CS475 3D Game Programming and Computer Animation

How to Convert 3DS max Rigged Characters to Cal3D
DRAFT, DRAFT

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First, Read the Cal3D tutorial

1. Load the 3DS max rigged char into 3ds max

2. To Export the Skeleton (must export the skeleton first)
    a. Edit -> select all
    b. Right click on model -> unhide all
    c. Edit -> select by name -> pick Bip01 (pick the root node of the skeleton)
    d. Press motion button ->Biped->figure mode ON (see fig. 1)
    e. File -> Export cal3D skeleton

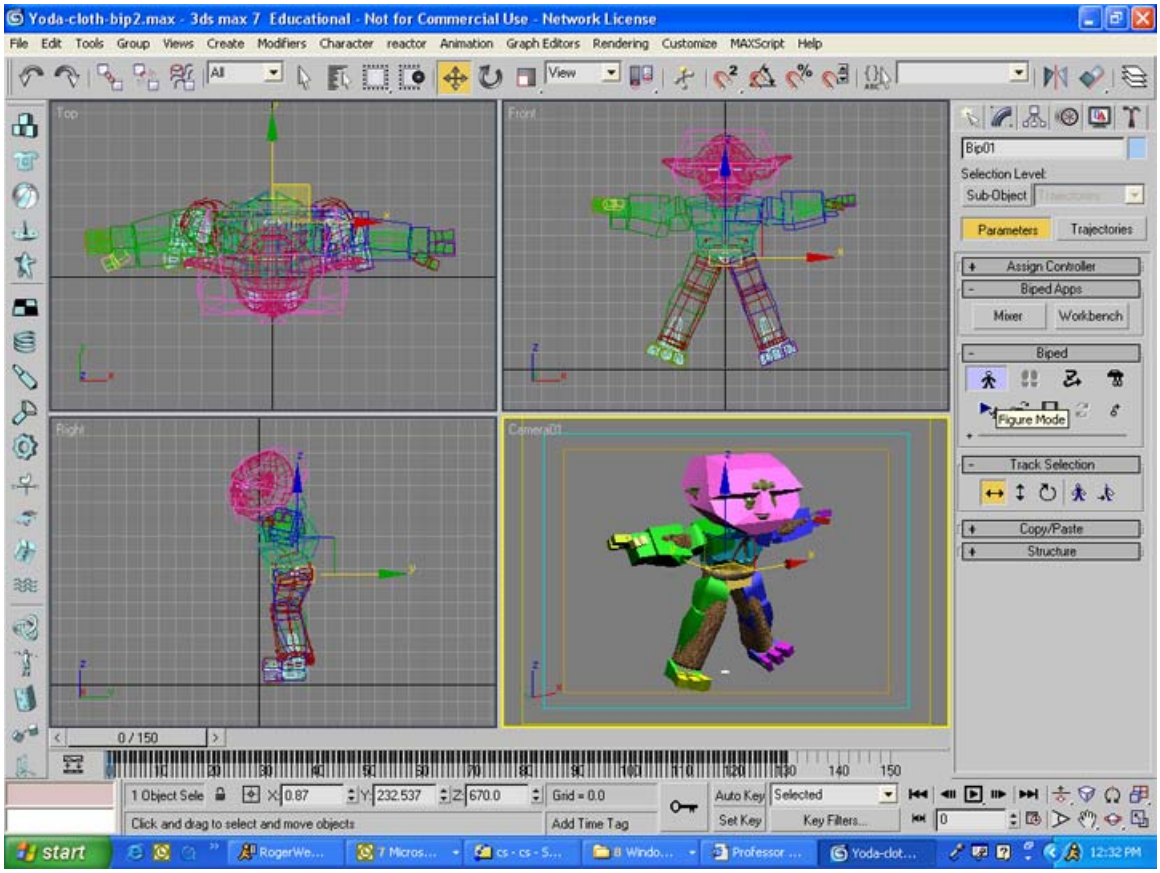


Figure 1.

