

# JAI GenlCam Firmware Update **Tool Guide**



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Be sure to read this documentation before use.

This documentation includes important safety precautions and instructions on how to operate the unit. Be sure to read this manual to ensure proper

The contents of this documentation are subject to change without notice for the purpose of improvement.

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# **Precautions**

Read the following before starting the firmware update process.

- Always use caution when updating camera firmware to ensure that power to the camera is
  maintained throughout the update process. Even a brief loss of power can cause the camera to stop
  working.
- Although JAI GenICam Firmware Update Tool has been extensively tested, there is still a possibility
  that some combination of factors during the update may render the camera inoperable. If such a
  problem occurs, please use the Return Merchandise Authorization (RMA) procedure to send the
  camera back to JAI for repair.
- For the safety information, warranty, and usage precautions, refer to your camera model's User Manual.

## Introduction

Read this guide to learn how to load the most current version of JAI firmware onto the JAI cameras.

JAI GenICam Firmware Update Tool is used to update the JAI camera's firmware that supports the GenICam FWUpdate standard.

The firmware update process varies depending on your camera's interface (GigE Vision or CoaXPress) and the operating system (Windows or Linux). Make sure to follow the instructions based on your camera model and operating system.

#### Cautions:

- For the following scenarios, use **JAI Camera Update Tool** to update the firmware.
  - a. Your camera model is not listed in the table in the **GenlCam Update Files (GUF)** section of https://www.jai.com/support-software/guf-files.
  - b. Your camera model is listed in the tables but the current firmware (DeviceVersion) is earlier than the version in the First Supported Version column.

**Note: JAI Camera Update Tool** is a software application for installing an update package to a camera and does not follow the GenlCam FWUpdate standard. JAI Camera Update Tool is available through the local distributor/partner or the JAI partner site.

# **How to Update Firmware**

This chapter explains how to load the most current version of JAI firmware onto the JAI cameras.

The firmware update process varies depending on your camera's interface (GigE Vision or CoaXPress) and the operating system (Windows or Linux). Make sure to follow the instructions based on your camera model and operating system.

- When using a JAI GigE Vision camera on Windows, see "JAI GigE Vision Cameras | Windows".
- When using a JAI CoaXPress camera on Windows, see "JAI CoaXPress Cameras | Windows".
- When using a JAI GigE Vision camera on Linux, see "JAI GigE Vision Cameras | Linux".
- When using a JAI CoaXPress camera on Linux, see "JAI CoaXPress Cameras | Linux".

# **JAI GigE Vision Cameras | Windows**

This section describes how to update the JAI GigE Vision camera's firmware on the Windows operating system.

### Operating System:

Windows 10, .NET Framework 4.5 or later

### Supported Camera Models

For information on the cameras supported by this tool, please refer to the table under the GenlCam Update Files (GUF) section on the following page: <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>

You can also download the latest firmware files (GUF) from this table.

#### Notes:

- The firmware version described in this guide refers to the camera parameter "DeviceVersion".
- If your camera does not appear in the table on <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>, or if its current firmware version is earlier than the First Supported Version listed, please use JAI Camera Update Tool. For more information, see "Introduction".
- JAI GenICam Firmware Update Tool automatically determines whether an update is possible. If the GUF file is not compatible with your camera, the firmware version cannot be updated. However, some models in the Go-X Series are exceptions. For more details, please refer to the section "About Go-X Series Cameras."

#### About Go-X Series Cameras

For the models listed below, please note that if the hardware revision number is Rev. A, the firmware cannot be updated to version 0.1.0.1 or later. You can identify the hardware revision number by the last letter of your camera's serial number.

**Caution:** JAI GenICam Firmware Update Tool cannot automatically determine upgrade compatibility based on hardware revision differences for models in the Go-X series. For these models, users must manually confirm whether a firmware upgrade is possible.

Supported Models	Note
GOX-5105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-8105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-12405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-16205M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-20405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-24505M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.

### What Is Needed?

You need the following to update your GigE Vision camera's firmware.

### eBUS SDK for JAI

- 1. Download the **eBUS SDK for JAI** from the JAI website: https://www.jai.com/support-software/jai-software
- 2. Install **eBUS SDK for JAI** onto your computer by following the Setup Wizard.

### JAI GenlCam Firmware Update Tool Installer

- 1. Click the **Download** link for **GigE Vision (Windows)** in the JAI GenICam Firmware Update Tool section of the JAI software site: https://www.jai.com/support-software/jai-software
- 2. Install the JAI GenlCam Firmware Update Tool onto your computer by following the Setup Wizard.

### JAI Firmware File(s) (.guf)

 Download the necessary .guf file from the JAI website. www.jai.com/support-software/guf-files

The .guf file name consists of the camera model\_DV + DeviceVersion number. For example, if you use a GOX-5105C-PGE camera and would like to update the firmware to 0.1.1.0, use the *GOX-5105C-PGE\_DV0110.guf* file.

**Caution:** If you need to downgrade the firmware of your camera, contact JAI technical support (support@jai.com).

### **Update the Firmware**

Read this section to learn how to update the JAI camera's firmware using JAI GenICam Firmware Update Tool.

**Caution:** Always use caution when updating camera firmware to ensure that power to the camera is maintained throughout the update process. Even a brief loss of power can cause the camera to stop working.

To update the JAI camera's firmware on JAI GenICam Firmware Update Tool, first, select the JAI firmware file and the JAI camera, then update the firmware.

- 1. Connect the JAI camera to the computer or the network switch/hub as instructed in the User Manual of your camera model.
- 2. Verify the following:
  - The camera is not acquiring images.
  - The camera is not connected to another tool or application, such as eBUS Player for JAI.
- 3. Select JAI GenlCamFWUpdateTool.exe from Windows Start menu or search for JAI GenlCamFWUpdateTool in the Search box and open the tool.



