

# Extensibility in UE4

## Customizing Your Games and the Editor

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# Why Do We Want Extensibility?

## Custom Requirements

- Features that are too specific to be included in UE4
- Features that UE4 does not provide out of the box

## Third Party Technologies

- Features owned and maintained by other providers
- Scaleform, SpeedTree, CoherentUI, etc.

## Flexibility & Maintainability

- More modular code base
- Easier prototyping of new features



# How To Extend The Engine

General

Games

Editor

Plug-ins

## UE3: Engine Code Changes

- Only accessible to licensees
- Required deep understanding of code base
- Merging Engine updates was tedious

## UE4: Extensibility APIs

- Modules, plug-ins, C++ interfaces
- Native code accessible to everyone
- Also supports non-programmers



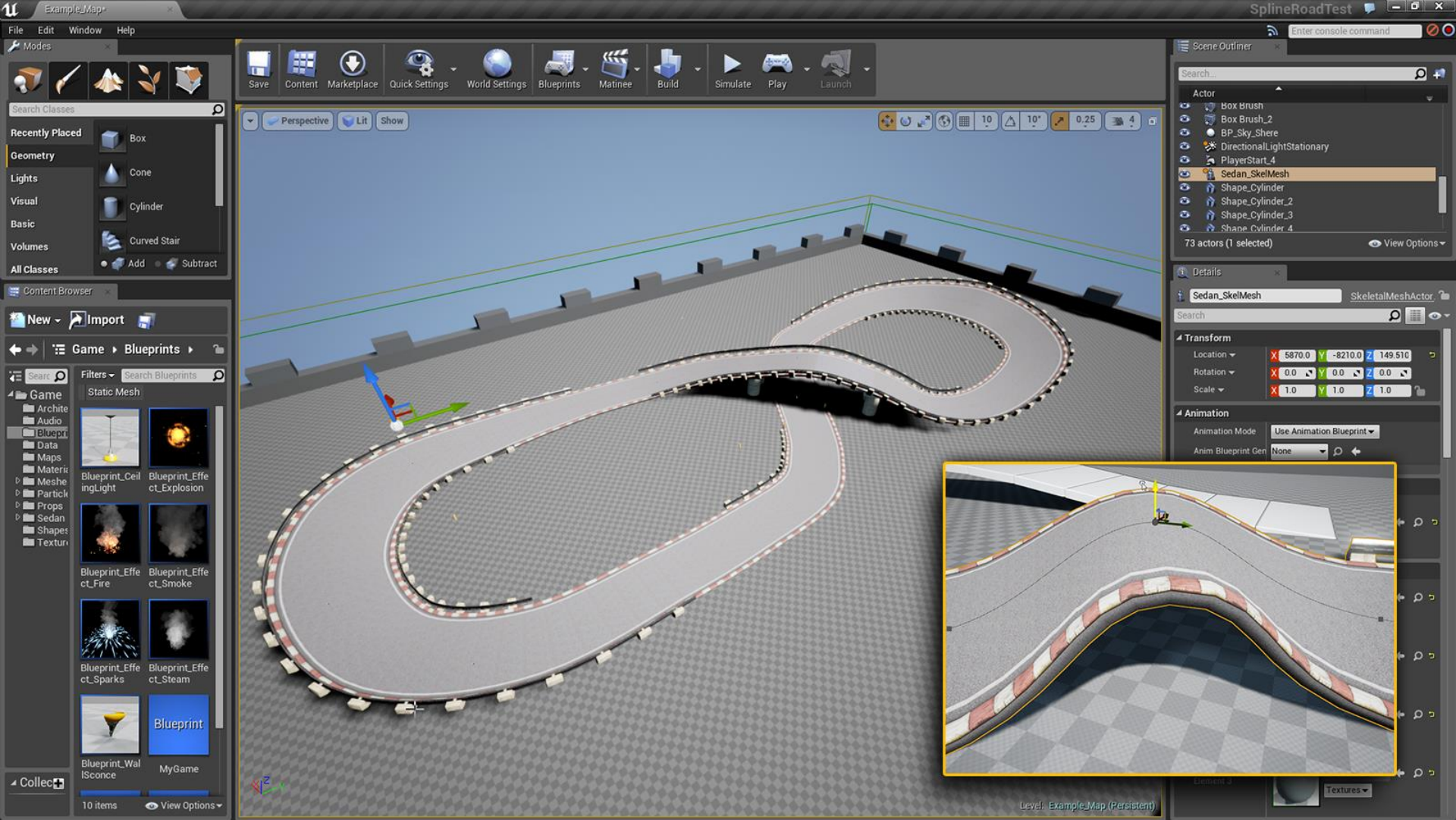
