TOMB RAIDER

TUTORIALS

Version 2

Introduction

The Tomb Raider Level Editor is an unforgettable experience. Whether you build just one simple level or an epic adventure, it is an experience that will never leave you.

Don't think of the Level Editor as just a piece of software that may be fun to work with, it is much more. But it isn't a magic wand! It is a tool and it will only produce what you put into it. The better you understand the Editor, the better your levels will be.

Starting out with the Editor can be a lonely and frustrating experience as well as being a thrilling and exhilarating one! The Editor will reach into your soul and touch your very being with its heart. Whether you enjoy that experience or not, is entirely dependant on how much you understand the heart of the Editor.

Learning the Editor doesn't happen overnight either. It is best accomplished by first studying the Official Manual and mastering the basics. However, the Official Manual only scratches the surface of what you can do, and that's where this new Manual with its fresh collection of tutorials by some of the best custom level builders comes in. From working with the guide to using sinks, from mirror rooms to advanced flip maps, it is hoped these tutorials will help keep alive the Tomb Raider experience for many years to come.

IMPORTANT: This new Level Editor Manual does not replace the Official Manual, but rather augments and expands on it. It assumes you know and understand the basics!!

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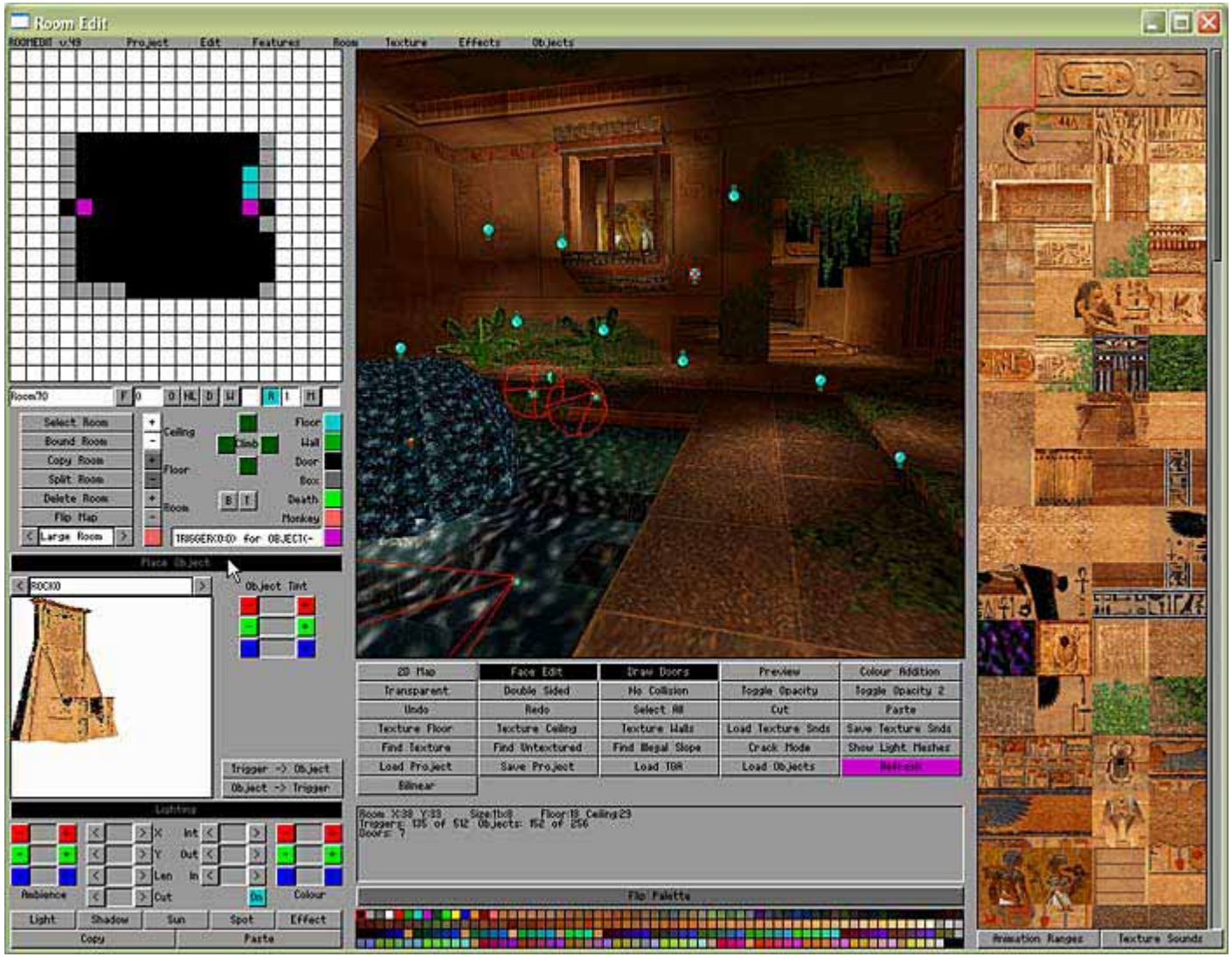


Level Building Tutorials

[Using Sinks (Advanced Tips)]

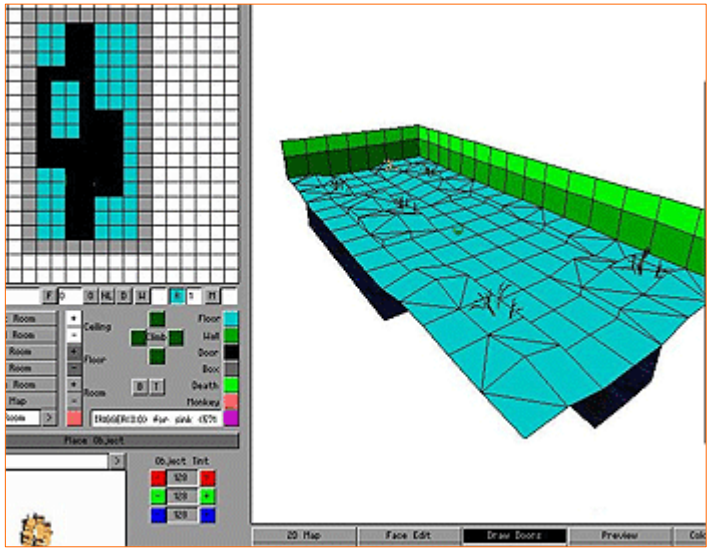
by George Maciver

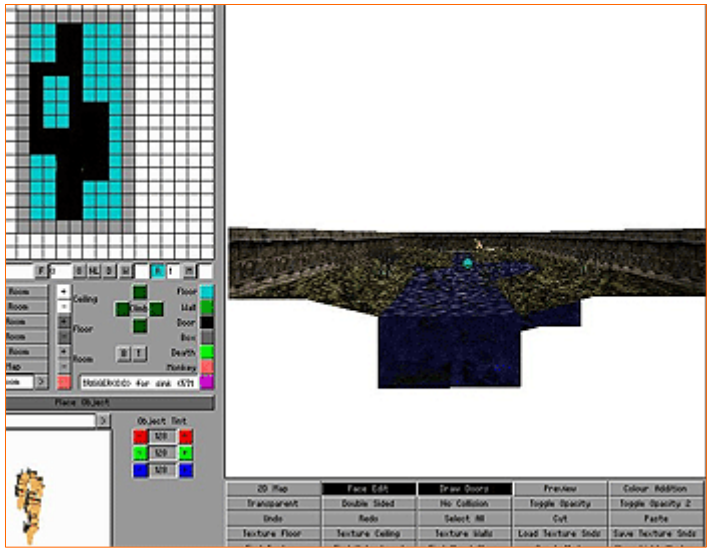
We are going to make an island in a river course with a current that Lara will be able to swim upstream against. So that Lara doesn't keep getting stuck in corners, we are going to use a number of sinks so that she will flow easily with the current.

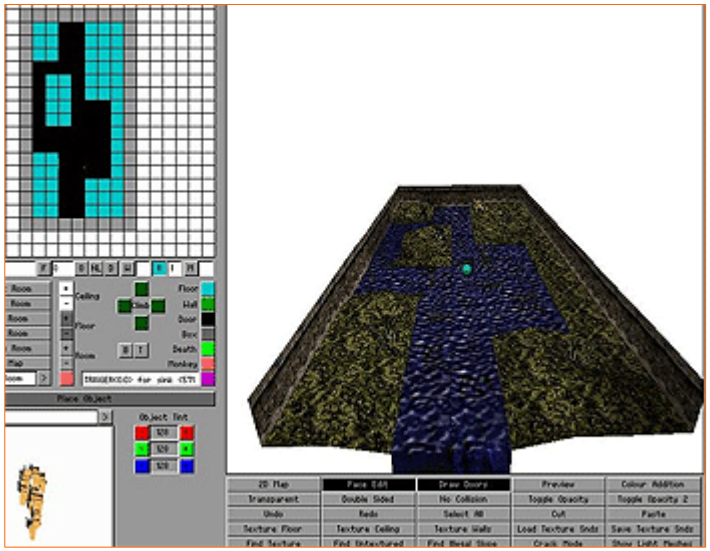
To keep things simple I'm going to use a fairly shallow river around the 4 click deep mark.

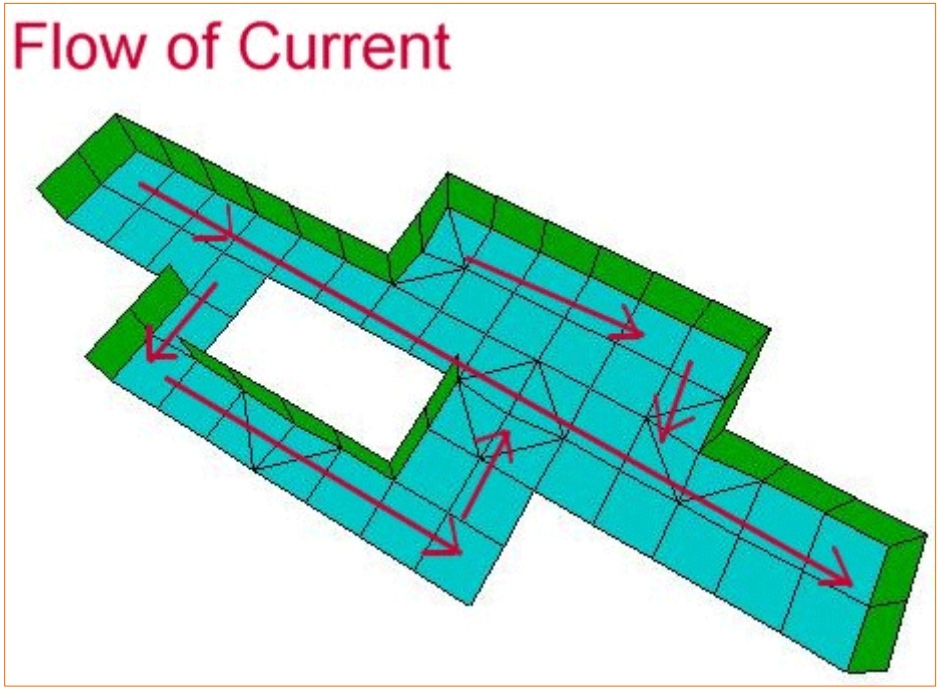
Note: Bear in mind that the TR4 engine has terrible clipping problems in that Lara gets stuck on the bottom if it sticks up. Try to keep your bottom shelving downwards to minimize these problems.

Make your river and island rooms, join them up, and then texture and light them.

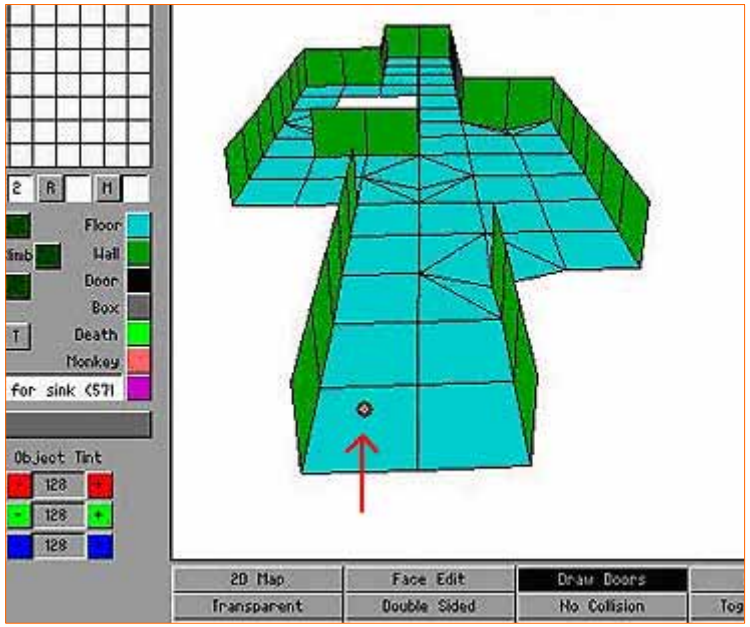




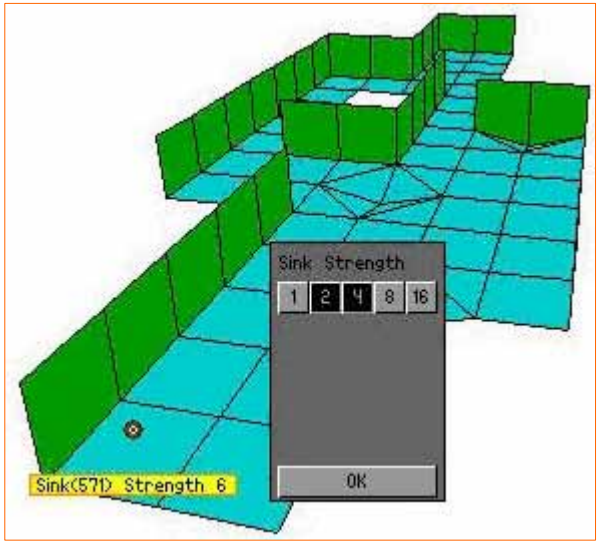




In our example, the current is going to split and flow around the island, then join up again and continue downstream.

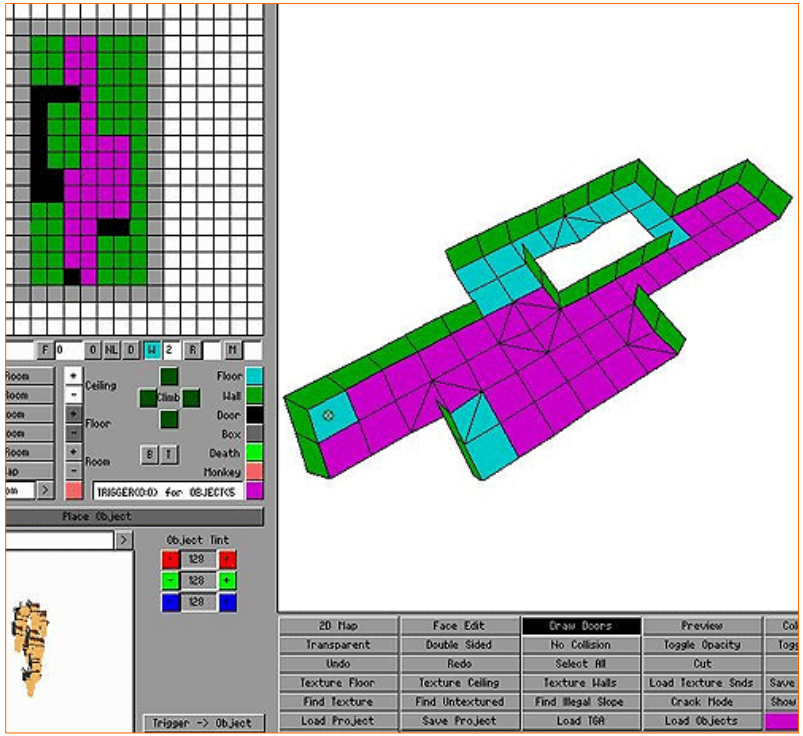


Select a sink from the Menu (**Effects → Sink**) and place it where the current is ultimately going to flow to (NOT where the current is going to flow from).



Highlight the Sink, bring up the **OCB** settings using the 'O' key and set the sink strength to 2+4.

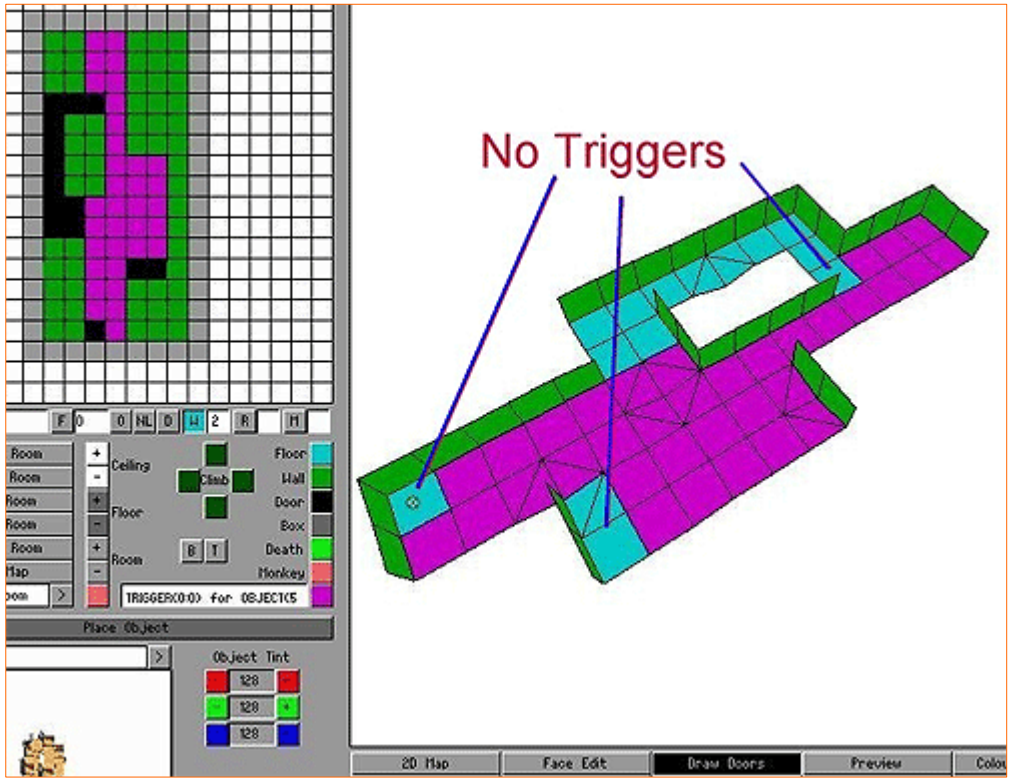
Note that hitting 2 + 4 gives the sink a strength of 6. You can have the settings as high or as low as you like, and you can mix the OCB settings and add them together to adjust the strength of your current. Have some fun experimenting!



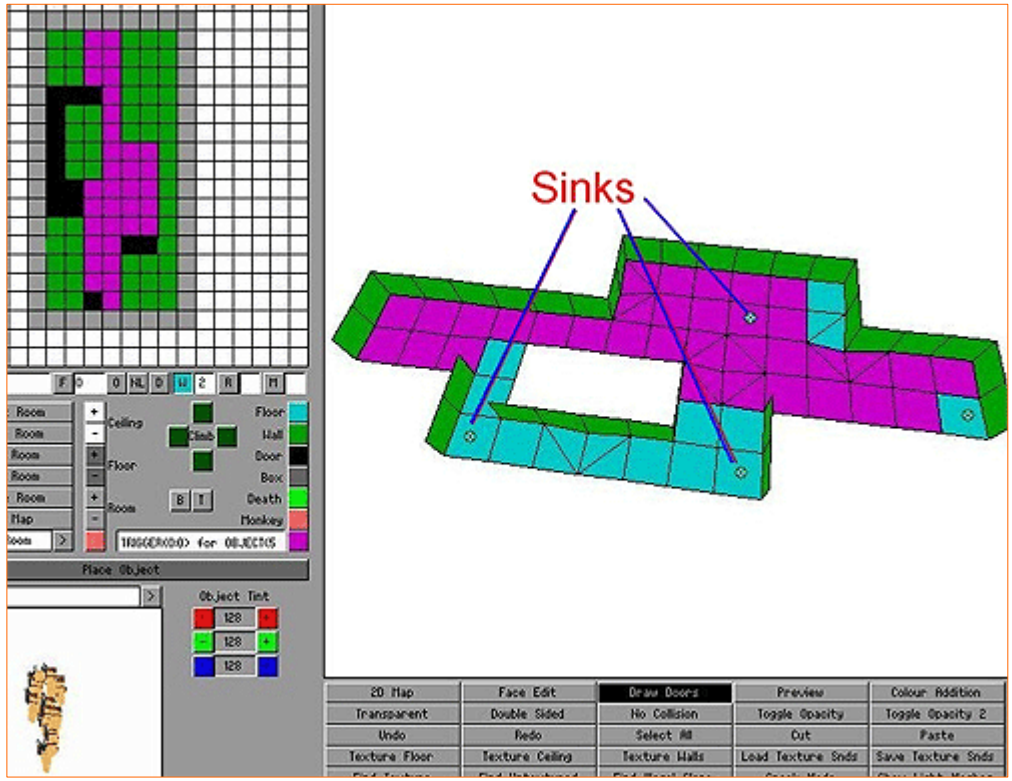
Watch carefully where I set the triggers for this sink!

Notice that I didn't put a trigger for it on the same square as the sink. If I did, Lara would get stuck on that square. When Lara reaches the actual sink square, she will be able to surface and climb out.

Also notice that I have not set triggers for the sink around the island either. Using just one sink, Lara would get stuck at corners and her movement would be extremely ungraceful. So I have not set triggers for our first sink at the three corners where she would get stuck.

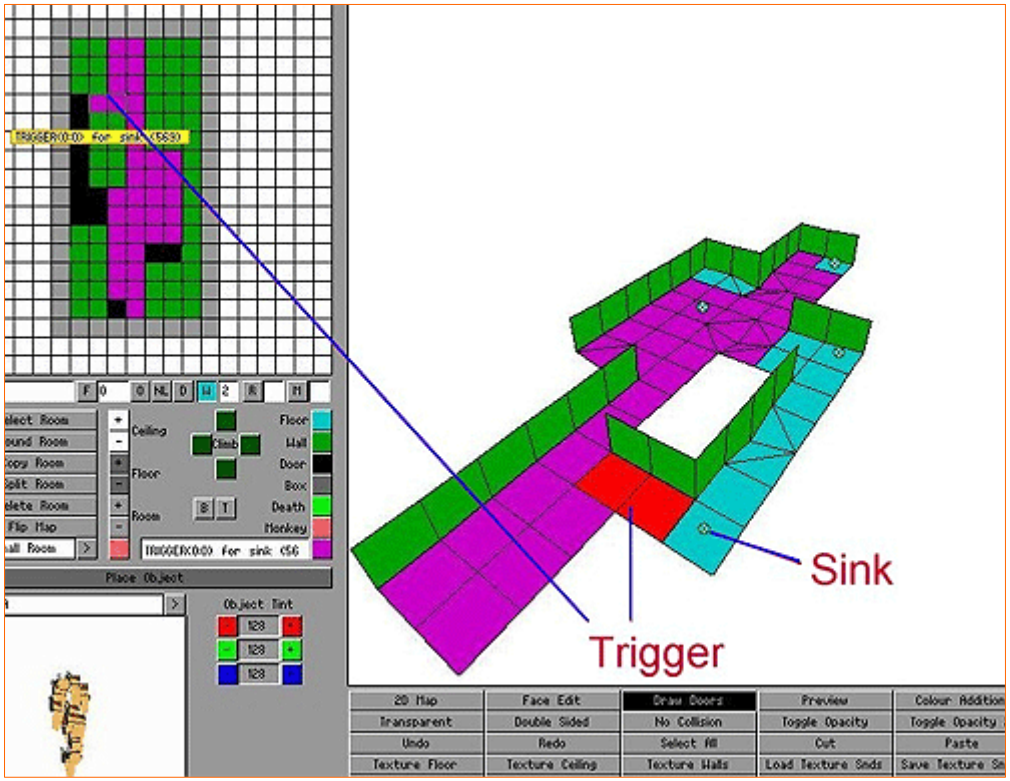


To get the current to flow smoothly around the island we are going to need 3 more sinks, and they will be placed as shown in the image on the right.

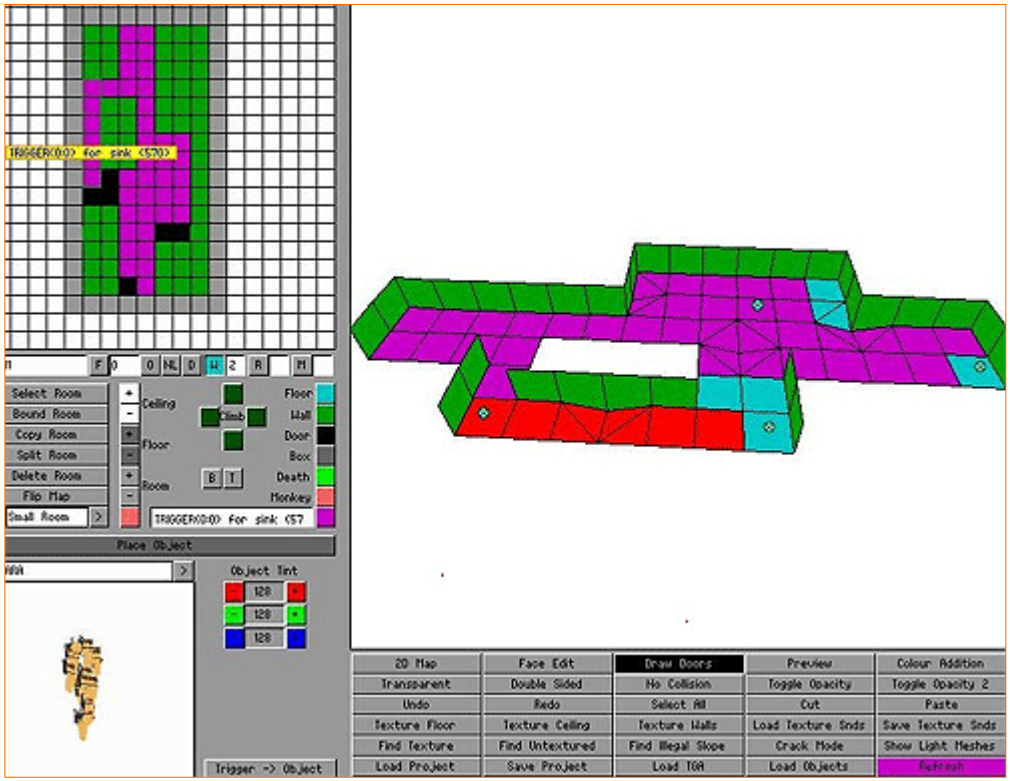


Select the first sink, give it an **OCB** strength setting of 6, and place a trigger for it as shown in the image.

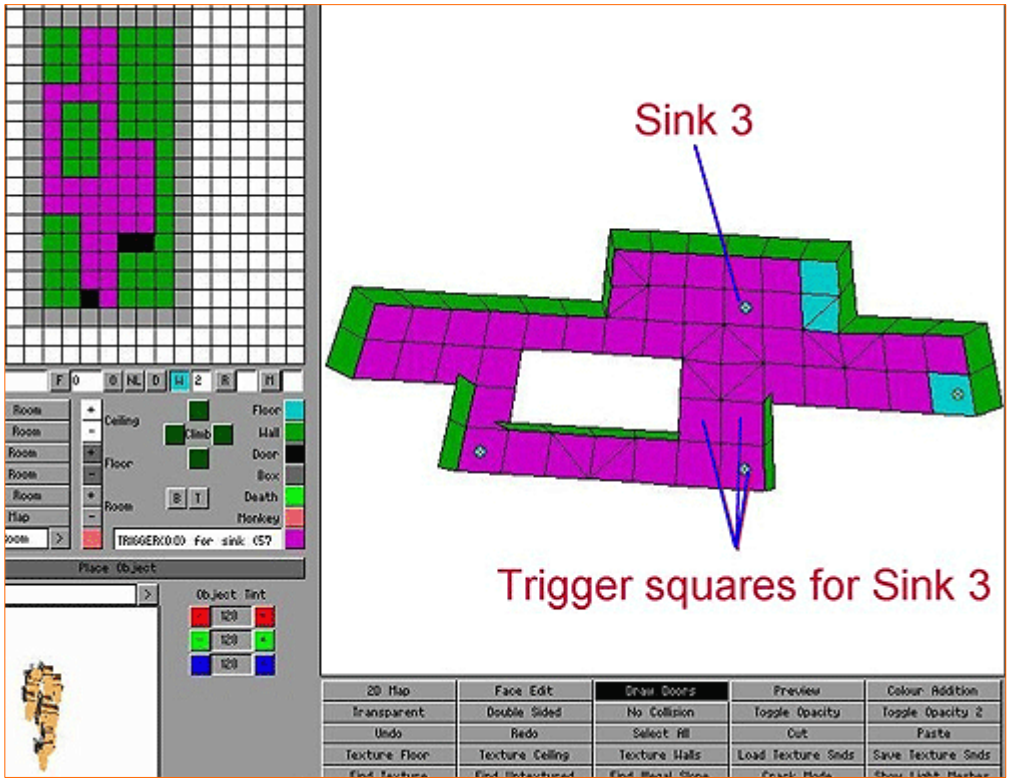
It is important not to put a trigger for a sink on the same square as the sink or Lara will get stuck. The trick is to have another sink which will pick Lara up as she moves onto a previous sink.



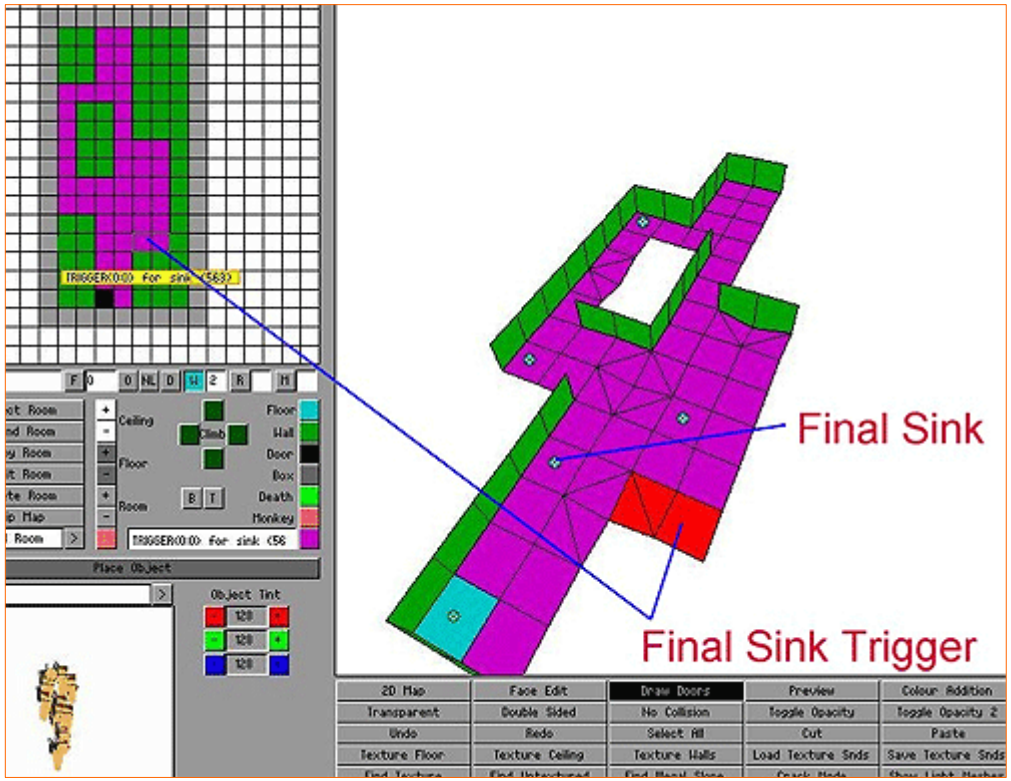
Now select the second sink, give it an **OCB** setting of 6 and place the trigger for it as shown in the image.



