

Tutorial 4 (Updated)

Kinect Motion Capture Recording and Cleanup

For this tutorial you'll need a PC, a copy of Motionbuilder and a Kinect camera. A student copy of Motionbuilder can be downloaded for free from the Autodesk student website. (Student email address required)

You'll also need to go to this site: http://www.brekel.com/?page_id=170. Follow the instructions and download the software.

Calibrate the tracking software so you can see white dots over your body. Open up Motionbuilder and drag the Kinect device into the viewport. Select it from your Navigator list, hit the Online and Live buttons then use the drop down list to create a Kinect reference skeleton.

1: Capture a take in Motionbuilder. Make sure the record option for the Kinect device is active, press the record button under the viewport in the play control section then press play to start recording.

2: Once you've captured your animation turn off the live option in the Kinect device and create an Actor (See tutorial 2 for more info on actor creation and editing)

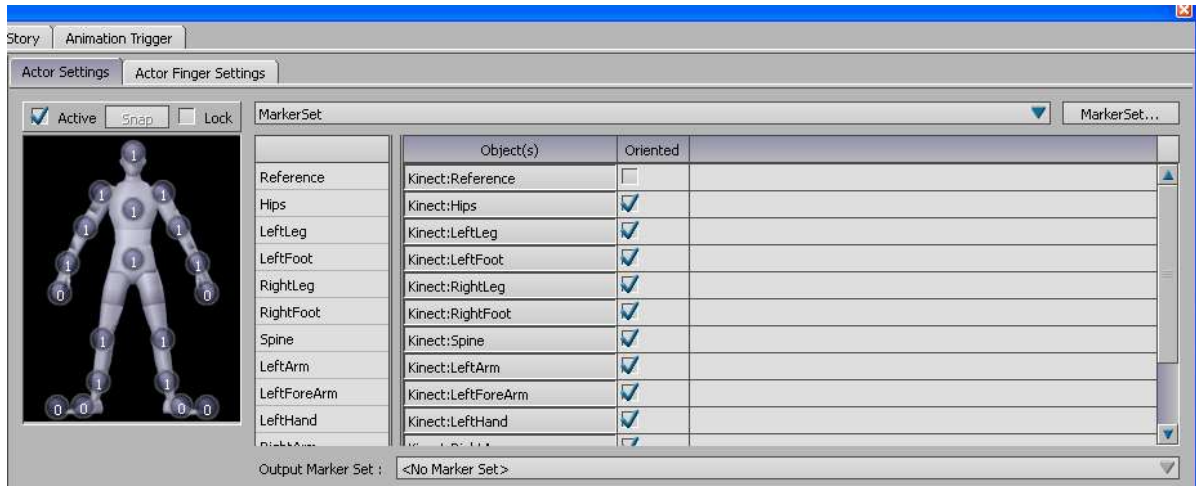
3: Find a pose in your animation that's quite neutral then move, scale and rotate the Actor into place so it matches the Kinect skeleton (Tip: Try and rotate limbs on a local axis. This option can be changed to the right of the viewport)

4: Create a new marker set for the actor. Alt drag the Kinect reference into the Reference slot. (The Kinect reference is the long yellow bone protruding out from the pelvis of the Kinect skeleton)

5: Hook the Kinect skeleton bone joints up to the Actor marker set joints (Alt drag)

6: Make sure all Actor objects are orientated (Tick boxes)

7: Check the active tick box. Make sure the Actor now follows the Kinect skeleton



8: Save your file

9: Merge in your Biped skeleton FBX file (See tutorial 1 for info on creating this file). If the Biped is too big in MB try scaling it down in Figure mode first then try again. A value of 180cm should match the Kinect skeleton pretty well.