Now that the Cal3D Skeleton is exported, we can export the materials:

1. Make sure to convert all material texture maps such as bmps, and jpg files to tga files. You can use the program irfanview at www.download.com to do batch (all files in a directory) conversion!
2. In 3DS MAX Press motion button ->Biped->figure mode ON (see fig. 1)
3. Press 'M' to bring up the Materials Editor (see fig. 2)
4. Select each material and label it in order my_material[0] … my_material[N]
5. File->Export -> Cal3D Materials (one at a time) (see Figure 3)
6. Change the mapping from *.jpg to *.tga in the 3ds max file:
    a. you can do this one at a time in 3DS max as you number the materials
    b. or exit 3DS max and rename the max file to .cdfdfd (any unknown file format). The pick .net to open it, find and replace all instances of jpg to tga and save a copy of the max file to a *.max file. Open in 3DS max and see if is not corrupted and all materials are now tga's.

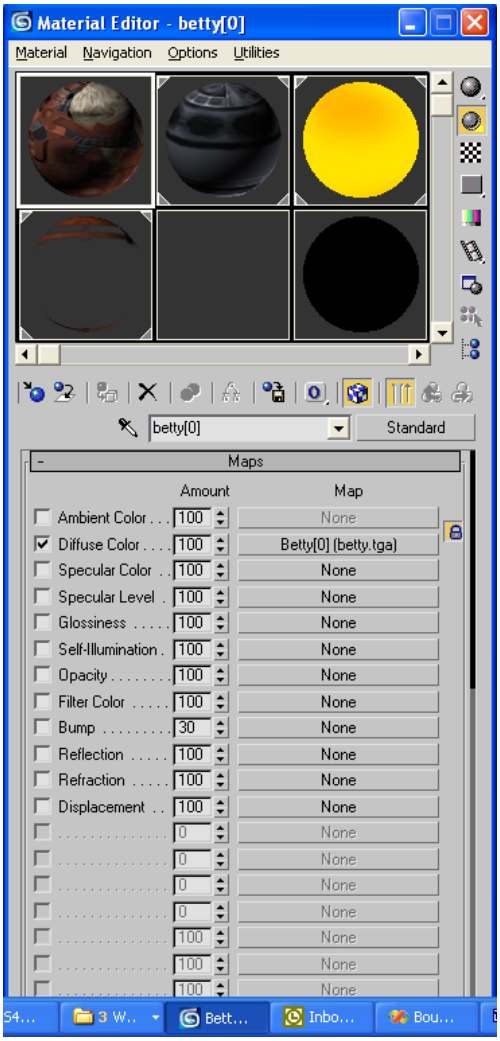
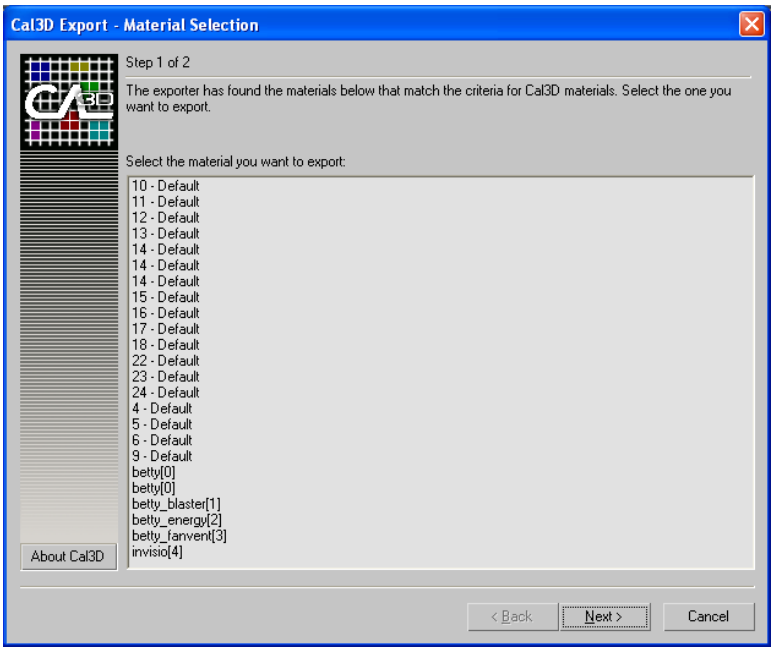


Figure 2.


Cal3D Export - Material Selection
Step 1 of 2
The exporter has found the materials below that match the criteria for Cal3D materials. Select the one you want to export.
Select the material you want to export:
10 - Default
11 - Default
12 - Default
13 - Default
14 - Default
14 - Default
14 - Default
15 - Default
16 - Default
17 - Default
18 - Default
22 - Default
23 - Default
24 - Default
4 - Default
5 - Default
6 - Default
9 - Default
betty[0]
betty[0]
betty_blaster[1]
betty_energy[2]
betty_fanvent[3]
invisio[4]
About Cal3D
< Back
Next >
Cancel
Figure 3.