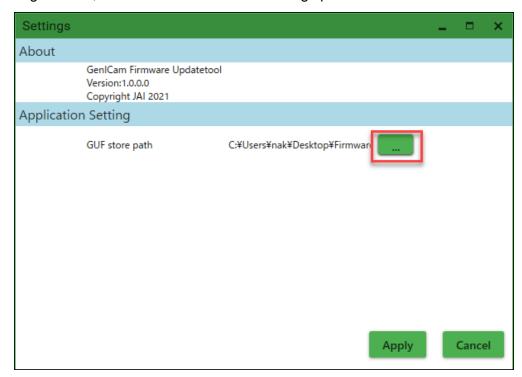
4. JAI GenlCam Firmware Update Tool opens.

### Select the Firmware File (.guf) Location

5. Click **Settings** on JAI GenICam Firmware Update Tool. The Settings dialog opens.



6. On the Settings screen, click ...... The Select folder dialog opens.



7. Navigate to the folder location where you have placed the downloaded .guf file(s), and click **Select Folder**.

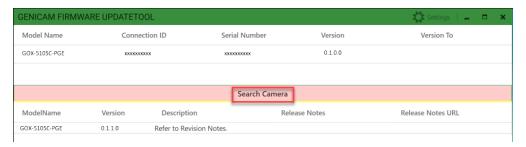
**Note:** The firmware files (.guf) may not appear within the Select folder dialog.

8. Click Apply. The available JAI firmware files now appear on JAI GenICam Firmware Update Tool.

ModelName	Version	Description	Release Notes	Release Notes URL
GOX-5105C-PGE	0.1.0.0	Refer to Revision Notes.		

### Select the JAI Camera and the Firmware File

9. Click **Search Camera**. The JAI camera(s) connected to your computer and/or the network switch/hub will appear.



10. Select the **JAI camera** that you would like to update and the **JAI camera firmware file** that you would like to use. **Add camera to update target** is enabled.

Note: You can only select the firmware file that matches the selected camera model.



11. Click **Add camera to update target**. Execute update is enabled.

### Update Firmware

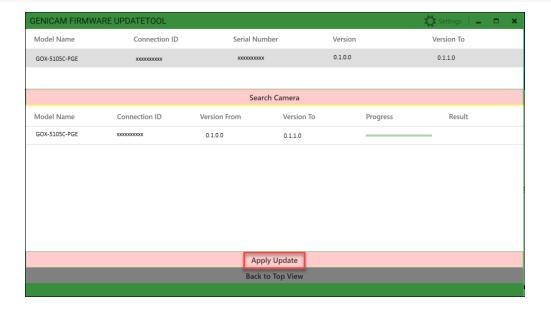
12. Click Execute update. Apply Update appears.

**Note:** To reselect the camera and/or the firmware file, click **Remove camera from update** target.



13. Click Apply Update. The firmware update process starts.

**Note:** If your camera is connected to another application, such as eBUS Player for JAI, an error message will be displayed. Close the application and attempt the firmware update again.



### JAI GenlCam Firmware Update Tool Guide (2.0) - JAI GigE Vision Cameras | Windows

14. Once the firmware is successfully updated, "Succeed" is displayed in the **Result** column.

		Sea	rch Camera		
Model Name	Connection ID	Version From	Version To	Progress	Result
GOX-5105C-PGE	30000000000	0.1.0.0	0.1.1.0		Succeed

# JAI GigE Vision Cameras | Linux

This section describes how to update the JAI GigE Vision camera's firmware on the Linux operating system.

### Operating System

Linux (Ubuntu 18.04, 20.04)

### Supported Camera Models

For information on the cameras supported by this tool, please refer to the table under the GenlCam Update Files (GUF) section on the following page: <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>

You can also download the latest firmware files (GUF) from this table.

#### Notes:

- The firmware version described in this guide refers to the camera parameter "DeviceVersion".
- If your camera does not appear in the table on <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>, or if its current firmware version is earlier than the First Supported Version listed, please use JAI Camera Update Tool. For more information, see "Introduction".
- JAI GenlCam Firmware Update Tool automatically determines whether an update is possible. If the GUF file is not compatible with your camera, the firmware version cannot be updated. However, some models in the Go-X Series are exceptions. For more details, please refer to the section "About Go-X Series Cameras."

#### About Go-X Series Cameras

For the models listed below, please note that if the hardware revision number is Rev. A, the firmware cannot be updated to version 0.1.0.1 or later. You can identify the hardware revision number by the last letter of your camera's serial number.

**Caution:** JAI GenICam Firmware Update Tool cannot automatically determine upgrade compatibility based on hardware revision differences for models in the Go-X series. For these models, users must manually confirm whether a firmware upgrade is possible.

Supported Models	Note
GOX-5105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-8105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-12405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-16205M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-20405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-24505M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.

### What Is Needed?

You need the following to update your camera's firmware.

### eBUS SDK for JAI

- 1. Download the **eBUS SDK for JAI** from the JAI website:
  - https://www.jai.com/support-software/jai-software
- 2. Install **eBUS SDK for JAI** onto your computer by following the Setup Wizard.

### JAI GenlCam Firmware Update Tool Installer

- 1. Click the **Download** link for **GigE Vision (Ubuntu Linux)** in the JAI GenICam Firmware Update Tool section of the JAI software site:
  - https://www.jai.com/support-software/jai-software
- 2. Install the JAI GenlCam Firmware Update Tool onto your computer. See <u>Install JAI GenlCam</u> Firmware Update Tool for the installation procedure.

### JAI Firmware File(s) (.guf)

1. Download the necessary .guf file from the JAI website.

www.jai.com/support-software/guf-files

The .guf file name consists of the camera model\_DV + DeviceVersion number. For example, if you use a GOX-5105C-PGE camera and would like to update the firmware to 0.1.1.0, use the *GOX-5105C-PGE\_DV0110.guf* file.

**Caution:** If you need to downgrade the firmware of your camera, contact JAI technical support (support@jai.com).

### **Install JAI GenlCam Firmware Update Tool**

The installation is executed by the command line.

