

How to Make a Halo Map



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In the video game industry, I can talk about this many pages but I hit the high lights. This industry uses the knowledge as in the movie industry. Since I know how to do this I will try to give a short tutorial compared to my other ones that I have made.

First thing, I would do is a rough sketch of the environment or the object that you want to go into the game.

Without this you would be going in insecurely, which that is very bad thing to do specially in this field.

Bitmap Creation

Second, after knowing the shape of the land and objects, I would start making bitmaps (Textures) for it. You will need an image editing tool for this. You can use Paint or Gimp (gimp.org) which are free or you can use

Adobe Photoshop CS2 or Paint Pro Shop 10 which you can download a trail of each from their respected website. (For Adobe Photoshop CS2 adobe.com and Paint Pro Shop 10 corel.com). If you are making wall to make it look like it is 3d. You need to make a two layer bitmap (texture). The first layer is called the Alpha layer which is the main layer. It is where you see the color or design. Then next layer is the Emboss layer. The

Emboss layer is to make an image look like it has depth in. So you do not have to do this later you need to make your directory (what the file or object would be called). Then you need to make subfolders in side the directory that you just made called bitmaps, model, collision geometry, sound and animation.



Example:

PC-level> *Bitmaps

***Model**

***Collision geometry (on used for vehicles\ scenery)**

***Sound (Discussed later)**

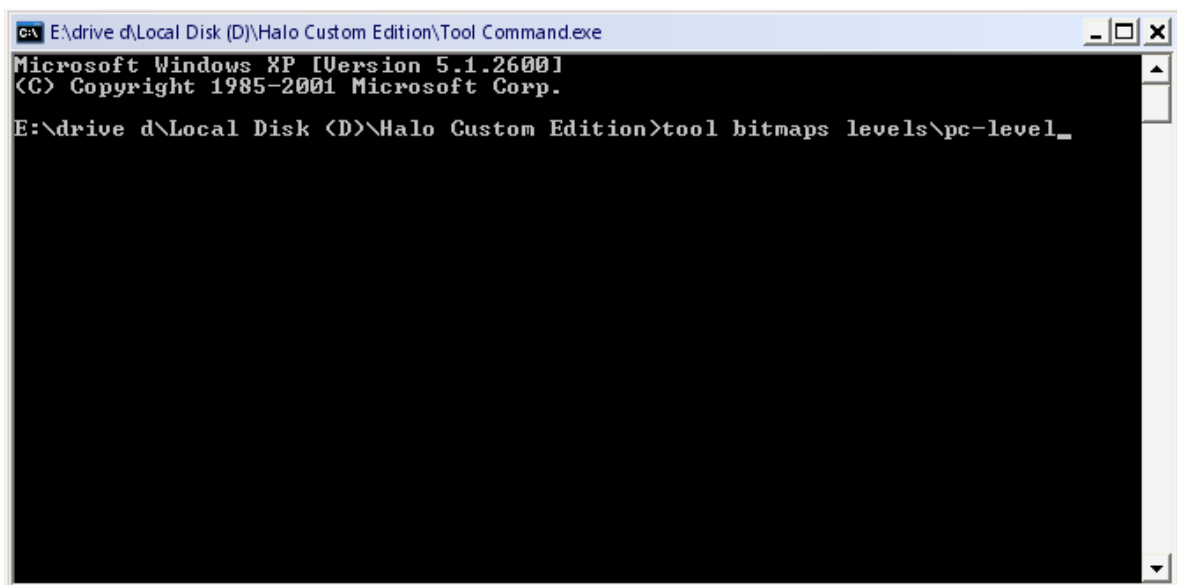
***Animation (Used for weapons really)**



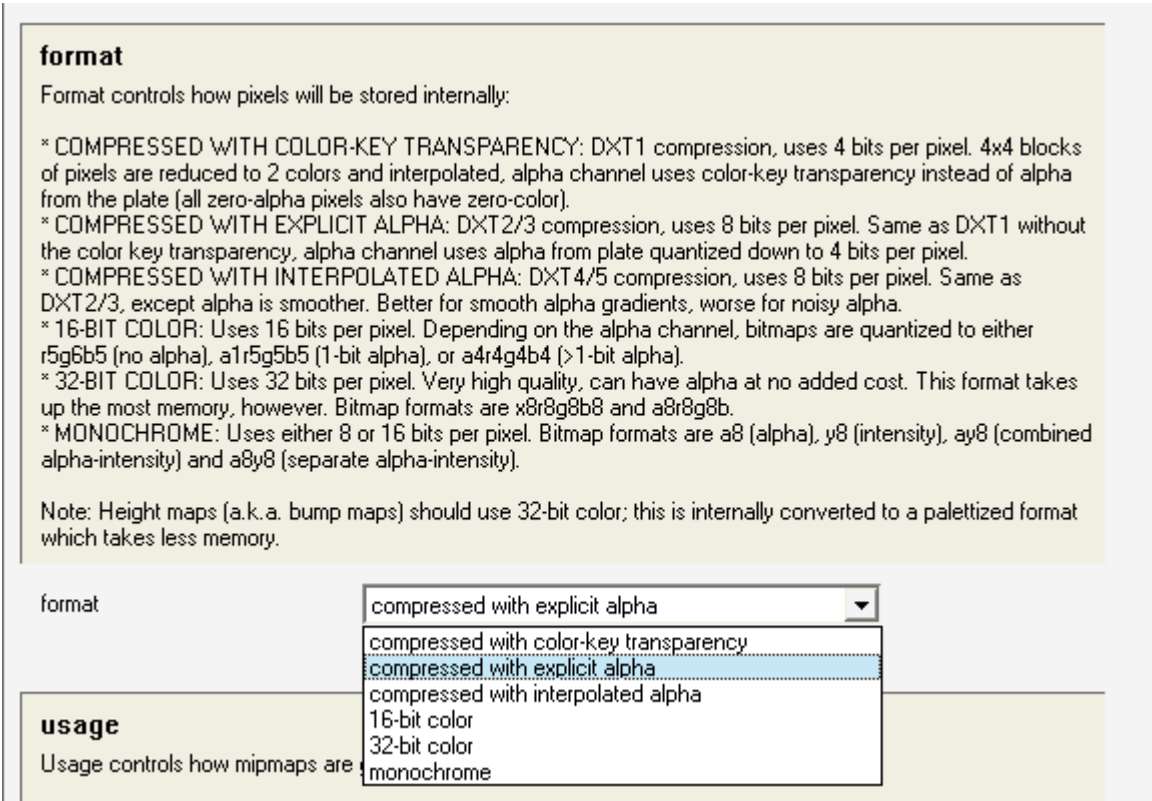
Now in Tool (a free program that you can download along with Guerilla and Sapien) that you use to compile the information like bitmaps and models. Then you need to type this in the tool.

Tool bitmaps (Folder directory)

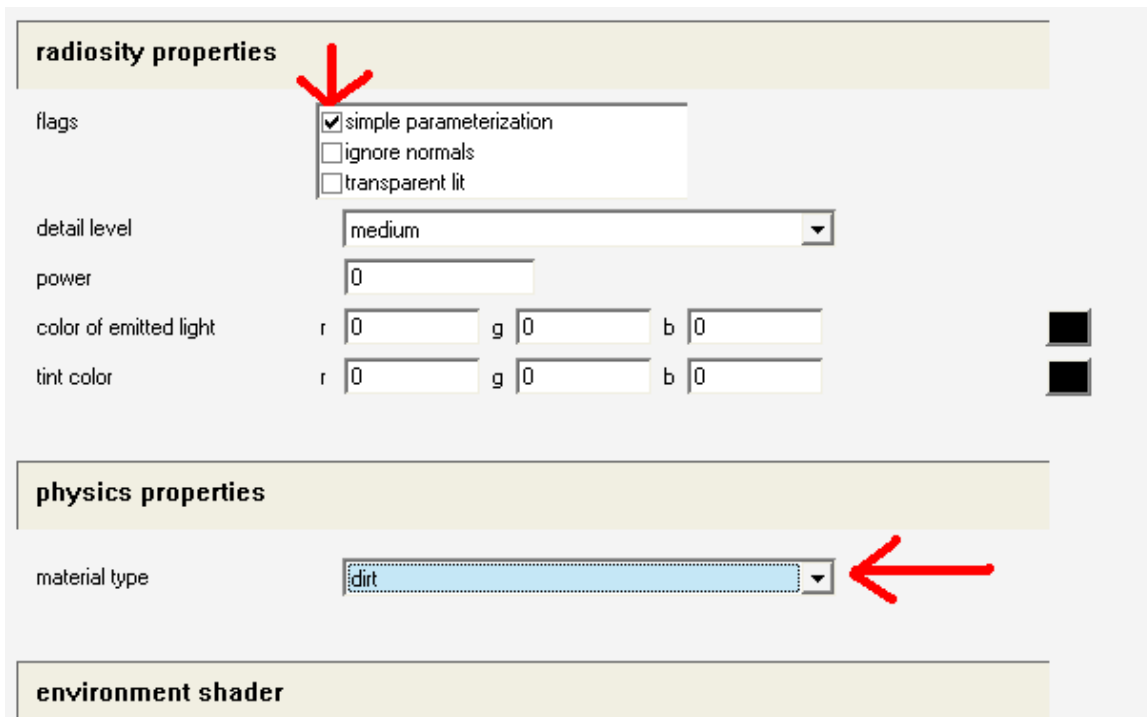
Example: tool bitmaps level\pc-level



In guerilla, you need to go to the .bitmap that you just complied. Next you need to change the format for the normal to “Compressed with Explicit Alpha.” Save the bitmap also if you want it to look 3d then you need to continue editing the .bitmap in Guerilla.



Do not close Guerilla yet, you now need to go to file then click new. A selection box should appear. Scroll down and choose shader_envirnmnet a new window appears. Go to the very top and click simple parameterization next to flags. Next scroll down to physics properties and choose if you want dirt, metal (thick), metal (thin), and about thirty others that you can choose from. I will use dirt for the example and you can take a look in the back to see what I am talking about.



radiosity properties

flags ☒ simple parameterization
☐ ignore normals
☐ transparent lit

detail level medium

power 0

color of emitted light r 0 g 0 b 0

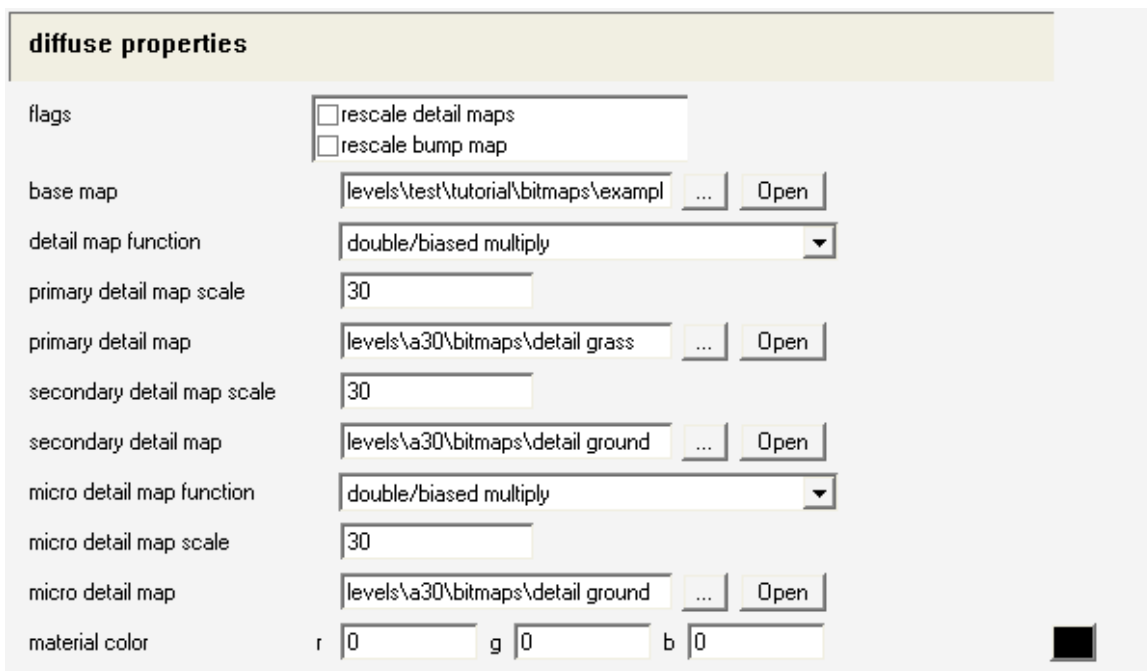
tint color r 0 g 0 b 0

physics properties

material type dirt

environment shader

After that, you need to go to diffuse properties. Click on the three “...” button next to base map. You need to locate the bitmap that you just compiled. Next to “Primary Detail Map Scale”, Secondary Detail Map Scale”, and “Micro Detail Map Scale” set them to 30. In the blank next to “Primary Detail Map” you need to locate a bitmap that will be the primary one used. Most set this for the grass, which is located in levels, a30 folder, bitmaps, and last click on detail grass.bitmap. The “Secondary Detail Map Scale” you need to locate the next one you need, again most people would use a dirt bitmap. To locate this file it is in levels, a30 folder, bitmaps, and click on detail ground.bitmap.



