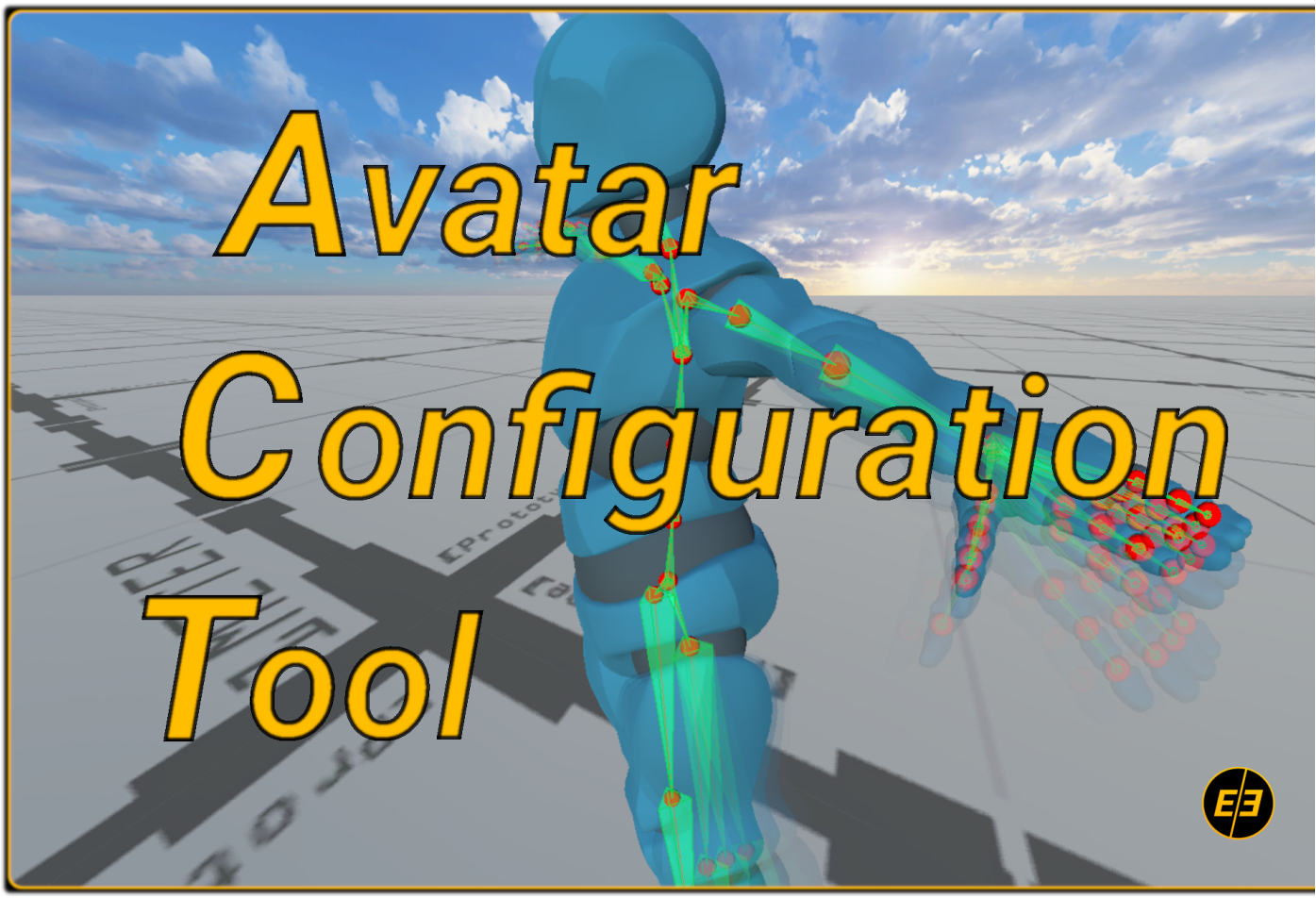


User Manual

Table of Contents

Description

The Avatar Configuration Tool is a Unity Editor tool to aid configuration of Humanoid Character Avatars, in particular for use when retargeting characters. It provides functionality to view, save, load, Undo and Redo character poses, so that we can configure the avatar without fear of losing previous edits to the pose.
The Avatar Configuration Tool only supports Humanoid Characters and will not work with Generic Characters in any way.

