

# Ultimate Starter Kit

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Documentation

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*None*

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# 1. Getting Started

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## 1.1 Requirements

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The Ultimate Starter Kit plugin is only available for Unreal Engine 4.27 and newer. The plugin also depends on the following plugins:

1. Niagara
2. Enhanced Input

## 1.2 Installation

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1. Download the latest release from [GitHub](#)
2. Navigate to `C:\Program Files\Epic Games\UE_{VERSION}\Engine\Plugins`
3. Create a `Marketplace` folder if needed
4. Extract the release and copy to the `Marketplace` folder
5. Open Unreal Engine
6. Click on `Edit > Plugins`
7. Enable the plugin under the `Built-in > Other` category
8. Restart Unreal Engine

## 1.3 Plugin Content

---

The Ultimate Starter Kit plugin includes content that can be used in your Blueprints. You might need to enable this first:

1. Open the `Content Browser`
2. Click on the settings button
3. Enable the `Show Plugin Content` setting

## 2. Support the Project

---

I created this plugin because I love making games and I want to share my passion and knowledge with other game developers. I want to make Unreal Engine more accessible and powerful for everyone who wants to create amazing games.

But creating and maintaining this plugin is not easy. It requires a lot of work, resources, and expertise. That's why I need your support to keep this project alive and growing. By donating to this project, you can:

- Help me cover the costs of development, testing, documentation, and other expenses
- Encourage me to continue working on the project and adding new features
- Enable me to spend more time on the project and less on other jobs
- Join a community of like-minded game developers who care about the same plugin

Donating to this project is not only beneficial for me, but also for you as a user. By donating to this project, you can:

- Improve the plugin you rely on daily
- Learn new skills or improve on existing ones by studying the code or contributing yourself
- Gain a deeper knowledge about the plugin you're using
- Build your reputation and career by showing your involvement and expertise
- Have fun and satisfaction by being part of something bigger than yourself

So if you like this plugin and use it regularly, consider donating to it. Even a small amount can make a big difference. Donating to this project is a way of saying "thank you" to me and helping me create more amazing games and project for everyone.

You can donate through GitHub Sponsors here: <https://github.com/sponsors/hfjooste>

## 3. Special Thanks

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This project uses a few assets from third parties:

- [Comic Helvetic Font by Alexander Pravdin](#)
- [Menu Sound Effects by Broumbroum](#)
- [Land & Jump Sound Effects by Felixyadomi](#)
- [Item Sound Effects by Scrampunk](#)
- [Music by InAudio](#)

If you liked these assets and want to see more, please follow the links and show them some love!

## 4. Core Functionality

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### 4.1 Input Devices

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#### 4.1.1 Introduction

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Supported input devices. This is used to update the input indicators when using different input devices

#### 4.1.2 Values

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Value	Description
KeyboardMouse	Using a keyboard and mouse
GenericController	Using a controller on a desktop build
XboxController	Using an Xbox controller
PlaystationController	Using a Playstation controller
SwitchController	Using a Nintendo Switch controller
Unknown	Unknown device (used before initializing the input indicators)

## 4.2 Game Instance

---

### 4.2.1 Introduction

A base game instance with support for saving and loading game data using multiple save slots

### 4.2.2 Dependencies

The `USKGameInstance` relies on other components of this plugin to work:

- **Logger:** Used to log useful information to help you debug any issues you might experience

### 4.2.3 Using the Game Instance

You need to create a blueprint using the `USKGameInstance_Implementation` as a parent before using the game instance. The input indicators feature is already configured if you use this base class. If you prefer to set this up manually, you can use `USKGameInstance` instead. After creating your own game instance blueprint, set this as the default game instance:

1. Open the Project Settings
2. Go to Project > Maps & Modes
3. Change the `Game Instance Class` value to your own blueprint

### 4.2.4 Save Data

You need to create a `USK Save Game` object before you can save/load data. This object contains all the data that you want to save. Just add the data you want to save as variables to the blueprint. The `Game Instance` will handle the rest. You also need to set the following properties before you can save/load data:

- **Save Game Class:** A reference to the `USK Save Game` class that contains the data you want to save

**NB:** You are required to set the save slot before you can save/load data. If not, you will get a `nullptr` and might cause your game to crash

### 4.2.5 Input Indicators

The Game Instance will automatically detect input events and update the current input device if needed. If the input device is changed, other classes will be notified through the `OnInputDeviceUpdated` event



## 4.2.6 API Reference

### Properties

Property	Description	Type	Default Value
SaveGameClass	The class that holds the data that should be saved/loaded	TSubclassOf<UUSKSaveGame>	
SettingsConfig	The configuration for the settings	USettingsConfig*	<code>nullptr</code>
IsInputIndicatorsEnabled	Is the input indicators feature enabled?	bool	<code>true</code>
InputMappingContext	The input mapping context used to extract the keys based on specific input actions	UInputMappingContext*	<code>nullptr</code>
KeyboardMouseInputMappings	A map of all keyboard/mouse keys and the texture displayed in the indicator	TMap<FKey, UTexture2D*>	
GenericControllerInputMappings	A map of all generic controller keys and the texture displayed in the indicator	TMap<FKey, UTexture2D*>	
XboxControllerInputMappings	A map of all Xbox controller keys and the texture displayed in the indicator	TMap<FKey, UTexture2D*>	
PlaystationControllerInputMappings	A map of all Playstation controller keys and the texture displayed in the indicator	TMap<FKey, UTexture2D*>	
SwitchControllerInputMappings	A map of all Switch controller keys and the texture displayed in the indicator	TMap<FKey, UTexture2D*>	

### Events

Name	Description	Params
OnDataLoadedEvent	Event used to notify other classes when the save data is loaded	
OnInputDeviceUpdated	Event used to notify other classes when the current input device is updated	

## Functions

Name	Description	Params	Return
GetSaveData	Get the save data that is currently loaded		<b>UUSKSaveGame*</b> A reference to the current save data
SaveData	Save the modified data currently in memory		
SetCurrentSaveSlot	Set the current save slot	<b>Index (int)</b> The index of the save slot	
IsSaveSlotUsed	Check if a save slot is used	<b>Index (int)</b> The index of the save slot to check	<b>bool</b> A boolean value indicating if the save slot is used
EnableInputIndicators	Enable the input indicators feature		
DisableInputIndicators	Disable the input indicators feature		
GetInputIndicatorIcon	Get the input indicator icon for a specific action	<b>InputAction (UInputAction*)</b> The input action  <b>Amount (int)</b> The amount of icons to retrieve	<b>TArray&lt;UTexture2D*&gt;</b> An array of input indicator icons for the specified action

## 4.2.7 Blueprint Usage

You can use the `USKGameInstance` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Save Data > Get Save Data
- Ultimate Starter Kit > Save Data > Save Data
- Ultimate Starter Kit > Save Data > Set Current Save Slot
- Ultimate Starter Kit > Save Data > Is Save Slot Used
- Ultimate Starter Kit > Input > Enable Input Indicators
- Ultimate Starter Kit > Input > Disable Input Indicators
- Ultimate Starter Kit > Input > Get Input Indicator Icon

## 4.2.8 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `USKGameInstance` can now be used in any of your C++ files:

```
#include "USK/Core/USKGameInstance.h"

void ATestActor::Test()
{
    // USKGameInstance is a pointer to the UUSKGameInstance
    UUSKSaveGame* SaveData = USKGameInstance->GetSaveData();
    USKGameInstance->SaveData();
    USKGameInstance->SetCurrentSaveSlot(Index);
    bool IsSaveSlotUsedValue = USKGameInstance->IsSaveSlotUsed(Index);
    USKGameInstance->EnableInputIndicators();
    USKGameInstance->DisableInputIndicators();
    TArray<UTexture2D*> InputIndicatorIcon = USKGameInstance->GetInputIndicatorIcon(InputAction, Amount);
}
```

## 5. Logger

---

### 5.1 Introduction

---

A system used to easily log info to file and via on-screen messages

### 5.2 Log Levels

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This plugin supports the following log types:

1. **Trace:** Logs that contain the most detailed messages. These messages may contain sensitive application data. These messages are disabled by default and should never be enabled in a production environment
2. **Debug:** Logs that are used for interactive investigation during development. These logs should primarily contain information useful for debugging and have no long-term value
3. **Information:** Logs that track the general flow of the application. These logs should have long-term value
4. **Warning:** Logs that highlight an abnormal or unexpected event in the application flow, but do not otherwise cause the application execution to stop
5. **Error:** Logs that highlight when the current flow of execution is stopped due to a failure. These should indicate a failure in the current activity, not an application-wide failure