diffuse properties

flags ☐ rescale detail maps
☐ rescale bump map

base map levels\\test\\tutorial\\bitmaps\\exampl ... Open

detail map function double/biased multiply

primary detail map scale 30

primary detail map levels\\a30\\bitmaps\\detail grass ... Open

secondary detail map scale 30

secondary detail map levels\\a30\\bitmaps\\detail ground ... Open

micro detail map function double/biased multiply

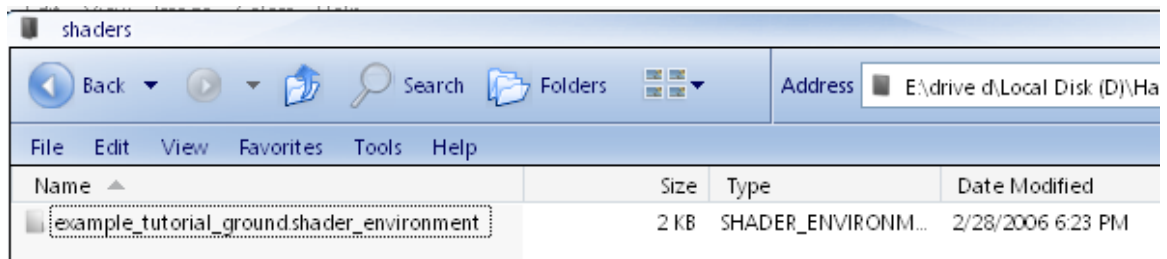
micro detail map scale 30

micro detail map levels\\a30\\bitmaps\\detail ground ... Open

material color r 0 g 0 b 0

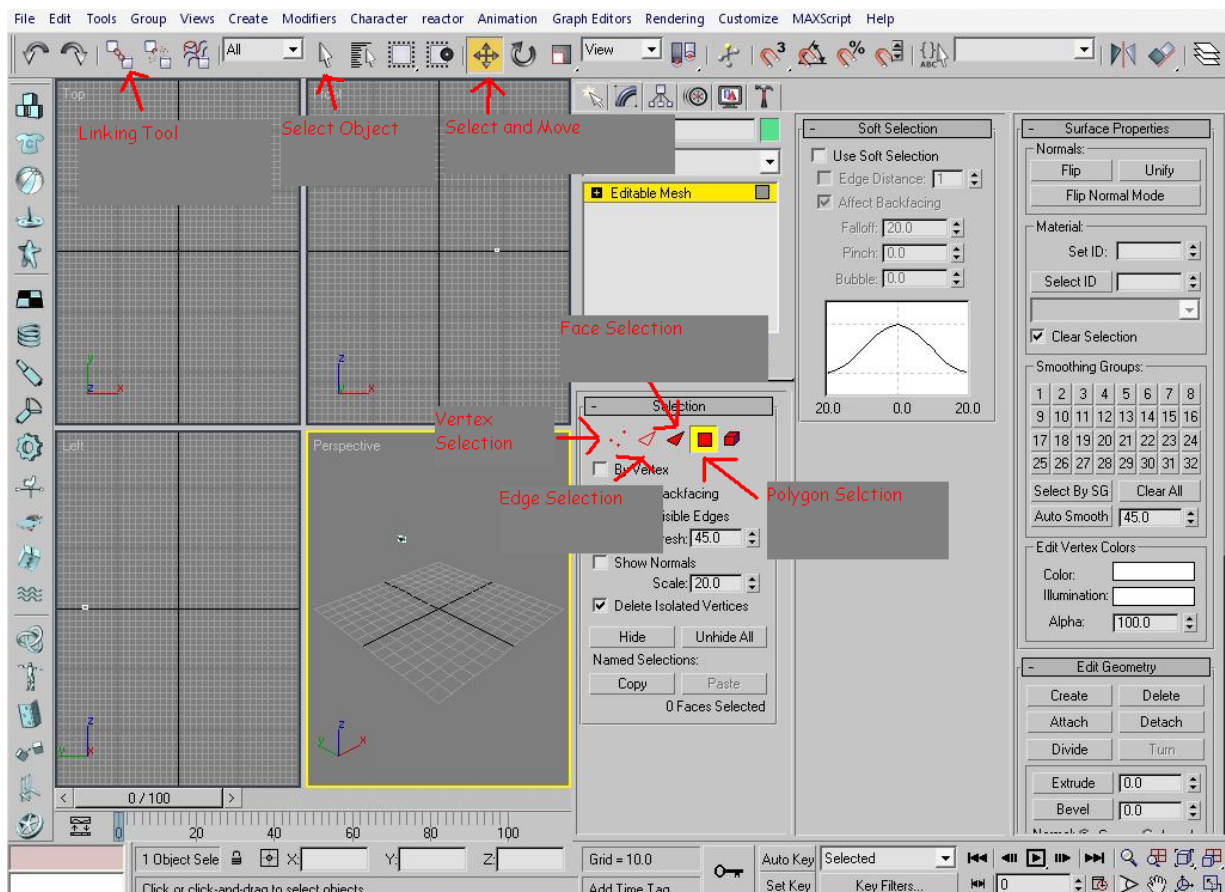
Now you need to make a folder in data\\levels\\ (folder name) and call it shaders. Call the file the same

as the base map that was used and you need to make a shader tag for every bitmap that you have.



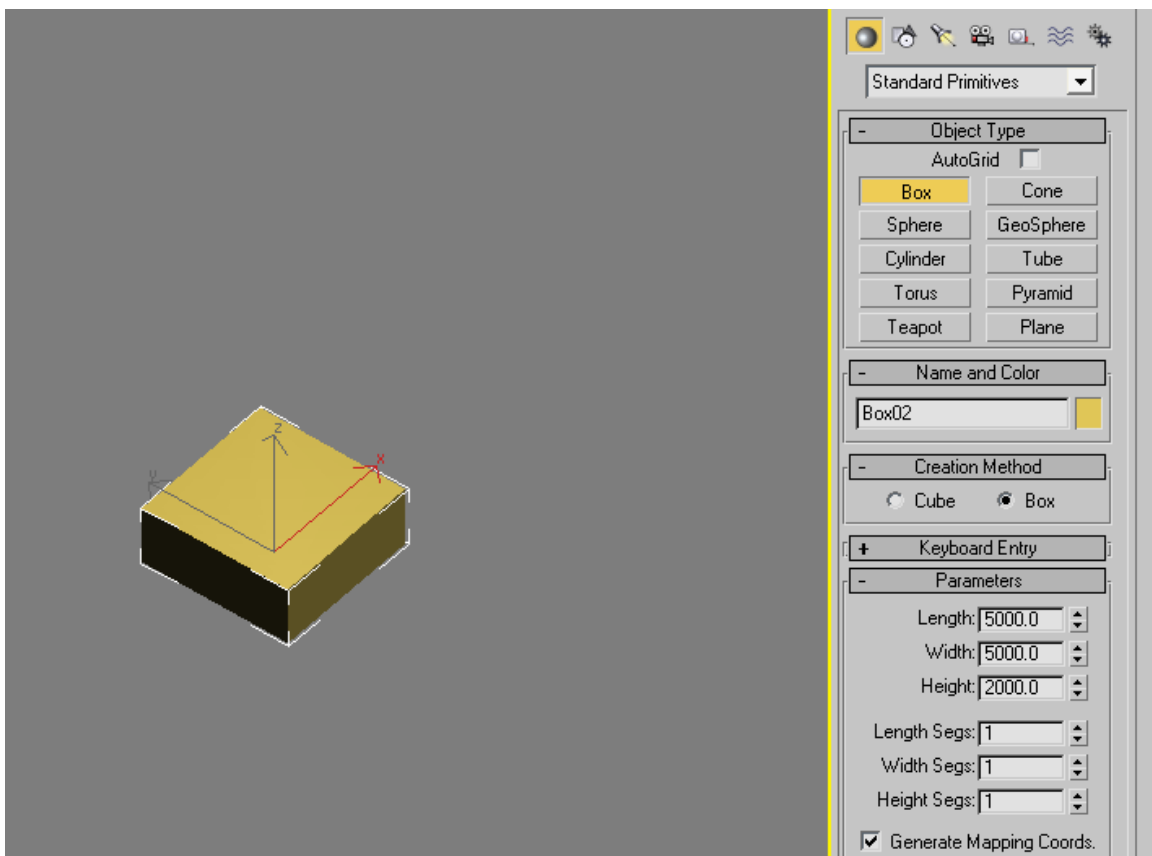
Making the Map

The third step, the most complicated step of them all. You now have to make the object. There are many programs you can use to make models. The top two are G-max (located at turbosquid.com/gmax) and the 3ds max series (at autodesk.com/3dsmax).

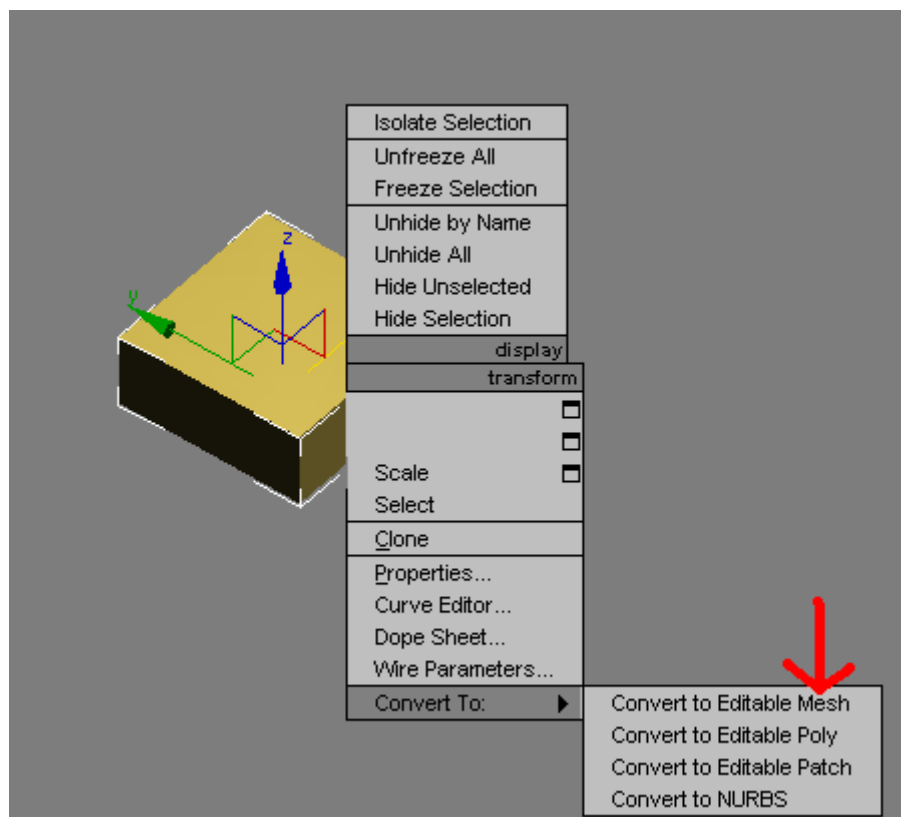


This is a quick run through the placement of the tools

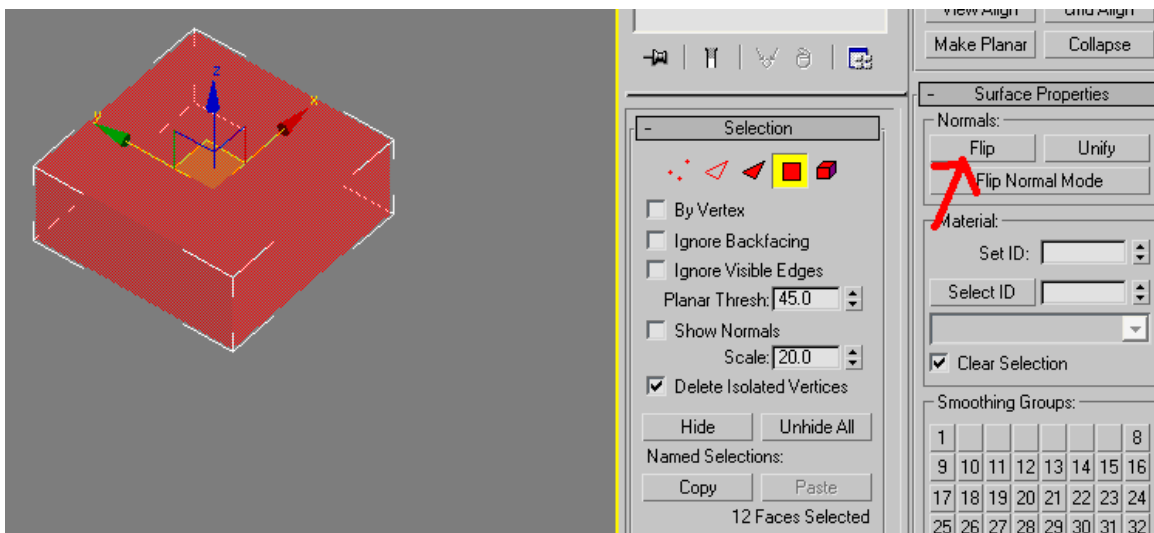
The very first thing you need to do is make a box that has the measurements 5000x5000x2000.



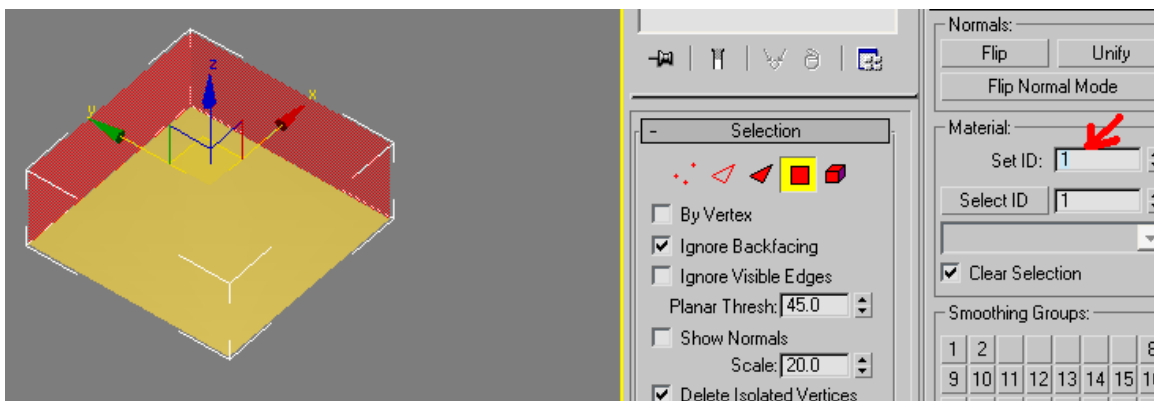
Then right click on the object and go to “Convert to” then click “Convert to Editable Mesh.” This will allow you to edit the figure that you just made.