Now that the Cal3D Skeleton and materials are exported, we can export the meshes:

7. Press motion button ->Biped->figure mode ON (see fig. 1)
8. Edit -> Select all Bip01* (that is all the skeleton objects) (see fig. 4)
9. Right click on model -> hide all Selected (hides all skeleton objects)
10. Now select all the Mesh parts (and only the mesh parts)
11. Edit -> Select all (if all that is left is mesh parts) check this can cause an error
12. File -> Export Cal3D Mesh

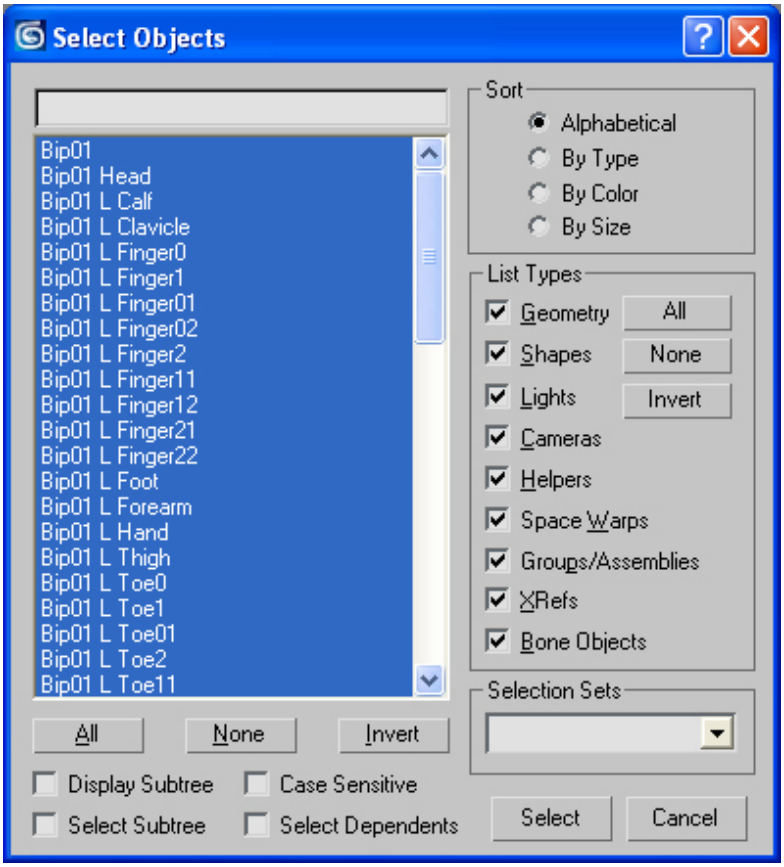


Figure 4.

Now that the Cal3D Skeleton and Mesh and all Materials are exported, we can export the Animations:

1. Right click on model -> unhide all
2. Edit -> select by name -> pick Bip01 (pick the root node of the skeleton
3. Press motion button ->Biped->figure mode OFF (see fig. 1)
3. Press motion button ->Motion Capture -> File Open (see fig. 5)
4. Pick a *.bip file (off the net or my web site) (see Fig. 6)
5. When it is a good animation then File -> Export -> Cal3D Animation
6. Pick the skeleton this animation belongs to (very important see fig. 7)
7. Pick what bones of the Skeleton (most times all) (see figure 8).
8. Pick the End Frame (use motion bar to see where it ends) see Figure 9.
9. Pick the FPS, check with the bip readme to see what it was recorded with (most times either 30 or 60 but check!!) See figure 9.

