Harmony SDK Documentation

Introduction

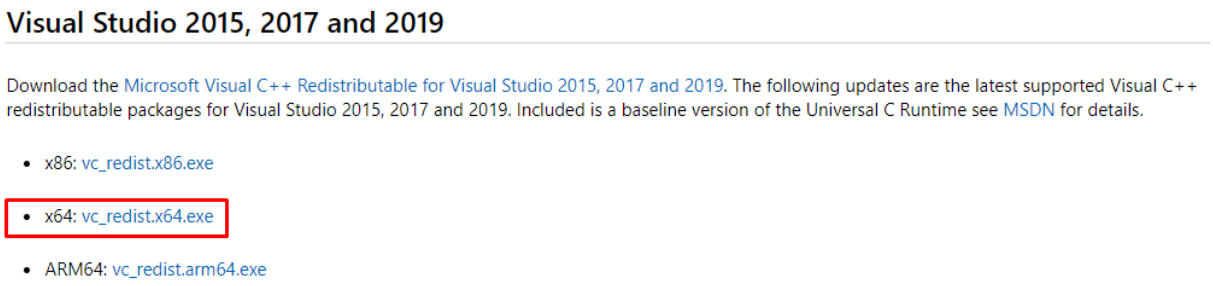
This document will guide you through the use of the Harmony SDK for importing Harmony animations into Unity.

Prerequisites

The SDK requires the latest version of the Microsoft Visual C++ Redistributable for Visual Studio. Without this prerequisite, the native HarmonyRenderer.dll will fail to load and animations will not appear in the editor or the player.

Install the latest Microsoft Visual C++ Redistributable for Visual Studio

- https://support.microsoft.com/en-ca/help/2977003/the-latest-supported-visual-c-downloads



SDK Contents

- **Assets**: Contains the Unity project files. You can open these with the Unity Editor.
    - **HarmonyGamePreviewer**: Assets for the previewer application.
    - **HarmonySDK**: Assets for the SDK itself. Can be imported into another project.
- **Packages / ProjectSettings**: used by Unity.
- **Harmony**: Contains the Harmony export scripts for use in the Harmony authoring tool.
- **HarmonyResources**: Contains example exports from the Harmony game SDK.
- **Source**: Contains the source code for the native C++ library that processes Harmony animations.

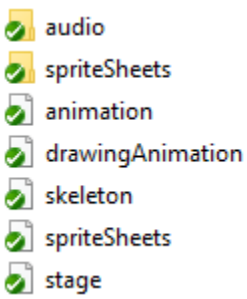
Importing Animations

To use Harmony animations within Unity, they must be exported into an XML format from the Harmony Game Tools.

Project Contents

The output of the Harmony Game Tools is a project folder that contains the following:

- **audio folder**: optional, unused
- **spriteSheets folder**: If exported as a sprite sheet.
- **sprites folder**: If exported as separate sprites.
- **animation.xml**
- **drawingAnimation.xml**
- **skeleton.xml**
- **spriteSheets.xml**
- **stage.xml**

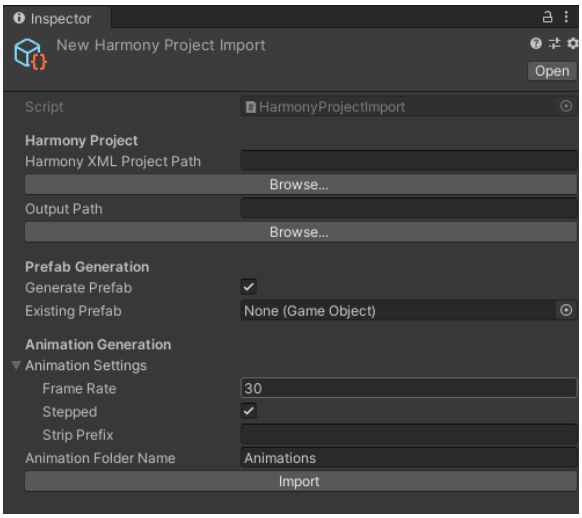


These files can be placed anywhere on your computer.

Harmony Project Import

The next step in the process is to create a Harmony Project Import. This is an asset containing the custom import settings for your Harmony project.

To create a Harmony Project Import, right click in the project view or use the Assets menu and choose **Create Harmony Project Import**.