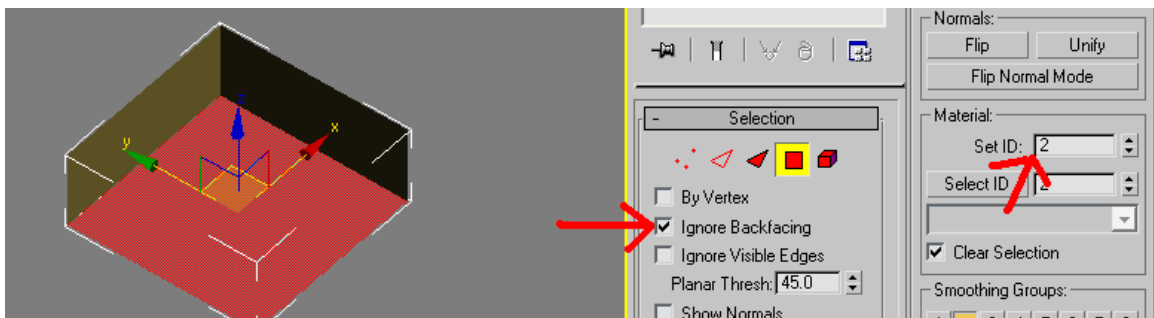
On the right, you will have “Soft Selection” you need to locate”Surface Properties” while having the entire faces selected click “Flip.” You are now looking inside what will be a level.



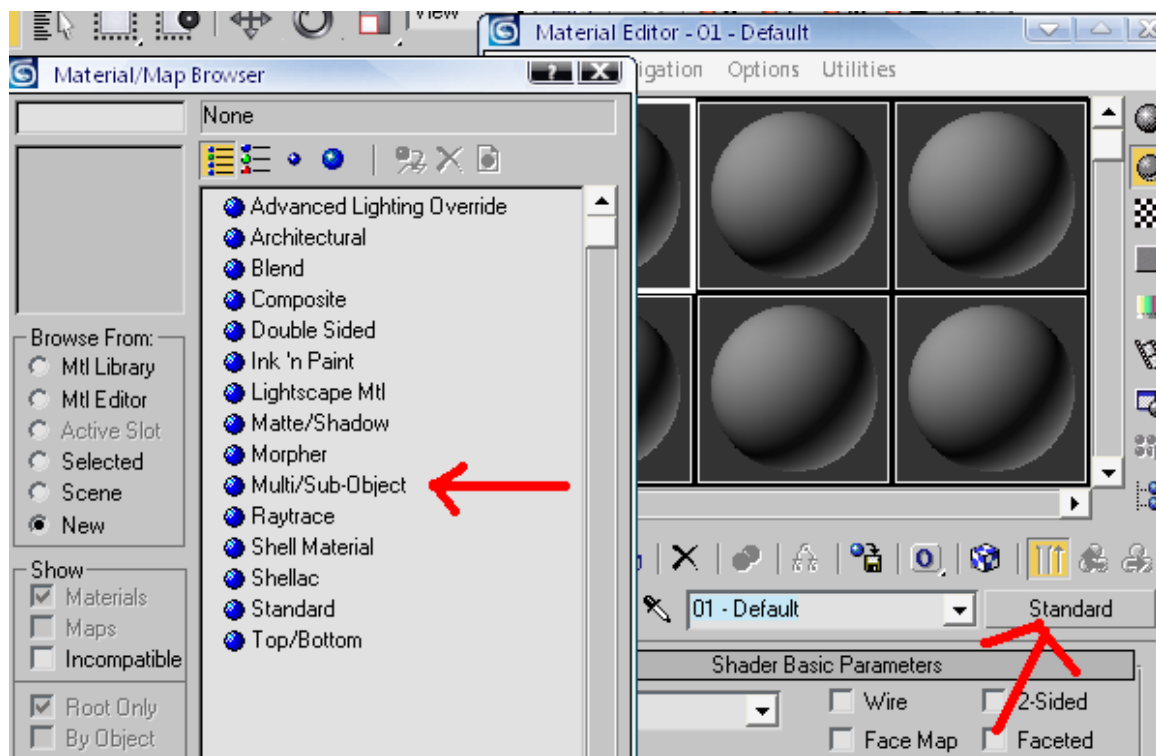
You must now click on all the faces but one. The one will be the ground that will be implemented. Set the high-lighted faces to “1” for bitmap purposes.



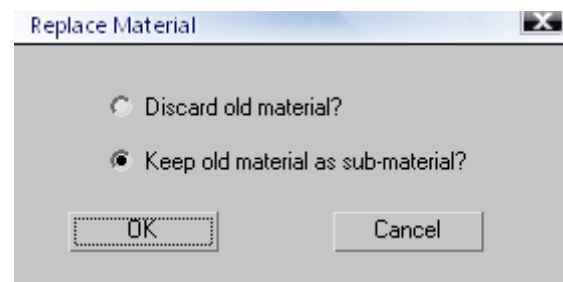
Then the bitmap that you did not select you need to set it to “2” in order to do that you need to check the “ignore background button.”



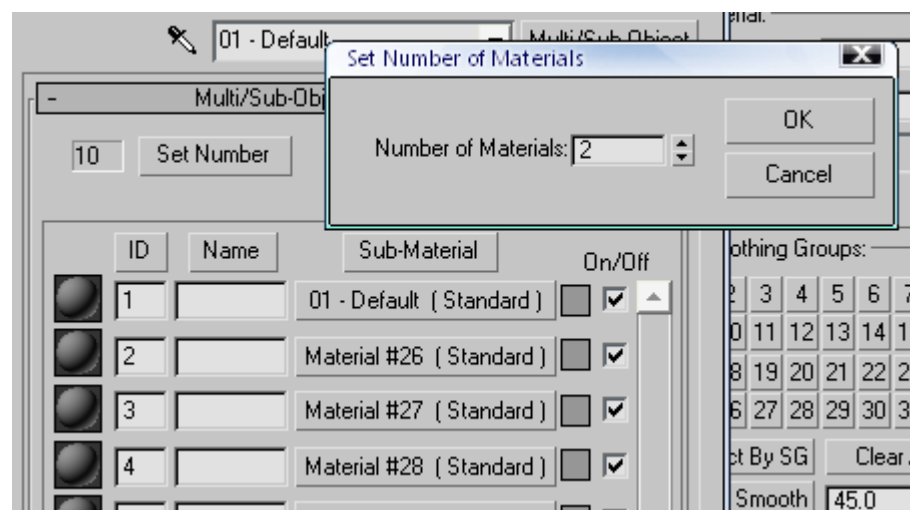
To set the bitmaps you can press “M” for the “Material Editor,” now click on the button that says “Standard”. After that you need to double click on “Multi/Sub-Object,” this allows you to have more than one texture implemented.



A pop up that says “Replace Material” hit Ok.

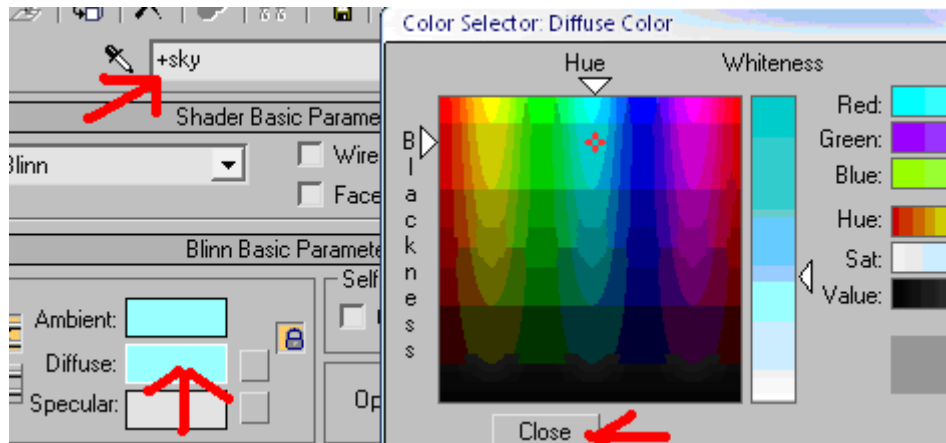


Now you need to click on Set number and choose how many bitmaps you are going to have also kept in mind that you need one more for the sky.



Once you set how many you need click the first one. This one will be the sky, rename this to “+sky” and also

hit the dark grey box next to diffuse select any color that you want. Hit close after you are done with your selection.

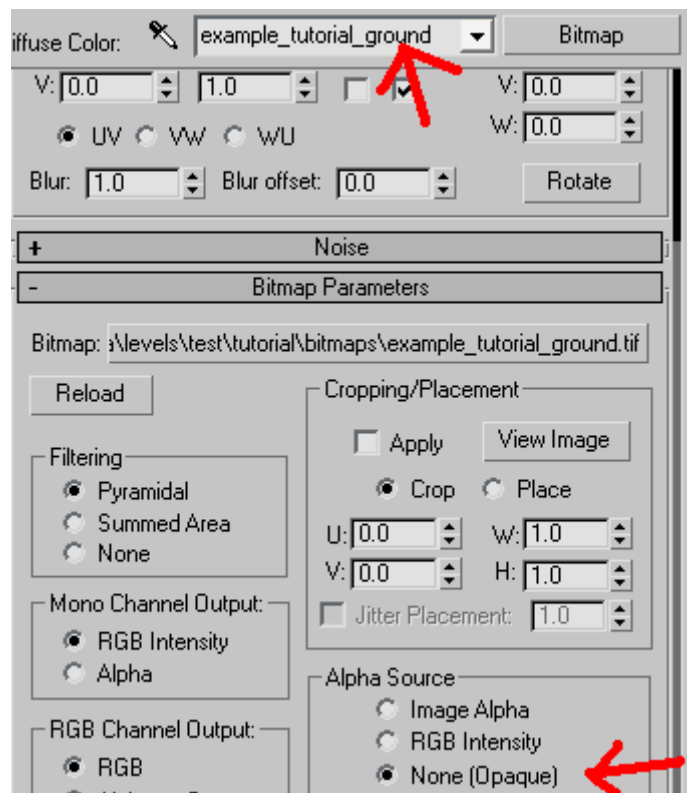


You now need to click the checker box  then after that click the box that has a circle pointing to a cube . After that you need to click the box that has an arrow pointing up .

Now hit the second box. You need to now hit the box next to the dark grey box from the previous bitmap

. Click bitmap and you have to locate the ground texture that you made.

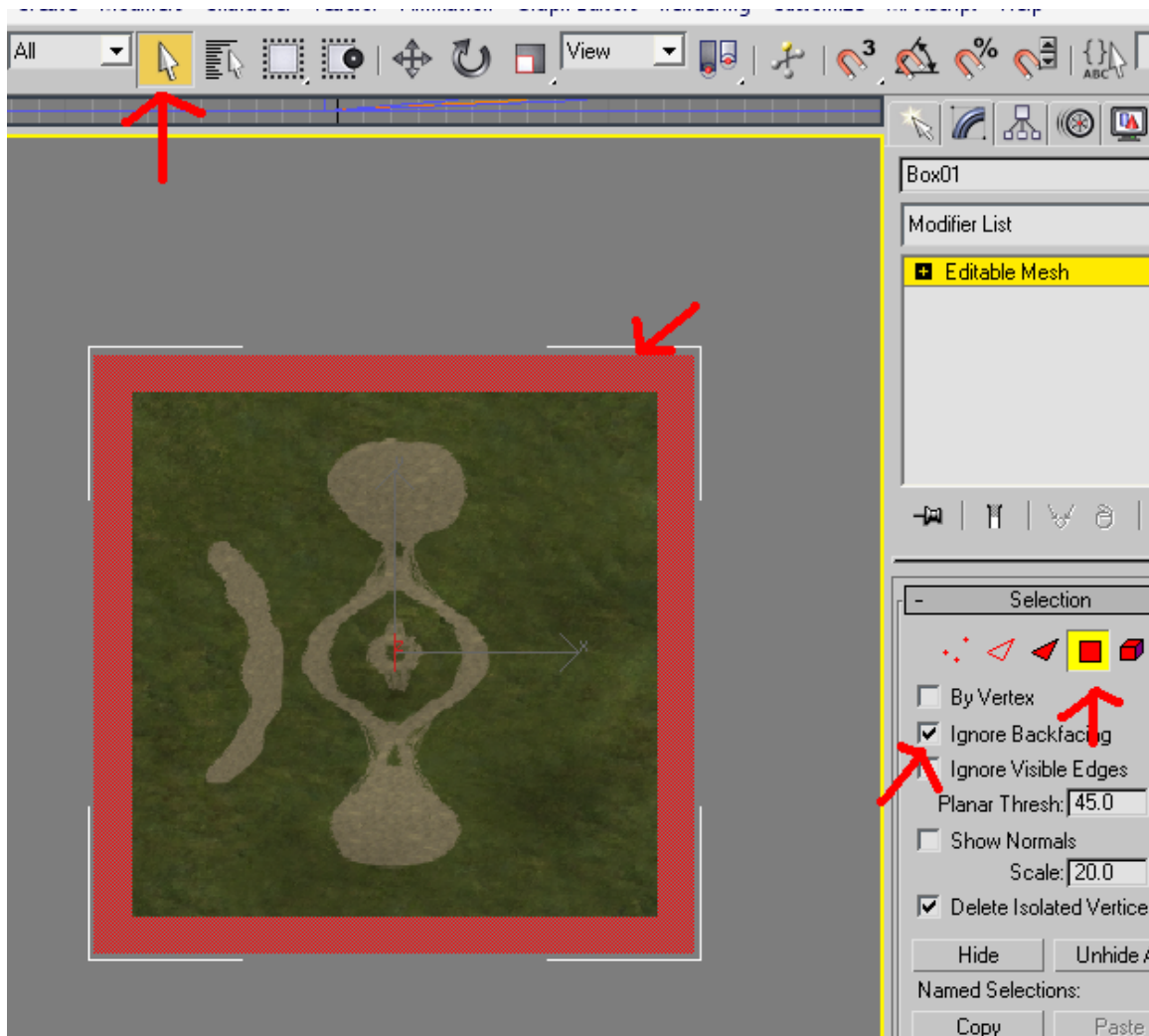
You need to rename it the same as the bitmap that you are using also scroll down until you find “Alpha Source” click “none (Opaque).”