Select the 3rd Sink, give it an **OCB** setting of 6, and place a trigger for it on the three remaining un-triggered floor tiles around the island. This sink will draw Lara back into the current of the first sink where the main current will then pick her up and draw her downstream.]



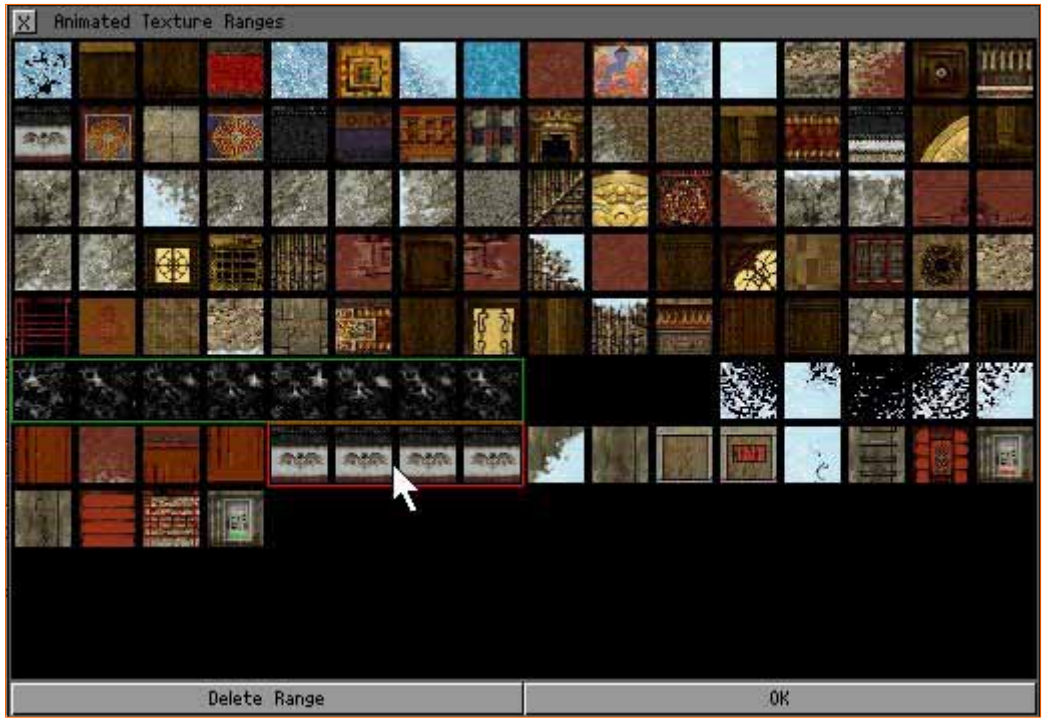
Once that's done, do the same thing on the water course in the bay on the other side of the river.



How sinks work can now be understood. As Lara reaches a corner she will stick if a sink trigger is further downstream. So you need another sink to gently pull her away from the corner and back into the main 'flow'. In this case, she will be gently taken around the island by the other sinks until she again reaches the main current. If she swims into the bay, she will flow downstream until the final sink picks her up and draws her out into the main current again.

[Animating textures]

by Titak



Regular, like water: animation range: To make textures animate you need to have a couple of similar textures, like water textures. You then need to paste those textures onto your TGA textureset. Place them right next to each other.

Open your project in the LE and select **Animation Ranges** on the bottom right hand corner of the LE window. Select the textures you want to animate ingame. A red frame appears around the textures. Click **OK**. Apply the textures.

Next time you open the *Animation Ranges* window, the animation range will have a green frame.

If you have used too many different textures in your level the textures won't animate. It takes a lot of memory to make textures animate. The same thing will happen if you use too many animation ranges in one level. If you really need more animation ranges you can also use the TR3 style animation ranges. Some of the TR3 levels use multiple animated textures. Those texures are not 64x64 pixels, a full texture tile, but only 32x32 pixels. Four of these small texures are placed on one texturetile. So, you can have four different texuresets animating while only having one animation range!

If you use this trick you will need to build a small, seperate, room and texture it with the entire texuretiles of the animation range. If you don't do this the animation won't work properly and the level might even crash!

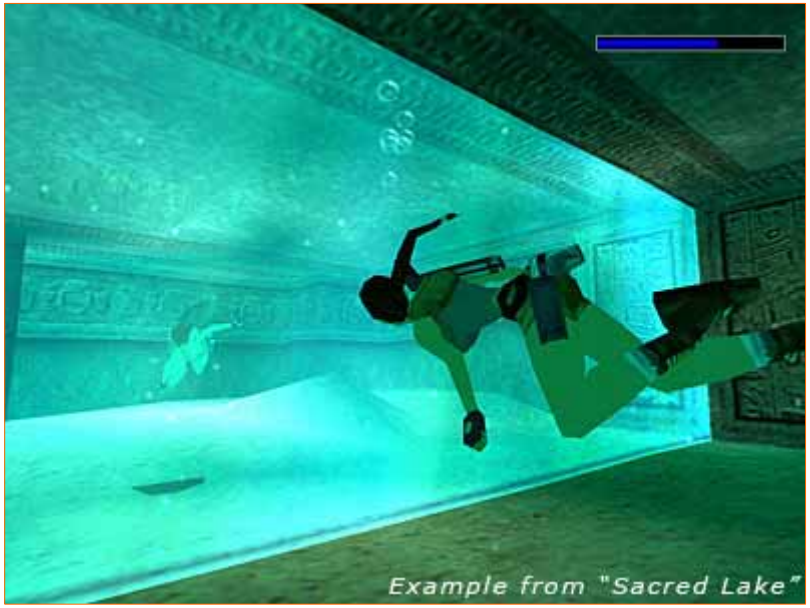
Scrolling animation, like waterfall: Paste a texture you want to have a scrolling animation into your TGA textureset. Open LE and select **Animation Ranges**. Select the texture tile and click **OK**. If you want to use both normal and scrolling animations you need to select the scrolling texture tiles first.
Add the following line to your script:

UVrotate = 8 (8 being the speed of the scrolling. The higher the number, the faster the animation.)

Animated textures on objects: As far as I know it is only possible to use the scrolling animations on objects. Just copy a waterfall object into your wad. Apply the waterfall texture to whatever object you want to have that animating texture. The texture will also animate when applied to static objects! The texture will keep animating as long as you keep the waterfall object in your wad.

[Mirror effect]

by QRS



In this tutorial I will try to show how to make a room with a mirror which shows Lara's reflection in it. The first step is not hard but the reflection part can be very frustrating to do right. At least for a beginner. And yes, I'm talking of my own experience about making a fully working mirror. The only experience you really need following this tutorial is a few days of trial and error with the editor. You also need some basic knowledge of the script files. I will try and explain everything I can in detail, but the basic stuff like how to make a room, making doors, saving the project etc I will leave out. Same goes for the basic script tasks. Why so? Well, there are tons of tutorials for that and don't forget the official manual!

Also, a mirror room is not the first room you should try and do! If you are reading this and have yet to build a single rooms using the TRLE I strongly suggest that you wait with this until you have some experience of building a few basic rooms!

Notes: There are a few things you have to worry about before making this mirror project. Scroll down to the end of the tutorial and read for further info and credits for the people who discovered them.

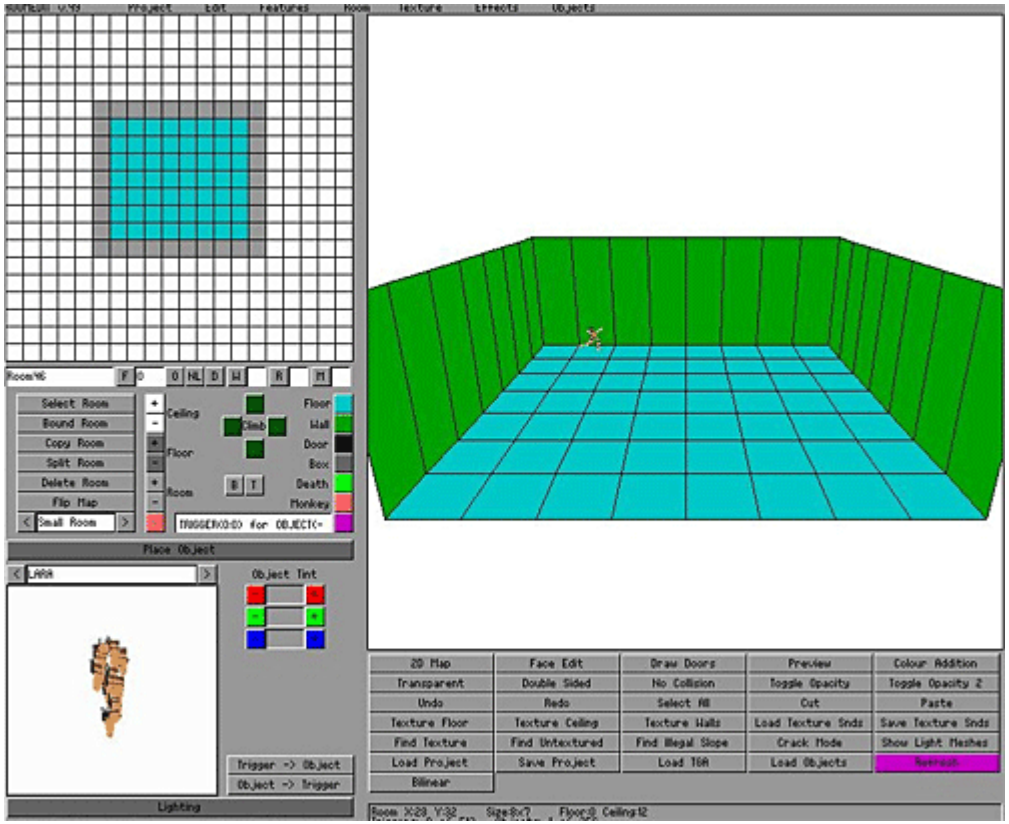
In my example I use a room in which I already have a few rooms built. Just ignore these rooms (to the right of the mirror project in 2D view) as they have nothing to do with this example.

I'm from Sweden and I use a Swedish OS. Hence the strange words in the explorer images. I'm pretty sure that you can navigate using these pictures anyway, as the menus are on the same spots in most of the languages.

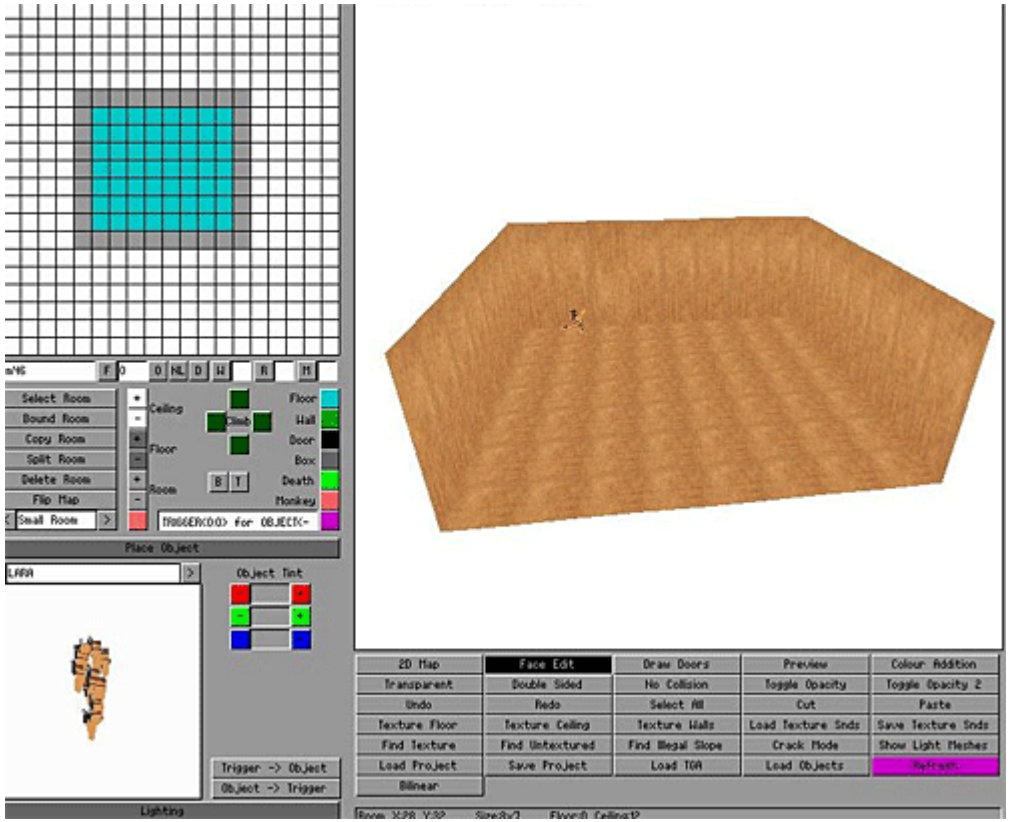
The Mirror

As I said earlier, this is the easy part. At least if you have some experience in working with the TRLE. In this example I will show the easiest way of making the mirror rooms. I can already hear you say ***"Did he say rooms? Is it more than one room?"*** I'm afraid it is. To make the mirror you have to trick the Editor into fooling yourself in seeing one room with a mirror. Sounds complicated? No, its not! The whole idea is the make two rooms and put transparent textures between the rooms. The problem is the reflection, but more of that later.

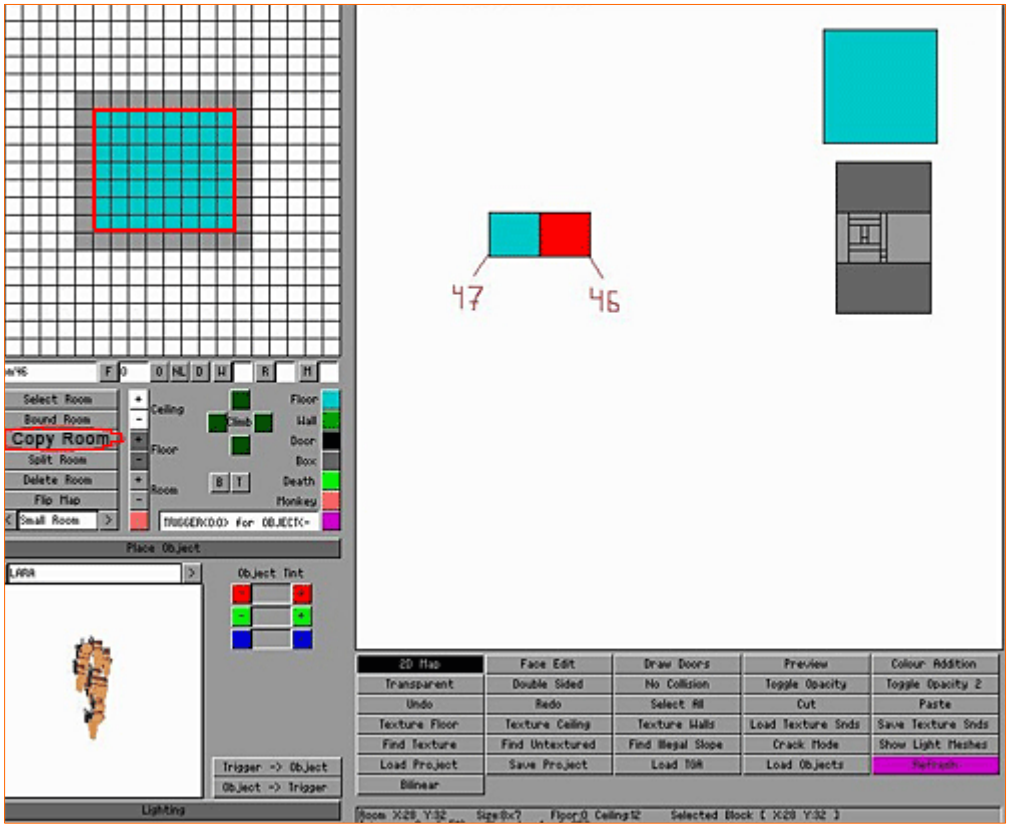
First of all you need to make a room. In my example I have built a room of 7x8 squares. (Feel free to make it any size you want.) The height of the room is 12 clicks. The room number in my example is **46**. (I will refer to this room as 46 from now on).



Your first task is to texture the room's walls, ceiling and floor. It is not important right now to make anything special. Just make sure that there are no black holes when you run the game later on.

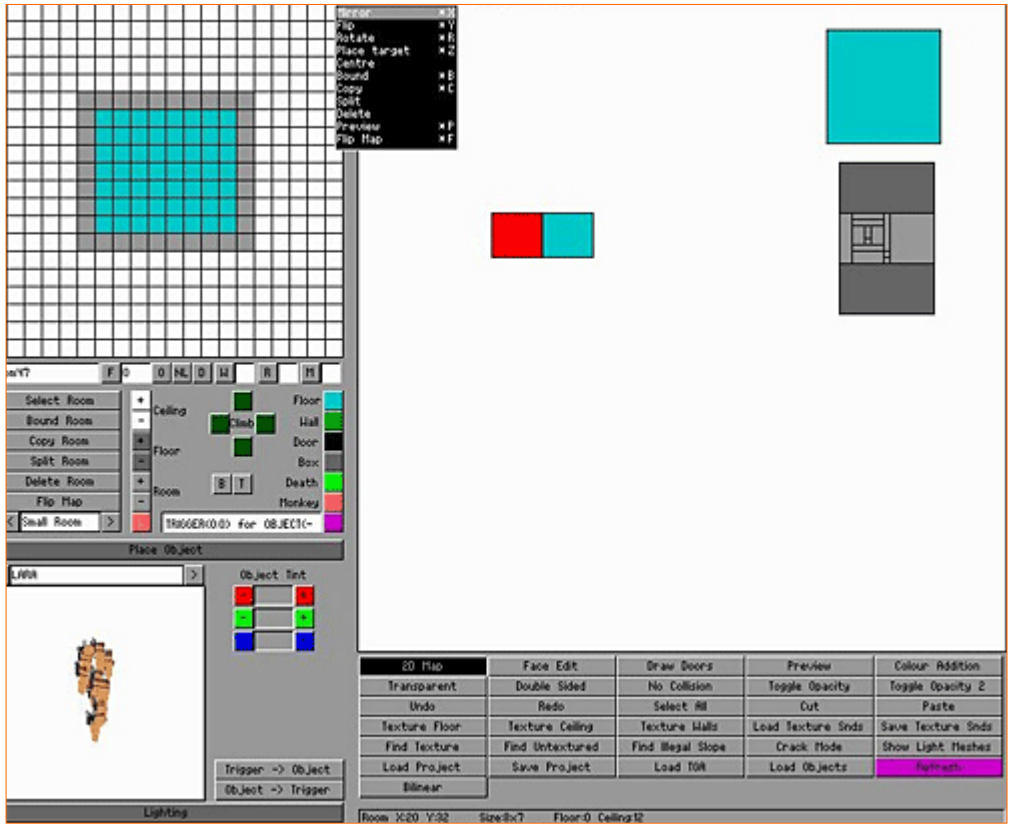


Use your *right mouse button* and highlight all squares in your room and click on the **Copy Room** button. You should now have an exact copy of room 46. In my case the new room is called **47**.

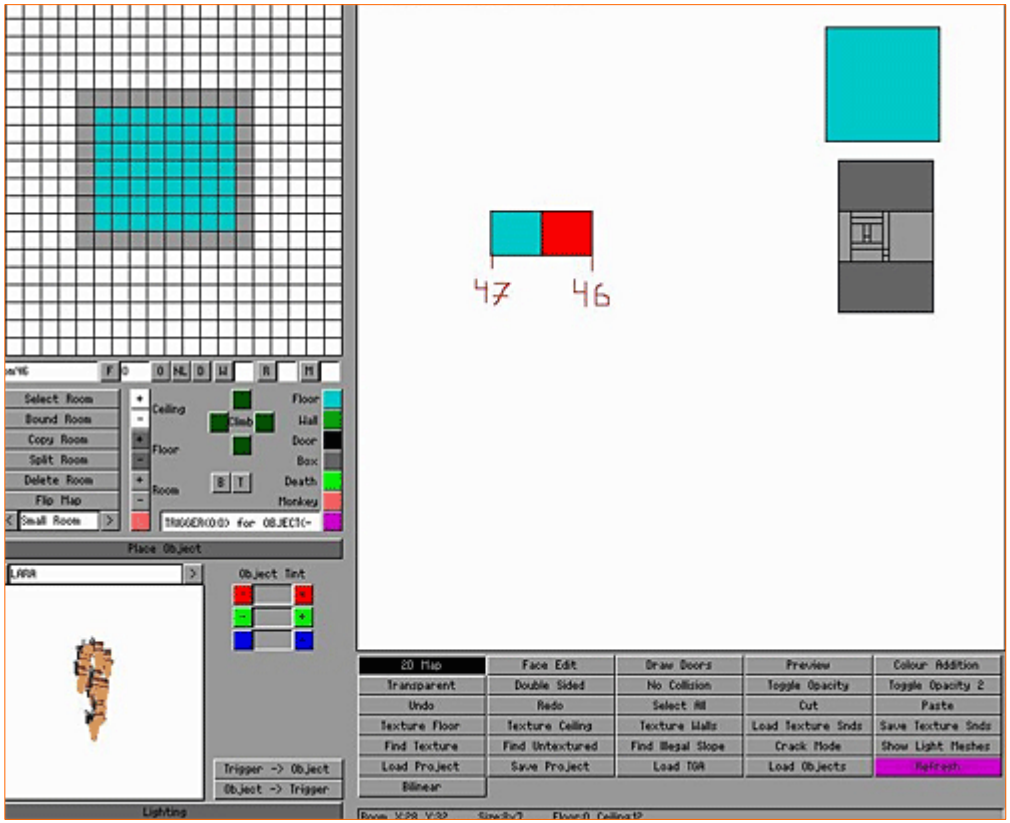


Highlight room 47 (the mirror) and choose **Mirror** from the **Room** dropdown menu. Room 47 is now a perfect mirror of room 46!

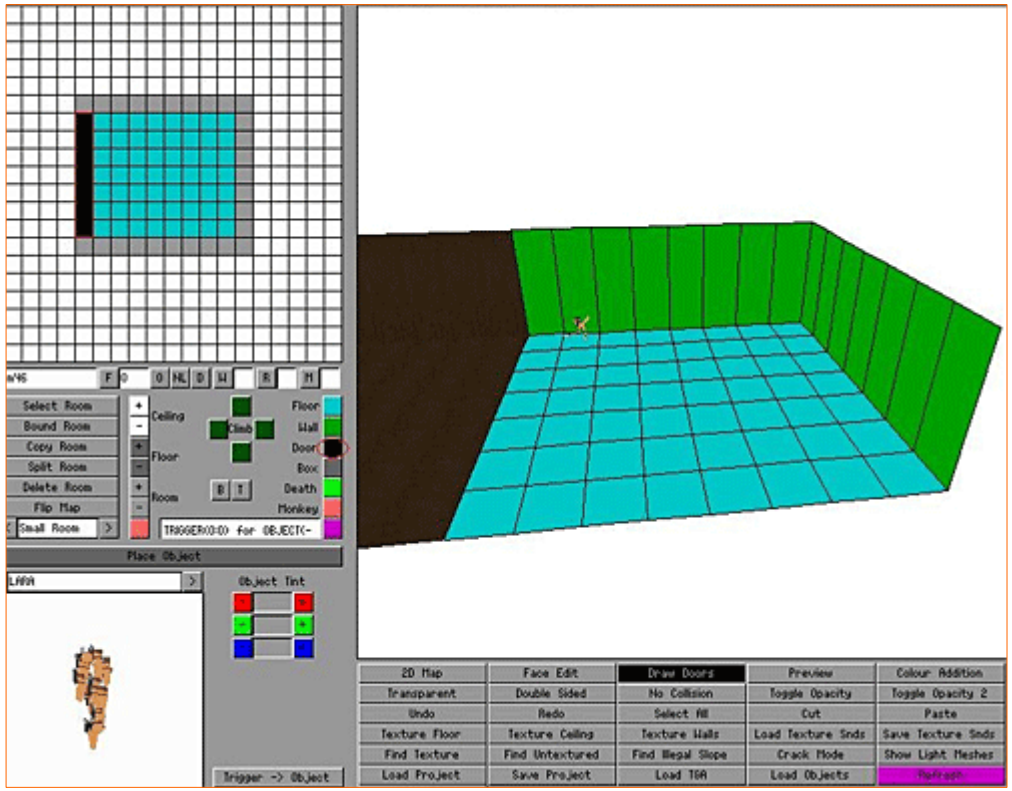
This means that if you had ledges and blocks in the room, they would have flipped horizontally along with the textures.



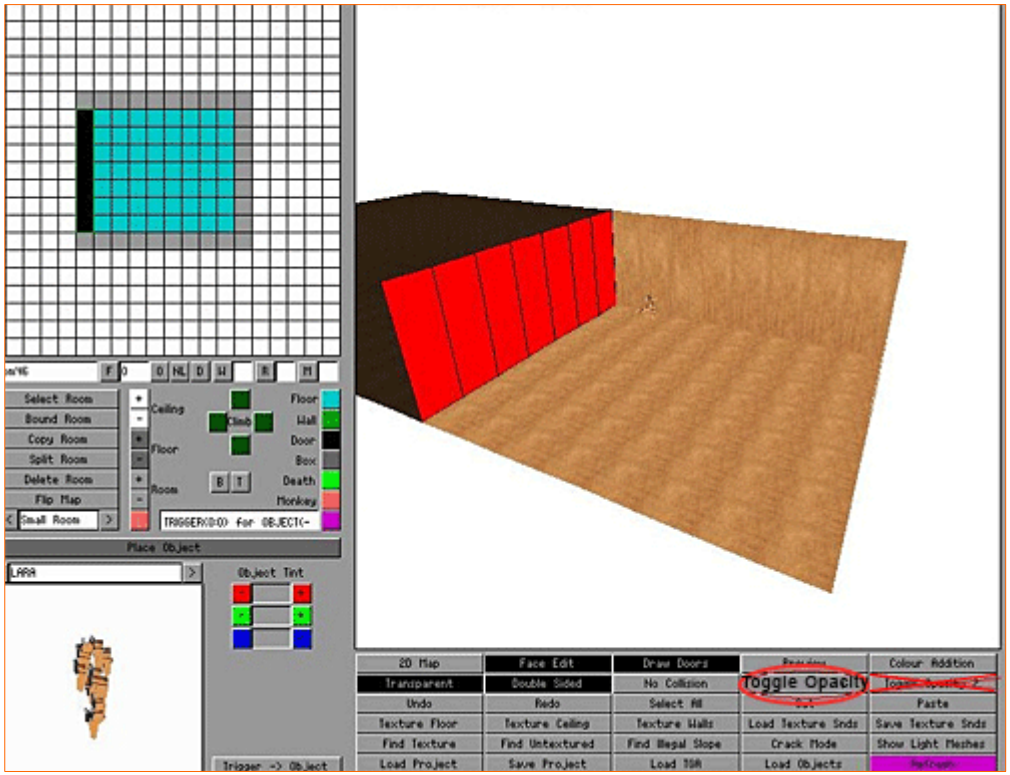
You now have to make a door between the rooms. Make sure that you put room 47 to the **left** of room 46.



Highlight room 46, switch to 3D view and make a door on the whole left side to room 47.

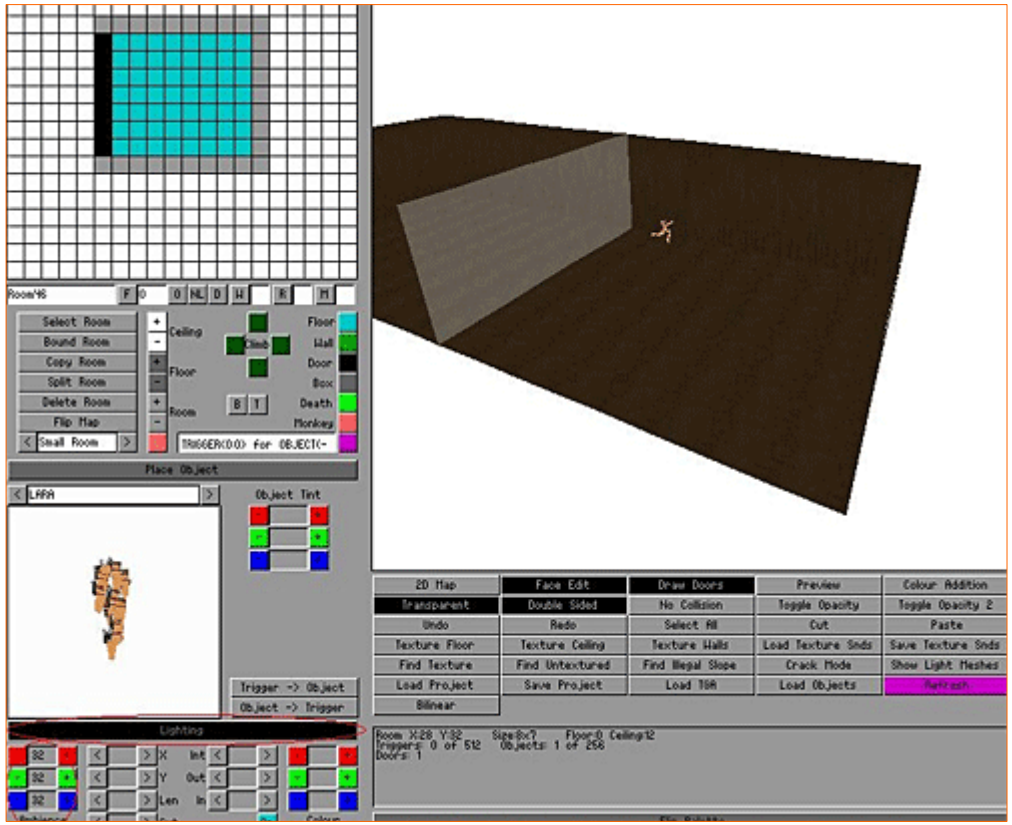


Now you need to make the doors between the rooms transparent. Make sure that **Face Edit** button is on and you are in room 46. Highlight the door to room 47 (from the Grid View) and click on **Toggle Opacity** so that the door will be highlighted red.



