

EVA SDK Installation Guide for Windows

Manual Rev.: 1.1 Revision Date: July 30, 2021 Part Number: 50M-00012-1010

LEADING EDGE COMPUTING



Preface

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Revision History

Revision	Description	Date
1.0	Initial release	2021-04-12
1.1	Release for EVA SDK R3.5	2021-07-30

Table of Contents

Pref	ace		ii
1	Introd	uction	1
2	Unins	tall Previous Software	3
	2.1	Uninstall via Software Installer Program	3
	2.2	Uninstall via Programs and Features	6
	2.3	Manually Remove Files	7
	2.4	Remove Environment Settings	8
3	Install	ling Required Dependencies	9
	3.1	Installing Microsoft Visual C++ Redistributable for Visual Studio	9
	3.2	Installing Python	10
	3.3	Installing Microsoft Build Tools for Visual Studio	12
	3.4	Installing CMake	13
	3.5	Set Windows Environment Variables	15
4	Install	ation Process for NVIDIA Solution (Optional)	17
	4.1	Uninstall Previous Version	17
	4.2	Installing NVIDIA Driver	17
	4.3	Installing CUDA Toolkit	18
	4.4	Installing cuDNN	19
	4.5	Installing TensorRT	19
	4.6	Installing ONNX Runtime	20
5	Install	ation Process for Intel Solution (Optional)	21
	5.1	Uninstall Previous Version	21
	5.2	Installing the OpenVINO Toolkit	21
	5.3	Installing the Intel Media SDK for Gstreamer (Optional)	26
6	Install	ling Pylon Software (Optional)	27
	6.1	Uninstall Previous Versions	27
	6.2	Install pylon Software	27
7	Install	ling Hikrobot Software (Optional)	29
	7.1	Uninstall Previous Versions	29
	7.2	Install Hikrobot MVS Software	29

8 Installing FLIR Software (Optional)......31



	8.1	Uninstall Previous Versions	31
	8.2	Install FLIR Spinnaker Software	31
9	Install	ing GStreamer and ADLINK EVA SDK on Windows	35
	9.1	Uninstall Previous Version	35
	9.2	Install GStreamer and EVA SDK	35
	9.3	Install Third-party Plugins (Optional)	
	9.4	Set Environment Variables	36
Safe	ety Instr	ructions	38
Gett	ing Ser	vice	39

1 Introduction

This chapter describes the installation of the following software.

- NVIDA® CUDA, NVIDIA® cuDNN, and NIVIDA® TensorRT
- Intel® OpenVINO, Intel® Media SDK
- Pylon Software
- GStreamer
- ADLINK EVA SDK

The following table lists the recommended software versions.

Item	Version
Operating System	Windows 10 64-bit
GStreamer	1.16.2
NVIDIA® CUDA ¹	11.0
NVIDIA CUDA® Deep Neural Network library (cuDNN) ¹	8.0.5
NVIDIA® TensorRT ^{™1}	7.1.3
Intel® OpenVINO ^{™2}	2021.1.110
Intel® Media SDK ²	2020 R1
OpenCV ³	4.5.0
Python	3.7 64-bit
Microsoft Build Tools for Visual Studio	2019 or 2017
Visual C++ Redistributable for Visual Studio	2015-2019
pylon	6.1.1
Hikrobot MVS	3.2.1
FLIR Spinnaker SDK	2.2.0.48

<u>Notes</u>

¹ If the NVIDIA solution is used for inference, NVIDIA® CUDA®, NVIDIA® cuDNN and NVIDIA® TensorRT[™] must be installed.

² If the Intel solution is used for inference, Intel® OpenVINO[™] and Intel® Media SDK must be installed.

³ OpenCV is required by the ADLINK EVA SDK. If Intel® OpenVINO is not installed on the system, build and install it. Refer to <u>https://docs.opencv.org/4.5.0/d3/d52/tutorial_windows_install.html</u> for more information.



The following table lists the estimated installation space required when installing the software under Windows 10 64-bit.

Software	Required Storage	Install File Size
Visual C++ Redistributable 2015-2019	22 MB	exe file: 14 MB
Microsoft Build Tool	15 GB	exe file: 1.5 MB
Python	100 MB	exe file: 26 MB
CMake	100 MB	msi file: 25.5 MB
NVIDIA Driver	1.1 GB	exe file: 400 MB
NVIDIA® CUDA	5.8 GB	exe file: 2.7 GB
NVIDIA® cuDNN	1000 MB	zip file: 480 MB
NVIDIA® TensorRT™	1.25 GB	exe file: 650 MB
Intel® OpenVINO™	1 GB	exe file: 200 MB
Intel® Media SDK	132 MB	exe file: 70 MB
Pylon	840 MB	exe file: 415 MB
Hikrobot MVS	368 MB	exe file:141 MB
FLIR Spinnaker SDK	1.9 GB	exe file: 530 MB
ADLINK EVA SDK	1.65 MB	zip file: 660 KB
GStreamer	700 MB	zip file: 165 MB

2 Uninstall Previous Software

If the system has a previous version of the software installed, it must first be uninstalled before the new version can be installed. The following content is for reference only (except for the software developed by ADLINK). Actual uninstall procedures vary depending on the vendor software.

2.1 Uninstall via Software Installer Program

Run the program's installer and follow the screen prompts to uninstall the software. The following table lists the software installers with an uninstall feature, and a sample of the uninstall window.

Software	Uninstall Window
CMake	CMake Setup – – × Change, repair, or remove installation Select the operation you wish to perform.
	Change CMake has no independently selectable features.
	Repair Repairs errors in the most recent installation by fixing missing and corrupt files, shortcuts, and registry entries.
	Removes CMake from your computer.
	Back Next Cancel
Python	Python 3.7.9 (64-bit) Setup Modify Setup
	$\rightarrow \underbrace{Modify}_{Ad \text{ or remove individual features.}}$ $\rightarrow \operatorname{Repair}$
	Ensure all current features are correctly installed. Uninstall Remove the entire Python 3.7.9 (64-bit) installation.
	python for windows



Software	Uninstall Window
Intel® OpenVINO™	Intel(R) Distribution of OpenVINO™ toolkit 2021.1 for Windows*
	Modify Change installed features or feature settings Repair Fix missing or corrupt files, shortcuts or registry entries Remove Re
Intel® Media SDK	Back Remove Cancel
	Modify Change installed features or feature settings Repair Fix missing or corrupt files, shortcuts or registry entries Remove Remove Remove Remove product from system registries and directory structure
	<u>Back</u> emove <u>Cancel</u>





Software	Uninstall Window
EVA SDK	InstallShield Wizard X Program Maintenance Image: Constraint of the program. Modify, repair, or remove the program. Image: Constraint of the program.
	Change which program features are installed. This option displays the Custom Selection dialog in which you can change the way features are installed.
	Repair Repair installation errors in the program. This option fixes missing or corrupt files, shortcuts, and registry entries.
	Remove Remove EVA from your computer. InstallShield
	< <u>B</u> ack <u>N</u> ext > Cancel

2.2 Uninstall via Programs and Features

1. Press **<Windows> + <Q>** and type **Control Panel**, and then click Control Panel. Click **Uninstall a program** to open Programs and Features.