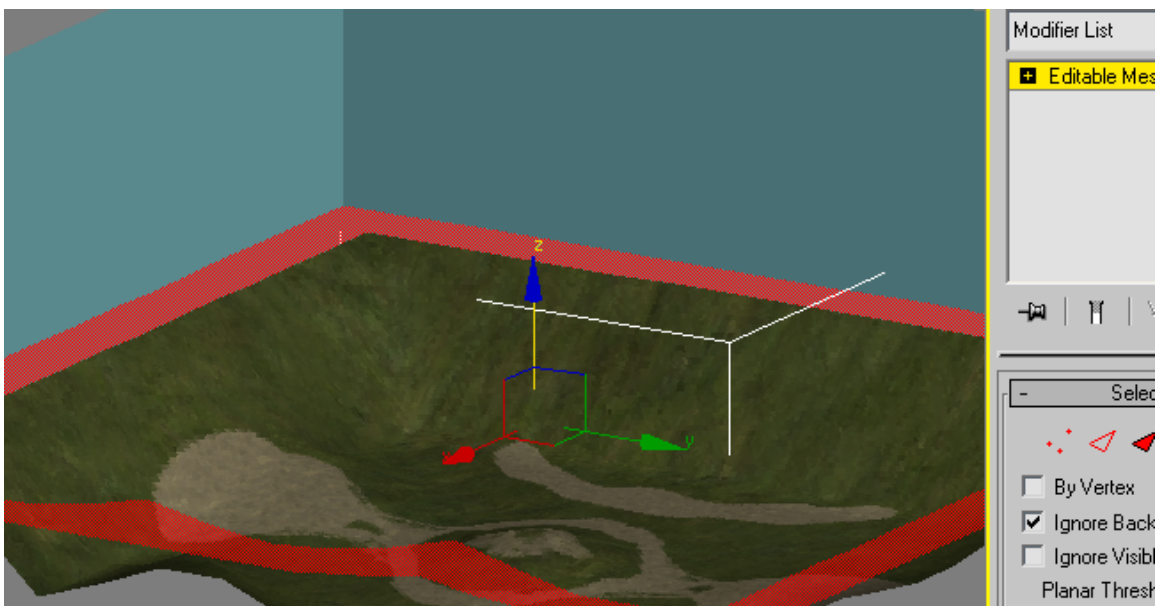
Same as before click the checker box , circle pointing to a cube , and arrow pointing up , you will also have to rename this one as well to the bitmap that you made. You can now close the “Material

Editor

If you want to add cliffs you can select “Select Object” and have “Polygon selection” on. Also when you are selecting faces make sure you hold down “Ctrl”



Then you can use your “Select and move” key and move them up



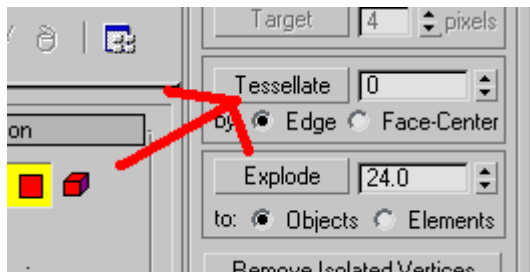
Due note I use “soft selection” before I added the mountains. Recommended to do the mountains first though

incase of errors. And you can twist them up to look like mountains.

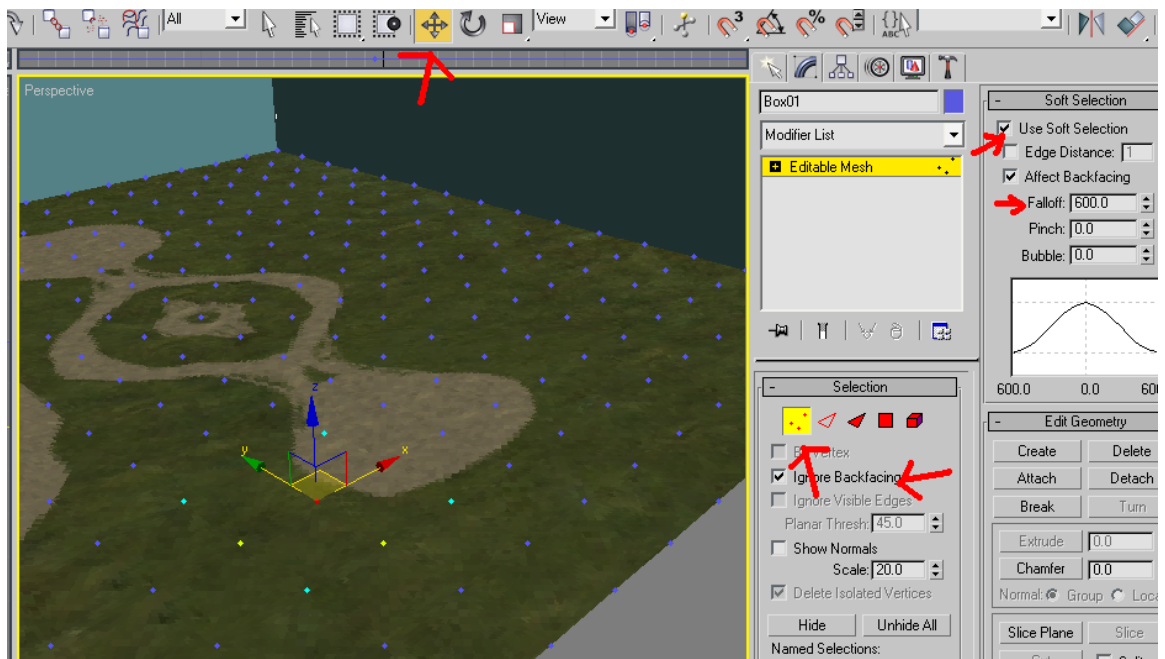


Like so

If you wanted to add hills you can select material id two and go to Tessellate (change it to “0” first) and hit where it says “Tessellate” and click it about 4 times and that should give you about 512 faces.

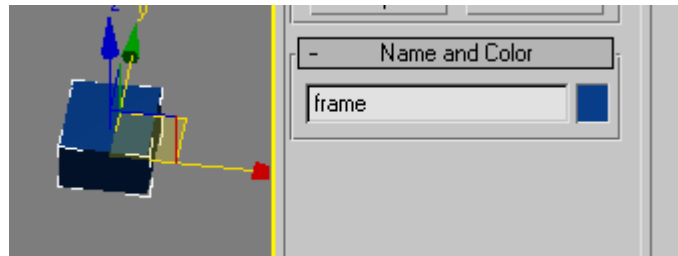


Next under “Soft Selection” check “Use Soft Selection” all I can say is play with the pitch and falloff and use the select and move tool on a given vertices. But make sure you have vertex selection mode on and “Select and move” highlighted



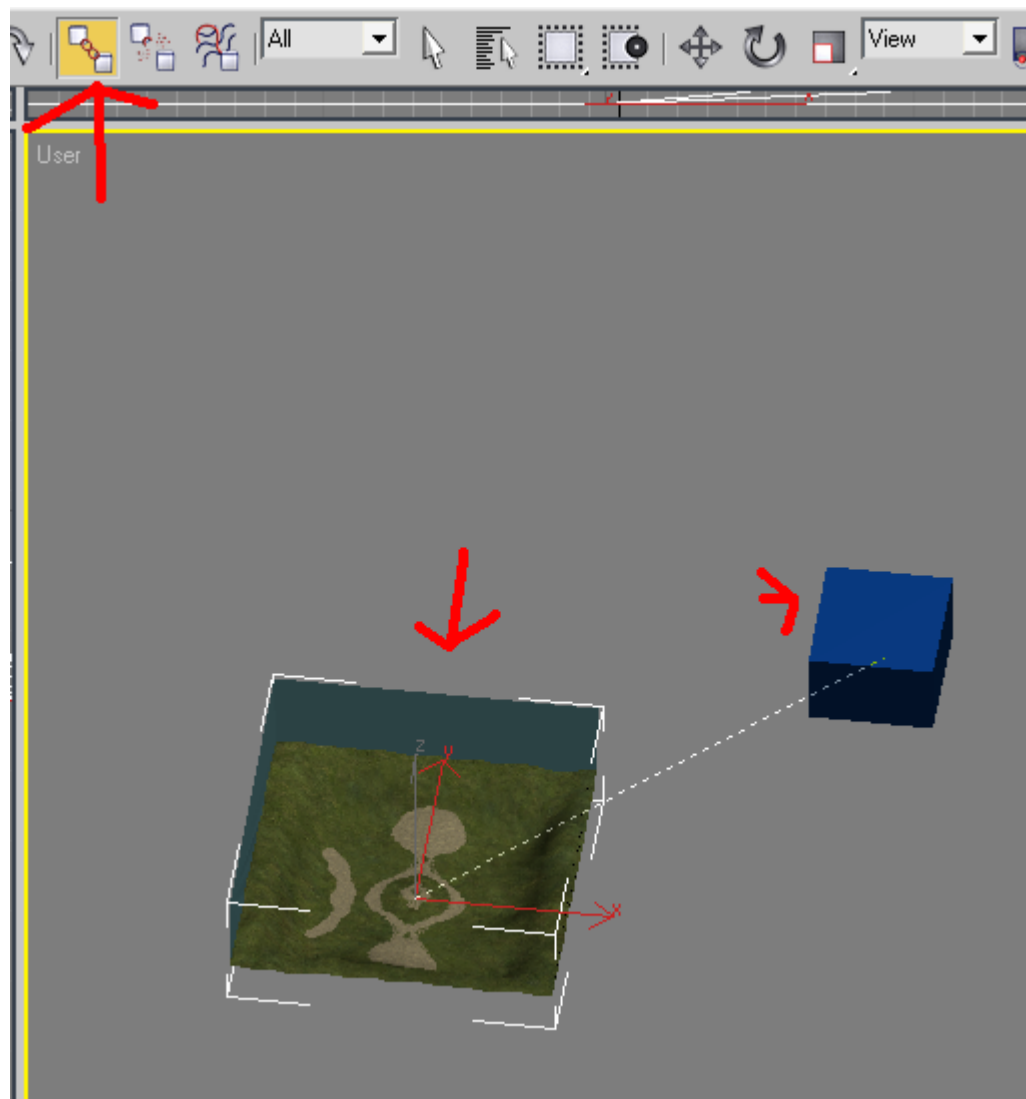
Note: once you understand this you can start extruding faces and make bases and caves

Now you need to create a second box and call it frame.

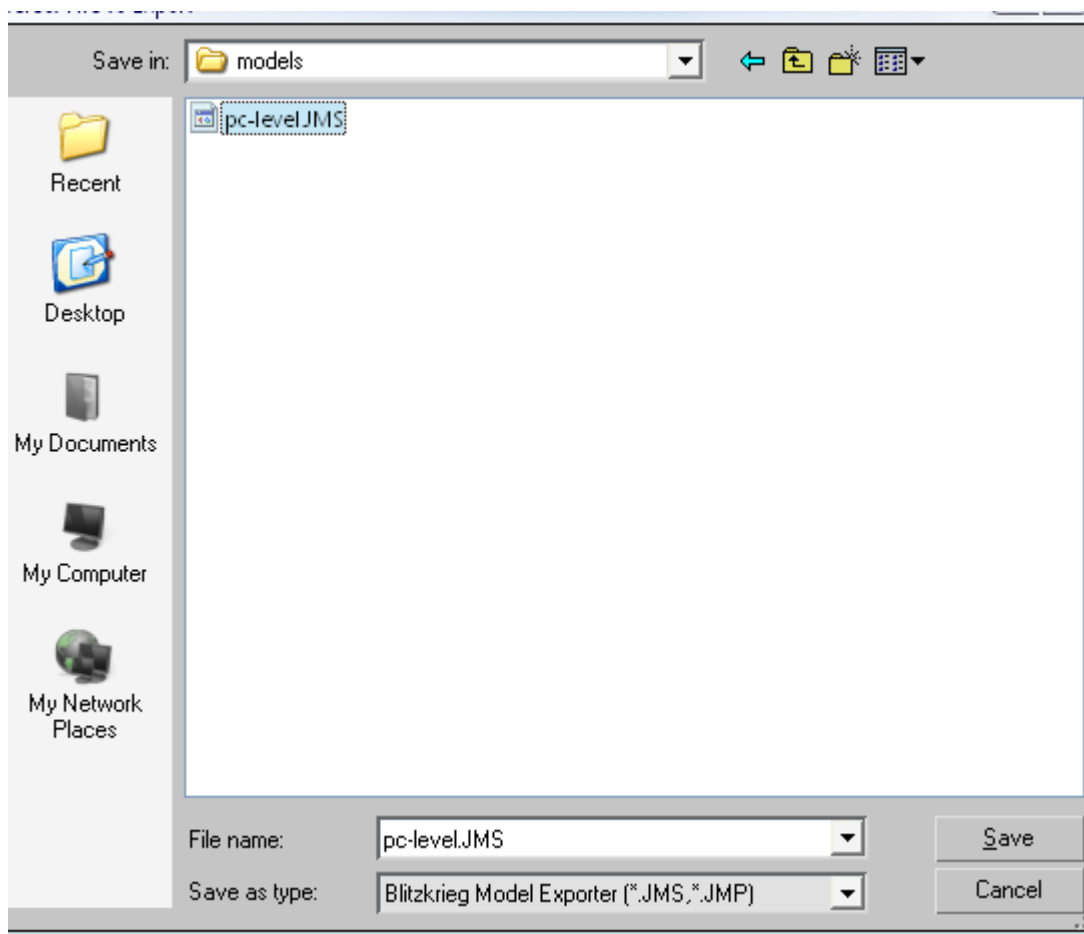


Next you need to link each object by using the linking tool which is in the top left corner that has chains .