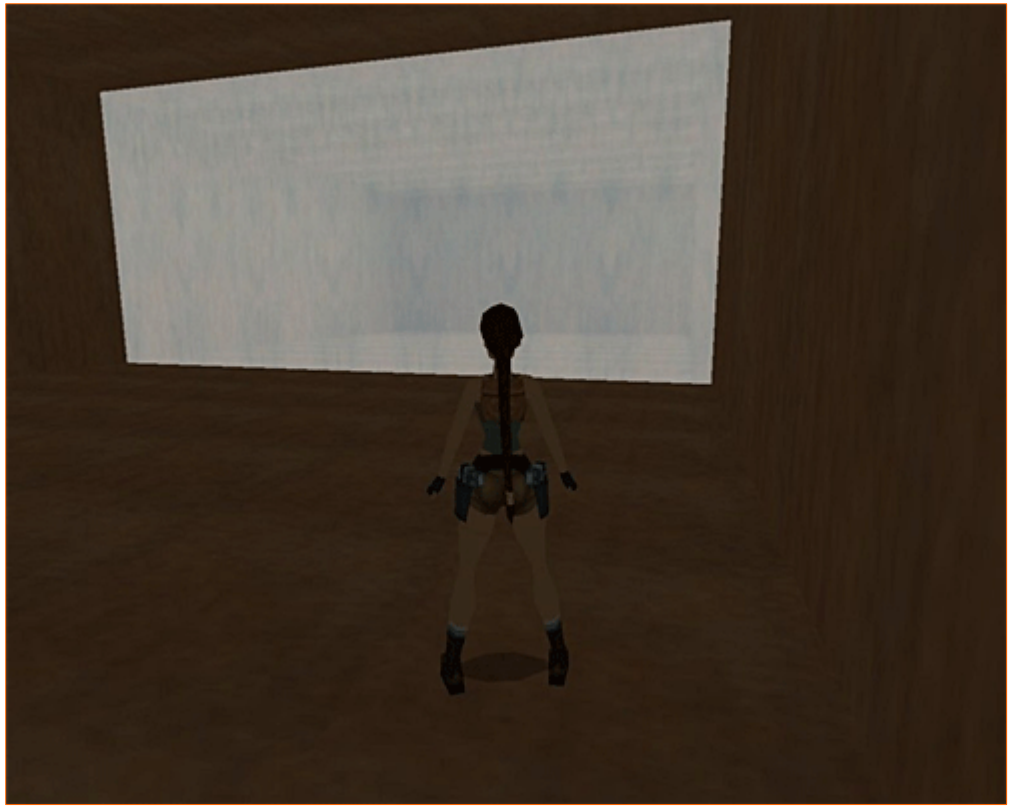
Now click on the **Transparent** and **Double Sided** buttons (make sure **Face Edit** is on) and choose a good texture for the mirror. I suggest something simple for now as the perfect texture can wait until you are done with this tutorial. Apply the texture.

(Note that I darkened both rooms so the transparent texture between the doors should look better for the tutorial. You can do that later on if you wish.)



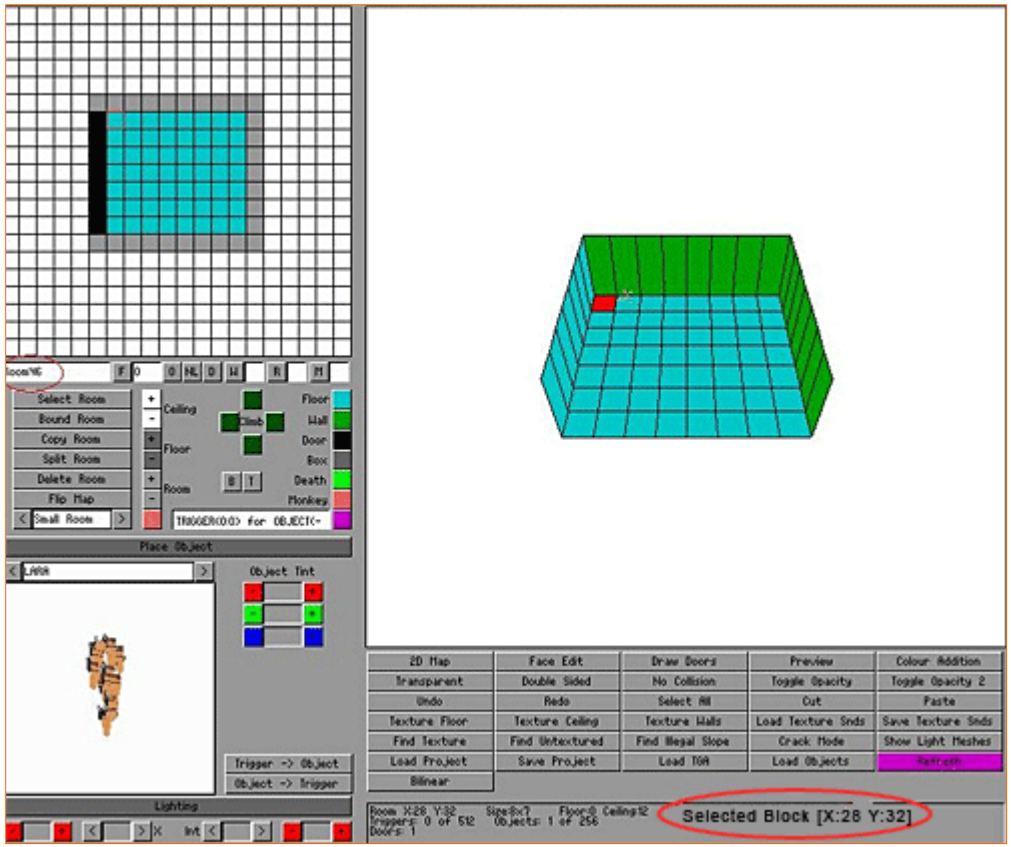
Repeat the above, starting from room 47 and apply the same textures from that side.

We are done!! At least with the mirror. For making this look better and the transparent textures more mirror like, you need to make the room darker. Feel free to experiment with the lightning before proceeding to the next step. This is how it looks when you start the game.

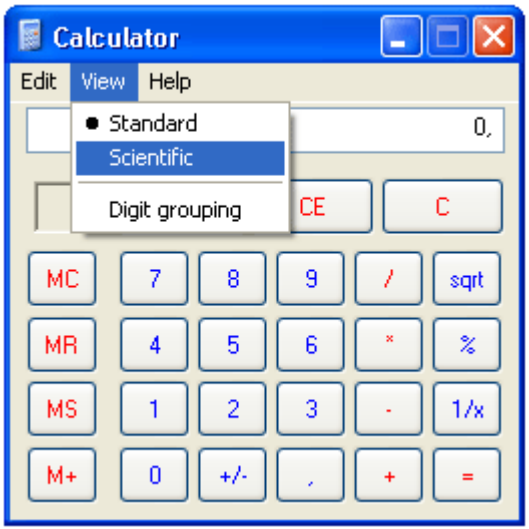


The reflection

This part is tricky so make sure that you follow these instructions exactly before going on further on your own. Also, don't forget to read the notes at the end of this tutorial first!! I will try to make sure that you don't fall into any pits but it's up to you to backup your scripts!! Ok don't be afraid. It is not as dangerous as it sounds. I just want you to be careful ok?



Go to room 46 and click on the upper left square. Check the coordinates for that square in the info page beneath all buttons. In my example it shows **Selected Block [X:28 Y:32]**. Write down the coordinate for X on a piece of paper or if you have a good memory just remember it. Also, write down or remember the room #46 (the original)



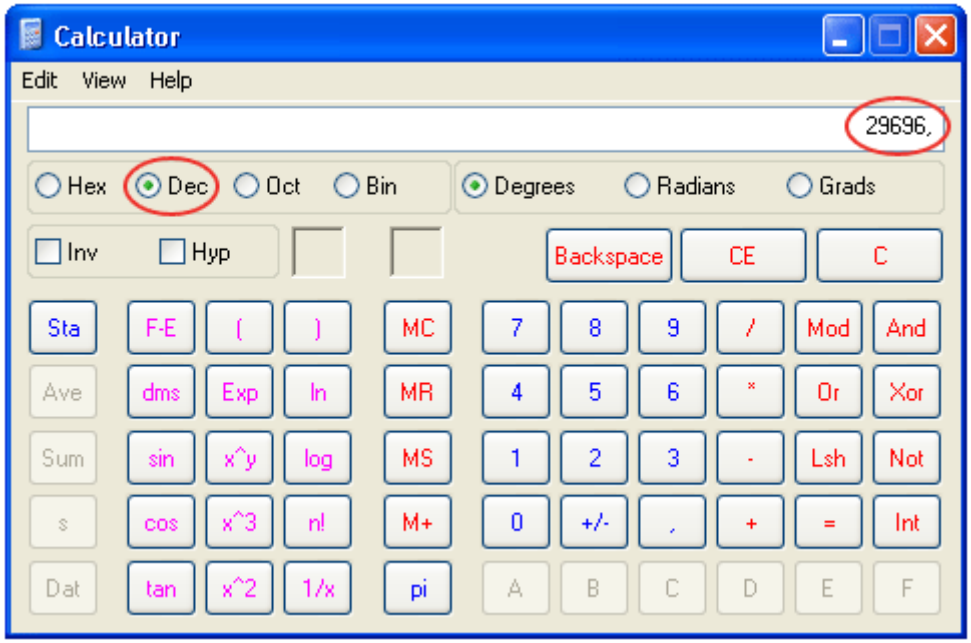
Now it's time to leave the Editor. You can save your project now if you wish. Use the built in calculator of Windows (**Start, All Programs, Accessories, Calculator**). From the **View** dropdown menu select **Scientific**.

We now have to calculate a formula using the **X** coordinate. You did write it down, didn't you?

The formula is: **X+1*1024**.
(where * is multiply)

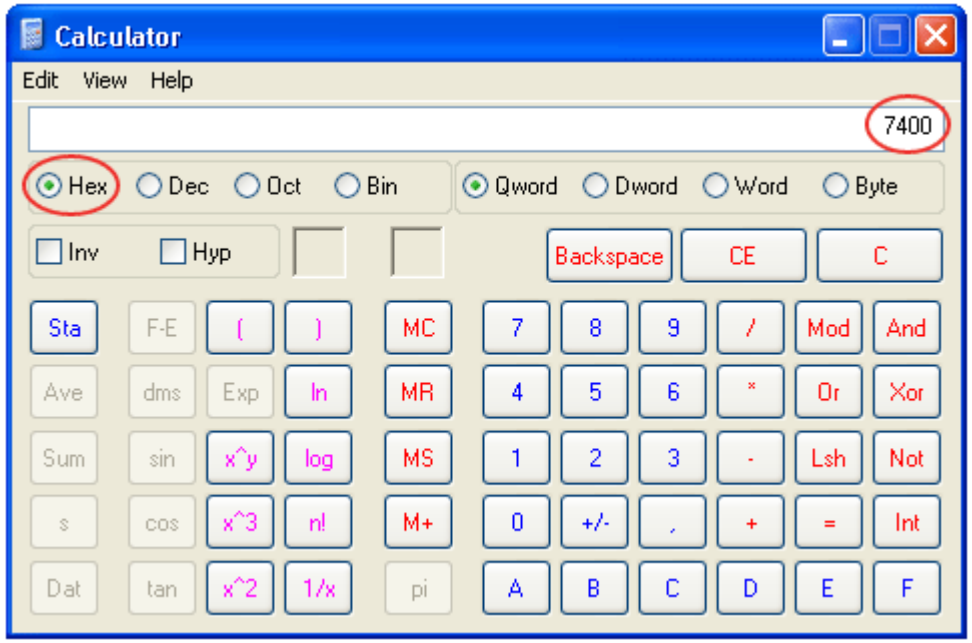
In my example that makes
28+1*1024 = 29696.

Make sure that when you make this operation, the **Dec** option is marked.

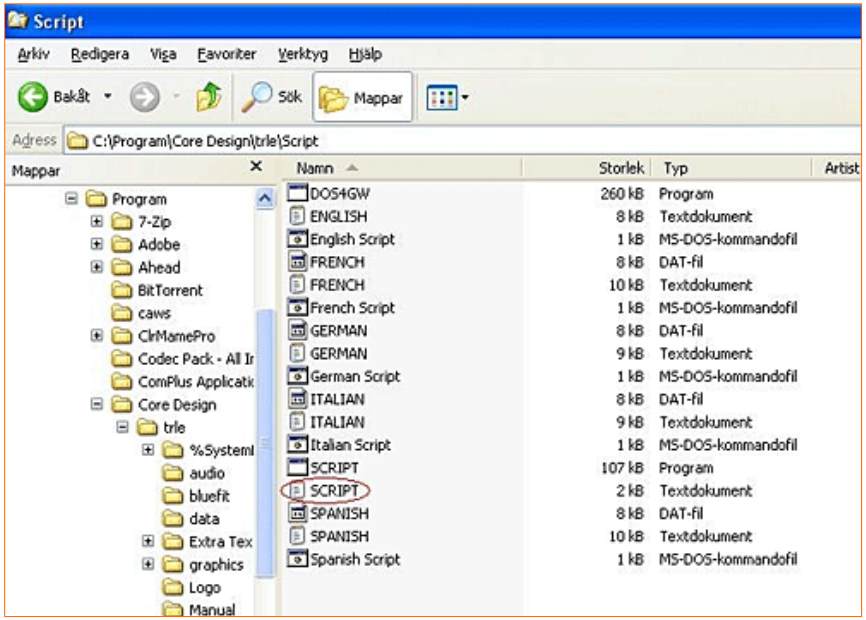


Check the **Hex** button and see how it turns into something else. In my case 7400, but don't be surprised to see letters combined with the numbers.

You now have the hexadecimal numbers of the formula and unlike the decimal 0-9 numbers we now have 0-9 + A-F to worry about. If you are not interested in that and want to keep making the reflection work just write down the outcome you get in Hex!



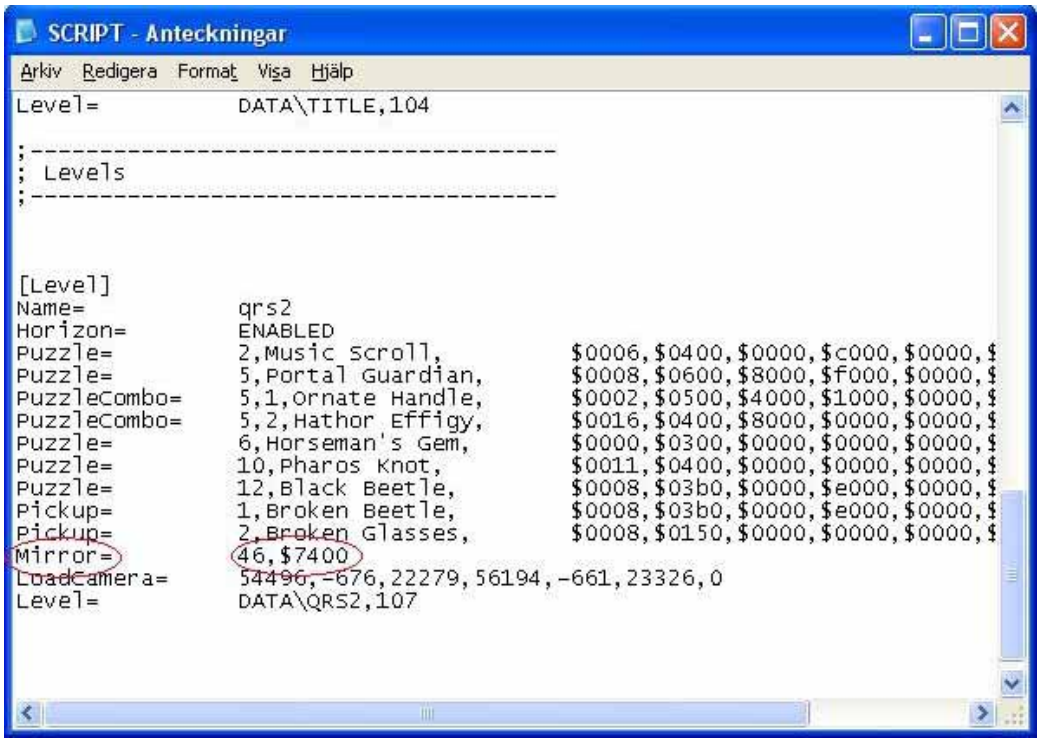
Go to your **trle\ Script** folder and open the **Script.txt** in any text editor.



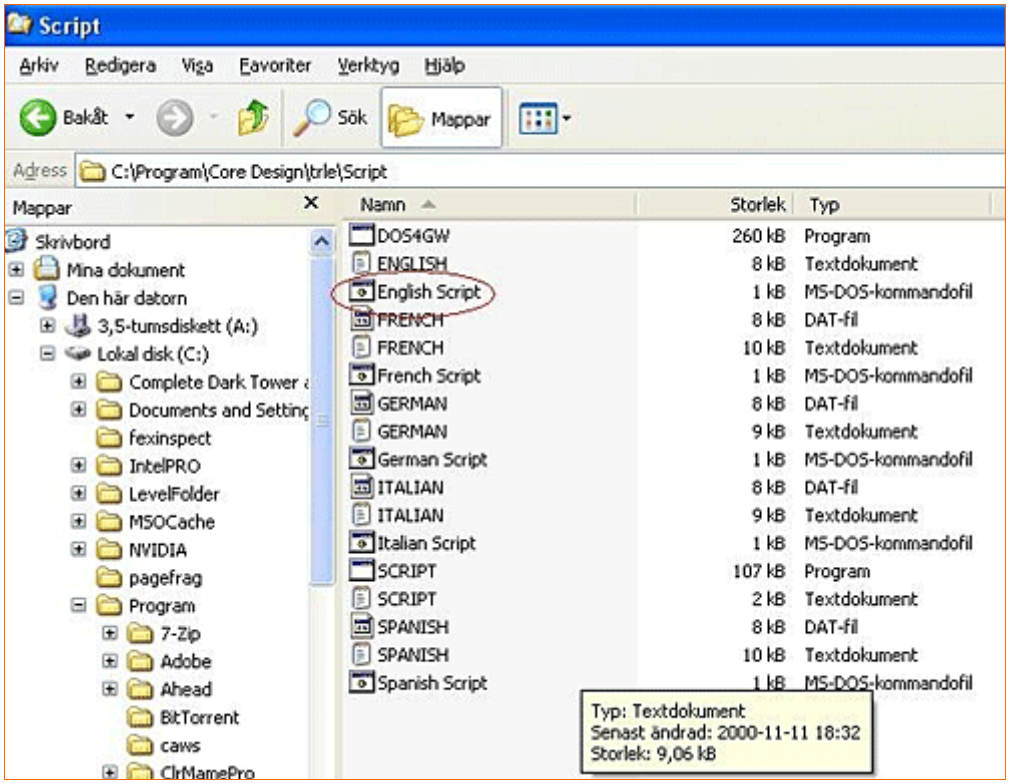
Look after your level in the text. Put this text in a separate line in your script for your level:

Mirror= 46,$7400

46 is the room number (the original room – the one that Lara will actually run around) and the value is the Hex numbers you wrote down earlier. Do not forget the $ symbol and do not leave a space between the comma, the symbol and the hexadecimal number.



Save the script file back to itself (File → Save) and double click on the English.bat file. This file will most likely appear as Script.bat (with the cog on it).



After a brief dos view of a DOS window, leave with a grin on your face, because you have completed the mission! If you did not save your project earlier in the TRLE of course. Now you only need to run the **tr2pc** program and start your level. Viola! Lara's reflection is finally in the mirror. This is how it looks.

Now you will need to set better lighting, shadows, objects, better textures etc. to really get the right feeling, but I leave that to you.

Notes and credits

There are a few things you should be aware of before making this project; otherwise the reflection will not work. There might still be other factors that I'm not aware of. I will update this tutorial as soon as I find out.

1. Make sure that the mirror room is to the **left** of the normal room. (Credits to Oxy for that info.)

2. You can't have any empty room slots with lower numbers than the mirror room. In my example not any empty room slots under 45. (Credits to Essgee for that info.)

3. ALWAYS make a copy of your script files. Why not the whole script folder just to be sure?

4. Don't forget to run the English.bat (Script.bat) file after changing the script. It can save you from a few frustrating hours of things not working.

A huge thanks too Oxy and Essgee for the information and help in understanding how to make a mirror with reflection. A special THANK YOU To George Maciver for helping me put together all this info into a tutorial with images and text. Also for hosting the tutorial!

Good luck in making a mirror project and feel free to use, copy and spread this tutorial as much as you like.

[Understanding Crack Mode]

by EssGee and eTux

Crack Mode is a very useful but under-used feature of the TR Level Editor. Its purpose is to highlight badly aligned texture wall panel segments. When these segments are aligned correctly there are several benefits.

1. It ensures that lighting features of a room have continuity (e.g. shadows and the way light features fall on a wall).

2. It helps eliminate 'cracks' in walls. This can be seen as fine white lines of speckles between wall panels when texture panels are badly aligned. When the wall panels segments are correctly aligned, the ugly lines will no longer be visible.

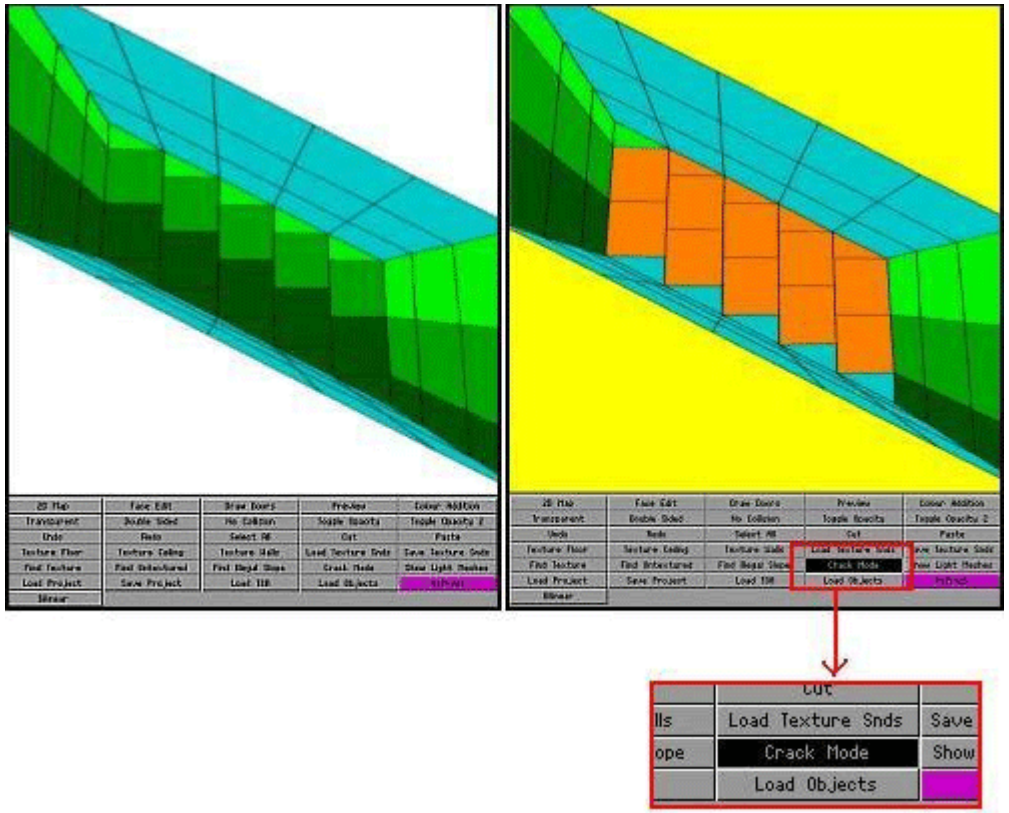
3. It highlights the gaps in wall panels in underwater rooms, where it looks like the texture panels are splitting apart. When the wall panel segments are properly aligned, the underwater wall will appear sealed and no longer split apart.

While it is best to use the "Crack Mode" to avoid all cracks (and best done so by checking them from the first day you build the level) you shouldn't go crazy over fixing every one of them. Keep things reasonable - judge for yourself if or how much harm the cracks do. For example, if fixing some cracks doesn't go together too well with your architecture or texturing style, no need to fix them. You'll see for yourself though, that it makes a difference in underwater rooms or rooms with atmospheric lighting.

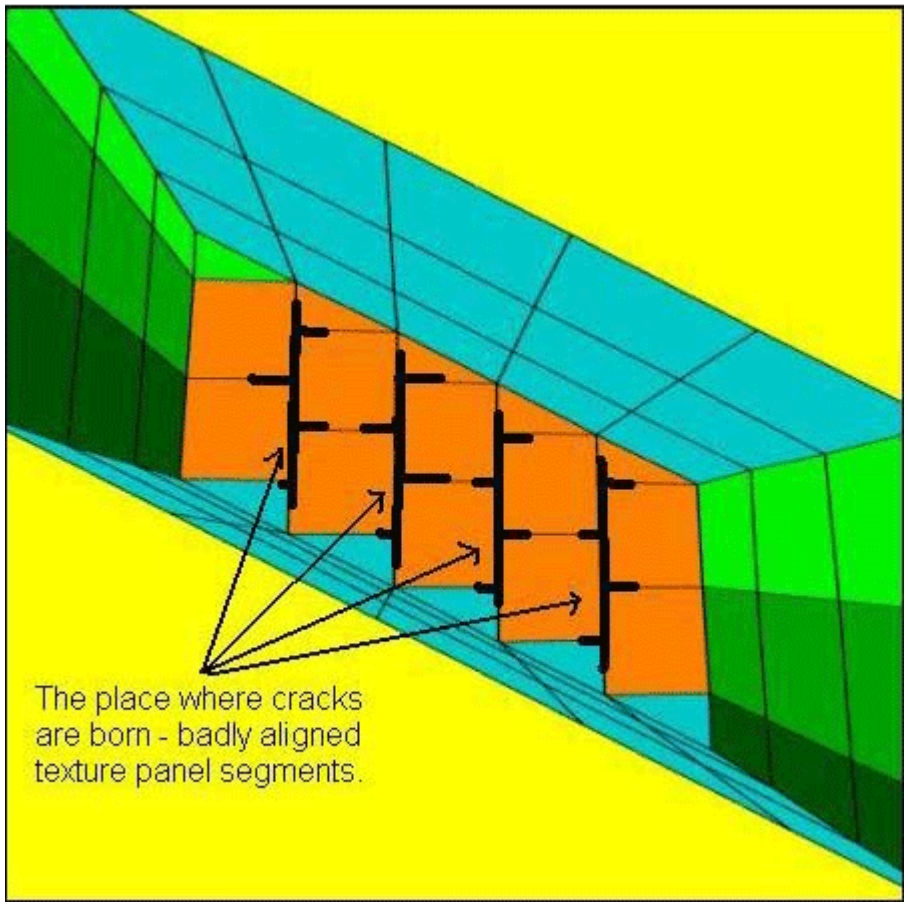
Here are some graphic tutorials that explain the general concepts of crack mode. Hopefully this tutorial will help you to achieve a more professional look to your level.

In the pictures below, the left one shows the regular view in the Editor, and the right one, how you see your project in Crack Mode.

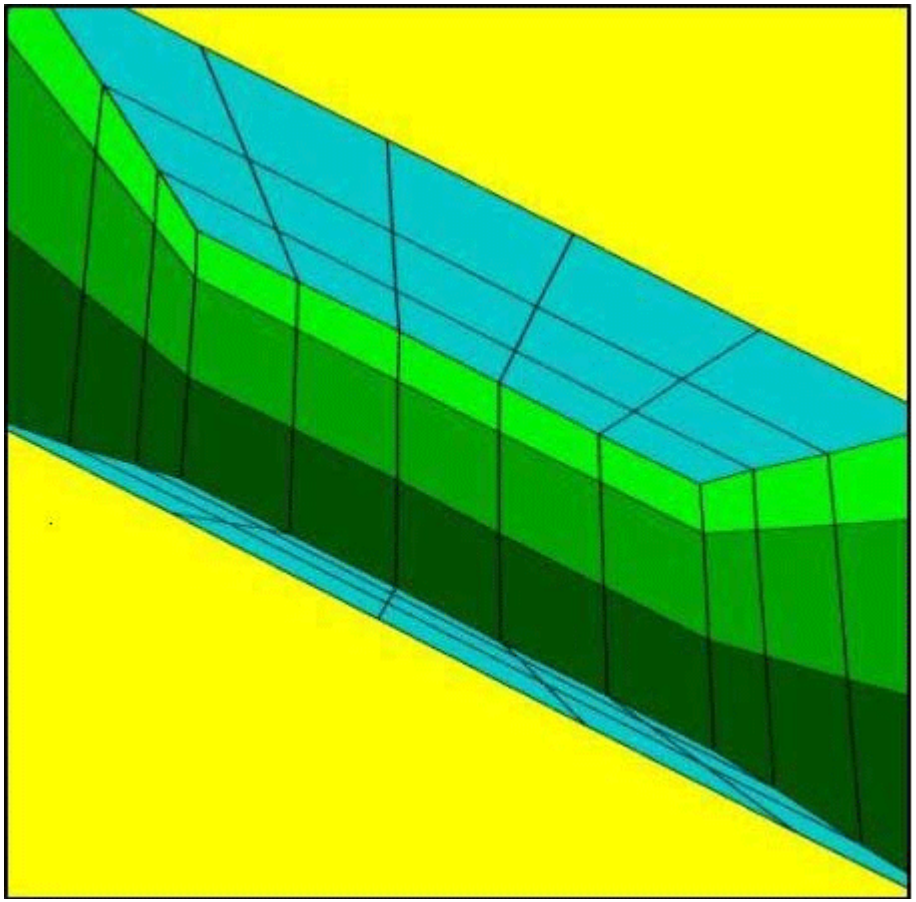
The expert beneath the images shows where you can find the button to switch to this mode.



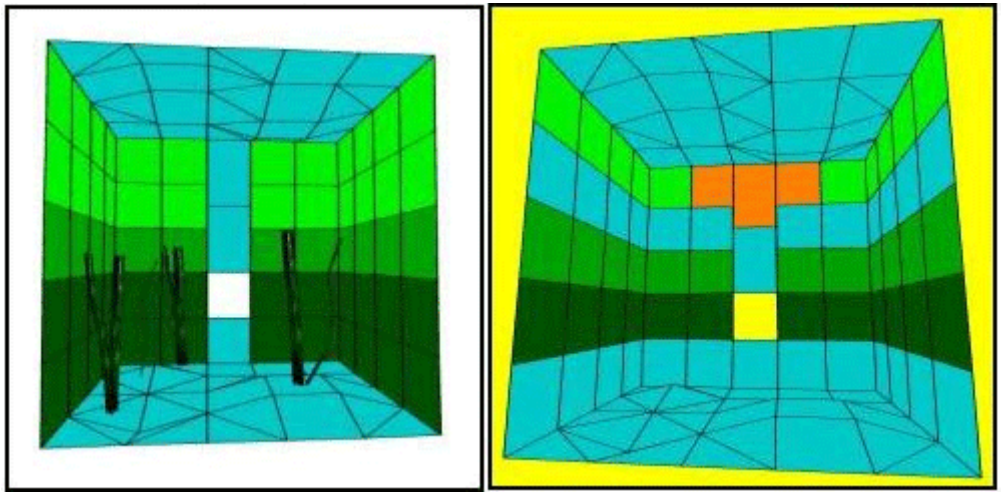
I chose this situation to explain cracks because this is one of the most common mistakes you see in the levels and not without a reason. This very room is how the Manual teaches you to segment the wall of such hallways. While there is nothing wrong with this is, if it's required for a specific texture design, it inevitably creates cracks.



