StViewer manual

This document explains installation for Sentech SDK that including StViewer, how to connect USB3 Vision, GigE Vision and CoaXPress cameras and set/obtain camera parameters of these cameras.

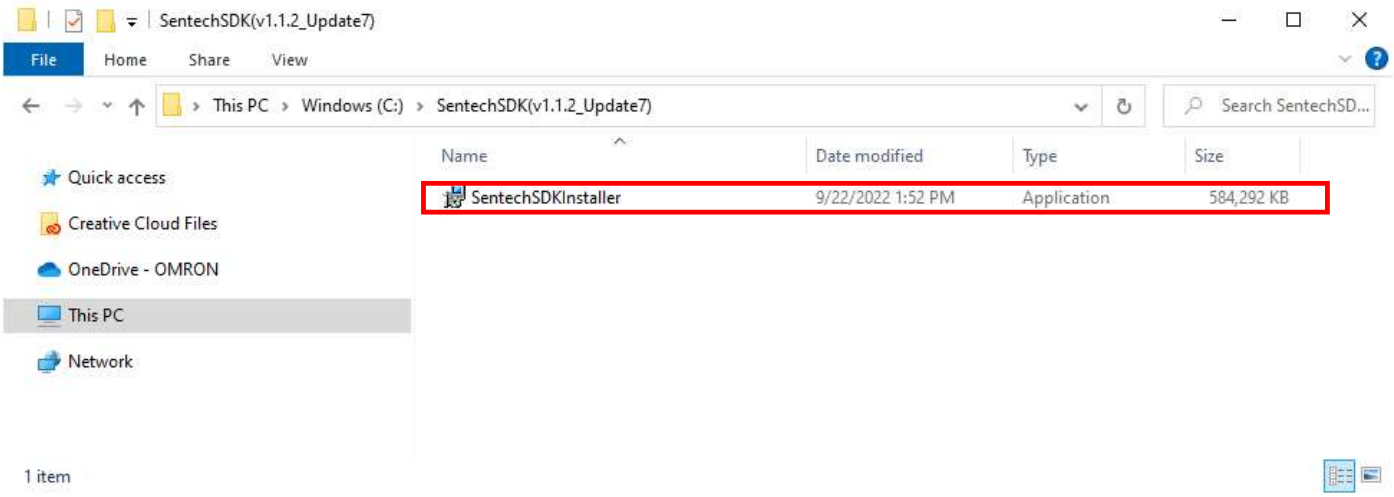
* This document use Windows PC environment. It may different on Linux or Mac environment.

Table of Contents

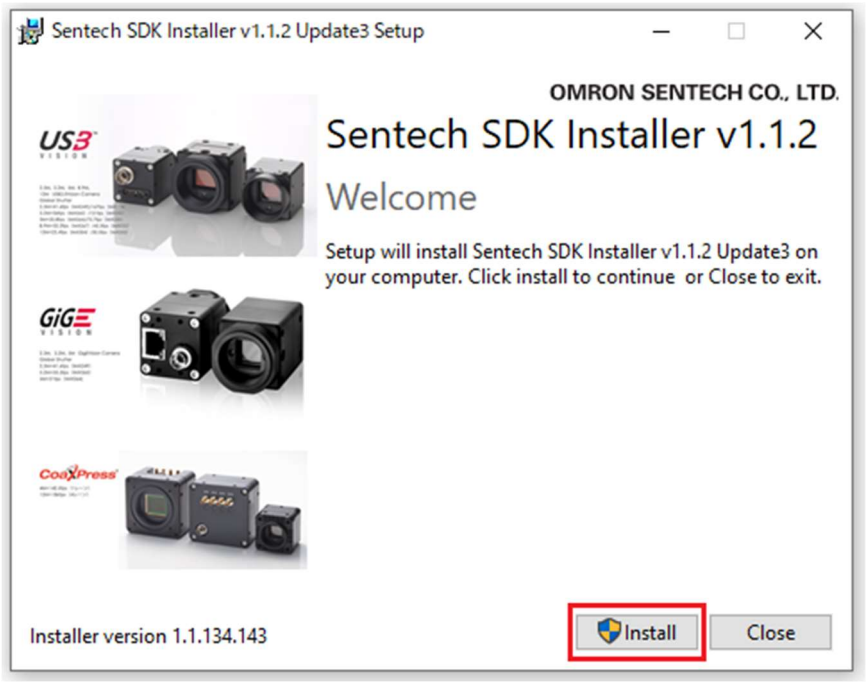
1 Start-up

1.1 Installation procedure for Sentech SDK

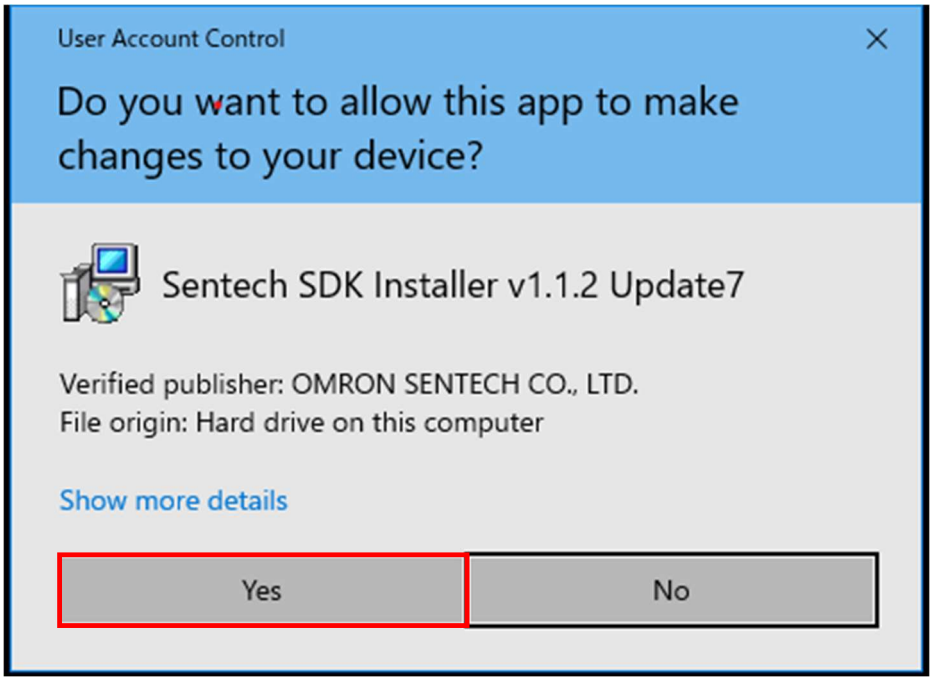
(1) Please download latest version of Sentech SDK Package from OMRON SENTECH web site.
One installer for Windows 32bit / 64bit from Sentech SDK v1.1.1.
(2) Run downloaded installer.



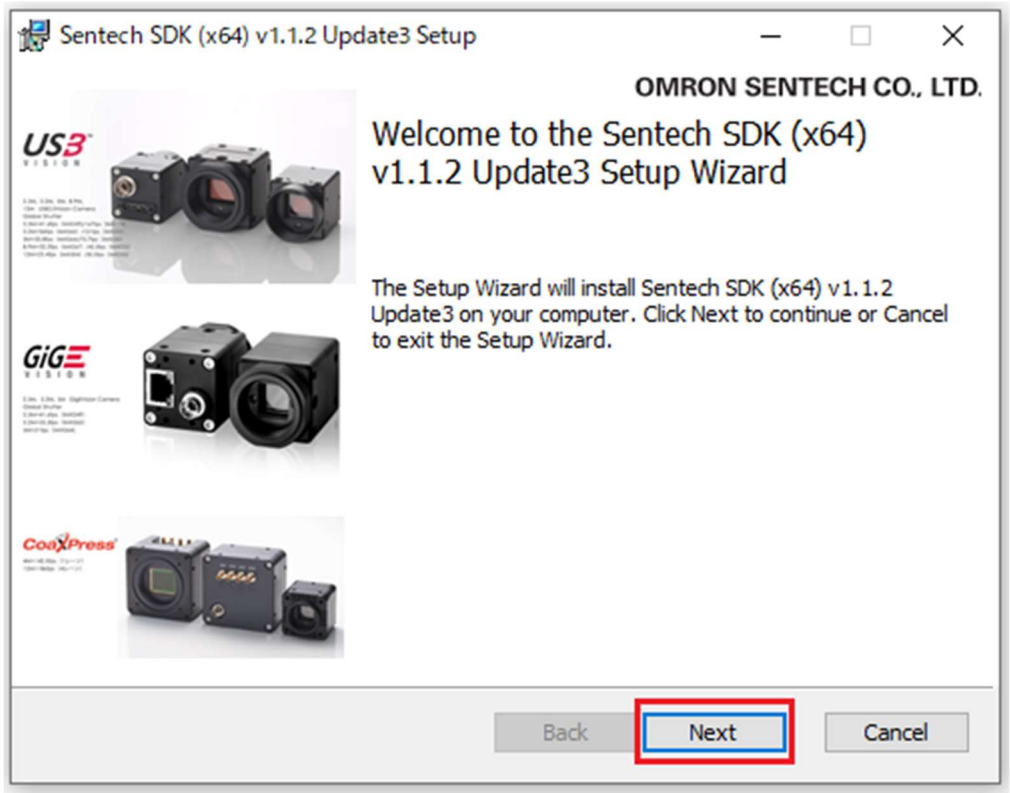
(3) Selects “Install” button.



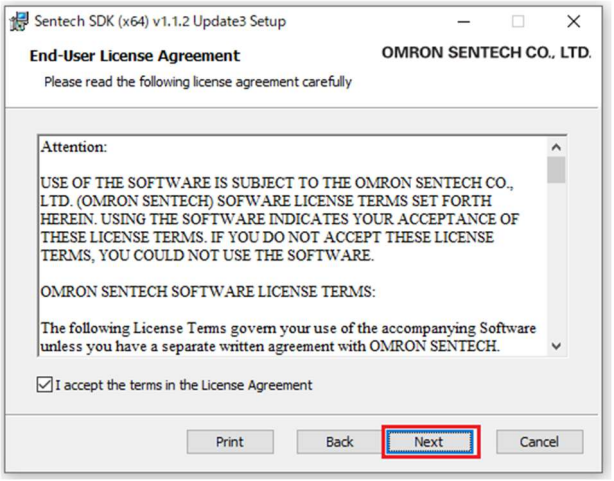
* Please select “Yes” button when “User Account Control” message is displaying while installing.



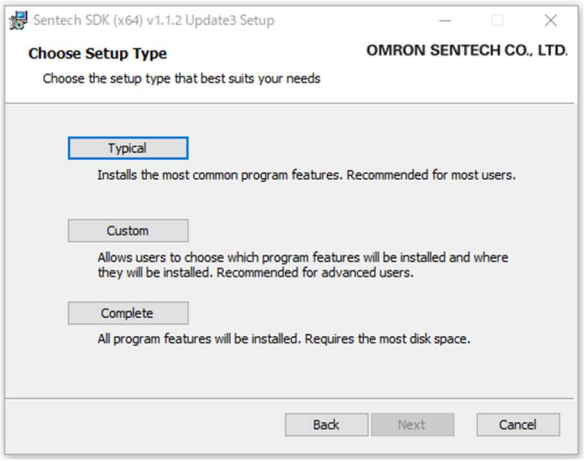
(4) Selects “Next” button.



(5) Selects check box at “I accept the terms in the License Agreement” after check information of “Attention:” then selects “Next” button.



(6) Selects type of installation. **(Recommendation: “Complete” installation type)**



・Typical

Installs basic function/application of Sentech SDK.

Viewing software (StViewer) and other application are installing, but Help files and sample programs of Sentech SDK **did not** install.

・Custom

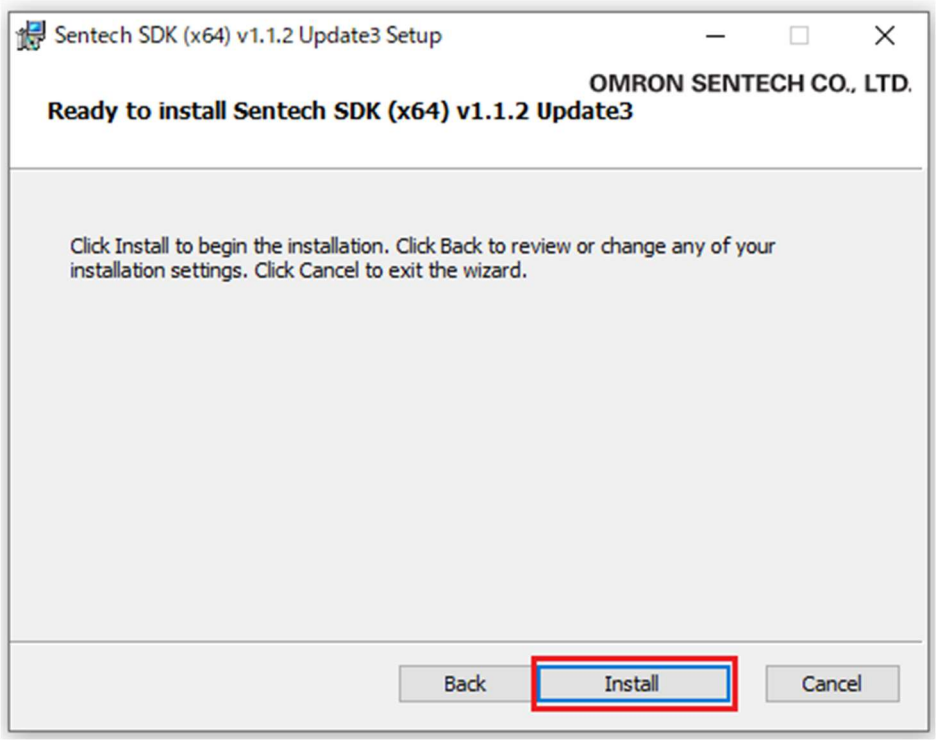
Installation contents are selectable.

・Complete

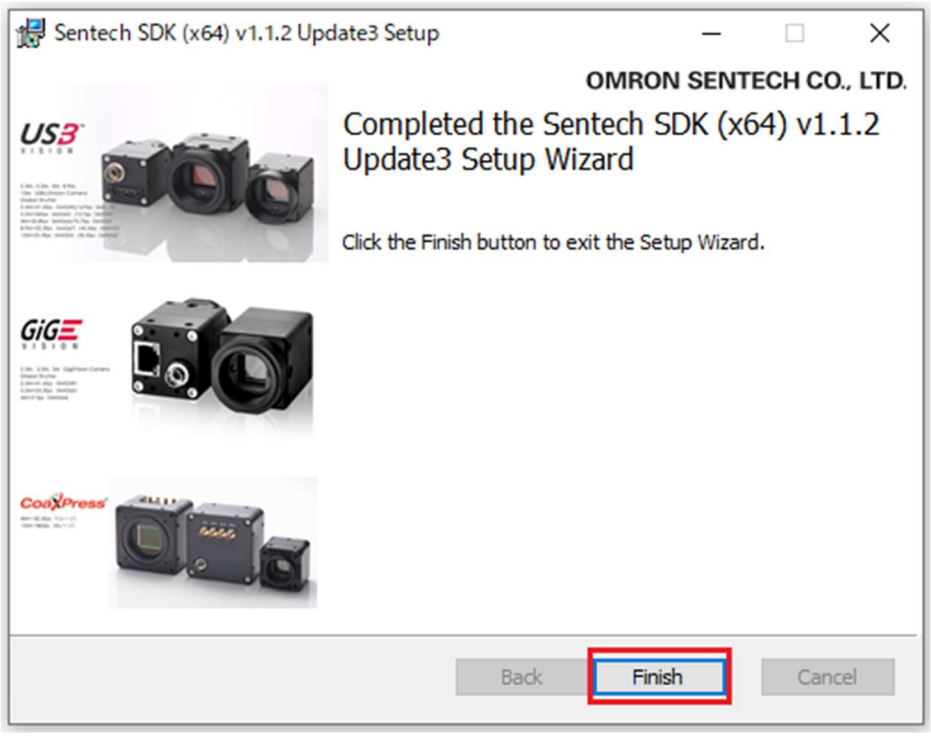
Install all contents of Sentech SDK including application (StViewer and others) and SDK related files.

Please check help files of Sentech SDK when making program with Sentech SDK.

(7) Selects “Install” button then start installation.



(8) Selects “Finish” button then to finish installation procedure.



2 Pre-setting to obtain image from GigE Vision camera

2.1 Setting of NIC (Network Interface Card)

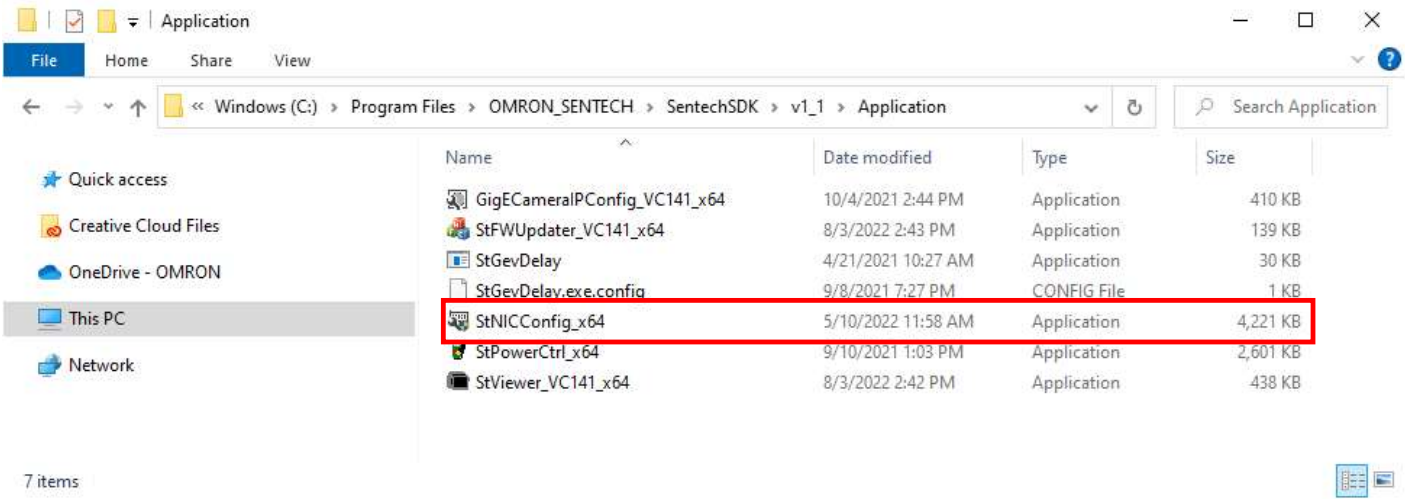
Please setup jumbo packet for NIC that connects GigE Vision camera.
* The frame drop may occur if jumbo packet does not setup.

Setting of Jumbo packet

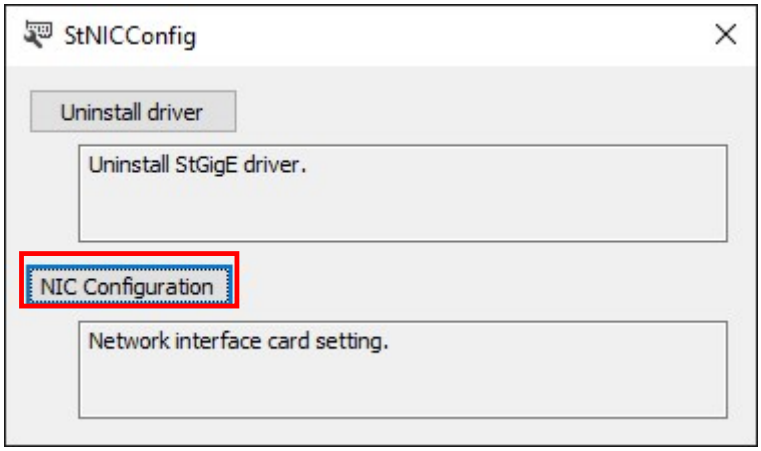
The jumbo packet can be set by StNICConfig application of Sentech SDK.

・How to setup jumbo packet by StNICConfig application

(1) Run ”StNICConfig_x64.exe” on C:¥Program Files¥OMRON_SENTECH¥SentechSDK¥v1_1¥Application.
* ”StNICConfig_x64” can be selectable from Windows menu.



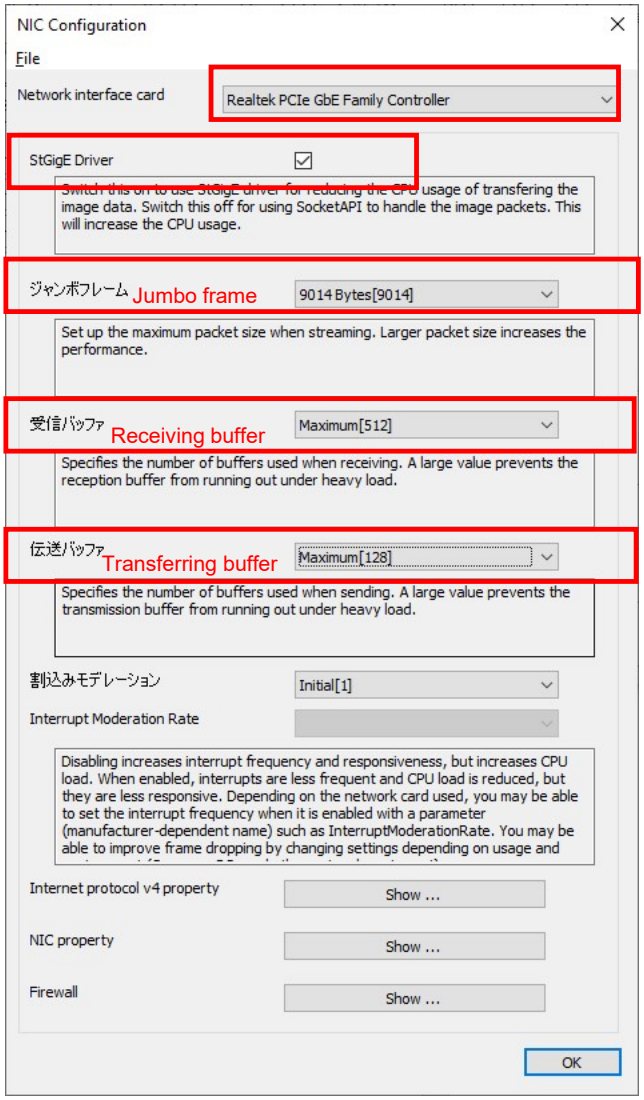
(2) Selects ”NIC Configuration” on StNICConfig window.



(3) Change below parameters on NIC Configuration windows.

Parameter	Setting
Network interface card	Selects GigE Vision camera connected NIC.
StGigE Driver	Checked
Jumbo frame	9KB MTU[xxxx]
Receiving buffer	Maximum[xxxx]
Transferring buffer	Maximum[xxxx]

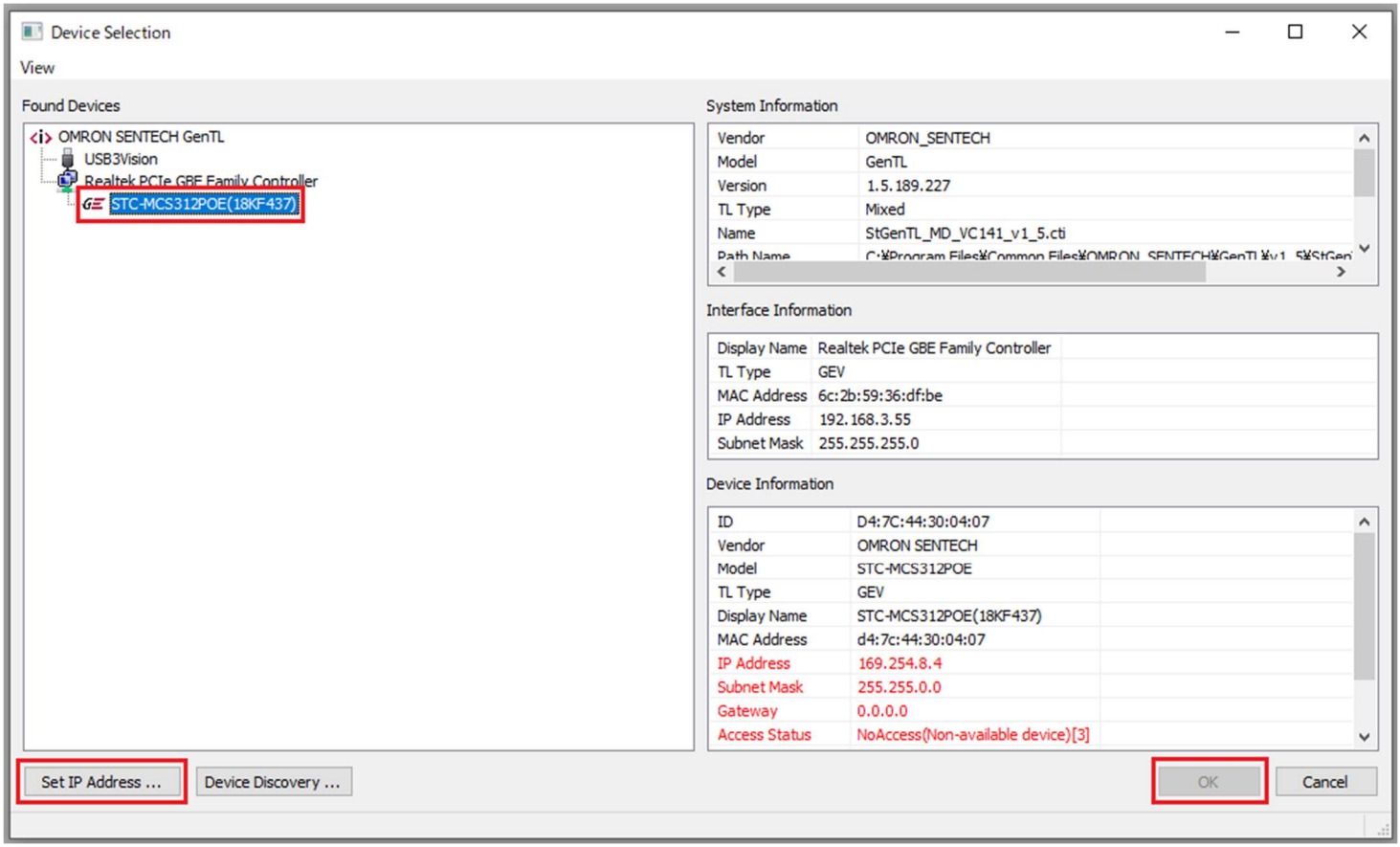
* The number of [] could be different depends on environment.



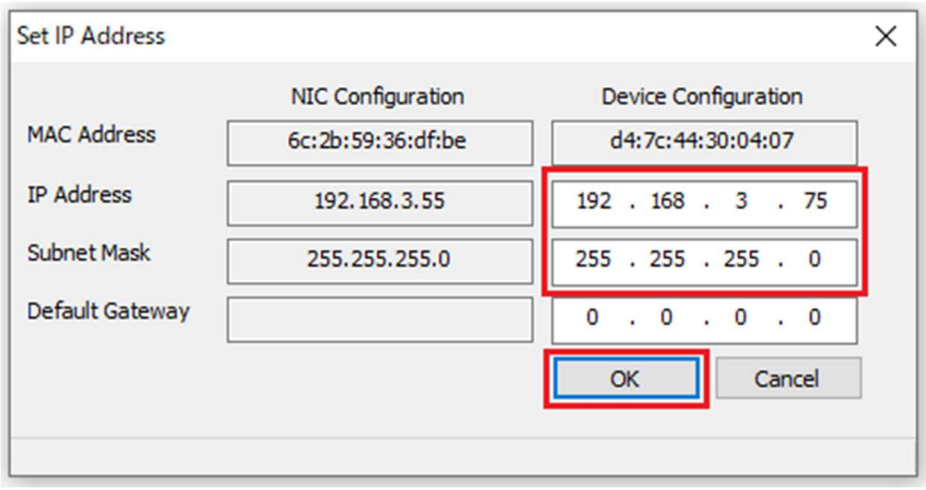
Please check the image is acquirable or not after change settings and selects “OK” button.

2.2 How to set IP Address of GigE Vision camera

If GigE Vision camera has incorrect IP address setting, “OK” button on “Device Selection” button cannot select after selects GigE Vision camera, as below picture.
In this case, changes IP address setting of GigE Vision camera by select “Set IP Address…” button.



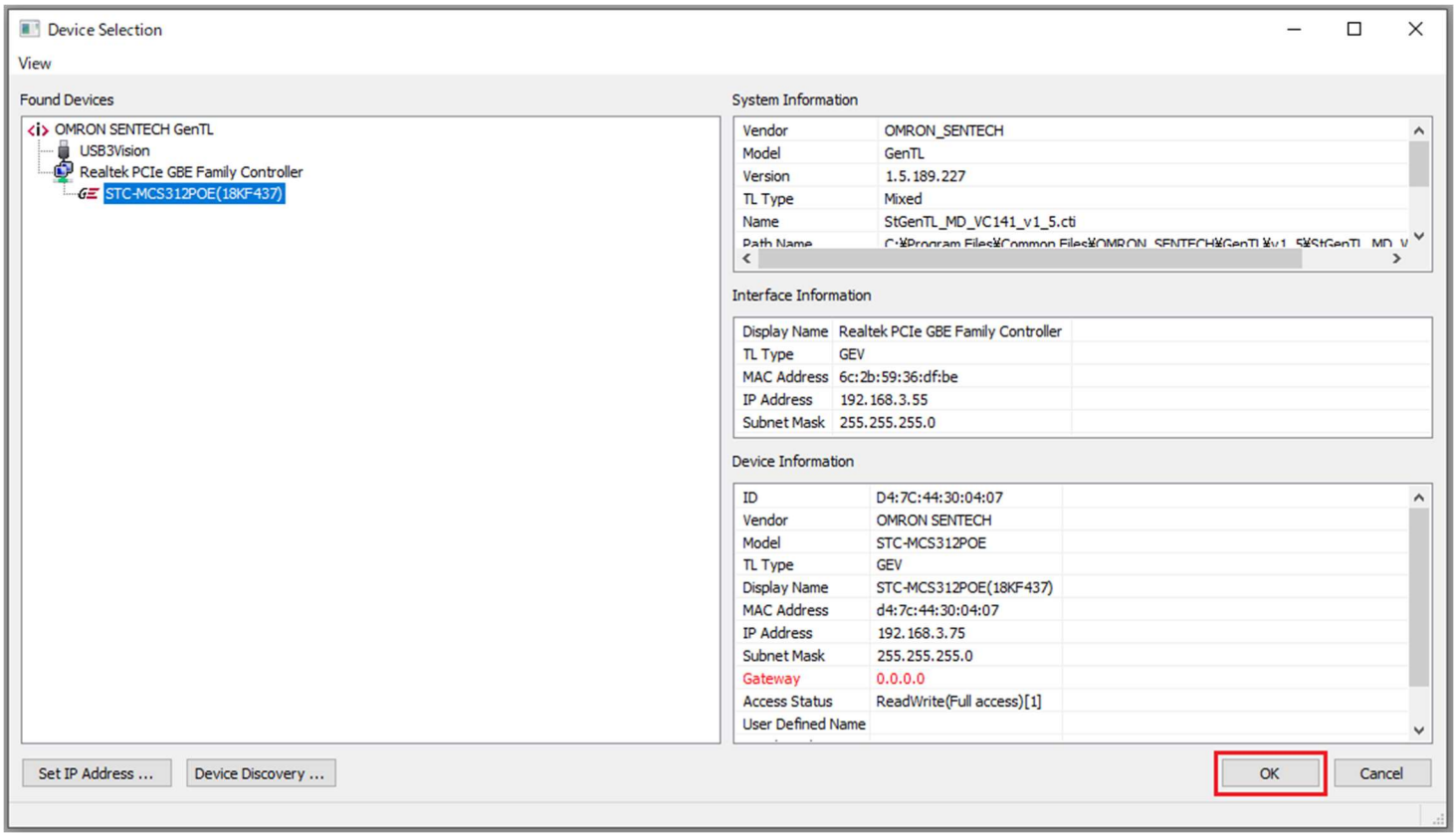
“Set IP Address” window is open.



