# Building and Publishing

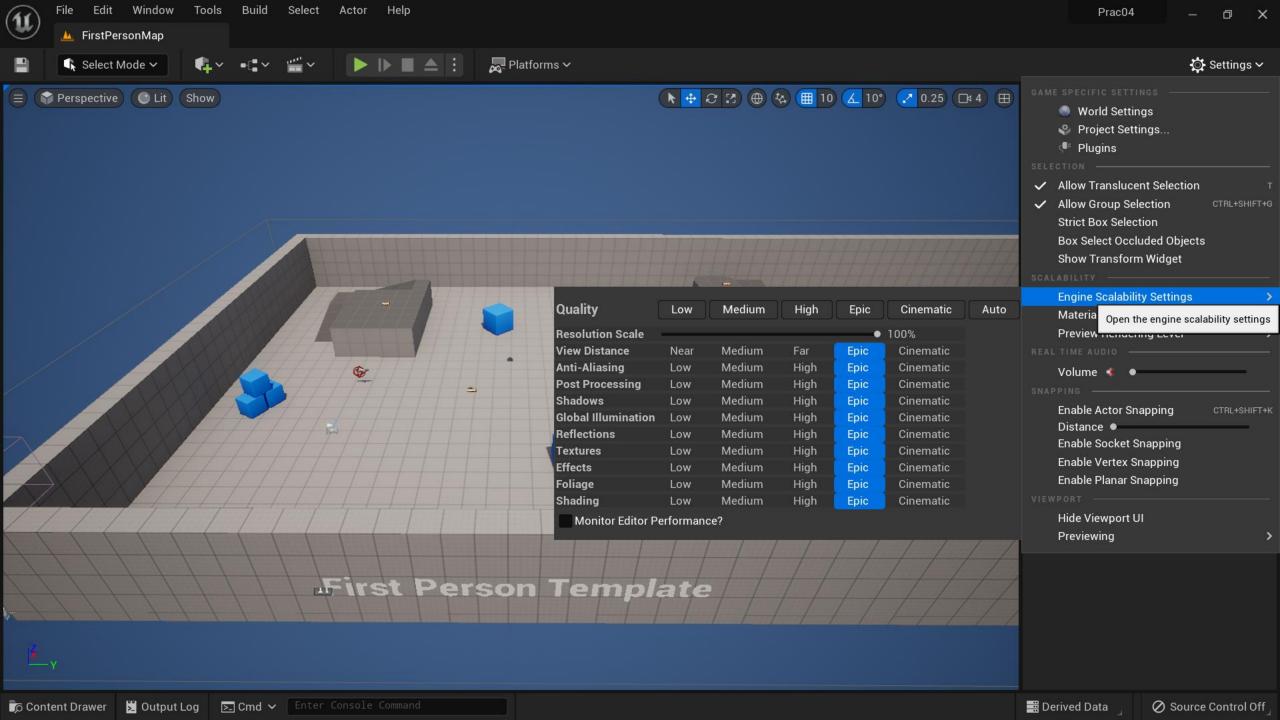
9<sup>th</sup> Week, 2022





## Optimizing your graphics settings (1)

- > Engine Scalability Settings
  - The graphics settings in Unreal Engine 5
  - Composed of several graphics settings, each of which determines the final visual quality of one element of the game
    - > There is a trade-off between high-quality effects and visuals, and the performance of the game in terms of frame rate.
  - The game we have created only uses very simple assets and a relatively constrained level size, so we are simply going to define some workable defaults before generating a build to distribute.





## Optimizing your graphics settings (2)

- Low: all the quality settings to the minimum, giving you the best possible performance, in exchange for the least visually attractive settings
- **Epic**: raising all the engine quality settings to their maximum, at the expense of significant performance, depending on the assets you have chosen to use
- Cinematic: settings to cinematic quality, which is used for rendering cinematics
- Auto: to detect the hardware of the machine you are currently running the Editor on and adjust the graphic settings to a level that strikes a good balance between performance and a graphical quality that is suitable for your machine



## Optimizing your graphics settings (3)

- Resolution Scale: the engine to render the game in a lower resolution than the resolution that your player will be targeting
- View Distance: the distance from the location of the camera where objects will be rendered
- Anti-Aliasing: to soften the jagged edges of 3D objects in the world, which can dramatically improve the look of your game
- Post Processing: to change the baseline quality settings of several filters that get applied to the screen after the scene is created (ex. motion blur and light bloom effects)
- Shadows: to determine the look of shadows in the game



## Optimizing your graphics settings (4)

- Textures: If you have many large textures in your game, reducing this setting can help avoid running out of graphics memory and thus increases performance.
- Effects: to change the baseline quality settings of several special effects applied to the game (ex. material reflections and translucency effects)
- Foliage: the quality of foliage used in the game
- Shading: the quality of the materials

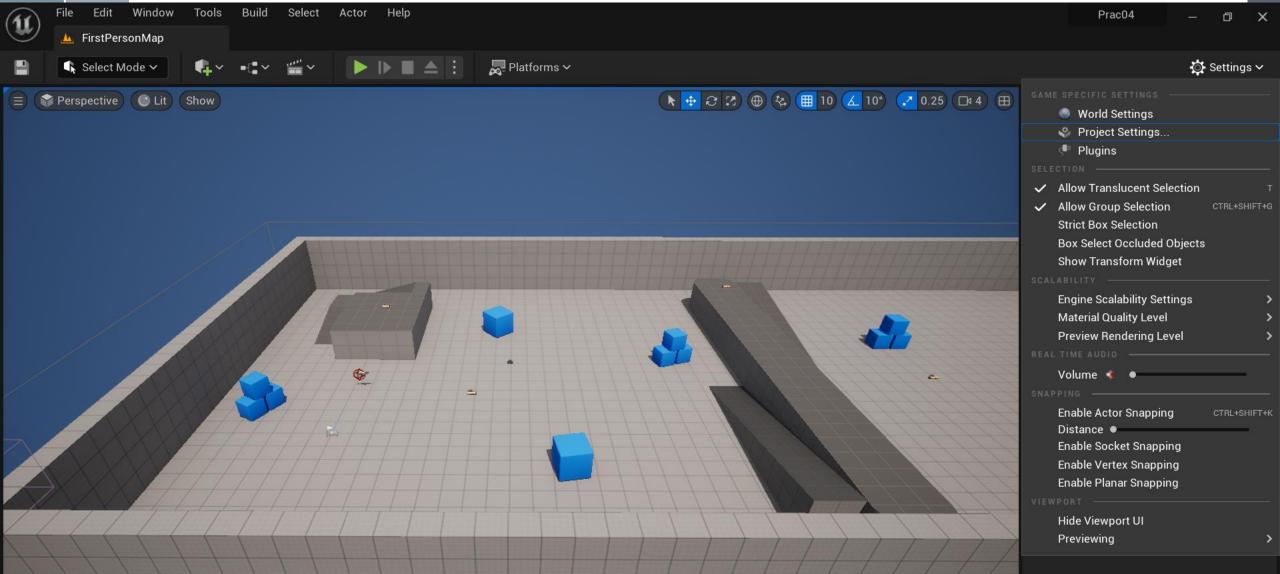


## Optimizing your graphics settings (5)

- The best way of optimizing the performance of your game is to regularly test it on the machines you intended for people to play it on.
  - > If you notice sluggish performance, take note of where you see it occur.
  - > If the performance of your game is always low, you might need to reduce some of the postprocessing or anti-aliasing effects.
  - > If performance is low only in certain areas of your level, you might need to look at reducing the object density in that area or reducing the quality of a particular game model.



