



OPENVINO INSTALLATION

인텔코리아 이해영

OpenVINO 설치

1. OpenVINO를 설치해줍니다.

- OpenVINO의 완전한 설치를 위해서는 추가적으로

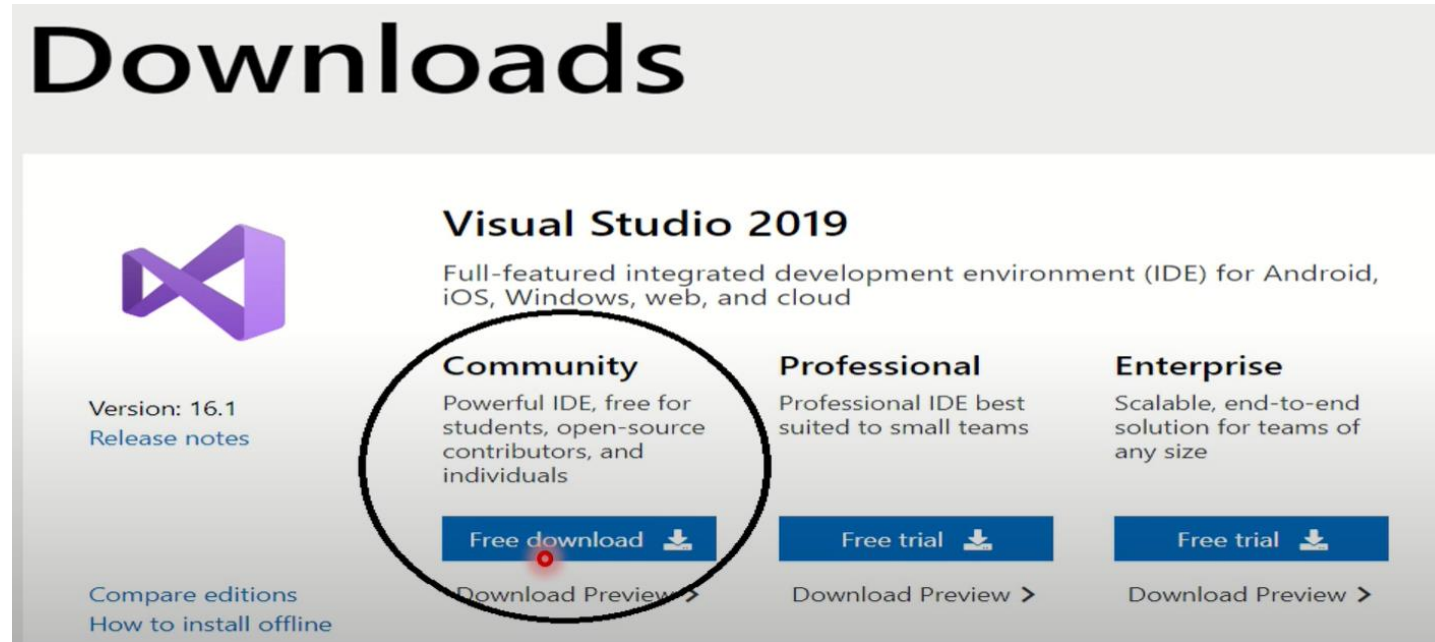
- **Microsoft Visual Studio with C++ 2019 2017, or 2015 with MSBuild**
- **Cmake 3.4 or higher 64-bit**
- **Python 3.6.5 64-bit**

위 세가지를 설치해야합니다.

