Camera application

OBSCURAS Guide

MIMAKI ENGINEERING CO., LTD.

https://mimaki.com/

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Contents

Introduction

OBSCURAS is an application required for using the camera supplied with the CFX Series.

Please read the OBSCURAS Function Guide ("this document" hereinafter) thoroughly and make sure you understand its contents to ensure correct use of the OBSCURAS.

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About This Manual

This document describes the following:

- Installing OBSCURAS
- Using OBSCURAS

Notation used in This Guide

- The buttons and items displayed in screens are enclosed in square brackets, such as [OK] and [Open].

Symbols used

		Details
	Important	The "Important" symbol represents information you must be familiar with when using OBSCURAS.
	Tip	The "Tip" symbol represents useful information to know.
	Reference information	Indicates a reference page with related information. Click the text to display the corresponding page.
	Compulsory	The "Compulsory" symbol indicates items that must be performed.

How to Obtain This Guide and Related Manuals

The latest versions of this guide and related manuals are available at:

- Mimaki official website (https://mimaki.com/download/software.html)

Chapter 1 About OBSCURAS

This chapter

This chapter describes OBSCURAS.

1.1 Functions and Operating Environment

● Functions

OBSCURAS provides the following functions:

- Registration and management of plotters
- Camera settings
- Imaging settings
- Manual setting and output of register mark positions (teaching register marks)

● Compatible models

OBSCURAS is compatible with the following models.

- CFX Series

● Operating environment

OBSCURAS is compatible with the following operating environments.

OS	Microsoft® Windows 10® (64-bit version) Microsoft® Windows 11®

● Recommended system

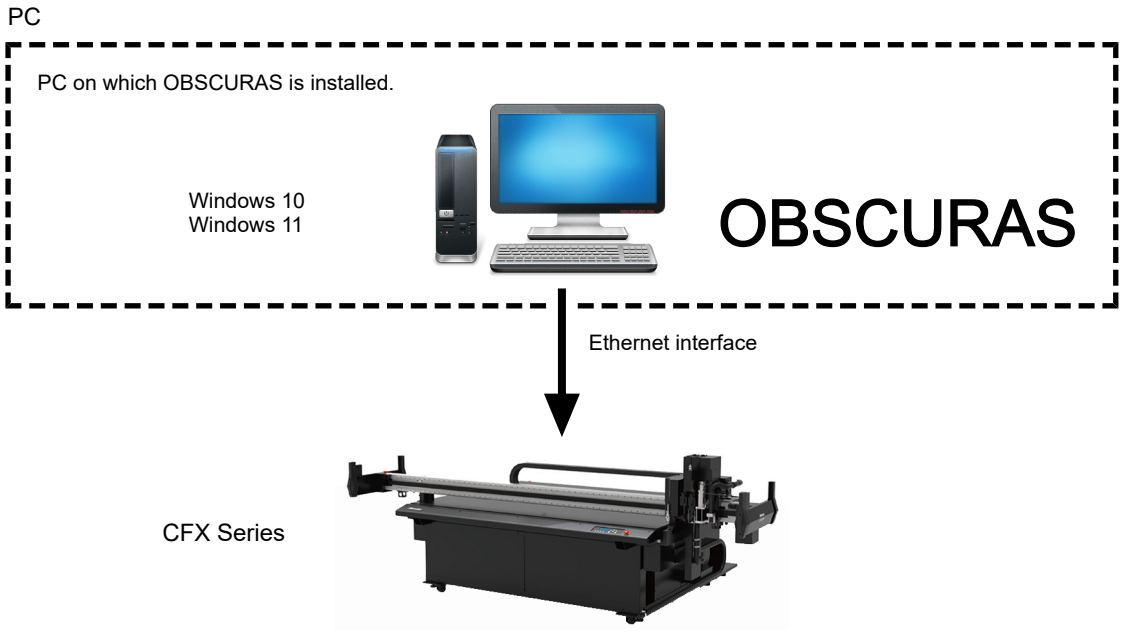
OS	Windows® 10 Pro 64-bit
CPU	Intel® Core™ i5 or later
Chipset	Intel chipset
Memory	8 GB or more
Hard disk	10 GB or more free space
Interface	Ethernet port

Important! The Ethernet environment should have at least the following conditions. If the specifications are lower than the conditions below, communication may not be stable.

- PC
  - LAN port must support 1000BASE-T (Gigabit).
  - Must be compatible with jumbo frames (9000 and above).
- Cable:
  - CAT6 or higher.
- Hub (if used):
  - 1000BASE-T (Gigabit) compatible.
  - Must be compatible with jumbo frames (9000 and above).

● System configuration

One PC can be connected to each CFX unit only.



Chapter 2 Explanation of Functions

This chapter

This chapter describes how to start up OBSCURAS and its functions.

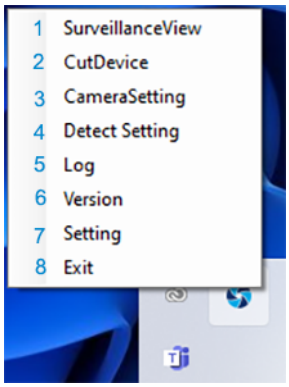
2.1 Starting Up

OBSCURAS is displayed on the task bar.

- If the OBSCURAS icon is not displayed on the task bar, click OBSCURAS on the Windows Start menu to launch it. The icon will then appear on the task bar.

1 Right-click the OBSCURAS icon on the task bar.

- The OBSCURAS menu appears.



1	SurveillanceView	Checks the plotter communication status and indicates whether or not register mark detection is possible. ☞ "SurveillanceView"(P. 11)
2	Cut Device	Displays the [Cutting Device Manager] dialog box. This function is used by Mimaki service engineers. ☞ "Cut Device"(P. 36)
3	CameraSetting	Displays the [CameraSetting] dialog box. This function is used by Mimaki service engineers.
4	Detect Setting	Displays the [Detect Setting] dialog box. Function for adjusting the imaging conditions and image processing conditions for work for which register mark and edge detection are problematic. ☞ "Detect Setting"(P. 13)
5	Log	Displays the [Log] dialog box. This function is used by Mimaki service engineers.
6	Version	Displays [Version]. ☞ "Version"(P. 25)
7	Setting	Displays the [Setting] dialog box. ☞ "Application Setting"(P. 26)
8	Exit	Exit OBSCURAS.

2.2 Explanation of Functions

SurveillanceView

Indicates the communication status between the machine and OBSCURAS.

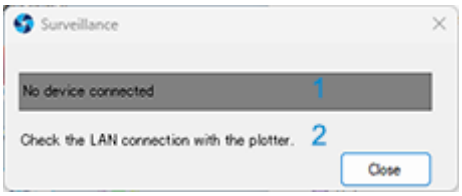
This allows the user to confirm whether register mark detection is possible.

Communication status display procedure

1 **Right-click the OBSCURAS icon on the task bar, then select [SurveillanceView].**

- The [Surveillance] dialog box appears.

Communication status display types and corresponding action



1. Status display	2. Action display	Action
Cut device registration not implemented	Please register the cutting device.	Register the connected plotter as a cutting device. ☞ "Cut Device"(P. 36)
No device connected	Check the LAN connection with the plotter.	1. Check the connection. – Check the PC LAN connection with the plotter. – Check that a registered cutting device is connected to the plotter. ☞ "Cut Device"(P. 36) 2. If there is no problem with the connection – Restart the PC. – Restart the plotter. Wait until the plotter is reconnected. (Approx. 5 minutes) 3. If the display remains the same, contact Mimaki service engineers.
Camera not connected	Please check the connection with the camera.	
Communication NG Registration mark cannot be detected	Unable to receive commands from plotter. Reconnecting...	Wait until the plotter is reconnected. If the plotter does not reconnect even after waiting approximately 5 minutes, contact your PC security administrator to check whether the port number set in the [Setting] dialog is being blocked. ☞ "Application Setting"(P. 26)

1. Status display	2. Action display	Action
Communication OK, calibration not performed	Please perform calibration.	Contact Mimaki service engineers.
Communication OK, registration marks can be detected		Communication is normal. Register marks can be detected.

If the connection frequently switches between NG and OK, there may be a communication speed problem. In this case, please check the following.

- Ehernet environment specifications.☞ "Functions and Operating Environment"(P. 6)
- Jumbo packet settings (Please check the procedure for jumbo packet settings.)

Detect Setting

If register mark detection fails due to the effects of the work color or reflection, the image processing used for register mark detection will require adjustment.

The [Detect Setting] dialog box enables register mark detection by altering the imaging settings and image processing settings.

Image Adjustment Procedure

Adjust using [Detect Setting] after setting the plotter to [RegisterMarkCameraAdjustment].

● Set plotter to [RegisterMarkCameraAdjustment]

1 **Connect the plotter to the PC using a LAN cable, then turn on the power to the plotter.**

2 **Once the plotter is set to local mode, load the work with register marks into the plotter.**

- Load the work for which you wish to adjust detection.

3 **Set the work thickness.**

4 **From the Jog function selection menu, select [RegisterMarkDetectionCameraAdjustment].**

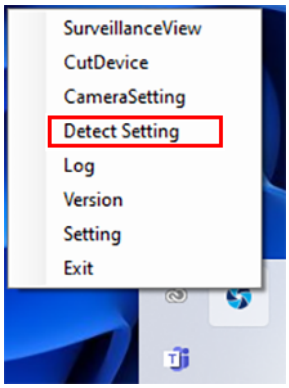
5 **Align the light pointer with the register mark on the work, then press the [ENTER] key.**

- The camera LED lights up, and the plotter stops.

