

Software for Industrial Endoscope

3DAssist
Operation Manual

Version 1.00

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The following symbol is used in this instruction manual.

TIP

: Indicates content, such as practical knowledge and information, that you can use.

For proper use

Purpose of the software

The purpose of this software is to effectively improve the quality of your inspection reports by allowing you to generate 3D data from video files for viewing and analyzing so you can accurately understand the location and severity of problems. The software can process video recorded through our industrial endoscopes, which are used to examine the inside of things, such as machinery, equipment, or buildings, from the outside, such as when direct observation is not possible.

About the manuals

Before using the software, you must fully understand the content and follow the instructions in this instruction manual, the software license agreement, the instruction manuals of our industrial endoscope to be used, and the instruction manuals of the computer and OS to be used.

If anything in this instruction manual is unclear, contact the dealer where you purchased the product, or our branch or sales office.

Video formats supported by the software

The software supports videos recorded by the following industrial endoscopes.

- IPLEX NX (4mm/6mm) *6.2mm is not supported
- IPLEX GX/GT (4mm/6mm)
- IPLEC G Lite (4mm/6mm) *IPLEX G Lite-W is not supported
- IPLEX GAir (8.5mm)

The video files that are guaranteed to work with the software are limited. See page 30 for compatible IPLEX industrial endoscopes, scopes, and optical adapter combinations.

Limitation conditions

Guaranteed operating conditions

About license types

The software has the following license types, each of which has limits on operations. Also, for Single Edition and 5-Multiple Edition, multiple licenses cannot be issued for the same IPLEX serial number.

- Single Edition
 - The software can only activate 1 IPLEX device.
 - There are no restrictions on the time that the software can be used.
- 5-Multiple Edition
 - The software can activate up to 5 IPLEX devices.
 - There are no restrictions on the time that the software can be used.
- Time limited Edition
 - The software can only activate 1 IPLEX device.
 - The software can be used for a period of 3 months from the date the license becomes effective.
- Trial Edition
 - The software can only activate 1 IPLEX device.
 - The software can be used for a period of 1 month from the date the license becomes effective.

About device activation

Only videos shot with devices activated by this software can be played back and processed into 3D data. Refer to page 8 for how to activate devices.

About video recording conditions

[Common to all models]

Operation with videos shot at a zoom setting (other than 1×) is not guaranteed.

[IPLEX NX]

Operation with videos shot using analog input is not guaranteed.

[IPLEX GX/GT]

Operation with videos shot using constant video recording is not guaranteed.

[IPLEX GLite]

Operation with videos shot using constant video recording is not guaranteed.

[IPLEX GAir]

- Operation with videos shot using constant video recording is not guaranteed.
- Operation with videos shot with auto image rotate set to something other than "OFF" is not guaranteed.
- Operation with videos shot with real-time distortion correction set to something other than "OFF" is not guaranteed.

When a video file has been processed

Operation with video files processed independently, as in the examples shown below, is not guaranteed.

- Clipping
- Annotation
- Changing of the frame rate
- Changing of the codec, etc.

When video recording conditions have been changed

Operation cannot be guaranteed if 3D data generation processing was performed across frames resulting in places where the following conditions have been changed.

- BRT
- WIDER
- Sharpness
- Noise reduction
- Addition of video (IPLEX GX/GT, G Lite, G Air)
- Videos that are flipped left to right, flipped top to bottom, or rotated (IPLEX GX/GT, G Lite, G Air)

Recommended conditions

Recommended PC specifications

Refer to page 32 for the PC requirements recommended for the software.

About the graphics information display function (title, logo, date and time, etc.)

Turn off the graphics information display function when shooting videos (the area of 3D data generation is wider than when the graphics information display function is turned on).

The graphics information appears as [PRINT SCREEN] in the NX series and [DISPLAY] in the G series.

Precautions

About conditions for video equipment

Depending on the combination, the differences in optical conditions such as illumination intensity, light distribution, and angle of view may degrade the quality of the 3D data.

About the shape of 3D data

- Depending on the tip, the positional relation with the subject, and how the tip is moved while shooting, the shape of the 3D data may be inaccurate.
- The shape of the 3D data may be inaccurate depending on the values set for the video recording conditions (BRT, WiDER, sharpness, and noise reduction).

About still images recorded while shooting video

- The 3D data cannot be generated if a still image file stored with a video file is deleted or lost.
- The 3D data cannot be generated if the file name of the still image saved with the video file has a different name than the video file.
- Still image files must be saved in the same folder as video files. The 3D data cannot be generated if a still image file is stored in a different folder than the video file.

About the process to generate 3D data

Differences in the video file and differences in the starting frame position may lower the quality of the 3D data. The waiting time for 3D data to be displayed may also change.