1. Issue the following command to install **genicam-fwupdate\_1.1x\_amd64.deb** to your computer.

```
sudo dpkg -i ./genicam-fwupdate_1.1x_amd64.deb
```

2. JAI GenlCam Firmware Update Tool is installed to the following location:

```
/opt/jai/fwupdate
```

3. Issue the following command to verify if the installation was a success.

```
dpkg -1 | grep genicam
```

4. The following will be returned when successful.

```
ii genicam-fwupdate 1.13 amd64 genicam
firmware update for eBUS
```

**Note:** If the JAI GenICam Firmware Update Tool for CoaXPress cameras is installed to your computer, the command returns the CoaXPress tool's installation information as well. See Install JAI GenICam Firmware Update Tool for more information.

### **Update the Firmware**

Read this section to learn how to update the JAI camera's firmware using JAI GenICam Firmware Update Tool.

**Caution:** Always use caution when updating camera firmware to ensure that power to the camera is maintained throughout the update process. Even a brief loss of power can cause the camera to stop working.

#### Notes:

- Use the command line to update the firmware. See Command List for the available commands.
- The firmware version described in this guide refers to the camera parameter "DeviceVersion".

To update the JAI camera's firmware using JAI GenICam Firmware Update Tool, first, select the JAI firmware file and the JAI camera, then update the firmware.

- 1. Connect the JAI camera to the computer or the network switch/hub as instructed in the User Manual of your camera model.
- 2. Verify the following:
  - The camera is not acquiring images.
  - The camera is not connected to another tool or application, such as eBUS Player for JAI.

#### List the Device

3. Issue the following command to list the cameras connected to the computer or network switch/hub.

/opt/jai/fwupdate/GenicamFWUpdate -l

Note: For more information on the Device List command, see Device List.

4. The following is returned.

```
[Dev 0] GOX-5103M-PGE
    VenderName : JAI Corporation
    SerialNumber :
    UserDefinedName :
    Version : 0.1.0.0
    IPAddress : 192.xxx.x.xxx
    MACAddress : 00:xx:xx:xx:xx

[Dev 1] GOX-5105C-PGE
    VenderName : JAI Corporation
    SerialNumber :
    UserDefinedName :
    Version : 0.1.0.0
    IPAddress : 192.xxx.x.xxx

MACAddress : 00:xx:xx:xx:xxx
```

In this example, the firmware of [Dev 1] GOX-5105C-PGE camera will be updated.

### Display the File Information

5. Issue the following command to display the file information (.guf).

```
/opt/jai/fwupdate/GenicamFWUpdate -f ../GOX-5105C-PGE_DV0110.guf
```

**Note:** For more information on the File Information command, see File Information.

6. The following is returned.

```
[Index 0]

Version : 0.1.1.0

Description : This firmware implements the update feature

Matched device :

[Dev 1] GOX-5105C-PGE Version : 0.1.0.0
```

7. This verifies that the firmware file (GOX-5105C-PGE\_DV0110.guf) can be used to update the GOX-5105C-PGE camera's firmware from 0.1.0.0 to 0.1.1.0.

### Update the Firmware

8. Issue the following command to update the firmware.

```
/opt/jai/fwupdate/GenicamFWUpdate -u -d 1 ../GOX-5105C-PGE_0.1.1.0.guf
```

In this example, the command specifies the target camera ("-d 1" = GOX-5105C-PGE [Dev 1]) and firmware file (GOX-5105C-PGE\_DV0110.guf) to use.

#### Notes:

- Only one camera can be updated at a time.
- The target camera's model and the firmware update file (.guf) must match; otherwise, the update will fail.
- For more information on the Update Firmware command, see Update.
- 9. The following is returned.

```
Update file : ../GOX-5105C-PGE_DV0110.guf

Description : This firmware implements the update feature

Target : [Dev 1] GOX-5105C-PGE

VenderName : JAI Corporation

SerialNumber : 0000000000

UserDefinedName :

Version : 0.1.0.0 => 0.1.1.0

Do you want to update the device with this update? [y/n] :
```

10. Enter y to proceed.

11. When the firmware update is a success, the following is displayed.

```
Update success.

Result : [Dev 1] GOX-5105C-PGE

VenderName : JAI Corporation

SerialNumber : 0000000000

UserDefinedName :

Version : 0.1.1.0
```

### **Command List**

This section explains the commands used for the firmware update process.

#### Notes:

- When no option is specified or --help (or -h) is specified, the version information and the help message are displayed, then exit from the command.
- The option can be specified before or after the file name.
- If "--" is specified as an argument, all subsequent arguments will be interpreted as file names.

### **Device List**

Option	Abbreviation	Description
	-1	Returns a list of cameras connected to the PC/switching hub.
device-list		<b>Note:</b> No other arguments can be specified for this command.

### Examples

/opt/jai/fwupdate/GenicamFWUpdate --device-list

#### Returns:

```
[Dev 0] GOX-5103M-PGE
    VenderName : JAI Corporation
    SerialNumber : xxxxx
    UserDefinedName :
    Version : 0.1.0.0
    IPAddress : 192.xxx.x.xxx
    MACAddress : 00:0c:xx:xx:xx
```

### **File Information**

Option	Abbreviation	Description
file-info	-f	Returns the firmware update file's information(.guf) specified by the argument. It also tests whether each data on the file is compatible with the cameras.  You can specify an arbitrary number of files as arguments.

### Example

```
/opt/jai/fwupdate/GenicamFWUpdate -f ../FS-3200T-10GE-NNC_DV0220.guf
```

#### Returns

```
[Index 0]

Version : 0.2.2.0

Description : This firmware implements the update feature

Matched device :

[Dev 1] FS-3200T-10GE-NNC Version : 0.2.1.0
```

### File Information Options

You can specify the following options.

Option	Abbreviation	Description
device <devno></devno>	-d	Specifies the camera(s) to test (you can specify multiple cameras). When not specified, tests all connected cameras.
		Example: -d 0

### **Update**

Option	Abbreviation	Description
		Executes the firmware update, by writing the specified file to the target camera.
update	-u	Once the command is issued, it returns the update data and camera information, then waits for confirmation. To start writing, enter "y". To exit, enter anything else.

