Getting Started With PLCam

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Outline

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What is PICam?

PICam is an SDK that allows one to control Teledyne Princeton Instruments cameras. PICam is the engine that powers our LightField application.
Hardware Requirements
You will not need a supercomputer (though more memory will not hurt!)

Minimum system requirements:
• Camera: A Teledyne Princeton Instruments camera with internal controller and the appropriate interface card installed in the host computer:
  • USB 3.0
  • USB 2.0
  • GigE
• 64-bit operating system
  • Windows 7 / 8 / 8.1 / 10
  • Linux (we officially support the CentOS 7 distribution)
• Computer Specs (Minimum):
  • 2GHz dual core processor
  • 4GB RAM
  • 1GB storage

We recommend operating PICam on Windows 10, with as much RAM and storage as possible.
Installation Information

Windows Applications

The PICam installer can be found here:
• ftp://ftp.princetoninstruments.com/Public/Software/Official/PICam/PICam%20Install.exe
• This link will always contain the latest release of PICam.

After downloading the installer, just run and follow the prompts. You will need Administrator privileges to properly install the software.

We recommend performing a Complete install of PICam.

Reboot PC after the install finishes.
Installation Information

Linux Applications

The Linux PICam installer can be found here:

- This link will always contain the latest release of PICam.

After downloading the installer, convert to an executable with the chmod +x command.

Run the installer with the sudo command, or as a root user.

Reboot PC after the install finishes.
Included Reference Material
Programmer’s Manual and Sample Code

Teledyne Princeton Instruments supports PICam with a library of reference material, which includes:

- A comprehensive programmer’s manual which includes a full description of the SDK structure, as well as details about all functions, parameters, and types used in the SDK
- Scroll near the bottom of the page; you will find the link to the latest manual under the ‘Resources’ → ‘Manuals’ section.
- A library of sample code and ready-to-compile projects.
  - C++ source code that covers the vast majority of applications with the SDK, including: acquisition (asynchronous and synchronous), regions of interest, camera configuration, event call-backs, and more!
  - Sample code and projects will automatically install to the following locations:
    - Windows: C:\Users\Public\Documents\Princeton Instruments\Picam\Samples
    - Linux: \opt\Princeton Instruments\Picam\samples\
Using the Sample Projects
Visual Studio

In the example below, I load the ‘Samples.sln’ solution from “C:\Users\Public\Documents\Princeton Instruments\Picam\Samples\projects\vs2010” into Visual Studio.

A great way to learn PICam is to walk through the sample source code and corroborate the function / parameter / type with the details in the Programmer’s Manual.
Extended Applications

You can use PICam to take your experiment to new heights!

You are not limited to just C / C++; after becoming familiar with the API, you can consider projects such as:

- Building GUIs for camera control and image analysis
- Porting to Python for integration with image processing and machine learning libraries
  - Translating the C++ source to Python with the ctypes library is fairly easy and opens up a wealth of applications possibilities.

PICam also allows for the use of software emulated “demo” cameras. Use of such emulated models is covered in several examples, including the ‘Acquire’ project.

- Using the demo cameras, one can build an application without needing a live camera.
- This is excellent for productive remote development!
Cross-referencing the sample code and details the Programmer’s Manual should allow you to get going running the camera in no time!

If you have additional issues, we can help!

Just ping us at pi.techsupport@Teledyne.com, and we’ll take care of your issues and answer your questions.

Our support team includes PhD level scientists who are as enthusiastic about cutting-edge scientific research as you are!