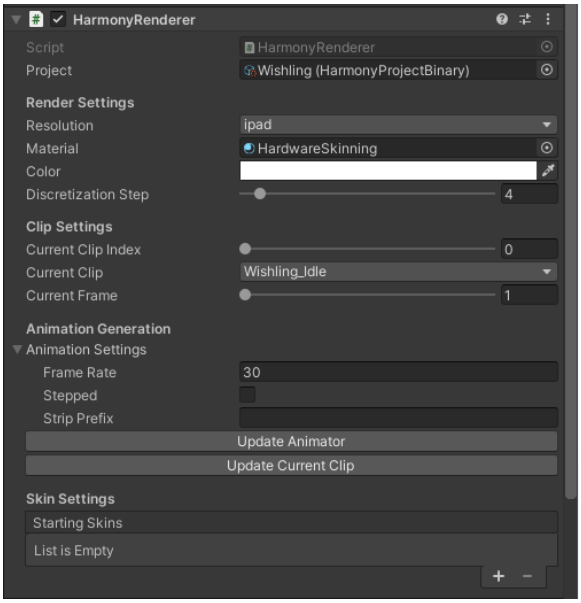
Property	Description
Harmony Project XML Path *	The path to the Harmony Project folder. Click Browse... to navigate to the folder containing your Harmony project to import.
Output Path *	The path to the Harmony Project asset that will be created and updated when importing the project. Choose an appropriate save location in your project.
Generate Prefab	A checkbox denoting if the importer should automatically generate a prefab for this Harmony project.
Existing Prefab	Will contain a reference to the prefab to update, if one exists already.
Frame Rate	The animation frame rate used by Unity's animation system to playback the Harmony frames. This should match your frame rate in Harmony.
Stepped	If checked, the animations will pass between integer frames and thus not interpolate smoothly. If unchecked, the animation will be played back with in-betweens.
Strip Prefix	Used to remove a prefix on the animation name. For instance, if we want "Wishling_Idle" to become "Idle", we set the prefix to "Wishling_". This is useful because in some games the name of the animation must be the same for all characters.
Animation Folder Name	The sub-folder in the same location as the Output Path that will contain the generated Unity animation files.
Import	The button to trigger the importing process.

Pressing the Import button will start the import process and the prefab generation. Do note that for large characters this can be quite a lengthy process. The importer will automatically generate a prefab that can easily be dragged into the scene to preview the animations. It will also take care to generate sprite atlases for the character if the sprites were exported separately.

Harmony Renderer Component

The animation and rendering of Harmony characters is controlled by the HarmonyRenderer component. This component is added to the generated prefab. Its settings are explained below:

Property	Description
Project	A reference to the HarmonyProjectBinary asset. This asset is generated by the importer and contains the Harmony project data in an efficient binary format.
Resolution	The resolution used to display this character. This matches associated sprite sheets.
Material	The material used to shade this character. HardwareSkinning is the default unlit material provided with the SDK.
Current Clip Index	A numerical clip index to display. Can be animated in the Animation window.
Current Clip	A drop down for selecting which animation to display. Matches the Current Clip Index.



