

[Motion Capture Online](#)

UE4 Rifle / Pistol Animation Pack - Motionbuilder Editing File Setup and Constraints

This doc will explain the basics of using the FBX editing file for our UE4 Rifle and Pistol animations:

“SK_Mannequin_Edit_Template_RiflePistol_01.fbx”

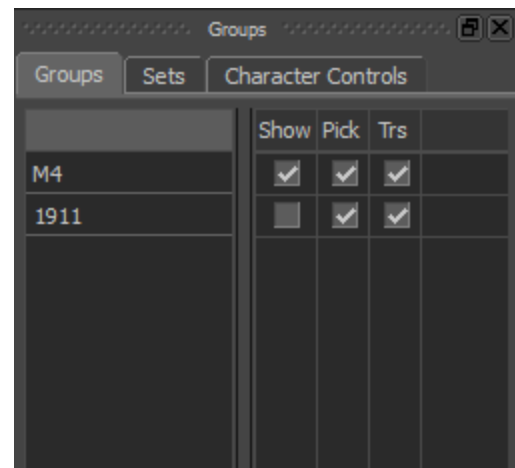
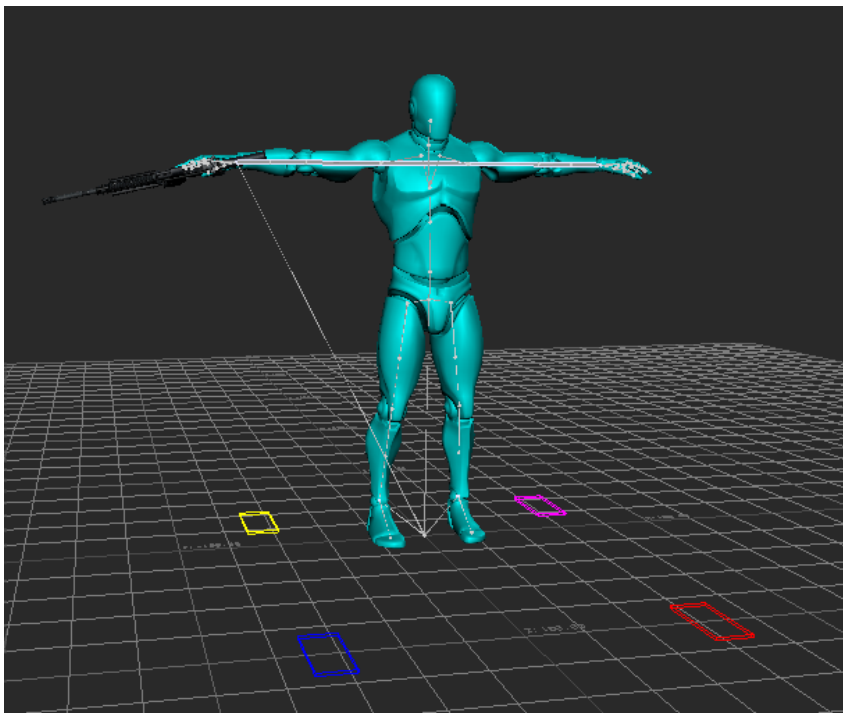
Any of the Rifle and Pistol FBX animation files can be imported into this template via “Motion File Import...” for editing and re-export, or a completely new animation created and exported.

***This document assumes the reader already has a fundamental understanding of working in Motionbuilder and its user interface.

