

## ***Setting up dramatic lighting (In cave scene).***

***written by: Riddlaz C.***



The Purpose of this tutorial was to show how dramatic lighting can really improve the quality of your images and to show that with good texturing and lighting, you can make just about any type of mesh look good. In this tutorial we will be working with a cave scene witch you can download [here](#) (I compiled this tutorial using 3d studio max 4.2 for those that are just interested in the lighting setup without having to do the cave tutorial from the start) or make on your own using the following tutorial.

[Cave Scene Tutorial Part 01 by: Sebastian Golda](#)

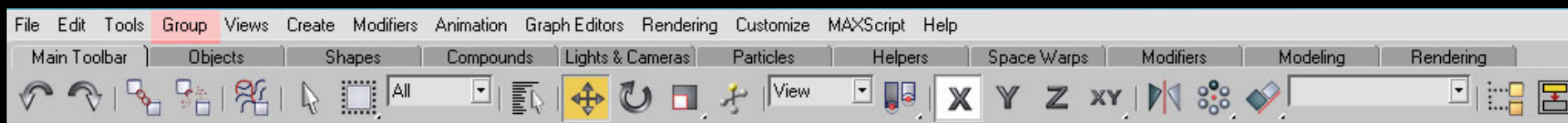
[Cave Scene Tutorial Part 02 by: Sebastian Golda](#)

Let's get started. [Page01](#) [Page02](#) [Page03](#) [Page04](#) [Page05](#) [Page06](#)

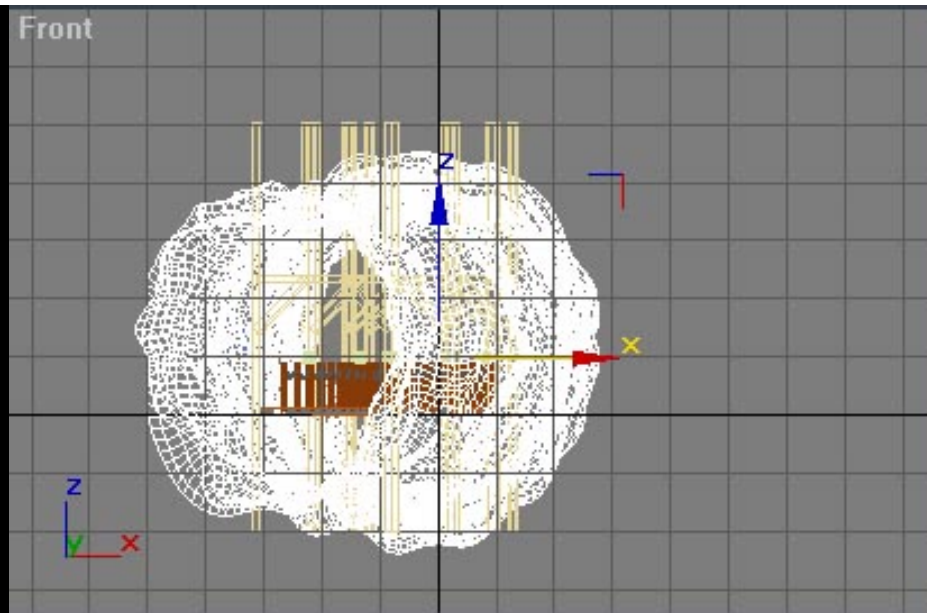
- This is how our image looks like right now.



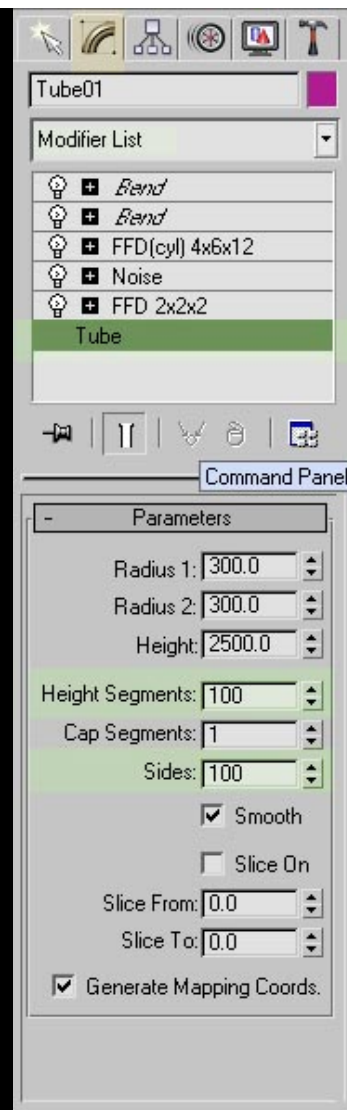
- Note: If you downloaded the scene files you won't have to do a few of the first steps.
- -. Select the group that contains all the objects in your scene (if you downloaded the cave scene files you don't have to do this).



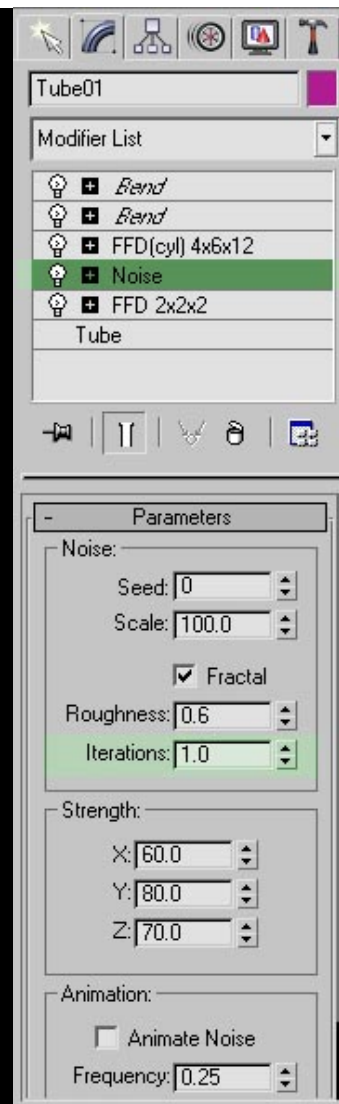
- -. Click on the 'Groups' menu and select Explode, this way you ungroup all your objects. (If you downloaded the cave scene files you don't have to do this).
- -. Select the cave object. (If you downloaded the cave scene files you don't have to do this).



- - Open the modify panel, select 'Tube' from the modifier list and change the height segments and sides to 100.  
(If you downloaded the cave scene files you don't have to do this).

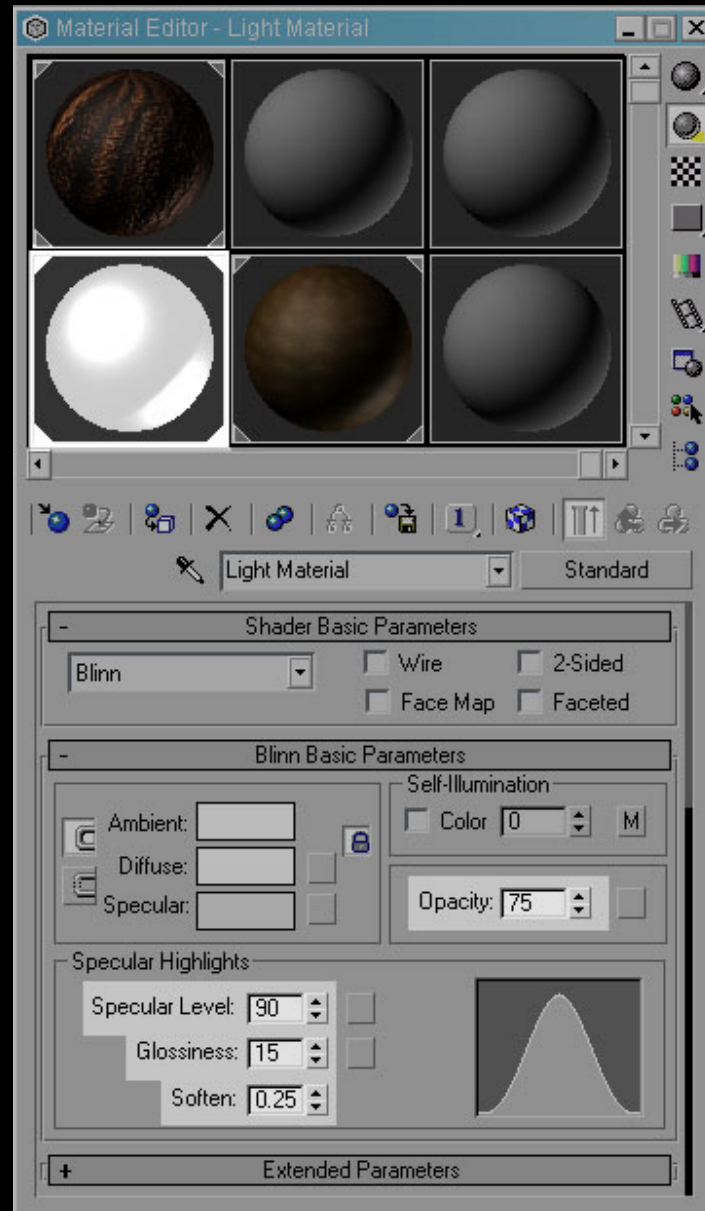


- -. Select 'Noise' on the modifier list and change the Iterations to 1 (If you downloaded the cave scene files you don't have to do this).

