CamGuide User Manual

CREVIS SDK for GigE/USB Interface Camera

Contents

1. Preparation

1.1 PC Specifications(VGA/ 1EA Standard)

① **GigE Interface**

- ▶ CPU : over Intel Core 2 Duo, 2.4GHz
- ▶ RAM : over 2GB
- ▶ O/S : over Windows XP(32bit/64bit)
- ▶ LAN Card : over Intel PRO/1000xT
- ▶ VGA : PCI x 16, over VRAM DDR2 RAM 256MB

② **USB Interface**

- ▶ CPU : over Intel Core 2 Duo, 1.6GHz
- ▶ RAM : over 2GB
- ▶ O/S : over Windows XP (32bit/64bit)
- ▶ USB Port : at least 1 or more USB2.0 Port

1.2 General Considerations

① **GigE Interface**

- ▶ CREVIS GigE Camera
- ▶ CREVIS Mcam40(SDK)

  The SDK provided by CREVIS must be installed on user's PC to use the CREVIS GigE Camera. SDK is available for download at the link below

  http://www.crevis.co.kr/kor/support/download/MCam40_SDK.zip
- ▶ CAT5E network cable or higher performance
- ▶ Camera Power Cable

  12V Voltage is required to operate the CREVIS GigE Camera.

  The Camera cable must be purchased separately

  When using the PoE module, no extra power cable is required.

② **USB Interface**

- ▶ CREVIS USB Camera
- ▶ CREVIS Mcam40(SDK)

  The SDK provided by CREVIS must be installed on user's PC to use the CREVIS GigE Camera. SDK is available for download at the link below.

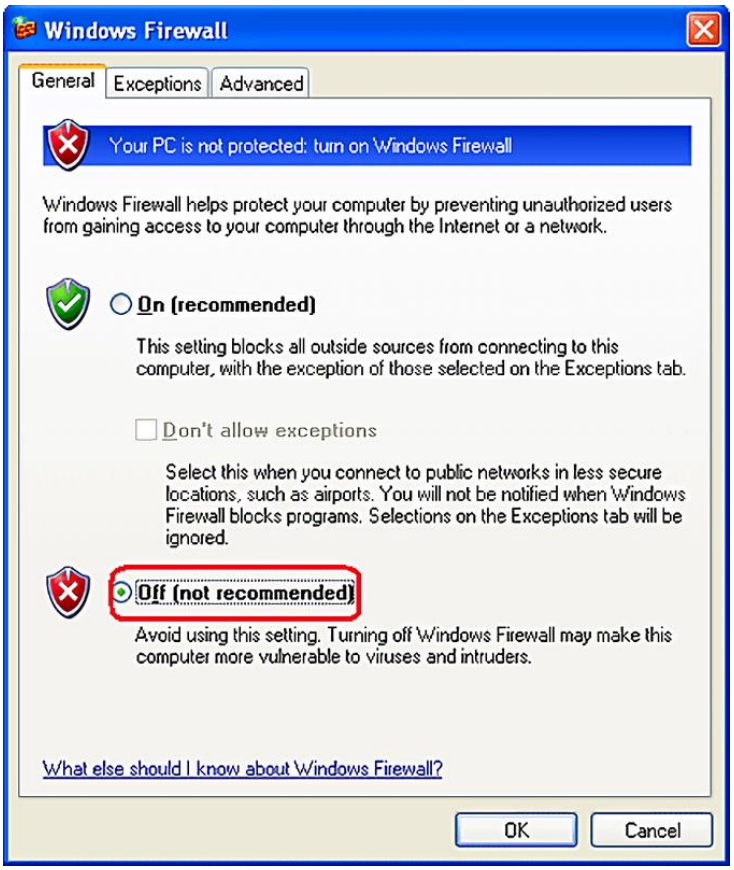
  http://www.crevis.co.kr/kor/support/download/MCam40_SDK.zip
- ▶ Mini-B type USB cable or 12pin power cable

1.3 Window Firewall or Anti-Virus

- ▶ For reliable packet transmission and connection of the CREVIS GigE Camera, the windows firewall and anti-virus programs must be set as disabled or as exception
- ▶ Windows Firewall Setting

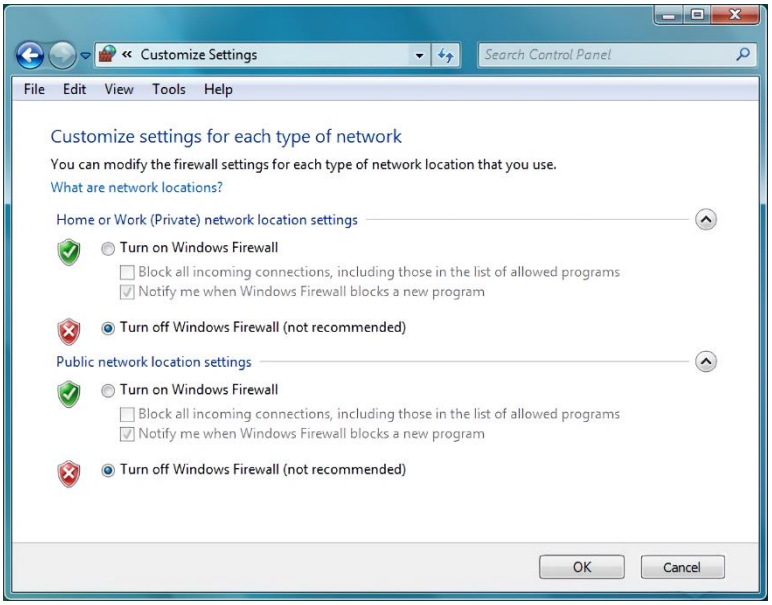
① **Windows** XP

Start → Control Panel → Security Center → Windows Firewall → Windows Firewall on or off → Turn off Windows Firewall



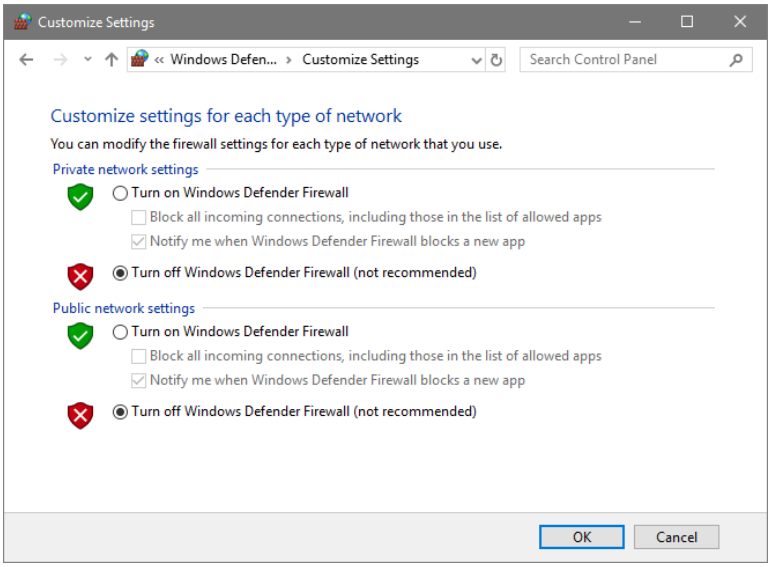
② **Windows 7**

Start → Control Panel → Windows Firewall→ Windows Firewall on or off



③ **Window 8, 8.1, 10**

Start→ Control Panel → Windows Defender Firewall→ Windows Defender Fire on or off



1.4 Precautions on Using Cameras

① Operating Temperature : 0~40°C

▶ Keep the ambient temperature constant as the data output values may vary with the ambient temperature changes.

④ For GigE Interface Cameras, a cooling measure to dissipate heat must be devised. (To prevent thermal problems)

② Caution about Leakage and Moisture

▶ The product itself does not have water-proof features, so be careful not to get exposed to excessive moisture

③ Ventilation

▶ Due to the high power consumption, make sure that you maintain a well-ventilated environment without sealing around the product or interrupting airflow.