2. Double-click the program to be uninstalled. Click Yes to begin uninstalling the program.

Software	Software as Listed in Programs and Features
Python	Python ***
CMake	CMake
NVIDIA Driver	NVIDIA Graphic Driver ***
NVIDIA® CUDA	NVIDIA CUDA ***
Intel® OpenVINO™	Intel® Distribution of OpenVINO [™] toolkit *** for Windows
Intel® Media SDK	Intel® Media SDK *** for Windows
Pylon	pylon *** Camera Software Suite
Hikrobot MVS	MVS
FLIR Spinnaker SDK	Spinnaker SDK
ADLINK EVA SDK	EVA
GStreamer	EVA

The following table lists the software that can be uninstalled through Windows Programs and Features.

Note: *** refers to the software version or other information listed in Programs and Features.

2.3 Manually Remove Files

Some software does not support being completely uninstalled with an uninstaller. These must be uninstalled manually be deleting the files from the system.

Software	Files to Delete
NVIDIA® cuDNN	After uninstalling NVIDIA® CUDA, remove the following files:
	 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA*\bin\cudnn*.dll
	 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA*\include\cudnn*.h
	 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA*\lib\x64\cudnn*.lib
NVIDIA® TensorRT™	Delete all NTensorRT folders and files from the location they were placed in during installation.



2.4 Remove Environment Settings

When installing NVIDIA TensorRT, the binary and library are added to the environment PATH. When uninstalling TensorRT, the environment PATH must be deleted manually.

Please use the following steps to delete TensorRT's path setting.

1. In the Windows Search box, type edit the system environment variables and press <Enter>.



- 2. Click Environment Variables
- 3. Under System variables, click Path and then Edit.

variable	Value
GSTREAMER_1_0_ROOT_X86	C:\gstreamer\1.0\x86_64\
OneDrive	C:\Users\test\OneDrive
Path	C:\Python\Python37\Scripts\;C:\Python\Python37\;C:\Users\test\Ap
TEMP	C:\Users\test\AppData\Local\Temp
TMP	C:\Users\test\AppData\Local\Temp
	<u>N</u> ew <u>E</u> dit <u>D</u> elete
stem variables	
stem variables Variable	Value
stem variables Variable NVCUDASAMPLES_ROOT	Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1
stem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT	Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1
stem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH	Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NvToolsExt\
stem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS Dath	Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NvToolsExt\ Windows_NT Windows_NT EVERDIST2:cediet\intel6(4 win\compiler.C\Program Files)
stem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS Path Path	Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NvToolsExt\ Windows_NT %INTEL_DEV_REDIST%redist\intel64_win\compiler;C:\Program Files COM: FXF: BAT. CMD: VRS: VRF: US: FSF: WSF: WSF: MSC
stem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS Path PATHEXT PROCESSOR ARCHITECTURE	Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NvToolsExt\ Windows_NT %INTEL_DEV_REDIST%redist\intel64_win\compiler;C:\Program Files .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.WSF;.WSH;.MSC AMD64
stem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS Path PATHEXT PROCESSOR ARCHITECTURE	Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NvToolsExt\ Windows_NT %INTEL_DEV_REDIST%redist\intel64_win\compiler;C\Program Files .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;JSE;.WSF;.WSH;.MSC AMD64

4. Select TensorRT's bin and lib path and click Delete.

3 Installing Required Dependencies

This chapter describes how to install the following software:

- Microsoft Visual C++ Redistributable for Visual Studio 2015-2019
- Python 3.7 64-bit
- Microsoft Build Tools for Visual Studio 2019/2017
- CMake 3.14 or higher 64-bit

If the system already has Python and CMake installed, make sure they are the correct version.

3.1 Installing Microsoft Visual C++ Redistributable for Visual Studio

Download the install file for Microsoft Visual C++ Redistributable for Visual Studio 2015, 2017 and 2019 x64 from https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads.

After downloading, run the installer to install the software.

₩ Microsoft Visual C++ 2015-2019 Redistributable (x64) - 14 —	×
Microsoft Visual C++ 2015-2019	
Redistributable (x64) - 14.27.29016	5
MICROSOFT SOFTWARE LICENSE TERMS	^
MICROSOFT VISUAL C++ 2019 RUNTIME	
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. They apply to the software named above. The terms also apply to any Microsoft services or	~
I agree to the license terms and conditions	
♥Install Close	2
₩ Microsoft Visual C++ 2015-2019 Redistributable (x64) - 14 —	×
Microsoft Visual C++ 2015-2019 Redistributable (x64) - 14.27.29016	5
Setup Successful	



3.2 Installing Python

Download the Python 3.7 64-bit for Windows from <u>https://www.python.org/downloads/windows/</u>. As of Januanry 22, 2021, the latest Python 3.7 release version is 3.7.9.

Uninstall all previous versions of Python from the system. For more details, refer to Uninstall Previous Software.

After downloading, run the installer, select Add Python 3.7 to PATH to add the application to the environment PATH, and then click Install Now.

The default path is C:\Users\<USER_ID>\AppData\Local\Programs\Python\Python37.



Click **Disable path length limit** to allow the Python default path.



After installation, open a command prompt and entert the following command to verify the environment PATH.

> python --version



If the terminal cannot find the python command, the system might not be able to find the program. For the instructions to add Python to the system environment variables, see <u>Set Windows Environment Variables</u>.



Run the following command to install additional required packages.

> pip3 install numpy boto3 opencv-python

Command Prompt	-		×
Microsoft Windows [Version 10.0.17134.285] (c) 2018 Microsoft Corporation. All rights reserved.			^
C:\Users\eva>pythonversion Python 3.7.9			
C:\Users\eva>pip3 install numpy boto3 opencv-python Collecting numpy Developing numpy-1 10 4-cp27-cp27m-wip amd64 wbl (12 0 MR)			
Collecting boto3 Downloading boto3-1.16.26-pv2.pv3-none-anv.whl (129 kB)			
Collecting opency-python Downloading opency python Downloading opency python 4.4.0.46-cn37-cn37m-win amd64.whl (33.5 MB)			
Collecting jmespath<1.0.0,>=0.7.1 Downloading imespath<1.0.0,>=0.7.1 Downloading imespath.0.0,>=0.7.1			
Collecting botcore<1.20.0,>=1.19.26 Downloading botcore-1.19.26-py2.py3-none-any.wh1 (6.9 MB)			
Collecting s3transfer<0.4.0,>=0.3.0 Downloading s3transfer-0.3.3-py2.py3-none-any.whl (69 kB)			
Collecting python-dateutil<3.0.0,>=2.1 Downloading python_dateutil-2.8.1-py2.py3-none-any.whl (227 kB)			
Collecting urllib3<1.27,>=1.25.4; python_version != "3.4" Downloading urllib3-1.26.2-py2.py3-none-any.whl (136 kB)			
Collecting six>=1.5 Downloading six-1.15.0-py2.py3-none-any.whl (10 kB) Installing collected packages: numpy imesnath six pythop-dateutil url	lih3	hotoco	re
Stransfer, boto3, opencv-python Successfully installed boto3-1.16.26 botocore-1.19.26 jmespath-0.10.0 num v-python-4.4.0.46 python-dateutil-2.8.1 s3transfer-0.3.3 six-1.15.0 urlli MARNING: You are using pip version 20.1.1; however, version 20.3 is avail.	py-1.1 b3-1.2 able.	.9.4 ope	enc
You should consider upgrading via the 'c:\users\eva\appdata\local\program 37\python.exe -m pip installupgrade pip' command.	s∖pyth	ion\pyt	hon v



3.3 Installing Microsoft Build Tools for Visual Studio

Open a web browser and navigate to <u>https://visualstudio.microsoft.com/downloads/</u>, click **Tools for Visual Studio 2019**, and click **Download** next to Build Tools for Visual Studio 2019.