Questions? Comments? We'd like to hear from you! mocap@motusdigital.com

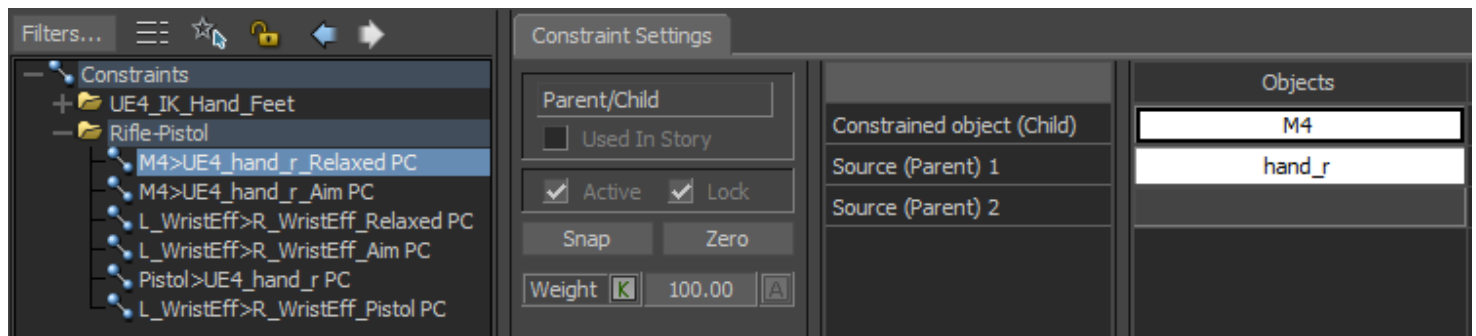
Overview

Opening the Edit Template file, you will see it contains the UE4 template skeleton rig. It is fully Characterized and has an associated Control Rig ready to go. The M4 Rifle is visible and already constrained to the “hand_r” in the “Relaxed” position. (Constraints will be discussed in detail later)



There are Groups for the M4 Rifle and 1911 Pistol to hide and show as desired.

“UE4_IK_Hand_Feet” constraints always stay on. IK bones are baked automatically with the Character.



The “Rifle-Pistol” folder contains the Parent-Child constraints for the Rifle and Pistol to the “hand_r” joint, and the LeftWristEffector to the RightWristEffector. Their weight should be keyed on-off appropriately in context for editing.

Use of Constraints

Set 1 - Weapons to “hand_r”