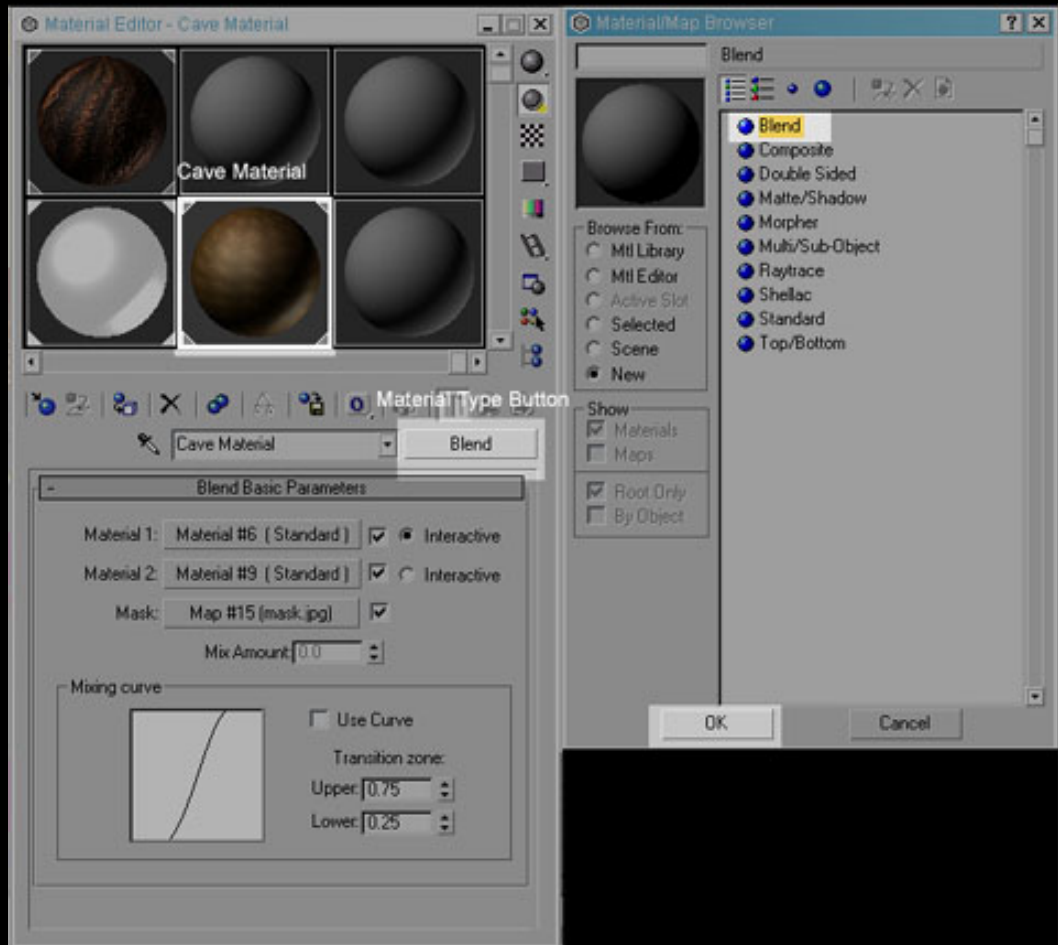


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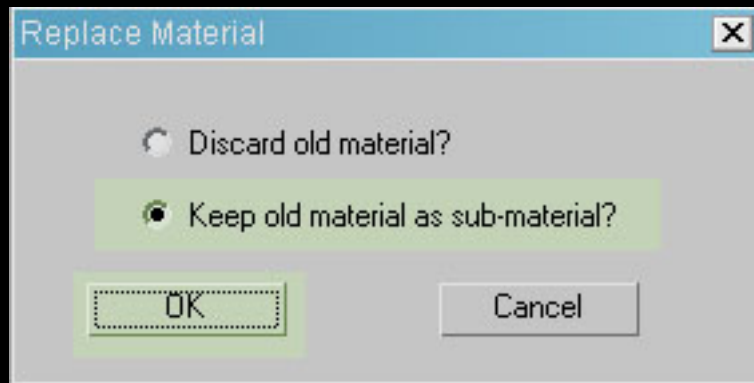
- -. Press the M key on your keyboard to open the material editor.
- -. Select the material you applied to the lamp objects and change the following parameters.
- Specular Level: 90, Glossiness: 15, Soften: 0.25, and Opacity to 75. Use the following image as a reference.



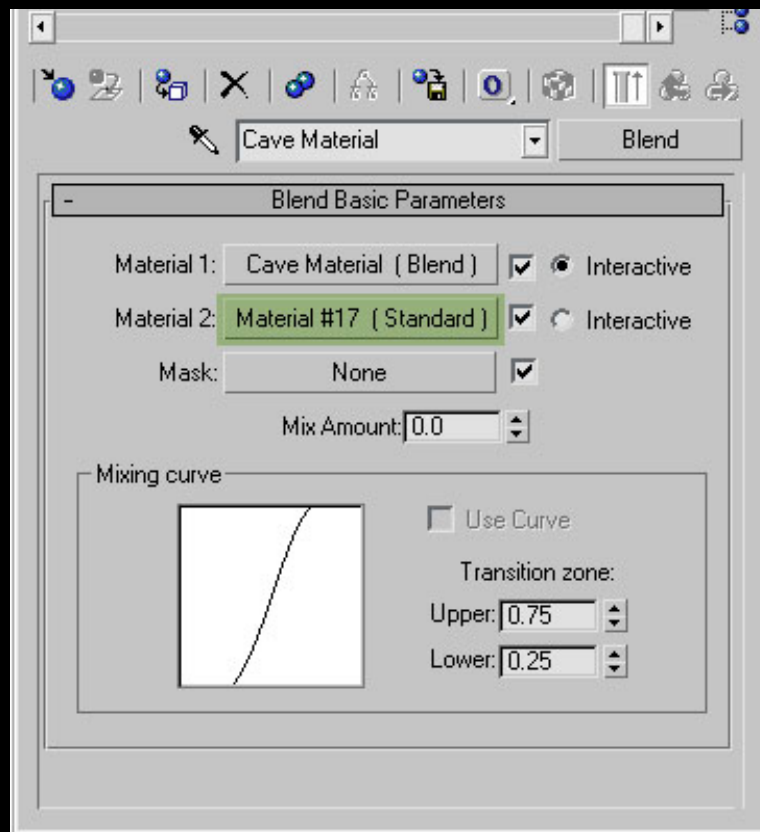
- -. Select the material you applied to the cave object (Cave material if you downloaded the scene files)
- -. Click the material type button and from the material/map browser windows pick "blend" then click Ok.



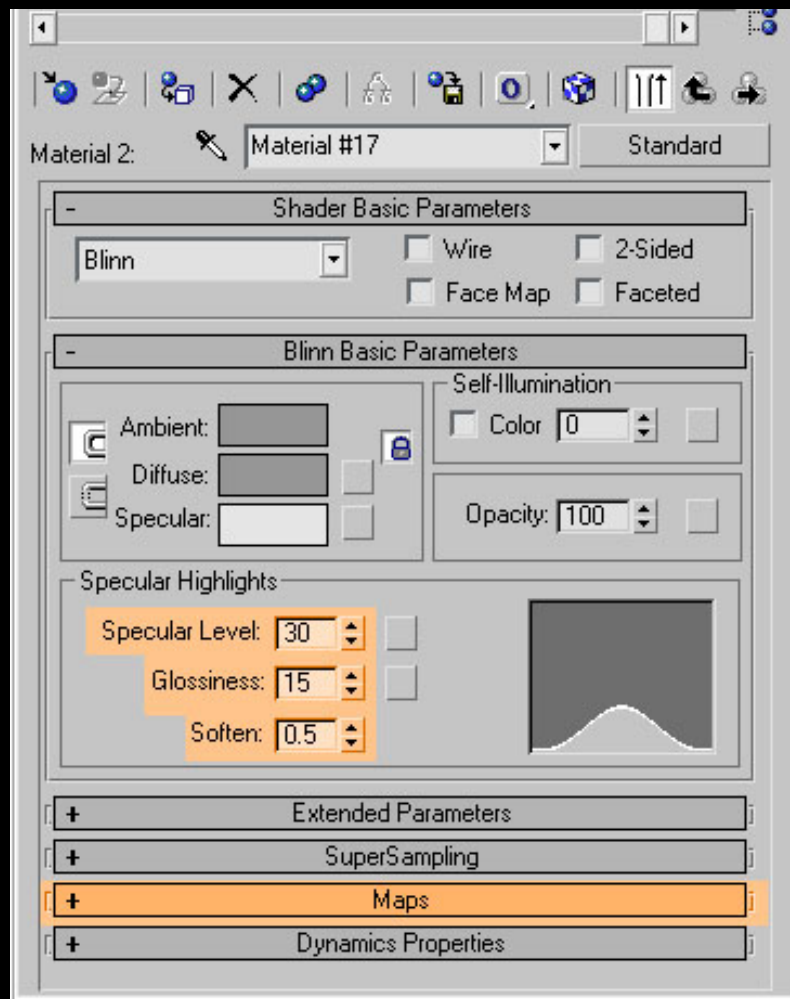
- -. In the replace material window select keep old material as sub-material then click Ok.



- -. Click on the material 2 slot.

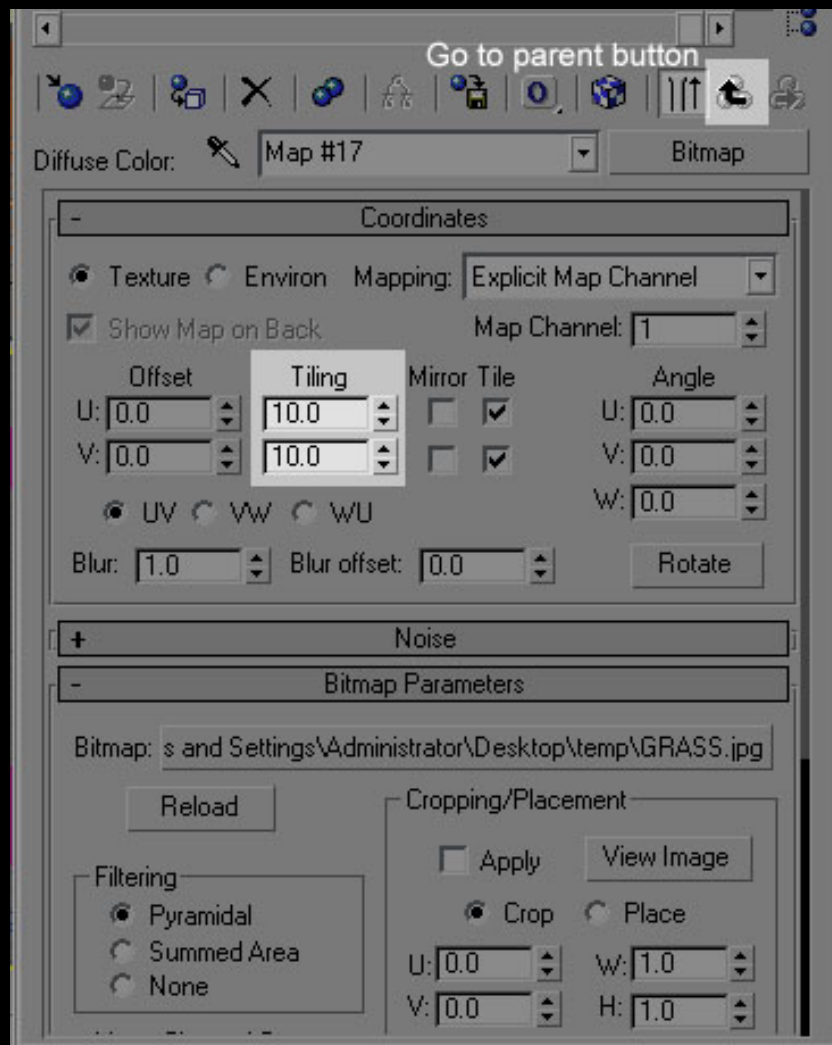


- -Change the following parameters  
Specular Level: 30, Glossiness: 15, and Soften: 0.5. Use the following image as a reference
- - Open the maps rollout. Use the following image as a reference.

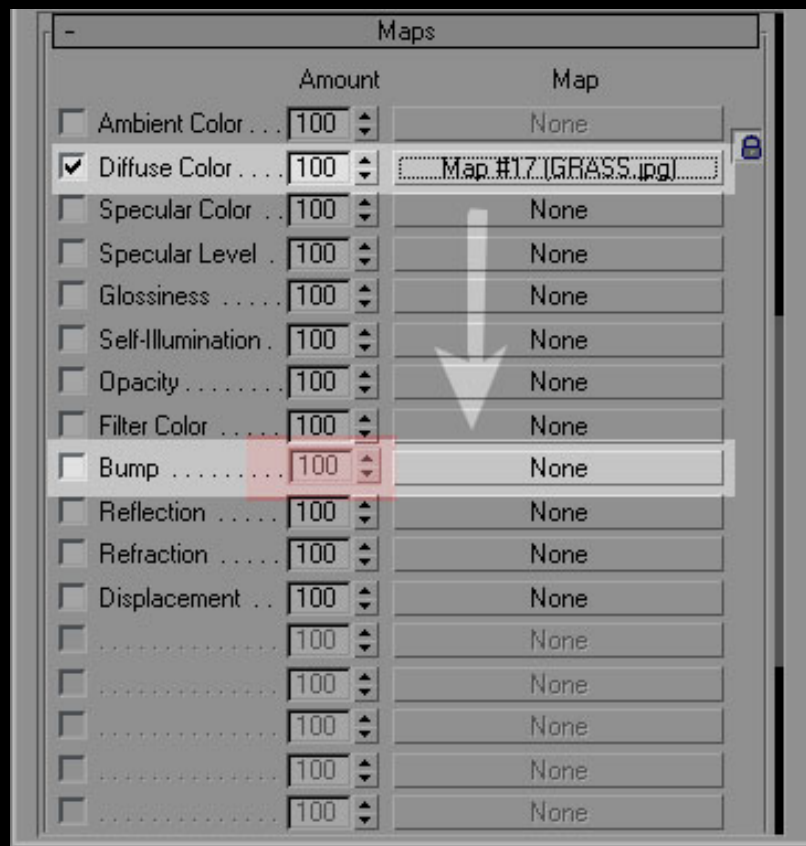



- -. Inside the maps rollout click on the diffuse slot and from the material/map browser select "bitmap". Open the GRASS.jpg file, included in the scene files.