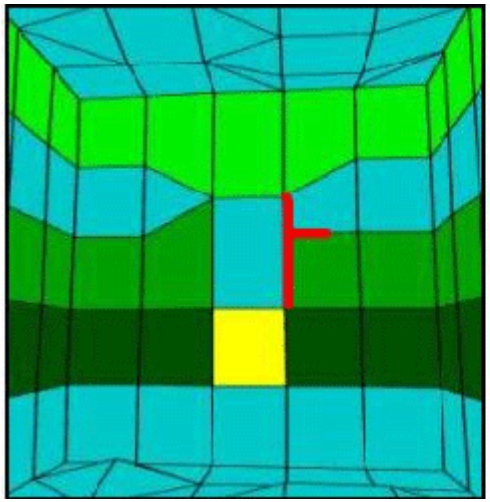
Below is one of the possible solutions to the previous situation. All texture panels correctly aligned, thus no cracks.



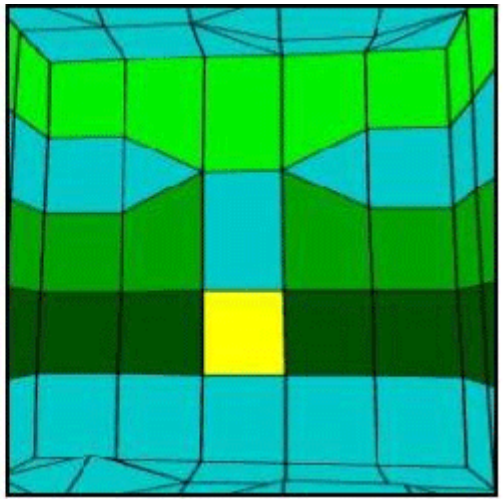
In the example, just because the crack mode doesn't detect it for whatever reason, it doesn't mean that it's not there. If you see something that obviously is a crack, fix it anyway.



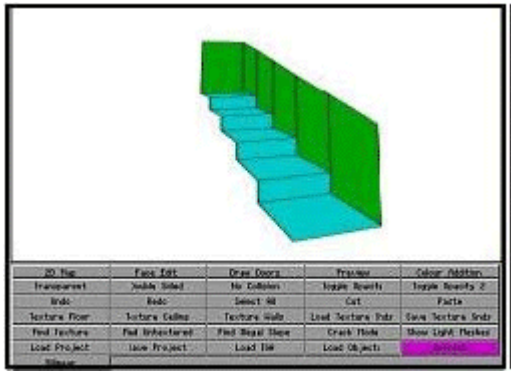
Though the crack mode doesn't detect it, there still is a crack here (red).

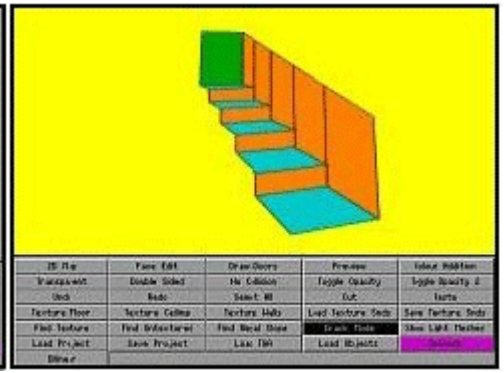


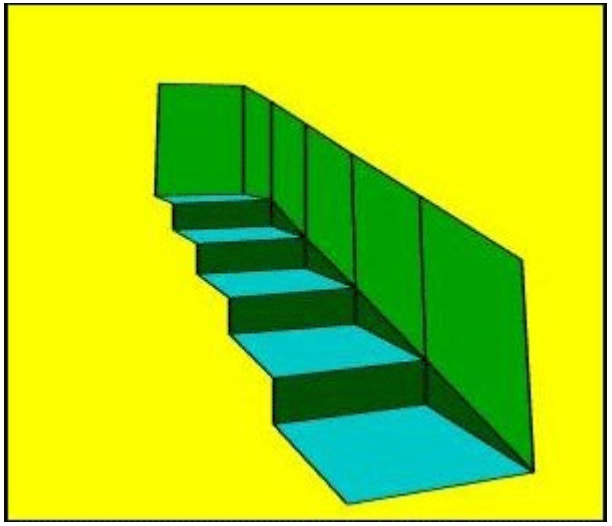
One way to fix the previous situation.



Just to have more examples, here's another likely situation you might be or already have been in. Though nothing is done to the wall segments yet, the way the ceiling and floor are made, have caused the walls to "crack" too.



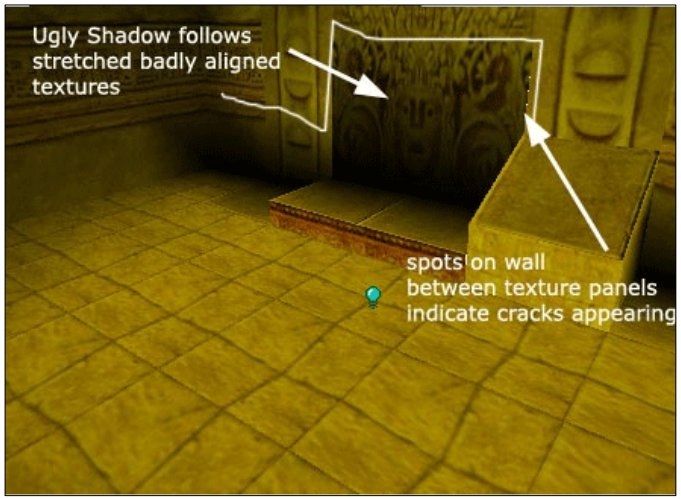




Here is a picture of a possible solution to the crack issue above again. This fixes the ugly split lighting the above cracks would have created. It's best to monitor cracks in your level from the first day you build. As you do, you'll develop a good sense where the cracks are and if they have to be fixed, and will only have to use the crack mode to detect anything your keen eye might have missed.

These are just few countless occasions when you'll have to face the infamous cracks. Whether you take care of them or not and at what occasions you do, more professional look to it - the lighting is fluent and there are no gaps between the textures.

In this example (below) you can see how poorly aligned textures affect the way light and shadows fall on a wall surface. You can also see the tell-take spots indicating that the wall is cracking.

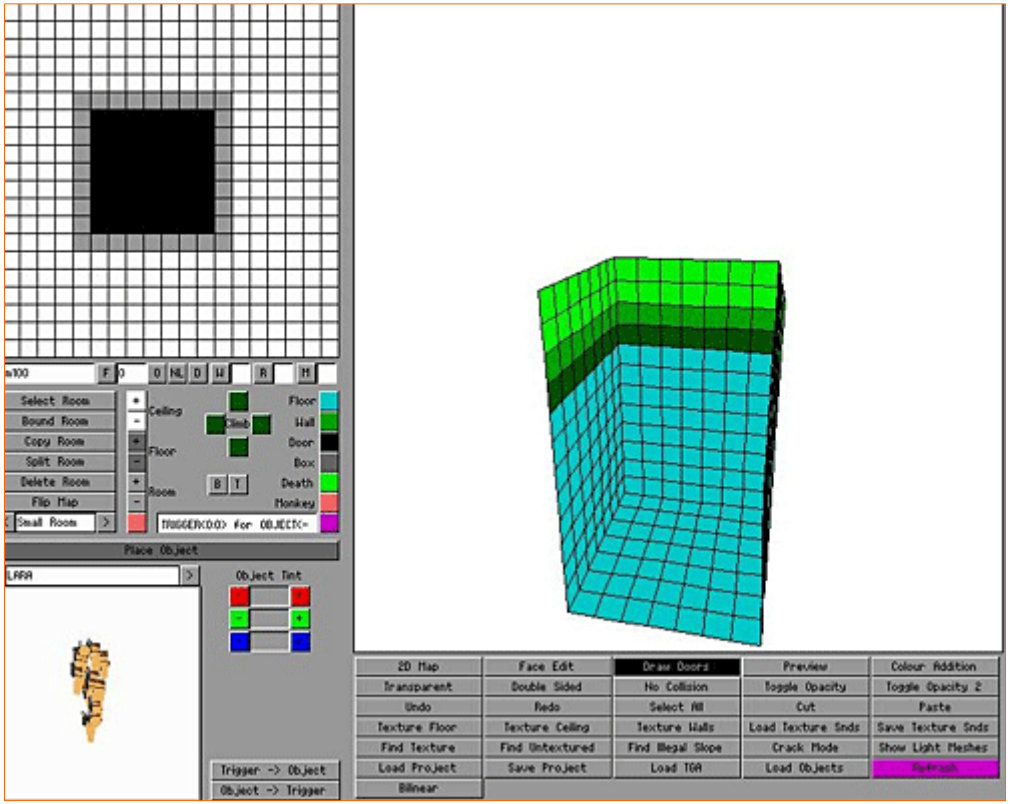


[How to make a TR3 style Tree]

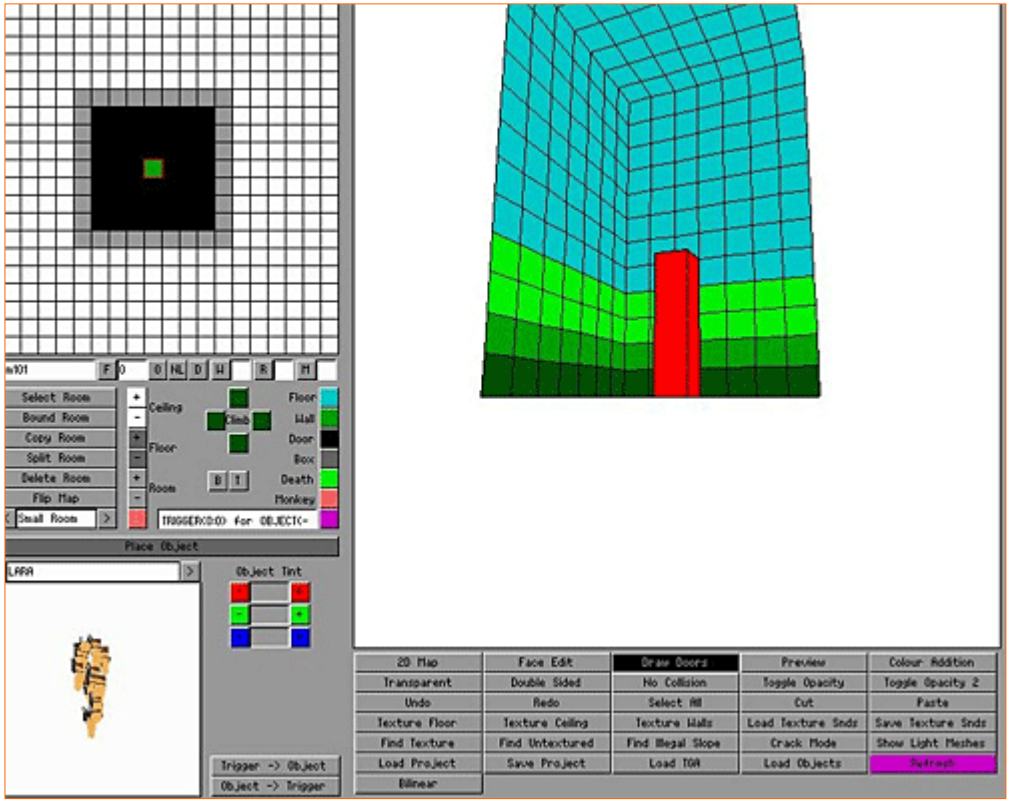
by George Maciver

In this tutorial we will make a very simple tree similar to those seen in the jungle levels of Tomb Raider 3. Once you have learned the basics you will be able to go on to make far more realistic trees with a far greater variety of branches. You can make your trees as high as you like, but for each 'layer' of branches and leaves you will need to stack another room. In this tutorial we will make a tree with two layers of branches and leaves.

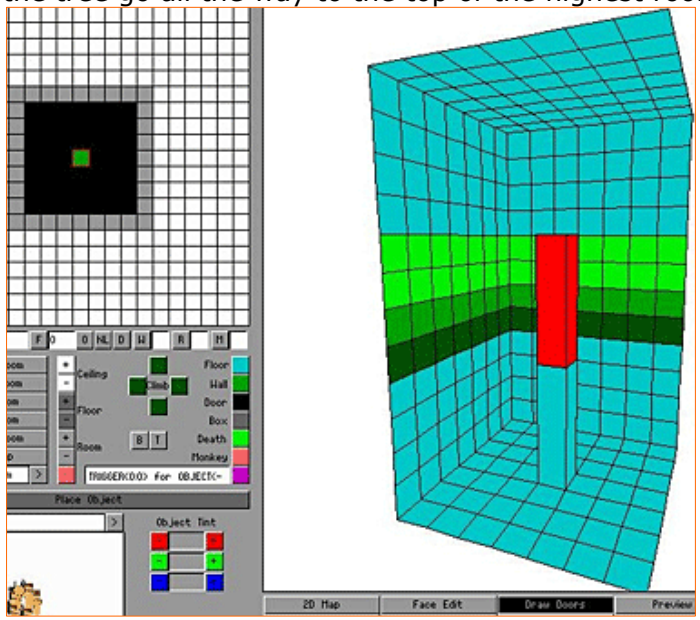
We will begin by making 3 rooms and stacking them.

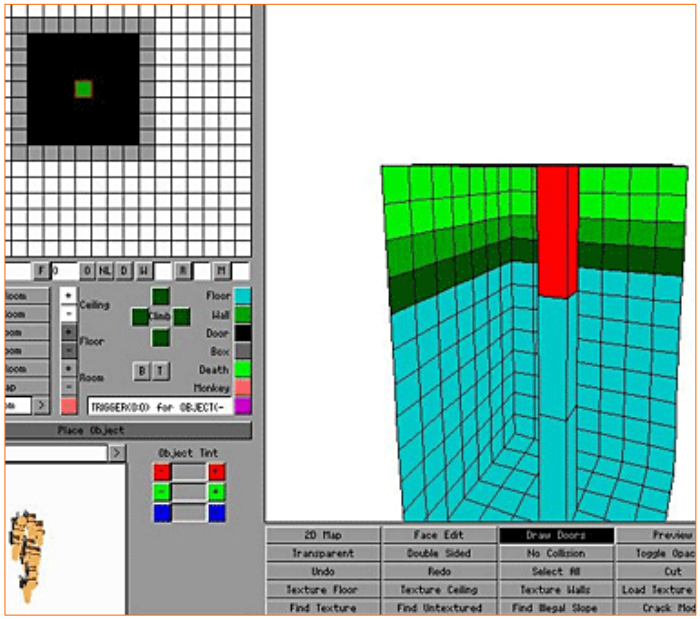


Go to the bottom room and make a wall (press the **Wall button** beneath the Plan View Grid) where you want the tree trunk to be.

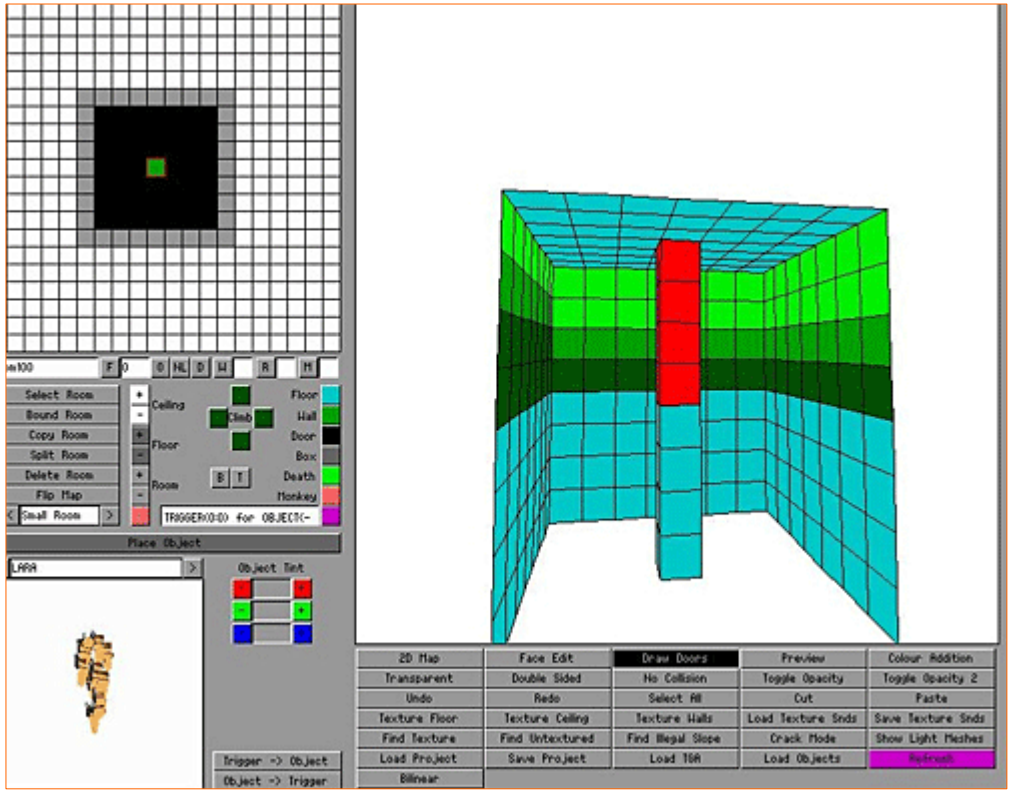


Move up to the second and third stacked rooms and do the same, making the tree go all the way to the top of the highest room.

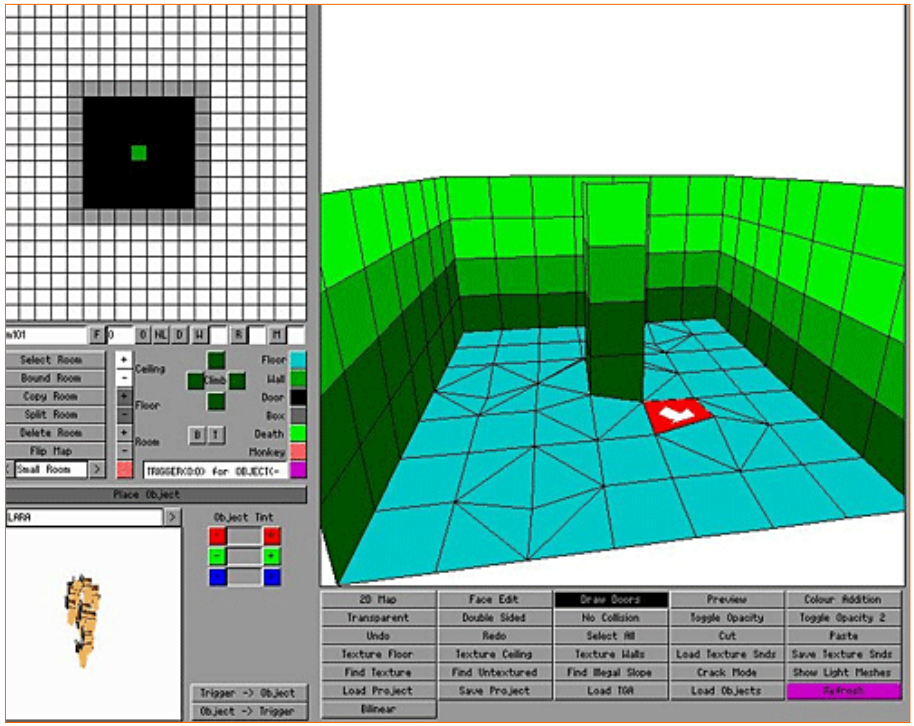


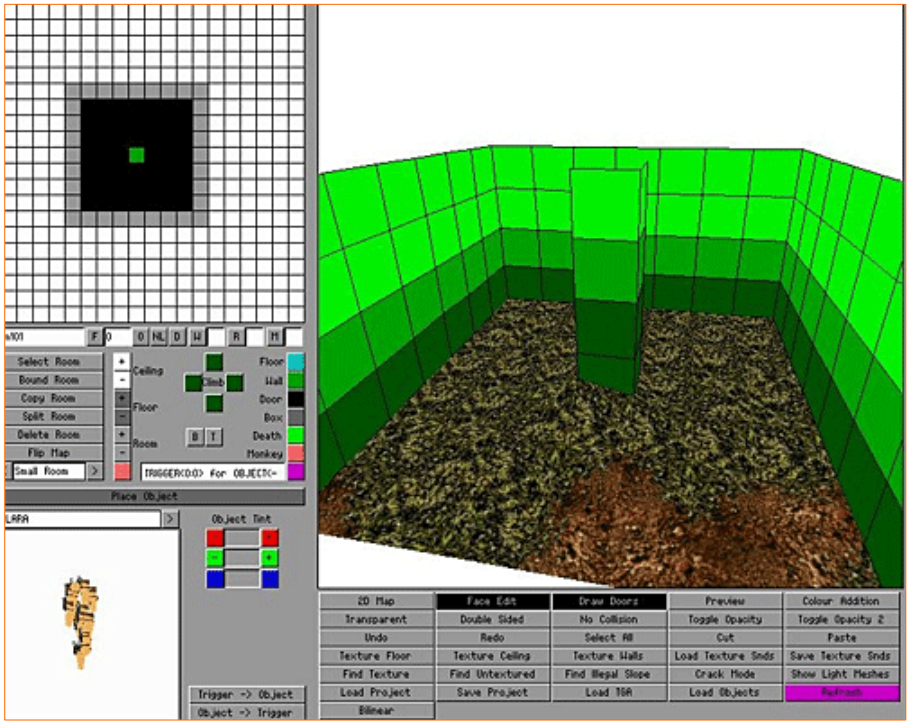


Prepare your tree trunk for texturing.



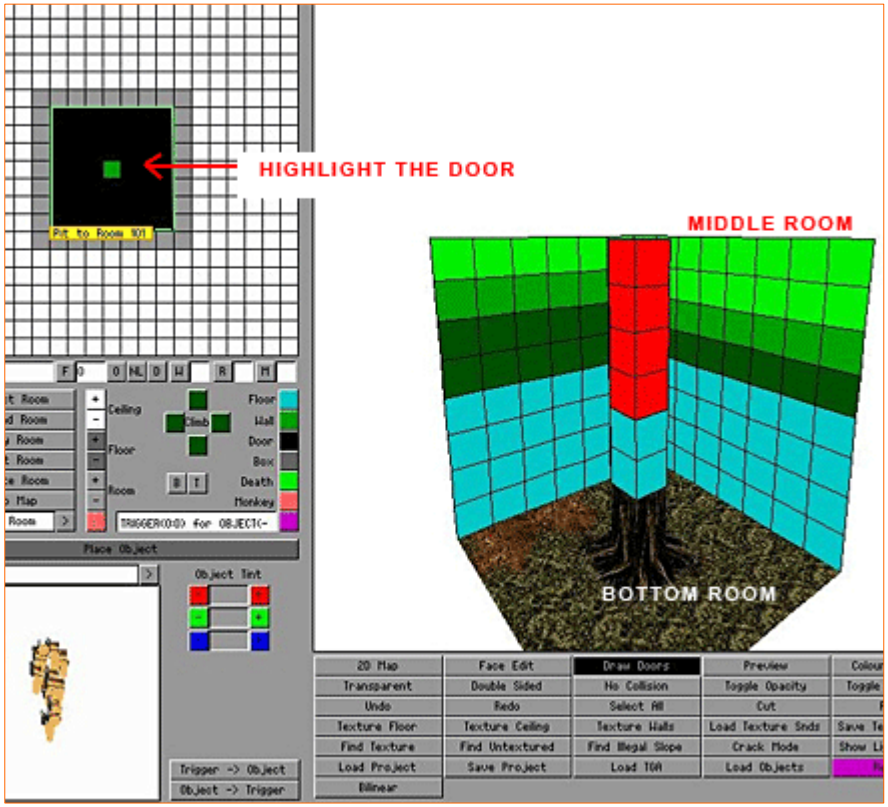
Go to the lowest room and roughen up the ground around the tree and texture it.

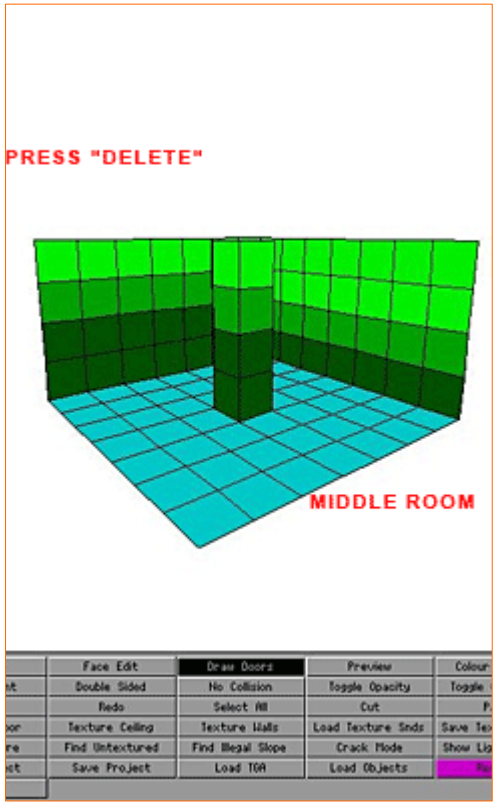




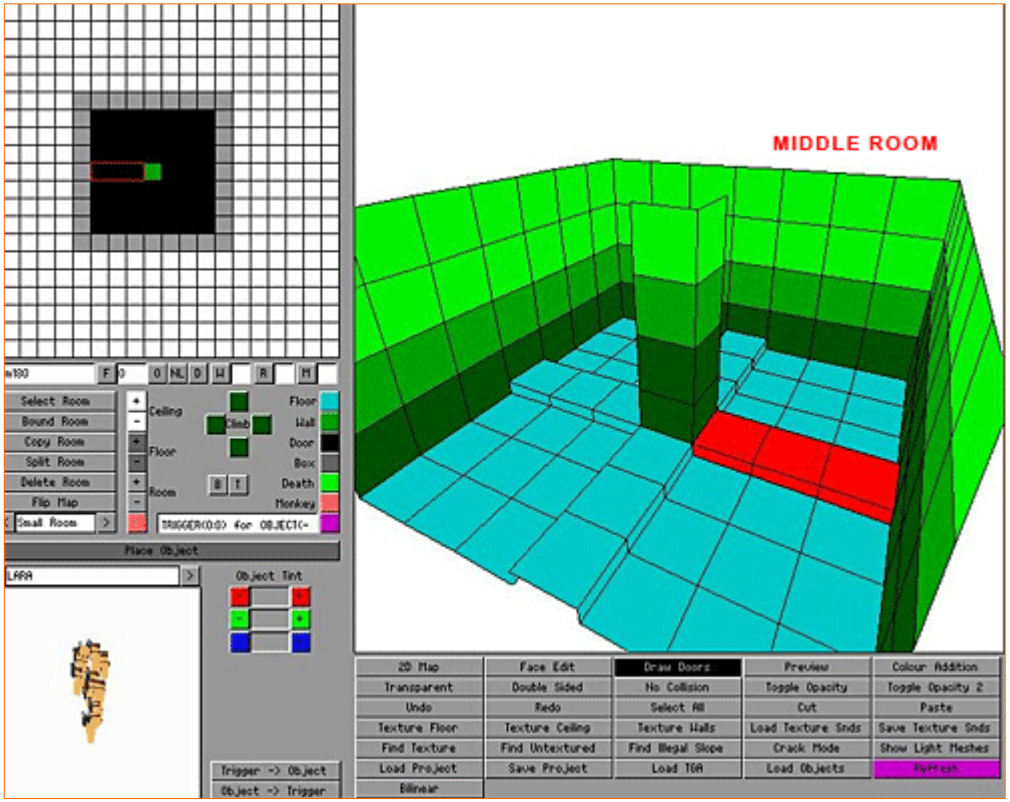
Now texture the roots and the first part of the trunk.

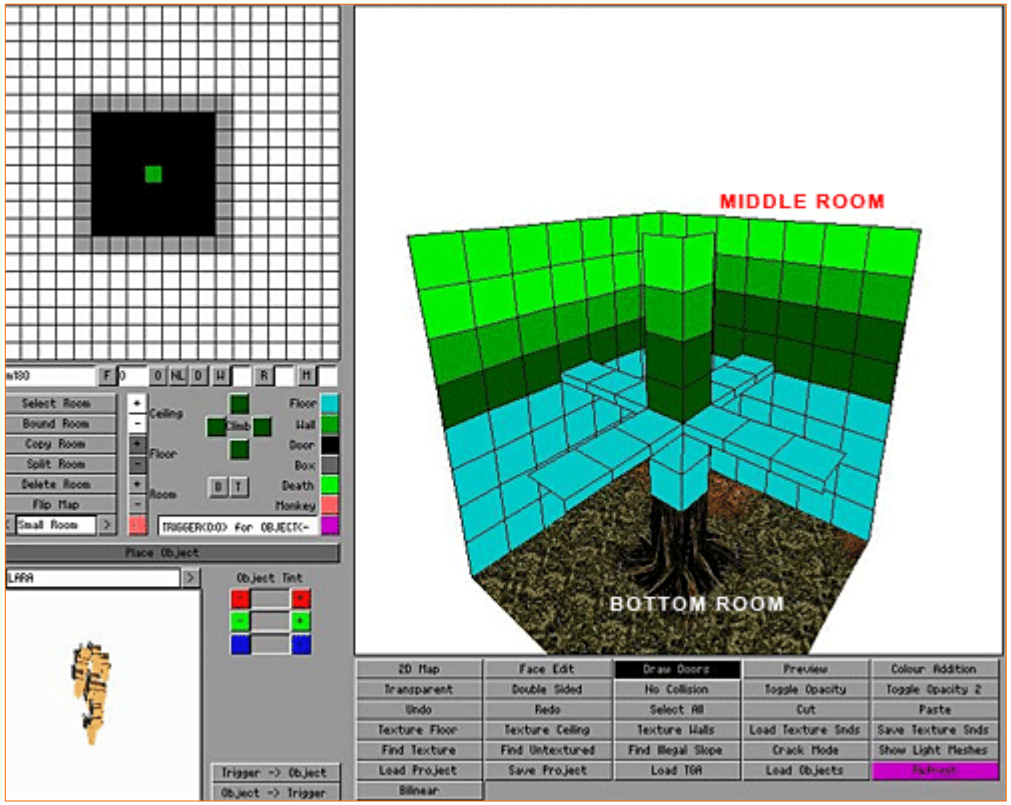
We are now going to make our first layer of branches. So move up to the second floor, highlight the door to the lower room and delete it.



