



EVA SDK Installation Guide for Windows

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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

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1 Introduction

This chapter describes the installation of the following software.

- NVIDIA® CUDA, NVIDIA® cuDNN, and NVIDIA® 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

Notes

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 https://docs.opencv.org/4.5.0/d3/d52/tutorial_windows_install.html for more information.

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

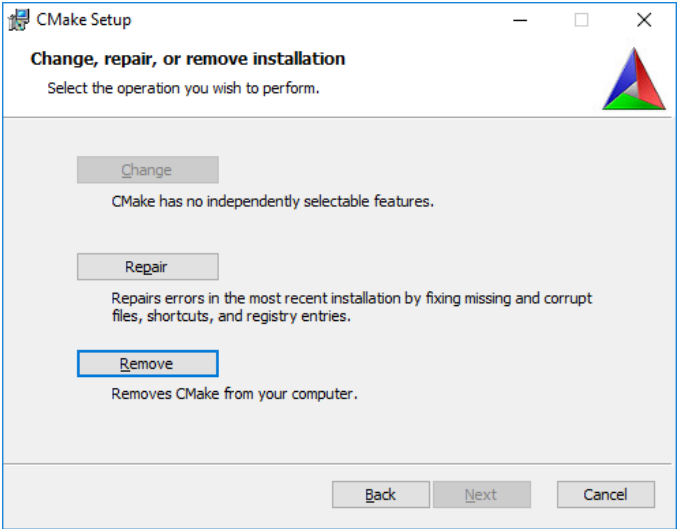
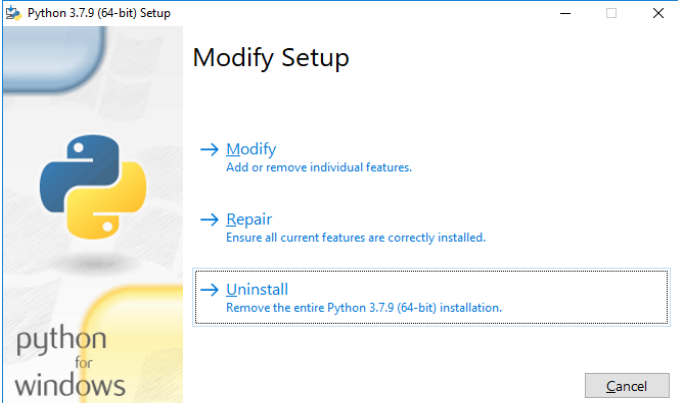
Software	Required Storage	Install File Size
Visual C++ Redistributable 2015-2019	22 MB	exe file: 14 MB
Microsoft Build Tool	15 GB	exe file: 1.5 MB
Python	100 MB	exe file: 26 MB
CMake	100 MB	msi file: 25.5 MB
NVIDIA Driver	1.1 GB	exe file: 400 MB
NVIDIA® CUDA	5.8 GB	exe file: 2.7 GB
NVIDIA® cuDNN	1000 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

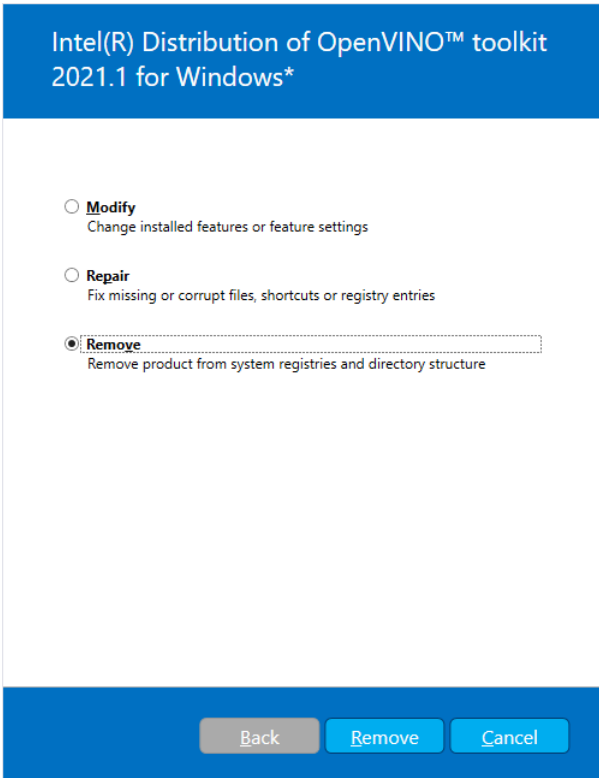
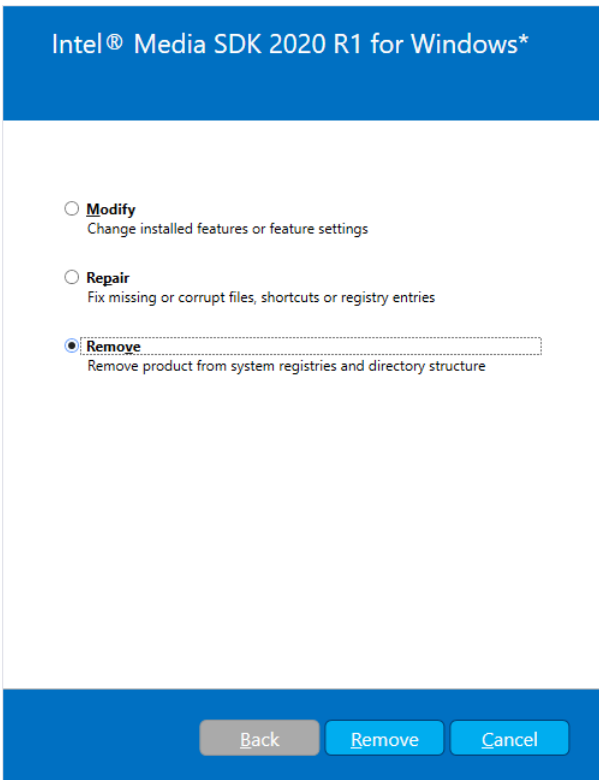
2 Uninstall Previous Software

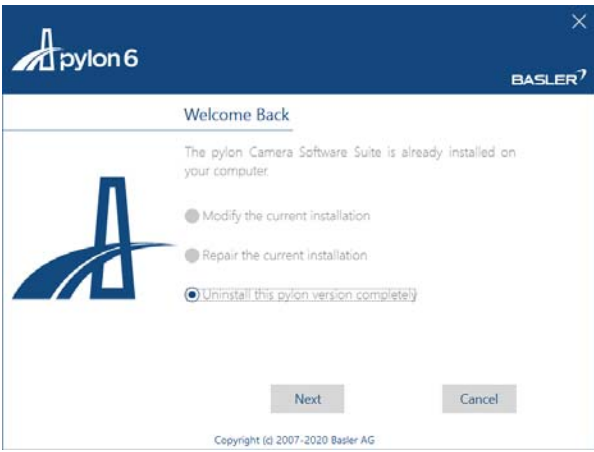
If the system has a previous version of the software installed, it must first be uninstalled before the new version can be installed. The following content is for reference only (except for the software developed by ADLINK). Actual uninstall procedures vary depending on the vendor software.

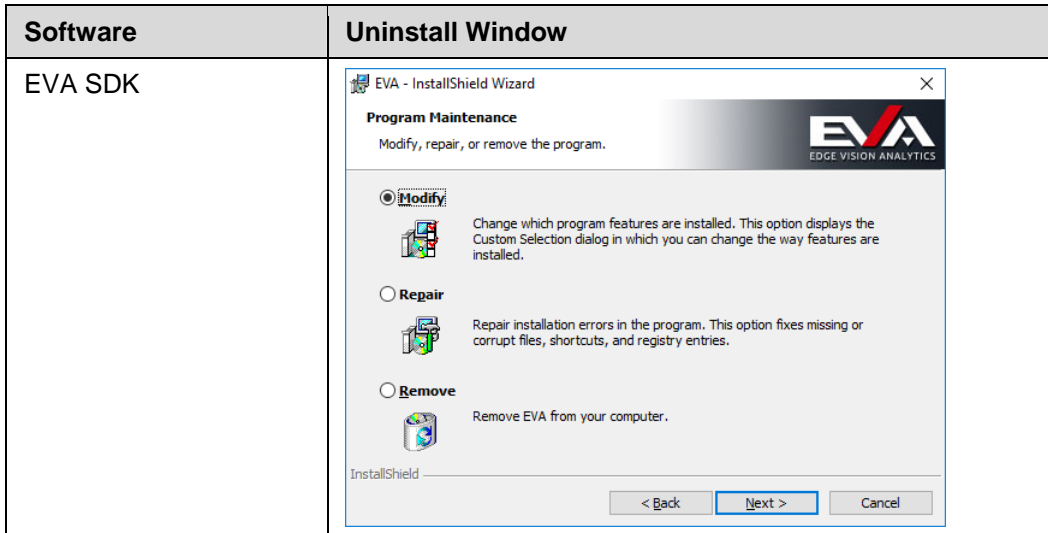
2.1 Uninstall via Software Installer Program

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	 <p>The screenshot shows the 'CMake Setup' window with the title 'Change, repair, or remove installation'. It prompts the user to 'Select the operation you wish to perform.' There are three buttons: 'Change' (disabled), 'Repair' (disabled), and 'Remove' (active/highlighted). Below each button is a brief description of the operation. At the bottom, there are 'Back', 'Next', and 'Cancel' buttons.</p>
Python	 <p>The screenshot shows the 'Python 3.7.9 (64-bit) Setup' window with the title 'Modify Setup'. It features the Python logo and the text 'python for windows'. There are three options listed with arrows: 'Modify' (Add or remove individual features.), 'Repair' (Ensure all current features are correctly installed.), and 'Uninstall' (Remove the entire Python 3.7.9 (64-bit) installation.). The 'Uninstall' option is highlighted with a dashed border. A 'Cancel' button is at the bottom right.</p>

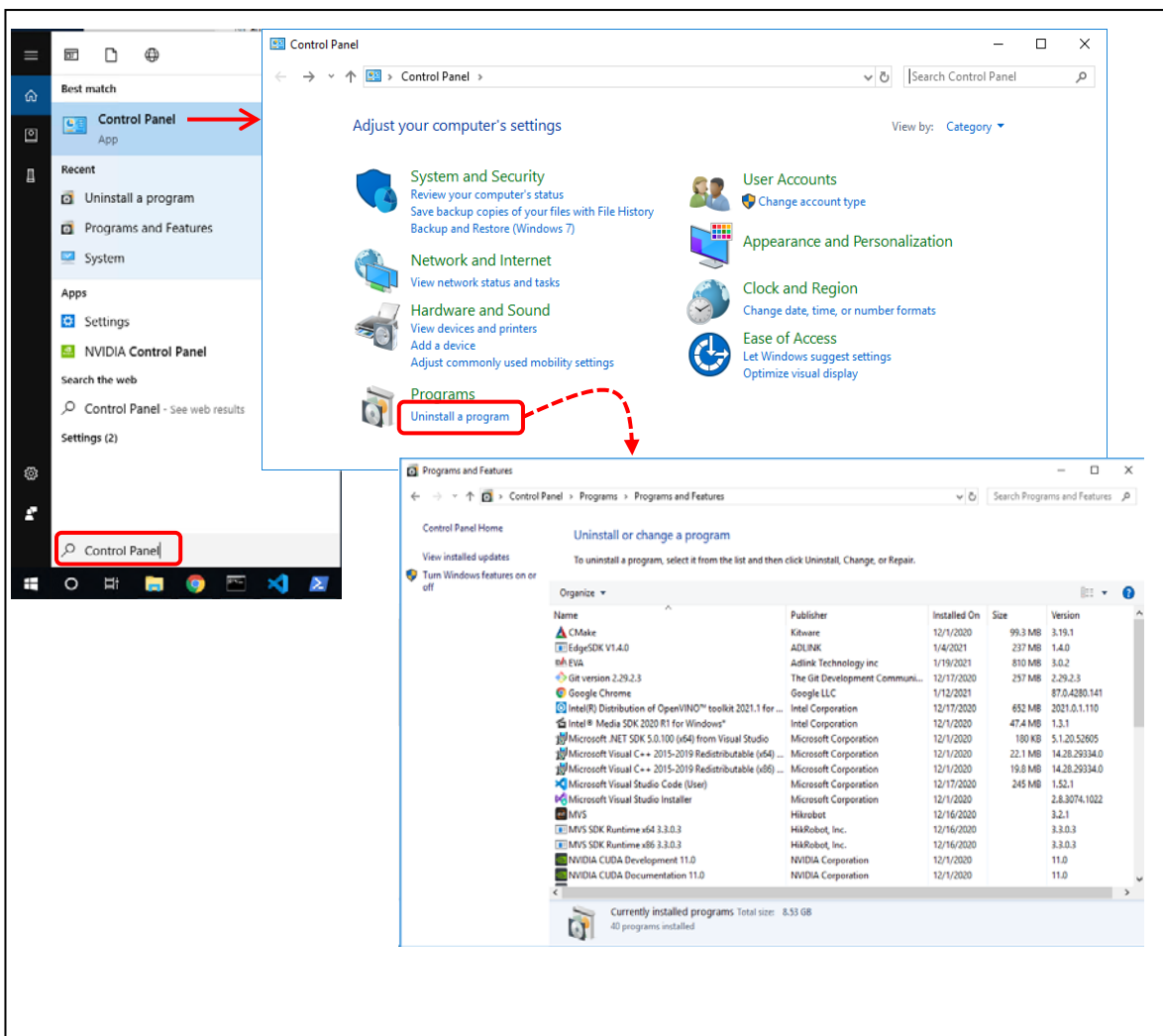
Software	Uninstall Window
Intel® OpenVINO™	 <p>Intel(R) Distribution of OpenVINO™ toolkit 2021.1 for Windows*</p> <ul style="list-style-type: none"> <input type="radio"/> Modify Change installed features or feature settings <input type="radio"/> Repair Fix missing or corrupt files, shortcuts or registry entries <input checked="" type="radio"/> Remove Remove product from system registries and directory structure <p>Back Remove Cancel</p>
Intel® Media SDK	 <p>Intel® Media SDK 2020 R1 for Windows*</p> <ul style="list-style-type: none"> <input type="radio"/> Modify Change installed features or feature settings <input type="radio"/> Repair Fix missing or corrupt files, shortcuts or registry entries <input checked="" type="radio"/> Remove Remove product from system registries and directory structure <p>Back Remove Cancel</p>

Software	Uninstall Window
pylon	
Hikrobot MVS	
FLIR Spinnaker SDK	



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.