Compatibility

Minimum supported Unity 2019 LTS.
Unity 2020
Unity 2021

Support

The best place for support is the Exars Emporium Discord Channel. Once you join the discord channel, send me a private message with your asset store invoice number and I will give you 'verified status' upon which you can obtain the best level of support. Support can be obtained via the following means:

- Discord
- Unity forum
- Exars Emporium Forum
- Issue Tracking (Bug Reports)
- Email: ExarsEmporium@gmail.com

It is recommended that users consult this documentation fully before seeking relevant assistance. While support can be provided through forums and email, it may take longer to respond, it is recommended to use the Discord channel for the most direct and swiftest response.
https://discord.gg/bGVZFx7X

Bug Reports

Bug reports should be submitted to the Github issue Tracker for the Avatar Configuration Tool. Insubstantial or lacking reports lacking sufficient information will not be actioned.

Features

- Easy to use Editor interface
- Drag & Drop Characters for easy setup
- Project persistent data storage for different characters
- Auto configuration of Character model during setup
- Save & Load Humanoid Character poses
- Store & Restore Character poses to ACT projects
- Undo & Redo pose edits across Avatar Configuration sessions
- Preview Stored or Saved Character Poses
- Resizeable bone joints.
- Colourize Bones & Joints

Who is this asset for?

The Avatar Configuration Tool is an editor tool extension, it is for use with edit mode in Unity and will aid configuration of Humanoid Avatars. When retargeting characters, often we find that the target character's pose does not match that of the original character and animations on the retargeted character look skewed or mis-aligned, to correct for this, we must tweak the pose of the retarget character to match that of the original, so that animations will appear properly aligned and correct.

During the process of tweaking the retargeted character it is often the case that several bones and joints must be moved and rotated to the correct position. If we first modify a bone to the correct position and then later make a mistake modifying a different bone, which renders this bone in a strange position, once we exit the Avatar Configuration, we currently have no means to restore the character pose without losing our previous edits.

Using The Avatar Configuration Tool makes it possible to store previous edits to the character pose, so that we can confidently make edits to the character pose without the risk of losing previous edits to our characters.

The Avatar Configuration Tool allows character poses to be saved either to a separate file or to the project that we are working with. We can also preview these poses before we apply them, while also allowing edits to be undone or redone from earlier editing sessions.

Real World Example

We have an animation set for wielding a sword, this could be from any source, such as Mixamo for example. We want to use this animation set for different characters, some of which are not supplied by Mixamo, so we must use retargeting to apply the Mixamo animations to a different character.

When applying the animations, we find that when wielding a two handed sword, the hands do not align with each other and the character has a hunchback appearance; the head appears to be looking into the ground instead of straight ahead as they do in the original Mixamo animation.

We must tweak the retargeted character so that the hands align with each other correctly and the posture appears to be standing up straight with the head held in an upright posture.

We first decide to modify the neck-head posture, so that the character appears to be standing up straight with the head held in a natural posture. Once this is acceptable, Using the Avatar Configuration Tool, we can save or store this pose.

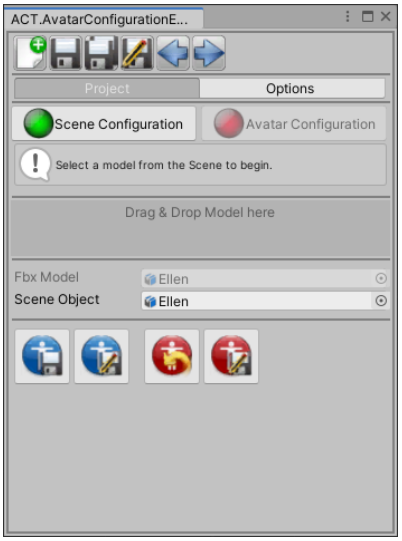
The arms are then modified and we make a mistake by rotating one of the arms to a weird angle, using the Unity's default Avatar Configuration, to correct this, we either have to start again, losing all of our changes we made to the neck-head posture or spend time using trial and error to guess the correct position and orientation of the arms. Using the Avatar Configuration Tool, we can scrap our arm changes and restore the character pose with the correct changes we made to the neck & head posture that we saved earlier.

