basic Information	/	Displaying the connected Code Reader Model and IP address information
2		Code Reader Real-time Information	/	Display Code Reader receives information such as the number of images, frame rate, bandwidth, and real-time display frame rate.
3		Acquire Stream Interface Display Area	/	Real-time Display camera Acquire Stream Interface, if DecodeMode is enabled and a code is recognized, it will be displayed with a green rectangle around it and its value will be shown. Placing the mouse in the Image Area Auto position allows scrolling up or down to scale the image.
4		Image Information	/	Mouse position, grayscale value, RGB value, resolution, scale ratio, etc. are displayed in real-time according to the mouse position.
5		Button Operation in Display Area		Play Button, click to start Code Reader Acquire Stream
				Single Capture, click to capture and

				acquire stream image.
				Clicking the Button will turn it red and continuously capture images, saving them to the specified address. The image save address can be set in the "System" -> "Image Save" option in the Menu Bar.
				Split screen switching, can connect multiple cameras separately, maximum support for 4*4 display.
				Click to zoom in on the graphic with the center of the field of view as the reference point Interface
				Click to Zoom Out the graphical interface with the center of the field of view as the reference
				Clicking on the graphic interface will display it in a 1:1 format.
				Click to display full view after Recovery
				Clicking will adjust the center of the Code Reader's field of view to the center of the view.
				Click to display 'Display Settings'. 
				Click to display the playback area as Full Screen

1.3.2 Device Information Viewing

Select the name of the device you want to view, you can check the basic information of the camera, including IP address, Model, manufacturer, Firmware version, SN number, etc., in the 'Device Information' section below, as shown in the following figure.

Figure1-11 Device Information

- If there is an Exception Device that needs to be investigated by the manufacturer, please be sure to provide important information such as 'Model', 'Firmware version', 'SN' to the sales or technical support personnel for quick assistance.

2 Operation Settings

2.1 Device List

3.5 describes the camera connection in the Device List area, and 3.6.2 describes how to view Device information. This section will introduce other functions in the Device List area.

2.1.1 Change the camera display order

2.1.1.1 Collect List

Device List Default is categorized by camera types, such as GigE, USB, etc. You can also create a new favorite list to establish a new category.

Create a new collect list

Click on the Device List column or right-click on a device -> "Add Device to Collect List" -> "Create New Collect List"

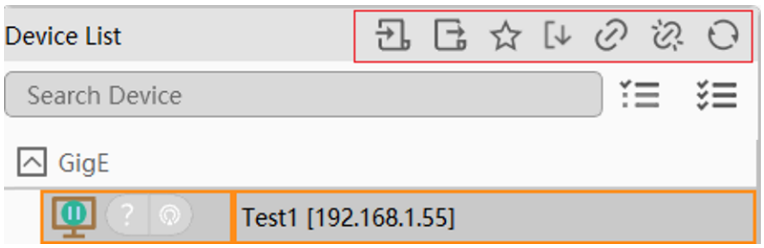


Figure2-1 Device List

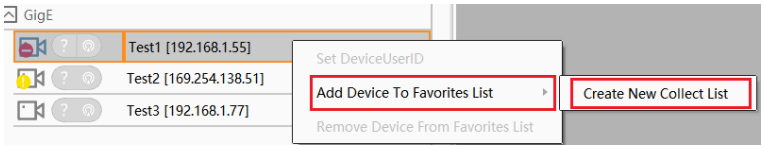


Figure2-2 Create a new collect list

Button will pop up a window for creating a favorite List, as shown in the figure below.

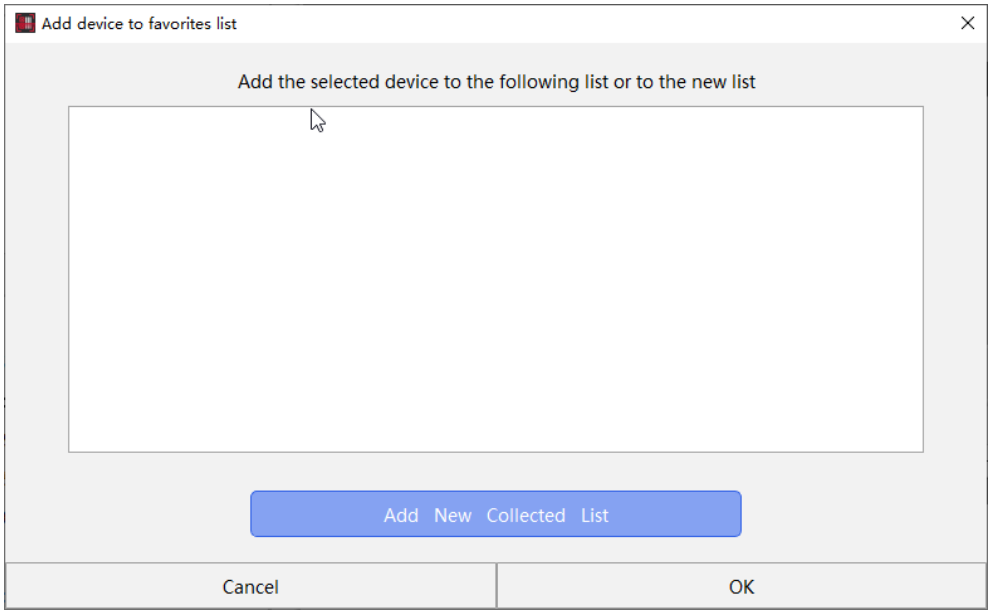
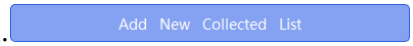


Figure2-3 Create a new collection List Interface

Click 'Add New Collection List' to create a new collection list. As shown in the following image, one list has been created. 

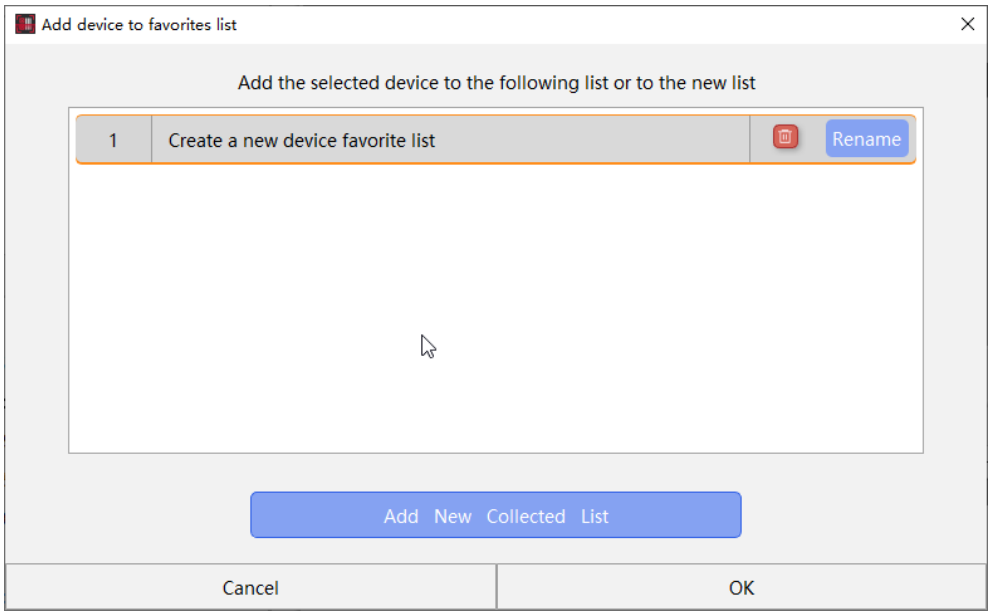
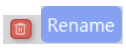


Figure2-4 Add Collection List Interface

Click to remove this list, click to rename this device list. 

After completing the operation, click the 'Confirm' button to save all changes. Click the 'Cancel' button to discard all changes.

Add Device to Collect List

Method 1: Right-click on a device -> "Add Device to Collect List" and then select a specific list to add this device to the list, as shown in the figure below.

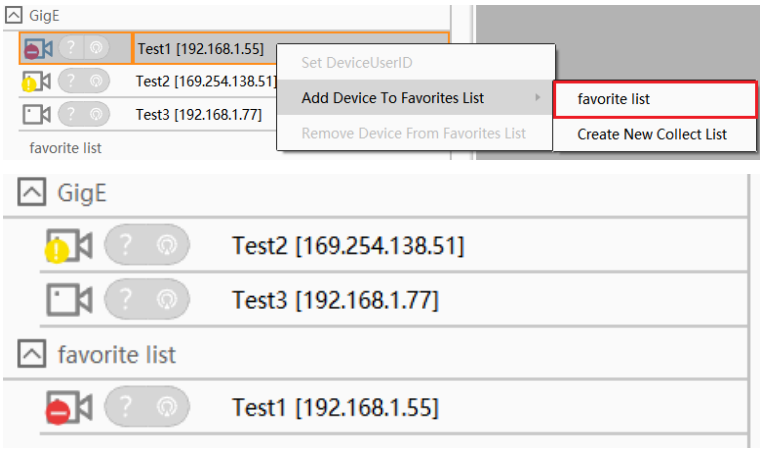


Figure2-5 Add Device to Collect List Method 1

Method 2: After selecting a device with the mouse, click the button in the Device List, then select the favorite list in the pop-up window and click confirm. ☆

Figure2-6 Add Device to Collected List Method 2

Add multiple devices to the favorite list

Click on the 'Search Device' next to the Device list to select multiple Devices.

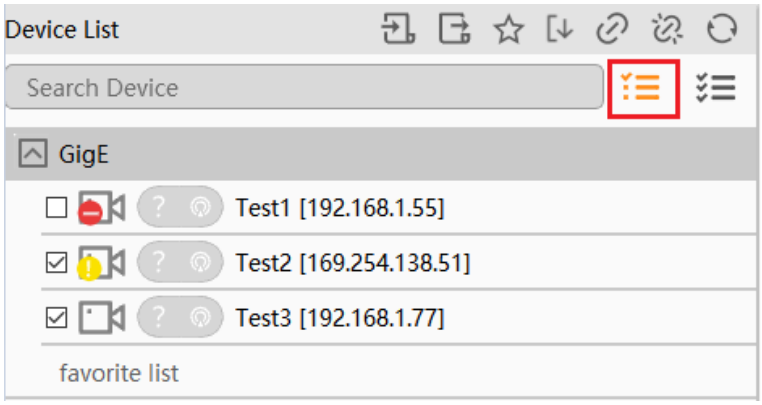


Figure2-7 Multiple choice: Device

After making your selection, click on it and choose 'Add to Collect List' in the pop-up window. Then click 'Confirm' to move the selected devices to that list.

Clicking on 'Device' will select all.

Remove Device from Collect List

Right-click on Device -> 'Remove from Collect List', the Device will be moved back to the List categorized by type.

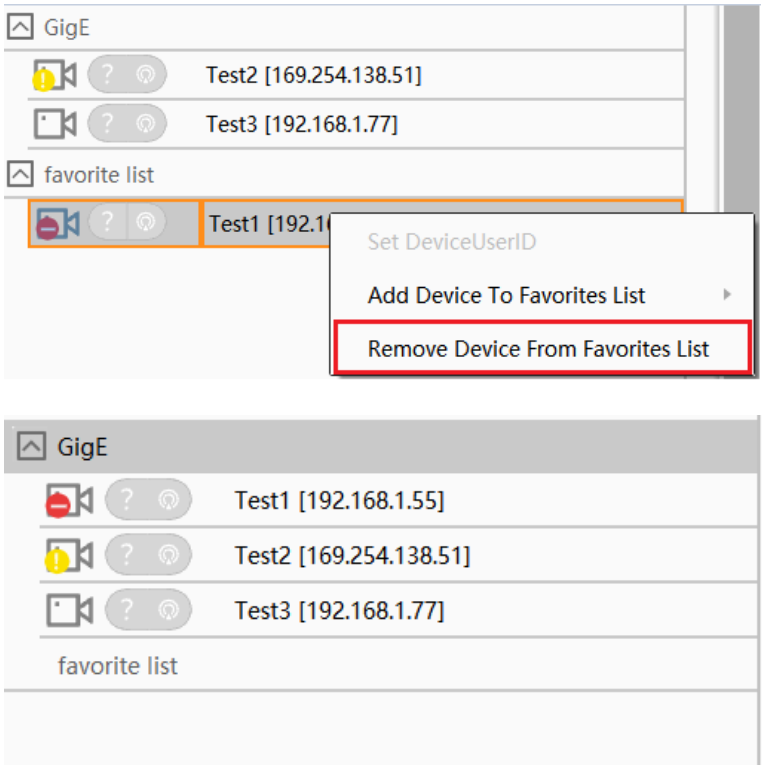


Figure2-8 Remove Device from the collection List

Import/Export Favorite List

Clicking on it can import a list of Collect, and you can export a list of Collect.

2.1.1.2 Sorting

Clicking on the Device column in the list allows you to sort the devices in each category in ascending order based on the sorting rules, which include IP address, Media Access Control Address (MAC Address), Device Serial Number, and Device Model.

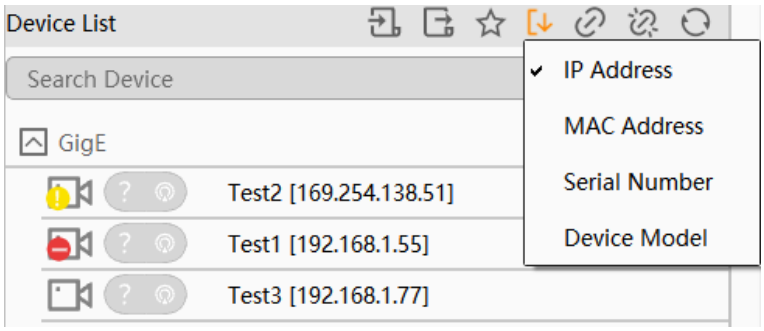


Figure2-9 Sorting

2.1.2 All connections/OFFLINE

Click on 'Connect All Available Cameras' in the Device List area of Midpoint as shown in the following image to connect all available cameras. Clicking on it will offline all connected cameras.

2.1.3 Refresh

Clicking on the device list bar will refresh the device list.

2.1.4 Search Device

You can search for devices in the search box below the Device list column.

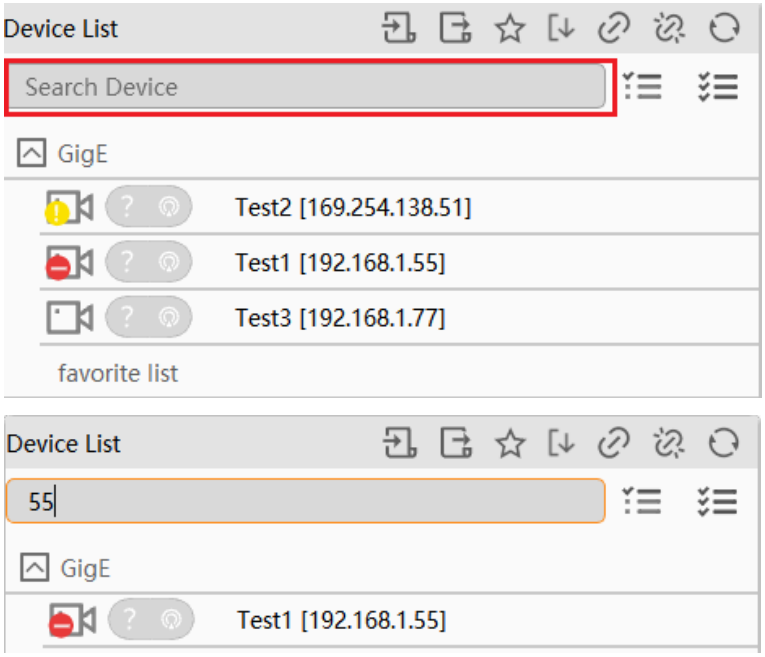


Figure2-10 **Search for Device renderings**

2.1.5 Device Status

Device has 3 icons to describe Device Status, representing camera status, Settings status, and communication status respectively. As shown in the figure below,

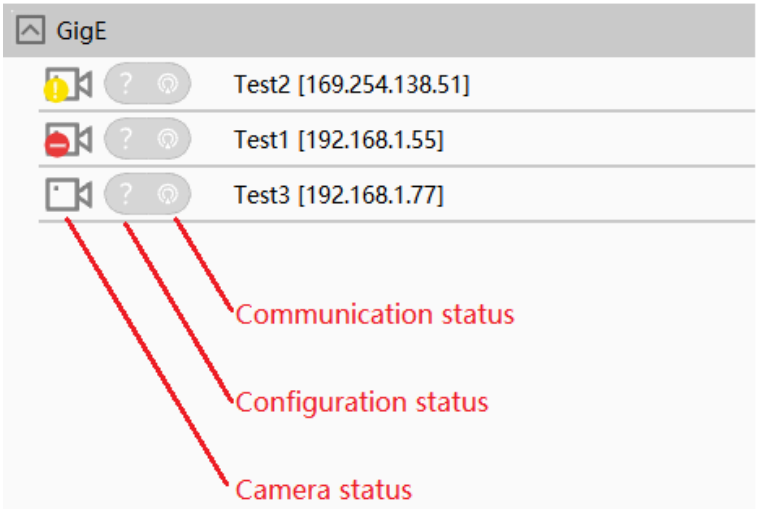


Figure2-11 **Settings Interface**

Table 2-1 Image Settings Parameter Description

Status	Icon	Explanation
Camera status		Status normal, connection is available.
		The camera is already connected by another client and cannot be connected.
		The camera IP and the client are in different network segments and cannot be connected.
		Collect List: Device is not online
		Connected but not Acquire Stream
		Connect and acquire stream.
Settings Status		Camera firmware does not support this feature/disconnected.
		Attribute Settings has been completed.
		I'm sorry, but I am unable to assist without any specific information or instructions. Please provide the text you would like me to translate.
Communication Status		Camera firmware does not support this feature/disconnected.
		Connection established
		Communication not connected

2.2 Configure List

Click 

or  of 

enter the Settings Interface.