1. Microsoft Visual Studio 설치

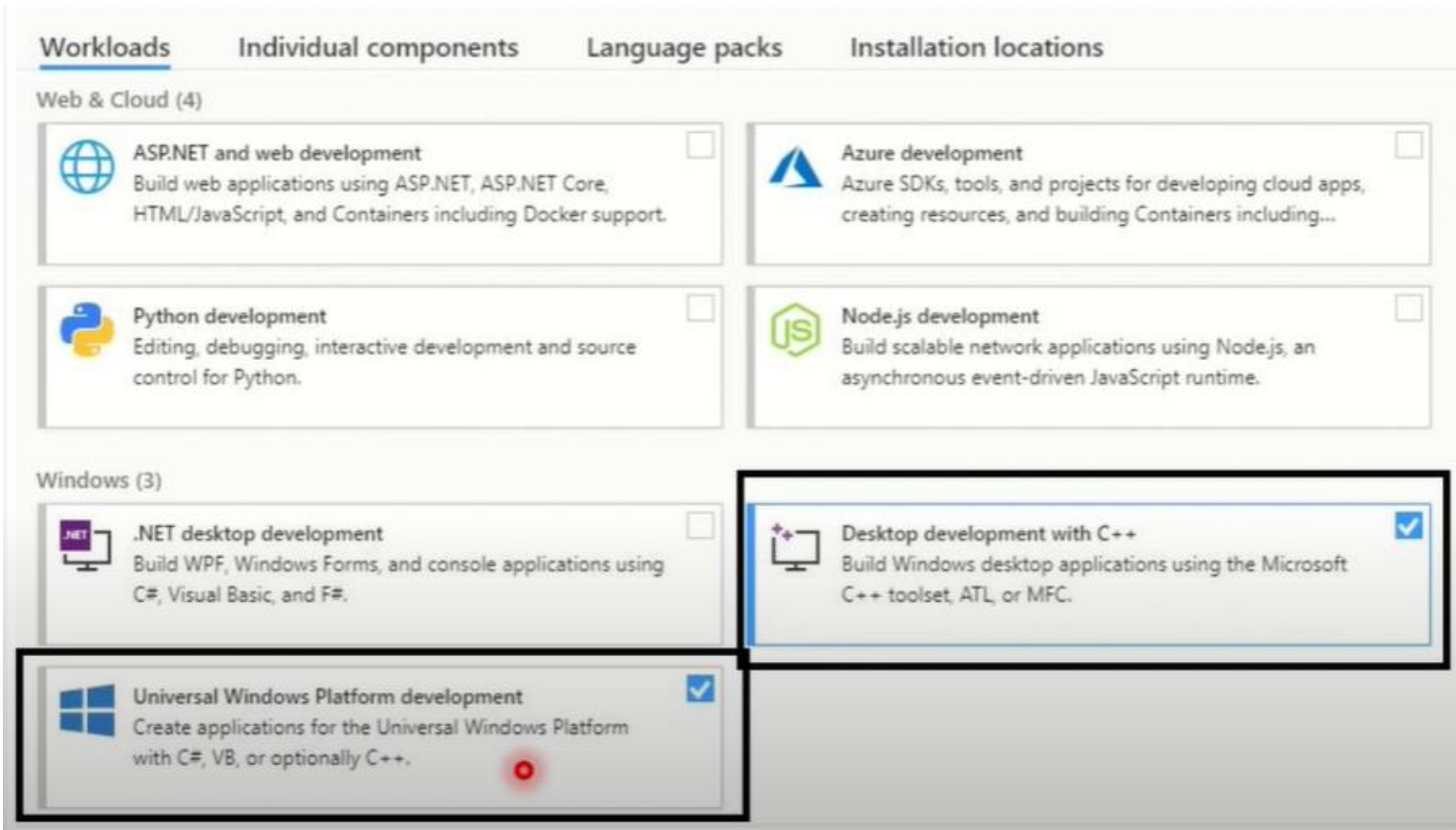
1. OpenVINO 설치를 위해서 먼저 Microsoft Visual Studio를 설치해주어야 합니다.
아래 링크에 들어가 Visual Studio 2019 버전 Community 를 다운로드 해줍니다.