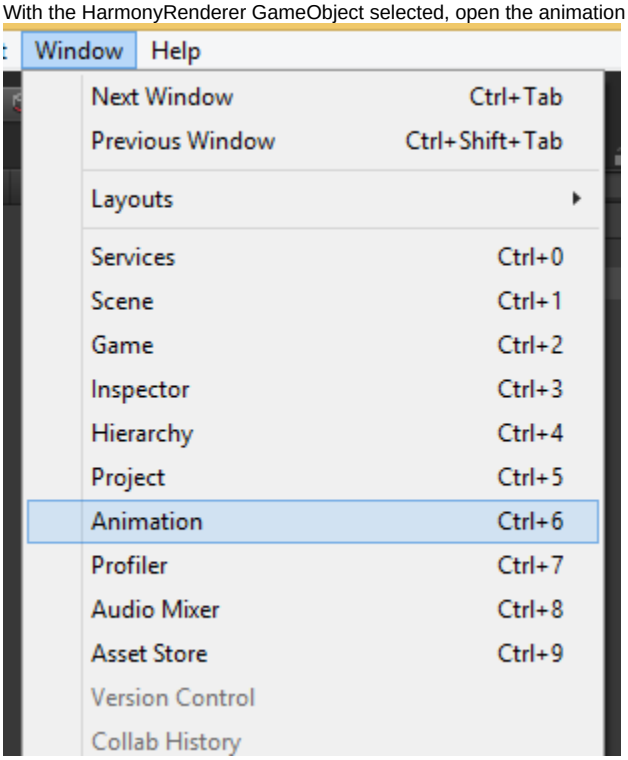
Current Frame	The frame number currently being displayed.
Animation Settings	The settings used to update the animator in place. This is useful when updating a character that is already integrated into your game.
Frame Rate	The animation frame rate used by Unity's animation system to playback the Harmony frames. This should match your frame rate in Harmony.
Stepped	If checked, the animations will pass between integer frames and thus not interpolate smoothly. If unchecked, the animation will be played back with in-betweens.
Strip Prefix	Used to remove a prefix on the animation name. For instance, if we want "Wishling_Idle" to become "Idle", we set the prefix to "Wishling_". This is useful because in some games the name of the animation must be the same for all characters.
Update Animator	Press this button to update the entire set of animations on this character to match what is in the Harmony project. This will update existing animations and add any missing ones.
Update Current Clip	This will update only the currently selected clip, leaving the others as-is.
Skin Settings	This is a list of groups and skins that apply to this character. This setting can be animated to change skins in the middle of an animation cycle.

Playing Animations

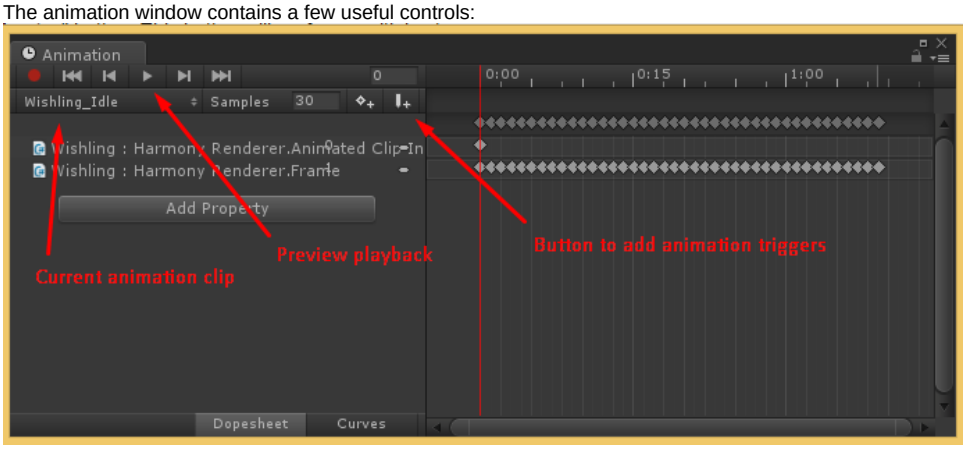
Previewing Animations in Editor

We can now preview the animations in the editor.

1. With the HarmonyRenderer GameObject selected, open the animation window (Window Animation) to view the clips:



2. The animation window contains a few useful controls:



3. With the playback button you can preview the animation. It is also possible to change the current clip using the dropdown in the animation window:

In-Game Playback

You will notice that when playing the game, the animation will always default to the first animation in the dropdown list (usually Idle). This is because Idle is set as the default state in the animation controller.

1. You can edit the animation controller using Window Animator
2. Here you will see the animation state machine. Notice the arrow connecting **Entry** to the **Idle** state.
3. Changing the default state of the state machine to a different state will change which animation plays while in play mode and move this arrow.
4. By right clicking and choose "**Make Transition**" you can link animations together for playback.
5. The game developer is responsible for changing the animation state machine to match the needs of the game.

Harmony Previewer

You can use the included Harmony Previewer to view animations without installing Unity. You first need to build the HarmonyPreviewer by going to File Build and Run in Unity. This will generate an exe file you can run on any PC.

To use the previewer:

1. Run the HarmonySDK.exe
2. Choose which project to load from the loader menu. These projects are loaded from the **HarmonyResources** folder in the same directory as the HarmonySDK.exe.

3. Cycle through the animations using Prev / Next.
4. Adjust the frame rate, tint, discretization step and skin settings with the controls at the top left.
5. Go back to return to the menu and load a different animation.