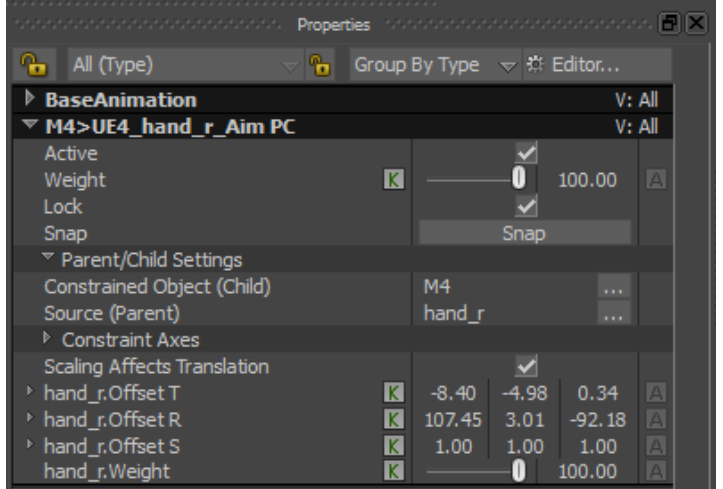
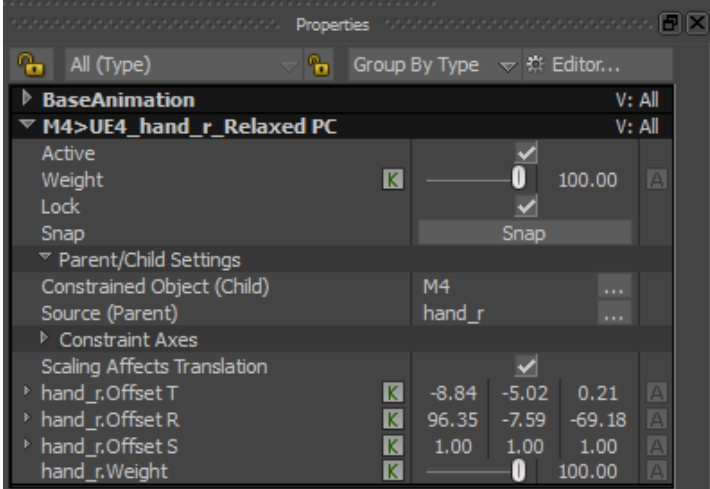
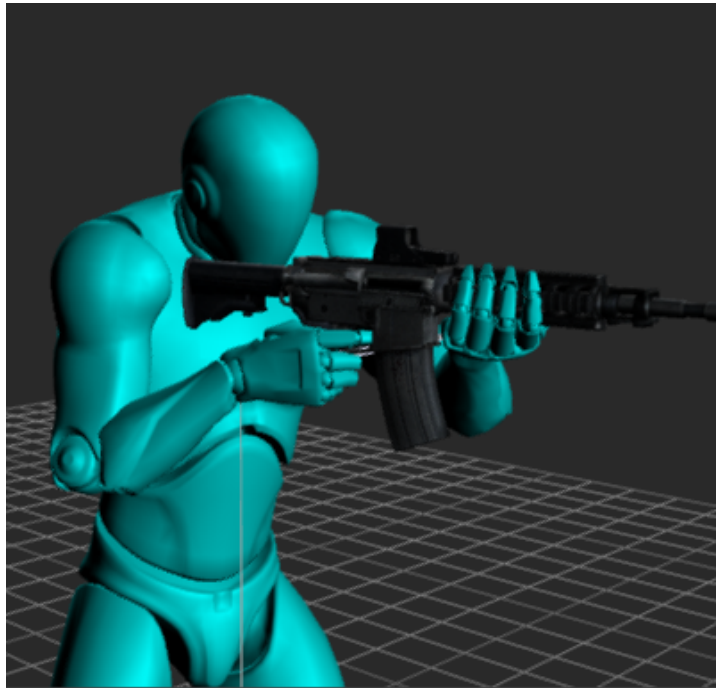
There are two different hand positions for all Rifle animations, “Relaxed” and “Aim”, and there are matching constraints.

These constraints:

“M4>UE4_hand_r_Relaxed PC”

“M4>UE4_hand_r_Aim PC”

will position the Rifle so that it matches the “Relaxed” and “Aim” right hand sockets in the UE4 scene. Set and key their weight according to the animation you are editing; Relaxed, Aim, or a transition.



There is only one hand position for all Pistol animations.

