## INTRO:

As for today (the end of March, 2012), there are no nif exporters for 3ds Max that can produce working bow files which you could add straight away into the game. Some NifSkope's "magic" is necessary. In a future, this may likely to change, and while some of the steps described in this tutorial may become obsolete by then, still the basic workflow should be quite similar.

## PURPOSE OF THIS TUTORIAL:

This tutorial describes how to use a model of created bow (either created from scratch in 3DS or imported from elsewhere), and skin it to the armature imported from original bow files. Then export the skinned mesh, and finalize it in NifSkope. And add to the game with the help of Creation Kit.

## THINGS YOU SHOULD KNOW BEFORE WE BEGIN:

Bows in Skyrim unlike all melee weapons use bones for animations. They have simple skeletons and their meshes are attached to it. So "technically" they have more in common with armors rather than with a "static" melee weapon.

## WHAT YOU NEED TO FOLLOW THIS TUTORIAL:

✔ 3DS MAX
   (to rig/skin created/imported bow mesh)

✔ 3DS MAX NIF Import-Export plugin
   (to import/export rigged/skinned bow mesh)

✔ NifSkope
   (to setup all settings properly in the nif file)

✔ BSA Browser
   (to extract game's original files)

✔ TES V: Creation Kit
   (to add model to the game)

✔ 3DS MAX

I use 3DS MAX 2010 32bit version for this tutorial. In fact any other version of Max should work while it has proper NIF Import-Export plugin installed.

✔ 3DS MAX NIF IMPORT-EXPORT PLUGIN

The version I use is 3.7.1 and can be downloaded from here:
http://skyrim.nexusmods.com/downloads/file.php?id=5622

I prefer to use manual versions of these and copy proper files to Max folder by hand. This always works for me. I tried installer once and it did nothing useful ;p

I know that this version is not the latest one but it works good as far as skinning is concerned - it properly imports the bones, and all additional steps are performed in NifSkope anyway.

✔ NIFSKOPE

Currently the latest version is 1.1.0 RC6 and can be downloaded from here:
http://sourceforge.net/projects/niftools/files/nifskope/1.1.0/
Install it.

✔ BSA BROWSER

You can download BSA Browser from here:
http://skyrim.nexusmods.com/downloads/file.php?id=1395

✔ TES V: CREATION KIT

You can download editor from the Steam (should be somewhere in tools section).

## PREPARATIONS:

Now we need to do some things before we begin:

✔ Make sure you have all these 5 programs/tools installed.

✔ Extract these two original BSA archives somewhere with BSA Browser:

```
Skyrim - Meshes.bsa
Skyrim - Textures.bsa
```

I have the content of these files extracted in E:\SkyrimFiles\Data folder.

✔ Prepare two files and put them in one folder:

My folder for this is E:\3D\MAX\Import

◆ First file is the one with your model.

◆ Second file is the file with one of the original bows from Skyrim. I copied ebonybowskinned.nif file here from the place to which I extracted original BSA files in previous step, so the path in my case was like this:
E:\SkyrimFiles\Data\meshes\weapons\ebony