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

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

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 by deleting the files from the system.

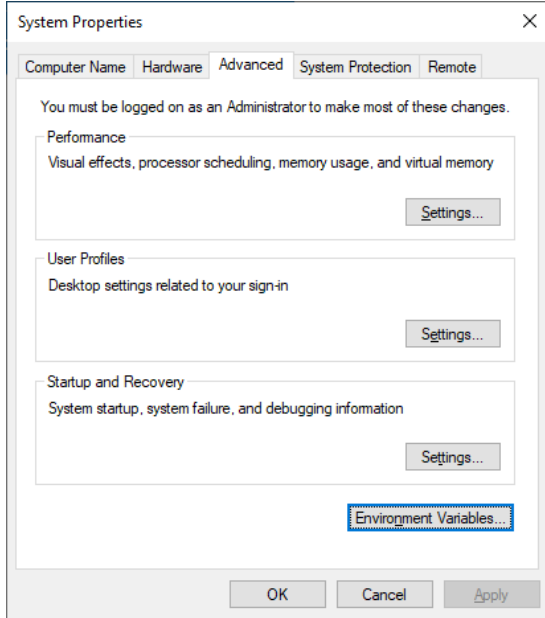
Software	Files to Delete
NVIDIA® cuDNN	<p>After uninstalling NVIDIA® CUDA, remove the following files:</p> <ul style="list-style-type: none"> • C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA*bin\cudnn*.dll • C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA*include\cudnn*.h • C:\Program Files\NVIDIA 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

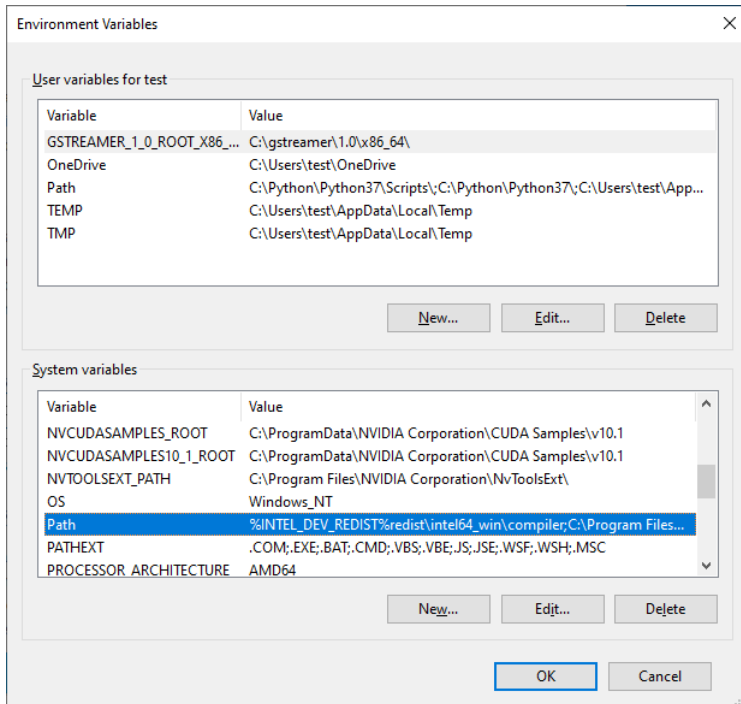
When installing NVIDIA TensorRT, the binary and library are added to the environment PATH. When uninstalling TensorRT, the environment PATH must be deleted manually.

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**.



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

3 Installing Required Dependencies

This chapter describes how to install the following software:

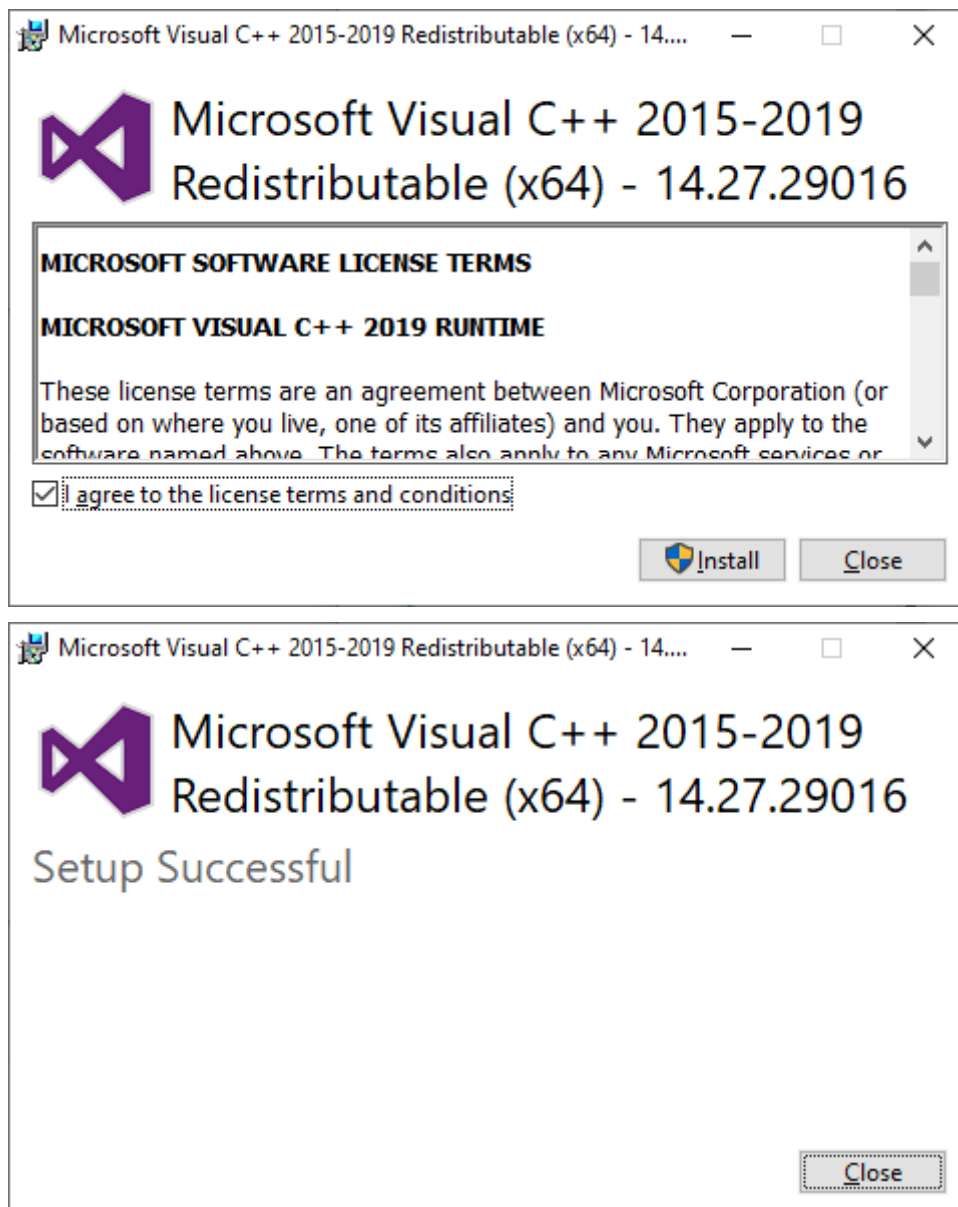
- Microsoft Visual C++ Redistributable for Visual Studio 2015-2019
- Python 3.7 64-bit
- Microsoft Build Tools for Visual Studio 2019/2017
- CMake 3.14 or higher 64-bit

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.



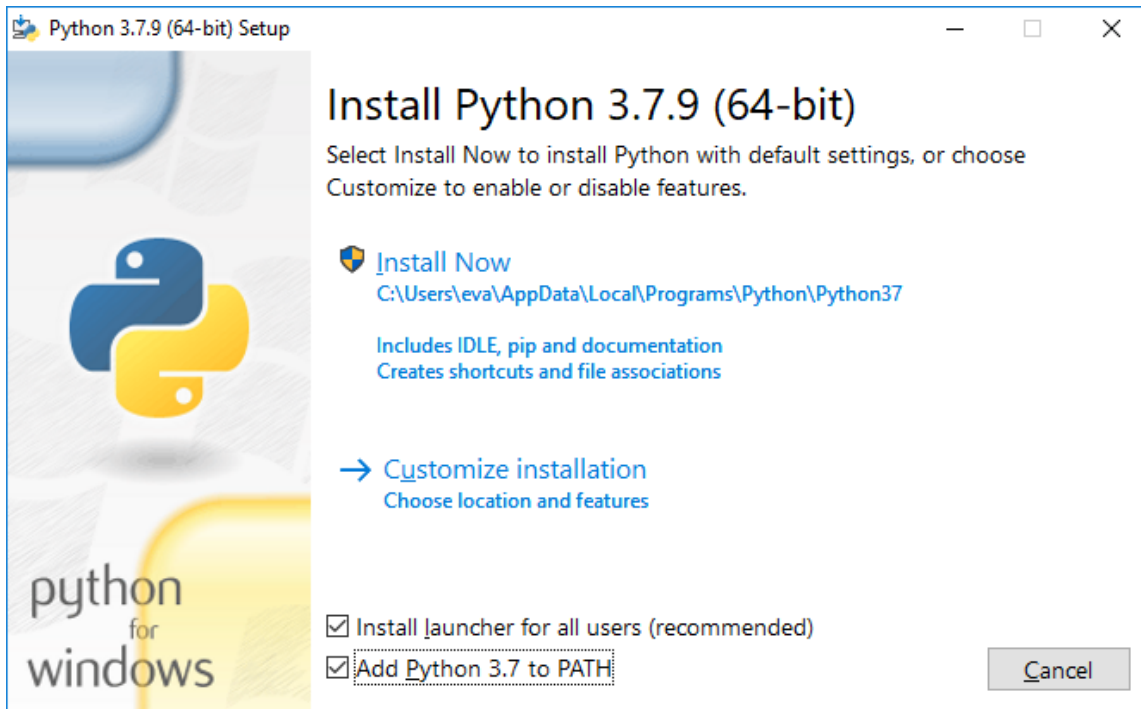
3.2 Installing Python

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

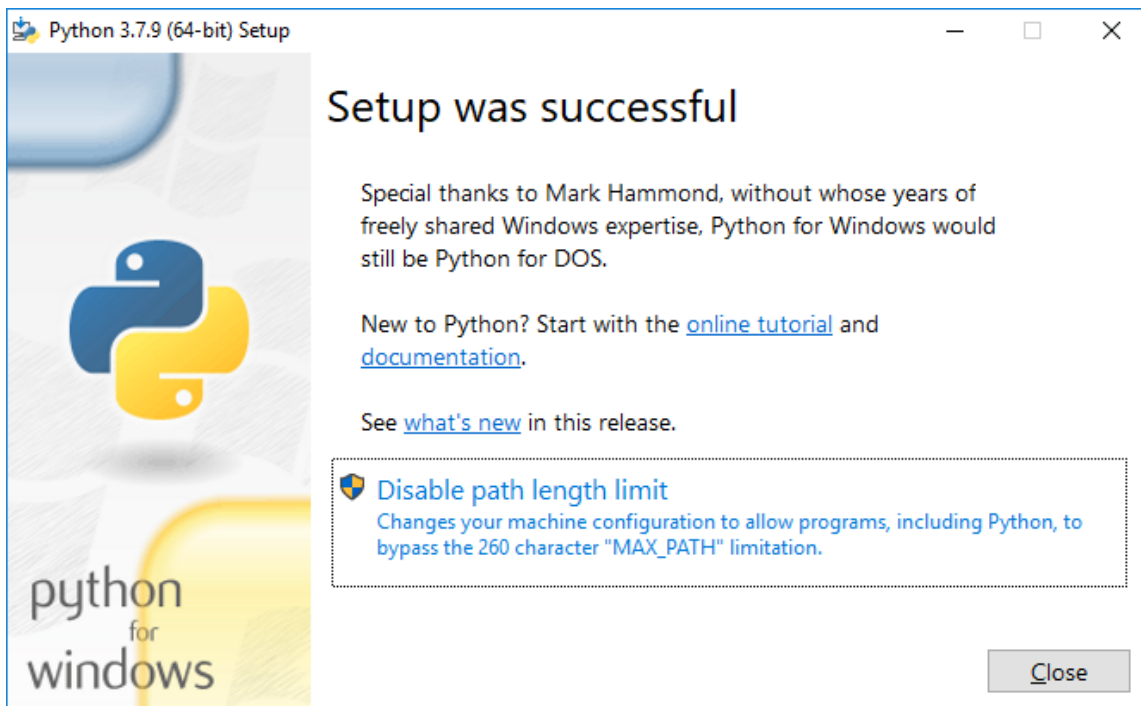
Uninstall all previous versions of Python from the system. For more details, refer to [Uninstall Previous Software](#).

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\\AppData\Local\Programs\Python\Python37.

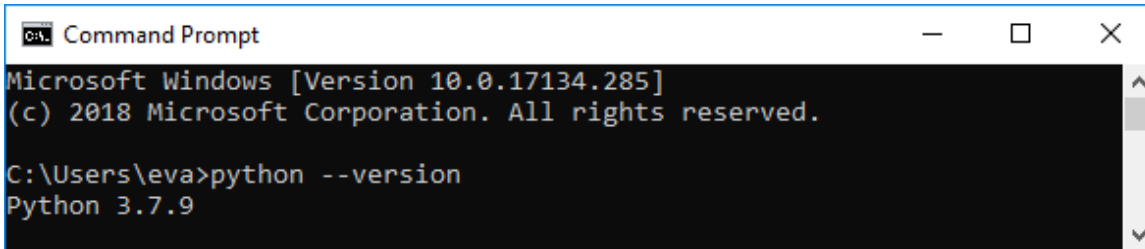


Click **Disable path length limit** to allow the Python default path.