You now need to high light your level left click and drag it to the box you just made.



Last you need to go to File then Export. Locate the directory that you made earlier and save it as a .jms in the “model” folder.

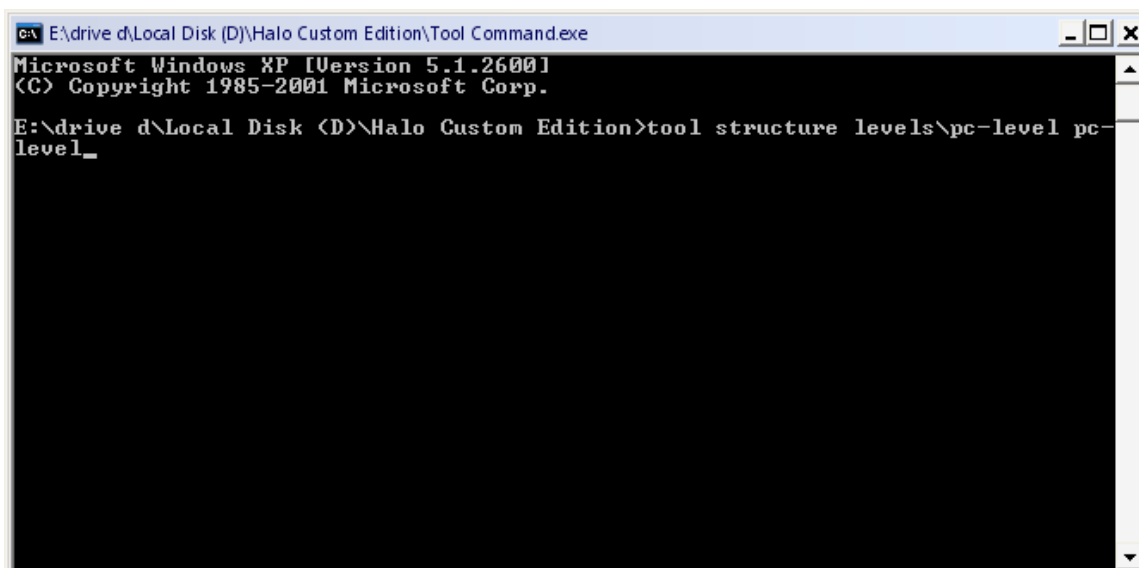


Compiling your JMS File

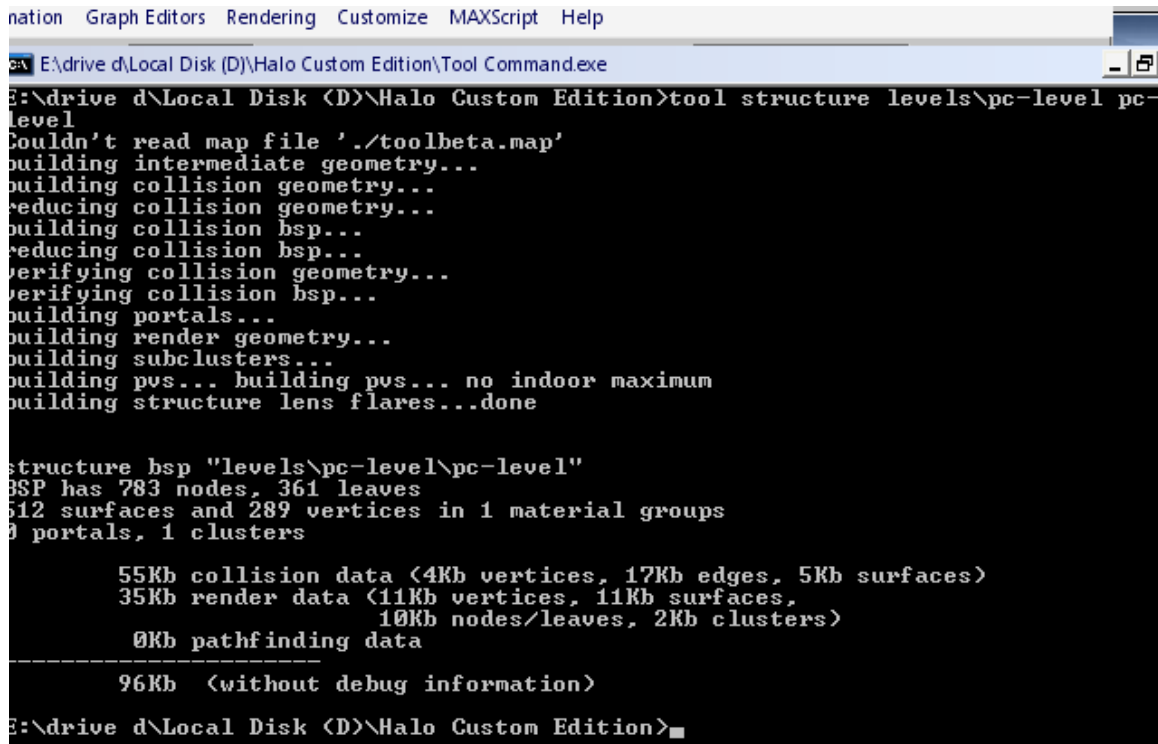
Use “Tool” again to compile the model this time the command is tool structure levels\ (Name of Map Folder)
(Name of .JMS File)

Example:

Tool structure levels\pc-level pc-level



When you are finish compiling it should look like this



```

nation Graph Editors Rendering Customize MAXScript Help
E:\drive d\Local Disk (D)\Halo Custom Edition\Tool Command.exe
E:\drive d\Local Disk (D)\Halo Custom Edition>tool structure levels\pc-level pc-
level
Couldn't read map file './toolbeta.map'
building intermediate geometry...
building collision geometry...
reducing collision geometry...
building collision bsp...
reducing collision bsp...
verifying collision geometry...
verifying collision bsp...
building portals...
building render geometry...
building subclusters...
building pvs... building pvs... no indoor maximum
building structure lens flares...done

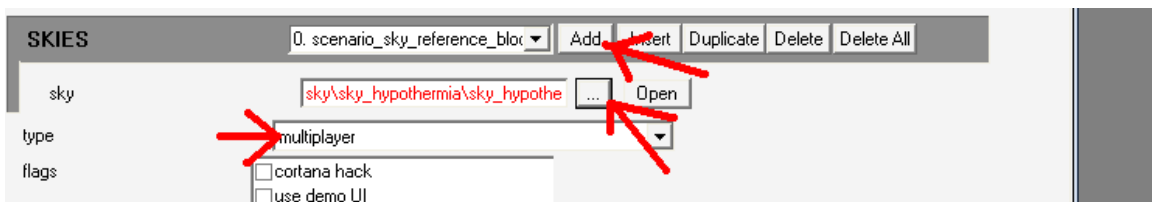
structure bsp "levels\pc-level\pc-level"
BSP has 783 nodes, 361 leaves
612 surfaces and 289 vertices in 1 material groups
0 portals, 1 clusters

55Kb collision data (4Kb vertices, 17Kb edges, 5Kb surfaces)
35Kb render data (11Kb vertices, 11Kb surfaces,
10Kb nodes/leaves, 2Kb clusters)
0Kb pathfinding data
-----
96Kb <without debug information>
E:\drive d\Local Disk (D)\Halo Custom Edition>

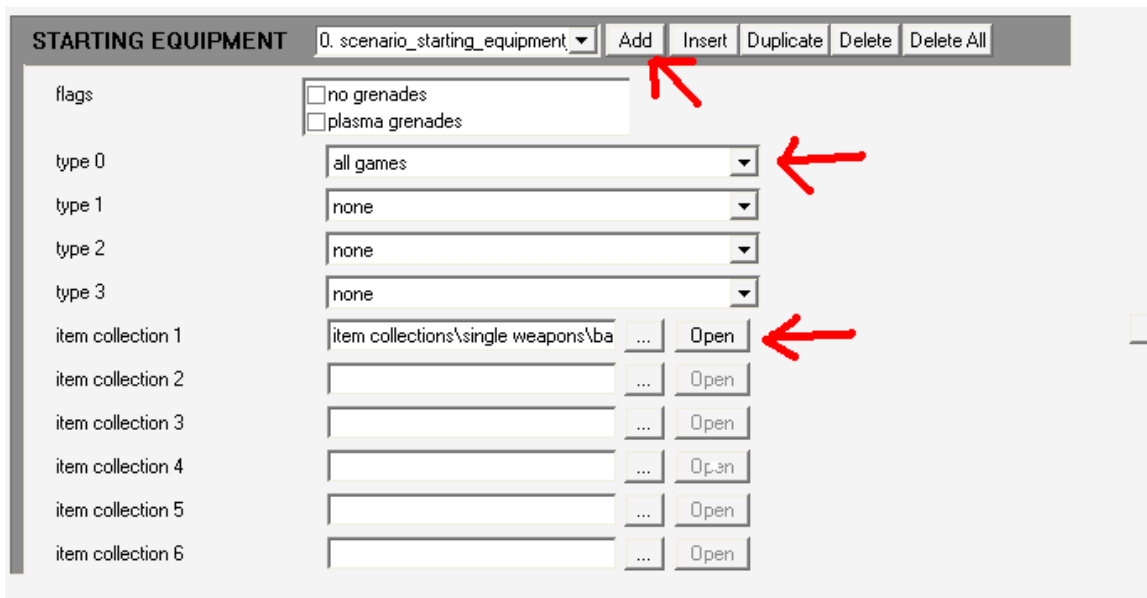
```

Editing in Guerilla

Next you need to open the model you just compiled with Guerilla. The file will be in tags, level, the name of the map, and then you will see files that have extensions like .scenario and .scenario_structure_bsp. Open the .scenario tags, under sky's hit add. Next to the open box that sky click "...", and navigate to tags/sky/ and choose one but make sure it has a .sky extension. Now still under "Skies" click the box next to type and change it to multiplayer.



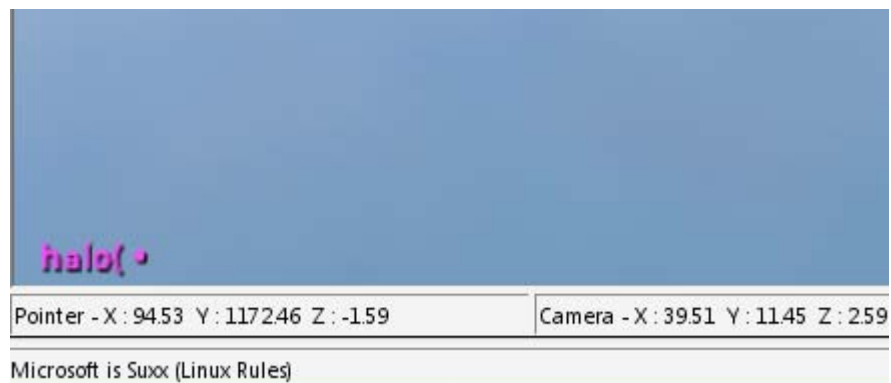
Next scroll about half way down until you get to "Starting Equipment" and hit add. Under type0 set it to all games and under the item collection1 locate you item collection folder under tags and choose an item that has an .item_collection. Now you need to click on simple weapons and choose one. This will be the weapon you will start of with. You can now click save.



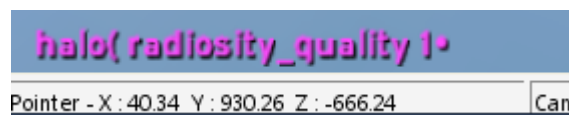
Editing in Sapien

The forth step in this process is to open the .scenerio tag in Sapien. Which should be in your tag\levels\ (name of map)\ (Name of .scenerio)? It will take a while to load up so give it some time. At this time all you are going to see is the sky so you need to run radiosity.

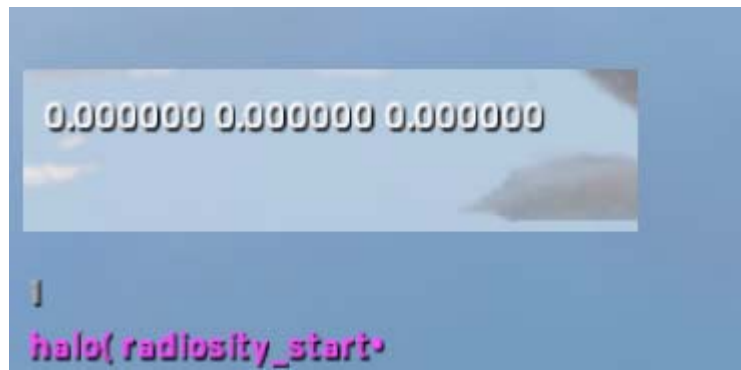
Once it finishes loading you need to hit “~” key and it will bring something up in the lower left hand corner
“halo(.