## Setting up our game to be played by others



All Settings

## Project

Description

Encryption

GameplayTags

Maps & Modes

Movies

Packaging

Supported Platforms

Target Hardware

#### Game

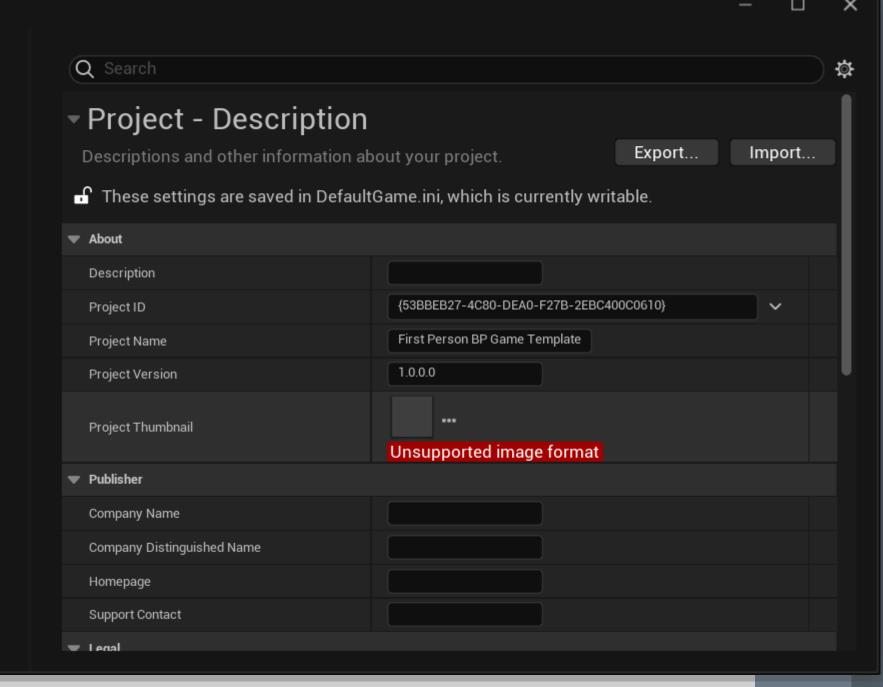
Asset Manager

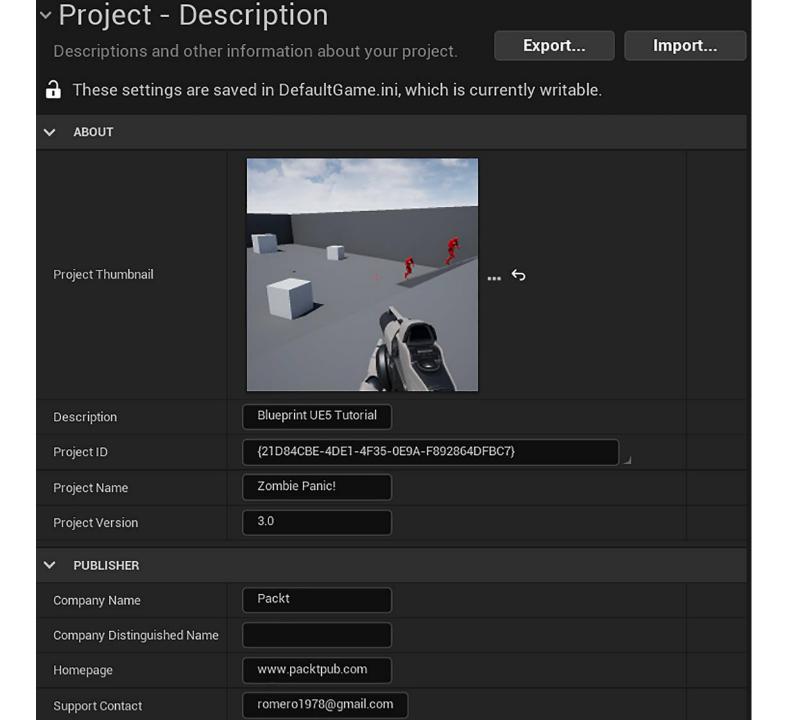
**Asset Tools** 

### Engine

Al System

Animation





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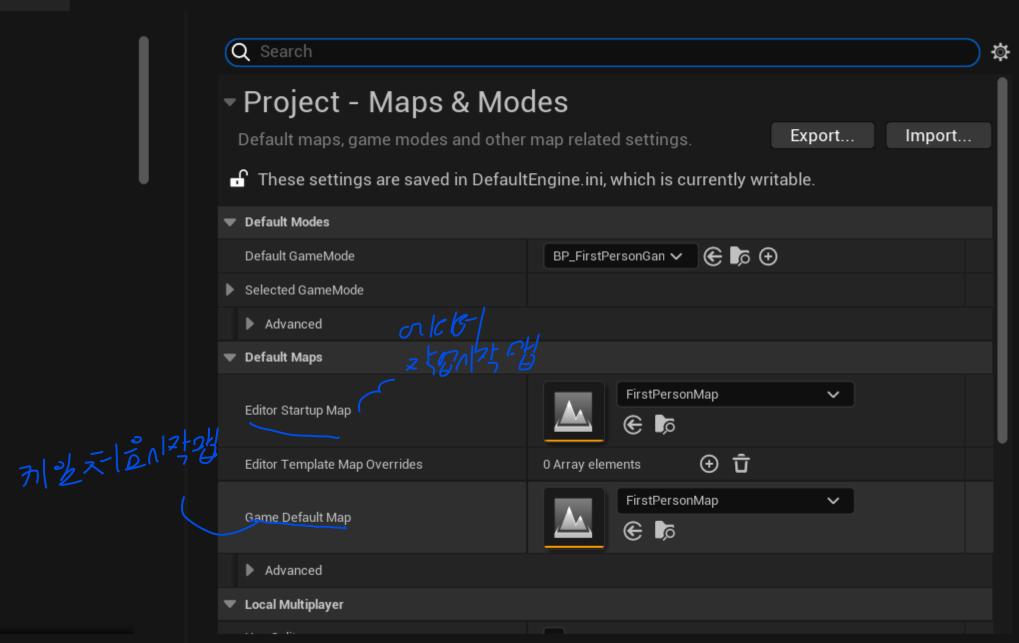
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#### -



