



Foliage Design Tutorial

Welcome

First, let me congratulate you on your bravery! Welcome to the FDT – your guide to designing Foliage content for Zoo Tycoon 2. Over the next few pages, I will give you some tips and techniques that you can use to make a great game – even better!

One thing to keep in mind: designing for Zoo Tycoon is rarely easy. You *will* make mistakes and you *will* get frustrated. You should know up front that it is a LOT of work and with little reward other than the designing itself.

If that doesn't deter you though...

Let's get Started!



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Designing Etiquette

- DO NOT contact designers as a first method of answering questions
 - DO NOT start new topics at forums asking for answers; you are not the first person to want to try to make something; chances are, you are not the first person with that question.
 - DO NOT start a project if you intend to ask for a coder or skinner. Have these planned out before you decide that you can make a project.
 - DO NOT start a current projects thread until you have actually started work on something.
 - DO NOT think that you are going to get it right the first time...ever.
 - DO NOT depend on untested technology to get a finished product (example: model editing)
 - DO NOT use another designer's project as a base for your project unless you have written permission from that designer.
-
- DO use the search feature on forums to find answers.
 - DO plan on doing the coding and skins by yourself, especially from the beginning.
 - DO check and recheck the files if you are experiencing problems
 - DO try to solve the problem yourself first
 - DO look at other designer's work in order to figure out problems on your own

***Courtesy of Mikamod and her CAT**



Programs To Get

You will need these!

- **WinRar:** This program will let you extract and repackage the .z2f files to let you edit them. [Free Download here](#)
- **WinZip:** Another program that will enable you to extract and repackage the .z2f files. [Free Download Trial version here](#)
- **DXTBmp:** This program allows you to open, view, and save DDS files, which are the image files your animal will use in order to have a skin, a map location, and an icon, among other things. [Free Download here](#)
- **WinHex:** This program is a hex editor which will allow you to access the NIF file of your animal. [Free Download here](#)
- **XVI32:** This is another hex editing program, the one that I use. [Free Download here](#)
- **Notepad:** Allows you to view and edit a number of files, including .xml, .dl, .bfm, .beh, and .tsk files. Every Windows computer should come with this program.
- Some kind of **graphics** program: You can use Adobe Photoshop, Paint Shop Pro, even Paint. A free Graphics program called GIMP is also used. Whatever program you feel most comfortable using, or whichever one you can afford, is perfectly fine to use.
- Download [GIMP for Free](#)
- Additionally, there are a few programs that are not necessary at all, but can make your life a bit easier.



Programs You May Want

These are optional but many find them helpful

These programs are not necessary for making a new object for the game, but many designers have found that they can make the process just a little bit easier. These programs will not be covered in as much detail in the tutorial, but are generally very easy to get use to.

- **Flash Renamer:** need to rename 20 files? This program will make it easy work. Just type what you want replaced and with what, and with one click, it does them all for you! [Download the Free Trial](#)
- **Inforapid Search and Replace:** actually changes words inside of files, saving you the hassle of having to replace the original codename with your codename in a bunch of different files individually. [Download for Free](#)

and what they mean and how you find them

The first thing to do is to go to the programs files for Zoo Tycoon. You need to make sure that all of your hidden files are shown on your computer. The address should look something like this:

The screenshot shows the Zoo Tycoon 2 application window. The title bar reads "Zoo Tycoon 2". The menu bar contains "File", "Edit", "View", "Favorites", "Tools", and "Help". The toolbar includes "Back", "Forward", "Home", "Search", and "Folders" icons. The address bar displays the path "C:\Program Files\Microsoft Games\Zoo Tycoon 2". The main content area shows a list of files and folders, including "Country Boards", "dw", "EBUSetup.exe", "entities", and various relief files (Relief Arch, Relief Path, Relief Spine, Relief Tower). The left sidebar shows "File and Folder Tasks" with options like "Make a new folder" and "Publish this folder to the".

It is here that you will find the files that you need to begin designing.



Files

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Using the table that follows to decide which file you need, right-click and Copy and then Paste this file to a location where you will be able to easily find it. (I use my desktop)

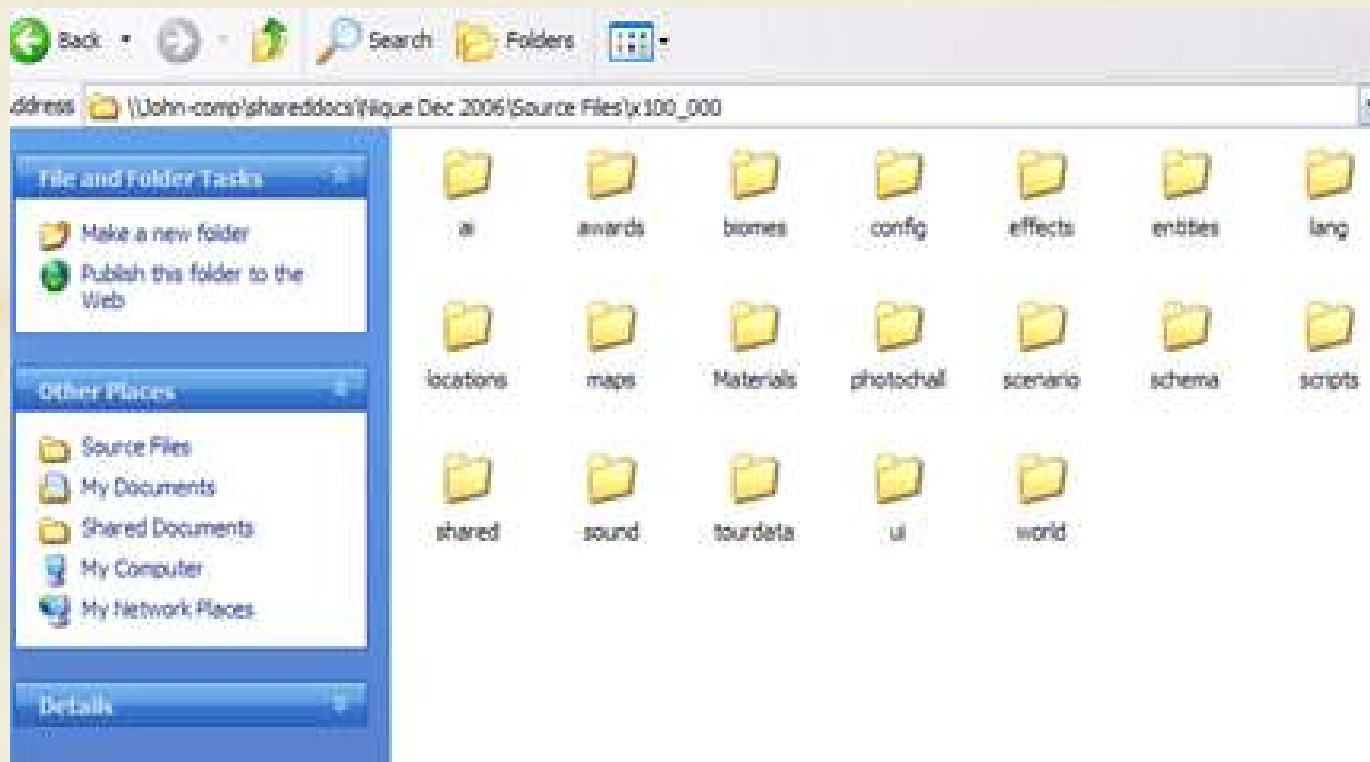
Afterwards, use either Winzip or WinRar to extract the files.

- Step 1 – Right click the file you just copied and pasted
 - Step 2 – Click on Open with WinZip (or WinRar)
 - Step 3 – Click on Extract
 - Step 4 – Select where you want the files to go (again I make a new folder on my desktop)
 - Step 5 – Click Extract
- *Note – I usually keep a set of files that I’ve extracted so that I can use them again and again; I call these my “Source Files” and have a folder dedicated to them. Saves me time in the future.

Files

3

You should now have something that looks like this:



These files are the ones that you will edit to create your new foliage.

Files

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As I briefly mentioned before, once you have decided what you are making, you need to take a look at the plants or trees in the game to determine which one will be your best match. The color doesn't matter. Only the shape does, and even that can be altered some because many of the plants are 2D not 3D like the animals are.

Use the Table below to determine which program files in the game you will need.

ZT2	entities.z2f ui.z2f lang.z2f
ZT2 + ES	x100_000.z2f
ZT2 + ES + AA	x110_000.z2f
ZT2 + ES + AA + MM	x200_000.z2f



Gathering the Files Together

If you are making a tree – you have one more decision to make. Will the animals be able to interact with it? Meaning, will they browse or climb your tree? For beginners, I recommend that you stick with whatever is there originally. Once you become familiar with the files and the terminology, then you can play with this a little more and add these behaviors on your own.

The three folders that you will need for EVERY plant or tree are the: ui, entities, and lang folders.

Now, let's get serious!

***Note – be sure that once you have extracted all your files you change the permission on these. Otherwise you will really give yourself a headache! To do this, back out until you are at the highest level (desktop if that's where you put them) and right click the folder. Click on properties and look under the attributes. Click on the Read Only so that it is NOT selected and click OK.**

Let's make a Plant...

For our example, we are going to use the African Shrub that I made. (see note)

To make the African Shrub we began with the Red Oat Grass. Because this was a plant that came with the Endangered Species expansion pack, we look inside the x100.000.z2f files. Once you have extracted those files it should look something like the following slide.

***Note:** Anywhere you read RedOatGrass – know that this is the original codename for our project – the ZT file that we used for our model.