### Example

/opt/jai/fwupdate/GenicamFWUpdate -u -d 1 ../FS-3200T-10GE-NNC\_DV0220.guf

#### Returns

```
Update file : ../FS-3200T-10GE-NNC_DV0220.guf

Description : This firmware implements the update feature

Target : [Dev 1] FS-3200T-10GE-NNC

VenderName : JAI Corporation

SerialNumber : 0000000000

UserDefinedName :

Version : 0.2.1.0 => 0.2.2.0

Do you want to update the device with this update? [y/n] :
```

### Update Options

You can specify the following options.

Option	Abbreviation	Description
device <devno></devno>	-d	Specifies a camera (only one camera can be specified). When not specified, it will write to the first camera that can be opened.
		Example: -d 0
no-prompt	-y	It does not wait for confirmation.
silent	-s	It does not return the firmware update process, nor wait for the confirmation.

### Log Output Settings

You can specify the debug log settings from the configuration file, jaids.conf. If the configuration file is in the working directory, a log will output based on the configuration settings. By default, a log will not output.

### jaids.conf

Write in the toml format.

```
log.level = "debug"
log.filename = "fwupdate/log.log"
```

jaids.conf supports "log.level" and "log.filename" only.

- log.level: Specify "debug", "info" (default), "warning", "error", "critical", or "off"
- log.filename: Specify the output file name (default: fwupdate/fwupdate.log)

The log file will output to: \$Home/.jaids/fwupdate/

# **JAI CoaXPress Cameras | Windows**

This section describes how to update the JAI CoaXPress camera's firmware on the Windows operating system.

### Operating System

Windows 8.1/10, .NET Framework 4.5 or later is required.

### Supported Camera Models

For information on the cameras supported by this tool, please refer to the table under the GenlCam Update Files (GUF) section on the following page: <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>

You can also download the latest firmware files (GUF) from this table.

#### Notes:

- The firmware version described in this guide refers to the camera parameter "DeviceVersion".
- If your camera does not appear in the table on <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>, or if its current firmware version is earlier than the First Supported Version listed, please use JAI Camera Update Tool. For more information, see "Introduction".
- JAI GenlCam Firmware Update Tool automatically determines whether an update is possible. If the GUF file is not compatible with your camera, the firmware version cannot be updated. However, some models in the Go-X Series are exceptions. For more details, please refer to the section "About Go-X Series Cameras."

#### About Go-X Series Cameras

For the models listed below, please note that if the hardware revision number is Rev. A, the firmware cannot be updated to version 0.1.0.1 or later. You can identify the hardware revision number by the last letter of your camera's serial number.

**Caution:** JAI GenICam Firmware Update Tool cannot automatically determine upgrade compatibility based on hardware revision differences for models in the Go-X series. For these models, users must manually confirm whether a firmware upgrade is possible.

Supported Models	Note
GOX-5105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-8105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-12405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-16205M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-20405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-24505M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.

### What Is Needed?

You need the following to update your CoaXPress camera's firmware.

### JAI GenlCam Firmware Update Tool Installer

1. Click the **Download** link for **CoaXPress (Windows)** in the JAI GenICam Firmware Update Tool section of the JAI software site:

https://www.jai.com/support-software/jai-software

**Note:** There are two versions (32bit and 64bit) of the GenlCamFWUpdateSetup installer. Download the version that matches your cti file (32bit or 64bit). You can install both versions on your computer, if necessary.

2. Install the JAI GenlCam Firmware Update Tool onto your computer by following the Setup Wizard.

**Note:** If the older version of the SetupGenICamFwUpdate tool was previously installed on your computer, it will be automatically uninstalled.

### JAI Firmware File(s) (.guf)

Download the necessary .guf file from the JAI website.
 www.jai.com/support-software/guf-files

The .guf file name consists of the camera model\_DV + DeviceVersion number. For example, if you use a GOX-5105C-PGE camera and would like to update the firmware to 0.1.1.0, use the *GOX-5105C-PGE\_DV0110.guf* file.

**Caution:** If you need to downgrade the firmware of your camera, contact JAI technical support (support@jai.com).

### GenTL

Install GenTL, which is included in your frame grabber, to your computer.

### **Update the Firmware**

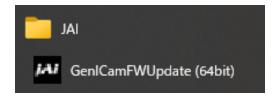
Read this section to learn how to update the JAI camera's firmware using JAI GenICam Firmware Update Tool.

**Caution:** Always use caution when updating camera firmware to ensure that power to the camera is maintained throughout the update process. Even a brief loss of power can cause the camera to stop working.

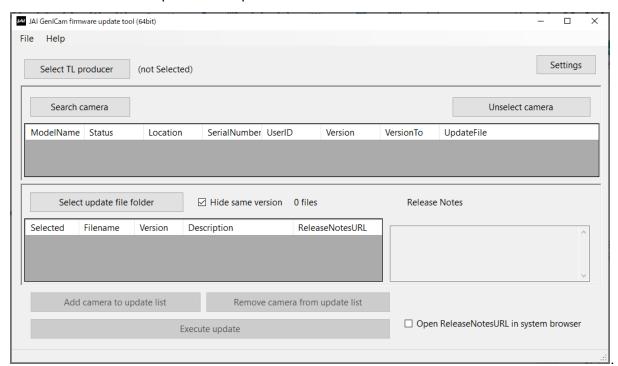
**Note:** JAI has tested CoaXPress frame grabber boards for use with JAI GenICam Firmware Update Tool. For more information, see <u>Tested CoaXPress Frame Grabber Boards</u>.

To update the JAI camera's firmware on JAI GenICam Firmware Update Tool, first, select the cti file, the JAI firmware file, and the JAI camera, then update the firmware.

- 1. Connect the JAI camera to the CoaXPress frame grabber board on the computer as instructed in the User Manual of your camera model.
- 2. Verify the following:
  - The camera is not acquiring images.
  - The camera is not connected to another tool/application.
- 3. Select **GenlCamFWUpdate (xxbit)** within the JAI group from Windows Start menu or search for **GenlCamFWUpdate (xxbit)** in the Search box and open the tool.