④ Product performance may vary depending on cable characteristics.

⑤ Caution about CPU usage. The high CPU usage of the PC is possible to lose the packet.

⑥ Bandwidth issues may occur when connecting two or more cameras to one port through ethernet hub.

⑦ Using ethernet hub can cause IP setting problems, Packet Loss, and other errors.

▶ When using multiple cameras, it is recommended to connect one camera per a port by using a multiple port network card.

⑧ UDP does not guarantee data transfer.
To avoid exceeding the bandwidth, It is important to set features such as the packet size, packet delay, etc.

⑨ To apply the filter driver in a Window 7~ 10 environment, you must run it with administrator privileges.

⑩ The largest packet size is recommended to reduce packet loss. However, if the packet size is set higher than the jumbo packets (jumbo frames), that you set on the network card, you can lose packets .

#If you set the Jumbo frames to 9016, Packet Size is recommended: 8192

⑪ LED indicator

▶ Make sure that the rear LED is connected properly before using the CamGuide and MVIPConfig.

Power Connected	**Connecting ethernet Cable (Setting IP)**	**Connection Successful (Wait for image acquisition)**	**Image acquisition in progress (Top LED flashing) / Trigger waiting (Top LED: On)**
			

2. Installation Guide

2.1 MCam40 Installation

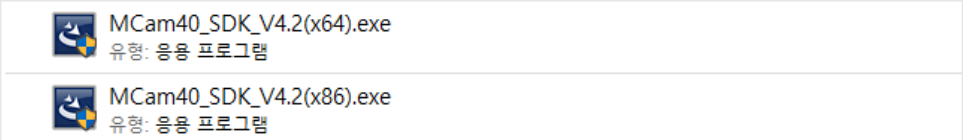
① Remove all cameras connected to the PC

② Close all Windows-based programs on a PC

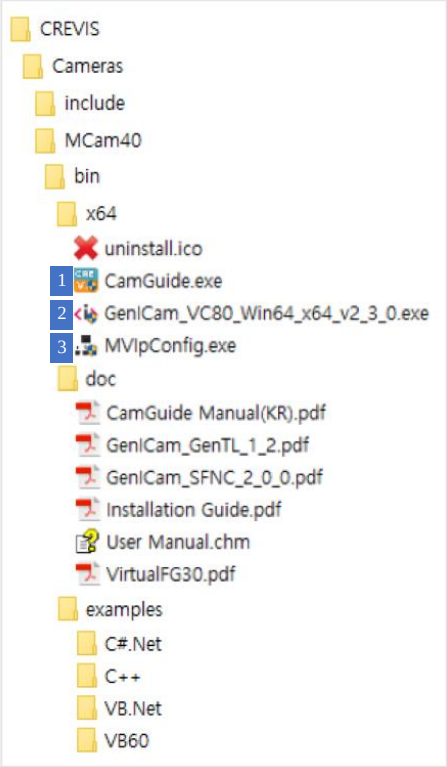
③ Reboot the PC after installation of Mcam40

▶ Download Link : http://www.crevis.co.kr/kor/support/download/MCam40_SDK.zip

▶ MCam40 Difference of Installation file (x64, x86)



- MCam40_SDK_V4.2(x64).exe : SDK Installation file for 64-bit operating system
- MCam40_SDK_V4.2(x86).exe : SDK Installation file for 32-bit operating system



1 CamGuide : CamGuide Executable File

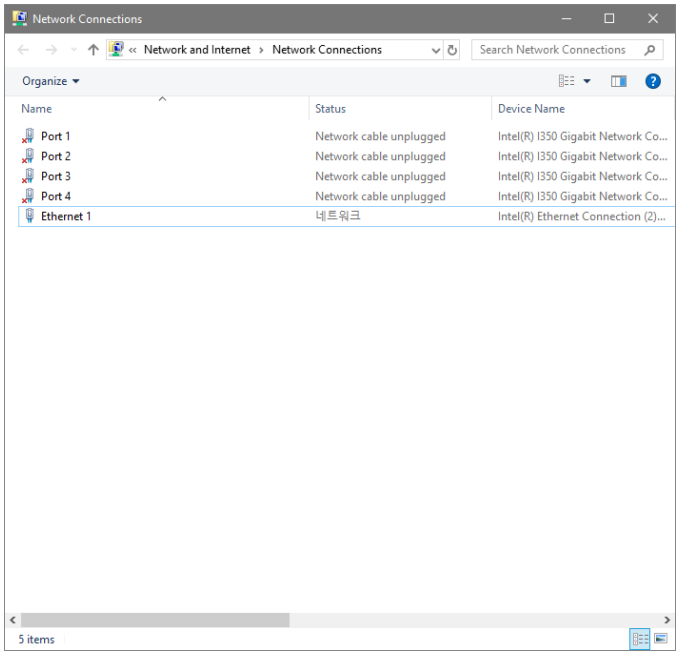
2 GeniCam_VC80 : GeniCam Installation File

(Installed automatically When MCam40 SDK is installed)

3 MVIPConfig : Camera IP Setup Program

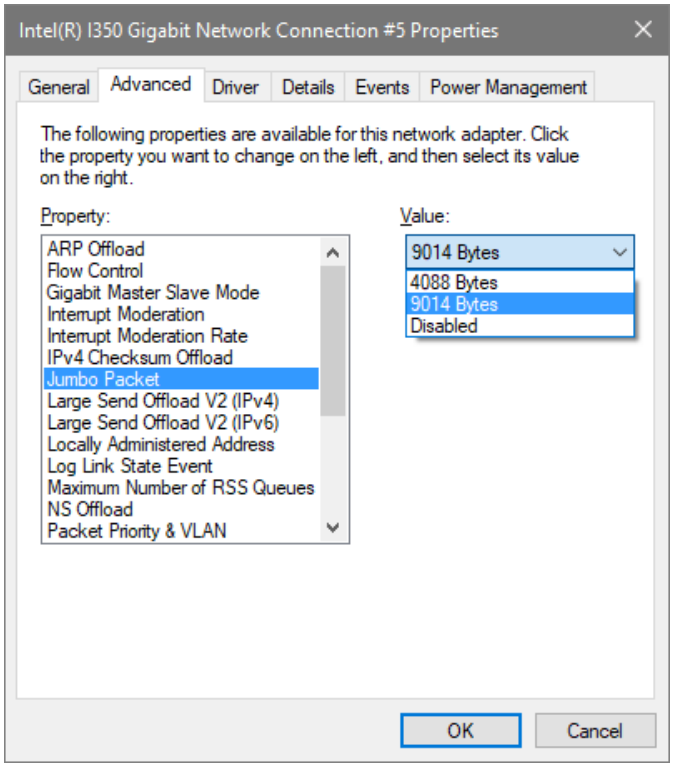
2.2 Network Configuration

① Set the networks you are not using to Disabled for reliable communication between your camera and PC