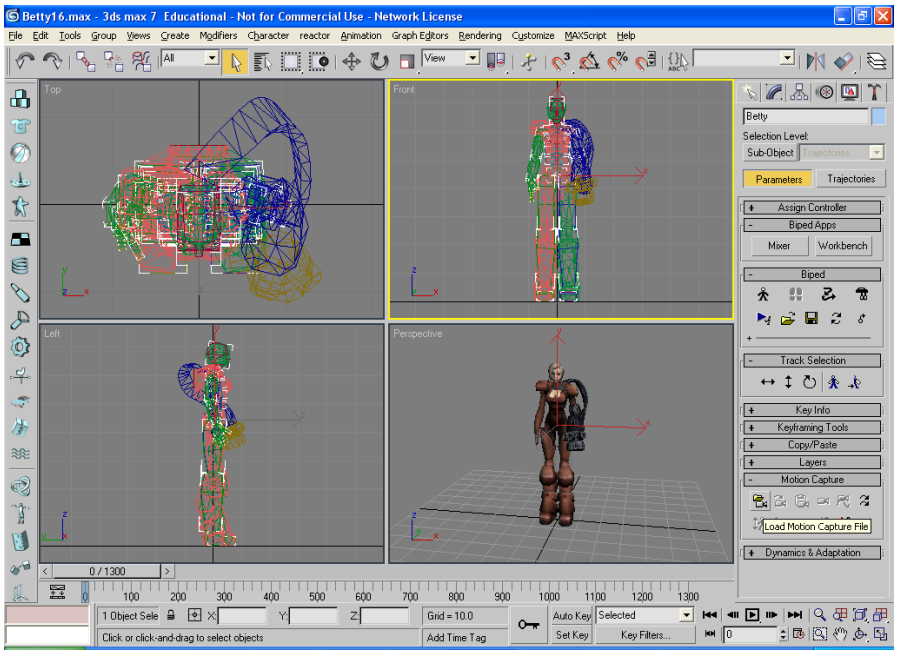


Figure 5.

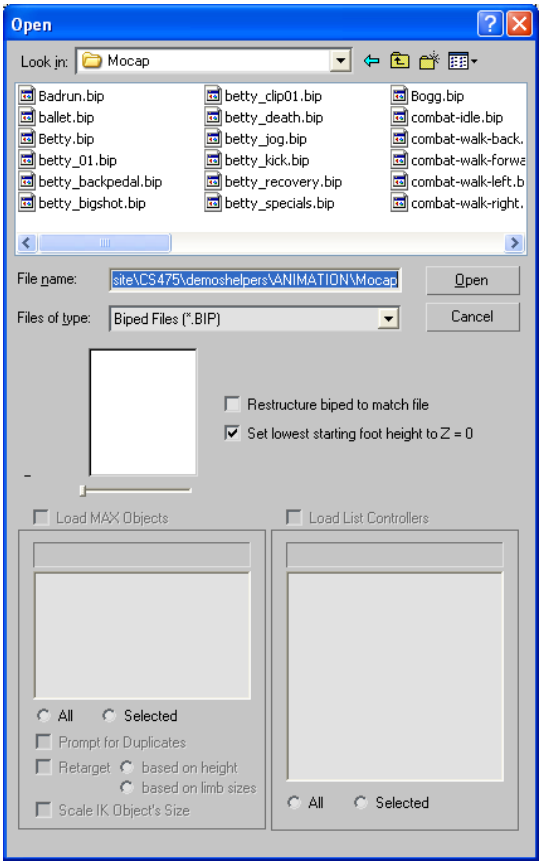


Figure 6.

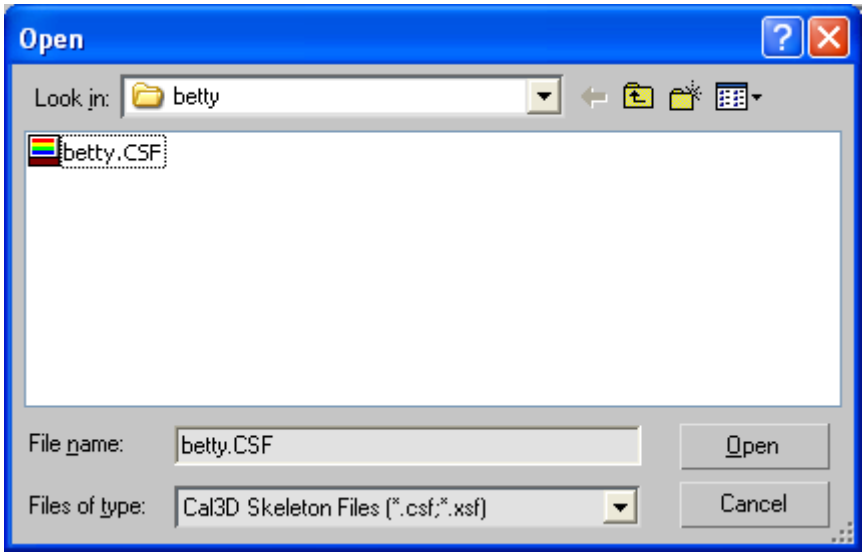


Figure 7.