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

```
> python --version
```



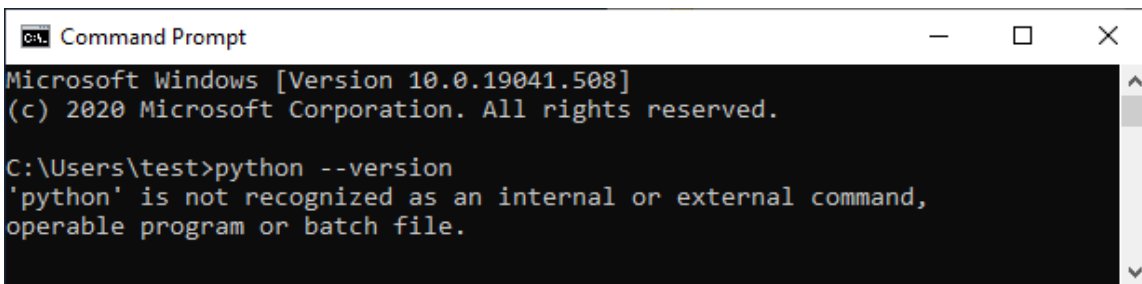
```

Microsoft Windows [Version 10.0.17134.285]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\eva>python --version
Python 3.7.9

```

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 [Set Windows Environment Variables](#).



```

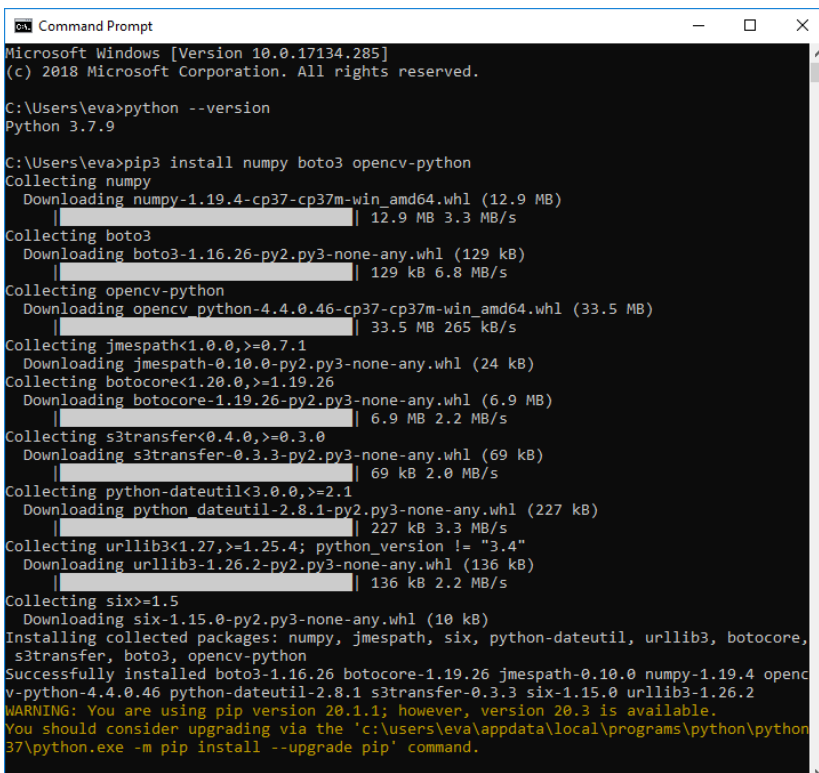
Microsoft Windows [Version 10.0.19041.508]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\test>python --version
'python' is not recognized as an internal or external command,
operable program or batch file.

```

Run the following command to install additional required packages.

```
> pip3 install numpy boto3 opencv-python
```



```

Microsoft Windows [Version 10.0.17134.285]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\eva>python --version
Python 3.7.9

C:\Users\eva>pip3 install numpy boto3 opencv-python
Collecting numpy
  Downloading numpy-1.19.4-cp37-cp37m-win_amd64.whl (12.9 MB)
    |-----| 12.9 MB 3.3 MB/s
Collecting boto3
  Downloading boto3-1.16.26-py2.py3-none-any.whl (129 kB)
    |-----| 129 kB 6.8 MB/s
Collecting opencv-python
  Downloading opencv-python-4.4.0.46-cp37-cp37m-win_amd64.whl (33.5 MB)
    |-----| 33.5 MB 265 kB/s
Collecting jmespath<1.0.0,>=0.7.1
  Downloading jmespath-0.10.0-py2.py3-none-any.whl (24 kB)
Collecting botocore<1.20.0,>=1.19.26
  Downloading botocore-1.19.26-py2.py3-none-any.whl (6.9 MB)
    |-----| 6.9 MB 2.2 MB/s
Collecting s3transfer<0.4.0,>=0.3.0
  Downloading s3transfer-0.3.3-py2.py3-none-any.whl (69 kB)
    |-----| 69 kB 2.0 MB/s
Collecting python-dateutil<3.0.0,>=2.1
  Downloading python_dateutil-2.8.1-py2.py3-none-any.whl (227 kB)
    |-----| 227 kB 3.3 MB/s
Collecting urllib3<1.27,>=1.25.4; python_version != "3.4"
  Downloading urllib3-1.26.2-py2.py3-none-any.whl (136 kB)
    |-----| 136 kB 2.2 MB/s
Collecting six>=1.5
  Downloading six-1.15.0-py2.py3-none-any.whl (10 kB)
Installing collected packages: numpy, jmespath, six, python-dateutil, urllib3, botocore,
s3transfer, boto3, opencv-python
Successfully installed boto3-1.16.26 botocore-1.19.26 jmespath-0.10.0 numpy-1.19.4 openc
v-python-4.4.0.46 python-dateutil-2.8.1 s3transfer-0.3.3 six-1.15.0 urllib3-1.26.2
WARNING: You are using pip version 20.1.1; however, version 20.3 is available.
You should consider upgrading via the 'c:\users\eva\appdata\local\programs\python\python
37\python.exe -m pip install --upgrade pip' command.

```

3.3 Installing Microsoft Build Tools for Visual Studio

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

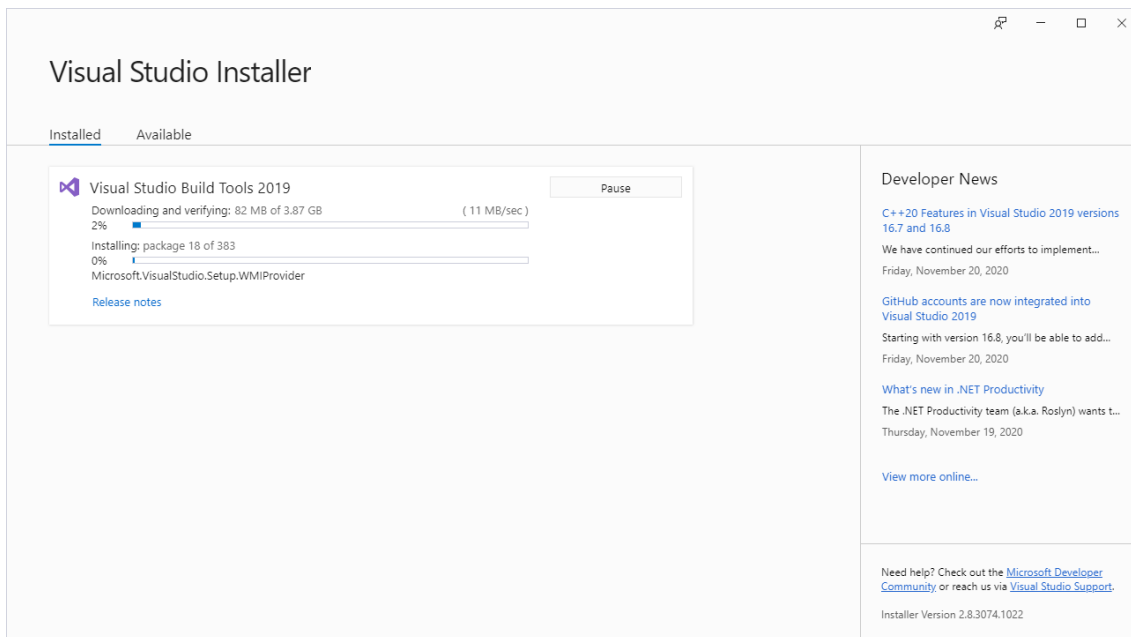
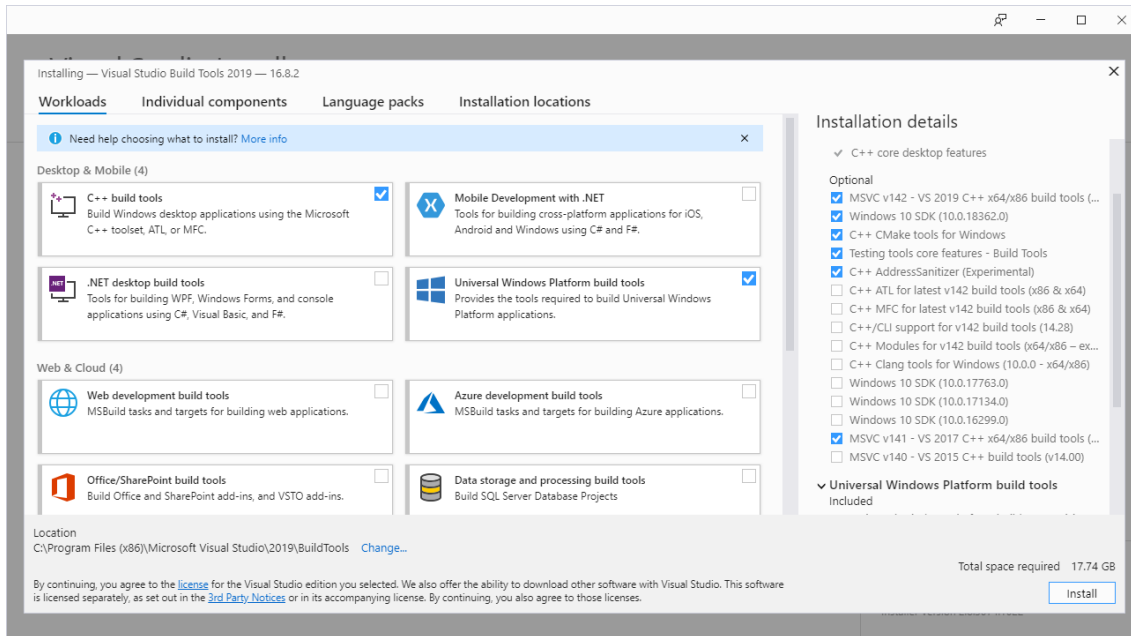
Build Tools for Visual Studio 2019

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

[Download ↓](#)

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.