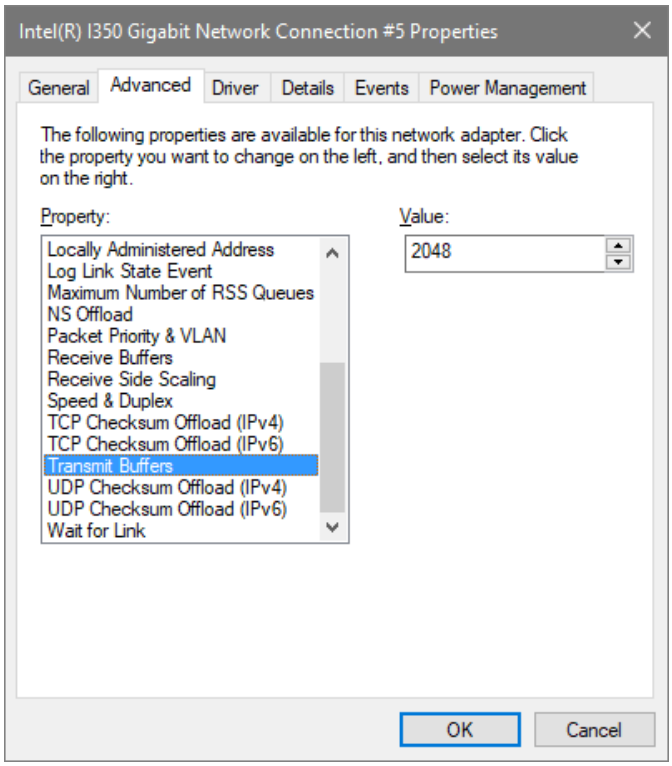
② control Panel → Network and Sharing Center→ Network Adapter → Properties → Advanced

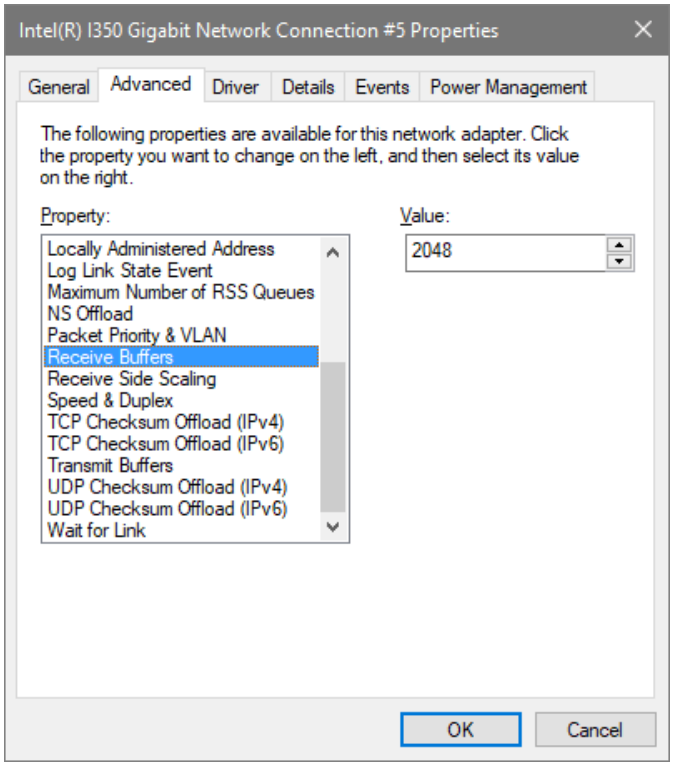
Set Jumbo Packet to maximum size



③ Control Panel → Network and Sharing Center → Network Adapter → Properties → Advanced

Set Transmit Buffers, Receive Buffers to maximum size

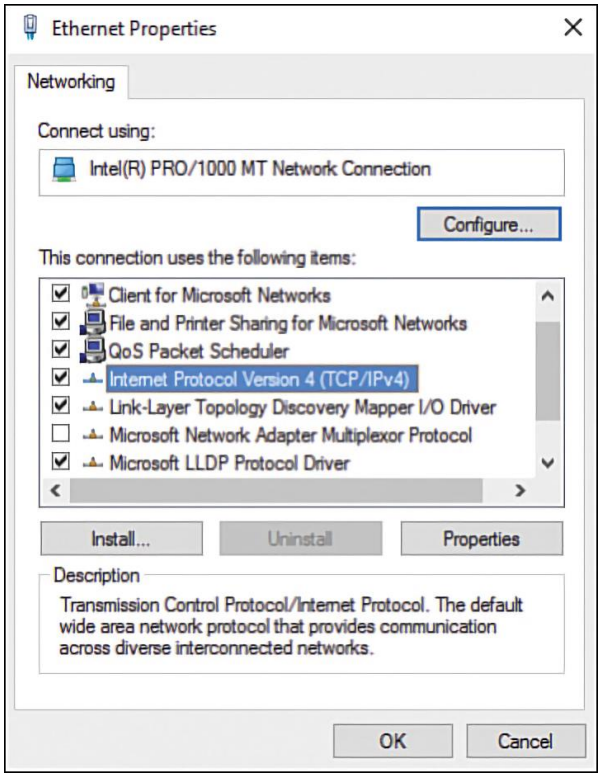


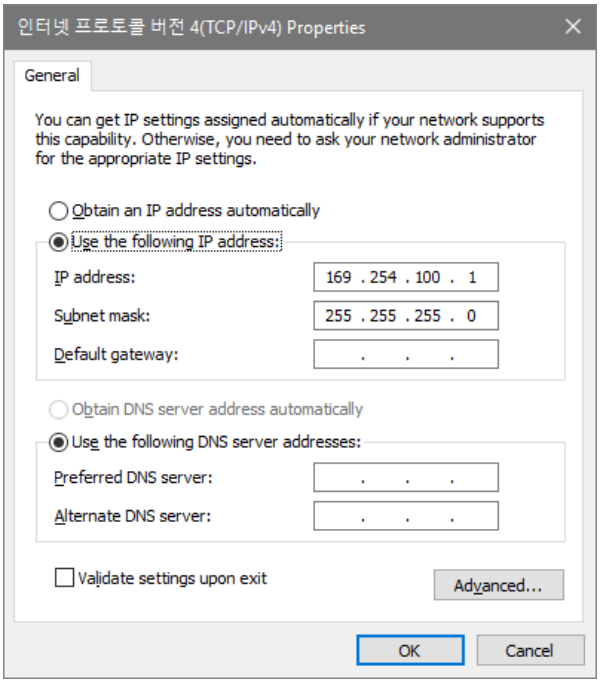


2.3 Network Adapter IP Setup

① Set network adapter IP by Windows Control Panel

Control Panel → Network and Sharing Center → Change Adapter Settings → Local Area Connection Properties → Internet Protocol Version 4(TCP/IPv4) Properties