The log levels corresponds to the following verbosity level in Unreal Engine:

Log Level	Log Verbosity
Trace	VeryVerbose
Debug	Verbose
Information	Display
Warning	Warning
Error	Error

The plugin will automatically ignore certain log levels based on the type of build:

Log Level	Development	Shipping
Trace	Enabled	Disabled
Debug	Enabled	Disabled
Information	Enabled	Enabled
Warning	Enabled	Enabled
Error	Enabled	Enabled

### 5.3 Logging Methods

---

There are 2 different logging methods. Both of these are used each time you log something:

- **On-screen messages:** These messages will appear on-screen for 5 seconds (only used when running the game through the editor)
- **Log File:** Everything you log is also written to a file using the Unreal Engine logging feature

## 5.4 API Reference

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### 5.4.1 Macros

Name	Description	Params	Return
USK_LOG_TRACE	Log trace information using the current function name as the tag	<b>Text (FString)</b> The text that should be logged out	
USK_LOG_DEBUG	Log debug information using the current function name as the tag	<b>Text (FString)</b> The text that should be logged out	
USK_LOG_INFO	Log information using the current function name as the tag	<b>Text (FString)</b> The text that should be logged out	
USK_LOG_WARNING	Log a warning using the current function name as the tag	<b>Text (FString)</b> The text that should be logged out	
USK_LOG_ERROR	Log an error using the current function name as the tag	<b>Text (FString)</b> The text that should be logged out	

## 5.4.2 Functions

Name	Description	Params	Return
Trace	Log trace information	<b>Tag (FString)</b> The category of the log entry. This is usually the function or class name. It allows you to find out exactly where this is being logged  <b>Text (FString)</b> The text that should be logged out	
Debug	Log debug information	<b>Tag (FString)</b> The category of the log entry. This is usually the function or class name. It allows you to find out exactly where this is being logged  <b>Text (FString)</b> The text that should be logged out	
Info	Log information	<b>Tag (FString)</b> The category of the log entry. This is usually the function or class name. It allows you to find out exactly where this is being logged  <b>Text (FString)</b> The text that should be logged out	
Warning	Log a warning	<b>Tag (FString)</b> The category of the log entry. This is usually the function or class name. It allows you to find out exactly where this is being logged  <b>Text (FString)</b> The text that should be logged out	
Error	Log an error	<b>Tag (FString)</b> The category of the log entry. This is usually the function or class name. It allows you to find out exactly where this is being logged  <b>Text (FString)</b> The text that should be logged out	

## 5.5 Blueprint Usage

You can easily log info using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Logger > Log Trace
- Ultimate Starter Kit > Logger > Log Debug
- Ultimate Starter Kit > Logger > Log Info
- Ultimate Starter Kit > Logger > Log Warning
- Ultimate Starter Kit > Logger > Log Error

## 5.6 C++ Usage

The logging is handled through a static class/functions. You first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The logger can now be used in any of your C++ files:

```
#include "USK/Logger/Log.h"

void ATestActor::Test()
{
    USK_LOG_TRACE("Testing trace logging");
    USK_LOG_DEBUG("Testing debug logging");
    USK_LOG_INFO("Testing info logging");
    USK_LOG_WARNING("Testing warning logging");
    USK_LOG_ERROR("Testing error logging");

    ULog::Trace("Custom Tag", "Testing trace logging");
    ULog::Debug("Custom Tag", "Testing debug logging");
    ULog::Info("Custom Tag", "Testing info logging");
    ULog::Warning("Custom Tag", "Testing warning logging");
    ULog::Error("Custom Tag", "Testing error logging");
}
```

## 6. Trackable Data

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### 6.1 Overview

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#### 6.1.1 Introduction

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A system that is used to easily manage different types of actor data

#### 6.1.2 Trackable Data Component

---

Before you can manage the data, you need to create a [Trackable Data Component](#) and add it to the actor/character containing the data

#### 6.1.3 Built-in data

---

The following data can automatically be managed without creating custom components:

1. Currency (using the `Currency Component` )
2. Stats (using the `Stats Component` )

## 6.2 Data

---

### 6.2.1 Introduction

---

All trackable data use the `FTrackableData` struct to specify the default values and behaviours

### 6.2.2 Properties

---

Property	Description	Type	Default Value
InitialValue	The initial value of the data	float	
EnforceMaxValue	Should we enforce a maximum value?	bool	
MaxValue	The maximum value of the data	float	100.0f
AutoSave	Should all value updates automatically be saved using the game instance?	bool	
AutoGenerate	Should we automatically generate value every second?	bool	
GenerateAmount	The amount of value to generate every second	float	
GenerateDelay	The delay before the value starts generating after losing value	float	



## 6.3 Component

### 6.3.1 Introduction

A component that is used to easily manage/track different types of actor data

### 6.3.2 Dependencies

The `TrackableDataComponent` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience
- [Game Instance](#): Used to monitor for input device changes and handle saving/loading game data

### 6.3.3 Data

The data to track is configured by adding items to the `Data` map. The component should be added to the actor/character containing the data

### 6.3.4 API Reference

#### Properties

Property	Description	Type	Default Value
Data	The map of data to track	TMap<FName, FTrackableData>	

#### Events

Name	Description	Params
OnValueZero	Event used to notify other classes every time the data value reaches 0	<b>Name (FName)</b> The name of the data item
OnValueUpdated	Event used to notify other classes every time the data value is updated	<b>Name (FName)</b> The name of the data item  <b>Value (FName)</b> The current value of the data item  <b>ValuePercentage (FName)</b> The percentage of the current value compared to the max value of the data item

## Functions

Name	Description	Params	Return
GetValue	Get the amount of the data	<b>Name (FName)</b> The name of the data item	<b>float</b> The current amount of the data item
GetValuePercentage	Get the value of the data as a percentage of to the max value	<b>Name (FName)</b> The name of the data item	<b>float</b> The value of the data as a percentage of to the max value
Add	Add an amount to the data	<b>Name (FName)</b> The name of the data item  <b>Amount (float)</b> The amount to add	<b>float</b> The new amount of the data item
Remove	Remove an amount from the data	<b>Name (FName)</b> The name of the data item  <b>Amount (float)</b> The amount to remove	<b>float</b> The new amount of the data item

### 6.3.5 Blueprint Usage

You can use the `TrackableDataComponent` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Trackable Data > Get Value
- Ultimate Starter Kit > Trackable Data > Get Value Percentage
- Ultimate Starter Kit > Trackable Data > Add
- Ultimate Starter Kit > Trackable Data > Remove

### 6.3.6 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `TrackableDataComponent` can now be used in any of your C++ files:

```
#include "USK/Data/TrackableDataComponent.h"

void ATestActor::Test()
{
    // TrackableDataComponent is a pointer to the UTrackableDataComponent
    float Value = TrackableDataComponent->GetValue(Name);
    float ValuePercentage = TrackableDataComponent->GetValuePercentage(Name);
    float AddValue = TrackableDataComponent->Add(Name, Amount);
    float RemoveValue = TrackableDataComponent->Remove(Name, Amount);
}
```

## 7. Audio

---

### 7.1 Audio Overview

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#### 7.1.1 Introduction

---

A system used to manage the basic properties of audio files. It includes different sound classes, a sound mix and sound attenuation settings

#### 7.1.2 Sound Classes

---

The audio system includes a few basic preconfigured sound classes:

Class name	Group	Volume
USK_EffectsSoundClass	Effects	1.0
USK_MusicSoundClass	Music	0.5
USK_UISoundClass	UI	1.0
USK_VoiceSoundClass	Voice	3.0

## 7.2 Audio Utils

### 7.2.1 Introduction

The audio utils class is used to easily play sound effects

### 7.2.2 Dependencies

The `AudioUtils` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

### 7.2.3 API Reference

#### Functions

Name	Description	Params	Return
PlaySound2D	Play a 2D sound	<b>WorldContext (UObject*)</b> The top level object representing a map  <b>SoundFX (USoundBase*)</b> The USoundBase to play	
PlayRandomSound2D	Play a random 2D sound	<b>WorldContext (UObject*)</b> The top level object representing a map  <b>SoundFX (TArray)</b> The array of USoundBase to select the random sound from	
PlaySound	Play a sound at the specified actor's location	<b>Actor (AActor*)</b> The actor where the sound will be played  <b>SoundFX (USoundBase*)</b> The USoundBase to play	
PlayRandomSound	Play a random sound at the specified actor's location	<b>Actor (AActor*)</b> The actor where the sound will be played  <b>SoundFX (TArray)</b> The array of USoundBase to select the random sound from	