Type in “radiosity_quality” 1

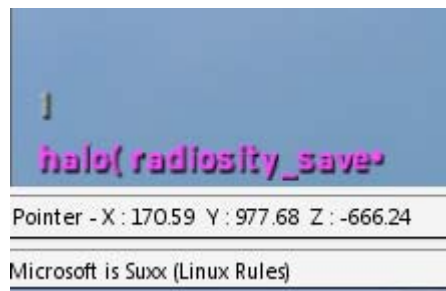


And then type “radiosity_start.”

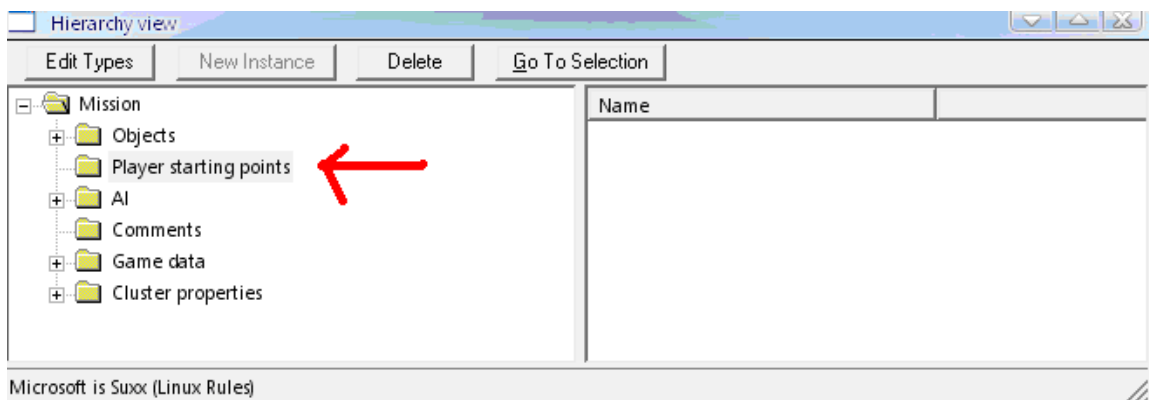


Right now it is calculating the RGB's or red, blue, and green. It will take a while depending on the size of your map and the complexity of it.

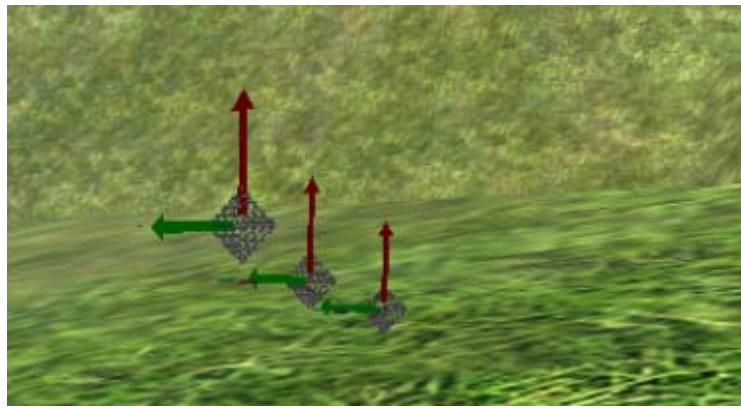
Once that is through with that rigorous task still with "halo (" in the lower corner type in radiosity_save. This will now allow you to see the map you created in color instead of a black and white scale with a colored sky.



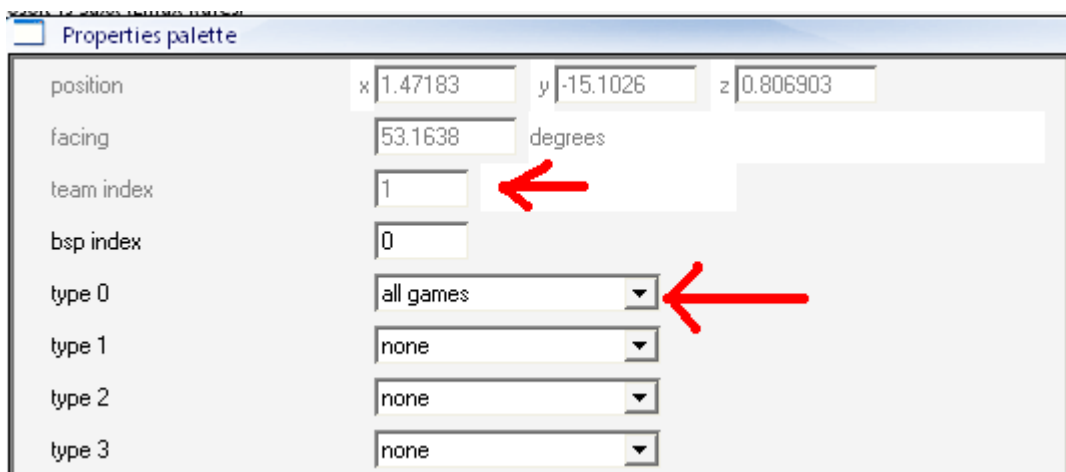
The next thing you need to do in Sapien is to place starting points for your character spawn points. In order to do this there will be a menu called "Hierarchy View". Now click the + box next to "Mission." You can now click on "Player starting Points."



To place spawns just right click on the "Game View" window and have "Player starting points" selected.

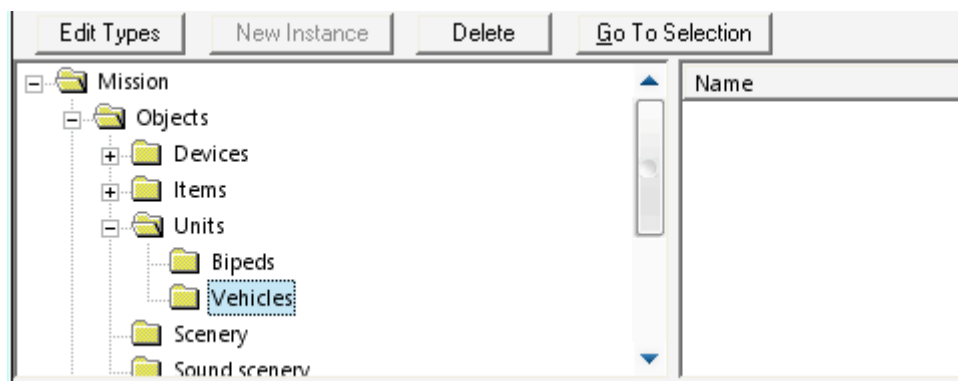


After setting up all the spawn pint go under your “Properties palette” with all the player spawns highlighted go to type0 and set it to “all games.” Go back to the Hierarchy View window and select about half of them and go back again to the Properties palette and set the team index to “1.” You know have completed setting spawn points for the player to start point.



Now you can start placing vehicle placement and scenery placement.

Go to objects, then units, and then vehicles

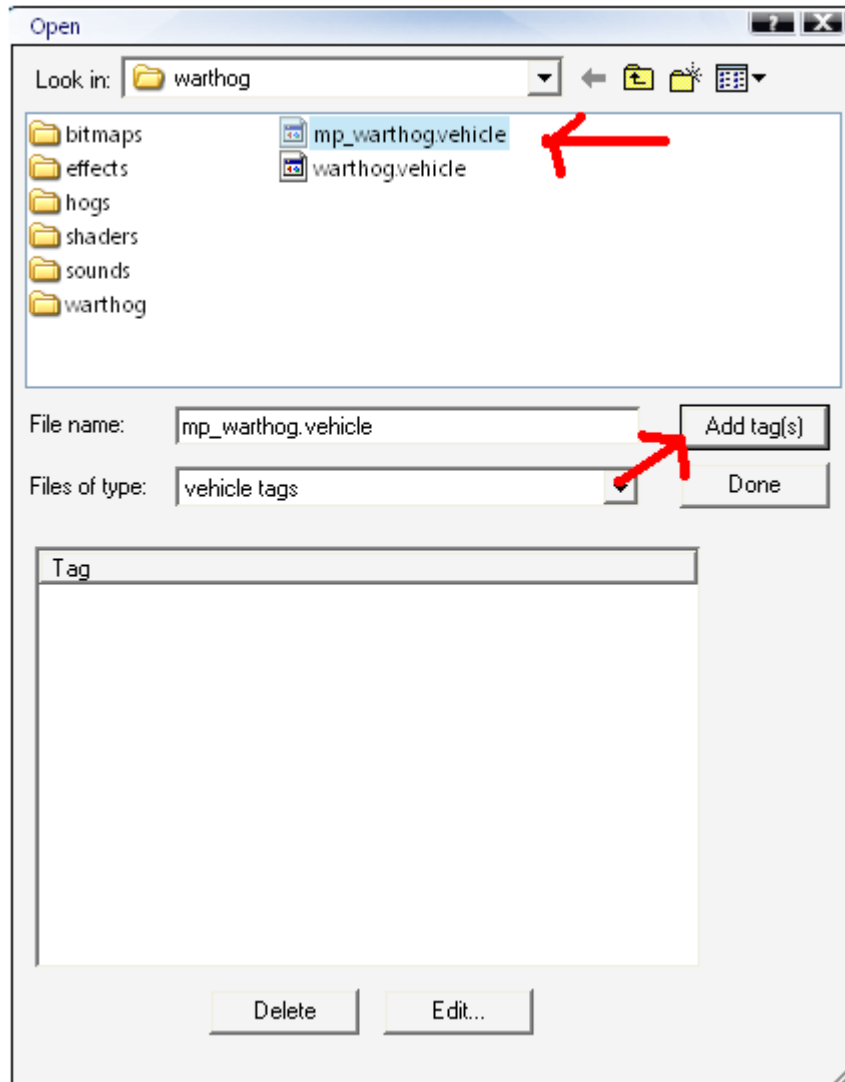


Now you need to go to “Edit Types” and navigate to tags/vehicles

Select the folder with the vehicle you want and select its .vehicle tag and if it has 2 .vehicle choose the one that

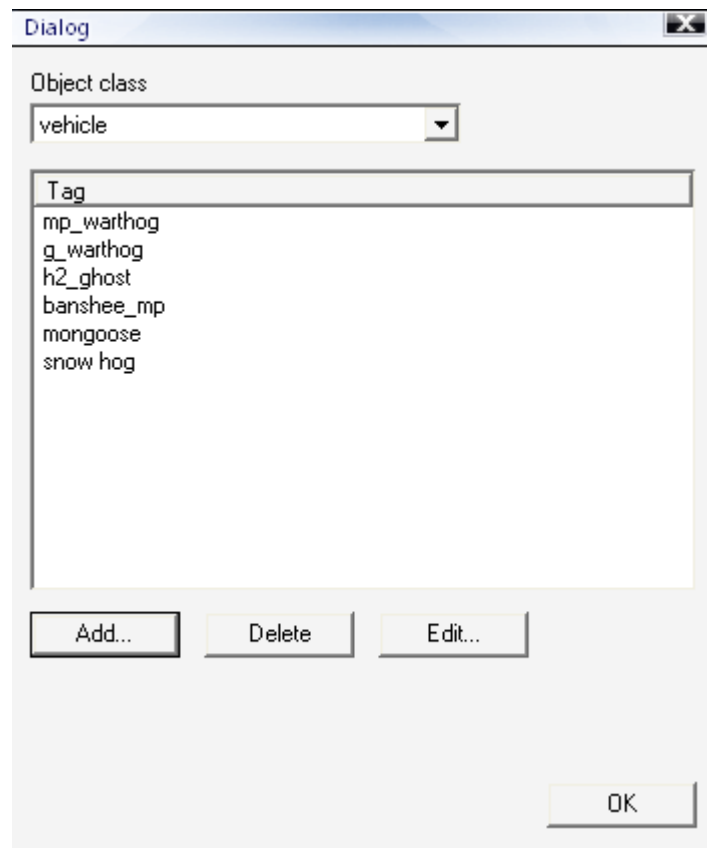
has MP in the name

Highlight the .vehicle tag and click “add tag”

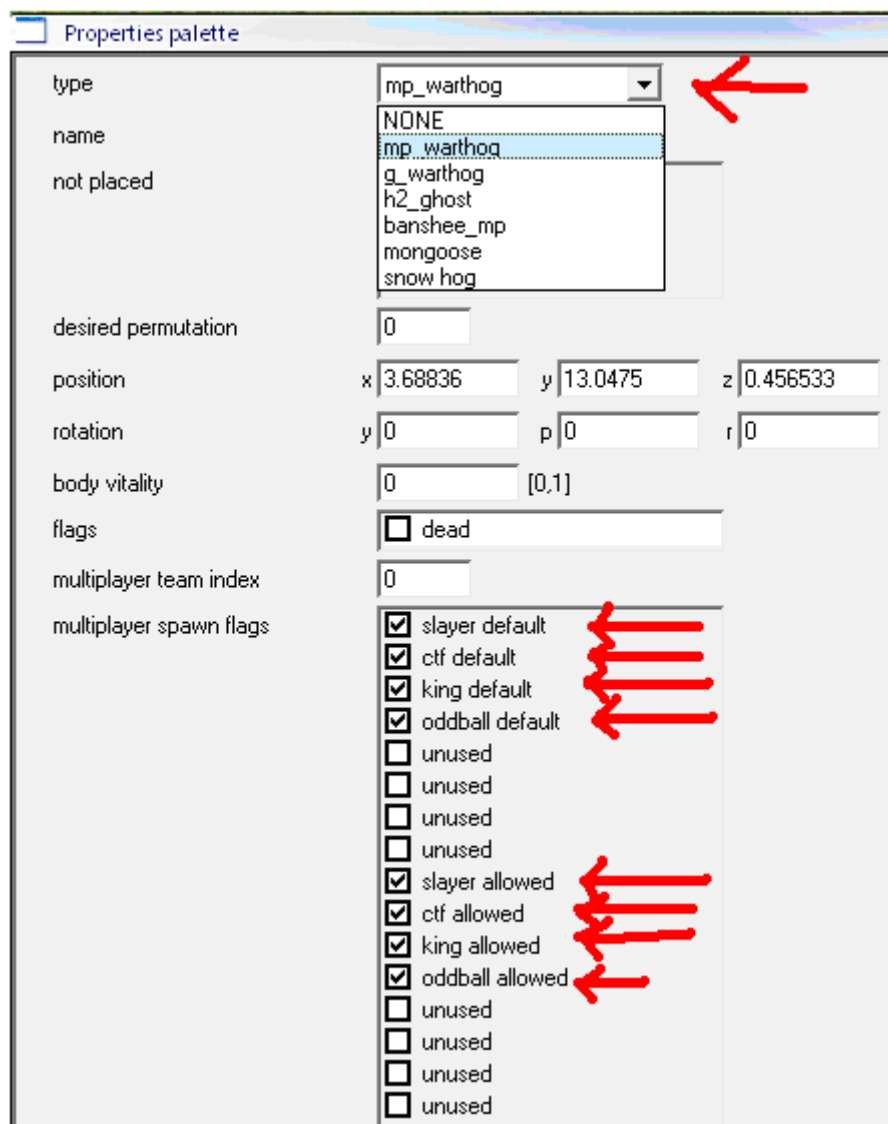


Once you are finish adding vehicles you can click done, but due note that you can only have 6 vehicles in the game.