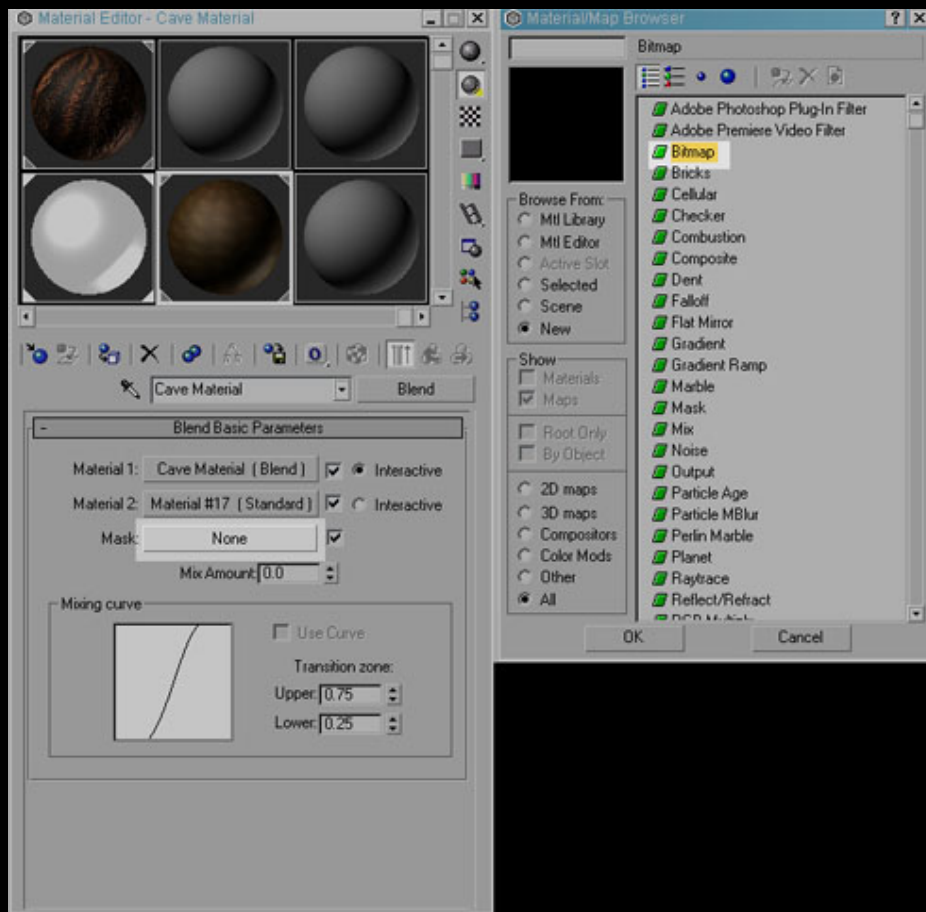




- - Change the bump amount to 100. Use the following image as a reference.
- Click and drag the diffuse slot, drag it to the bump slot. Use the following image as a reference.

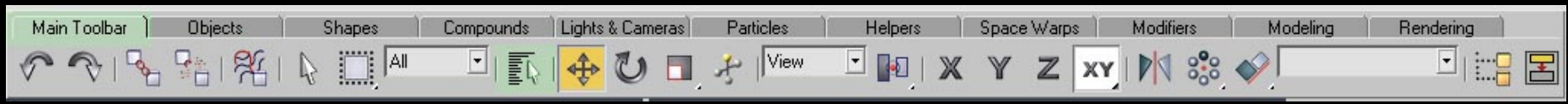


- - On the copy options window select instance then click Ok.
  - - Click on the go to parent button. 
- Click on the mask slot, in the material/map browser pick bitmap and click ok.  
Open the Mask02.jpg file, included in the scene files.

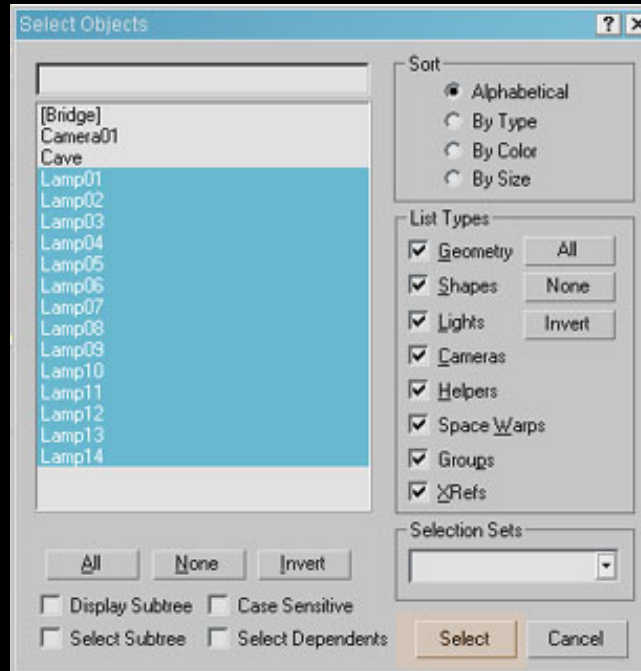


- -. Close the material editor.

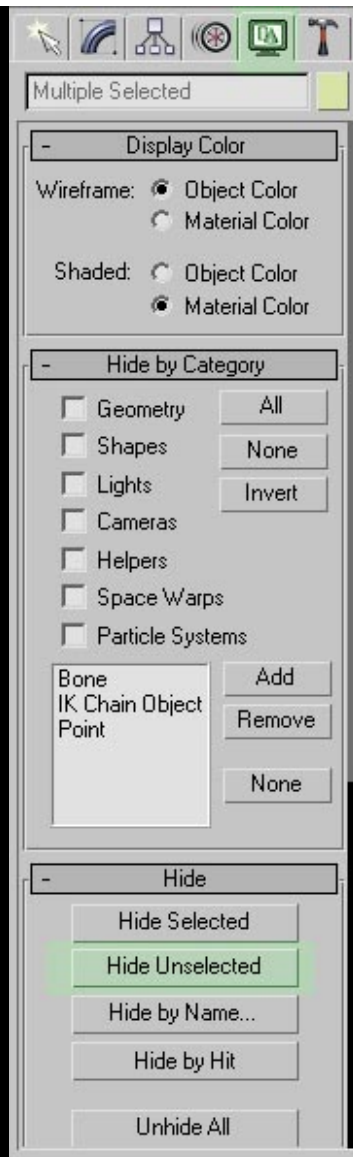
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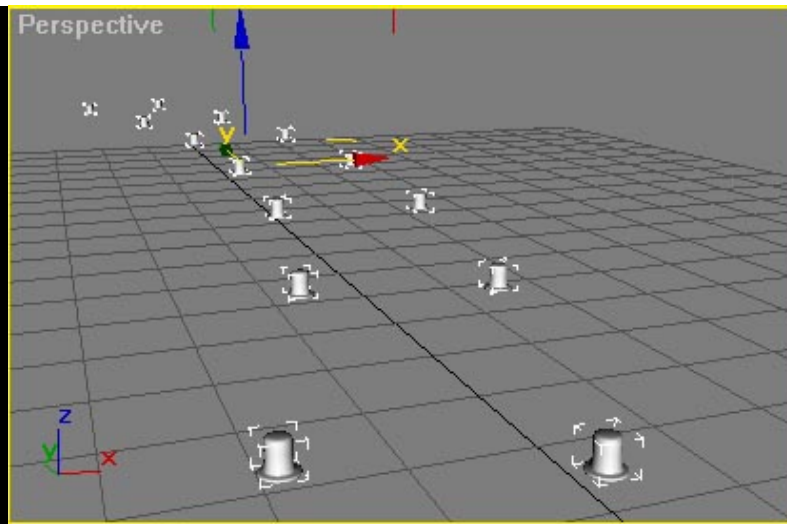


- Select all the lamp objects in your scene using the select by name dialog box in the main toolbar. (If you downloaded the scene files the lamp objects will be named lamp01 lamp02 lamp03 etc).



- With your lamps still selected open the display panel and click the Hide unselected button (this will make light placement a lot faster and easier, all the objects except the lamp objects will be temporarily hidden)

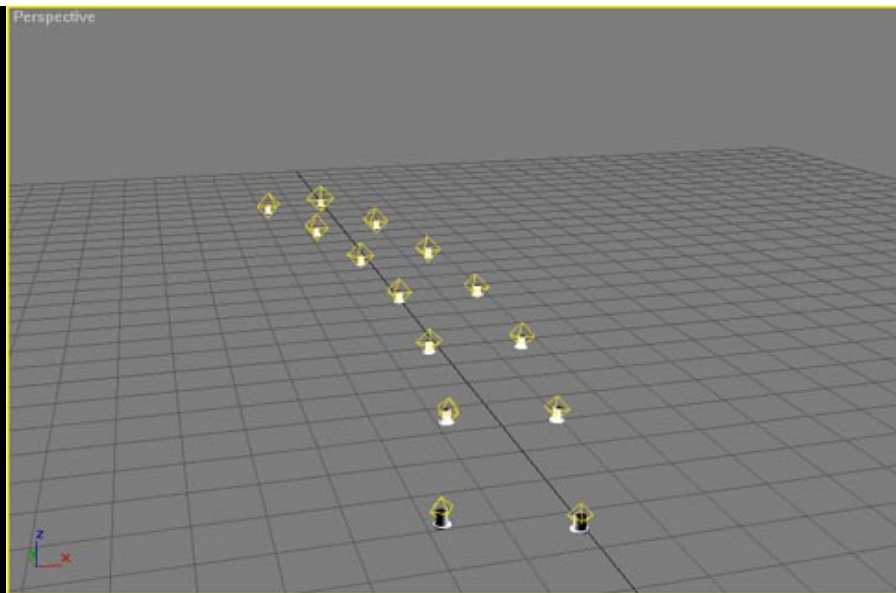




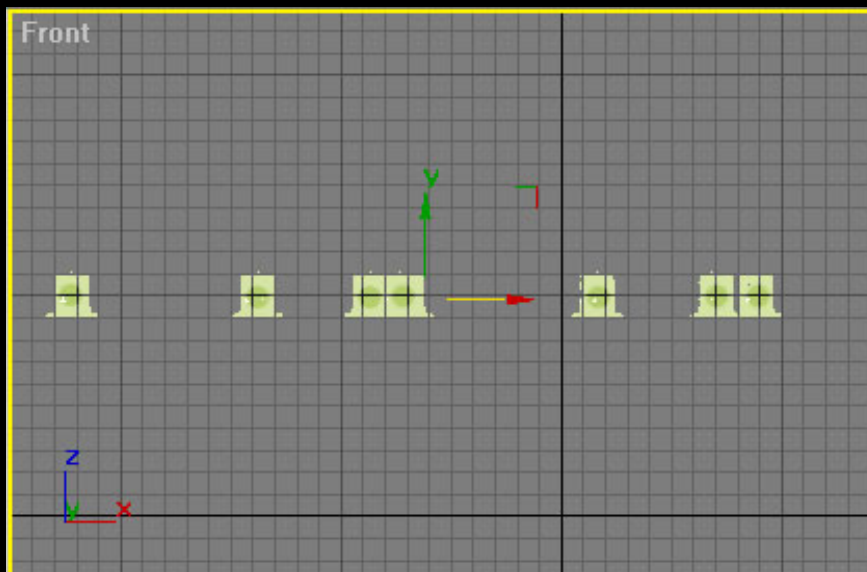
- - . Open the creation tab>click on the lights icon>click on the omni button from the list>turn on AutoGrid.

