

# McMornan's Sword Modelling Tutorial V 1.0

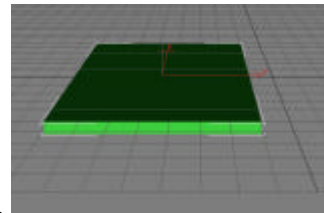
Purpose of this document

This document is meant for morrowind fans who want to have a model of their favourite sword in the game. You'll need a copy of 3D Studio Max (get a 15-day trial version from [www.discreet.com](http://www.discreet.com)) and a high resolution picture of the weapon you want to model. (If you are a very good artist then also a lowres version will do. But then you probably won't need this tutorial anyway.) You have to install the official NIF exporter and optionally the DDS texture format plugin. Both files can be found on my website.

This tutorial is about modelling a sword. But most of the principles can be applied to other weapons/models as well. The sword I am using is the sword of robin hood.

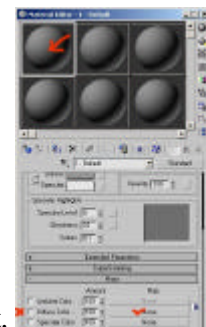
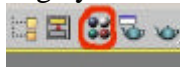
Preparation

The best start is to create a simple box object (create  $\approx$  standard primitives  $\approx$  box) and apply the picture of the sword as a surface texture. In case you are not familiar with applying textures to surfaces in max, here is a short description.



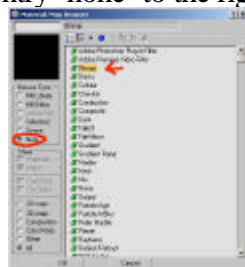
a) create a box object. It should roughly look like a board.

b) Then open the material editor.



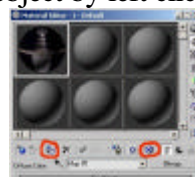
c) Click one of the grey standard materials and open the 'maps' rollout.

d) Click on the entry 'none' to the right of 'diffuse color' and choose the big picture of



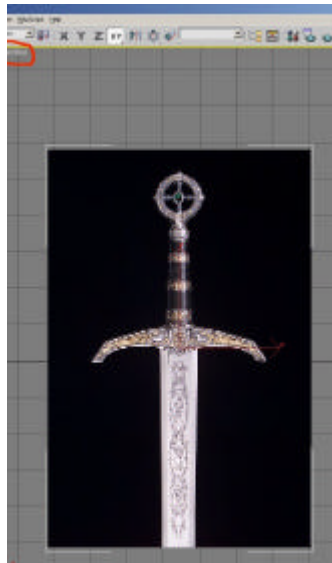
your weapon.

e) Then you assign the new material to the box object by left clicking on the box object



and click on this symbol in the material editor.

- f) Also make sure to check the second button so that the texture will be visible in the viewport.



- g) This will be the result.
- h) If not make sure you set the viewport properties correctly. Right click on the name of the viewport. (See red marker above.) Set the preferences as shown







here:

## Modelling

When the above preparations are done, the fun can begin. This is no 3D Max tutorial so I assume you have a basic knowledge of 3D Studio Max release 4.

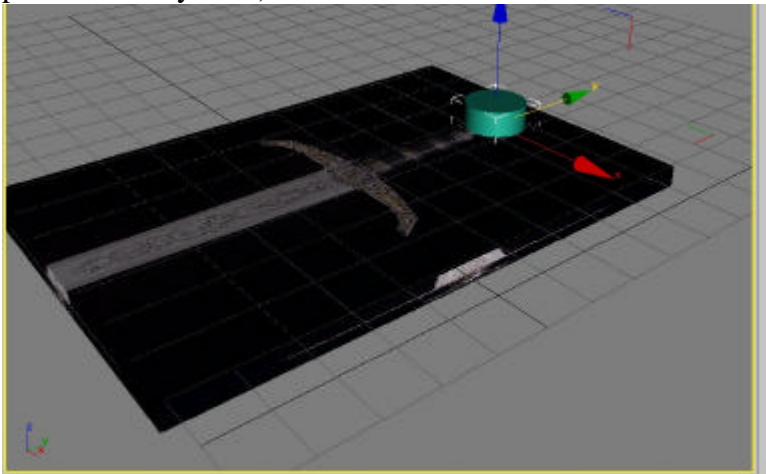
All modelling starts with an evaluation of the model you want to create. In principle there are at least two different ways to create a good looking model: 1. You create all details of the original as polygons. 2. You create a very basic structure and apply a good looking texture. The reasoning behind number two is that most models are only seen from afar and great polygon detail is not necessary. Morrowind is the best proof that this is true and so we will also follow that approach.