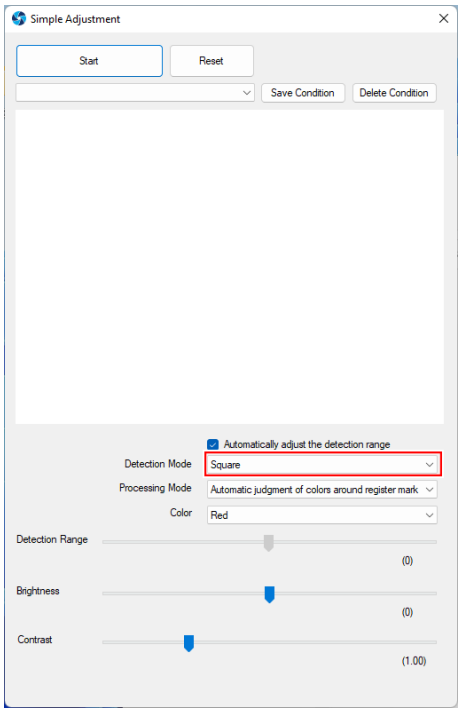
● Adjust using [Detect Setting].

1 **Right-click the OBSCURAS icon on the task bar, then select [Detect Setting].**

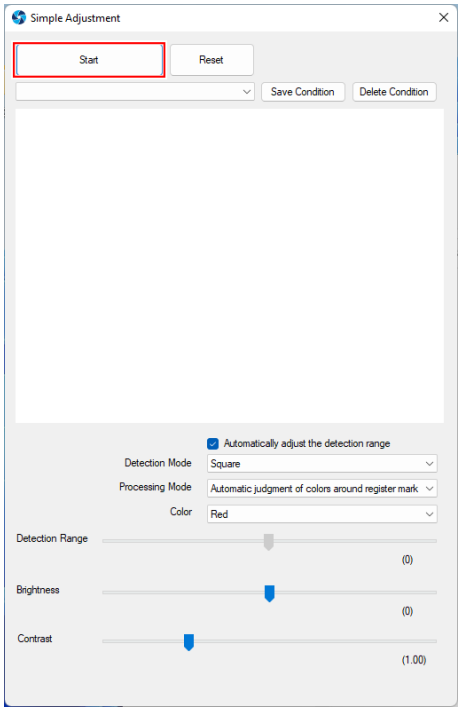
- Displays the [Detect Setting] dialog box.



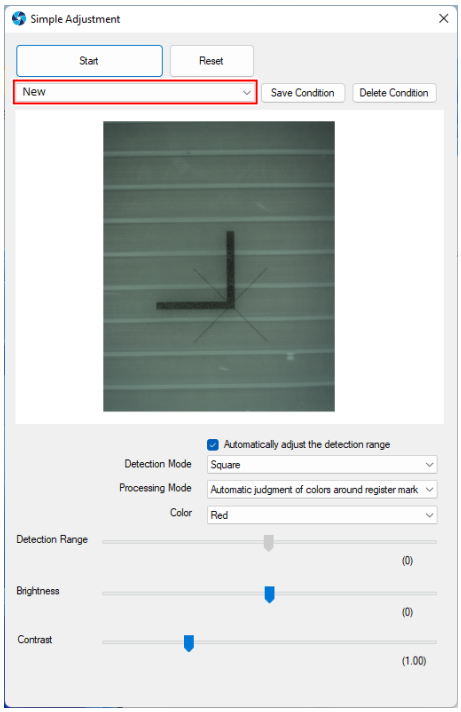
2 **Select the type of register mark captured in [Detection Mode].**



3 **Click the [Start] button.**

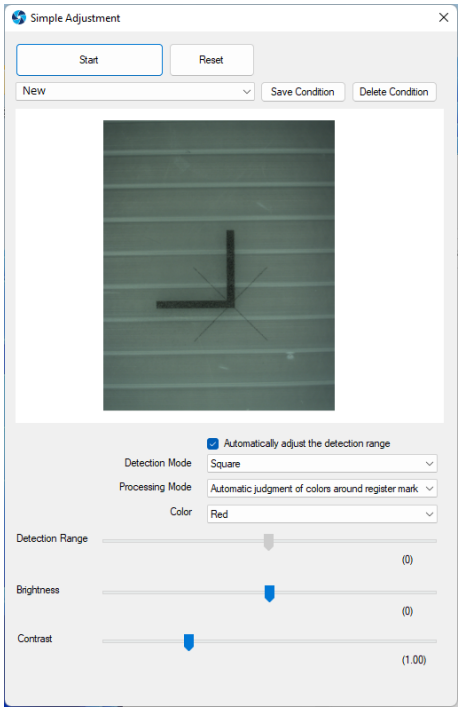


4 **Select [New] in [Condition Name].**



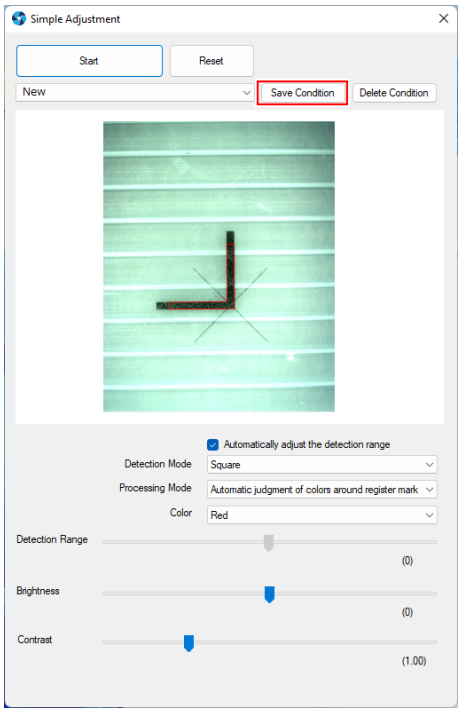
5 **Adjust the settings below while checking the image captured until the register mark is correctly enclosed within the red frame.** ☞ **"[Detect Setting] Screen Layout"(P. 18)**

- [Detection Range]
- [Brightness]
- [Contrast]

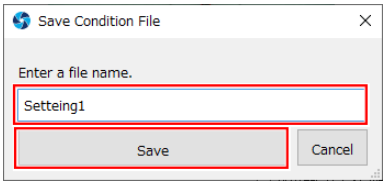


- If the register mark is not detected properly even after adjusting the settings, set [Processing Mode] to suit the work being printed, and readjust. ☞ "[Detect Setting] Screen Layout"(P. 18)

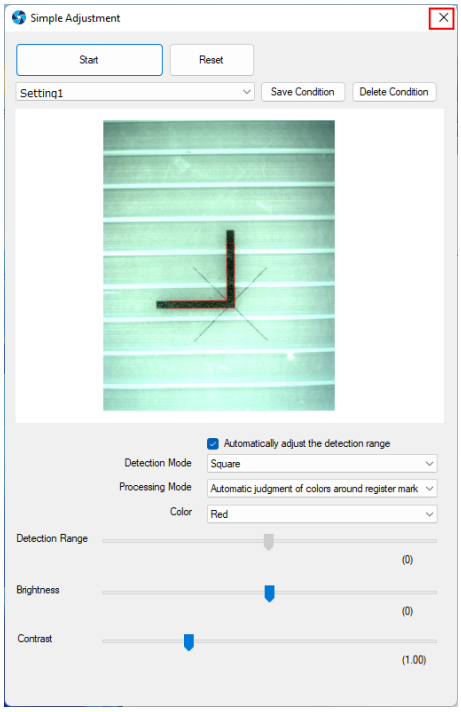
6 **Once the setting changes are complete, click the [Save Conditions] button.**



7 **Enter the name for saving, then click the [Save] button.**



8 **Click [×] to close the dialog box.**



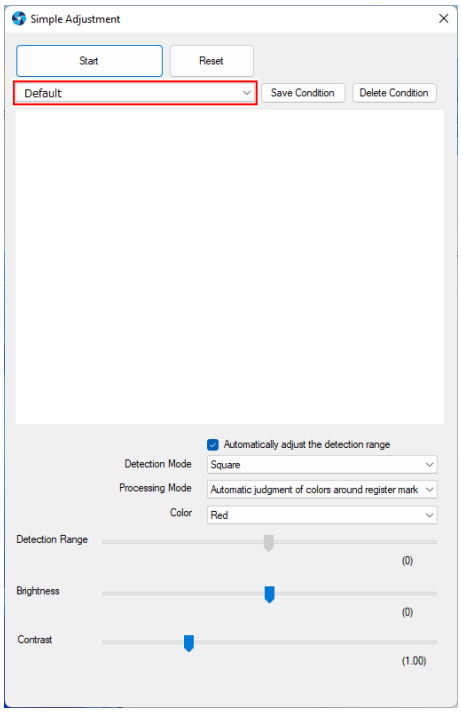
9 **Press the plotter [END] key to exit [RegisterMarkDetectionCameraAdjustment] mode.**

● To detect register marks by loading saved conditions

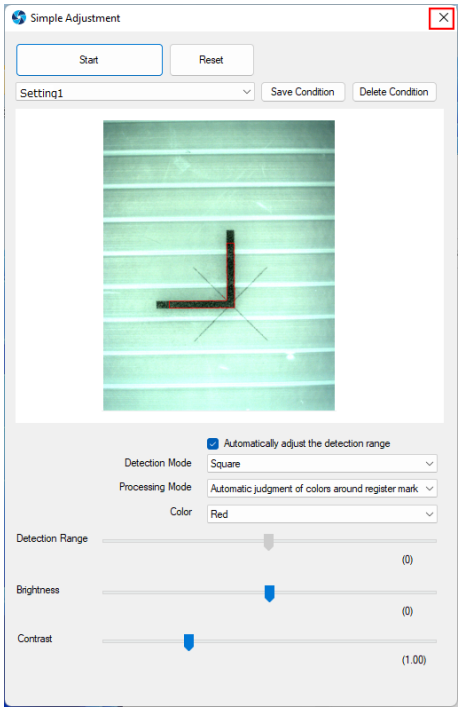
1 **Launch the [Detect Setting] dialog box.**

2 **Select the name of the conditions to be used for detection in [Condition Name].**

- Selecting [Default] detects without any adjustments.