4. JAI GenlCam Firmware Update Tool opens.



### Select the cti file

- 5. Click **Select TL producer**. The Open dialog opens.
- 6. Select the cti file for the grabber board, and click Open.
- 7. The selected cti file appears next to the Select TL producer button.



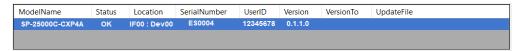
**Note:** If you reselect the cti file, the previously searched cameras are removed from the update list.

### Select the Camera

- 8. Click **Search camera**. The connected JAI cameras appear.
- 9. Select the camera to update the firmware by clicking the table.

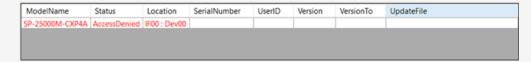
#### Notes:

- You can select multiple cameras by pressing Ctrl or Shift.
- Click **Unselect camera** to remove all cameras from the list.
- 10. The camera is successfully selected.



#### Notes:

• If a searched camera cannot be opened, the camera is displayed in red and the Status shows an error. You cannot select the camera in this status.



• An error can occur when the camera is acquiring images and/or connected to another application. Stop acquiring images/close the application and click **Search camera** again.

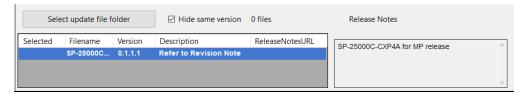
### Select the Firmware File (.guf)

- 11. Click **Select update file folder**. The Select Folder dialog opens.
- 12. Navigate to the folder location where you have placed the JAI GenICam firmware file(s) (.guf).
- 13. Click Select folder.
- 14. On JAI GenICam Firmware Update Tool, the firmware files that match the selected camera model within the specified folder location are displayed.

**Note:** Check the **Hide same version** checkbox to hide the firmware files that have the same firmware version as the selected camera.

15. Select the firmware file by clicking the table.

16. The firmware file is successfully selected.

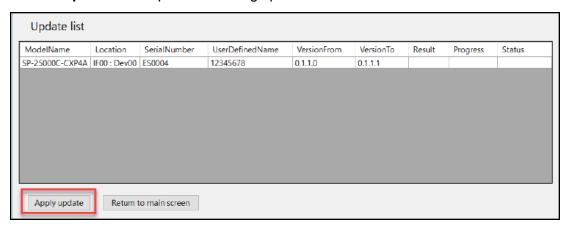


### Update Firmware

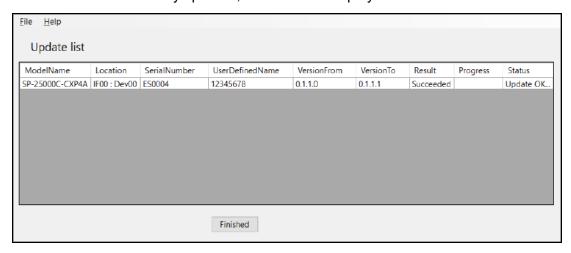
- 17. Verify that the desired camera and firmware file are selected.
- 18. Click Add camera to update list.

Note: Click Remove camera from update list to remove the selected camera from the list.

19. Click **Execute update**. The Update list dialog opens.



- 20. Click **Apply update** to start the firmware update process.
- 21. Once the firmware is successfully updated, "Succeed" is displayed under Result.



22. Click Finished to complete the process.

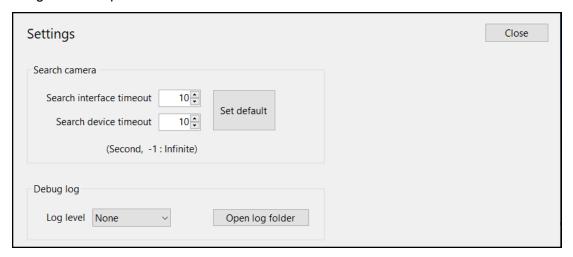
### **Settings Screen**

Optionally, you can configure the timeout values and the debug log setting using the Settings screen.

1. Click **Settings** on JAI GenICam Firmware Update Tool.



2. The Settings screen opens.



### Search Camera

Specifies the maximum amount of time, in seconds, to search the interface or the JAI camera(s) (default = 10 seconds, -1 when disabling the timeout) before aborting the search.

- **Search interface timeout**: Specifies the timeout value for the interface (frame grabber board) search.
- Search device timeout: Specifies the timeout value for the camera search.
- Set default: When clicked, the timeout values for both settings are reset to 10 seconds.

### Debug log

Configures the debug log setting and opens the log folder.

- **Log level**: Specifies the level of the debug log included in the output log [None (default), Critical, Error, Warning, Info, Debug, All). The lower the list, the more logs to be output.
- Open log folder: When clicked, opens the folder location where the log files are stored.

### **Default File Locations**

This section describes the default folder locations for JAI GenICam Firmware Update Tool.

#### Default Locations

%PROGRAMFILES%	C:\Program Files
%PROGRAMFILES(X86)% (64bitOS only)	C:\Program Files (x86)
%APPDATA%	C:\Users\username\AppData\Roaming
%LOCALAPPDATA%	C:\Users\username\AppData\Local

### Install Destinations (Default)

64bit	%PROGRAMFILES%\JAI\GenICamFWUpdate\
32bit (64bit OS)	%PROGRAMFILES(X86)%\JAI\GenICamFWUpdate (32bit)\
32bit (32bit OS)	PROGRAMFILES%\JAI\GenICamFWUpdate (32bit)\

### XML Cache

Stores the XML cache files for the JAI cameras that are opened. You can delete the files and folder when you are not running the application because they are created automatically as needed.

File location: %APPDATA%JAI\JaiCamLib\xml\xmlcache.db

### Log File

The log files will be generated in the folder below. You can delete the files and/or folder when you no longer need them.

Folder location: %APPDATA%JAI\JaiCamLib\log\

### Configuration Files

The specified cti file, the update file search folder, the settings on the configuration screen are stored in the following location:

Folder location: %LOCALAPPDATA%\JAI\_Ltd\GenlCamFWUpdate.exe\_XXXX\

You can delete the files and folder when you are not running the application because they are created automatically as needed.