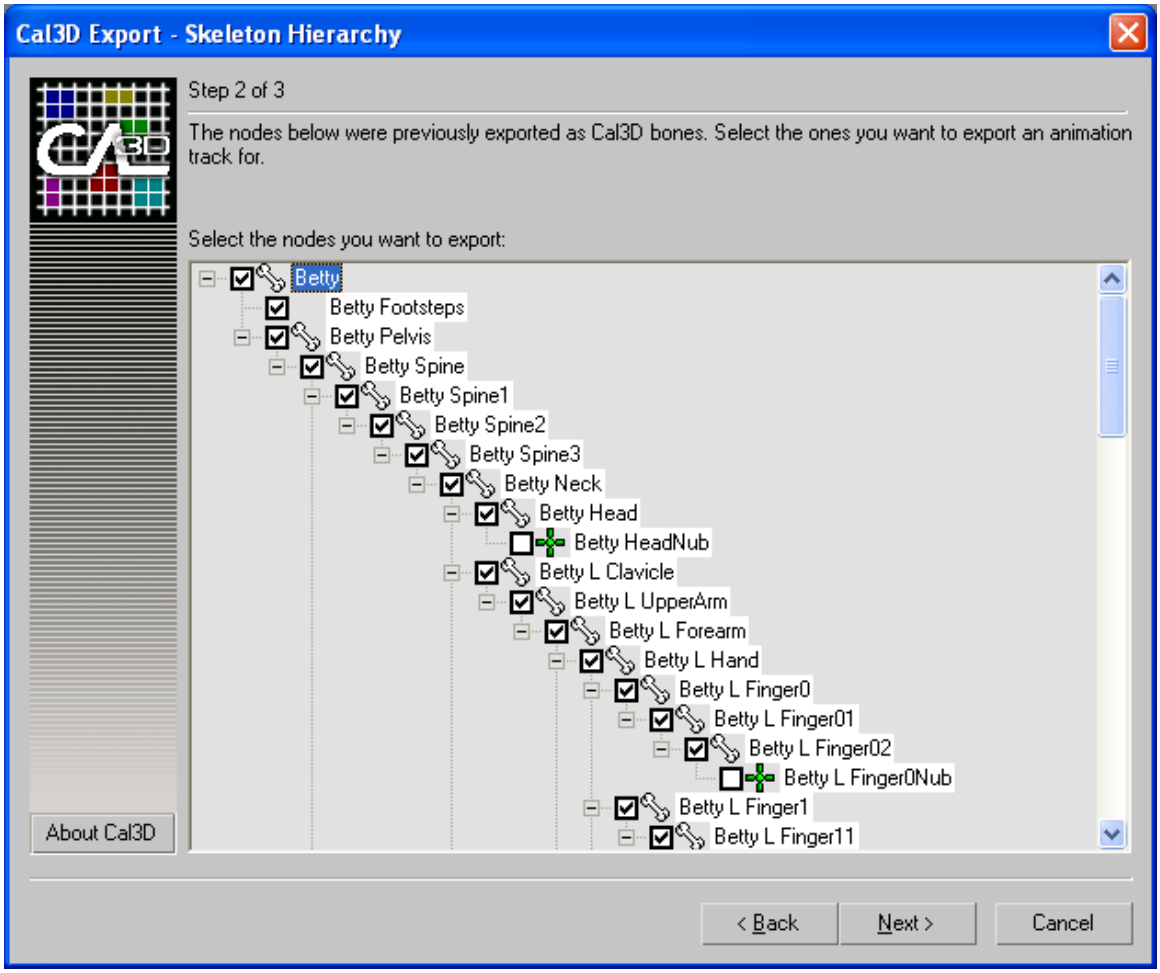

Cal3D Export - Skeleton Hierarchy
Step 2 of 3
The nodes below were previously exported as Cal3D bones. Select the ones you want to export an animation track for.
Select the nodes you want to export:
Betty
Betty Footsteps
Betty Pelvis
Betty Spine
Betty Spine1
Betty Spine2
Betty Spine3
Betty Neck
Betty Head
Betty HeadNub
Betty L Clavicle
Betty L UpperArm
Betty L Forearm
Betty L Hand
Betty L Finger0
Betty L Finger01
Betty L Finger02
Betty L Finger0Nub
Betty L Finger1
Betty L Finger11
About Cal3D
< Back
Next >
Cancel

Figure 8.