### **Platforms**

Android

Android Material Quality - ES31

Android Material Quality - Vulkan

Android SDK

Android SM5 Material Quality - Vulkan

HoloLens

ios

iOS Material Quality

Linux

Windows

### **Plugins**

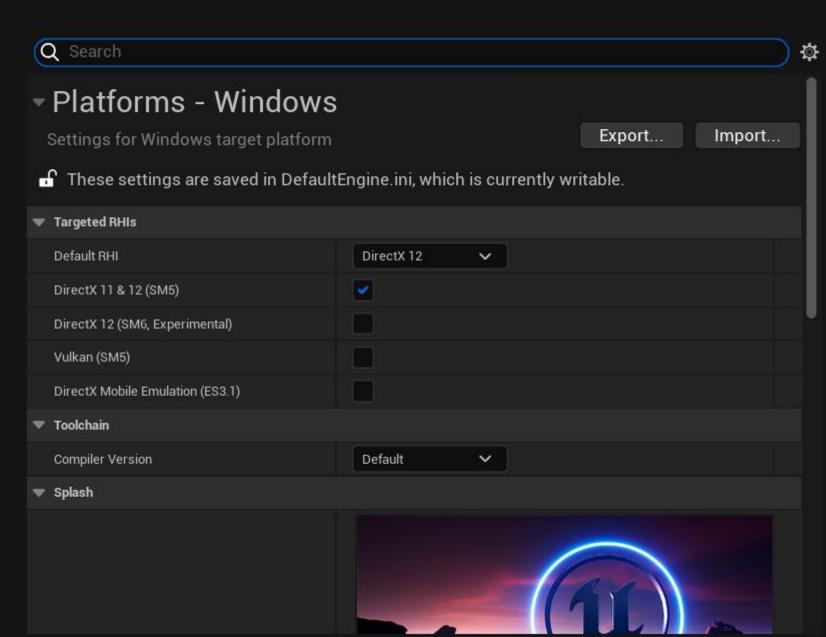
AndroidFileServer

**AVF** Media

**Geometry Cache** 

GooglePAD

Groom



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▶ Windows

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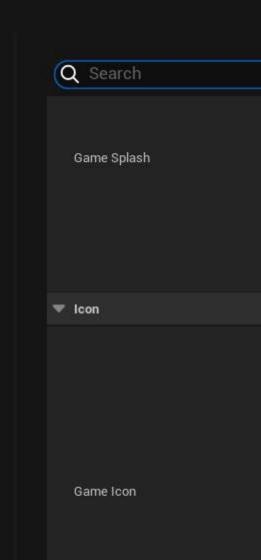
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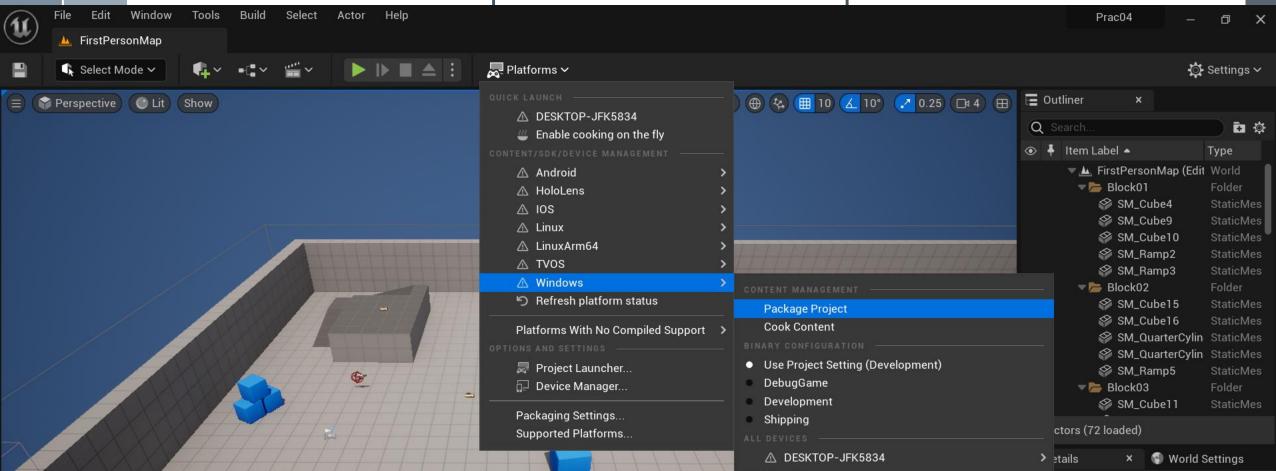


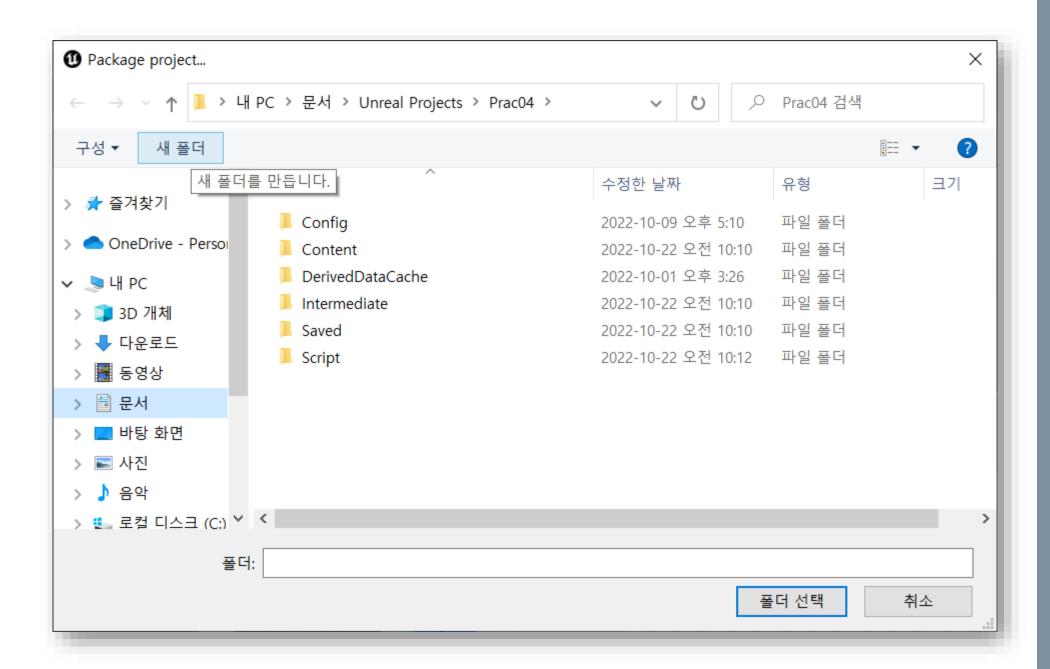


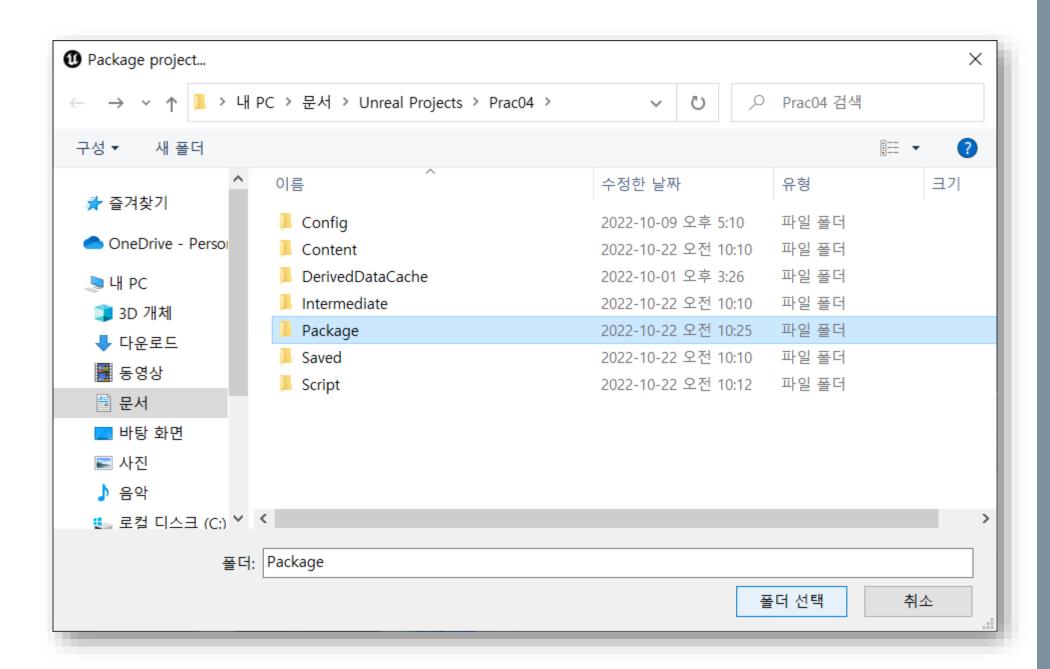


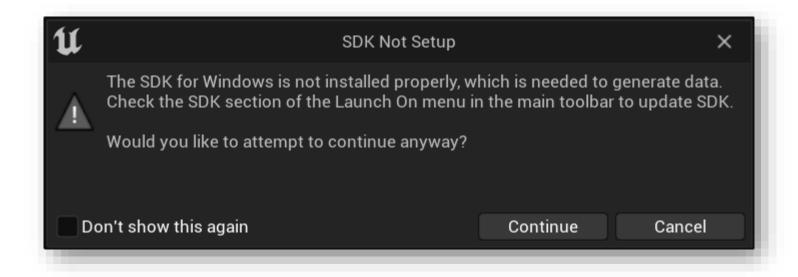
## Packaging the game into a build (1)

 Packaging – creating a distributable form of your game for one of these platforms involves a process





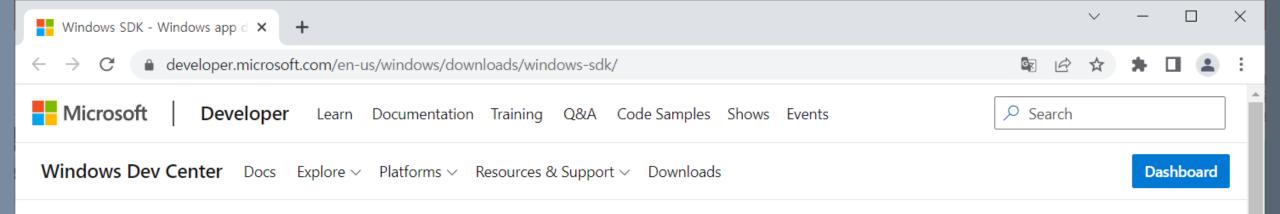






## Packaging the game into a build (2)

- > Windows SDK
  - https://developer.microsoft.com/enus/windows/downloads/windows-sdk/
- > .NET Core 3.1
  - https://dotnet.microsoft.com/en-us/download/dotnet/3.1



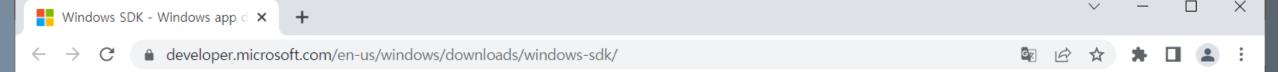
## Windows SDK

The Windows SDK (10.0.22621) for Windows 11, version 22H2 provides the latest headers, libraries, metadata, and tools for building Windows applications. Use this SDK to build Universal Windows Platform (UWP) and Win32 applications for Windows 11, version 22H2 and previous Windows releases.