# JAI CoaXPress Cameras | Linux

This section describes how to update the JAI CoaXPress camera's firmware on the Linux operating system.

### Operating System

Linux (Ubuntu 18.04, 20.04)

### Supported Camera Models

For information on the cameras supported by this tool, please refer to the table under the GenlCam Update Files (GUF) section on the following page: <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>

You can also download the latest firmware files (GUF) from this table.

#### Notes:

- The firmware version described in this guide refers to the camera parameter "DeviceVersion".
- If your camera does not appear in the table on <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>, or if its current firmware version is earlier than the First Supported Version listed, please use JAI Camera Update Tool. For more information, see "Introduction".
- JAI GenlCam Firmware Update Tool automatically determines whether an update is possible. If the GUF file is not compatible with your camera, the firmware version cannot be updated. However, some models in the Go-X Series are exceptions. For more details, please refer to the section "About Go-X Series Cameras."

#### About Go-X Series Cameras

For the models listed below, please note that if the hardware revision number is Rev. A, the firmware cannot be updated to version 0.1.0.1 or later. You can identify the hardware revision number by the last letter of your camera's serial number.

**Caution:** JAI GenICam Firmware Update Tool cannot automatically determine upgrade compatibility based on hardware revision differences for models in the Go-X series. For these models, users must manually confirm whether a firmware upgrade is possible.

Supported Models	Note
GOX-5105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-8105M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-12405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-16205M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-20405M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.
GOX-24505M/C-PGE (Rev.A)	Cannot be updated to version 0.1.0.1 or later.

### What Is Needed?

You need the following to update your camera's firmware.

### JAI GenlCam Firmware Update Tool Installer

1. Click the **Download** link for **CoaXPress (Ubuntu Linux)** in the JAI GenICam Firmware Update Tool section of the JAI software site:

https://www.jai.com/support-software/jai-software

2. Install the JAI GenlCam Firmware Update Tool onto your computer. See <u>Install JAI GenlCam</u> Firmware Update Tool for the installation procedure.

### JAI Firmware File(s) (.guf)

 Download the necessary .guf file from the JAI website. www.jai.com/support-software/guf-files

The .guf file name consists of the camera model\_DV + DeviceVersion number. For example, if you use a GOX-5105C-PGE camera and would like to update the firmware to 0.1.1.0, use the GOX-5105C-PGE\_DV0110.guf file.

**Caution:** If you need to downgrade the firmware of your camera, contact JAI technical support (support@jai.com).

### GenTL

Install GenTL, which is included in your frame grabber, to your computer.

# **Install JAI GenlCam Firmware Update Tool**

 Issue the following command to install genicam-fwupdate-cxp\_0.9x\_amd64.deb to your computer.

```
sudo dpkg -i ./genicam-fwupdate-cxp_0.9x_amd64.deb
```

2. JAI GenICam Firmware Update Tool is installed to the following location:

/opt/jai/fwupdate

3. Issue the following command to verify if the installation was a success.

```
dpkg -1 | grep genicam
```

4. The following will be returned when successful.

```
ii genicam-fwupdate-cxp 0.9-3 amd64

GenICam firmware update tool for CoaXPress camera
```

**Note:** If the JAI GenICam Firmware Update Tool for GigE Vision cameras is also installed to your computer, the command returns the GigE tool's installation information as well. See <u>Install JAI GenICam Firmware Update Tool</u> for more information.

### **Update the Firmware**

Read this section to learn how to update the JAI camera's firmware using JAI GenICam Firmware Update Tool.

**Caution:** Always use caution when updating camera firmware to ensure that power to the camera is maintained throughout the update process. Even a brief loss of power can cause the camera to stop working.

#### Notes:

- Use the command line to update the firmware. See Command List for the available commands.
- JAI has tested CoaXPress frame grabber boards for use with JAI GenICam Firmware Update Tool. For more information, see Tested CoaXPress Frame Grabber Boards.
- The firmware version described in this guide refers to the camera parameter "DeviceVersion".

The following example shows how to update the firmware of SP-45000M-CXP4, which is connected to the Euresys Coaxlink frame grabber board, from 0.1.1.0 to 0.1.2.0, using the command line.

In this example, first, set the cti file, obtain the device and the file information, then update the firmware.

- 1. Connect the JAI camera to the CoaXPress frame grabber board on the computer as instructed in the User Manual of your camera model.
- 2. Verify the following:
  - The camera is not acquiring images.
  - The camera is not connected to another tool or application, such as eBUS Player for JAI.

### Set the cti file

3. Issue the following command to set the cti file.

```
export JAICAM_CTI=../coaxlink.cti
```

Note: If the camera is connected to a Euresys frame grabber board, the command will be: export  ${\tt JAICAM\_CTI=/opt/euresys/egrabber/lib/x86\_64/coaxlink.cti}$ 

The file path for cti can be specified by:

- Environmental variable (JAICAM CTI), or
- --cti-file option (abbreviation: -t)

#### Notes:

• For more information on the --cti-file option, see Options.

#### List the Device

4. Issue the following command to list the cameras.

```
./fwupdate-cxp -l
```

Note: For more information on the Device List command, see Device List.

5. The following is returned.

```
[TL] Euresys Coaxlink (EuresysCoaxlink)
1
+--[IF 0] Euresys Coaxlink (PC1633 - Coaxlink Quad G3 (4-camera) - KQG10381)
      +--[Dev 0:0] SP-45000M-CXP4
      | VendorName : JAI Corporation
      | SerialNumber : 123456
      | UserID :
      | Version : 0.1.2.0
      +--[Dev 0:1] (not connected)
      +--[Dev 0:2] (not connected)
      +--[Dev 0:3] SP-45000M-CXP4
      | VendorName : JAI Corporation
      | SerialNumber : 234567
      UserID :
      | Version : 0.1.1.0
```

In this example, the firmware of SP-45000M-CXP4 connected to [Device 0:3] will be updated.