About PCs

The waiting time for 3D data to be displayed may change due to the specifications of the PC.

About GUI notation

The names of devices appear in the status bar as follows. Refer to page 14 for details.

- IPLEX NX: NX
- IPLEX GX/GT: GX
- IPLEX G Lite: GX
- IPLEX GAir: GAir

About safety

Precautions regarding cyber security

- **Configure security settings if the PC on which the software is being can be accessed via a network**

Install firewalls and intrusion detection/prevention systems to prevent unauthorized access from outside. Note that we are not responsible for any damage suffered by customers as a result of unauthorized access from outside.

- **You must manage how files are handled**

Files should be handled with care, even though the software does not handle image files containing personal or medical information.

- **Store your license serial number in a safe place**

Store your license serial number, which is on the key code issuance request form, in a safe place. If the number is lost due to your negligence, in principle, we cannot reissue that number.

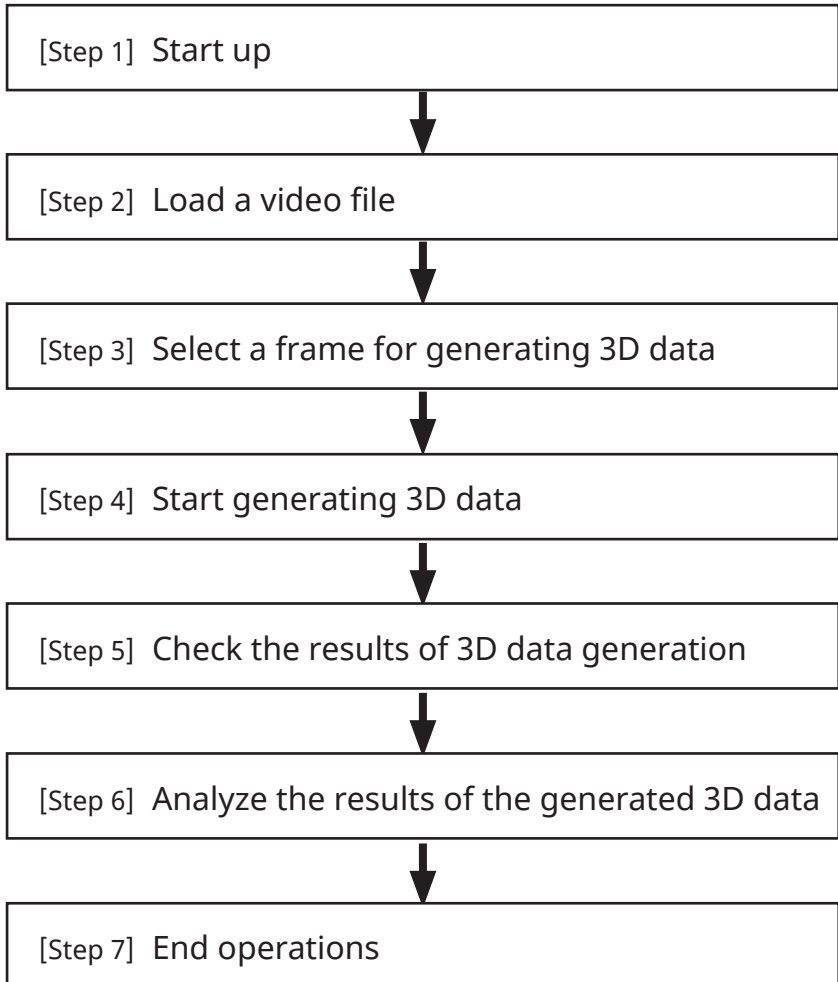
- **Follow the manual of the PC on which the software is installed for how to configure that PC**

We cannot provide support for setup work or problems related to the actual PC on which the software is installed. Check the manual for the actual PC, and follow the instructions in it.

- **We cannot provide support for the work or problems when connecting the PC to the internet, which is needed to download the software.**

1 Operating Procedure

The following procedure shows how to operate the software.



Step 1 Start up

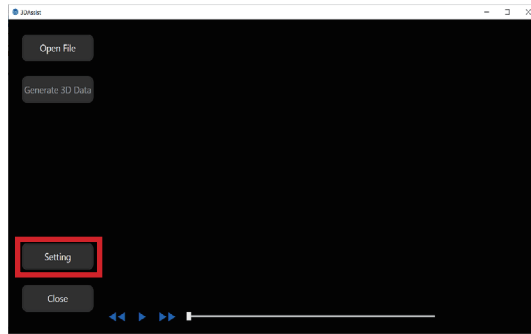
1 Start up the software

Double-click the 3DAssist shortcut on the desktop to start up the software.