I choose these but the ones I choose are custom made. So you need to choose warthog, ghost, banshee, scorpion, and the ones that came with your CE

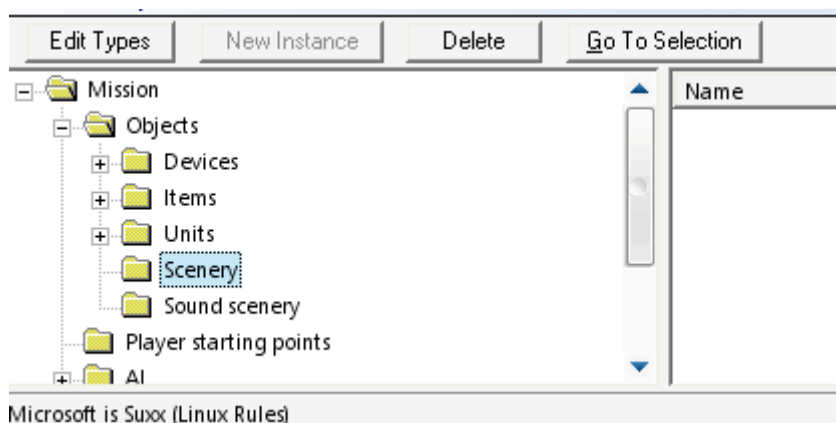


Just like the “Player Starting Points” you need to click on the Game View Window. And you need to go to the “properties palette” to change it to the vehicle you want. And check off all the defaults and allowed boxes under spawn flags. But if you want certain vehicles for certain game types go on head and select the ones you want for the game type.



Ok once you have the vehicle placement done you need to put in some scenery.

Under the Hierarchy View go to mission objects then scenery

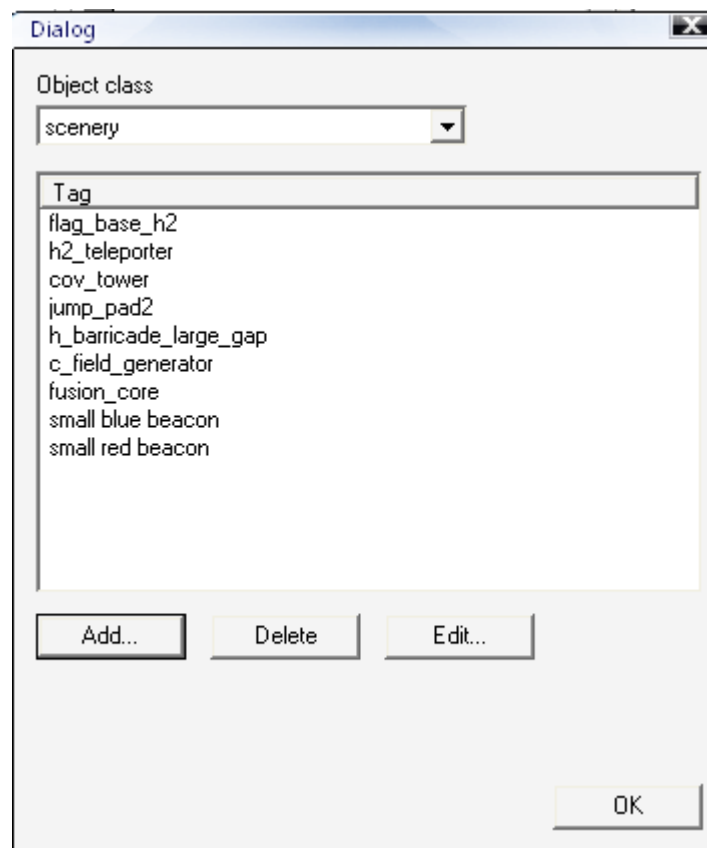


You will have to do the same as the vehicles in adding them to your list

So go to "Edit Type" While scenery is highlighted and navigate to tags/scenery

Note make sure you choose a file that has a .scenery extension

Again most of mine are custom so you may not have them but here is what I have

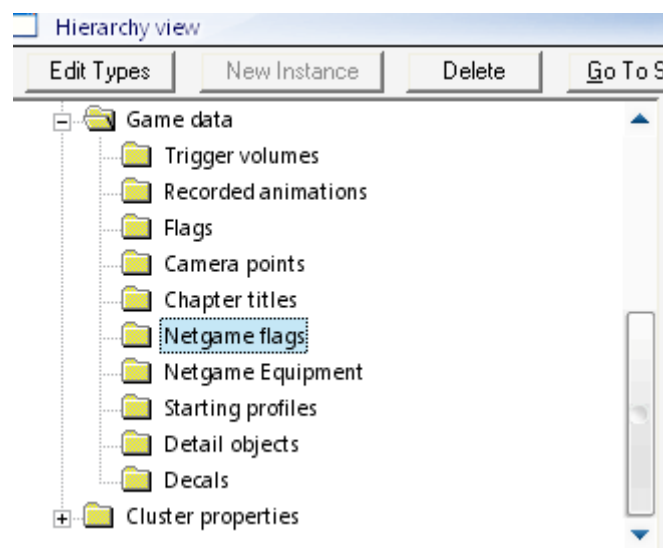


Now all you have to do is right click on the “Game View” window and place them how you want them

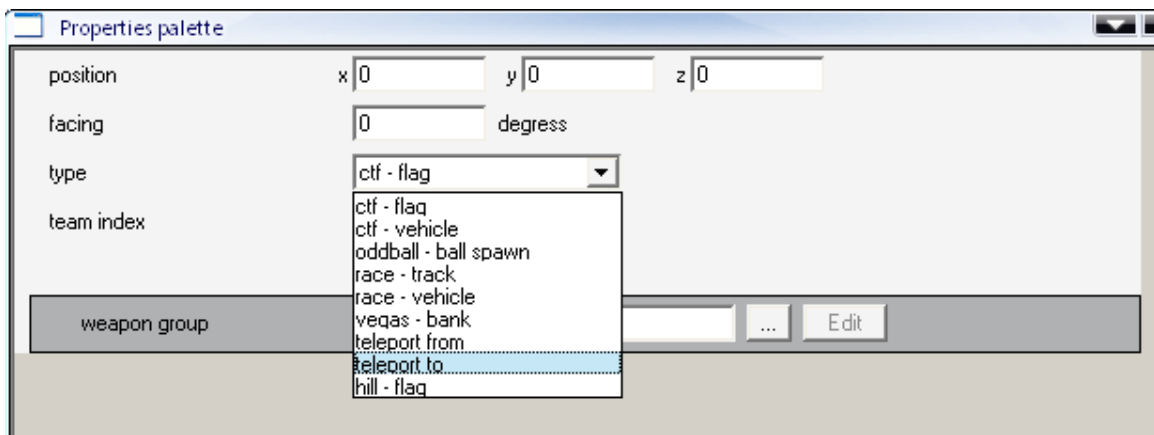
Just like the vehicle you will need to go to the “properties palette” and switch them when needed

Once you are happy now we are ready for setting up teleporters (This is not necessary)

In the Hierarchy View go to missions then go to game data and select Netgame Flags



Since we are doing teleporters we need to change it to that in the Properties palette



Ok to set it up you need to have a teleport to and a teleport from

Place the teleport from the place where you want the player to walk into it and it will teleport you (in my case the h2-teleporter) and place it over the object if you want the player to walk into the object in order to teleport

Also I would just do two teleporters sets “0” and “1” that way you will not get an error

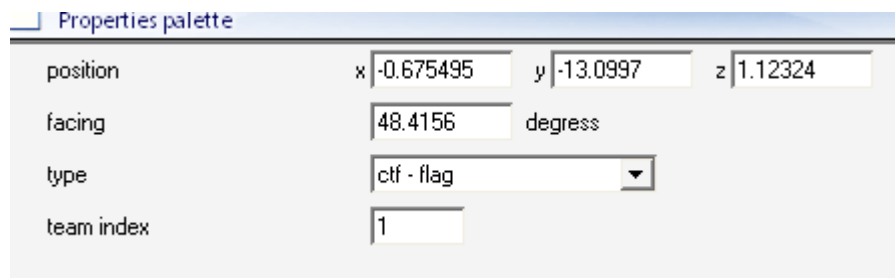
Now if you want to have a CTF Game type you need to set up the flag points

So stay in the Netgame Flags this time we will just put ctf-flag instead of teleport to and from

Note make sure that the team index corresponds to the team that they are on

0=blue and 1=red

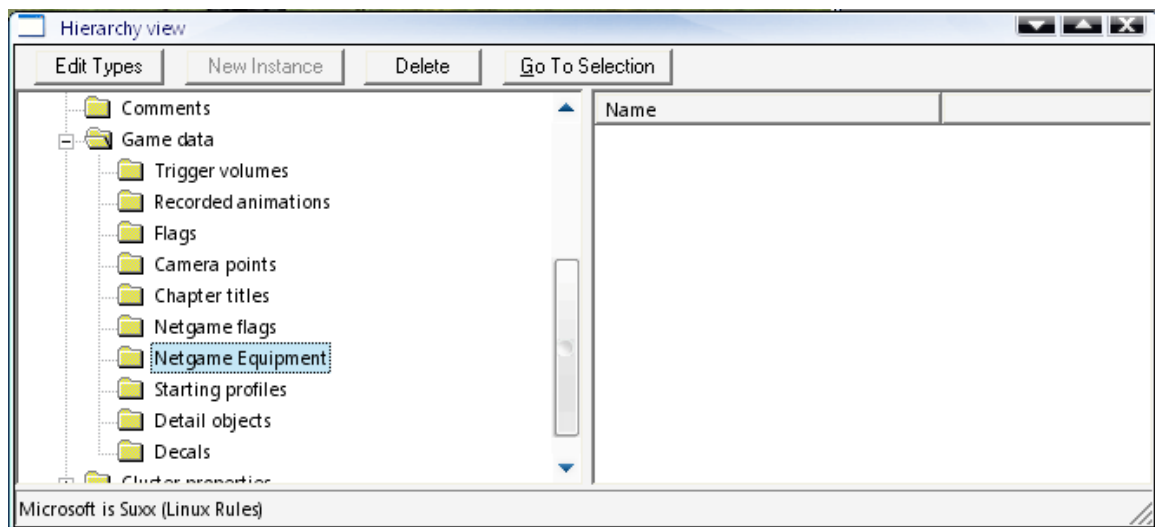
So if you set it on the red side the flag should be 1