Build Tools for Visual	These Build Tools allow you to build Visual Studio projects from a command-line	
Studio 2019	interface. Supported projects include: ASP.NET, Azure, C++ desktop, ClickOnce,	Download -
	containers, .NET Core, .NET Desktop, Node.js, Office and SharePoint, Python,	
	TypeScript, Unit Tests, UWP, WCF, and Xamarin.	

After downloading, run the installer, and choose C++ build tools and Universal Windows Platform build tools for installation.

To use Visual Studio 2017, select MSVC v141- VS 2017 C++ x64/x86 build tools in the C++ build tools.

istalling — Visual Studio Build Tools 2019 — 16.8.2 Vorkloads — Individual components — Language packs — II	nstallation locations		
	istallation locations	Ir	stallation details
Need help choosing what to install? More info		×	✓ C++ core desktop features
sktop & Mobile (4) * C++ build tools Build Windows desktop applications using the Microsoft C++ toolset, ATL, or MFC.	obile Development with .NET ols for building cross-platform applications for iOS, ndroid and Windows using C≢ and F≢.		Optional MSVC v142 - VS 2019 C++ x64/x86 build tools (Windows 10 SDK (10.0.18362.0) C++ CMake tools for Windows Totting tools care fortume. Public tools care fortume.
INET desktop build tools Tools for building WPF, Windows Forms, and console applications using C#, Visual Basic, and F#.	niversal Windows Platform build tools ovides the tools required to build Universal Windows atform applications.		C++ AddressSanitizer (Experimental) C++ AddressSanitizer (Experimental) C++ ATL for latest v142 build tools (x86 & x64) C++ MFC for latest v142 build tools (x86 & x64) C++/CLI support for v142 build tools (x86 & x64)
eh & Cloud (4)			 C++ Modules for v142 build tools (x64/x86 - ex C++ Clang tools for Windows (10.0.0 - x64/x86)
Web development build tools MSBuild tasks and targets for building web applications. Az	sure development build tools SBuild tasks and targets for building Azure application	S.	Windows 10 SDK (10.0.17763.0) Windows 10 SDK (10.0.17134.0) Windows 10 SDK (10.0.16299.0) Windows 10 SDK (10.0.16299.0) MSVC v141 - VK 2017 C++ x64/x86 build tools (MSVC v140 - VS 2015 C++ build tools (44.00) MSVC v140 - VS 2015 C++ build tools (44.00)
Office/SharePoint build tools	ata storage and processing build tools iild SQL Server Database Projects	· ·	Universal Windows Platform build tools Included
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Continuing, you agree to the <u>license</u> for the Visual Studio edition you selected. We also offer t remede separately, as set out in the <u>2nd Party Notices</u> or in its accompanying license. By continued Visual Studio Installer Installed Available Visual Studio Build Tools 2019 Downloading and verifying: 82 MB of 3.87 GB (12 2%	Pause	. This software	Developer News C++20 Features in Visual Studio 2019 ver 16.7 and 16.8 We have continued our efforts to implement.
ontinuing, you agree to the licence for the Visual Studio edition you selected. We also offer enreed separately, as set out in the 2rd Party Notices or in its accompanying licence. By continuing Visual Studio Installer Installed Available Visual Studio Build Tools 2019 Downloading and verifying: 82 MB of 3.87 GB () 2% ■ Installing: package 18 of 383 0% Microsoft.VisualStudio.Setup.WMIProvider	Pause	. This software	Developer News C++20 Features in Visual Studio 2019 ver 16.7 and 16.8 We have continued our efforts to implement. Friday, November 20, 2020
Continuing, you agree to the <u>license</u> for the Visual Studio edition you selected. We also offer t exerced separately, as set out in the <u>2nd Party Notices</u> or in its accompanying license. By continuing Visual Studio Installer More Studio Build Tools 2019 Downloading and verifying: 82 MB of 3.87 GB (1) 28 M (1) 29 M (1) 10 Microsoft Visual Studio.Setup.WMIProvider Release notes	Pause	. This software	Developer News C++20 Features in Visual Studio 2019 ver 16.7 and 16.8 We have continued our efforts to implement. Friday, November 20, 2020 GitHub accounts are now integrated into Visual Studio 2019
continuing, you agree to the license for the Visual Studio edition you selected. We also offer terred separately, as set out in the 2nd Party Notices or in its accompanying license. By control Visual Studio Installer Installed Available Visual Studio Build Tools 2019 Downloading and verifying: 82 M8 of 3.87 GB () 2% ■ Installing: package 18 of 383 0 Microsoft VisualStudio.Setup.WMIProvider Microsoft VisualStudio.Setup.WMIProvider Release notes	Pause	. This software	Developer News C++20 Features in Visual Studio 2019 ver 16.7 and 16.8 We have continued our efforts to implement. Friday, November 20, 2020 GitHub accounts are now integrated into Visual Studio 2019 Starting with version 16.8, you'll be able to ad Friday, November 20, 2020
continuing, you agree to the license for the Visual Studio edition you selected. We also offer the 2nd Party Motices or in its accompanying license By continuing sense By continuing and the 2nd Party Motices or in its accompanying license By continuing. Visual Studio Installer Installed Available Visual Studio Build Tools 2019 Downloading and verifying: 82 MB of 3.87 GB (1) 2% ■ Installing: package 18 of 383 0% Microsoft.VisualStudio.Setup.WMIProvider Release notes	Pause	. This software	Developer News C++20 Features in Visual Studio 2019 ven 16.7 and 16.8 We have continued our efforts to implement. Friday, November 20, 2020 GiH-lub accounts are now integrated into Visual Studio 2019 Starting with version 16.8, you'll be able to ad Friday, November 20, 2020 What's new in .NET Productivity The .NET Productivity The .NET Productivity team (a.k.a. Rodyn) war Thursday, November 19, 2020
continuing, you agree to the <u>license</u> for the Visual Studio edition you selected. We also offer to centered separately, as set out in the <u>and Party Motices</u> or in its accompanying license. By contribution Visual Studio Installer Installed Available Visual Studio Build Tools 2019 Downloading and verifying: 82 MB of 3.87 GB (() 26 Installing: package 18 of 383 06 Installing: package 18 of 383 07 Installing: package 18 of 383 08 Installing: package 18 of 383 09 Instal	Pause (11 ME/sec)	. This software	Developer News C++20 Features in Visual Studio 2019 ven 16.7 and 16.8 We have continued our efforts to implement. Friday, November 20, 2020 GiH-lub accounts are now integrated into Visual Studio 2019 Starting with version 16.8, you'll be able to ad Friday, November 20, 2020 What's new in .NET Productivity The .NET Productivity team (a.k.a. Roslym) war Thursday, November 19, 2020 View more online

3.4 Installing CMake

Download CMake 3.14 or higher (64-bit) for Windows from https://cmake.org/download/.

