

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

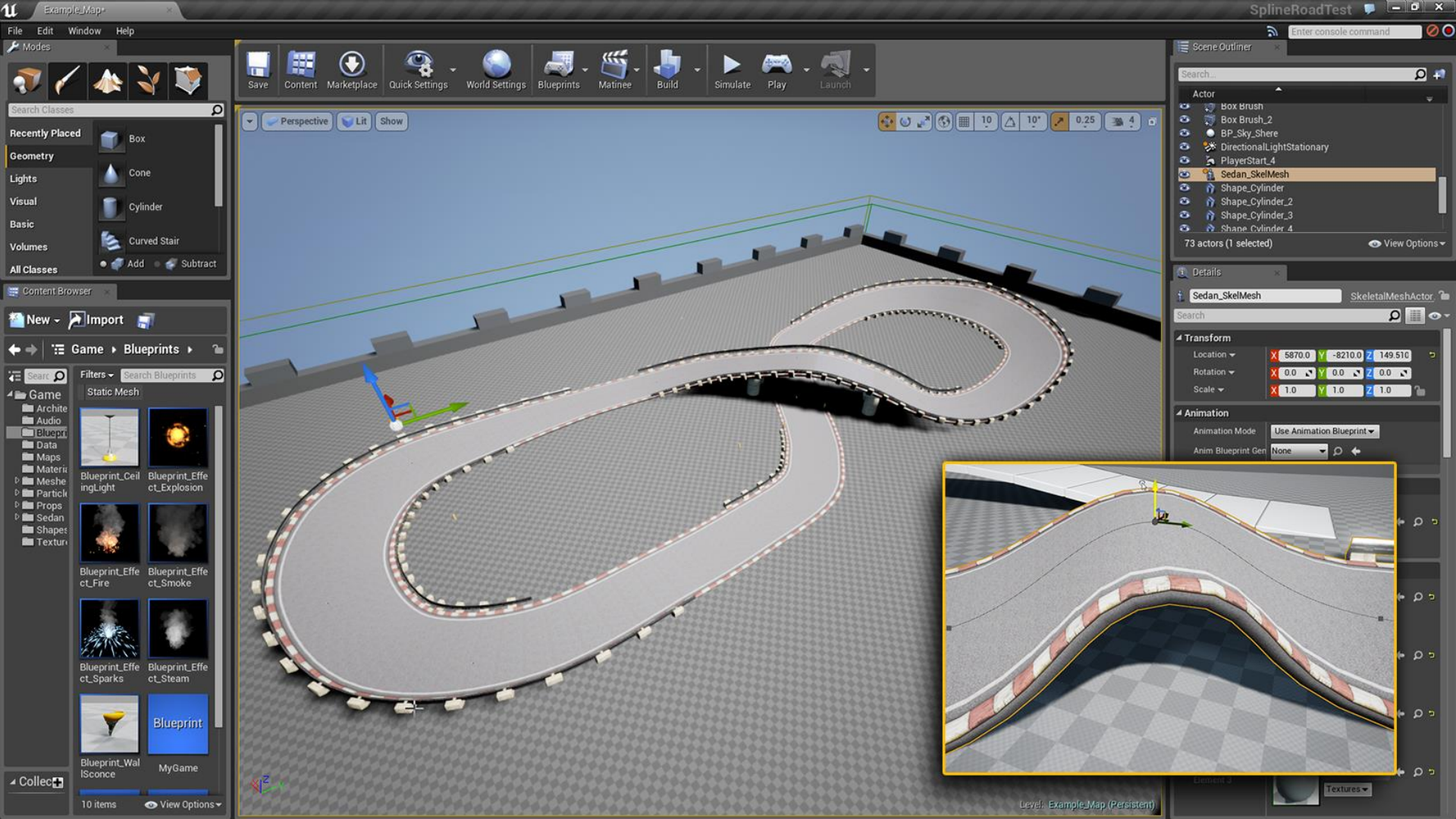
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Blueprint Construction Scripts