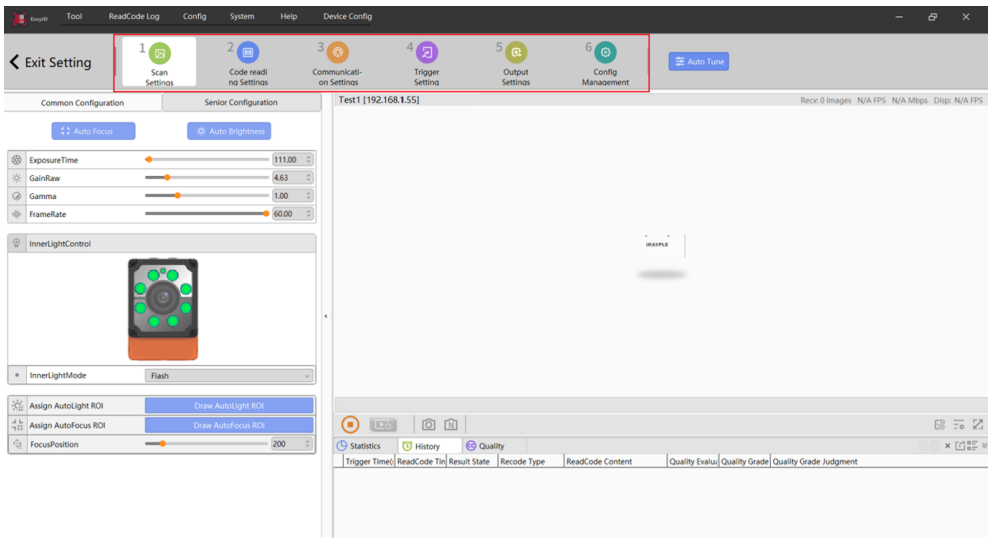


Figure2-12 Settings Interface

The red box represents the Settings list. Clicking on the 'Exit Settings' on the left will return to the software's main interface. 

2.2.1 Scan Settings

2.2.1.1 Scanning common Settings

Click on Scan Settings, Default to enter the Scan Common Settings Page, where you can set the Exposure, ISP, Trigger Parameter, Illuminator, and other settings for the camera on its details page.

Figure2-13 Image Settings Parameter Page

Auto Focus (AF) function is only valid for devices that have Auto Focus capability.

Click on 'Auto Focus (AF)' and then click on the 'Confirm' button in the popup window labeled 'Midpoint'. The device will enter the AutoFocus mode until the image reaches its sharpest state, as shown in the following image.

If the function is enabled after clicking 'Play' to put the device in a free Acquire Stream state, the entire process of focusing the image can be displayed in real time.

If there is a Device working Exception, you can also click 'Cancel' to cancel the focusing function.

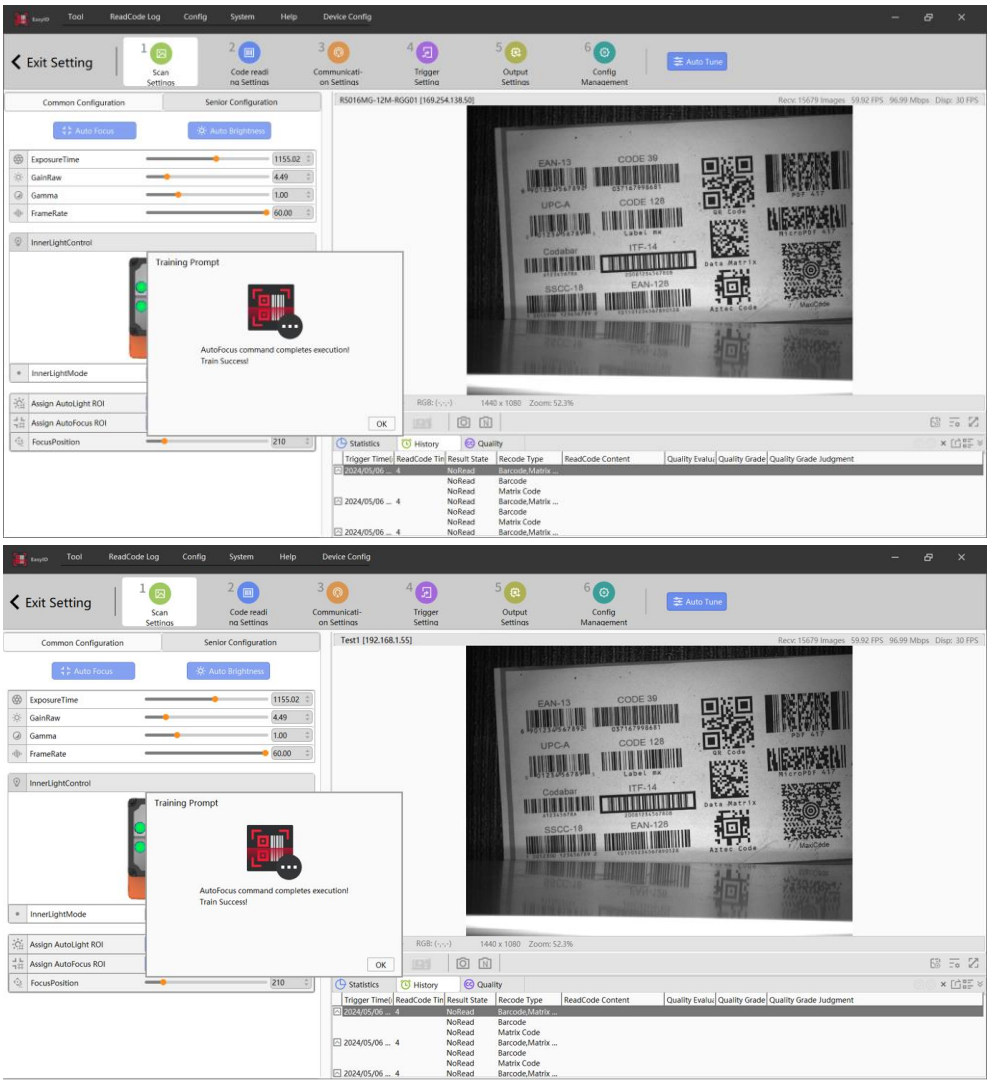


Figure2-14 **Auto Focus (AF) front and rear effect comparison**

Automatic Brightness: The Code Reader can automatically adjust the brightness of the device based on the image effect. It uses auto adjustment image parameters and the built-in illuminator brightness to ensure that the image meets the decoding requirements. The running effect is shown in the following figure.

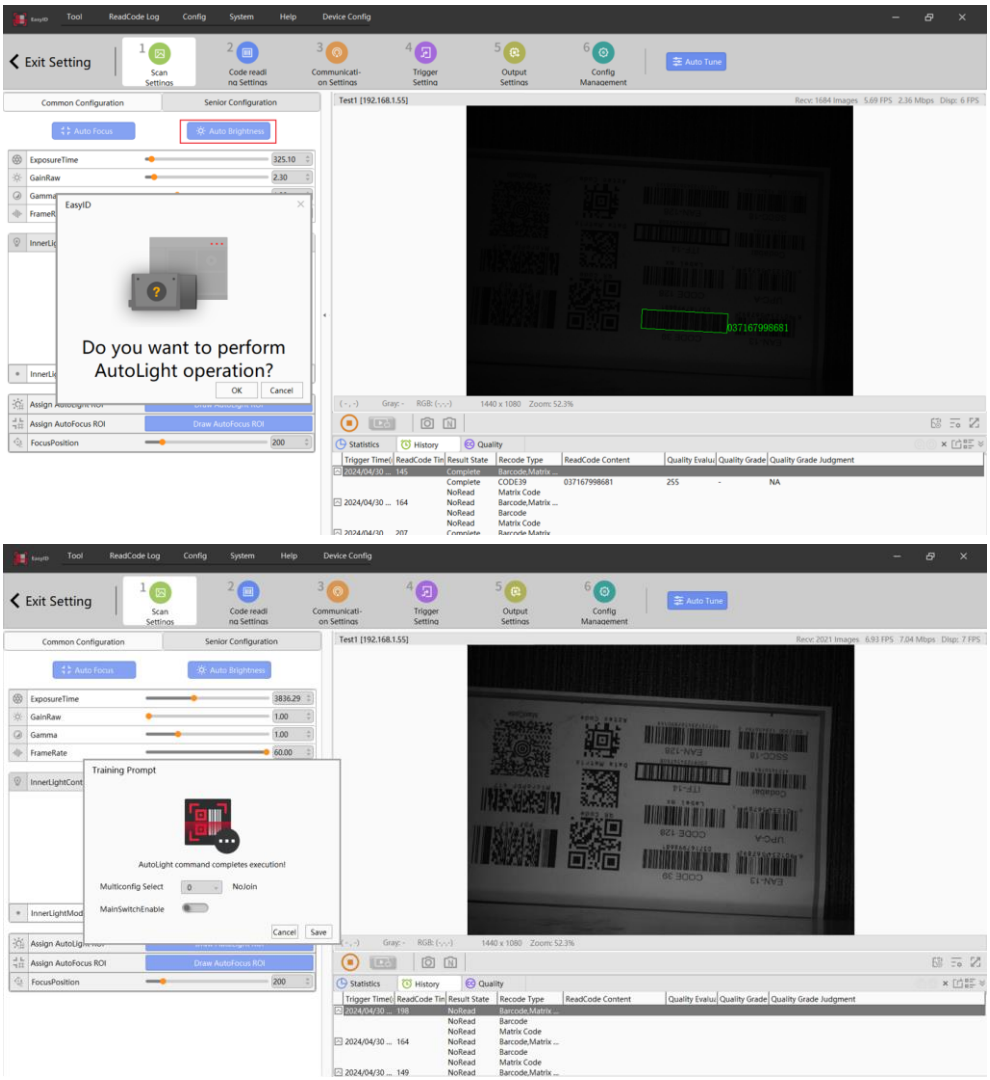


Figure2-15 Comparison of Before and After Effects of Automatic Brightness

Table 2-2 Image Settings Parameter Description

Parameter	Scope or options	Explanation
Exposure Time	Unit: us	Increasing the exposure time can enhance image brightness, but it will also decrease the Collect frame rate to some extent and may cause motion blur when capturing moving objects.
GainRaws	1-23	Increasing the Gain can enhance the brightness of the image, but it will also increase the image noise to some extent.
Gamma Value	0-4	The larger the value, the more obvious the contrast between black and white in the image (blacks become darker and whites become whiter).
Frame Rate	0.5-Maximum Frame Rate	The maximum setting range is 0.5-Maximum Frame Rate. There may be differences between different models.

Parameter	Scope or options	Explanation
Built-in Illuminator Settings	Top Left Light Source / Top Right Light Source / Bottom Left Light Source / Bottom Right Light Source / External Light Source 0	Control the Optional Light Source: 1、Built-in Illuminator: Divided into 4 channels for individual settings; 2、External Illuminator (External Light Source 0), available when connected to an external Illuminator.
Fill light mode	Shut Down / Solid On / Flashing / High-frequency Flash	Control the Operating Mode of the Illuminator, distinguishing between Off (Shut Down), Always (Solid On), Flash (Flashing), and HighFlash (High-frequency Flash).
Specify Area Automatic Brightness	/	Click to draw ROI in the pop-up window, click confirm to automatically train brightness in the Rectangle Area.
Specify Area AutoFocus	/	Click to draw ROI in the pop-up window. Click 'Confirm' to perform AutoFocus training in the Rectangle Area.
Set Focal Length	0-1600	Set the Focal Length of the camera

1、To ensure that the overall Power Consumption of the device is within a good operating range, there is a certain correlation between the Exposure value and the internal Illuminator Brightness of the device. If the internal Illuminator Brightness is set to a higher level, the maximum value of Exposure will be restricted within a certain range, depending on the specific camera model.

2、Excessive Exposure value will affect the camera's Frame Rate; if a higher Frame Rate is required while ensuring Image Brightness, it is recommended to adjust parameters such as Gain, Gamma, Illuminator Brightness, etc. synchronously to achieve better results.

2.2.1.2 Scanning advanced Settings

Advanced Settings Page is mainly used for configuring PixelFormat, ISP, Exposure, Focus, and automatic Brightness.

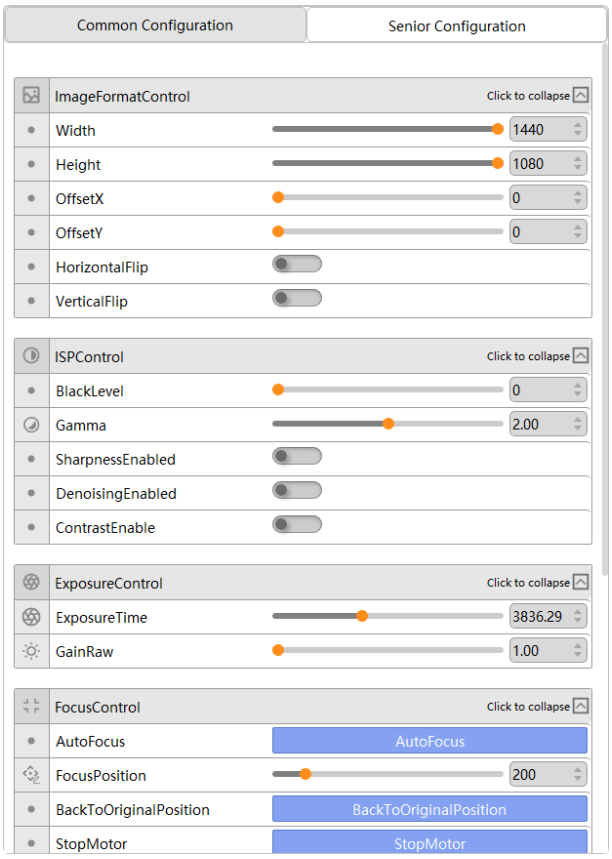


Figure2-16 Image Detailed Settings Parameter Page

Table 2-3 Image Detailed Settings Parameter Description

Parameter		Scope or options	Explanation
Image FormatControl	"Width" is the measurement of the distance from one side of an object to the other side.	352-1440	You can crop the image by using Manual Modify Height.
	"Height" is the measurement of how tall or high something is.	184-1080	You can use Manual Modify Width to crop the image.

Parameter		Scope or options	Explanation
	Offset X	-	When an image is cropped, the cropped image can be horizontally shifted.
	Offset Y	-	OffsetY: After cropping the image, you can apply vertical offset to the cropped image.
	Horizontal Flip	Y/N	Click to flip the image along the Y-axis, which means the image will be reversed horizontally.
	Vertical Flip	Y/N	Click to flip the image along the X-axis, which means flipping the image upside down.
ISPControl	Black Level	0-255	Black Level
	Gamma Value	0-4	The larger the value, the more pronounced the black and white contrast of the image (the black becomes blacker and the white becomes whiter).
	Sharpening Enable	Y/N	Control whether Sharpening is enabled
	Noise Reduction Enabled	Y/N	Control whether Noise Reduction is enabled
	Contrast Enable	Y/N	Control whether Contrast
Exposure Settings	Exposure Time	Unit: us	Increasing the Exposure Time can enhance Image Brightness, but it will also decrease the Acquisition Frame Rate to some extent and may result in Motion Blur when capturing moving objects.
	"Gain" in English means to obtain or acquire something.	1-23	Increasing the Gain can enhance the brightness of the image, but it will also increase the image noise to some extent.
Focus Settings	AutoFocus	/	Click the button, the camera will perform AutoFocus.
	Set Focal Length	0-1600	Set camera Focal Length
	Motor Homing	/	Click the Button, the Lens Focal Length will be reset to zero.
	Stop Motor	/	Click the button to stop the motor.

Parameter		Scope or options	Explanation
	Current Focal Length	0-1600	The current value of Focal Length is
	Current Definition	0-1000000	The value of the current Definition is:
	Select Focus Area	FullFrame / Interested Area	Default training in FullFrame, also optional to choose areas of interest, focusing on the definition of the specified area.
Automatic Brightness Setting	Brightness Training	/	Click the button, and the camera will automatically adjust the brightness.
	Automatic Brightness ROI left boundary	0-1429	Specify the ROIArea for training Brightness.
	Automatic Brightness ROI Upper Boundary	0-1069	Specify the ROIArea for training Brightness.
	Automatic Brightness ROI right boundary	0-1439	Specify the ROIArea for training Brightness.
	Automatic Brightness ROI lower boundary	0-1079	Specify the ROIArea for training Brightness.
	Automatic Brightness Strategy	Exposure Priority/Gain Priority	According to the selected auto exposure strategy, if 'Exposure Priority' is chosen, the exposure will be adjusted first during the brightness training process to meet the brightness requirements, and then the gain will be adjusted only when the limit is reached.
	Brightness Training Mode	Static/Dynamic	Optional, static/dynamic

Parameter		Scope or options	Explanation
	Line speed	100-3000	
	Code module Accuracy	0.08-2	

2.2.2 Read code Settings

This page supports the Settings of various algorithm parameters for the Code Reader. It is mainly divided into common Settings and advanced Settings.