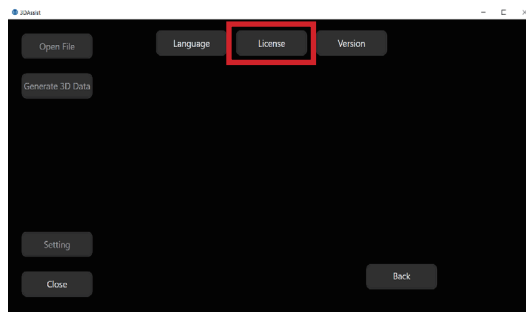


2 Activate the device (at first startup only)

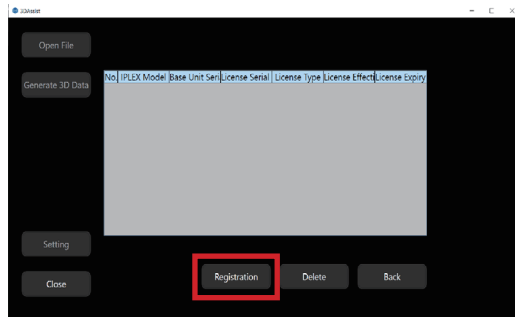
After starting the software, when the initial screen (data loading screen) appears, click the [Setting] button.



Click the [License] button.

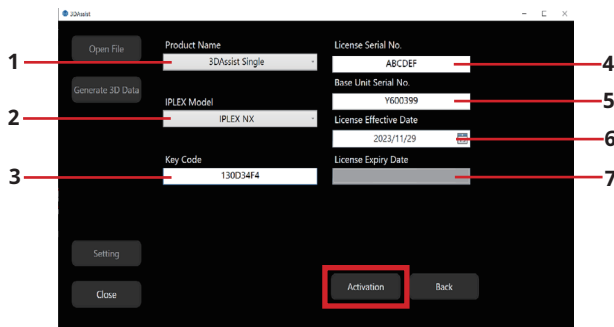


Click the [Registration] button.



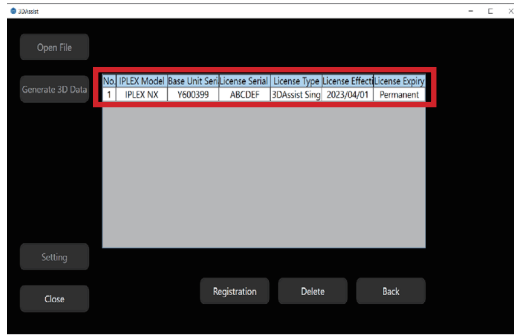
When a screen similar to the one below appears, input items 1 to 7. (All the information for items 1 to 7 can be found on the key code issuance certificate.)

After you have input items 1 to 7, Click the [Activation] button.



No.	Name	Summary
1	Product Name	Select from Trial, Time limited, Single, 05-Multiple
2	IPLEX Model	Select from NX, GX/GT, G Lite, GAir
3	Key Code	The encrypted number
4	License Serial No.	The serial number on the key code issuance request form and the key code issuance certificate
5	Base Unit Serial No.	Serial number of the IPLEX base unit
6	License Effective Date	The date that the license becomes effective
7	License Expiry Date	The date that the license expires

If the activation is successful, the activated device appears in the device registration information list.



TIP

- One license can be used to activate devices by multiple PCs.
- To register multiple devices, repeat the above procedure.

Step 2 Load a video file

Before doing this operation, save the video file and simultaneously recorded still image files* that you want to load with this software on your PC.
(Video files can also be loaded from over the network.)

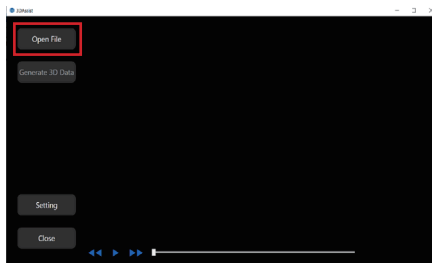
*Still image files must be saved with the same file name and in the same folder path as the video files.

1 Load a video file to the software

After starting the software, the initial screen (data loading screen) appears.
Load video files by either of the following procedures.

Procedure 1

Click the [Open File] button, when the dialog opens, select an AVI file or an MP4 file.



Procedure 2

Drag and drop an AVI file or MP4 file into the software.



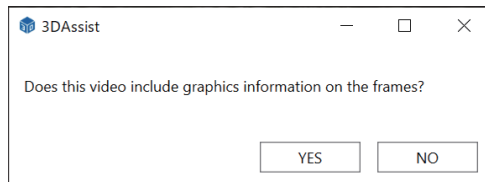
AVI file
MP4 file



2 Select whether or not there is graphics information

After the video file is loaded, when a dialog similar to the one shown below appears, click the appropriate button.