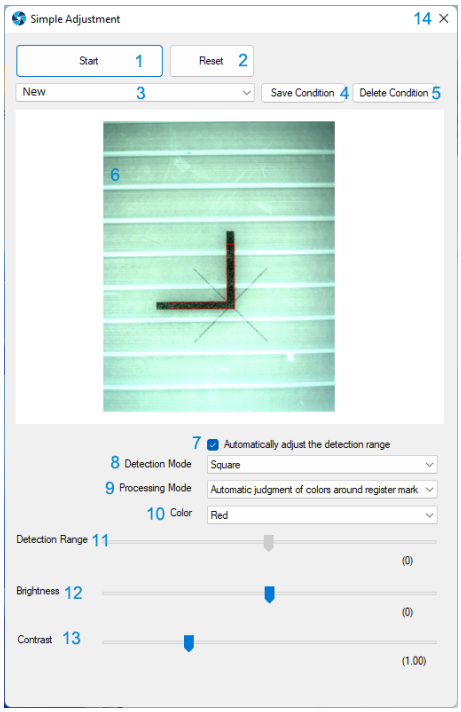


3 **Click [×] to close the dialog box.**



4 **Detect the registration marks using the plotter.**

[Detect Setting] Screen Layout



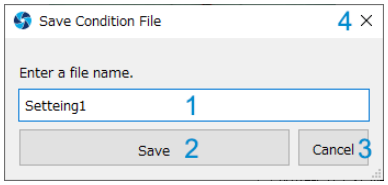
1	Start/Stop	Captures an image. Or stops imaging.
2	Reset	Resets the conditions to their default values. ☞ "Default values"(P. 19)
3	Condition Name	Selects a set of conditions. To create a new set of conditions, select [New].
4	Save Conditions	Saves the conditions set. The conditions saved are [Processing Mode], [Automatically adjust the detection range], [Detection Range], [Brightness], and [Contrast]. • When [New] is selected for the condition name, the [Save Conditions File] dialog box appears. ☞ "Save Conditions File"(P. 19) • When an existing condition name is selected, the [Save Conditions File Confirmation] dialog box appears. ☞ "Conditions file save confirmation"(P. 20)
5	Delete Conditions	Deletes the conditions selected in [Condition Name]. • Conditions are not deleted if [New] or [Default] is selected for the condition name. • When an existing condition name is selected, the [Delete Confirmation] dialog box appears. Click [OK].
6	Captured image display area	Clicking [Start] captures an image and displays it in the captured image display area. • The image is refreshed at the preset interval. • If a register mark is detected in the image, the outline is highlighted with a solid line.
7	Automatically adjust the detection range	Select the check box to adjust the detection range automatically. • When the check box is selected, the detection range is adjusted automatically. • When the check box is unselected, the register marks are detected using the setting for [Detection Range].
8	Detection Mode	Selects the type of register mark to be detected. ☞ "Register mark types"(P. 21)

9	Processing Mode	• Auto detect color around mark: Automatically detects register marks using RGB/HSV processing. • Color around mark is white: Detects register marks using RGB processing. • Color around mark is non-white: Detects register marks after processing using hue in HSV format.
10	Color	Selects the detection range indication color. Select a color that is easily visible compared to the work color. • Display colors: Red, Blue, Yellow
11	Detection Range	Adjusts the detection range when [Automatically adjust the detection range] is disabled. Increasing the setting increases the range for identifying as a register mark. • Range: 0 to 255
12	Brightness	Adjusts the brightness. Increasing the setting increases the image brightness before detecting register marks. • Range: 0 to 255
13	Contrast	Adjusts the contrast. Increasing the setting increases the image contrast before detecting register marks. • Range: -1.00 to 3.00
14	×	Closes the [Detect Setting] dialog box. After closing, register marks are detected using the conditions currently set in [Condition Name]. • When [Default] is selected No settings are adjusted for detection. • When [New] is selected The last conditions selected are automatically selected for detection. • When registered conditions are selected The saved conditions are used for detection.

● Default values

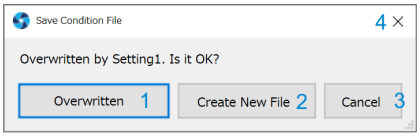
Processing Mode	Auto detect color around mark
Automatically adjust the detection range	On
Detection Range	128
Brightness	1
Contrast	0

● Save Conditions File



1	Conditions file name	Enter the conditions file name.
2	Save	Saves the conditions file.
3	Cancel	Cancels the process.
4	×	Closes the [Save Conditions File] dialog box.

● Conditions file save confirmation

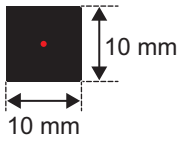


1	Save	Saves the conditions file with the same name.
2	Save	The [Save Conditions File] dialog box appears. ☞ "Save Conditions File"(P. 19)
3	Cancel	Cancels the process.
4	×	Closes the [Save Conditions File Confirmation] dialog box.

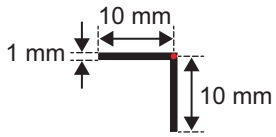
● Register mark types

The red dot indicates the register mark origin.

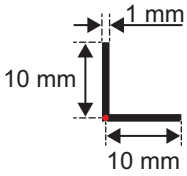
- Square



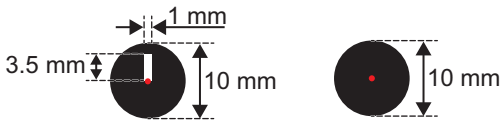
- Type 1 (lower left, lower right, upper left, upper right)



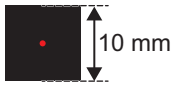
- Type 2 (lower left, lower right, upper left, upper right)



- Round (free)
  Left: With mark, Right: Without mark



- Mark tip



- Edge
  Edges include the four corners of the work, vertical edges (X direction), and horizontal edges (Y direction). The following can be selected:
  - Edge detection (lower left)
  - Edge detection (lower right)
  - Edge detection (upper left)
  - Edge detection (upper right)
  - Edge detection (X direction)
  - Edge detection (Y direction)

Teaching Register Marks

This function detects register marks by setting the register mark detection position manually.

It allows register marks created using non-Mimaki software or rectangular register marks arranged around data to be detected as register marks.

It can also be used when automatic detection is problematic due to the media or printing color.

Important!

- FineCut9 Ver3.0 or later is required.

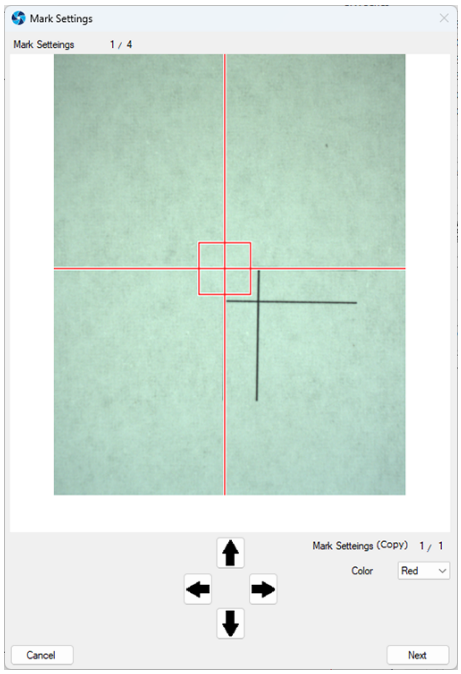
Teaching register mark reading method

1 **Create and print out teaching register mark data using FineCut. (For information on FineCut, refer to the Reference Guide.)**

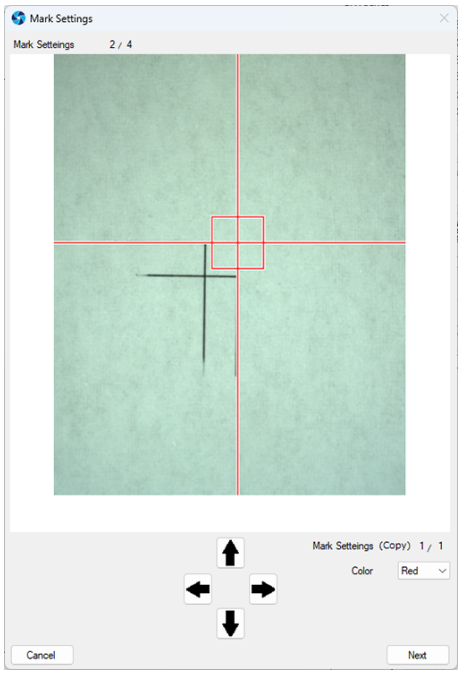
2 **Load the printed work on the CFX main unit, then use [Mark Origin Detection] (Type 6 teaching) on the CFX LED panel. (For more information, refer to the CFX main unit operation manual.)**

3 **Output the teaching register mark data using FineCut. (For information on FineCut, refer to the Reference Guide.)**

- The Register Mark Setting window automatically opens on the PC on which OBSCURAS is running.