#### Windows App SDK

The Windows App SDK provides a unified set of APIs and tools that are decoupled from the OS and released to developers via NuGet packages. These APIs and tools can be used in a consistent way by any desktop app on Windows 11 and downlevel to Windows 10, version 1809.



## **Getting started**

You can get the Windows SDK in two ways: install it from this page by selecting the download link or by selecting "Windows 11 SDK (10.0.22621.0)" in the optional components of the Visual Studio 2022 Installer. Before you install this SDK:

- Review all system requirements
- Exit Visual Studio prior to installation.
- Review the Release notes and Known Issues.

Download the installer >

Download the .iso >

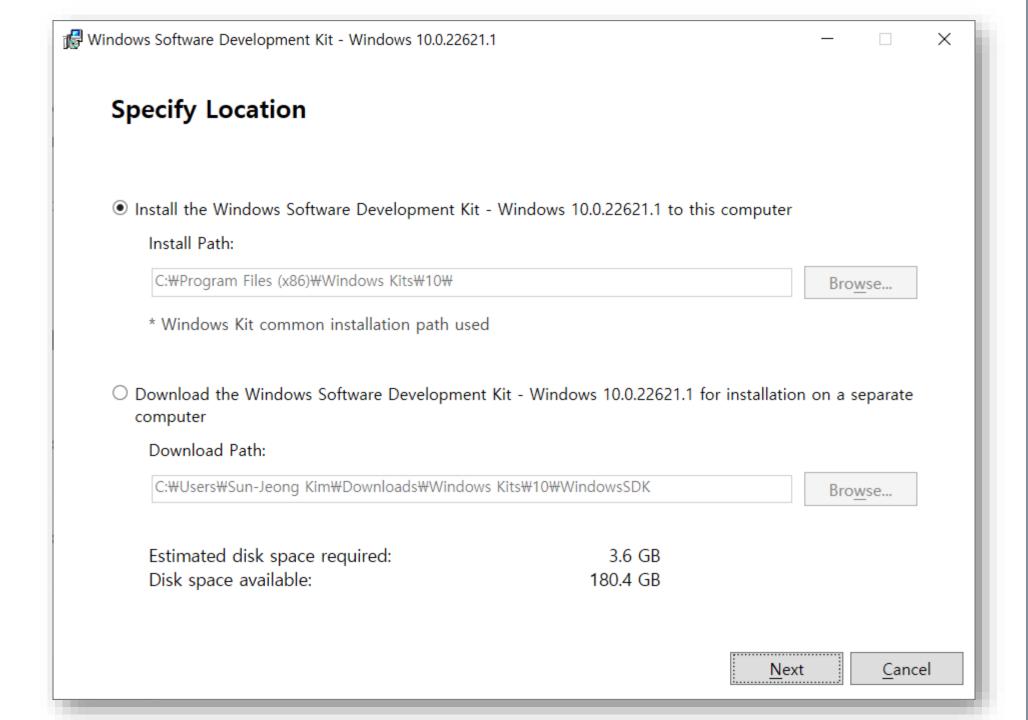
Last updated: October 4, 2021

## System requirements

The Windows SDK has the following minimum system requirements:

### Supported operating systems

• Windows 10 version 1507 or higher: Home, Professional, Education, and Enterprise (LTSB and S are not supported



#### **Windows Kits Privacy**

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ledot	No.

<u>B</u>ack <u>N</u>ext <u>C</u>ancel

<sup>\*</sup> You are currently participating in the CEIP program. Participation applies to all Windows kits installed on this computer.





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- · APIs (i.e., APIs included with the installation of the SDK or APIs accessed by installing extension packages or service to use with the SDK),
- updates,
- supplements,
- · internet-based services, and
- support services

for this software, unless other terms accompany those items. If so, those terms apply.

By using the software, you accept these terms. If you do not accept them, do not use the software.

#### $\square$ $\times$

#### Select the features you want to install

Click a feature name for more information.

- ✓ Windows Performance Toolkit
- ✓ Debugging Tools for Windows
- ✓ Application Verifier For Windows
- ✓ .NET Framework 4.8.1 Software Development Kit
- ✓ Windows App Certification Kit
- **✓** Windows IP Over USB
- ✓ MSI Tools
- ✓ Windows SDK Signing Tools for Desktop Apps
- ✓ Windows SDK for UWP Managed Apps
- ✓ Windows SDK for UWP C++ Apps
- ✓ Windows SDK for UWP Apps Localization
- ✓ Windows SDK for Desktop C++ x86 Apps
- ✓ Windows SDK for Desktop C++ amd64 Apps
- ✓ Windows SDK for Desktop C++ arm Apps
- ✓ Windows SDK for Desktop C++ arm64 Apps

#### Windows Performance Toolkit

Size: 633.3 MB

- · Windows Performance Recorder
- · Windows Performance Analyzer
- Xperf

Tools to record system events by using Event Tracing for Windows, and a tool to analyze performance data in a graphical user interface.

Includes:

Estimated disk space required:

3.6 GB

Disk space available:

180.4 GB

Back



Cancel

### Select the features you want to install

Click a feature name for more information.

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- **✓** Windows IP Over USB
- ✓ MSI Tools
- ✓ Windows SDK Signing Tools for Desktop Apps
- ✓ Windows SDK for UWP Managed Apps
- ✓ Windows SDK for UWP C++ Apps
- ✓ Windows SDK for UWP Apps Localization
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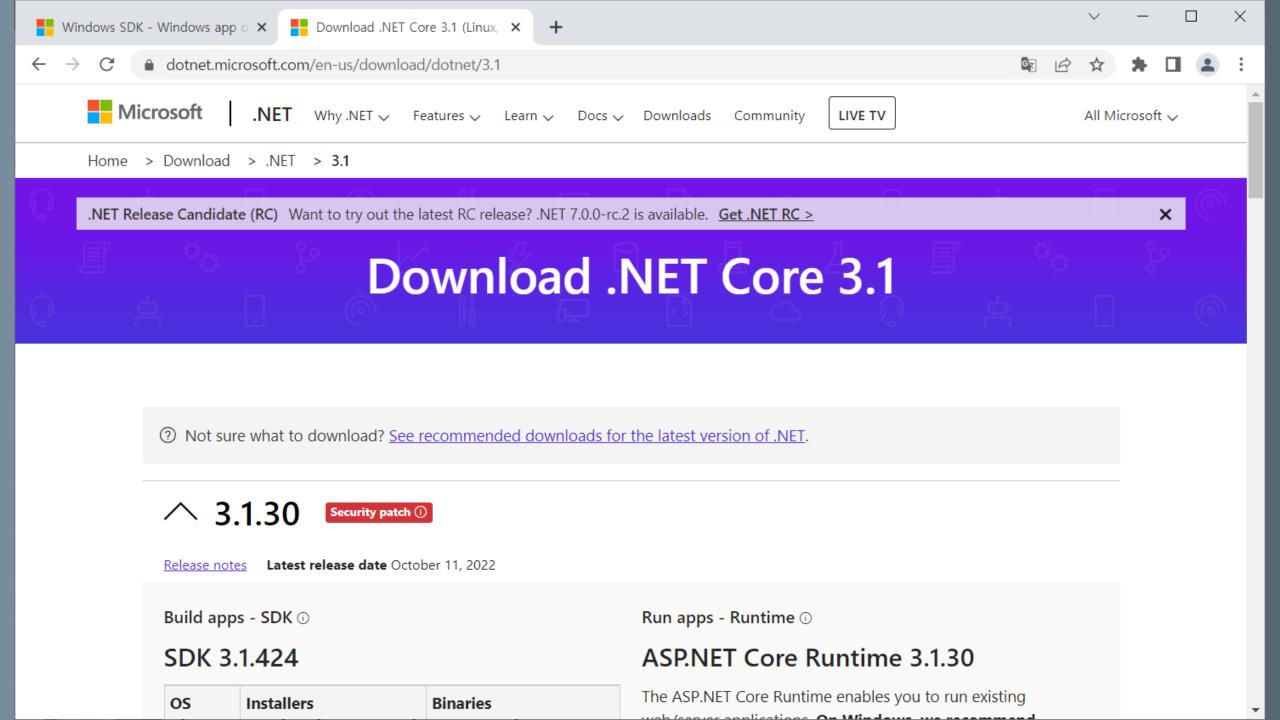
Estimated disk space required:

3.6 GB 180.4 GB

Disk space available:

Install

Cancel



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**3.1.30** 

Security patch ①

Latest release date October 11, 2022 Release notes

Build apps - SDK ①

#### SDK 3.1.424

os	Installers	Binaries
Linux	<u>Package manager</u> <u>instructions</u>	Arm32   Arm64   x64   x64 Alpine
macOS	<u>x64</u>	<u>x64</u>
Windows	<u>x64   x86</u>	Arm32   x64   x86
All	dotnet-install scripts	

#### **Visual Studio support**

Visual Studio 2019 for Mac (v8.10)

#### **Included runtimes**

.NET Runtime 3.1.30

Run apps - Runtime ①

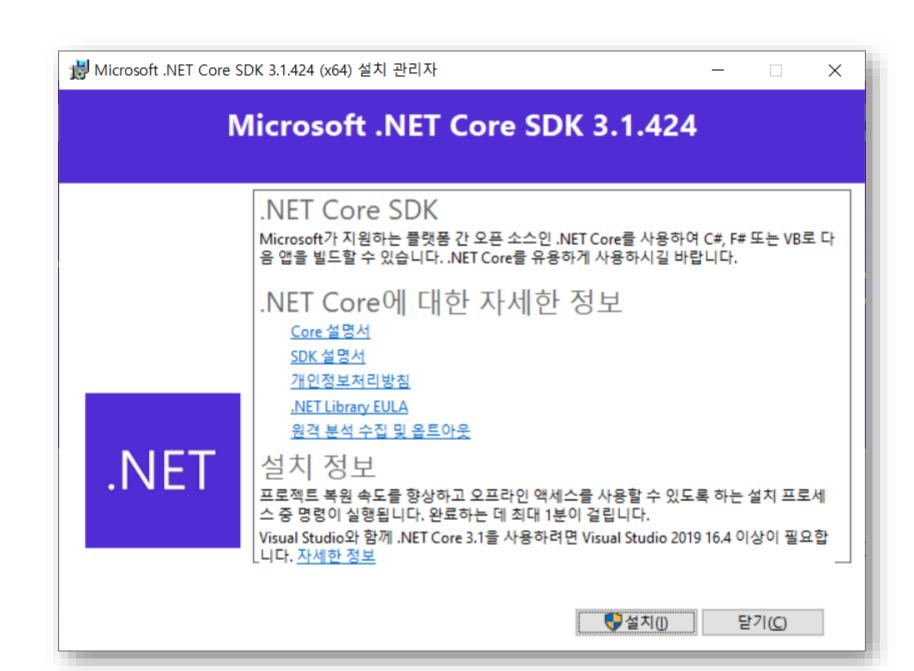
#### ASP.NET Core Runtime 3.1.30

The ASP.NET Core Runtime enables you to run existing web/server applications. On Windows, we recommend installing the Hosting Bundle, which includes the .NET Runtime and IIS support.

#### IIS runtime support (ASP.NET Core Module v2)

13.1.22270.30

os	Installers	Binaries
Linux	Package manager instructions	Arm32   Arm64   Arm64 Alpine   x64   x64 Alpine
macOS		<u>x64</u>
Windows	Hosting Rundle Lx64	Arm32   x64   x86





설치가 완료되었습니다.

다음이 'C:₩Program Files₩dotnet₩'에 설치되었습니다.

- .NET Core SDK 3.1.424
- .NET Core 런타임 3.1.30
- ASP,NET Core 런타임 3.1.30
- .NET Core Windows 데스크톱 런타임 3.1.30

이 제품은 사용량 데이터를 수집합니다.