Alternatively, we can use the Undo & Redo feature of the Avatar Configuration Tool to undo the changes we made to the arms to return the bones to an earlier position and rotation from earlier sessions within the Unity Avatar configuration. As long as we create a project for the character we are working on, changes to the position and rotation of bones are stored within the project.

Overview

The Avatar Configuration Tool is broken down into several parts. When the mouse pointer hovers over a button, a tooltip will be displayed showing useful hints as to their function. ACT is able to store two independent configurations for both the Scene view and the Avatar Configuration Inspector.

Our character in the scene that we view does not represent the same armature that the Avatar Configuration Inspector displays, so ACT stores each configuration independently and will automatically detect when we switch between each. Any operations done in either the Scene View or the Avatar Configuration Inspector will be recorded independently of each other.



Toolbar

The Toolbar contains common actions we can perform with the Avatar, these include Creating a new Project, Loading a Project, Save Project, Save Project As, Undo and Redo respectively.
Any new character that we want to use with ACT, we must first use the New Projet button to clear out any data. While we do not need to explicitly use a project, it is advisable to do so. A project can be used to save the default character pose between sessions as well as store the Undo & Redo history.

Project Tab

The Project Tab is the main area that we will work with. To begin working with a character, it is first selected from the scene and dragged into the box, labelled “Drag & Drop Model here”. ACT will automatically select the Fbx model from the Assets directory and also the object from the scene which was dragged into it.

Drag & Drop window

To start ACT, first we drag the character from the hierarchy into the Drag & Drop box, as show below. ACT will automatically configure the character and show a gizmo overlay on the character within the scene view window.

Selected Objects

Once we have Drag & Dropped our character into ACT, the Fbx Model and the scene view character will be shown in the two object boxes below the Drag & Drop window. These can be selected to show which assets they belong to. The Fbx Model refers to the Fbx character Asset within the Project, while the Scene Object refers to an object within the Hierarchy.

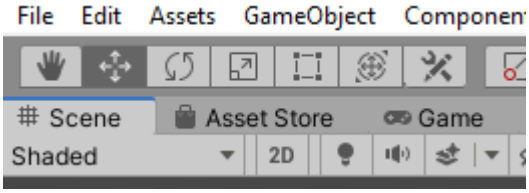
Configuration

At the top of the Project Tab, there are two buttons, labelled “Scene Configuration” & “Avatar Configuration”

These two buttons work on a Traffic light system and will toggle the overlay gizmo’s to be displayed on the character. ACT detects when we move between the Scene view and the Avatar Configuration and will enable/disable these buttons accordingly.

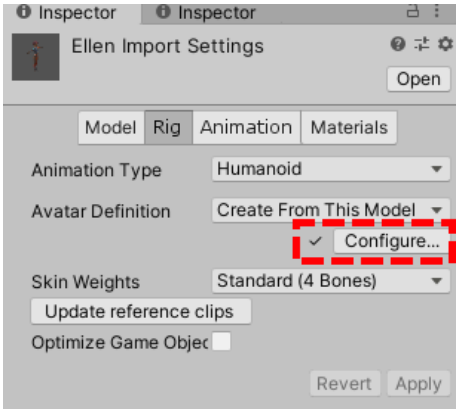
Scene configuration

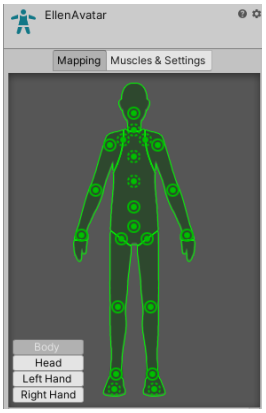
This refers to the character that will be displayed in the Scene view window.



Avatar Configuration

This toggle button becomes available when Unity enters the Avatar Configuration Inspector. In the character Import settings, when the Configure button (shown on the left) is pressed, it will take us to the Avatar Configuration Inspector (shown on the right)





Grey shows that the configuration is not active.
Red shows that the configuration has not been setup.
Amber Gizmo's will not be overlaid onto the character.
Green Gizmo's will be overlaid onto the character.

