

APPLICATION NOTE | CASE STUDY | TECHNOLOGY PRIMER | WHITE PAPER

### SAP-AN0005 – Sapera LT Plugin for ImageJ for Teledyne DALSA Frame Grabbers and GigE Cameras

#### **Overview**

This application note describes how to install the Sapera LT plugin for ImageJ under Windows<sup>®</sup> operating system. ImageJ is an open source Java image processing program. The Sapera LT plugin allows image acquisition from Teledyne DALSA frame grabbers and GigE cameras in the ImageJ application on systems with Sapera LT. Note that the plugin is only available in 64 bits.

#### **Requirements**

- Sapera LT 8.60 or later installed.
- Corresponding frame grabber driver if acquiring from a frame grabber.

### Installing/Updating Sapera LT

**Sapera LT SDK (full version)**, the image acquisition and control SDK for Teledyne DALSA cameras and frame grabbers, is available for download from the Teledyne DALSA website:

https://www.teledynedalsa.com/en/support/downloads-center/software-development-kits/

HOME / SUPPORT / DOWNLOADS CENTER / SOFTWARE DEVELOPMENT KITS DODOLOGICAL SOFTWARE DEVELO	<b>Oad</b>	<b>S</b> itts
Access to certain drivers and SDK updates are restricted to Teledyne DALSA package (SDK). If you have not yet done so, please register your software b Go back to support downloads	Customers that have registered	d their development
Description	Version	Release date
Sapera LT SDK (full version) - Free Download	8.73	2023-06-05

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#### NOTE

Sapera LT installation or update requires administrative privileges.

During installation, you are prompted to choose the Sapera LT acquisition components to install.

- For GigE cameras: select option GigE Vision cameras.
- For frame grabber: select option **Teledyne DALSA frame grabbers and CameraLink GenCP compatible cameras**.

Teledyne DALSA Sapera LT SDK	8.70.01.2208	×
Sapera LT SDK Installation of Sapera LT Acqui	sition Components	
	Please choose which Sapera LT acquisition components you want to install	
	<ul> <li>Teledyne DALSA frame grabbers and CameraLink GenCP compatible cameras</li> <li>GigE Vision cameras</li> <li>Teledyne DALSA 3D profile sensors</li> <li>USB3 Vision Cameras</li> </ul>	
InstallShield	< Back Next > Cance	1

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### Installing ImageJ

- Download ImageJ (1.53g or greater) from the ImageJ website https://imagej.net/Downloads.
- Delete any existing installation of ImageJ, including any TDalsaAcqDevice.dll file in the Windows/System32 directory.
- Follow the installation instructions for ImageJ.

#### NOTE

Depending on the ImageJ distribution, the ImageJ installation folder may use a different name. For example, the Fiji distribution directory structure uses <*install-directory*>\Fiji.app\.

### Installing the Sapera LT Plugin for ImageJ

- Download the Sapera LT Plugin for ImageJ from the Teledyne DALSA website: <u>https://www.teledynedalsa.com/en/support/downloads-center/device-drivers/</u>
- Extract the files from the .zip file. You will find a subfolder for the 64-bits Windows platform containing another .zip file.



• Extract the 64-bits Windows .zip file in folder <*install-directory*>\ImageJ\ (or other distribution name used – see Note above).

The following files are automatically put in the proper subfolders:

- \ImageJ.cfg,
- \lib\x64\TDalsaAcqDevice.dll
- \plugins\Teledyne Dalsa\Teledyne\_Dalsa.jar
- Add a path to the TDalsaAcqDevice.dll in your Path environment variable (e.g., <*install-directory*>\Fiji.app\lib\x64).

%USERPROFILE%\AppData\Local\Microsoft\WindowsApps	New
C:\Program Files (x86)\HTML Help Workshop	
C:\Users\ AppData\Local\Programs\MiKTeX\miktex\bin\	Edit
C:\Users\\Fiji.app\lib\x64	

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### Using ImageJ with the Sapera LT Plugin

- Start the ImageJ application by running the ImageJ-win64.exe file found in the root of the installation directory.
- Select Plugins > Teledyne Dalsa > Acquisition Device. The Acquisition Configuration dialog opens.

🔲 (Fiji Is Just) ImageJ				
File Edit Image Process Analyze	Plugins Window Help			
	▲		8	>>
Scrolling tool (or press space bar and drag)	Macros	•		
	Shortcuts	•		
	Utilities	•		
	New	+		
	Compile and Run			
	Ristanon Ctrl+Shi	ft+M <sup>▶</sup>		
	Stacks	×		
	Stitching	•		
	Teledyne Dalsa	•	Acqui	sition Dev
	Time Lapse	•		
	Tracking	•		
	Transform	•		

- Depending on whether you use a GigE camera or a frame grabber:
  - **GigE camera**: select the device from the **Acquisition Server** list. To use a specific configuration, select **Configuration File** and choose a .ccf file.

Acquisition Configuration	×
Location     Acquisition Server     Acquisition     Nano-M640_1     A0000347	Device OK Cancel
Configuration File	▼ Browse
If no Configuration file exists you must run the CamExpert utility to	for your board/camera, generate your Configuration file.

 Frame grabber: select an Acquisition Server and an Acquisition Device. Make sure a Configuration File is selected. If you don't have one, create one using CamExpert – see section below.

Acquisition Device	ОК
CameraLink HS Mono	▼ Cancel
Link HS Line Scan Mono - Default Camera Link HS Line S	can 💌
	Acquisition Device CameraLink HS Mono Link HS Line Scan Mono - Default Camera Link HS Line S spera (CamFiles (User

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- Click **OK**. The Acquisition Device window opens.
- Click Freeze, Snap or Sequence to acquire images.



Supported ImageJ functions can be executed on individual acquired images. For example, the following image has an inverting LUT applied.



#### **Teledyne Vision Solutions**

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Browse

Board / Camera configuration file (.ccf)

Select Custom Directory

Save

C:\Program Files\Teledyne DALSA\Sapera\CamFiles

Cancel

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#### **Creating a Configuration File for the Frame Grabber**

If you don't have a configuration file for the frame grabber (board), use CamExpert to generate one. Make sure that you can acquire images using that configuration.

In CamExpert, select any Board category (not a camera category), then select File > Save Configuration from the menu bar. A dialog opens.

Parameters		Save the frame gr	abber configuration file
Category		Description of Confi	nuration
Board	^	Description of Conny	
Basic Timing		Company	No Name
Advanced Control External Trigger		Model	No Name
Image Buffer and ROI		Camera	F4_4485
		Configuration:	Default
		File	
		File	N_No_Name_F4_4485_Default

Change the different elements in Description of Configuration for your frame grabber (the File • name below changes accordingly).

Save as

Current

- From the Save as list, select Board / Camera configuration file (.ccf). .
- (Optional) Choose a custom directory where to save the file.
- Click Save.
- In ImageJ, select that configuration file in the Acquisition Configuration dialog.

Acquisition Server	Acquisition Device	OK
Xtium2-CLHS_PX8_1	CameraLink HS Mono	▼ Cance
C:\Program Files\Teledyne DALSA\S	pera\CamFiles\User	Browse
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FOR MORE INFORMATION ON OUR FRAME GRABBER, CXP, CL, AND CLHS AREA SCAN CAMERAS AND GIGE, CL, AND CLHS LINE SCAN CAMERAS: AMEDICAC +1 978-670-2000 LTDL sales americas@teledynedalsa.com

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Teledyne reserves the right to make changes at any time without notice.

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