Please check and change “IP Address” and “Subnet Mask” at Device Configuration.
In the case of above image, IP Address and Subnet Mask at NIC Configuration are 192.168.3.x and 255.255.0.
It is necessary to set IP Address of camera as same as from first to third octets of IP Address of NIC Configuration (192.168.3 on above image) and set different value at fourth octet of IP Address of camera from fourth octet value of IP Address of NIC Configuration. (or set same value of first and second octet of IP Address of NIC Configuration (192.168 on above image and set different value at third and fourth octet)
It is necessary to set Subnet Mask of camera as same as Subnet Mask of NIC Configuration.
It is not necessary to set “Default Gateway”.

Selects “OK” button after change IP Address and Subnet Mask of camera.
* If changed IP Address and Subnet Mask did not match NIC Configuration, “OK” button cannot select.
In this case, please check changed information.

Please check “OK” button on “Device Selection” window can selectable.



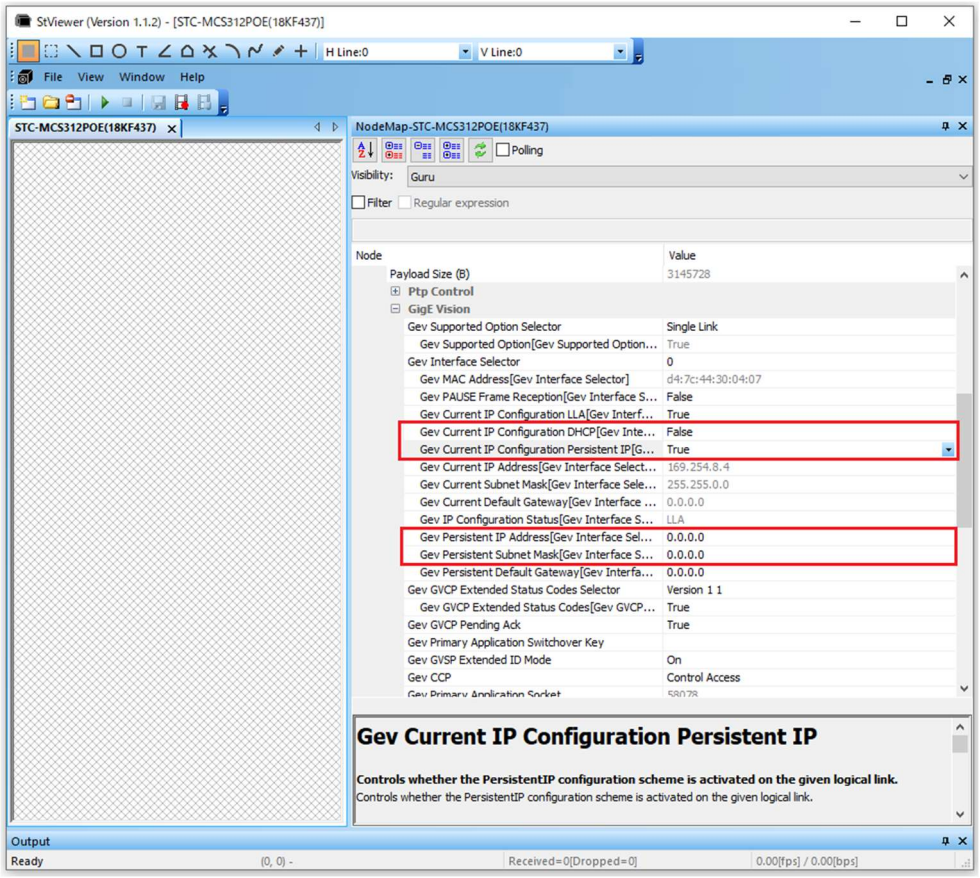
2.3 How to set fixed (persistent) IP Address on GigE Vision camera

The IP Address of camera that set by “2.2 How to set IP Address of GigE Vision camera”, is temporary IP Address. This IP Address is not valid after power off camera.
It is necessary to use either below methods to camera have same valid IP Address after power off camera.

・How to set fixed (persistent) IP Address on GigE Vision camera with StViewer
Sets “False” at “Gev Current IP Configuration DHCP” under “Transport Layer Control” on “Remote Device”.
Sets “True” at “Gev Current IP Configuration Persistent IP” under “Transport Layer Control” on “Remote Device”.

Set fixed (persistent) IP Address and Subnet mask of GigE Vision camera based on those information of NIC that connecting GigE Vision camera.

・Fixed (persistent) IP Address
“Gev Persistent IP Address” under “GigE Vision” under “Transport Layer Control” on “Remote Device”
・Fixed (persistent) Subnet mask
“Gev Persistent Subnet Mask” under “GigE Vision” under “Transport Layer Control” on “Remote Device”

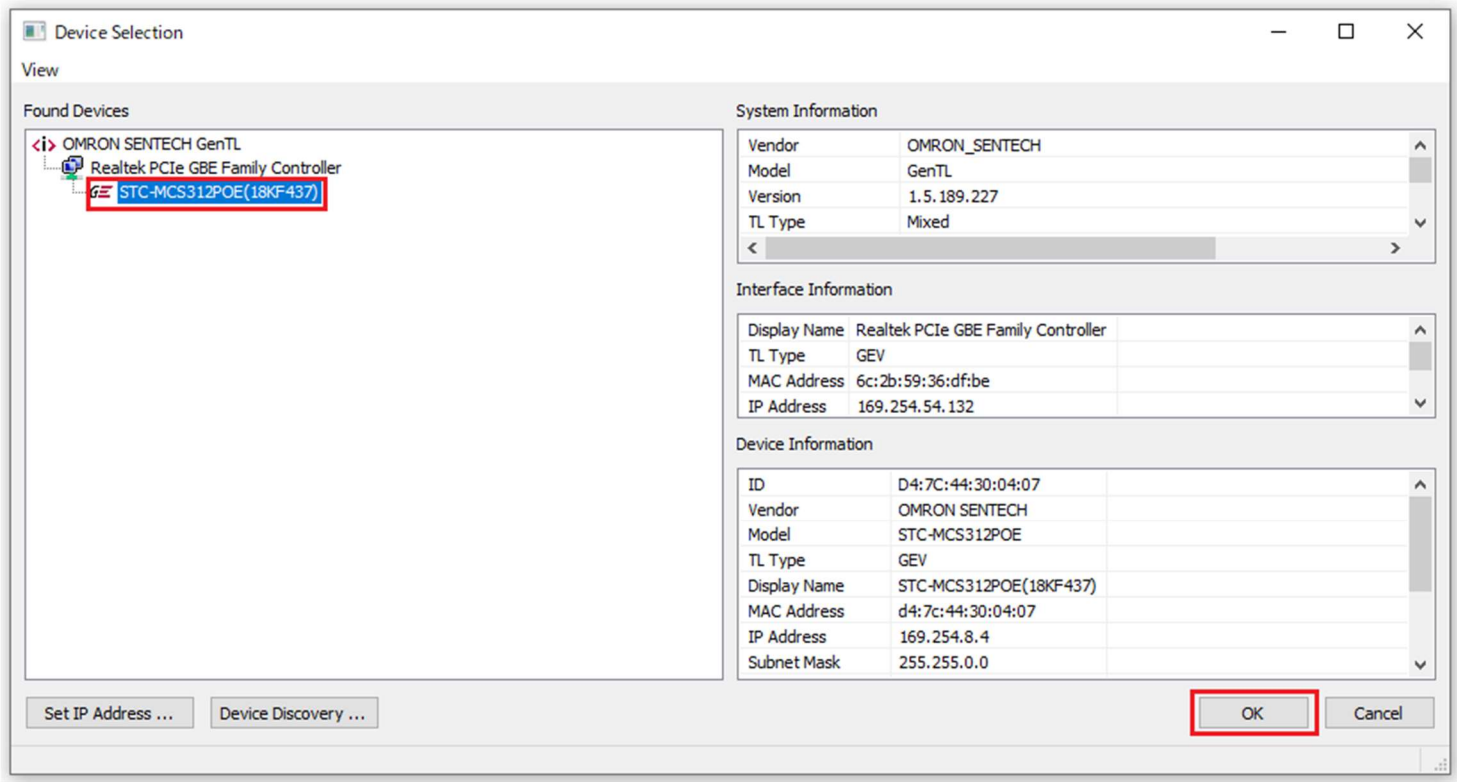


・How to set fixed (persistent) IP Address on GigE Vision camera with GigECameraIPConfig tool

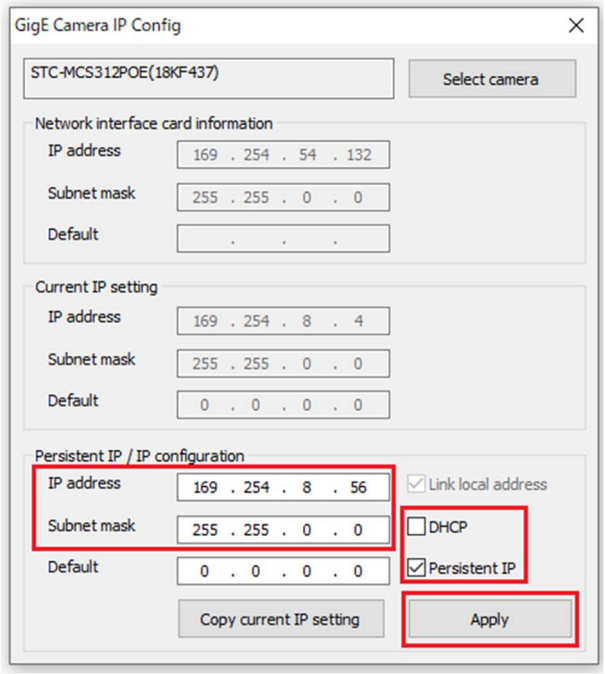
When installing Sentech SDK, GigECameraIPConfig also install.

Location:
C:¥Program Files¥OMRON_SENTECH¥SentechSDK¥v1_1¥Application¥
GigECameraIPConfig_VC141_Win32.exe
* This tool does not install older than Sentech SDK Package v1.06.

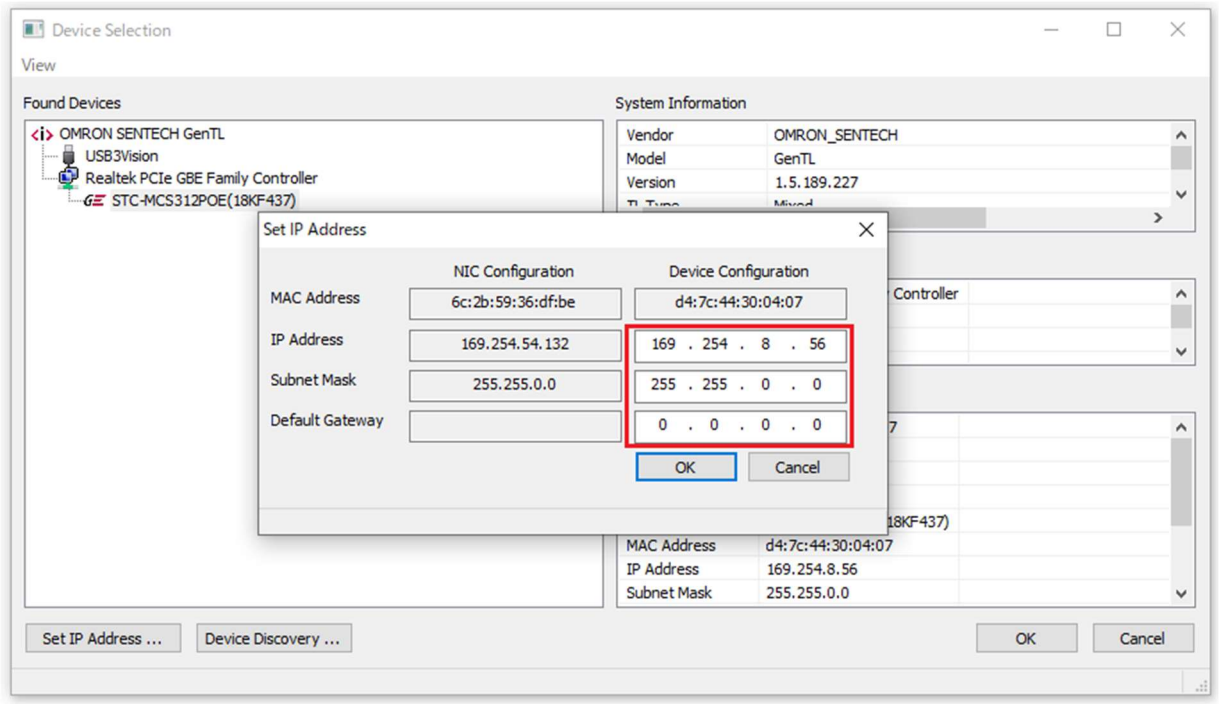
(1) Connects GigE Vision camera then run “GigECameraIPConfig_VC141_Win32.exe”.
    * This tool also run from Windows menu.
(2) Selects GigE Vision camera on “Device Selection” window then selects “OK” button.



(3) Selects “Persistent IP” on right-bottom of “GigE Camera IP Config” window, then change IP Address and Subnet mask of camera based on IP Address and Subnet mask of Network Interface card information.
Then unselects “DHCP” and selects “Apply” button.



(4) After setting, reboot GigE Vision camera.
Run StViewer then check IP Address of camera is changed IP Address setting with IP Address information on “Device Configration” window after selects “Set IP Address…” button on “Device Selection” window.



2.4 When GigE Vision camera did not display

It is possible to block GigE Vision camera connection by antivirus/security software on PC.
Please check GigE Vision camera can recognize with either below (1) or (2) security setting change.

(1) Sets temporary communication permission to only GigE Vision camera connecting NIC
(2) Changes temporary disable security software

* The security level of PC becomes low with above setting. We recommend bellows:
(1) Please do not connect internet or intranet with temporary communication permission set NIC.
(2) Please do not connect internet or intranet.

We recommend to using GigE Vision camera on actual system without connecting internet or intranet.

3 Pre-setting to obtain image from USB3 Vision camera

3.1 When USB3 Vision camera did not display

USB3 Vision camera could not recognize correctly and could not acquire image when using USB3 Vision camera with USB Bus power only due to enough power could not supply from PC (USB port) to USB3 Vision camera.

In this case, please check bellows:

(1) Please connects USB3 Vision camera to other USB3.0 port on PC or extend USB board to check USB3 Vision camera recognition.

(2) The driver of USB3.0 host controller for USB3 Vision connecting USB port could be old and need to update it. Please check latest driver on website of USB3.0 host controller manufacture then updates it.

(3) Some USB3 Vision cameras (7M / 8M / 12M and 20M) recommend using with external power supply due to high power consumption. Please check USB3.0 Vision camera with external power supply.

4 Caution for using CoaXPress camera on StViewer

The changeable function of CoaXPress frame grabber board by SentechSDK (StViewer), may have some restriction. When developing application, the recommend using SDK from CoaXPress frame grabber manufacture instead of use Sentech SDK.

Please install latest software from CoaXPress frame grabber manufacture when using CoaXPress camera with StViewer.

StViwer may not operate correctly while installing/un-installing software from CoaXPress frame grabber board manufacture. In this case, please re-install Sentech SDK.

Please contact to CoaXPress frame grabber manufacture for SDK and software from CoaXPress frame grabber manufacture.

4.1 When CoaXPress camera did not display

CoaXPress camera may not use with StViewer depending on connecting CoaXPress frame grabber board or version of software for CoaXPress frame grabber board.
(CoaXPress frame grabber board and connecting camera do not display on Device Selection window of Stviewer when CoaXPress camera could not use with StViewer)

Please confirm to recognize camera by viewer software from CoaXPress frame grabber board manufacture when only frame grabber is displaying on Device Selection window of StViwer.

Please check external power supply on CoaXPress frame grabber board for power of CoaXPress camera, connection between CoaXPress camera and CoaXPress frame grabber board and configuration data of CoaXPress frame grabber board when CoaXPress camera could not recognize with viewer software from CoaXPress frame grabber board manufacture.

Especially, when using CoaXPress frame grabber board with multiple connectors, it may be necessary to change configuration data of CoaXPress frame grabber board with software tool from CoaXPress frame grabber manufacture based on configuration of camera. Please check documents from CoaXPress frame grabber board manufacture.

4.2 Settings of CoaXPress frame grabber board

The settings of CoaXPress frame grabber board are needed to change depending on connecting camera.
The settings of CoaXPress frame grabber board could be change on Interface setting window that appears after select [Interface Node] under [View] menu on StViewer.

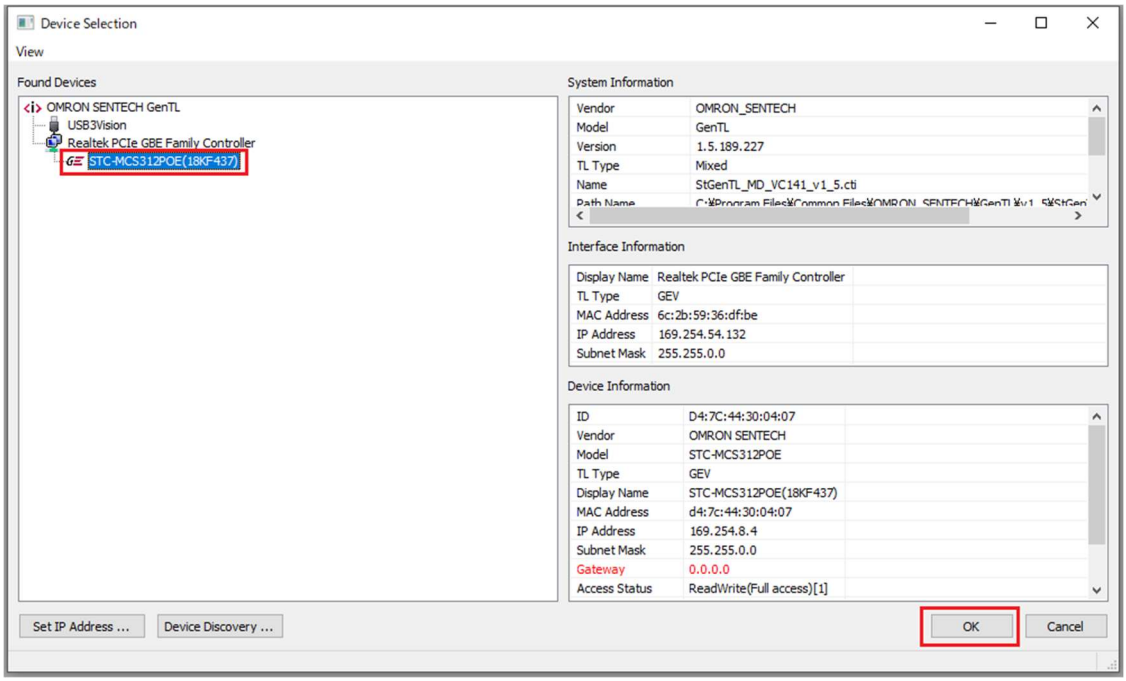
5 When [OK] button could not select even camera is displaying (GigE Vision / USB3 Vision / CoaXPress)

When [OK] button could not select while camera Is displaying, camera could be already using with other application.

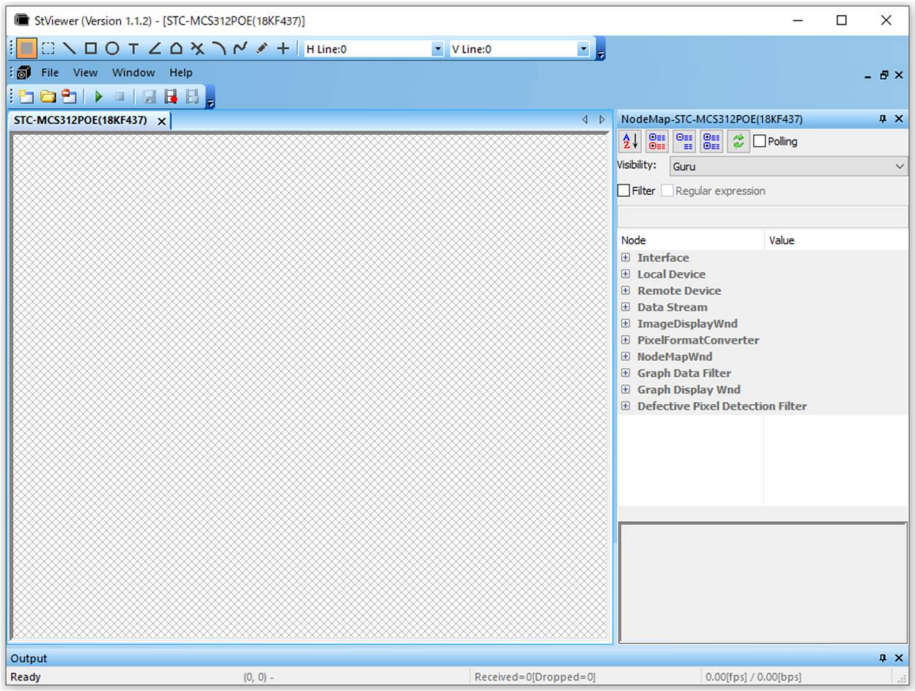
6 Acquiring image

(1) Connects camera then run StViewer.

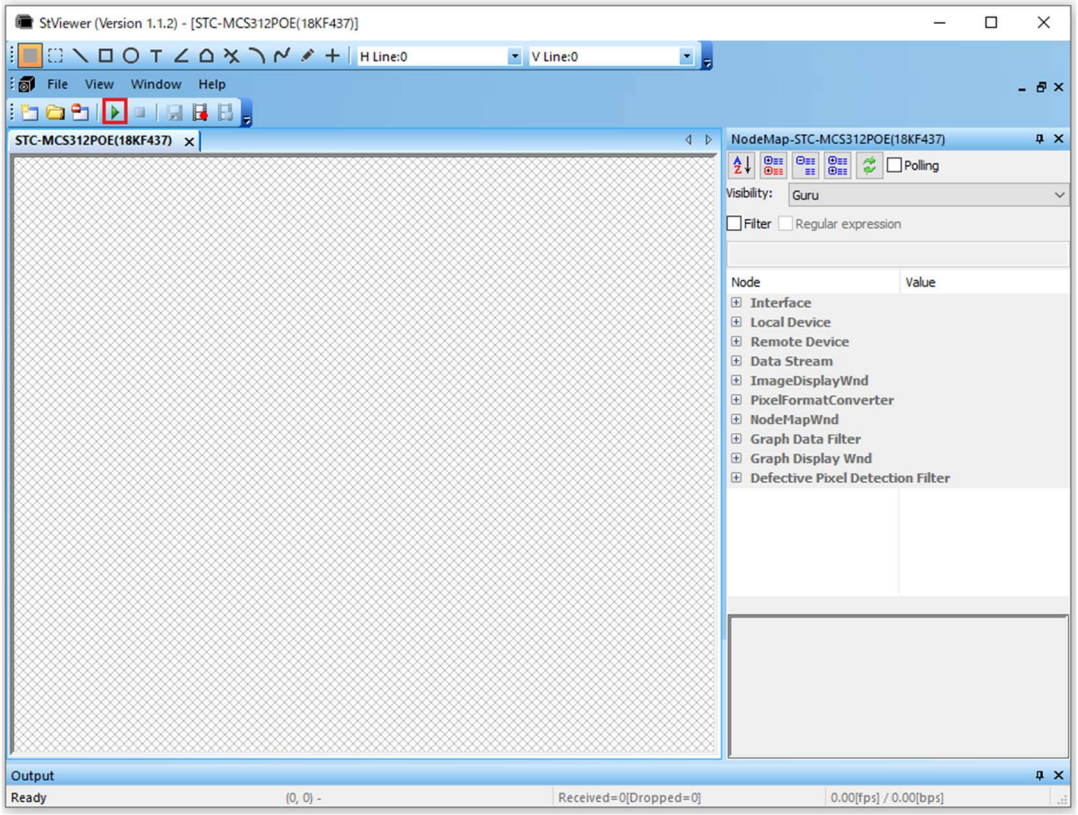
(2) Selects target camera that appears on “Device Selection” window then selects “OK” button right bottom on window.



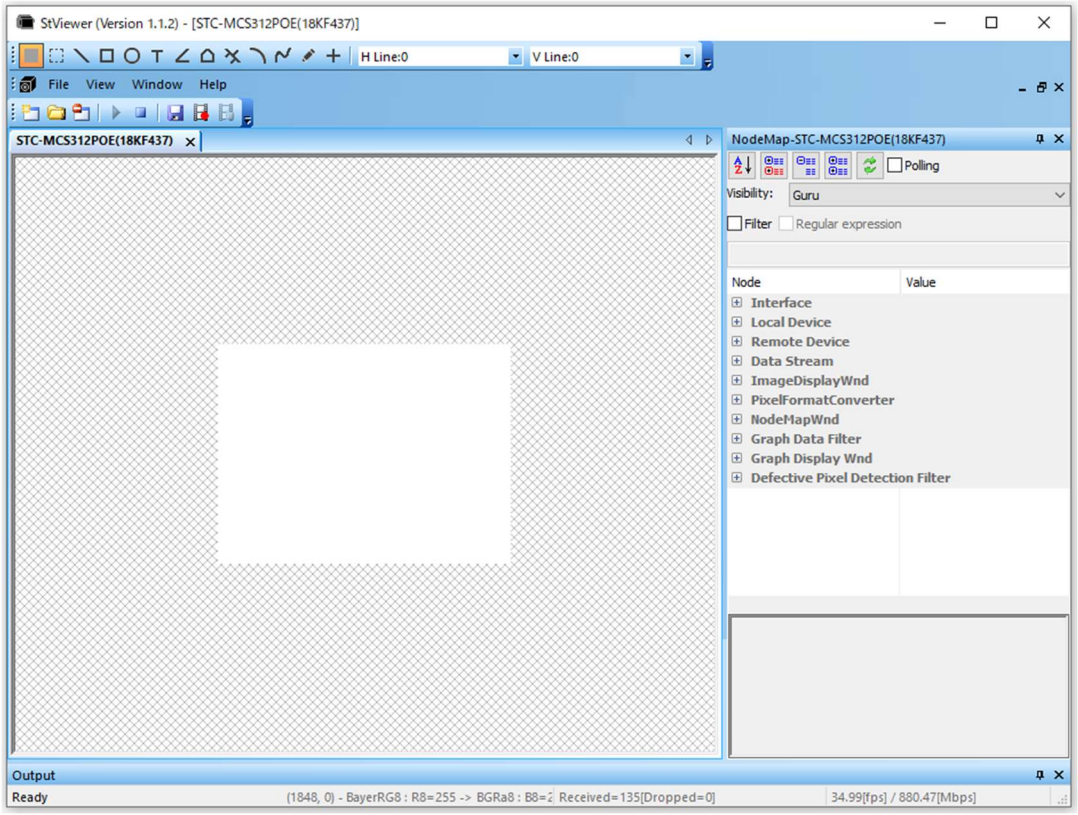
(3) “StViewer” window is open.



(4) Selects “▷” to start image acquisition.



After image acquisition.



7 Camera settings

The settings of USB3 Vision, GigE Vision and CoaXPress cameras are changeable with “NodeMap” on StViewer.

7.1 Trigger function

Software trigger

The image acquisition command (trigger signal) sends to camera by software (StViewer / Sentech SDK) to image acquisition.

Hardware trigger

The hardware trigger signal sends camera through hardware (6pin or another IO connector) to image acquisition.

* The response of hardware trigger is better than software trigger due to trigger signal sends to camera directly (without go through PC / software)

LinkTrigger0 trigger (CoaXPress camera only)

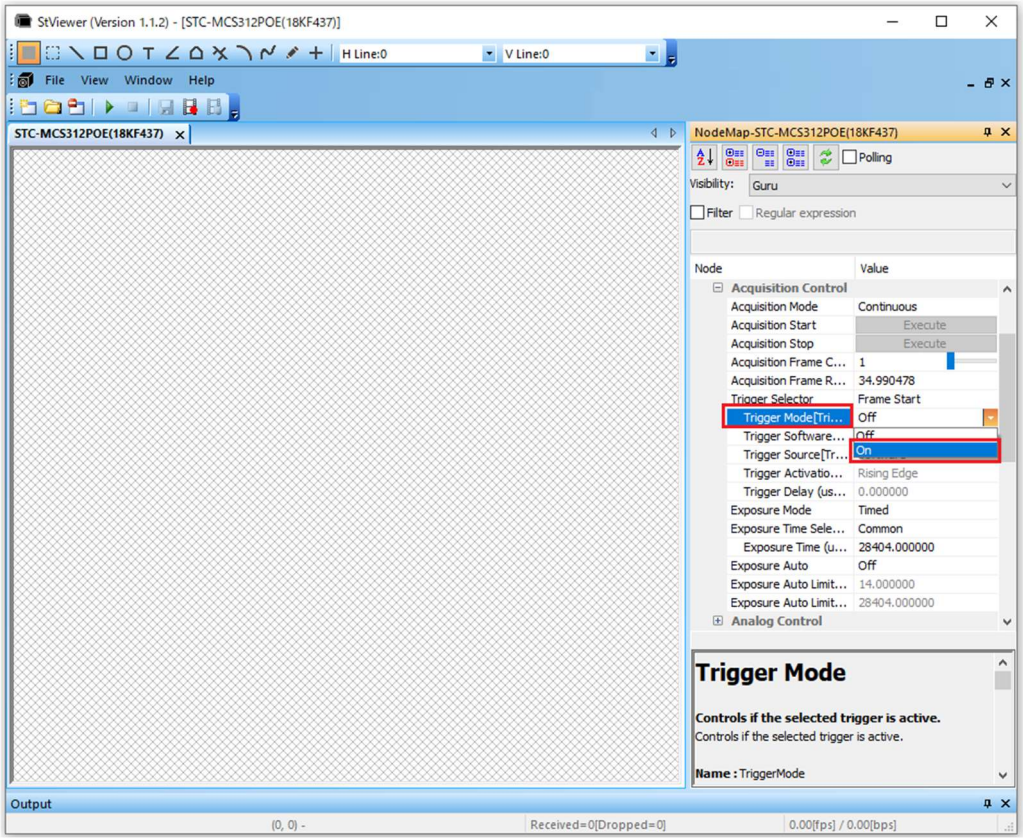
Triggering by CXP trigger packet.