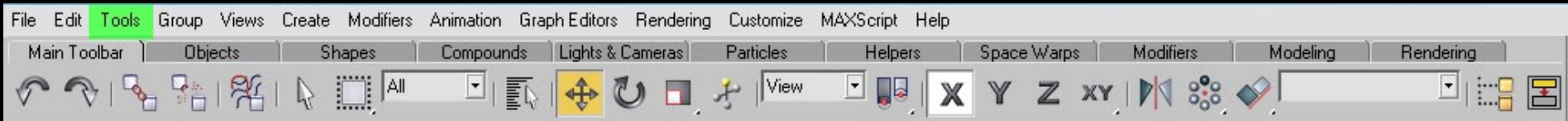


- -. Create an omni light on top of each lamp object. In my case I used 14 omni lights.



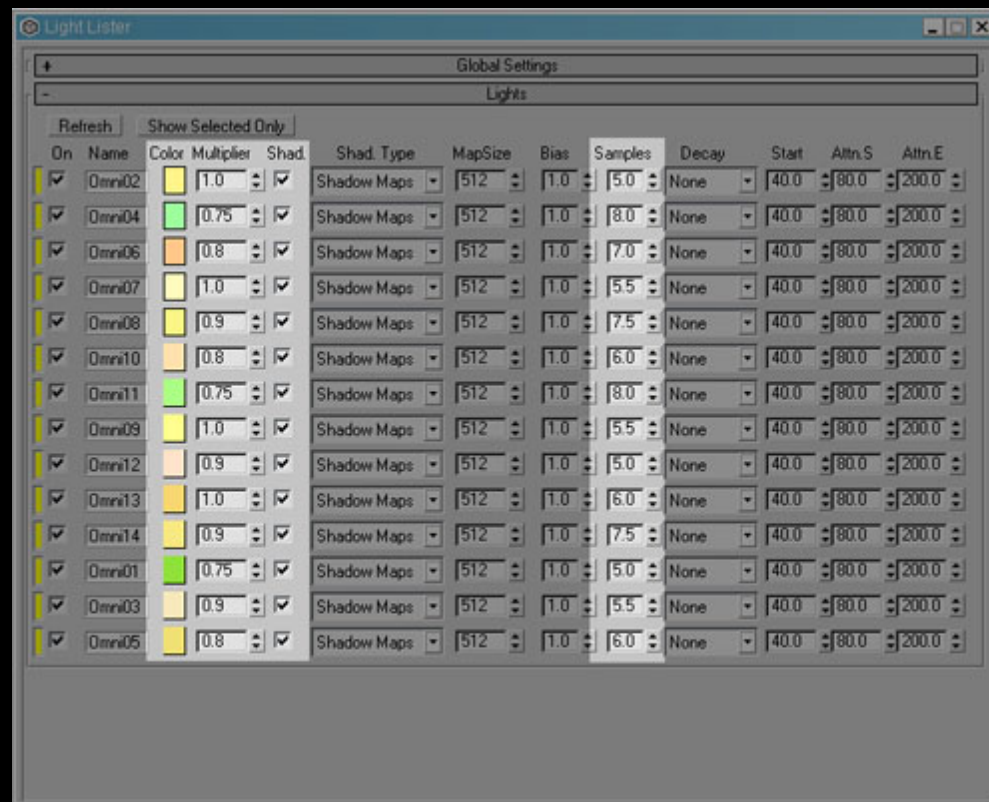
- - -. Right click to exit out of light creation mode.
- -. Select all the newly created lights using the select by name dialog box in the main toolbar. (omni01 omni02 omni03 etc).
- -. In the front viewport move the selected lights so there centered within the lamp objects.





- -.Open tools->Light Lister.

- -. As you can see from the following image I gave each light different color parameters (most with different yellowish tones and three with light green tones) and multipliers ranging from 0.75 to 1. Make sure you give the three green lights a value of 0.75.



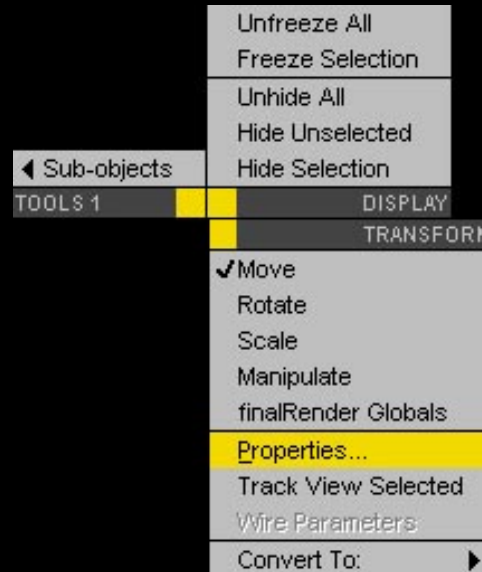
- -. Put a check on 'Shad' for each light to enable shadows, leave the Shad. Type to shadow maps.
- -. Change the samples for each light value at random numbers ranging from 5-8, this will make shadows from some lights softer than shadows from other lights.

- Note: Higher sample value= softer shadows Lower sample value=edgier shadows.
  - -. Close the light lister.
- -. Next were going to adjust the attenuation parameters for each light (this will limit the light's light casting radius, this is one of the most important parts of this setup, enabling this for each light will give your image a feel of multiple light omitting objects), pick any light from the scene. Go to the modify panel, open the attenuation parameters rollout and adjust the parameters as shown in this image.

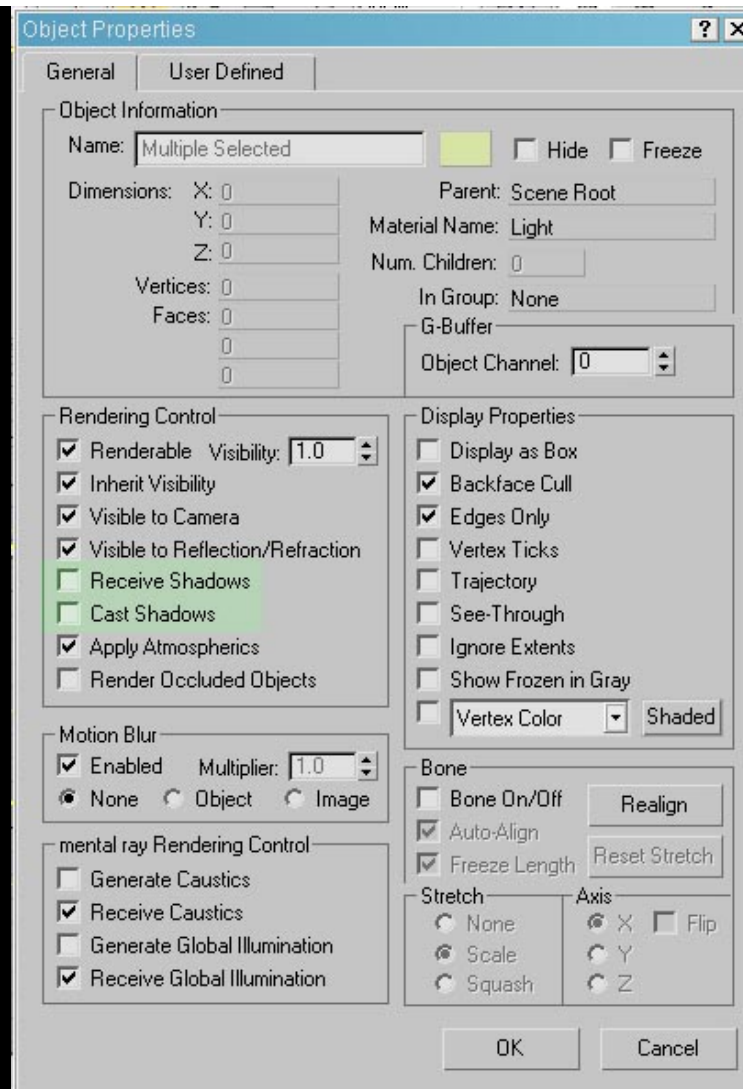


- -. Make the same changes for each of the omni lights that you created (Make sure you check use on both near and far attenuation each time you apply this settings to each one of the lights).
  
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- . Open the select by name window and select all your lamp objects.
- While lamps are still selected right click on any viewport and select properties.

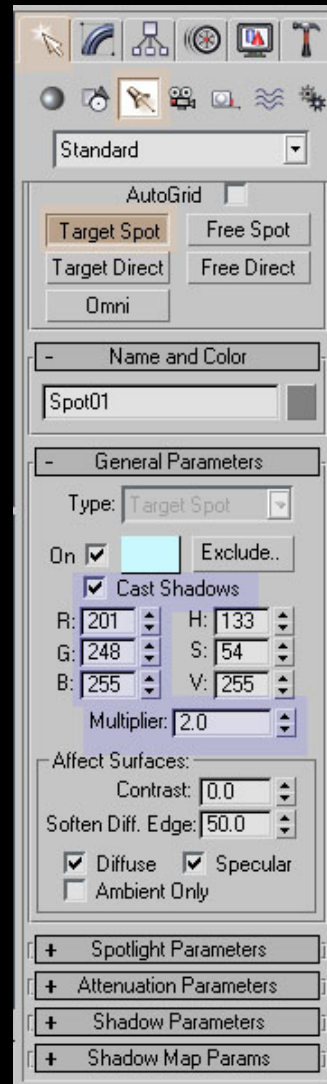


- In the object properties dialog box 'uncheck' receive shadows and cast shadows then click ok (since there supposed to be the actual light emitters we don't want them to cast or receive shadows).