• 추가 정보 및 옵트아웃 https://aka,ms/dotnet-cli-telemetry

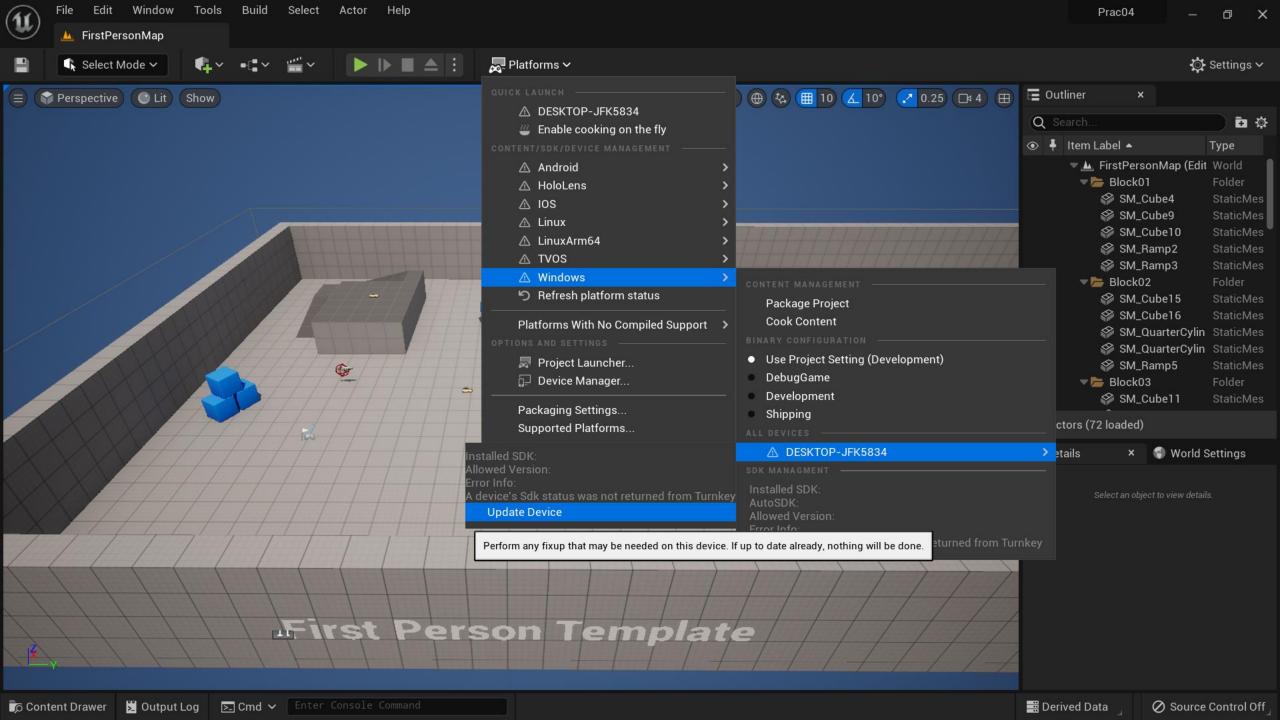


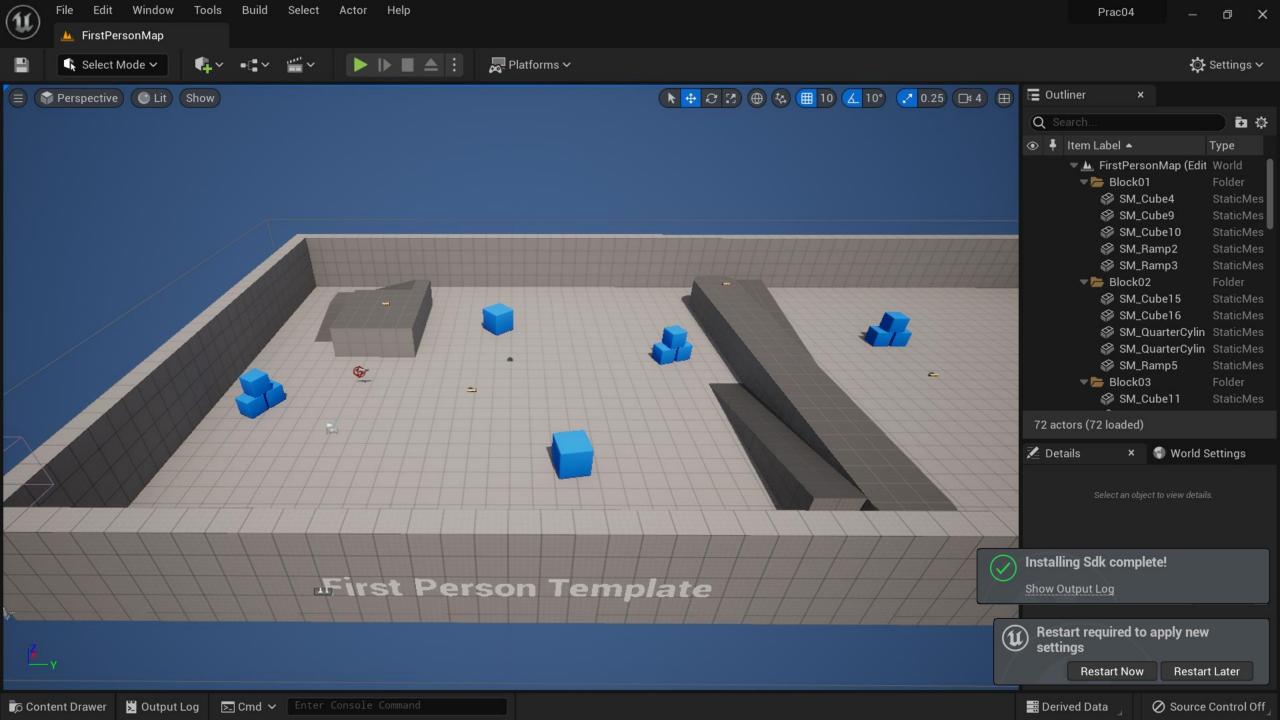
#### 리소스

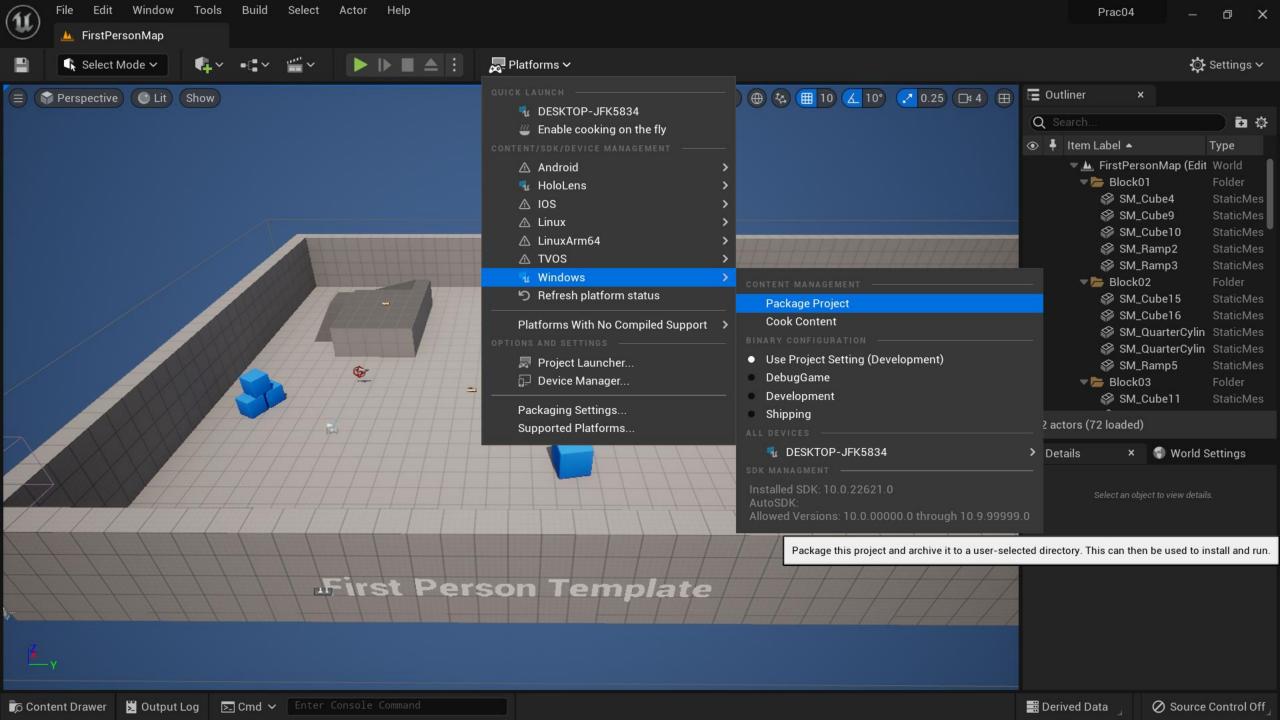
- .NET Core 설명서 https://aka.ms/dotnet-docs
- SDK 설명서 <u>https://aka.ms/dotnet-sdk-docs</u>
- 릴리스 정보 https://aka.ms/netcore3releasenotes
- 자습서 https://aka.ms/dotnet-tutorials

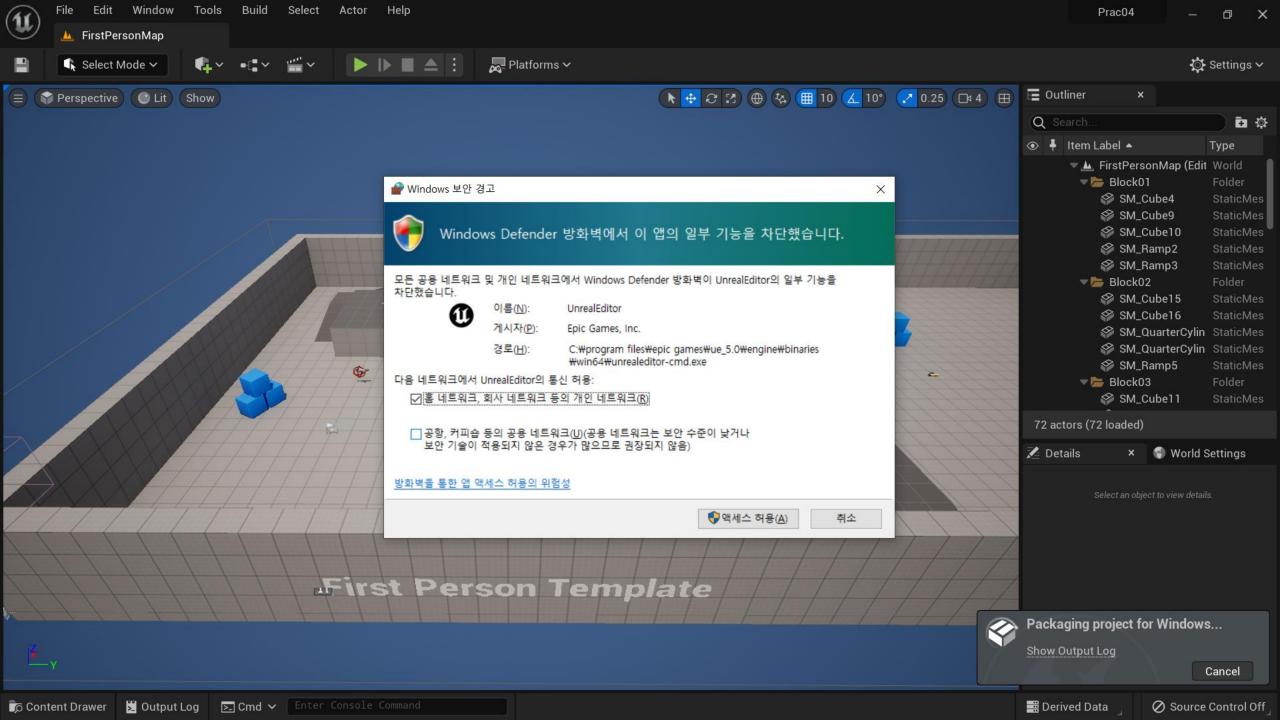
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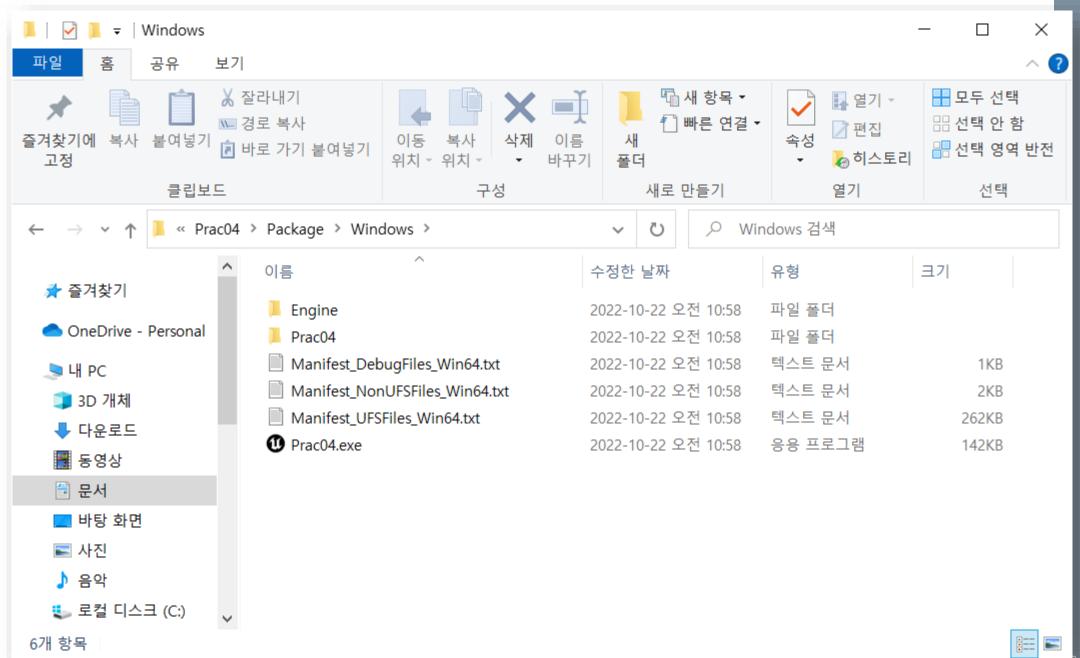
X