- 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

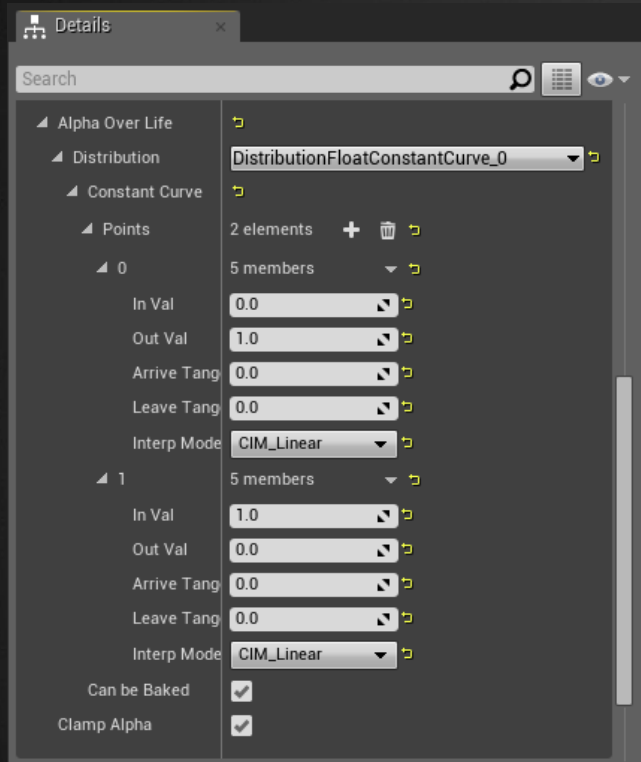
- Change the appearance of your types in the Details panel
- Customize per class, or per property
- Inject, modify, replace, or remove property entries

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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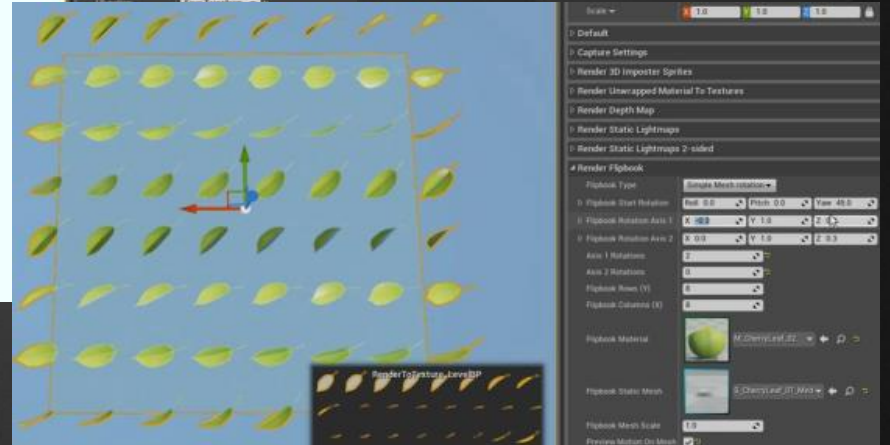
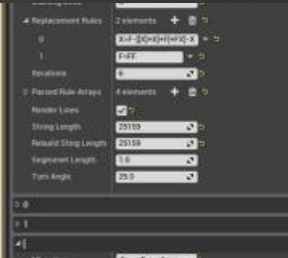
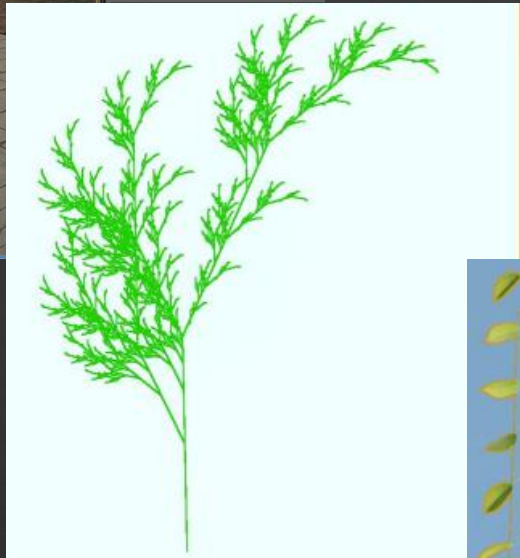
Plug-ins

Blutilities

- Blueprints for the Editor!
- No C++ programming required
- Can fire off events that effect the Editor
- Currently experimental, but already working
- Scheduled for 4.5 [may change]