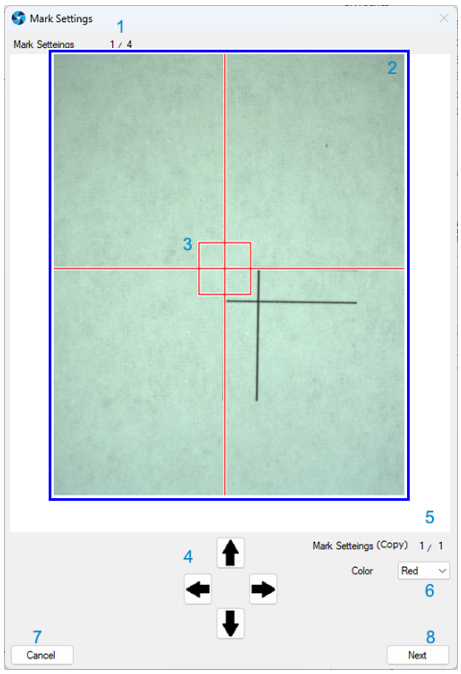


4 **Click the points specified in FineCut to set them.**



- Repeat Step 4 until all of the detection positions (up to four positions) have been set. Cutting starts once all of the settings are complete.

Teaching register mark screen layout



1	Register Mark Setting	Displays the number of the register mark currently being set. (Currently being detected/Total number detected)
2	Captured image display area	The image is continuously scanned and displayed while teaching register marks are being detected.
3	Cursor	Follows the mouse movement. Hover over the position to be set as a register mark, then click the mouse. The cursor will stay in the center of the scanned image area if the mouse is moved outside the area.
4	Camera move buttons	Click to move the camera. These can be used to move the camera to find register marks if no marks are visible within the scanned image area. They correspond to the cursor keys on the keyboard. They cannot be held down.
5	Mark Settings (Copy)	Indicates the number of the data currently detected if register marks have been copied. (Copies currently detected/Total number of copies)
6	Color	Selects the cursor color. Select a color that is easily visible compared to the work color. (Display colors: Red, Blue, Yellow)
7	Cancel	Stops register mark detection. If copying is in progress, subsequent copy output is also stopped. Clicking the button displays a confirmation window. Yes: Stops register mark detection and closes the Register Mark Setting dialog box. No: Continues register mark detection.
8	Next	Sets the current cursor position (center of scanned image) as a register mark. The operation is the same as clicking on the scanned image display area. This is used for multiple register mark detection when the detection position is not offset from the center of the scanned image.

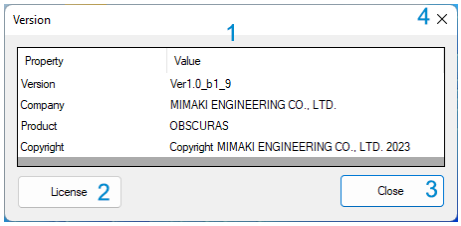
Version

The [Version] dialog box is used for searching, registering, and managing cutting devices.

1 **Right-click the OBSCURAS icon on the task bar, then select [Version].**

- The [Version] dialog box appears.

2 **Check the details in the [Version] dialog box.**



1	Version display area	Display the various information details.
2	License	Displays the [License] dialog box. • Used for checking the license. Click [Close] or [×] at the top right to close the [License] dialog box.
3	Close	Closes the [Version] dialog box.
4	×	Closes the [Version] dialog box.

Application Setting

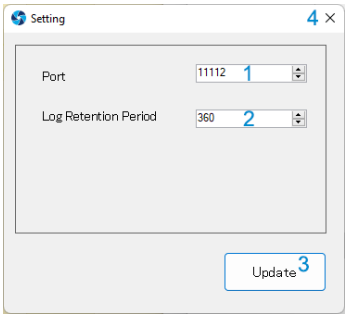
The [Setting] dialog box is used for setting Port and Log Retention Period.

- If the connection between OBSCURAS and the plotter is frequently disconnected, contact the PC security administrator to check if the port number set on this dialog is being blocked.

1 **Right-click the OBSCURAS icon on the task bar, then select [Setting].**

- Displays the [Setting] dialog box.

2 **Sets and updates [Port] and Log [Retention Period] setting.**



1	Port	Sets the port number on which OBSCURAS will receive commands.
2	Log Retention Period	Sets the period of time that logs will be saved.
3	Close	Updates [Port] and Log [Retention Period] setting.
4	×	Click [Setting] to close the dialog box. The changes will be saved.

Chapter 3 Other Functions

This chapter

This chapter describes other functions.

3.1 Installation

Important! • Install as a user with Administrator authority.

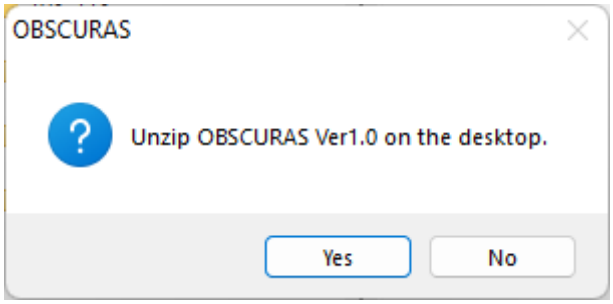
1 Download the installer for this tool from the OBSCURAS download page on the Mimaki official website (https://mimaki.com/download/software.html).

The installer can be obtained as follows if the PC is not connected to the Internet.
- If you have a PC connected to the Internet, download the installer on that PC, then copy it to the PC on which OBSCURAS is to be installed.

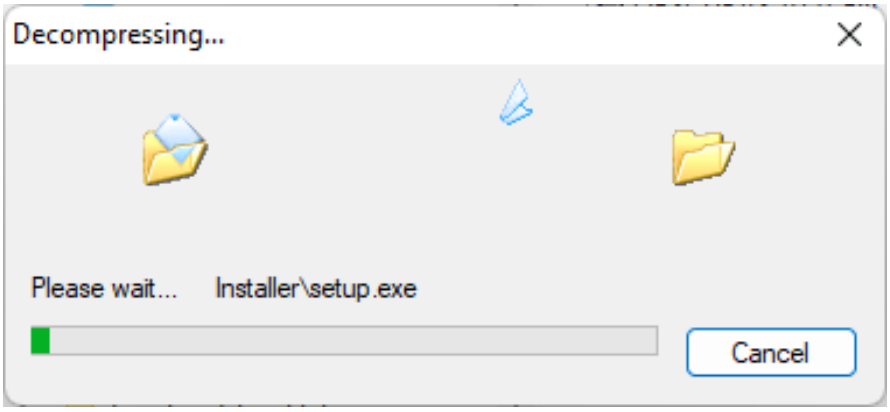
2 The downloaded file to run it. (OBSCURAS_v * * * .exe)

- The **** indicates the version.

3 "Unzip OBSCURAS Ver on the desktop"(OBSCURASをデスクトップに展開します.) Click [Yes].**

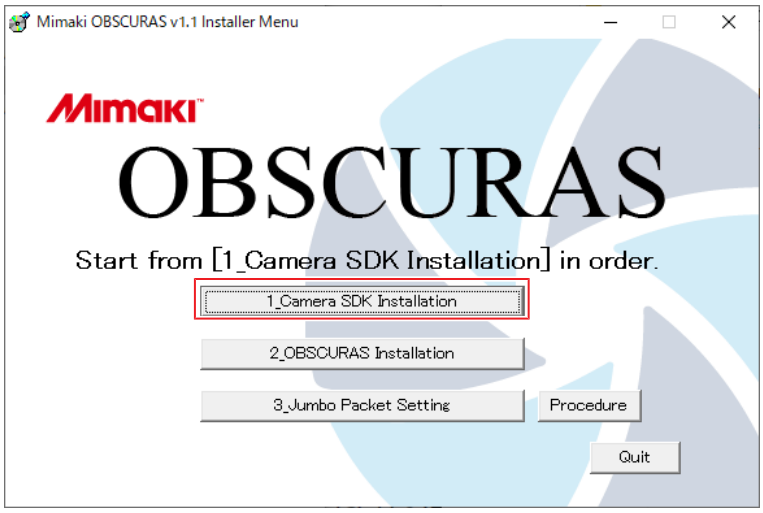


- The OBSCURAS installer is automatically unpacked onto the desktop.

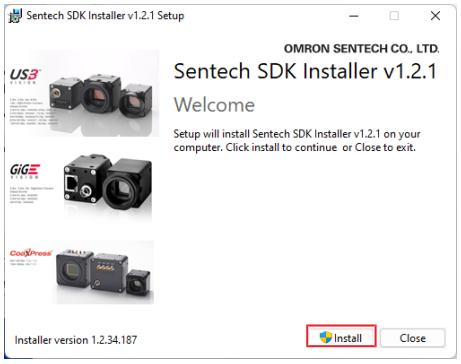


4 Selects a set of conditions.

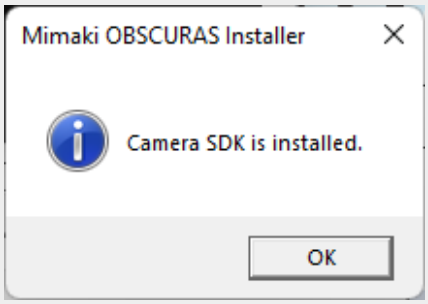
5 **Click [1_Camera SDK Installation].**



6 **Click [Install].**



[Camera SDK is installed.] will be displayed if SDK has already been installed. Click [OK], and proceed to [2_OBSCURAS Installation].