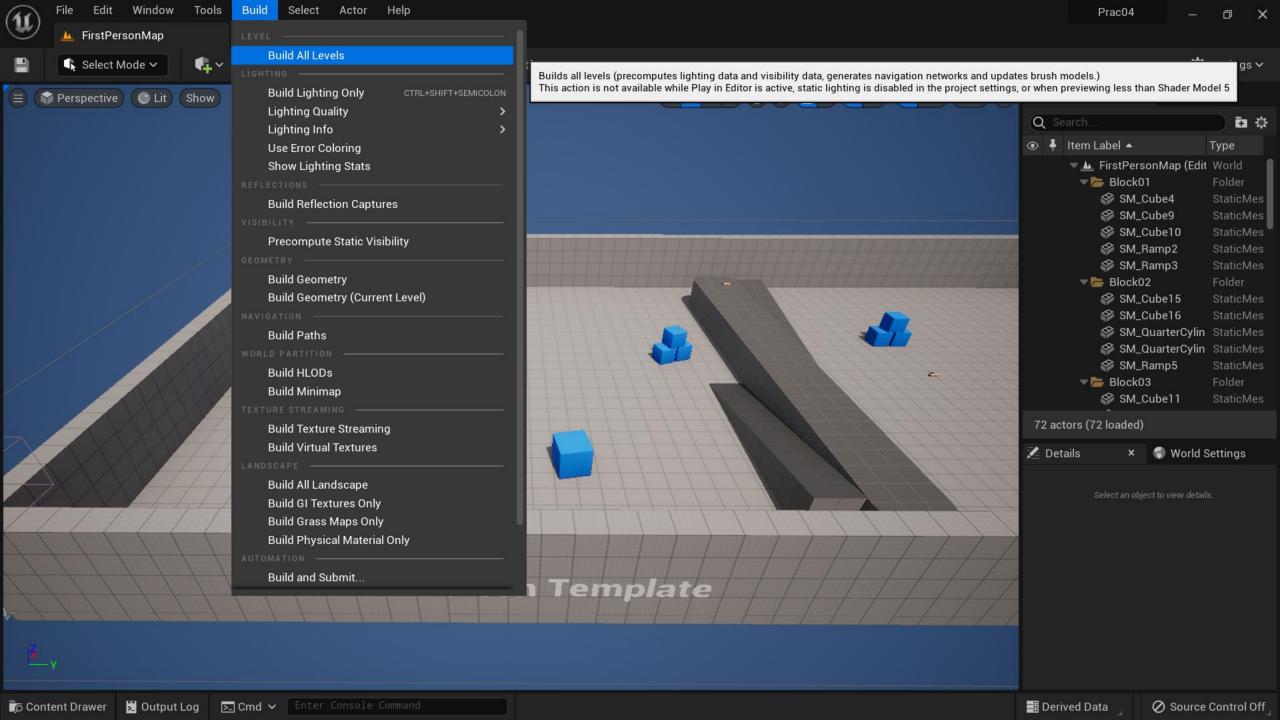






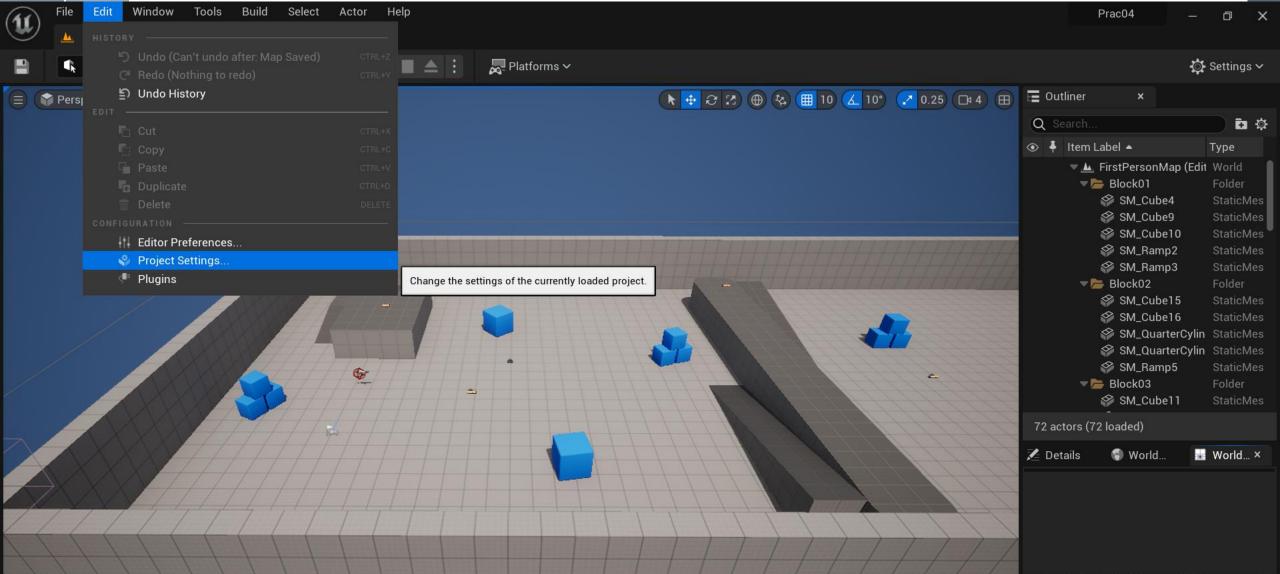








# Build configurations and packaging settings



#### All Settings

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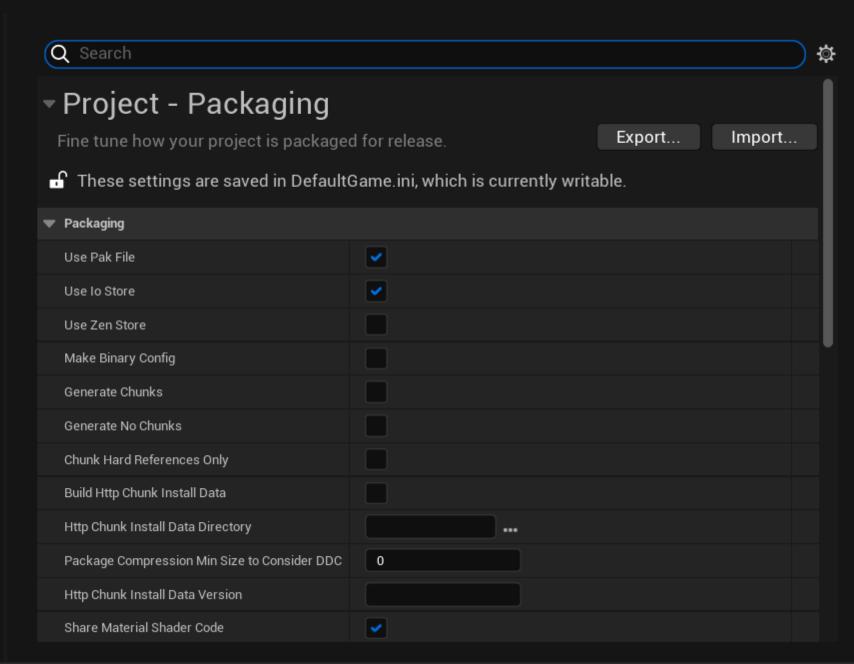
**Asset Tools** 