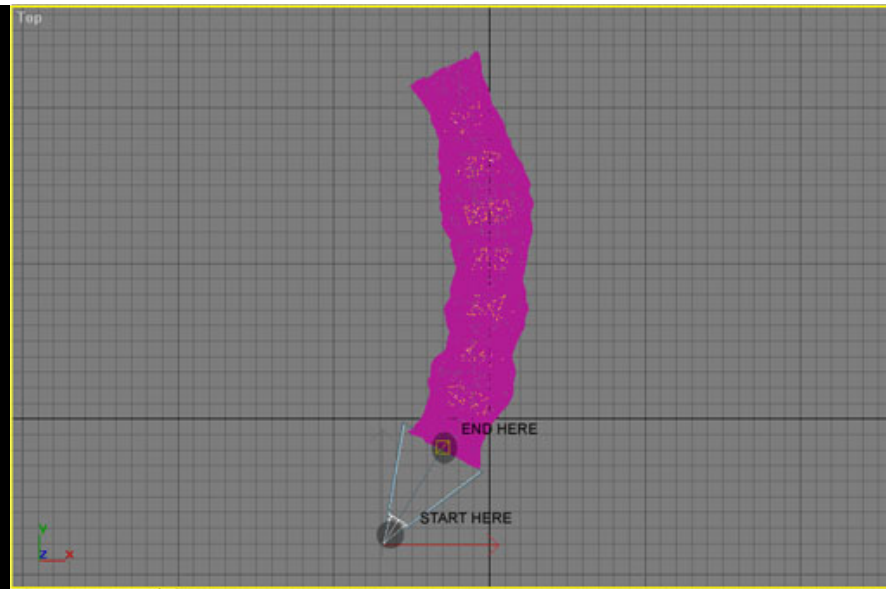


- . In the display panel click on the Unhide by name button
- . Select the cave object from the list and then click on unhide (if you didn't change the name when you created the object it would probably be called 'tube01' but if you downloaded the scene files the object will be called 'cave').
- NOTE: Right now the lighting looks allot brighter in the viewports. Don't worry about it, the lighting won't look even close to that when it renders all thanks to the adjustments we made to the attenuation parameters for each light.
- . Go to the creation tab>click on the lights icon>click on the target spot button from the list.

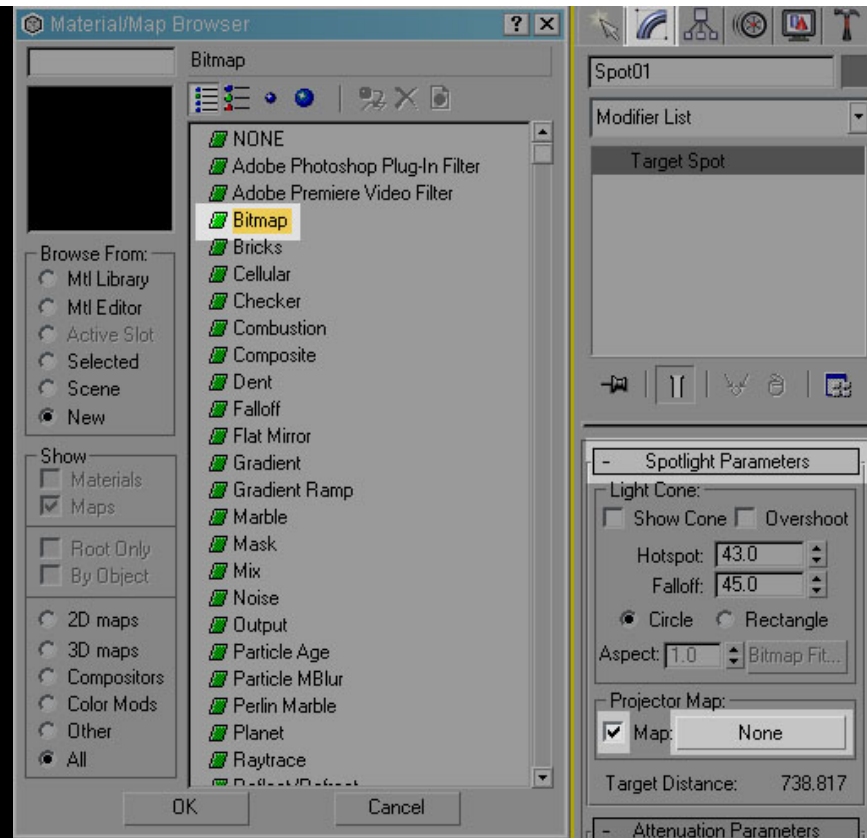
- -. Before creating the light adjust the parameters as shown in the following image. Make sure you check 'cast shadows'.



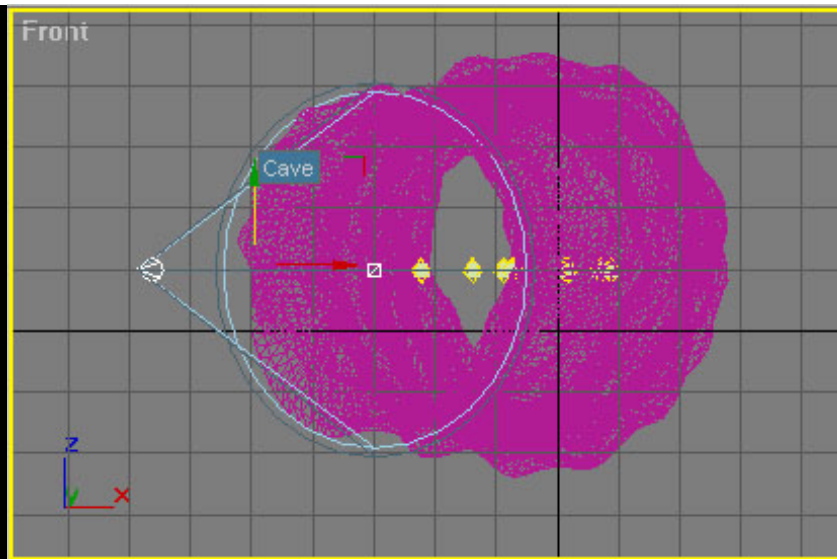
- -. In the top view port click and drag to create the spot light, it should be pointing toward the main opening of the cave.



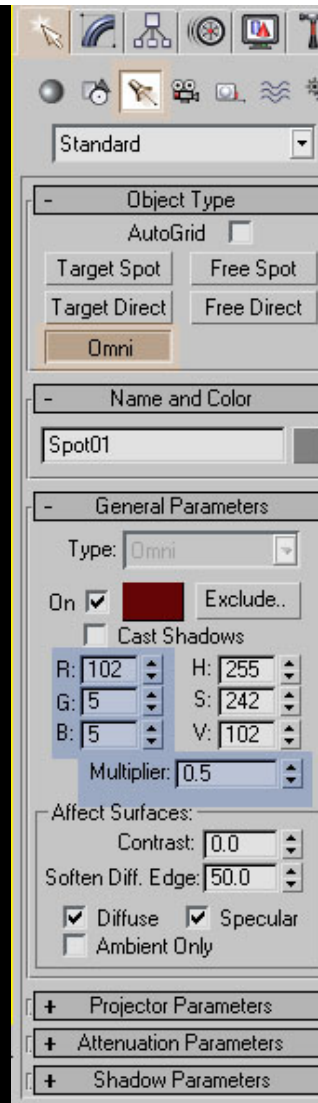
- . With light the spot light still selected, go to the modify panel>scroll down to the spotlight parameters rollout>put a check on projector map>click on the projector map slot (were it says 'none'). Use the following image as a reference
  - . select bitmap from the material/map browser. Open the TreeShadow.jpg file, included in the scene files.



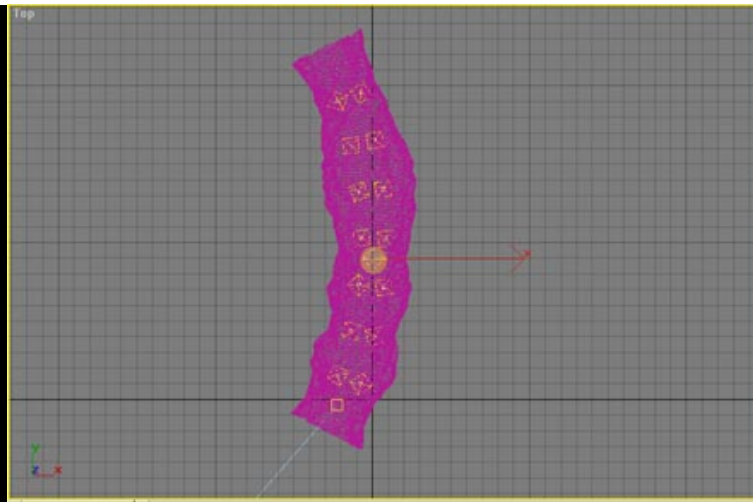
- Note: when using projector maps the white part of the map is where the light will be casted and the black part is where the light will not be casted, this is very useful when adding more depth to the lighting. In our case were using a tree image as our shadow map, this will give the appearance that there is a tree in front of the cave.
- . Open the select by name dialog box and select the newly created spotlight and its target (most likely it will be called spot01 and spot01.target).
- . In the front viewport move the spotlight up in the Y axis so it's pointing toward the center of the cave.



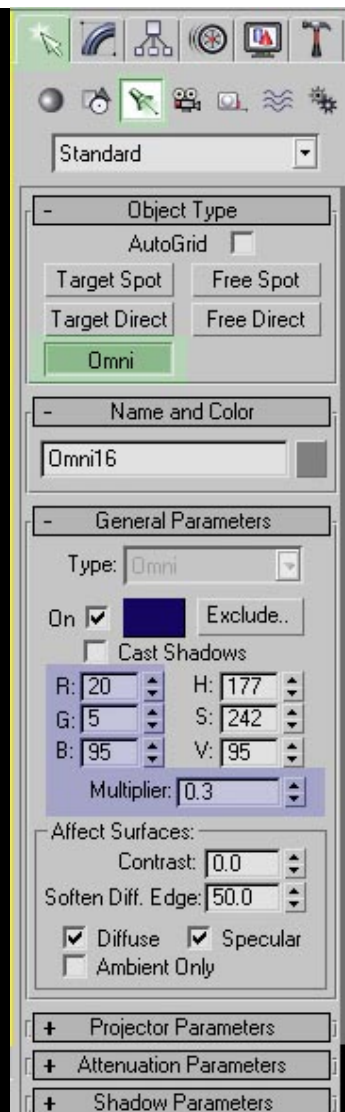
- .Go to the creation tab>click on the lights icon>click on the omni button from the list>make sure AutoGrid is 'NOT' checked (Yes we have just three more lights to create)
- . Change the settings shown on the image before you create your first light.



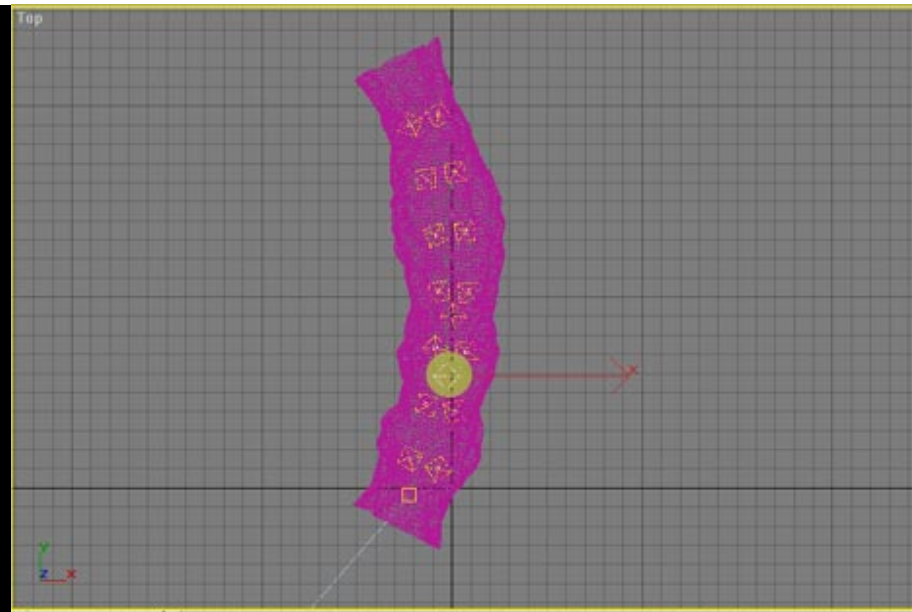
- On the top viewport create the light somewhat in the middle of the cave as shown in the image.