However, for video files shot with the IPLEX NX, the existence of graphics information can be determined automatically, so the dialog shown in the figure below does not appear.



The 3D data that is generated may be affected by the selection in the above dialog and the existence of graphics information. For details, refer to the following table [List of Graphics Information Selection Results].

Do not turn OFF the NX individually in each graphics setting, turn OFF print screen.

[List of Graphics Information Selection Results]

Existence of graphics information	Selections in dialog	Effect on 3D data
Graphics information does not exist	"Yes" is selected	<ul style="list-style-type: none">• [Graphics] appears in the status bar• 3D display area is narrowed
	"No" is selected	3D display area is not narrowed (recommended)
Graphics information exists	"Yes" is selected	<ul style="list-style-type: none">• [Graphics] appears in the status bar• 3D display area is narrowed
	"No" is selected	<ul style="list-style-type: none">• 3D display area is not narrowed• 3D data generation may fail

TIP

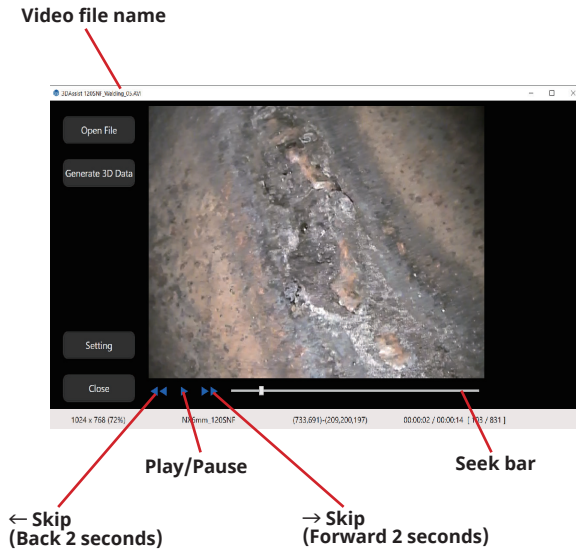
Graphics information refers to data superimposed on image data, such as title, logo, date, and optical adapter type.

Step 3 Select a frame for generating 3D data

1 Play the video and find the part where you want to generate 3D Data

After a video file is loaded, the name of the loaded file appears in the title bar of the upper left corner of the screen.

Click the [Skip] buttons or the [Play/Pause] button at the bottom of the screen to check the video.



2 Play the video and find the part where you want to generate 3D data

Click the [Play/Pause] button to pause the video.

When paused, the [Generate 3D Data] button is enabled.

Image size (zoom factor)

IPLEX Model*/Scope Diameter_Optical Adapter Type

*IPLEX Models

On-screen display	IPLEX Model
NX	IPLEX
GX	IPLEX GX/GT
GX	IPLEX G Lite
GAir	IPLEX GAir

Video played time/video total time [Video played frames/video total frames]

Pixel information at position mouse is hovering (Mouse position (X, Y coordinates) - (R, G, B))

TIP

You can move 1 frame at a time by using the mouse wheel on the seek bar or pressing the ←/→ or ↑/↓ keys on the keyboard.

Step 4 Start generating 3D data

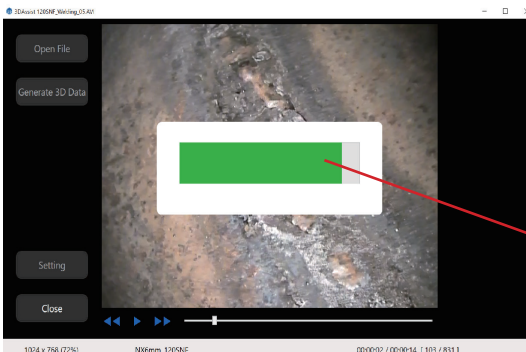
1 Start generating 3D data

Click the [Generate 3D Data] button.



2 Wait until calculation is complete

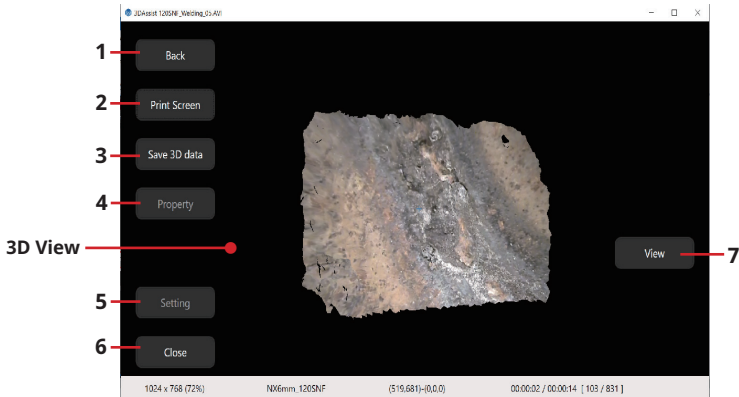
Wait about 1 minute for the calculation to complete. However, processing times may vary depending on the PC (performance of CPU, memory, etc.) on which the software is installed, and the frame position specifications to do the Generate 3D Data process.