# How To Extend The Engine

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## Blueprint Construction Scripts

- Blueprints as macros to create & configure game objects
- Activated when an object is created in Editor or game
- Check out our excellent tutorials on YouTube!





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## Details View Customization

- Change the appearance of your types in the Details panel
- Customize per class, or per property
- Inject, modify, replace, or remove property entries

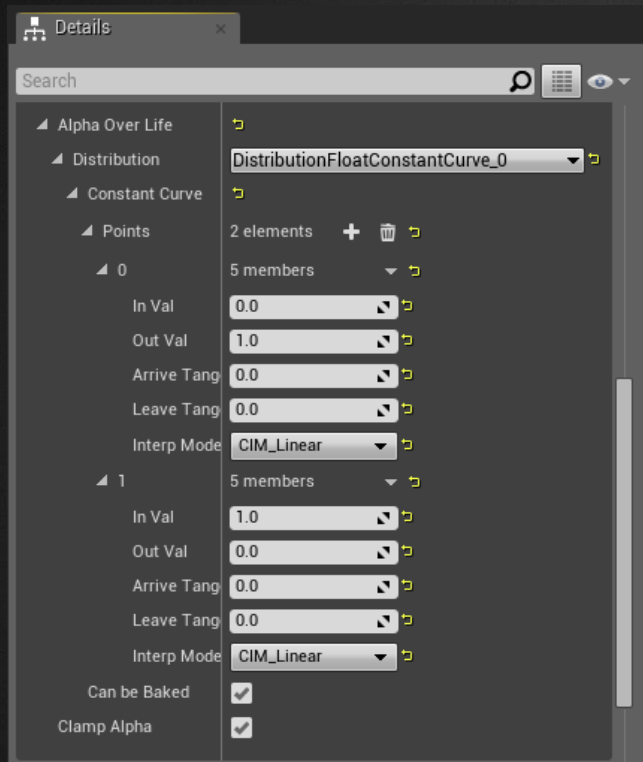
## Menu Extenders

- Inject your own options into the Editor's main menus

## Tab Manager

- Register your own UI tabs
- Allows for adding entirely new tools and features





Default Appearance



Detail Customizations

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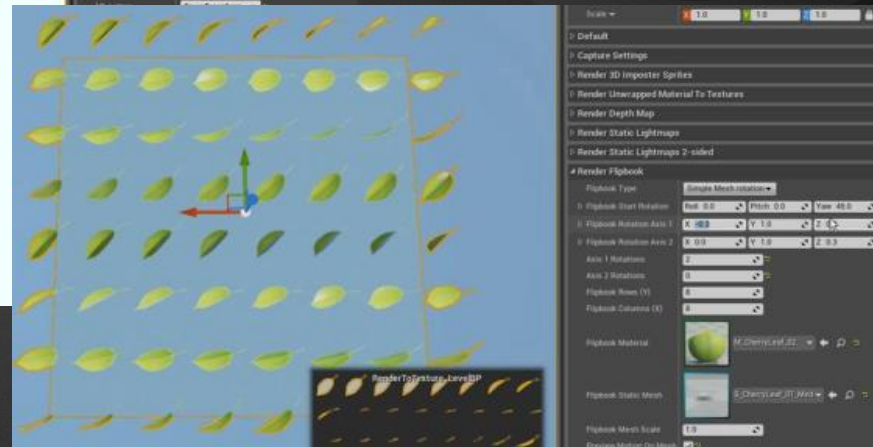
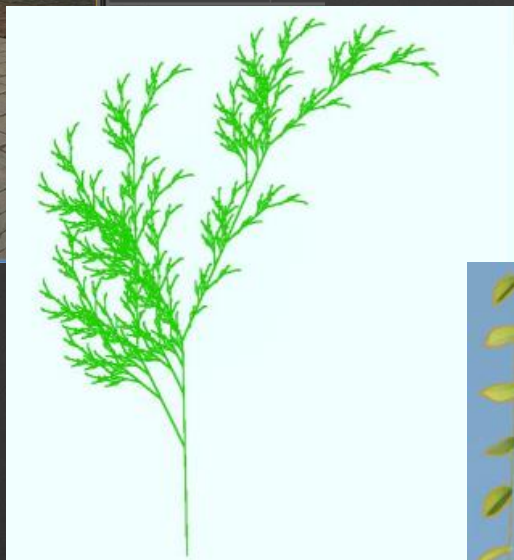
## Blutilities