・How to select trigger mode

Selects “On” at “Trigger Mode” under “Acquisition Control” on “Remote Device.

* The camera operates with free-run mode when selecting “Off” at “Trigger Mode”.

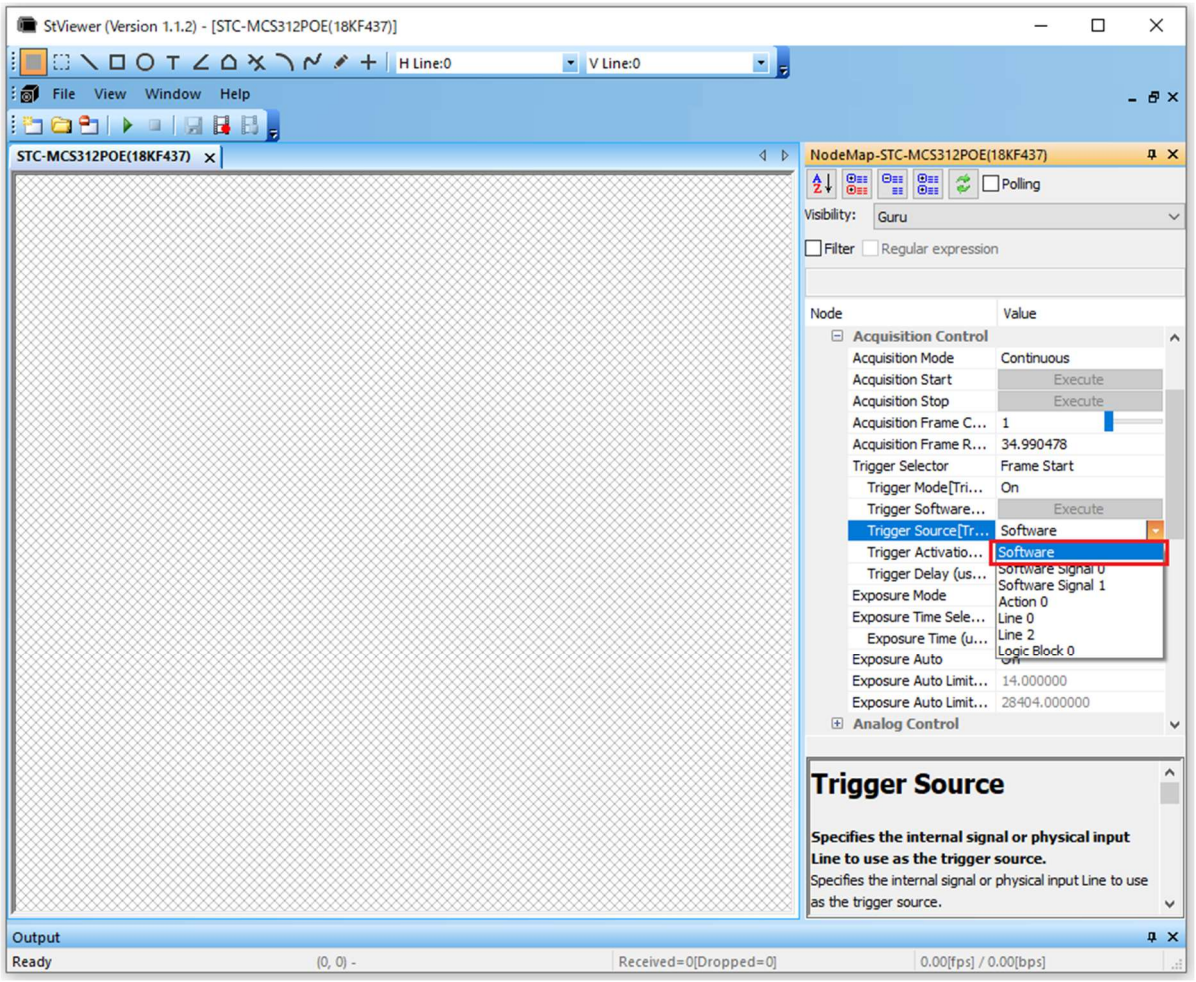
The free run mode is expose and image acquisition continuously based on frame rate setting.



Pleaser refers from next page for details of setting of trigger mode.

・How to select software trigger mode

Selects “On” at “Trigger Mode” under “Acquisition Control” on “Remote Device” and selects “Trigger Source” at ““Acquisition Control” under “Remote Device”.



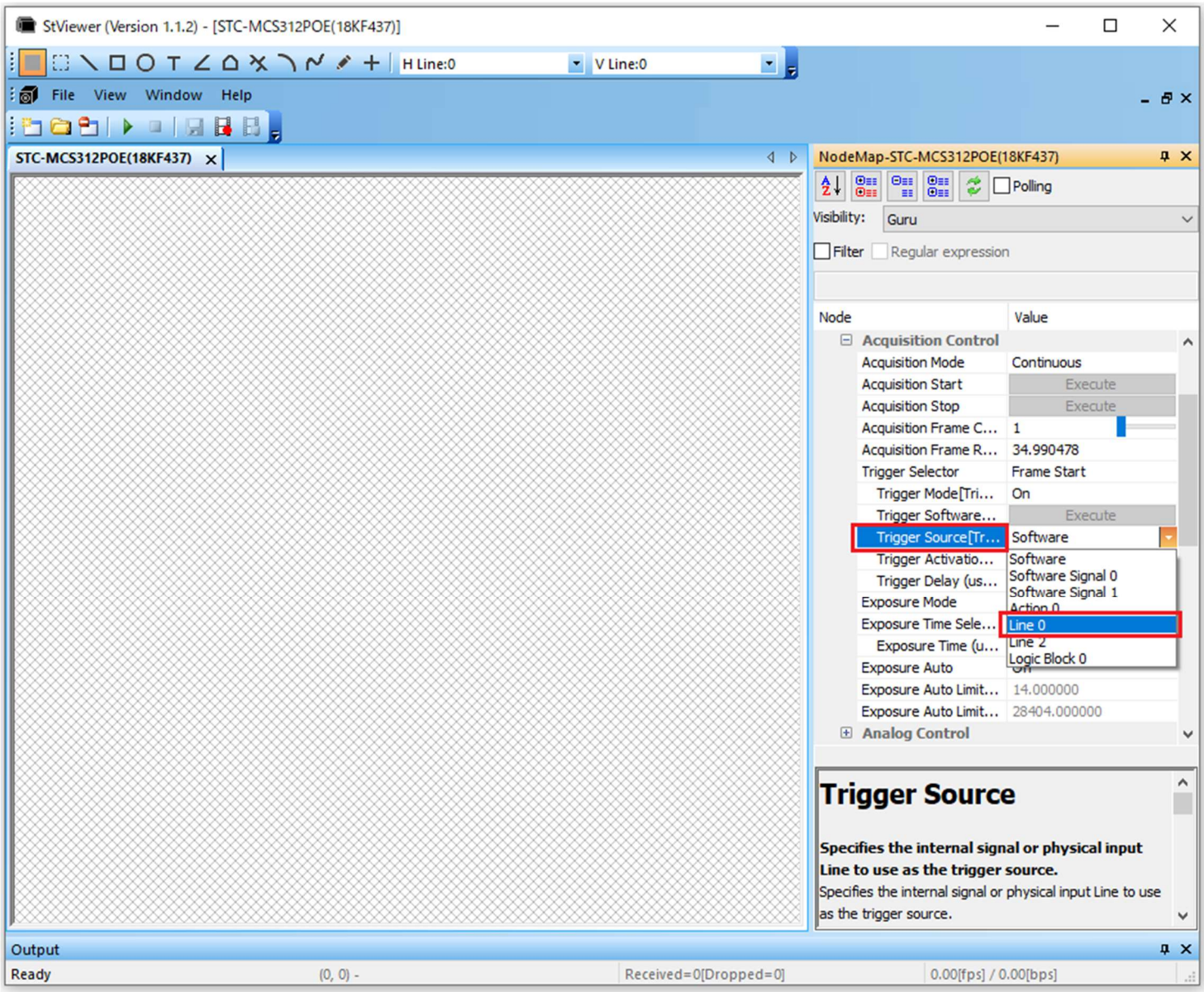
When selecting “Execute” at “Trigger Software” under “Acquisition Control” on “Remote Device, software trigger generates.

The reference sample program of Sentech SDK is “FrameStartTrigger”.

・How to select hardware trigger mode

Selects “On” at “Trigger Mode” under “Acquisition Control” on “Remote Device” and selects “LineX” at “Trigger Source” under “Acquisition Control” on “Remote Device”.

* The selection of some cameras could be “Hardware”.

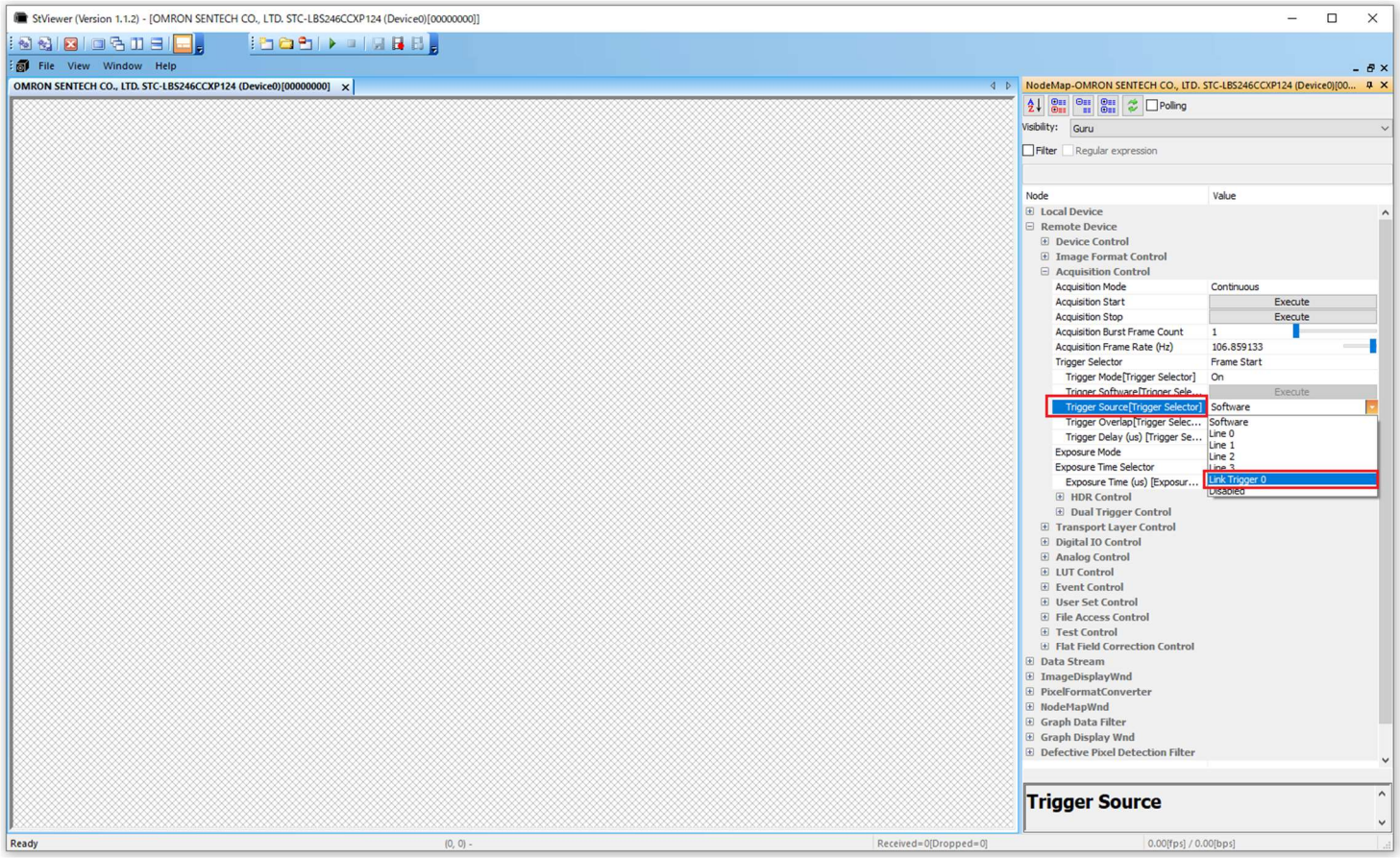


The trigger signal input through IO connector of camera when image acquisition with hardware trigger.

Please refers camera specifications for camera IO connector.

・How to select LinkTrigger0 trigger

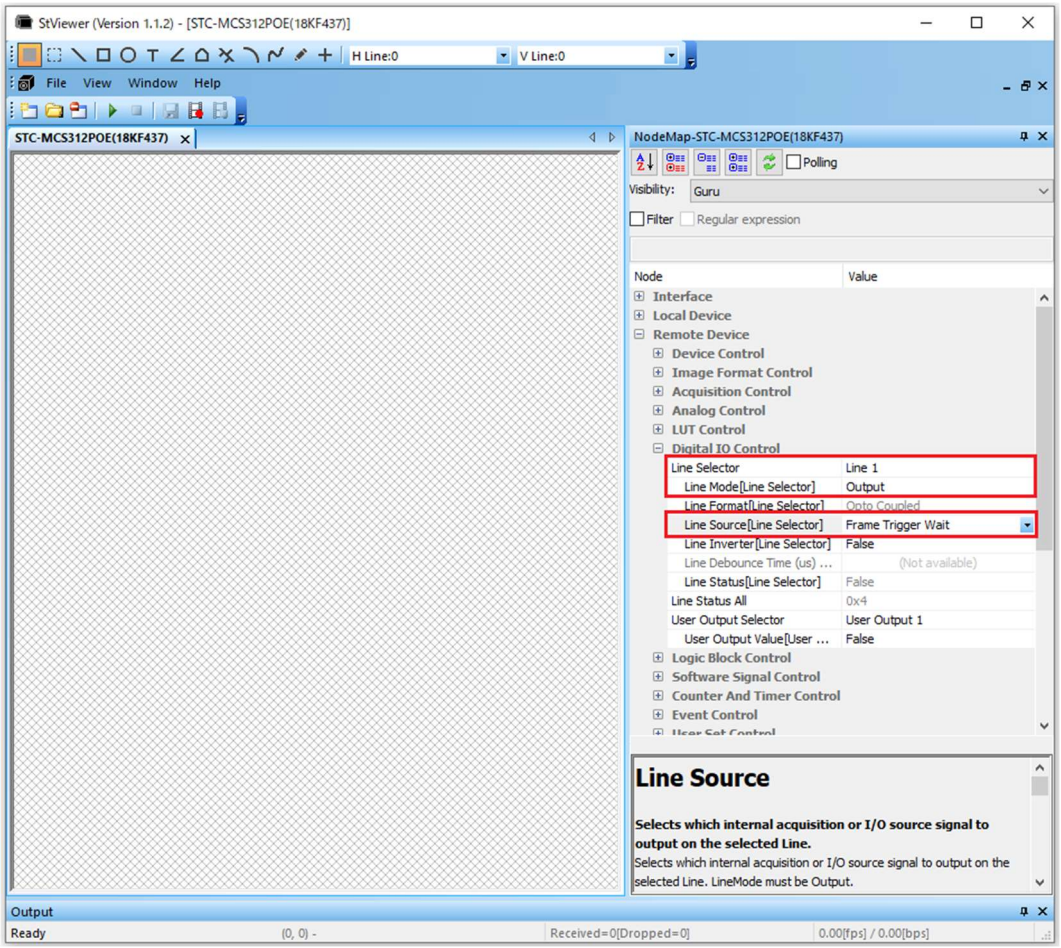
Selects “On” at “Trigger Mode” under “Acquisition Control” on “Remote Device”,
then selects “Link Trigger 0” at “Trigger Source” under “Acquisition Control” on “Remote Device”.



Link Trigger 0 is the trigger signal sends from CoaXPress frame grabber board to CoaXPress camera.
Please check document of CoaXPress frame grabber board for trigger signal.

・How to select Output signal

When using output signal from camera, it is necessary to setup output signal.



(1) Selects using output IO/line at “Line Selector” under “Digital IO Control” on “Remote Device”.

(2) Selects “Output” at “Line Mode” under “Digital IO Control” on “Remote Device”.

(3) Selects output signal type at “Line Source” under “Digital IO Control” on “Remote Device”.

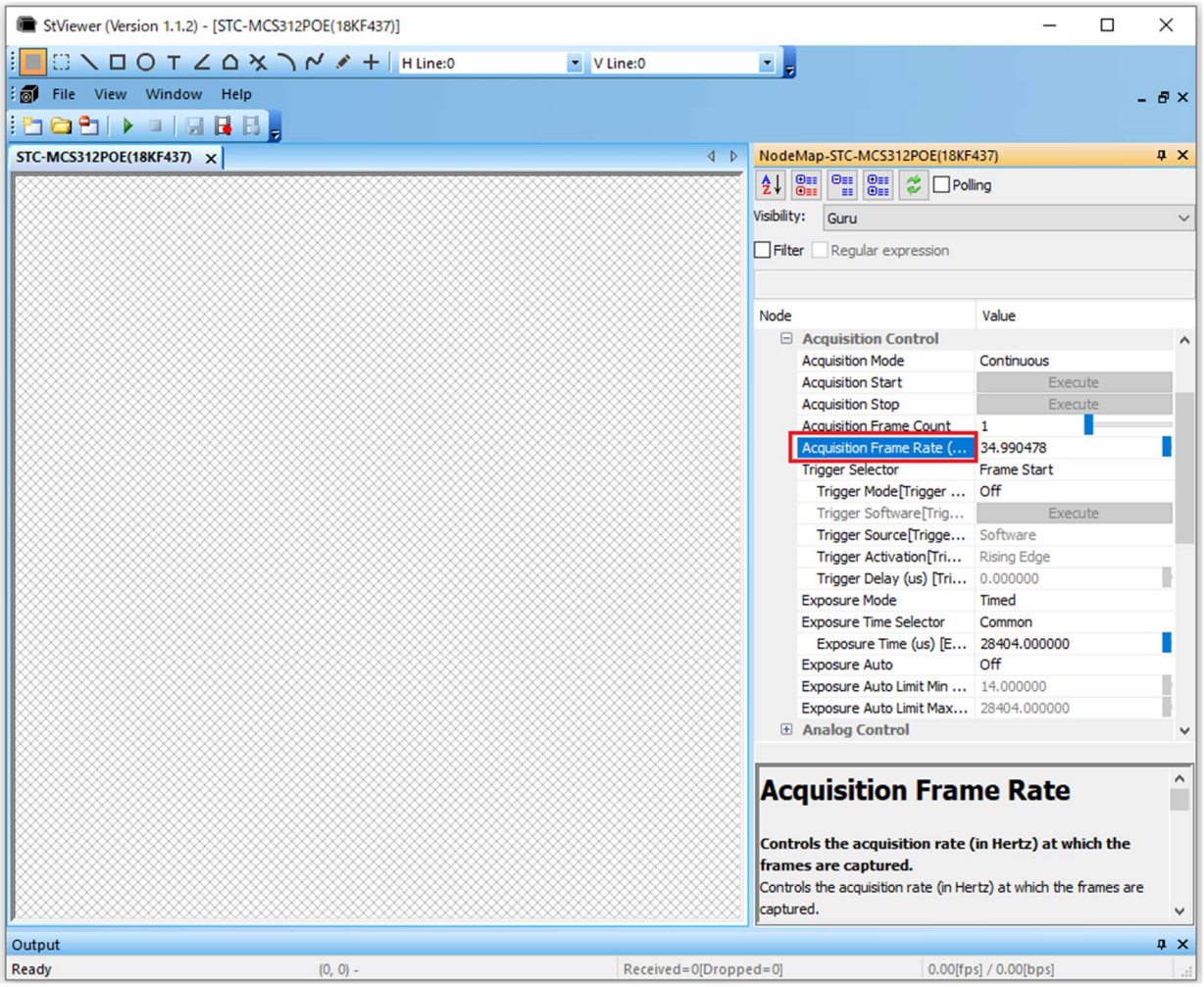
Please refers camera specifications for “Line Source” assignment of camera IO connector.

7.2 Frame rate

The frame rate is, unit that how many images can acquire per one second (frame/sec.).

・How to set frame rate of free rum mode

The frame rate can be change at “Acquisition Frame Rate(Hz)” under “Acquisition Control” on “Remote Device”.



The maximum frame rate that can be set changes with below settings:

・Image size (Width / Height)

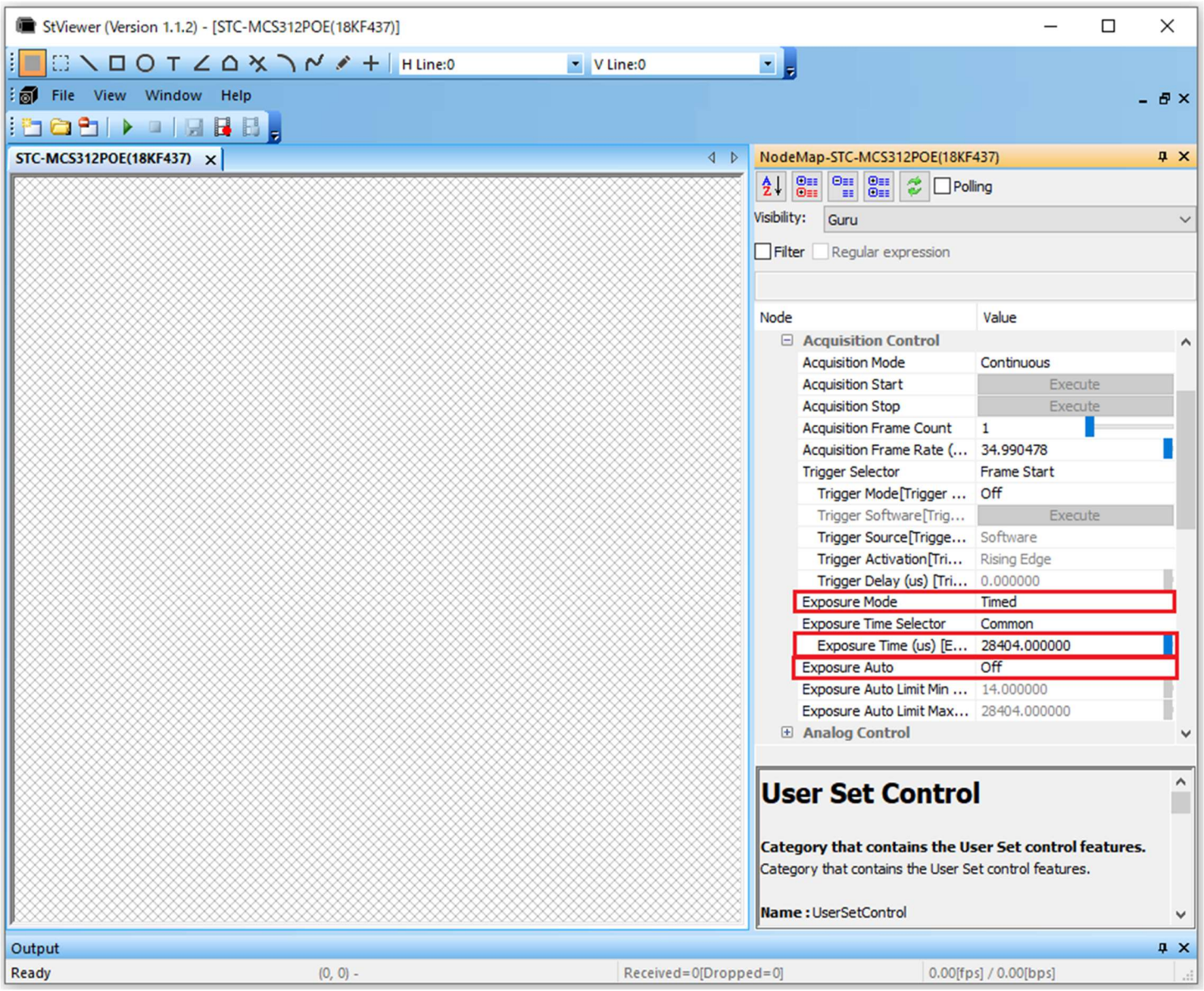
・Pixel format

・Exposure time

7.3 Exposure Time

The exposure time is, light receiving time of image sensor.
The brighter image is acquiring when extending exposure time.
When set more than “1/frame rate” second exposure time, brighter image can be acquire but frame rate is down.

・How to set fixed exposure time
Selects “Timed” at “Exposure Mode” under “Acquisition Control” on “Remote Device” and
selects “Off” at “Exposure Auto” under “Acquisition Control” on “Remote Device” and
sets exposure time at “Exposure Time” under “Acquisition Control” on “Remote Device”.
The unit of exposure time is µsecond.

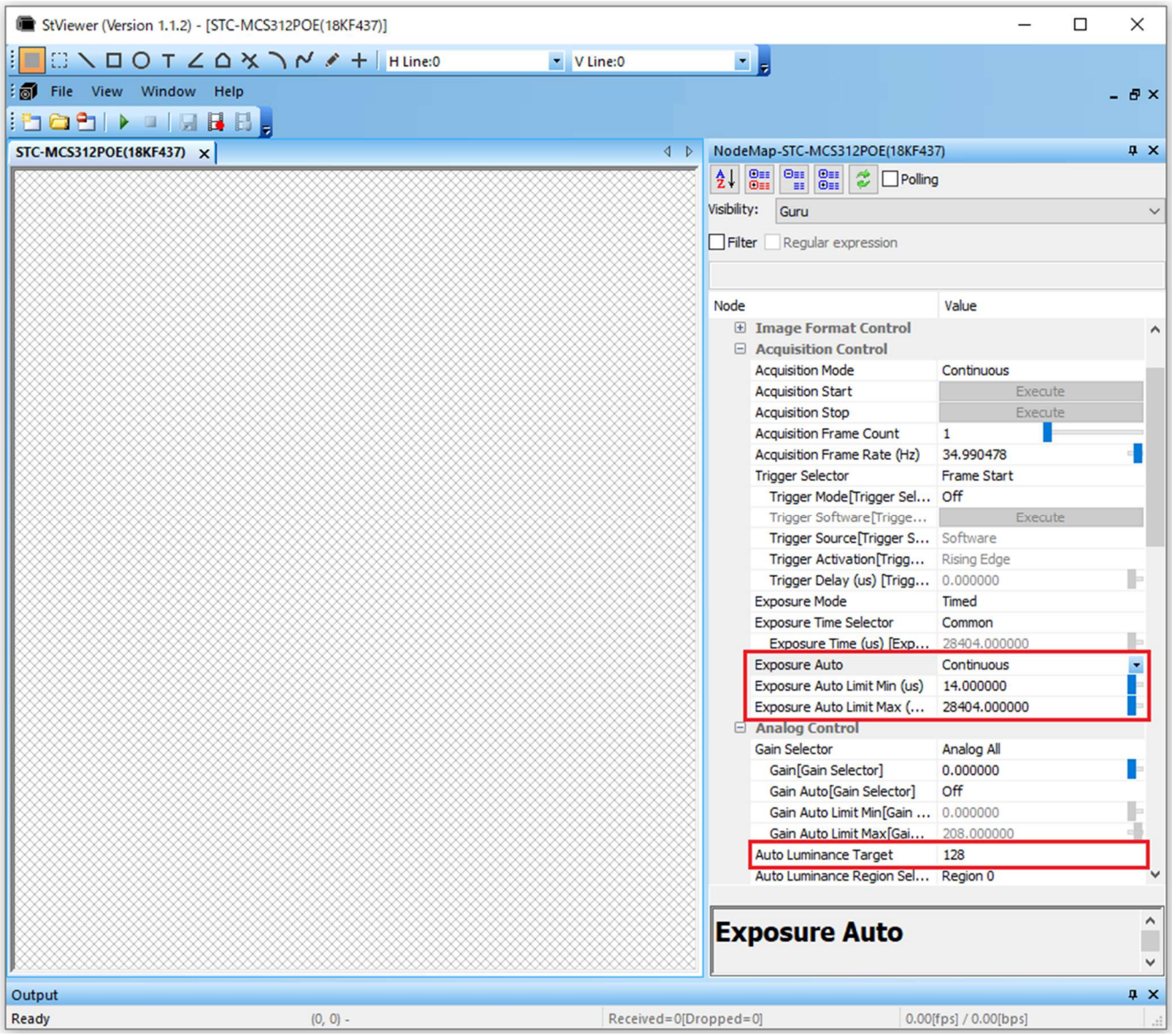


・How to set auto exposure control

Selects “Timed” at “Exposure Mode” under “Acquisition Control” on “Remote Device” and selects “Continuous” at “Exposure Auto” under “Acquisition Control” on “Remote Device”.

It is necessary to set shortest and longest exposure time for auto exposure control.
Sets minimum exposure time at “Exposure Auto Limit Max” under “Acquisition Control” on “Remote Device” and sets maximum exposure time at “Exposure Auto Limit Min” under “Acquisition Control” on “Remote Device”.

It is necessary to set target brightness for auto exposure control.
Sets target brightness at “Auto Luminance Target” under “Analog Control” on “Remote Device”.
The camera adjusts exposure time between minimum exposure time and maximum exposure time automatically, to maintain brightness of image as target brightness.



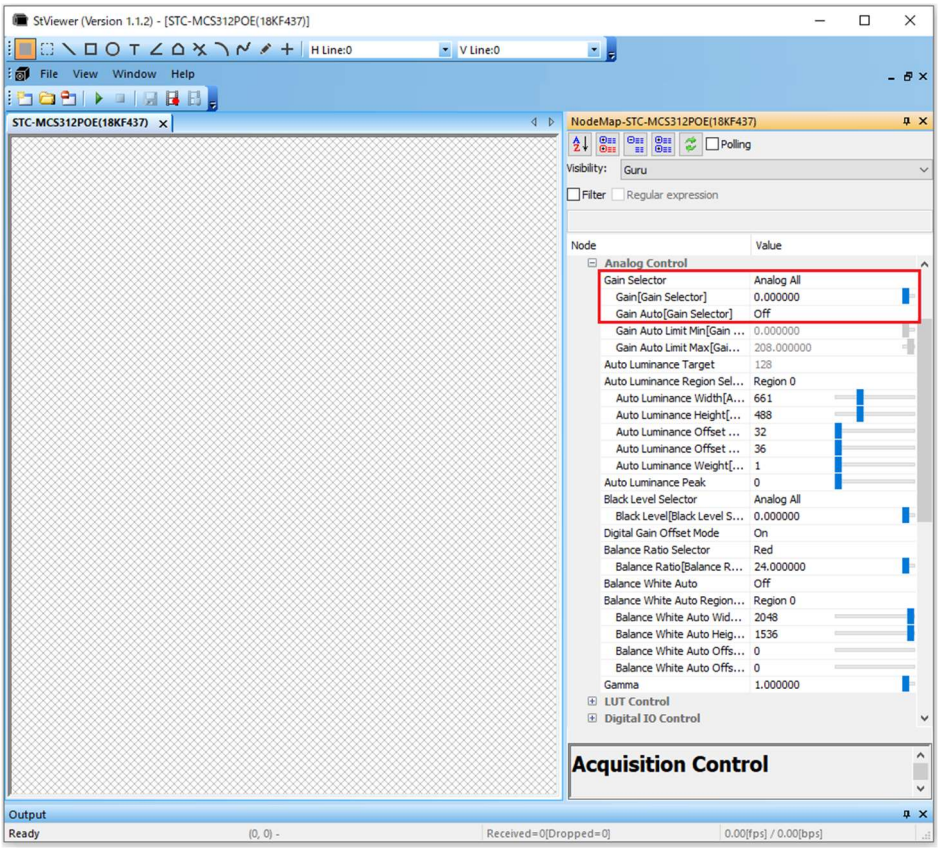
7.4 Gain

The gain is, one of camera function that is amplifying image signal then adjust brightness of image.
There is no influence for frame rate when changing gain.
When increasing gain, noise on image becomes visible because of noise also amplifying.