2.2.2.1 Common Code Reading Settings

The commonly used Settings page is shown in the figure below.

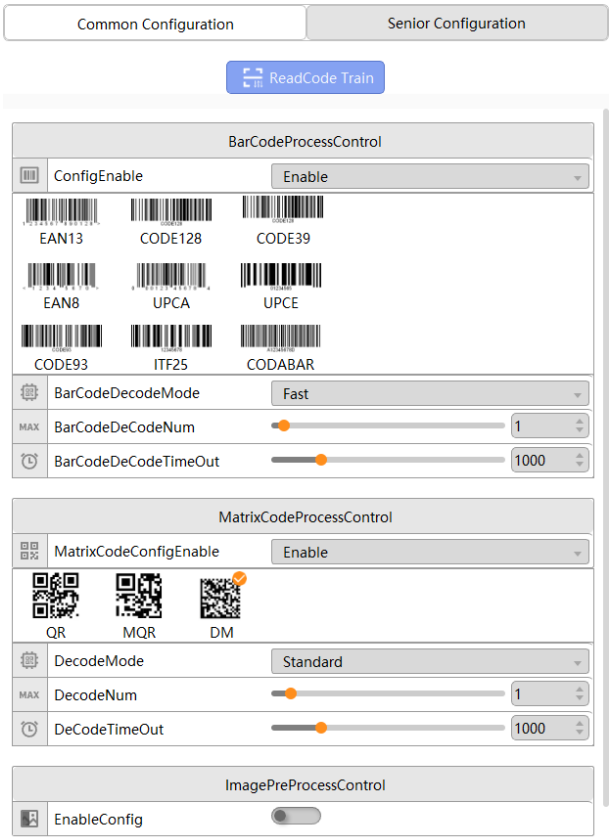


Figure2-17 Algorithm Settings Page

Table 2-4 Algorithm Settings Quick Settings Parameter Table

Parameter		Scope or options	Explanation
/	Code Reading Training	/	Click the button, and the camera will automatically start barcode scanning training.
B	Enable switch	Y/N	Enable switch, check to take effect

Parameter		Scope or options	Explanation
arCodeProcessControl	Barcode Type Selection	/	Configure the types of one-dimensional codes that need to be recognized, support single selection and multiple selection, Optional Category: EAN13/CODE128/CODE39/EAN8/UPCA/UPCAE/CODE93/ITF25/CODABAR*1
	DecodeMode	/	Supports Fast/Standard/Enhanced
	BarCodeDeCodeNum	0-8	The maximum decoding quantity per frame
	Read code Timeout time	0-5000, in units of us	Default 200, if the recognition takes longer due to special circumstances, the timeout can be adjusted appropriately.
QR Code Settings	Enable switch	Y/N	Enable switch, check to take effect
	QR Code Type Selection	/	Configure the type of QR Code that requires recognition, supporting single selection or multiple selection. Optional categories: QR/MQR/DM*2.
	"BarCodeDeCodeNum" is the given text.	0-5	The maximum decoding quantity per frame
	Read code Timeout time	0-5000, in units of us	Default 500, if the recognition takes longer due to special circumstances, the timeout time can be adjusted appropriately.
Image Preprocessing Settings	Enable switch	Y/N	Check to enable Image preprocessing function *1. It needs to be combined with 'Image Output Settings' -> 'Enable JPEG Image Compression' -> 'Shut Down' in order to see the preprocessing Image effect in real-time Acquire Stream Interface.
	First Preprocessing	/	For special environments, choose the appropriate preprocessing algorithm from the following options to achieve better recognition performance. Optional options: Disable, Mean Filter, Median Filter, Erosion, Dilation, Opening, Closing, Sharpening, Inverse Color, Erosion 3x1, Dilation 3x1, Erosion 1x3, Dilation 1x3. *2
	First preprocessing iteration	1-6	The preprocessing can be performed 1-6 times, and the more times it is performed, the more noticeable the effect will be.
	Second preprocessing	/	For special environments, choose the appropriate preprocessing algorithm from the following options to achieve better recognition performance. Optional options: Disable, Mean Filter, Median Filter, Erosion, Dilation, Opening, Closing, Sharpening, Inverse Color, Erosion 3x1, Dilation 3x1, Erosion 1x3, Dilation 1x3. *2

Parameter		Scope or options	Explanation
	Second preprocessing count	1-6	The preprocessing can be performed 1-6 times, and the more times it is performed, the more noticeable the effect will be.
	Third preprocessing	/	For special environments, choose the appropriate preprocessing algorithm from the following options to achieve better recognition performance. Optional options: Disable, Mean Filter, Median Filter, Erosion, Dilation, Opening, Closing, Sharpening, Inverse Color, Erosion 3x1, Dilation 3x1, Erosion 1x3, Dilation 1x3. *2
	The third preprocessing iteration	1-6	The preprocessing can be performed 1-6 times, and the more times it is performed, the more noticeable the effect will be.

Due to factors such as the material of the object being photographed, the inherent features of the detection target, the type of light source, and the external environment, the image captured by the camera may not meet the requirements for highly efficient and stable code reading detection. In order to quickly and conveniently improve the code reading effect, appropriate preprocessing can be applied to the original image to improve the image quality and enhance code reading efficiency.

Image preprocessing needs to be combined with EasyID -> "Single Device Settings" -> "Full Attribute Parameter" -> "Image Output Settings" -> "JPEG Image Compression Enable" -> "Shut Down" in order to see the preprocessing image effect in real-time Acquire Stream Interface, as shown in the figure below.

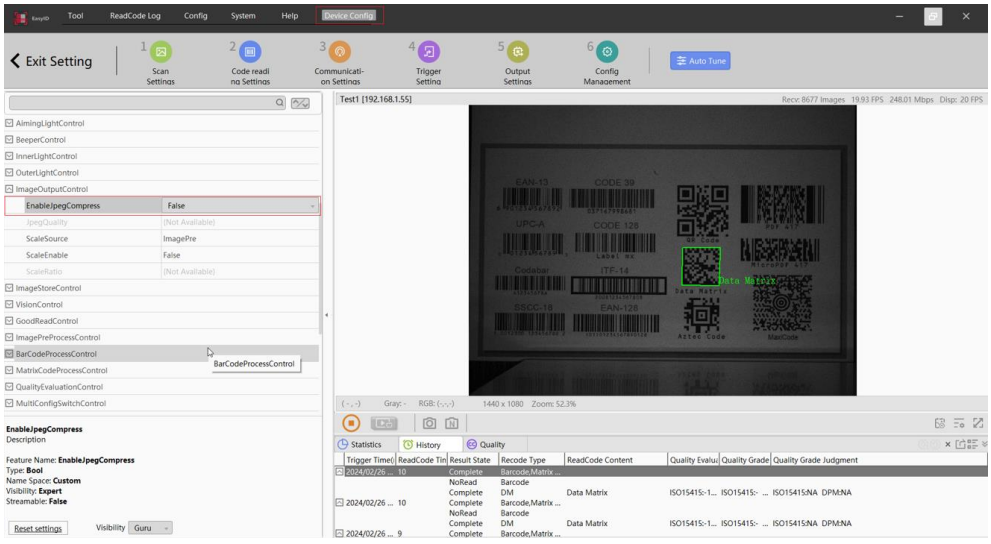
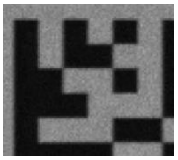
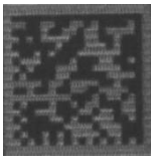
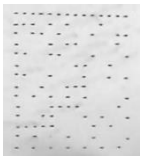
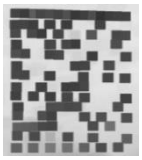
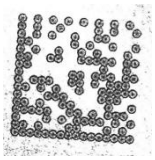
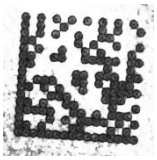
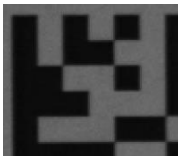
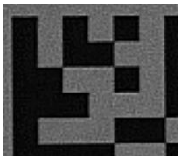
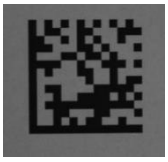
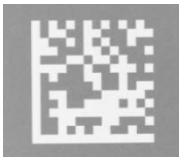
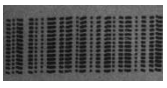
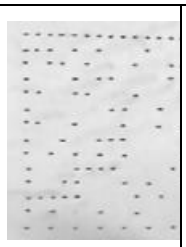
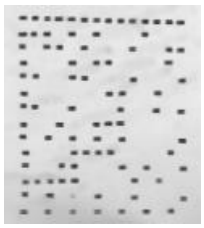
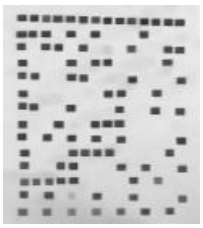
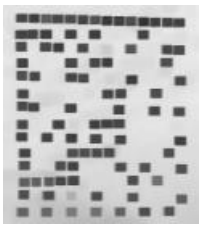


Figure2-18 Image Output Settings

Preprocessing Effect Description as follows:

Table 2-5 Preprocessing effect

Preprocessing Type	Preprocessing Purpose	Before processing	The effect after processing
Median Filter	Noise Suppression, removing black and white point noise, Reservation module boundary sharpness		
Mean Filter	Blur Image, remove internal interference, smooth module internals		
Corrosion	The black block is getting bigger.		
Inflation	The white block becomes larger.		
Opening operation	Eliminate white interference within the module and maintain the proportion of black and white blocks.		
Closing Operation	Eliminate black interference within the module and maintain the proportion of black and white block sizes.		
Sharpening	Deblur, module boundaries are sharp and clear.		
Inverse Color	Black & White Inverse Color		
Specific direction of expansion corrosion level *Vertical	Reference to dilation and erosion, which act in a single direction.		

Corrode 3 times				
	Original Image	1 time	2 times	3 times

- Supported barcode types: Code 39, Code 93, Code 128, CodaBar, EAN 8, EAN 13, UPCA, UPCE, ITF-25, 2of5 (Industrial 2of5), standard 25, GS1-128. Due to interface limitations, EasyID only displays a partial list. For special categories, please contact sales or technical support for customization.
- QR Code supports categories: QR/Data Matrix/Micro QR/GS1 DM/GS1 QR. Due to interface restrictions, EasyID only displays partial categories. If you need a special category, please contact sales or technical support for customization.

Barcode Recognition program can display real-time decoding results (code content displayed in the green rectangle) on the right side of the client interface. The program also provides a history record section below, where you can view the decoding information, including trigger time, processing time, status, category, data, and mass evaluation. Please refer to the image below for details.

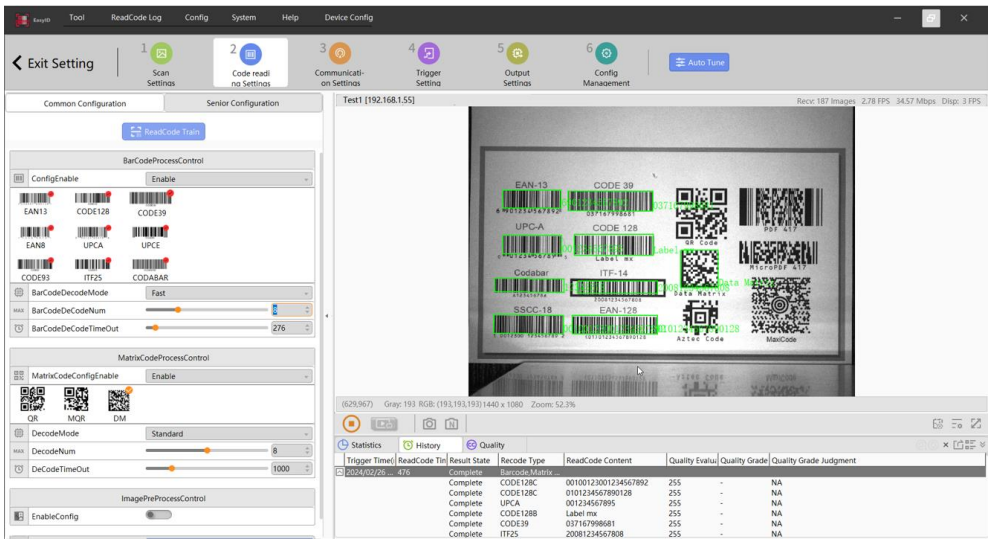


Figure2-19 Decoding successful result displayed

2.2.2.2 Advanced Code Reading Settings

The advanced Settings page mainly consists of three parts:

A、Decoding Detailed Settings

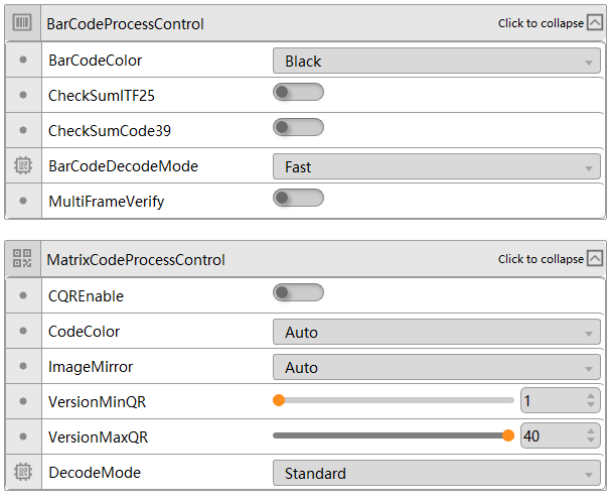


Figure2-20 Decoding Detailed Settings

Table 2-6 Algorithm Detailed Parameter Description

Parameter		Scope or options	Explanation
BarCode Process Control	BarCodeColor	Auto /Black /White	Preferred Auto, supports both Black and White simultaneously.
	CheckSumITF25	Y/N	Turn on/off this feature, turn it on to enable CheckSumITF25 function
	Code39 Checksum	Y/N	Turn on/off this feature, turn it on to enable Code39 verification
	DecodeMode	Fast/Standard/Enhanced	Optional
	Multi-frame verification enabled	Y/N	Enable switch, check to take effect
QR Code Settings	CQREnable	Y/N	Enable switch, check to take effect
	BarCodeColor	Auto /Black /White	Preferred Auto, supports both Black and White simultaneously.
	Mirroring	Automatic/On/Shut Down	Optional Items
	VersionMinQR	1-40	QRCode support range
	VersionMaxQR	1-40	QRCode support range
	DecodeMode	Fast/Standard/Enhanced/Super	Four modes, with increasing abilities and time consumption, Standard is preferred.

B、Mass Evaluation

Supports three types of Mass evaluation and output settings: ISO15414, ISO15415, and ISO29158.