<https://visualstudio.microsoft.com/ko/downloads/>



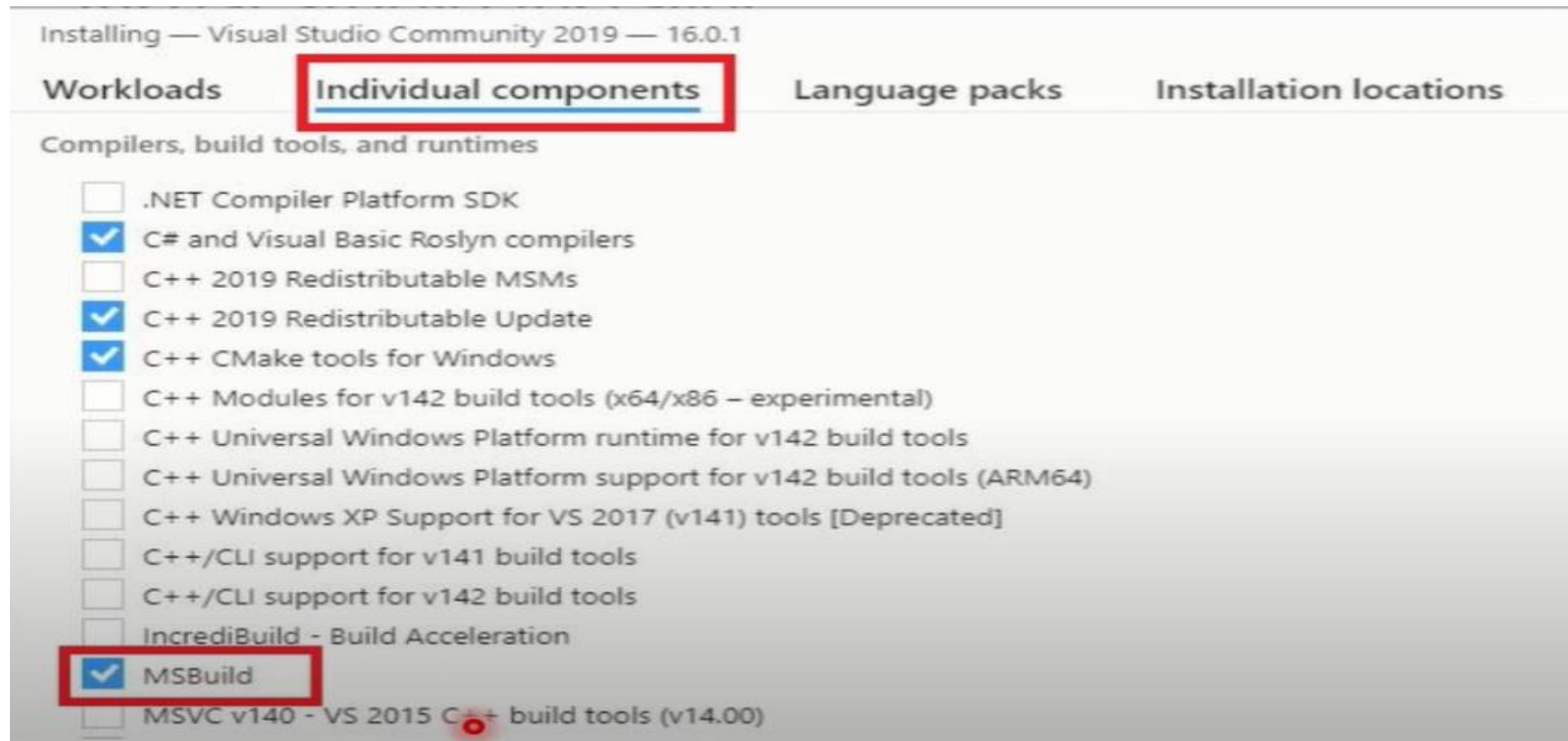
1. Microsoft Visual Studio 설치

2. Workloads 탭에서 Universal Windows Platform development, Desktop development with C++ 를 체크해줍니다.



1. Microsoft Visual Studio 설치

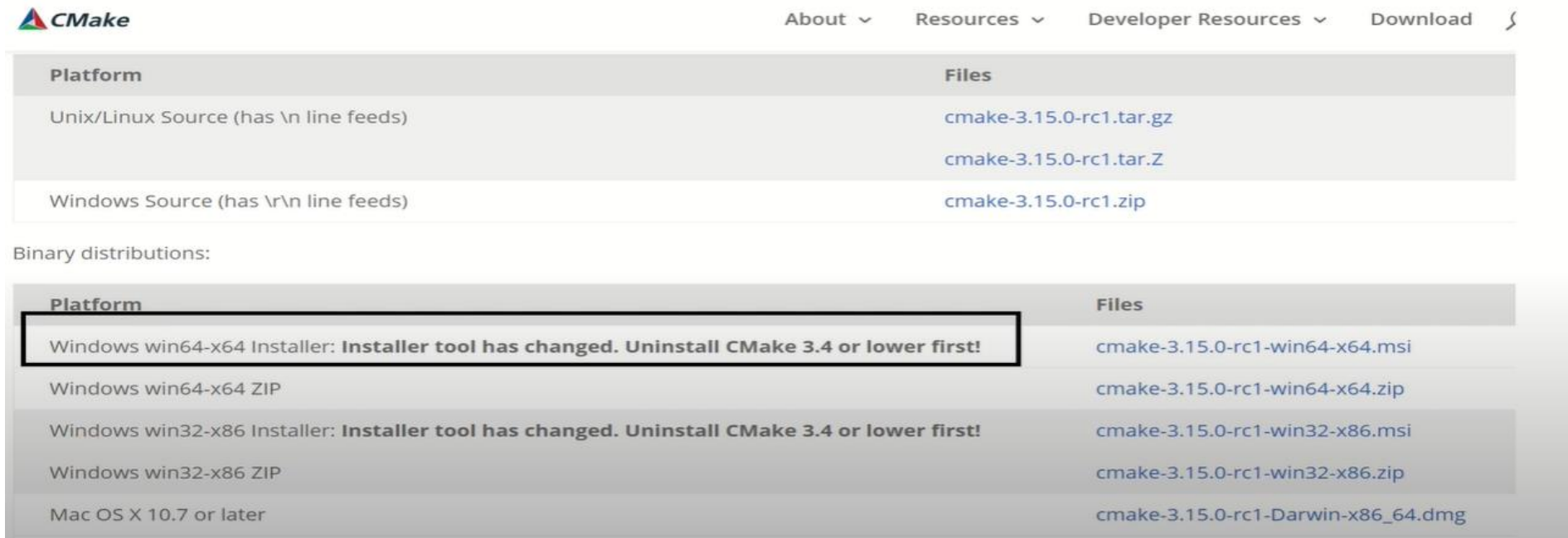
3. Individual components 탭에서 아래 내용을 체크해줍니다. (이 때 MSBuild 는 매우 중요하기 때문에 꼭 체크해줍니다.)
4. Microsoft Visual Studio Community 2019 버전을 설치완료 해줍니다.