### 7.2.4 Blueprint Usage

You can use the `AudioUtils` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Audio > Play Sound2D
- Ultimate Starter Kit > Audio > Play Random Sound2D
- Ultimate Starter Kit > Audio > Play Sound
- Ultimate Starter Kit > Audio > Play Random Sound

## 7.2.5 C++ Usage

---

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `AudioUtils` can now be used in any of your C++ files:

```
#include "USK/Audio/AudioUtils.h"

void ATestActor::Test()
{
    UAudioUtils::PlaySound2D(WorldContext, SoundFX);
    UAudioUtils::PlayRandomSound2D(WorldContext, SoundFX);
    UAudioUtils::PlaySound(Actor, SoundFX);
    UAudioUtils::PlayRandomSound(Actor, SoundFX);
}
```

## 7.3 Music Player

### 7.3.1 Introduction

Actor responsible for playing, pausing and stopping music. It also allows you to adjust music volume

### 7.3.2 Dependencies

The `inal` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

### 7.3.3 Components

The `inal` uses the following components:

Name	Description	Type
AudioPlayer	Actor responsible for playing, pausing and stopping music. It also allows you to adjust music volume	UAudioComponent*

### 7.3.4 API Reference

#### Properties

Property	Description	Type	Default Value
PlayOnStart	Should the music automatically play when the actor is spawned?	bool	true

#### Functions

Name	Description	Params	Return
SetVolume	Adjust the playback volume of the music	<b>Volume (float)</b> The new volume of the music	
Play	Play the music		
Pause	Pause the music		
Stop	Stop the music		

### 7.3.5 Blueprint Usage

You can use the `inal` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Audio > Set Volume
- Ultimate Starter Kit > Audio > Play
- Ultimate Starter Kit > Audio > Pause
- Ultimate Starter Kit > Audio > Stop

### 7.3.6 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `inal` can now be used in any of your C++ files:

```
#include "USK/Audio/MusicPlayer.h"

void ATestActor::Test()
{
    // inal is a pointer to the final
    inal->SetVolume(Volume);
    inal->Play();
    inal->Pause();
    inal->Stop();
}
```

## 8. 3D Platformer

---

### 8.1 Overview

---

#### 8.1.1 Introduction

---

The plugin includes a basic 3D platformer character and animation template. This can easily be extended to add unique functionality



## 8.2 Character

---

### 8.2.1 Introduction

Base character that can be used for 3D platformer games

### 8.2.2 Dependencies

The `PlatformerCharacter` relies on other components of this plugin to work:

- **Logger**: Used to log useful information to help you debug any issues you might experience
- **Audio**: Used to play sound effects either 2D or at a specified location

### 8.2.3 Features

The following features are included in the 3D platformer character class:

1. **Double Jumping**: Additional jump with a different jump animation
2. **Variable Jump Height**: Adjust jump height based on how long the jump button is pressed
3. **Coyote Time**: Allow the character to jump for a short time after falling off the platform
4. **Shadow Decal**: A decal used as a shadow to indicate where the character will land
5. **Adjustable Camera Distance**: The camera automatically zooms in on the character while idle and zooms out as soon as the character starts moving
6. **Jump & Land effects**: Sound effects and particles when jumping and landing

All these features can be configured to meet your needs and can also be disabled

### 8.2.4 Components

The `PlatformerCharacter` uses the following components:

Name	Description	Type
SpringArmComponent	Base character that can be used for 3D platformer games	USpringArmComponent*
CameraComponent	The camera used by the character	UCameraComponent*

## 8.2.5 API Reference

## Properties

Property	Description	Type	Default Value
InputMappingContext	The input mapping context used by the player	UInputMappingContext*	<code>nullptr</code>
MoveAction	The move input action	UInputAction*	<code>nullptr</code>
LookAroundAction	The camera rotation input action	UInputAction*	<code>nullptr</code>
JumpAction	The jump input action	UInputAction*	<code>nullptr</code>
ShadowDecalClass	The shadow decal class used to draw a shadow below the character while in the air	TSubclassOf<AShadowDecal>	
JumpSoundEffects	An array of sound effects played when jumping	TArray<USoundBase*>	
JumpParticleFx	The particle effects spawned when jumping	UNiagaraSystem*	<code>nullptr</code>
JumpParticleFxSpawnOffset	The offset applied to the location of the jump particles when spawning	FVector	
LandedSoundEffects	An array of sound effects played when landing	TArray<USoundBase*>	
LandParticleFx	The particle effects spawned when landing	UNiagaraSystem*	<code>nullptr</code>
LandParticleFxSpawnOffset	The offset applied to the location of the land particles when spawning	FVector	
VariableJumpHeight	Does the character support variable jump height?	bool	true
VariableJumpHeightMaxHoldTime	The amount of time to hold the jump button to reach the max height	float	0.3f
JumpVelocity	The velocity applied to the character when jumping	float	500.0f
AirControl	The amount of lateral movement control available to the character while in the air	float	1000.0f
FallingFriction	The amount of friction to apply to lateral air movement when falling	float	3.5f
Gravity	The amount of gravity applied to the character	float	2.0f
CanDoubleJump	Can the character perform a double jump?	bool	true
CanCoyoteJump	Does the character support coyote time when trying to jump?	bool	true
CoyoteJumpTime	The amount of coyote time for the character	float	0.375f
CoyoteJumpVelocity	The velocity applied to the character when performing a coyote jump	float	700.0f
BrakingFriction	Friction coefficient applied when braking	float	10.0f
MaxAcceleration	The rate of change of velocity	float	2500.0f
TargetArmLength	Length of the spring arm component	float	350.0f
ArmLengthMultiplier	The multiplier applied to the spring arm component when the character is moving	float	0.4f
CameraAdjustmentSpeed	The speed used when adjusting the camera distance	float	3.0f

## 8.2.6 Blueprint Usage

---

There is no additional functions exposed to Blueprints. Just create the character and add it to your level

## 8.3 Animation Instance

### 8.3.1 Introduction

Base animation instance for a 3D platformer character

### 8.3.2 Dependencies

The `PlatformerAnimationInstance` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

### 8.3.3 API Reference

#### Properties

Property	Description	Type	Default Value
IdleAnimation	The animation used when the character is in the idle state	UAnimSequence*	<code>nullptr</code>
WalkAnimation	The animation used when the character is walking	UAnimSequence*	<code>nullptr</code>
RunAnimation	The animation used when the character is running	UAnimSequence*	<code>nullptr</code>
JumpAnimation	The animation used when the character is jumping	UAnimSequence*	<code>nullptr</code>
DoubleJumpAnimation	The animation used when the character is double jumping	UAnimSequence*	<code>nullptr</code>
FallAnimation	The animation used when the character is falling	UAnimSequence*	<code>nullptr</code>
LandAnimation	The animation used when the character is landing	UAnimSequence*	<code>nullptr</code>
MovementSpeed	The movement speed fo the character	float	
IsInAir	Is the character currently in the air?	bool	
IsDoubleJumping	Is the character double jumping?	bool	

### 8.3.4 Blueprint Usage

You can use this template by creating your own animation blueprint and selecting `UPlatformerAnimationInstance` as the parent class. Set your animations and use this for your 3D platformer character

## 8.4 Shadow Decal

### 8.4.1 Introduction

Decal used to draw a shadow beneath a character when the character is in the air

### 8.4.2 Dependencies

The `ShadowDecal` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

### 8.4.3 API Reference

#### Functions

Name	Description	Params	Return
Initialize	Initialize the shadow decal	<b>OwnerCharacter (ACharacter*)</b> The character owning this shadow decal	

### 8.4.4 Blueprint Usage

You can use the `ShadowDecal` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Shadow Decal > Initialize

### 8.4.5 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `ShadowDecal` can now be used in any of your C++ files:

```
#include "USK/Character/ShadowDecal.h"

void ATestActor::Test()
{
    // ShadowDecal is a pointer to the AShadowDecal
    ShadowDecal->Initialize(OwnerCharacter);
}
```

## 9. Items

---

### 9.1 Allowed Collector

---

#### 9.1.1 Introduction

The types of actor(s) that can collect an item

#### 9.1.2 Values

---

Value	Description
AnyActor	Any actor can collect the item
AnyPawn	Any pawn can collect the item
AnyCharacter	Any character can collect the item
AnyPlatformerCharacter	Any platformer character can collect the item
PossessedPawn	Only the possessed pawn can collect the item
Custom	A custom array of actor types can collect the item