When the noise is visible on image after change gain, adjusting iris of lens and light source, and reduce gain then check image.

・How to set fixed gain
Selects “Off” at “Gain Auto” under “Analog Control” on “Remote Device” and
selects “Analog All” or “Digital All” at “Gain Selector” under “Analog Control” on “Remote Device”.
(Analog All: Analog gain, Digital All: digital gain)
* Some camera could not select one of these.

Sets gain at “Gain” under “Analog Control” on “Remote Device”.
The image becomes darker when setting with small value. The image becomes brighter when setting with greater value.
* It is necessary to adjust gain with checking image because noise also increasing when increasing gain to acquire brighter image.

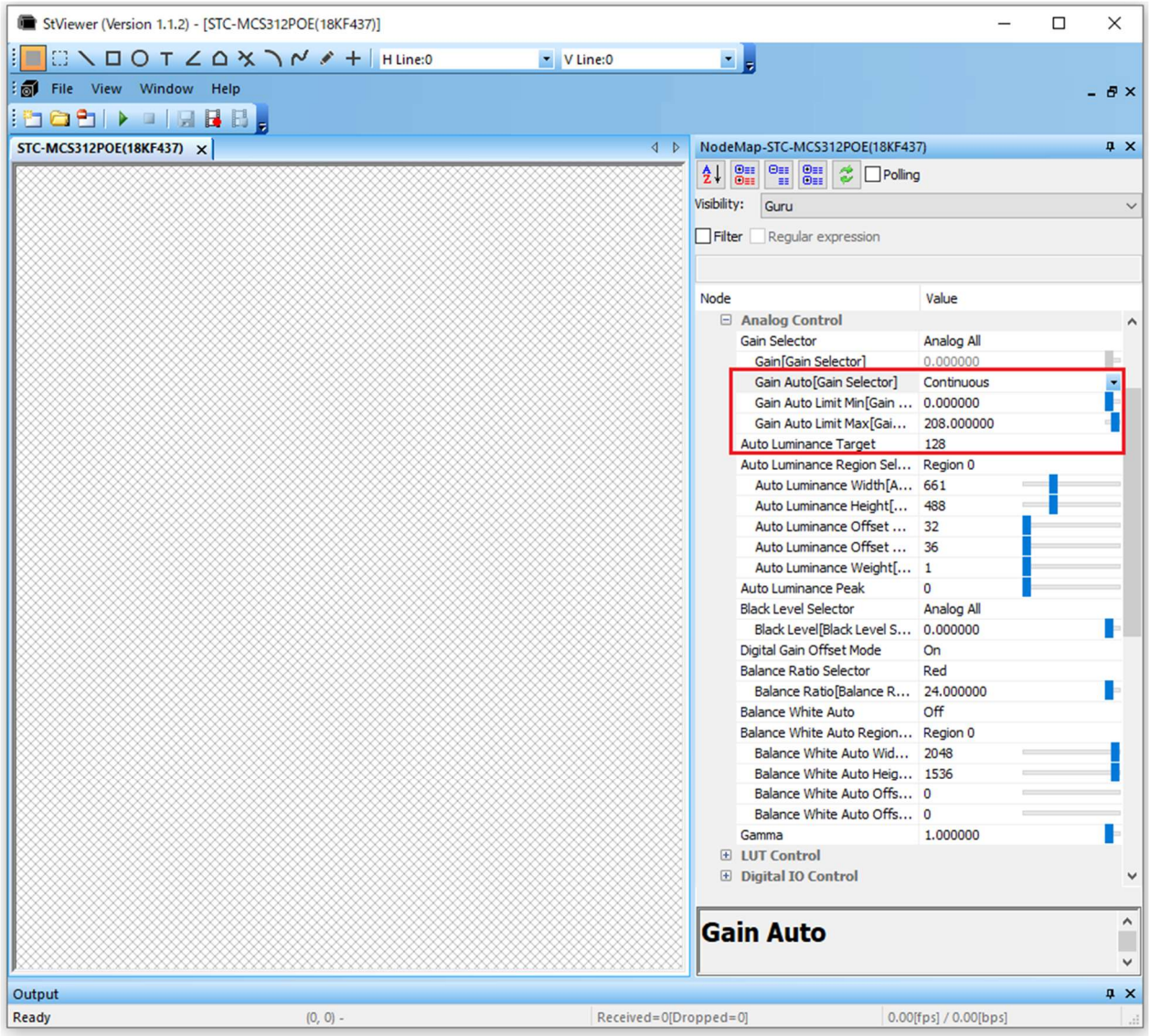


・How to set auto gain control

Selects “Continuous” at “Gain Auto” under “Analog Control” on “Remote Device”.

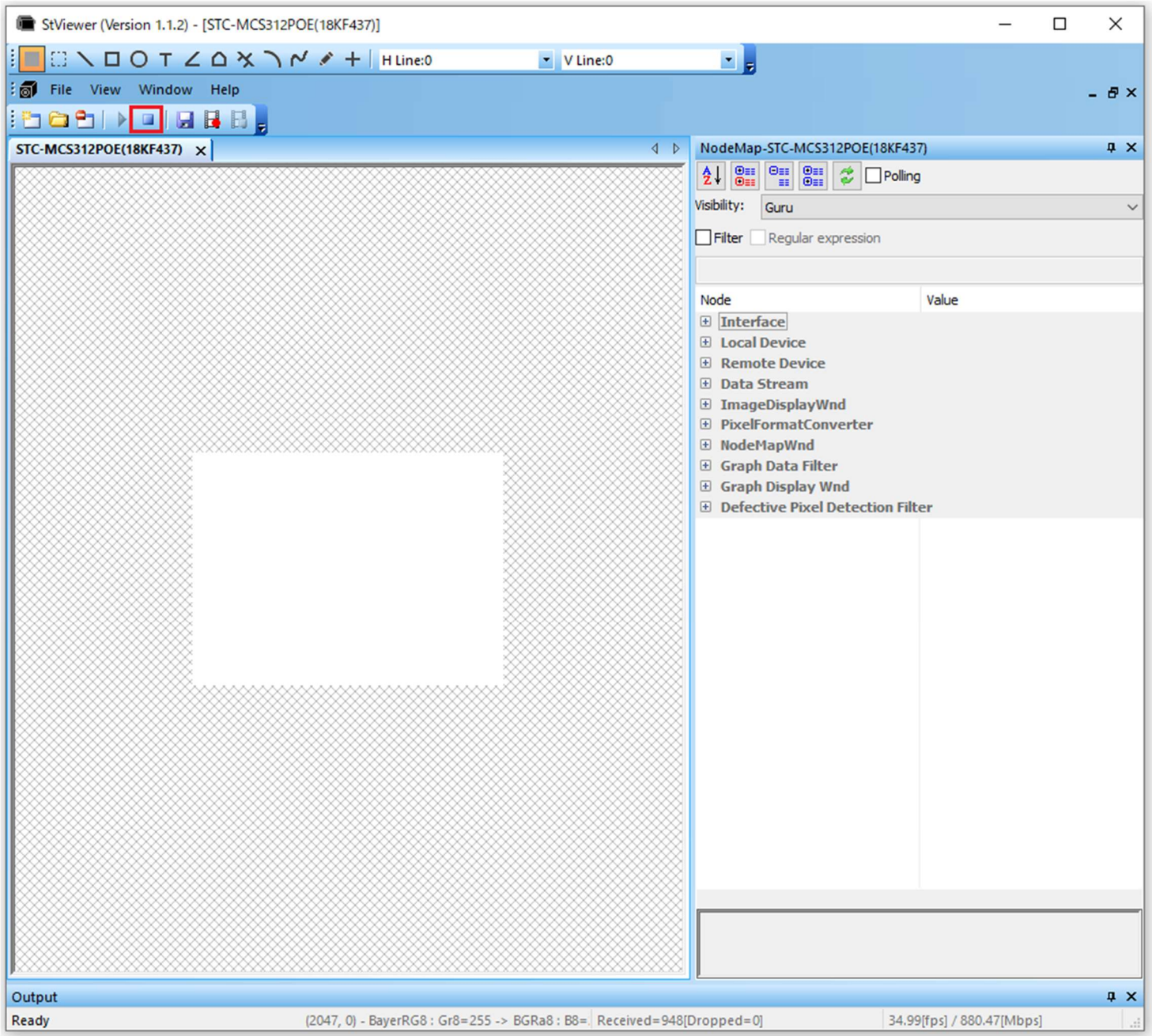
It is necessary to set minimum and maximum gain for auto gain control.
Sets minimum gain at “Gain Auto Limit Max” under “Analog Control” on “Remote Device” and
sets maximum gain at “Gain Auto Limit Min” under “Analog Control” on “Remote Device”.

It is necessary to set target brightness for auto gain control.
Sets target brightness at “Auto Luminance Target” under “Analog Control” on “Remote Device”.
The camera adjusts gain between minimum gain and maximum gain automatically, to maintain brightness of image as target brightness.



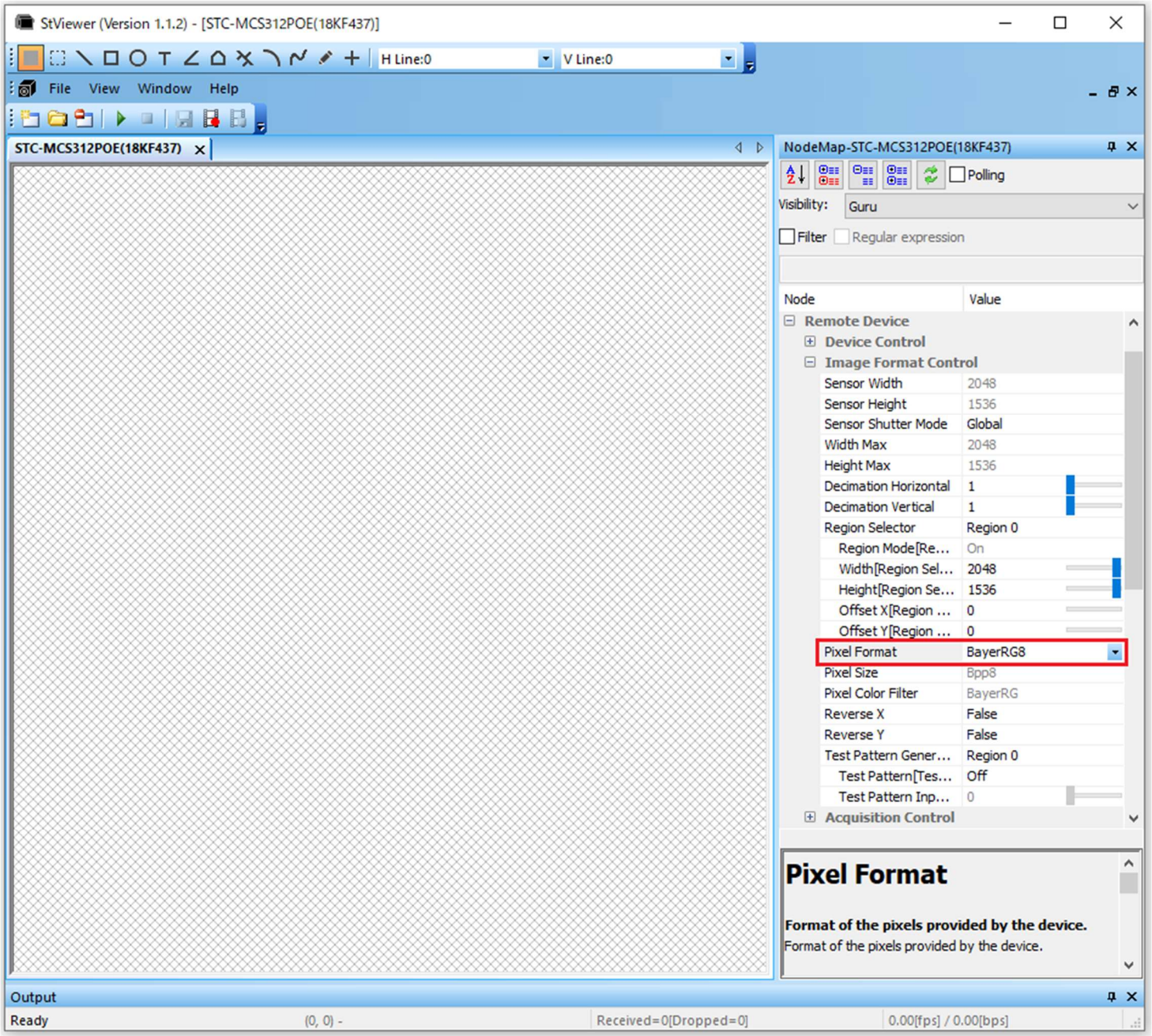
7.5 Image output format

* It is necessary to stop image acquisition when change image output format.



When changing from 8bit(Mono8/Bayerxx8) to 12bit(Mono12 / Bayerxx12), data depth of one pixel becomes increase from 256 to 4,096, but frame rete becomes down because of increase amount of output data.

Selects image output format (pixel format) at “Pixel Format” under “Image Format Control” on “Remote Device”.



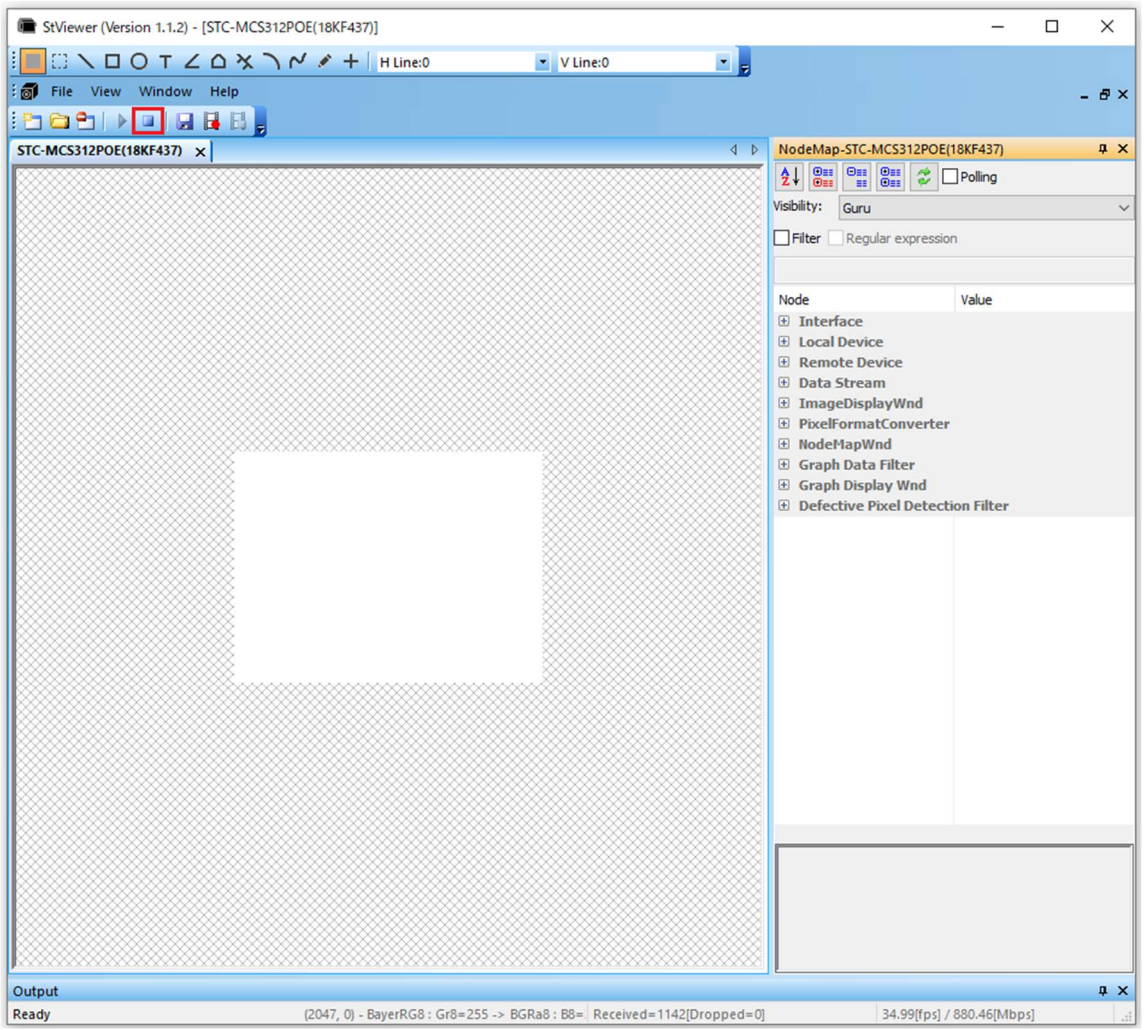
7.6 Image resolution / Image size

The size of output image can be change.
The size of image is different based on camera model.

When reducing Height(vertical) size of image, increases frame rate.
There is no influence for frame rate when reducing Width(horizontal) size of image.

* It is necessary to change exposure time less than “1/(frame rate)” second if frame rate does not increase after change size of image.

・How to set resolution/size of image
* It is necessary to stop image acquisition when change size of image.

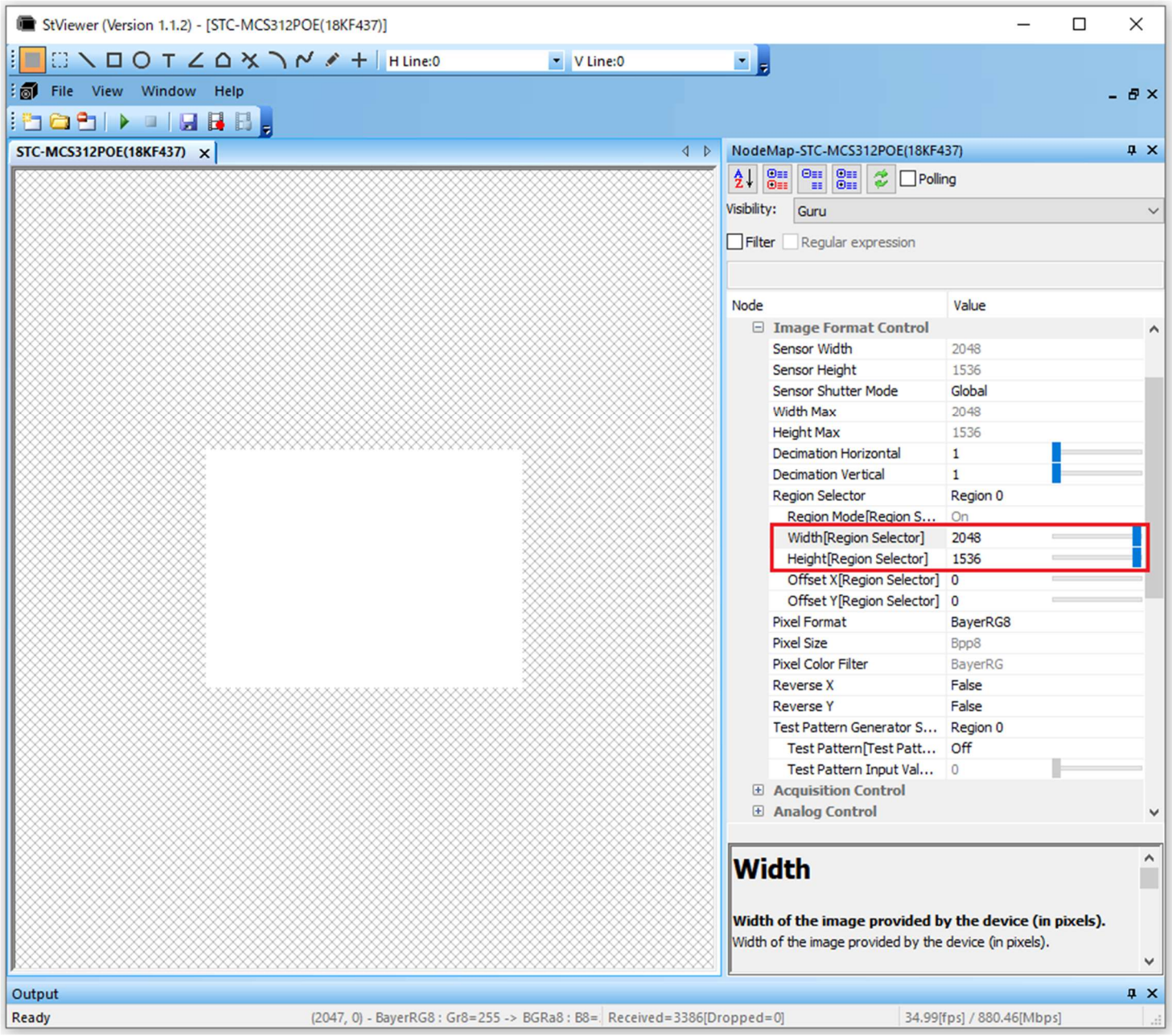


・How to set width of image

Sets width of image at “Width” under “Image Format Control” on “Remote Device”.

・How to set height of image

Sets width of image at “Height” under “Image Format Control” on “Remote Device”.



・How to set horizontal start position of acquisition image

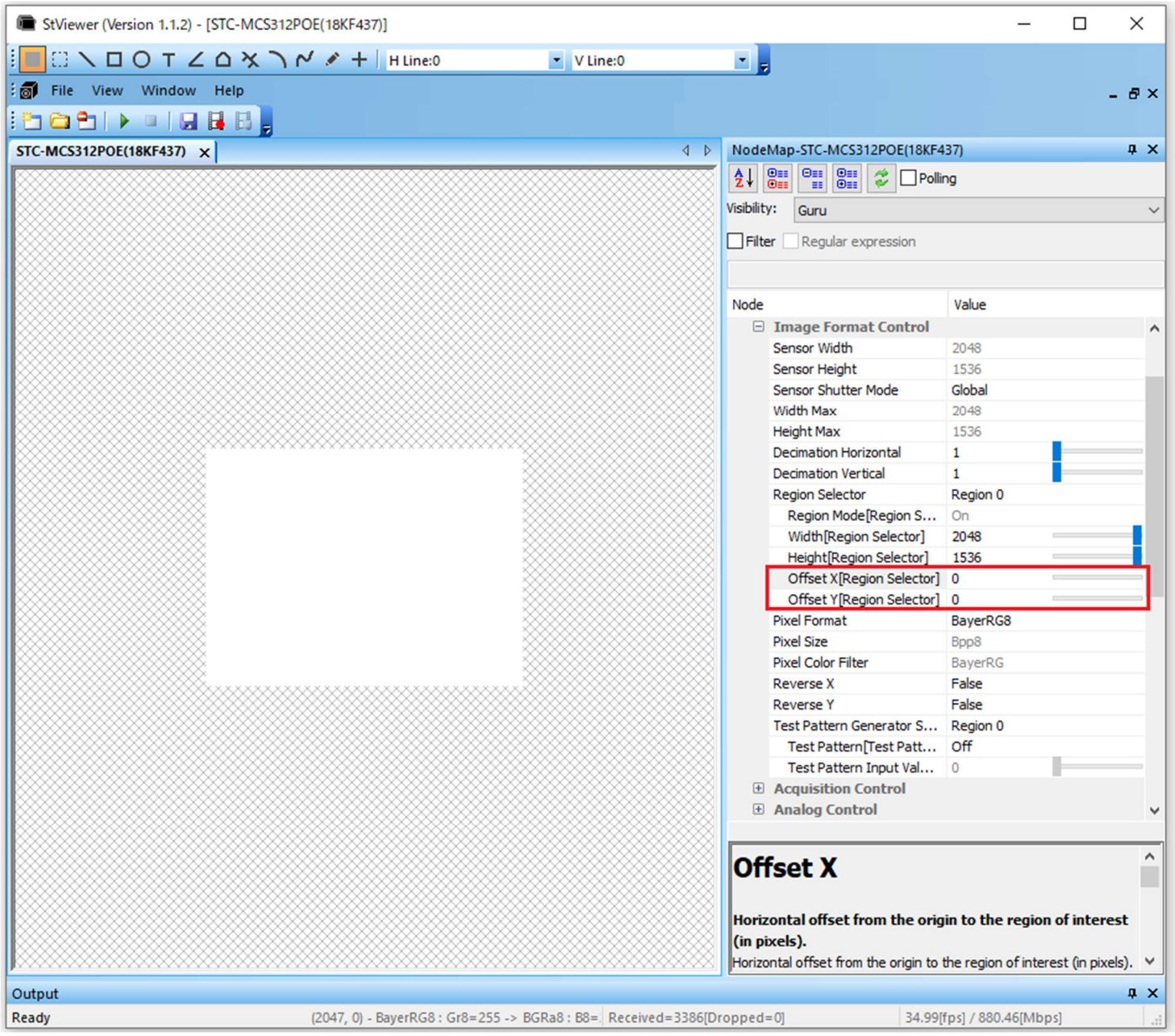
Sets horizontal start position of acquisition image at “Offset X” under “Image Format Control” on “Remote Device”.

・How to set vertical start position of acquisition image

Sets vertical start position of acquisition image at “Offset Y” under “Image Format Control” on “Remote Device”.

* The range of OffSet X changes depends on setting of width. The range of OffSet Y changes depends on setting of Height.

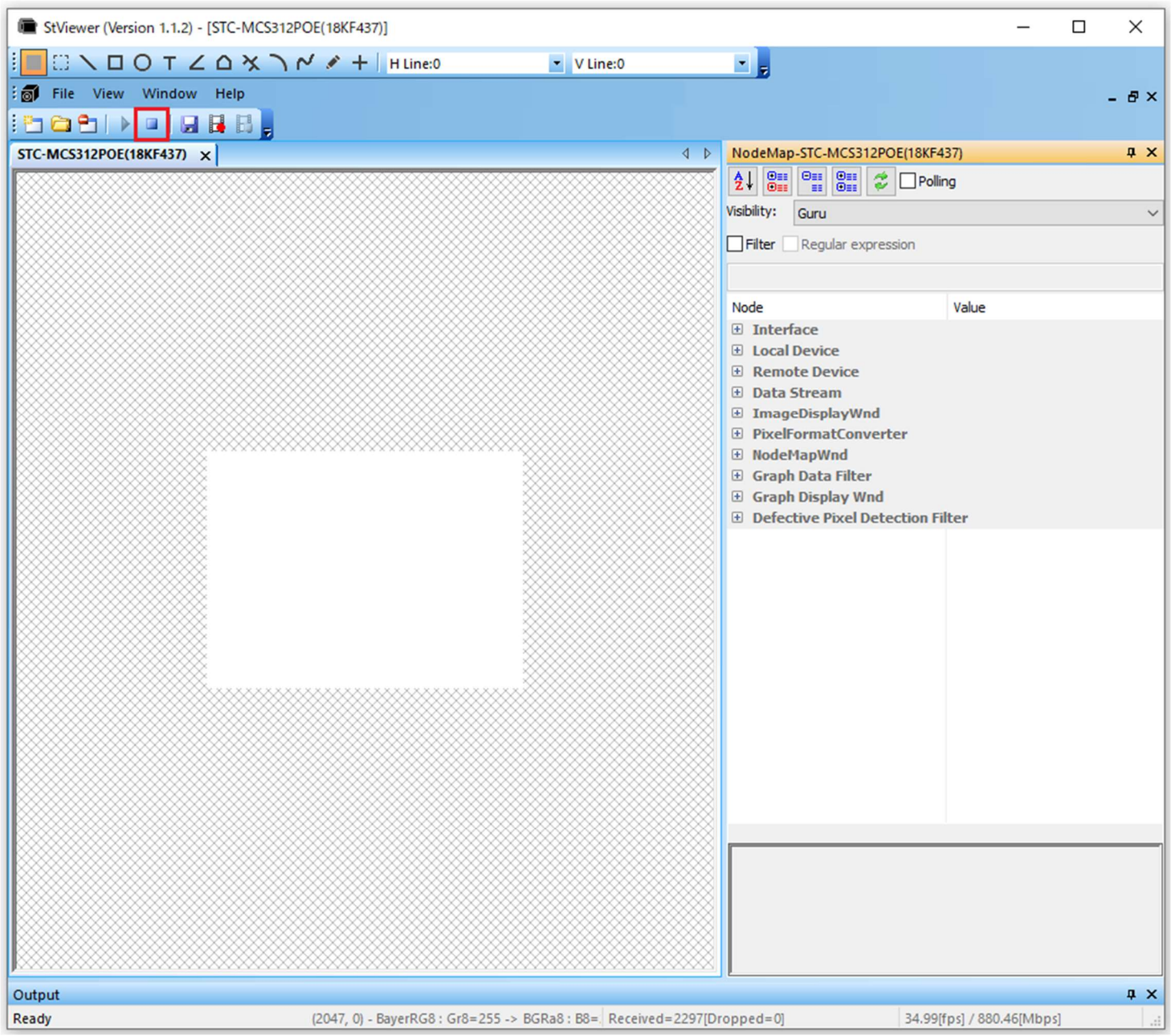
Also, the range of width changes depends on setting of OffSet X. The range of Height changes depends on setting of OffSet Y.



7.7 Flip image (Horizontal flip / vertical flip / vertical and horizontal flip)

* Some camera has restriction for flip image function.

* It is necessary to stop image acquisition when change flip image setting.