- Blueprints for the Editor!
- No C++ programming required
- Can fire off events that effect the Editor
- Currently experimental, but already working





# Procedural Textures, L-Systems, Flipbooks



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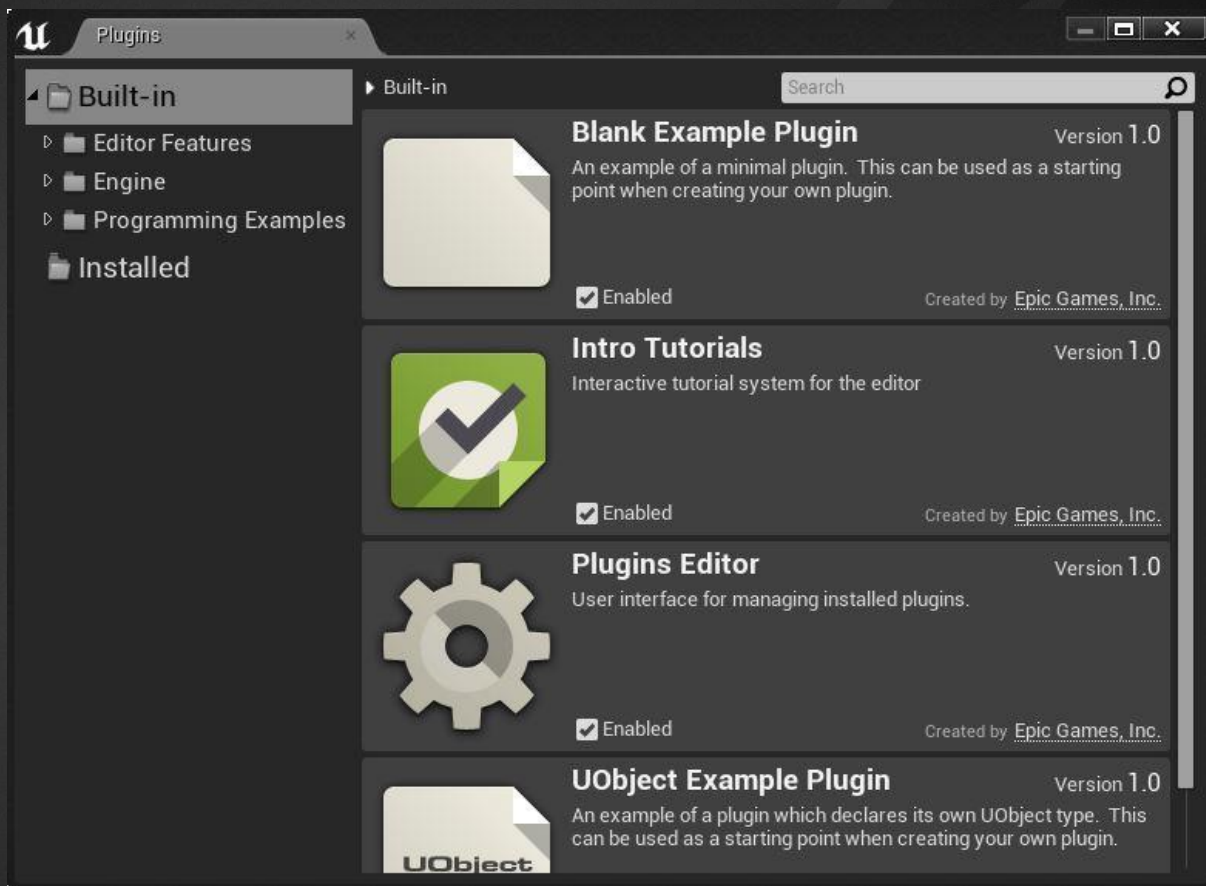
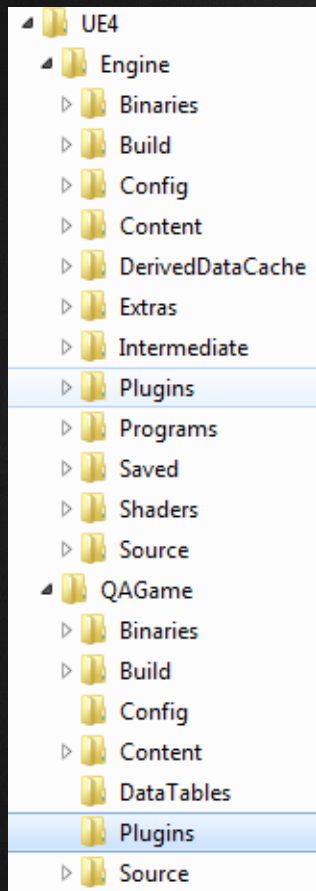
## Overview