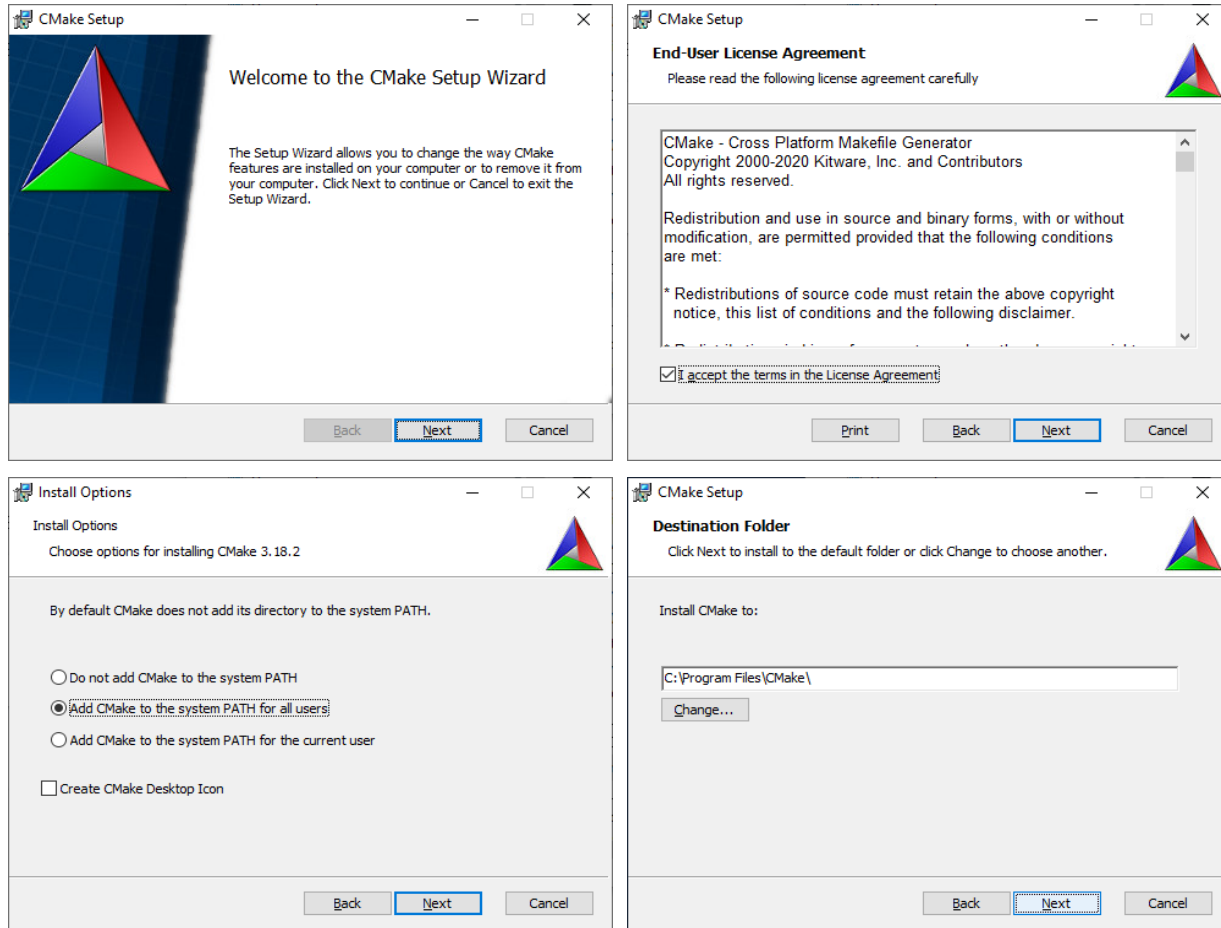


3.4 Installing CMake

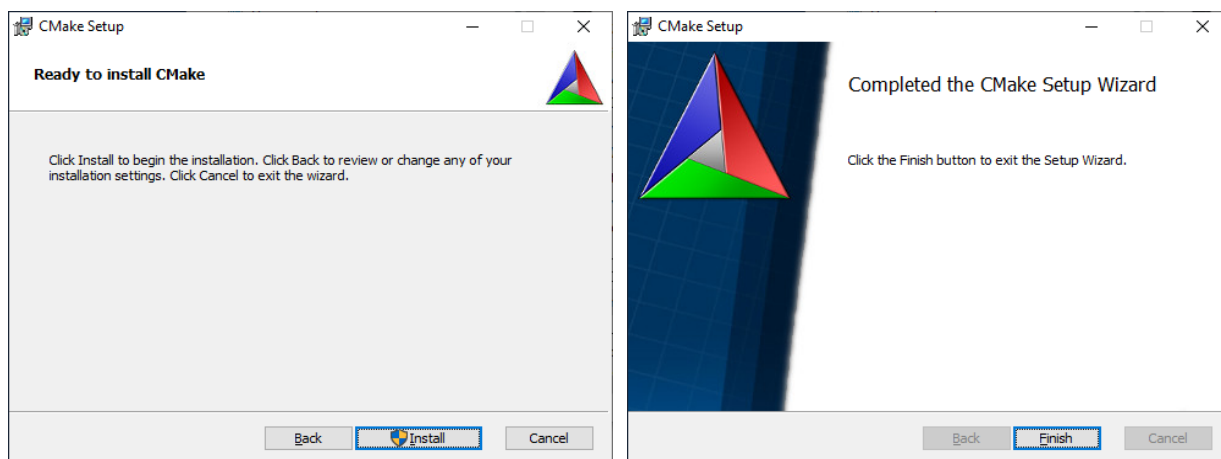
Download CMake 3.14 or higher (64-bit) for Windows from <https://cmake.org/download/>.

Uninstall all previous versions of CMake from the system. For more details, refer to [Uninstall Previous Software](#).

After downloading, run the installer to install the software.

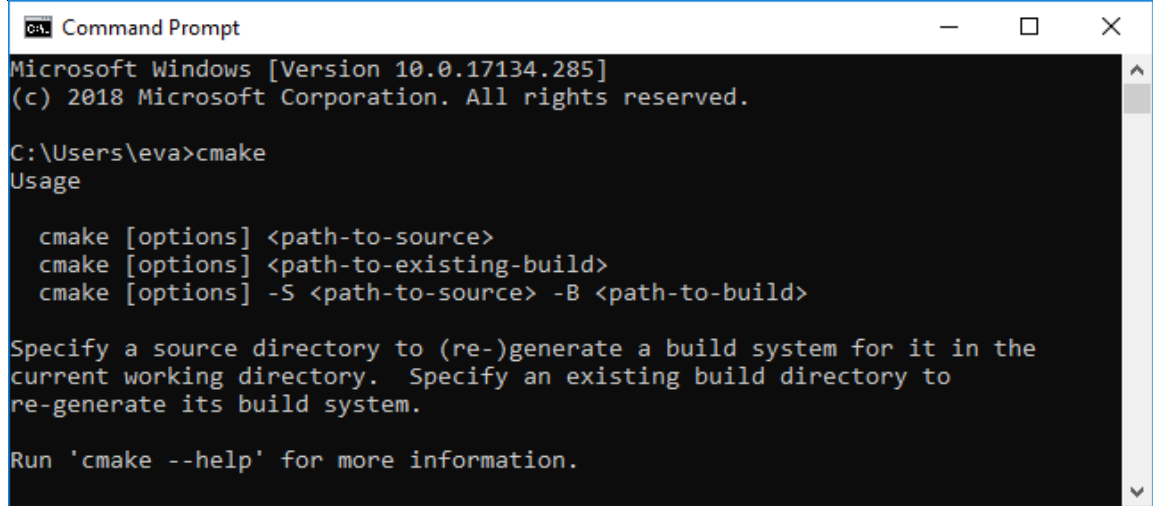


Note: Choose **Add CMake to the system PATH for all users**.



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

```
> cmake
```



```
Microsoft Windows [Version 10.0.17134.285]
(c) 2018 Microsoft Corporation. All rights reserved.

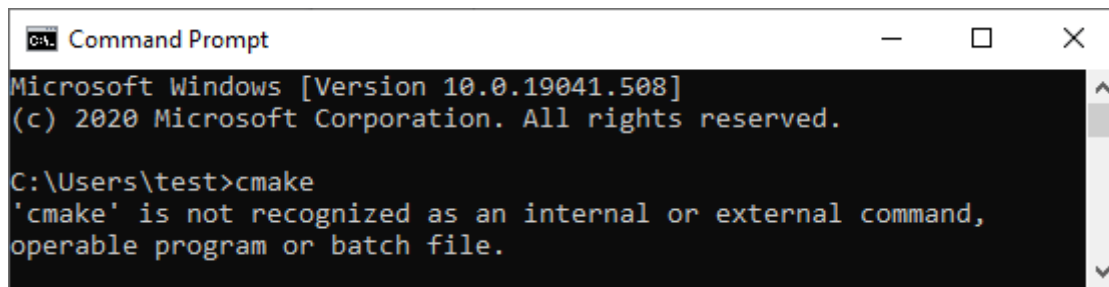
C:\Users\eva>cmake
Usage

  cmake [options] <path-to-source>
  cmake [options] <path-to-existing-build>
  cmake [options] -S <path-to-source> -B <path-to-build>

Specify a source directory to (re-)generate a build system for it in the
current working directory. Specify an existing build directory to
re-generate its build system.

Run 'cmake --help' 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 [Set Windows Environment Variables](#).



```
Microsoft Windows [Version 10.0.19041.508]
(c) 2020 Microsoft Corporation. All rights reserved.