#### Display the File Information

6. Issue the following command to display the file information (.guf).

```
./fwupdate-cxp -f ../SP-45000M-CXP4_DV0120.guf
```

Note: For more information on the File Information command, see File Information .

7. The following is returned.

```
[Index 0]
Version : 0.1.2.0
Description : Refer to Revision Notes.
Matched device:
[Dev 0:3] SP-45000M-CXP4 Version: 0.1.1.0
```

8. This verifies that this firmware file (SP-45000M-CXP4\_DV0120.guf) can be used to update SP-45000M-CXP4 connected to [Dev 0:3].

#### Update the Firmware

9. Issue the following command to update the firmware.

```
./fwupdate-cxp -u -d 3 .../SP-45000M-CXP4_DV0120.guf
```

In this example, the command specifies the target camera ("-d 3" = SP-45000M-CXP4 [Dev 0:3]) and the firmware file (.../SP-45000M-CXP4 DV0120.guf) to use.

#### Notes:

- Only one camera can be updated at a time.
- The target camera's model and the firmware update file (.guf) must match; otherwise, the update will fail.
- For more information on the Update Firmware command, see Update.

10. The following is returned.

```
Update file : ../SP-45000M-CXP4_DV0120.guf [Index 1]

Description : Refer to Revision Notes.

Target : [Dev 0:3] SP-45000M-CXP4

VendorName : JAI Corporation

SerialNumber : 234567

UserID :

Version : 0.1.1.0 => update to 0.1.2.0

Do you want to update the device with this update? [y/n] y
```

- 11. Enter **y** to proceed.
- 12. When the firmware update is a success, the following is displayed:

```
Update success.

Result : [Dev 0:3] SP-45000M-CXP4

VendorName : JAI Corporation

SerialNumber : 234567

UserID :

Version : 0.1.2.0
```

## **Command List**

This section explains the commands used for the firmware update process.

#### Notes:

- When no option is specified or --help (or -h) is specified, the version information and the help message are displayed, then exit from the command.
- The option can be specified before or after the file name.
- If "--" is specified as an argument, all subsequent arguments will be interpreted as file names.

### **Device List**

Option	Abbreviation	Description
device-list	-1	Returns a list of cameras connected to the frame grabber board.
		<b>Note:</b> No other arguments can be specified for this command.

#### Examples

```
./fwupdate-cxp --device-list
```

#### Returns:

```
[TL] Euresys Coaxlink (EuresysCoaxlink)

| +--[IF 0] Euresys Coaxlink (PC1633 - Coaxlink Quad G3 (4-camera) - KQG10381)

| +--[Dev 0:0] SP-45000M-CXP4

| VendorName : JAI Corporation

| SerialNumber : 123456

| UserID :

| Version : 0.1.2.0
```

#### **File Information**

Option	Abbreviation	Description
file-info	-f	Returns the .guf firmware update file's information specified by the argument. It also tests whether each data on the file is compatible with the cameras.
		You can specify an arbitrary number of files as arguments.

## Example

```
./fwupdate-cxp --file-info .../SP-45000M-CXP4_DV0120.guf
```

#### Returns

[Index 0]

Version : 0.1.2.0

Description : Refer to Revision Notes.

Matched device:

[Dev 0:3] SP-45000M-CXP4 Version: 0.1.1.0

## File Information Options

You can specify the following options.

Option	Abbreviation	Description	
	-d	Specifies the camera(s) to test (you can specify multiple cameras). When not specified, tests all connected cameras.	
		<devno> can be specified as:</devno>	
device <devno></devno>		• Device Number (Example: -d 0), or	
		<b>Note:</b> The interface number = "0" for this format	
		• Interface Number: Device Number (Example: -d 1:2)	
all-info	-a	Returns the help information.	
	-m	Returns only the data compatible with one of the cameras.	
N/A		<b>Note:</b> By default, the data that is not compatible with cameras are returned as well.	

## **Update**

Option	Abbreviation	Description
		Executes the firmware update, by writing the specified file to the target camera.
update	-u	Once the command is issued, it returns the update data and camera information, then waits for confirmation. To start writing, enter "y".To exit, enter anything else.

#### Example

```
./fwupdate-cxp -u -d 3 ../SP-45000-CXP4_DV0120.guf
```

#### Returns

Update file : ../SP-45000-CXP4\_DV0120.guf [Index 0]

Description: Refer to Revision Notes.

Target : [Dev 0:3] SP-45000M-CXP4

VendorName : JAI Corporation

SerialNumber : 234567

UserID

Version : 0.1.1.0 => update to 0.1.2.0

Do you want to update the device with this update? [y/n]

## Update Options

You can specify the following options.

Option	Abbreviation	Description	
	-d	Specifies a camera (only one camera can be specified). When not specified, it will write to the first camera that can be opened.	
		<devno> can be specified as:</devno>	
device <devno></devno>		• Device Number (Example: -d 0), or	
		<b>Note:</b> The interface number = "0" for this format	
		Interface Number: Device Number (Example: -d 1:2)	
no-prompt	-y	It does not wait for confirmation.	
silent	-s	It does not return the firmware update process, nor wait for the confirmation.	

## **Options**

The following options can be used when updating the CoaXPress camera's firmware in the Linux environment.

Option	Abbreviation	Description
cti-file <file></file>	-t	Specifies the cti file to use. This option takes precedence over the JAICAM_CTI environment variable.
log <log_file></log_file>		Outputs the debug log file. The file name will be:
		" <log_file>.<processid>.csv"</processid></log_file>
log-level <level></level>		Specifies the level of the log output. The selections are Debug (default), Info, Warning, Error, or Critical.

### **Options - Examples**

This section shows examples of the --log and --log-level options.