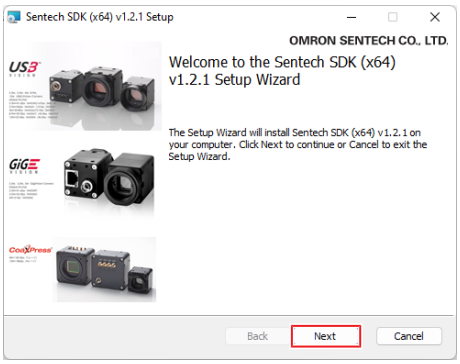


- [It cannot be installed on a 32-bit PC.] will be displayed if you are using a 32-bit PC.

7 **Select [Yes] on the User Account Control dialog box.**

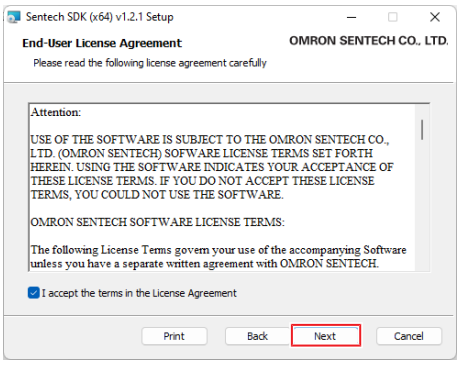
- The Camera SDK setup wizard launches.

8 Click [Next].

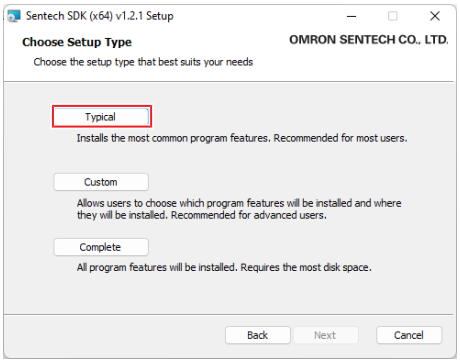


9 Select the [I accept the terms in the License Agreement] check box.

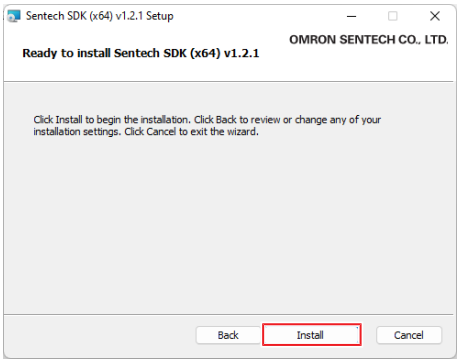
- Click [Next].



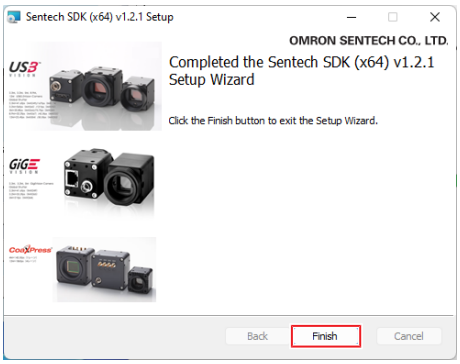
10 Click [Typical].



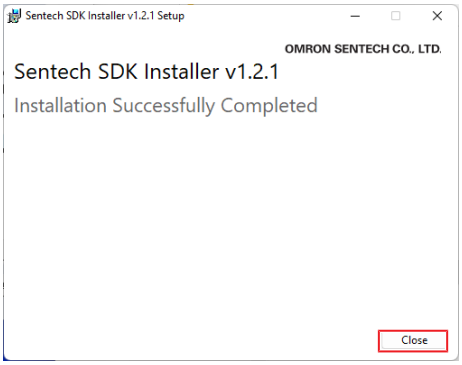
11 Click [Install].



12 Click [Finish].

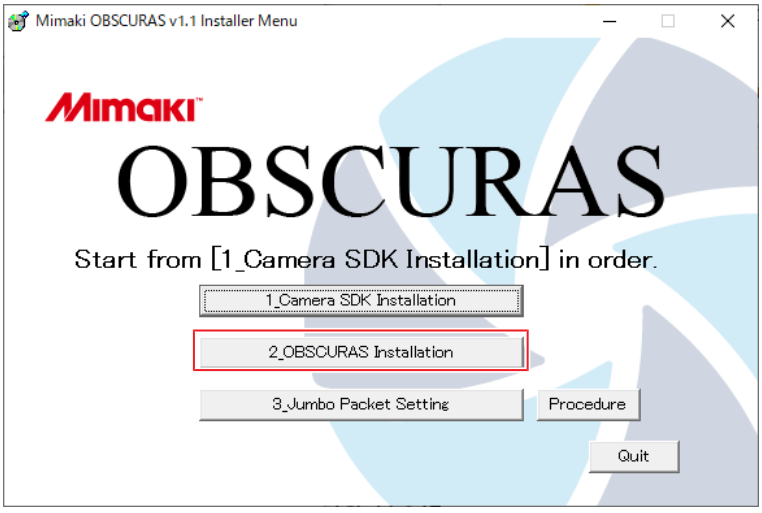


13 Click [Close].

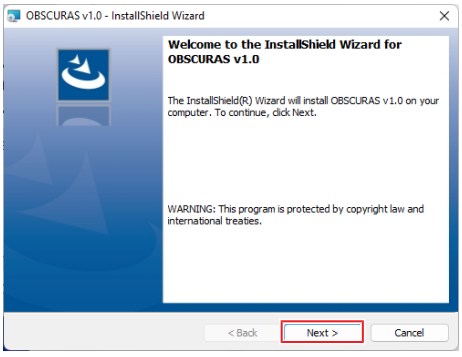


14 Click [2_OBSCURAS Installation].

- The OBSCURAS installer starts up.

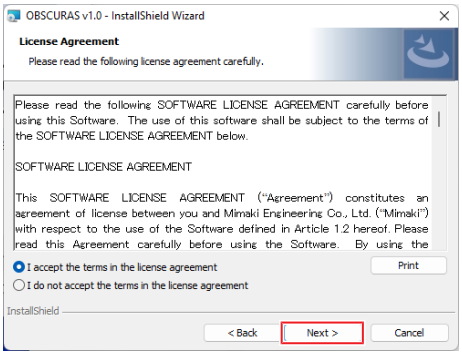


15 Click [Next].

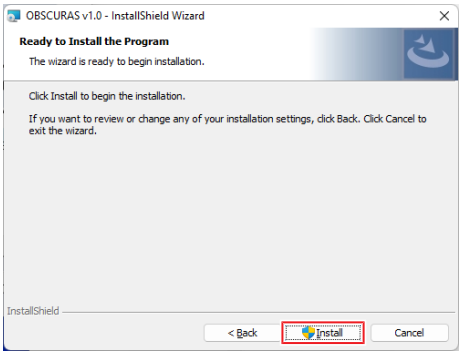


16 Select [I accept the terms of the license agreement].

- Click [Next].

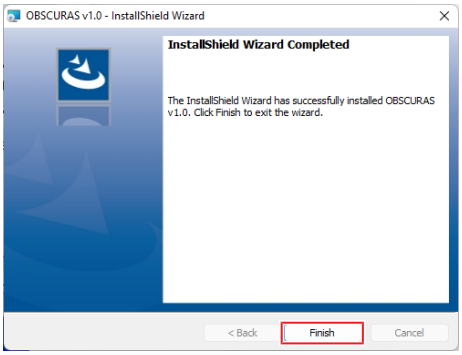


17 Click [Install].

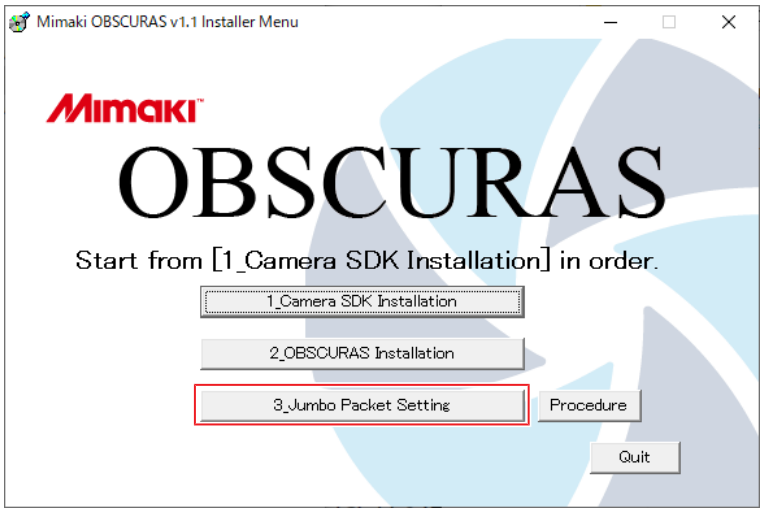


18 Select [Yes] on the User Account Control dialog box.

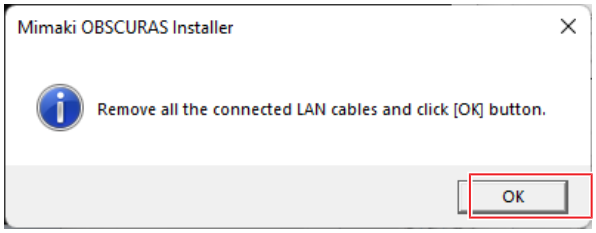
19 Click the [Finish] button.