2. CMake 설치

1. 아래 링크에 접속해 Cmake 를 설치해줍니다.

<https://cmake.org/download/>



The screenshot shows the CMake website's download page. At the top, there is a navigation bar with the CMake logo and links for 'About', 'Resources', 'Developer Resources', and 'Download'. Below the navigation bar, there is a table with two columns: 'Platform' and 'Files'. The table lists three platforms: 'Unix/Linux Source (has \n line feeds)', 'Windows Source (has \r\n line feeds)', and 'Mac OS X 10.7 or later'. The 'Files' column lists the corresponding download links for each platform. Below this table, there is a section titled 'Binary distributions:' which contains another table with two columns: 'Platform' and 'Files'. This table lists five platforms: 'Windows win64-x64 Installer: Installer tool has changed. Uninstall CMake 3.4 or lower first!', 'Windows win64-x64 ZIP', 'Windows win32-x86 Installer: Installer tool has changed. Uninstall CMake 3.4 or lower first!', 'Windows win32-x86 ZIP', and 'Mac OS X 10.7 or later'. The 'Files' column lists the corresponding download links for each platform. The first row of the 'Binary distributions:' table is highlighted with a black border.

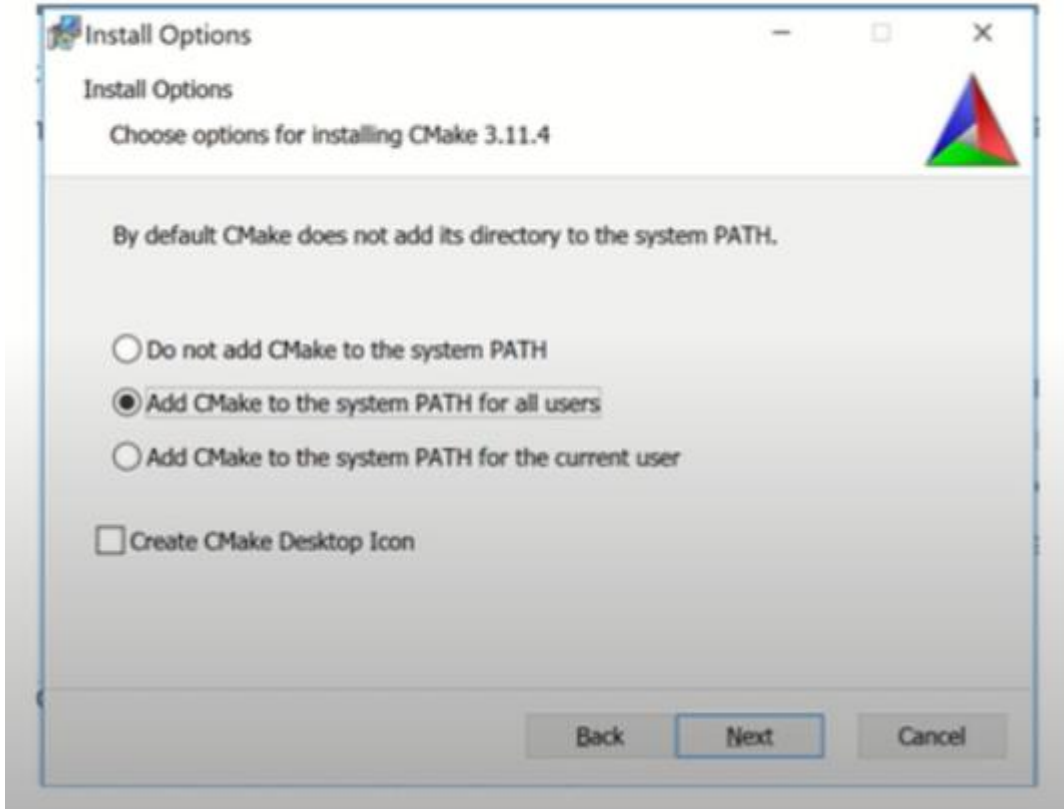
Platform	Files
Unix/Linux Source (has \n line feeds)	cmake-3.15.0-rc1.tar.gz cmake-3.15.0-rc1.tar.Z
Windows Source (has \r\n line feeds)	cmake-3.15.0-rc1.zip