・How to set horizontal flip image

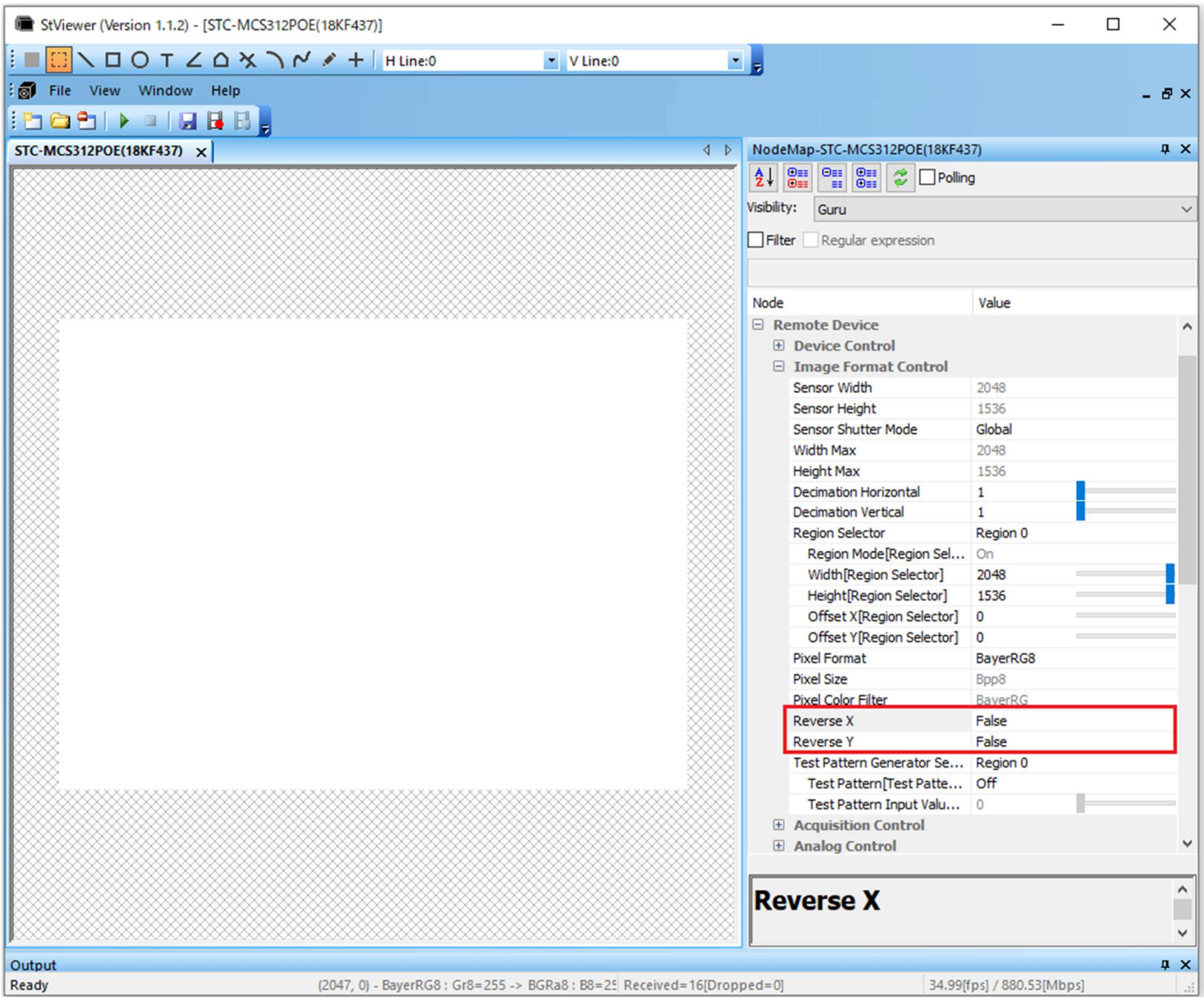
Selects “True” at “Reverse X” under “Image Format Control” on “Remote Device” and selects “False” at “Reverse Y” under “Image Format Control” on “Remote Device”.

・How to set vertical flip image

Selects “False” at “Reverse X” under “Image Format Control” on “Remote Device” and selects “True” at “Reverse Y” under “Image Format Control” on “Remote Device”.

・How to set vertical and horizontal flip image

Selects “True” at “Reverse X” under “Image Format Control” on “Remote Device” and selects “True” at “Reverse Y” under “Image Format Control” on “Remote Device”.



7.8 UserSet (Save and load settings)

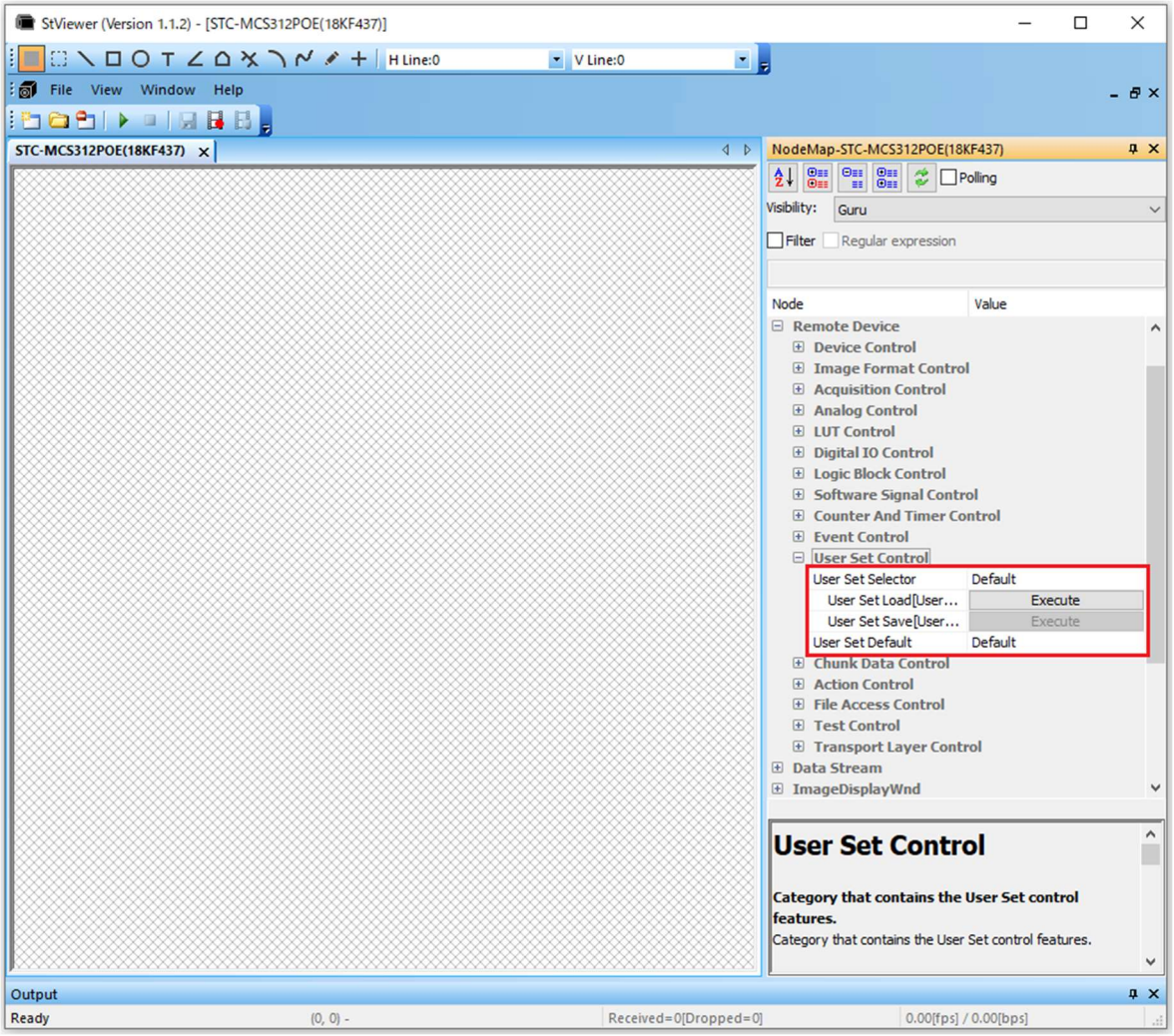
The camera settings can save onto camera as “UserSet”.

* It is necessary to stop image acquisition when save camera settings.

Selects save “UserSet” at “User Set Selector” under “User Set Device” on “Remote Device”.

Selects “Execute” at “” under “User Set Selector” on “Remote Device” then save current camera settings save onto UserSet.

To power on camera with changed UserSet settings,
selects changed UserSet at “User Set Default” under “User Set Device” on “Remote Device”.
(For example: Selects “User Set0” at “User Set Default” to power on camera with settings of User Set0.)

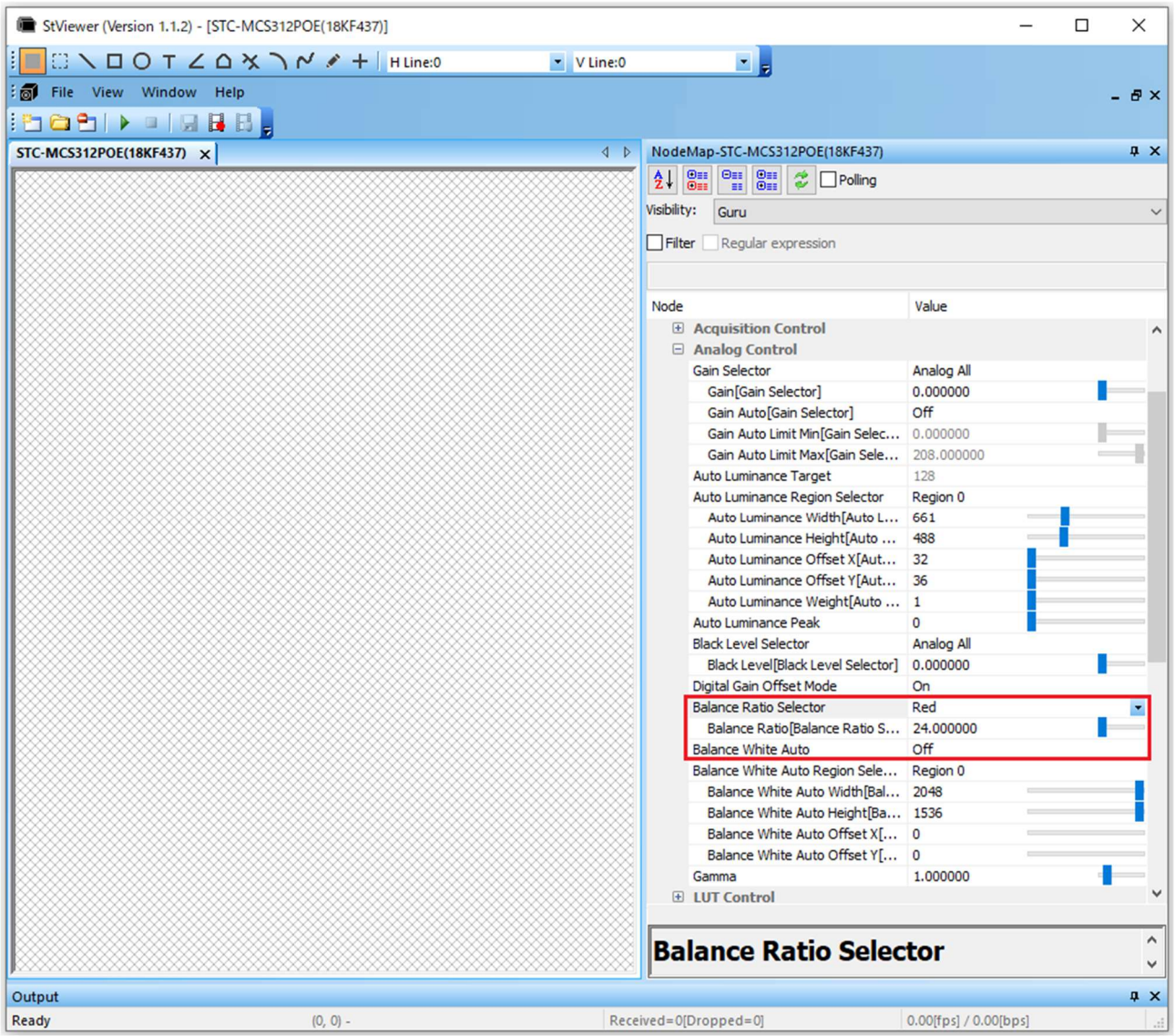


7.9 White balance

The white balance is the function that is adjusting white balance to reproduce white target as white color on image.
* This function is available only color models.

・How to set fixed white balance
Selects “Off” at “Balance White Auto” under “Analog Control” on “Remote Device.

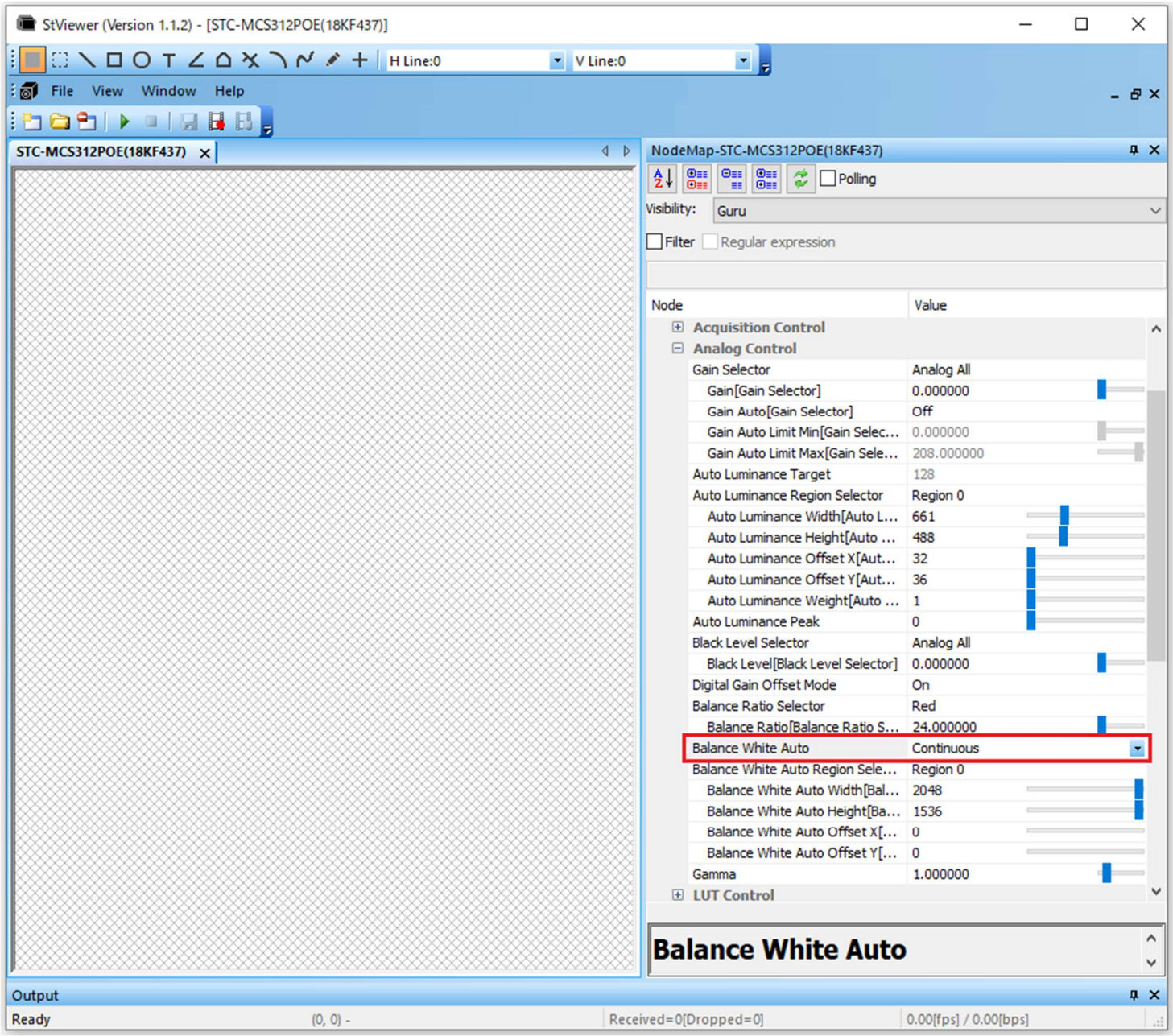
The white balance is adjusting to reproduce white color under light condition to acquire image.
Selects “Red”, “Green” or “Blue” that is target color to adjust, at “Balance Ratio Selector” under “Analog Control” on “Remote Device” then
Adjusts value at “Balance Ratio” under “Analog Control” on “Remote Device” for white color.



・How to set auto white balance

Selects “Continuous” at “Balance White Auto” under “Analog Control” on “Remote Device.

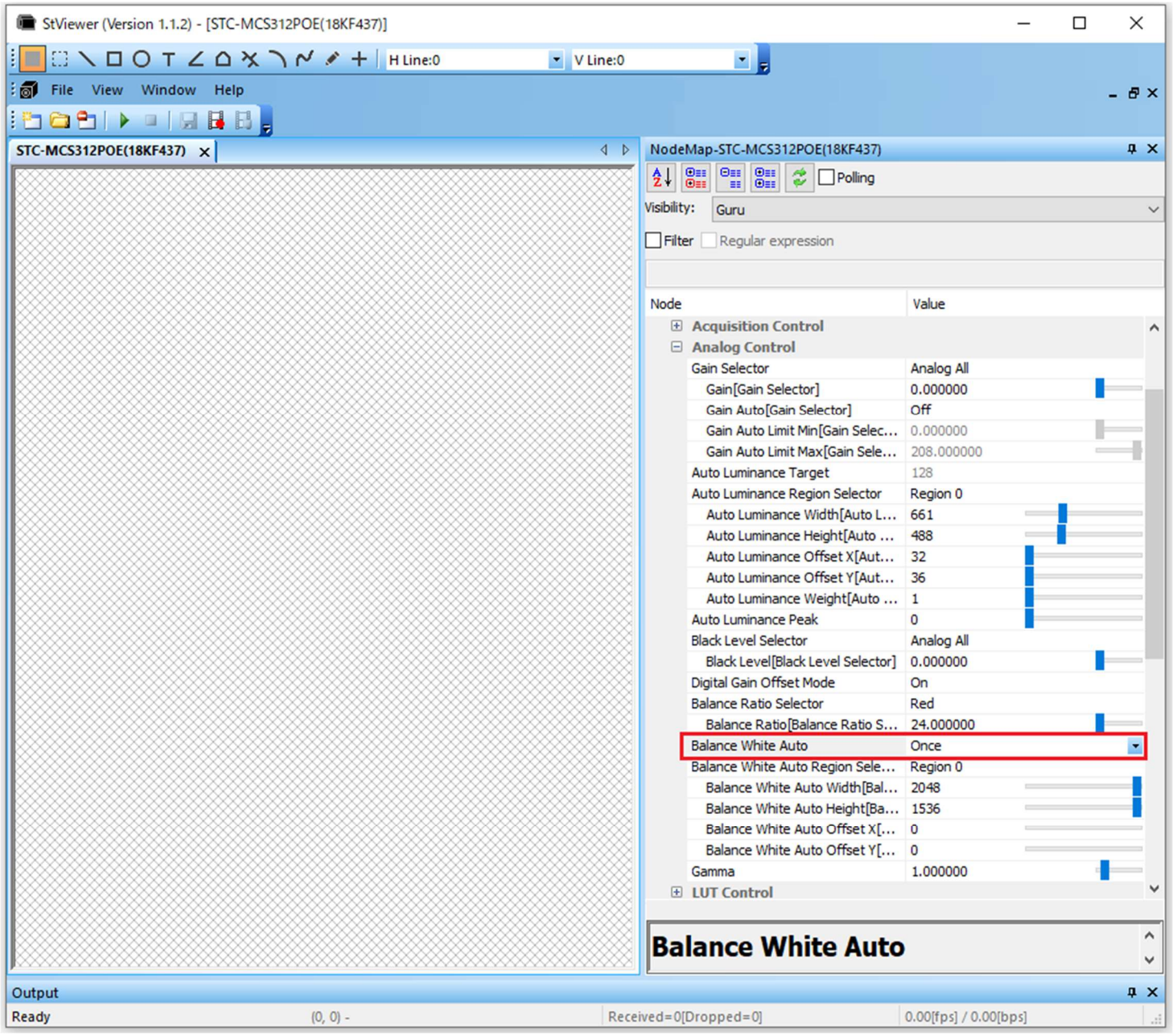
The white balance is adjusting automatically with acquisition condition.



・How to set OneShot white balance

Acquires white flat target then selects “Once” at “Balance White Auto” under “Analog Control” on “Remote Device.

The white balance is adjusting automatically once with acquisition condition then applies white balance settings as fixed white balance.



7.10 Chunk data

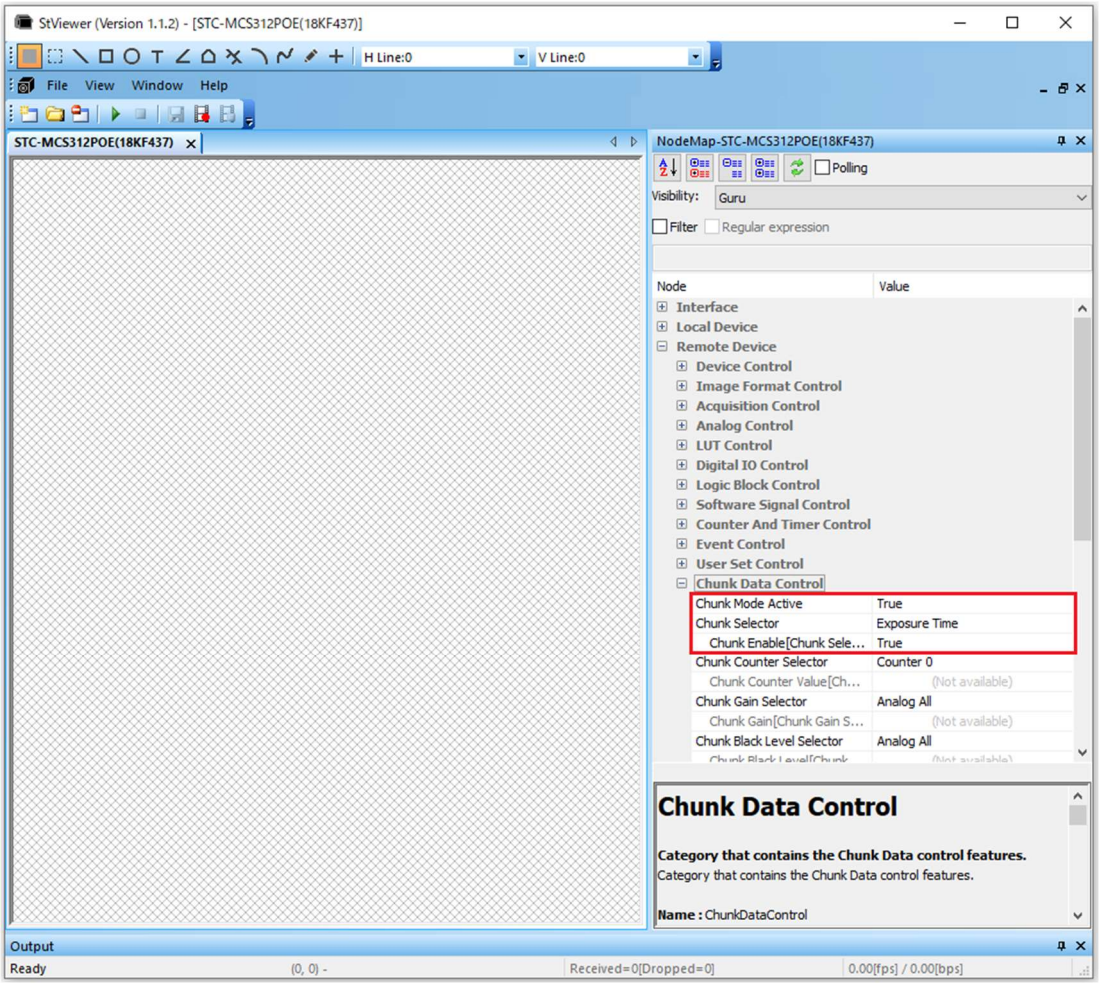
Chunk data is, the function that is adding some camera setting while acquisition image, to image.
The camera setting such as exposure time and gain while acquisition image, can be add to image.

・How to set Chunk data

Selects “True” at “Chunk Mode Active” under “Chunk Data Control” on “Remote Device” to enabling Chunk data function.

Selects adding camera setting at “Chunk Selector” under “Chunk Data Control” on “Remote Device”.

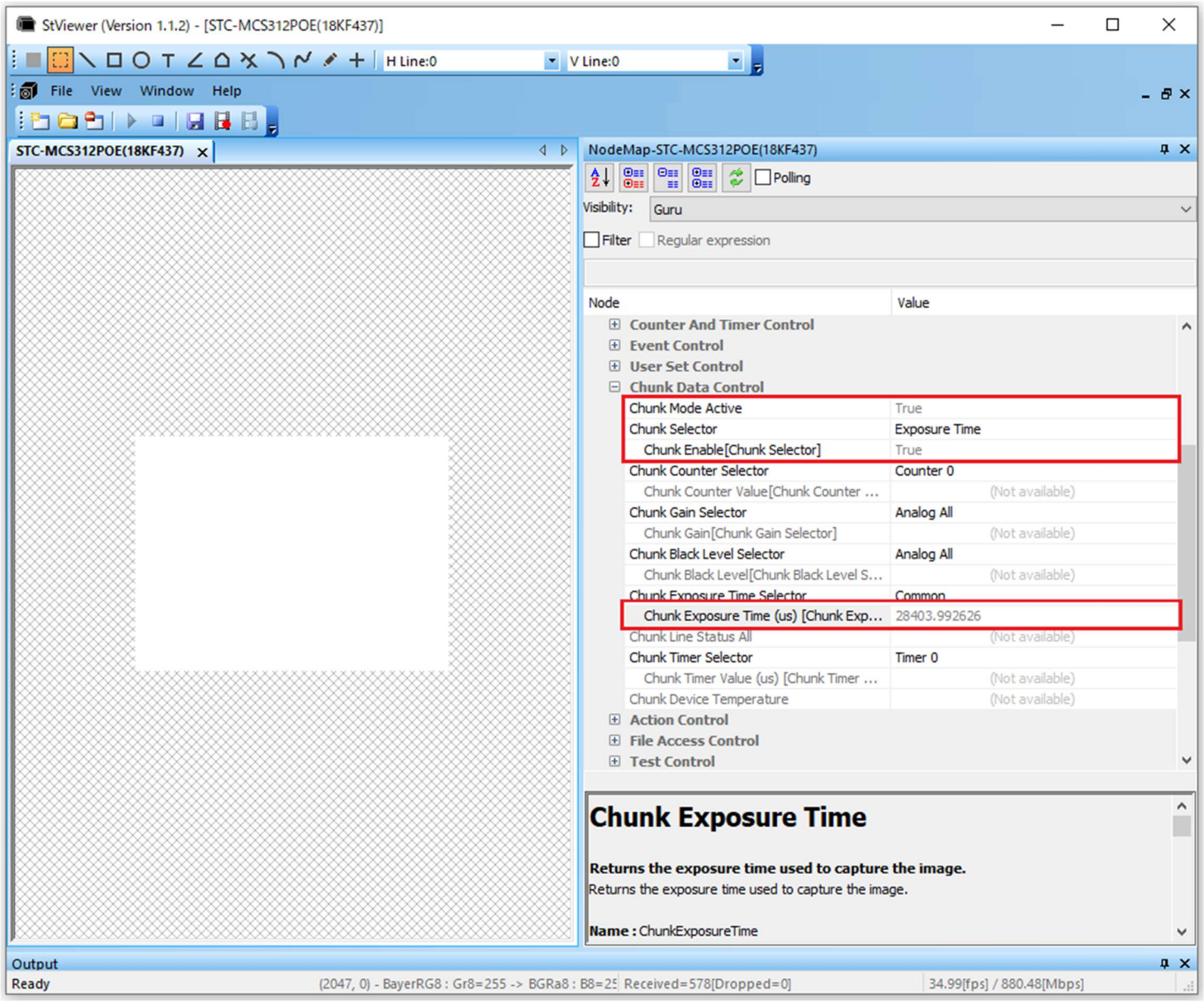
Selects True (Enable) or False (Disable) at “Chunk Enable” under “Chunk Data Control” on “Remote Device” to enable/disable selected Chunk Data.



・How to confirm Chunk data

How to check Chunk data:

When enabling Chunk Data function for Exposure Time,
checks “Chunk Exposure Time” under “Chunk Data Control” on “Remote Device”.



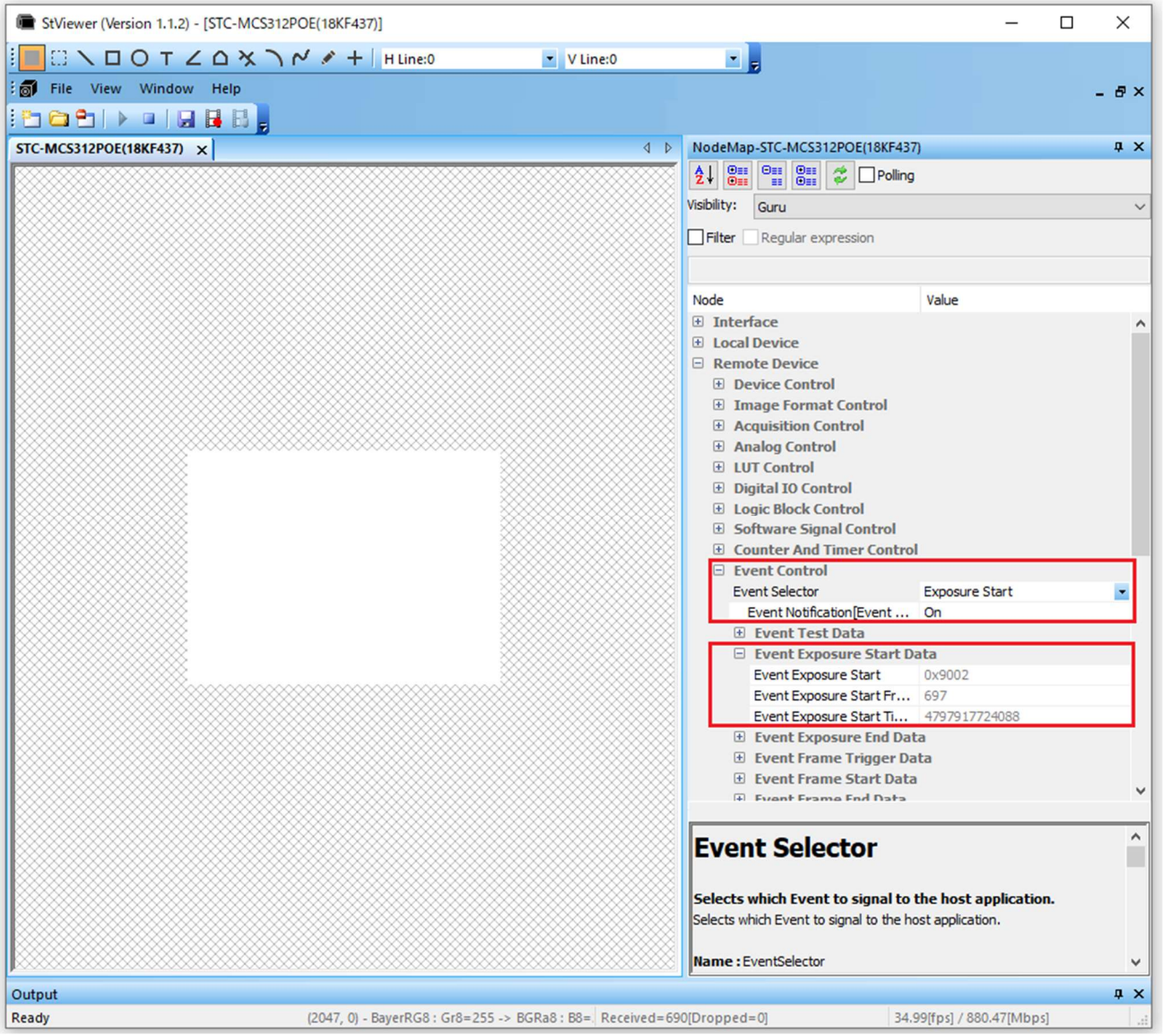
7.11 Event

The camera internal events such as exposure start and exposure end can be detect.
Please refers camera specifications for detectable events.

