

. CAD Supported:

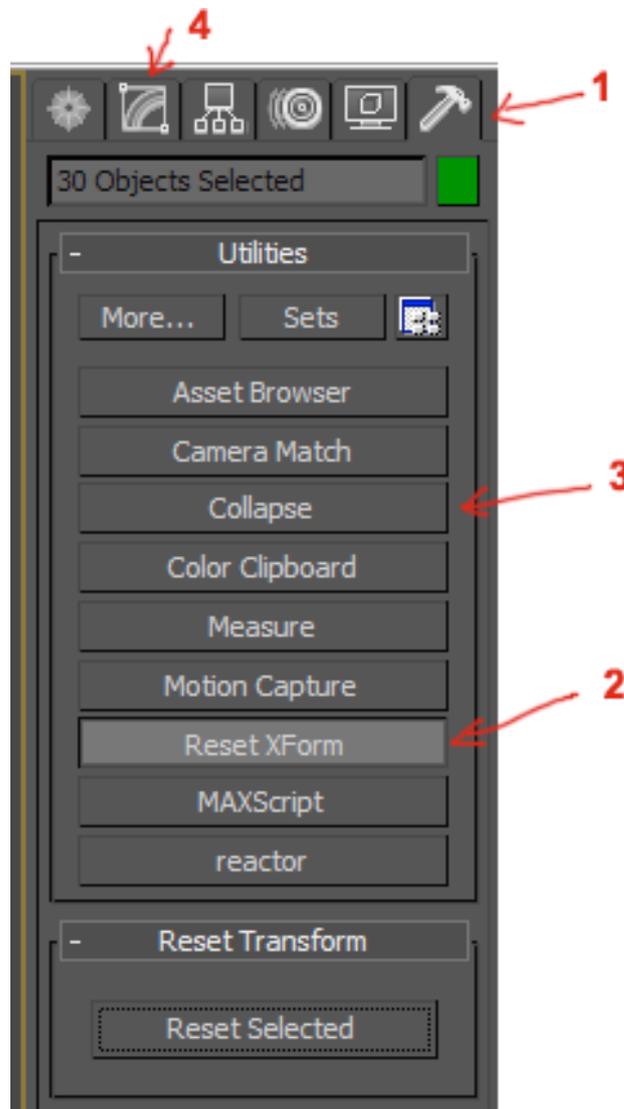
- Skeletal animation, unlimited number of bones (only 'Skin' modifier, not 'Physique')
- Textures (png, jpg, tga, formats, not more than 1024x1024, size must be power of 2).
- Bump mappings isn't supported (OpenGL ES 1.1 limitation)
- Vertex coloring
- Up to 5000 vertexes per model
- Face types: point, line, triangle

Instruction:

Export models from **3D Studio Max 2011**.

Before export and rigging:

1. Open model file.
2. Select model you want to export.
3. Go to 'Utilities' (#1) section and press button 'Reset XForm' (#2). Press 'Reset selected'.
4. In the same menu press 'Collapse' (#3) and then in the appeared menu press 'Collapse Selected'.