Binary distributions:

Platform	Files
Windows win64-x64 Installer: Installer tool has changed. Uninstall CMake 3.4 or lower first!	cmake-3.15.0-rc1-win64-x64.msi
Windows win64-x64 ZIP	cmake-3.15.0-rc1-win64-x64.zip
Windows win32-x86 Installer: Installer tool has changed. Uninstall CMake 3.4 or lower first!	cmake-3.15.0-rc1-win32-x86.msi
Windows win32-x86 ZIP	cmake-3.15.0-rc1-win32-x86.zip
Mac OS X 10.7 or later	cmake-3.15.0-rc1-Darwin-x86_64.dmg

2. CMake 설치

2. Add PATH를 아래와 같이 설정해주고 CMake 설치를 완료해줍니다.



3. Python 설치

1. 아래 링크에 접속해 Python 을 설치해줍니다.
(버전은 꼭 3.6.5 이어야 하고 아래 64비트로 설치해줍니다.)

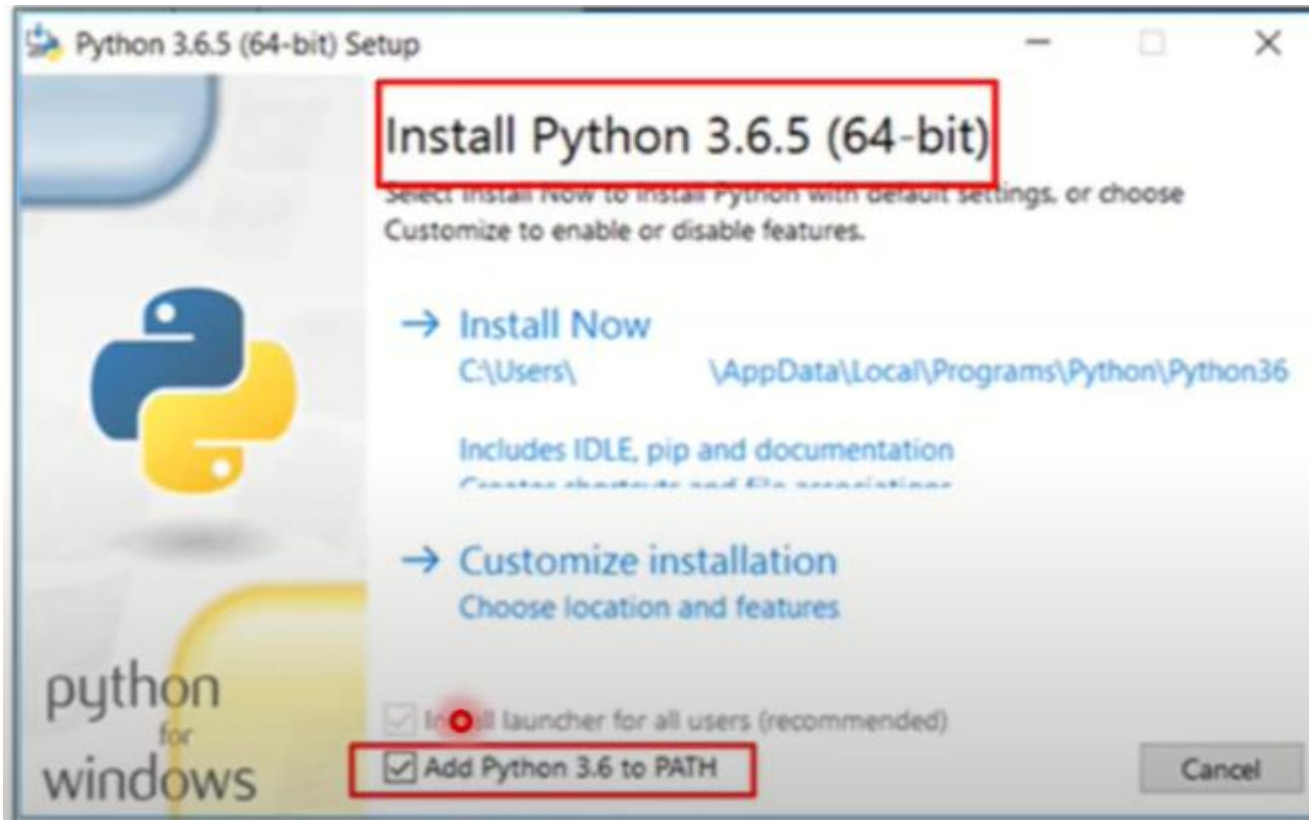
<http://www.python.org/downloads/release/python-365/>