## 9.2 Collectable Item

### 9.2.1 Introduction

An item that can be collected by an actor

### 9.2.2 Dependencies

The `CollectableItem` relies on other components of this plugin to work:

- **Logger:** Used to log useful information to help you debug any issues you might experience
- **Audio:** Used to play sound effects either 2D or at a specified location

### 9.2.3 Collision

The item requires an actor to overlap with the item before it can be collected. Make sure you have some collider on the actor and that the intended collector can overlap with the item/collider

### 9.2.4 API Reference

#### Properties

Property	Description	Type	Default Value
DestroyOnCollected	Should the item be destroyed after it has been collected	bool	true
AllowedCollector	The type of actor that can collect the item	EAllowedCollector	EAllowedCollector::PossessedPawn
AllowedCollectorTypes	The array of actor types that can collect the item	TArray<TSubclassOf<AActor>>	
CollectedSoundEffects	An array of sound effects played when collecting the item	TArray<USoundBase*>	
CollectedParticleFx	The particle effects spawned when collecting the item	UNiagaraSystem*	<code>nullptr</code>
CollectedParticleFxSpawnOffset	The offset applied to the location of the collected particles when spawning	FVector	

#### Functions

Name	Description	Params	Return
CollectItem	Collect the item	<b>Collector (AActor*)</b> A pointer to the actor that collected the item	
OnItemCollected	Called after the item is collected	<b>Collector (AActor*)</b> A pointer to the actor that collected the item	

## 9.2.5 Blueprint Usage

---

You can use the `CollectableItem` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Item > Collect Item
- Ultimate Starter Kit > Item > On Item Collected

## 9.2.6 C++ Usage

---

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `CollectableItem` can now be used in any of your C++ files:

```
#include "USK/Items/CollectableItem.h"

void ATestActor::Test()
{
    // CollectableItem is a pointer to the ACollectableItem
    CollectableItem->CollectItem(Collector);
    CollectableItem->OnItemCollected(Collector);
}
```



## 10. UI & Widgets

### 10.1 Collectable Item Icon

#### 10.1.1 Introduction

A widget used to display the collection state of an item by showing/hiding an image

#### 10.1.2 Dependencies

The `CollectableItemIcon` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

#### 10.1.3 Required Widgets

You need to add the following before you can compile the `CollectableItemIcon` widget:

Name	Description	Type
Icon	The Icon displayed if the item is collected	UIImage*

#### 10.1.4 API Reference

##### Properties

Property	Description	Type	Default Value
RequiredValue	The required value before the item is considered collected	float	

##### Functions

Name	Description	Params	Return
UpdateState	Update the collected state (and visibility) of the icon	<b>IsCollected (bool)</b> Is the item collected?	
UpdateValue	Update the value of the item and adjust the collected state if necessary	<b>Value (float)</b> The current value of the item	
MonitorTrackableValue	Monitor the trackable data and automatically update the icon state whenever the value changes	<b>TrackableDataComponent (UTrackableDataComponent*)</b> A reference to the TrackableDataComponent  <b>DataName (FName)</b> The name of the data item to monitor	

#### 10.1.5 Blueprint Usage

You can use the `CollectableItemIcon` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > UI > Update State
- Ultimate Starter Kit > UI > Update Value
- Ultimate Starter Kit > UI > Monitor Trackable Value

## 10.1.6 C++ Usage

---

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `CollectableItemIcon` can now be used in any of your C++ files:

```
#include "USK/Widgets/CollectableItemIcon.h"

void ATestActor::Test()
{
    // CollectableItemIcon is a pointer to the UCollectableItemIcon
    CollectableItemIcon->UpdateState(IsCollected);
    CollectableItemIcon->UpdateValue(Value);
    CollectableItemIcon->MonitorTrackableValue(TrackableDataComponent, DataName);
}
```

## 10.2 Credits

---

### 10.2.1 Credits Entry

---

#### Introduction

An single credits entry displayed by the credits widget

#### Properties

Property	Description	Type	Default Value
Title	The title for the credits entry	FText	
Text	The text for the credits entry	FText	
Duration	The duration of the credits entry	float	5.0f
HorizontalAlignment	The horizontal alignment applied to the credits widget when displaying this entry	TEnumAsByte<EHorizontalAlignment>	HAlign_Center
VerticalAlignment	The vertical alignment applied to the credits widget when displaying this entry	TEnumAsByte<EVerticalAlignment>	VAlign_Center

## 10.2.2 Credits Widget

---

### Introduction

Widget used to display multiple animated credits entries using different alignment options and durations

### Dependencies

The `CreditsWidget` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

### Required Widgets

You need to add the following before you can compile the `CreditsWidget` widget:

Name	Description	Type
Root	The root container of the widget	UPanelWidget*
Container	The container used to display the credits entries	UPanelWidget*
Text	The text block used to display the text of the credits entry	UTextBlock*

### Optional Widgets

You can add the following widgets to enable extra functionality:

Name	Description	Type
Title	The text block used to display the title of the credits entry	UTextBlock*

### Optional Animations

You can add the following widgets to enable extra functionality:

Name	Description
ShowAnimation	The animation played each time a new entry is shown
HideAnimation	The animation played at the end of each entry

## API Reference

### PROPERTIES

Property	Description	Type	Default Value
ShowAnimation	The animation played each time a new entry is shown	UWidgetAnimation*	<code>nullptr</code>
HideAnimation	The animation played at the end of each entry	UWidgetAnimation*	<code>nullptr</code>
AutoStart	Should the credits automatically be started when the widget is constructed?	bool	true
RemoveOnCompletion	Should the widget automatically be removed from the viewport when the credits are finished?	bool	true
StartDelay	The delay in seconds before the first credits entry is shown after starting	float	1.0f
DelayBetweenEntries	The delay in seconds between the previous hide animation and the next show animation	float	3.0f
Credits	The array of credits entries to be displayed	TArray<FCreditsEntry>	

### EVENTS

Name	Description	Params
OnCreditsFinished	Event used to notify other classes when the credits are finished	
OnCreditsNextEntryStarted	Event used to notify other classes every time a next entry is started	<b>Name (int)</b> The index of the entry that was started

### FUNCTIONS

Name	Description	Params	Return
Start	Start showing the credits		

## Blueprint Usage

You can use the `CreditsWidget` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > UI > Start

## C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `CreditsWidget` can now be used in any of your C++ files:

```
#include "USK/Widgets/CreditsWidget.h"

void ATestActor::Test()
{
    // CreditsWidget is a pointer to the UCreditsWidget
    CreditsWidget->Start();
}
```

## 10.3 FPS Counter

---

### 10.3.1 Introduction

A widget used to display the current framerate

### 10.3.2 Required Widgets

There is already a `FpsCounter_Implementation` that you can use in your projects. But if you create your own instance of this widget, you need to add the following before you can compile:

Name	Description	Type
FramerateText	The text block used to display the framerate	UTextBlock*

### 10.3.3 API Reference

---

#### Properties

Property	Description	Type	Default Value
UpdateDelay	The delay in seconds between each update	float	0.125f
HighFramerate	A framerate that is considered high and will use the high color	int	60
MediumFramerate	A framerate that is considered medium and will use the medium color	int	30
HighColor	The color used to display high framerates	FLinearColor	FLinearColor::Green
MediumColor	The color used to display medium framerates	FLinearColor	FLinearColor::Yellow
LowColor	The color used to display low framerates	FLinearColor	FLinearColor::Red

## 10.4 Input Indicator

### 10.4.1 Introduction

A widget used to display input indicators based on the current input device and input action

### 10.4.2 Dependencies

The `InputIndicator` relies on other components of this plugin to work:

- **Logger**: Used to log useful information to help you debug any issues you might experience
- **Game Instance**: Used to monitor for input device changes and handle saving/loading game data

### 10.4.3 Required Widgets

There is already a `InputIndicator_Implementation` that you can use in your projects. But if you create your own instance of this widget, you need to add the following before you can compile:

Name	Description	Type
Container	The container used to display multiple images	UHorizontalBox*

### 10.4.4 API Reference

#### Properties

Property	Description	Type	Default Value
InputIndicatorIconClass	The input indicator icon class	TSubclassOf<UInputIndicatorIcon>	
Action	The input action displayed by widget	UInputAction*	<code>nullptr</code>
Size	The size of the image	float	50.0f
Amount	The amount of images to display for the input action	int	1

#### Functions

Name	Description	Params	Return
UpdateAction	Update the input action displayed by the widget	<b>NewAction (UInputAction*)</b> The new action  <b>NewAmount (int)</b> The new amount of images to display	