Uninstall all previous versions of CMake from the system. For more details, refer to <u>Uninstall Previous Software</u>. After downloading, run the installer to install the software.

CMake Setup	- 🗆 X	妃 CMake Setup — 🗆 🗙
	Welcome to the CMake Setup Wizard	End-User License Agreement Please read the following license agreement carefully
	The Setup Wizard allows you to change the way CMake features are installed on your computer or to remove it from your computer. Click Next to continue or Cancel to exit the Setup Wizard.	CMake - Cross Platform Makefile Generator Copyright 2000-2020 Kitware, Inc. and Contributors All rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
	Back Next Cancel	Print Back Next Cancel
🔛 Install Options	- 🗆 🗙	₽ CMake Setup – – ×
Install Options Choose options for installing	CMake 3, 18.2	Destination Folder Click Next to install to the default folder or click Change to choose another.
By default CMake does not a	dd its directory to the system PATH.	Install CMake to:
Do not add CMake to the Add CMake to the system	system PATH	C:\Program Files\CMake\
Add CMake to the system	n PATH for the current user	grangen
Create CMake Desktop Ico	n	
	Back Next Cancel	Back Next Cancel

Note: Choose Add CMake to the system PATH for all users.

提 CMake Setup —		CMake Setup	- 🗆 🗙
Ready to install CMake			Completed the CMake Setup Wizard
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.			Click the Finish button to exit the Setup Wizard.
Back Dinstall	Cancel		Back Finish Cancel



Г

After installing, open a command prompt and enter the following command to verify the environment PATH.

> cmake				
Command Prompt	—		×	
Microsoft Windows [Version 10.0.17134.285] (c) 2018 Microsoft Corporation. All rights reserved.			î	
C:\Users\eva>cmake Usage				
cmake [options] <path-to-source> cmake [options] <path-to-existing-build> cmake [options] -S <path-to-source> -B <path-to-build></path-to-build></path-to-source></path-to-existing-build></path-to-source>				
Specify a source directory to (re-)generate a build system for i current working directory. Specify an existing build directory re-generate its build system.	t in to	the		
Run 'cmakehelp' for more information.			~	

If the terminal cannot find the cmake command, the system might not be able to find the program. For the instructions to add CMake to the system environment variables, see <u>Set Windows Environment Variables</u>.

Command Prompt	_		×
Microsoft Windows [Version 10.0.19041.508] (c) 2020 Microsoft Corporation. All rights reserved.			^
C:\Users\test>cmake 'cmake' is not recognized as an internal or external o operable program or batch file.	commar	nd,	~

3.5 Set Windows Environment Variables

This section describes how to manually set the Windows environment.

Use the following steps to update the Windows PATH if an execute command returns an error message stating that an application cannot be found.

1. In the Windows Search box, type edit the system environment variables and press <Enter>.

System Properties			>	<
Computer Name Hardware	Advanced	System Protection	Remote	
You must be logged on as ar Performance	n Administrat	or to make most of th	nese changes.	
Visual effects, processor sc	heduling, m	emory usage, and vir	tual memory <u>S</u> ettings	
User Profiles Desktop settings related to	your sign-in			
			S <u>e</u> ttings	
Startup and Recovery System startup, system failu	ire, and deb	ugging information		
			Settings	
		Environme	nt Variables	
	ОК	Cancel	<u>A</u> pply	

- 2. Click Environment Variables.
- 3. Under System variables, click Path and then Edit.

Variable	Value
GSTREAMER_1_0_ROOT_X86	C:\gstreamer\1.0\x86_64\
OneDrive	C:\Users\test\OneDrive
Path	C:\Python\Python37\Scripts\;C:\Python\Python37\;C:\Users\test\App
TEMP	C:\Users\test\AppData\Local\Temp
TMP	C:\Users\test\AppData\Local\Temp
	<u>N</u> ew <u>E</u> dit <u>D</u> elete
rstem variables	<u>N</u> ew <u>E</u> dit <u>D</u> elete
stem variables Variable	New Edit Delete
rstem variables Variable NVCUDASAMPLES_ROOT	New Edit Delete Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1
rstem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT	New Edit Delete Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1
rstem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH	New Edit Delete Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NVToolsExt\ State
rstem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS	New Edit Delete Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NvToolsExt\ Windows_NT
rstem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS Path	New Edit Delete Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NVToolsExt\ Windows_NT %INTEL_DEV_REDIST%redist\intel64_win\compiler;C:\Program Files
vstem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS Path PATHEXT	New Edit Delete Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NVToolsExt\ Windows_NT %INTEL_DEV_REDIST%redist\intel64_win\compiler;C:\Program Files .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS; JSE;.WSF;.WSF;.WSF;.MSC
rstem variables Variable NVCUDASAMPLES_ROOT NVCUDASAMPLES10_1_ROOT NVTOOLSEXT_PATH OS Path PATHEXT PROCESSOR ARCHITECTURE	New Edit Delete Value C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\ProgramData\NVIDIA Corporation\CUDA Samples\v10.1 C:\Program Files\NVIDIA Corporation\NVToolsExt\ Windows_NT %INTEL_DEV_REDIST%redist\intel64_win\compiler;C\Program Files .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC AMD64



4. Click **New** and enter the program binary directory or click **Browse** and choose the directory.

For example,

- The CMake default path is C:\Program Files\CMake\bin.
- The Python default path is C:\Users\<USER_ID>\AppData\Local\Programs\Python\Python37.
- The Python script tool (such as pip3) default path is C:\Users\<USER_ID>\AppData\Local\Programs\Python\Python37\Script.
- The Pylon runtime library default path is C:\Program Files\Basler\pylon 6\Runtime\x64.
- 5. Click **OK** repeatedly to close each window.

4 Installation Process for NVIDIA Solution (Optional)

If you are not using an NVIDIA inference solution, this chapter can be skipped.

4.1 Uninstall Previous Version

Uninstall all previous versions of CUDA Toolkit from the system and remove cuDNN and/or TensorRT files. For more details, refer to <u>Uninstall Previous Software</u>.

4.2 Installing NVIDIA Driver

According the NVIDIA product type, download the corresponding driver installer from the NVDIA Driver download website <u>https://www.nvidia.com/download/index.aspx?lang=en-us</u>.

For example, for NVIDIA Quadro P2000, the search items are as follows,

NVIDIA Driver Downloads

Option 1: Manually find	drivers for my NVIDIA products.	
Product Type:	Quadro	~
Product Series:	Quadro Series	~
Product:	Quadro P2000	~
Operating System:	Windows 10 64-bit	~
Download Type:	Optimal Driver for Enterprise (ODE) / Quadro Studio	~
Language:	English (US)	~

After searching for the appropriate product, follow the step on the website to download the driver.