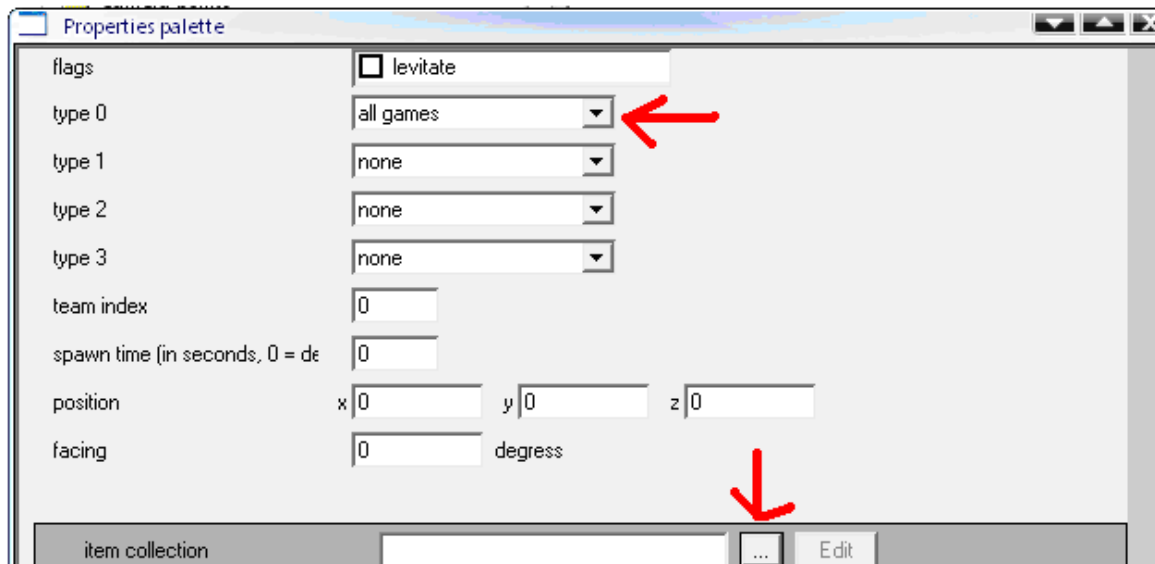
Weapons

OK now for the weapons that you will have lying around the level

Navigate to game data and click netgame equipment



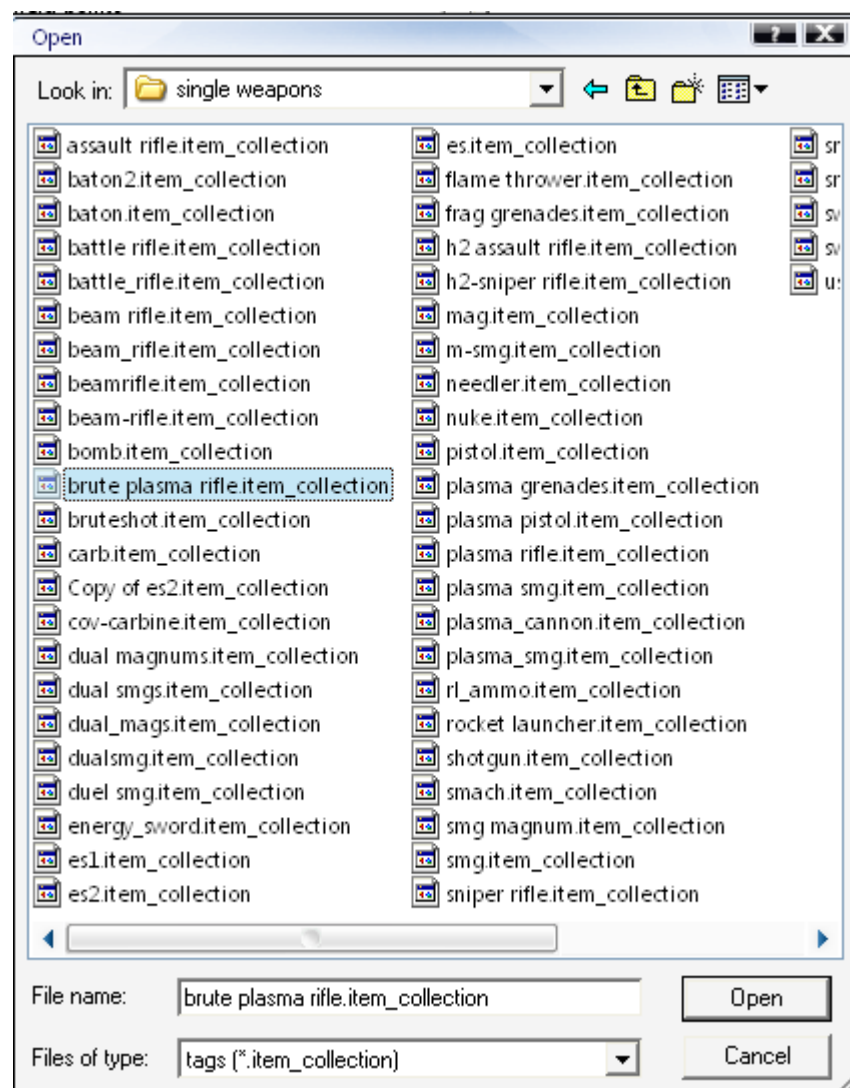
Ok now go to your properties palette click on type0 and set it to all games



To put in the weapon click on the three dots “...” next to item collection in the Properties Palette

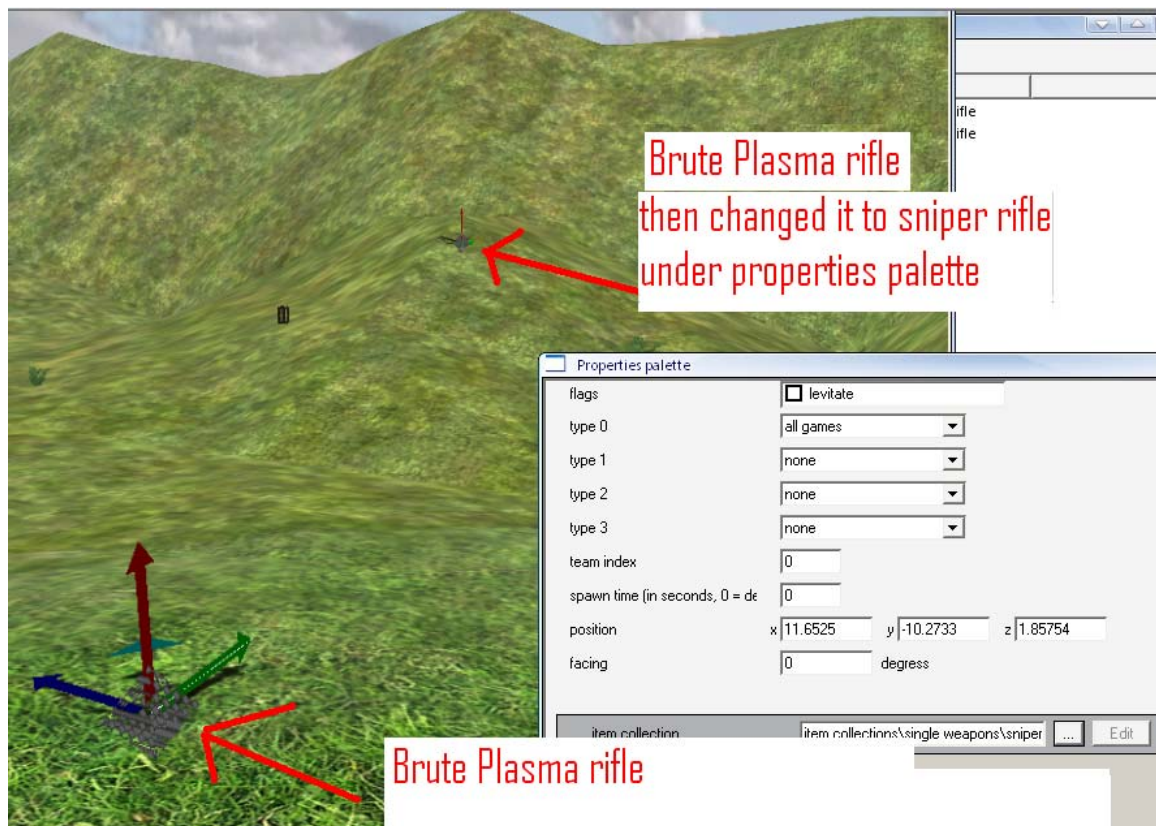
Navigate to tags\item collection\simple weapons

A choose a weapon



Now you will have to go to the game view window and right click to place it then right click where you want to place the next weapon and go back to the property palette and change the item collection.

Note you will have to do this for each of your weapons

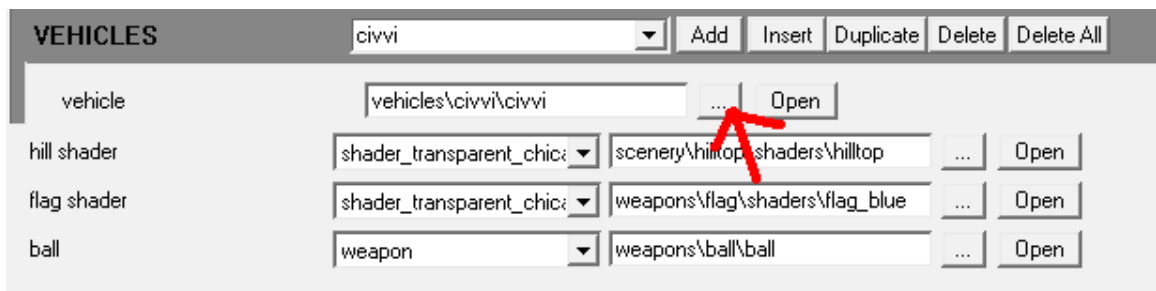


Do not worry about the team index with the weapons

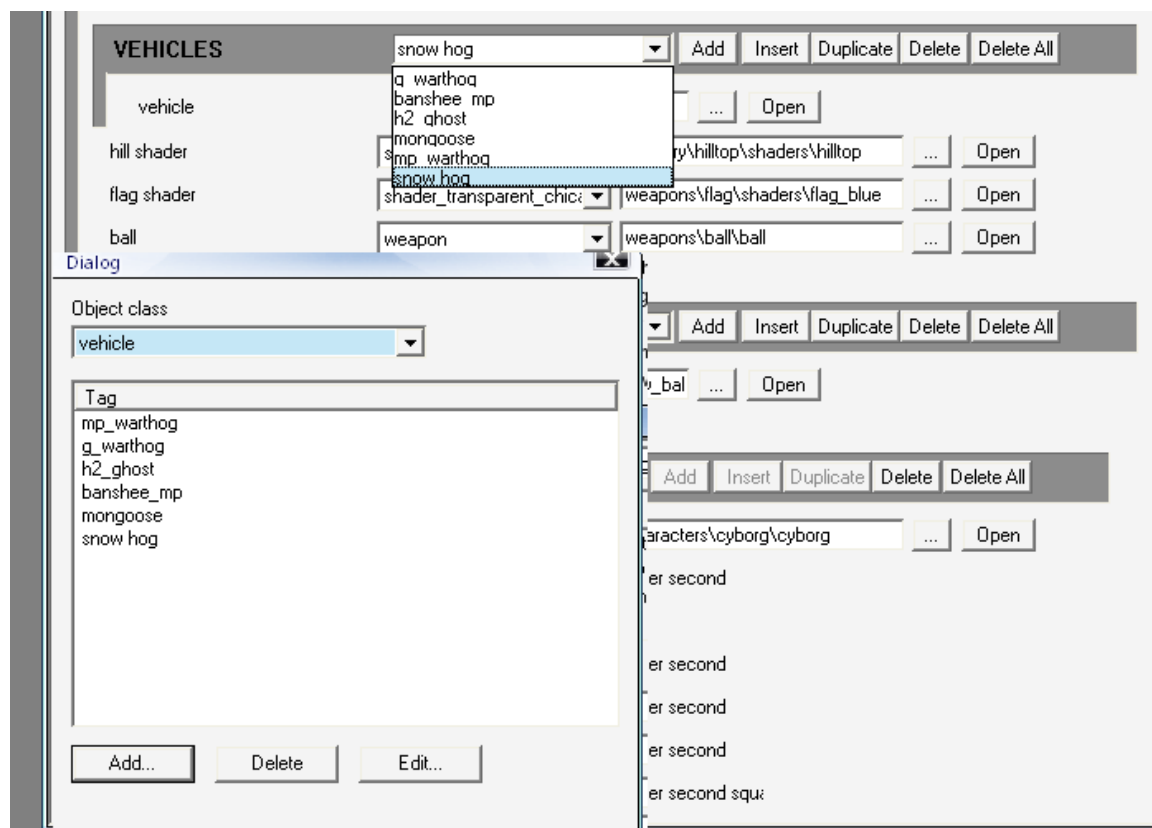
Now Go TO File Save

Ok if you have a custom vehicle you need to navigate to tags\globals\ and open globals.globals with guerilla

Now scroll about half way until you get to “Vehicles”



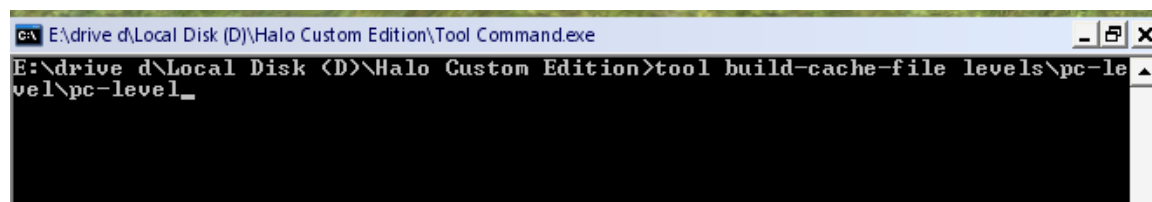
Click on the three dot “...” and open the vehicles that you have put in the level



And if you do not get the vehicles in the level double check if you have it checked allow and default in the vehicle properties in sapien

Last Compile

Now open tool and type in tool buile-cache-file levels\ (Folders Name)\ (Name of .Scenerio tag)



This will also take a while depending on your computer and also the size of the map as well.

If it gives you an error double check what you have done in sapien or what you have modified in guerilla.

Now it is the fun part testing the level out in HaloCE





And here is a Quick over view of what I covered

A Newbies Guide in Making a Halo Map

Contents:



1. Paint shop Pro 9: Make Ground Texture



2. 3ds Max: Make Ground Model (Map)



3. 3ds Max: Check for STL Errors



4. Blitzkrieg: Export map (.jms)



5. Tool: tool bitmaps levels\\(Name of Map Folder)\\bitmaps



6. Guerilla: make a .shader environment tag



7. Guerilla: make bitmaps show alpha



8. Tool: tool structure levels\\(Name of Map Folder) (Name of JMS File)



9. Sapien: Run Radiosity



10. Sapien: place object/weapons/vehicles/Player Spawn Points



11. Sapien: Configure Shaders



12. Tool: tool build-cache-file levels\\(Name of Map Folder)\\(Name of Scenario)



13. Halo CE: Beta Test map



14. Configure any problems that may be present