### 10.4.5 Blueprint Usage

You can use the `InputIndicator` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > UI > Update Action

### 10.4.6 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `InputIndicator` can now be used in any of your C++ files:

```
#include "USK/Widgets/InputIndicator.h"

void ATestActor::Test()
{
    // InputIndicator is a pointer to the UInputIndicator
    InputIndicator->UpdateAction(NewAction, NewAmount);
}
```



# 10.5 Input Indicator Icon

## 10.5.1 Introduction

A widget used to display a single input indicator image

## 10.5.2 Dependencies

The `InputIndicatorIcon` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

## 10.5.3 Required Widgets

There is already a `InputIndicatorIcon_Implementation` that you can use in your projects. But if you create your own instance of this widget, you need to add the following before you can compile:

Name	Description	Type
Container	The size box container used to resize the image	USizeBox*
Image	The image used to display the input indicator	UIImage*

## 10.5.4 API Reference

### Properties

Property	Description	Type	Default Value
----------	-------------	------	---------------

### Functions

Name	Description	Params	Return
UpdateIcon	Update the icon	<b>Size (float)</b> The size of the image  <b>Icon (UTexture2D*)</b> The new icon	

## 10.5.5 Blueprint Usage

You can use the `InputIndicatorIcon` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > UI > Update Icon

## 10.5.6 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `InputIndicatorIcon` can now be used in any of your C++ files:

```
#include "USK/Widgets/InputIndicatorIcon.h"

void ATestActor::Test()
{
    // InputIndicatorIcon is a pointer to the UInputIndicatorIcon
```

```
InputIndicatorIcon->UpdateIcon(Size, Icon);  
}
```

## 10.6 Menu

### 10.6.1 Introduction

A widget used to display menu items and handle navigation between the items

### 10.6.2 Dependencies

The `Menu` relies on other components of this plugin to work:

- **Logger**: Used to log useful information to help you debug any issues you might experience
- **Audio**: Used to play sound effects either 2D or at a specified location

### 10.6.3 Optional Widgets

You can add the following widgets to enable extra functionality:

Name	Description	Type
ScrollContainer	Scroll container used for large menus with many items	UScrollView*

### 10.6.4 API Reference

#### Properties

Property	Description	Type	Default Value
AddInputBindingOnLoad	Should the input binding automatically be added as soon as the widget is loaded?	bool	
PauseGameWhileVisible	Should the game automatically be paused/resumed based on the visibility of the menu?	bool	
SelectedSFX	The sound effect played when a menu item is selected	USoundBase*	<code>nullptr</code>
BackSFX	The sound effect played when trying to go back to a previous menu or closing the menu through the back button	USoundBase*	<code>nullptr</code>
InputMappingContext	The input mapping context used to navigate the menu	UInputMappingContext*	<code>nullptr</code>
MenuUpInputAction	The input action used to navigate up	UInputAction*	<code>nullptr</code>
MenuDownInputAction	The input action used to navigate down	UInputAction*	<code>nullptr</code>
MenuLeftInputAction	The input action used to navigate left	UInputAction*	<code>nullptr</code>
MenuRightInputAction	The input action used to navigate right	UInputAction*	<code>nullptr</code>
MenuSelectInputAction	The input action used to select a menu item	UInputAction*	<code>nullptr</code>
MenuBackInputAction	The input action used to go back to a previous menu or close the menu	UInputAction*	<code>nullptr</code>

#### Events

Name	Description	Params
OnBackEvent	Event used to handle the back/close action of the menu	

## Functions

Name	Description	Params	Return
OnMenuUp	Navigate up or increase the value		
OnMenuUpHold	Increase the value while holding the menu up key		
OnMenuDown	Navigate down or decrease the value		
OnMenuDownHold	Decrease the value while holding the menu down key		
OnMenuLeft	Navigate left or decrease the value		
OnMenuLeftHold	Decrease the value while holding the menu left key		
OnMenuRight	Navigate right or increase the value		
OnMenuRightHold	Increase the value while holding the menu right key		
OnMenuSelected	Select the current menu item		
OnMenuBack	Go back to a previous menu or close the menu		
RequestHighlight	Request to highlight a specific menu item	<b>MenuItem (UMenuItem*)</b> The menu item to highlight	
RemoveHighlight	Request to remove the highlighted state from a specific menu item	<b>MenuItem (UMenuItem*)</b> The menu item to remove the highlighted state from	

## 10.6.5 Blueprint Usage

You can use the `Menu` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > UI > On Menu Up
- Ultimate Starter Kit > UI > On Menu Up Hold
- Ultimate Starter Kit > UI > On Menu Down
- Ultimate Starter Kit > UI > On Menu Down Hold
- Ultimate Starter Kit > UI > On Menu Left
- Ultimate Starter Kit > UI > On Menu Left Hold
- Ultimate Starter Kit > UI > On Menu Right
- Ultimate Starter Kit > UI > On Menu Right Hold
- Ultimate Starter Kit > UI > On Menu Selected
- Ultimate Starter Kit > UI > On Menu Back
- Ultimate Starter Kit > UI > Request Highlight
- Ultimate Starter Kit > UI > Remove Highlight

## 10.6.6 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `Menu` can now be used in any of your C++ files:

```
#include "USK/Widgets/Menu.h"

void ATestActor::Test()
{
```

```
// Menu is a pointer to the UMenu
Menu->OnMenuUp();
Menu->OnMenuUpHold();
Menu->OnMenuDown();
Menu->OnMenuDownHold();
Menu->OnMenuLeft();
Menu->OnMenuLeftHold();
Menu->OnMenuRight();
Menu->OnMenuRightHold();
Menu->OnMenuSelected();
Menu->OnMenuBack();
Menu->RequestHighlight(MenuItem);
Menu->RemoveHighlight(MenuItem);
}
```

## 10.7 Menu Item

---

### 10.7.1 Navigation

---

#### Introduction

All the supported menu navigation types

#### Values

Value	Description
Disabled	No navigation allowed
HighlightItem	Highlight a different menu item
IncreaseDecreaseValue	Increase or decrease the value

## 10.7.2 Value Update Method

---

### Introduction

The method used to update the value of a menu item

### Values

Value	Description
SinglePress	The value is only updated when the button is pressed
Hold	The value is updated while the button is held down

## 10.7.3 Menu Item Widget

### Introduction

A widget used to display a title, text and value in the form of a menu item

### Dependencies

The `MenuItem` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience
- [Audio](#): Used to play sound effects either 2D or at a specified location

### Optional Widgets

You can add the following widgets to enable extra functionality:

Name	Description	Type
Title	The TextBlock used to display the title of the menu item	UTextBlock*
NormalText	The TextBlock used to display the text of the menu item while not highlighted	UTextBlock*
HighlightedText	The TextBlock used to display the text of the menu item while highlighted	UTextBlock*
ValueText	The TextBlock used to display the current value of the menu item	UTextBlock*
HighlightedValueText	The TextBlock used to display the current value of the menu item while highlighted	UTextBlock*
SelectButton	The button used to select the menu item	UButton*
ValueSlider	The slider used to display and update the current value of the menu item	USlider*
IncreaseValueButton	The button used to increase the value of the menu item	UButton*
DecreaseValueButton	The button used to decrease the value of the menu item	UButton*
BorderLeft	The border displayed on the left of the menu item	UImage*
BorderRight	The border displayed on the right of the menu item	UImage*
BorderBackground	The background border display in the menu item	UImage*
ButtonLeft	The button displayed on the left of the menu item	UImage*
ButtonRight	The button displayed on the right of the menu item	UImage*
ButtonBackground	The background button display in the menu item	UImage*

### Optional Animations

You can add the following widgets to enable extra functionality:

Name	Description
HighlightedAnimation	The animation played when the menu item is highlighted