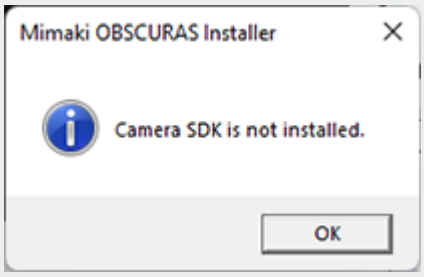
20 **Click [3_Jumbo Packet Setting].**



21 **Unplug all of the LAN cables connected to the PC, then click [OK].**



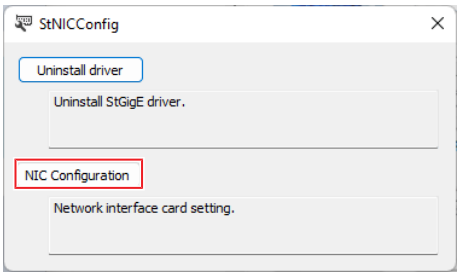
[Camera SDK is not installed.] will be displayed if camera SDK has not been installed properly. Repate the procedure from [1_Camera SDK Installation].



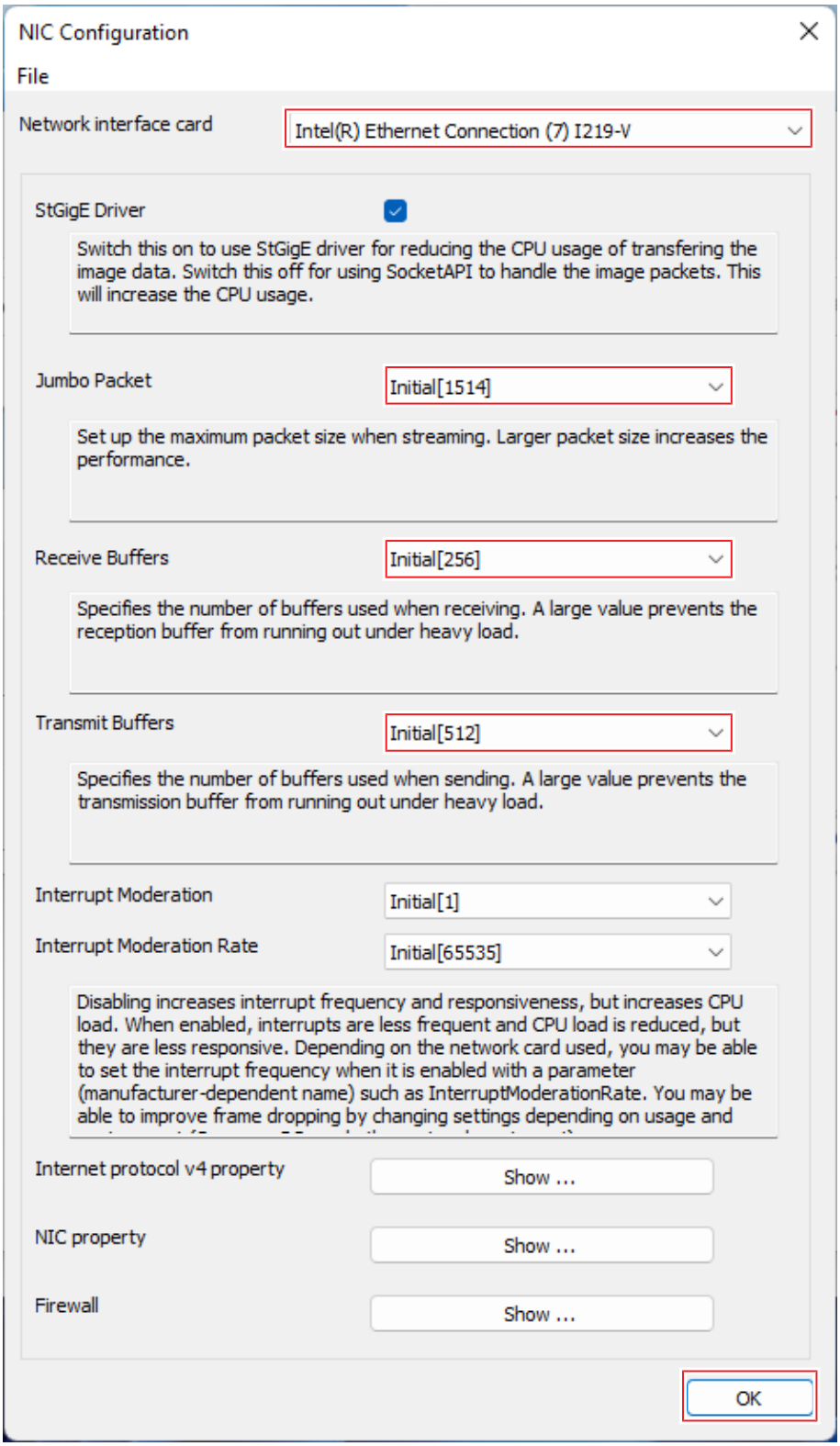
22 **Select [Yes] on the User Account Control dialog box.**

- StNICConfig starts up.

23 **Click [NIC Configuration].**



24 Set the following settings.



- In [Network interface card], set the network card used for the connection to the plotter.
- Change [Jumbo Packet] to [9014Bytes[9014]].
- Change [Receive Buffers] to [Maximum[2048]].
- Change [Transmit Buffers] to [Maximum[2048]].

Jumbo packet settings may not be changed.

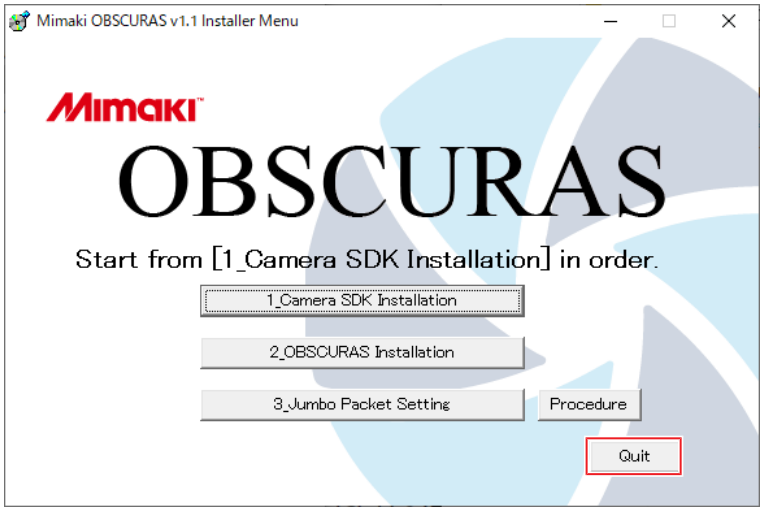
- ☞ "Jumbo packet settings may not be changed"(P. 46)

25 **Click the [OK] button.**

26 **Click the [×] button to close StNICConfig.**

27 **Click [Quit] to exit the installer.**

- Installation is now complete.



3.2 Cut Device

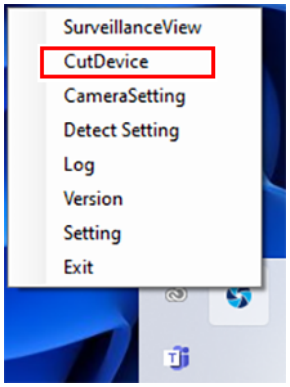
The [CuttingDeviceManager] dialog box is used for searching, registering, and managing cutting devices.

Cutting Device Registration

1 **Connect the plotter to the PC using a LAN cable, then turn on the power to the plotter.**

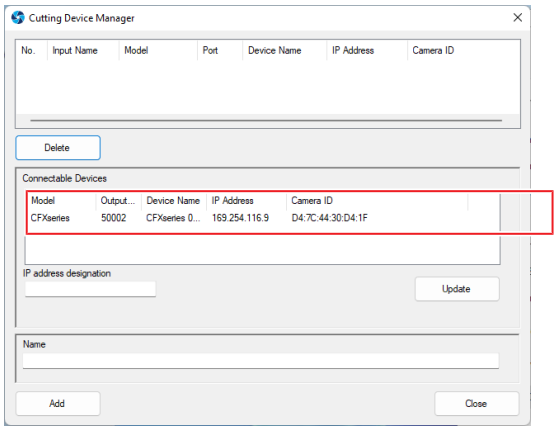
2 **Right-click the OBSCURAS icon on the task bar, then select [CutDevice].**

- Displays the [Cutting Device Manager] dialog box.



- If the OBSCURAS icon is not displayed on the task bar, click OBSCURAS on the Windows Start menu to launch it. The icon will then appear on the task bar.