The model we'll make will consist of four parts:

- the pommel 
- the hilt 
- the guard 
- the blade 

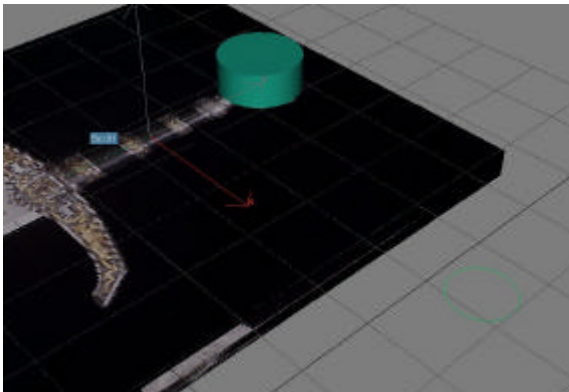
We'll use different methods to model these parts.

The pommel is the easiest part. We'll create a simple cylinder object for it. (create  $\approx$  standard primitives  $\approx$  cylinder)

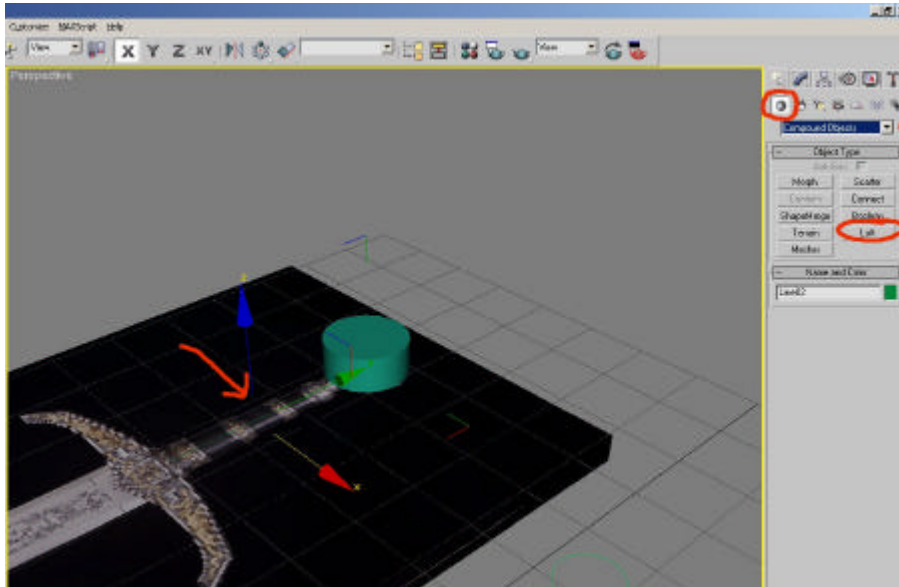


The pommel will be done using a path extrusion object and applying a scale deform. No panic. We'll go through it step by step.