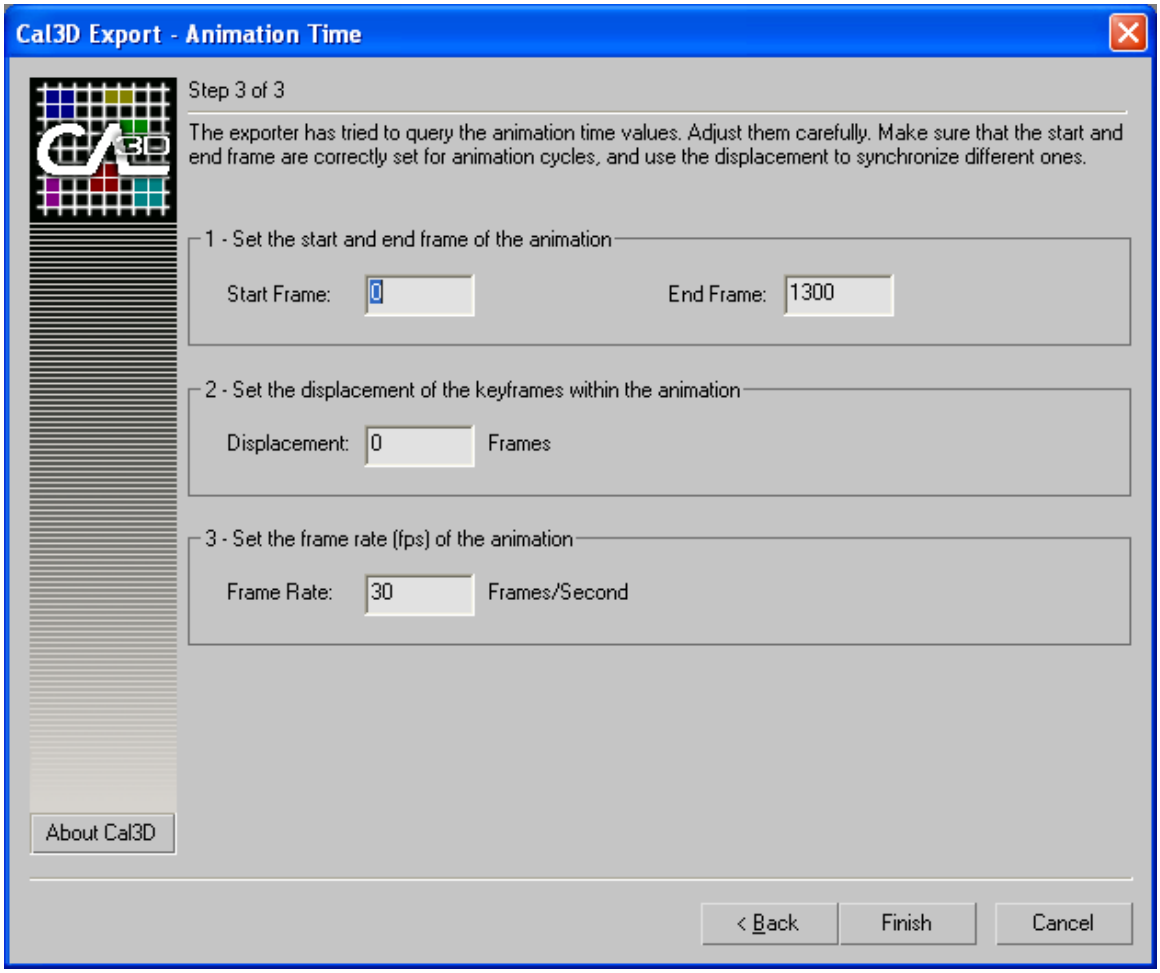
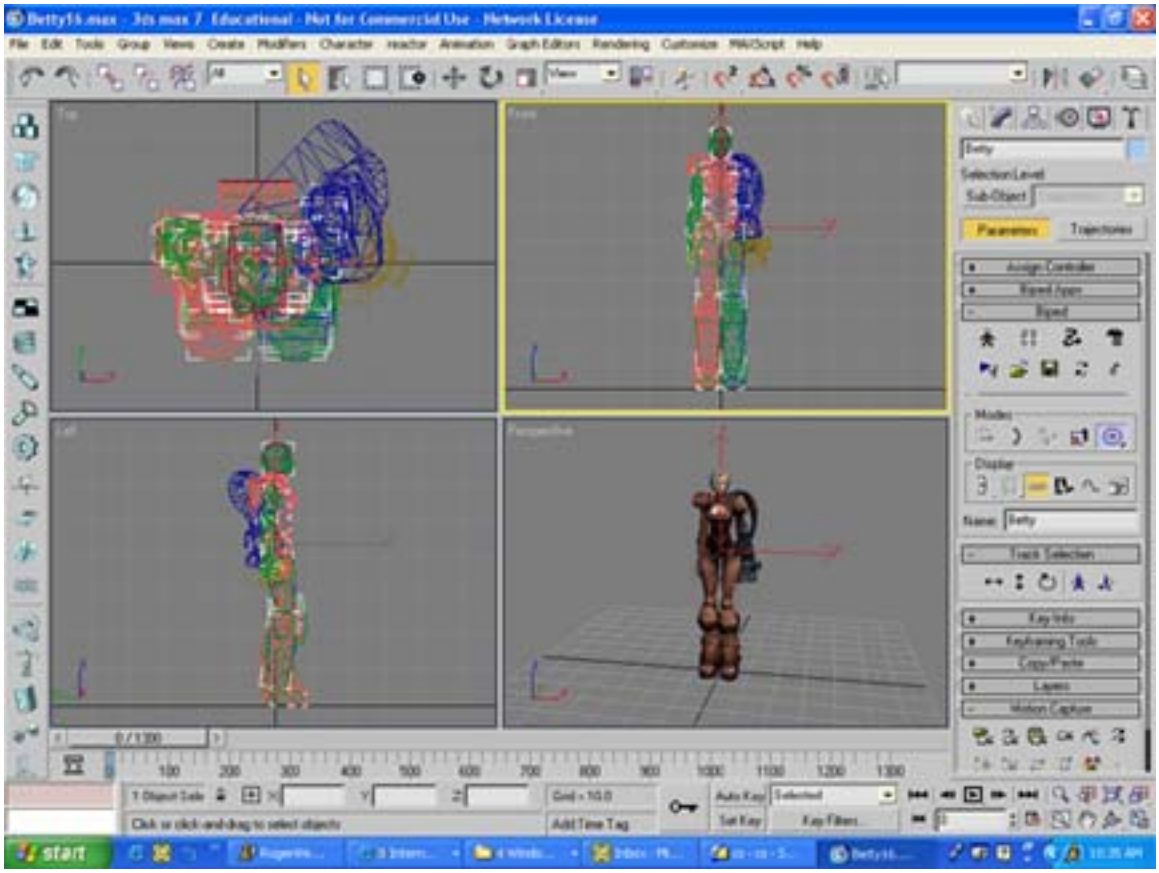