The process is complete when the green bar reaches the far right.

3 Confirm how the 3D data was generated

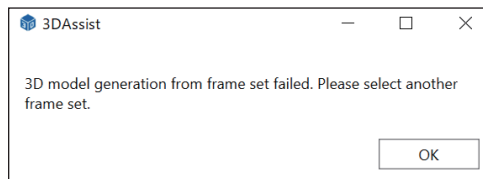
If generating the 3D data was successful, the 3D view is displayed.



No.	Name	Function
1	Back	Goes back to the video playback screen
2	Print Screen	Saves 3D View
3	Save 3D Data	Saves the 3D data
4	Property	Displays the Property screen (Enabled only when a file for 3D redisplay is loaded)
5	Settings	Displays the function buttons (disabled in 3D view)
6	Close	Closes the software
7	View	Displays the 3D display switching buttons

If generating the 3D data failed, the following error message is displayed.

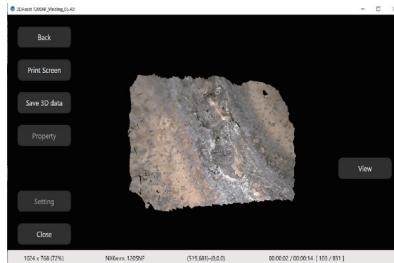
If this error message appears, click the [OK] button, reselect a different frame than the one you selected, and then click the [Generate 3D Data] button again.



Step 5 Check the results of 3D data generation

1 Change the viewpoint in the 3D View

You can drag the mouse on the 3D view to change the viewpoint.



↓ Drag the mouse on the 3D view



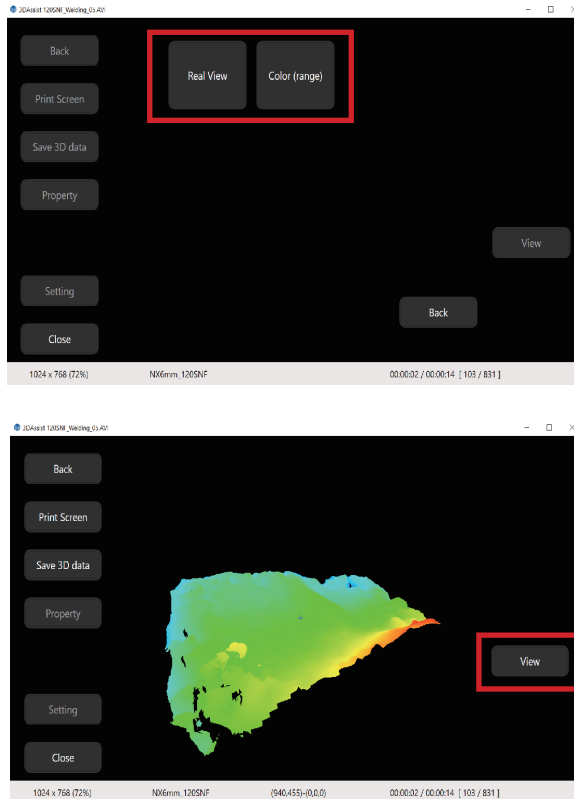
How viewpoint changes	Mouse operation
Rotate	Drag while pressing the left mouse button
Move	Drag while pressing the right mouse button
Zoom in/out	Drag up and down while pressing the mouse wheel button Note that you do not rotate the mouse wheel.

Step 6 Analyze the results of the generated 3D data

1 Show/hide the color map

Clicking the [View] button displays the buttons to select whether to switch the 3D view as shown below.

- [Real View] : Colors displayed in the 2D image are also displayed in the 3D view
- [Color (range)] : Displays a color map of the 3D data relative to its depth (based on the distance from the scope tip) (near points are red and far points are blue)



Example display of when the [Color (range)] button is selected

Clicking the [Back] button in the lower right of the screen returns the state to that before the [View] button was clicked.

2 Print Screen

Clicking the [Print Screen] button opens a dialog in which you can select the Jpg format and name and save the file.



TIP

Right clicking the [Print Screen] button allows you to copy the 3D view image to the clipboard.

3 Save 3D Data

Clicking the [Save 3D Data] button opens a dialog in which you can select the e3m format and save the file.