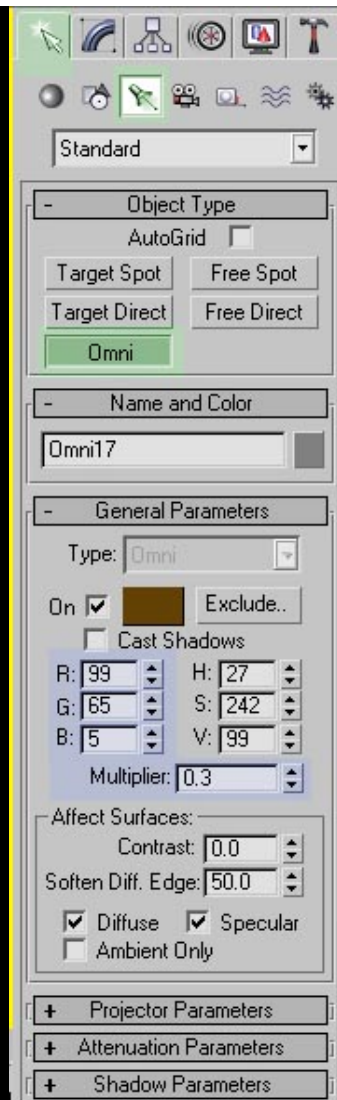
- . Right click to end creation process.
- . Click on the omni light button in the create panel to begin the creation of the second light.
- . Adjust the parameters as shown in the image before you create the second light.



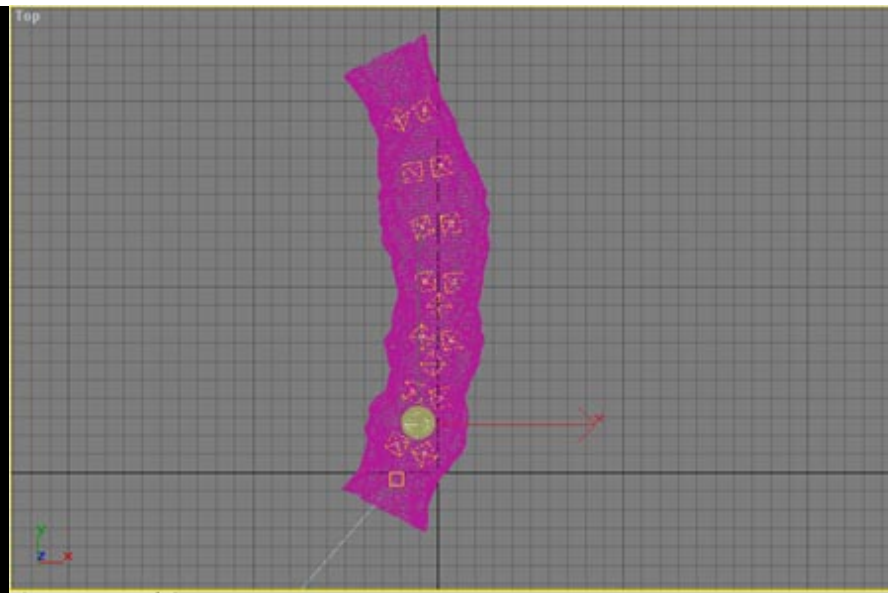
- . Still on the top viewport create the second light, use the following image as a reference.



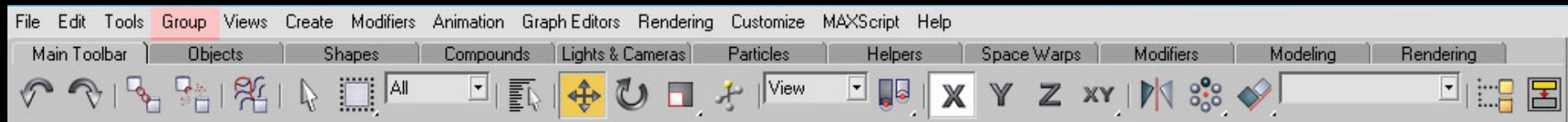
- - Right click to end creation process
- - Click on the omni light button in the create panel to begin the creation of the third light.
- - Adjust the parameters as shown in the following image before you create the third light.



- Still on the top viewport create the third light, use the following image as a reference.



- . In the front viewport move the three lights you just created in the Y axis, make sure there centered within the cave.



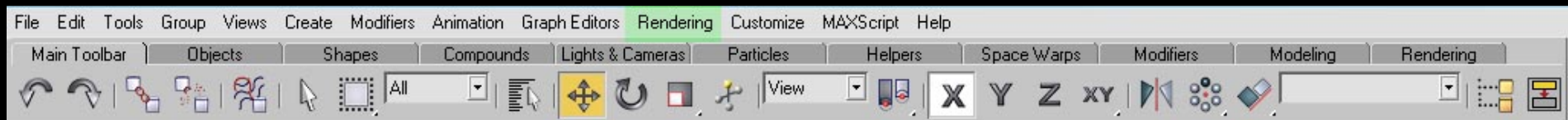
- . With the three new lights still selected go to the group menu and select group. In the group name window enter 'Extra Lights' and click Ok.

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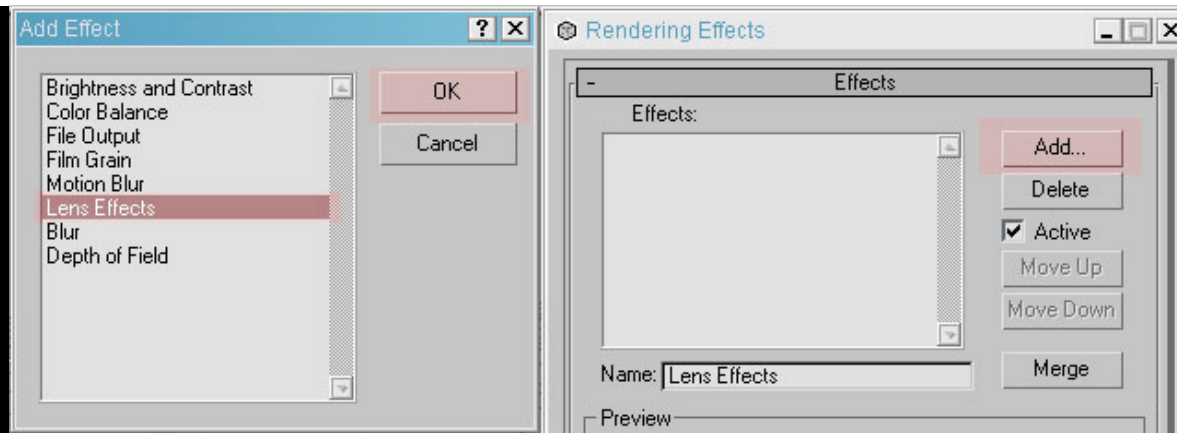
- -. Make a test render in while in the camera or perspective view port. (WOW looking good eh?) Your image should be looking similar to this test render.



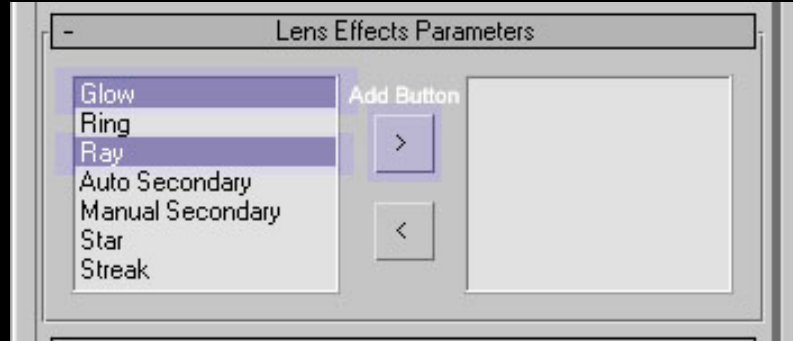
- Note: Were almost finished, first we're going to apply lens effects to the lights inside the lamp objects. This way it would appear as if the lights were glowing (we're going to use the glow and ray filters). We're going to use render effects instead of video post because it will be a lot faster and easier to set up.



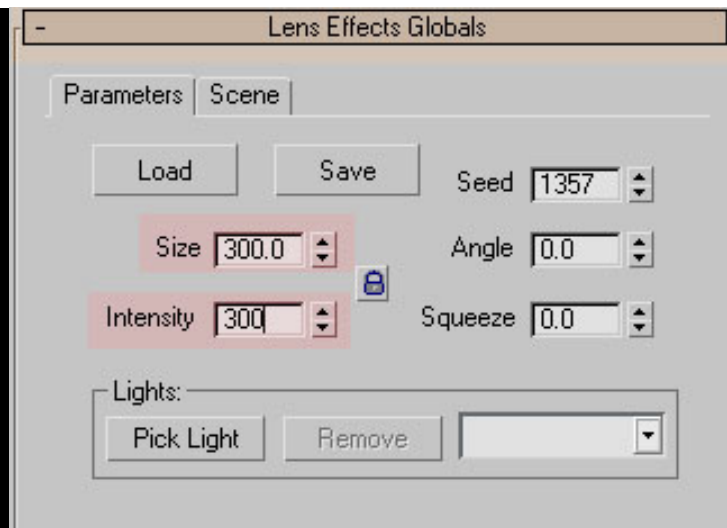
- -. Click on the rendering menu and select effects.
- -. Click on the add button>Select lens effects from the list>click Ok.



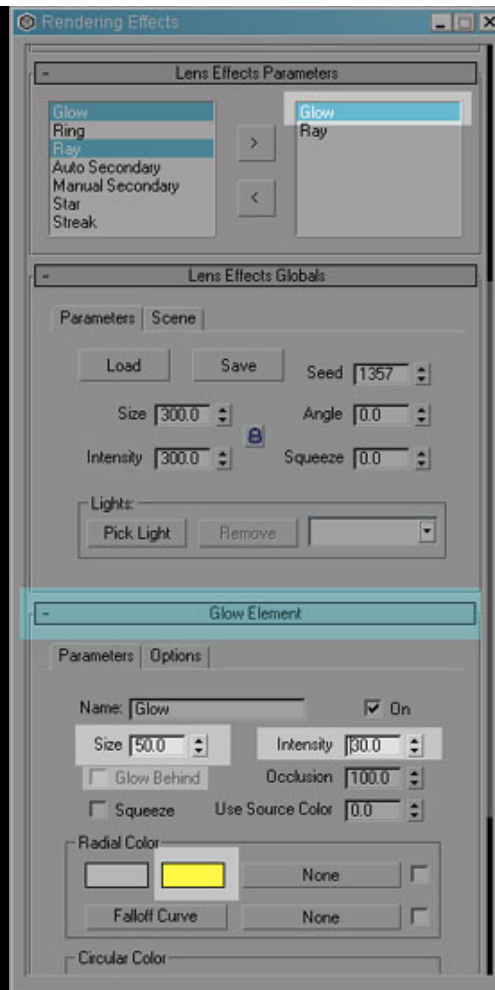
- -. On the lens effects parameters rollout click on glow then ctrl+click on ray>click on the add button.