Procedural Textures, L-Systems, Flipbooks



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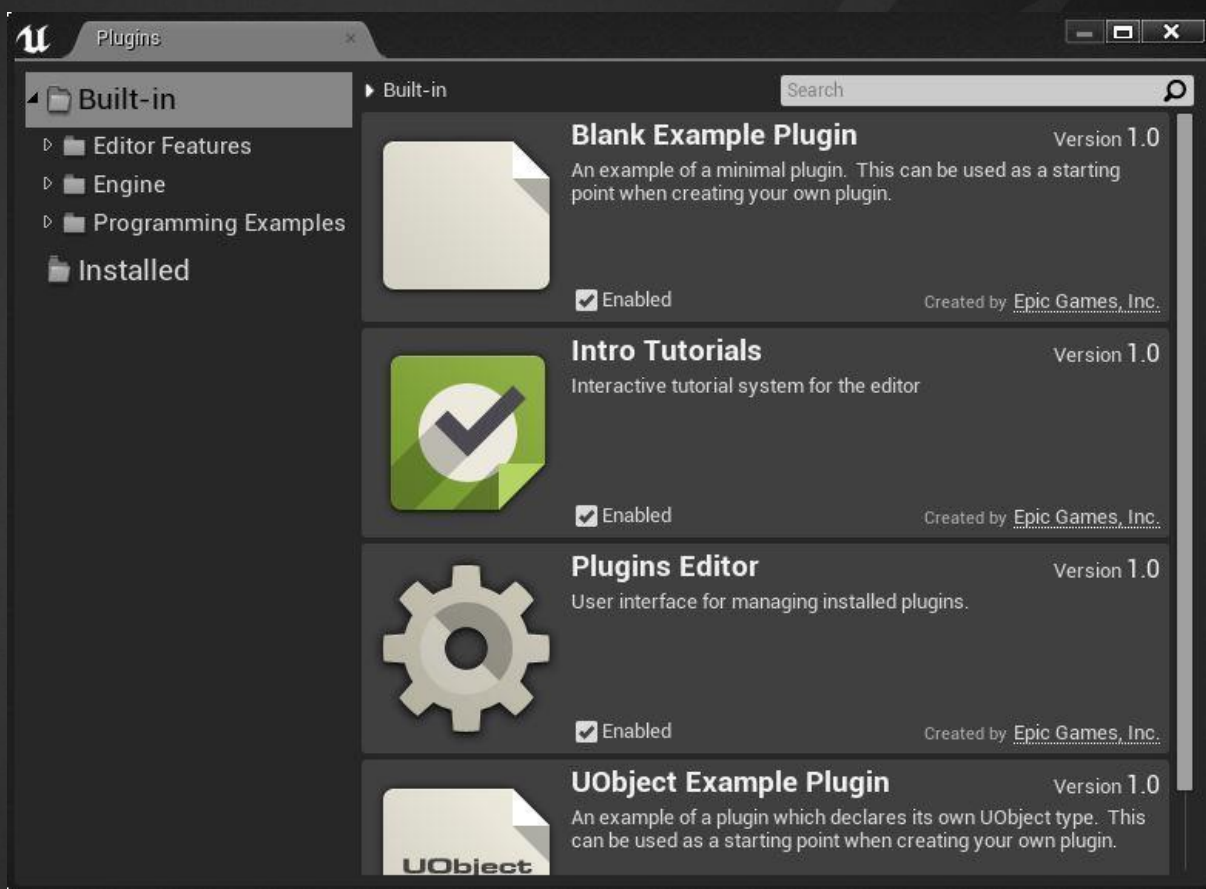
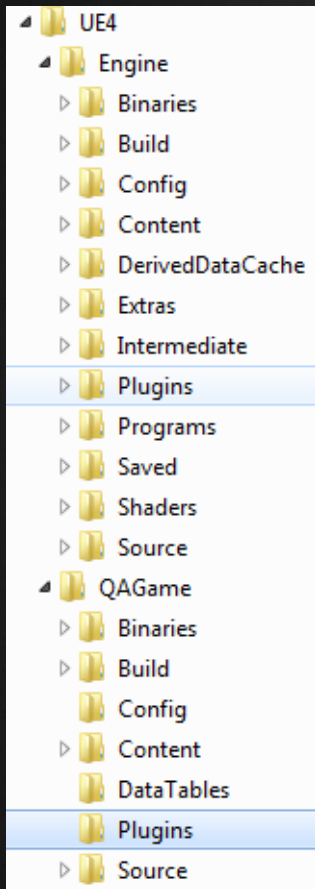
Overview