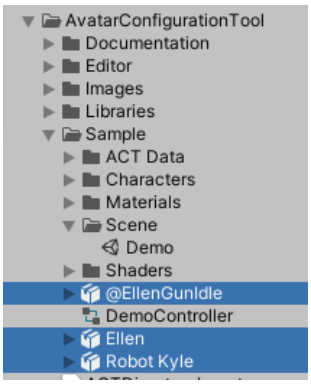
Avatar Pose Tools

We have several tools available to us to manipulate the avatar pose. These allow us to save and load a pose to a file and also save and load the default pose. The default pose is automatically set when a character is first Drag & Dropped into ACT.

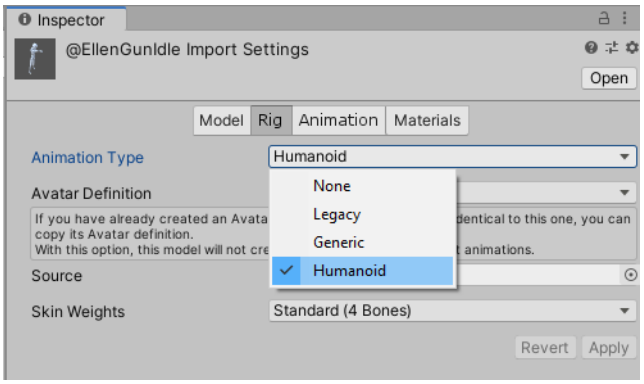
Be warned, if the Default pose is saved, the previous default pose will be overwritten within the project.

Quickstart Guide

This quickstart is a short introduction to the Avatar Configuration Tool, which uses the Demo scene to highlight how to use this tool. This guide also demonstrates how we Retarget a character.

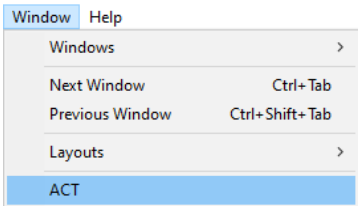


We are going to use two characters for this demonstration, Ellen and Robot Kyle. We must first make sure that both characters and animations are in the humanoid format. First select the character or animation we are interested in from the Project window.



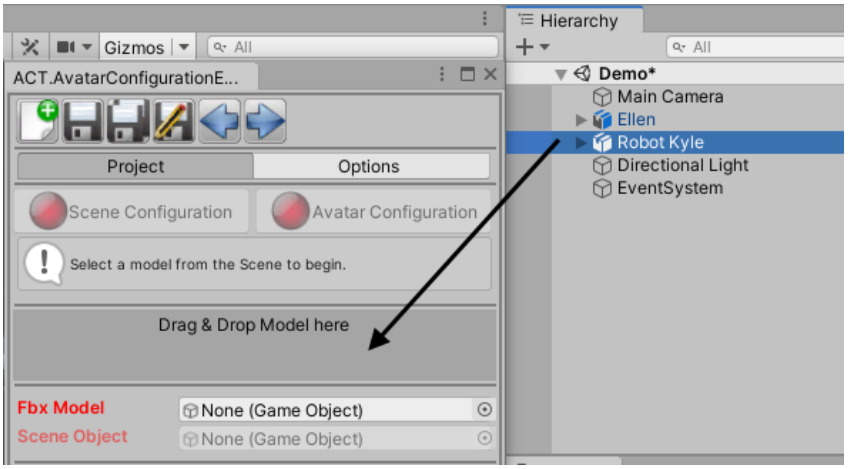
in the inspector window, select the Rig tab and select Humanoid for the Animation Type. Do this for Ellen.fbx, Robot Kyle.fbx and @EllenGunIdle.fbx

Now that these are configured correctly, from the Project tab, open the Demo scene from **AvatarConfigurationTool/Sample/Scene/Demo**



Once the scene is open, two characters should be visible; Ellen and Robot Kyle. We are going to use the base character and animations that are associated with the Ellen model and will be retargeting to the RobotKyle character.

From the Unity Windows drop down menu, open ACT. We can either have this floating or dock it to Unity.