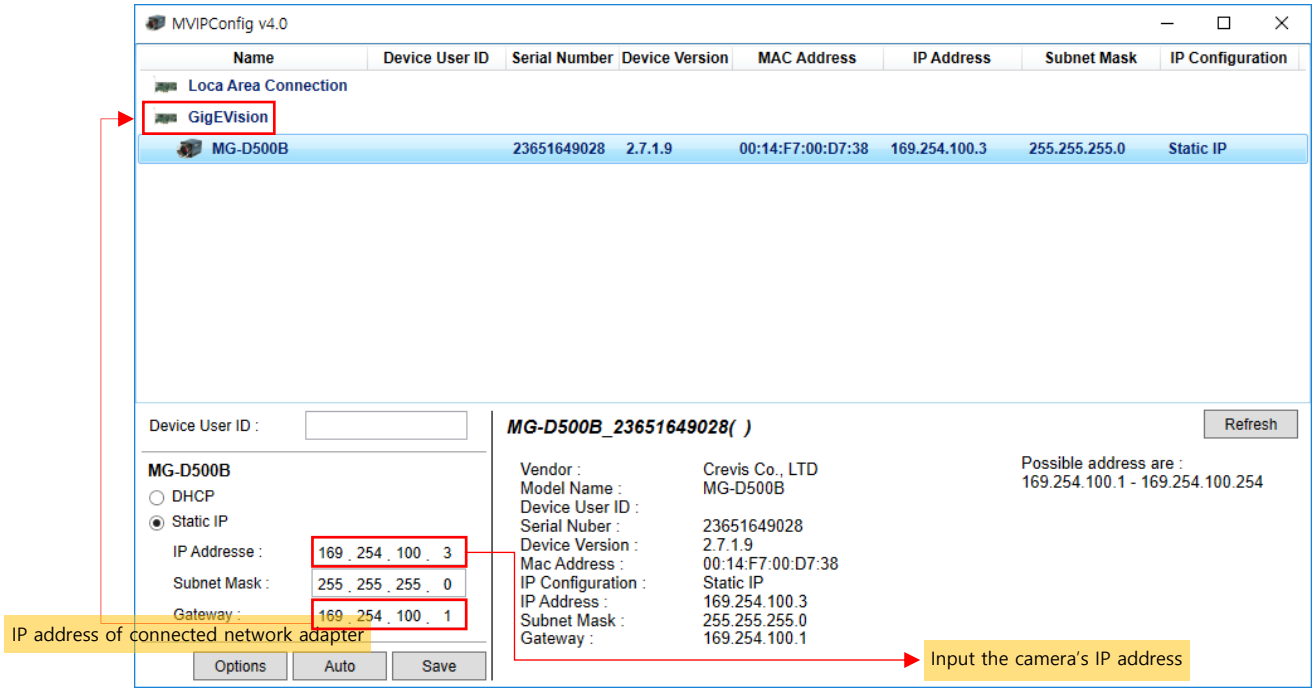




2.4 MVIPconfig Instruction

Start → All programs → CREVIS → MCam40 → Execute MVIPConfig

**For a detailed description of setting up MVIPConfig, please refer to the additional manual.*



① IP Setting

▶ DHCP Setting

- Select the Camera to set up
- Select the DHCP Radio Button
- Click Save Button

▶ Static IP Setting

- Select the camera to set up
- Select Static IP Radio Button
- Enter IP Address, Subnet Mask

***IP Setup requires users to observe the subnet mask's combination rules.**

(Ex: Subnet Mask=255.255.255.0, Enter the IP address until the third zone correctly)

- Click Save Button

② Camera Status Classification

Icon	Status Classification
	Openable state
	Cannot open due to different Subnet Mask combination rule
	The camera is already open, so it cannot be open

③ Example of multiple cameras connecting to mulitiple ports as peer-to-peer.

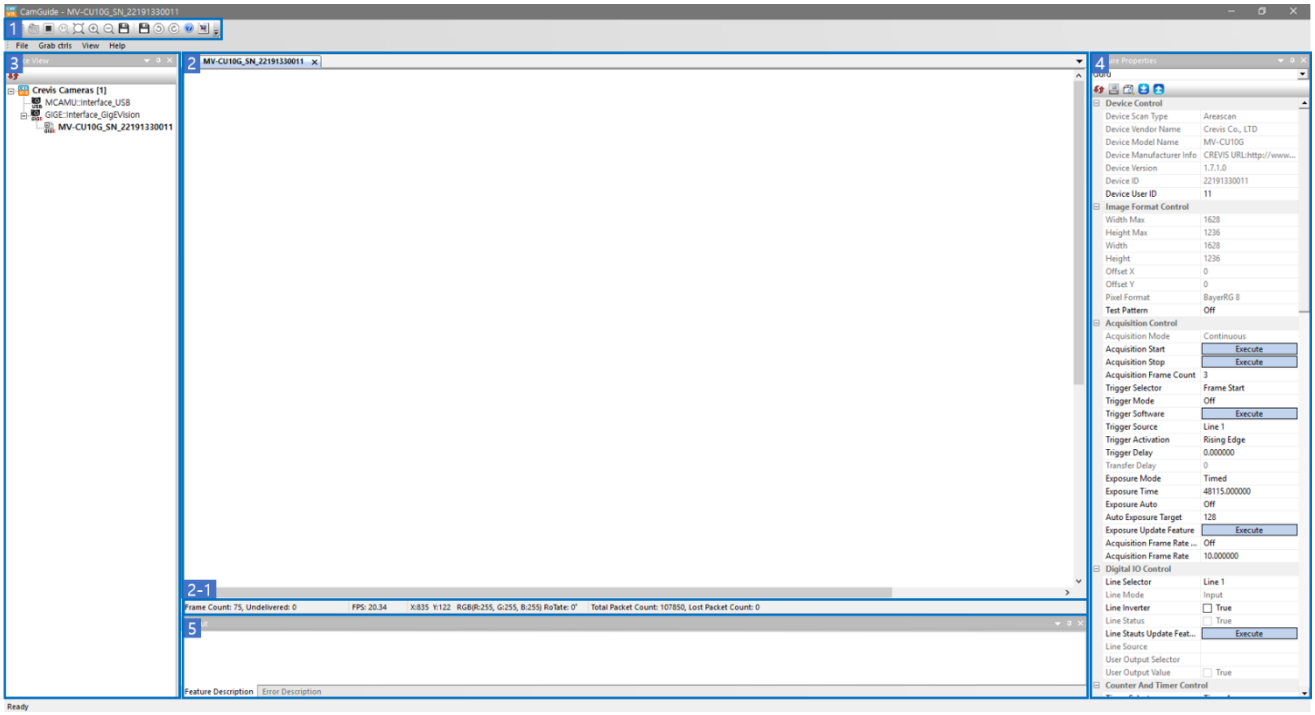
▶ Each camera should have own IP address that does not overlap

Subnet A	IP Address	Subnet Mask	Gateway
Network adapter 1	169.254.100.1	255.255.255.0	-
Camera 1	169.254.100.2	255.255.255.0	169.254.100.1

Subnet B	IP Address	Subnet Mask	Gateway
Network adapter 2	169.254.200.1	255.255.255.0	-
Camera 2	169.254.200.2	255.255.255.0	169.254.200.1

Subnet C	IP Address	Subnet Mask	Gateway
Network adapter 3	169.254.300.1	255.255.255.0	-
Camera 3	169.254.300.2	255.255.255.0	169.254.300.1

3. CamGuide UI Introduction



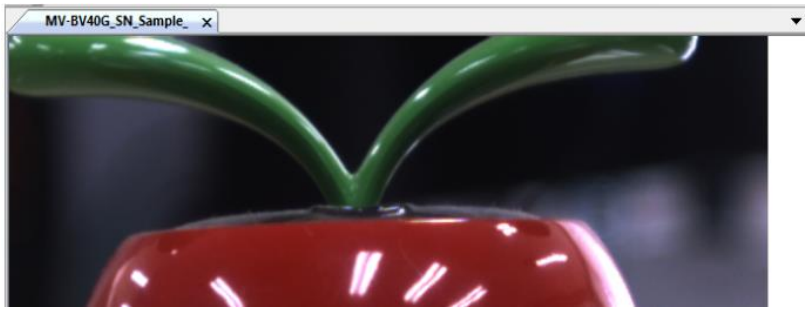
1 Menu

Icon	Category	Description
	Grab Continuous	Acquire image continuously
	S/W Grab Continuous	Acquire image continuously with software trigger mode
	Stop	Stop to acquire image
	Zoom-in	Zoom-in the image
	Zoom-out	Zoom-out the image
	Zoom Fit	Display image fit to screen size
	Zoom 1:1	Display image in actual size.
	Save Image (Display)	Save the image currently showing.
	Save Image (Receive)	Save the image acquired
	Rotate Left	Rotate the image 90 degrees to the left
	Rotate Right	Rotate the image 90 degrees to the right
	Information	Displays a pop-up window for program information
	No Display	Acquire image data, but is not visible on the screen

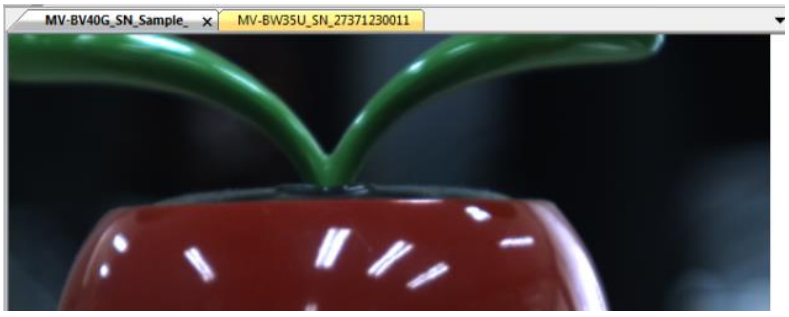
2 Display Area

- ▶ It is an area to show image
- ▶ Images can be displayed in various ways as below.