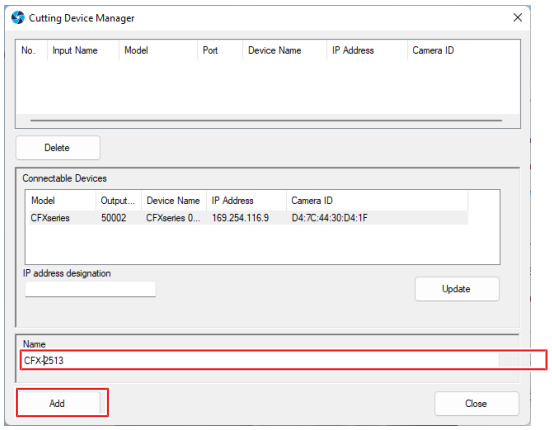
3 **Check to confirm that the cutting device currently connected is listed in [Connectable Devices].**



- If the device currently connected is not listed, click the [Update] button to reload [Connectable Devices].

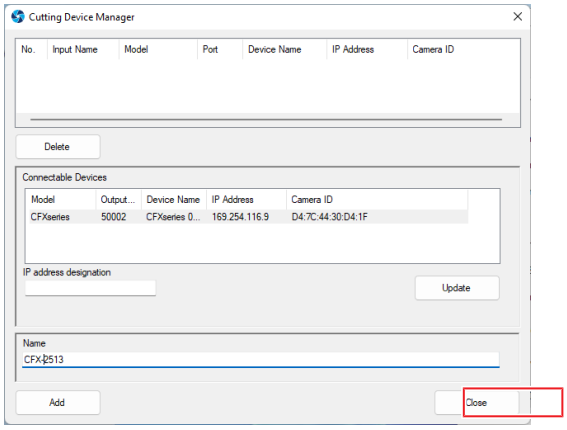
4 **Select the cutting device to be registered from the [Connectable Devices] list.**

5 **Enter a registration name as desired in the [Input Name], then click the [Add] button.**

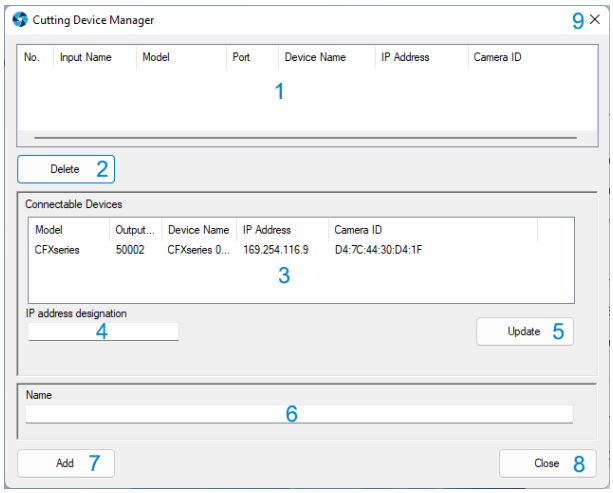


- Only one device can be registered. Multiple devices cannot be registered.

6 **After registering, click the [Close] button to close the [Cutting Device Manager] dialog box.**



[Cutting Device Manager] Screen Layout



1	Cutting device display area	Displays information about registered cutting devices. ☞ "Items displayed in the cutting device display area"(P. 39)
2	Delete	Deletes registered cutting devices.
3	Connectable Devices display area	Lists the connectable cutting devices. ☞ "Items displayed in the available device display area"(P. 39)
4	IP Address destination	Used to enter the cutting device IP address.
5	Update	Uses the entered [IP address] to search for available cutting devices and lists them in the available device display area. • If the [IP address] is not entered, all available cutting devices will be listed.
6	Name	Enters a name for the cutting device to be registered.
7	Add	Adds a cutting device. • The cutting device added is listed in the available device display area.
8	Close	Closes the [Cutting Device Manager] dialog box.
9	×	Closes the [Cutting Device Manager] dialog box.

● **Items displayed in the cutting device display area**

No.	Registration number
Name	Name entered at time of registration
Model	Model name of registered cutting device
Port	Output port for registered cutting device
Device Name	Name of registered cutting device
IP Address	IP address of registered cutting device
Camera ID	ID of camera connected to registered cutting device

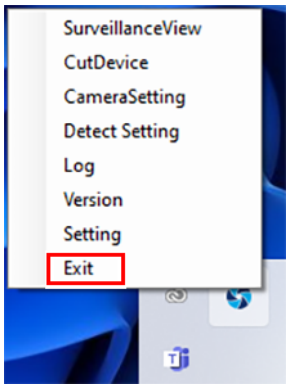
● **Items displayed in the available device display area**

Model	Model name of available cutting device
Port	Output port for available cutting device
Device Name	Name of available cutting device
IP Address	IP address of available cutting device
Camera ID	ID of camera connected to available cutting device

3.3 Uninstallation

- Uninstallation can be performed only by users with Administrator authority.

1 **Right-click the OBSCURAS icon on the task bar, then select [Exit].**



- OBSCURAS ends.

2 **From the Windows [Start] menu, click [Settings].**

3 **Click [Apps] > [Apps & features].**

4 **From the list in [Apps & features], select [OBSCURAS], then click [Uninstall].**

5 **Click [Uninstall].**

- Uninstallation starts.

6 **Click [Finish].**

- OBSCURAS uninstallation is now complete.

- The following procedure should be performed after OBSCURAS uninstallation.

7 **From the Windows [Start] menu, click [Settings].**

8 **Click [Apps] > [Apps & features].**

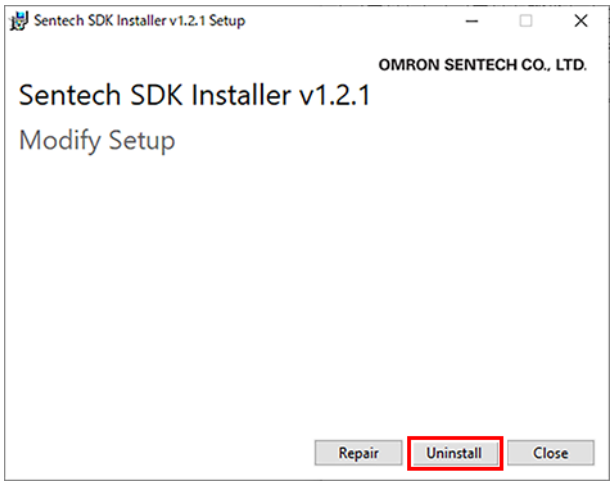
9 **From the list in [Apps & features], select [Sentech SDK Installer v***], then click [Uninstall].**

- Please note that a similar item called [Sentech SDK v***] is available, so be sure not to confuse them.

10 **Select [Yes] on the User Account Control dialog box.**

11 **Click [Uninstall].**

- Uninstallation starts.



12 **Click [Close].**

- Uninstallation is now complete.

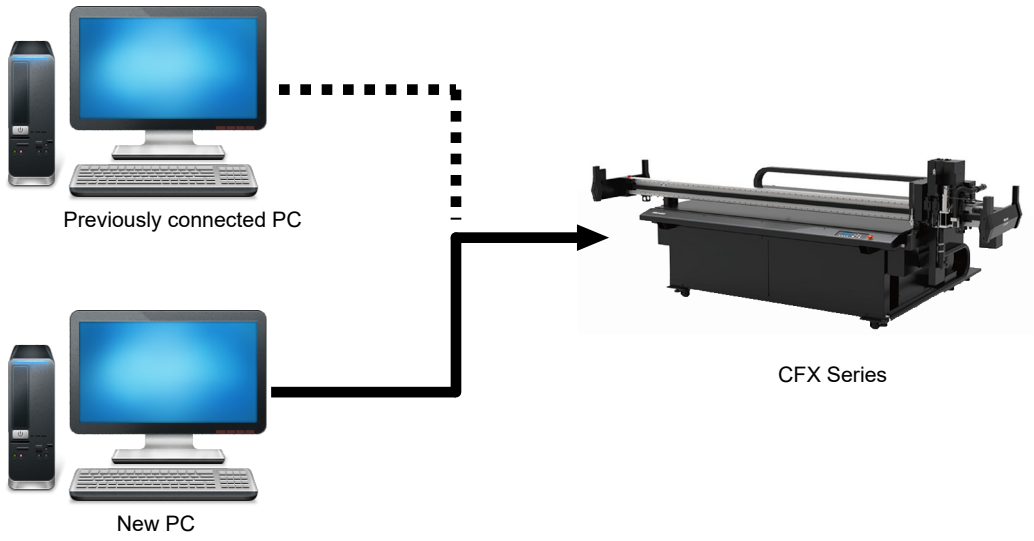
Chapter 4 Troubleshooting

This chapter

This chapter describes corrective actions for troubleshooting and connecting a new PC.

4.1 When Connecting a New PC

When connecting a new PC to the plotter, connect as follows.



1 **Install OBSCURAS on the new PC.** ☞ "Installation"(P. 28)

2 **Copy the following folder from the previously connected PC.**

- C:\ProgramData\MIMAKI_OBSCURAS\CommonSettingFile

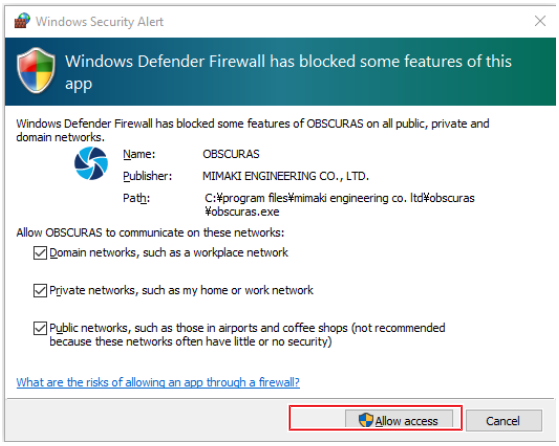
- Be sure to copy the entire [CommonSettingFile] folder as well as the files within the folder.