After downloading, run the drvier installer and follow the screen prompts to install the driver. It is recommended to reboot after installation to ensure the normal operation of the driver. After rebooting, open Device Manager, click **Display adapters**, and check that the NVIDIA device is working properly.

🗄 Device Manager	NVIDIA Qua	adro P2000 Pro	perties			×
<u>File Action View H</u> elp						
(= -) - - - - - - - - -	General D	Driver Details	Events	Resources		
ESKTOP-951IHEF M Audio inputs and outputs Basler USB3 Vision Cameras	-	NVIDIA Quadro	P2000			
> a Disk drives	(Device type:	Display	/ adapters		
V I Display adapters		Manufacturer:	NVIDI/	A		
Microsoft Remote Display Adapter	l	Location:	PCI bu	is 4, device 0, f	unction 0	
> Firmware	- Device a	status				
Human Interface Devices IDE ATA/ATAPI controllers	This de	vice is working	properly.			~
> 🚡 Imaging devices						
 Mice and other pointing devices Monitors 						
Network adapters						
Ports (COM & LPT)						
> 🛱 Print queues						·
> Processors						
> Yecurity devices						
> P Software components						
Software devices						
> 4 Sound, video and game controllers						
> 🍇 Storage controllers						
🔪 🎦 Sustem devices					OK	Cancel



4.3 Installing CUDA Toolkit

Download the NVIDIA® CUDA toolkit 11.0 from <u>https://developer.nvidia.com/cuda-11.0-download-archive?target_os=Windows&target_arch=x86_64&target_version=10&target_type=exelocal</u>.

After downloading, run the installer and follow the screen prompts to install the software.



4.4 Installing cuDNN

Download cuDNN v8.0.5 from <u>https://developer.nvidia.com/compute/machine-</u>learning/cudnn/secure/8.0.5/11.0_20201106/cudnn-11.0-windows-x64-v8.0.5.39.zip.

Log in or join the NVIDIA Developer Program as a member.

After downloading, unzip the cuDNN package and copy the following files into the following CUDA Toolkit folders:

- Copy cuda\bin*.dll to C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.0\bin
- Copy cuda\include*.h to C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.0\include
- Copy cuda\lib\x64*.lib to C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.0\lib\x64

Refer to the NVIDA cuDNN documentation for more information: https://docs.nvidia.com/deeplearning/cudnn/install-guide/index.html#install-windows.

4.5 Installing TensorRT

Download and install TensorRT 7.1.3 for Windows from https://developer.nvidia.com/compute/machine-learning/tensorrt/secure/7.1/zips/TensorRT-7.1.3.4.Windows10.x86_64.cuda-11.0.cudnn8.0.zip.

Log in or join the NVIDIA Developer Program as a member.

After downloading, unzip and copy the TensorRT-7.1.3.4 folder to C:\Program Files\NVIDIA GPU Computing Toolkit.

Add the following variables to the PATH environment variable.

- C:\Program Files\NVIDIA GPU Computing Toolkit\TensorRT-7.1.3.4\lib
- C:\Program Files\NVIDIA GPU Computing Toolkit\TensorRT-7.1.3.4\bin

For the instructions to add the system environment, refer to Set Windows Environment Variables.

C:\	Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.0\bin	New
C:\	Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.0\libnvvp	
C:\	Windows\system32	Edit
C:\	Windows	
C:\	Windows\System32\Wbem	<u>B</u> rowse
C:\	Windows\System32\WindowsPowerShell\v1.0\	
C:\	Windows\System32\OpenSSH\	<u>D</u> elete
C:\	Program Files\dotnet\	
C:\	Program Files\CMake\bin	
C:\	Program Files\NVIDIA Corporation\Nsight Compute 2020.1.1\	Move <u>U</u> p
C:\	Program Files (x86)\NVIDIA Corporation\PhysX\Common	
C:\	Program Files\NVIDIA GPU Computing Toolkit\TensorRT-7.1.3.4\bin	Move D <u>o</u> wn
C:\	Program Files\NVIDIA GPU Computing Toolkit\TensorRT-7.1.3.4\lib	
		Edit <u>t</u> ext

4.6 Installing ONNX Runtime

After installing the CUDA Toolkit, run the following commands to install the ONNX Runtime packages.

```
> pip3 install pillow
> pip3 install onnxruntime-gpu==1.8.0
```

Command Prompt	-		×
			^
C:\Users\eva>pip install onnxruntime-gpu==1.8.0			
Collecting onnxruntime-gpu==1.8.0			
Downloading onnxruntime_gpu-1.8.0-cp37-cp37m-win_amd64.whl (62.8 MB)			
Requirement already satisfied: numpy>=1.16.6 in c:\users\eva\appdata\local\programs\python\python37\lib\si	te-pac	kages	(f
rom onnxruntime-gpu==1.8.0) (1.19.4)			
Requirement already satisfied: protobuf in c:\users\eva\appdata\local\programs\python\python37\lib\site-pa	ckages	(from	i o
nnxruntime-gpu==1.8.0) (3.17.1)			
Collecting flatbuffers			
Downloading flatbuffers-2.0-py2.py3-none-any.whl (26 kB)			
Requirement already satisfied: six>=1.9 in c:\users\eva\appdata\local\programs\python\python37\lib\site-pa	ckages	(from	i p
rotobuf->onnxruntime-gpu==1.8.0) (1.15.0)	Ŭ		
Installing collected packages: flatbuffers, onnxruntime-gpu			
Successfully installed flatbuffers-2.0 onnyruntime-gpu-1.8.0			
MARNING, You are using nin version 20 3 3: however, version 21 1 2 is available			
You should consider ungrading via the 'c'usars(ava)anndata[loca])nrograms(hython)nython37)nython eve n	in ind	tall .	
and in constant of the constan	тртпз	Call -	-4
pgrade pip command.			
C:\Users\eva>			

Refer to https://www.onnxruntime.ai/

5 Installation Process for Intel Solution (Optional)

If you are not using the Intel® Distribution of OpenVINO[™] toolkit, this chapter can be skipped.

5.1 Uninstall Previous Version

Uninstall all previous versions of OpenVINO and/or Media SDK from the system. For more details, refer to <u>Uninstall Previous Software</u>.

5.2 Installing the OpenVINO Toolkit

The Intel® Distribution of OpenVINO[™] toolkit quickly deploys applications and solutions that emulate human vision. Based on Convolutional Neural Networks (CNN), the toolkit extends computer vision (CV) workloads across Intel® hardware, maximizing performance. The Intel® Distribution of OpenVINO[™] toolkit includes the Intel® Deep Learning Deployment Toolkit (Intel® DLDT).