・How to set Event

Selects notifying event at “Event Selector” under “Event Control” on “Remote Device”.

Selects “On” or “Off” at “Event Notification” under “Event Control” on “Remote Device”.

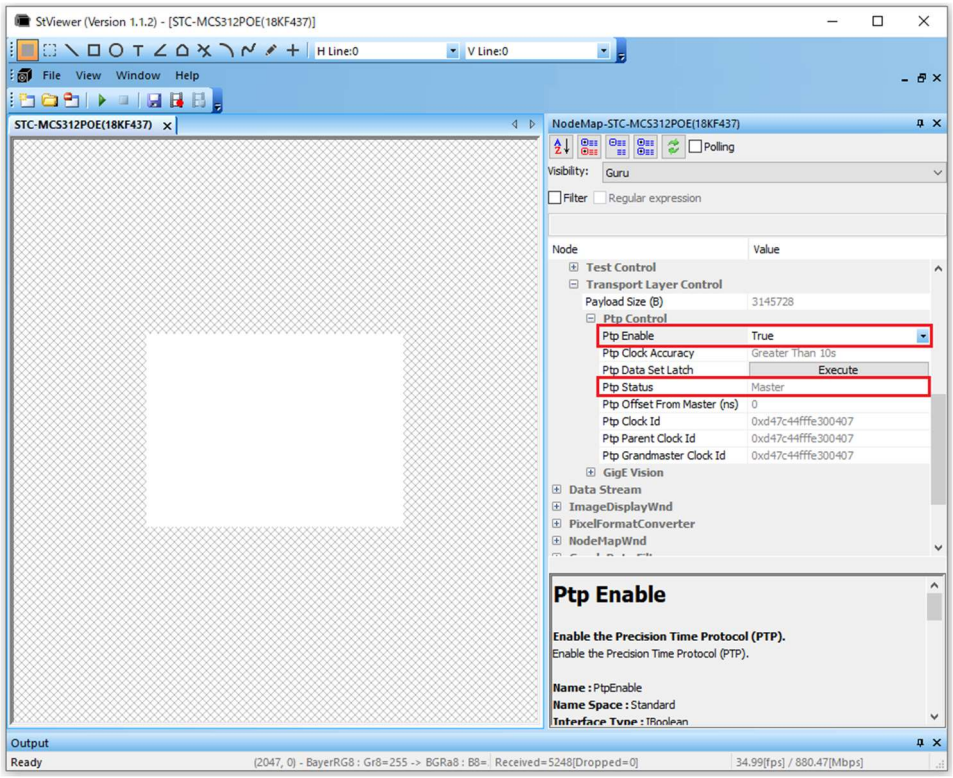


7.12 PTP (GigE Vision camera only)

PTP (Precision Time Protocol) is, communication protocol for synchronize clock of network devices.
The timestamp of multiple GigE Vision cameras and network device can be synchronized with this function.

・How to set PTP

Selects “True” (Enable) at “Ptp Enable” under “Ptp Control” under “Transport Layer Control” on “Remote Device”.



The exact exposure start timing of GigE Vision camera can be specified with “Scheduled Action Command”.
The high accuracy synchronized expose can be done with Scheduled Action Command when timestamp of multiple GigE Vision cameras are synchronized.

The reference delay time of exposure start by different type of software trigger signal with two GigE Vision cameras:

Type of software trigger	Delay time of exposure start between two GigE Vision cameras
Software trigger	Appx. 1 msec
Action Command	Appx. 100 μsec
Scheduled Action Command	Appx. 200 nsec

The delay is slightly different based on configuration of Switch and network cable.

7.13 Action Command (GigE Vision camera only)

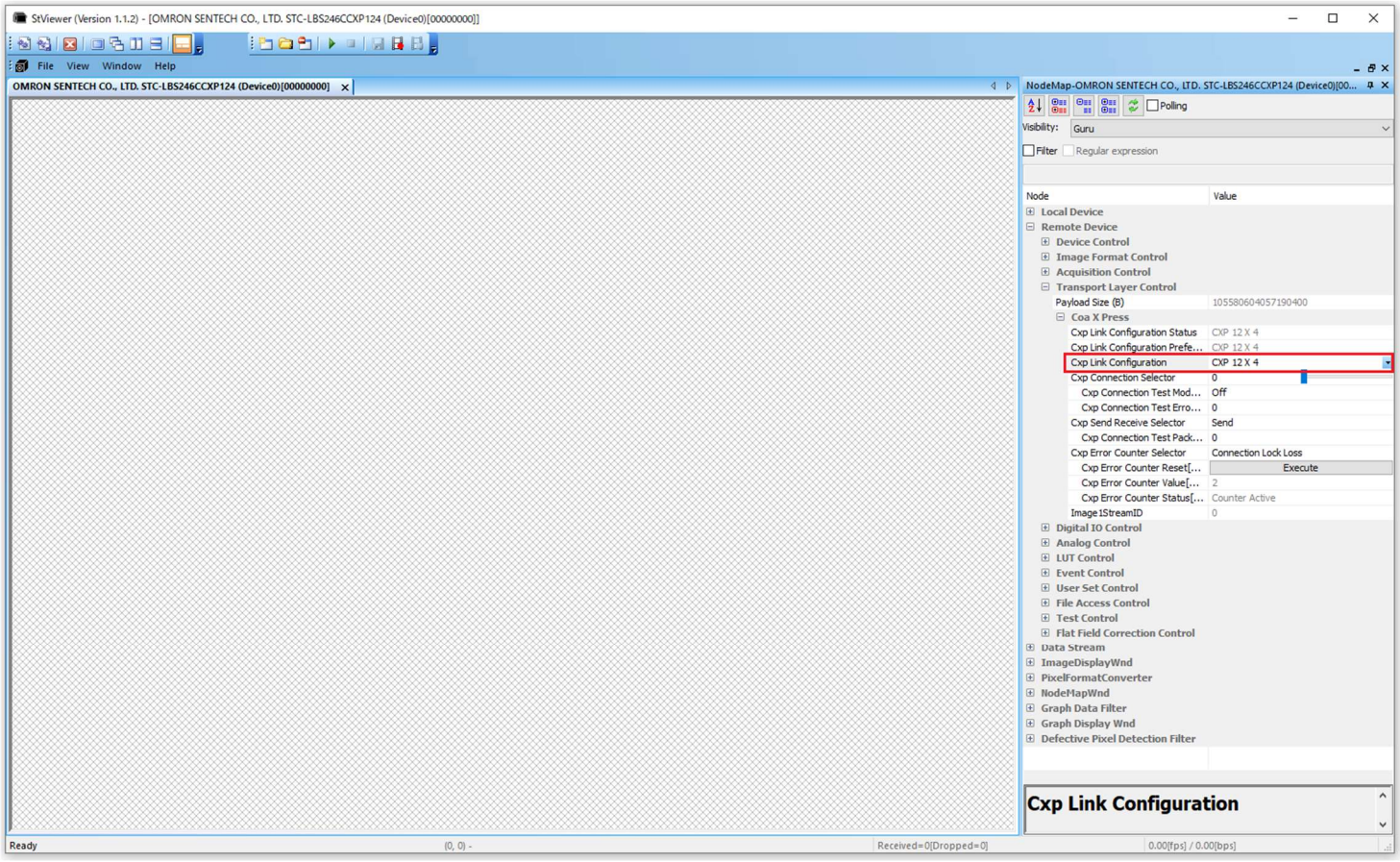
By using Action Command, software trigger can be send simultaneously to multiple GigE Vision camera on same network.
The exposure start timing of each GigE Vision camera is slightly different due to network configuration including Switch and network cable.
The reference sample program of Sentech SDK is “GigEActionCommand”.

When using Action Command,
it is necessary to setup GigE Vision cameras on same network then use Action Command.

7.14 CoaXPress configuration mode (CoaXPress camera only)

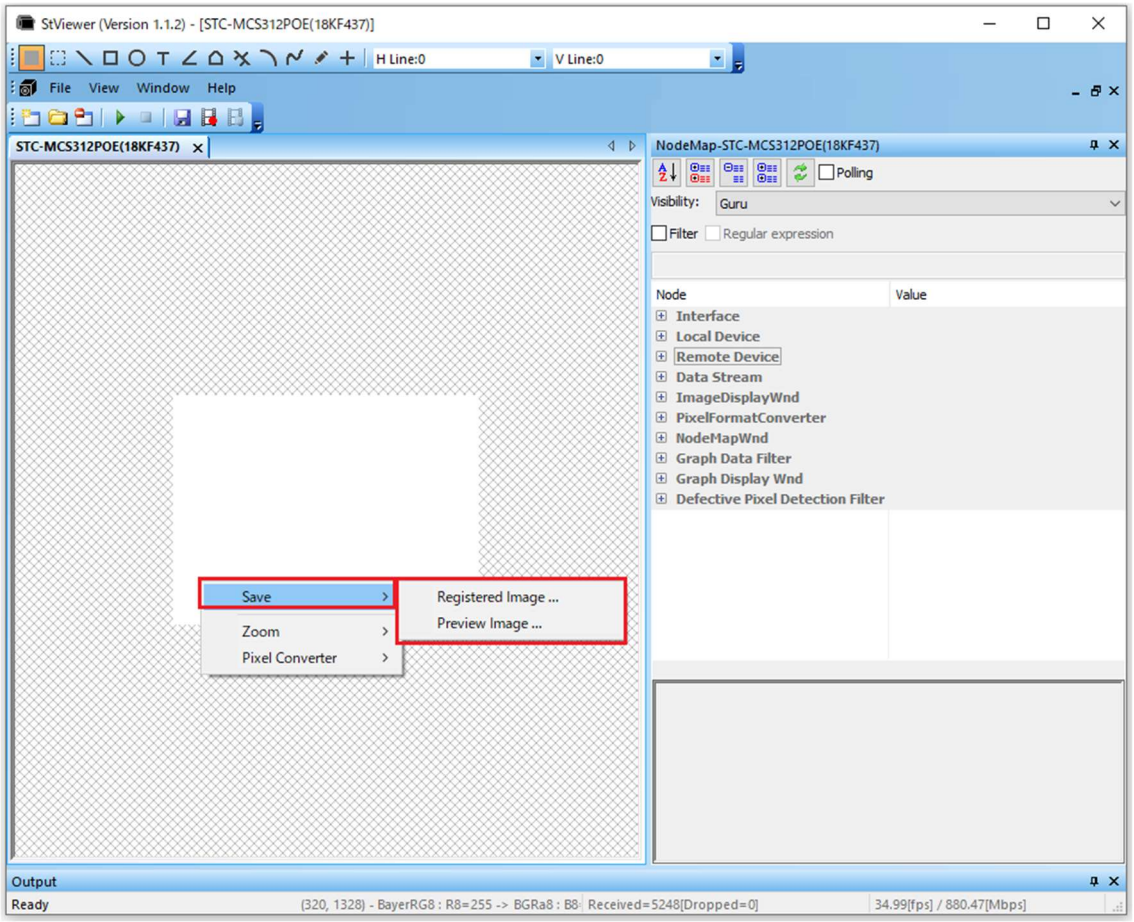
* It is necessary to stop image acquisition when change CoaXPress configuration mode setting.
Please check the specification of CoaXPress camera for available CoaXPress configuration mode.

Selects CoaXPress configuration mode at “Cxp Link Configuration” under “CoaX Press” under “Transport Layer Control” on “Remote Device”.



7.15 Saving single image

Registered Image (Image data from camera) and Preview Image (preview image on StViewer) are selectable to save image.



When using “Save” icon on tool bar, Preview image saves.

When selecting “Registered Image”, saving image is based on select at “Pixel Format” under “Image Format Control” on ”Remote Device”.

When selecting “Preview Image”, saving image is preview image-supported image based on select at “Destination Pixel Format” under “Image Format Control” on “Pixel Format Converter” as below list.

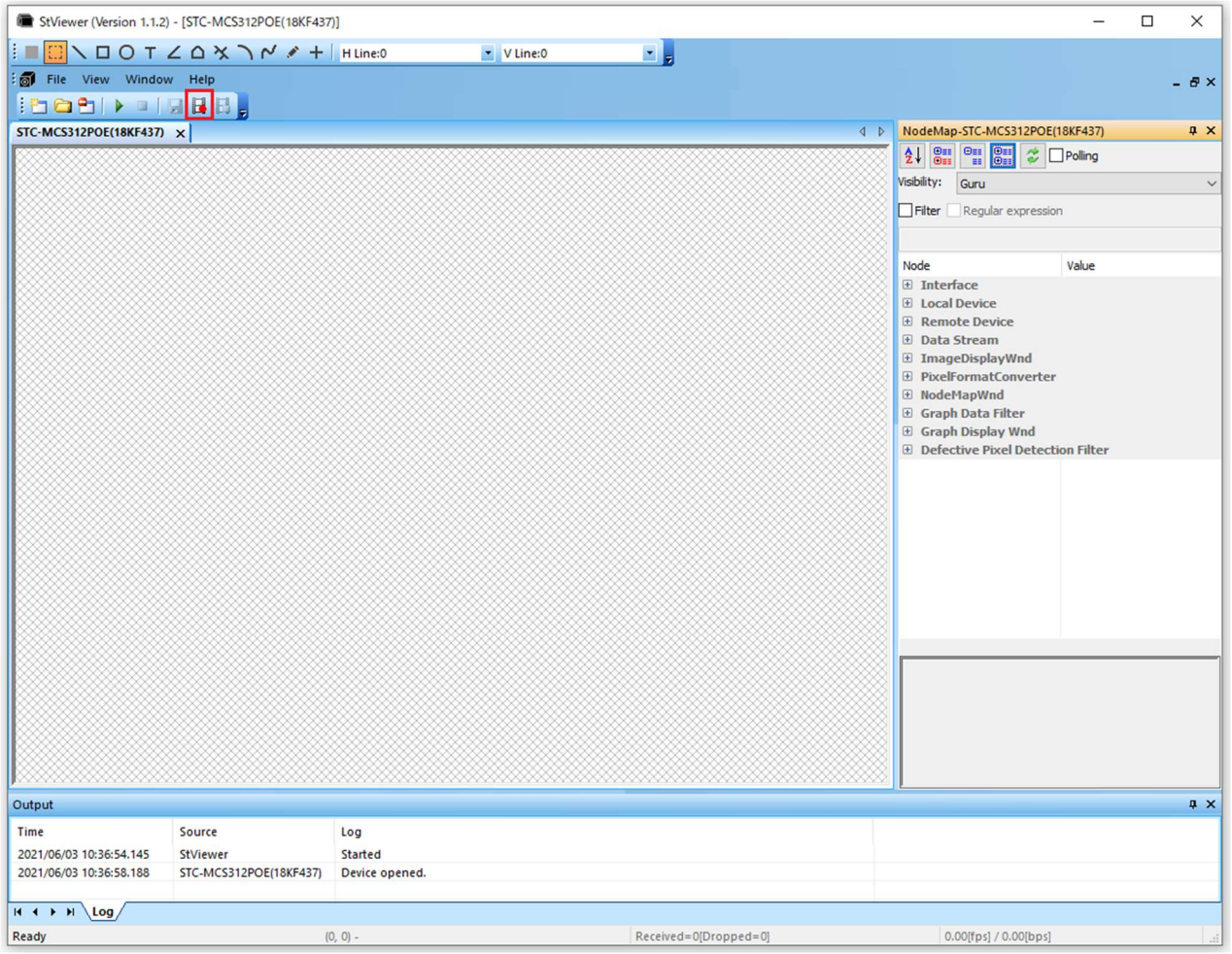
Saving image type	Registered Image	Preview Image
Bitmap	Mono: X Color: - *	Mono / Color: X
Jpeg	Mono: X Color: - *	Mono / Color: X
Tiff	Mono: X Color: - *	Mono / Color: X
Png	Mono: X Color: - *	Mono / Color: X
CSV	Mono / Color: X	Mono / Color: X
Straw (RAW data)	Mono / Color: X	Mono / Color: X

* Registered image can be save at Color GigE Vision M series with RGB8 pixel format.

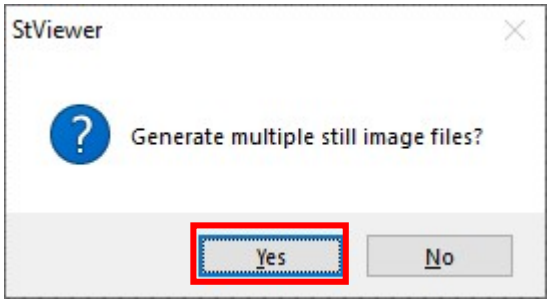
7.16 Saving images continuously

Please use StViewer of Sentech SDK v1.1.2 Update4 or later to use saving images continuously function.

Selects “Start Recording” button on tool bar for saving images continuously function.

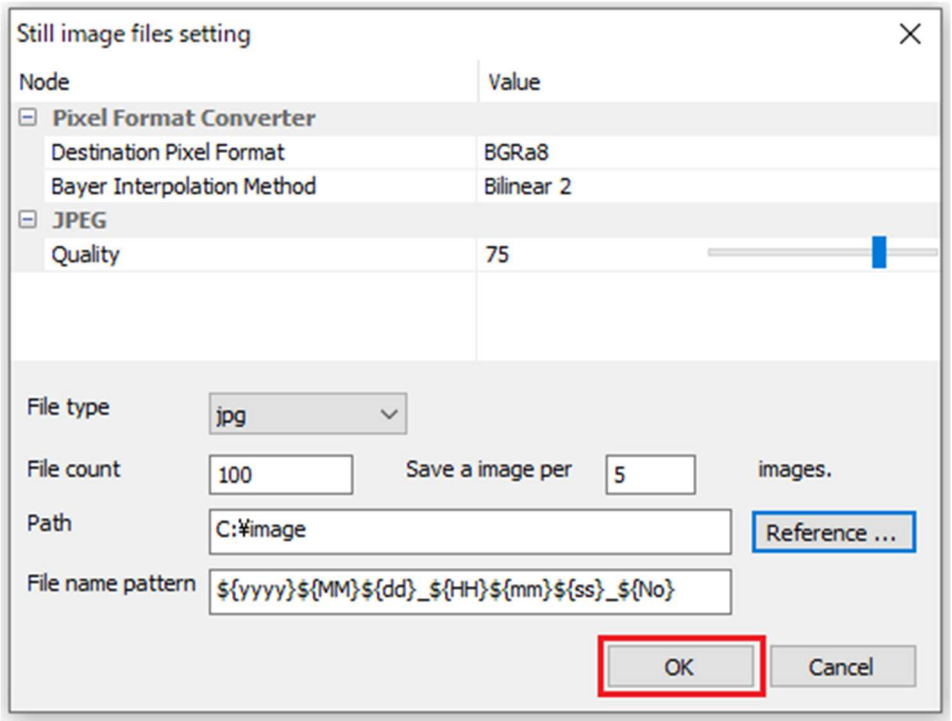


When selecting “Start Recording” button on StViewer of Sentech SDK v1.1.2 Update4 or later,
“Generate multiple still image files?” message appears.
When selecting “Yes” then multiple images are saving.



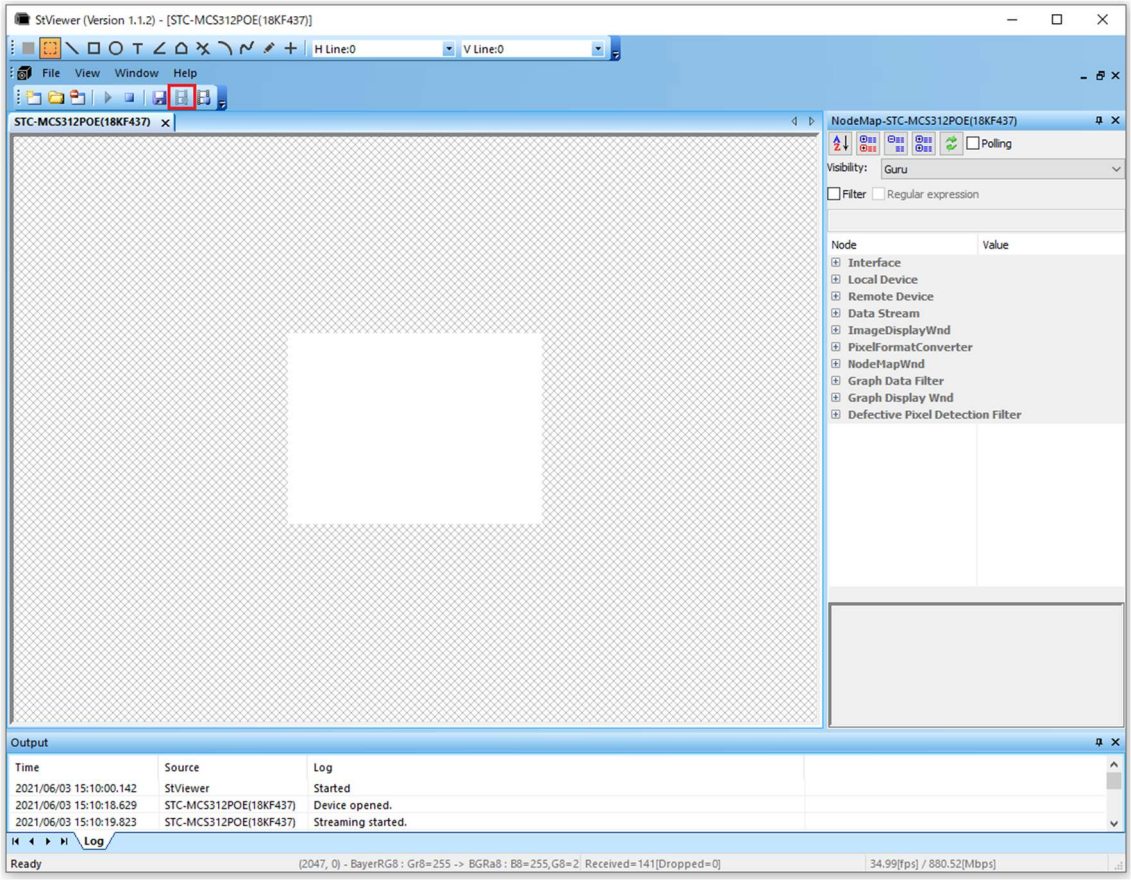
Set settings for saving images continuously at “Still image files setting” then selects “OK” button.

Destination Pixel Format	(Default: Setting use for preview) The acquiring image convert to specified pixel format then save image file. If image data cannot convert to specified pixel format, image does not save.
Bayer Interpolation Method	(Default: Selected setting for saving still image) Setting for Bayer interpolation method.
Quality	(Default: 75) Sets the image quality level for JPEG format image. This is only valid when saving jpeg format image.
File type	(Default: bmp) Selects file format. If selected file type does not correspond pixel format that selected at “Destination Pixel Format”, image does not save.
File count	(Default:100) Specifies number of saving images. When saving this number of image, saving images continuously process finishes. When setting “0”, saving images continuously until stop manually or close camera.
Save a image per xxx images	(Default:10) Specifies image saving interval (one out of xx frames). When specifying “0” or “1”, trying to save all images, but saves image is Skipping if imaging buffer is full due to save image process is not done.
Path	(Default: %USERPROFILE%¥pictures) Sets directory path for still image files.
File name pattern	(Default: ${yyyy}${MM}${dd}_${HH}${mm}${ss}_${No}) Sets file name method for still image file. When including below characters, characters convert to below corresponding characters on file name. ${yyyy}: four digits of year, ${MM}: two digits of month, ${dd}: two digits of day, ${HH}: two digits of hour, ${mm}: two digits of minute, ${ss}: two digits of second, ${No}: Serial number after start saving images continuously (minimum four digits)

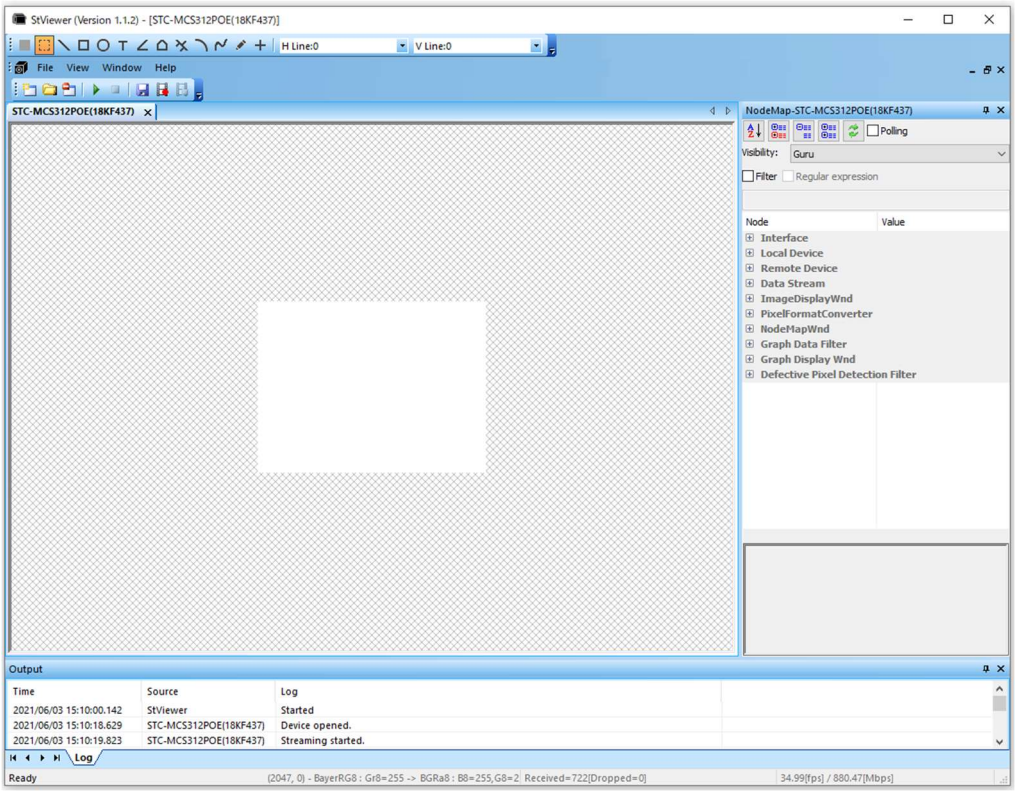


While saving image, “Start Recording” button is disabled (un-selectable).

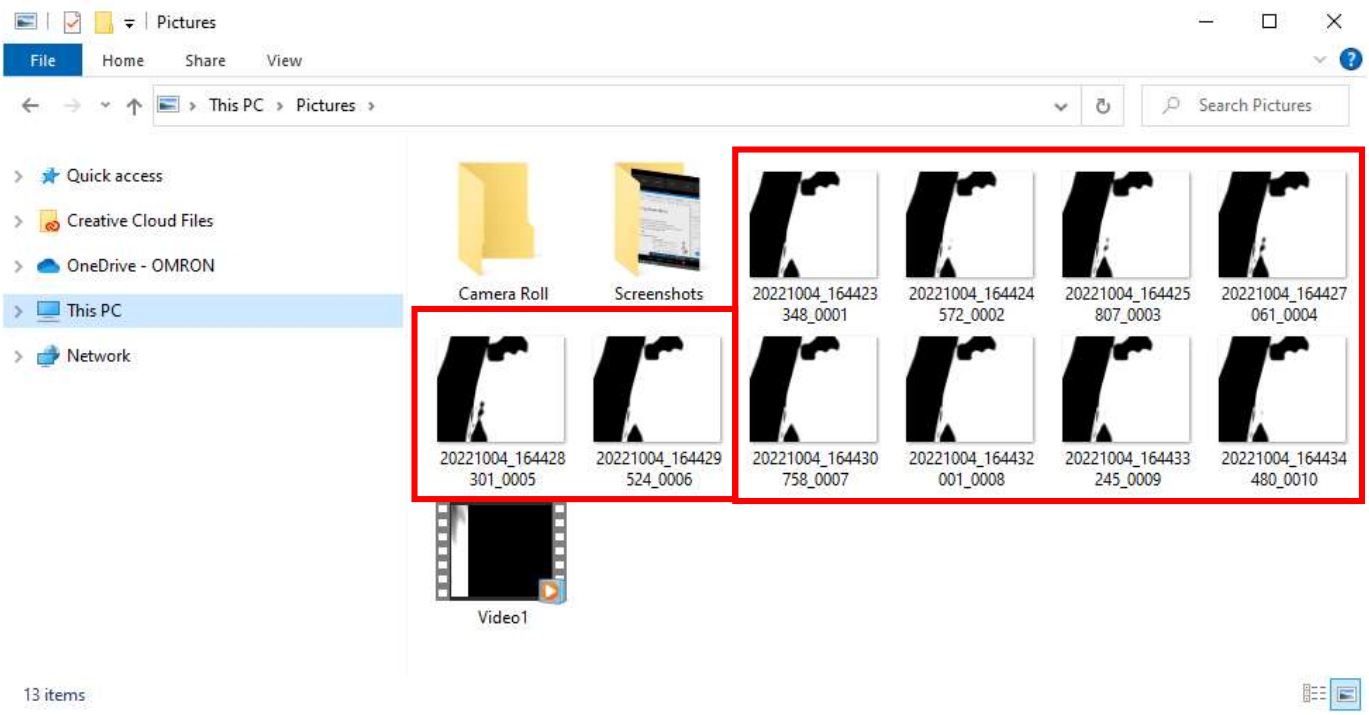
*If saving image does not start, start acquisition with “Start” button.



After finish saving images continuously, “Start Recording” button becomes selectable.