**API Reference**

## PROPERTIES

Property	Description	Type	Default Value
HighlightedAnimation	The animation played when the menu item is highlighted	UWidgetAnimation*	<code>nullptr</code>
FocusByDefault	Should the menu item be focused by default?	bool	
HideOnConsoles	Should the menu item be hidden on consoles?	bool	
TitleText	The title text displayed in the menu item	FText	
MenuItemText	The text displayed in the menu item	FText	
HighlightedSFX	The sound effect played when the menu item is highlighted	USoundBase*	<code>nullptr</code>
BorderNormalColor	The color of the border when not highlighted	FLinearColor	
BorderHighlightedColor	The color of the border when highlighted	FLinearColor	
BorderNormalImage	The image of the border when not highlighted	UTexture2D*	<code>nullptr</code>
BorderHighlightedImage	The image of the border when highlighted	UTexture2D*	<code>nullptr</code>
BorderLeftNormalImage	The image of the left border when not highlighted	UTexture2D*	<code>nullptr</code>
BorderLeftHighlightedImage	The image of the left border when highlighted	UTexture2D*	<code>nullptr</code>
BorderRightNormalImage	The image of the right border	UTexture2D*	<code>nullptr</code>

	when not highlighted		
BorderRightHighlightedImage	The image of the right border when highlighted	UTexture2D*	<code>nullptr</code>
BackgroundNormalColor	The color of the button when not highlighted	FLinearColor	
BackgroundHighlightedColor	The color of the button when highlighted	FLinearColor	
BackgroundNormalImage	The image of the button when not highlighted	UTexture2D*	<code>nullptr</code>
BackgroundHighlightedImage	The image of the button when highlighted	UTexture2D*	<code>nullptr</code>
BackgroundLeftNormalImage	The image of the left button when not highlighted	UTexture2D*	<code>nullptr</code>
BackgroundLeftHighlightedImage	The image of the left button when highlighted	UTexture2D*	<code>nullptr</code>
BackgroundRightNormalImage	The image of the right button when not highlighted	UTexture2D*	<code>nullptr</code>
BackgroundRightHighlightedImage	The image of the right button when highlighted	UTexture2D*	<code>nullptr</code>
ValueUpdateMethod	The method used to update the value of the menu item	EMenuItemValueUpdateMethod	EMenuItemValueUpdateMethod::SinglePress
IncrementSinglePress	The increment used when updating the value when the key is pressed	float	1.0f
IncrementHold	The increment used when updating the value when the	float	0.15f

	key is held down		
SettingsItemType	The type of setting item managed by this menu item (changing this will overwrite other settings)	ESettingsItemType	ESettingsItemType::None
AutoSaveSettingsOnValueChanged	Should the settings managed by this menu item automatically be saved when the value is changed?	bool	true
AutoSaveSettingsOnHighlightRemoved	Should the settings managed by this menu item automatically be saved when the highlight state is removed?	bool	true
AutoSaveSettingsOnSelected	Should the settings managed by this menu item automatically be saved when the menu item is selected?	bool	true
ShowValueSlider	Should the value slider be shown for this menu item?	bool	false
ShowValueButtons	Should the increase/decrease value buttons be shown for this menu item?	bool	false
ValueMapping	A mapping of possible values to text	TMap<int, FText>	
DefaultValue	The default value of the menu item	int	100
MinValue	The minimum value of the menu item	int	0

MaxValue	The maximum value of the menu item	int	100
AllowSelection	Can the menu item be selected?	bool	true
VerticalNavigation	The type of navigation used by the menu item when pressing the up or down key	EMenuNavigation	EMenuNavigation::HighlightItem
MenuItemUp	The menu item highlighted when the up key is pressed	UMenuItem*	<code>nullptr</code>
MenuItemDown	The menu item highlighted when the down key is pressed	UMenuItem*	<code>nullptr</code>
HorizontalNavigation	The type of navigation used by the menu item when pressing the left or right key	EMenuNavigation	EMenuNavigation::HighlightItem
MenuItemLeft	The menu item highlighted when the left key is pressed	UMenuItem*	<code>nullptr</code>
MenuItemRight	The menu item highlighted when the right key is pressed	UMenuItem*	<code>nullptr</code>
Menu	A reference to the menu that contains this menu item	UMenu*	<code>nullptr</code>

## EVENTS

Name	Description	Params
OnSelected	Event used to notify other classes that the menu item was selected	
OnHighlighted	Event used to notify other classes that the menu item was highlighted	
OnHighlightRemoved	Event used to notify other classes that the menu item's highlighted state was removed	
OnValueChanged	Event used to notify other classes that the menu item's value was updated	<b>Value (int)</b> The new value of the menu item

## FUNCTIONS

Name	Description	Params	Return
SetText	Set the text displayed in the menu item	<b>Text (FText&amp;)</b> The new text displayed in the menu item	
SetTitle	Set the title displayed in the menu item	<b>Text (FText&amp;)</b> The new title displayed in the menu item	
SetHighlightedState	Set the highlighted state of the menu item	<b>IsHighlighted (bool)</b> Is the menu item highlighted?  <b>PlayHighlightedAnimation (bool)</b> Should the highlighted animation be played?  <b>PlayHighlightedSound (bool)</b> Should the highlighted sound effect be played?	
GetValue	Get the current value of the menu item		<b>int</b> The current value of the menu item
UpdateValue	Update the value of the menu item	<b>Increment (float)</b> The amount added to the current value of the menu item	
SelectItem	Select the menu item		
SaveSettings	Save the settings managed by this menu item		
ApplySettings	Apply the settings managed by this menu item		

## Blueprint Usage

You can use the `MenuItem` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > UI > Set Text
- Ultimate Starter Kit > UI > Set Title
- Ultimate Starter Kit > UI > Set Highlighted State
- Ultimate Starter Kit > UI > Get Value
- Ultimate Starter Kit > UI > Update Value
- Ultimate Starter Kit > UI > Select Item
- Ultimate Starter Kit > UI > Save Settings
- Ultimate Starter Kit > UI > Apply Settings

## C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `MenuItem` can now be used in any of your C++ files:

```
#include "USK/Widgets/MenuItem.h"

void ATestActor::Test()
{
    // MenuItem is a pointer to the UMenuItem
    MenuItem->SetText(Text);
}
```

```
MenuItem->SetTitle(Text);
MenuItem->SetHighlightedState(IsHighlighted, PlayHighlightedAnimation, PlayHighlightedSound);
int Value = MenuItem->GetValue();
MenuItem->UpdateValue(Increment);
MenuItem->SelectItem();
MenuItem->SaveSettings();
MenuItem->ApplySettings();
}
```

## 11. Settings

---

### 11.1 Data

---

#### 11.1.1 Introduction

---

The settings data that is saved/loaded

#### 11.1.2 API Reference

---

##### Properties

Property	Description	Type	Default Value
AudioMasterModified	Was the master audio volume modified?	bool	
AudioMaster	The master audio volume	float	
AudioMusicModified	Was the music volume modified?	bool	
AudioMusic	The music volume	float	
AudioEffectsModified	Was the effects volume modified?	bool	
AudioEffects	The effects volume	float	
AudioUiModified	Was the UI volume modified?	bool	
AudioUi	The UI volume	float	
AudioVoiceModified	Was the voice volume modified?	bool	
AudioVoice	The voice volume	float	



## 11.2 Config

---

### 11.2.1 Introduction

---

The configuration used for managing settings

## 11.2.2 API Reference

---

### Properties

Property	Description	Type	Default Value
AudioMasterImplementation	The implementation for the audio master settings item	TSubclassOf<USettingsItem>	USettingsItemAudioMaster::StaticClas
AudioMasterSoundMix	The sound mix used to manage all sound classes	USoundMix*	<code>nullptr</code>
AudioMasterText	The text displayed in the master audio settings item	FText	
AudioMasterMin	The minimum value for the master audio settings item	float	0.0f
AudioMasterMax	The maximum value for the master audio settings item	float	100.0f
AudioMasterDefault	The default value for the master audio settings item	float	100.0f
AudioMusicImplementation	The implementation for the audio music settings item	TSubclassOf<USettingsItem>	USettingsItemAudioMusic::StaticClas
AudioMusicSoundClass	The sound class used by all music	USoundClass*	<code>nullptr</code>
AudioMusicText	The text displayed in the music audio settings item	FText	
AudioMusicMin	The minimum value for the music audio settings item	float	0.0f
AudioMusicMax	The maximum value for the music audio settings item	float	100.0f
AudioMusicDefault	The default value for the music audio settings item	float	100.0f
AudioEffectsImplementation	The implementation for the audio effects settings item	TSubclassOf<USettingsItem>	USettingsItemAudioEffects::StaticClas
AudioEffectsSoundClass	The sound class used by all effects	USoundClass*	<code>nullptr</code>
AudioEffectsText	The text displayed in the effects audio settings item	FText	
AudioEffectsMin	The minimum value for the effects audio settings item	float	0.0f
AudioEffectsMax	The maximum value for the effects audio settings item	float	100.0f
AudioEffectsDefault	The default value for the effects audio settings item	float	100.0f
AudioUiImplementation	The implementation for the audio UI settings item	TSubclassOf<USettingsItem>	USettingsItemAudioUi::StaticClas
AudioUiSoundClass	The sound class used by all UI	USoundClass*	<code>nullptr</code>
AudioUiText	The text displayed in the UI audio settings item	FText	
AudioUiMin	The minimum value for the UI audio settings item	float	0.0f
AudioUiMax		float	100.0f