The Intel® Distribution of OpenVINO[™] toolkit for Windows 10:

- Enables CNN-based deep learning inference on the edge
- Supports heterogeneous execution across Intel® CPU, Intel® Integrated Graphics, Intel® Movidius[™] Neural Compute Stick, Intel® Neural Compute Stick 2, and Intel® Vision Accelerator Design with Intel® Movidius[™] VPUs
- Speeds time-to-market via an easy-to-use library of computer vision functions and pre-optimized kernels
- Includes optimized calls for computer vision standards including OpenCV* and OpenCL™

Included with the installation and installed by default:

COMPONENT	DESCRIPTION
Model Optimizer	This tool imports, converts, and optimizes models that were trained in popular frameworks to a format usable by Intel tools, especially the Inference Engine. NOTE : Popular frameworks include such frameworks as Caffe*, TensorFlow*, MXNet*, and ONNX*.
Inference Engine	This is the engine that runs the deep learning model. It includes a set of libraries for an easy inference integration into your applications.
OpenCV*	OpenCV* community version compiled for Intel® hardware
Inference Engine Samples	A set of simple console applications demonstrating how to use Intel's Deep Learning Inference Engine in your applications.
Demos	A set of console applications that demonstrate how you can use the Inference Engine in your applications to solve specific use-cases
Additional Tools	A set of tools to work with your models
Documentation for Pre- Trained Models	Documentation for the pre-trained models available in the Open Model Zoo repo

For more details, refer to

https://docs.openvinotoolkit.org/2021.1/openvino_docs_install_guides_installing_openvino_windows.html.

5.2.1 System Requirements

The following software must be installed on the system:

- Microsoft Build Tool for Visual Studio with C++ 2019,2017 or 2015
- CMake 64-bit
- Python 64-bit

See Installing Required Dependencies for more information.

5.2.2 Install the Intel® Distribution of OpenVINO[™] Toolkit Core Components

Download the Intel® Distribution of OpenVINO[™] toolkit package file from https://software.intel.com/content/www/us/en/develop/tools/openvino-toolkit/choose-download/windows.html.

Select the options below to download.

- Operating System: Windows
- Distribution: Web and Local Install
- Installer Type: Local

Select options below to download				
Operating System:	Select operating system Windows	~		
Distribution:	Select distribution Web and Local Install	~		
Installer Type:	Select installer Local	~		

Click Register & Download, choose Windows and complete the registration form.

On the Intel® Distribution of OpenVINO[™] toolkit for Windows website, choose version **2021 1** and click **Full Package**.

Build date:05 Oct 2020
Release Notes Installation Guide
Choose a Download Option I want to download only the components I need. Time and space are important to me. While I'm connected to the internet, I can install the components I choose. Initial download 18 MB, max download 163 MB based on component selection.
Customizable Package
I prefer a single large install package with all components. I can install offline after downloading the entire package. Download size 163 MB.
Full Package

After downloading, run the installer. Follow the screen prompts to complete the installation.

Intel(R) Distribution of OpenVINO™ toolkit 2021.1 for Windows*	Intel(R) Distribution of OpenVINO™ toolkit 2021.1 for Windows*
Destination Directory: C:\Program Files (x86)\Intel Component Name Size ✓ Intel(R) Distribution of OpenVINO [™] toolkit 2021.1 for Windows* 684MB ✓ Inference Engine Development Kit 22MB ✓ Inference Engine Runtime for Intel® CPU 89MB ✓ Inference Engine Runtime for Intel® Processor Graphics 67MB ✓ Inference Engine Runtime for Intel® Movidius [™] VPU 42MB ✓ Inference Engine Runtime for Intel® Movidius [™] VPU 42MB ✓ Inference Engine Runtime for Intel® Movidius [™] VPU 42MB ✓ Inference Engine Runtime for Intel® Gaussian Neural 15MB ✓ Inference Engine Runtime for Intel® Vision Accelerator 33MB ✓ Model Optimizer 7.6MB ✓ Open Model Zoo 69MB ✓ OpenCV 240MB	Intel® Software Improvement Program (Windows) Learn more To improve our software and customer experience, Intel would like to collect technical information about your software installation and runtime status (such as installation metrics, license/support types, software SKU/serial, counters, flags, and timestamps) and development environment (such as operating system, CPU architecture, last 4-digits of the MAC address and other Intel products installed). ("Information"). Intel may collect this Information directly or optionally through the use of Google Analytics. If Google Analytics is used to collect the Information, Google will aggregate the Information with that of other users and present the aggregated results to Intel without any personal identifiers. Information collected by Google will be retained by Google under its own data collection policies (https://www.google.com/policies/privacy/partners/). The Information collected under this notice directly by Intel through its Information provided to Intel by Google through its Software Improvement Program may be retained by Google through its Software Improvement Program may be retained by Intel indefinitely but it will not be shared outside of Intel or its wholly-owned subsidiaries.
Required: 656MB, Available: 65GB Select Recommended Select All By clicking "Next", I acknowledge that I accept the End User License Agreement (EULA).	Program Options" in the "Settings" tab of the Intel® Software Manager and selecting the "I do NOT consent to the collection of my Information" option. For more details, please refer to this article: (https://software.intel.com/enus/articles/software-improvement-program) I gonsent to the collection of my Information I do NOT consent to the collection of my Information
Back Next Cancel	Back Next Cancel

5.2.3 Set the Environment Variables

Before compiling and running OpenVINO applications, the environment variables must be updated. Open a command prompt and run the setupvars.bat file to temporarily set the environment variables.

```
> cd "C:\Program Files (x86)\Intel\openvino_2021\bin\"
> setupvars.bat
```

Notes:

- OpenVINO toolkit environment variables are removed when the command prompt window is closed.
- If the Intel® Distribution of OpenVINO[™] was not installed to the default install directory, replace C:\Program Files (x86)\Intel with the directory where it is installed.

5.2.4 Optional Steps for Intel® Processor Graphics (GPU)

The steps in this section are required only if you want to use processor graphics (GPU) on your system.

If your applications offload computation to Intel® Integrated Graphics, the Intel Graphics Driver for Windows version must be 15.65 or higher. To see if you have this driver installed:

- 1. Type device manager in your Windows Search box. The Device Manager opens.
- 2. Click the drop-down arrow to view the display adapters. See the installed adapter.

- 3. Right-click the adapter name and select Properties.
- 4. Click the driver tab to see the driver version. Make sure the version number is 15.65 or higher.

Intel(R) UHD Graphics 630 Properties				×			
General	Driver	Details	Events	Resources			
	Intel(R)) UHD Gr	aphics 63	0			
	Driver	Provider:	Intel C	Corporation			
	Driver	Date:	6/5/2	020			
	Driver	Version:	27.20	.100.7990			
	Digital	Signer:	Micros Publis	soft Windows her	Hardware Co	ompatibility	
Drį	ver Detai	ls	View det	ails about the	e installed driv	er files.	
Upo	late Drive	er	Update t	he driver for t	his device.		
<u>R</u> oll	Back Driv	ver	If the dev back to t	vice fails after he previously	r updating the / installed driv	e driver, roll er.	
<u>D</u> isa	ble Devi	ce	Disable t	he device.			
<u>U</u> nin	stall Devi	ice	Uninstall	the device fr	om the system	m (Advanced).
					ОК	Cance	

5. If your device driver version is lower than 15.65, download and install a higher version from https://downloadcenter.intel.com/product/80939/Graphics-Drivers.

5.3 Installing the Intel Media SDK for Gstreamer (Optional)

To use MSDK encoder and decoder GStreamer plugins in GStreamer, the required software must be installed in the following order:

- 1. Intel® OpenVINO Toolkit (see Installing the OpenVINO Toolkit)
- 2. Intel® Media SDK (this section)
- 3. GStreamer (see Installing GStreamer on Windows)
- 4. MSDK GStreamer plugin (see<u>Install Third-party Plugins</u>)

This section describes how to install the Intel® Media SDK.