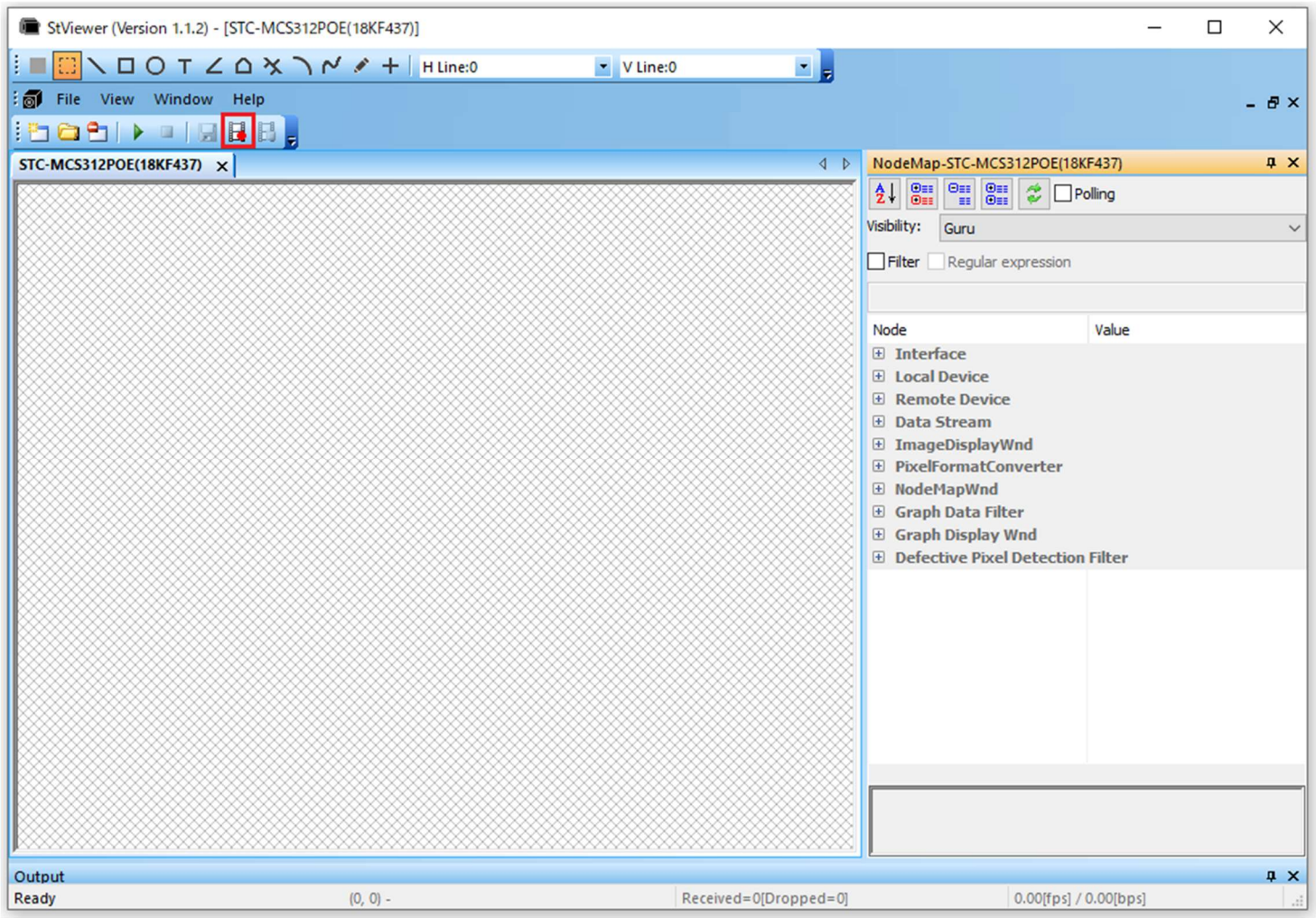


Please confirm that image files were saving onto selected folder.

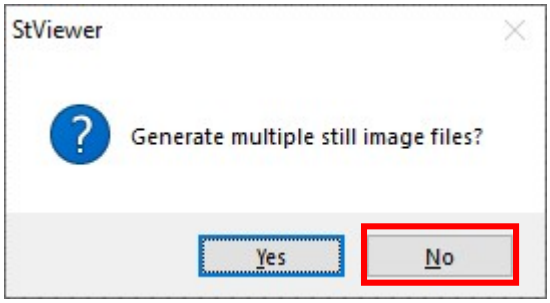


7.17 Saving movie

Selects “Start Recording” button on tool bar for saving movie.

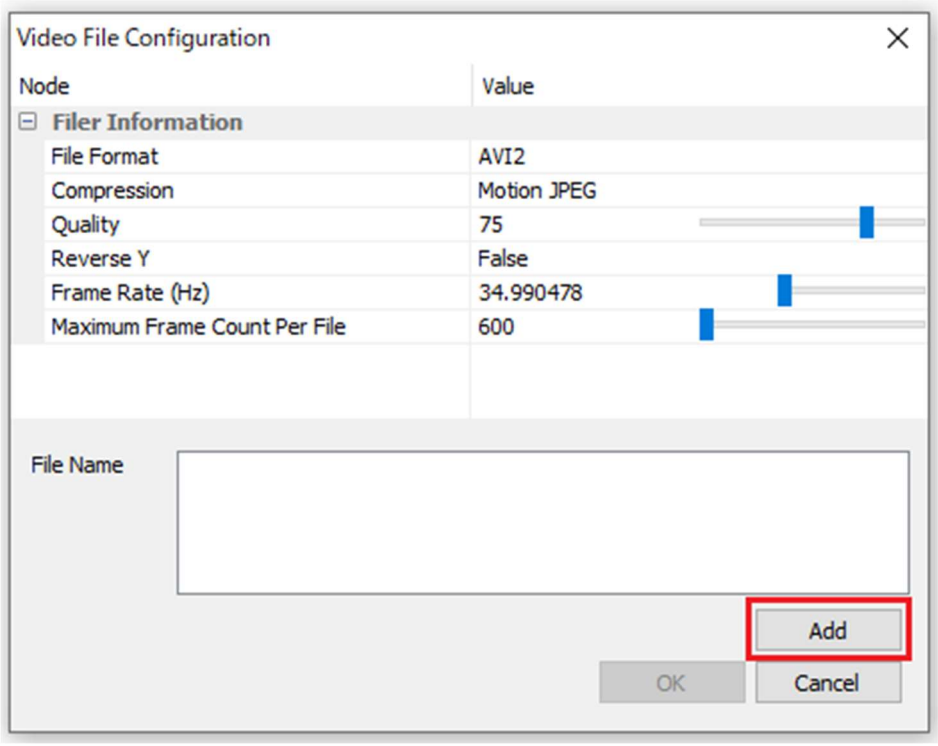


When selecting “Start Recording” button on StViewer of Sentech SDK v1.1.2 Update4 or later,
“Generate multiple still image files?” message appears.
When selecting “No” then movie is saving.



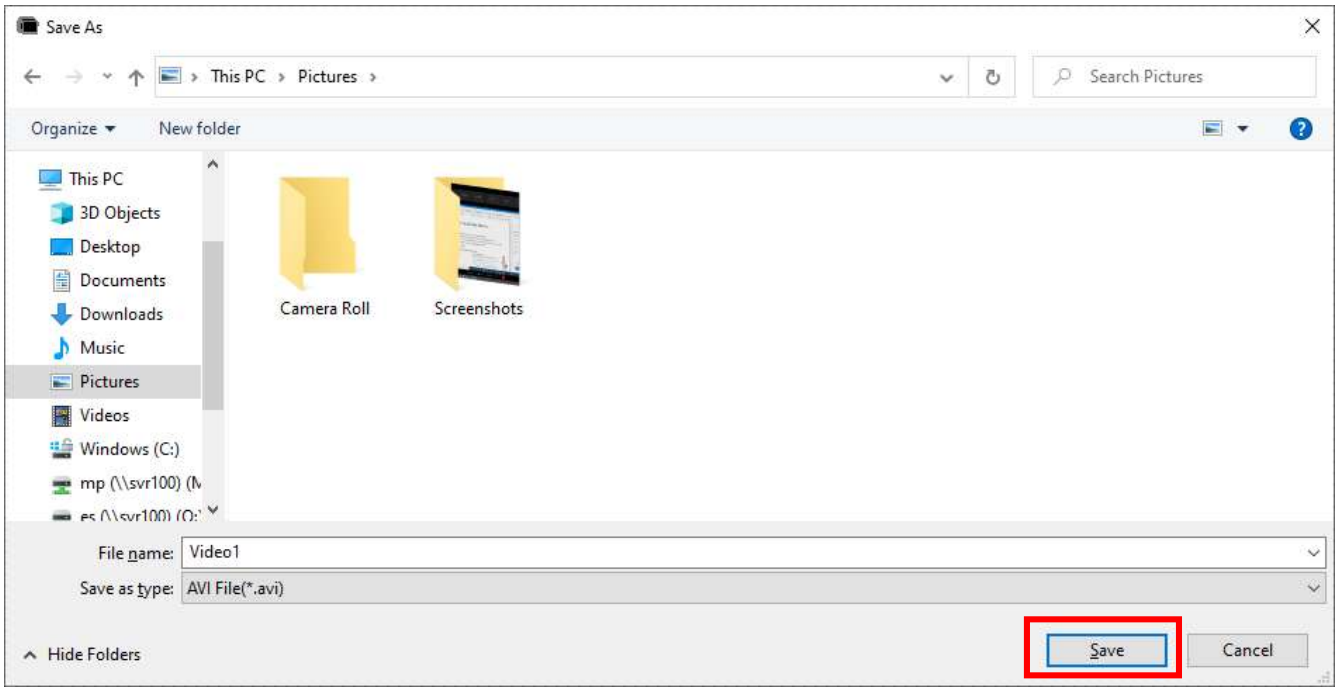
Set settings for saving movie at “Video File Configuration” then selects “Add” button.

File Format	Format for movie AVI1: Maximum file size is 2GB. AVI2: Maximum file size is 1TB.
Compression	Image compression method Motion JPEG: Compression with JPEG Uncompressed: None compression
Quality Value	The image quality for Motion JPEG movie (Maximum: 100)
Reserve Y	Setting for vertical flip image
Frame Rate	Frame rate setting for play saved movie
Maximum Frame Count Per File	Number of image for one saving movie file

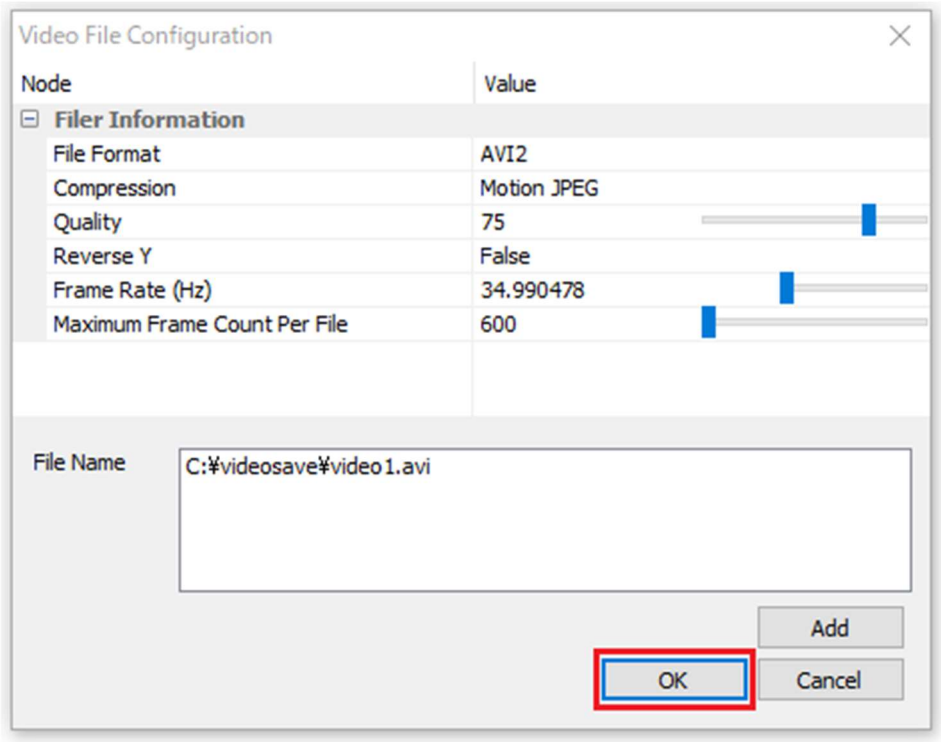


The time of movie is “Maximum Frame Count Per File” / “Frame Rate” (Unit: sec.).

Sets file name then selects “Save” button.

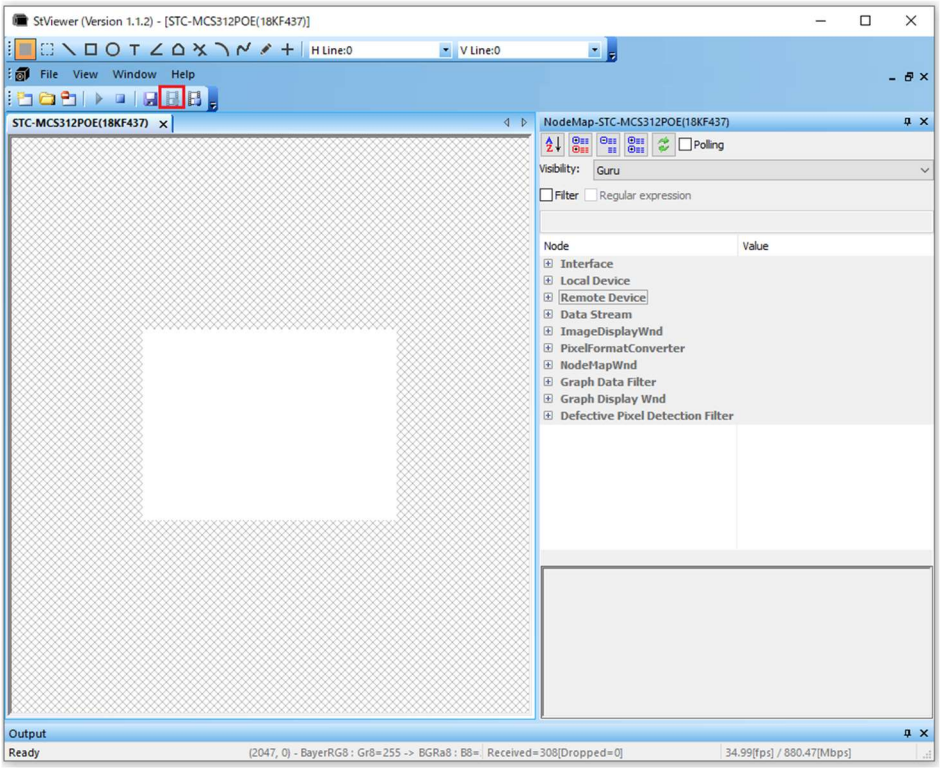


Confirm saving movie settings and folder to save movie on “Video File Configuration” window then selects “OK” button to start saving movie.

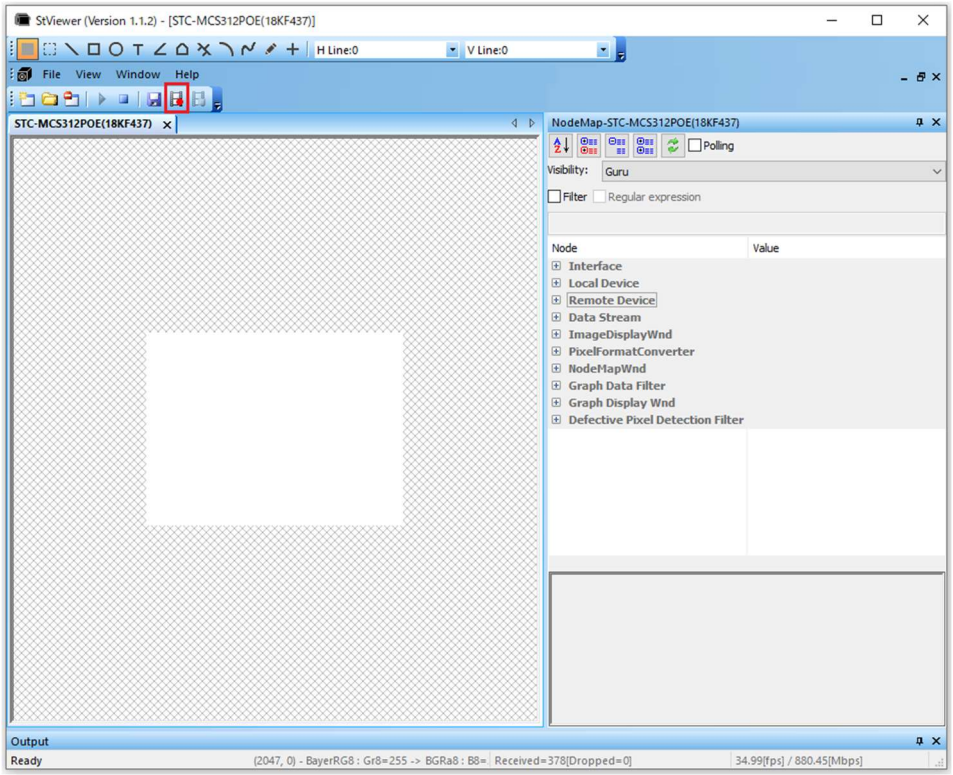


While saving movie, “Start Recording” button is disabled (un-selectable).

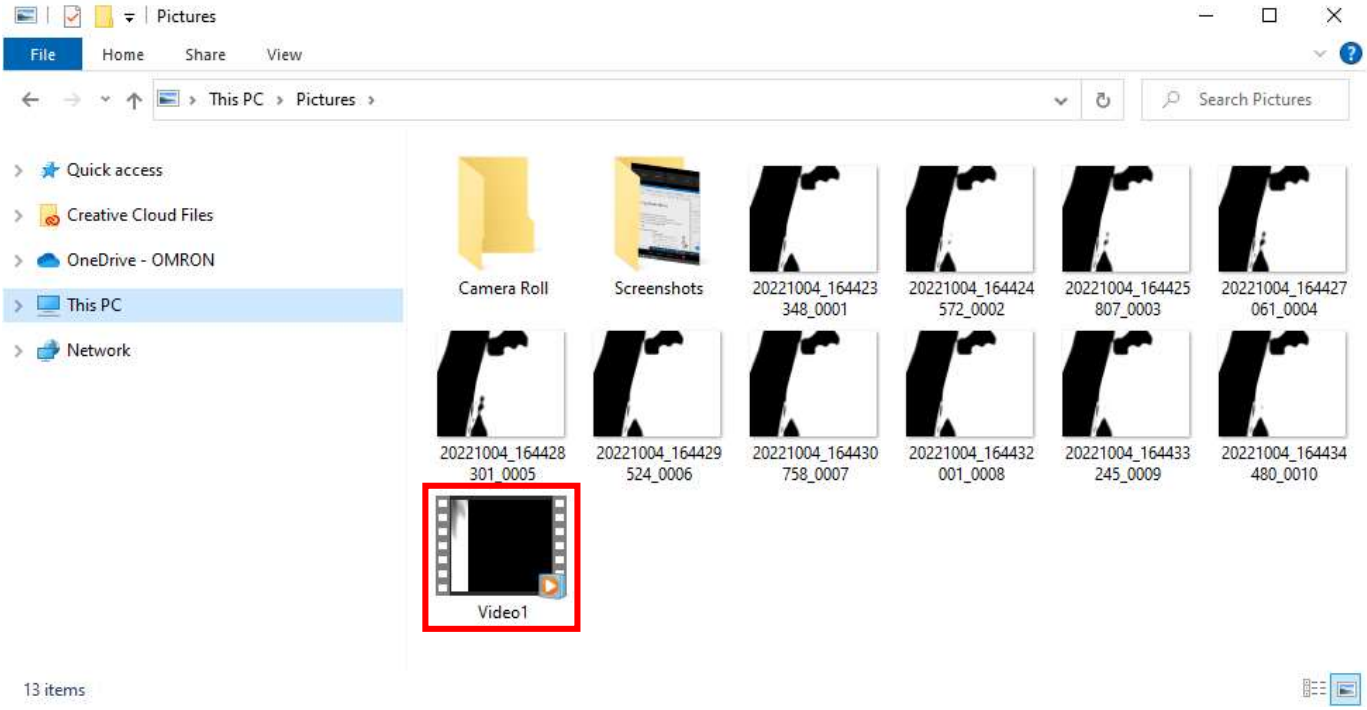
*If saving movie does not start, start acquisition with “Start” button.



After finish saving movie, “Start Recording” button becomes selectable.



Please confirm that movie file was saving onto selected folder.

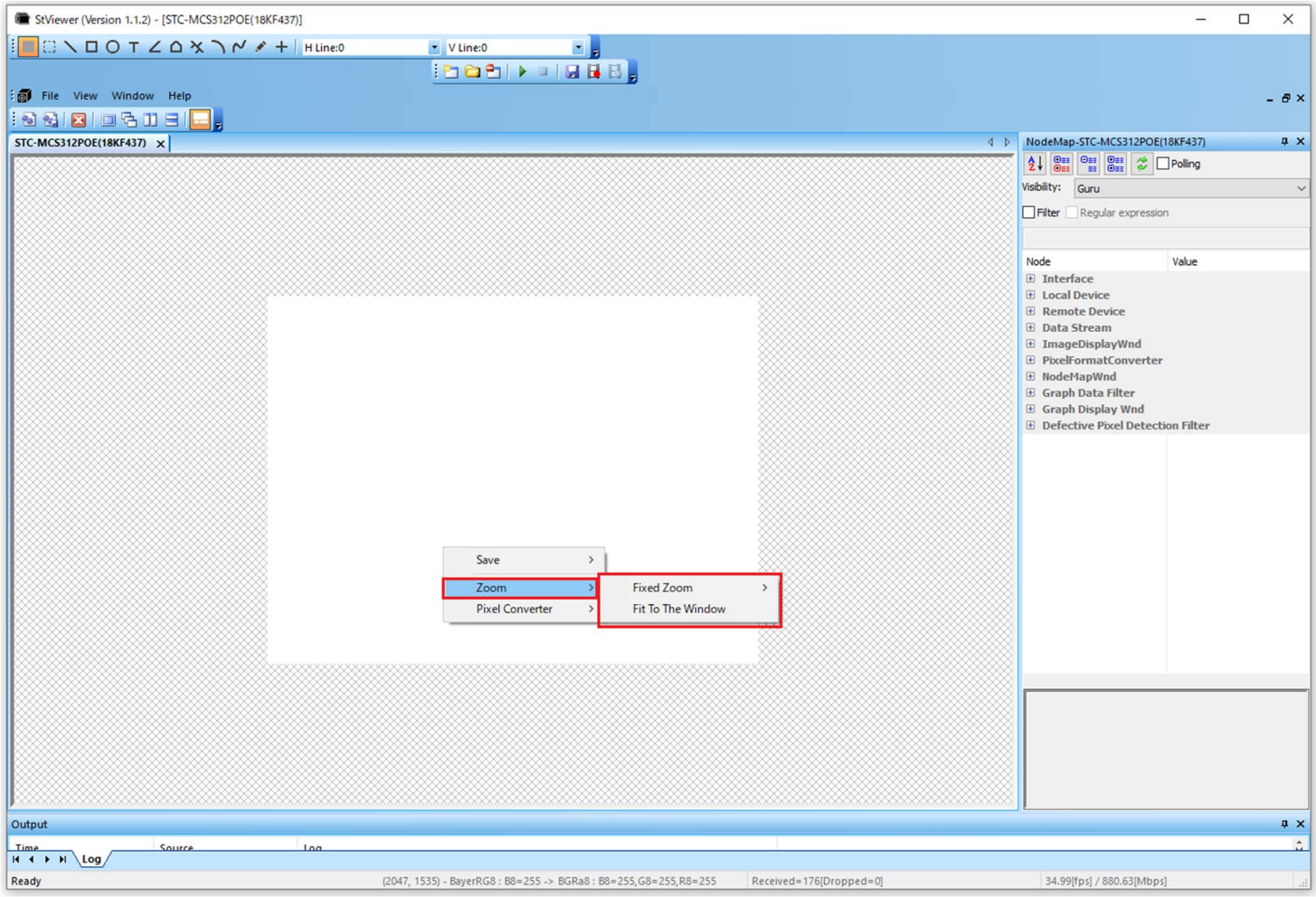


7.18 Zoom in/Zoom out of displaying image

The displaying image can be zoom in / zoom out by using function of StViewer.
However, zoom in/zoom out control is for displaying image only, not for saving image.

To zoom in / zoom out
Right click on displaying image then select from “1/16” to “x16” at “Fixed Zoom” under "Zoom".
Zoom in: "x2" to "x16"
Zoom out: "x1/2" to "x1/16"

To display whole image
Right click on displaying image then select “Fit To The Window” under “Zoom".

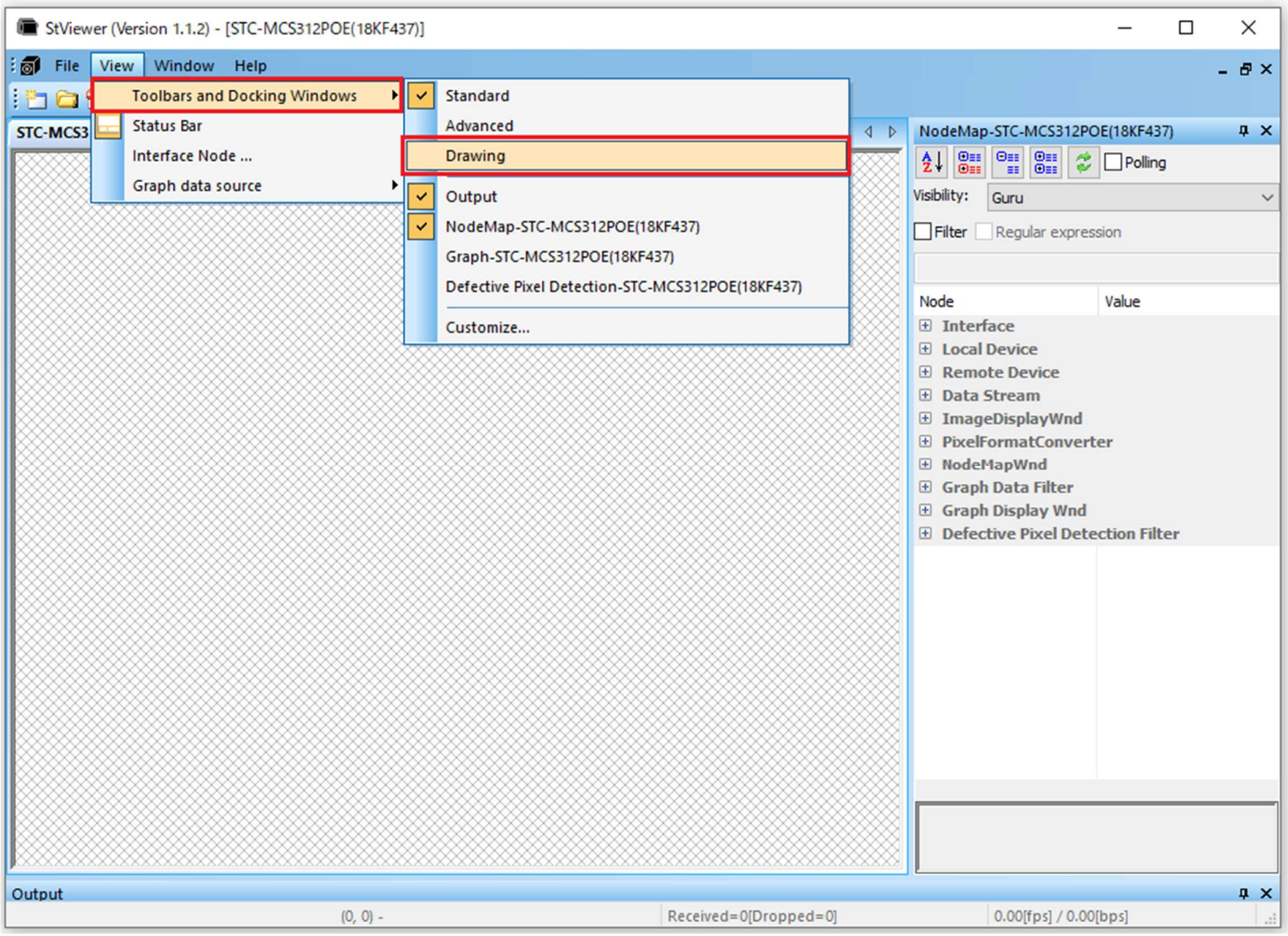


7.19 Drawing function

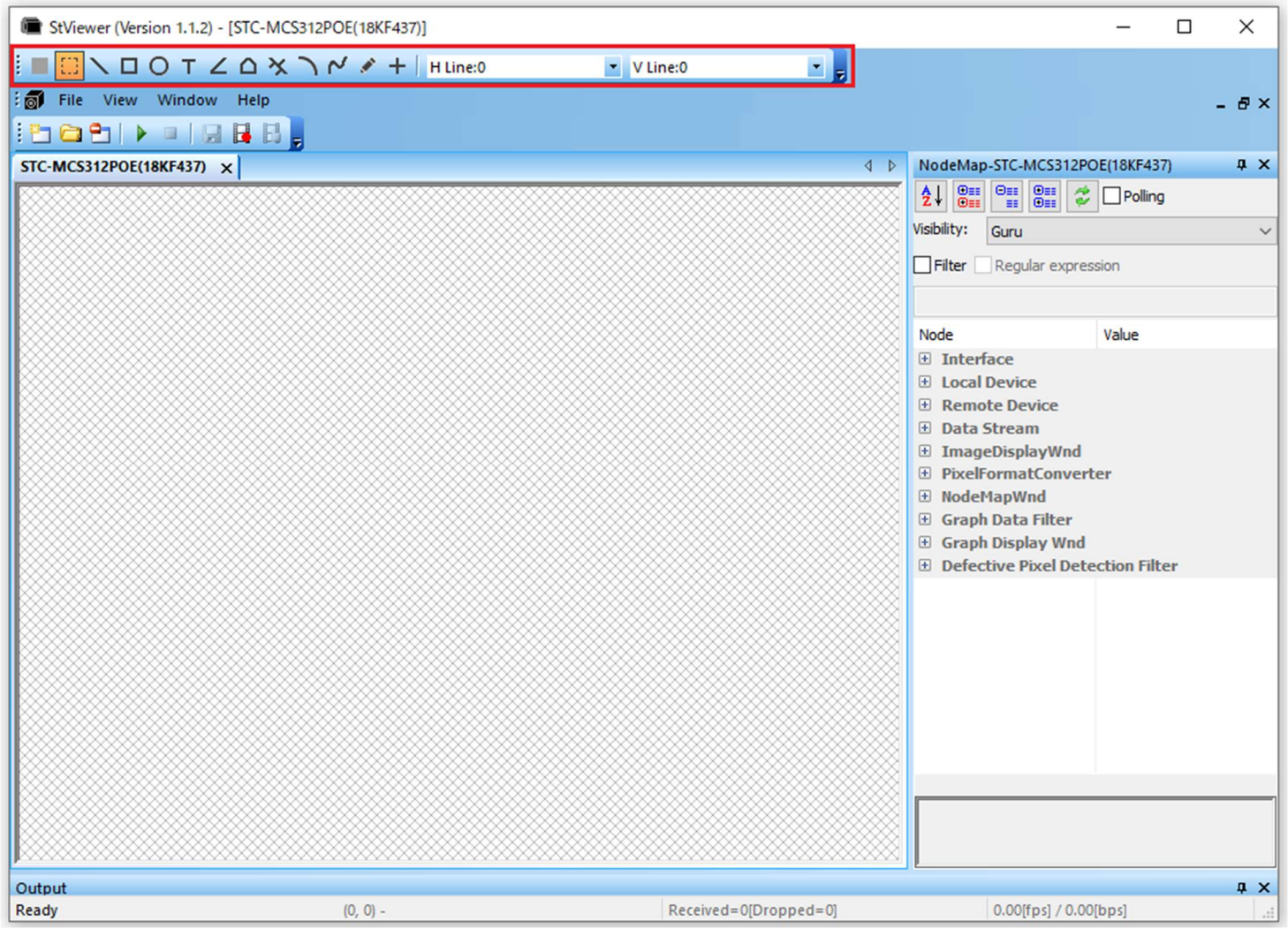
The drawing function added onto StViewer of Sentech SDK v1.1.1.
When using drawing function, please use StViewer of Sentech SDK v1.1.1 or later.

・How to display drawing function

Selects “Drawing” under “Toolbars and Docking Windows” on “View” menu of StViewer.