	The maximum value for the UI audio settings item		
AudioUiDefault	The default value for the UI audio settings item	float	100.0f
AudioVoiceImplementation	The implementation for the audio voice settings item	TSubclassOf<USettingsItem>	USettingsItemAudioVoice::StaticClas
AudioVoiceSoundClass	The sound class used by all voice	USoundClass*	<code>nullptr</code>
AudioVoiceText	The text displayed in the voice audio settings item	FText	
AudioVoiceMin	The minimum value for the voice audio settings item	float	0.0f
AudioVoiceMax	The maximum value for the voice audio settings item	float	100.0f
AudioVoiceDefault	The default value for the voice audio settings item	float	100.0f

## 11.3 Items

---

### 11.3.1 Types

---

#### Introduction

An enum of all supported settings items

#### Values

Value	Description
None	A setting not managed by the game instance
AudioMaster	The master audio volume setting
AudioMusic	The music audio volume setting
AudioEffects	The effects audio volume setting
AudioUi	The UI audio volume setting
AudioVoice	The voice audio volume setting

## 11.3.2 Logic

### Introduction

An implementation for a settings item controlling how the setting is configured, saved and applied

### Dependencies

The `SettingsItem` relies on other components of this plugin to work:

- [Game Instance](#): Used to monitor for input device changes and handle saving/loading game data

### Implementations

There is already implementations for all settings items. But you can expand this if needed

Category	Name	Description
Audio	SettingsItemAudioMaster	An implementation for the audio master settings item
Audio	SettingsItemAudioMusic	An implementation for the audio music settings item
Audio	SettingsItemAudioEffects	An implementation for the audio effects settings item
Audio	SettingsItemAudioUi	An implementation for the audio UI settings item
Audio	SettingsItemAudioVoice	An implementation for the audio voice settings item

### API Reference

#### FUNCTIONS

Name	Description	Params	Return
ConfigureMenuItem	Configure the menu item	<b>Config (void)</b> The settings config specified in the game instance  <b>Settings (USettingsData*)</b> The current settings data  <b>MenuItem (UMenuItem*)</b> The menu item to configure	
SaveSettings	Save the settings managed by a menu item	<b>Settings (USettingsData*)</b> The current settings data  <b>MenuItem (UMenuItem*)</b> The menu item containing the updated settings	<b>USettingsData*</b> The updated settings data
ApplySettings	Apply the settings	<b>World (UObject*)</b> The world context  <b>Config (USettingsConfig*)</b> The settings config specified in the game instance  <b>Settings (USettingsData*)</b> The current settings data	

## Blueprint Usage

You can use the `SettingsItem` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Settings > Configure Menu Item
- Ultimate Starter Kit > Settings > Save Settings
- Ultimate Starter Kit > Settings > Apply Settings

## C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `SettingsItem` can now be used in any of your C++ files:

```
#include "USK/Settings/SettingsItem.h"

void ATestActor::Test()
{
    // SettingsItem is a pointer to the USettingsItem
    SettingsItem->ConfigureMenuItem(Config, Settings, MenuItem);
    USettingsData* SaveSettingsValue = SettingsItem->SaveSettings(Settings, MenuItem);
    SettingsItem->ApplySettings(World, Config, Settings);
}
```

## 11.4 Utils

---

### 11.4.1 Introduction

---

A Blueprint Function Library class used to load, save and apply all settings

### 11.4.2 Dependencies

---

The `SettingsUtils` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience
- [Game Instance](#): Used to monitor for input device changes and handle saving/loading game data

### 11.4.3 Requirements

---

It's important that you configure the settings in the [Game Instance](#) before you can use the settings feature



## 11.4.4 API Reference

## Functions

Name	Description	Params	Return
Initialize	Initialize the settings	<b>GameInstance (UUSKGameInstance*)</b> A reference to the game instance	
LoadSettings	Load the settings		<b>USettingsData*</b> The loaded settings data
SaveSettings	Save the settings	<b>Settings (USettingsData*)</b> The updated settings data	
ApplySettingsInWorld	Apply the settings	<b>World (UObject*)</b> The world context  <b>Settings (USettingsData*)</b> The settings data to apply	
ApplySettings	Apply the settings	<b>GameInstance (UUSKGameInstance*)</b> A reference to the game instance  <b>Settings (USettingsData*)</b> The settings data to apply	
ConfigureMenuItem	Configure the menu item to manage the specified settings item	<b>MenuItem (UMenuItem*)</b> The menu item to configure	
SaveMenuItemSettings	Save the settings managed by the menu item	<b>MenuItem (UMenuItem*)</b> The menu item containing the updated settings  <b>ApplySettings (bool)</b> Should the settings also be applied?	
ApplyMenuItemSettings	Apply the settings managed by the menu item	<b>MenuItem (UMenuItem*)</b> The menu item containing the updated settings	
GetSettingsItemForMenuItem	Get the settings item for the specified menu item	<b>MenuItem (UMenuItem*)</b> The menu item to get the settings item for  <b>Config (USettingsConfig*)</b> The settings config specified in the game instance	<b>USettingsItem*</b> The settings item
GetSettingsItem	Get the settings item for the specified settings item type	<b>SettingsItemType (ESettingsItemType)</b> The menu item to get the settings item for  <b>Config (USettingsConfig*)</b> The settings config specified in the game instance	<b>USettingsItem*</b> The settings item

## 11.4.5 Blueprint Usage

You can use the `SettingsUtils` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Settings > Initialize
- Ultimate Starter Kit > Settings > Load Settings
- Ultimate Starter Kit > Settings > Save Settings
- Ultimate Starter Kit > Settings > Apply Settings In World
- Ultimate Starter Kit > Settings > Apply Settings
- Ultimate Starter Kit > Settings > Configure Menu Item
- Ultimate Starter Kit > Settings > Save Menu Item Settings
- Ultimate Starter Kit > Settings > Apply Menu Item Settings
- Ultimate Starter Kit > Settings > Get Settings Item For Menu Item
- Ultimate Starter Kit > Settings > Get Settings Item

## 11.4.6 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `SettingsUtils` can now be used in any of your C++ files:

```
#include "USK/Settings/SettingsUtils.h"

void ATestActor::Test()
{
    USettingsUtils::Initialize(GameInstance);
    USettingsData* LoadSettingsValue = USettingsUtils::LoadSettings();
    USettingsUtils::SaveSettings(Settings);
    USettingsUtils::ApplySettingsInWorld(World, Settings);
    USettingsUtils::ApplySettings(GameInstance, Settings);
    USettingsUtils::ConfigureMenuItem(MenuItem);
    USettingsUtils::SaveMenuItemSettings(MenuItem, ApplySettings);
    USettingsUtils::ApplyMenuItemSettings(MenuItem);
    USettingsItem* SettingsItemForMenuItem = USettingsUtils::GetSettingsItemForMenuItem(MenuItem, Config);
    USettingsItem* SettingsItem = USettingsUtils::GetSettingsItem(SettingsItemType, Config);
}
```

## 12. Utils

### 12.1 Config Utils

#### 12.1.1 Introduction

A Blueprint Function Library class used to extract config values

#### 12.1.2 Dependencies

The `ConfigUtils` relies on other components of this plugin to work:

- [Logger](#): Used to log useful information to help you debug any issues you might experience

#### 12.1.3 API Reference

##### Functions

Name	Description	Params	Return
GetConfigValue	Extract a config value from a given config file	<b>Filename (FString)</b> The name of the config file  <b>Section (FString)</b> The section in the config file  <b>Key (FString)</b> The key in the config file  <b>DefaultValue (FString)</b> The default value to return if the config file can't be read	<b>FString</b> The value extracted from the config file
GetGameConfigValue	Extract a config value from the default game config file	<b>Section (FString)</b> The section in the config file  <b>Key (FString)</b> The key in the config file  <b>DefaultValue (FString)</b> The default value to return if the config file can't be read	<b>FString</b> The value extracted from the config file

#### 12.1.4 Blueprint Usage

You can use the `ConfigUtils` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Utils > Config > Get Config Value
- Ultimate Starter Kit > Utils > Config > Get Game Config Value