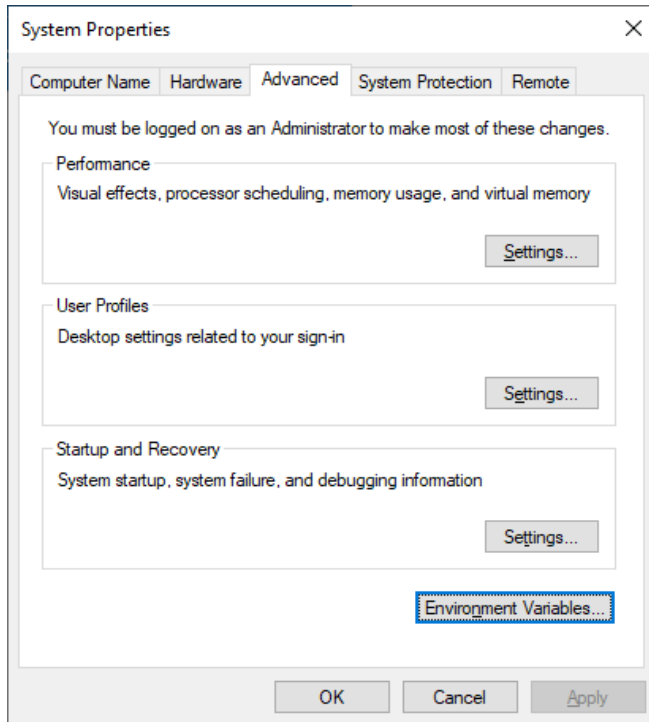
C:\Users\test>cmake
'cmake' is not recognized as an internal or external command,
operable program or batch file.
```

3.5 Set Windows Environment Variables

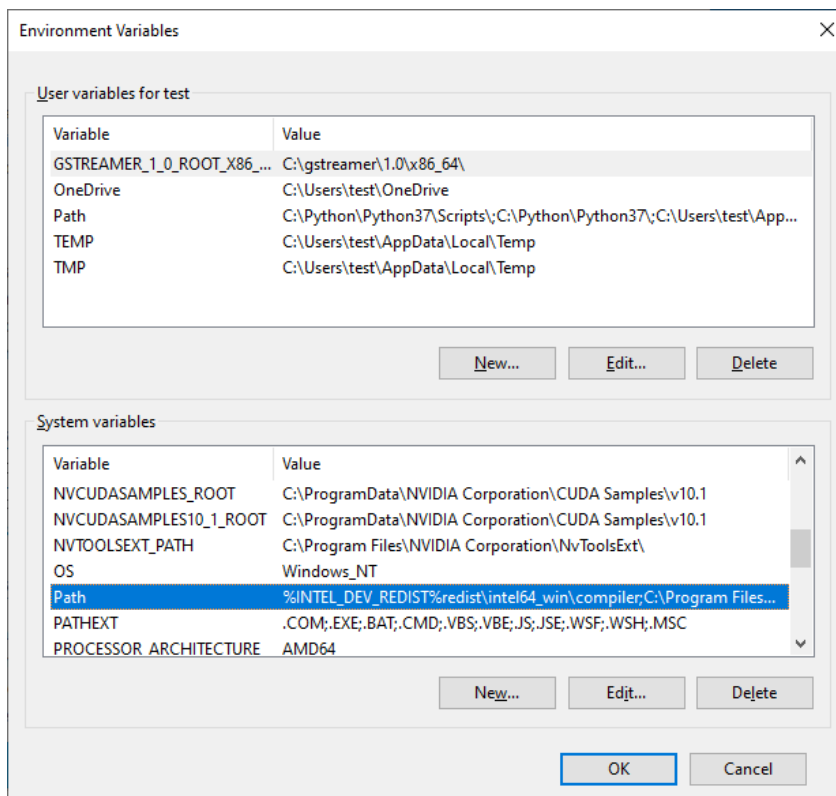
This section describes how to manually set the Windows environment.

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>**.



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



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\- The Python script tool (such as pip3) default path is C:\Users\- 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 [Uninstall Previous Software](#).

4.2 Installing NVIDIA Driver

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

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:

Product Series:

Product:

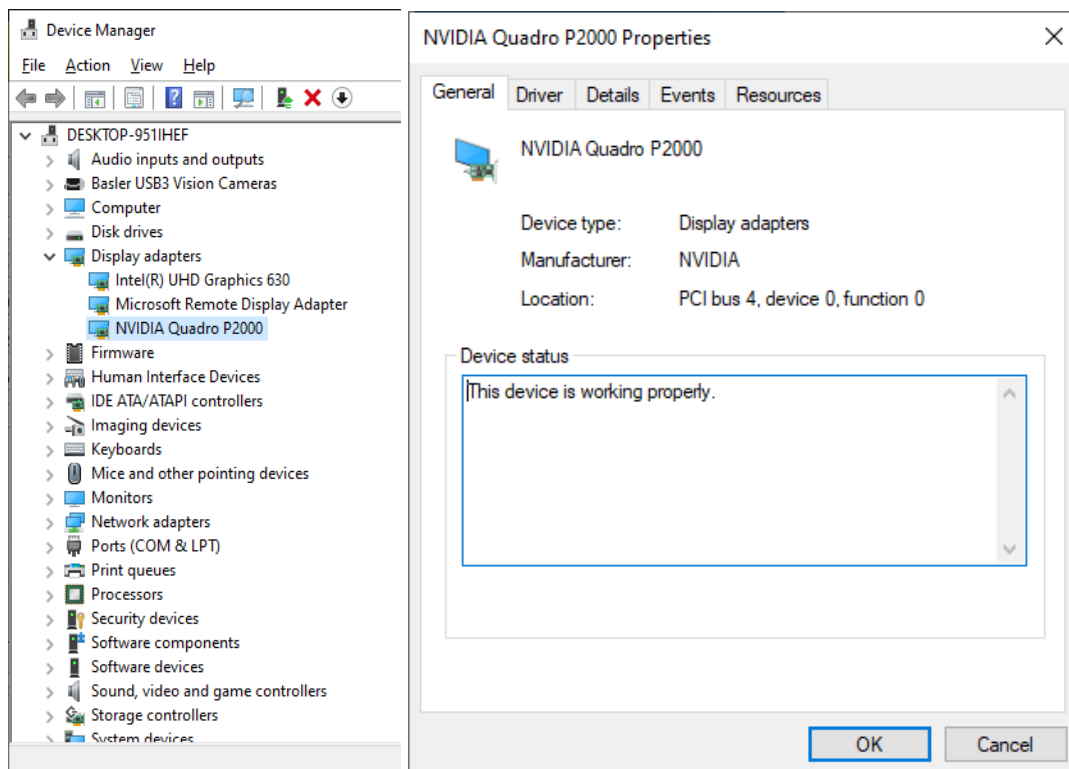
Operating System:

Download Type:

Language:

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

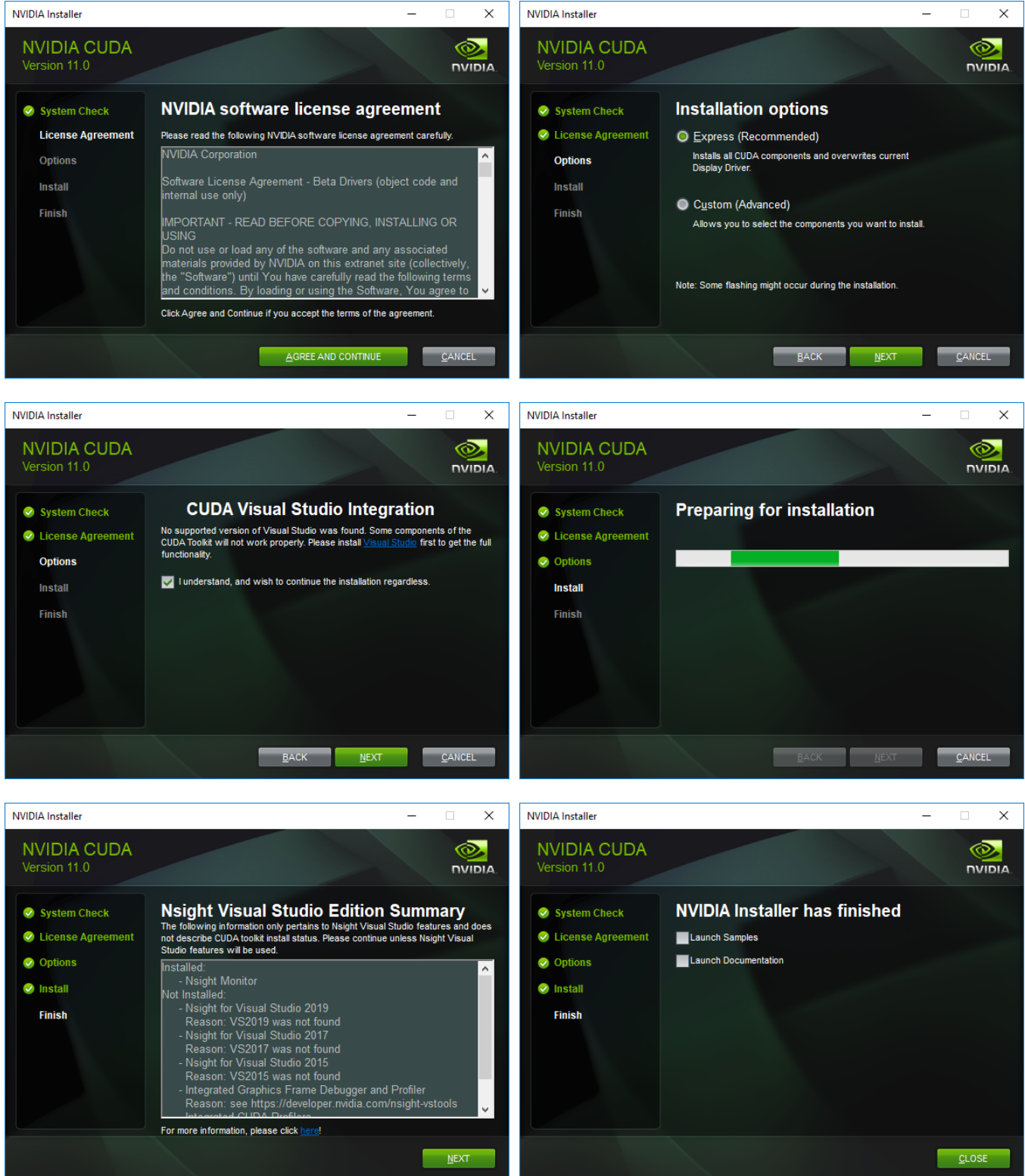
After downloading, run the driver installer and follow the screen prompts to install the driver. It is recommended to reboot after installation to ensure the normal operation of the driver. After rebooting, open Device Manager, click **Display adapters**, and check that the NVIDIA device is working properly.



4.3 Installing CUDA Toolkit

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

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



4.4 Installing cuDNN

Download cuDNN v8.0.5 from https://developer.nvidia.com/compute/machine-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 NVIDIA cuDNN documentation for more information:

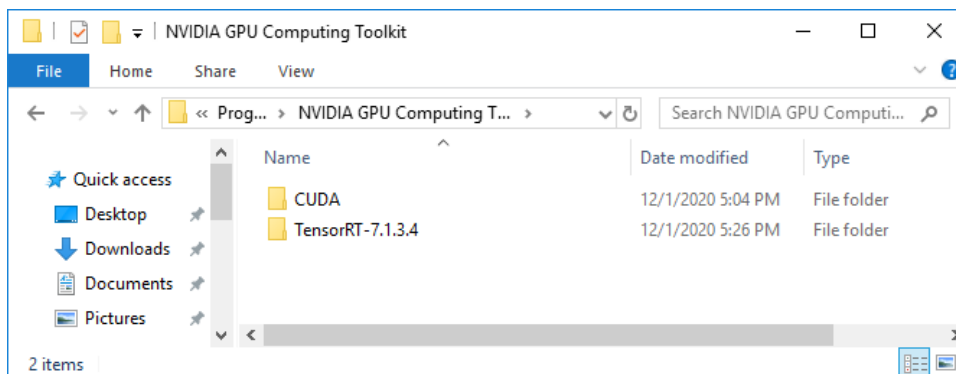
<https://docs.nvidia.com/deeplearning/cudnn/install-guide/index.html#install-windows>.

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.

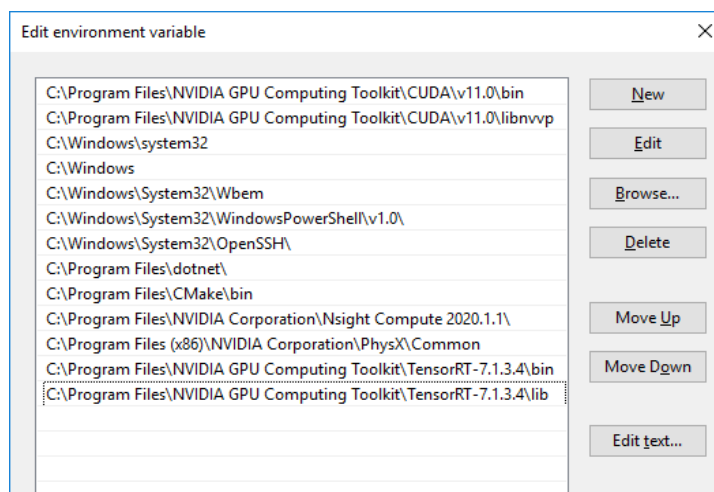
After downloading, unzip and copy the TensorRT-7.1.3.4 folder to C:\Program Files\NVIDIA GPU Computing Toolkit.



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

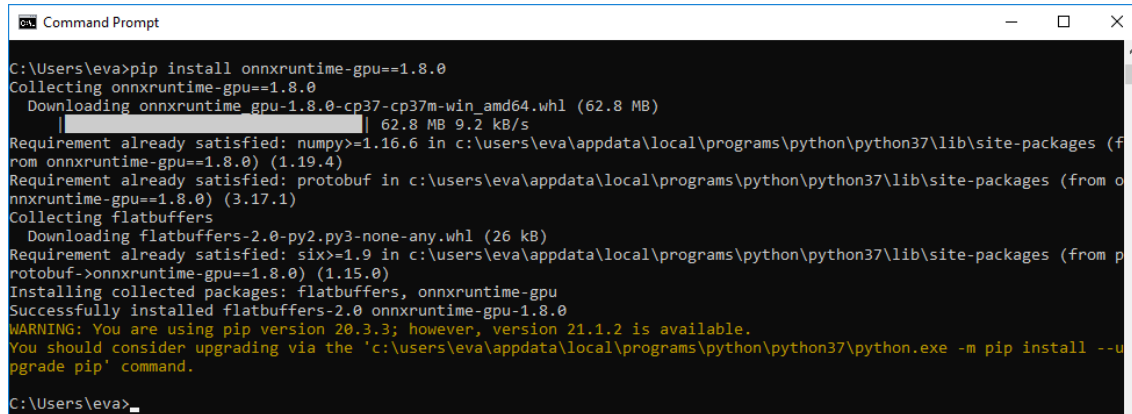
For the instructions to add the system environment, refer to [Set Windows Environment Variables](#).



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)  
    |#####| 62.8 MB 9.2 kB/s  
Requirement already satisfied: numpy>=1.16.6 in c:\users\eva\appdata\local\programs\python\python37\lib\site-packages (from onnxruntime-gpu==1.8.0) (1.19.4)  
Requirement already satisfied: protobuf in c:\users\eva\appdata\local\programs\python\python37\lib\site-packages (from onnxruntime-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-packages (from protobuf->onnxruntime-gpu==1.8.0) (1.15.0)  
Installing collected packages: flatbuffers, onnxruntime-gpu  
Successfully installed flatbuffers-2.0 onnxruntime-gpu-1.8.0  
WARNING: You are using pip version 20.3.3; however, version 21.1.2 is available.  
You should consider upgrading via the 'c:\users\eva\appdata\local\programs\python\python37\python.exe -m pip install --upgrade 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 [Uninstall Previous Software](#).

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.openvintoolkit.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

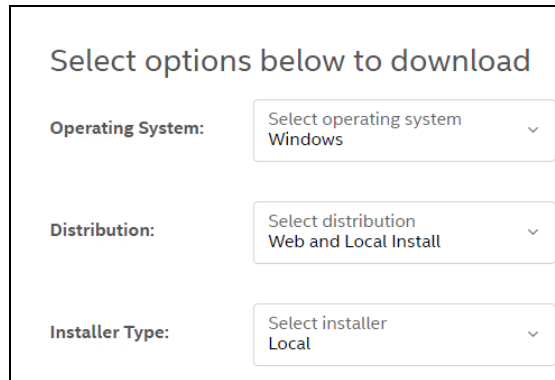
See [Installing Required Dependencies](#) for more information.

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

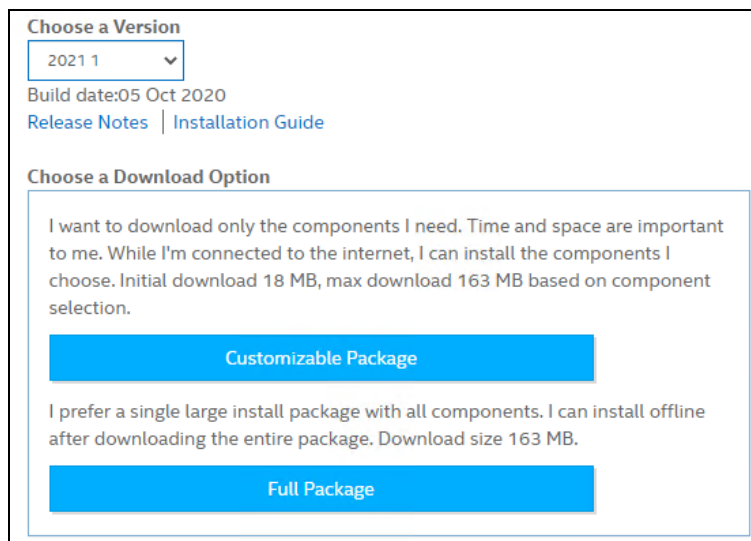
Operating System:

Distribution:

Installer Type:

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**.



Choose a Version

Build date: 05 Oct 2020

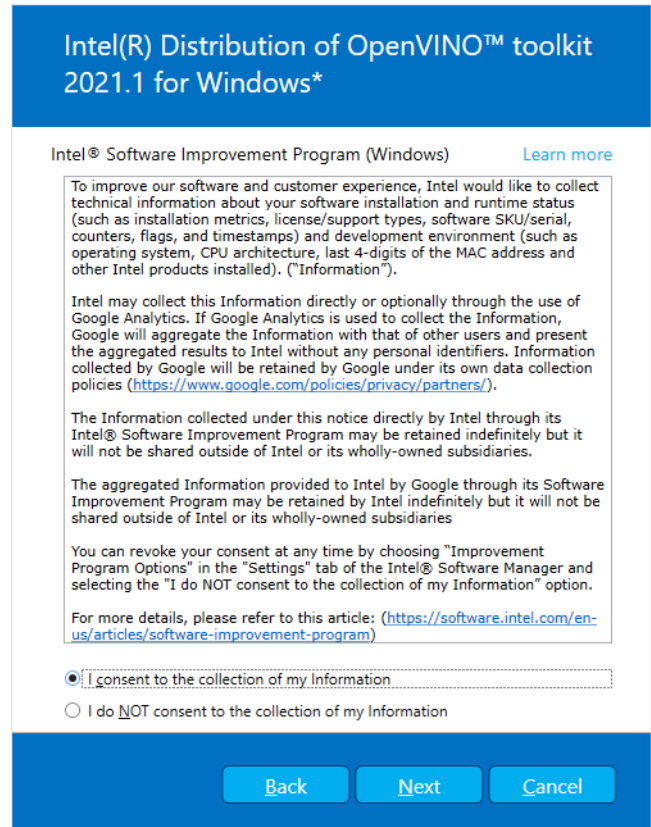
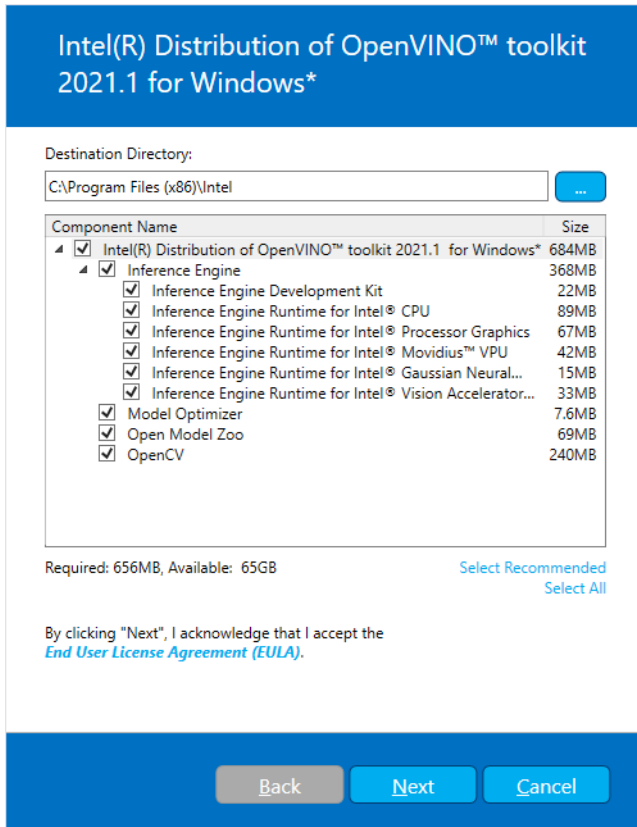