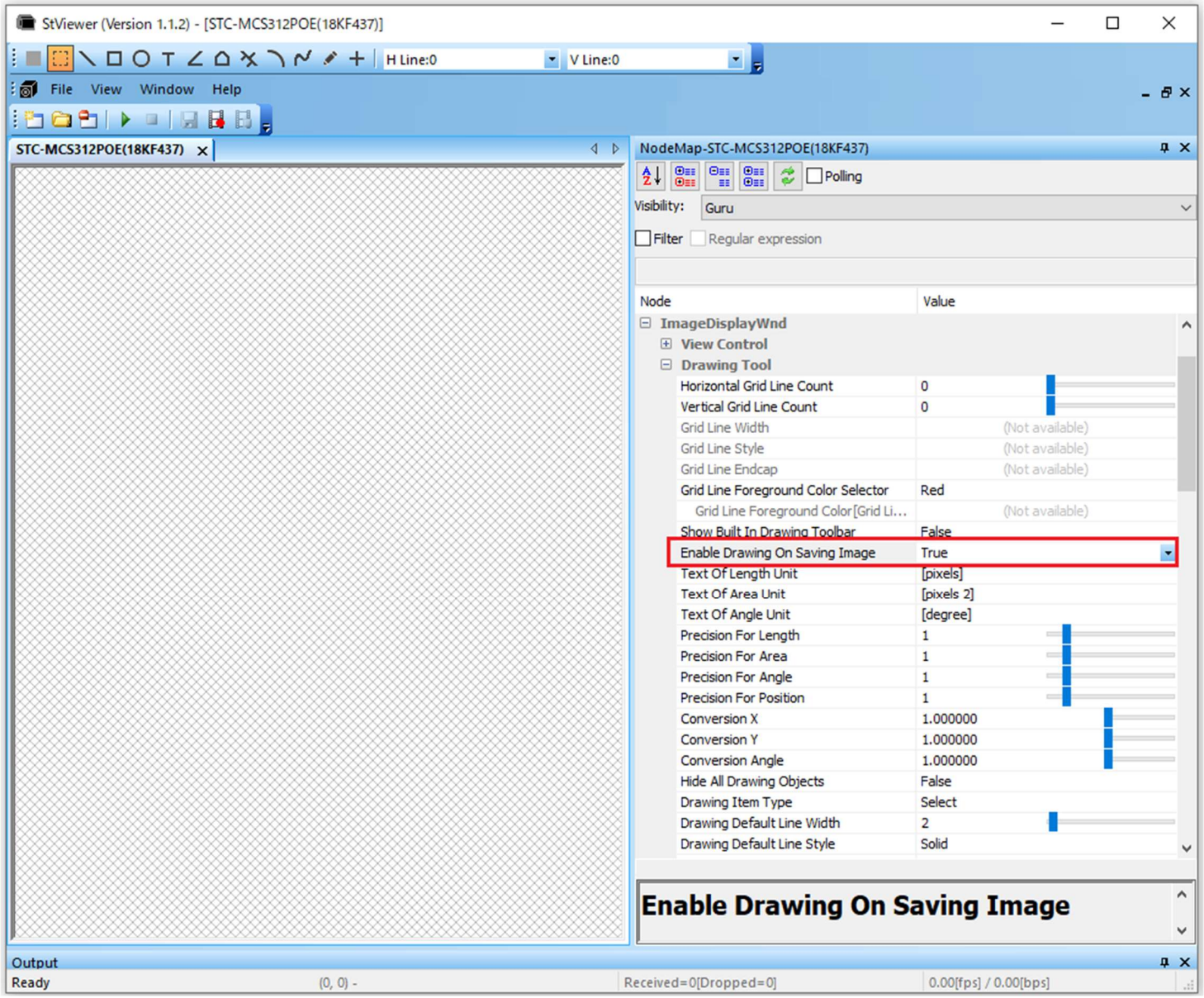
・The descriptions of drawing icons



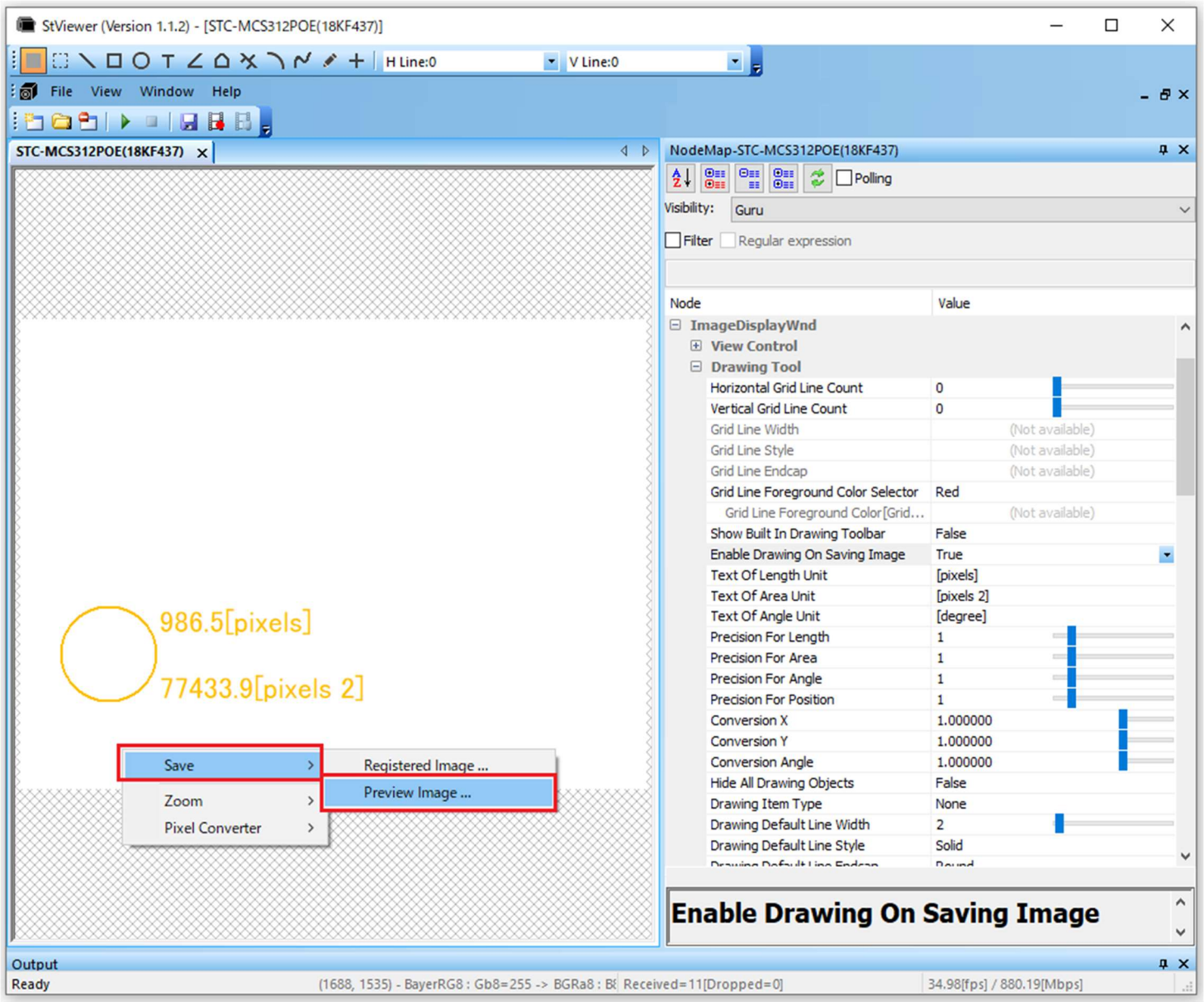
Icon on tool bar	Function
	Disable add/edit drawing
	Selects drawing. The drawing can be move drag and drop after selects it. Deletes selected drawing when selecting [Delete] key on keyboard after selects it.
	Draws line
	Draws rectangle
	Draws circle
	Inserts text at mouse cursor position. To change text (character), change value at “Drawing Object Name” under “Drawing Tool” on “Image Display Wnd” at Nodmap window after selects text object.
	Draws two lines of angle It is necessary to process below to draw this: Selects one open end of line and draw line with drag and drop. The mouse release position is vertex of two lines then select other open end of second line.
	Draws polygon When clicking on preview image, create vertex of polygon. When double-clicking on preview image, creates last vertex of polygon.
	Draw perpendicular Draw base line then vertical line for base line can be drawing.
	Draws arc
	Draws Bezier curve
	Draws free line
	Draws cross hair
	Draws horizontal grid line
	Draws vertical grid line

・How to save image with drawing

Selects “True” (On) at “Enable Drawing On Saving Image” under “Drawing Tool” on “Image Display Wnd”.
The image with drawing can be saved when selecting “Preview Image” after right-click on preview window.

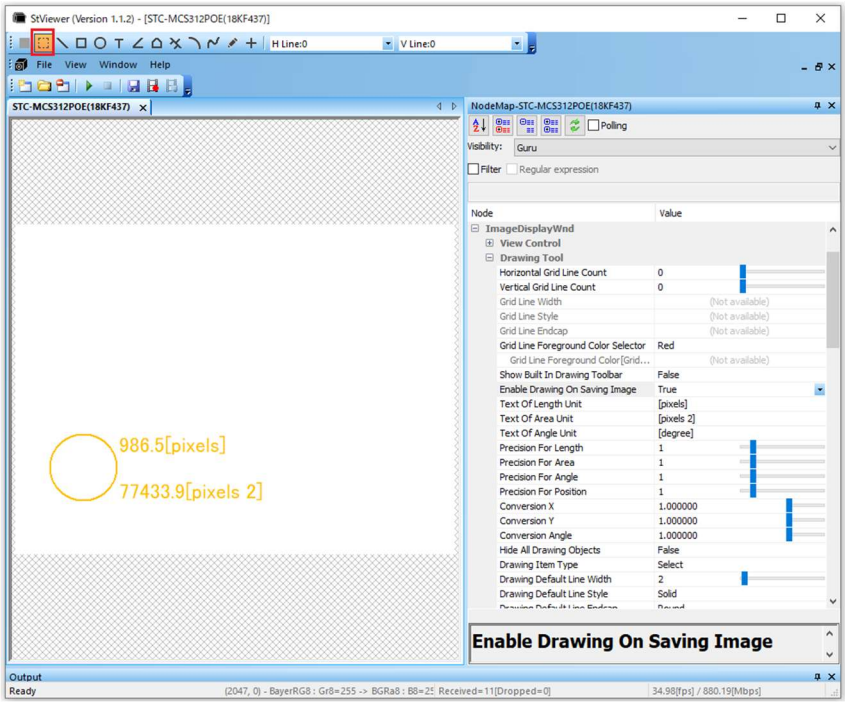


When saving image with drawing, selects “Disable” for drawing function (to disable add/edit drawing) then selects Preview Image after right-click on preview image.

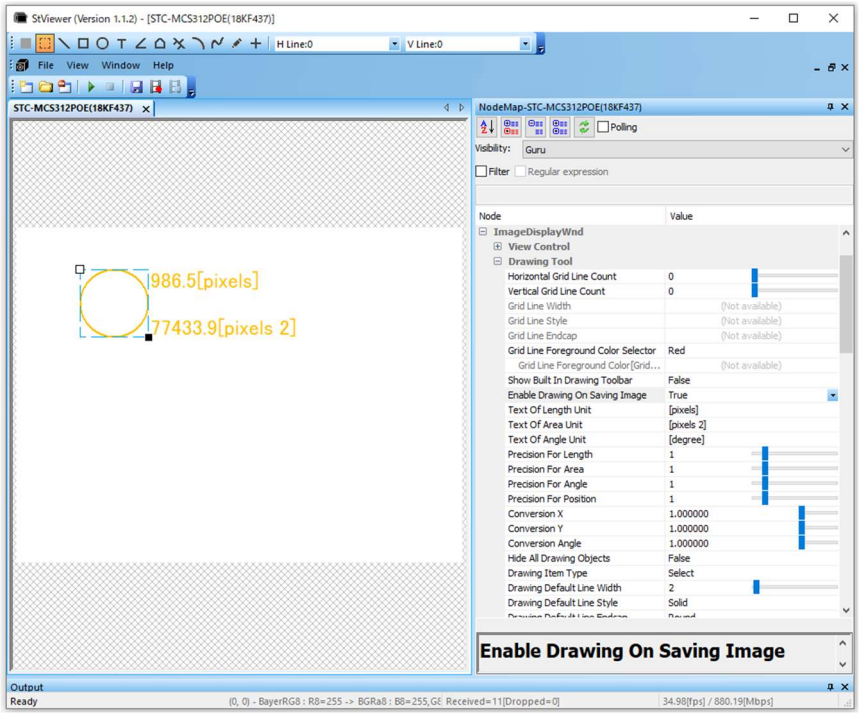


・How to move drawing data

Selects “Select” icon on drawing tool bar.



The selected drawing can be moved with drag and drop.



・How to change display unit, precision of length and magnification of drawing data

(1) How to set display unit

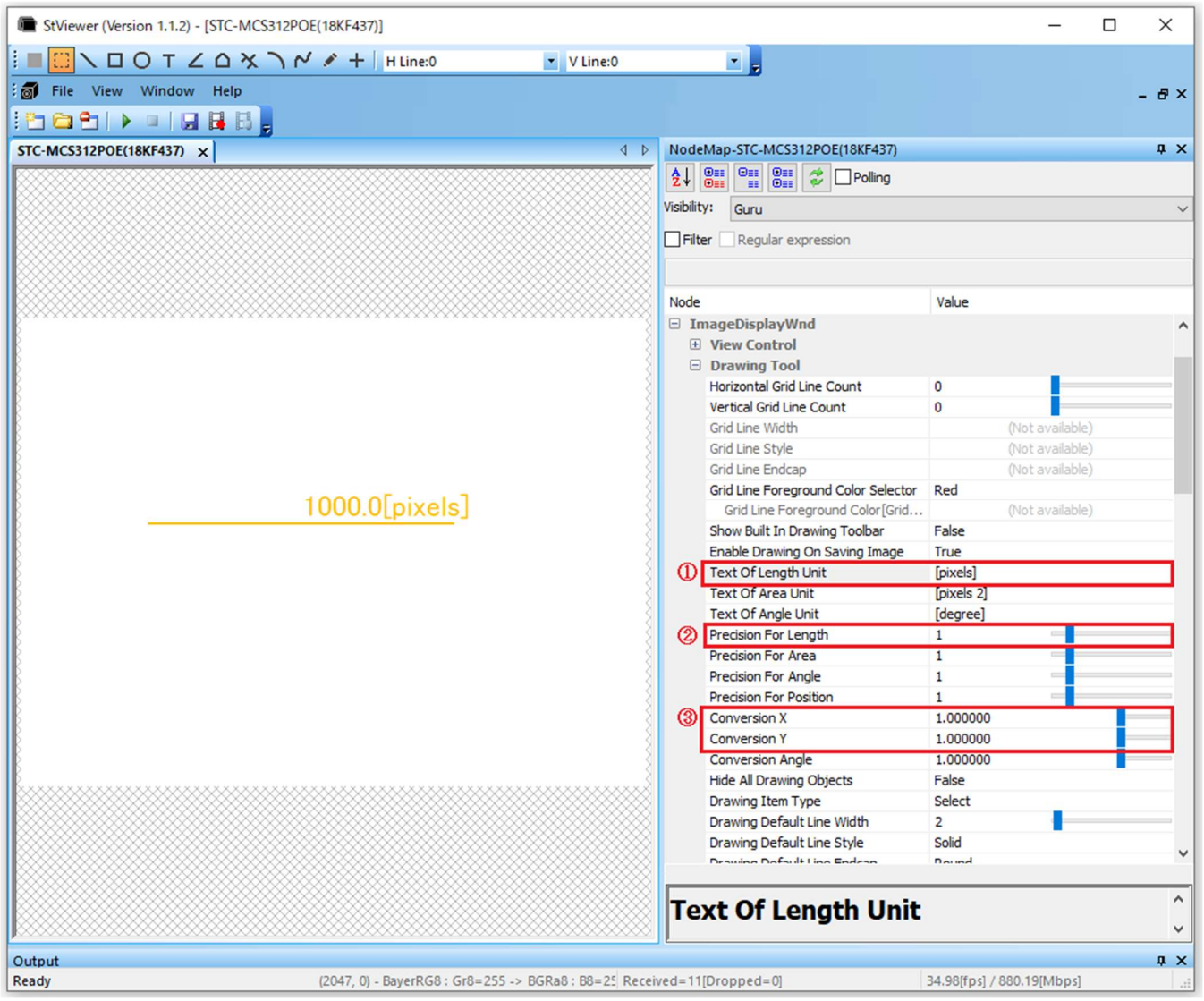
Set character at “Text Of Length Unit” under “Drawing Tool” on “ImageDisPlayWnd” then change display unit.

(2) How to set precision for length (decimal point)

Sets value at “Precision For Length” under “Drawing Tool” on “ImageDisPlayWnd” then change display decimal point.

(3) How to set magnification

Sets value at “Conversion X” and “Conversion Y” under “Drawing Tool” on “ImageDisPlayWnd” then magnification of display value (magnification of number of pixel).



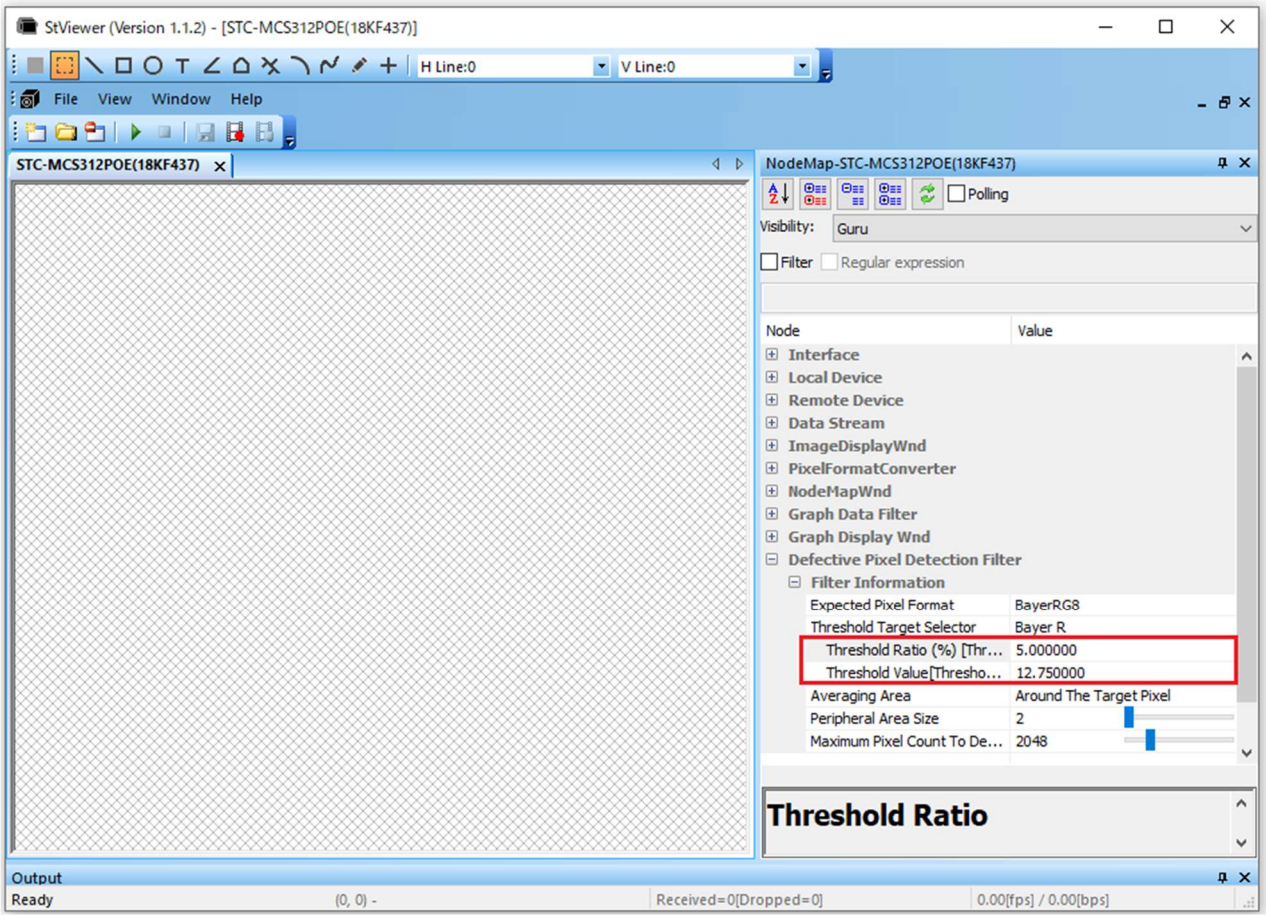
7.20 Defective pixel detection function

The threshold of defective pixel detection can be adjusted and detect defective pixels.
It is necessary to proceed defective pixel detection with even pixel level condition such as shading condition.
The detected defective pixels can be saved as target pixel of defective pixel correction and proceed defective pixel correction for them.

The defective pixel detection function added onto StViewer of Sentech SDK v1.1.2.
When using defective pixel detection function, please use StViewer of Sentech SDK v1.1.2 or later.

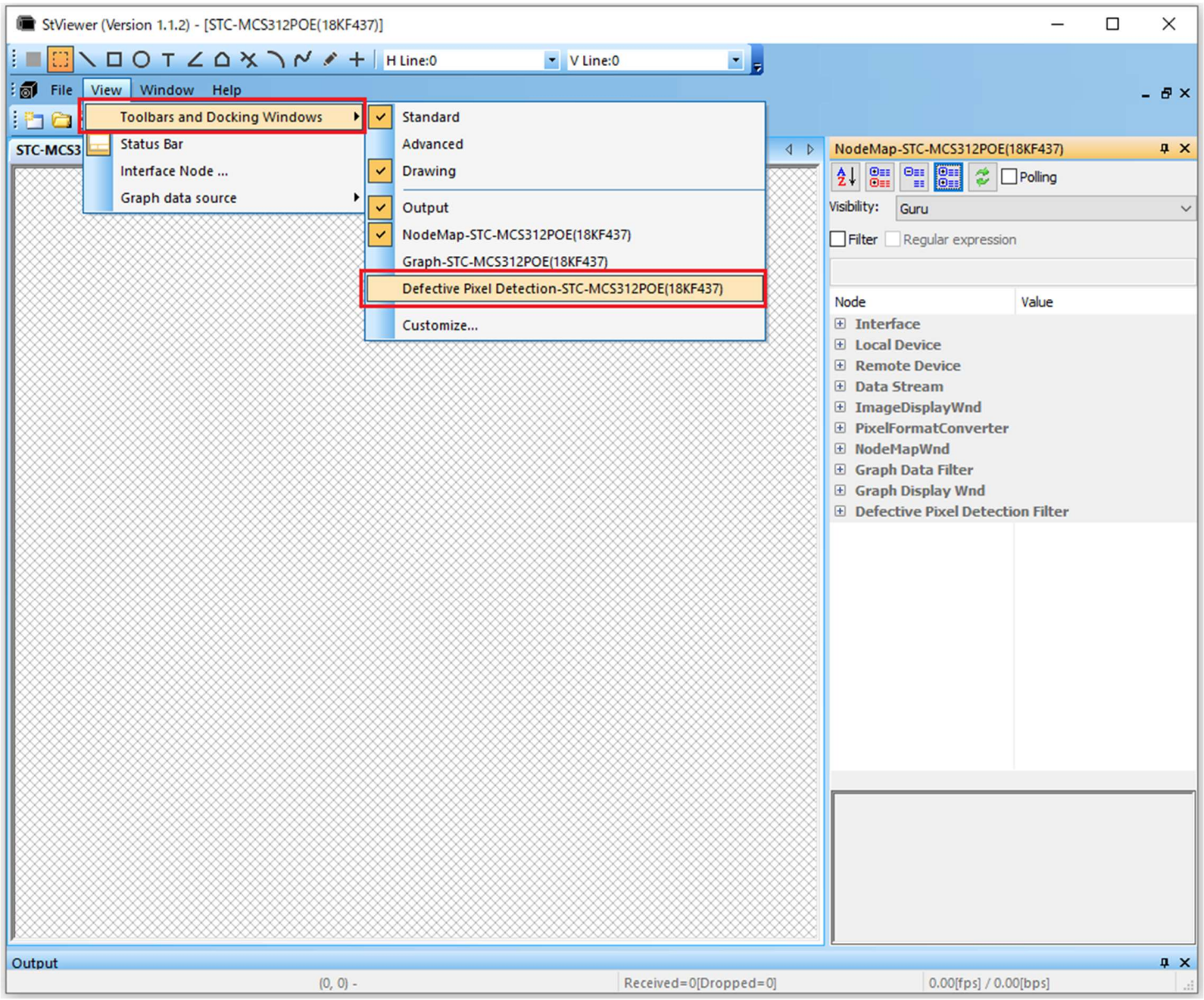
・How to set detection threshold level of defective pixel

Sets threshold ratio (%) at “Threshold Ratio” under “Filter Information” on “Defective Pixel Detection Filter” or sets threshold pixel value at “Threshold Value” under “Filter Information” on “Defective Pixel Detection Filter”.
* Threshold Ratio and Threshold Value are related. When changing either value, other value also changes.

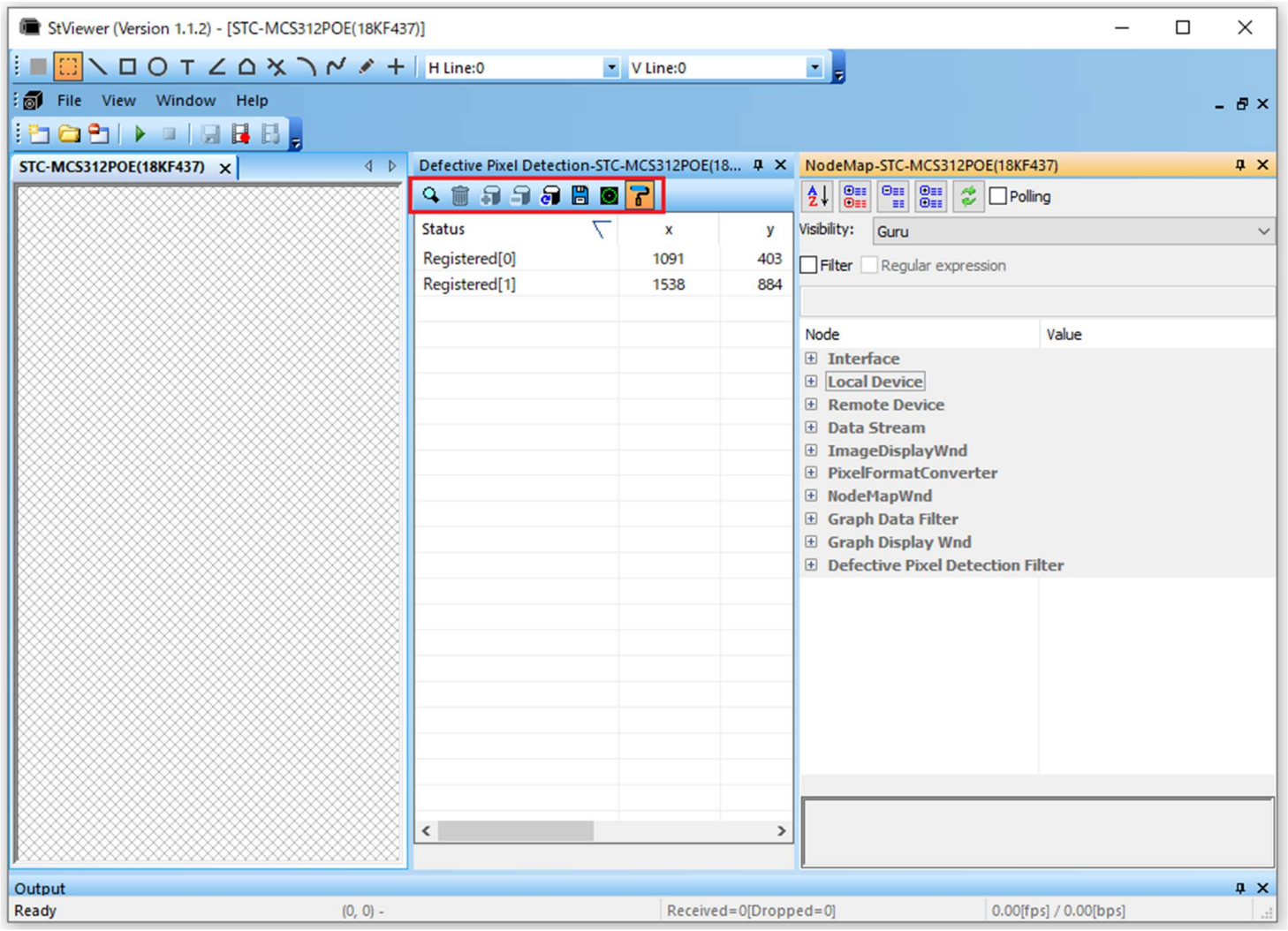


・How to display detected defective pixel

Selects “Defective Pixel Detection-STC-xxx” under “Toolbars and Docking Windows” on “View” menu on StViewer.



・Descriptions for defective pixel detection icons



Icon on tool bar	Function
	Starts defective pixel detection. It is necessary to proceed defective pixel detection with even pixel level condition such as shading condition. While detecting, StViewer could not operate temporary. When detected number of defective pixels is more than defective number, worst pixel evaluation pixel is detecting as target pixel. (In this case, small/dark defective pixel could not detect) Number of detectable pixels: Checks value at “Maximum Pixel Count To Detect” under “Filter Information” on “Defective Pixel Detection Filter”.
	All detected defective pixels information deletes from list.
	Apples pixel coordination of selected defective pixel onto camera. The savable number of defective pixels is different each camera model. It is necessary to proceed “User Set Save” at “User Set Control” on “Remote Device” to save onto camera. Number of corrective pixels: Checks value at “Pixel Correction Index” under “LUT Control” on “Remote Device”. *The actual number of maximum corrective pixels is maximum “Pixel Correction Index” + 1.
	Temporary deletes pixel coordination of selected defective pixel from camera. It is necessary to proceed “User Set Save” at “User Set Control” on “Remote Device” to delete from camera.
	Loads pixel coordination of defective pixels from camera.
	Saves the averaged monochrome image that use for defective pixel detection.
	High-light (with circle) detected defective pixel on preview image.
	Enables defective pixel correction. When this function using while acquisition image, defective pixel corrected image can be checked.

8 Revision History

Rev	Date	Changes	Note
00	2022/10/04	● New document	
01	2023/09/05	● Revised Added 4. Caution for using CoaXPress camera on StViewer 7.14 CoaXPress configuration mode 7.18 Zoom in/Zoom out of displaying image	

Note: The information on this document would be changed without notification.

USB3 Vision and GigE Vision are trademark of A3 (Association for Advancing Automation).
CoaXPress is registered trademarks of JIIA (Japan Industrial Imaging Association)
GenICam is trademark of EMVA.
Other company names and product names in this document are trademarks of their respective owners.

OMRON

OMRON SENTECH CO., LTD.

19F, Ebina Prime Tower

9-50, Chuo 2 chome

Ebina-city, Kanagawa

243-0432 Japan

TEL +81-46-236-6660 FAX +81-46-236-6661

URL http://www.sentech.co.jp/