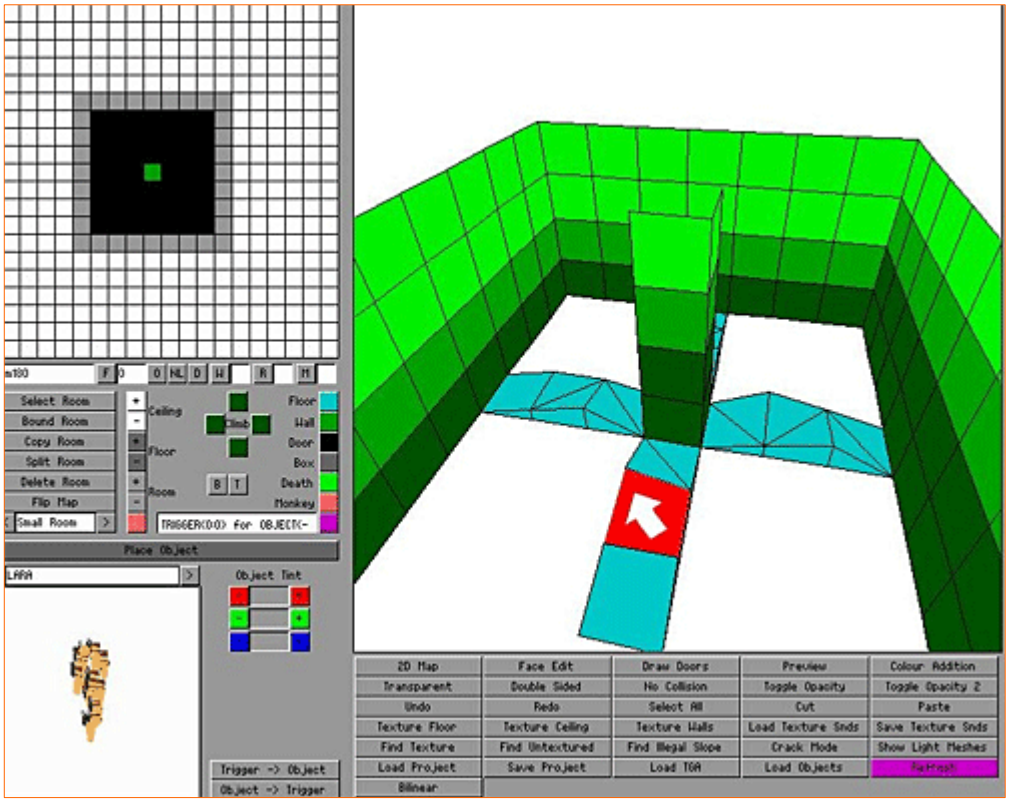


Raise the floor one click where you want your branches to be and then reconnect the room to the ground level.

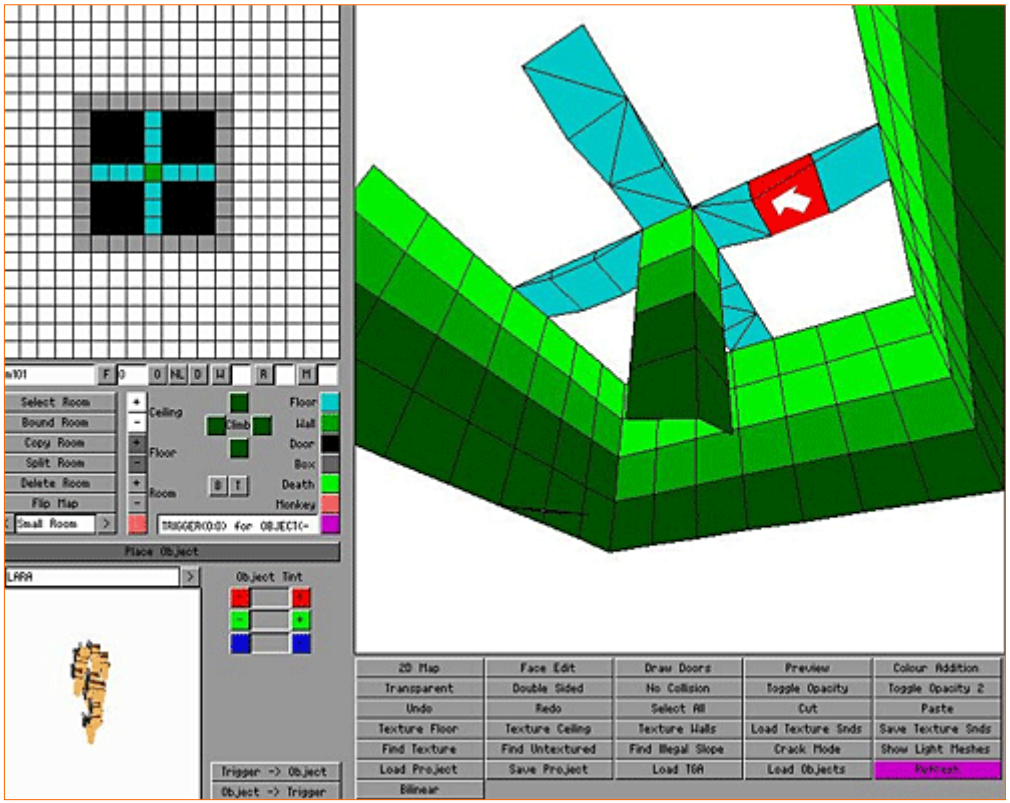




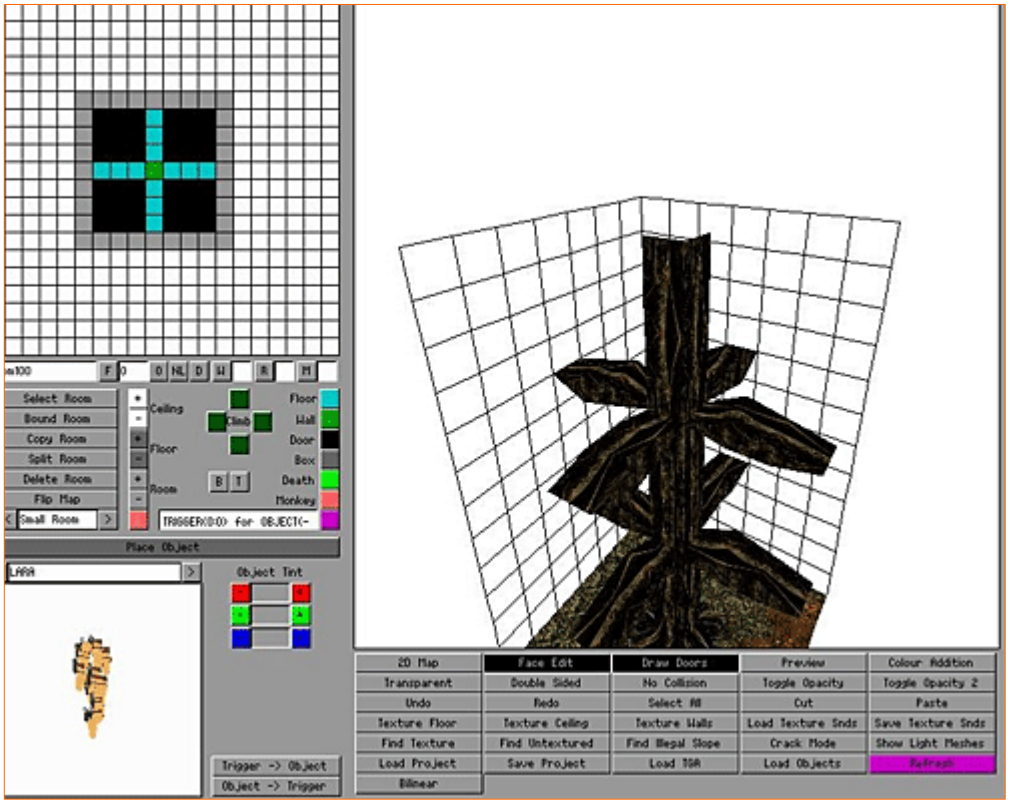
Roughen up your branches a bit, then go the room below and roughen up the undersides of the branches by lowering the ceiling where the branches are. Be careful while doing this when using the **CTRL** key to lower and raise floor and ceiling tiles together as you may ruin the door opening by lowering or raising tiles in the actual doorway. If this happens, simply delete the door, fix the wrong floor and ceiling tiles, and rejoin the rooms.



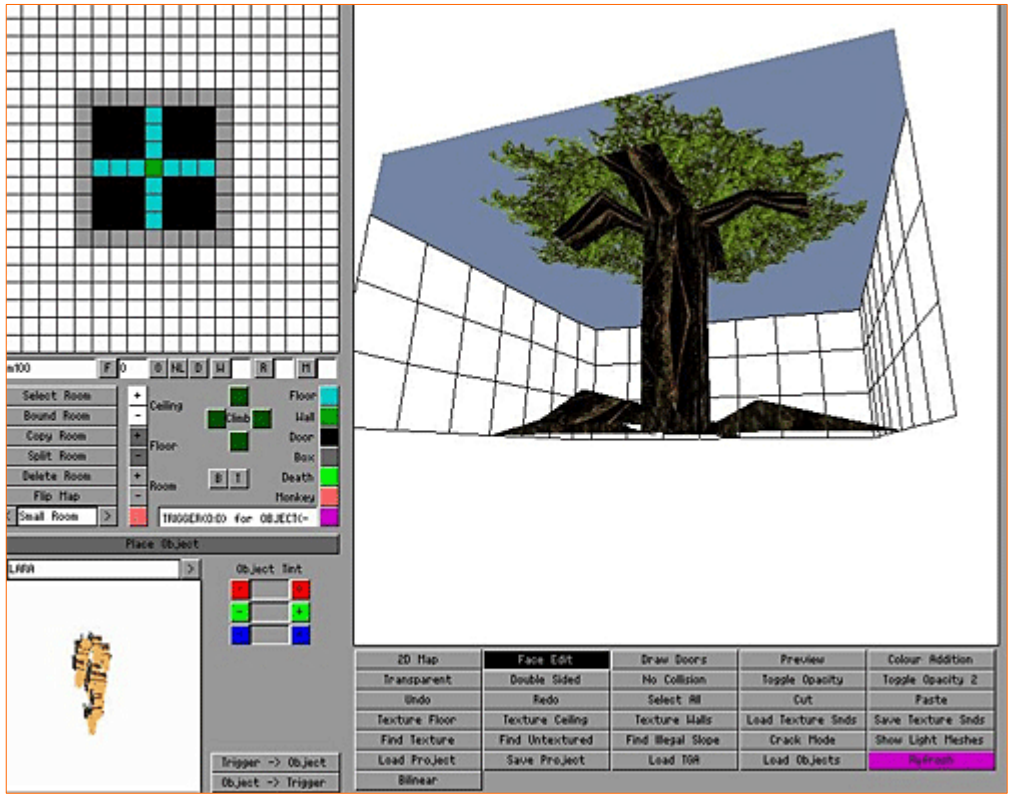
Notice how I lower the floor and ceiling tiles where branches join the tree trunk and the jungle canopy. This is important as cracks of light show through in levels where texture lines don't match up and you have an Horizon enabled. If you have no Horizon enabled, or are using a black horizon as in the city WAD, then this isn't so important.



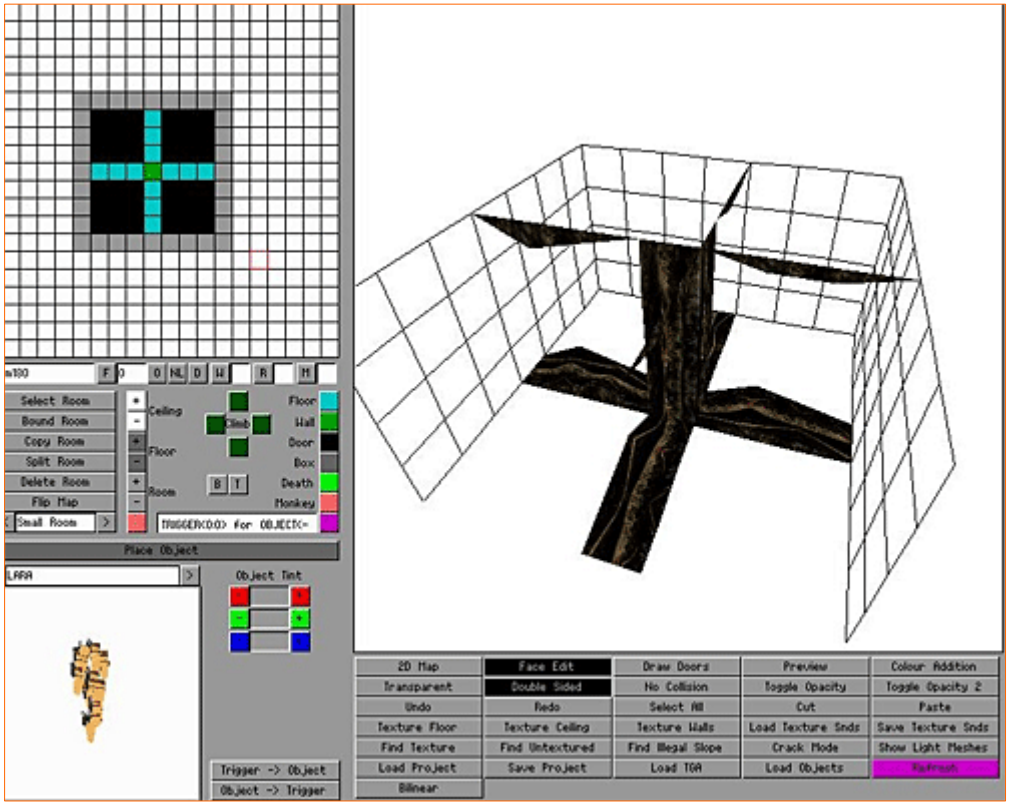
Now do the same with the top layer of branches, then texture your tree. In the screen shots I've textured the walls with sky textures to make the tree easier to see.



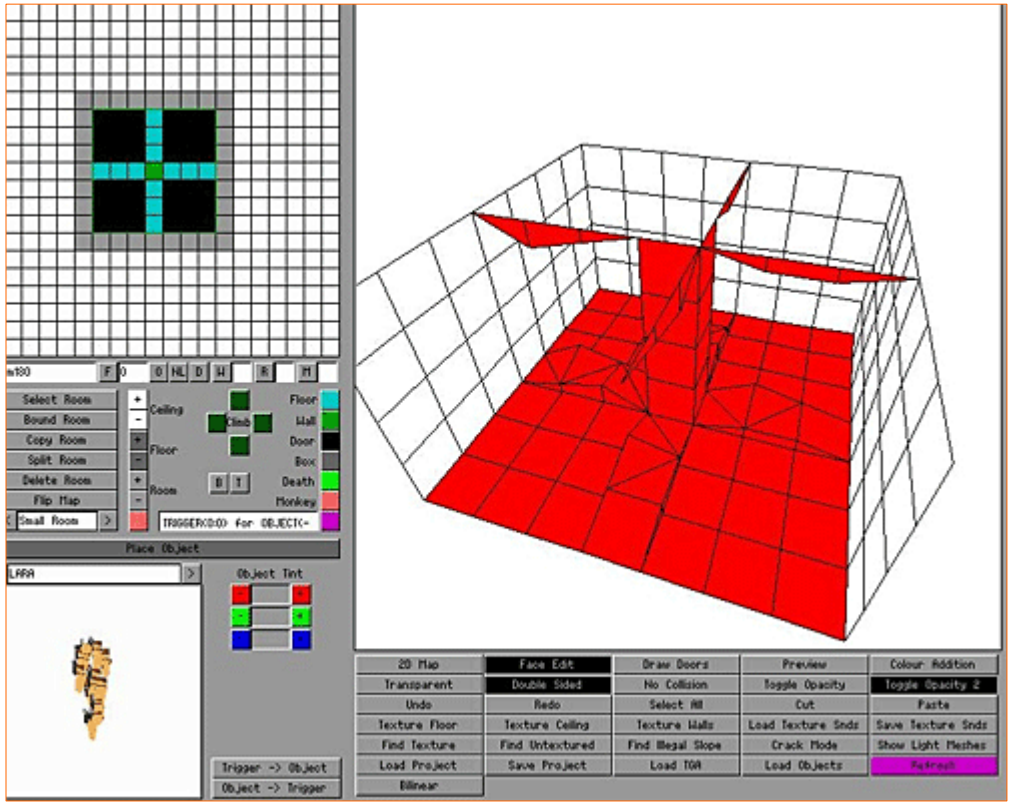
Before doing the leaves, let's make a nice sky and finish the top of the tree. There is no horizon being used here so I'm using the sky and sky/leaf textures to make it look like sky. If you were using a horizon you would use the transparent leaf textures instead. First, roughen up the 'sky' and then texture it, putting in a few branches and leaves to make it look as real as possible.



Now we're going to make the first layer of leaves so head down to the middle room and hit the **Face Edit** and **Double Sided** buttons (double sided means the leaves will be visible from above as well as from below).

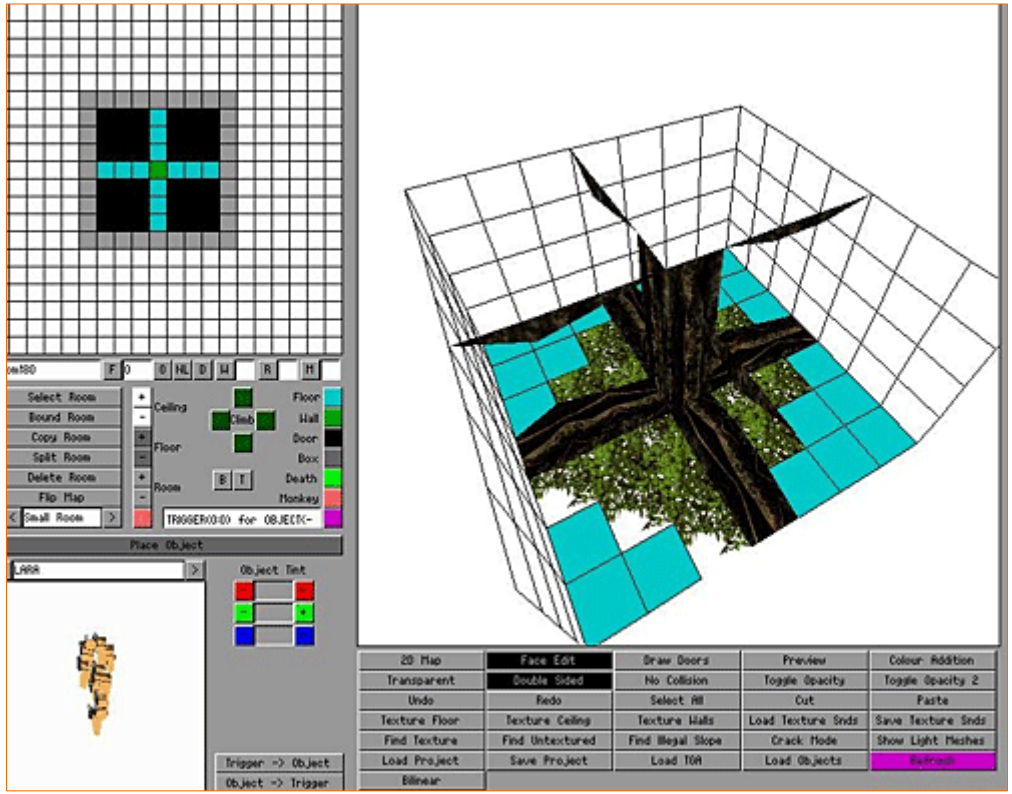


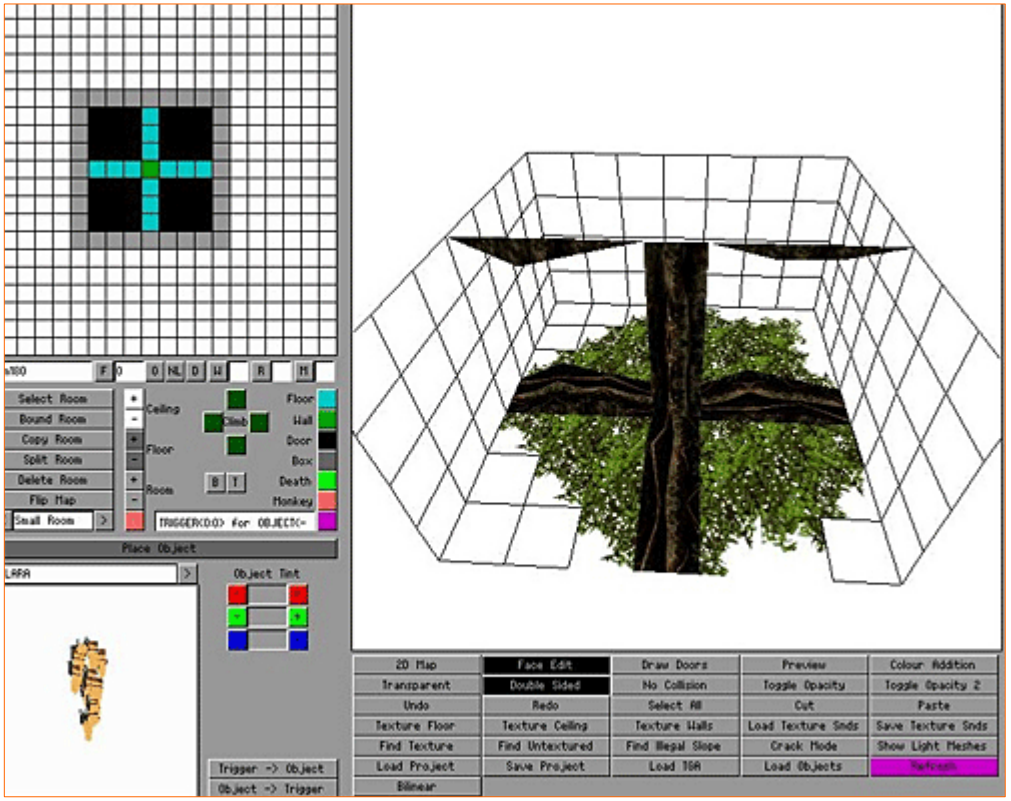
When you've done that, highlight the door to the room below and hit the **Toggle Opacity 2** button (do not hit **Toggle Opacity** or you will not be able to move up and down the tree).



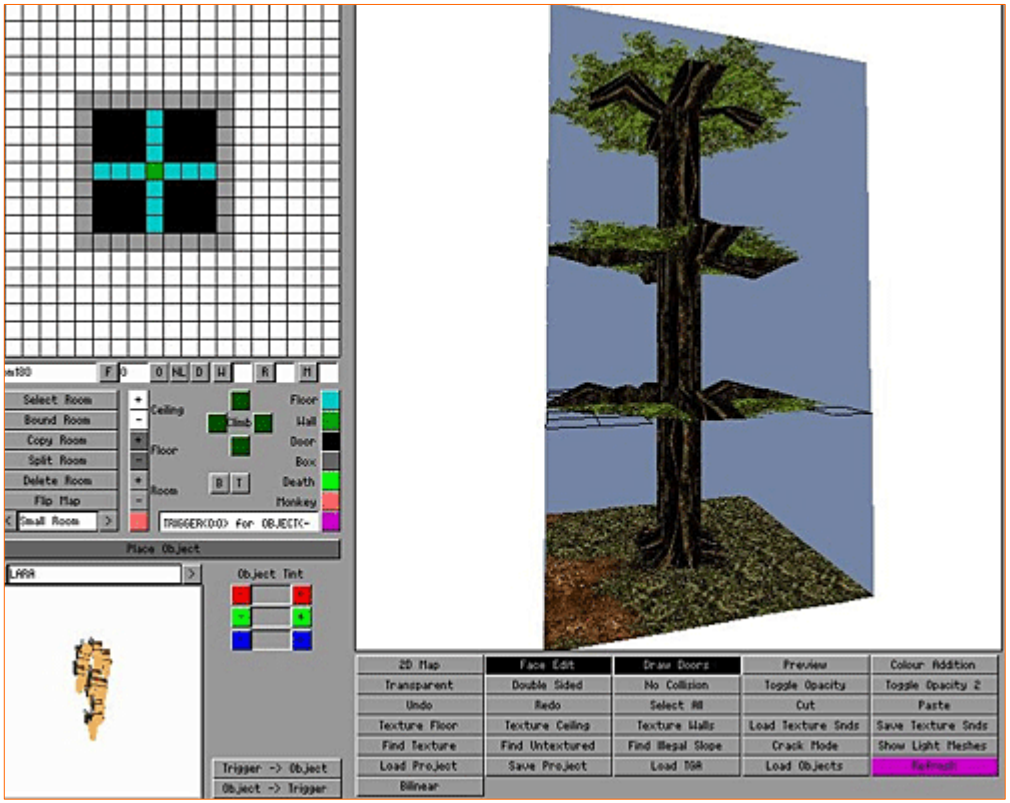
Now add your transparent leaf textures (as opposed to the solid green leaf textures) so you will be able to see through the canopy to the level above and below. By that I mean the transparent textures, NOT making the textures transparent by highlighting the **Transparent** button next to the **Double Sided** button.

Where you do not want leaves, use the normal transparent sky black colour in the palette. Then do the same with the other branch layer.

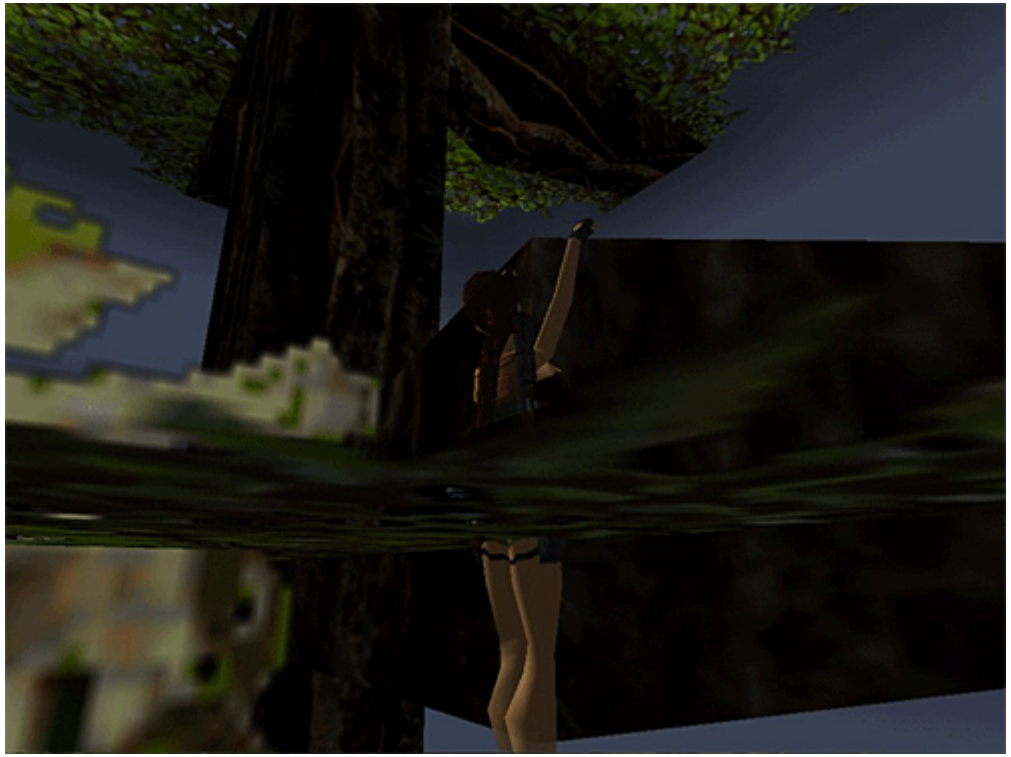




For clarity's sake, so you can see what I've done, I'm now going to colour all the walls in with blue sky to show off the tree. Like I said, this is a very basic tree so you can learn the fundamentals. If you wish to make better trees, take a wander through the jungle levels of Tomb Raider 3 and see how the Tomb Raider Devs put together such a wonderfully rich jungle environment.



All you need to do now is light your rooms and add a few objects. As you can see, Lara will be able to move through the leaves and be able to see what's above and below her through the leaf canopy.



When you test your level in game, use **DOZY** and fly around your trees to make sure Lara can go up and down through all the leaves. It's easy to hit Toggle Opacity 1 by mistake, so if it happens, simply delete the door and rejoin the rooms, hit Double Sided and Face Edit again and then hit Toggle Opacity 2. When you apply one texture, all the others will reappear for you as they were when you first applied them.

If, when you've done this, you see "zig zaggy" lines looking up through the tree canopy, it means the ceiling of the room you're looking up through was textured before you textured the floor of the room above with leaves and the two sets are applied to your level. Simply delete the doorway between the two rooms, use transparent sky textures on the ceiling of the room below, re-join the rooms as detailed above and the problem will be gone.

[How to use Flipmaps]

by Uvavoo

Flipmaps are a great way to create puzzles. They are quite easy to produce but can be confusing at first. Put simply a flipped room is a duplicate of an existing room which you can then make changes to and trigger in game. Here are the steps needed to make a flipmapped room:

1. Ensure the room you are going to flip is fully textured and all connections (doors) are created.
2. When you are happy, click on the **F** button and type in a number next to it (start at 1).
3. You will see the background of the LE window turn black. This is an indication that you are now working in the flipped room. (You cannot select the flipped room from the **Select Room** box, so **ALT+F** to return to the normal room).
4. Make changes to the room. Examples of changes are:

- You can change from a dry to a water room.
- You can re-texture any part of/ all of the room.
- You can change the room geometry.
- You can change the lighting (using the existing lights and ambient light).
- Toggle the opacity of connected doors.

5. That's it. All you need do now is set a trigger for the flipmap. Set the object type to **FLIPMAP** in the trigger window and put the number of the flipmap in the top right window. When triggered, the room will immediately change to the flipped room.

General rules and warnings

1. In the Level Editor press **ALT+F** to flip between the flipped and normal room (look out for the black background).

2. Avoid flipping very large areas or areas containing many objects.

3. Avoid triggering baddies in flipped rooms, they behave very unpredictably.

4. If you wish to trigger something from the flipped room you must set up the triggers **IN** the flipped room. They will only trigger from the flipped room.

5. Clicking the **F** button again deletes the flipped room.

Flipmap bug: It is possible when using a flipmap that if the player saves and reloads after the flipmap is triggered, the flipmap can revert to its unflipped state. It is not known why this happens but if not too many flipmaps are used and they are not overly complex rooms, then this bug doesn't tend to show itself. **Test flipmaps very carefully**.

Examples of the use of flipmaps

- The most obvious use it so change a dry room to a water room. Remember the clever puzzles in the TR1 level 'The Cistern'.

- You could trigger an 'earthquake'. When returning to the room the geometry changes and you can access different areas, get to doors you couldn't reach before.
- Use a switch in a darkened room to turn on the lights using a flipmap.
- Use 'death' squares in the flipped room (water changes to acid for example).
- Blow a hole in a wall, changing the opacity and textures of a 'door'.

Flipon\ Flipoff

You can also use the **flipon** and **flipoff** operators to alternate the flipped room to normal and back again. You must trigger the flipmap first though as described earlier.