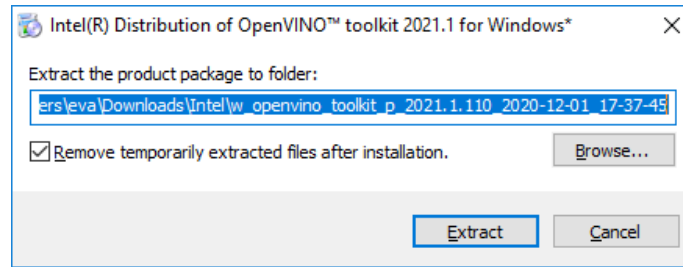
[Release Notes](#) | [Installation Guide](#)

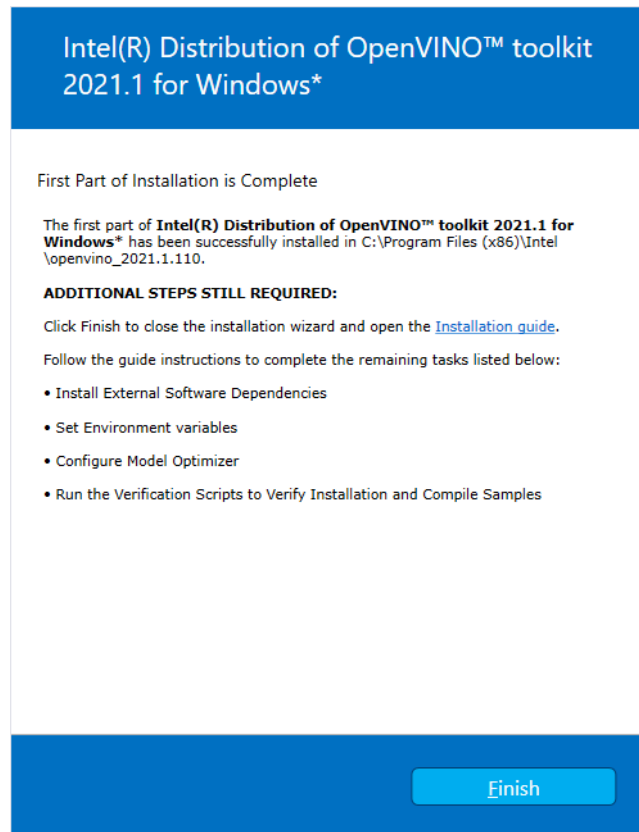
Choose a Download Option

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.

I prefer a single large install package with all components. I can install offline after downloading the entire package. Download size 163 MB.

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





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:

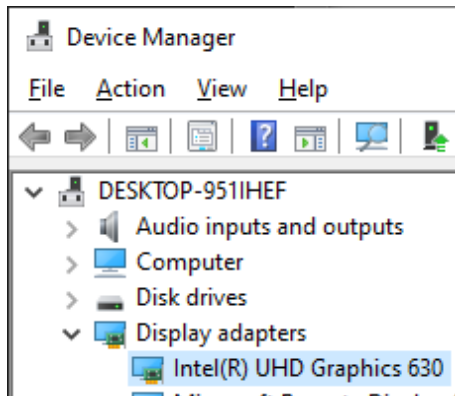
- OpenVINO toolkit environment variables are removed when the command prompt window is closed.
- If the Intel® Distribution of OpenVINO™ was not installed to the default install directory, replace C:\Program Files (x86)\Intel with the directory where it is installed.

5.2.4 Optional Steps for Intel® Processor Graphics (GPU)

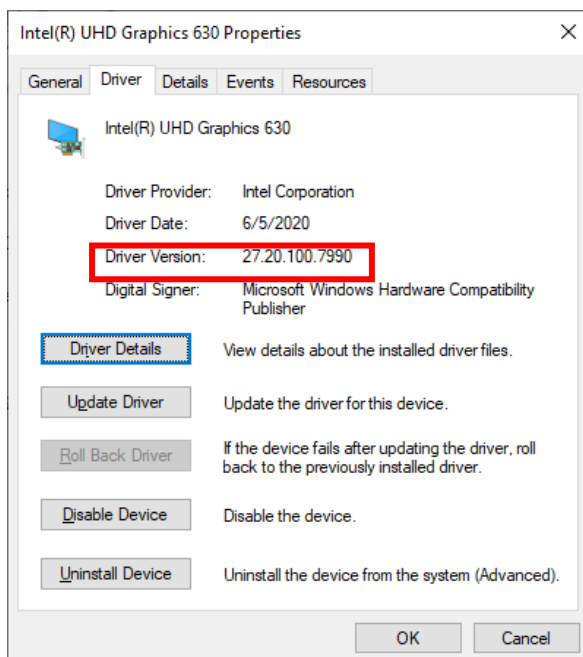
The steps in this section are required only if you want to use processor graphics (GPU) on your system.

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.



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>.

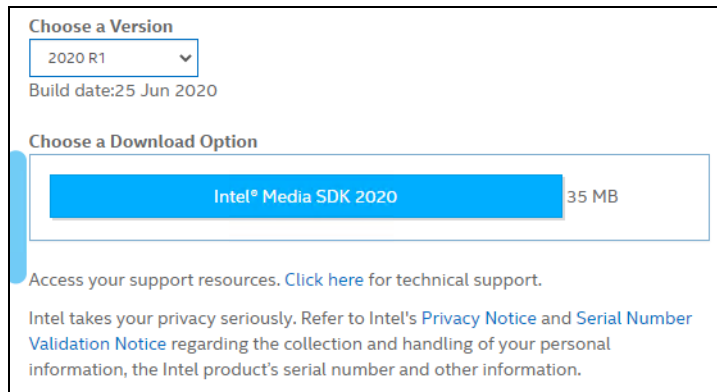
5.3 Installing the Intel Media SDK for Gstreamer (Optional)

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

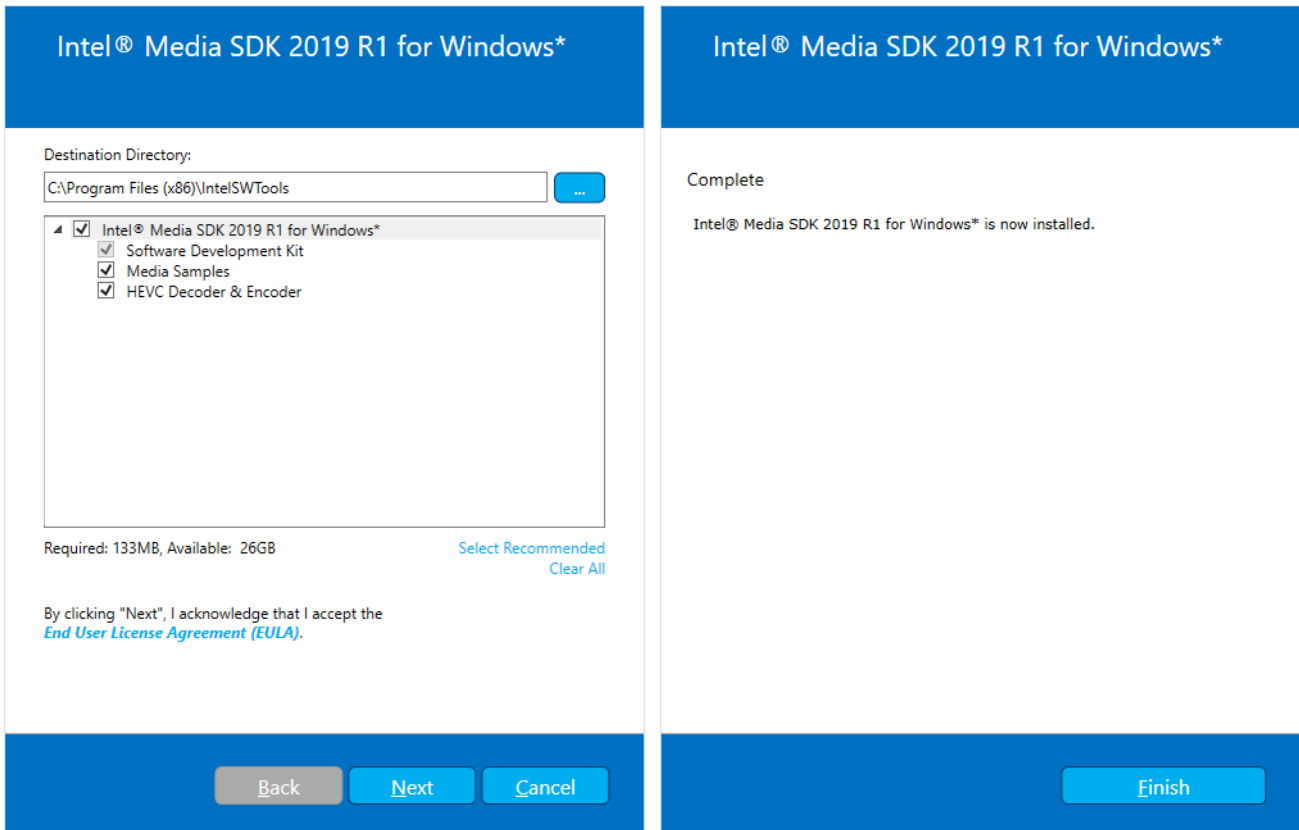
1. Intel® OpenVINO Toolkit (see [Installing the OpenVINO Toolkit](#))
2. Intel® Media SDK (this section)
3. GStreamer (see [Installing GStreamer on Windows](#))
4. MSDK GStreamer plugin (see [Install Third-party Plugins](#))

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

1. Download the Intel® Media SDK for Windows from <https://software.intel.com/content/www/us/en/develop/tools/media-sdk/choose-download/client.html>.
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**.



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



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 [Uninstall Previous Software](#).

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: <https://www.baslerweb.com/en/sales-support/downloads/software-downloads/>.

The recommended software versions are:

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

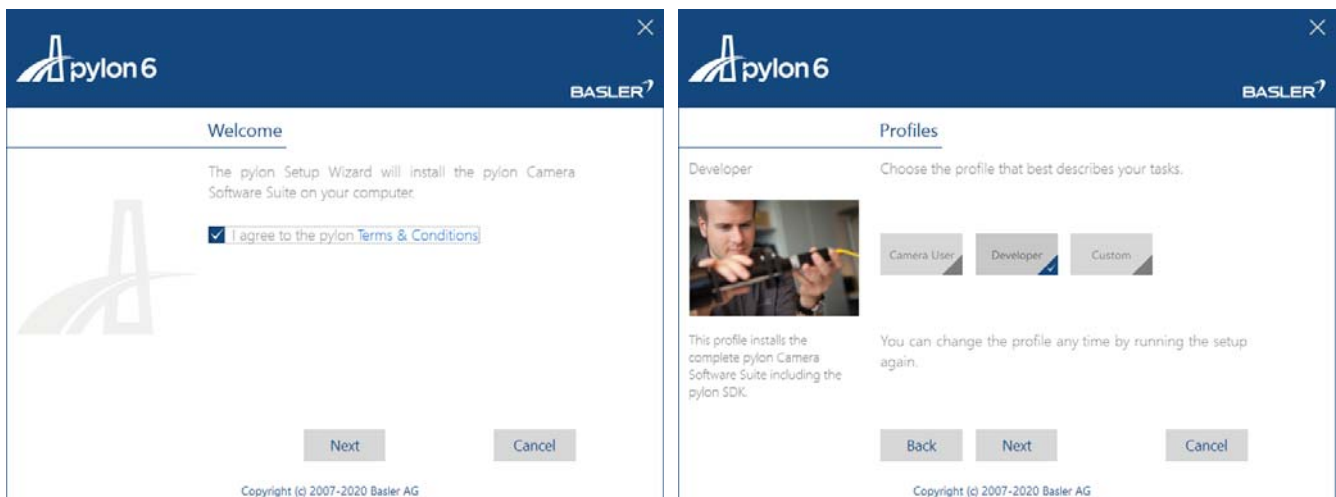
Alternately, use the link: <https://www.baslerweb.com/en/sales-support/downloads/software-downloads/#type=pylonsoftware;language=all;version=6.1.1;os=windows64bit>

Choose **Camera Software Suite Windows**.

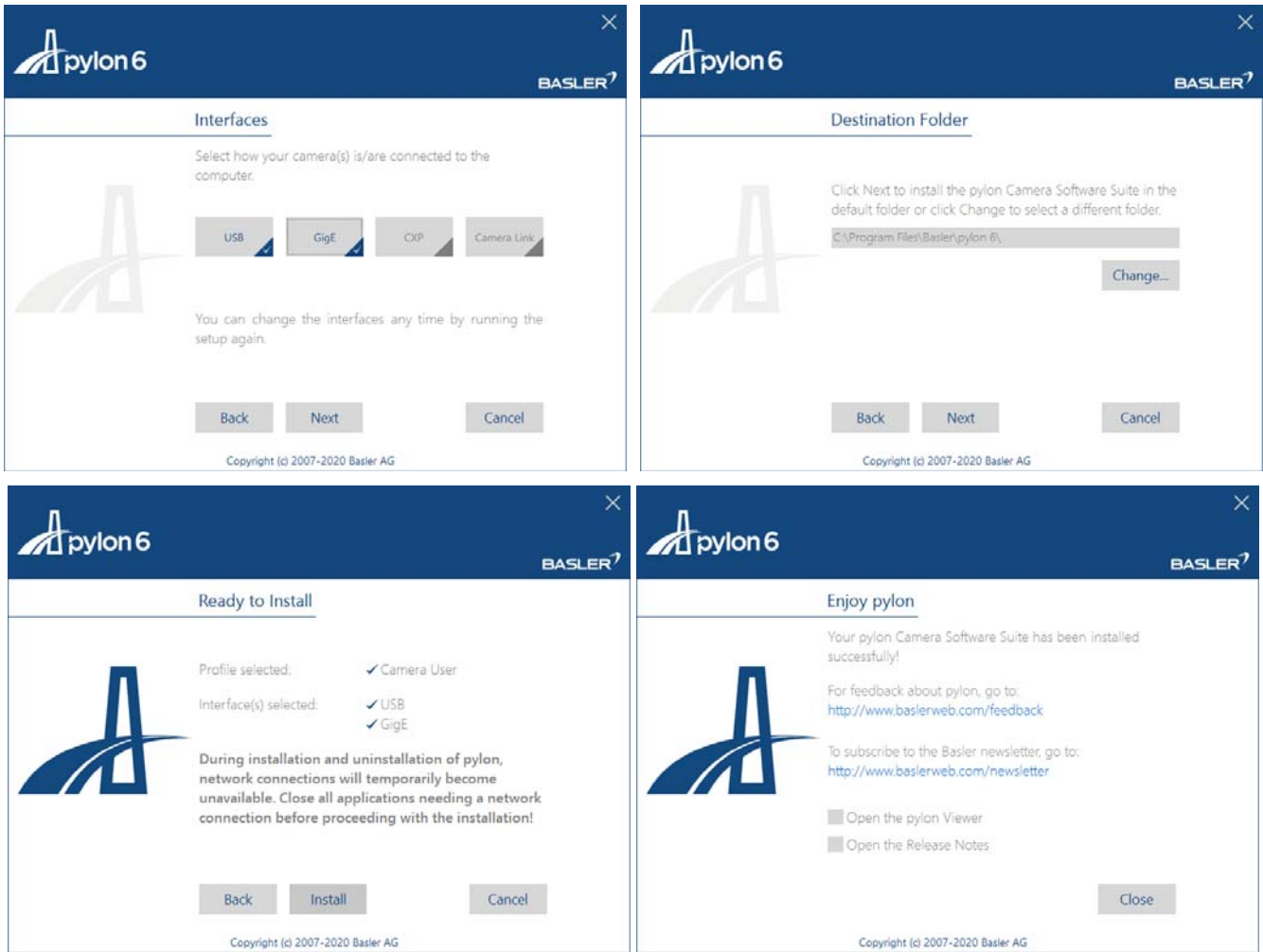
After downloading, run the camera software suite installer.

Follow the screen prompts to install the software.

On the Profiles page, choose **Developer**.



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

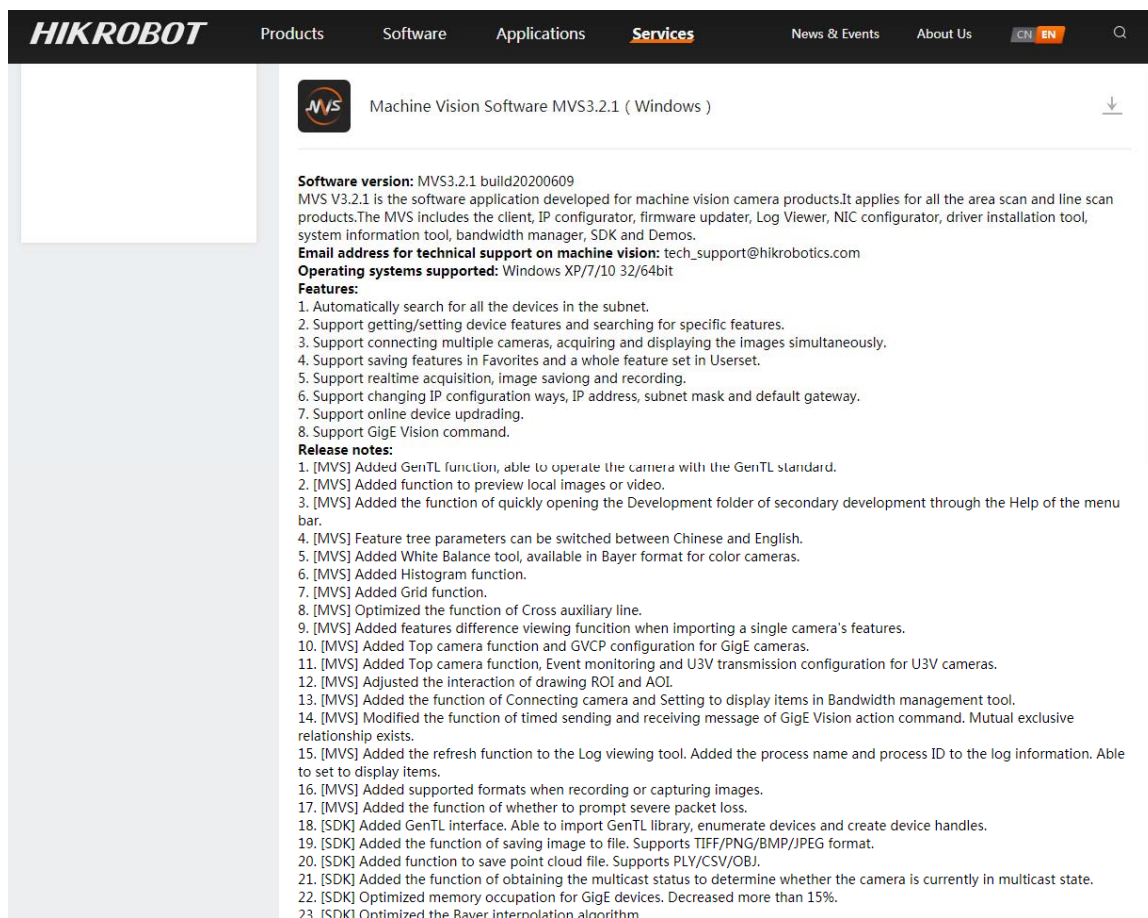
Uninstall all previous versions of MVS from the system. For more details, refer to [Ch. 2: Uninstall Previous Software](#).

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:

<https://en.hikrobotics.com/machinevision/service/download?module=0>



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MVS Machine Vision Software MVS3.2.1 (Windows)

Software version: MVS3.2.1 build20200609
 MVS V3.2.1 is the software application developed for machine vision camera products.It applies for all the area scan and line scan products.The MVS includes the client, IP configurator, firmware updater, Log Viewer, NIC configurator, driver installation tool, system information tool, bandwidth manager, SDK and Demos.

Email address for technical support on machine vision: tech_support@hikrobotics.com

Operating systems supported: Windows XP/7/10 32/64bit

Features:

1. Automatically search for all the devices in the subnet.