- 1. Download the Intel® Media SDK for Windows from <u>https://software.intel.com/content/www/us/en/develop/tools/media-sdk/choose-download/client.html</u>.
- 2. Click Register & Download and complete the registration form.
- 3. On the Intel® Media SDK for Windows website, choose version **2020 R1** and click **MediaSDK2019RD.exe**.

Choose a Version				
Choose a Download Option				
Intel® Media SDK 2020	35 MB			
Access your support resources. Click here for technical support.				
Intel takes your privacy seriously. Refer to Intel's Privacy Notice and Serial Number Validation Notice regarding the collection and handling of your personal information, the Intel product's serial number and other information.				

4. After downloading, run the installer. Follow the screen prompts to complete the installation.

Intel® Media SDK 2019 R1 for Windows*	Intel® Media SDK 2019 R1 for Windows*
Destination Directory: C:\Program Files (x86)\IntelSWTools Intel® Media SDK 2019 R1 for Windows* Software Development Kit Media Samples HEVC Decoder & Encoder	Complete Intel® Media SDK 2019 R1 for Windows* is now installed.
Required: 133MB, Available: 26GB Select Recommended Clear All By clicking "Next", I acknowledge that I accept the End User License Agreement (EULA).	
<u>B</u> ack <u>N</u> ext <u>C</u> ancel	<u> </u>

6 Installing Pylon Software (Optional)

If you are not using a Basler camera, this chapter can be skipped.

6.1 Uninstall Previous Versions

Uninstall all previous versions of pylon or items where the publisher is Basler from the system. For more details, refer to <u>Uninstall Previous Software</u>.

6.2 Install pylon Software

If Basler cameras are used for the system, pylon software must be installed.

Download the pylon camera software from the Basler website at: <u>https://www.baslerweb.com/en/sales-support/downloads/software-downloads/</u>.

The recommended software versions are:

- Software Category: pylon Software
- Version: 6.1.1
- Operating System: Windows 64-bit

Alternately, use the link: <u>https://www.baslerweb.com/en/sales-support/downloads/software-downloads/#type=pylonsoftware;language=all;version=6.1.1;os=windows64bit</u>

Choose Camera Software Suite Windows.

After downloading, run the camera software suite installer.

Follow the screen prompts to install the software.

On the Profiles page, choose Developer.

pylon 6	× BASLER	pylon 6	× BASLER ⁷
	Welcome		Profiles
	The pylon Setup Wizard will install the pylon Camera Software Suite on your computer.	Developer	Choose the profile that best describes your tasks,
-	 I agree to the pylon Terms & Conditions 	Se gr	Camera User Developer Custom
		This profile installs the complete pylon Camera Software Suite including the pylon SDK.	You can change the profile any time by running the setup again.
	Next Cancel		Back Next Cancel
	Copyright (c) 2007-2020 Basler AG		Copyright (c) 2007-2020 Basler AG

On the Interfaces page, select the interfaces to which the camera(s) is/are connected.

Verify the Basler's USB3/GigE Vision cameras with pylon:

- After installing pylon, run the **pylon Viewer** tool to test the camera.
- Refer to the following Basler document on using the pylonviewer: https://docs.baslerweb.com/overview-of-the-pylon-viewer.html

7 Installing Hikrobot Software (Optional)

If you are not using a Hikrobot camera, this chapter can be skipped.

7.1 Uninstall Previous Versions

Uninstall all previous versions of MVS from the system. For more details, refer to Ch. 2: <u>Uninstall Previous</u> <u>Software</u>.

7.2 Install Hikrobot MVS Software

If Hikrobot Cameras are used, the Hikrobot MVS Software must be installed.

Download the Hikrobot installer from the website at: <u>https://en.hikrobotics.com/machinevision/service/download?module=0</u>

The recommended software versions are:

- Version: Machine Vision Software MVS3.2.1 (Windows)
- Operating System: Windows 64-bit

Launch the downloaded installer.

₹¥		×
Options		
Directory	C∶\Program Files (x86)\MVS	ß
Select Driver	🗹 GIGE 🗹 USB 3.0	
Others	 Enable built-in debug features Enable Jumbo Frame for All NICs Enable Jumbo Frame for Al	
	equired Back Next	Cancel

The recommended options are:

- Select Driver: GIGE and USB 3.0
- Others: Enable built-in debug features and Enable Jumbo Frame for All NICs

Verify the Hikrobot's USB3/GigE Vision cameras with MVS.

- After installing MVS, run the MVS tool to test the camera.
- The file should be located at C:\Program Files\MVS\Applications\Win64\MVS.exe"
- Refer to the MVS document at C:\Program Files\MVS\Applications\Win64\doc

8 Installing FLIR Software (Optional)

If you are not using a FLIR camera, this chapter can be skipped.

8.1 Uninstall Previous Versions

Uninstall all previous versions of Spinnaker SDK from the system. For more details, refer to <u>Uninstall Previous</u> <u>Software</u>.

8.2 Install FLIR Spinnaker Software

If FLIR cameras are used, the FLIR Spinnaker Software Suite for Windows must be installed.

Download FLIR Spinnaker installer from https://www.flir.asia/products/spinnaker-sdk/

The recommended software versions are:

- Version: SpinnakerSDK_FULL_2.2.0.48_x64 (Windows)
- Operating System: Windows 64 bit

The path is FLIR Support / Spinnaker / archive / 2.2.0.48

\$FLIR				English - Logi
Back FLIR Support / Spinnaker / arcnive / 220.48	Press F11	to exit fuil screen	Save to zBox 🔯 Save to phone	E Spinnaker
1 dama selected		Update time (updated by) 4	Size 11	Expiration time.
spinnaker_python-2.2.0.48-cp38-cp38-win32.zip		2020-10-20 04:30 FLIR Support	62.53 MB	2025-04-20 23 59
pinnaker_python-2.2.0.48-cp38-cp38-win_amd54.zip		2020-10-20 04:30 FLIR Support	67.59 MB	Size -
spinnaker_python-2.2.0.48-cp37-cp37m-win32.zip		2020-10-20 04:30 FLIR Support	62.54 MB	Creator: FLIR Support
spinnaker_python-2.2.0.48-cp37-cp37m-win_amd64.zip		2020-10-20 04:30 FLIR Support	67.56 MB	Creation time: 2020-04-24 05:29
spinnaker_python-2.2.0.48-cp36-cp36m-win_amd64.zip		2020-10-20 04:30 FLIR Support	67.56 MB	
spinnaker_python-2.2.0.48-cp35-cp35m-wm32.zip		2020-10-20 04:30 FLIR Support	62.54 MB	
binnekcr_python-2.2.0.40-cp35-cp35m-win_emd54 zip		2020 10 20 04:30 FLIR Support	67.68 MB	
□ 💈 spinnaker_python-2.2.0.48-cp36-cp36m-win32.zip		2020-10-20 04:27 FLIR Support	62.54 MB	
spinnaker_python-2.2.0.48-cp27-cp27m-win32.zip		2020-10-20 04:26 FLIR Support	62.63 MB	
spinnaker_python-2.2.0.48-cp27-cp27m-win_amd64.zip		2020-10-20 04:26 FLIR Support	67.73 MB	
SpinnakerSDK_FULL_2.2.0.48_x86.exe		2020-10-20 04:24 FLIR Support	512.65 MB	
SpinnakerSDK_FULL_2.2.0.48_x64.exe		2020-10-20 04:24 FLIR Support	530.30 MB	Filoz
SpinnakerSDK_WEB_2.2.0.48_x64.exe		2020-10-20 04:23 FLIR Support	1.12 MB	Collaboration Platform by Lenovo
SpinnakerSDK_WEB_2.2.0.48_x86.exe	It's already the end	2020-10-20 04:22 FLIR Support	1.13 MB	Try a new brand
(V5_5T0_3.2.1_20_zip				Shor

Launch the download installer. In the Profiles page, choose Application Development.