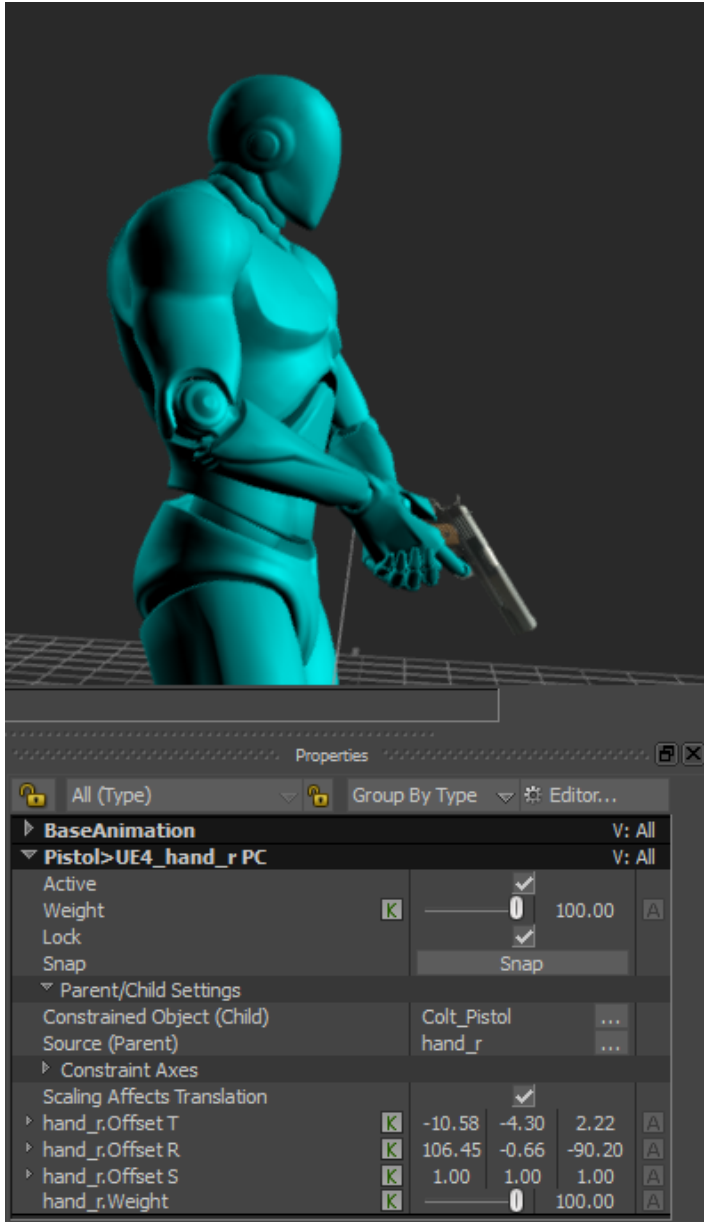
This constraint:

“Pistol>UE4_hand_r PC”

positions the Pistol so that it matches the “Pistol” right hand socket in the UE4 scene. It can always be left on at a weight of 100 since the Pistol has only one position, or keyed off to drop or holster the Pistol, etc. as desired.

All of these “hand_r” PC constraints should be used during editing with the Control Rig, to visualize the proper weapon position(s) for each animation.

(*** I say “visualize” since they will obviously have no effect back in the UE4 engine; Weapon placement will be done via our provided sockets or your own, blueprint or code, etc. in game.)