Cal3D Export - Animation Time
Step 3 of 3
The exporter has tried to query the animation time values. Adjust them carefully. Make sure that the start and end frame are correctly set for animation cycles, and use the displacement to synchronize different ones.
1 - Set the start and end frame of the animation
Start Frame:
0
End Frame:
1300
2 - Set the displacement of the keyframes within the animation
Displacement:
0
Frames
3 - Set the frame rate (fps) of the animation
Frame Rate:
30
Frames/Second
About Cal3D
< Back
Finish
Cancel

Figure 9.

Note:
For animations that move around in 3DS, you can set the “in place” tool to force the animations to stay in place, which is what we want for real-time animated characters under program control (see figure).



Now that you have converted your rigged 3DS max character to Cal3D test it with the tester program in my web site directory. You need to create a cfg file called model.cfg that looks like this:

scale=0.5
skeleton=betty.csf
mesh=betty.cmf
animation=betty_idle.caf
animation=walk.caf
animation=run.caf
animation=shot.caf
material=0.crf
material=1.crf
material=2.crf

This file will be loaded by the program, it shows the skeleton file the mesh file, the animations and the materials. A sample model.cfg file that you can edit is on my web site. Additional animations can be added by editing the model.cfg file.
Note if you change the materials or the mesh in 3DS max you must export the materials and the mesh again!

Resources:

http://cs.millersville.edu/~webster/cs375/openglstuff/muopengltesterapps/DOTNET/ANIMATION/

http://cal3d.sourceforge.net/