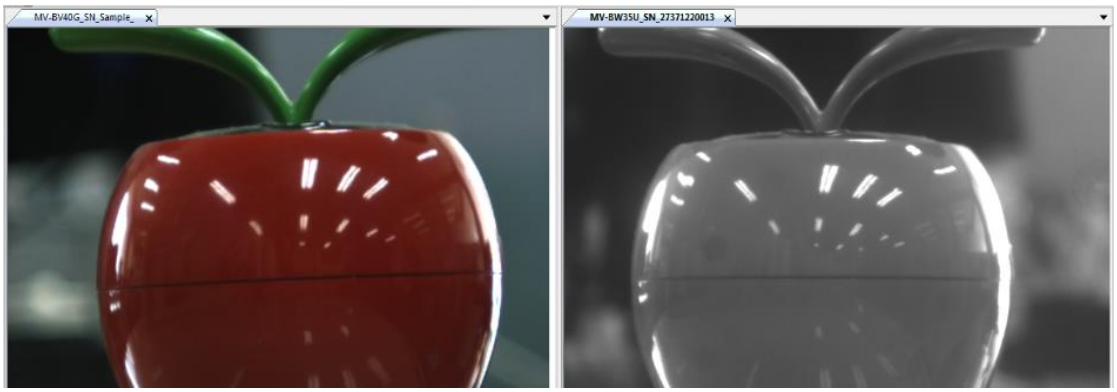
① Single Tab



② Multi Tab



③ Dual Tab



2-1 Status Bar

① **Frame Count** : Number of images acquired

② **Undelivered** : Number of images not delivered to PC.

③ **FPS** : Number of images acquired per second

④ **X:nnn Y:nnn** : Coordinate Value of current mouse locating

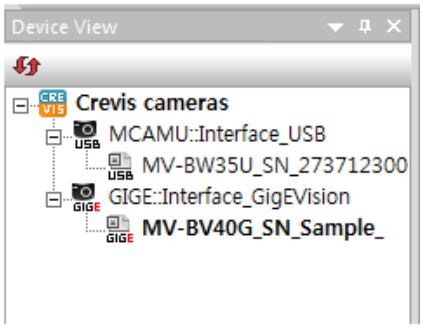
⑤ **RGB(R:nnn, G:nnn,** B:nnn) : RGB value for the current mouse coordinate(0~255)

⑥ **Rotate: n˚** : Rotated angle of displayed image (0˚~360˚)

⑦ **Total Packet Count :** Number of received packets.

⑧ **Lost Packet Count :** Number of lost packets.

3 Device View



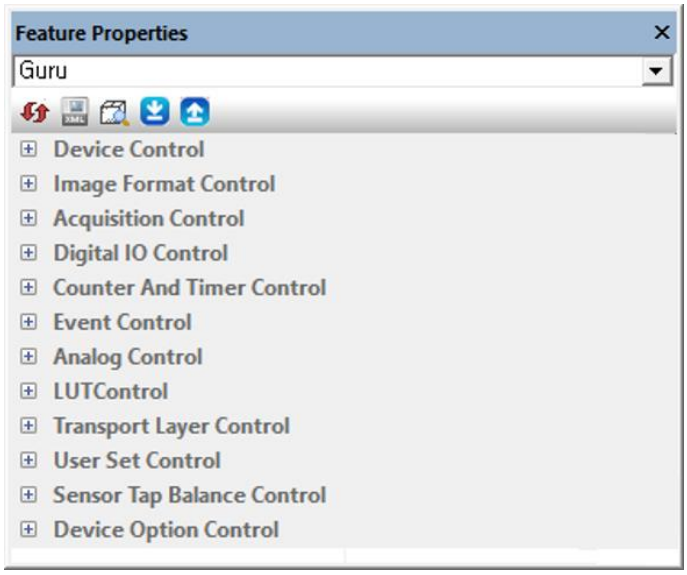
▶ Show a list of cameras connected to computer

▶ You can check the camera model name and serial number

▶ The camera status can be checked with an icon

Icon	Category	Description
	Available	The camera is connected properly
	Setting Error	IP Address, Subnet Mask, Gateway Settings are not correct
	Unavailable	The camera is already opened somewhere else

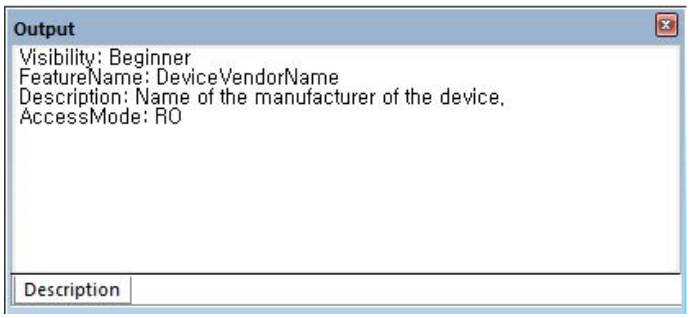
4 Feature Properties



▶ Display information and function settings for the camera.

▶ By adjusting the camera's function settings, you can obtain images in your own way.

5 Output Window



▶It shows a description of the selected function in the Feature Properties area.

4. CamGuide Features

▶ This manual covers only the key features. Please refer to the GenICam_SFNC document for other items that are not included.

▶ **GenICam_SFNC** Document Location : *"Start - All Programs – CREVIS - MCam40 – Doc"*

4.1 Device Control

- Device Control features provide general information and control for the camera.

Device Control	
Device Scan Type	Areascan
Device Vendor Name	Crevis Co., LTD
Device Model Name	MG-D130C
Device Manufacturer Info	CREVIS URL:http://www.crevis.co.kr
Device Version	2.4.1.3
Device ID	236215C9013
Device User ID	

① **Device Scan Type** : Scan type of the camera

② **Device Vendor Name** : Name of the manufacturer of the device

③ **Device Model Name** : Model name of the device

④ **Device Manufacturer Info** : Manufacturer information about the device (Website URL)

⑤ **Device Version** : Version of the firmware in the device

⑥ **Device ID** : Representing the Device unique identifier (serial number)

⑦ **Device User ID** : User-programmable device identifier

4.2 Image Format Control

- The features related to the format of the transmitted image.

Image Format Control	
Width Max	2592
Height Max	1944
Width	2592
Height	1944
Offset X	0
Offset Y	0
Binning Horizontal	1
BinningVertical	1
Decimation Horizontal	1
Decimation Vertical	1
Reverse Mode	Off
Pixel Format	BayerGR 8
Bayer Order Pixel Format	Bayer GR
Test Pattern	Off