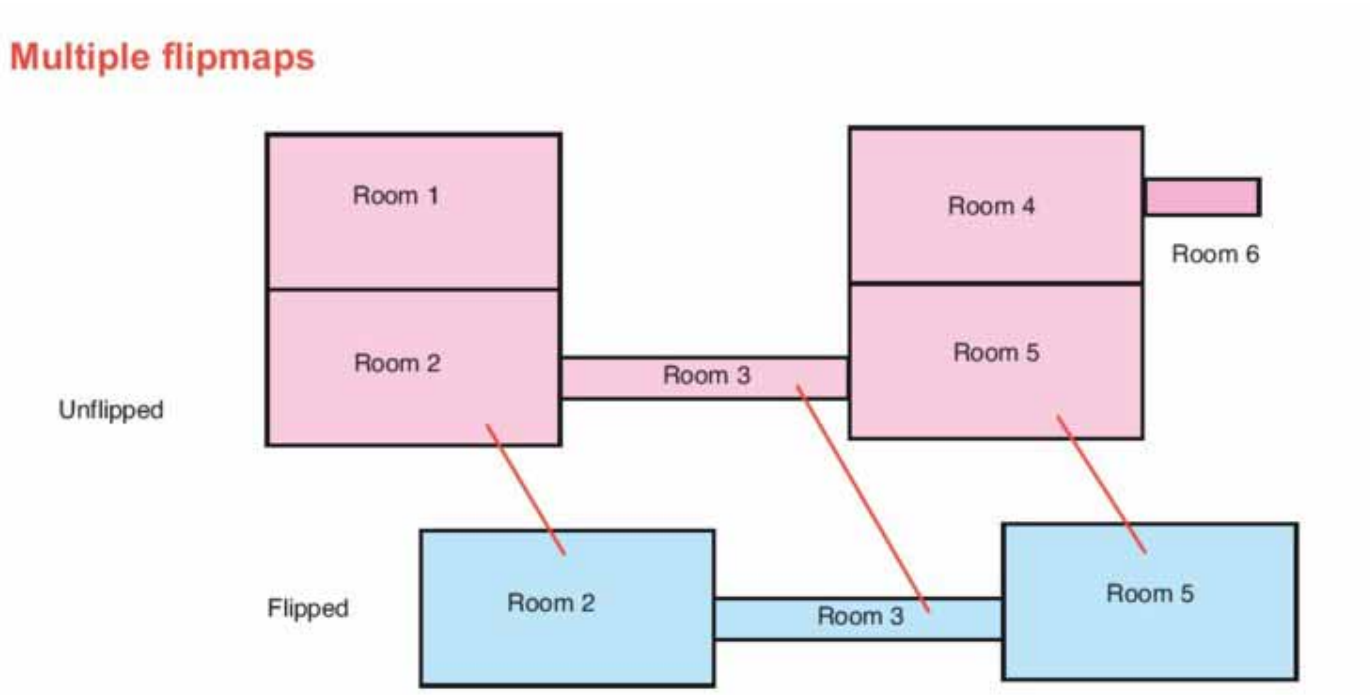
Multiple flipmaps

You can trigger many flipmaps at once. The diagram below shows how this is done.

Imagine you are in **Room 4** but you cannot get to **Room 5** and progress further, because the drop is too high. In this example we are going to change **Rooms 2**, **3** and **5** to water rooms to allow player to progress further.

First complete all rooms and texture them and make all connections. Now in turn, click on each of the rooms and click on the **F** button and put the **SAME NUMBER** in the space next to the F for all the rooms (lets say 1 in this example). Change each room to a 'Water' room. Don't forget to texture the surface of the water and to change the ambient light to a more bluish water colour.

Set a trigger in **Room 6** for **FLIPMAP 1** and all the rooms will change to water at once thus allowing you to swim from **Room 5** to **Room 2** and gain access to **Room 1**. You could of course use the FLIPOFF trigger to switch it back to dry land to further complicate the puzzle (e.g. a lever switch needs to be pulled in **Room 2**).



[Flipmaps with multiple Switches and Cameras]

by George Maciver

In this tutorial we are going to use four levers to flood a room after which you will be able to swim to a new area (as shown in the images on the right).

After pulling all four switches, a trapdoor will close in a waterfall pool in another area making it look as if that caused the flooding.

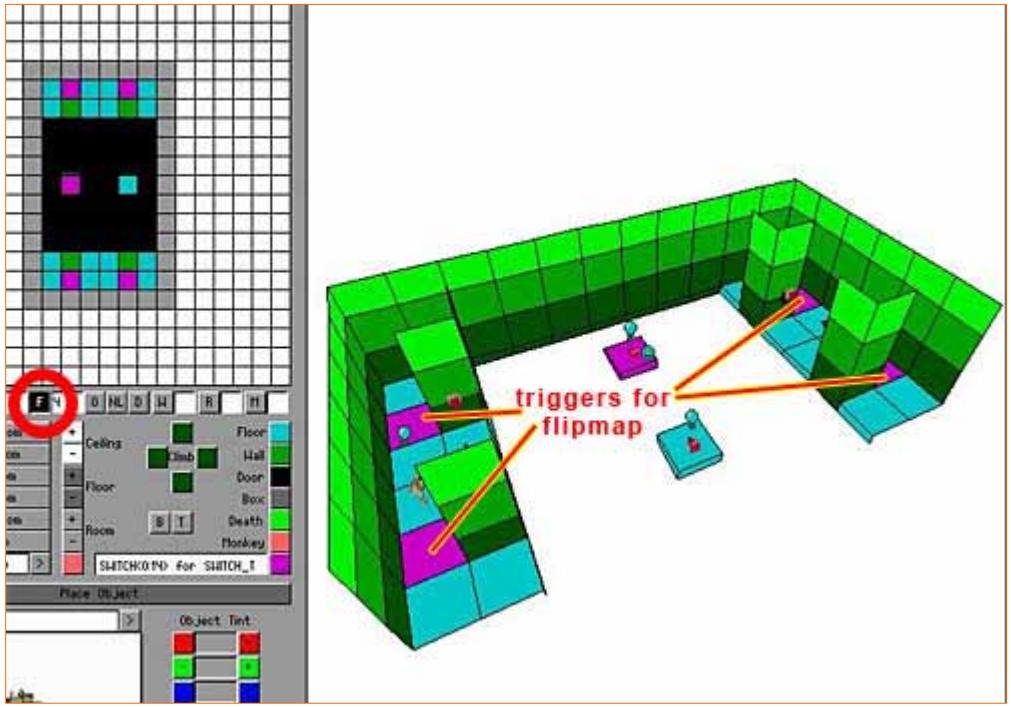
After each of the four switches is pulled, there will be a camera shot of the trapdoor.

When the fourth switch is pulled, a **flyby cam** will show the trapdoor closing and the room flooding. It will not matter in which order you pull the switches - the flyby cam will not start up until the fourth switch is pulled. You will be able to see this particular setup in *The Caves of Water* level of Jungle Ruins 3.

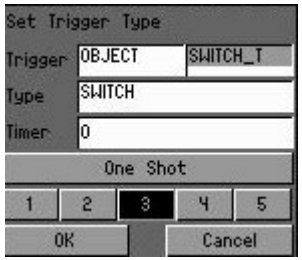
This setup will involve **two** flipmaps, so first place all your cameras and finish your texturing BEFORE making your flipmaps. This is very important as if you make any changes to either the original rooms or the flipped rooms later, the changes will not be reflected in the other rooms.

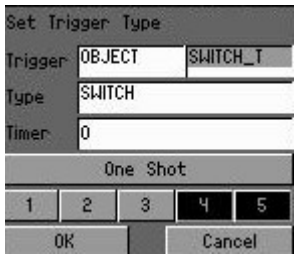
The first flipmap will be in the switches room. When the room flips, it will set off a flyby cam sequence which will flip the second room.

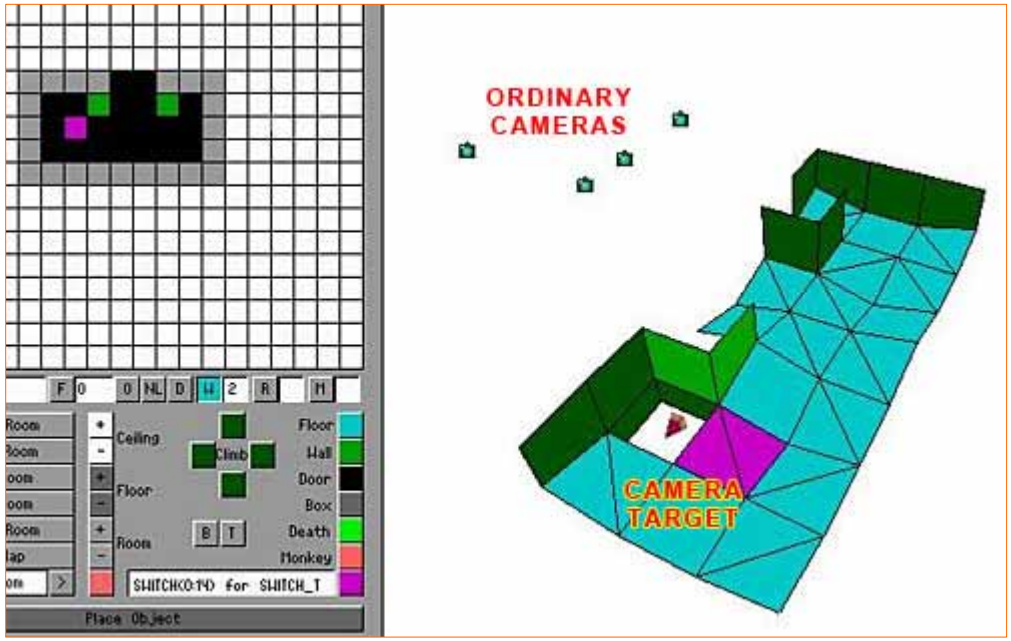
Make your **first flipmap** (the switches room) and place an ordinary trigger for it on each of the four switches.



Now place your switch triggers, setting the OCBs as below so that the room does not flip until all four switches have been operated.

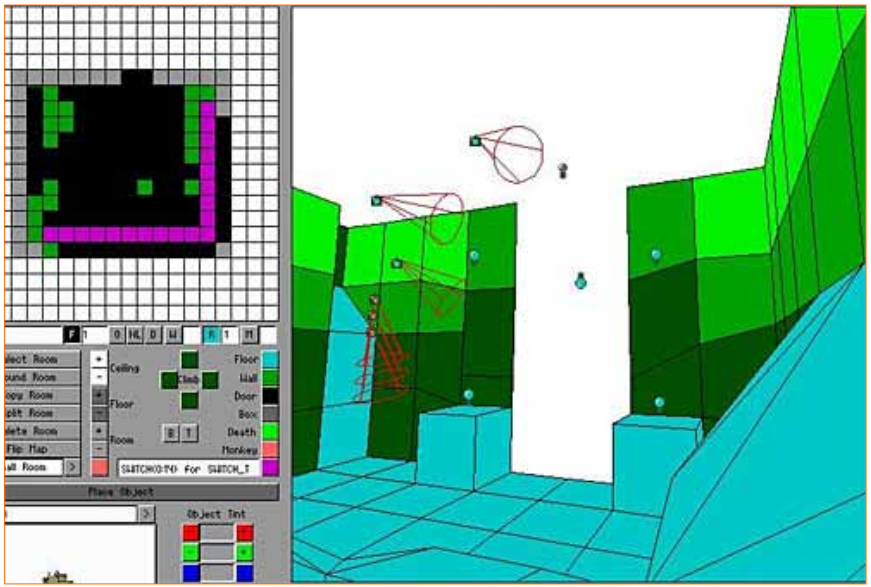






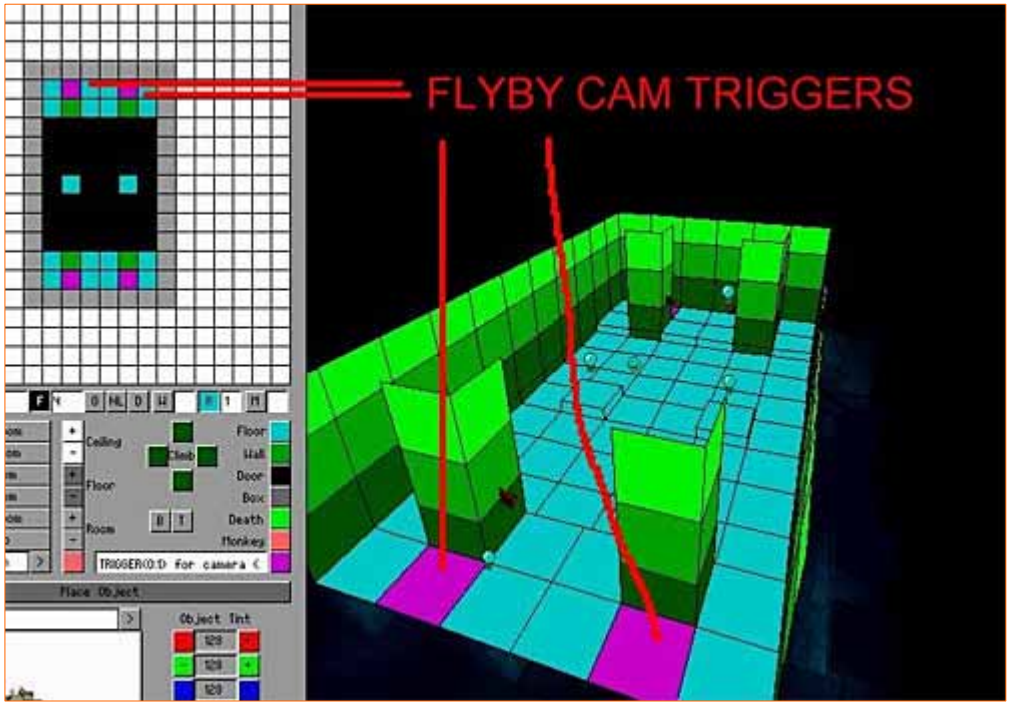
Next, we will place **four ordinary cameras** and a **camera target** above the trapdoor in the water room.

Place an **ordinary camera trigger** on each of the four switches, making sure each camera trigger goes on a different switch. Now place a **target trigger** for the camera target on each of the four switches. Nothing will happen when only three switches have been operated. Using the last switch will trigger our first flip map.



Now we will put our flyby cam sequence above the trapdoor.

Flip your room and place a one shot trigger for your flyby cam on each of the four levers. There will be no other triggers on these tiles!



When the fourth switch is used, it will not matter which lever Lara is at, as the flip map will flip and she will be standing on a trigger for the flyby cam.

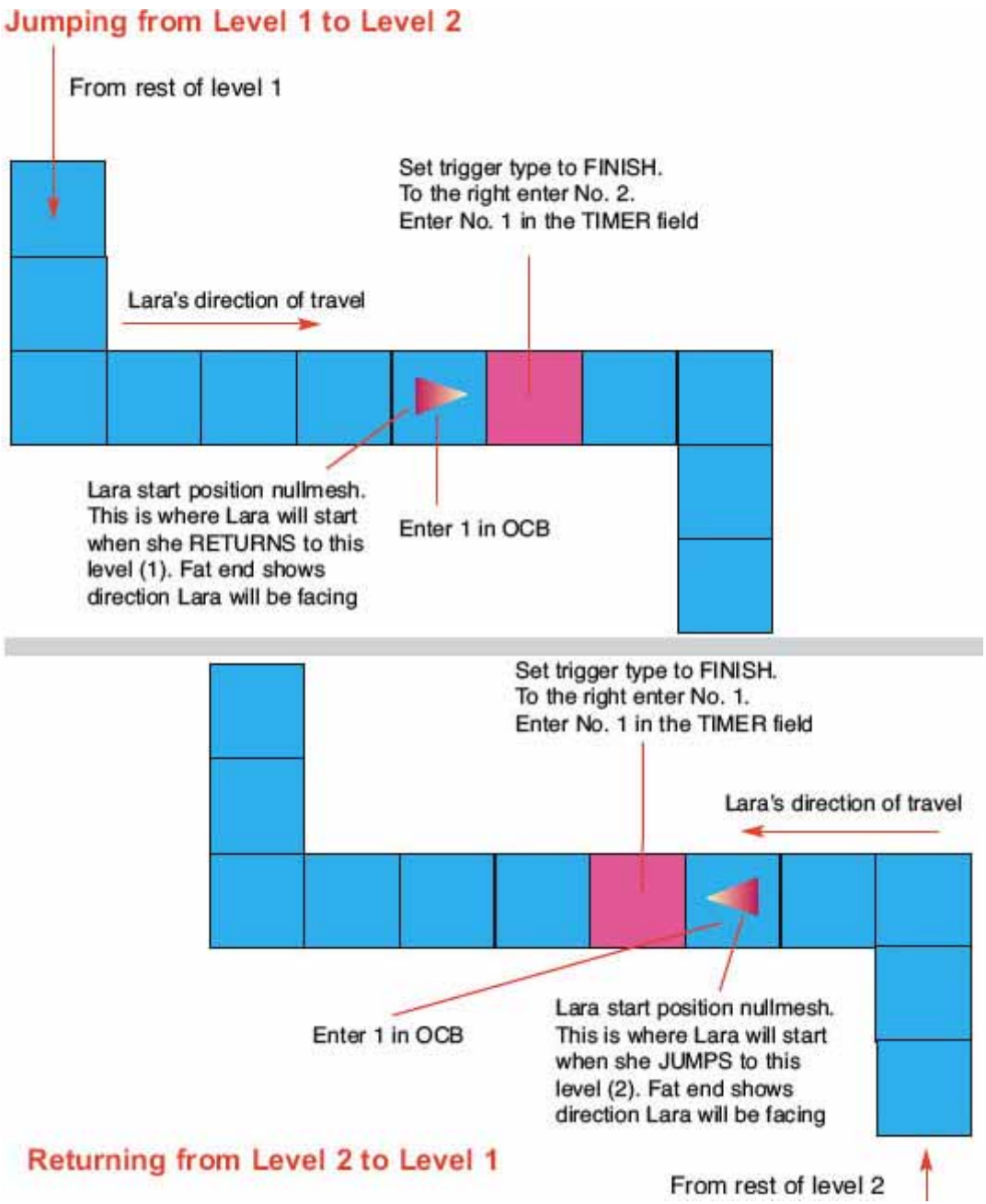
Now use your flyby cam sequence to **Heavy trigger** the other flip maps. *(Do not forget to press the 14 button in the OCB window of the camera you want to activate the Heavy trigger.)*

What happens is that when the fourth lever is operated, the first room flips, landing Lara on the trigger for the flyby cam. At this stage, the water below that room has not been flipped. But as the flyby cam is flying and Lara can't break out, no one will know the water isn't there yet even though that room has been already flipped. This means you can fly around with the flyby cams and show empty rooms, then flip the water rooms to give the perfect illusion of the time it takes to fill the water rooms. Then when Lara gets to look around after the flyby everything looks perfect.

[Level jumping using Lara Start Position nullmesh]

by Uvavoo

1. In **level 1** set a trigger where you want the jump to occur.
2. Set the trigger type to **FINISH** to the right of this type in a **2** (because this is the level you want to jump to).
3. Put the number **1** in the **TIMER** field.
4. Place a **Lara start position** nullmesh in the square *BEFORE* the trigger.
5. Open the OCB for the **Lara start position** nullmesh. Put a **1** in the box, press **Enter** and then **OK**. This is where Lara will appear when she jumps back from level 2.
6. In **level 2**, again set a trigger to jump back.
7. Set the trigger type to **FINISH** and put a **1** in the box this time.
8. Put the number **1** in the **TIMER**.
9. Place a **Lara start position** nullmesh in the square *BEFORE* the trigger.
10. Again open the OCB of the nullmesh and type a **1**.



Things to remember

→ Lara needs to be present in both levels (can be anywhere in the level).

→ You can have more than 1 'jump' in a level. If you do the TIMER fields need to be changed to 2 or more in both levels. The OCB of the **Lara start position** needs also to be changed to 2 or more in both levels.

→ The fat end of the nullmesh points to the direction Lara will be facing when she appears in the new level.

→ Don't forget to set up your Load camera coordinates in both levels.

[Reappearing Ammo]

by George Maciver

If you place Lara in an area with a hard to defeat enemy, how do you ensure there is enough ammo around? Easy, put 128 in the OCB code box and that ammo will reappear when Lara runs out.

This is especially useful, because it means Lara has as much ammo as she needs in one area but she can't stock up her inventory with it which could affect gameplay further into the level.

[Steam Emitter OCB's]

by George Maciver

OCB Number	Description
OCB 0	Steam rises from the ground and doesn't hurt Lara.
OCB 111	Steam comes out from the wall in long bursts with very short intervals. Steam hurts Lara.
OCB 968	Steam comes out from the wall in long bursts with short intervals. Steam hurts Lara.
OCB 1448	Steam comes out from the wall with medium intervals between bursts. Steam hurts Lara.
OCB 1928	Steam comes out from the wall with long intervals between bursts. Steam hurts Lara.

Notes

- The steam comes out in the direction of the cone.
- For steam in crawlspaces, steam emitters should be raised 2 clicks.
- Steam emitters set in water will make bubbles.

[Flame Emitter OCB's]

by George Maciver

Horizontal flames (like those that come from statues mouths) can be timed for when they are on and off. Here are a few OCB codes for the flame emitter:

Please note these are approximations only!

Horizontal Flames *(flame in direction of nullmesh cone)*

OCB	On for... (in seconds)	Off for... (in seconds)	OCB	On for... (in seconds)	Off for... (in seconds)
-2	continuous flame		-12	7	1
-14	5	1	-20	7	2
-21	5	2	-38	7	4
-6	5	3	-44	7	5
-37	5	4	-48	7	6
-32	5	5	-60	7	8
			-72	7	9
-4	6	1	-80	7	10
-3	6	2	-85	7	11
-28	6	3	-102	7	12
-53	6	5	-100	7	13
-52	6	6	-115	7	14
-59	6	7	-112	7	15
-68	6	8	-128	7	16
-64	6	9			
-84	6	11	-70	8	8
-97	6	13			
-107	6	14			
-108	6	15			

Continuous Flame coming from the Wall *(flame doesn't start in the middle of the tile)*

-7	continuous flame from wall

In addition to these constants, there appears to be a few variables mixed in amongst them. Try these if you need variable flame timings:

OCB	On for... (in seconds)	Off for... (in seconds)	On for... (in seconds)	Off for... (in seconds)
-27	5	2	7	2
-40	7	5	5	5
-43	6	5	5	5
-51	8	6	6	6
-54	7	6	6	6
-86	7	11	5	11
-110	6	14	8	14
-116	5	14	7	14

Vertical Flames

OCB	On for... (in seconds)	Off for... (in seconds)	OCB	On for... (in seconds)	Off for... (in seconds)
-1	5	2	-49	7	7
-41	5	5	-81	7	10
			-121	7	14
-9	6	1			
-25	6	3	-65	8	8
-33	6	4			
-57	6	7			
-73	6	9			
-113	6	14			
-129	6	17			

There is a definite mathematical formula involved, which increases in OCB increments of 8. For example, **minus** OCB numbers 2, 10, 18, 26, 34, 42, 50 etc are all a continuous flame. Also, there appears to be no limit to how high these OCBs can go as an OCB of -500 gives you a horizontal flame that is on for 6 seconds and off for over a minute!

Flame Emitter 2 OCBs

OCB	Description
1	Small flame
2	Small flame moving slowly along the floor in the direction of the cone
4	Tiny flame
123	Small flame in centre of tile (perfect for candles)

Flame Emitter 3 OCBs

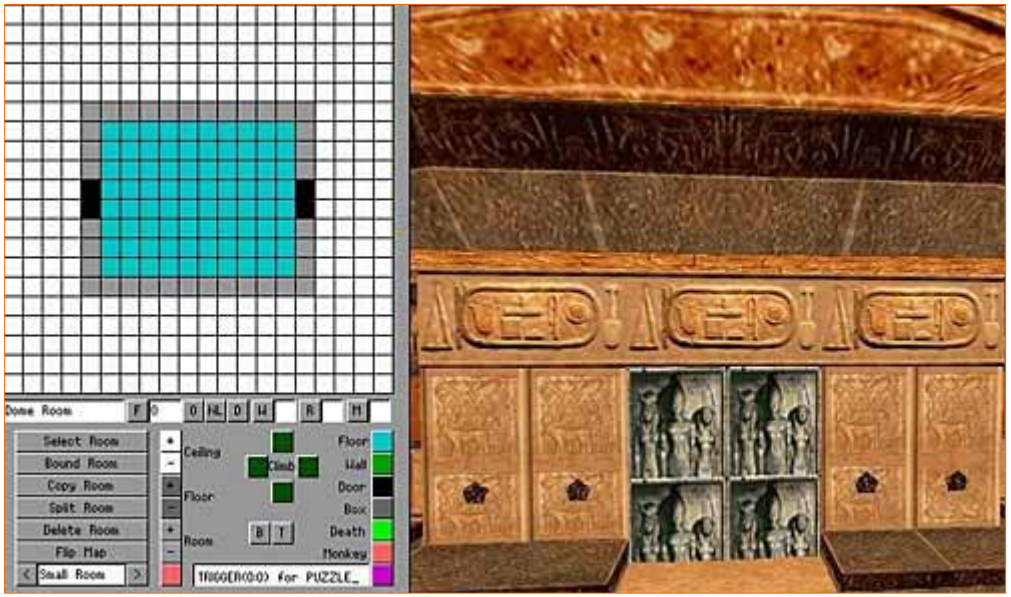
OCB	Description
1	Small blue electric arc
2	Blue electric arc from point of cone
3	Large electric arc projecting holograph
888	Big ball of lightning that follows Lara

[Multi Switches to open Doors]

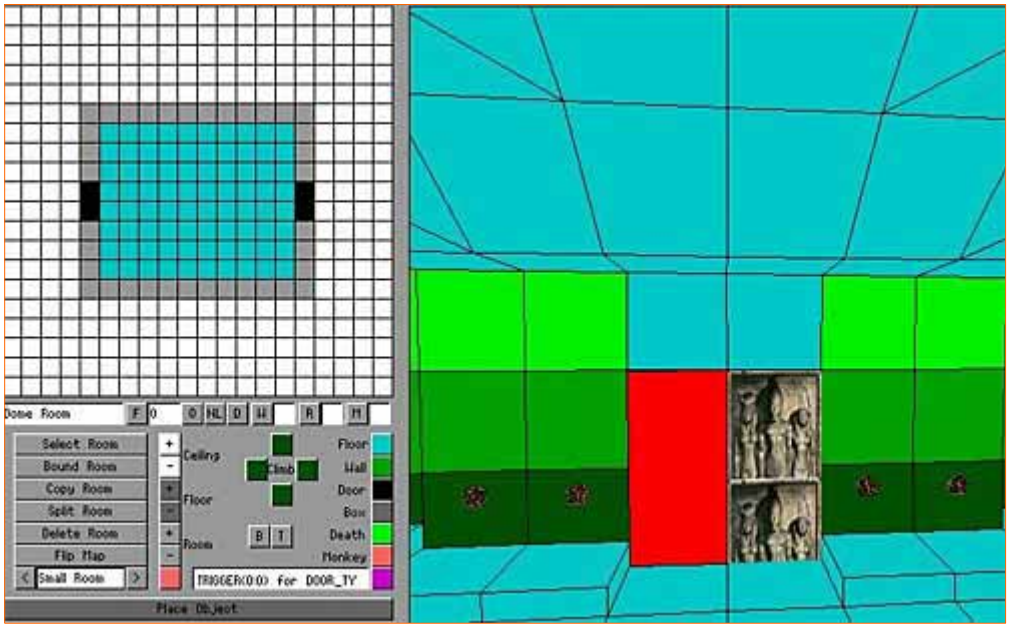
by George Maciver

In this tutorial we are going to open a set of double doors using 4 puzzle pieces.

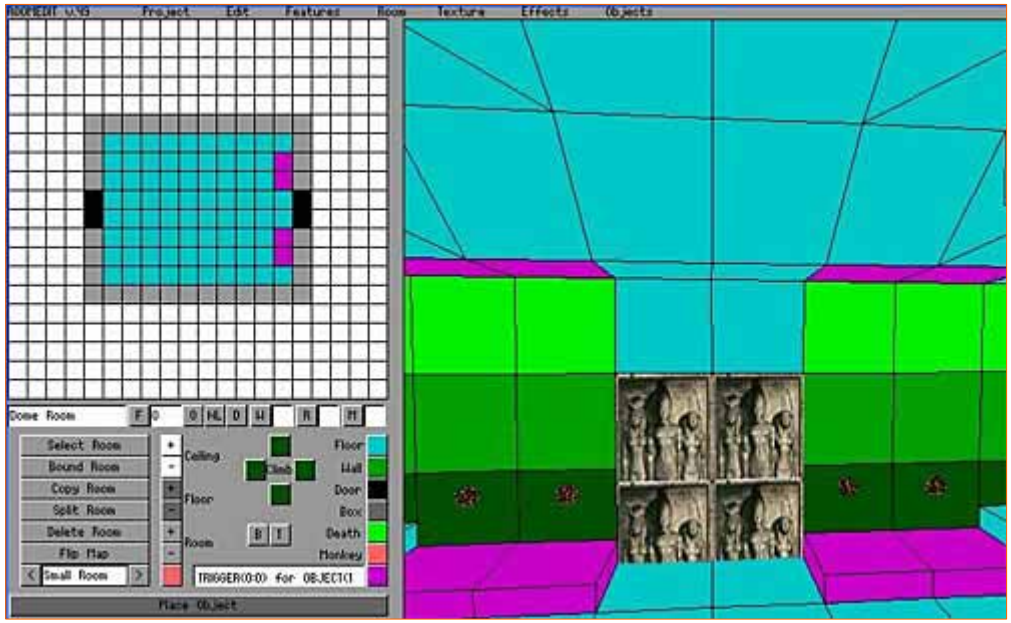
First, place your doors and puzzle items.



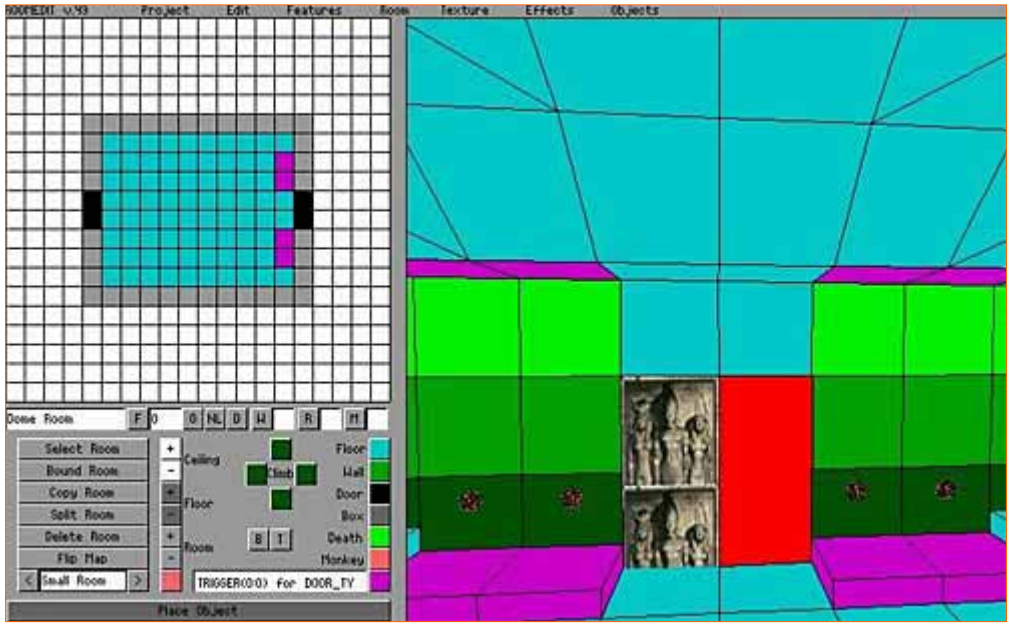
Select one of the doors.