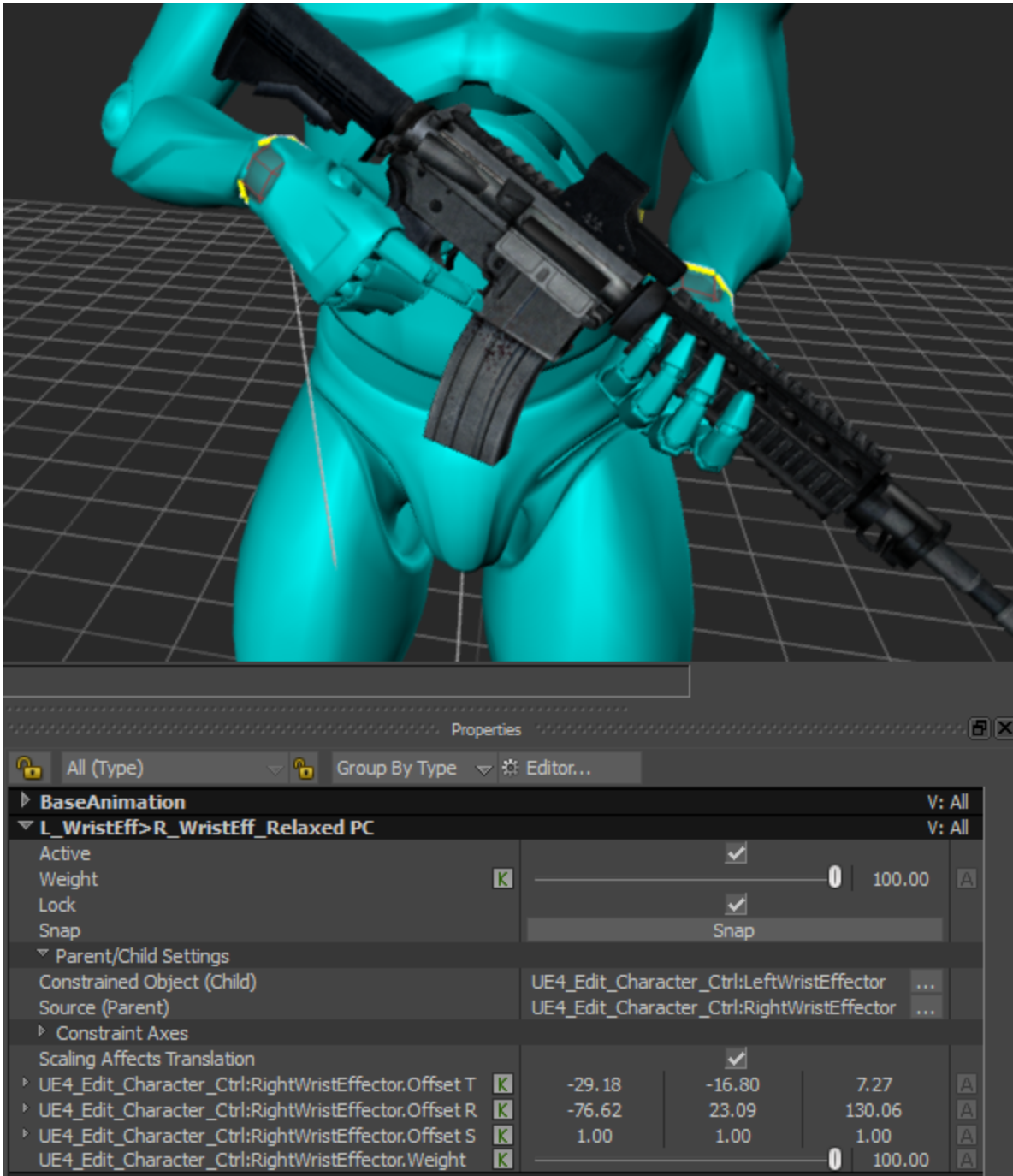


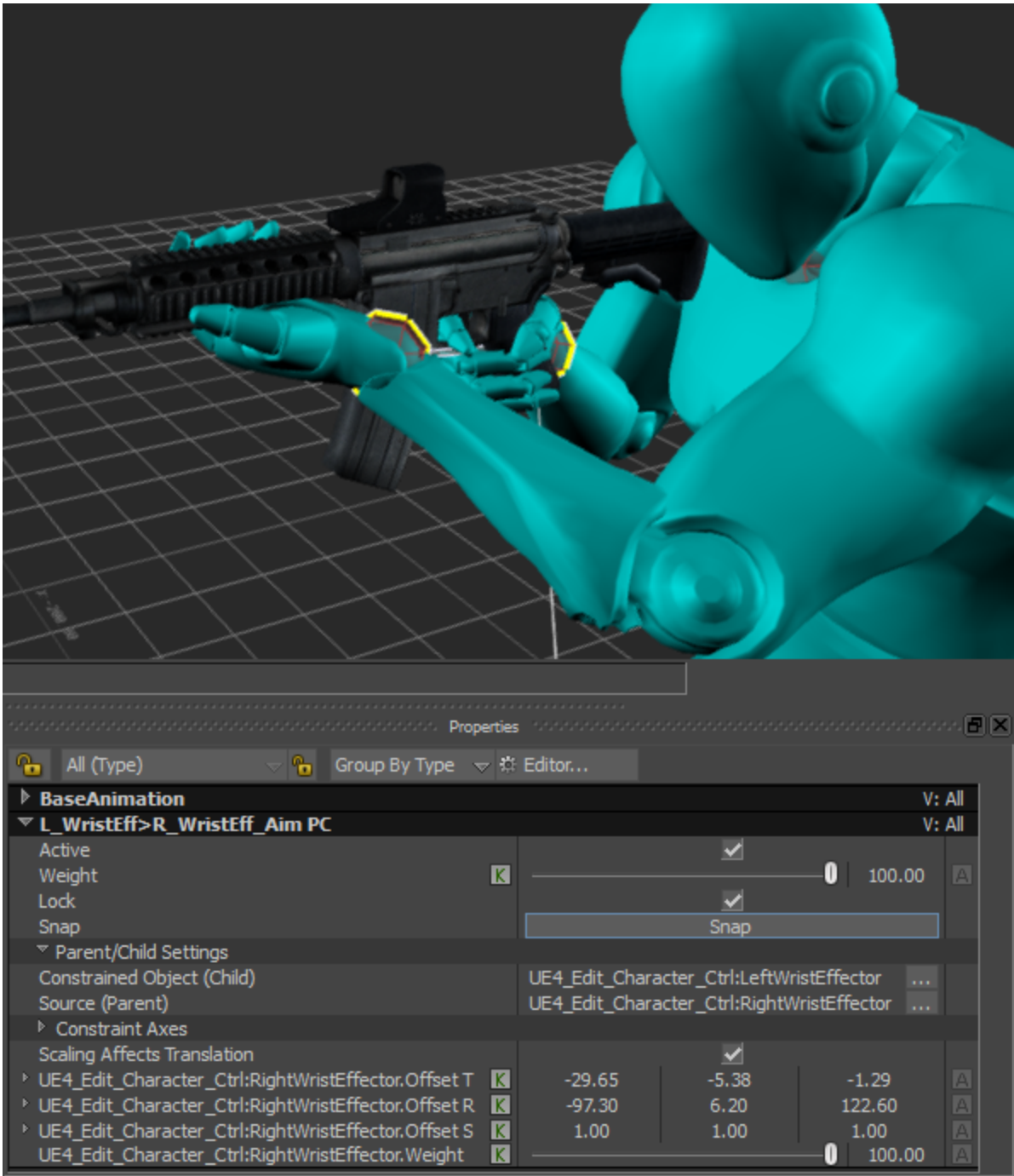
Use of Constraints

Set 2 - Control Rig “LeftWristEffector” to the “RightWristEffector”

There are also Control Rig constraints for the different hand positions, “Relaxed” and “Aim”, and “Pistol”.

The previous “hand_r” constraints position the weapon correctly in the right hand; the Control Rig constraints position and attach the left hand to the right hand at the correct position on the weapon. Moving the right hand has the weapon and left hand move with it looking like a solid two-handed grip. With the constraint on, right hand is master, left hand is a passive follower. The animation of the solid left hand grip will be baked with the Character and be part of the exported motion.





These constraints:

"L_WristEff>R_WristEff_Relaxed PC"