## WORK IN 3DS MAX

### ✔ OPEN MAX AND IMPORT THE FILES

Open the scene in MAX with your bow. Or if you want to import any bow made for Oblivion use these settings:
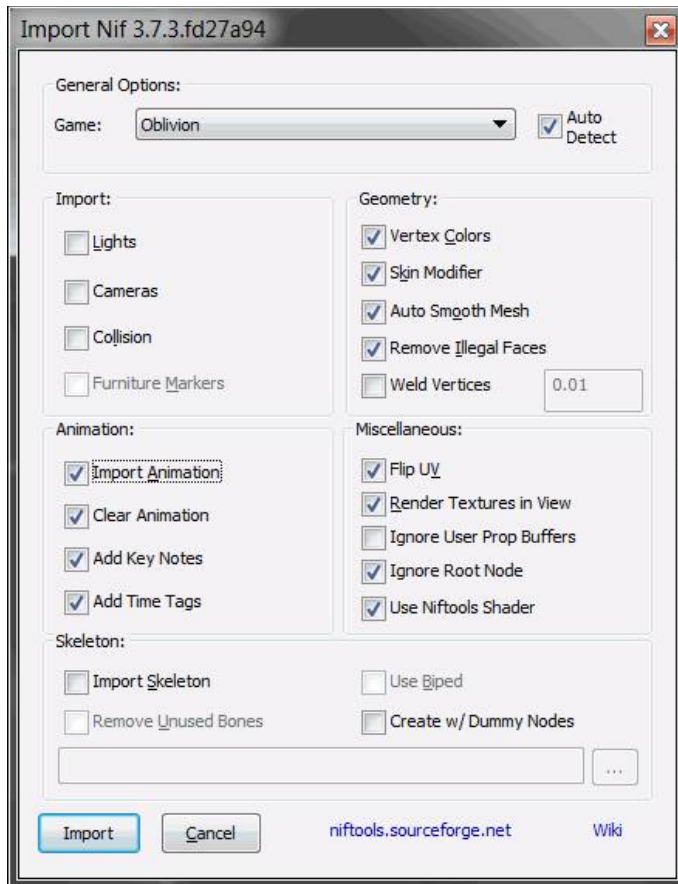


*While importing bows from Oblivion*
*Collision and Import Skeleton options should be turned off.*

Next import one of original bows from Skyrim with the settings shown on picture above but with two changes: Import Skeleton option should be checked, and Game in General Options should be set to Skyrim.

### ✔ POSITION YOUR BOW

Use original imported bow's position as reference and align your bow correctly. If you import any bow from Oblivion it will be most likely positioned quite well. It is most important to have grip of the bow in proper position, the string is not so important as any offsets aren't visible in FPP view at all, and in TPP view all of original bows have inaccurate animations anyway that make the strings of the bows to bend closer to the bow than the hand is ;p So this shouldn't be fixed by the bow's shape, but by editing the actual animation files. After you finish delete original bow.

### ✔ SKINNING THE BOW

Skinning? Sounds cryptic. Anyway that's the process of assigning certain values to every vertex of your mesh which (those values) will determine how the movement of bones influences the movement of those vertices. Quite often skinning is referred to as weight painting.

There are various techniques here. Maybe you are quite proficient at skinning and already have your favorite method, or maybe you're reading about this for the first time ;]

Anyway I've found that editing Weight Table works for me in the case of the bows, so I'll cover this approach here.

✔ Select your bow and add Skin modifier to it from the Modify tab. Then look at Parameters panel below for Skin modifier and search for Bones: section and click Add button there. In Select Bones window, highlight all bones (CTRL+A) and press Select button.

✔ In Bones: section highlight Bow_MidBone then press Edit Envelopes button above and mark Vertices option in Select section there. Then select in Top View all vertices you want to assign to the middle bone - these parts of your bow won't be affected by any deformations as middle bone is relatively "static".
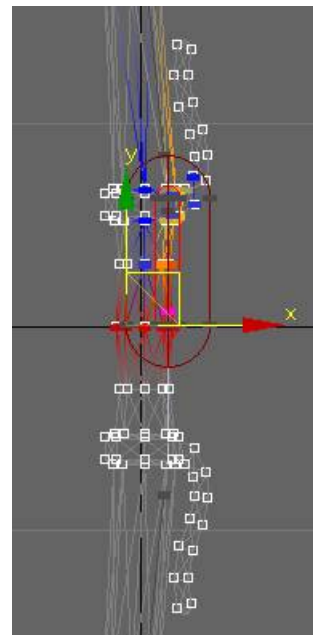


*Bow visible in Top View window with all vertices of the grip selected (marked by those white squares)*

After you select the middle part of your bow then scroll down Skin modifier panel until you spot Weight Table button. Press it.
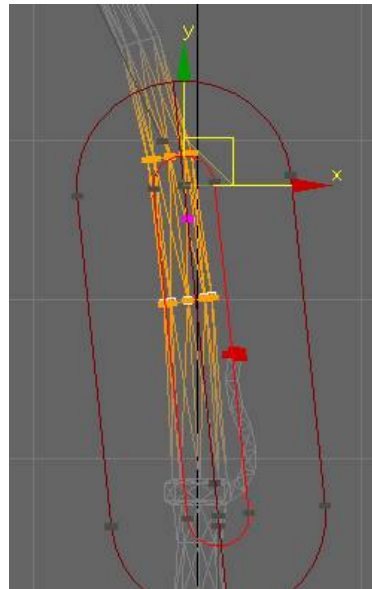
✔ In Skin Weight Table window change the option at bottom left corner from All vertices to Selected vertices. Then from top menu of that window choose Edit -> Select All.