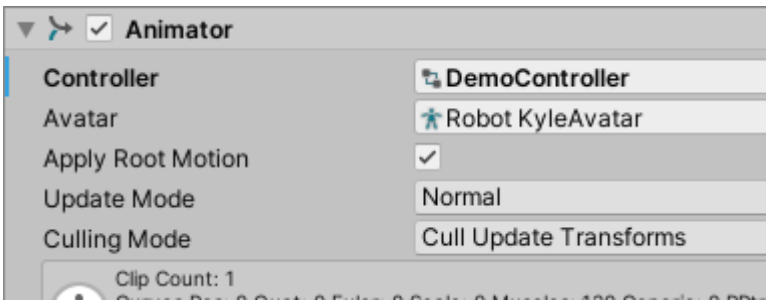


Drag the Robot Kyle character into the Drag and Drop box within ACT. This will auto configure ACT for this model.

The Fbx Model field will be auto filled and if selected will select the character in the Project Window. The scene object will also be filled in and will point to the character that we have just dragged into ACT.

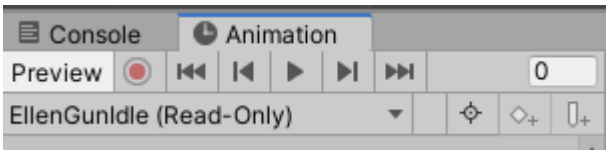
In the Scene View Window, we will notice that the character now has gizmo drawn on the character bones and joints, these can be hidden by selecting the Scene Configuration Button above the Drag & Drop Window and will change to a Red visual showing us that it is not active.

Any changes we now make to the character will be recorded into ACT and the undo/redo system can be used.

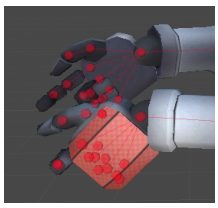


If we select the Robot Kyle character from the Hierarchy, the Animator component should be visible, we can preview an animation by dropping the DemoController into the Controller of the Animator.

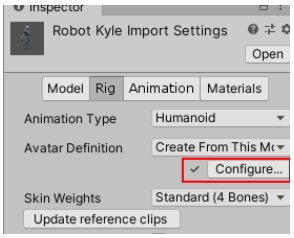
There is currently a preview utility being created for ACT, which will allow us to view animations without doing these extra steps to configure our characters, without the need to use the Animation inspector to view our changes, negating the need to drop out of the Avatar Inspector Window each time.



Open the Unity Animation Window (Window/Animation/Animation) We should see our EllenGunIdle(Read-Only) visible. Press the preview button.



We can see that the hands do not line up the same as when we apply the animation to the Ellen model. This artifact is due to the retargeting of the character.

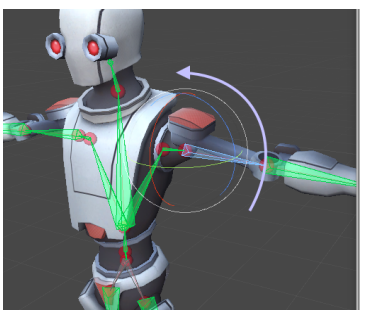


From the Project, select the Robot Kyle character, select the Animation tab and click on the configure button. Do save the Scene, otherwise any changes made will be lost.

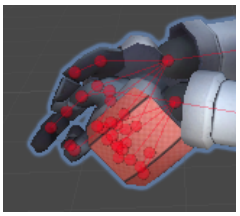
If this is the first time that the Avatar Configuration inspector has been activated, it can be useful to save the default T-Pose within ACT using the Save Avatar Pose to file button

Select the Left upper arm and rotate the arm up. Do not worry if the bones appear red, this is just a warning that we are not in a T-Pose.

If any unwanted changes are made, we can undo and redo our changes with the Undo & Redo Buttons. If we want a complete reset, we can use the Reset Avatar Pose to default button.



When we are happy with our changes, select Apply and then Done from the Avatar Inspector window.



Previewing our changes using the Animation window, we can now see that our Robot Kyle character has hands that properly align.

At any point, we can save our project, so that we can keep all our edits for later using the Save As or Save All buttons. A demo project has been created with various edits that can be tried out. This can be found in the directory **AvatarConfigurationTool\Sample\ACT Data\DemoProject.actproject**

Further Information

If you have any queries or suggestions regarding the Avatar Configuration Tool, please feel free to contact me using the contact information given below.

- Discord
- Unity forum
- Exars Emporium Forum
- Issue Tracking (Bug Reports)
- Email: ExarsEmporium@gmail.com