- 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

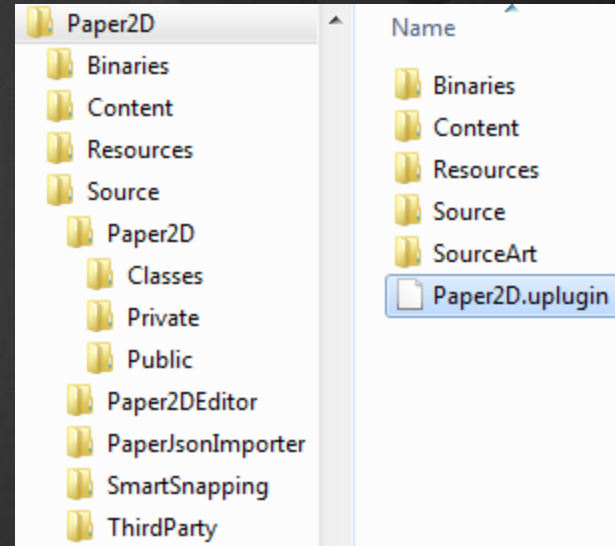
- Have their own 'Content' folder
- Configuration files (INIs) not supported yet

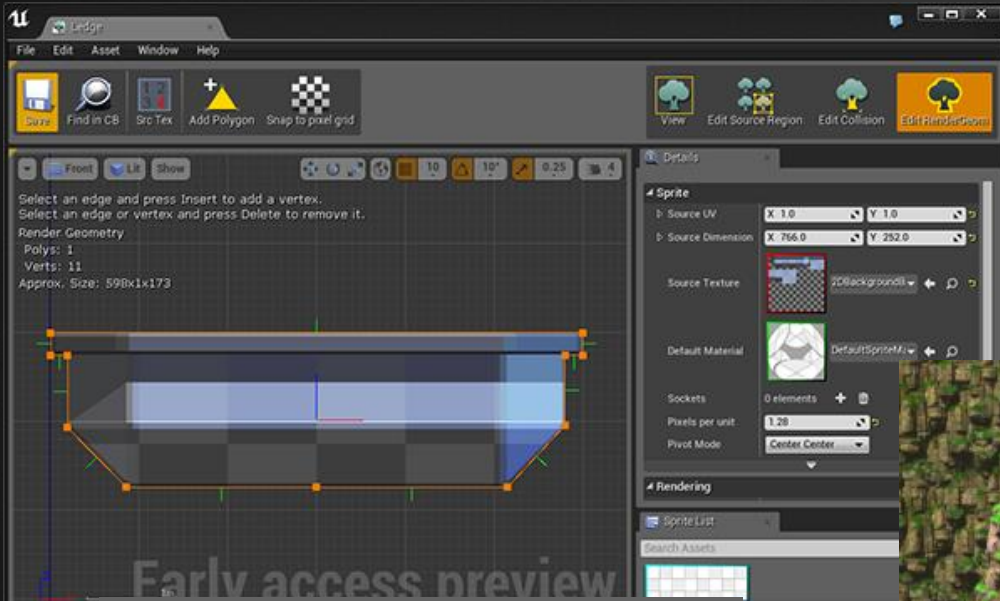
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Descriptor Files (.uplugin)

```
{  
  "FileVersion" : 3,  
  
  "FriendlyName" : "Paper2D",  
  "Version" : 1,  
  "VersionName" : "1.0",  
  "CreatedBy" : "Epic Games, Inc.",  
  "CreatedByURL" : "http://epicgames.com",  
  "EngineVersion" : "4.2.0",  
  "Description" : "[EARLY ACCESS PREVIEW] Paper2D.",  
  "Category" : "2D.Helpers",  
  "EnabledByDefault" : true,  
  
  "Modules" :  
  [  
    // module definitions omitted  
  ],  
  
  "CanContainContent" : true  
}
```





Front Lit Show

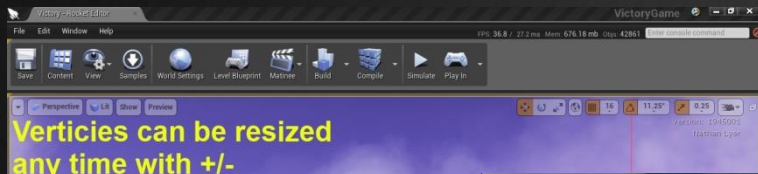
Flipbook editor



Early access preview



Vertex Snapping, Ocean Surface, Rollercoaster



More on the Wiki!

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+