① **Width Max :** Maximum width of the image in pixels

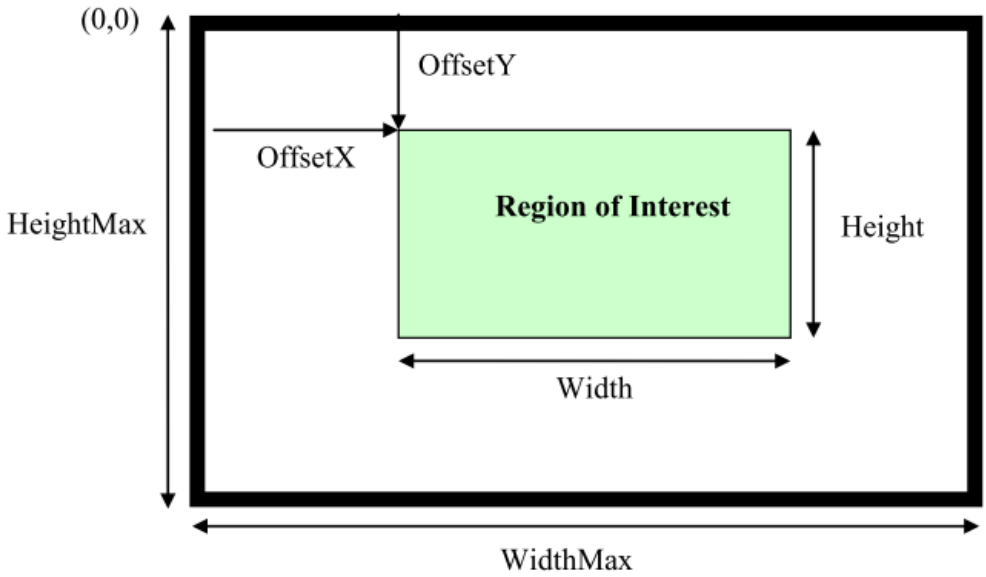
② **Height Max :** Maximum height of the image in pixels

③ **Width :** Width of the image provided by the device in pixels

④ **Height :** Height of the image provided by the device in pixels

⑤ **Offset X :** Horizontal offset from the origin to the Region of interest(ROI)

⑥ **Offset Y :** Vertical offset from the origin to the Region of interest(ROI)



⑦ **Binning Horizontal or Binning Vertical :** Two adjacent pixels are combined and readout as one pixel.

- Width is halved on a binning horizon.
- Height is halved on a binning horizon.
- If Binning feature is set to '1', it means "not used".

* Consideration for Using Binning

Increased response to light - Using the Binning feature significantly increases the camera's response to light. Because of this, when using Binning, the acquired images may appear over-exposed.

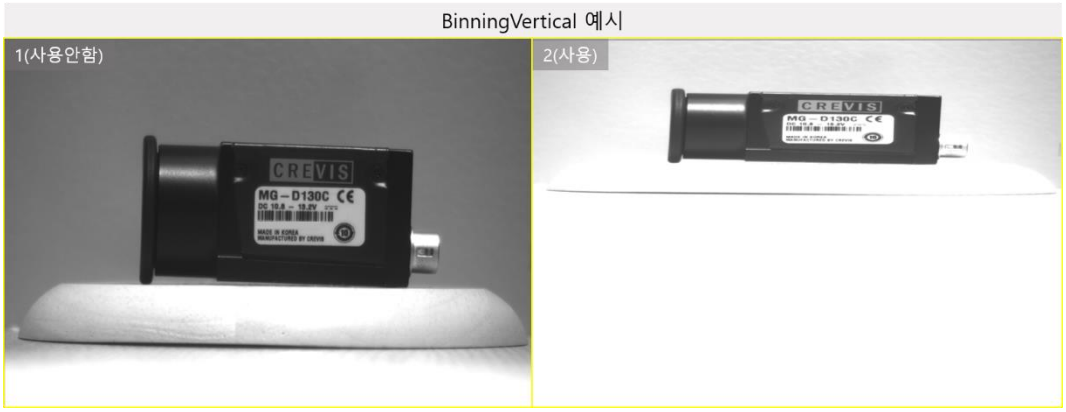
Image distorted - With the Binning feature, two adjacent pixels add up and the image appears distorted.

⑧ **Reverse Mode** : Flip horizontally or vertically the image sent by the device.

- Implemented in a specific model

⑨ **Pixel Format** : Format of the pixels provided by the device.

⑩ **Test Pattern** : Selects the type of test pattern image that is generated by the device.



4.3 Acquisition Control

- Acquisition Control describes all features related to image acquisition, including the trigger and exposure control.

Acquisition Control	
Acquisition Mode	Continuous
Acquisition Start	Execute
Acquisition Stop	Execute
Acquisition Frame Count	3
Trigger Selector	Frame Start
Trigger Mode	**On**
Trigger Software	Execute
Trigger Source	Line 1
Trigger Activation	Rising Edge
Trigger Delay	0.000000
Transfer Delay	0
Exposure Mode	Timed
Exposure Time	0.000000
Exposure Auto	Off
Auto Exposure Target	128
Exposure Update Feature	Execute
Acquisition Frame Rate Enable	Off
Acquisition Frame Rate	10.000000

① **Acquisition Mode** : controls the mode of acquisition

- ▶ Single Frame : Acquisition Stop after 1 image acquisition.
- ▶ Multi Frame : Acquire and stop after acquiring images by the value set in acquisition Frame Count.
- ▶ Continuous : Continue to acquire images until the Acquisition Stop command is executed.

② **Acquisition Start** : Click the button Execute to start the Acquisition.

③ **Acquisition Stop** : Click the button Execute to stop the Acquisition.

④ **Acquisition Frame Count** : Set the number of images to acquire.

- Settings are valid only when Acquisition Mode is MultI-Frame.

⑤ **Trigger Mode** : Turn On/Off the trigger mode.

⑥ **Trigger Software** : Click the button Execute to execute the software trigger signal -The signal is only valid when the Trigger Source value is Software.

⑦ **Trigger Source** : Selects the trigger source.

- ▶ Line1 : Sets the trigger source to external trigger.
  -Give a trigger signal via Line 1 (Input) and IO_GND (Output) on the cable.
- ▶ Software : Set the trigger source to software trigger.
  - ⑥ Give a trigger commend via Trigger Software Execute.

⑧ **Trigger Delay** : Set the delay time for triggering signals to be applied and watched for the duration of the exposure. (unit : us)

⑨ **Exposure Mode** : Set the mode of exposure operation.

- ▶ Timed : The exposure duration is set by "⑩Exposure Time".
- ▶ Trigger Width : Uses the width of trigger signal pulse to set the exposure duration.

⑩ **Exposure Time** : This feature controls the duration where the photosensitive cells of image sensor are exposed to light (unit : us)

- Settings are valid only when Exposure Mode is Timed
- For CCD sensor cameras, when set to ' 0 ', it is set to maximum exposure time mode.
  Ex) 15fps = 1/15 sec.
- For CMOS sensor cameras, when set to ' 0 ', it is set to minimum exposure time mode. (Minimum exposure time per camera is different.)

⑪ **Exposure Auto** : Set the exposure time automatically so that the average value for image brightness matches the Auto Exposure target.

- ▶ Off : Exposure duration is user controlled using Exposure Time.
- ▶ Once : Exposure duration is adapted once by the device.
- ▶ Continuous : Exposure duration is constantly adapted by the device.

⑫ **Auto Exposure Target** : Specifies the brightness value that is the reference for Exposure Auto and Gain Auto.(0~255)

⑬ **Exposure Update Feature :** Click the button Execute to update value of Exposure Time

⑭ **Acquisition Frame Rate Enable** : Set whether or not to enable Acquisition Frame Rate.

- ▶ Off : Operate by Free-run Mode
- ▶ On : Acquire image with FPS as set in Acquisition Frame Rate.

⑮ **Acquisition Frame Rate** : Set FPS to acquire images.

- Settings are valid only when Acquisition Frame Rate Enable On.

4.4 Digital IO Control

- The Digital I/O feature required to control the general Input and Output signals.

Digital IO Control	
Line Selector	Line 1
Line Mode	Input
Line Inverter	☐ True
Line Status	☐ True
Line Stauts Update Feature	Execute
Line Source	
User Output Selector	
User Output Value	☐ True

① **Line Selector** : Selects the pin of the external device connector to configure.

*Some models allow you to cross-set Input/Output.

▶ Line 1 : Input, Line 2 : Output

② **Line Mode** : Indicates whether the selected line is used to Input or Output.

- You can use ⑤⑥⑦ only when Line Mode is Output.

③ **Line Inverter** : Inverts the signal on the selected I/O line when checking for True.