African Shrub



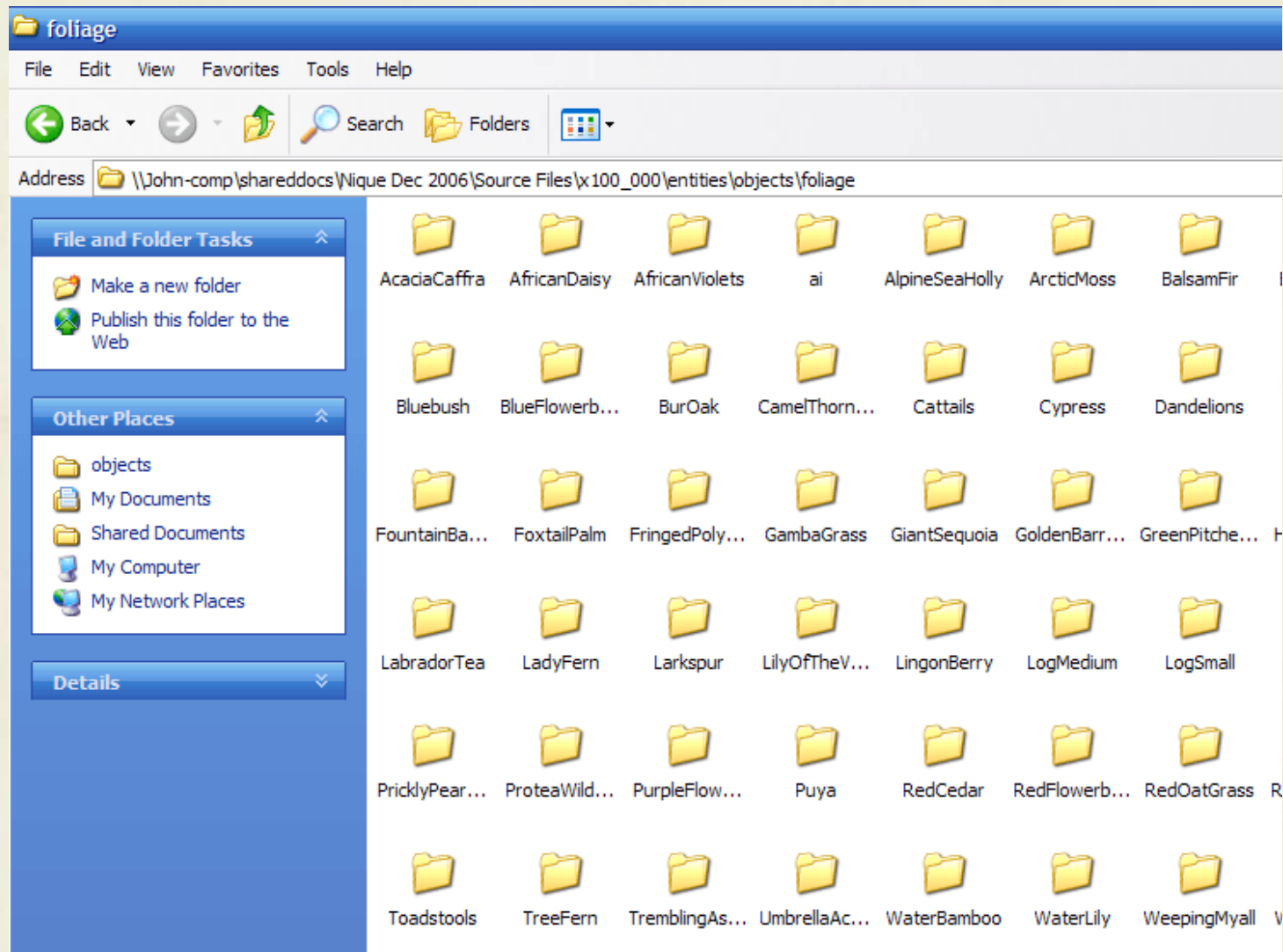
Red Oat Grass



***Note:** This was a shrub that I coded for Boblus and is available for download at Zoo Admin.

Let's make a Plant...

2



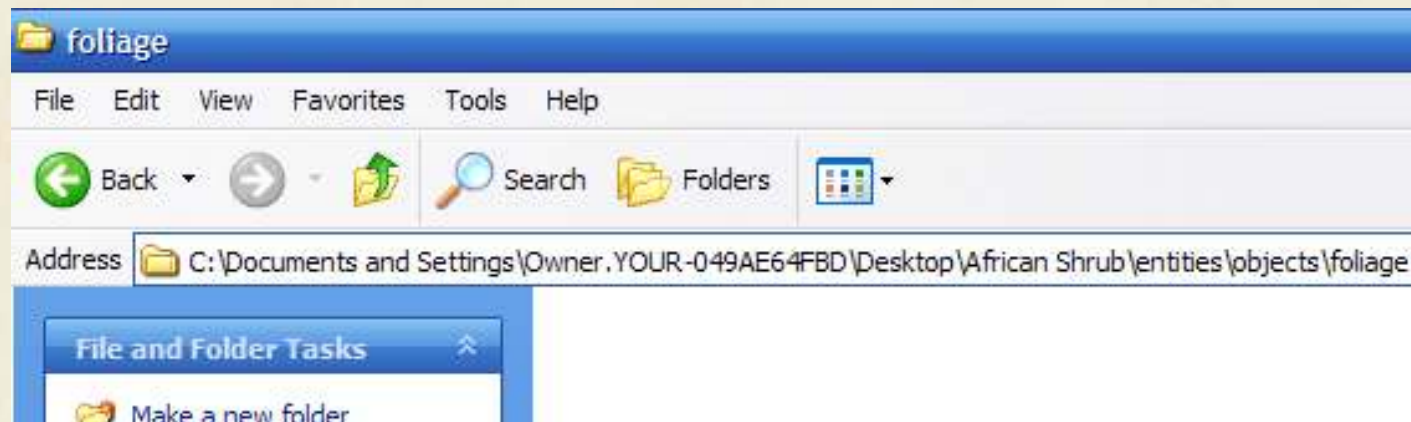
Let's make a Plant

3

The entities folder

First, you will need to make a series of folders (that is, one inside another). I make one new folder to house the whole new plant – this just make it easier with less clutter on my desktop – I name this the new plant name, in our case: African Shrub.

- Inside that one make a new folder named: entities
- Inside the entities folder make a new one named: objects
- Inside the objects folder make a new one named: foliage



Now, go to the original files and copy the whole folder named Red Oat Plant and paste it into your foliage folder that you just created.



Let's make a Plant


4

The ai folder

Next, you want to make a folder named ai in the same place where you have pasted the Red Oat Grass. (They should be on the same level – NOT one inside another) Once you have the ai folder created, go to the original files again and look for the ai folder. Inside the ai folder, you will find an XML file named: RedOatGrass_Savannah. Copy and paste this file into your ai folder.

Now you have all of your entities folders and files set up. Easy right?

Next, we will do the same thing for the lang and ui folders.



Let's make a Plant

the ui folders

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The ui folder is made similarly to the entities folder, in that you have several folders nested within the one ui folder. So first, back out until you are at the same level as the entities folder again.

The address should look similar to this:


...\Desktop\African Shrub

Now create a folder named ui

In that folder create another folder named zoopedia

In that folder create another folder named entries

Here it can get a bit tricky if you haven't done any of this before. Bare with me though... it gets easier once you've done a few times. Once you have your folders all lined up. Go to the original folder again and back out until you get to the first sets of folders – here, look for the ui folder. Open the folder and scroll down until you see the XML file named foliage. Copy and paste that into your entries folder. We'll come back to the hard part later!



Let's make a Plant the lang folders

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Again, this is very similar to the first two sets of folders you created.
Back out again until you are on the same level with entities, and ui.

Create a folder named lang

Open the lang folder and create one named 1033 (this is for all lang folders made after the original game)

Go to the original folders again and follow the same path (lang, 1033) and find the file named foliage entries.

Copy and Paste this XML file into your new 1033 folder.

At this point you should have 3 folders inside your African Shrub folder – like this:

entities > objects > foliage > RedOatGrass_Savannah

> ai > RedOatGrass_Savannah

lang > 1033 > foliage > foliage entries

ui > zoopedia > entries > foliage



Coding Your New Plant

Now it is time to get to the nitty gritty of making your new plant. Let's start coding!

The first place I start is the entities folder – you can do it in any order, but I find it easier to get the “meat” done first. With that said – let's go to your new African Shrub entities folder.

Open it up until you get to the file named RedOatGrass_Savannah xml file
entities > objects > foliage > RedOatGrass_Savannah

Here is where I get a hint on what to name the files and folders. I find it the easiest to look at the .nif files to determine the length of my new codename. You must keep the same number of characters as the .nif files.

Example:

Old name: RedOatGrass_Savannah.nif

New Name: AfricaShrub_Savannah.nif

(notice that the name of my bush is the African Shrub but that I have named the file AfricaShrub_Savannah? That is to make sure that the amount of characters doesn't change. If I wanted to make a RedShrub then I could change the name to: Red__Shrub__Savannah. Shorten your new codename however you need and if you need more characters then use the underscore to take up the room)

Coding

2

Now that you have decided on your new codename, go through and rename all of your files to this new name. For example:

Original File	Becomes
RedOatGrass_Savannah.bfb	AfricaShrub_Savannah.bfb
RedOatGrass_Savannah.nif	AfricaShrub_Savannah.nif
RedOatGrass_Savannah.dds	AfricaShrub_Savannah.dds
RedOatGrass_icon.dds	AfricaShrub_icon.dds

Do this for all of the folders and files, making sure to carry through the name change in all locations. **Hint: This is where the Flash Renamer can really shorten your task time!**