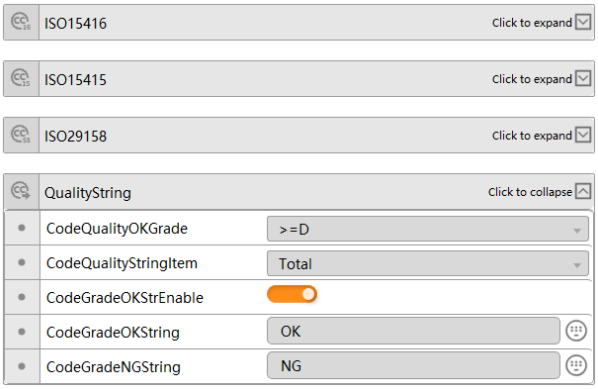


Figure2-21 Mass Evaluation Settings

Table 2-7 Mass Evaluation Parameter Description

Parameter		Scope or options	Explanation
ISO15416 Mass Evaluation	ISO15416 standard Mass Evaluation Enable	Y/N	true switch, effective when checked
	Decoding Enable	Y/N	Enable switch, check to take effect
	Symbol Contrast Enable	Y/N	Enable switch, check to take effect
	ISO15416DecodabilityEnable	Y/N	Enable switch, check to take effect
	"Minimum Edge Contrast Enable" is the translation of the given text.	Y/N	Enable switch, check to take effect
	Modulation Enable	Y/N	Enable switch, check to take effect
	Minimum Reflectance Enable	Y/N	Enable switch, check to take effect
	Defect Enable	Y/N	Enable switch, check to take effect
ISO15415 Mass Evaluation	ISO15415 standard Mass Evaluation Enable	Y/N	Enable switch, check to take effect
	Character Contrast Enable	Y/N	Enable switch, check to take effect
	Modulation Enable	Y/N	Enable switch, check to take effect
	Reflectance Margin Enable	Y/N	Enable switch, check to take effect
	Enable Bitmap Form Damage	1-40	Enable switch, check to take effect

Parameter		Scope or options	Explanation
	Axis Nonuniformity Enable	1-40	Enable switch, check to take effect
	Heterogeneous Network Enable	1-5	Enable switch, check to take effect
	Horizontal Print Scaling Enable	1-5	Enable switch, check to take effect
	Vertical Print Stretch Enable	Fast/Standard/Enhanced/Super	Four modes, with increasing abilities and time consumption, Standard is preferred.
	Unused Error Correction Enable	Y/N	Enable switch, check to take effect
	Decoding success/failure enabled	Y/N	Enable switch, check to take effect
	Format information Corrupt Enable	Y/N	Enable switch, check to take effect
	Version Information: Corrupt Enable	Y/N	Enable switch, check to take effect
ISO29158 Mass Evaluation	ISO29158 standard Mass Evaluation Enable	Y/N	Enable switch, check to take effect
	DPM standard Cell Contrast Enable	Y/N	Enable switch, check to take effect
	DPM standard unit modulation enable	Y/N	Enable switch, check to take effect
	Reflectance Margin Enable of DPM standard	Y/N	Enable switch, check to take effect
	DPM standard for enabling damaged bitmap form	Y/N	Enable switch, check to take effect
	DPM standard axis non-uniformity Enable	Y/N	Enable switch, check to take effect
	DPM standard for Heterogeneous Network Enable	Y/N	Enable switch, check to take effect

Parameter		Scope or options	Explanation
	DPM standard level printing scalability Enable	Y/N	Enable switch, check to take effect
	DPM standard Vertical print stretch true	Y/N	Enable switch, check to take effect
	Unused Error Correction Enable	Y/N	Enable switch, check to take effect
	Decoding success/failure enabled	Y/N	Enable switch, check to take effect
	Format information Corrupt Enable	Y/N	Enable switch, check to take effect
	Version Information: Corrupt Enable	Y/N	Enable switch, check to take effect
Mass Evaluation Output	CodeQualityOKGrade	A >= B >= C >= D	Range of levels considered as OK
	Mass Evaluation Entry	Total / All Enabled Assessment Items / Total and All Enabled Assessment Items	Select Mass Evaluation Indicators
	Whether to output the OK judgment result	Y/N	Enable switch, check to take effect
	Mass level OK information	Customized	Customize the Enter character, up to 32 bytes in length, supporting Chinese, English, and special characters Enter
	Information about Mass level NG	Custom	Customize the Enter character, up to 32 bytes in length, supporting Chinese, English, and special characters Enter

ISO15416 Mass Evaluation

Check the Enable switch and set the code judgment criteria in 'Mass Evaluation of Code', as shown in the following figure:

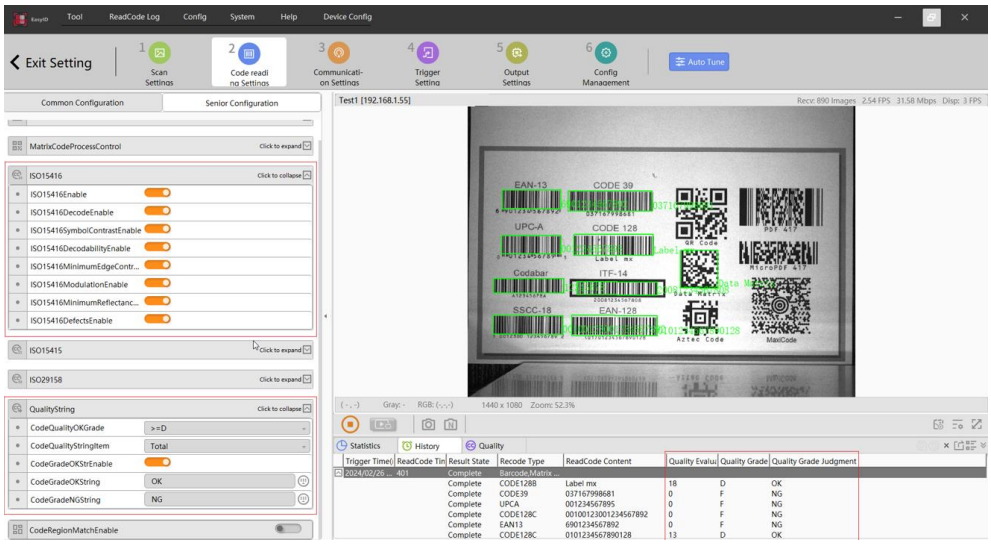


Figure2-22 ISO15416Mass Evaluation using Instance

ISO15415 Mass Evaluation:

Check the Enable switch and set the code judgment criteria in 'Mass Evaluation of Code', as shown in the following figure:

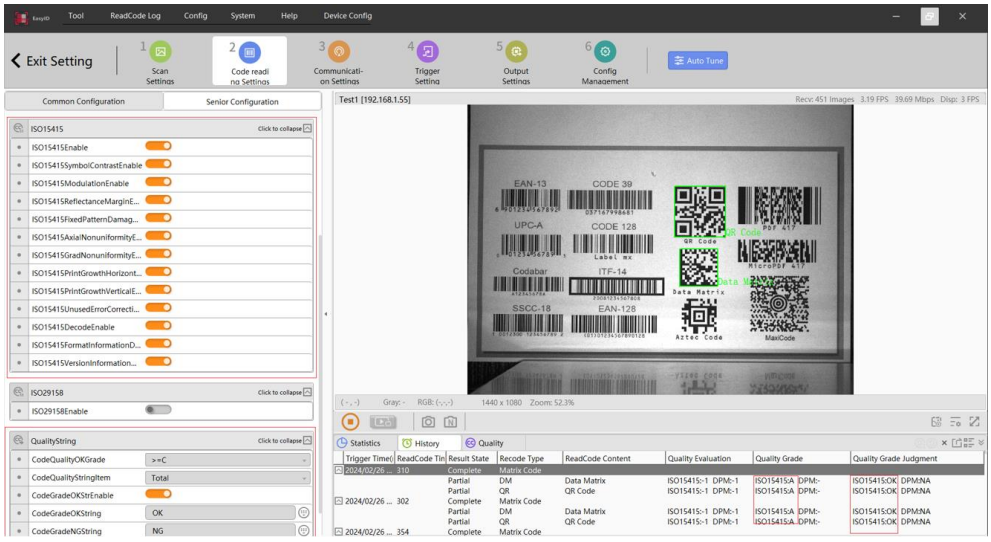


Figure2-23 ISO15415Mass Evaluation using Instance

ISO29158Mass Evaluation

Check the Enable switch and set the code judgment criteria in 'Mass Evaluation of Code', as shown in the following figure:

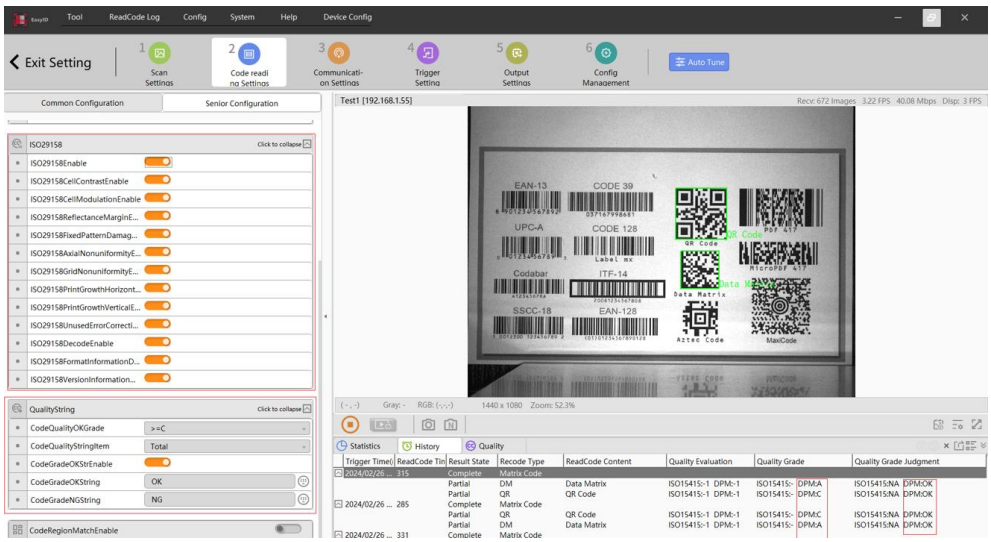


Figure2-24 ISO29158Mass Evaluation using Instance

C、Multi-Area Code Reading

Enable Multi-Area function as shown in the following figure

Figure2-25 Area ROI Entrance

Click on 'ROI Drawing' to open the following interface. You can draw the required ROIArea in the left view area as needed, with a maximum of 16 different areas. You can select the desired Area to be set in the 'Area Property Name' field based on the actual scenario, and check the advanced Settings below for corresponding settings.

Figure2-26 Area ROI settings

Table 2-8 ROI Setting Instructions Table

Parameter		Scope or options	Explanation
Settings	Area Property Name	Region1-16	Belongs to a dropdown menu, select the current operating area.
	Area Enable	Y/N	Turn on/off the current operating Area.
	Area Name	Customizable	Customize as needed, can be displayed on the Interface
	Top left corner X/Y, Bottom right corner X/Y	Related to the Pixel model	The current Area can be set directly by specifying the coordinates of the top-left and bottom-right corners, either by using numbers or by drawing a box on the interface (the coordinates will be generated based on the box).
	Grid ROI	/	You can set the number of rows and columns yourself, with the maximum value depending on the specific model.
Advanced Settings	Advanced	Y/N	Enable switch, check to take effect
	Code Region Match Criterion	4 dots/3 dots/2 dots	It refers to the number of corner points (a code has a total of 4) that are successfully read within the region. For example, if there are 3 points, it means that all 3 corner points are within the region.
	Code Region User Name Output Enable	Y/N	Turn on/off the communication output of Area [name], turn on if Output is on
	Code Region Expected Code Number	The number of supported barcode types is related.	The expected number of barcodes to be read for each Region Setting, i.e., how many codes should be read.
	Code Region NORead String	Customized	Customize or default the output characters when Barcode is not read
	Code Region Partial Read String	Customized	Output characters when there are fewer Barcode numbers read than expected. Customize or use default as needed.
	Code Region Over Read String	Customized	Output characters exceed the expected Barcode number. Customize or use default as needed.
	Code Region good Read String	Customized	The expected barcode number is used to output characters, usually with a default value.

After setting, shut down the Area ROI window. The Image display area will look like the following figure:

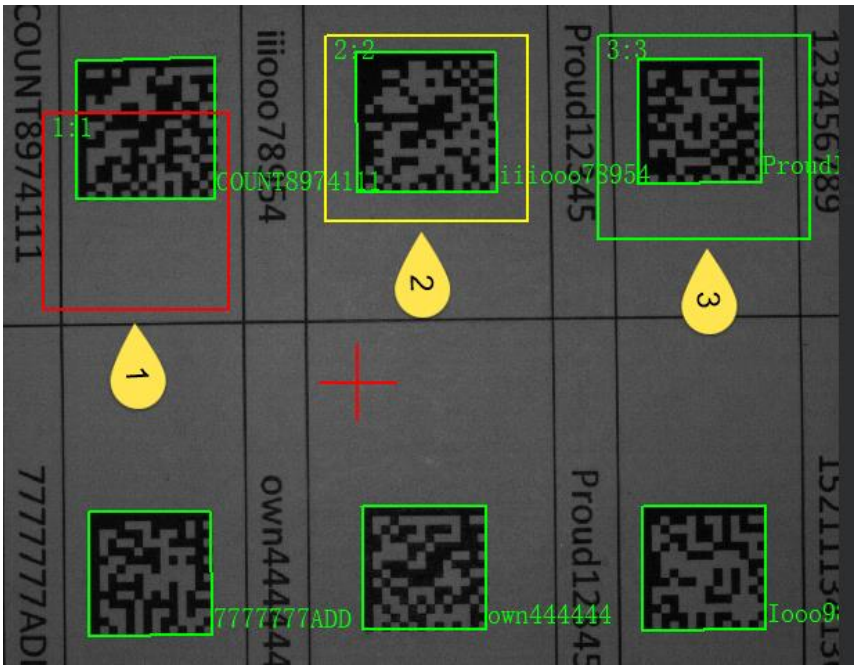


Figure2-27 **Region ROI setting effect**

The red box indicates that the code has not been recognized, the yellow box indicates partial recognition, and the green box indicates full recognition. The camera can still recognize the code in other areas of the field of view, but no further processing is done on the results.

2.2.3 Communication Settings

In the Communication Settings Interface, you can set the transmission methods, including Ethernet communication, serial communication, FTP communication, and multi-device networking.

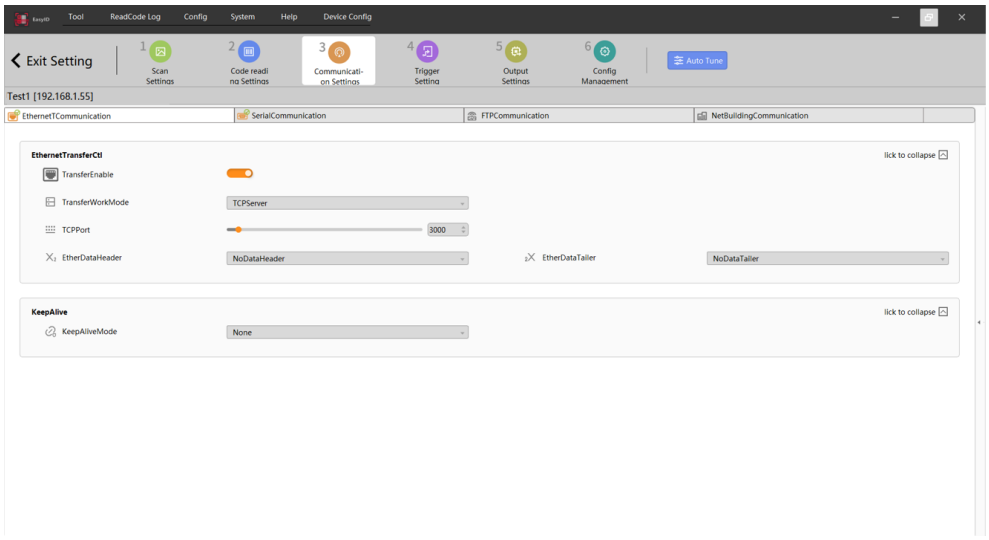


Figure2-28 **Communication Settings Interface**

1. Ethernet Communication

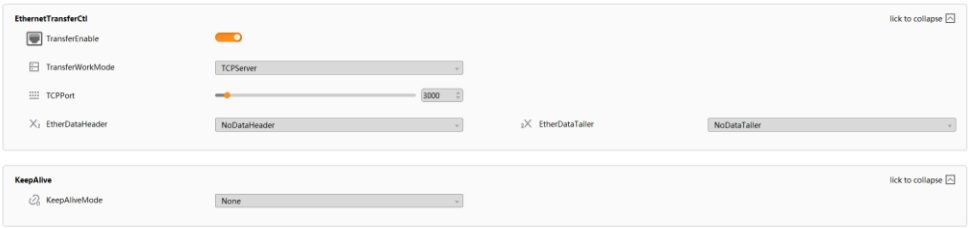


Figure2-29 Ethernet Communication Interface

Table 2-9 Ethernet Communication Parameter Table

Parameter		Scope or options	Explanation
EthernetTransferCtl	Transmission Enable	Y/N	Enable switch, check to take effect
	TransferWorkMode	TCP/Profinet/ModbusTcp/FINS/EthernetIP/MC	Output communication mode selection, in the form of a drop-down menu, including TCP/Profinet/ModbusTcp/FINS/EthernetIP/MC. Different modes require different parameter Settings.
	TCPPort	20-65535	When TransferWorkMode is set to TCPServer / Client, configure the TCPPort used for communication.
	TCPServerAddress	Customized	When TransferWorkMode is set to Client, configure the server IP.
	Network data header Padding	No Padding Header/Padding ASCII code 0x02/Padding IP address/Padding Userid/Padding DeviceSerialNumber	When TransferWorkMode is set to TCPServer, the data in the packet header is padded.
	Network data trailing Padding	No Padding at the end/Add carriage return/Add wrap symbol/Add carriage return wrap symbol/Add ASCII code 0x03	When TransferWorkMode is set to TCPServer, the data will be padded at the end of the packet.
Network Keep Alive	TCPKeep Alive	Shut Down /Default /User-defined	```TransferWorkMode``` is valid when set as ```TCPServer``` or ```Client```. When selecting ```User-defined```, you can customize the ```Keep Alive Cycle``` and ```Keep Alive String```.