Files

Version	Operating System	Description	MD5 Sum	File Size	GPG
Gzipped source tarball	Source release		ab25d24b1f8cc4990ade979f6dc37883	22994617	SIG
XZ compressed source tarball	Source release		9f49654a4d6f733ff3284ab9d227e9fd	17049912	SIG
macOS 64-bit/32-bit installer	Mac OS X	for Mac OS X 10.6 and later	bf319337bc68b52fc7d227dca5b6f2f6	28093627	SIG
macOS 64-bit installer	Mac OS X	for OS X 10.9 and later	37d891988b6aeedd7f03a70171a8420d	26987706	SIG
Windows help file	Windows		be70202d483c0b7291a666ec66539784	8065193	SIG
Windows x86-64 embeddable zip file	Windows	for AMD64/EM64T/x64	04cc4f6f6a14ba74f6ae1a8b685ec471	7190516	SIG
Windows x86-64 executable installer	Windows	for AMD64/EM64T/x64	9e96c934f5d16399f860812b4ac7002b	31776112	SIG
Windows x86-64 web-based installer	Windows	for AMD64/EM64T/x64	640736a3894022d30f7babff77391d6b	1320112	SIG
Windows x86 embeddable zip file	Windows		b0b099a4fa479fb37880c15f2b2f4f34	6429369	SIG
Windows x86 executable installer	Windows		2bb6ad2ecca6088171ef923bca483f02	30735232	SIG
Windows x86 web-based installer	Windows		596667cb91a9fb20e6f4f153f3a213a5	1294096	SIG

3. Python 설치

2. Add PATH 를 다음과 같이 해주고 파이썬 설치를 완료해줍니다.



4. OpenVINO 설치

1. 아래 링크에 들어가 “Register & Download”를 눌러줍니다.

<https://software.intel.com/en-us/openvino-toolkit/choose-download/free-download-windows>

intel Software Developer Zone

Search our content library... Support Sign in English

INTEL® DISTRIBUTION OF OPENVINO™ TOOLKIT
Choose & Download

FREE DOWNLOAD

Deliver computer vision and deep learning support for Windows*-based platforms.

OpenVINO™

Get the Software

Your license includes the full version of the product. To access the toolkit:

1. Make sure your system meets the minimum requirements listed on this page.
2. Complete the registration form.
3. Download the product.

What's Included

- OpenCV libraries
- OpenVX* runtime
- Deep Learning Deployment Toolkit (DLDT) with the Model Optimizer and Inference engine
- Compute Library for Deep Neural Networks (cldnn)
- Intel® Math Kernel Library for Deep Neural Networks (Intel® MKL-DNN)
- Code samples, documentation, and models

Register & Download

4. OpenVINO 설치

2. “Windows” 를 선택하고 본인의 정보를 입력한 후 “Submit” 을 눌러줍니다.

Intel® Distribution of OpenVINO™ toolkit is built to fast-track development and deployment of high-performance computer vision and deep learning inference applications on Intel® platforms—from security surveillance to robotics, retail, AI, healthcare, transportation, and more.

- **Accelerate Performance** – Speed computer vision workloads, and enable easy execution across multiple types of Intel® processors and accelerators: CPU, GPU/Intel® Processor Graphics, VPU, and FPGA.
- **Streamline Deep Learning Deployment** – Unleash CNN-based deep learning inference using a common API, 30+ pre-trained models, and code samples. The toolkit supports more than 100 public and custom models.
- **Extend and Customize** – Use OpenCL® kernels and tools to add your own code into the workload pipeline; customize layers without the overhead of frameworks.
- **Save Time, Increase Productivity** – Develop faster with optimized OpenCV®, OpenVX®, and media encode/decode functions; 15+ samples; and more.
- **Innovate Artificial Intelligence** – Extend AI within your applications with the included Intel® Deep Learning Deployment Toolkit – optimize AI at the edge all the way to cloud.