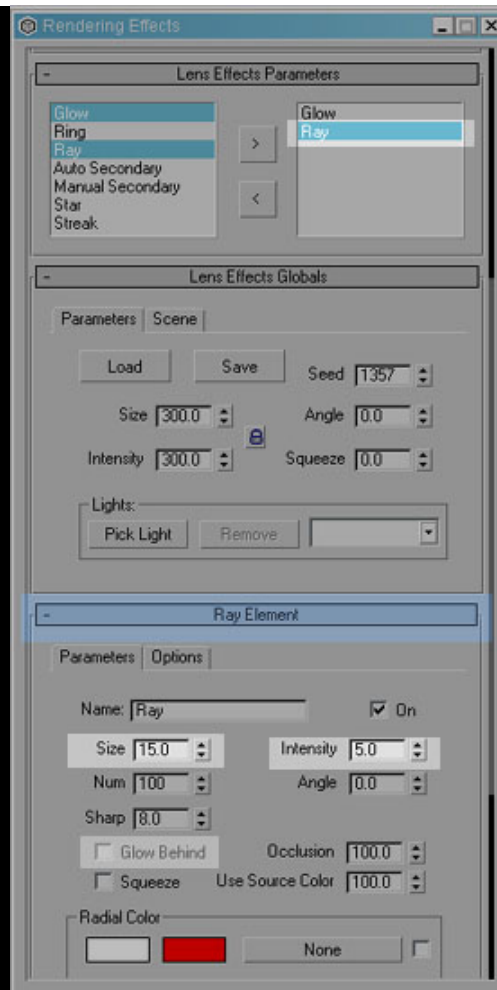
- -. On the lens effects globals rollout make the following changes.  
Size: 300 and Intensity: 300



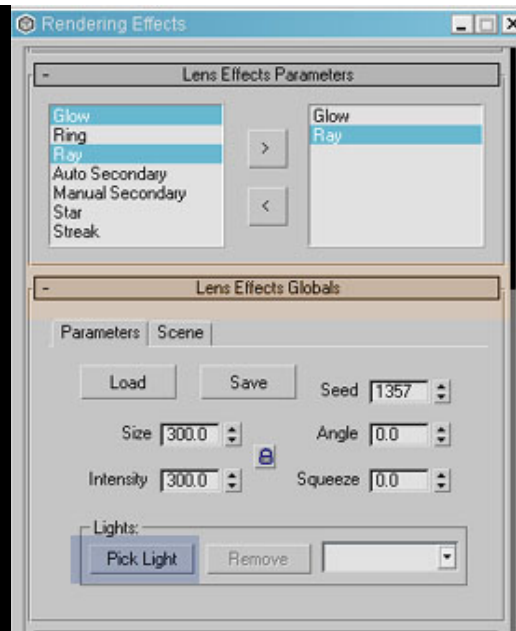
- -. For now make sure that 'glow' is selected from the list on the right, on the lens effects rollout and make the following changes in the glow element rollout.  
Size: 50 intensity: 30. Make sure 'Glow Behind' is 'unchecked'. Use the following image as a reference.
- -. Still on the glow element rollout, under radial color change the second slot from red to a yellow color. Use the following image as a reference.



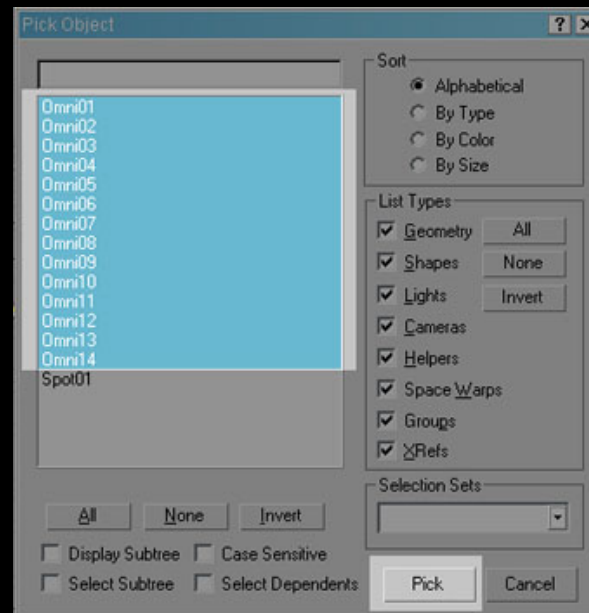
- -. Now make sure that 'ray' is selected from the list on the right, on the lens effects rollout and make the following changes in the ray element rollout.  
Size: 15 intensity: 5. Make sure 'Glow Behind' is 'unchecked'. Use the following image as a reference. Make sure 'Glow Behind' is 'unchecked'.



- -. In the lens effects globals rollout, click on the pick light button.



- -Open the select by name dialog box, select all your 'omni' lights (This is the reason why we grouped the last three lights we created, so we don't get mixed and apply the lens effects to them. If you decided to create more lights than the ones instructed just make sure you don't select them now. The only ones we want to select are the ones that are inside the lamp objects). Click on the Pick button.

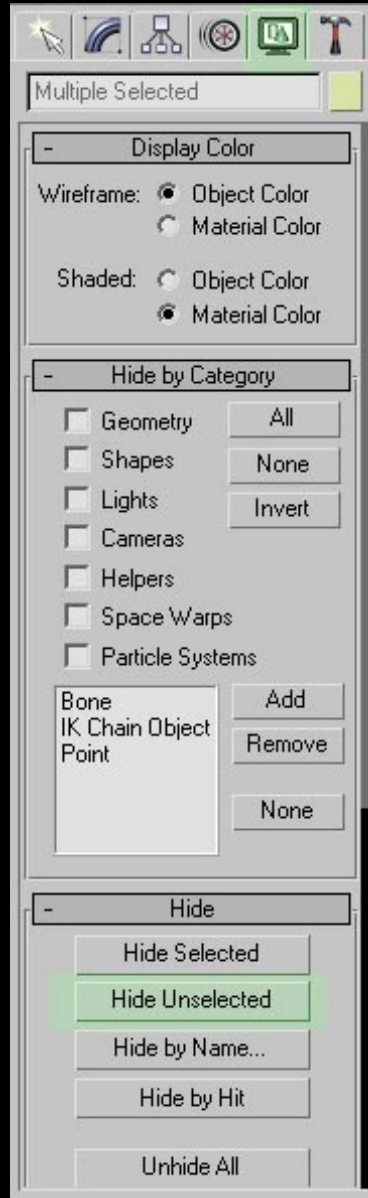


- -. Close the render effects window.
- -. Make another test render. All the lights should glow, otherwise make sure you 'unchecked' 'Glow Behind' on the glow element and ray element rollouts. Your test render should look similar to this.

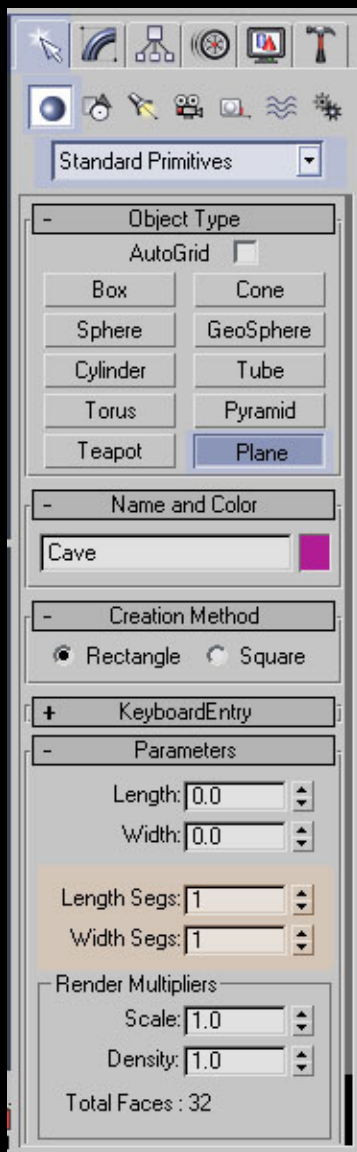


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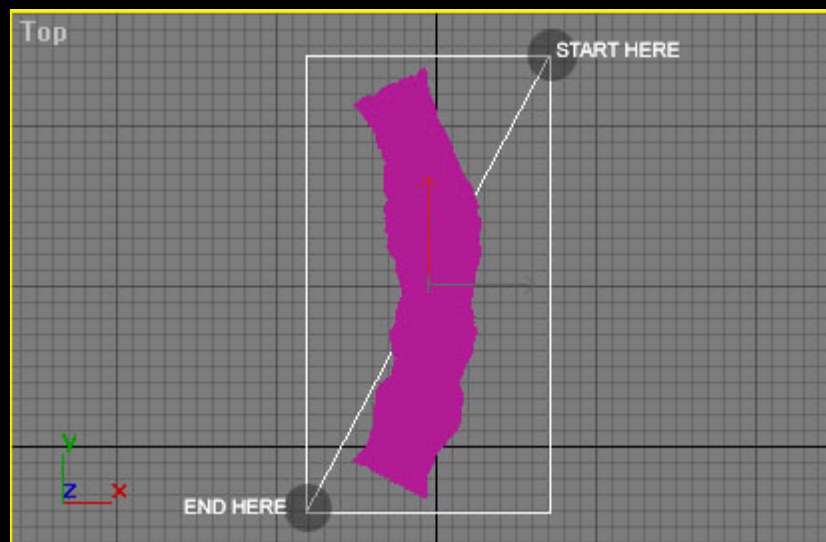
- Note: Were almost done! There is just one more thing to do. We're going to create reflective water in the cave (don't worry it's really easy to set up ;).
- -. Select the cave object.
- -. In the display panel click on 'Hide Unselected' button.



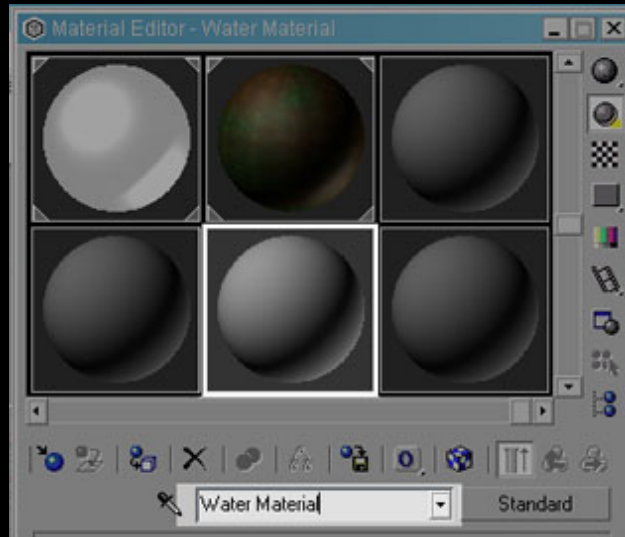
- -. Open the create panel>click on the geometry button>make sure standard primitives is selected in the list below the geometry button>click on the plane button under object type. Use the following image as a reference.
- -. Apply the following parameters before you create the plane object.  
Length Segs: 1 Width Segs: 1 (If you don't change the Segments to 1 the flat mirror material wont work, and that is just the effect we need for our reflections). Use the following image as a reference



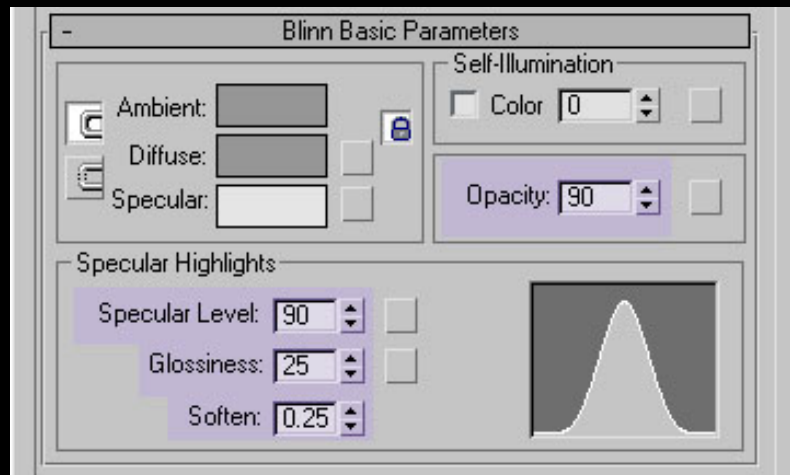
- -. In the top viewport create the plane just make sure it's bigger than the actual cave. Use the following image as a reference.