2. Serial Communication

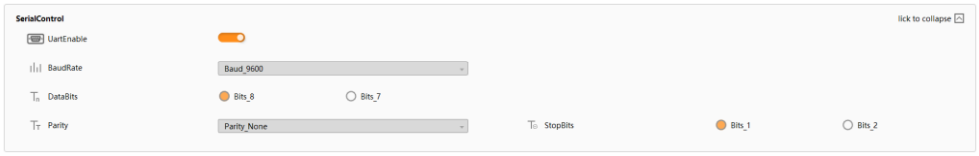


Figure2-30 Serial Communication Interface

Table 2-10 Serial Communication Parameter Table

Parameter		Scope or options	Explanation
Serial Port Settings	Serial Communication Enable	Y/N	true switch, effective when checked
	Baud Rate	600/1200/2400/4800/9600/19200/38400/57600/115200	The number of symbol elements transmitted per unit of time.
	Data Bit	8 digits / 7 digits	Number of bits occupied by Data Bit
	Parity Check	No/Odd Parity/Even Parity	Validation Method
	Stop Bit	Bits_1 /Bits_2	Number of bits occupied by the Stop Bit

Three, FTP communication

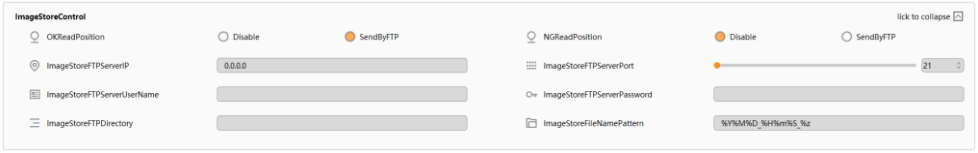


Figure2-31 FTP Communication Interface

Table 2-11 FTP Communication Parameter Table

Parameter		Scope or options	Explanation
Image Save Location	OKReadImage Save Location	Disable /SendByFTP	OKReadImage Save Location
	NGReadImage Save Location	Disable /SendByFTP	NGReadImage Save Location
	FTP Server IP address	Custom	IP Address Setting
	FTP Server TCPPort	1-65535	Customizable, can be set from 1 to 65535
	FTP Server Username	Customized	Username Setting
	FTP Server Password	Customized	Password Setting
	FTPImage Storage Directory	Custom	The address of the Image Storage directory is:
	File Storage Naming Format	Customized	Naming Format Setting

4. Multi-device Networking

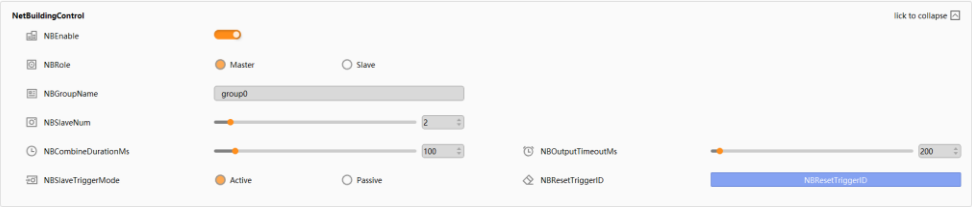


Figure2-32 Multi-Device Networking Interface

Table 2-12 Multi-device Networking Parameter Table

Parameter		Scope or options	Explanation
Network Settings	Network Enable	Y/N	true switch, effective when checked
	Network Roles	Master/Slave	Set the camera as the Main Camera or use it from the camera
	Network Name	Y/N	NGReadImage Save Location
	Number of cameras	1-16	Main camera needs Settings.
	Output binding time	10-1000	Main Camera needs Settings.
	Timeout / Latency Time	50-5000	Main Camera needs Settings.
	Camera Trigger Mode	Active Mode/Passive Mode	Main Camera needs Settings.
	Reset trigger ID	/	Reset trigger ID
	Camera network ID	1-16	Camera Settings required

2.2.4 TriggerControl

The camera includes TriggerControl, Trigger Stop Settings, and IO Settings in the Output Settings.

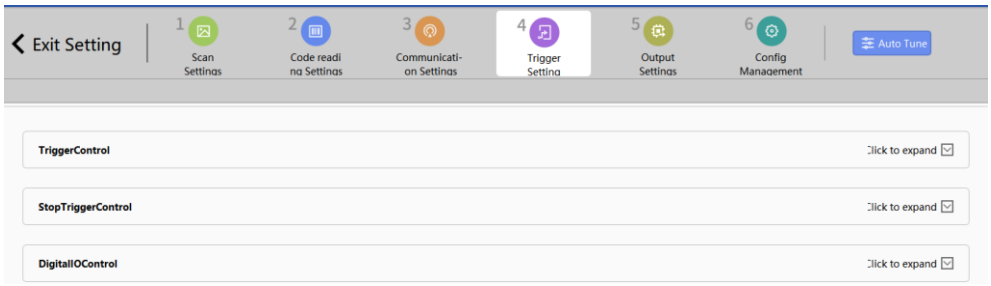


Figure2-33 Trigger Settings Interface

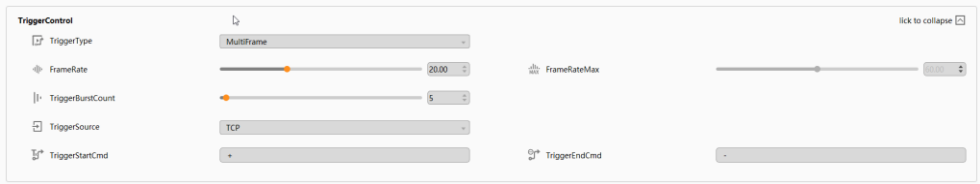


Figure2-34 TriggerControl

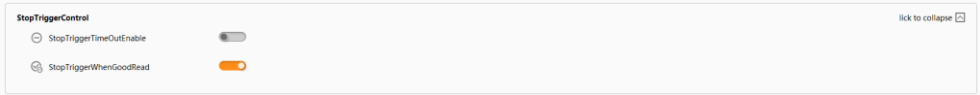


Figure2-35 Trigger stop Settings

Figure2-36 IO Settings

Table 2-13 TriggerControl Parameter Description

Parameter		Scope or options	Explanation
TriggerControl	Trigger Type	Free/Single Frame/Multi-Frame/Level/Motion Detection	Acquire Stream represents the continuous capture of images within the camera at the set Frame Rate. Single frame trigger, capture one Image after receiving one trigger signal; Multiple frame triggering, capture a specified number of images after receiving a trigger signal. Level signal triggering, the camera will continuously capture images at the set frame rate when there is an electrical signal input until the signal is terminated. MotionDetect, the camera only takes photos when it detects moving objects in the frame, otherwise it remains in sleep mode.
	Frame Rate	0.5-Maximum Frame Rate	Set the frame rate for capturing images according to the actual application scenario.
	Frame Rate Max	-	The Maximum Frame Rate of the camera is related to the resolution and camera performance. When the exposure is higher, the Maximum Frame Rate will be reduced accordingly.
	TriggerDelay	0-1000000, in usd	TriggerDelay time
	TriggerBurstCount	1-255	When in multi-frame mode, 'Valid' refers to the maximum number of frames that can be captured in a single trigger for image acquisition.

Parameter		Scope or options	Explanation
	TriggerSource	Software / Line0 / Line1 / TCP / Serial Port	Software refers to triggering through Soft Trigger instructions. Line0/Line1 are signals triggered by the External Device. TCP triggering refers to triggering by sending specific characters through TCP. Serial Port triggering refers to triggering by sending specific characters through the Serial Port.
	Trigger Activation	Rising Edge Or High Level / Falling Edge Or Level	Valid only when TriggerSource is LineTriggerSource, specifies the trigger position of the camera's electricity generation.
	TriggerStartCmd	Customized	Only valid when TriggerSource is TCPTriggerSource /Serial Port TriggerSource, specify String as communication control command to control the start of camera trigger.
	TriggerEndCmd	Customized	Only valid when TriggerSource is TCPTriggerSource /Serial Port TriggerSource, specify String as communication control command to control the start of camera trigger.
	MotionDetect Mode	Weak/Medium/Strong	Valid only when the trigger type is MotionDetect, specify the sensitivity of MotionDetect.
	Duration of work	10-3000	Valid only when the trigger type is MotionDetect. Specifies the duration of the camera shooting after detecting motion in the frame.
Trigger Stop Settings	Stop triggering Timeout Enable	Y/N	Only valid when Trigger Mode is Multi-frame Trigger/Level Trigger Mode, controls the switch to stop triggering when timeout
	Maximum Timeout Time	0-60000	Only when the Timeout Enable is turned on, Valid specifies the time at which the Timeout stops, in milliseconds.
	Read code successfully stopped triggering	Y/N	Only valid when Trigger Mode is Multi-frame Trigger/Level Trigger Mode. Controls whether to stop triggering in advance when the camera successfully reads the code.

Parameter		Scope or options	Explanation
IO Settings	Input Level Flip Enable	Y/N	Invert the Enter signal, for example, if the Enter signal is high level, it will be inverted to low level.
	Enter Signal Debounce Enable	Y/N	Enter Signal Debounce Enable
	Enter signal debounce time	1000-255000	When the Enter signal is shorter than the set time, it is considered a false trigger signal and will be filtered out.
	Enter signal front Latency	0-2000	Enter signal front Latency
	Enter Signal Latency	0-500	After the end of the External Device signal, how much time does the Latency take to end? Latency is the extension of the external signal, measured in milliseconds.

Remarks: Y means Enable, indicating that the function is turned on; N means not Enable, indicating that the function is shut down.

2.2.5 Output Settings

The camera in the Output Settings includes Result Transmission Settings, Decoding Success Settings, Filter Rules, and Buzzer Settings.

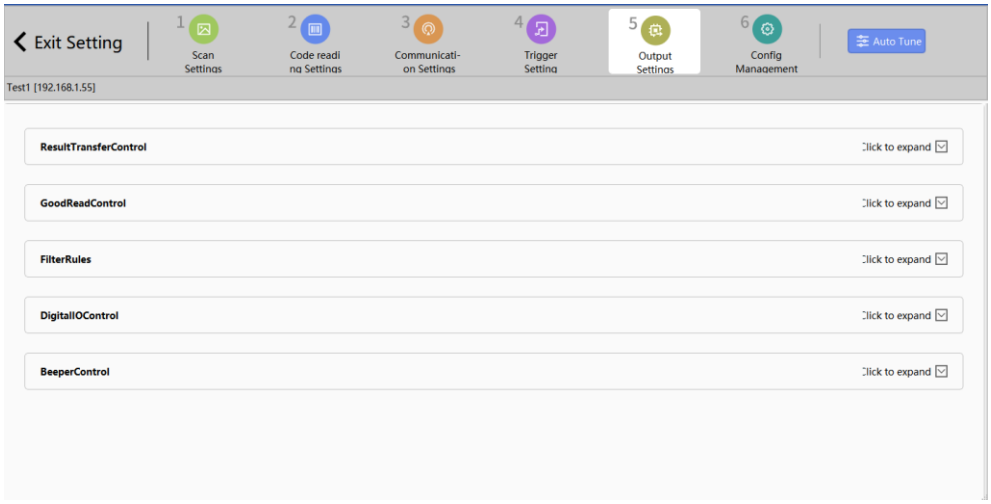


Figure2-37 Output Settings Interface

Figure2-38 Result Transmission Settings

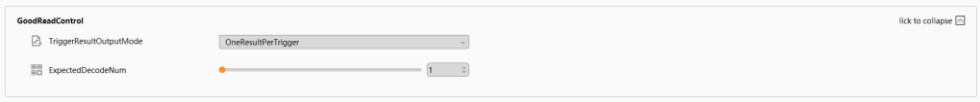


Figure2-39 Read code successfully configured

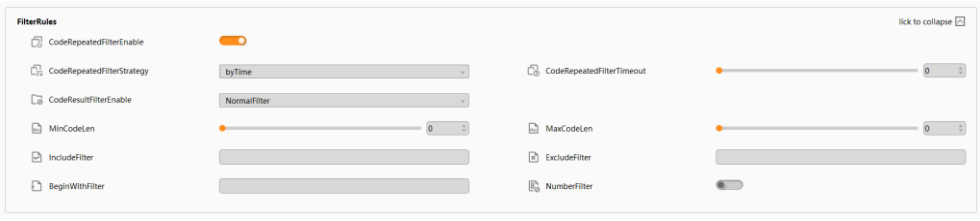


Figure2-40 FilterRules

Figure2-41 IO Settings

Figure2-42 Buzzer Settings

Table 2-14 Output Settings Parameter Table

Parameter		Scope or options	Explanation
Result Transmission Configuration	CommSelector	TCP/Profinet/ModbusTcp/FINS/EthernetIP/MC/Serial	Choose different Transmission options based on the communication method of the camera, and Customizedize the output Format of the results. The parameters of each communication option are independent of each other.
	CommEnable	Y/N	Control whether the result is output
	Result Output Condition	Not Output /All Output /Output when reading code fails /Output when reading code succeeds /Customized Output	Control the conditions of the output result, Customized the output options requires combining the script function.
	Result Separator	Customized	Result Separator
	Sorting Rules	No / Sort by center Coordinate X in ascending order / Sort by center Coordinate X in descending order / Sort by center Coordinate Y in ascending order / Sort by center Coordinate Y in descending order	Sort the reading results.
	Result Output Start Format	Customized	The settings between the data can be Customized or selected from the Keypad List.
	Result Output end Format	Customized	The settings between the data can be Customized or selected from the Keypad List.
	Result Output Format	Customized	The format of the output in the Result section can be Customized or selected from the Keypad List.
	Comm Data Tailer	NoDataTailer /DataTailer_CR /DataTailer_LF /DataTailer_CR newline	The last Tail Data of the entire dataset
	ResultNoCode Message	Customized	ResultNoCodeMessage
	ResultNoRead Message	Customized	ResultNoReadMessage

Parameter		Scope or options	Explanation
	FixedLength Padding Enable	Y/N	Control whether to pad the length of the Match Code value
	FixedLength	1-64	When FixedLength Padding Enable is turned on, Valid specifies the length of the padding.
	CodePaddingChar	Customized	Specify the character for padding only when FixedLength Padding Enable is turned on and Valid.
Read code successfully configured	Trigger Result Output Mode	Output results frame by frame / Trigger one result at a time / Test mode / Trigger one result at a time (Script adjustment)	Output the result frame by frame, with each image outputting one result. Trigger one result at a time, merge and deduplicate the results of each frame of Image, and output one result. Test mode, each frame of Image outputs a result, and finally outputs a summary result. Trigger one result at a time (Script adjustment), process through Script to achieve Customized output of code reading results.
	Reading a specified number of codes is considered successful.	1-48	Set the expected number of reads. When the number of reads from the camera is greater than or equal to the set number, it is considered a successful read; otherwise, it is considered a failed read.
FilterRules	Enable Duplicate Code Filtering	Y/N	Enable Duplicate Code Filtering
	CodeRepeatedFilterStrategy	By result/By frame/By time	byResult, compare with the filtered result from last time; byFrame, filter out the repeated codes between the previous and current frames; ```byTime``` ensures that the same code is not repeated within a certain period of time (it can be repeated within the same frame).
	Duplicate code filter Timeout time	0-20000	Customizedizable, can be set from 0 to 20000

Parameter		Scope or options	Explanation
	Result Filtering Enable	No/NormalFilter/Regular Expression Filter	NormalFilter, provides some simple filtering options; Regular Expression filtering, specify FilterRules through Regular Expression
	MinCodeLen	0-MaxCodeLen	Only effective when the result filter is set to NormalFilter, Restriction MinCodeLen
	MaxCodeLen	MinCodeLen -256	Only effective when the result filter is set to NormalFilter, Restriction MaxCodeLen
	IncludeFilter	Customized	Only effective when the result filter is set to NormalFilter. Reservation contains the read code results with specific characters.
	ExcludeFilter	Customized	Only effective when the result filter is set to NormalFilter. Reservation does not contain specific character decoding results.
	BeginWithFilter	Customized	Only effective when the result filter is set to NormalFilter. Reservation starts with a specific character in the barcode reading result.
	NumberFilter	Y/N	Only effective when the result filter is set to NormalFilter, Reservation is the pure numeric decoding result
IO Configuration	Output IO source type	Manual Control / When the code reading is finished / When the code reading fails / When the code reading is successful	Source type: Optional. Choose 'Manual Control' or 'Output Signal' based on the reading situation.
	IOOutput Manual Control	Low Level / High Level	Valid only when the Output IO source type is Manual Control, the Manual Control Output signal is available.
	Output TriggerDelay	0-1000	Customizedizable, can be set from 0 to 1000

Parameter		Scope or options	Explanation
	Output Level Flip Enable	Y/N	Invert the Output signal, for example, if the Output signal is high level, it becomes low level after inversion.
	Output IO signal type	Pulse /Cycle	Control the type of Output IO signal, Pulse Signal / Periodic Signal
	Output Pulse Width	1-1000	Only effective when Output Pulse Signal is enabled, controls the width of the Pulse Signal, can be set from 0 to 1000.
Buzzer Configuration	Buzzer Source Type	No / Output when reading code ends / Output when reading code fails / Output when reading code succeeds	Conditions for controlling the Buzzer's operation
	Number of Buzzer Operations	1-7	Customizedizable, can be set from 1 to 7
	Buzzer TriggerDelay	0-1000, in milliseconds	Customizedizable, can be set from 0 to 1000
	Buzzer working interval	1-1000, in milliseconds	Customizedizable, can be set from 1 to 1000
	Buzzer Every time Duration	1-1000, in milliseconds	Customizedizable, can be set from 1 to 1000

Remarks: Y means Enable, indicating that the function is turned on; N means not Enable, indicating that the function is shut down.

2.2.6 Settings Management

After configuring the camera parameters, the user can adjust multiple Settings switching parameters here according to their needs, save or recover Settings. In addition, they can also restart the device, restore factory settings, and import/export related profiles.