Coding

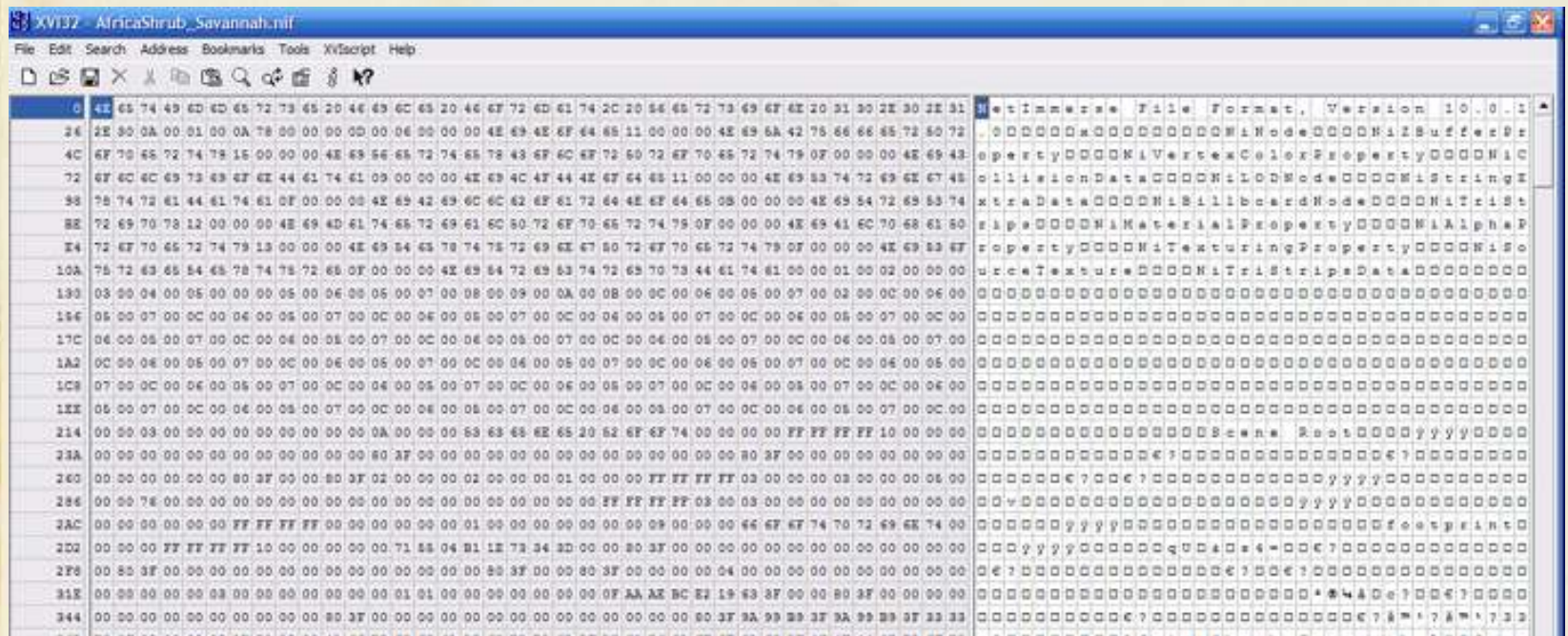
3

Editing .nif & .bfb files (hex editor)

Now that you have all of your files renamed, let's go back to your entities folder and using your winhex editor, open the .nif file first. (in my case, I use XVI32, so that is what I will use for example – feel free to use the editor of your choice though)

Once you have it open, you are going to see what will look like a serious error or a complete mess – don't worry, you'll be surprised how quickly you are able to make sense of it. That will come. For now – we will concentrate on the basics.

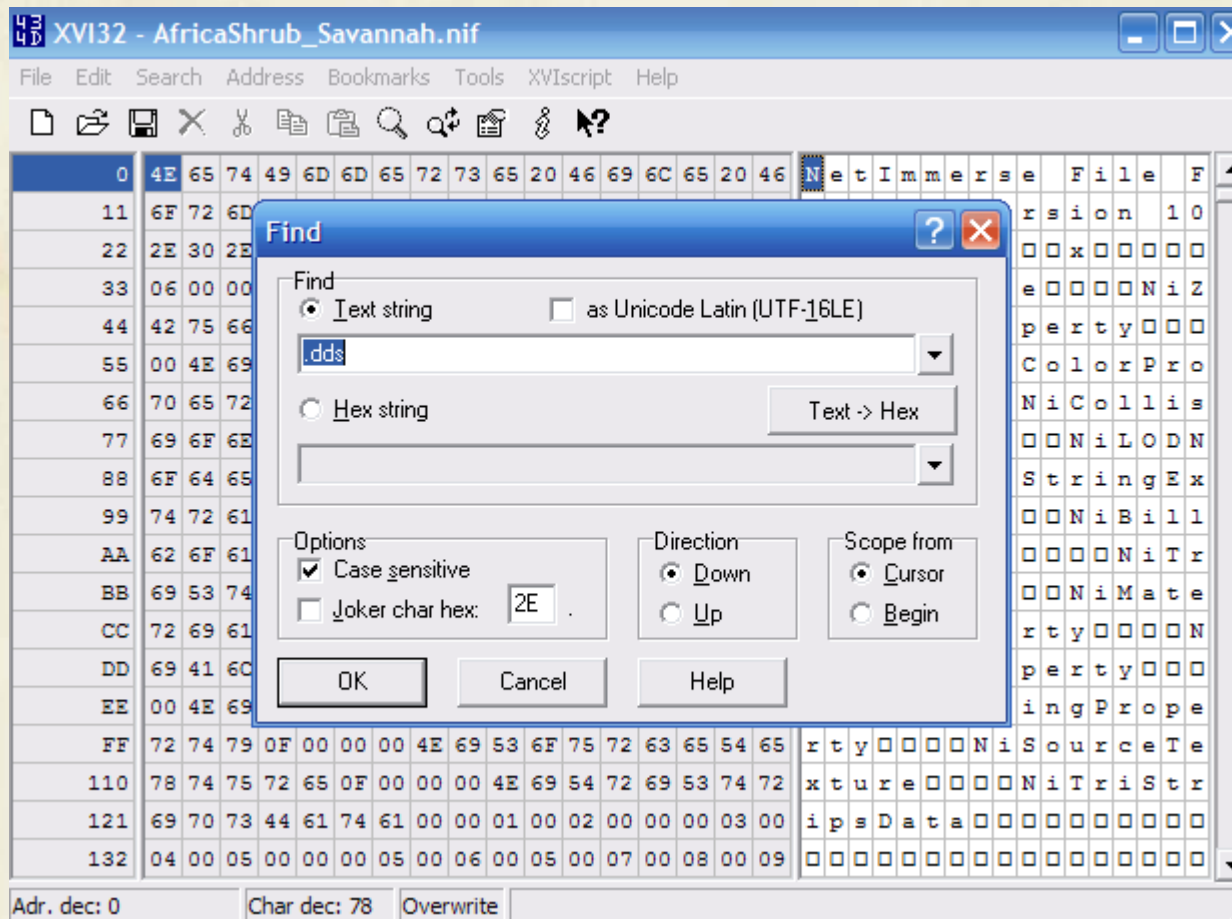
This is what the screen will look like once you have it opened: lots of symbols and numbers with a few words thrown in for good measure!



Coding

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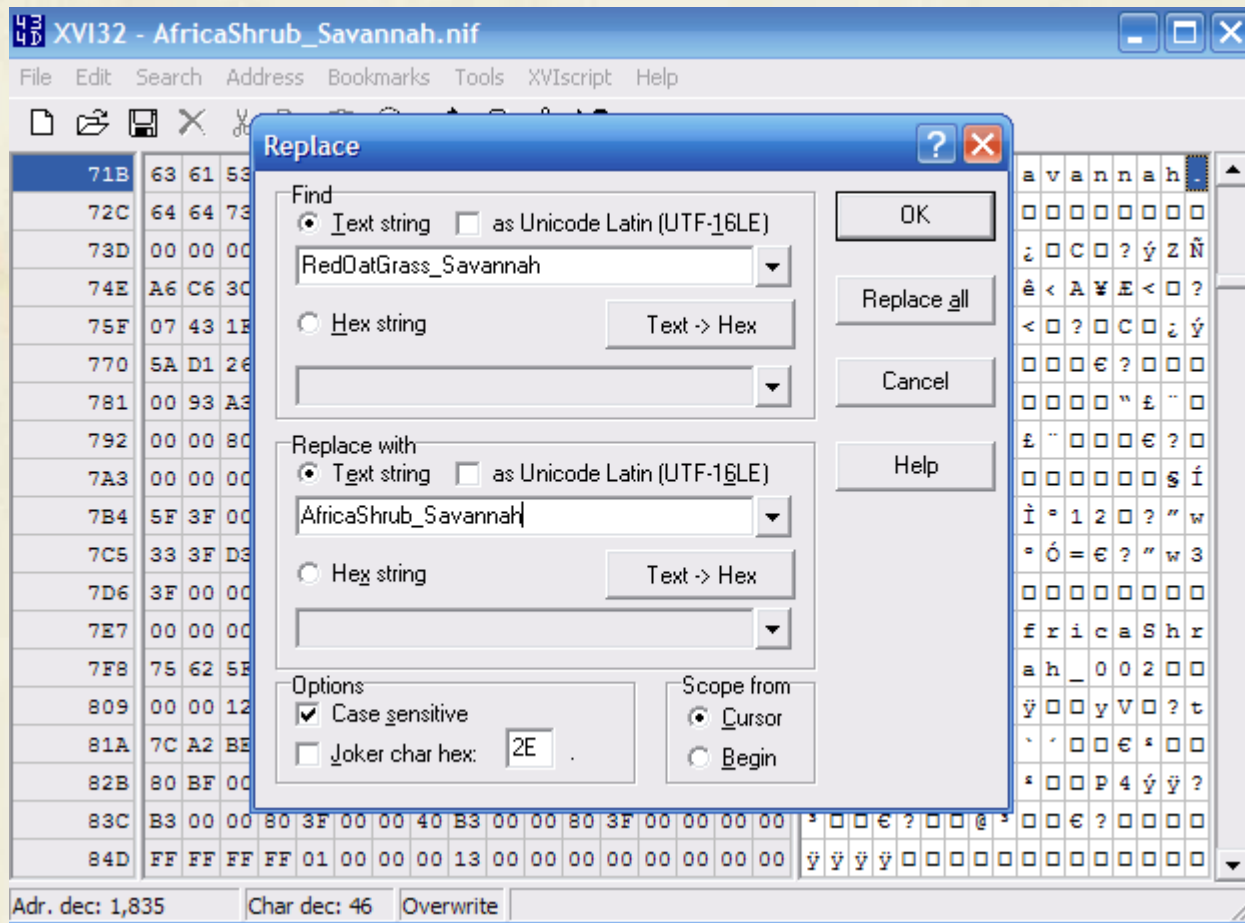
Go to Search and look for .dds (these are your skins, your textures that show what the plant will look like). Here you have 2 options: hand type the new name in (making sure that you are typing in the 'white' area on the right) or even easier – go back to search and do a replace. See next page.