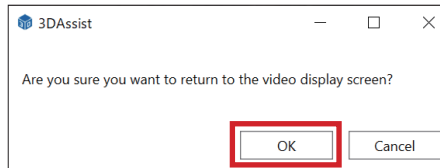


4 Go back to the video playback screen

Click the [Back] button.



When a message similar to the one below appears, click [OK] to return to the video playback screen.



5 Reload saved 3D data

Only files that are displayed by selecting "e3m" as the file type in the dialog that appears after clicking the [Open File] button on the video playback screen can be redisplayed in 3D.

TIP

You can also redisplay 3D images by dragging and dropping e3m format files into 3DAssist.




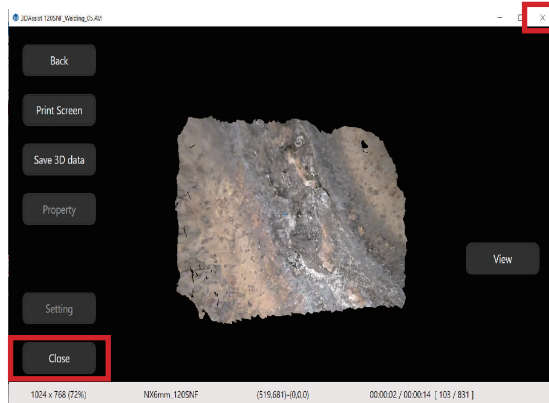
Clicking the [Back] button while the saved 3D data is displayed returns you to the video playback screen.

TIP

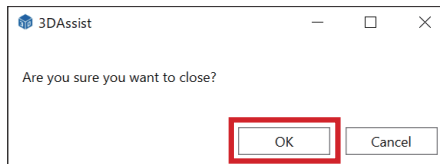
When a file for 3D redisplay is loaded, the Property button on the left side of the screen is enabled.

Step 7 End operations

To close the software, click the [Close] button in the lower left of the screen or  in the upper right of the screen.



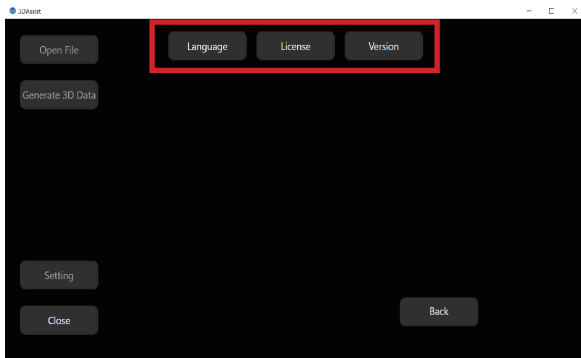
When a message similar to the one below appears, click [OK] to close the software.



2 Setting Functions

With this software, clicking the [Setting] button displays the function buttons shown below.

- [Language] Switches the display language for the button labels, message texts, etc.
- [License] Setting device information and doing activation (Refer to page 8)
- [Registration] Displays version information, etc., for the software



2-1 Language settings

Clicking the [Language] button displays the language selection buttons shown below.

Click the button to select the language you want to use.



2-2 License

Clicking the [License] button allows you to register or delete device information. Refer to page 8 for how to register device information.

How to delete registered device information

The following procedure shows how you can delete registered device information.

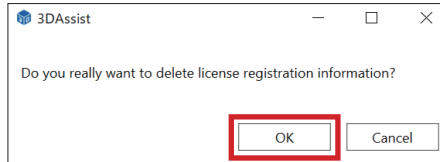
After clicking the [Setting] button on the initial screen (data loading screen), click the [License] button that is displayed.



A list of registered device information is displayed. Select the line you want to delete and click the "Delete" button.



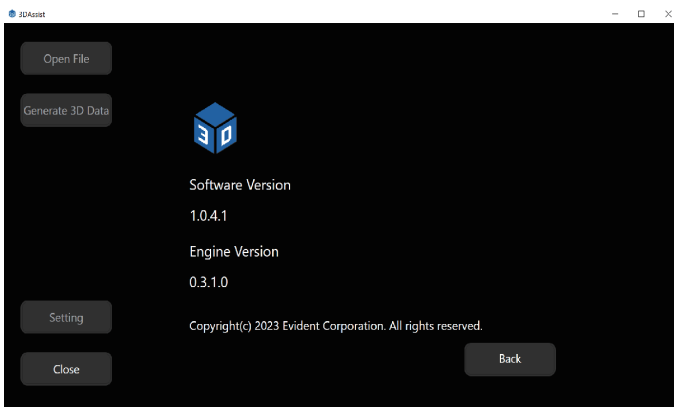
When a message similar to the one below appears, click [OK].



Clicking the [Back] button in the lower right of the screen returns the state to that before the [License] button was clicked.