\$FLIR	SPINNAKER	\$FLIR	SPINNAKER
Welcome to the Spinna Wiz	ker 2.2.0.48 (x64) Setup ard	Installation Profile Please select the installation type to	continue
The Setup Wizard will install S computer. Click Next to co	pinnaker 2.2.0.48 (x64) on your ntinue with the installation.	Camera Evaluation	Installs the SpinView camera application and related documentation.
		Application Development	Installs the Spinnaker software development kit (SDK), SpinView camera application and related documentation.
Exit	Next	Exit	Back Next

Select all camera drivers and Visual Studio versions. These include the runtime library based on the Visual Studio code.

\$FLIR	SPINNAKER
Installation Components	
The features below have been preselected base previously chosen. Click on the headings to ma	d on the installation profile æ modifications.
 Image: Solar Feature East ✓ Documentation ✓ Drivers ✓ GigE Driver ✓ USB Driver Legacy ✓ Visual Studio Version ✓ Visual Studio 2010 ✓ Visual Studio 2013 ✓ Visual Studio 2015 ✓ Runtime Files ✓ Utilities ✓ SpinView ✓ SpinView ✓ SpinView ✓ C + source ✓ C Source ✓ V Source ✓ Third Party 	
SpinnakerAlk	~
Exit	Back Next

Enable the GigE Cameras.

Verify the FLIRs USB3/GigE Vision cameras with SpinView:

- After installing Spinnaker, run the SpinView tool to test the camera.
- The file should be located at "C:\Program Files\FLIR Systems\Spinnaker\bin64\vs2015\ SpinView_WPF.exe".

9 Installing GStreamer and ADLINK EVA SDK on Windows

9.1 Uninstall Previous Version

Uninstall all previous versions of EVA from the system. For more details, refer to <u>Uninstall Previous Software</u>. If gstreamer has been installed, use the following commands to remove msdk, nvdec and nvenc.

```
• remove msdk plugin
```

```
> cd C:\ADLINK\gstreamer
```

```
> del lib\gstreamer-1.0\gstmsdk*
```

- remove nvdec and nvenc plugins
 - > cd C:\ADLINK\gstreamer

```
> del lib\gstreamer-1.0\gstnv*
```

9.2 Install GStreamer and EVA SDK

Download the EVA install package and copy it to the Windows 64-bit system. Follow the installation screen prompts.

The installer includes GStreamer and the ADLINK EVA SDK files. After installation, the GStreamer files will be located at C:\ADLINK\gstreamer and the EVA SDK will be located at C:\ADLINK\eva.

The ADLINK EVA SDK must use a python plugin and third-party plugins for GStreamer. ADLINK has created a GStreamer installer to simplify the installation process. If there is any problem with the plugin provided by GStreamer, ask for help from the plugins' developers. ADLINK cannot guarantee the performance and stability of any third-party plugins.

Note: Due to the limitation of the mason build tool, the ADLINK EVA SDK currently only supports drive C:\ as the installation and build location.

9.3 Install Third-party Plugins (Optional)

The ADLINK GStreamer installer provides third-party plugins including msdk, nvdec and nvenc.

The msdk plugin provides the GStreamer H.264 and HEVC format encoder and decoder elements using the Intel Media SDK. The nvdec and nvenc plugins provide the GStreamer H.264 and HEVC elements using NVIDIA Codec SDK and NVIDIA CUDA. The source code for these plugins is in the GStreamer Bad Plug-ins package and must be built by users as NVIDIA and Intel do not provide binary files. However, ADLINK has configured these plugins in advance.

Follow the steps below to install the plugins.

- Install required dependencies.
 - msdk plugin: refer to Installation Process for Intel Solution to install OpenVINO and Media SDK.
 - nvdec and nvenc plugin: refer to <u>Installation Process for NVIDIA Solution</u> to install NVIDIA Driver and CUDA toolkit
- Copy the required binary to C:\ADLINK\gstreamer\lib\gstreamer-1.0
 - for the msdk plugin: gstmsdk.dll and gstmsdk.lib

```
> cd C:\ADLINK\gstreamer
> xcopy third-party\gstmsdk* lib\gstreamer-1.0 /y
```

• for the nvdec and nvenc plugins: gstnvdec.dll and gstnvdec.lib; gstnvenc.dll and gstnvenc.lib

```
> cd C:\ADLINK\gstreamer
> xcopy third-party\gstnv* lib\gstreamer-1.0 /y
```

Note: When using other third-party plugins, copy the plugin binary (*.lib and *.dll) to C:\ADLINK\gstreamer\lib\gstreamer-1.0 and the libraries that the plugin needs (If any) to C:\ADLINK\gstreamer\bin.

9.4 Set Environment Variables

Open a command prompt and run setupvars.bat to temporarily set the environment variables.

```
> C:\ADLINK\gstreamer\setupvars.bat> C:\ADLINK\eva\scripts\setup_eva_envs.bat
```

Check the GStreamer Installation.

> gst-launch-1.0 videotestsrc ! videoconvert ! autovideosink

After executing the command, a window with an animated video pattern should display on-screen. Use $\langle CTRL \rangle + \langle C \rangle$ in the terminal to stop the program.

If the third-party plugins are installed, use the following commands to check them.

• Check msdk

> gst-inspect-1.0 msdk

• Check nvdec and nvenc

> gst-inspect-1.0 nvdec
> gst-inspect-1.0 nvenc

Note: The environment variables are removed when closing the command prompt or terminal.

Safety Instructions

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

- Please read these safety instructions carefully.
- Please keep this User's Manual for later reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- When installing/mounting or uninstalling/removing equipment, turn off the power and unplug any power cords/cables.
- To avoid electrical shock and/or damage to equipment:
 - Keep equipment away from water or liquid sources.
 - Keep equipment away from high heat or high humidity.
 - Keep equipment properly ventilated (do not block or cover ventilation openings).
 - Make sure to use recommended voltage and power source settings.
 - Always install and operate equipment near an easily accessible electrical socket-outlet.
 - Secure the power cord (do not place any object on/over the power cord).
 - Only install/attach and operate equipment on stable surfaces and/or recommended mountings.
 - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.
- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

Getting Service

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