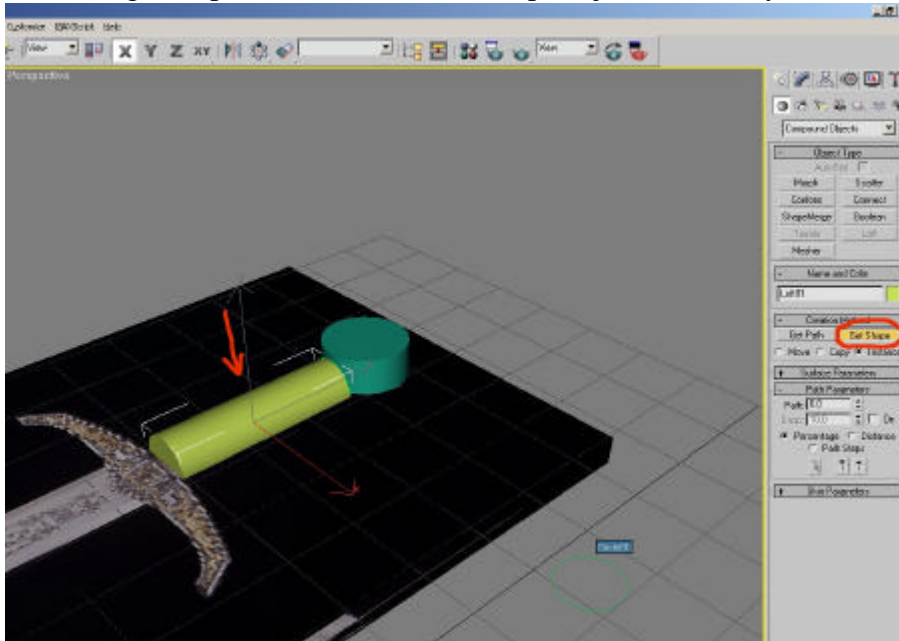
First we create a circle shape. (create  $\approx$  shapes  $\approx$  circle) Then we need a path along which we extract the shape. We'll create a simple line for that. (create  $\approx$  shapes  $\approx$  circle) The line is best placed directly above the hilt. The length of the line should be the length of the hilt. The result will look like this:



Select the line and click on loft.



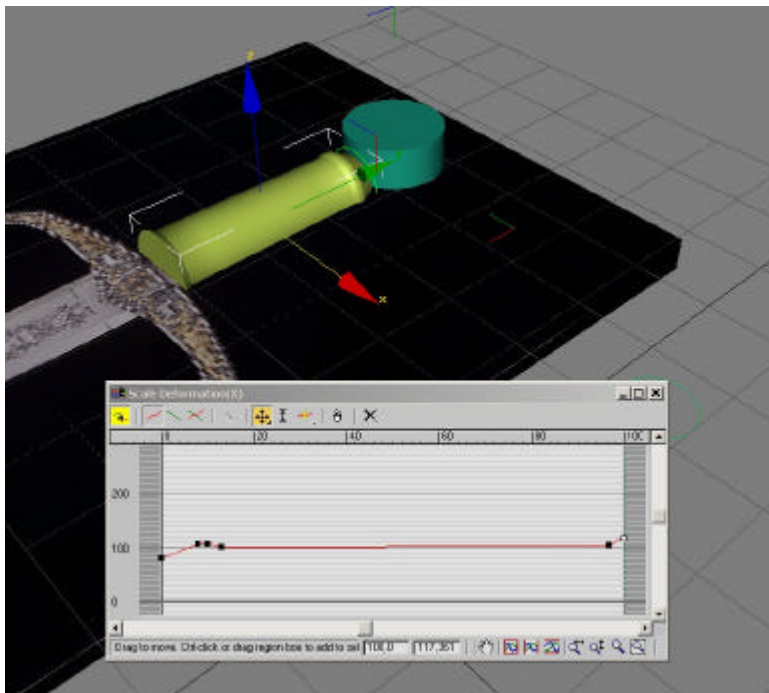
Click on 'get shape', then on the circle shape object and voila you have created a nice tube.



Granted, you could have achieved that effect with a simple cylinder but now we apply another modifier which will only work on a path extrusion object. Select the extrusion object you have just created and click on the modify tab to the right. Then open the deformations rollout and click on scale.

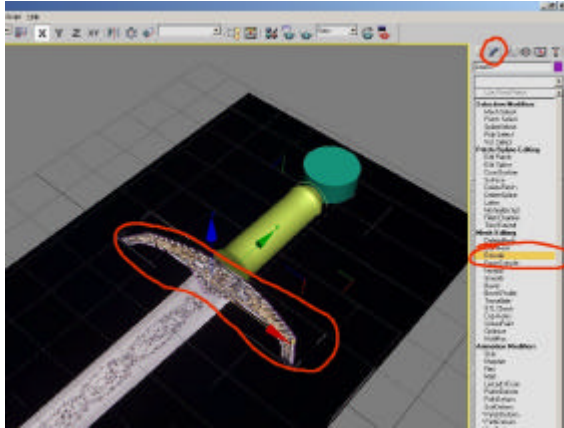


Here we can define how the circle object is being scaled along the path.  
Adjust the scaling along the path to match the shape of the hilt. Add new point in the path where necessary.