Coding

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To do the Search & Replace, enter the old file name at the top, the new codename at the bottom and click on Replace all. It will tell you how many replacements it made and you can save and then move on to the next file.



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You will need to edit using the hex editor all of the .nif files and also the .bfb files.

***Note:** The .nif files send the game to look for the .dds files (the texture files) so that is the part you are coding there. The .bfb files refer to the Materials folder. So the names that you are looking for in the .bfb file are the names of the files located in the Materials files.

*Note: The .nif file is also where you can get rid of any ground cover that is automatically painted under a plant or tree. With the .nif open, look for the word ‘paint’. For this file it is: paint_mix_savannah. If you want to get rid of this, click on the first letter (p) and then click the corresponding tile on the left. Enter a 00 in each tile (this will bring up the [] on the right side where it said “paint...” Do this for all of the text.

paint_mix_savannah becomes: 000000000000000000

Coding

Materials Folder

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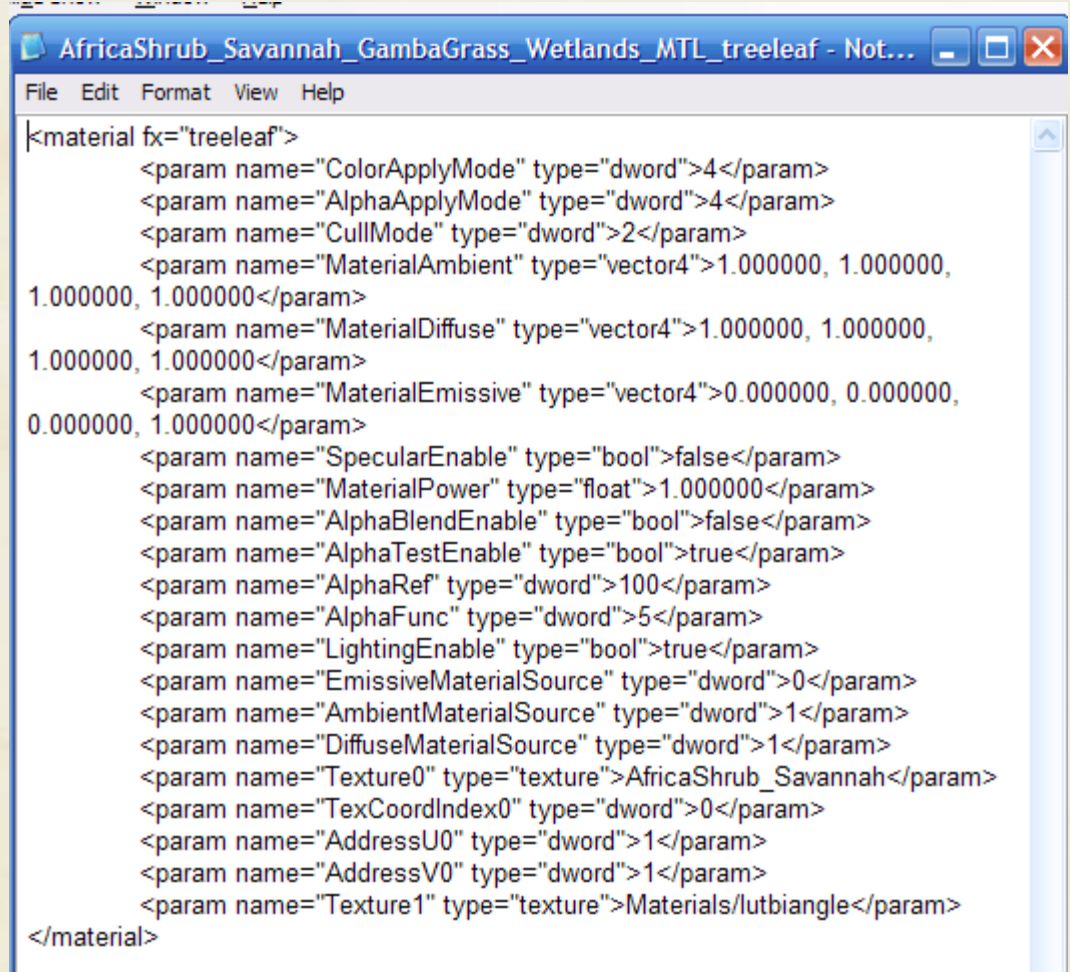
***Note:** Before we begin this, not all things have a materials folder, if yours doesn't then it may just rely on the .nif files. Especially if it is original content.

To edit the Materials files (.bfmat) open using Notepad. Look for this line:

```
<param name="Texture0"
type="texture">AfricaShrub_Savannah</param>
```

See where I have changed it to AfricaShrub_Savannah? This is the new name for the .dds file.

Do this for all Materials files. Change the name to match your .dds files



```
AfricaShrub_Savannah_GambaGrass_Wetlands_MTL_treeleaf - Not...
File Edit Format View Help
<material fx="treeleaf">
  <param name="ColorApplyMode" type="dword">4</param>
  <param name="AlphaApplyMode" type="dword">4</param>
  <param name="CullMode" type="dword">2</param>
  <param name="MaterialAmbient" type="vector4">1.000000, 1.000000,
1.000000, 1.000000</param>
  <param name="MaterialDiffuse" type="vector4">1.000000, 1.000000,
1.000000, 1.000000</param>
  <param name="MaterialEmissive" type="vector4">0.000000, 0.000000,
0.000000, 1.000000</param>
  <param name="SpecularEnable" type="bool">>false</param>
  <param name="MaterialPower" type="float">1.000000</param>
  <param name="AlphaBlendEnable" type="bool">>false</param>
  <param name="AlphaTestEnable" type="bool">>true</param>
  <param name="AlphaRef" type="dword">100</param>
  <param name="AlphaFunc" type="dword">5</param>
  <param name="LightingEnable" type="bool">>true</param>
  <param name="EmissiveMaterialSource" type="dword">0</param>
  <param name="AmbientMaterialSource" type="dword">1</param>
  <param name="DiffuseMaterialSource" type="dword">1</param>
  <param name="Texture0" type="texture">AfricaShrub_Savannah</param>
  <param name="TexCoordIndex0" type="dword">0</param>
  <param name="AddressU0" type="dword">1</param>
  <param name="AddressV0" type="dword">1</param>
  <param name="Texture1" type="texture">Materials/lutbiangle</param>
</material>
```




Coding ai Folder

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Next is the ai folder. Back out a couple of steps and you will see the ai folder. Open that, and you will find the XML file.

Right click and Open with Notepad. Here you will find the “intelligence” meaning the behaviors, the biome, the size and scale of your plant.

The first thing to do is to change the codename to your new codename.

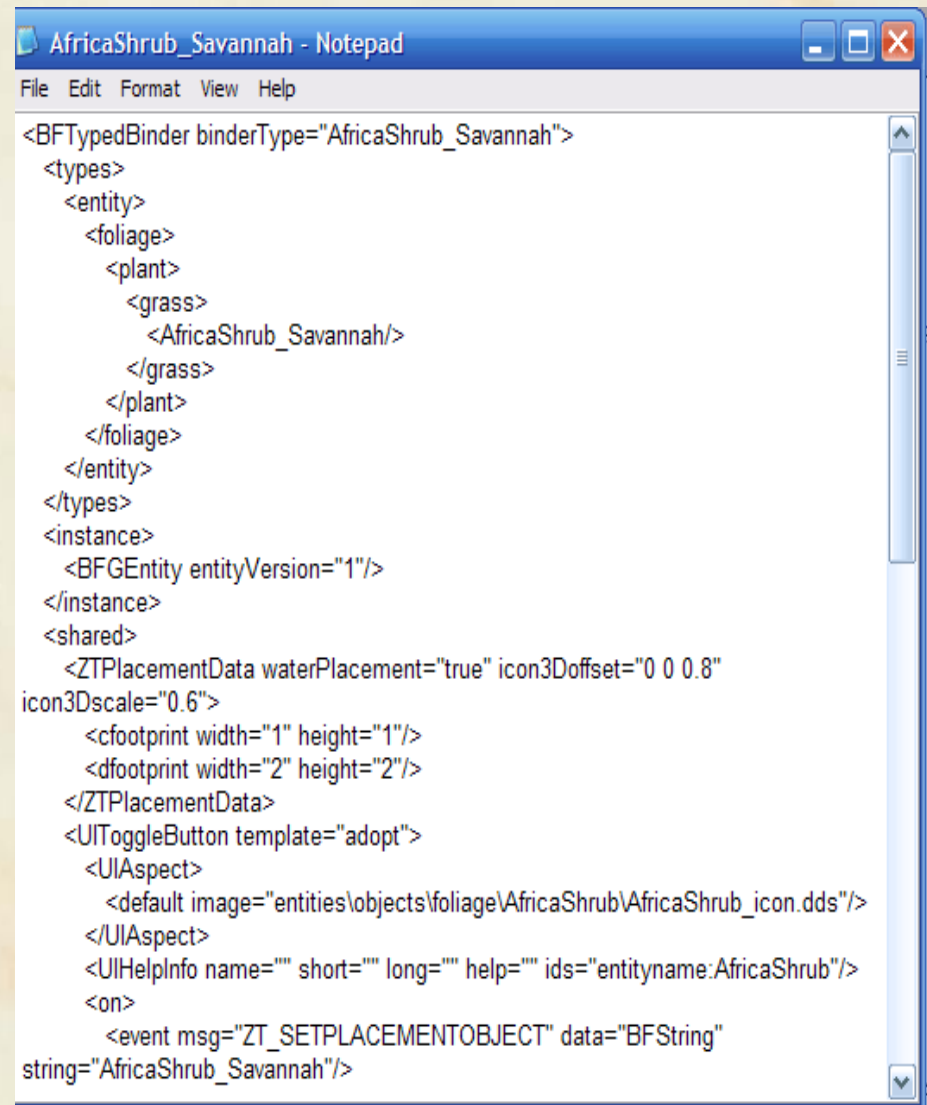
From here you can make several changes that will reflect in your plant.