④ **Line Status** : Indicating the status of the input lines. True: High; False: Low

⑤ **Line Status Update Feature :** Click the button Execute to update current Line Status

⑥ **Line Source** : Select the output source for the selected lines.

▶ Off : No output is sent

▶ Exposure Active : Output pulse is synchronized with "Exposure Time".

▶ Timer Active : Output for "Timer Duration" of Counter And Timer Control

- Only in this case, set value of Counter And Timer Control is valid.

▶ User Output : User can select the output pulse level by setting ⑦⑧ values

- Only in this case, ⑦⑧ is valid

⑦ **User Output Selector** : Select User Output1 or 2

⑧ **User Output Value** : If True : High pulse, If False : Low pulse.

4.5 Counter And Timer Control

- These features are valid when Line Source is Timer Active

Counter And Timer Control	
Timer Selector	Timer 1
Timer Duration	0.000000
Timer Delay	0.000000

① **Timer Selector** : Select which Timer to configure

② **Timer Duration** : Set the duration of the Timer pulse (unit : us)

③ **Timer Delay** : Set the duration of the delay between trigger pulse and timer pulse.

▶ Timer pulse is started after set time from rising edge of trigger pulse.

4.6 Analog Control

- Describes analog features of an image, such as gain, black level, and white Balance.

Analog Control	
Gain Selector	All
Gain Raw	65536
Gain Abs	1.000000
Gain Auto	Off
Gain Update Feature	Execute
Black Level Selector	All
Black Level Raw	0
Balance Ratio Selector	Red
Balance Ratio	1.000000
Balance White Auto	Off
Balance Update Feature	Execute

① **Gain Raw** : Set the value of Gain
- You can increase the brightness of the image by using Gain. However, be careful when setting the gain value to a high value as a noisy image can be obtained.

② **Gain Abs** : Adjust the Gain Raw Value by scale. When Abs=1, Raw=65536

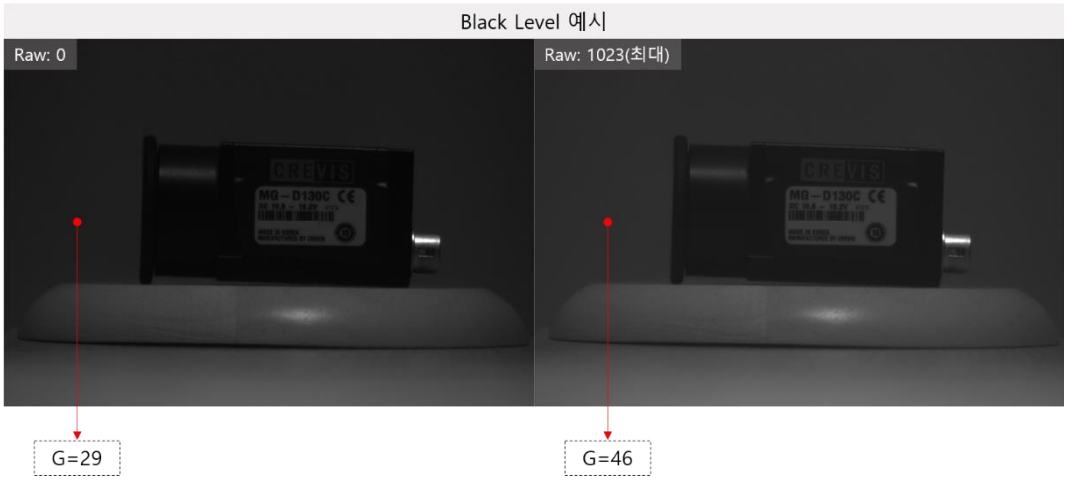
③ **Gain Auto** : Adjust Gain automatically so that the average value for image brightness is matches for Auto Exposure Target of Acquisition Contol

- ▶ Off : Enter the value directly into the Gain Raw
- ▶ Once : The Gin Raw value is automatically adjusted only once.
- ▶ Continuous : Gain Raw value is continously adjusting.

④ **Gain Update Feature** : Click the button Execute to update the value of Gain values.

⑤ **Black Level Raw** : Set the value of Black Level

- Black Level is the function to control an offset to the pixel values output by the camera.



⑥ **Balance Ratio Selector** : Select the color channel to adjust.

⑦ **Balance Ratio** : Set the ratio of selected color channel in the Balance Ratio Selector.

⑧ **Balance White Auto** : Automatically adjust White Balance

- Imaging white backgrounds and running Balance White Auto with unsaturated brightness is recommended.
- If you set up White Balance Auto, adjust the value of R and B based on the value of G among RGB. The reason why the reference value is G is because of the most sensitive light of RGB.

▶ Off : Enter a value directly into Balance Ratio

▶ Once : Once applied, Balance Ratio is automatically adjusted only once,

▶ Continuous : White ratio is constantly adjusted.

4.7 Transport Layer Control

Transport Layer Control	
Payload Size	2527232
Gev Version Major	1
Gev Version Minor	2
Gev Device Mode Is Big Endian	☑ True
Gev Device Mode Character Set	UTF 8
Gev Interface Selector	0
Gev MACAddress	0014F700E0E9
Supported Option Selector	User Defined Name
Gev Supported Option	☑ True
Gev Current IPConfiguration LLA	☑ True
Gev Current IPConfiguration DHCP	☐ True
Gev Current IPConfiguration Persistent IP	☑ True
Gev Current IPAddress	A9FE6463
Gev Current Subnet Mask	FFFFFF00
Gev Current Default Gateway	A9FE6402
Gev First URL	Local:XmlVersion.1.3.3_MG-D500x.xml;FFA10000;0...
Gev Second URL	File:XmlVersion.1.3.3_MG-D500x.xml
Gev Number Of Interfaces	1
Gev Persistent IPAddress	A9FE6463
Gev Persistent Subnet Mask	FFFFFF00
Gev Persistent Default Gateway	A9FE6402
Gev Message Channel Count	1
Gev Stream Channel Count	1
Gev Heartbeat Timeout	3000
Gev GVCP Heartbeat Disable	☐ True
Gev Timestamp Tick Frequency	66666666
Gev Timestamp Control Latch	Execute
Gev Timestamp Control Reset	Execute
Gev Timestamp Value	0
Gev CCP	Exclusive Access
Gev MCPHost Port	0000C66D
Gev MCDA	A9FE6402
Gev MCTT	0
Gev MCRC	0
Gev MCSP	00000000
Gev Stream Channel Selector	0
Gev SCPInterface Index	0
Gev SCPHost Port	00000000
Gev SCPSFire Test Packet	☐ True
Gev SCPSDo Not Fragment	☐ True
Gev SCPSBig Endian	☐ True
Gev SCPSPacket Size	8192
Gev SCPD	0
Gev SCDA	00000000

① **Gev Heartbeat Timeout** : Controls the heartbeat timeout (unit : ms)

- When the PC and camera are connected, it checks whether the connection is working properly even the camera is not acquiring the image.
- For example, if you set the value of the Gev Heartbeat Timeout to 3000, the connection between the PC and the camera is considered lost when the signal is cannot be verified in 3 seconds.

② **Gev GVCP Heartbeat Disable** : Disables the GVCP heartbeat.

- ▶ True : Disable the Heartbeat feature(Disable).
- ▶ False : Enable the Heartbeat feature(Enable).

③ **Gev SCPSPacket Size** : specifying the stream packet size, in byte, to send on the selected channel for a GVSP transmitter

- When setting up the Gev SCPSPacket Size, make sure that packets do not exceed jumbo frames (or jumbo packets) in size.
- Jumbo Frames (or Jumbo Packets) The recommended packet size is 8192 bytes based on 9014 bytes.