[Learn More.](#)

[Licensing Details.](#)

For more complete information about compiler optimizations, see our

Required Fields(*)

Please choose the operating system for your download *

☒ Windows*

☐ Linux*

☐ Linux* for FPGA

☐ macOS*

First Name *

First Name

Last Name *

Last Name

Business Email Address *

Email Address

Company *

Company

Country/Region *

Please Select...

Profession *

Please Select...

Submit

4. OpenVINO 설치

3. 2020.2 버전을 선택하고 Full Package 다운로드를 눌러 오픈비노를 다운로드해줍니다.

4. 다운로드가 완료되면 Next를 계속 눌러 OpenVINO 설치를 완료해줍니다.

You have signed up for the **Intel® Distribution of OpenVINO™ toolkit for Windows***.
You will receive an email with the serial number listed below and the download location for future reference.

Serial number : CZL3-CFS8WFP6

- Save this serial number. You may need it to activate your product in the installer.
- For your reference, you will receive an email that includes your serial number and download instructions.

Choose a Version

2020 **2**

Build date: 31 Jan 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 190 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 190 MB.

Full Package

Intel(R) Distribution of OpenVINO™ toolkit
2020.1 for Windows*

C:\OpenVINO\

Destination Directory cannot be changed, because Intel(R) Distribution of OpenVINO™ toolkit 2019 R2 for Windows* is already installed there.

Component Name	Size
<input checked="" type="checkbox"/> Intel(R) Distribution of OpenVINO™ toolkit 2020.1 for Windows*	931MB
<input checked="" type="checkbox"/> Inference Engine	638MB
<input checked="" type="checkbox"/> Inference Engine Development Kit	21MB
<input checked="" type="checkbox"/> Inference Engine Runtime for Intel® CPU	126MB
<input checked="" type="checkbox"/> Inference Engine Runtime for Intel® Processor Graphics	91MB
<input checked="" type="checkbox"/> Inference Engine Runtime for Intel® Movidius™ VPU	56MB
<input checked="" type="checkbox"/> Inference Engine Runtime for Intel® Gaussian Neural...	16MB
<input checked="" type="checkbox"/> Inference Engine Runtime for Intel® Vision Accelerator...	47MB
<input checked="" type="checkbox"/> Model Optimizer	8.8MB
<input checked="" type="checkbox"/> Open Model Zoo	52MB
<input checked="" type="checkbox"/> OpenCV	233MB

Required: 891MB, Available: 34GB

[Select Recommended](#)
[Select All](#)

By clicking "Next", I acknowledge that I accept the
[End User License Agreement \(EULA\)](#).

Back

Next

Cancel

5. OpenVINO 환경설정

1. OpenVINO 설치가 완료된 후 가장 중요한 단계인 **환경설정 단계**입니다.
OpenVINO 어플리케이션을 실행하거나 컴파일하기 위해서는 환경 변수를 설정해주어야 합니다.

OpenVINO 가 설치되어 있는 경로로 들어가 “**setupvars.bat**” 을 통해 환경변수를 세팅해줍니다.
(혹시 아래 경로에 오픈비노가 설치되어 있지 않다면 아까 설치한 파일을 아래 경로로 변경해주어야 합니다.)

```
cd C:/Program Files (x86)/IntelSWTools/opencvino/bin/  
setupvars.bat
```

```
C:\Program Files (x86)\IntelSWTools\openvino\bin>setupvars.bat  
Python 3.6.8  
ECHO is off.  
PYTHONPATH=C:\Program Files (x86)\IntelSWTools\openvino\deployment_tools\open_model_zoo\tools\accuracy_checker;C:\Program Files (x86)\IntelSWTools\openvino\python\python3.6;C:\Program Files (x86)\IntelSWTools\openvino\python\python3;C:\Program Files (x86)\IntelSWTools\openvino\deployment_tools\model_optimizer;  
[setupvars.bat] OpenVINO environment initialized
```

5. OpenVINO 환경설정

2. **Configure the Model Optimizer** 단계입니다.
아래 경로로 들어가서 `install_prerequisites.bat`을 해줍니다.