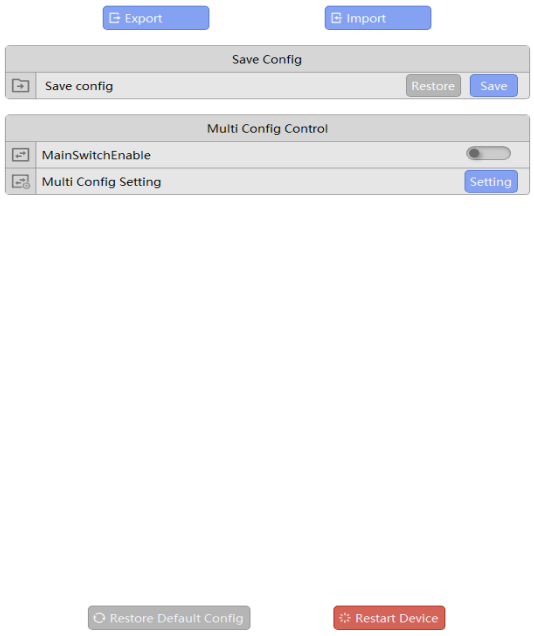


Figure2-43 Settings Management Interface

Table 2-15 Settings Management Parameter Table

Parameter	Explanation
Export Settings	It is an operation button that can be clicked to execute 'Export Profile'. Note: Importing Export requires pausing the stream.
Import Settings	Belongs to the operation keys, clicking can execute the import Profile. Note: Importing Export requires pausing the stream.
Recovery	Belongs to the operation keys, clicking it can recover to the last saved attribute Settings. Note: Enable multiple Settings switches for Shut Down.
Save	Belongs to the operation key, click to save the current attribute Settings. Note: Enable multiple Settings switches for Shut Down.
Multiple Settings switch true	Belongs to the Enable switch, used to control the Enable switch for multi-Settings switching.
Settings	Belongs to operation keys, click to open the multi-Settings switch setting interface. See the following introduction for details. Note: Enable multiple Settings switches for Shut Down.
"Factory Reset" is a term used to describe the process of restoring a device to its original factory settings.	It is an operation button that can be clicked to recover the current device to factory settings.
Restart	It is an operational key that can be clicked to execute a device restart.

Parameter	Explanation
More User Settings Group Settings	Load and save user Settings selectively

After clicking on "Switch Settings for Multiple Settings", a pop-up window will appear as shown in the following image, allowing you to switch between Settings.

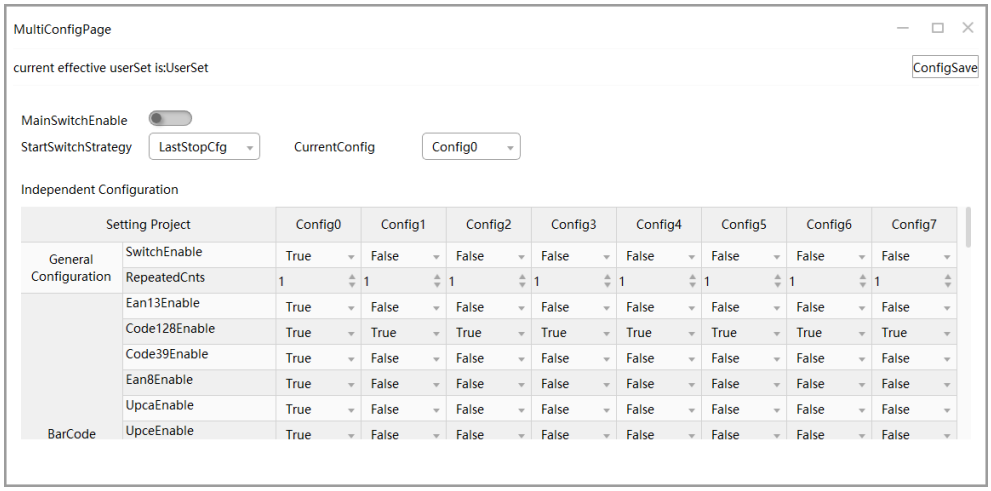


Figure2-44 Multiple Settings switch settings Interface

The pop-up window after clicking on "More User Settings Group Settings" is shown in the following image.

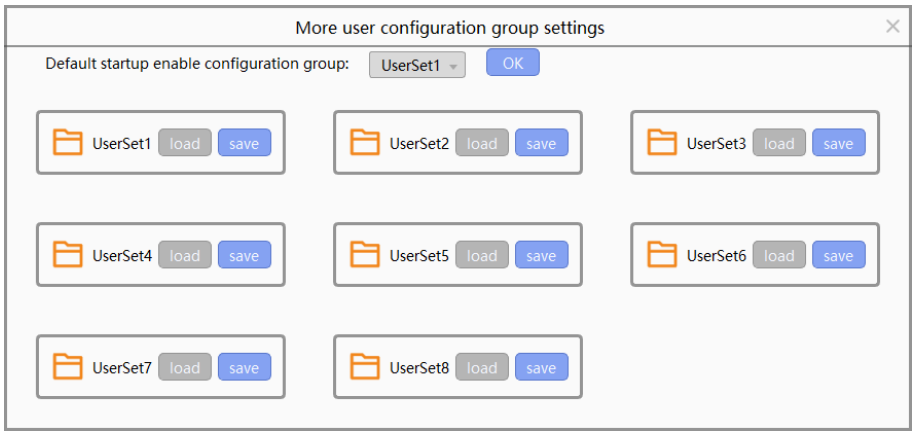


Figure2-45 More user Settings group settings

Select a Settings from the 'Default Enable Settings Group' and click Save. The following effects will occur: the current camera Settings will be set as User Settings 1, and User Settings 2 will be used as an example.

Save the current camera Settings to the current camera Settings (User Settings 1).

Load the selected camera Settings (User Settings 2) as the current camera Settings.

Set the Default Power-on Settings to the selected camera Settings (User Settings 2).

Clicking on the 'Load' button for each user Settings will load the corresponding user Settings as the current camera Settings. Clicking on the 'Save' button for each user Settings

will save the current camera Settings to the corresponding user Settings.

2.2.7 One-click training

One-Key Training is a Collect feature that combines 'Auto Focus (AF)', 'Auto Brightness', and 'Code Reading Training'. When training with a single code or multiple codes, the device automatically adjusts the Focal Length, Image Parameters, Built-in Illuminator Brightness, and Algorithm Settings to achieve the best image and decoding results. The difference between the two is that when training with a single code, a complete field of view is selected to train a code, while multiple code training can use multiple areas in the entire image to train multiple barcodes. This feature is continuously optimized and currently performs well in simple environments. If it does not meet the requirements, detailed parameter Settings can be performed.

As shown in the figure below, Area 1 is the Settings area for one-click training, and Area 2 is the display area for the training results of one-click training.

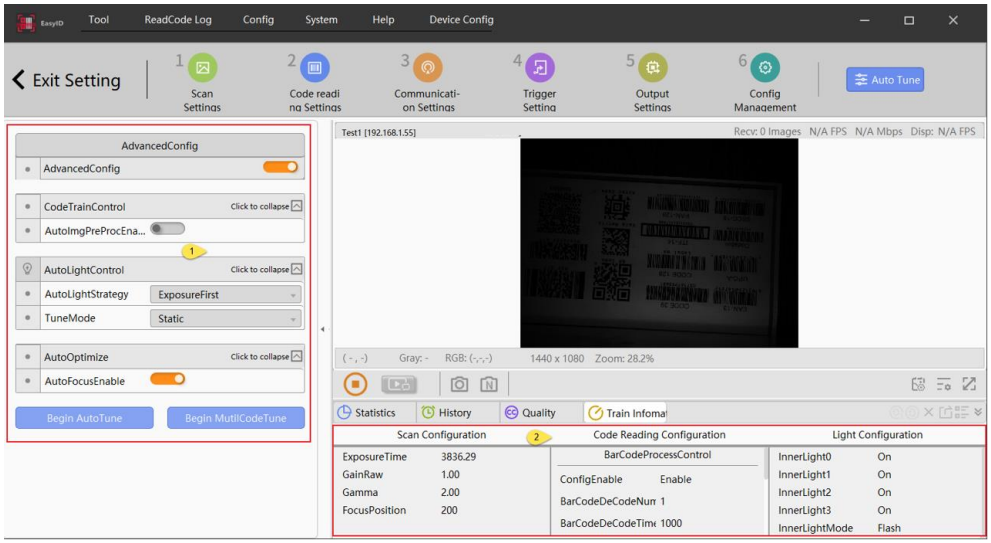


Figure2-46 One-click training Interface

Table 2-16 One-click training parameter description

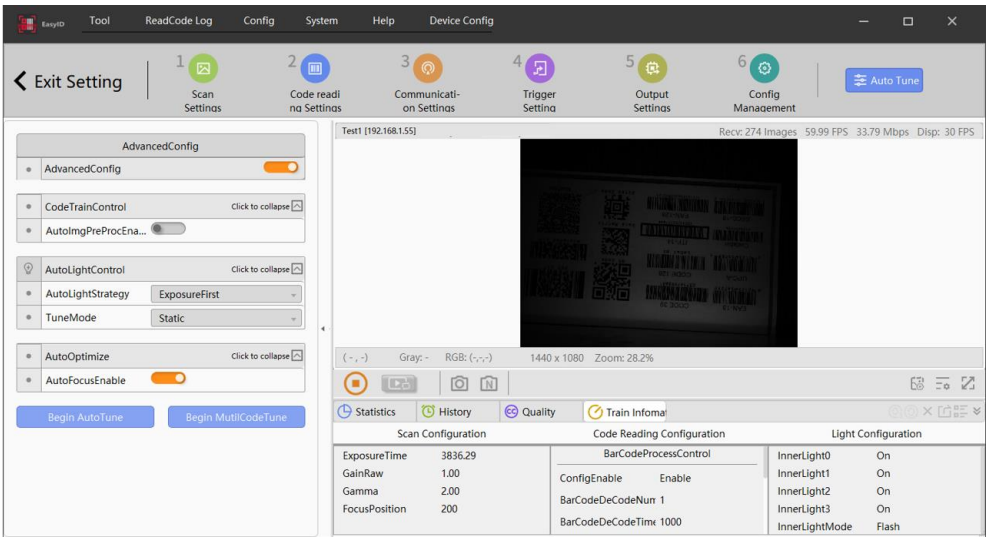
Parameter		Scope or options	Explanation
Advanced Settings	Advanced Settings Enable Switch	Y/N	Click to expand one-click training configurable parameters
Code Reading Training Settings	Preprocessing training enabled	Y/N	Enable switch, turn on Valid
Automatic Brightness Setting	Automatic Brightness Strategy	Exposure Priority/Gain Priority	Optional Items

Parameter		Scope or options	Explanation
	Brightness Training Mode	Static/Dynamic	Optional Items
	Line speed	100-3000	
	Code module Accuracy	0.08-2	
Auto Training Settings	AutoFocus Enable	Y/N	Enable switch, turn on Valid

The above Settings items take effect during single-code training and multi-code training.

Single code training

After clicking on the Single Code Training, the automatically drawn ROIArea will be shut down, and the one-click training function will be executed.



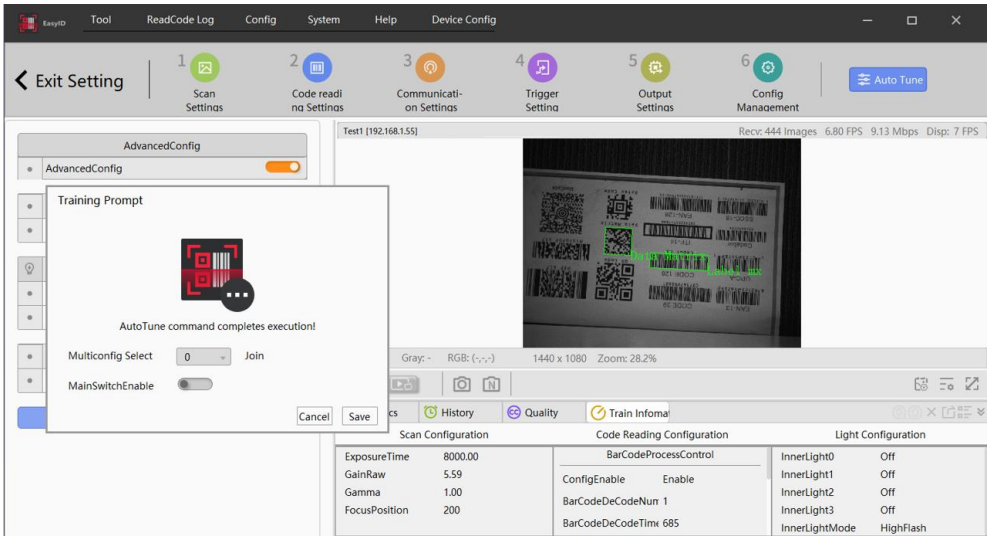


Figure2-47 Comparison of Single-Code Training Results

Multi-code training

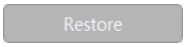
After clicking on the multi-code training, the following pop-up window will appear.

Figure2-48 Multiple Code Training Rectangle Popup

You can use the mouse to create multiple rectangles for multi-code training. The ROIArea represents a rectangular area. Press the left mouse button in the upper left corner of the code and release it in the lower right corner to create a successful rectangle. To move or resize the rectangle area, simply click the left mouse button on the rectangle area. Please refer to the following image.

Figure2-49 Rectangle Area for training

Clicking on the image will trigger AutoFocus training and automatic Brightness training. When the image brightness and definition are poor, you can first adjust the image and then draw and adjust the ROI box. 

Clicking the Clear Button will delete all the boxes. 

Clicking the OK button will trigger AutoFocus training, automatic brightness training, and code reading training within the area of the rectangle. 

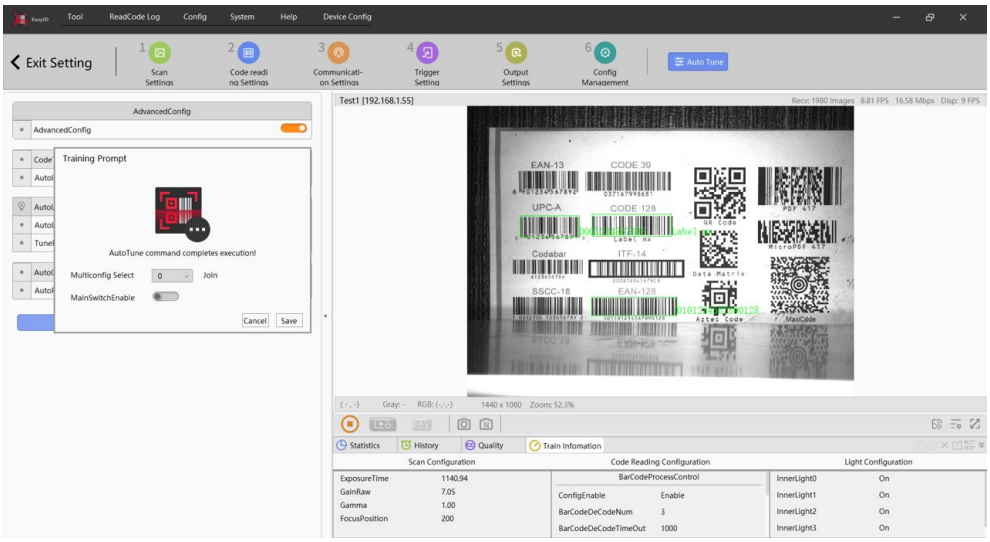


Figure2-50 Multi-code training effect diagram

2.3 Menu Bar

The EasyID software Menu Bar includes the following items:

2.3.1 Tool

The toolbar provides a 'Camera Tool' for firmware upgrade.

Camera tool instructions are as follows:

Click on 'Tools' -> 'Camera Tools' to open the interface as shown below. It mainly introduces firmware version upgrade.

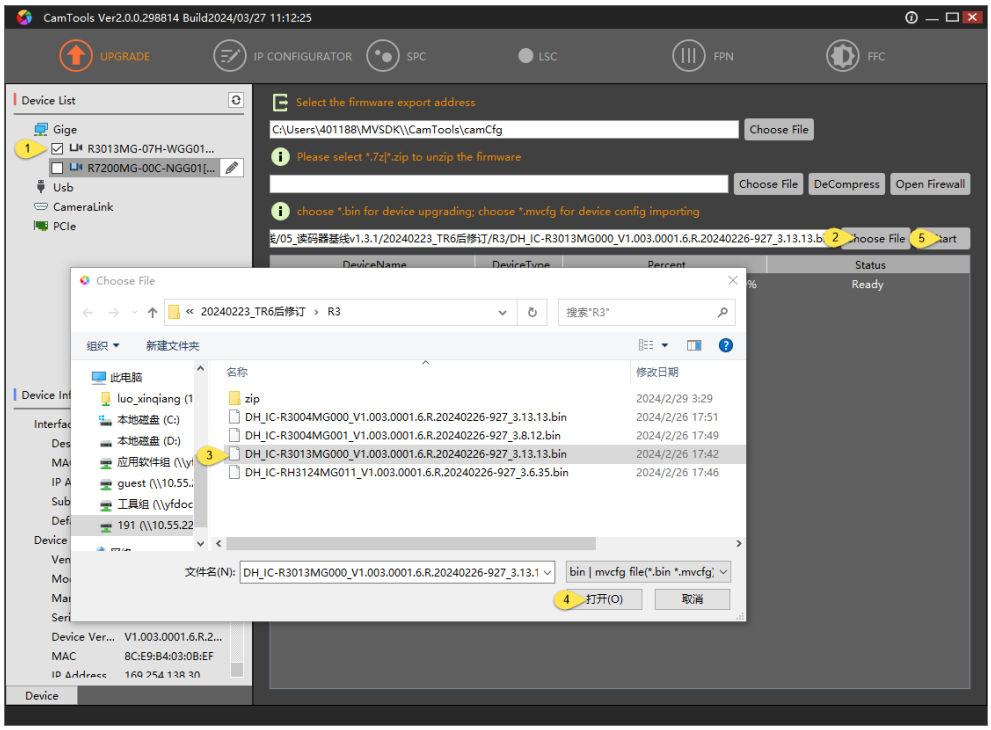


Figure2-51 Device Firmware version upgrade operation process

Select the camera that needs to be upgraded from the device list on the left side, and check the camera's IP address. Click "Select" on the right side of the Interface, and in the pop-up dialog box, find the appropriate Firmware version and import it after confirmation. Click "Start" to update the Code Reader Firmware version, as shown in the figure below.