Now CTRL + Right Click anywhere in the Bow_MidBone column to set all its values to 1.0, then SHIFT + Right Click on any other columns to clear their values.



*Skin Weight Table window. You can see the Bow_MidBone column where all values have been set to 1.0 and other columns where their values have been deleted.*
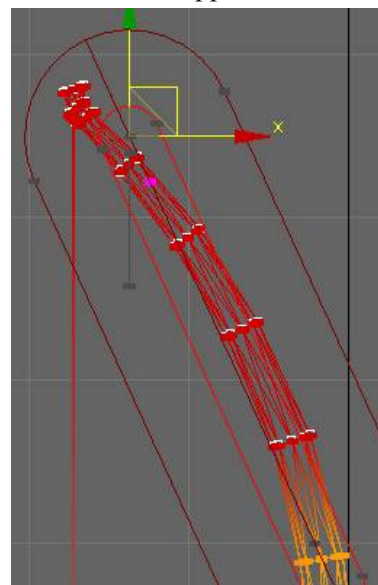


*The look of middle part of the bow in Top View after edits done in Skin Weights Table.*

*All these vertices marked red have been assigned to middle bone of the bow's armature with the weights of 1.0 each.*

*The middle bone in not affected by the animations much, so this means that all those vertices will be relatively static in comparison to other parts of the bow like its string or ends.*

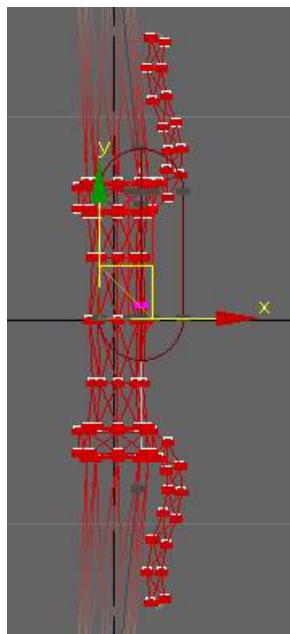✔ Time to skin upper middle section of the bow



You can notice two groups of vertices at the picture above. These are marked in orange. Bottom one (marked with white outlines) has weights set "fifty-fifty" between Bow_MidBone and Bow_UpBone1. And upper group shares weights equally between Bow_UpBone1 and Bow_UpBone2.

You can set this in a similar way described in a previous point. First you CTRL+RClick to set 1.0 values in Bow_MidBone column, then SHIFT+RClick to remove data from any other columns. And finally double click on any row in Bow_UpBone1 and type 0.5 there then press Enter. This should make all values for these two columns equal to 0.5.

✔ And time to skin upper end of the bow



For all those selected vertices marked with red squares, all weight values have been set to 1.0 for Bow_UpBone2.

✔ And finally it's time for the string...

Select vertices in the middle of the string of your bow. And in Skin Weight Table window set values of 0.5 for weights for Bow_StringBone1 and Bow_StringBone2 columns.

*Selected middle vertices of string (in white)*

*Values set for every vertex in the middle of the string for both bones that should affect their movement.*

✔ And of course, do not forget to repeat the process for bottom parts of your bow. But focus on "Lo" bones instead.