모든 frameworks 를 한번에
환경설정해주는 코드

```
cd C:/Program Files (x86)/IntelSWTools/opencvino/deployment_tools/model_optimizer/install_prerequisites/  
install_prerequisites.bat
```

- Model Optimizer은 OpenVINO의 가장 중요한 component 입니다.
- Model Optimizer 없이는 trained model 을 이용해 추론을 할 수 없습니다.
- Model Optimizer를 통해 pre-trained된 model을 실행시키면 output으로 IR 파일이 나옵니다. (xml, bin)
- .xml : Describes network topology
- .bin : Contains weights, biases
- Model Optimizer은 “mo.py” 라는 파이썬 기반의 명령 툴이고, 이를 통해 Inference Engine 이 사용할 수 있는 IR forma으로 학습된 모델을 convert 해줍니다.

```
Command Prompt
Collecting typing-extensions>=3.6.2.1 (from onnx>=1.1.2->-r ..\requirements.txt (line 6))
  Downloading https://files.pythonhosted.org/packages/15/f1/ef4e69d77cd850af1cb7d6de62fc8a0e92eb6fe7b37e3dc563b41378b567/typing_extensions-3.6.5-py3-none-any.whl
Collecting typing>=3.6.4 (from onnx>=1.1.2->-r ..\requirements.txt (line 6))
  Downloading https://files.pythonhosted.org/packages/4a/bd/eee1157fc2d8514970b345d69cb9975dcd1e42cd7e61146ed841f6e68309/typing-3.6.6-py3-none-any.whl
Collecting markdown>=2.6.8 (from tensorboard<1.10.0,>=1.9.0->tensorflow==1.9.0->-r ..\requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/6d/7d/488b90f470b96531a3f5788cf12a9332f543dbab13c423a5e7ce96a0493/Markdown-2.6.11-py2.py3-none-any.whl (78kB)
100% |#####| 81kB 1.3MB/s
Collecting werkzeug>=0.11.10 (from tensorboard<1.10.0,>=1.9.0->tensorflow==1.9.0->-r ..\requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/20/c4/12e3e56473e52375aa29c4764e70d1b8f3efa6682bef8d0aae04fe335243/Werkzeug-0.14.1-py2.py3-none-any.whl (322kB)
100% |#####| 327kB 1.6MB/s
Requirement already satisfied: urllib3<1.24,>=1.21.1 in c:\users\ddeuerme\appdata\roaming\python\python36\site-packages (from requests>mxnet==1.0.0->-r ..\requirements.txt (line 2))
Requirement already satisfied: idna<2.8,>=2.5 in c:\users\ddeuerme\appdata\roaming\python\python36\site-packages (from requests>mxnet==1.0.0->-r ..\requirements.txt (line 2))
Requirement already satisfied: chardet<3.1.0,>=3.0.2 in c:\users\ddeuerme\appdata\roaming\python\python36\site-packages (from requests>mxnet==1.0.0->-r ..\requirements.txt (line 2))
Requirement already satisfied: certifi>=2017.4.17 in c:\users\ddeuerme\appdata\roaming\python\python36\site-packages (from requests>mxnet==1.0.0->-r ..\requirements.txt (line 2))
Installing collected packages: six, gast, termcolor, numpy, protobuf, absl-py, astor, wheel, grpcio, markdown, werkzeug, tensorboard, tensorflow, graphviz, mxnet, decorator, networkx, typing-extensions, typing, onnx
Running setup.py install for gast ... done
Running setup.py install for termcolor ... done
Running setup.py install for absl-py ... done
Running setup.py install for networkx ... done
Successfully installed absl-py-0.4.1 astor-0.7.1 decorator-4.3.0 gast-0.2.0 graphviz-0.9 grpcio-1.14.2 markdown-2.6.11 mxnet-1.0.0 networkx-2.1 numpy-1.15.1 onnx-1.3.0 protobuf-3.5.1 six-1.11.0 tensorboard-1.9.0 tensorflow-1.9.0 termcolor-1.1.0 typing-3.6.6 typing-extensions-3.6.5 werkzeug-0.14.1 wheel-0.31.1
You are using pip version 9.0.3, however version 18.0 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' command.
*****
Warning: please expect that Model Optimizer conversion might be slow.
You can boost conversion speed by installing protobuf*.egg located in the
'model-optimizer\install_prerequisites' folder or building protobuf library from sources.
For more information please refer to Model Optimizer FAQ, question #80.
C:\Intel\computer_vision_sdk_2018.3.349\deployment_tools\model_optimizer\install_prerequisites>
```



THANK YOU