2-3 Version settings

Clicking the [Registration] button displays the version information shown below.



3 Updating/uninstalling software

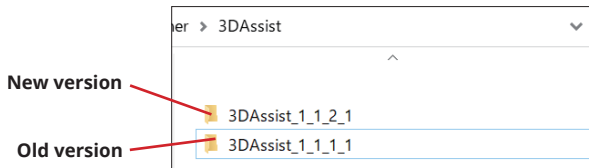
3-1 Updating software

Use the following procedure to update the software.

Do not uninstall the previous version of the software until the software update is complete.

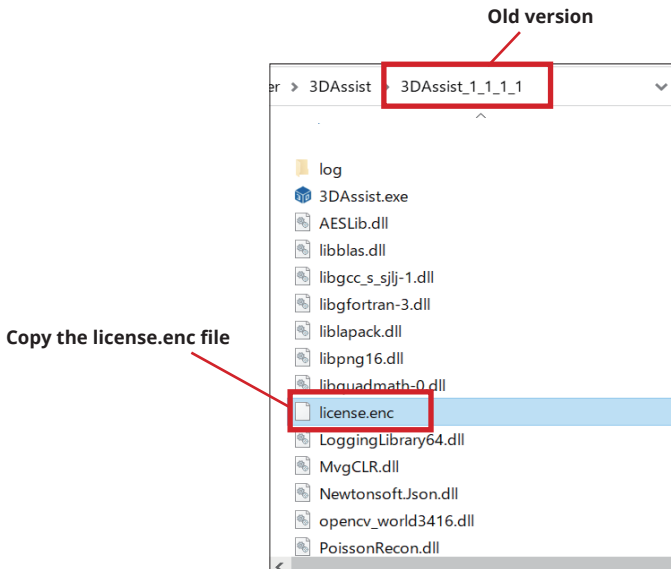
1 Download all of the new version of the software

Download the new version of the 3DAssist software from the following site.
<https://www.olympus-ims.com/service-and-support/downloads/>



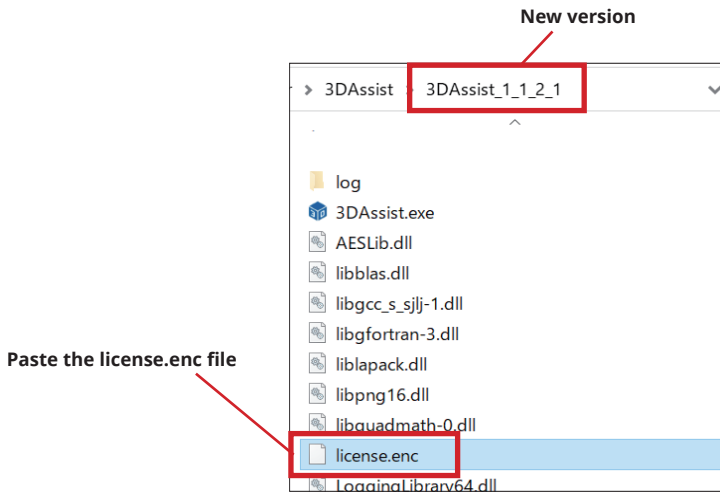
2 Copy the license file of the old version

Open the folder for the old version of the 3DAssist software and copy the license.enc file.



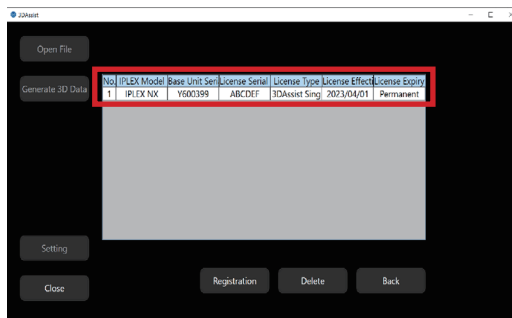
3 Paste the license file into the new version

Open the folder for the new version of the 3DAssist software and paste the license.enc file.



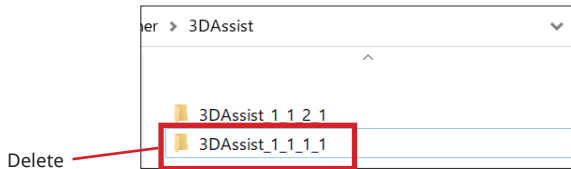
4 Confirm the new version of the device registration information

Start the new version of the 3DAssist software, open the device registration information list, and confirm that the information from the previous version has been carried over. (Refer to page 8 for how to confirm the device registration information list)



5 Delete all the folders for the old version of the software

Open the folder where the old version of the 3DAssist software is stored and delete all the folders for the old version.