3 **Paste the copied folder into the following folder on the new PC.**

- C:\ProgramData\MIMAKI_OBSCURAS

4 **Start up OBSCURAS on the new PC.**

- The "Windows Security Alert" window appears when OBSCURAS is launched. Select all of the check boxes, then click "Allow access".



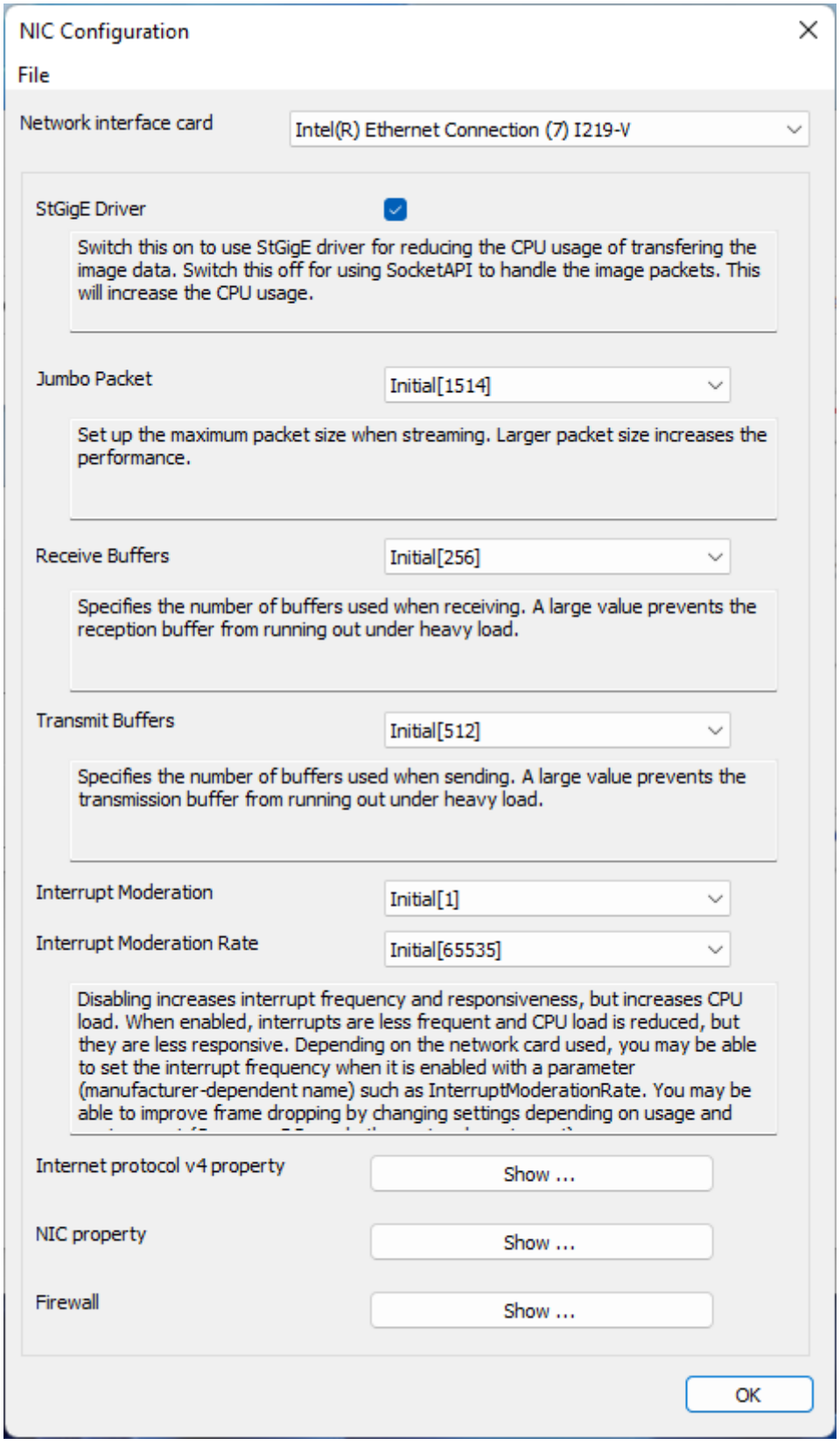
5 **Use [Cut Device Manager] to register the plotter currently connected.** ☞ "Cutting Device Registration"(P. 36)

- When two or more PCs with the OBSCURAS installed are simultaneously connected to one CFX, it may not be possible to transmit data properly. Please uninstall or exit the OBSCURAS on one of the two PCs beforehand.

4.2 Jumbo packet settings may not be changed

During the installation procedure, you may not be able to change the jumbo packet settings.

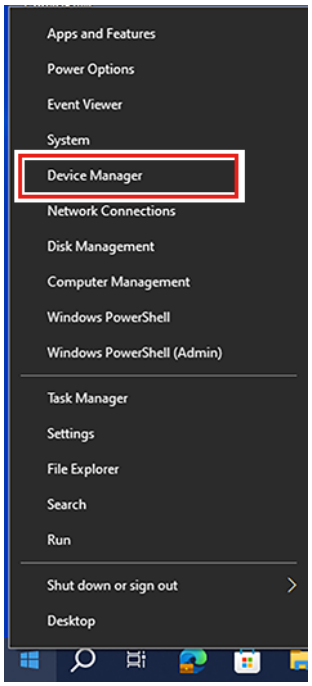
- It is not possible to change the value
- Jumbo packets cannot be entered.



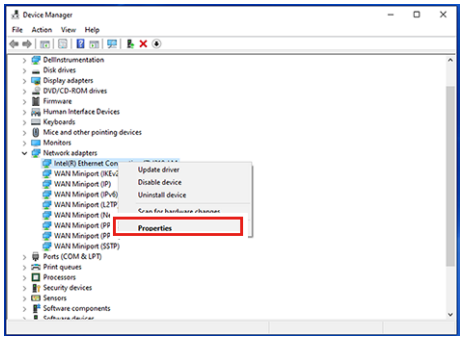
In this case, configure jumbo packets using the following procedure.

- Perform the following procedure with all LAN cables disconnected.

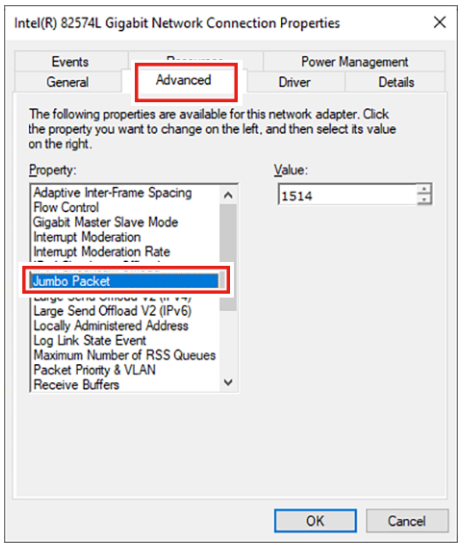
1 Right-click the Windows [Start] menu and select [Device Manager].



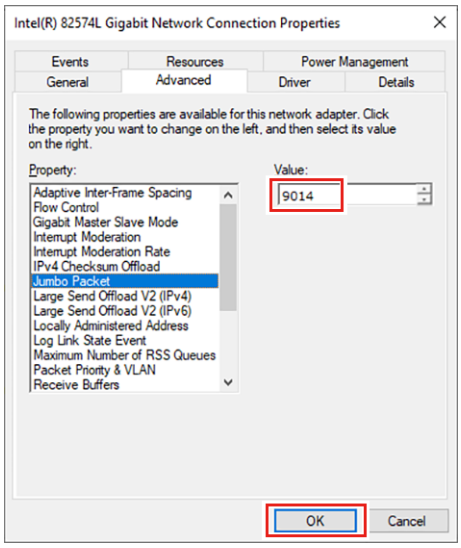
2 Expand [Network adapters], right-click the network card whose settings you want to change and select [Properties].



3 **Click [Advanced Settings] and select [Jumbo Packet] from the property list.**



4 **Enter "9014" in [Value] and click [OK].**



5 **Restart the PC.**

- The display and procedures may differ depending on the LAN port manufacturer you are using. For details, please refer to the instruction manual of your LAN port manufacturer.

4.3 Troubleshooting

Describes corrective actions for troubleshooting.

Phenomenon	Measures
An error occurs in detection.	Check the error number displayed on the plotter with the plotter manual of procedures and take related action.
An error occurs in register mark detection.	Check the communication status display. ☞ "SurveillanceView"(P. 11) The Ethernet environment should have at least the following conditions. ☞ "Functions and Operating Environment"(P. 6)
A register mark detection error may occur only on specific work.	Changes the imaging settings and image processing settings in the [Detect Setting] dialog. ☞ "Detect Setting"(P. 13)
An error message "Cannot activate multiple apps." is displayed.	1. Restart the PC. 2. Check if the OBSCURAS is not starting up with another account that is signed in to the PC.

Chapter 5 Appendix

This chapter

This chapter describes the machine specifications.

5.1 License Library

Camera App

Copyright @ 2023 MIMAKI ENGINEERING CO., LTD. All rightsreserved.
Camera App is built using open source software:

- OpenCvSharp4
- log4net

****

OpenCvSharp4

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

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log4net

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