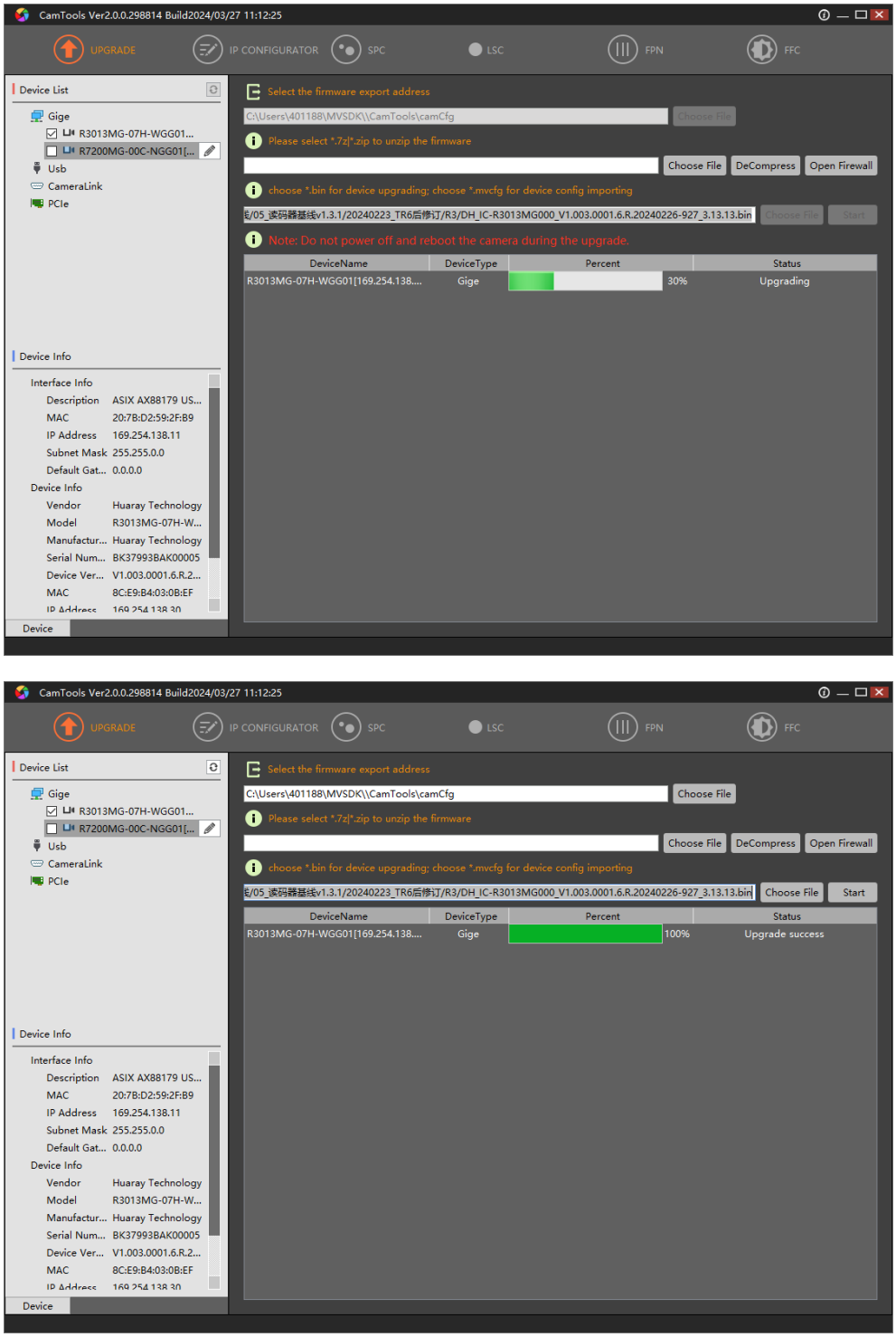


Figure2-52 Code Reader Firmware Upgrade

After the successful firmware version upgrade, the device will automatically power off and restart, returning to the EasyID main interface to view the device version information.

- When upgrading the firmware, please make sure to disconnect the camera connected to the main interface of EasyID. Otherwise, it will prompt 'connection failed'.

2.3.2 Reading code log

This feature records the work log of Code Reader. If there is a device available, you can export the log and provide the device information to technical support for assistance.

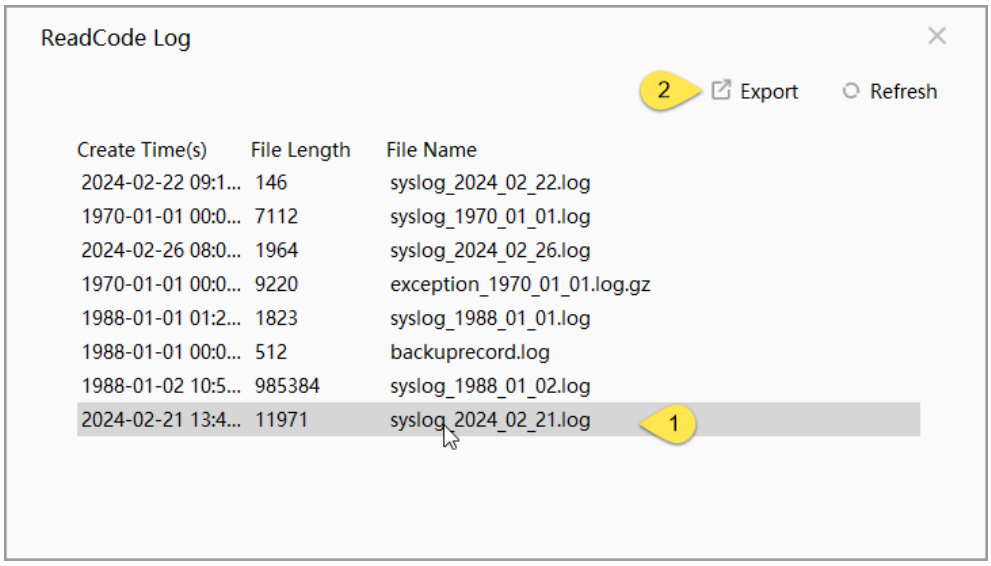


Figure2-53 Device Log Export

2.3.3 Settings

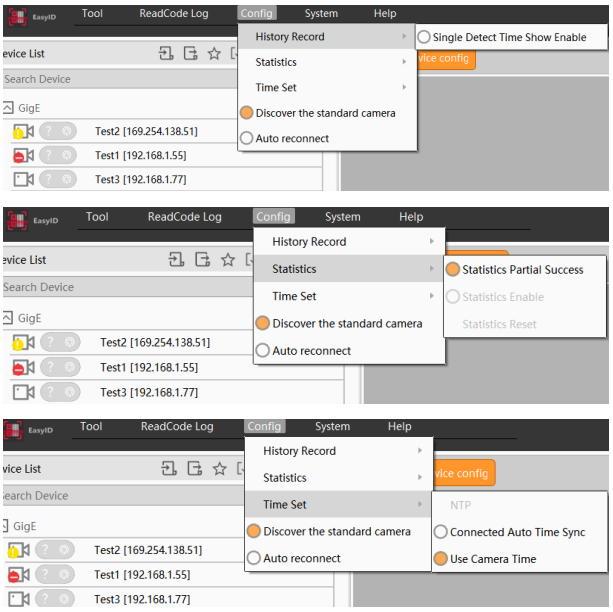


Figure2-54 Configuring Functionality Demonstration

Table 2-17 Settings Function Description

Parameter	Explanation
History Records	Enable single item time display
Statistics Information	Some barcodes are successful (when this function is not selected: if you need to read 10 barcodes and actually read 8, it is considered a failed reading), enable statistics, and clear statistics.

Time Setting	NTP is used to synchronize the camera's time with the current time after connecting.
Discover Standard Camera	Checked: Used for discovering old version cameras
Automatic Reconnection	When Enable is turned on, the camera can reconnect after disconnection.

2.3.4 System

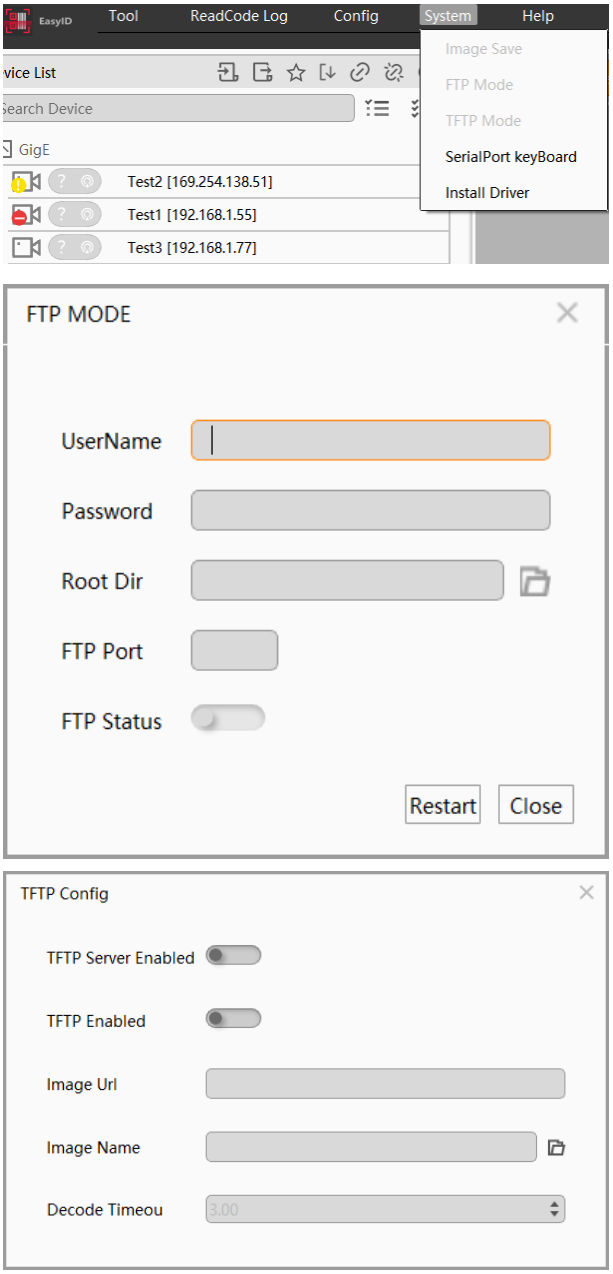


Figure2-55 Configuring Functionality Demonstration

Table 2-18 System Function Settings Description

Arguments	Explanation
Save Image	Image saving, you can save the Image based on the decoding situation, and freely set the saving path.
FTP Service	FTP service, you can use this option to start the FTP server built into Easyid. This server is usually used in conjunction with the camera's FTP image storage function. FTP image storage can save images based on different decoding states, and you can customize the image name and storage path.
TFTP Service	TFTP service, can be used to start the built-in TFTP server of Easyid. The Commissioning function has been encrypted.
Virtual Keyboard Output	Used for focusing the output or specifying the output to a specific location with the mouse.
Install driver	Installation of drivers

1.3.1.1 Save Image

'Image Save' is the most commonly used function, which can save all Decoding Images for traceability in different scenarios. In addition, for special cases where Decoding fails, the failed Decoding Images can be integrated and provided to sales or technical support for parameter adjustment guidance or algorithm optimization iteration based on the Images. The interface for Image Save is shown in the following figure:

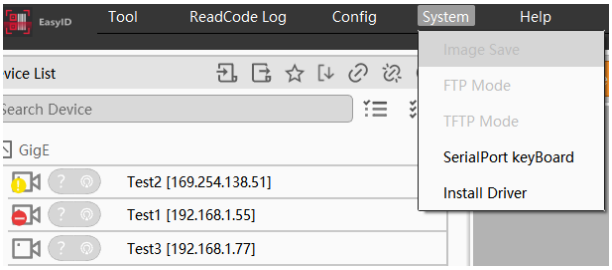


Figure2-56 Image Save Operation

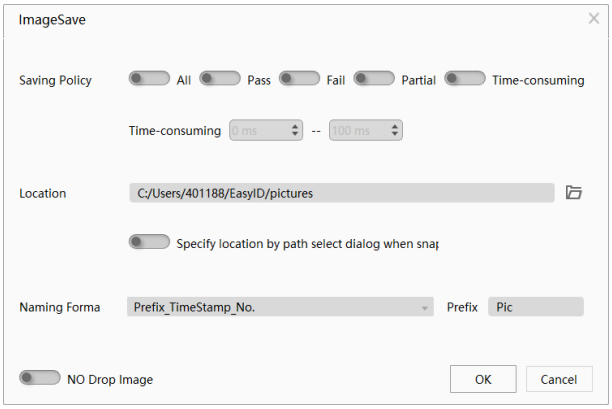


Figure2-57 Image Save Interface

Image can be saved in two formats: BMPImage and JPEGImage.

According to the selected Storage strategy, there are four strategies, including all

Images, Decoding Passed, Decoding Failed, and Partial Decoding Succeeded.

Save Image in Two Ways:

- When the Midpoint button on the control bar of the Image Display Interface is clicked, the Auto Save button is activated, and every received image will be automatically saved.
- In the Image Display Interface control bar, there is a 'Manual Save Image' button. Clicking on this button allows you to manually save an image.

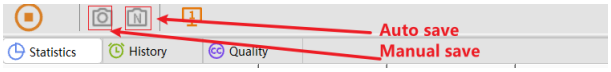


Figure2-58 Image Save Operation Button

1.3.1.2 Virtual Keyboard Output

The EasyID client comes with a Virtual Keyboard Output tool, which can be used for quickly commissioning devices.

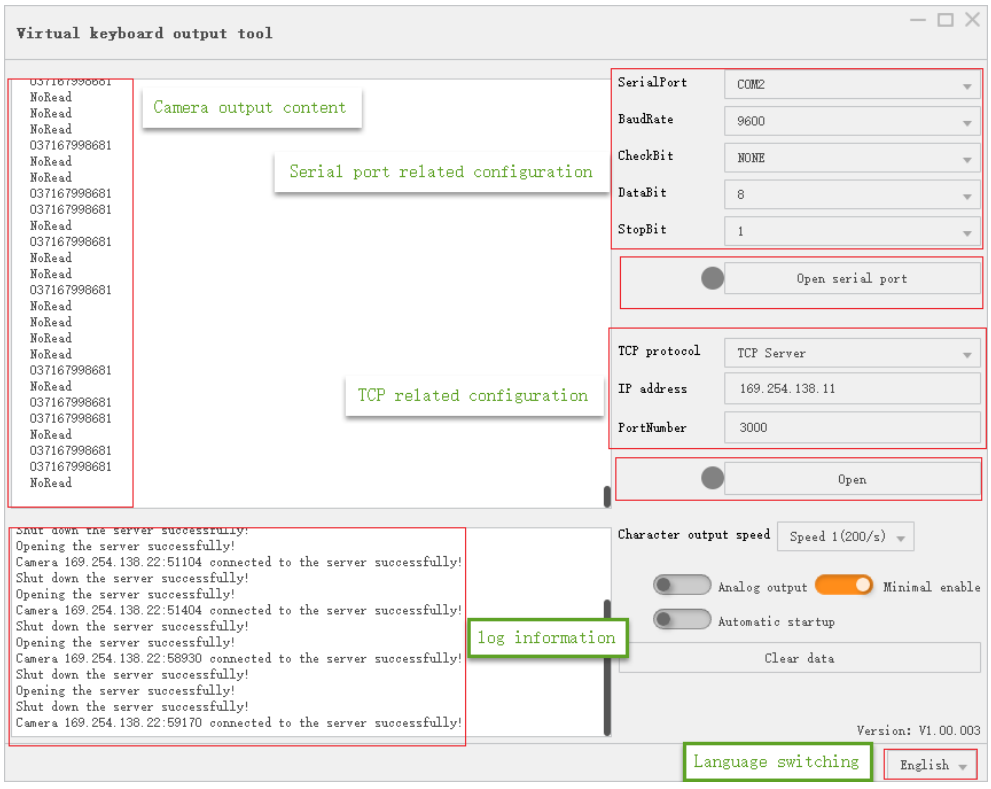


Figure2-59 Virtual Keyboard Output Tool

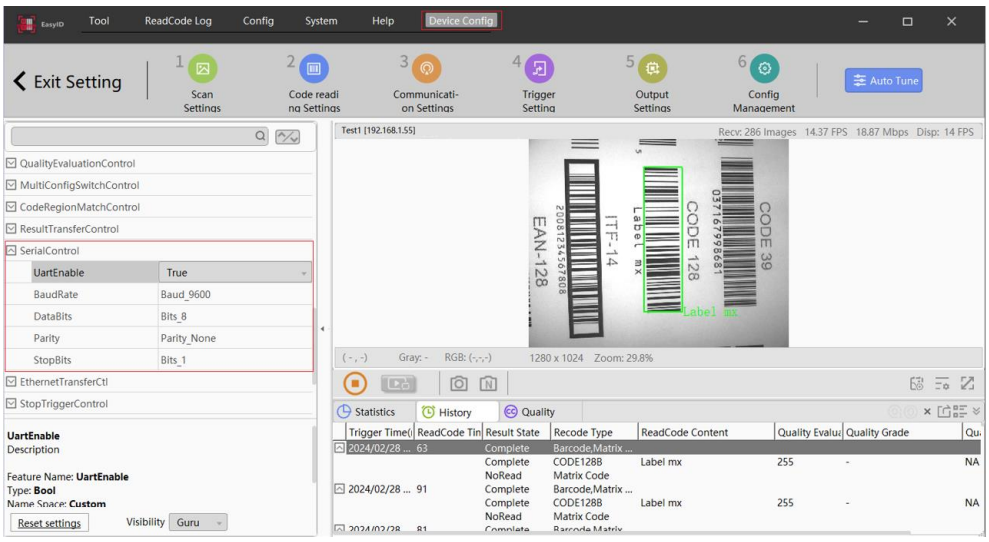
Table 2-19 Virtual Keyboard Output Tool Parameter Table

Parameter	Explanation
Serial Port Virtual Keyboard	Serial Port settings, please refer to the communication Settings section for details; 'Open Serial Port' is a toggle button used to enable the Virtual Keyboard using the Serial Port method.