Over the next couple of pages, I’m going to split up the file a bit and go over some of the main points.

Coding ai Folder

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- **Step 1** – Change Codename
- **Step 2** – Under ZTPlacementData:
determine if your plant will be water
placeable (here it's set to true); you can also
turn off the grid by inserting this code:
autoFootprint="false"



```
<BFTypedBinder binderType="AfricaShrub_Savannah">
  <types>
    <entity>
      <foliage>
        <plant>
          <grass>
            <AfricaShrub_Savannah/>
          </grass>
        </plant>
      </foliage>
    </entity>
  </types>
  <instance>
    <BFEntity entityVersion="1"/>
  </instance>
  <shared>
    <ZTPlacementData waterPlacement="true" icon3Doffset="0 0 0.8"
icon3Dscale="0.6">
      <cfootprint width="1" height="1"/>
      <dfootprint width="2" height="2"/>
    </ZTPlacementData>
    <UIToggleButton template="adopt">
      <UIAspect>
        <default image="entities\objects\foliage\AfricaShrub\AfricaShrub_icon.dds"/>
      </UIAspect>
      <UIHelpInfo name="" short="" long="" help="" ids="entityname: AfricaShrub"/>
    </on>
    <event msg="ZT_SETPLACEMENTOBJECT" data="BFString"
string="AfricaShrub_Savannah"/>
  </shared>
</BFTypedBinder>
```

Coding ai Folder

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- **Step 3** – BFGBiomeData: this is where you can alter the plants biome.

```
BFGBiomeData location="savannah_africa">  
<savannah>
```

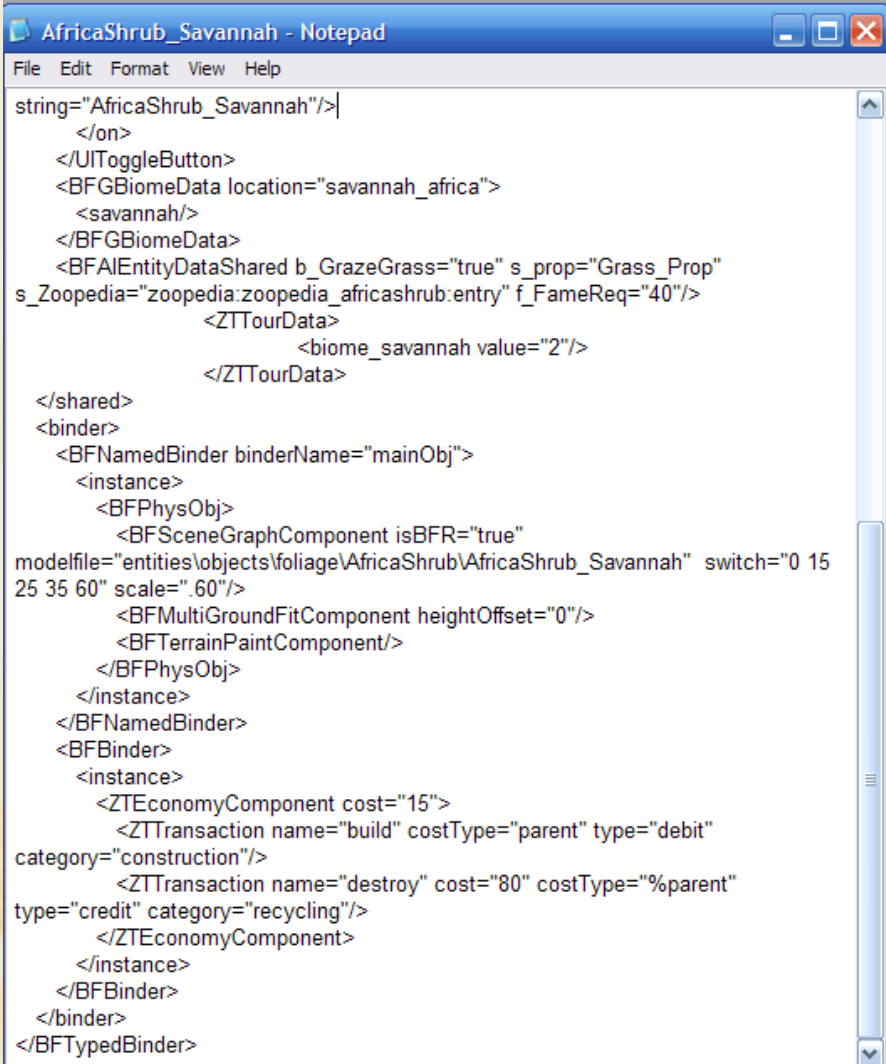
The first part of course is the biome, the second part is the location (see the appendix for a handy list of these)

ZTTourData: don't forget to change this if you change the biome above.

- **Step 4** – on the line with
modelfile="entities\objects\foliage....

At the end, you will see a ...scale=".60"/>

This is how you change the scale of the plant, meaning you can make it larger or smaller by putting in a number. (1 being the original size) Use a “-” to make it smaller.



```
AfricaShrub_Savannah - Notepad  
File Edit Format View Help  
string="AfricaShrub_Savannah"/>  
</on>  
</UIToggleButton>  
<BFGBiomeData location="savannah_africa">  
<savannah/>  
</BFGBiomeData>  
<BFAIEntityDataShared b_GrazeGrass="true" s_prop="Grass_Prop"  
s_Zoopedia="zoopedia:zoopedia_africashrub:entry" f_FameReq="40"/>  
<ZTTourData>  
<biome_savannah value="2"/>  
</ZTTourData>  
</shared>  
<binder>  
<BFNamedBinder binderName="mainObj">  
<instance>  
<BFPhysObj>  
<BFSceneGraphComponent isBFR="true"  
modelfile="entities\objects\foliage\AfricaShrub\AfricaShrub_Savannah" switch="0 15  
25 35 60" scale=".60"/>  
<BFMultiGroundFitComponent heightOffset="0"/>  
<BFTerrainPaintComponent/>  
</BFPhysObj>  
</instance>  
</BFNamedBinder>  
<BFBinder>  
<instance>  
<ZTEconomyComponent cost="15">  
<ZTTransaction name="build" costType="parent" type="debit"  
category="construction"/>  
<ZTTransaction name="destroy" cost="80" costType="%parent"  
type="credit" category="recycling"/>  
</ZTEconomyComponent>  
</instance>  
</BFBinder>  
</binder>  
</BFTypedBinder>
```

Coding ai Folder

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- **Step 5** - BFMultiGroundFit... This is where you can 'bury' a bush or tree to make it shorter (or make it float if that's your thing!) Where you see: heightOffset="0" simply insert a number like "-1.8"
- **Step 5** – At the end of the file is the information about the cost, the recycling cost, etc. Feel free to edit these as you like.

```
AfricaShrub_Savannah - Notepad
File Edit Format View Help

string="AfricaShrub_Savannah"/>|
  </on>
  </UIToggleButton>
  <BFGBiomeData location="savannah_africa">
    <savannah/>
  </BFGBiomeData>
  <BFAIEntityDataShared b_GrazeGrass="true" s_prop="Grass_Prop"
s_Zoopedia="zoopedia:zoopedia_africashrub:entry" f_FameReq="40"/>
    <ZTTourData>
      <biome_savannah value="2"/>
    </ZTTourData>

  </shared>
  <binder>
    <BFNamedBinder binderName="mainObj">
      <instance>
        <BFPhysObj>
          <BFSceneGraphComponent isBFR="true"
modelfile="entities\objects\foliage\AfricaShrub\AfricaShrub_Savannah" switch="0 15
25 35 60" scale=".60"/>
          <BFMultiGroundFitComponent heightOffset="0"/>
          <BFTerrainPaintComponent/>
        </BFPhysObj>
      </instance>
    </BFNamedBinder>
    <BFBinder>
      <instance>
        <ZTEconomyComponent cost="15">
          <ZTTransaction name="build" costType="parent" type="debit"
category="construction"/>
          <ZTTransaction name="destroy" cost="80" costType="%parent"
type="credit" category="recycling"/>
        </ZTEconomyComponent>
      </instance>
    </BFBinder>
  </binder>
</BFTypedBinder>
```



Coding

lang Folder

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Wow! Now the hard stuff is all done... only 2 more folders to edit.

The lang file.

The only problem with the lang file is that a lot of times, there will be multiple items in one lang file. (as you will see with the one we copied). The problem is, when BF is doing a new EP, they do one file for the overall foliage (for instance) and then another that lists the foliage out individually. You need BOTH parts but only for your one project – combined into one file. The good thing is, once you have done it once, all you have to do it copy and paste and then edit it for your particular needs.

Another thing to remember here in the lang file (and also the ai folder) is that your codename cannot have capitals when it comes after the word ‘zoopedia’ – everywhere else this is fine – but not when it follows zoopedia. The next page will show you where, but this file is also where you will put in your information for the zoopedia.

The next page will show you a break down of the lang file and the page after will show you the “before” and “after” of the lang file.