### **Engine**

Al System

Animation

Animation Modifiers



×



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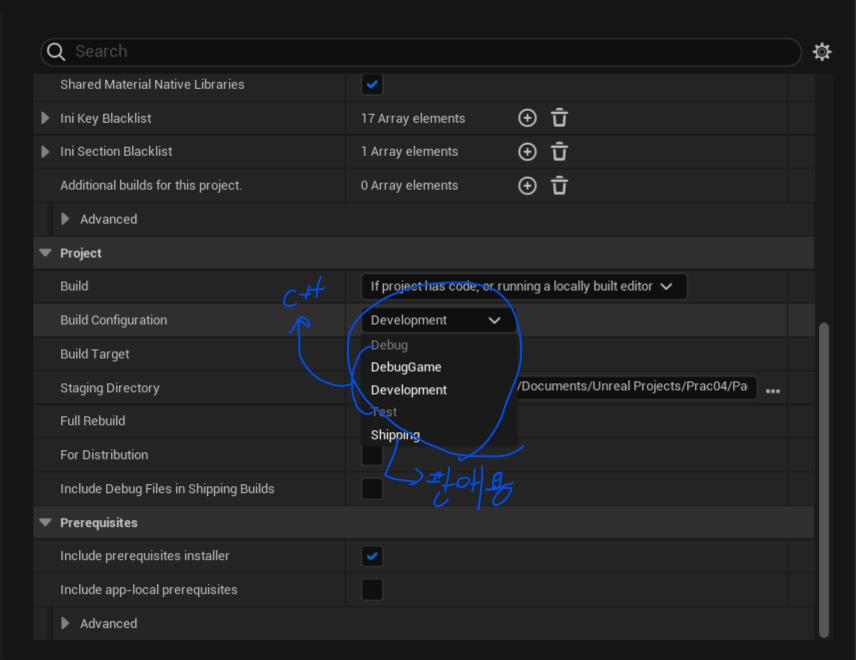
**Asset Tools** 

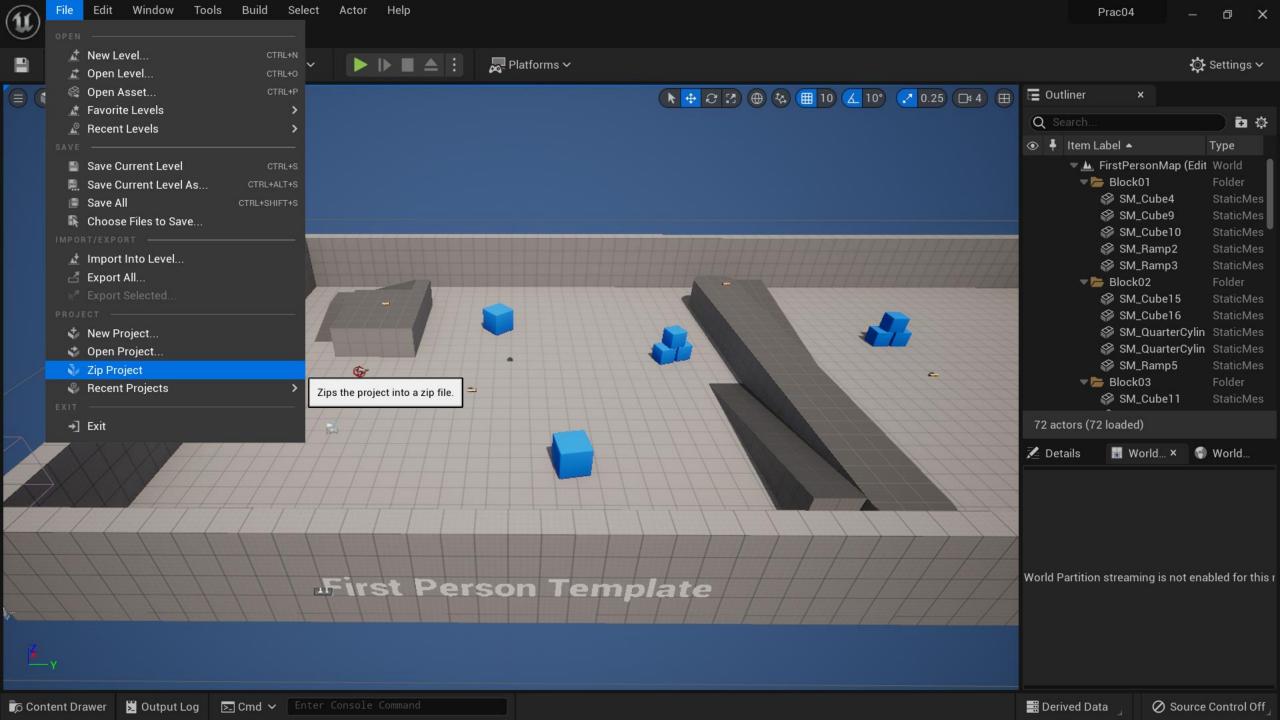
### Engine

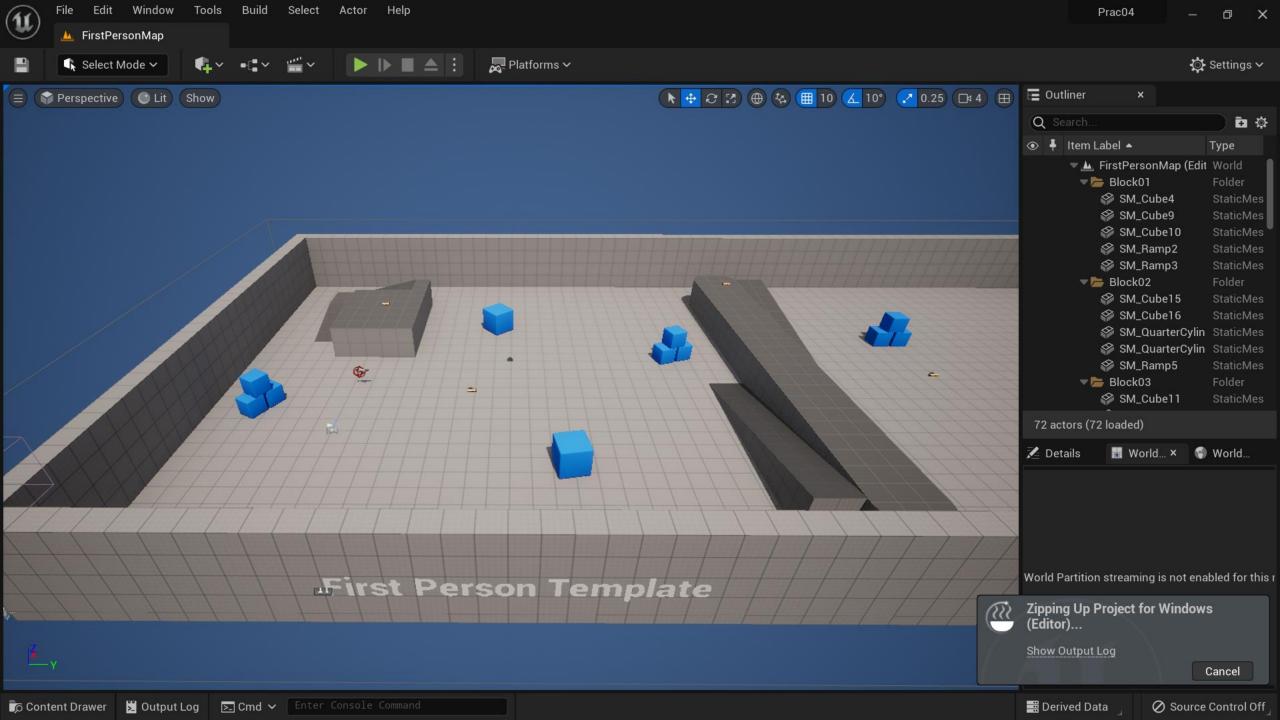
Al System

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## 연습 과제

- > Zip Project 된 파일을 업로드 하시오.
- > Packaging 폴더 (Windows 또는 MacOS)를 압축하여 업로 드 하시오.