- Extend the Engine, the Editor, or both
- Are completely self contained
- Can be enabled and disabled per project
- Everything should be a plug-in!

## Examples

- BlankPlugin, UObjectPlugin – Use these to start coding
- Perforce & Subversion support for the Editor
- Oculus Rift support
- Movie players, Twitch Live Streaming, Slate Remote
- And many more!







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## All Plug-ins

- Will be loaded automatically on startup (if enabled)
- Most not be dependencies of the Engine or other plug-ins

## Plug-ins with Code

- Have their own 'Source', 'Binaries', 'Intermediates' folders
- Can have one or more code modules
- May declare new UObject and UStruct types
- Seldom have Public header files in modules

## Plug-ins with Content

- Have their own 'Content' folder
- Configuration files (INIs) not supported yet

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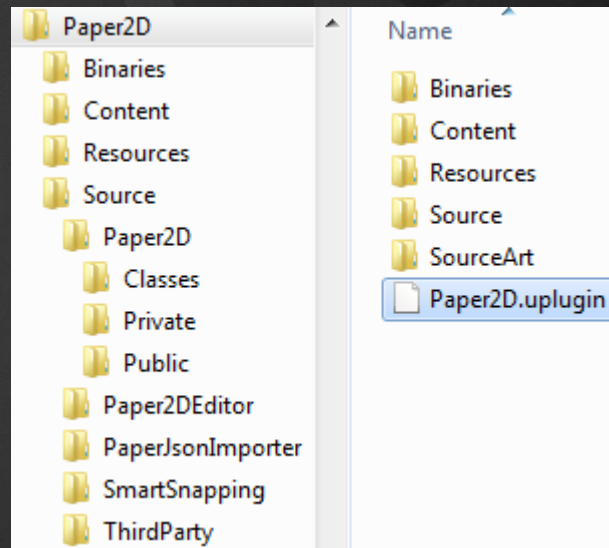
Descriptor Files (.uplugin)