## EXPORT FROM 3DS

After you finish to weight vertices of the bow, then export it with these settings:
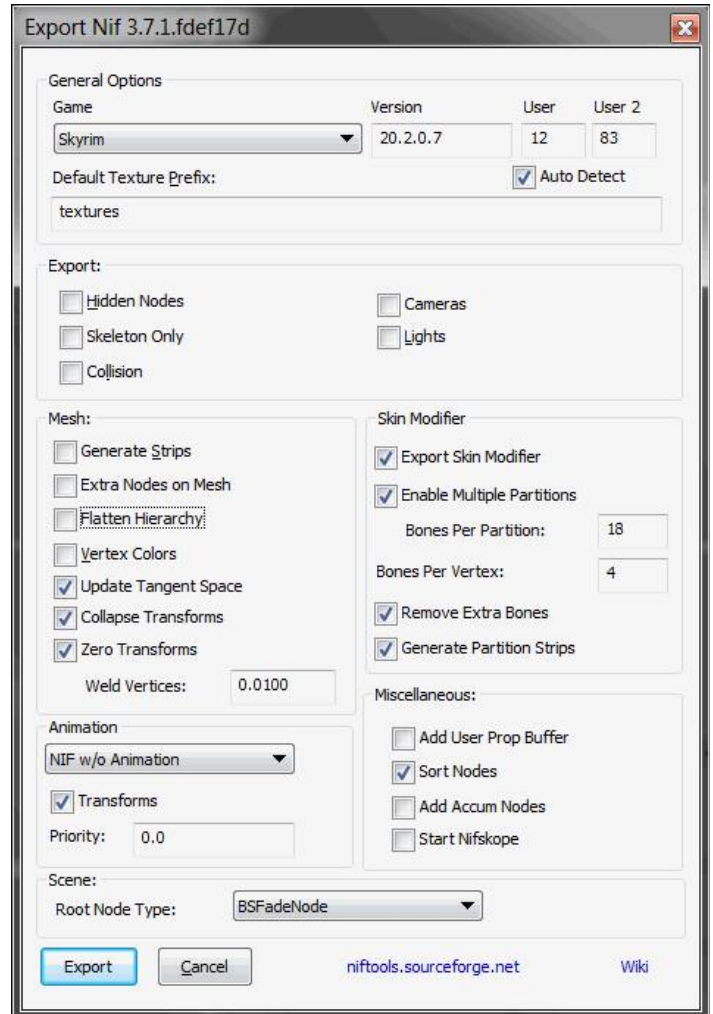
## NIFSKOPE'S MAGIC

Very Important Note:

If you work with bows in NifSkope ALWAYS make sure that Auto Sanitize before Save option is turned OFF! (it's in File menu). Current versions of NifSkope make a mess with blocks order on save in files that contain data needed for bows to properly work. If you forget to disable this option your bow may work well in menu or in your character's hands, but if you decide to drop it, don't be surprised while it vanishes completely.

Anyway, it makes no sense to reinvent the wheel, so we will be copying exported bow data onto nif file with one of original bows:

✔ Open any original file with the bow from Skyrim in NifSkope then select and delete only the branch(es) with its mesh. This will be your final file.

✔ Open exported file with your bow, then select the branch with its mesh and copy it to that final file from where you deleted that original mesh. Close this exported file.

✔ In your final file expand NiTriShape branch with your bow and delete BSLightingShaderProperty sub-branch from there. Then open one of the stock bows temporarily, expand NiTriShape branch with its mesh and copy/paste original BSLightingShaderProperty and assign it to NiTriShape branch of your bow in final file. Close this temp file.

✔ Before you save and close your final file you may want to change textures in BSShaderTextureSet block (sub-branch of BSLightingShaderProperty).

You may also want to play with other settings in NifSkope like BSInvMarker (positions your bow in inventory). And do not forget to turn off Auto sanitize option before save!

## CREATION KIT - OH DEAR...

The least favorite part of all this. At least for me ;p

That shear amount of options and settings for weapons in CK is tiresome so I only described here the quickest way to add the bow. Anyway refer to official wiki page in case of any troubles.

✔ Expand WorldObjects -> Static -> WEAPONS branch. Double click 1stPersonDaedricBow entry there to open its properties. In Static window change ID and path to your model, hit OK and create new form.

✔ Go to Item -> Weapon -> WEAPONS -> Daedric branch and double click on original DaedricBow entry to open its properties. Change there: ID and Name. Then switch to Art and Sound tab. Choose the path to your model, and set 1st Person Model Object to the ID you created in previous point. Hit OK and create new form.

✔ Now you may want to drop your bow somewhere in the world to test it or use the console to add it. Your choice. I can only hope that your bow will behave properly since the first time.

Happy bows making! ;]