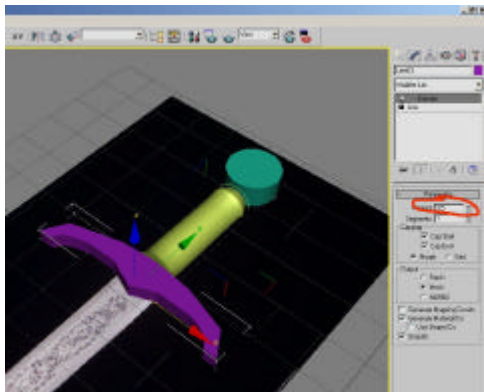


The guard is next. We will use a normal extrusion object to model it.

Align your perspective viewport (I always select the viewport – press ‘w’ to maximize it – and align it by holding down the ‘alt’ key and pressing the middle mouse button then moving the mouse.) so that you look directly from above on the box with the mapped picture .  
Create a spline (create  $\approx$  shapes  $\approx$  line) which represents the outline of the hilt. The result should look similar to this:

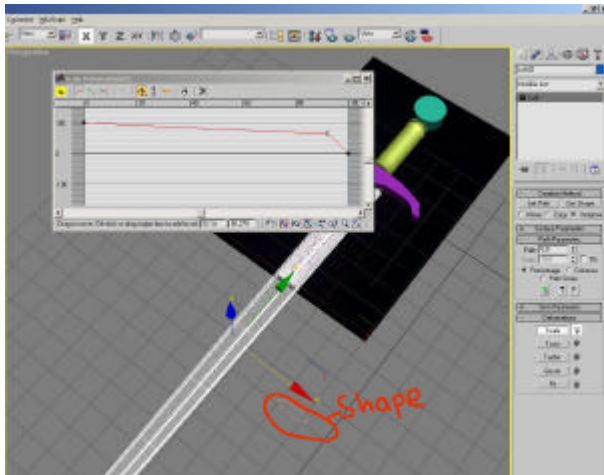


Next we apply the extrude modifier. Select your spline and choose the extrude modifier from the modifier tab.  
Choose an appropriate thickness for the extrude.

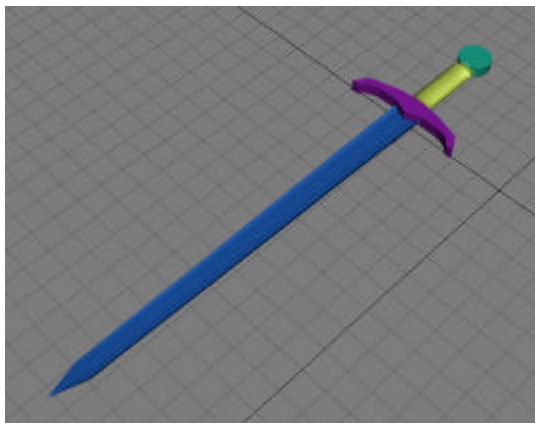


The result looks already similar to the sword you want to make. Last is the blade. We'll do that in the same way as we did the hilt.  
For that reason we create the outline of the blade and extrude it along a line which should be as long as the swordblade should be in the finished model. The extruded loft object will look rather flat so you also have to apply a scale deformation to the finished loft object. I'll leave that as an exercise for you but the result should look like this:





The only thing left is to scale and align the four objects which make up this sword so that everything looks a little smoother. As this is basic 3D Max I won't go into details here. Just take a look at the documentation of max, it has very good examples. My first version (good enough for basic texturing) looks like this: (Now you can remove the textured box and the shape objects. You won't need them any longer.)



Now we prepare the texture and apply it to the model.