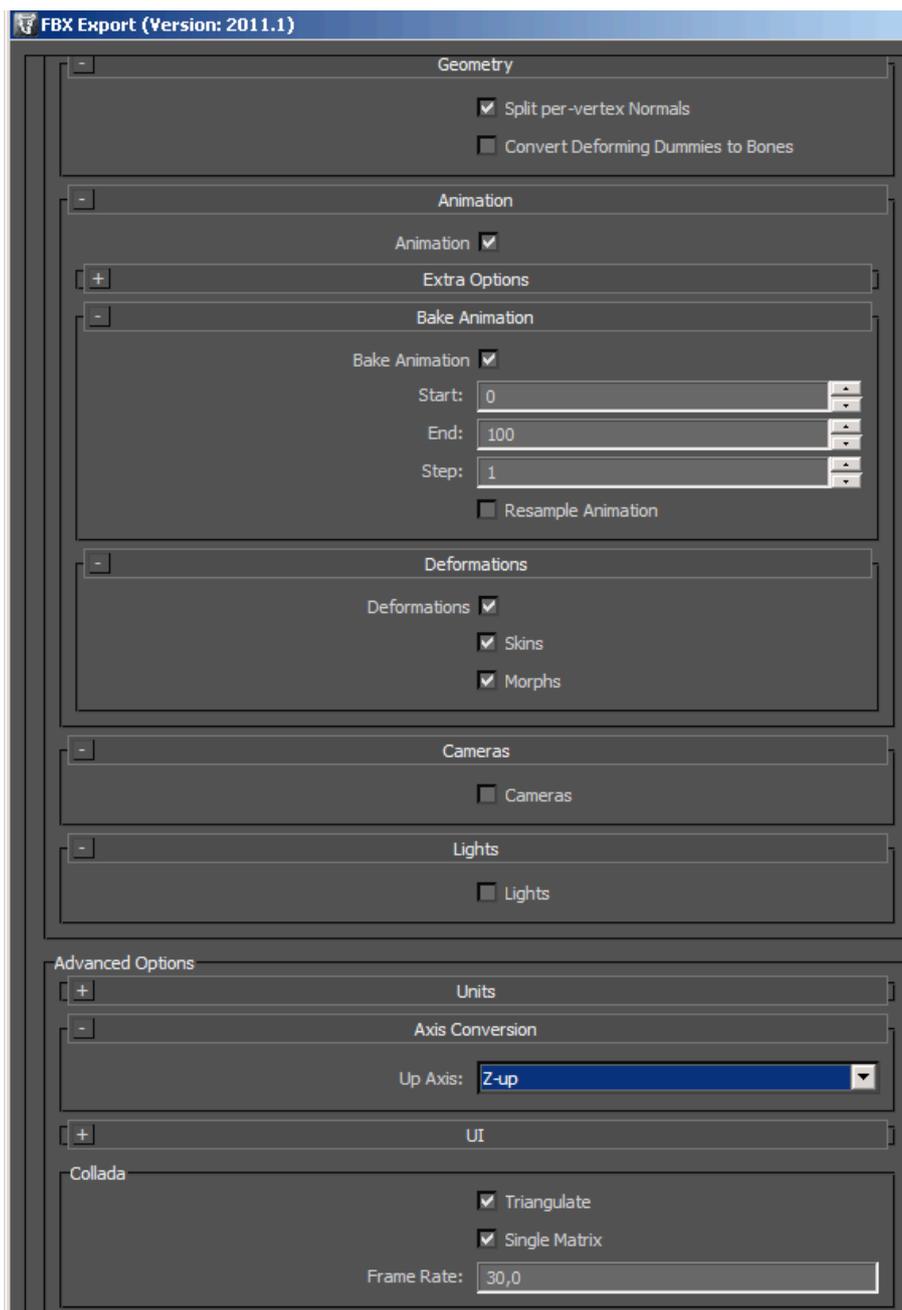


Important: you must use only modifier 'Skin' for model rigging (do not use 'Physique' for that). (Check #4)

Important: Textures must be not larger than 1024x1024 (iPhone limitation). Size of texture must be a power of two (128, 256, 512 etc) due iPhone limitations

To export model:

1. Press button in the left upper corner and select 'Export'.
2. Make sure 'Autodesk Collada (".DAE') is selected.
3. Enter file name and press 'Save'
4. Options:
 - 4.1 Geometry: select only 'Split per-vertex Normals'
 - 4.2 Animation (select this item if you want to export animations):
 - 4.3 Bake Animation (select): specify start and end frames for your animation. It's better to use step=1.
 - 4.4 Deformations: select all
 - 4.5 Cameras: do not select (we don't use this info anyway)
 - 4.6 Lights: do not select
 - 4.7 Axis Conversion: select Z-up
 - 4.8 UI: select all.



Packaging:

- 1) Rename model file to '**model.dae**'
- 2) Put textures in '**textures**' subfolder.
- 3) Compress file and textures folder.
- 4) Model file and textures hasn't to be in subfolder, so archive structure is:

```
model.zip (can be any name)
|-- model.dae (use only this name)
|-- textures (use only this name)
    |-- texture1.jpg (real name of file)
    |-- texture2.jpg (real name of file)
    |-- .....
```

Recommendations.

To get decent frame rate we suggest to follow the next recommendations:

1. The polygon count should be about 5000 for a bone-animated model and about 20 000 for a non-animated one. Note that the overall polygon budget for the scene is 20 000 polygons, so for example, you can have 4 non-animated models 5000 polygons each or 2 animated models 2500 each.
2. The recommended texture size is 1024x1024 (the size should be the power of two). Consider using texture atlases to reduce memory consumption and bandwidth.
3. Avoid using sophisticated scenes with lots of nodes (for example for an animated model the number of bones should be not more then 40). This needs extra time for processing.
4. Use different materials in favor of textures.
5. Note that when loading a new model an extra memory is needed to process it, so there will be a short memory splash during the loading. Make sure there is enough free memory to use.
6. The recommended number of bones per vertex is not more then 4 (uses really lot of CPU to process extra bones).
7. There are currently some limitations for image formats that can be used for textures:

JPEG baseline (no JPEG progressive)

PNG 8-bit only

TGA

BMP non-1bpp, non-RLE

PSD (composited view only, no extra channels)

GIF

HDR (radiance rgbE format)

PIC (Softimage PIC)

NOTE: this applies to all modern devices like iPod Touch 4 and higher, iPhone 4 and higher, iPad 2 and higher, Android devices like Samsung Galaxy Tab 10.1 and similar.

You should experiment yourself with textures and models on your target devices to gain the best performance.