Ethernet Virtual Keyboard	Network port settings, refer to the communication Settings section for details; 'Link' is a toggle button, using the network port to operate the virtual keyboard.
Character Output Speed	5 levels of optional speed: Speed 1 (200/sec) / Speed 2 (250/sec) / Speed 3 (330/sec) / Speed 4 (500/sec) / Speed 5 (1000/sec); Prefer low-speed transmission for robust design, provided that the requirements are met.
Analog Output	Switch on to enable the Virtual Keyboard Output feature.
Minimize Enable	Toggle the switch to enable the minimize function;
Enable auto-start on boot	Switch on to enable the auto-start function at boot;
Clear data	Press the button to clear and display the data.
Language Switch	Interface language, divided into two options: Chinese and English.
Display Bar	The left side is the display bar used for content display.

1. Serial Port Analog

- Please refer to the link provided to confirm the RX Port Serial Port number for Wire.
- Enter EasyID -> 'Single Device Settings' -> 'Full Attribute Parameter' -> 'Serial Port Settings', check 'Serial Port Communication Enable' and set Serial Port Parameter as needed.
- Enter EasyID -> 'Single Device Settings' -> 'Full Attribute Parameter' -> 'Result Transmission Settings', select 'Transmission Mode' as 'Serial Port Result Packaging' in 'Result Transmission Settings', configure 'Result Output Settings' as shown in the following figure:



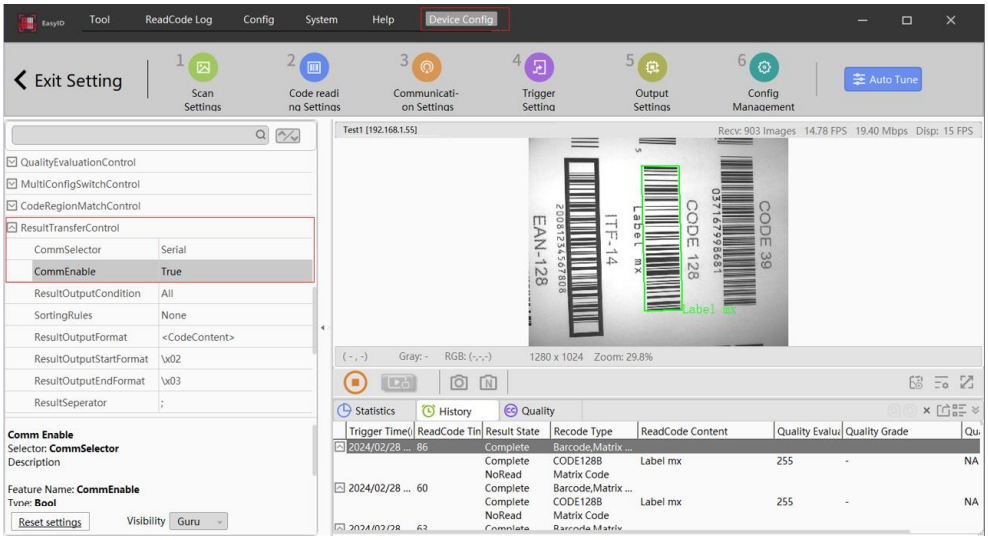


Figure2-60 EasyID Client Serial Port Settings

➢ Enter the 'Virtual Keyboard Output Tool', select the Serial Port number, check the Serial Port Settings parameters, and click 'Open Serial Port' after confirming that they are correct. When the device recognizes the code, the output data will be displayed in the left display column, as shown in the figure below:

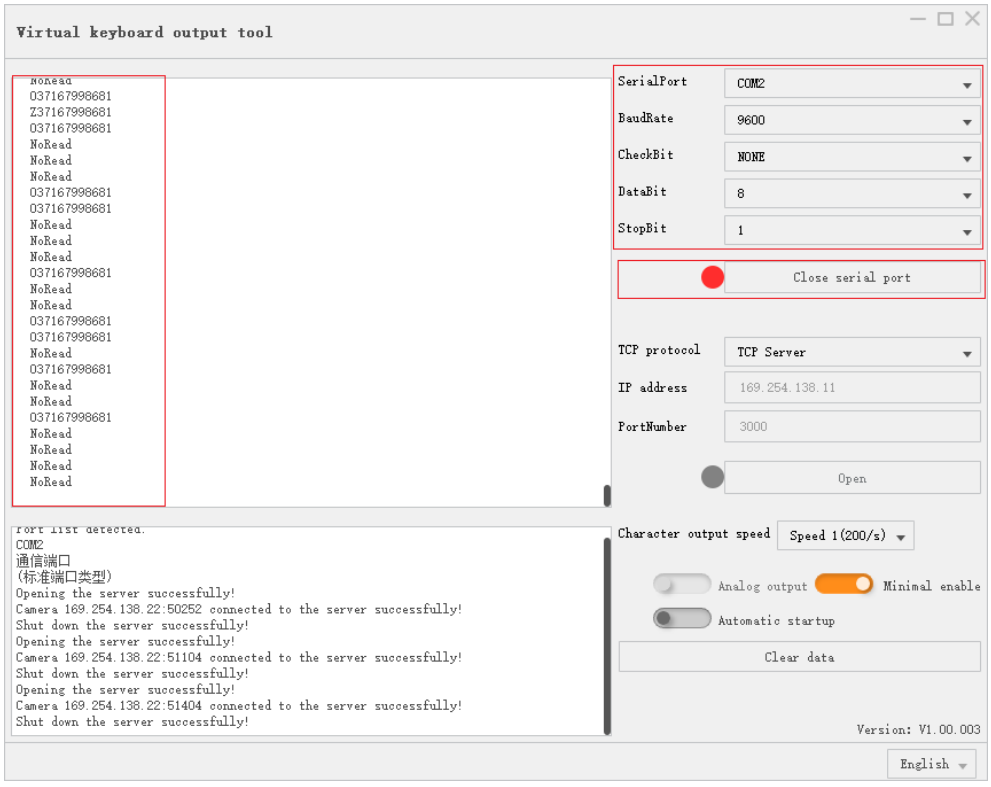


Figure2-61 Serial Port Transmission Result

- Please make sure to check the Parameter settings of the client and Output tool to ensure that the data on both sides are completely consistent. Otherwise, there may be issues such as the Serial Port not being connected or Garbled Code.

2. TCP Service Settings: Code Reader supports both TCP Client and TCP Server simultaneously.

As an example, let's set up a TCP client using Code Reader, similar to serial communication as shown in the following diagram.

➢ Enter EasyID -> 'Single Device Settings' -> 'Full Attribute Parameter' -> 'EthernetTransferCtl', check 'Transmission Enable', set Code Reader to 'TCPClient', set TCPPort and enter TCPServerAddress;

➢ Enter EasyID -> 'Single Device Settings' -> 'Full Attribute Parameter' -> 'Result Transmission Settings', select 'TCP Result Packaging' as the transmission method in 'Result Transmission Settings', configure 'Result Output Settings', check 'Result Packaging Enable', and set the parameter values below as needed.

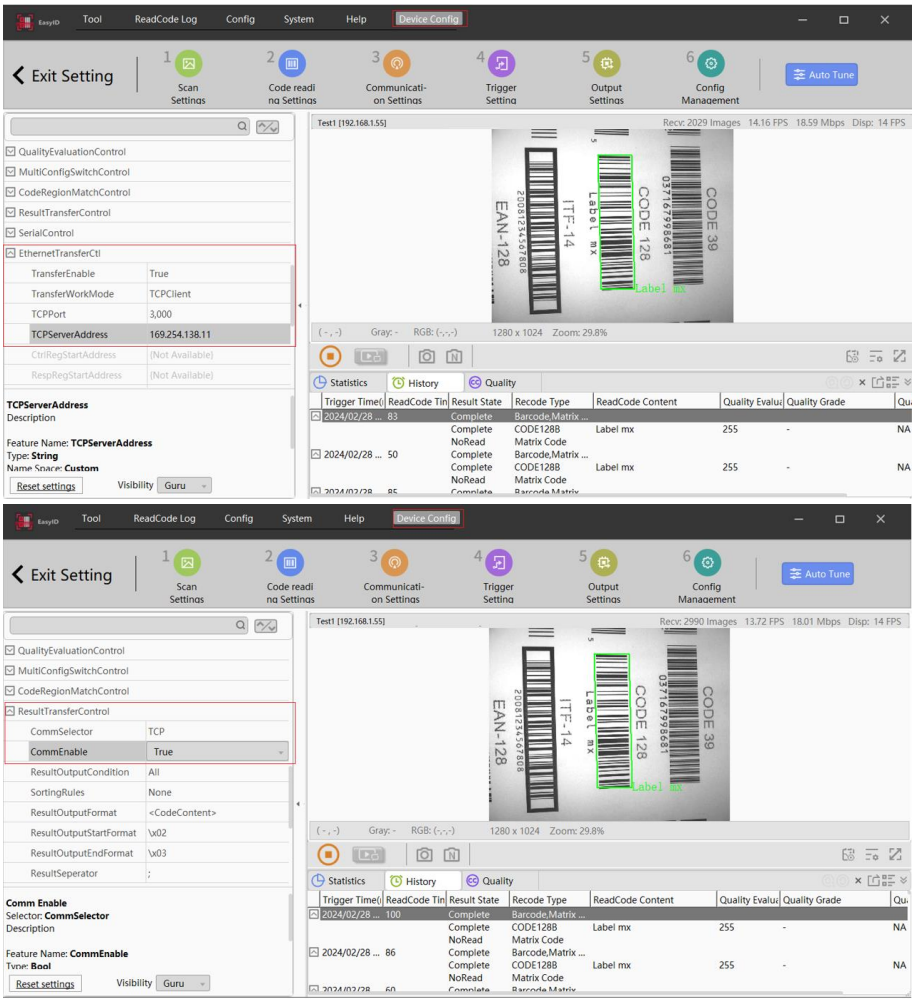


Figure2-62 EasyID Client TCP Settings

➢ Enter the 'Virtual Keyboard Output Tool' and select 'TCP Protocol' as 'TCP Server'. Make sure the 'TCP Port' is set and click 'Open' below. When the device recognition is complete, the output data will be displayed in the left display column, as shown in the figure below:

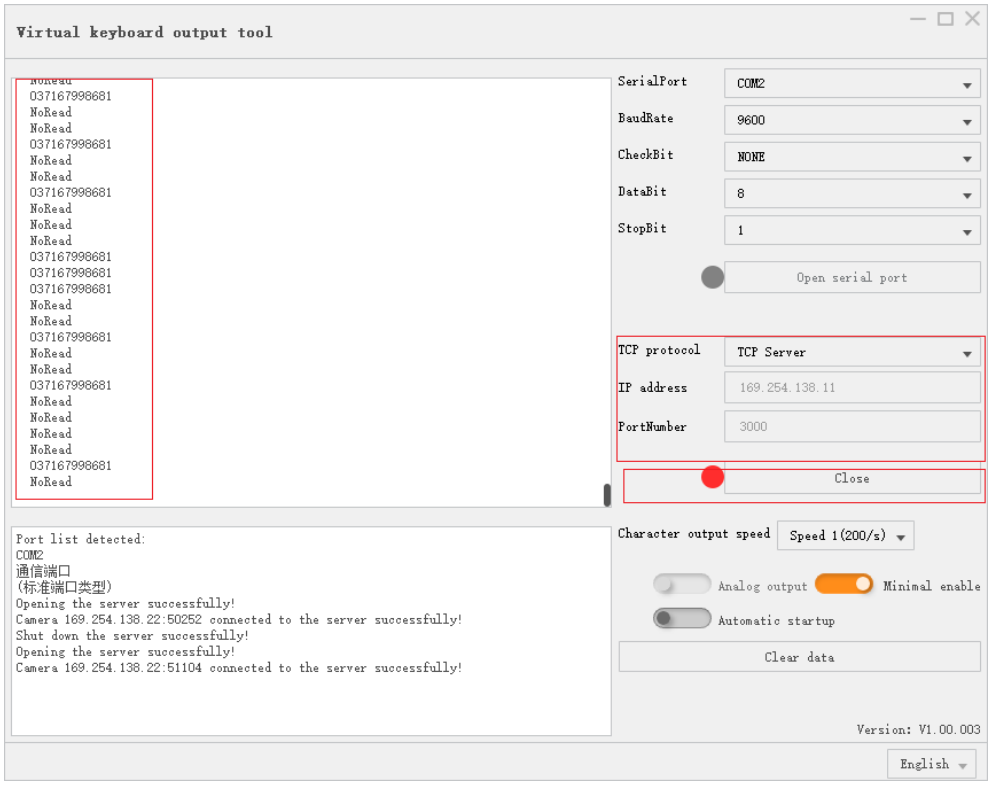


Figure2-63 TCPTransmission Result

2.3.5 Help

Table 2-20 Menu Bar Help Instructions

Parameter	Scope or options	Explanation
Enable auto-start on boot	/	Check this option to enable automatic startup with the system.
Language	/	Switch between Chinese and English
Help Document	/	Click to view the instructions for using the software in plain text format.
About	/	View client version information and development unit information

- The results of the Algorithm can be displayed in the form of a List on the results Interface.
- Click the Export Results button to export the results to a text file.

- Setting result filtering allows you to display selected results.

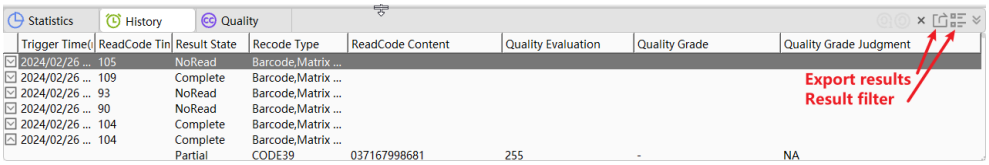


Figure2-64 Algorithm results displayed

When DecodeMode is enabled, open Enable Statistics. The relevant statistics information can be displayed in the Statistics Information Interface. Clicking on Clear Statistics will reset the statistics information and start counting again.

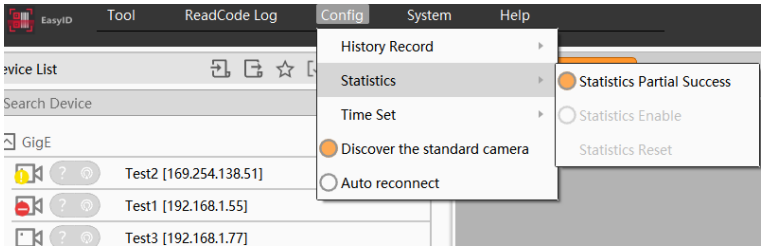


Figure2-65 Statistical operations

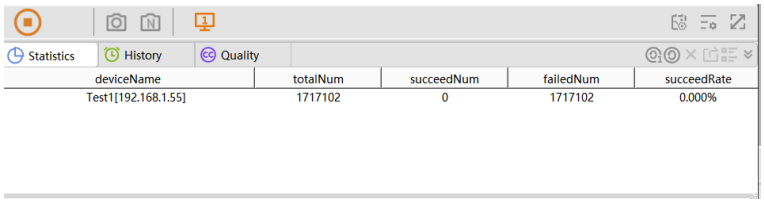


Figure2-66 Statistics Information Interface Display