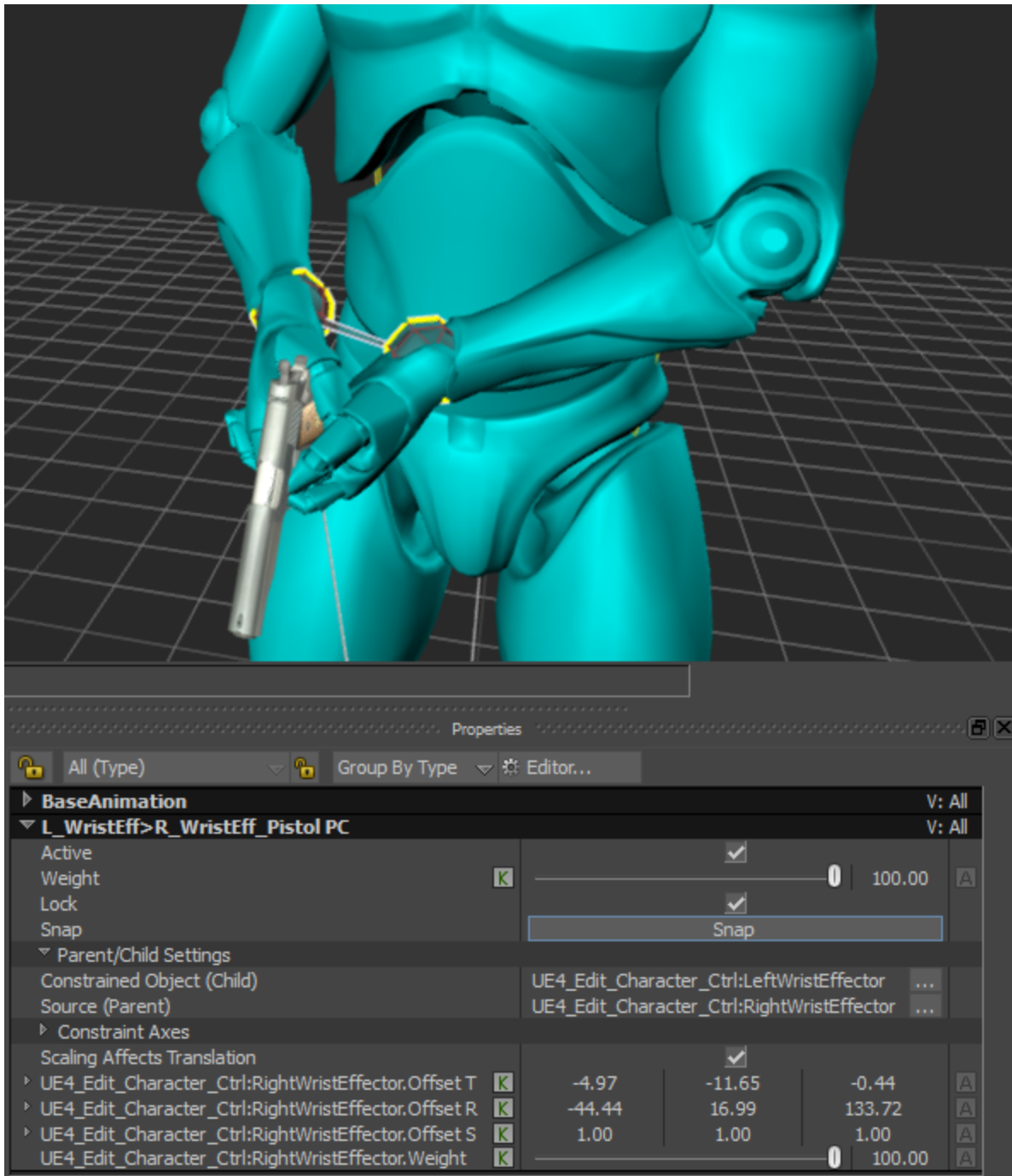
"L_WristEff>R_WristEff_Aim PC"

will position the "LeftWristEffector" relative to the "RightWristEffector" for the two respective hand positions "Relaxed" and "Aim". Set and key their weight according to the animation you are editing; Relaxed, Aim, or a transition. Used in conjunction with the matching "hand_r" constraints, the left hand will appear perfectly placed and gripped to the Rifle. Keying the weight to zero will of course allow removing his left hand for reloading or a needed butt scratch.

This constraint:

“L_WristEff>R_WristEff_Pistol PC”

will position the the “LeftWristEffector” relative to the “RightWristEffector” for the Pistol two-handed grip. Used in conjunction with the matching “hand_r” constraint, the left hand will appear perfectly placed and gripped with the Pistol. Keying the weight to zero will of course allow removing his left hand for reloading or another needed but Pistol related butt scratch.





***** NOTE:** Remember, “LeftWristEffector” and “RightWristEffector” need “IK Blend” T and R set to 100 in the Character Controls for the Control Rig constraints to have any effect.

Happy Animating!

Questions? Comments? We’d like to hear from you!

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<http://www.motioncaptureonline.com/>