#### --log

```
$ ./fwupdate-cxp --device-list --cti-file /opt/euresys/egrabber/lib/x86_
64/coaxlink.cti --log test.log
Info: Write log to test.log.5344.csv, level=Debug
[TL] Euresys Coaxlink (EuresysCoaxlink)
|---[IF 0] Euresys Coaxlink (PC1633 - Coaxlink Quad G3 (1-camera) - KQG10620)
|---[Dev 0:0] SP-25000C-CXP4A
VendorName : JAI Corporation
SerialNumber : ES0004
UserID :
Version : 0.1.1.0
```

#### --log-level

```
$ ./fwupdate-cxp --device-list --cti-file /opt/euresys/egrabber/lib/x86_
64/coaxlink.cti --log test.log --log-level Debug
Info: Write log to test.log.5691.csv, level=Debug
[TL] Euresys Coaxlink (EuresysCoaxlink)
|
+--[IF 0] Euresys Coaxlink (PC1633 - Coaxlink Quad G3 (1-camera) - KQG10620)
|
+--[Dev 0:0] SP-25000C-CXP4A
VendorName : JAI Corporation
SerialNumber : ES0004
UserID : 12345678
Version : 0.1.1.0
```

## **Tested CoaXPress Frame Grabber Boards**

JAI has tested the following CoaXPress frame grabber boards for use with JAI GenICam Firmware Update Tool.

Vendor	Product Name	Windows	Linux
Euresys	Coaxlink CXP-12	✓	✓
Matrox Imaging	Rapixo CXP	✓	
Active Silicon	FireBird (Quad CXP-6)	✓	

**Note:** JAI GenICam Firmware Update Tool may not work due to the customer's environment or future changes on the vendor's software.

## **Licenses**

This chapter shows the licenses used for JAI GenICam Firmware Update Tool in the Linux environment.

# Licenses for GigE Vision Camera JAI GenICam Firmware Update Tool

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# Licenses for CoaXPress Camera JAI GenlCam Firmware Update Tool

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WindowsAPICodePack 1.1.2

https://www.nuget.org/packages/WindowsAPICodePack/1.1.2/License

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GenlCam(TM) GenApi reference implementation v.3.2.0

https://www.emva.org/standards-technology/genicam/genicam-downloads/

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GenICam comes in two versions

~ a runtime version

GenICam runtime and SDK files for developing and/or running GenICambased software.

~ a development version.

GenICam complete source code for developing and building the GenICam SDK.

The runtime version comes under the following license:

Copyright (c) EMVA and contributors (see source files)

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The development version comes under the GenlCam license which can be found in licenses/GenlCam\_License.pdf

or downloaded from http://www.genicam.org.

When distributing GenlCam runtime libraries, this file and the license for the development version which also describes the GenlCam compliancies and rules (GenlCam\_License.pdf) must also be distributed for the sake of completeness of the license information.

GenICam uses the following 3rd party software packages (\*):

Package	License	Internet	Used by
Mathparser	LGPL	http://kirya.narod.ru/mathparser.html http://www.sama.ru/~despair/ccalc/	GenApi
Log4Cpp	LGPL	http://log4cpp.sourceforge.net	GenApi
CppUnit	LGPL	http://cppunit.sourceforge.net	GenlCam unit tests
CLSerAll	NI	http://sourceforge.net/projects/clallserial	CLAllSerial, CLProtocol
xs3p	DSTC	http://xml.fiforms.org/xs3p/index.html	GenApi Schema documentation
xxhash	New BSD	https://code.google.com/p/xxhash/	GenApi
XSLTProc	MIT license	http://xmlsoft.org/XSLT/xsltproc2.html	GenApi Schema documentation
XSDe	Proprietary	NA	XmlParser, FirmwareUpdate
PCRE2	BSD license	http://www.pcre.org/	FirmwareUpdate

<sup>(\*)</sup> When distributing subset of GenlCam libraries, any unused 3rd party software packages and their license information may be omitted.

Note that the XSDe license was purchased by one of the members of the committee but allows all members to re-compile the parser as long as only the GenApi XML vocabulary is used.

The XSDe free proprietary license is used for the firmware update module.

All license texts come as part of the GenlCam distribution in the licenses subdiretory. If not, you can download them from the internet.

License	File	Where to find the license texts
LGPL	LGPL.txt	http://www.gnu.org/licenses/lgpl.html
GenlCam	GenlCam_License.pdf	http://www.genicam.org
CLSerAll	CLSerAll_LICENSE.txt	http://sourceforge.net/projects/clallserial
xs3p	xs3p_License.mht	http://xml.fiforms.org/xs3p/index.html
xxhash	xxhash_License.txt	http://opensource.org/licenses/BSD-3-Clause
XSLTProc	MIT_License.txt	http://opensource.org/licenses/mit- license.html
XSDe	XSDe License.pdf	NA
XSDe	Free	NA
	Proprietary	
	License	
PCRE2	pcre2_License.txt	http://www.pcre.org/licence.txt

Last but not least GenlCam redistributes the C/C++ runtime DLLs of the Microsoft Visual C++ compiler.

## **Release History**

Revision	Date	Changes	
2.0	2025-06-16	The list of supported cameras has been removed from this guide. For the complete and most up-to-date list, please visit: <a href="https://www.jai.com/support-software/guf-files">https://www.jai.com/support-software/guf-files</a>	
1.8	2025-05-15	Added the following model: SW-4000T-CXPA	
1.7	2025-03-03	Added the following models: SW-2005TL/M-CXP	
1.6	2024-12-16	Added the following models: SW-2005TL/M-5GE, SW-16000TL/M-CXP4A	
1.5	2024-04-25	Added the following models:  • FS-1600T-10GE-NNM  • AP-3200T-10GE	
1.4	2023-08-24	Corrected errors.	
1.3	2023-05-23	Added the following models: GOX-6409M/C-PGE, GOX-12409M/C-PGE, GOX-20409M/C-PGE	
1.2	2023-05-01	Changed how to obtain .guf files. (What Is Needed?)	
1.1	2022-11-22	Added the following models:  • GOX-5105M/C-5GE, GOX-8105M/C-5GE, GOX-12405M/C-5GE, GOX-16205M/C-5GE, GOX-20405M/C-5GE, GOX-24505M/C-5GE  • GO-8105M-5GE-UV, GO-8105M-5GE-UV-GL	
1.0	2022-08-03	First Release.	

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