TIP

It is possible to keep the old version on the same PC after the software is updated. Delete the old version if necessary.

3-2 Uninstalling software

Refer to page 3-1 **5** for how to uninstall the software.

4 Troubleshooting

If any of the following error messages appear, take the appropriate action by referring to the instructions on countermeasures. If the situation does not improve, contact the Evident distributor where you purchased the product.

Error message	Countermeasure
The selected file format is not supported.	Load an appropriate video file. Confirm that the loaded video file meets the following conditions. <ul style="list-style-type: none"> • The video is an AVI, MP4 or e3m format. • The video was shot using an IPLEX.
IPLEX model that recorded this video is not compatible.	Video files shot with IPLEX equipment not supported by this software cannot be processed properly. Select a video file that was shot with an IPLEX device that is supported by this software. Refer to page 30 for supported devices.
IPLEX license has not been activated on this video.	<ul style="list-style-type: none"> • Activate the license of a device on which a video is taken before importing the video. Refer to page 8 for how to do activation. • Confirm that the still images taken as a set with the video file are in the same folder as the uploaded video file, and that they are saved with the same file name.
The selected recording setting is not supported.	<ul style="list-style-type: none"> • Select a video file that was shot with an optical adapter that is supported. Refer to page 30 for supported optical adapters. • Confirm that you are not shooting video under conditions that are not guaranteed to work, such as zoom, constant video, etc.
3D model generation from frame set failed. Please select another frame set.	Depending on the frame selected, 3D data generation may fail. Select a different frame and regenerate the 3D data.
The IPLEX activation failed. Please try again.	Recheck the setting items and re-enter them.

Countermeasures if the software does not start

You can start operating the software by installing the VC++ Redistributable Packages (see URL below) provided by Microsoft. However, note that we are not responsible for any work performed when this package is applied or for any results from such work.

<https://www.olympus-ims.com/service-and-support/downloads/>

5 Specifications

Applicable models

Series	Base Unit Model No.	Scope name	Optical adapter			
IPLEX NX	IV9000N	IV9435N	AT80D/FF-IV94N			
			IV9450N	AT120D/NF-IV94		
				AT120D/FF-IV94		
				AT100S/NF-IV94		
				AT100S/FF-IV94		
		IV9635N		AT80D/FF-IV96N		
			IV9650N	AT120D/NF-IV96		
				IV9675N	AT120D/FF-IV96	
					AT120S/NF-IV96	
					AT120S/FF-IV96	
IPLEX GX/GT	IV9000G	IV9420G	AT80D/FF-IV94G			
			IV9435G	AT120D/NF-IV94		
				AT120D/FF-IV94		
				AT100S/NF-IV94		
				AT100S/FF-IV94		
		IV9620G	AT80D/NF-IV96G			
			IV9635G	AT80D/FF-IV96G		
				IV9675G	AT120D/NF-IV96	
					IV96100G	AT120D/FF-IV96
						AT80S-IV96G
						AT120S/NF-IV96
						AT120S/FF-IV96

Series	Base Unit Model No.	Scope name	Optical adapter
IPLEX G Lite	—	IV9420GL IV9435GL	AT80D/FF-IV94G
			AT120D/NF-IV94
			AT120D/FF-IV94
			AT100S/NF-IV94
			AT100S/FF-IV94
		IV9620GL IV9635GL IV96100GL	AT80D/NF-IV96G
			AT80D/FF-IV96G
			AT120D/NF-IV96
			AT120D/FF-IV96
			AT80S-IV96G
			AT120S/NF-IV96
			AT120S/FF-IV96
			AT120S/FF-IV96
IPLEX GAir	IV9000GA	IV98200GA IV98300GA	AT120D/NF-IV98G
			AT120D/FF-IV98G
		AT120S/NF-IV98G	
		AT120S/FF-IV98G	

TIP

The license for the software is tied to the base unit. Therefore, when using a base unit for which a license for the software has already been purchased, the system can continue to be used even though the scope unit is replaced. (However, except for IPLEX G Lite)

Recommended PC specifications

Items	Specifications
OS	Windows10 64bit 19H1 (1903) or later
Processor	8 GB or more
Storage *Space required for software installation	100 GB or more available space
Input device	<ul style="list-style-type: none">• Mouse• Keyboard
Screen resolution	Width 1200 [pix] x Height 720 [pix] or more

Software Functions

Items	Specifications
Display Language	Japanese English Chinese (Simplified) Chinese (Traditional)
Output	Able to save screenshots of 3D data Function to save results for redisplaying 3D Data

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Distributed by

EVIDENT EUROPE GmbH

Caffamacherreihe 8-10, 20355 Hamburg, Germany

EVIDENT EUROPE GmbH UK Branch

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