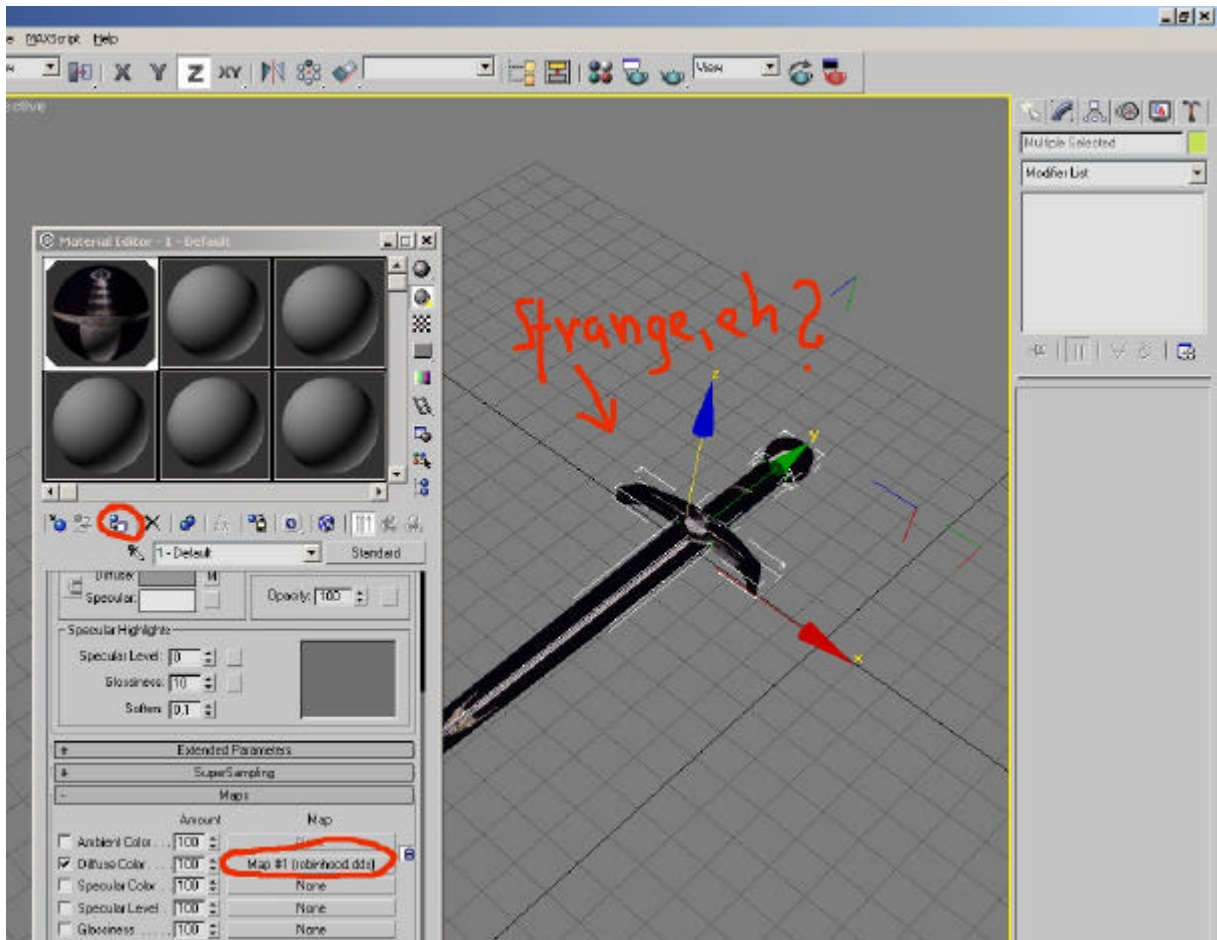
To prepare the texture you first have to scale it to a size of the power of two (256x256, 512x512, 1024x1024 etc.) and save it either in bmp, tga or dds format. (I prefer dds because it uses up the least space. Use the plugin for photoshop to create dds files. You'll also need the dds plugin for max. A link to it should be on my site.)

Then repeat the steps we did when we created the material for the reference box. Just replace the original picture file with your scaled version. Don't worry if the bitmap does not look symmetric. It won't disturb the appearance of the texture on the model.

(You also could split up the picture into several parts: one part for each object of the sword. This would save even more space. But I did not find it necessary to do that on my hardware. You might have to do that when your hardware has problems with large textures. Just keep in mind that all textures have to be in a symmetrical format.)