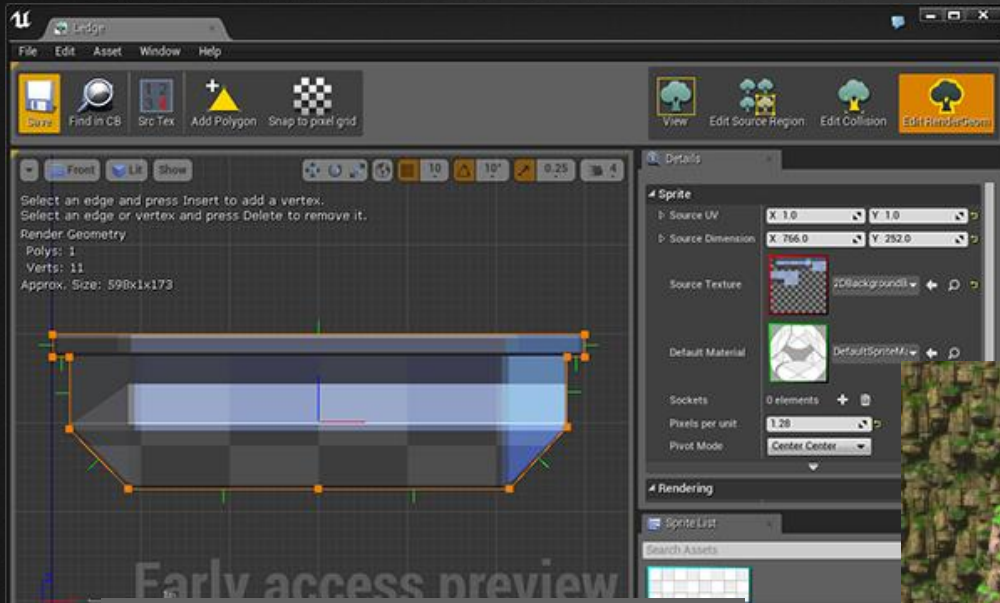
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  "CreatedByURL": "http://epicgames.com",
  "EngineVersion": "4.2.0",
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  "Modules":
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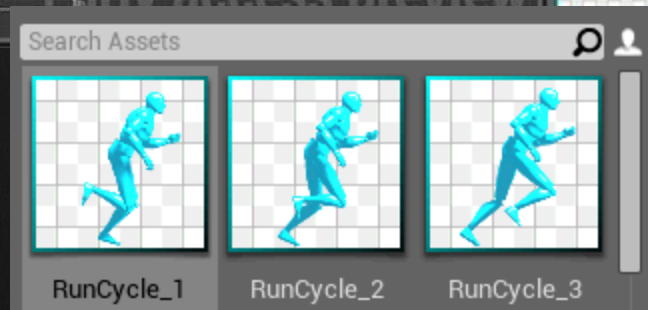


Front Lit Show

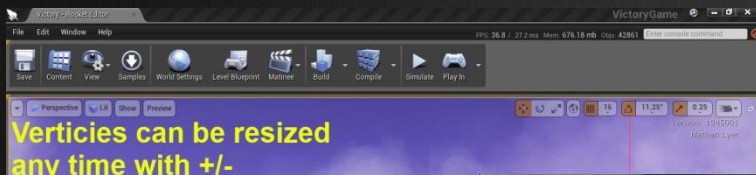
Flipbook editor



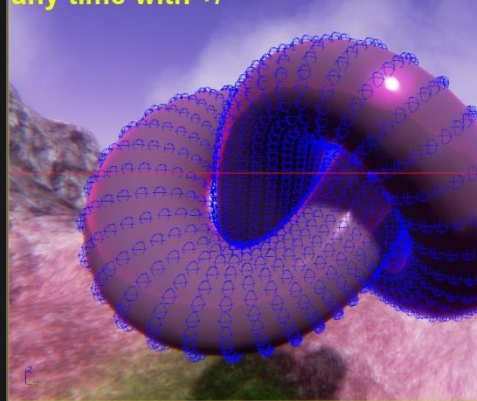
Early access preview







# Vertex Snapping, Ocean Surface, Rollercoaster



More on the Wiki!

# Building a C++ plug-in in Visual Studio...

# Questions?

Documentation, Tutorials and Help at:

- AnswerHub: <http://answers.unrealengine.com>
- Engine Documentation: <http://docs.unrealengine.com>
- Official Forums: <http://forums.unrealengine.com>
- Community Wiki: <http://wiki.unrealengine.com>
- YouTube Videos: <http://www.youtube.com/user/UnrealDevelopmentKit>
- Community IRC: [#unrealengine](#) on FreeNode

Unreal Engine 4 Roadmap

- [imgtfy.com/?q=Unreal+engine+Trello+](http://imgtfy.com/?q=Unreal+engine+Trello+)