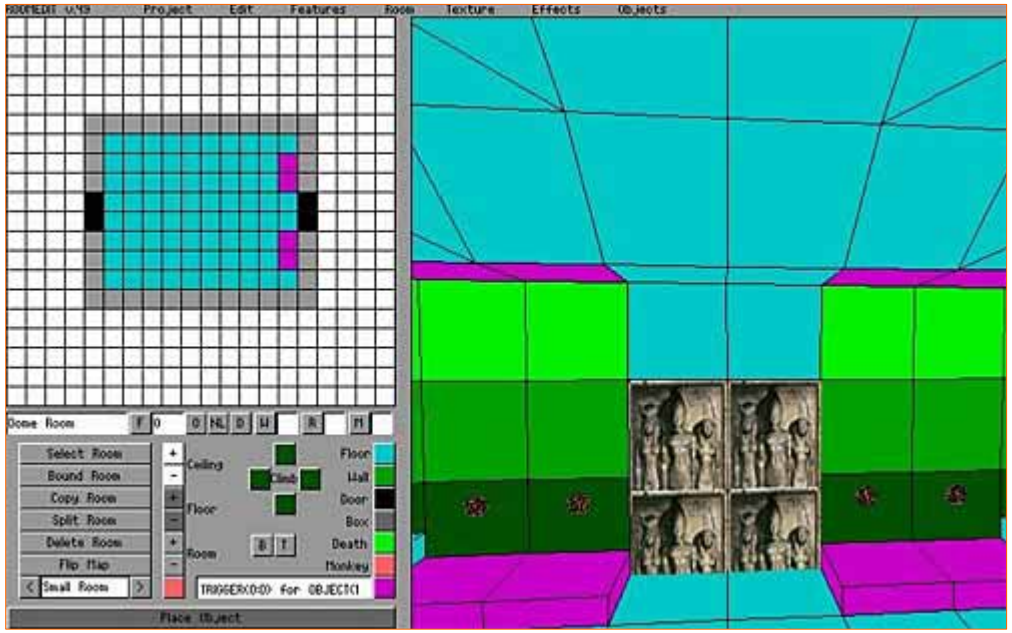
Now place an ordinary trigger for it on every floor tile where there is a puzzle hole.



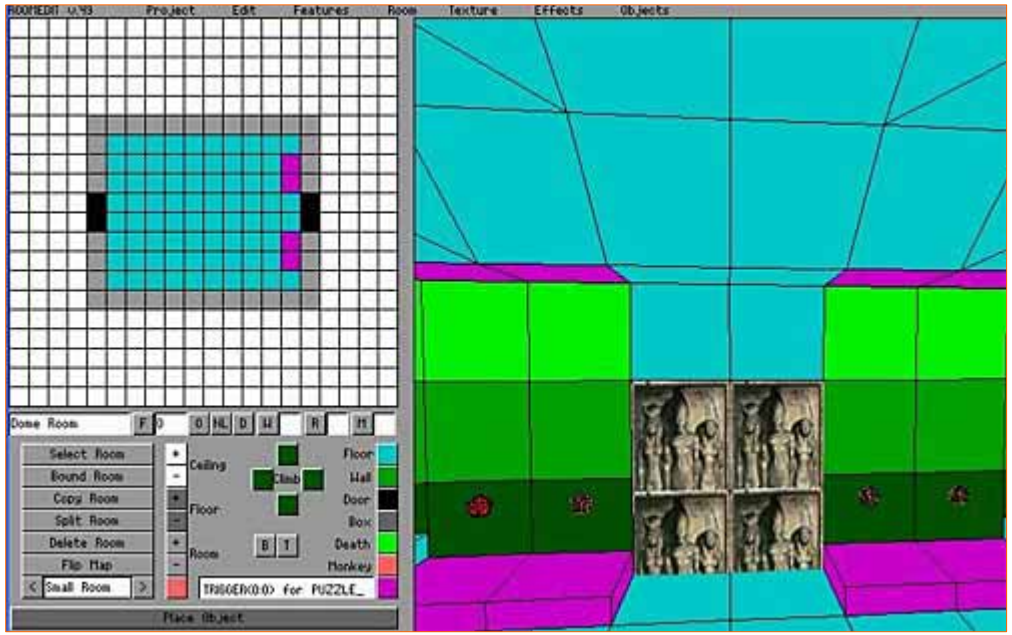
Now select the second door.



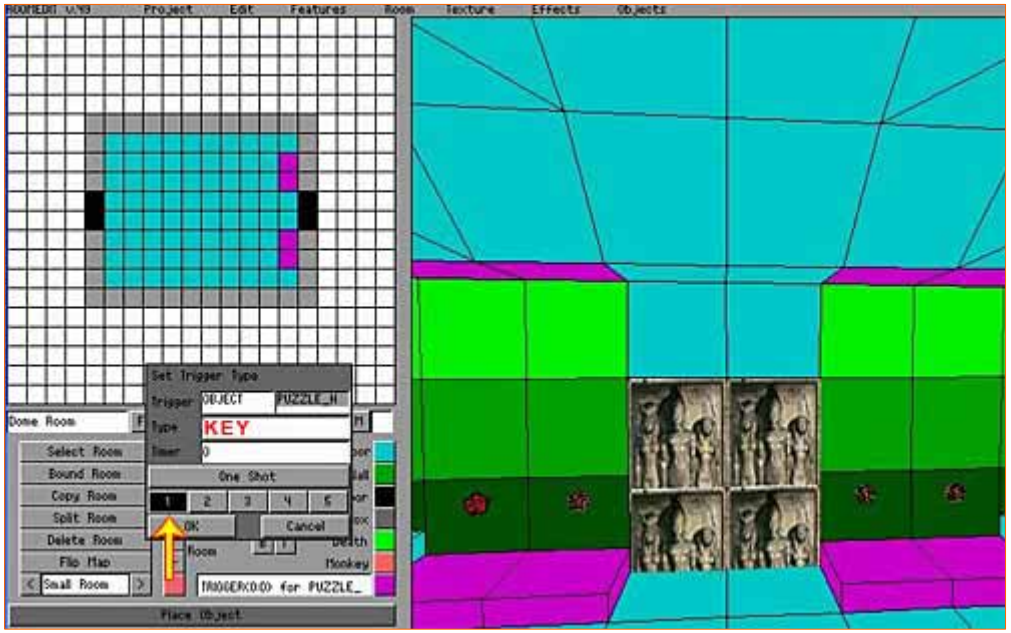
And place an ordinary trigger for it on every floor tile where there is a puzzle hole, on top of the other door triggers.



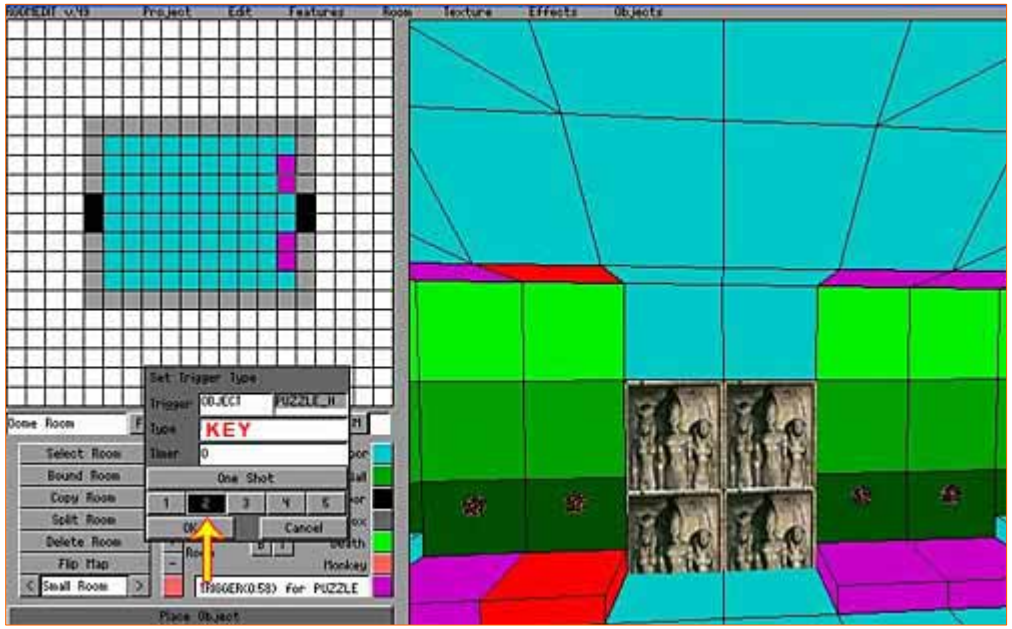
Select the **first puzzle hole** object.



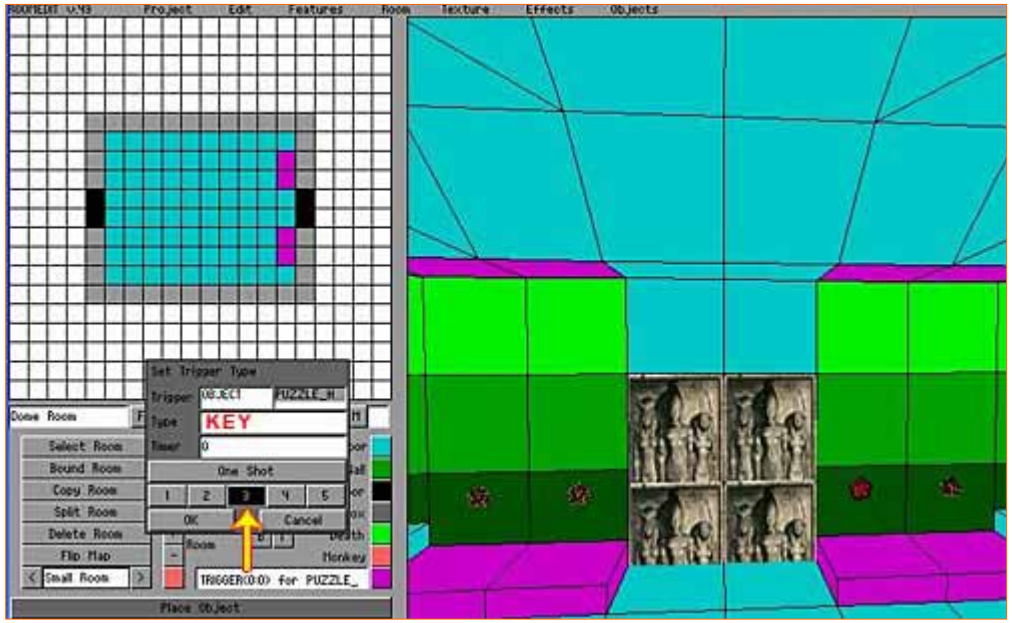
Bring up the trigger dialogue box, set the trigger type to 'key' and highlight **ONLY** the first OCB button. Click OK and then place the trigger on the same floor tile as the puzzle hole.



Do the same with the **second puzzle hole**, but this time highlight **ONLY** the second OCB button.



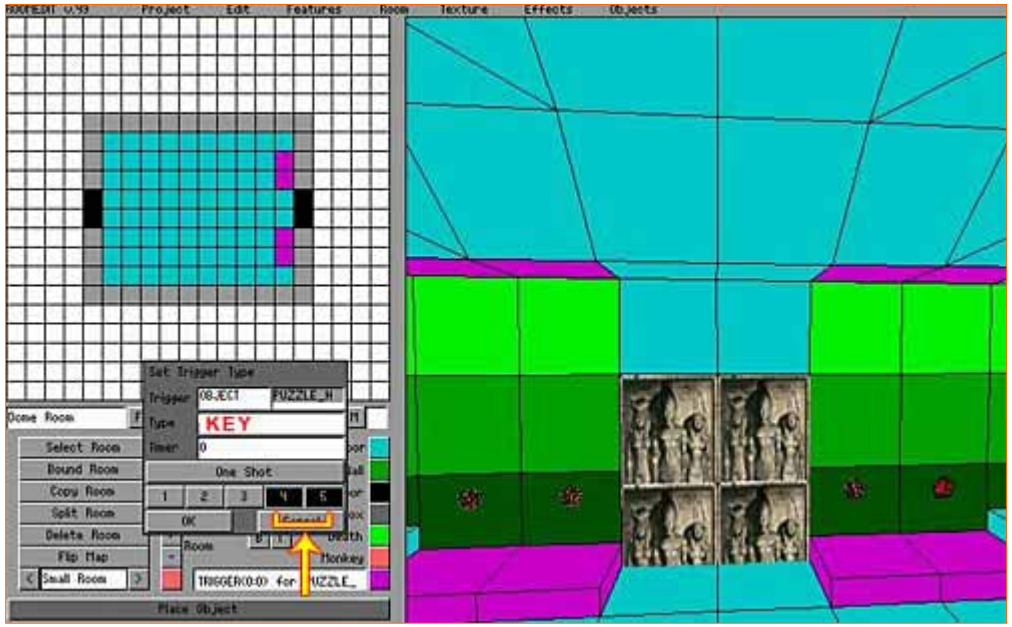
Do the same with the **third**, highlighting ONLY the third OCB button.

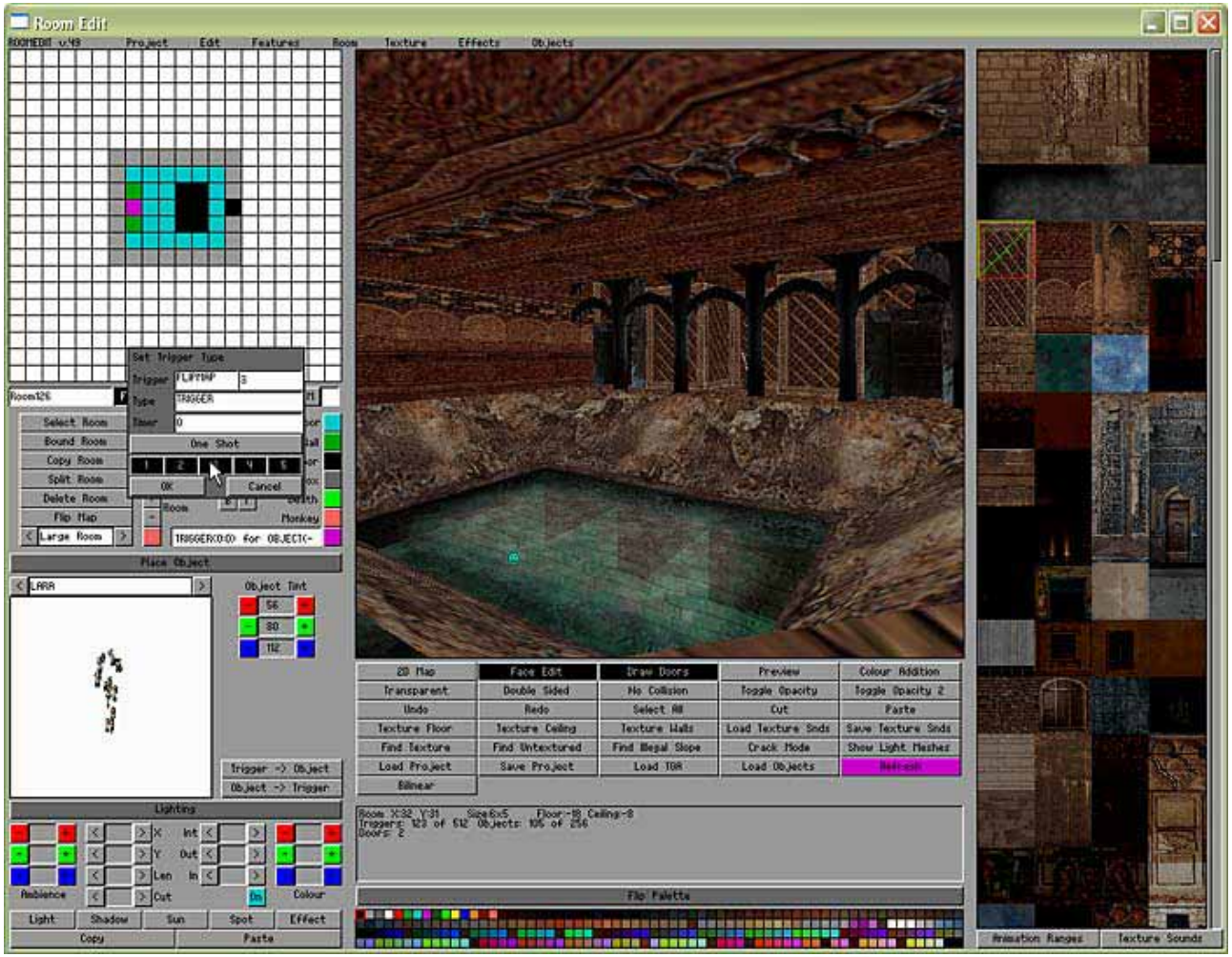


With the **fourth puzzle hole**, set the trigger type to 'key' and highlight the **REMAINING TWO** OCB settings, the 4 and 5 boxes (image on the right).

The doors and triggers are now set and when you place the four puzzle items in their receptors, in whichever order you like, the double doors will open.

This technique can be used with levers and switches, only instead of setting the trigger type to 'key' set it to 'switch'. You can use any number of puzzle holes up to 5 this way. The secret is the OCB settings buttons. If you use 2 puzzle holes instead of 4, the first OCB 1 button would be highlighted only, but in the second the remaining 4 buttons (2-5) would be highlighted etc.




Room Edit
Project
Edit
Features
Room
Texture
Effects
Objects
Set Trigger Type
Select Room
Bound Room
Copy Room
Split Room
Delete Room
Flip Map
Large Room
One Shot
OK
Cancel
Place Object
LARA
Object Tint
Trigger -> Object
Object -> Trigger
Lighting
Light
Shadow
Sun
Spot
Effect
Copy
Paste
2D Map
Face Edit
Draw Doors
Preview
Colour Addition
Transparent
Double Sided
No Collision
Toggle Opacity
Toggle Opacity 2
Undo
Redo
Select All
Cut
Paste
Texture Floor
Texture Ceiling
Texture Walls
Load Texture Snds
Save Texture Snds
Find Texture
Find Untextured
Find Illegal Slope
Crack Mode
Show Light Meshes
Load Project
Save Project
Load TOR
Load Objects
Refresh
Bilinear
Flip Palette
Animation Ranges
Texture Sounds

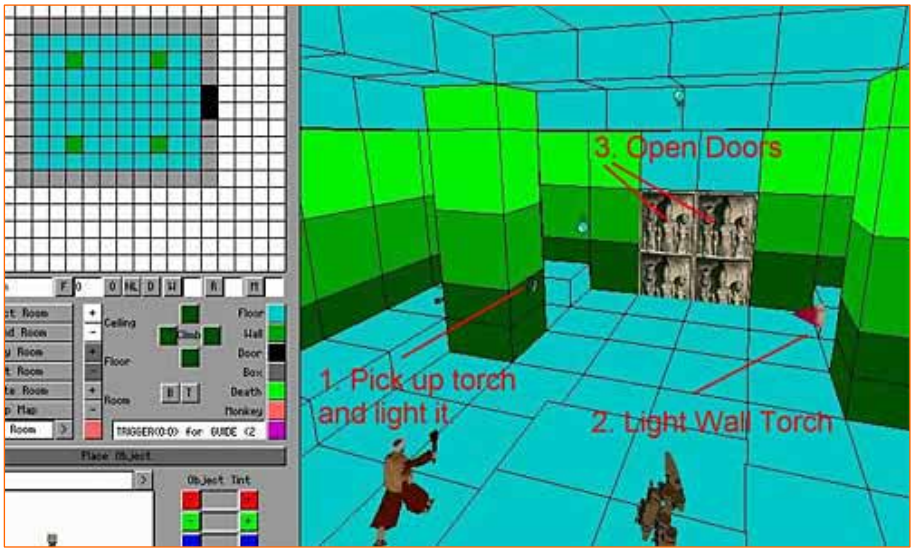
Puzzles, Traps and Baddies

[The Guide - getting started with his AI]

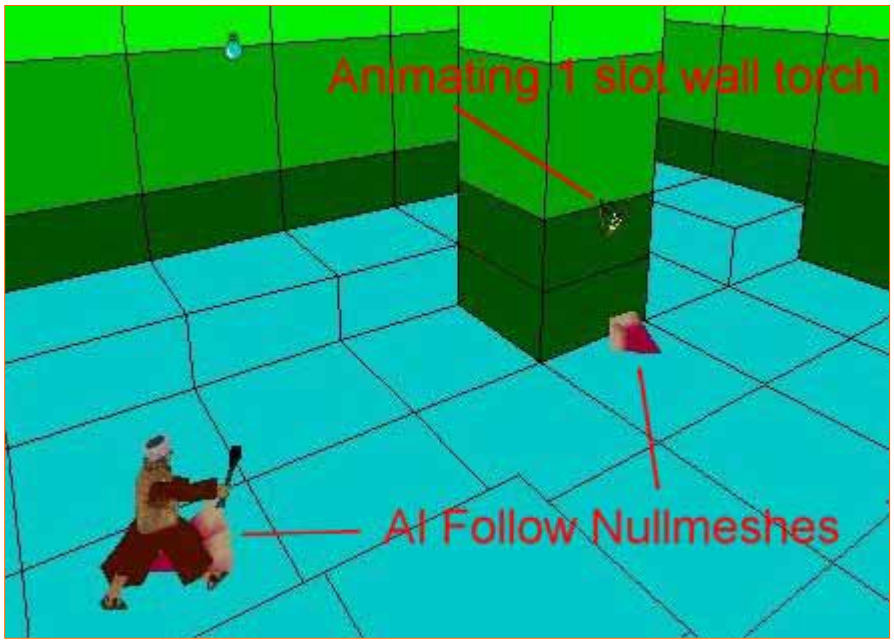
by George Maciver

Note: This tutorial enlarges on the information given on page 86 of the official Manual.

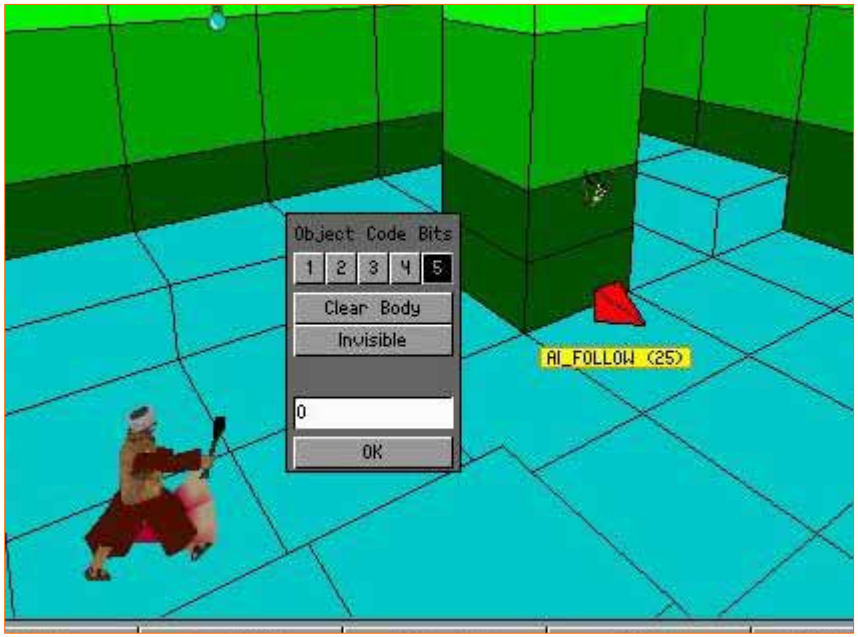
We are going to set up the **guide** so that he takes a torch and lights it, then walks to another wall torch and lights that, then activates a trigger that will open a double set of doors.



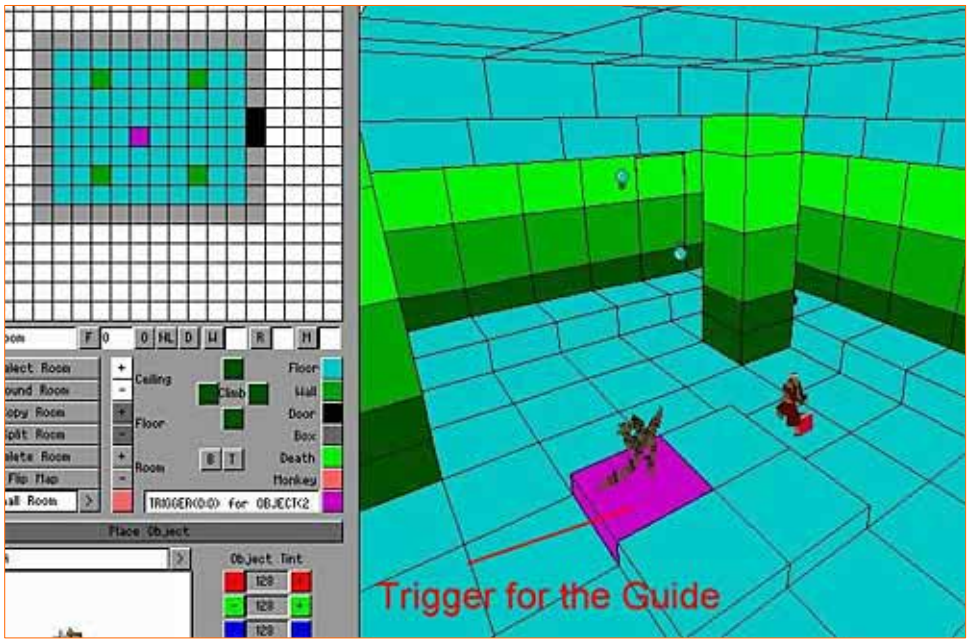
First, place your **guide**, the **wall torch** from the Settomb.WAD (which is in the animating one slot) and **two AI-Follow** nullmeshes as shown in the right hand image. It is important to face the fat end of the AI Follow nullmesh to where you want the guide to face.



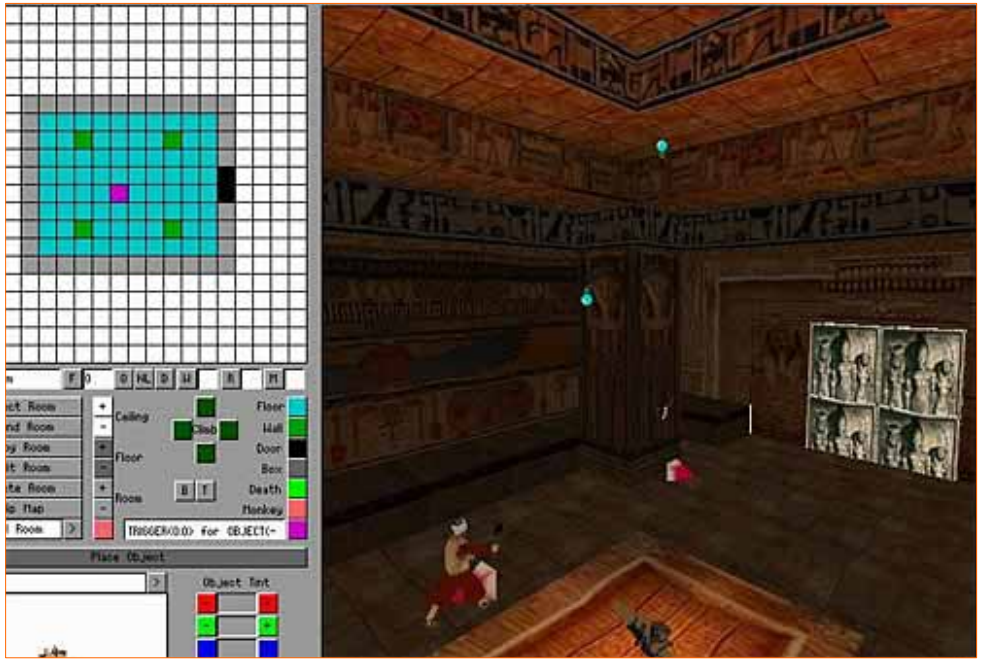
Bring up the OCB dialogue box for the second AI nullmesh by hitting the O (letter O) key, then highlighting **code bit 5**.



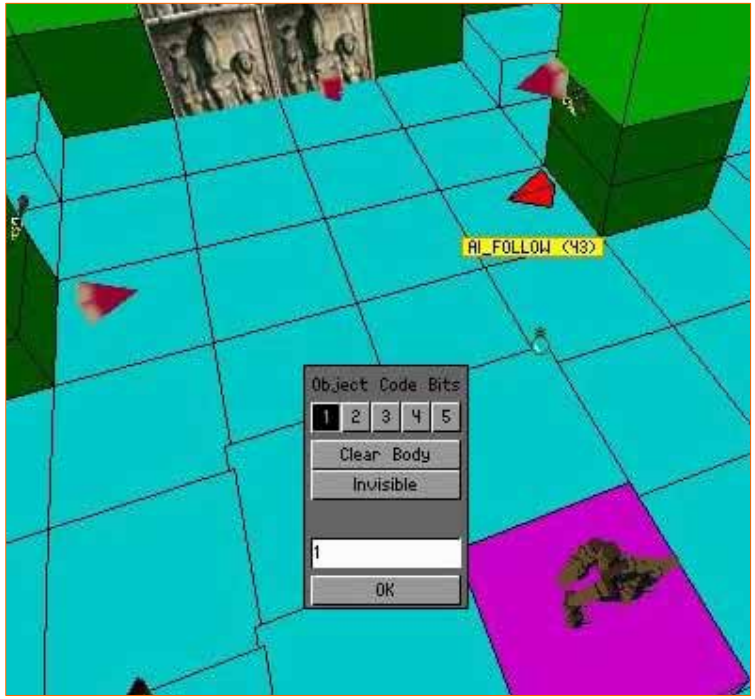
Don't forget to place a trigger for your guide!



And while we're at it, let's use a textured and lighted room to make things look more interesting. This is the first room from the tutorial level.



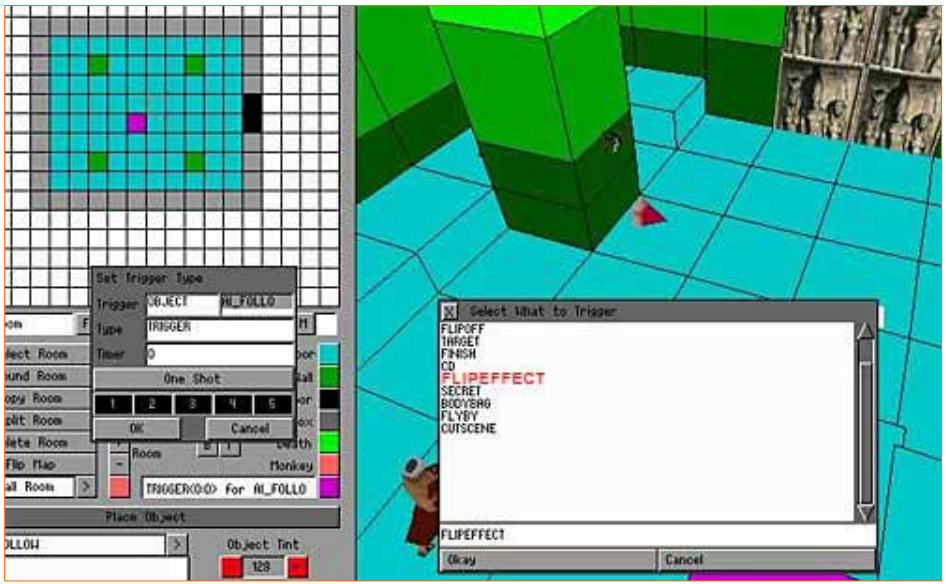
In game, the guide will take the torch and light it and then follow you around the level.