### Applying the texture to the model

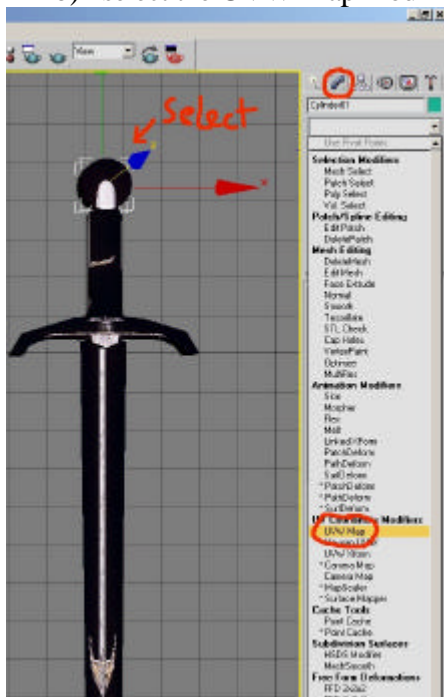
Ok, now comes one of the last steps. We'll assign the material to the model. To do that, select all objects of the weapon and assign the material you created for the reference box to all them. The result will look strange. But don't worry, we'll come to that in the next step.



What we need now is the famous 'UVW' Mapping. Basically what this does is move and scale the texture to better fit the object it is applied to.

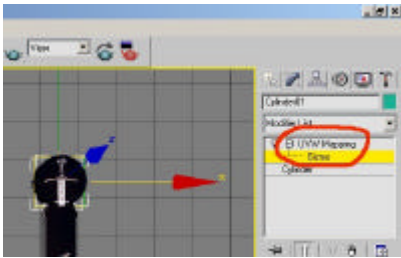
This is not easy so be careful that you don't miss a step. I'll start with the pommel.

- a) select the object for which you want to change the mapping
- b) select the UVW Map modifier from the modifier rollout.

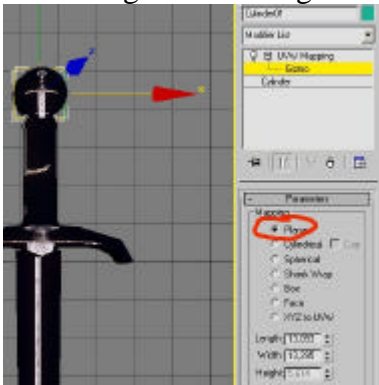




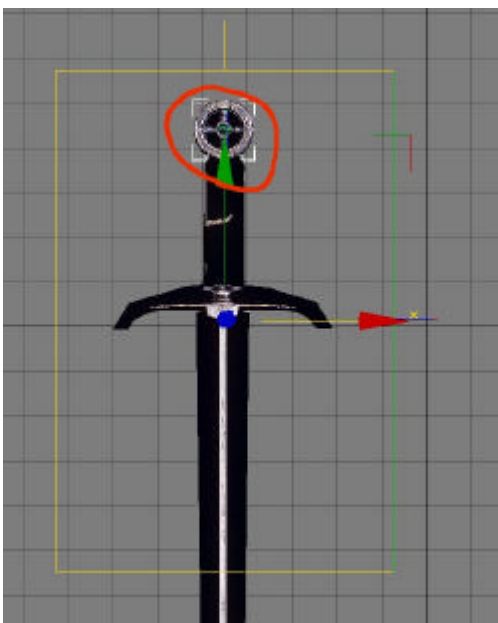
c) then open the uvw tree in the modifier stack and activate the gizmo.



All moving and size change will now only affect the texture mapping. Use a planar map.



Scale and move the texture map until it looks like this:





Normal:



Bump Mapping:



The result is a little bit darker but looks very detailed. Compare this to the simple model you made ! And yes, because you used the Netimmerse (TES) shader the bump mapping will look very good ingame as well. (Although not as good as in MAX good ...)

### Finetuning

Of course the model looks VERY rudimentary without some finetuning. But I'll leave that up to you. Buy a few books on modelling in 3DS max4 or read tutorials dedicated to that on the net.

### Exporting to Morrowind

To prepare export, you should generate a thumbnail as the inventory image. For that reason render a 32x32 image of your weapon and save it in .tga format in the icons subfolder of the data files directory.

The final step is the export to Morrowind. You'll have to move the model to the proper place and align it in the proper direction. Although Leiawen has made a good tutorial on how to do this (I learned it from there myself) I'll repeat the basic steps here.