2. Support getting/setting device features and searching for specific features.
3. Support connecting multiple cameras, acquiring and displaying the images simultaneously.
4. Support saving features in Favorites and a whole feature set in Userset.
5. Support realtime acquisition, image saving and recording.
6. Support changing IP configuration ways, IP address, subnet mask and default gateway.
7. Support online device upgrading.
8. Support GigE Vision command.

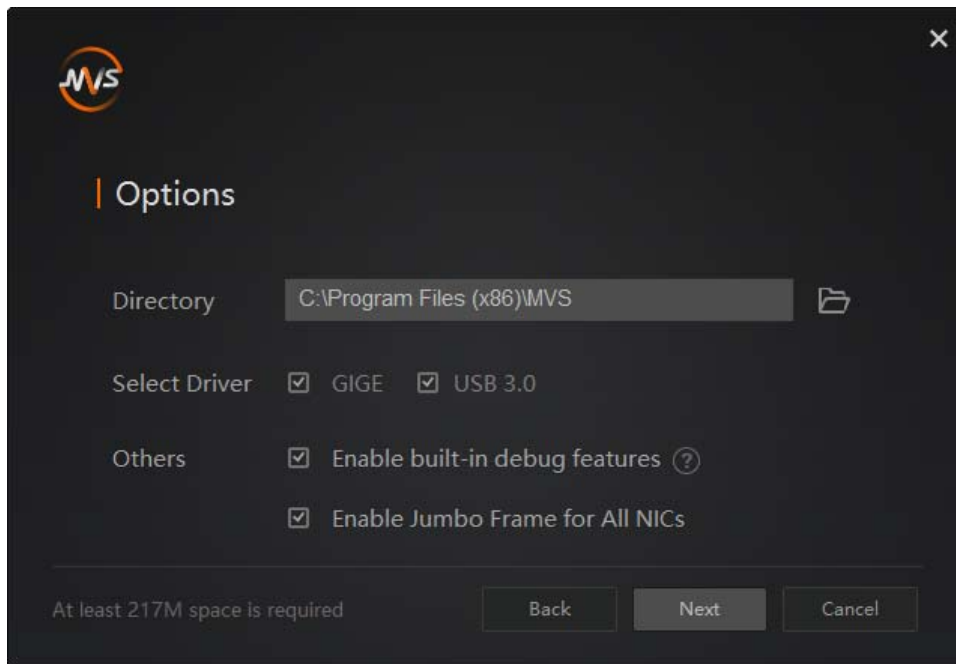
Release notes:

1. [MVS] Added GenTL function, able to operate the camera with the GenTL standard.
2. [MVS] Added function to preview local images or video.
3. [MVS] Added the function of quickly opening the Development folder of secondary development through the Help of the menu bar.
4. [MVS] Feature tree parameters can be switched between Chinese and English.
5. [MVS] Added White Balance tool, available in Bayer format for color cameras.
6. [MVS] Added Histogram function.
7. [MVS] Added Grid function.
8. [MVS] Optimized the function of Cross auxiliary line.
9. [MVS] Added features difference viewing function when importing a single camera's features.
10. [MVS] Added Top camera function and GVCP configuration for GigE cameras.
11. [MVS] Added Top camera function, Event monitoring and U3V transmission configuration for U3V cameras.
12. [MVS] Adjusted the interaction of drawing ROI and AOI.
13. [MVS] Added the function of Connecting camera and Setting to display items in Bandwidth management tool.
14. [MVS] Modified the function of timed sending and receiving message of GigE Vision action command. Mutual exclusive relationship exists.
15. [MVS] Added the refresh function to the Log viewing tool. Added the process name and process ID to the log information. Able to set to display items.
16. [MVS] Added supported formats when recording or capturing images.
17. [MVS] Added the function of whether to prompt severe packet loss.
18. [SDK] Added GenTL interface. Able to import GenTL library, enumerate devices and create device handles.
19. [SDK] Added the function of saving image to file. Supports TIFF/PNG/BMP/JPEG format.
20. [SDK] Added function to save point cloud file. Supports PLY/CSV/OBJ.
21. [SDK] Added the function of obtaining the multicast status to determine whether the camera is currently in multicast state.
22. [SDK] Optimized memory occupation for GigE devices. Decreased more than 15%.
23. [SDK] Optimized the Bayer interpolation algorithm.

The recommended software versions are:

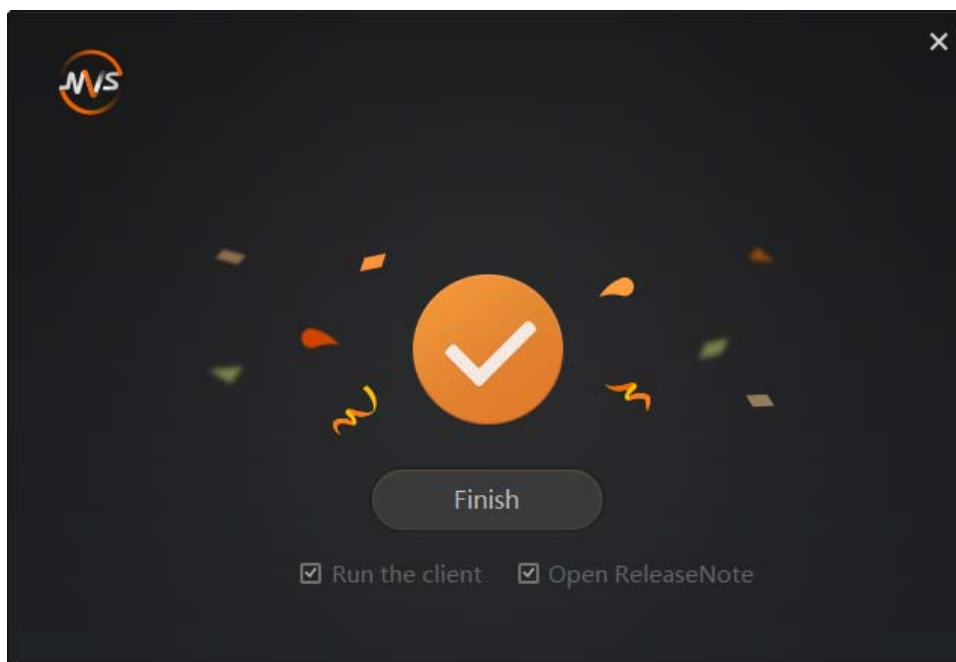
- Version: Machine Vision Software MVS3.2.1 (Windows)
- Operating System: Windows 64-bit

Launch the downloaded installer.



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.

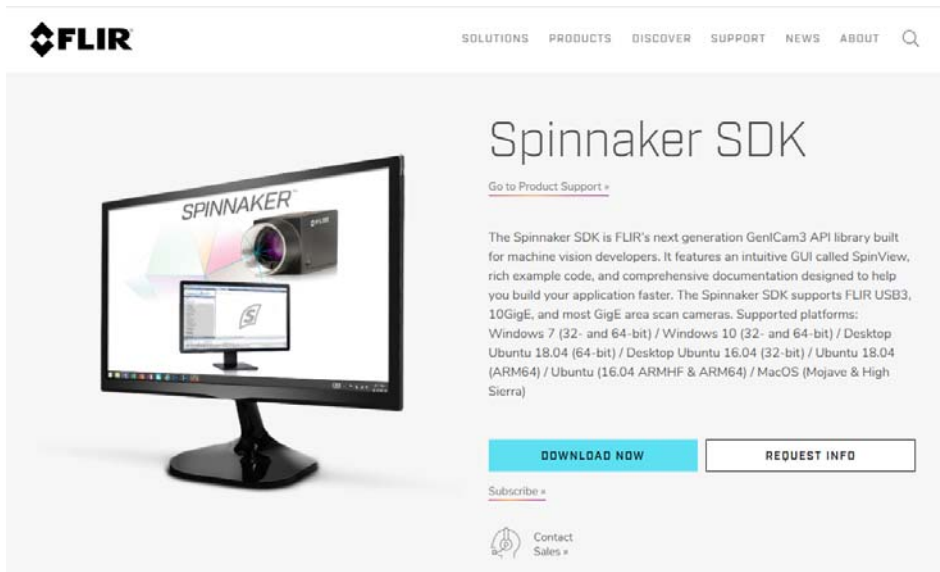
8.1 Uninstall Previous Versions

Uninstall all previous versions of Spinnaker SDK from the system. For more details, refer to [Uninstall Previous Software](#).

8.2 Install FLIR Spinnaker Software

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

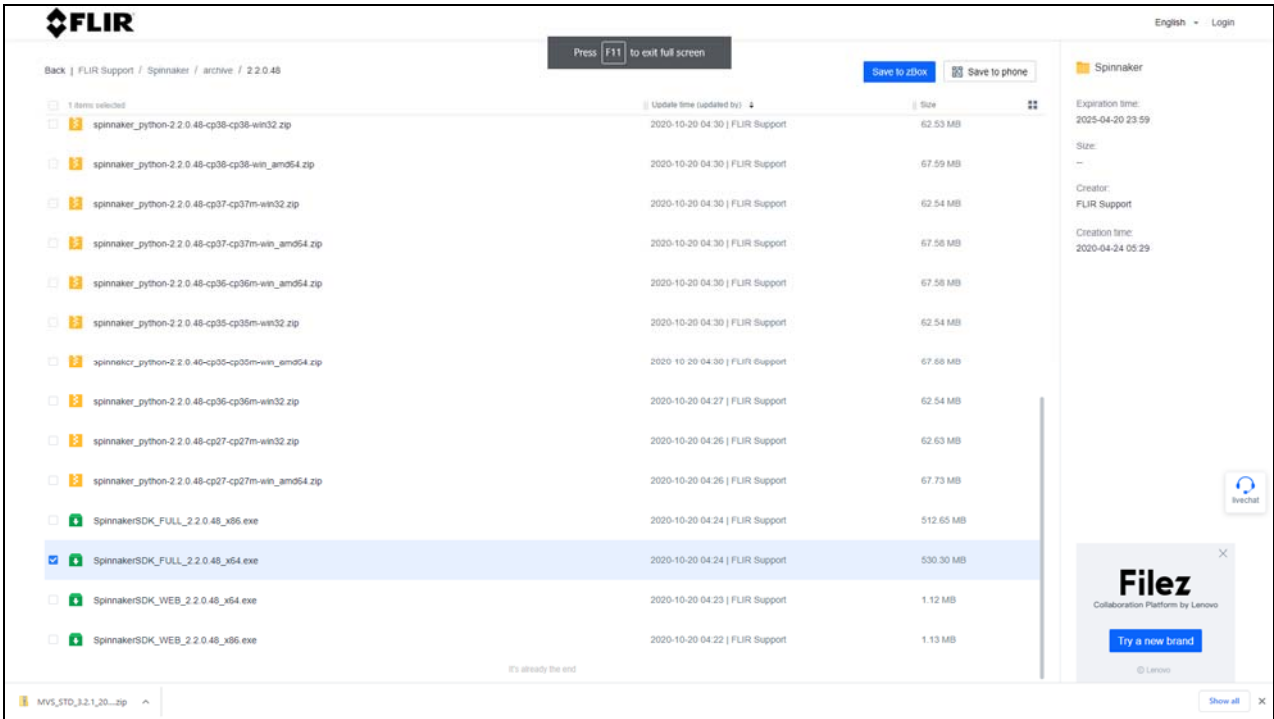
Download FLIR Spinnaker installer from <https://www.flir.asia/products/spinnaker-sdk/>



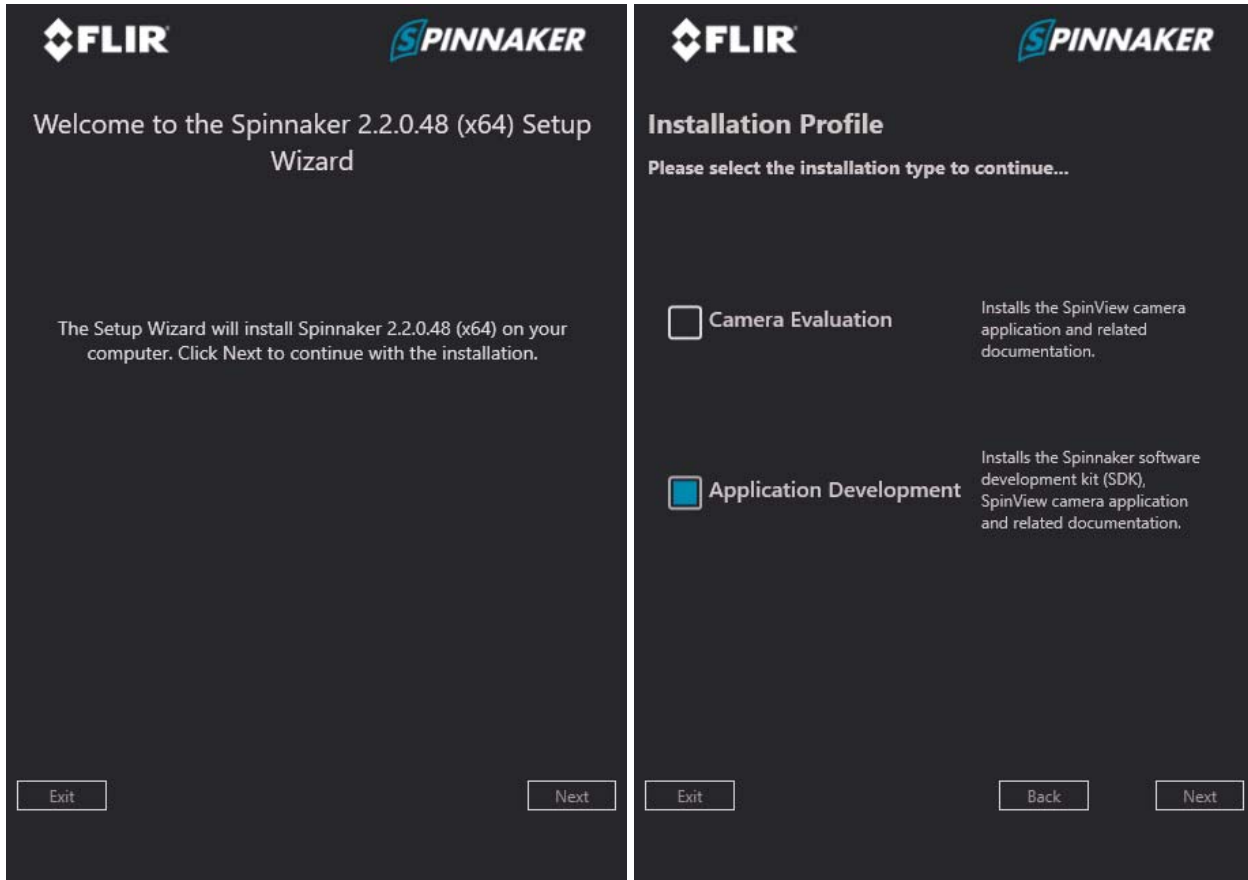
The recommended software versions are:

- 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



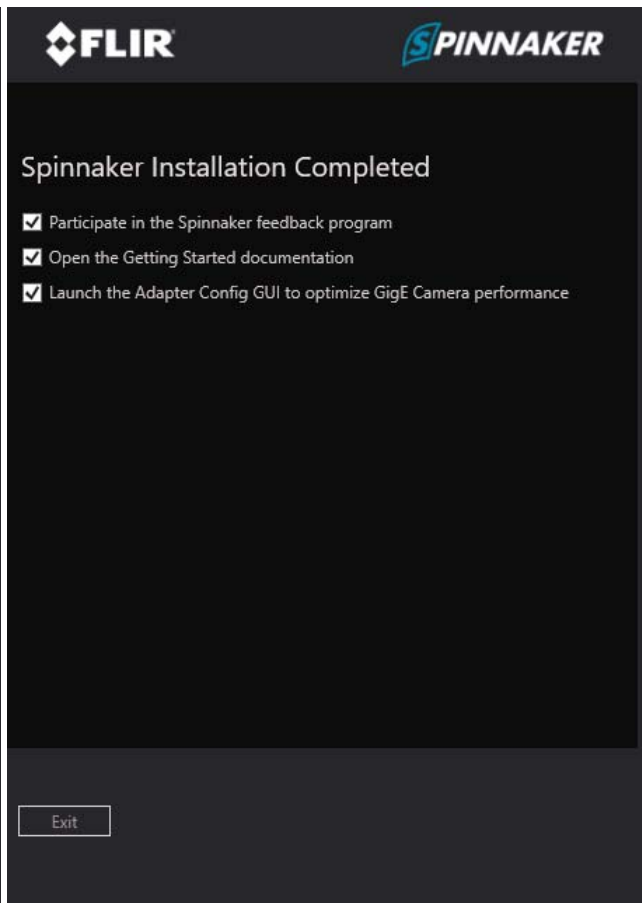
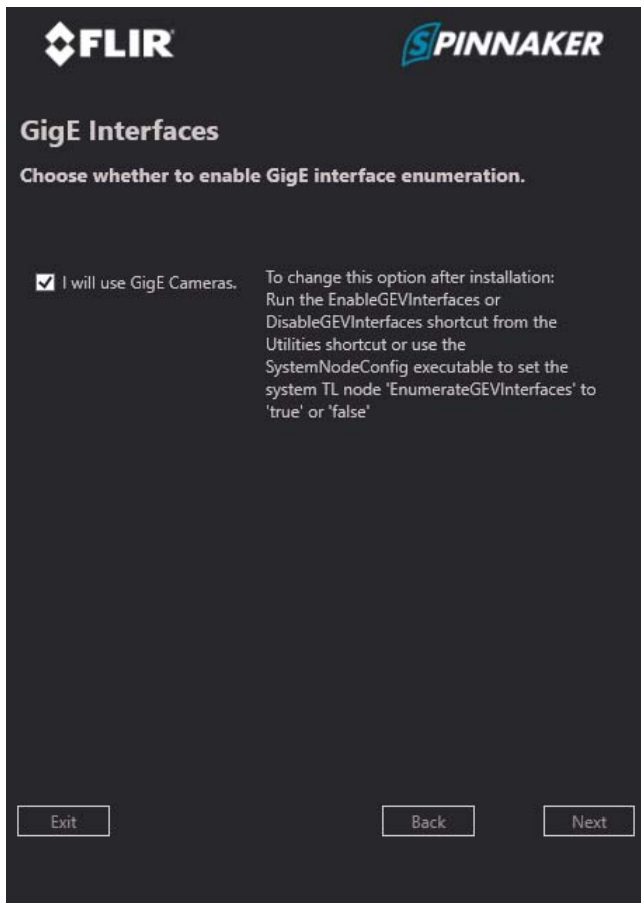
Launch the download installer. In the Profiles page, choose **Application Development**.



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



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 [Uninstall Previous Software](#).

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*
```