#### 12.1.5 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `ConfigUtils` can now be used in any of your C++ files:

```
#include "USK/Utils/ConfigUtils.h"

void ATestActor::Test()
{
    FString ConfigValue = UConfigUtils::GetConfigValue(Filename, Section, Key, DefaultValue);
    FString GameConfigValue = UConfigUtils::GetGameConfigValue(Section, Key, DefaultValue);
}
```

## 12.2 Platform

---

### 12.2.1 Platform Type

---

#### Introduction

The types of supported platform types

#### Values

Value	Description
Unknown	An unknown or unsupported platform
Windows	Windows (any architecture)
MacOS	MacOS (any architecture)
Linux	Linux (any architecture)
Xbox	Xbox console
Playstation	Playstation console
Switch	Nintendo Switch console
Android	Android (any architecture)
IOS	iOS

## 12.2.2 Platform Utils

---

### Introduction

A Blueprint Function Library class used for platform detection

**API Reference**

FUNCTIONS

Name	Description	Params	Return
GetPlatform	Get the current platform		<b>EPlatform</b> The current platform
IsInEditor	Is the build running inside the editor?		<b>bool</b> A boolean value indicating if the build is running inside the editor
IsDesktop	Is the build running on a desktop platform?		<b>bool</b> A boolean value indicating if the build is running on a desktop platform
IsWindows	Is the build running on Windows?		<b>bool</b> A boolean value indicating if the build is running on Windows
IsMacOS	Is the build running on MacOS?		<b>bool</b> A boolean value indicating if the build is running on MacOS
IsMacOSx86	Is the build running on MacOS (x86)?		<b>bool</b> A boolean value indicating if the build is running on MacOS (x86)
IsMacOSArm	Is the build running on MacOS (ARM)?		<b>bool</b> A boolean value indicating if the build is running on MacOS (ARM)
IsLinux	Is the build running on Linux?		<b>bool</b> A boolean value indicating if the build is running on Linux
IsConsole	Is the build running on a console platform?		<b>bool</b> A boolean value indicating if the build is running on a console platform
IsXbox	Is the build running on Xbox?		<b>bool</b> A boolean value indicating if the build is running on Xbox
IsPlaystation	Is the build running on Playstation?		<b>bool</b> A boolean value indicating if the build is running on Playstation
IsSwitch	Is the build running on Switch?		<b>bool</b> A boolean value indicating if the build is running on Switch
IsMobile	Is the build running on a mobile platform?		<b>bool</b> A boolean value indicating if the build is running on a mobile platform
IsAndroid	Is the build running on Android?		<b>bool</b> A boolean value indicating if the build is running on Android
IsAndroidx86	Is the build running on Android (x86)?		<b>bool</b> A boolean value indicating if the build is running on Android (x86)
IsAndroidx64	Is the build running on Android (x64)?		<b>bool</b> A boolean value indicating if the build is running on Android (x64)
IsAndroidArm	Is the build running on Android (ARM)?		



			<b>bool</b> A boolean value indicating if the build is running on Android (ARM)
IsAndroidArm64	Is the build running on Android (ARM64)?		<b>bool</b> A boolean value indicating if the build is running on Android (ARM64)
IsIOS	Is the build running on iOS?		<b>bool</b> A boolean value indicating if the build is running on iOS

## Blueprint Usage

You can use the `PlatformUtils` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Utils > Platform > Get Platform
- Ultimate Starter Kit > Utils > Platform > Is In Editor
- Ultimate Starter Kit > Utils > Platform > Is Desktop
- Ultimate Starter Kit > Utils > Platform > Is Windows
- Ultimate Starter Kit > Utils > Platform > Is MacOS
- Ultimate Starter Kit > Utils > Platform > Is MacOS (x86)
- Ultimate Starter Kit > Utils > Platform > Is MacOS (ARM)
- Ultimate Starter Kit > Utils > Platform > Is Linux
- Ultimate Starter Kit > Utils > Platform > Is Console
- Ultimate Starter Kit > Utils > Platform > Is Xbox
- Ultimate Starter Kit > Utils > Platform > Is Playstation
- Ultimate Starter Kit > Utils > Platform > Is Switch
- Ultimate Starter Kit > Utils > Platform > Is Mobile
- Ultimate Starter Kit > Utils > Platform > Is Android
- Ultimate Starter Kit > Utils > Platform > Is Android (x86)
- Ultimate Starter Kit > Utils > Platform > Is Android (x64)
- Ultimate Starter Kit > Utils > Platform > Is Android (ARM)
- Ultimate Starter Kit > Utils > Platform > Is Android (ARM64)
- Ultimate Starter Kit > Utils > Platform > Is iOS

## C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `PlatformUtils` can now be used in any of your C++ files:

```
#include "USK/Utils/PlatformUtils.h"

void ATestActor::Test()
{
    EPlatform Platform = UPlatformUtils::GetPlatform();
    bool IsInEditorValue = UPlatformUtils::IsInEditor();
    bool IsDesktopValue = UPlatformUtils::IsDesktop();
    bool IsWindowsValue = UPlatformUtils::IsWindows();
    bool IsMacOSValue = UPlatformUtils::IsMacOS();
    bool IsMacOSx86Value = UPlatformUtils::IsMacOSx86();
    bool IsMacOSArmValue = UPlatformUtils::IsMacOSArm();
    bool IsLinuxValue = UPlatformUtils::IsLinux();
    bool IsConsoleValue = UPlatformUtils::IsConsole();
    bool IsXboxValue = UPlatformUtils::IsXbox();
    bool IsPlaystationValue = UPlatformUtils::IsPlaystation();
    bool IsSwitchValue = UPlatformUtils::IsSwitch();
}
```

```
bool IsMobileValue = UPlatformUtils::IsMobile();
bool IsAndroidValue = UPlatformUtils::IsAndroid();
bool IsAndroidx86Value = UPlatformUtils::IsAndroidx86();
bool IsAndroidx64Value = UPlatformUtils::IsAndroidx64();
bool IsAndroidArmValue = UPlatformUtils::IsAndroidArm();
bool IsAndroidArm64Value = UPlatformUtils::IsAndroidArm64();
bool IsIOSValue = UPlatformUtils::IsIOS();
}
```

## 12.3 Project Utils

### 12.3.1 Introduction

A Blueprint Function Library class used to extract project values

### 12.3.2 API Reference

#### Functions

Name	Description	Params	Return
GetProjectId	Get the project ID from the game config file		<b>FString</b> The project ID
GetProjectName	Get the project name from the game config file		<b>FString</b> The project name
GetProjectDescription	Get the project description from the game config file		<b>FString</b> The project description
GetProjectVersion	Get the project version from the game config file		<b>FString</b> The project version
GetProjectCompanyName	Get the project company name from the game config file		<b>FString</b> The project company name
GetProjectCopyrightNotice	Get the project copyright notice from the game config file		<b>FString</b> The project copyright notice
GetProjectLicensingTerms	Get the project licensing terms from the game config file		<b>FString</b> The project licensing terms
GetProjectHomepage	Get the project homepage from the game config file		<b>FString</b> The project homepage

### 12.3.3 Blueprint Usage

You can use the `ProjectUtils` using Blueprints by adding one of the following nodes:

- Ultimate Starter Kit > Utils > Project > Get Project Id
- Ultimate Starter Kit > Utils > Project > Get Project Name
- Ultimate Starter Kit > Utils > Project > Get Project Description
- Ultimate Starter Kit > Utils > Project > Get Project Version
- Ultimate Starter Kit > Utils > Project > Get Project Company Name
- Ultimate Starter Kit > Utils > Project > Get Project Copyright Notice
- Ultimate Starter Kit > Utils > Project > Get Project Licensing Terms
- Ultimate Starter Kit > Utils > Project > Get Project Homepage

### 12.3.4 C++ Usage

Before you can use the plugin, you first need to enable the plugin in your `Build.cs` file:

```
PublicDependencyModuleNames.Add("USK");
```

The `ProjectUtils` can now be used in any of your C++ files:

```
#include "USK/Utils/ProjectUtils.h"

void ATestActor::Test()
{
    FString ProjectId = UProjectUtils::GetProjectId();
    FString ProjectName = UProjectUtils::GetProjectName();
    FString ProjectDescription = UProjectUtils::GetProjectDescription();
    FString ProjectVersion = UProjectUtils::GetProjectVersion();
    FString ProjectCompanyName = UProjectUtils::GetProjectCompanyName();
    FString ProjectCopyrightNotice = UProjectUtils::GetProjectCopyrightNotice();
    FString ProjectLicensingTerms = UProjectUtils::GetProjectLicensingTerms();
    FString ProjectHomepage = UProjectUtils::GetProjectHomepage();
}
```