④ **Gev SCPD** : Set the Packet Delay

- Packet Delay is a feature that adds a delay between each packet output from the camera to reduce the data output rate so that the bandwidth is not exceeded.(Prevent packet loss)
- Depending on the settings, FPS loss can occur.

4.8 User Set Control

- User Set Control allows loading or saving factory or user-defined settings.

User Set Control	
User Set Selector	User Set 3
User Set Load	Execute
User Set Save	Execute

① **User Set Selector** : Select the feature User Set to load or save.

- When the User Set Selector is selected as Default, Load is only possible . An error occurs when execute save on Default

② **User Set Load** : Click Execute to load camera setup value stored in the User Set.

③ **User Set Save** : Click Execute to save current camera setup value in User Set.

4.9 Sensor Tap Balance Control

- This menu is used to adjust Gain Balance between tabs or to give difference in Gain values directly

Sensor Tap Balance Control	
Gain Balance Ratio Selector	Tap 0
Gain Balance Ratio	1.000000
Gain Auto Balance	Off
Gain Balance Update Feature	Execute

① **Gain Balance Ratio Selector** : Determine which taps to balance.

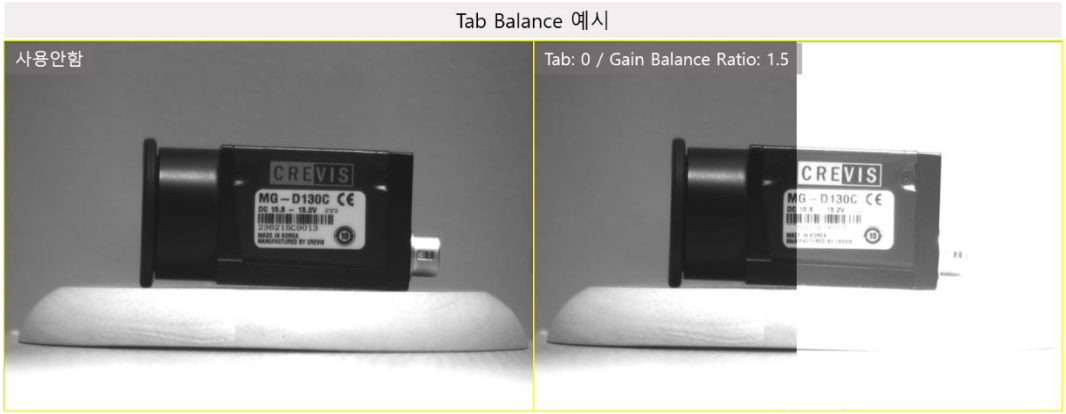
② **Gain Balance Ratio** : Set each tap's ratio of Gain value (1.0~2.0)

- The Gain Raw value of the Analog Control is multiplied.

③ **Gain Auto Balance** : Set the mode for automatic gain Balancing.

- ▶ **Off** : Enter to Gain Balance Ratio directly.
- ▶ **Once** : Gain Balance is automatically adjusted only once when applied.

④ **Gain Balance Update Feature**: Click Execute to update the value of Gain Balance Ratio.



4.10 Device Option Control

- The menu for setting the timeout related to image processing and whether to request retransmission or screen output.

Device Option Control	
Device Filter Driver Mode	Off
Device Command Timeout	400
Device Command Retry Number	3
Device Stream Timeout	400
Device Missing Packet Display	Off
Device Use Packet Resend	☑ True
Device Max Packet Resend Count	10
Device Find Max Packet Size.	Execute
Device Max Packet Size	0

① **Device Filter Driver Mode** : On/Off the Filter Driver feature.

② **Device Command Timeout** : Limit the response time to command request. (unit : ms)

③ **Device Command Retry Number** : Set the number of retransmission requests.

④ **Device Stream Timeout** : When requesting 1-Packet, Limit the time of receiving transmission (unit : ms)

- 1-Packet size is same with Gev SCPSPacket Size set in Transport Layer Control menu.

⑤ **Device Missing Packet Display** : Determine whether to dispaly the corresponding packet of lost packet to screen.

⑥ **Device Use Packet Resend :** If the packet is lost and the camera has it in its internal buffer, it will retransmit it.

- Attempt to retransmit as much as ⑦'s Device Max Packet Resend Count.

⑦ **Device Max Packet Resend Count** : Set the maximum retransmission count for corresponding packets if you have packets in the internal buffer. (0~255)

⑧ **Device Find Max Packet Size** : If click Execute, the size of the 1-Packet is found.

⑨ **Device Max Packet Size :** Show Max Packet Size found through ⑧.

5. Frequent Problems and Solutions

5.1 I want to know if the camera is powered on or not

▶ Check the status of the camera LED. If the LED at the bottom of two LEDs, the camera is in a powered state.

Power Connected	Connecting Ethernet Cable(Setting IP)	Connection Successful (Wait for image acquisition)	Image acquisition in progress (Top LED flashing) / Trigger waiting (Top LED: On)
			

5.2 Camera does not appear in the list or is not open.

▶ Cameras must have only IP address over the same network. The camera and network adapter must have the same Subnet Mask. The camera's IP can be set to either DHCP (Dynamic IP setup) or Static IP Setup.

5.3 No image acquisition is performed.

▶ Check if your firewall or anti-virus is set to enabled

▶ Check whether Trigger Mode of Feature Properties is set to On.

5.4 The image is in, but the undelivered image is rapidly increased.

▶ Check Jumbo packet, Packet size, and Packet delay settings. For CREVIS Camera, the default Packet delay value is set to zero within the frame rate.

▶ The larger the Packet Size, the lower the packet loss rate. However, it is important not to exceed established jumbo packets.

5.5 MVIPConfig does not work.

▶ Install NET Framework 3.5

6. Using Examples

6.1 Use in software trigger mode

① Presets

▶ Set triggermod of **Acquisition Control** to ON

▶ Set Trigger Source of **Acquisition Control** to Software

Acquisition Control	
Acquisition Mode	Continuous
Acquisition Start	Execute
Acquisition Stop	Execute
Acquisition Frame Count	3
Trigger Selector	Frame Start
Trigger Mode	**On**
Trigger Software	Execute
Trigger Source	**Software**
Trigger Activation	Rising Edge

② Implementation

▶ **Using Trigger signal**

- Click the (Continuous Grab ) button in the top menu bar
- Click trigger Software of Acquisition Mode Execute to deliver the Trigger signal.
- Acquire an image

▶ **Using Grab Software Trigger**

- Click the (S/W Grab Continuous )button in the top menu bar
- The trigger signal is passing continously to acquire.
- Stop acquisition by pressing the (Stop )button in the top menu bar

6.2 Use in hardware trigger mode

① **Presets**

▶ Set triggermod of **Acquisition Control** to ON

▶ Set the Trigger Source of **Acquisition Control** to Line1(or2)

Acquisition Control	
Acquisition Mode	Continuous
Acquisition Start	Execute
Acquisition Stop	Execute
Acquisition Frame Count	3
Trigger Selector	Frame Start
Trigger Mode	**On**
Trigger Software	Execute
Trigger Source	**Line 1**
Trigger Activation	Rising Edge

② **Implementation**

▶ **Using the Trigger signal**

- Connect **Line1 (or 2)** and **IO_GND** pins of the 6 Pin cable to + and - of the pulse generator.
- Input trigger pulse (Voltage level : **3.3V ~ 24V**, Pulse width : **30us or higher**)
- Acquire image.

6.3 To adjust the Brightness:

① Adjust via the lens aperture.

- It is the best way to avoid noise and FPS.

② Adjust the Exposure Time.

- Adjust the Exposure time value for **Acquisition Control**.(unit : us). Make sure the subject is not moved during the exposure time to obtain a clear image.

③ Adjust Gain.

- Adjust the Gain raw or Gain Abs of **Analog Control**. Gain amplifies the amount of light that comes in, so the lighter part may be magnified. It does not affect FPS, but it makes a noise when it is too high.