Ok, the first thing is to align the model so that you character can hold the sword properly. First we align the model to the origin of the coordinate system. It should look similar to this:

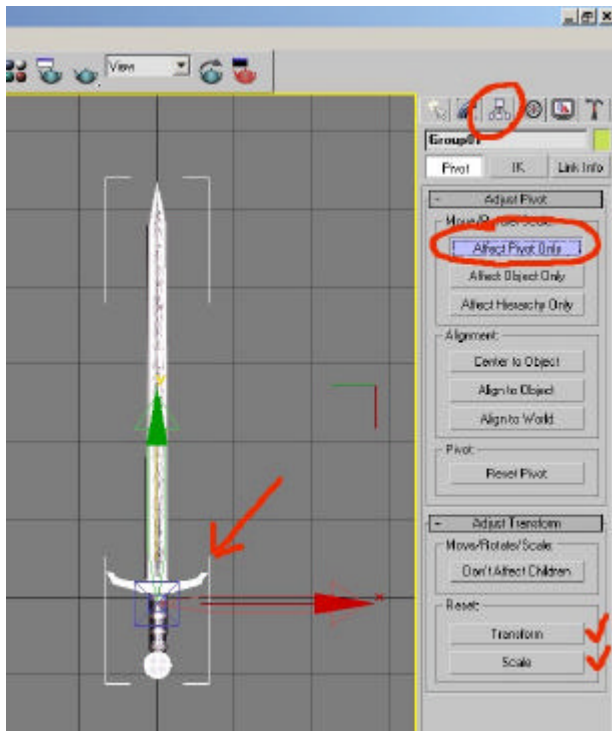


It is important that the model faces upwards in the top view. The point where later on the top of the characters hand will be should be at the origin of the coordinate system. The next step is to scale the model to the proper size. Scale the model until the grid shows 10.0 in the lower part of the screen and resize the model to you preferences. Now it should look like this:



The length of the blade should be 5-6 grid lines for a nice longsword.

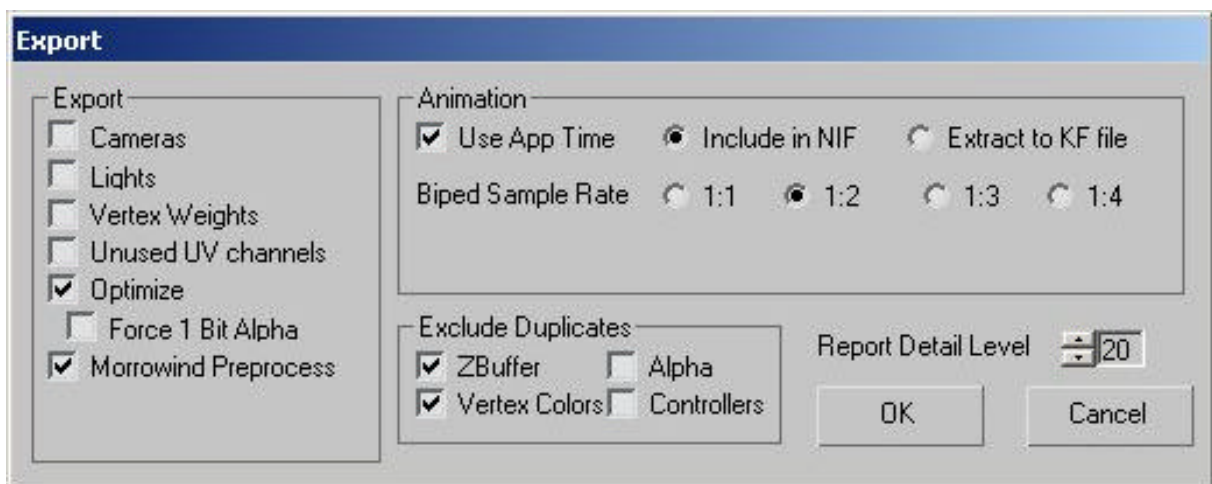
The final step is to set the pivot point of the model and to reset the scale and the extent. Move the pivot point to the origin of the coordinate system.



After you have moved the pivot point to the proper place, click both on “Reset Transform” and “Reset Scale”.

I have never found it necessary to reset the modify stack or to combine all objects into one. Now your model is ready to be exported.

Click on File  $\rightarrow$  Export and choose a place to save your file to. Make sure you choose the ‘TES Exporter’ as filetype. Click on ok and set the choices as shown here:



Congratulations: Your first weapon is ready to be used in Morrowind !

The only thing left to do is to generate a new weapon in the editor and assign the .NIF file and the thumbnail you generated.

Have Fun !