Coding

Breaking down the lang file

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This section tells the program how to call the object

The name and description that will show when you hover in adoption menu

This is your zoopedia information. Notice that the codeword after zoopedia is lowercase? That has to be lowercase – it's the only place where you cannot have caps for your codename


```
AfricaShrub - Notepad
File Edit Format View Help

<ZT2Strings>
  <!--entity names-->
  <entityname>
    <!--scenery object names-->
    <AfricaShrub>African Shrub</AfricaShrub>
    <AfricaShrub_stt>African Shrub</AfricaShrub_stt>
    <AfricaShrub_lower>The African Shrub</AfricaShrub_lower>
    <AfricaShrub_itt>
      <color r="255" g="248" b="178">
        <b>African Shrub</b>
      </color>
      <br/>
      Click to place the African Shrub, a variation of the Red Oat Grass.
    </AfricaShrub_itt>
  </entityname>
  <LOC_STRING _locID="zoopedia_africashrub:entry">African Shrub</LOC_STRING>
  <LOC_STRING _locID="zoopedia_africashrub:text">
    <cell pady="0" width="1000"/>
    <p/>
    <cell width="260"/>
    <cell width="640" height="320" bgimg="ui/zoopedia/topCellBg.dds">
      <cell width="600" padx="20" pady="20">
        <color r="255" g="255" b="255">
          
          <p/>The AfricaShrub is based on the Red Oat Grass. <p/>Skin by Boblus
            and coded by Nique
        </color>
      </cell>
    </cell>
  </LOC_STRING>
</ZT2Strings>
```

Coding

lang Folder

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```
xp1_foliage_entries - Notepad
File Edit Format View Help
<ZT2Strings>
  <LOC_STRING _locID="zoopedia_alpineseaholly:entry" >Plant, Alpine Sea
  Holly</LOC_STRING>
  <LOC_STRING _locID="zoopedia_alpineseaholly:text" >
    <color r="255" g="255" b="255">
      <cell pady="0" width="1000"/>
      <p/>
      <cell width="260"/>
      <cell width="640" bgimg="ui/zoopedia/topCellBg.dds">
      <cell width="150">
        
        </cell>
        <cell pady="15" width="400">
          Alpine sea holly is a perennial plant that looks like a thistle. It blooms in mid- to late-
          summer with striking blue flowers and stems. Many consider Alpine sea holly to be
          one of the world's most beautiful blooming plants. Despite its popularity in gardens,
          the plant is endangered in its native habitat, the European Alps.
          </cell>
        </color>
      </LOC_STRING>
      <LOC_STRING _locID="zoopedia_bigbluestem:entry" >Plant, Big
      Bluestem</LOC_STRING>
      <LOC_STRING _locID="zoopedia_bigbluestem:text" >
        <color r="255" g="255" b="255">
          <cell pady="0" width="1000"/>
          <p/>
          <cell width="260"/>
          <cell width="640" bgimg="ui/zoopedia/topCellBg.dds">
          <cell width="150">
            
            </cell>
          </color>
        </LOC_STRING>
      </ZT2Strings>

AfricaShrub - Notepad
File Edit Format View Help
<ZT2Strings>
  <!--entity names-->
  <entityname>
    <!--scenery object names-->
    <AfricaShrub>African Shrub</AfricaShrub>
    <AfricaShrub_stt>African Shrub</AfricaShrub_stt>
    <AfricaShrub_lower>The African Shrub</AfricaShrub_lower>
    <AfricaShrub_ltt>
      <color r="255" g="248" b="178">
        <b>African Shrub</b>
      </color>
      <br/>
      Click to place the African Shrub, a variation of the Red Oat Grass.
    </AfricaShrub_ltt>
  </entityname>
  <LOC_STRING _locID="zoopedia_africashrub:entry">African Shrub</LOC_STRING>
  <LOC_STRING _locID="zoopedia_africashrub:text">
    <cell pady="0" width="1000"/>
    <p/>
    <cell width="260"/>
    <cell width="640" height="320" bgimg="ui/zoopedia/topCellBg.dds">
      <cell width="600" padx="20" pady="20">
        <color r="255" g="255" b="255">
          
          <p/>The AfricaShrub is based on the Red Oat Grass. <p/>Skin by Bobluz
          and coded by Nique
        </color>
      </cell>
    </cell>
  </LOC_STRING>
</ZT2Strings>
```

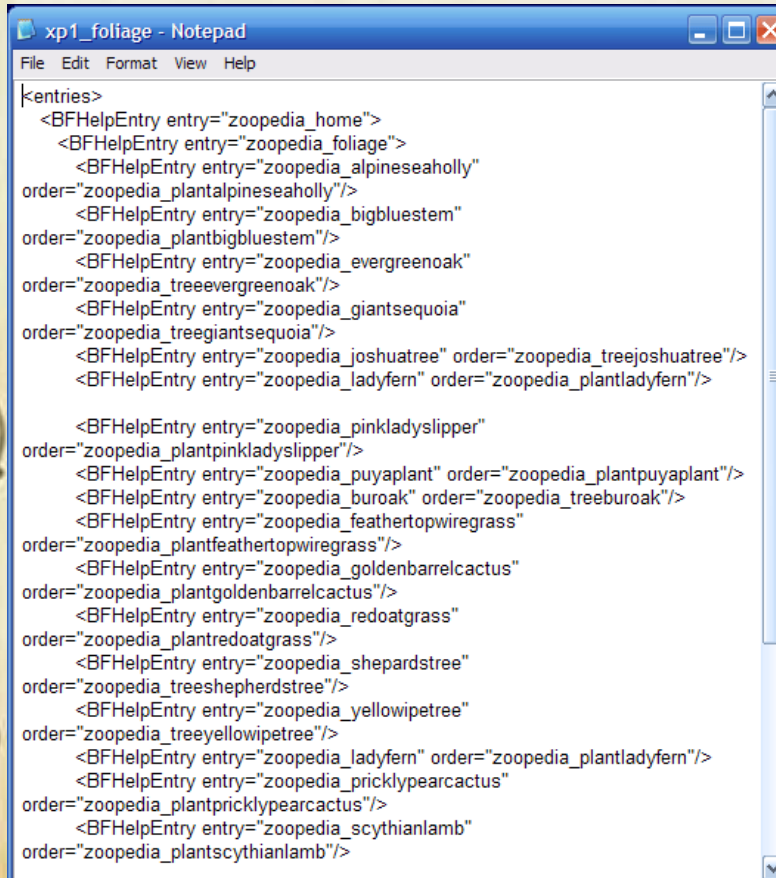
Orig lang file showing all the strings for the EP
foliage included

The Final lang file with changes made

Coding

ui Folder

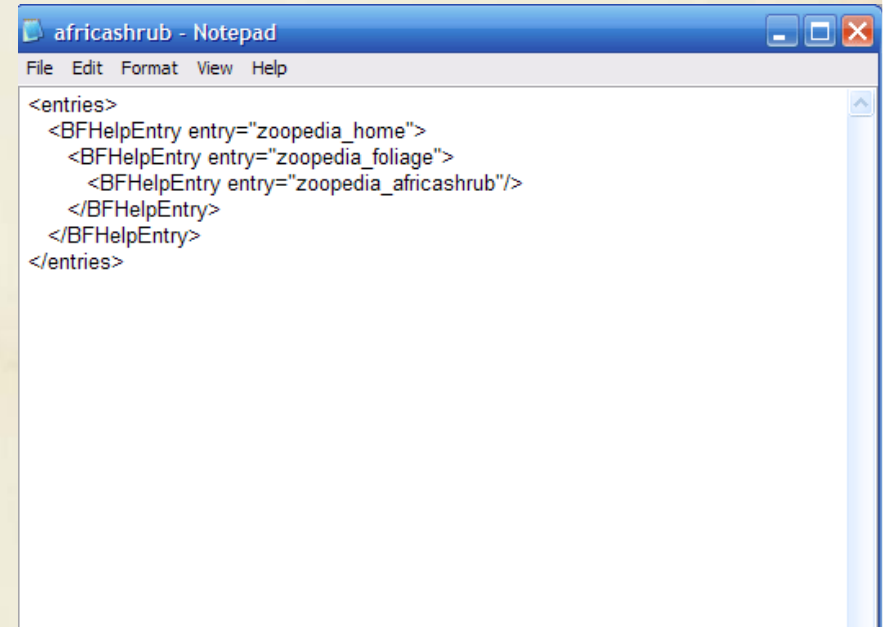
15



```
<entries>
  <BFHelpEntry entry="zoopedia_home">
    <BFHelpEntry entry="zoopedia_foliage">
      <BFHelpEntry entry="zoopedia_alpineseaholly"
order="zoopedia_plantpineseaholly"/>
      <BFHelpEntry entry="zoopedia_bigbluestem"
order="zoopedia_plantbigbluestem"/>
      <BFHelpEntry entry="zoopedia_evergreenoak"
order="zoopedia_treeevergreenoak"/>
      <BFHelpEntry entry="zoopedia_giantsequoia"
order="zoopedia_treegiantsequoia"/>
      <BFHelpEntry entry="zoopedia_joshuatree" order="zoopedia_treejoshuatree"/>
      <BFHelpEntry entry="zoopedia_ladyfern" order="zoopedia_plantladyfern"/>

      <BFHelpEntry entry="zoopedia_pinkladyslipper"
order="zoopedia_plantpinkladyslipper"/>
      <BFHelpEntry entry="zoopedia_puyaplant" order="zoopedia_plantpuyaplant"/>
      <BFHelpEntry entry="zoopedia_buroak" order="zoopedia_treeburoak"/>
      <BFHelpEntry entry="zoopedia_feathertopwiregrass"
order="zoopedia_plantfeathertopwiregrass"/>
      <BFHelpEntry entry="zoopedia_goldenbarrelcactus"
order="zoopedia_plantgoldenbarrelcactus"/>
      <BFHelpEntry entry="zoopedia_redoatgrass"
order="zoopedia_plantredoatgrass"/>
      <BFHelpEntry entry="zoopedia_shepardstree"
order="zoopedia_treeshepherdstree"/>
      <BFHelpEntry entry="zoopedia_yellowipetree"
order="zoopedia_treeyellowipetree"/>
      <BFHelpEntry entry="zoopedia_ladyfern" order="zoopedia_plantladyfern"/>
      <BFHelpEntry entry="zoopedia_pricklypearcactus"
order="zoopedia_plantpricklypearcactus"/>
      <BFHelpEntry entry="zoopedia_scythianlamb"
order="zoopedia_plantscythianlamb"/>
    </BFHelpEntry>
  </BFHelpEntry>
</entries>
```

The orig. files showing all foliage for the EP