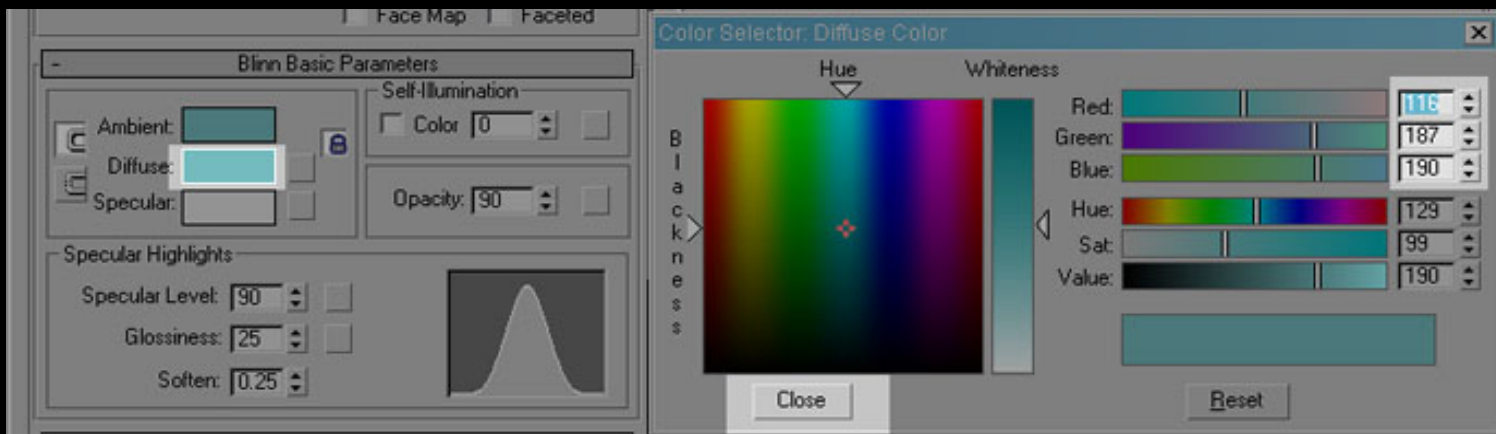
- - Press the M key on your keyboard to open the material editor.
- - Click on any empty material slot (Empty material slots are displayed in a dull gray)>Rename the material to 'Water Material'.



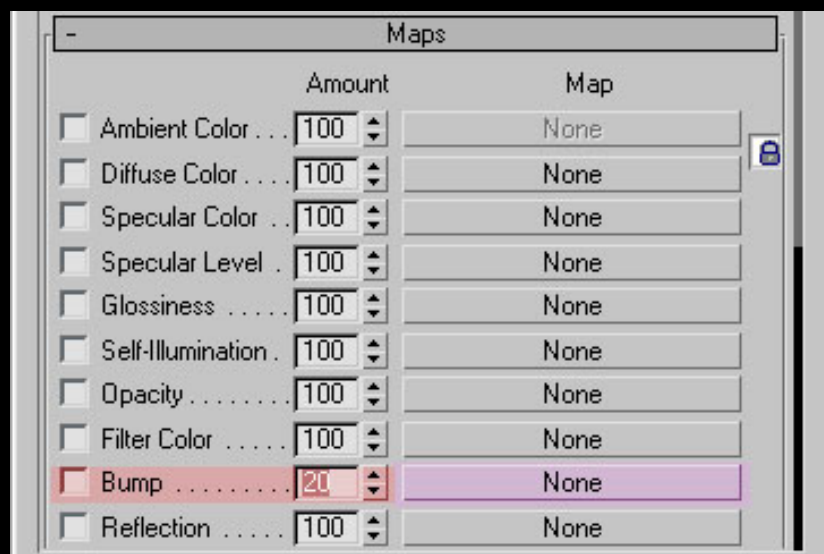
- - Under the blinn basic parameters rollout change the following parameters.
  - Opacity: 90, Specular Level: 90, Glossiness: 25, and Soften: 0.25



- - Click on the diffuse color slot and apply the color shown on the following image. Click close to close the color picker.

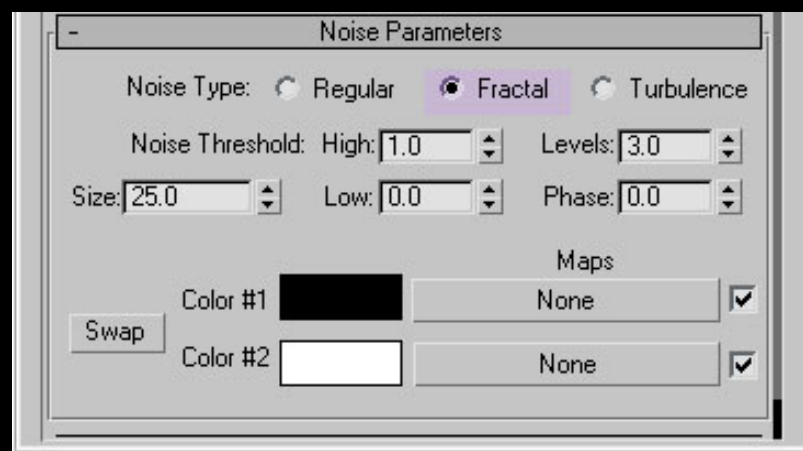



- -. Expand the 'maps' rollout> apply a value of 20 to the bump amount>click on the empty bump slot.



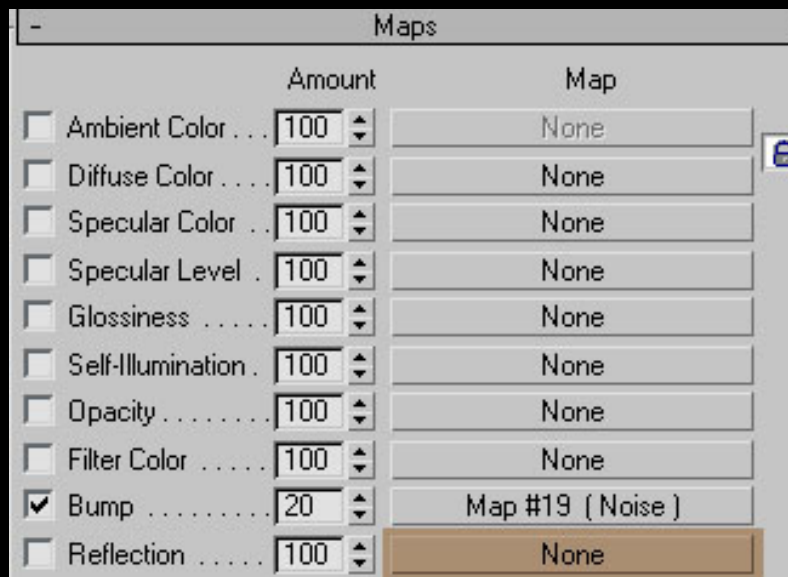
- -. In the material/map browser select 'Noise' and click ok.

- -. Change the noise type to 'Fractal'.

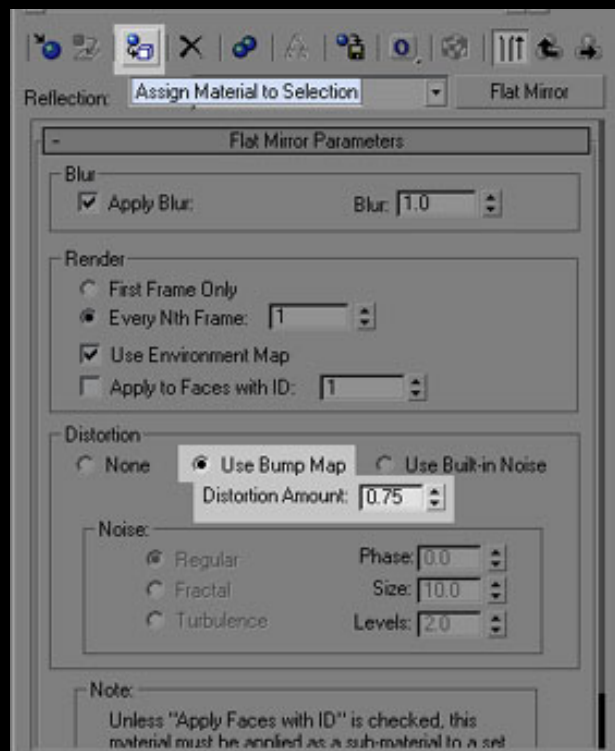


- -. Click on the go to parent button. 

- -. Under the maps rollout, click on the empty 'reflection' slot.

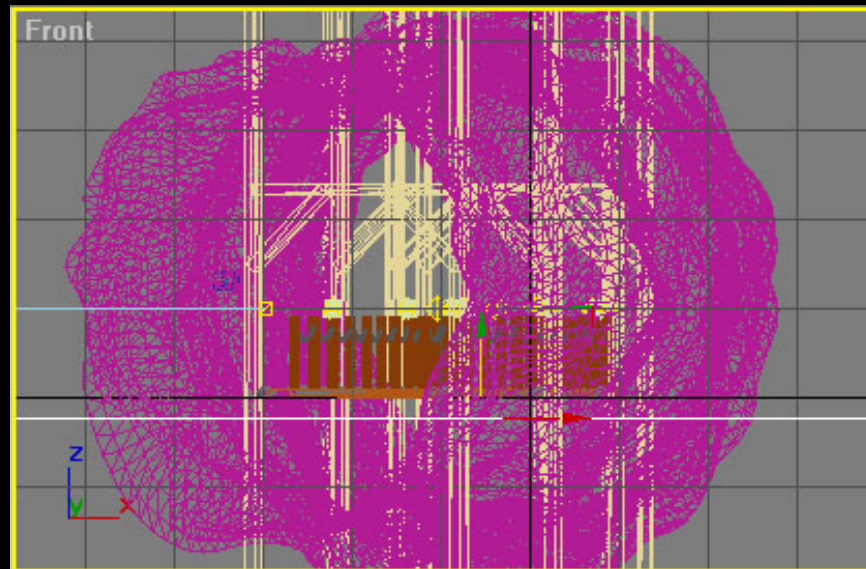


- -. In the material/map browser window select 'Flat Mirror' and click ok.
- -. Under the flat mirror parameters rollout apply the following parameters.  
Distortion type=Use bump map and Distortion amount=0.75
- Make sure the plane object is selected in the viewports and click the assign material to selection button.



- -. Open the display panel and click on the 'unhide all' button to unhide all your objects.

- -. With the plane object still selected go to the front viewport and move the object down on the Y axis. Give the bridge and the water object a little more space of separation. Use the following image as a reference.



- You are DONE!!!! Just render your scene in the camera view and be amazed at what you created. Your image should now look similar to this render.



- **Side Note: Hope you enjoyed this tutorial, It's up to you to be more creative!, play around with the colors. See what you can make.**



- This tutorial was written by: [Riddlaz C.](#)

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