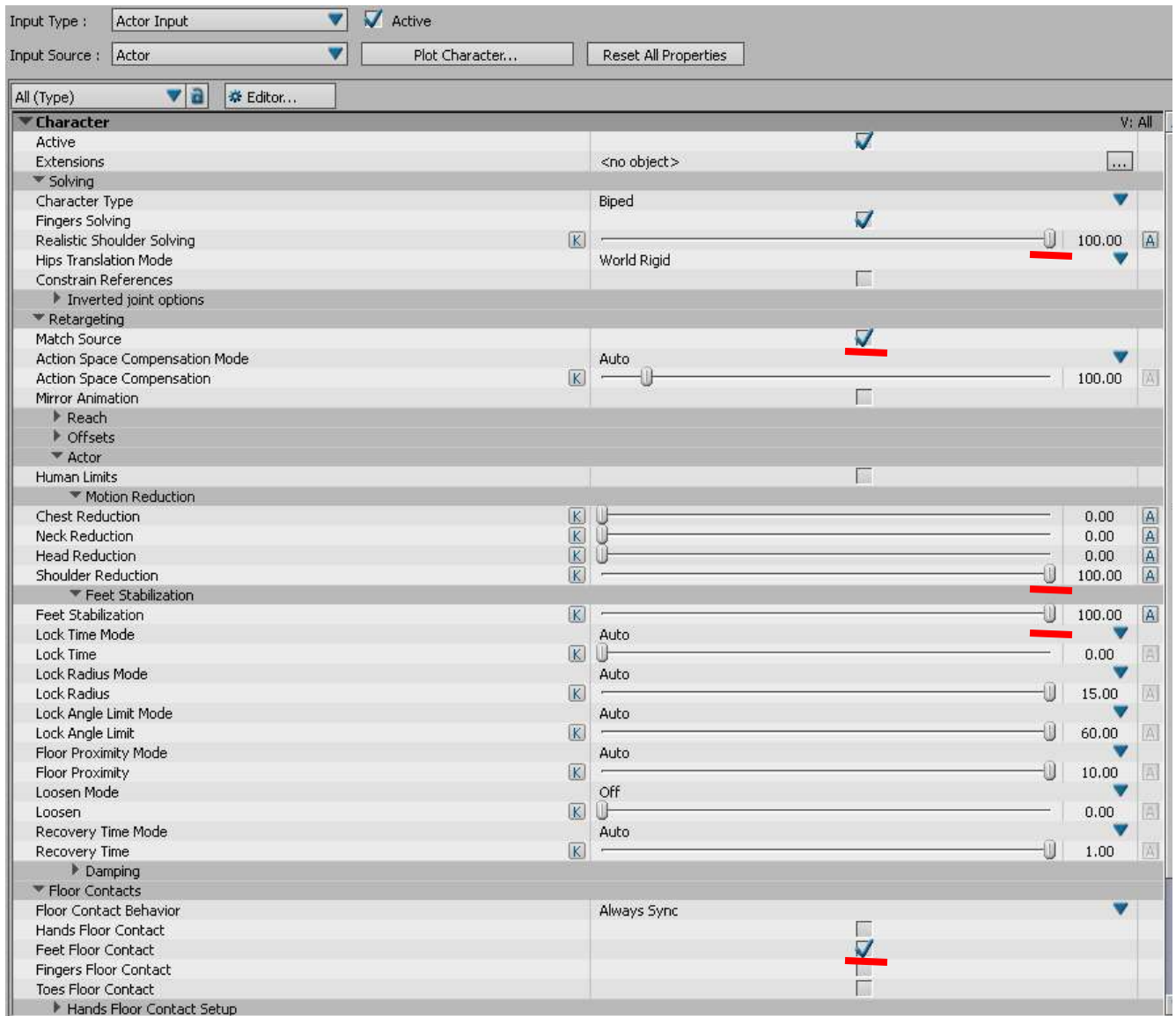
10: Once the Biped skeleton is in the scene make sure you drag a character onto it from the asset browser. (Characterize as a Biped)

11: For the Biped skeleton set the input type to Actor input and Input source to Actor. Tick the Active tick box.

12: Constrain the feet to the ground plane. (In character settings tab under floor contacts) If feet hover above the ground plane simply move your Kinect skeleton reference down in the scene slightly. (The Kinect reference is the long yellow bone protruding out from the pelvis of the Kinect skeleton)

13: Set shoulder reduction to 100% (In the character settings tab under Actor - Human Limits). Set realistic shoulder solving to 100% (In the Solving section). Also try ticking the Match Source box in the Retargeting section. If this makes the animation worse just untick the box.

14: Apply foot stabilization. (In the character settings tab under Actor - Human Limits - Feet Stabilization) Drag Feet Stabilization slider to 100%. Default settings should work well but feel free to experiment.



15: Once you're happy with the feet simply plot the Biped character to the control rig (IK only).

Note: Feet will appear to shake. Ignore this as the shake will disappear once you plot to the skeleton.

16: In the character controls window select all controls for the Biped skeleton apart from the feet and the Ctrl:Reference (circle in between the feet). Apply a Butterworth filter to smooth out the curves (I used a value of 2.00). Select Preview then Accept to apply the filter. Try selecting the feet and applying a Butterworth filter with a value of 3.00. This helps smooth out the leg shake. Too much and it will start the feet sliding though!

17: Plot Biped character to the skeleton

18: Save your file (FBX)

19: In 3dsMax import the FBX file you just saved into your Biped Max file (In import options make sure File Content: is set to 'Update scene elements')

20: Use layers to correct any problems with your motion or balance

21: Use sliding IK keys to stop the characters feet from sliding around if still a problem

22: Try saving and reloading the Bip file! (This removed a lot of TCB rotation glitches for me)