```
<entries>
  <BFHelpEntry entry="zoopedia_home">
    <BFHelpEntry entry="zoopedia_foliage">
      <BFHelpEntry entry="zoopedia_africashrub"/>
    </BFHelpEntry>
  </BFHelpEntry>
</entries>
```

The finished file showing only the African Shrub

Again, we have much the same thing as with the lang file and need to edit it to show only our new foliage.



Coding Done!

So now, your coding is done! You are 95% of the way there! Now we get to the fun stuff – at least for me – and much easier!

Ok, go get that next cup of coffee, a pop or whatever; take a break and we'll continue....

I'll wait...

No really, go on. I'll be here...

Skinning

Making it look like you want it...

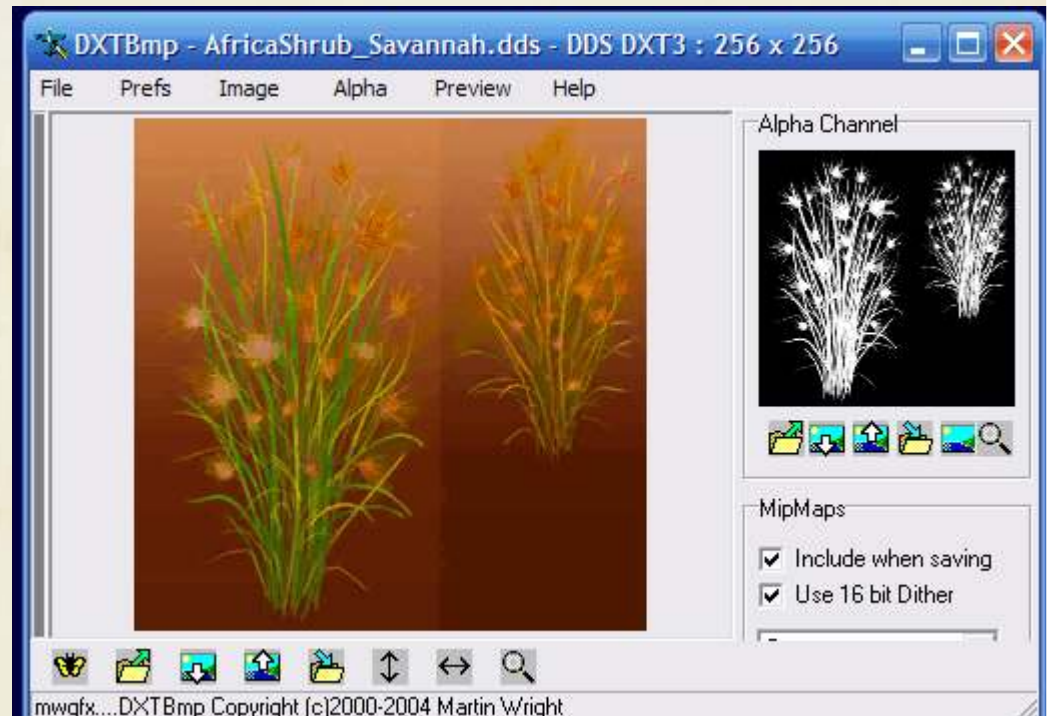
Now, we want to go back to your entities file. Click all the way in until you get to the .dds files again.

Step 1 – Open DXTBmp

Step 2 – Decide what your graphic program will be. By default it will use Paint but just go to Pref and select whatever editor you want.

Step 3 – Open your .dds file

Step 4- Click on the arrow that points down at the bottom of the box – this will take you to your editor automatically.

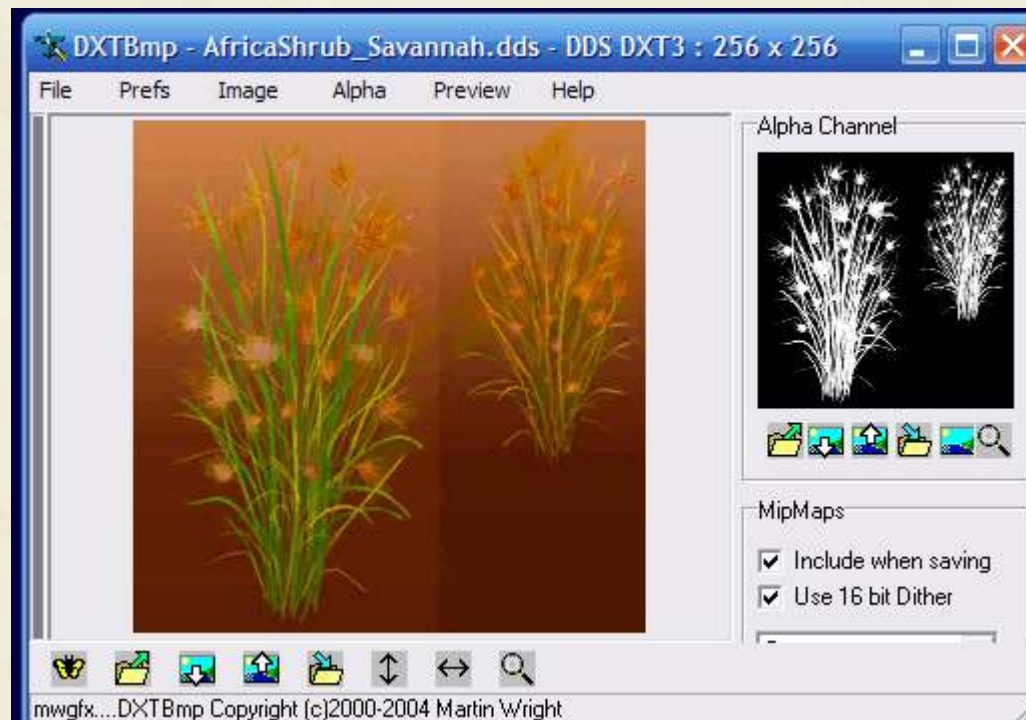


Skinning

Making it look like you want it...

2

Just a couple of thoughts about the DXTBmp



The box on your left is the image that you actually will recolor.

The black and White image is your alpha channel and this actually helps decided the shape of your plant. More on that later.



Skinning

3

Making it look like you want it...

- Step 1 - After you have sent the image to your editor, re-color it the way you want it to look.
- Step 2 – Flatten the image (depending on your editor you may not need to do this) so that you only have one layer.
- Step 3 – Save. (do not use: save for web or save as)
- Step 4 – Close your editor.
- Step 5 – Go back to DXTBmp and click on the “up” arrow at the bottom of the screen. This will import the graphic back from your editor with the changes made.
- Step 6 – File, Save As, DDS Texture (you will replace the old .dds file)

***NOTE: Do not change the “save as type” at the bottom. There are DXT1, DXT3, etc. and it is important that you do not change this!**

Do this for all of your .dds files (most plants have only a few, between 1-3 but this will vary according to how complicated an object you are doing)

***NOTE: Don’t forget to change your icon.dds! Sometimes this might actually be in a separate folder from your other .dds files. There are times, especially when you are creating a building, for instance, where you will have a “shared” folder that has most of your .dds files in it but your icon file will be in the main folder with your .nif files.**

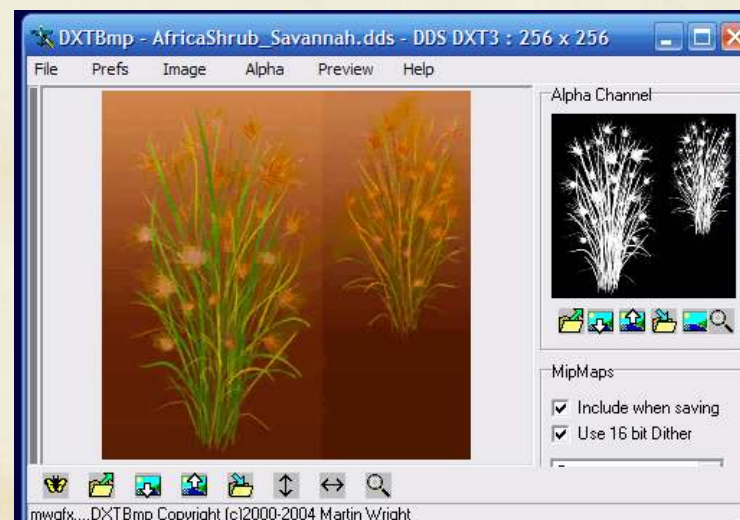
Skinning

The Alpha Channel

The alpha channel controls a great deal of how your object will look. Especially your foliage, because many of these are actually 2D – not 3D (3D files rely more on the .nif files and others to determine their “shape”).

The alpha channel can be changed in the same way that your main image was edited. Use the controls that you see just under the black and white image (for exporting and importing and such).

***Note:** All you need to remember is that the black area is “transparent” and the white area is actually what the game will read and therefore – that is your shape that you will see. Just experiment to see the effects you can get.





Putting it all Together

Wow! You are getting close now! Let's go ahead and get these files ready to put in the game.

Step 1 – Make a folder and name it your plant name.

Step 2 – While holding your Shift key, click on your entities, ui, and lang folders so that all 3 are highlighted.

Step 3 – Right click, Add to zip file

Step 4 – type in the name of your plant and give it the extension “.z2f”

It should look like this: Desktop\African Shrub\African Shrub.z2f

Step 5 – zip it

Now you should have a file that has the icon for ZT! Put this file into the folder that you just made.

All that is left, is to make your .dl file

Putting it all Together

2

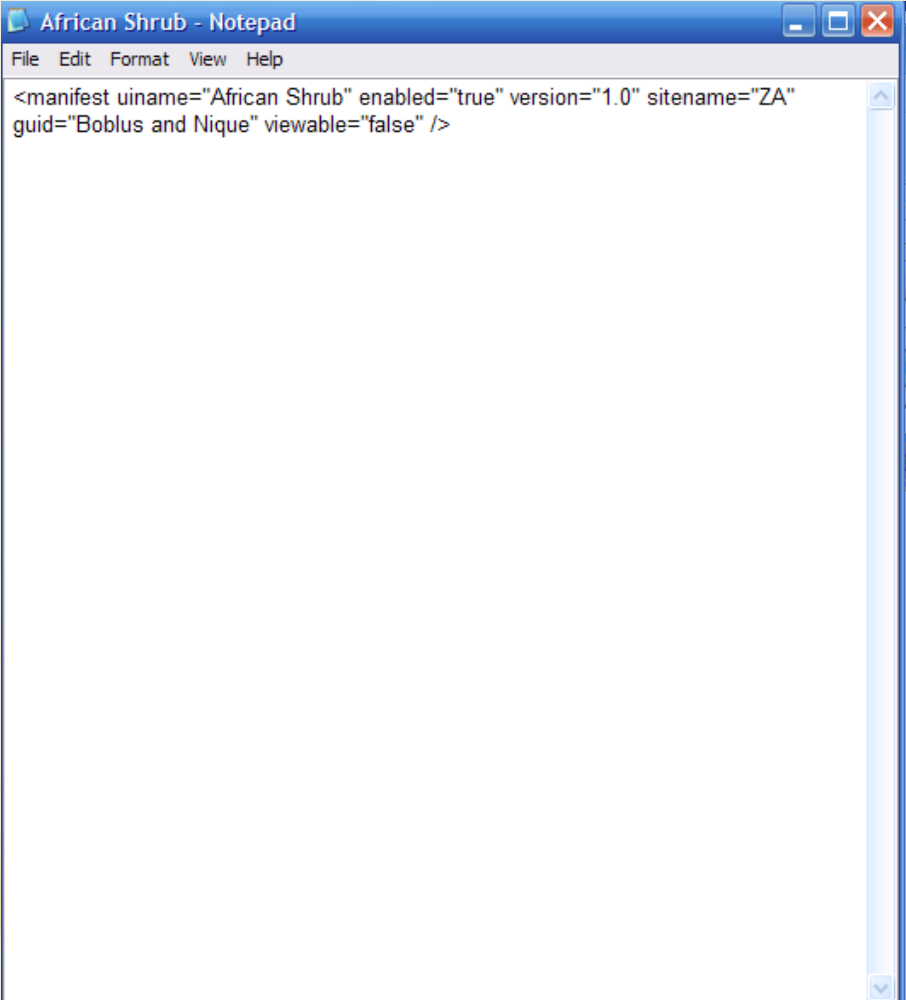
The dl file is important because this is how the game recognizes your item as a download.

I usually just edit mine as needed from one project to the next. The manifest name refers to the name of what you have just made. And the guid="your name here"

*NOTE: For testing purposes you can omit this step and simply put the .z2f file that you made directly into the game:

C:\Program Files\Microsoft Games\Zoo Tycoon 2

but you MUST have the dl file in order to submit it to Zoo Admin.

A screenshot of a Notepad window titled "African Shrub - Notepad". The window has a standard Windows interface with a menu bar (File, Edit, Format, View, Help) and window control buttons (minimize, maximize, close). The text area contains the following XML code:

```
<manifest uiname="African Shrub" enabled="true" version="1.0" sitename="ZA"
guid="Boblus and Nique" viewable="false" />
```



Testing

This is a critical step in the design process because rarely, if ever, will you make something perfect the first time. I can't tell you how many times I have tested and re-tested something before I finally got everything ok.

So copy and paste the .z2f file into the location I showed you on the previous page (in the main ZT folder). Open your game and let's see how you did!

Things to look for:

- Does your object show in the adoption menu?
- Does the name pop up when your mouse hovers over the icon?
- Does the zoopedia link work? Does it work correctly? Does your item show in the left pane under the bullet list? Does your information show in the main area? Your icon with it?
- Now, place your plant. Does it look the way you wanted it to?
- Is the location/biome correct?
- Does the ground underneath it look the way you wanted? (for example, if you've used a plant from the tundra to make a new rainforest plant – you don't want snow appearing under the plant)

Answer “No” to one of these? Well, all I can tell you is that I warned you! Now it's time to go back and fix anything that might need fixing...



Troubleshooting

Some Common Errors

White Icons: This is simply a naming error. Go back through your files and check that you have changed the codename to match yours in all the appropriate places: lang file and ai file

Zoopedia Doesn't work: Anywhere the files say "zoopedia_codename" in any file, you must type the codename in lower case. You can use capitals everywhere else, its just that when it comes to the zoopedia tag, it requires lowercase letters. You'll find these in the ai file, the lang file, and the ui file.

Plant doesn't Show: First, make sure that you have re-named all of your .nif files. Make sure that within these files you have changed the codename as well. It is strictly a naming error but sometimes it can be a bit difficult to find.

"New" plant doesn't show: Make sure that you didn't change the file type when you were re-saving your new .dds files. As long as that hasn't happened, again it will be a mismatch in the naming.



Submitting to Zoo Admin

After all, we usually want to share our brilliance, right??

Once you have determined that there are no errors, you will need to get a picture to submit with your project. Don't make it a huge one, and do make sure the focus is of your new item.

The **upload rules** are as follows:

- Only members to our forums can add files.
- All files submitted must be in a zip or rar format.
- All files uploaded must be under 25MB. Note this does not apply to linked files, only uploaded ones.
- Please do not use special characters in the file name such as * & % / ?. Use only numbers and letters.
- Please make sure to fill in all fields except for those which are marked optional.
- Depending on your file size, the upload might take a couple of minutes.
- Press submit only once, pressing it more than once, wont make it go faster. It may actually harm the upload process.
- All images uploaded must be in one of the following formats: jpg, jpeg, jpg2, gif, or png.
- All uploaded images must be relevant to the file to which an image is uploaded.

So take your folder containing your .z2f file, the .dl file, and your picture and zip those to submit.



Handy Dandy Resource

Original Zoo Tycoon Foliage

- Caffra Acacia - Savannah - Africa
- African Daisy - Savannah - Africa
- African Violets - TRF - Africa
- Arctic Moss - Tundra - Arctic
- Balsam Fir - Boreal - NA
- Banana Leaf - TRF - Southeast Asia
- Banana Tree - TRF - Worldwide
- Baobob - Savannah - Africa
- Birch - Temperate - NA
- Black Spruce - Boreal - NA
- Black Thorn Bush - Savannah - Africa
- Bluebush - Scrub - Australia
- Camel Thorn Acacia - Desert - North Africa
- Cattails - Wetlands - Central Africa
- Cypress - Wetlands - NA
- Dandelions - Grassland - North America
- Date Palm - Desert - North Africa
- Desert Grass - Desert - North Africa
- Elephant Ear Tree - TRF - South America
- Elephant Grass - Savannah - Africa
- Fountain Bamboo - Temperate - China
- Foxtail Palm - TRF - Southeast Asia
- Fringed Polygala - Boreal - North America
- Gamba Grass - Wetlands - Central Africa
- Himalayan Birch - Alpine - Asia
- Himalayan Pine - Alpine - Asia
- June Grass - Grassland - North America
- Jungle Lillies - TRF - Southeast Asia
- Kapok - TRF - South America
- Kily - TRF - Africa
- Larkspur - Alpine - Asia
- Lily of the Valley - Temperate - North America
- Medium Log - Wetlands - Central Africa
- Small Log - Wetlands - Central Africa
- Mangrove - Wetlands - Worldwide
- Maple - Temperate - North America
- Orchid - TRF - Africa
- Papyrus - Wetlands - Central Africa
- Protea Wildflowers - Desert - North Africa
- Red Cedar - Boreal - North America
- Reindeer Lichen - Boreal - North America
- Sedge Grass - Grassland - North America
- Spinosa Bush - Scrub - North Africa
- Tamarack - Boreal - North America
- Toadstools - TRF - South America
- Tree Fern - TRF - Southeast Asia
- Trembling Aspen - Grassland - North America
- Umbrella Acacia - Savannah - Africa
- Water Bamboo - Temperate - China
- Water Lily - Wetlands - Central Africa
- Weeping Myall - Scrub - Australia
- White Lilies - Temperate - North America
- Yellow Cedar - Alpine - North America



Handy Dandy Resource

2

Endangered Species Foliage

- Alpine Sea Holly - Alpine - European Alps
- Big Bluestem - Grassland - North America
- Bur Oak - Grassland - NA
- Durian Tree - TRF - Southeast Asia
- Evergreen Oak - Alpine - Asia
- Feathertop Wiregrass - Scrub - Australia
- Giant Sequoia - Boreal - North America
- Golden Barrel Cactus - Desert - North America
- Green Pitcher Plant - Wetlands - North America
- Joshua Tree - Desert - North America
- Labrodor Tea - Tundra - Arctic
- Lady Fern - Temperate - Worldwide
- Lingon Berry - Tundra - Arctic
- Perepat Tree - Wetlands - Southeast Asia
- Pink Lady Slipper - Boreal - North America
- Prickly Pear Cactus - Scrub - South America
- Puya - Temperate - South America
- Red Oat Grass - Savannah - Australia
- Scythian Lamb - Temperate - Southeast Asia
- Shepards Tree - Scrub - Southern Africa
- Sydney Blue Gum - Temperate - Australia
- Yellow Fever Acacia - Scrub - Southern Africa
- Yellow Ipe Tree - Savannah- South America

Marine Mania

- Giant Green Anemone - Coastal - Global Warm Oceans
- Blue Green Coral - Reef - Global Warm Oceans
- Fire Coral - Reef - Global Warm Oceans
- Giant Barrel Sponge - Reef - Global Warm Oceans
- Kelp Forest - Coastal - Global Warm Oceans
- Myriad Feather Star - Reef - Global Warm Oceans
- Phaeophyta - Coastal - Global Warm Oceans
- Plate Coral - Reef - Global Warm Oceans
- Sea Fan- Coastal - Global Warm Oceans
- Sea Stars - Benthic - Global Warm Oceans
- Table Coral - Reef - Global Warm Oceans
- Tussac Grass - Coastal - Global Warm Oceans

Official Download: Diamond Leaf Willow - Tundra - Arctic

There was no foliage added for African Adventure and since I don't have DD – I'm afraid you'll have to find those!

Handy Dandy Resources

3

Biomes

Locations

boreal forest	northamerica
savannah	africa
tropicalrainforest	southamerica
alpine	europa
tundra	arctic
temperateforest	china
grassland	southeastasia
scrub	worldwide
desert	australia
wetland	northafrica
	asia
	southafrica



Credits

- I just want to thank first, Mika, for suggesting that I do this tutorial.
- Penguinman for being there when I was just learning (and who's still there for me every time I have a 'doh moment).
- Boblus, who did the skin for the project I used for our example.
- And to everyone at ZA who makes all of this not only possible but fun too!

If you have any questions or problems using this tutorial, please feel free to PM me via ZA.

~ Nique