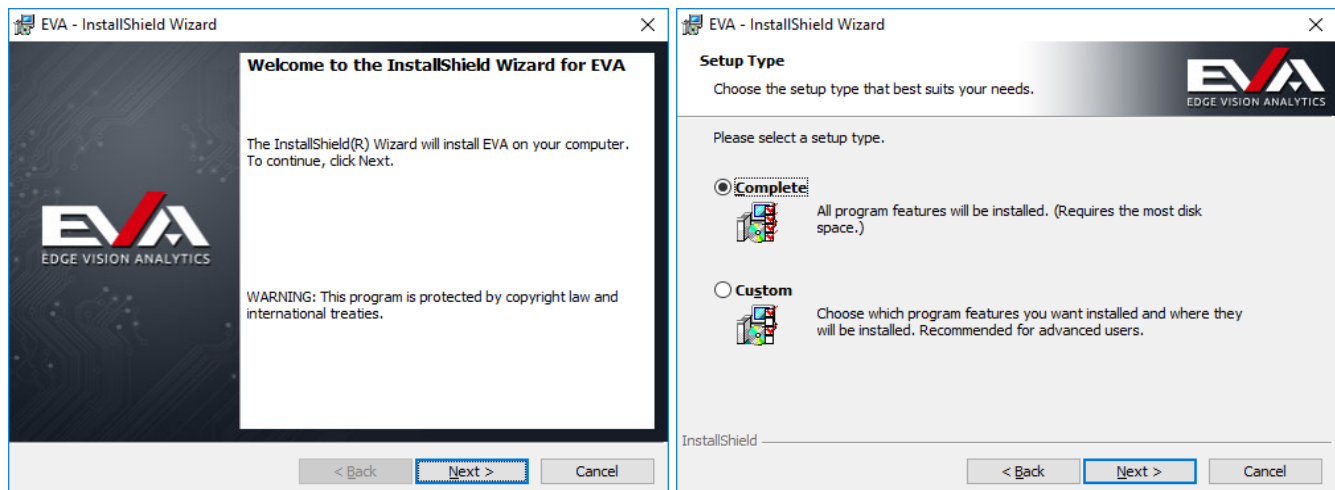
- remove nvdec and nvenc plugins

```
> 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 [Installation Process for NVIDIA Solution](#) 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 <CTRL> + <C> 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

Ask an Expert: <http://askanexpert.adlinktech.com>

ADLINK Technology, Inc.

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New Taipei City 235, Taiwan
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Fax: +886-2-8226-5717
Email: service@adlinktech.com

Ampro ADLINK Technology, Inc.

Address: 5215 Hellyer Avenue, #110, San Jose, CA 95138, USA
Tel: +1-408-360-0200
Toll Free: +1-800-966-5200 (USA only)
Fax: +1-408-360-0222
Email: info@adlinktech.com

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Email: market@adlinktech.com

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Tel: +49-621-43214-0
Fax: +49-621 43214-30
Email: germany@adlinktech.com

Please visit the Contact page at www.adlinktech.com for information on how to contact the ADLINK regional office nearest you.