Obviously he is capable of far more than that, so let's give him another task! Place a **wall torch**, a **flame emitter 2** and an **AI follow** as shown in the right hand image.

*Remember, it is important to turn the **AI Follow** nullmesh so that the fat end points towards where you want the guide to face.*

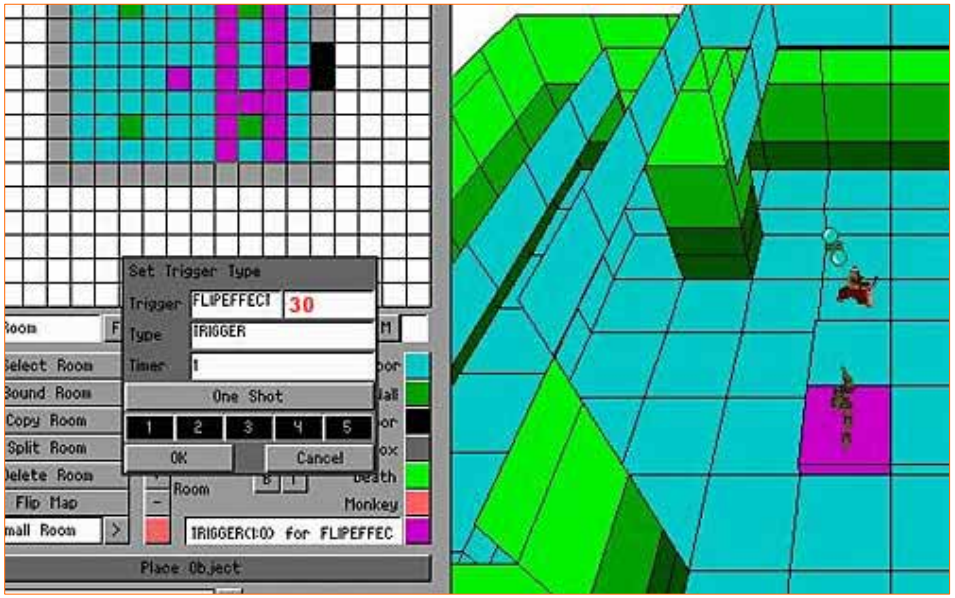
Bring up the OCB box for the AI Follow nullmesh and this time highlight **code bit 1**. It is very important that you also type the number **1** in the timer field. The first two AI Nullmeshes have a 0 (zero) in the timer field, but every AI follow nullmesh must now be numbered *sequentially*.



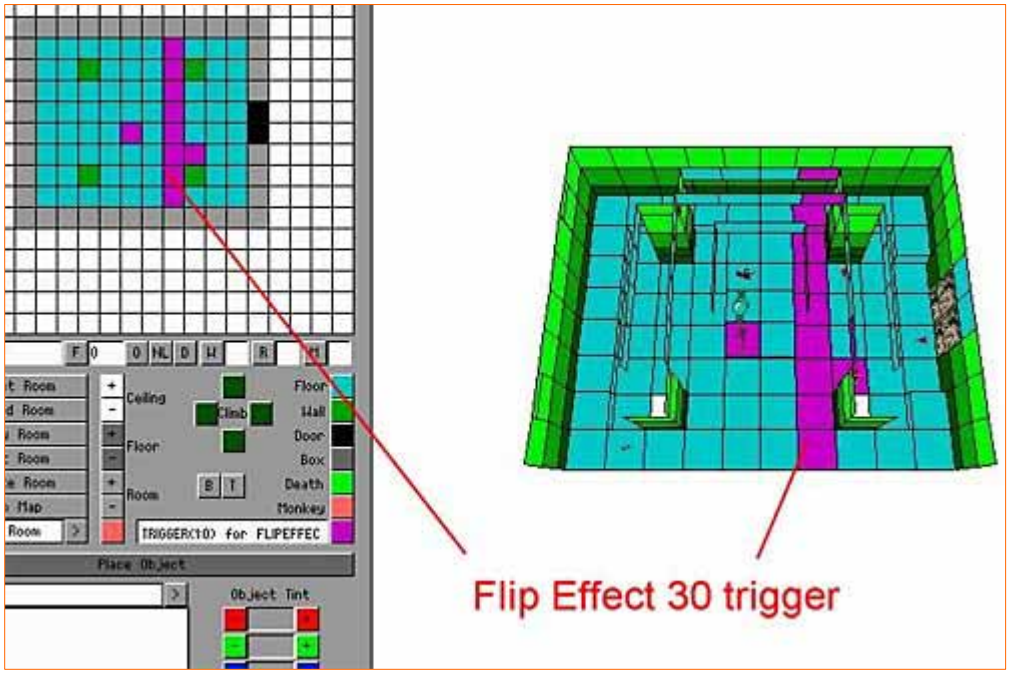
At this juncture we need to learn to use a **flip effect 30**. It is only by using flip effect 30 with the AI Follow nullmesh that the guide will work. It isn't difficult, but it does require careful set up. If it doesn't work first time, don't be discouraged. Once you learn the basics, the guide is a real joy to work with.

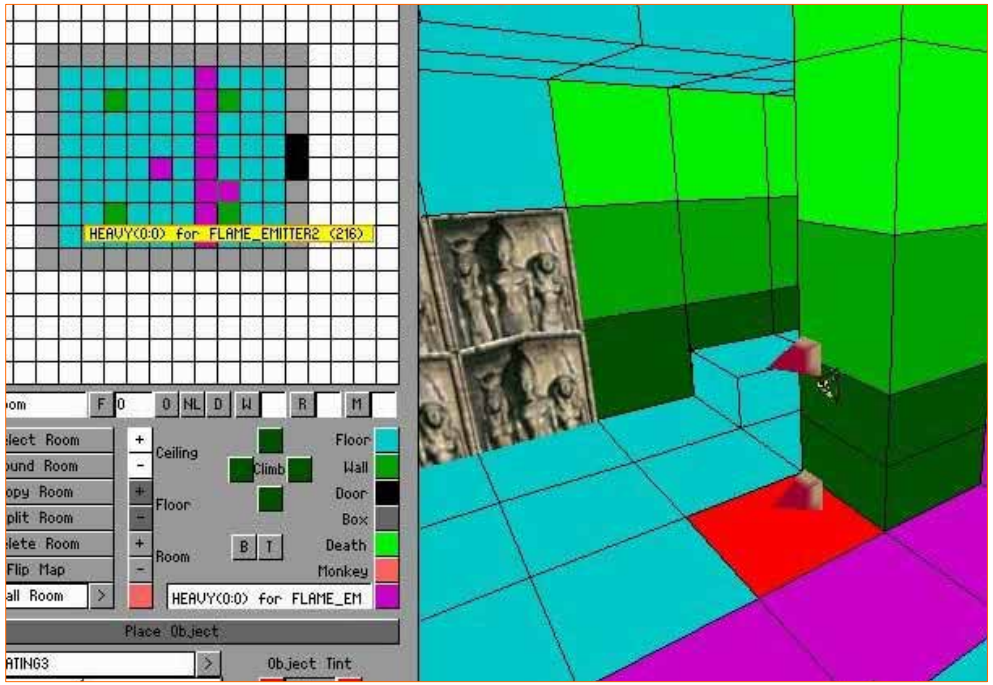
To set up a flip effect trigger bring up the trigger dialogue box and in the trigger window select **flip effect** and hit **Okay**.

Next **and this is very important** type in the number 30 next to the trigger type and put a number **1** in the **Timer** field.



All we need to do now is place a trigger for this **flip effect** right across the room so Lara can't possibly miss it. If she does not trigger the flip effect, the guide will just stand and look at her.



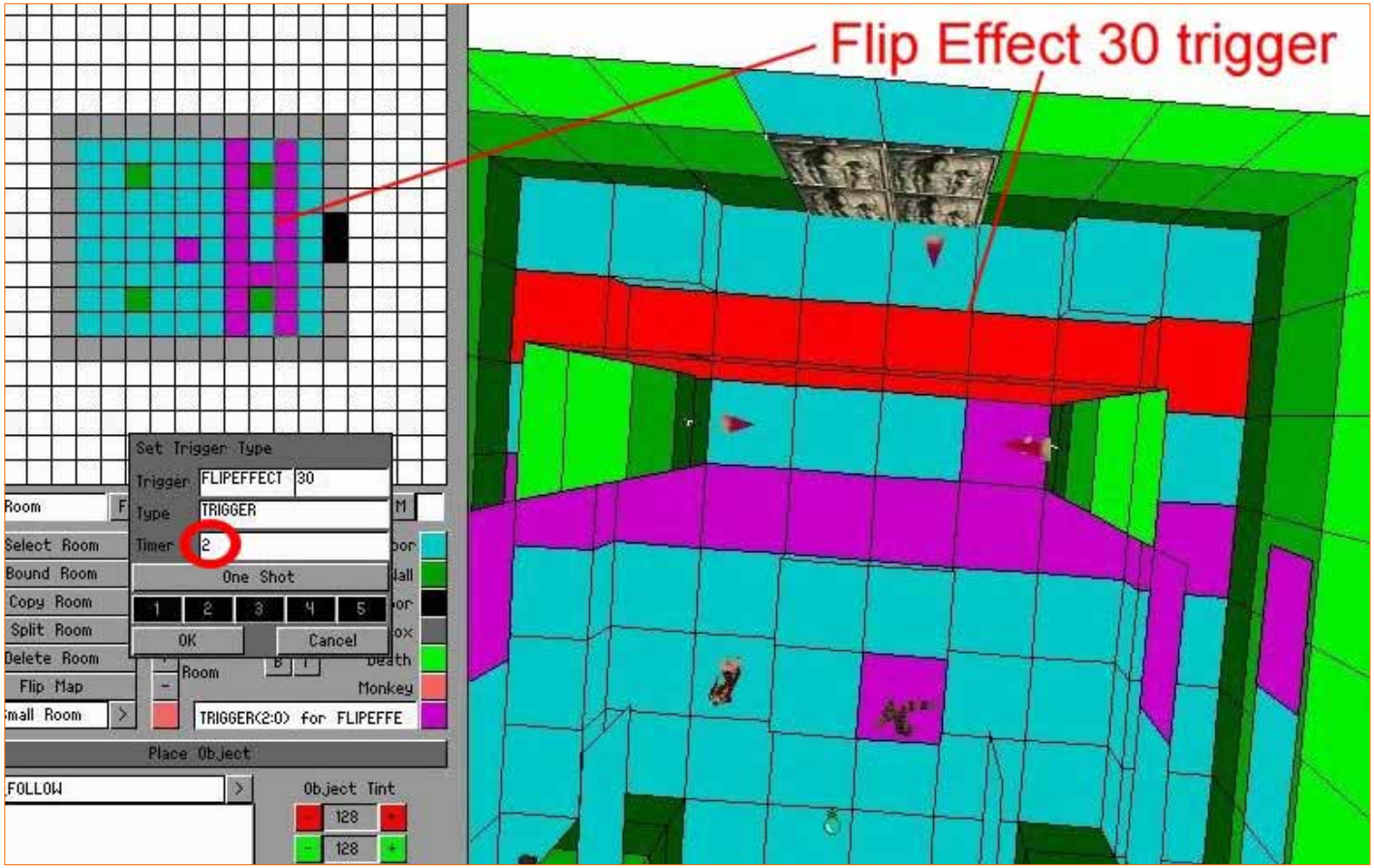


Now place a **heavy trigger** for the **flame emitter** on the AI Follow nullmesh.

When the guide arrives on the nullmesh he will light the wall torch by activating the heavy trigger. Without the trigger, the flame emitter will not light.

Now for the doors! Place another **AI Follow** nullmesh by one of the doors, bring up the OCB dialogue box, highlight the **number 2 code bit** and put a **2** in the timer field.

Bring up the trigger dialogue box and set a second **flip effect 30** trigger, this time with a **2** in the timer field, and place the trigger right across the room as shown.



Finally, place a **heavy trigger** for one of the doors on the last **AI Follow** nullmesh and an **ordinary trigger** for the other door on top of that. Output your WAD, convert your level and have fun!

Your guide will pick up the torch and light it, walk to the next torch and light that and then activate a hidden trigger to open the double doors.

[Sun Disk puzzle]

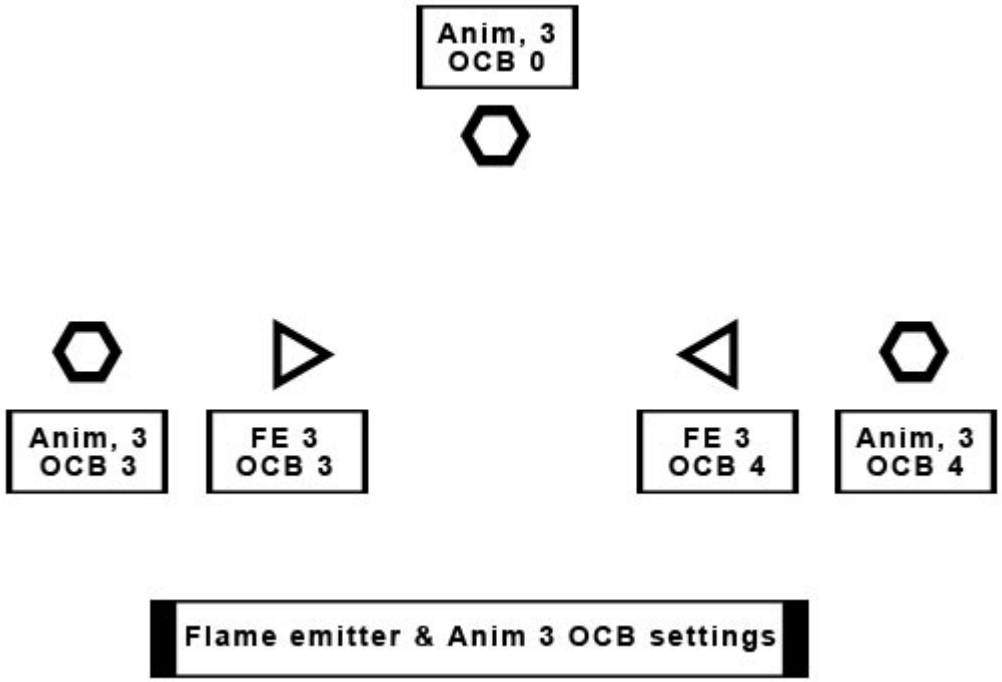
by Bedazzled

Everything you need for this puzzle can be downloaded from *Lara's Workshop*:
http://www.laras-workshop.co.uk/sundisk.zip

If the link is broken, check back at *Skribblerz* (thread: **Sun Disk puzzle**). The link should have been updated.
URL: http://s10.invisionfree.com/Skribblers/index.php?showforum=47

Puzzle hole 1 should be placed & rotated to lie on the back edge of a tile.
Anim 1 should then be placed exactly over Puzzle hole 1.

Ensure you enter the correct OCB code in each **flame emitter 3** & **anim 3** objects as shown in the image below.



When setting the key trigger, ensure **puzzle hole 1** is selected.

To get the sounds, go to your **trle\ sound\ LevelSFX Creator** folder and open the **Sounds.txt** file. Find the **ELEC_ARCING_LOOP** sound and add **a space then #g** to the end of the line (see the right hand image below). Save the file back on itself, and then run the **SFX_Example.bat** file.

Script lines for the correct item names in the inventory

Puzzle = 1,Sun Talisman, $0000,$0500,$0000,$0000,$0000,$0002
PuzzleCombo = 1,1,Sun Disk, $0000,$0180,$0000,$0000,$0000,$0002
PuzzleCombo = 1,2,Sun Goddess, $0000,$04b0,$0000,$0000,$0000,$0002

Example of this puzzle from Jungle Ruins

Sounds.txt - Notepad

File Edit Format View Help

```
DOG_HOWL:                dog_hwl                      VOL90                    PIT-30  RAD10   #c #d #I #l #J #L #Ti
DOG_HIT_GROUND:          hit1_gen                     VOL70   P V              PIT-20  RAD10
FOUNTAIN_LOOP:           l_fount                      VOL30         L                  RAD10   #h #o #r #s #u #L #M #T
DOG_FOOT_1:              dog_f1                       VOL44   P V     CH80     PIT-10  RAD06   #c #d #l #I #J #L #Ti
DOG_JUMP:                dog_aw                       VOL90                    PIT-10  RAD10   #c #d #l #I #J #L #Ti
DOG_BITE:                dog_at1 dog_at2              VOL80   P V              PIT-20  RAD10   #c #d #l #I #J #L #Ti
DOG_DEATH:               dog_d1 dog_d2                VOL90                    PIT-20  RAD10   #c #d #I #l #J #L #Ti
THUNDER_RUMBLE:          thun_rum                     VOL80   P V              PIT-86          #g
THUNDER_CRACK:           thun_crk                     VOL70   P V              PIT10   RAD06   #A
WRAITH_WHISPERS:         wraith1 wraith2 wraith3      VOL50   P V     CH02     PIT40   RAD10   #l #s #u #w #T #Ti
Empty:
Empty:
SKEL_FOOTSTEPS:          sk_foot1 sk_foot2 sk_foot3   VOL95   P V              PIT-15  RAD07   #p #q #r #s #T
SKEL_ATTACK:             sk_atk1 sk_atk2              VOL99   P V     CH80     PIT-20  RAD07   #p #q #r #s #T
GENERIC_SWORD_SWOOSH:    swoosh3                      VOL80   P V     CH95     PIT-20  RAD06   #g
SKEL_SWORD_CLANG:        sw_clang                     VOL70     V              PIT-10  RAD07   #p #q #r #s #T
SKEL_STICK_GROUND:       sk_swd1                      VOL70                    PIT-15  RAD03   #p #q #r #s #T
GEN_PULL_SWORD:          sk_swd2                      VOL90                    PIT-15  RAD03   #g
SKEL_LAND_HEAVY:         sk_land                      VOL95   P V                      RAD07   #p #q #r #s #T
GUIDE_SCARE:             gd_scare                     VOL80                    PIT20   RAD10   #c
JEEP_DOOR_OPEN:          jp_dopen                     VOL45   P V              PIT20   RAD10   #e #f
JEEP_DOOR_CLOSE:         jp_dcls                      VOL45   P V              PIT20   RAD10   #e #f
ELEC_ARCING_LOOP:        l_vander                     VOL75         L          PIT-13  RAD10   #h #i #j #u #g
ELEC_ONE_SHOT:           vander                       VOL50   P V              PIT05   RAD10   #i
Empty:
LIBRARY_COG_LOOP:        lib_cog                      VOL60         L          PIT-60  RAD05   #u
JEEP_SIDE_IMPACT:        jeep_si                      VOL80   P V              PIT10   RAD10   #e #f
JEEP_FRONT_IMPACT:       jeep_fi                      VOL80   P V              PIT20   RAD10   #e #f
JEEP_LAND:               jeep_lnd                     VOL99   P V              PIT10   RAD10   #e #f
SPINNING_GEM_SLOTS:      clkwork                      VOL45                    PIT50   RAD05
RUMMBLE:                 barol                        VOL60                    PIT-40  RAD07
WARTHOG_HEADBUTT:        wh_atk1                      VOL75                            RAD06   #a #b #p
WARTHOG_DEATH:           wh_sql3                      VOL90                    PIT30   RAD08   #a #b #p
SET_SPIKE_TIMER:         set_time                     VOL60                    PIT-50  RAD10   #d
WARTHOG_SQUEAL:          wh_sql2                      VOL90   P       CH13     PIT40   RAD06   #a #b #p
WARTHOG_FEET:            wh1a wh3a wh4a wh5a          VOL60   P V     CH85     PIT30   RAD06   #a #b #p
WARTHOG_GRUNT:           wh_gnt2                      VOL90   P       CH50     PIT-25  RAD06   #a #b #p
SAVE_CRYSTAL:            save                         VOL60                    PIT30
HORSE_RICOCHETS:         hrs_rico                     VOL40   P V     CH50     PIT35           #N
METAL_SHUTTERS_SMASH:    shut_sms                     VOL80                    PIT-40  RAD10
```

[Obelisk & Turn Switch puzzle]

by Bedazzled

Everything you need for this puzzle can be downloaded from *Lara's Workshop*:
http://www.laras-workshop.co.uk/custom%20wads/Oblisk.zip

If the link is broken, check back at *Skribblerz* (thread: **Obelisk & Turn Switch puzzle**). The link should have been updated.
URL: http://s10.invisionfree.com/Skribblers/index.php?showforum=47

- Back up your **maps** and **wads** folders and your **script.dat** file.
- Extract the **script.dat** file to your **trle** root folder
- Extract **guartext** & **guard.prj** to the **maps/ guardian** folder
- Extract all other files to the **graphics/ wads** folder
- Convert **guardian.tom** file

1st turn switch turn 90 deg clockwise
2nd turn switch turn 180 deg
3rd turn switch turn 90 deg anti-clockwise

After taking the pick-up from under the glass pyramid, a trap door will open in the room. If you drop down and walk along the passage, the level will end.

Notes

The **sun disk** must be in the **pickup_item 1** slot.
The **pyramid** must be in the **animmating 3** slot, due to hard coding.

IMPORTANT: You can only use, and must place the sun disk as the pickup under the glass pyramid. Otherwise the level will crash. This seems to be a hard coded thing.

[Pick-ups and how to set them]

by George Maciver

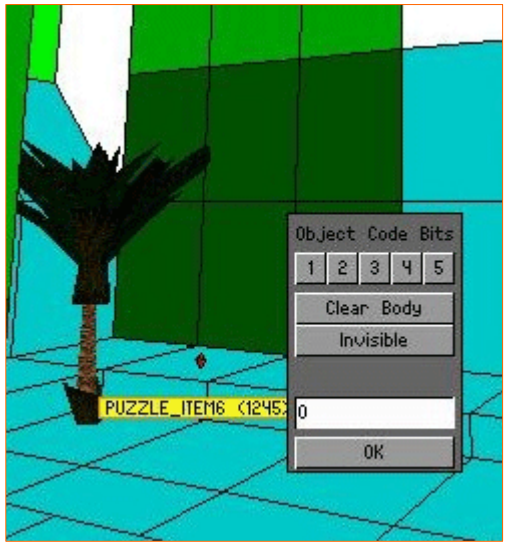
←

The easiest pick-up of all is the one where you simply lay something on the ground and when Lara comes along you press **Action** and Lara picks it up. Nothing more is required other than to lay the object on the ground.

→

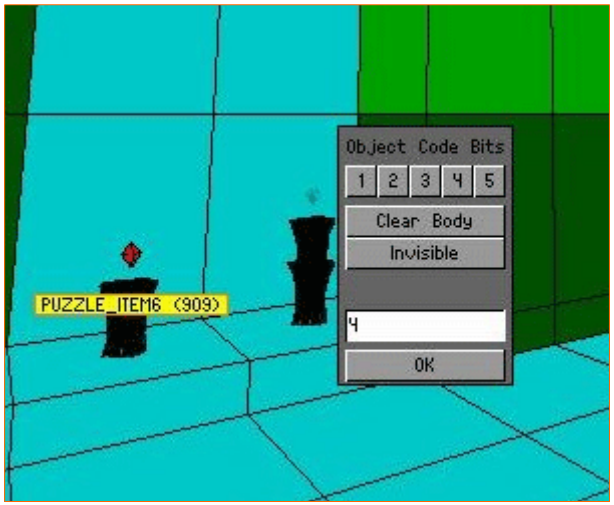
If you click on the object and hit the O (letter o) key to bring up the **OCB** settings dialogue box you will notice there is a 0 (zero) in the timer field.

It is by changing this value in the timer field that you change how Lara picks up items, as we shall see.



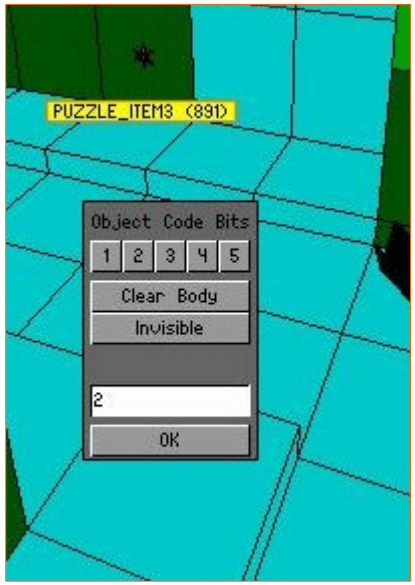
From a normal sized pedestal

If you want to set your pick-up on top of a **normal sized pedestal**, raise the pickup **4 clicks** from the ground and place the pedestal underneath. Hit the letter O key to bring up the OCB box and put a 4 in the timer field (left hand image). Now Lara will not bend down to pick it up, she will reach for the object and take it from the pedestal (right hand image).



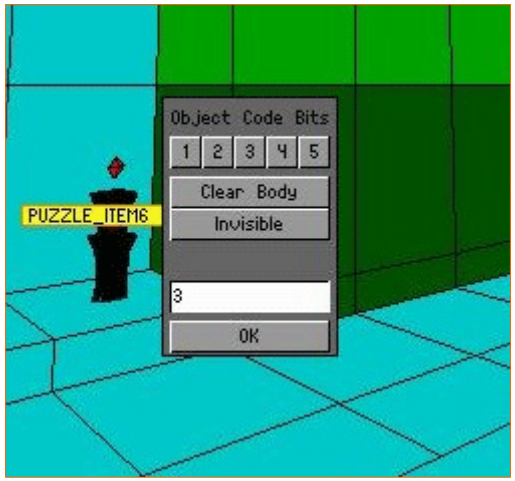
From the wall

If you wish Lara to prize the object from **the wall**, place your object on the wall, bring up the OCB box and put a 2 in the timer field (left hand image). Lara will now use the crowbar to prize the object from the wall (right hand image).

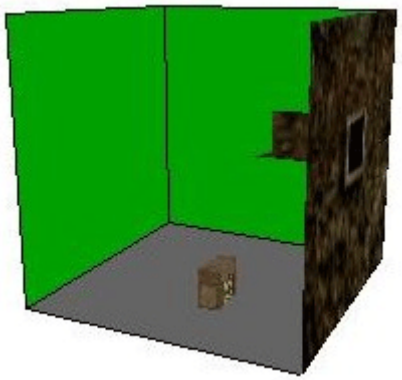


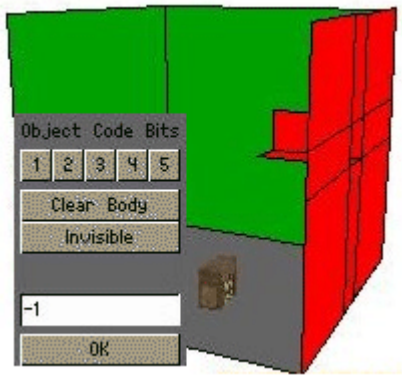
From a high pedestal

If you want Lara to take the pick-up from a **high pedestal**, raise the object **6 clicks**, place the pedestal underneath it, bring up the OCB box and put a 3 in the timer field (left hand image) Lara will now reach up for the object, just as she does in the original flyby title sequence in The Last Revelation (right hand image).

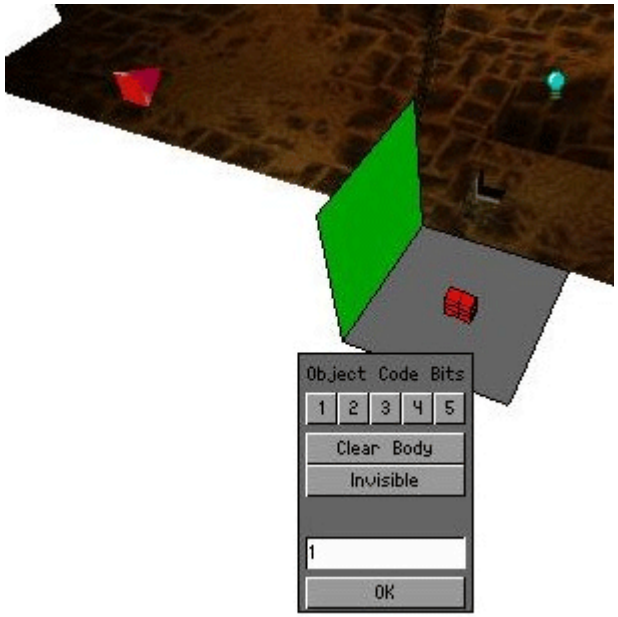


Through a hole





If you want Lara to reach in **through a hole** in the wall to get the pick-up, you need to place the switch object between the main room and the 1x1 and 4 clicks high room in which the pickup is placed (left hand image). Bring up the OCB dialogue box for the switch and put a -1 (minus number one) in the timer field (right hand image).

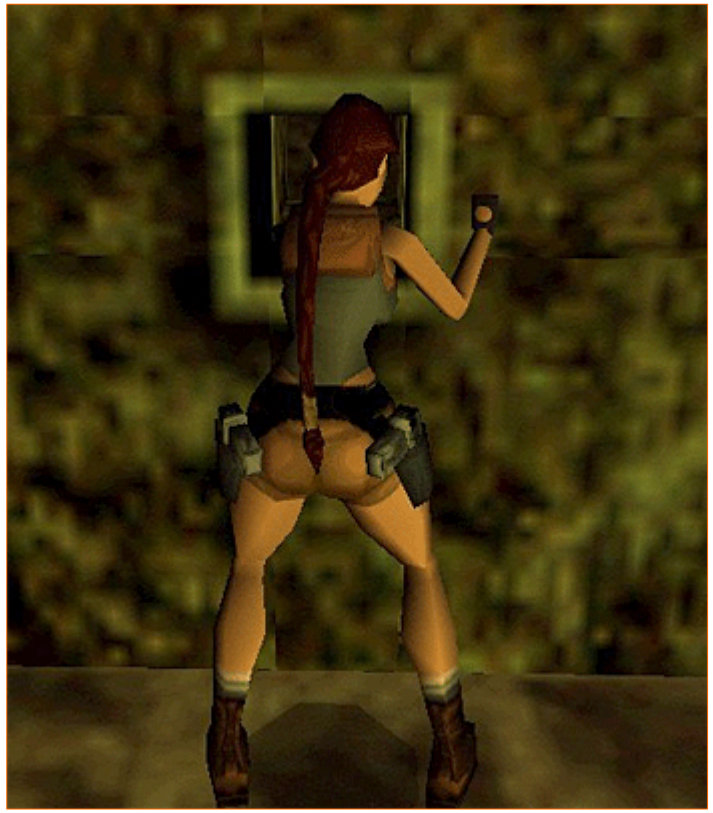


You also need to highlight the pickup, bring up its OCB box and put a 1 in the timer field.

The last thing to do is to rotate the object so it lines up with the switch.

- If the switch is facing north, no rotation is needed.
- If the switch is facing east, a 2 click rotation is needed.
- If the switch is facing south, a 4 click rotation is needed.
- If the switch is facing west, a 6 click rotation is needed.

Lara will now reach in for the pickup item.



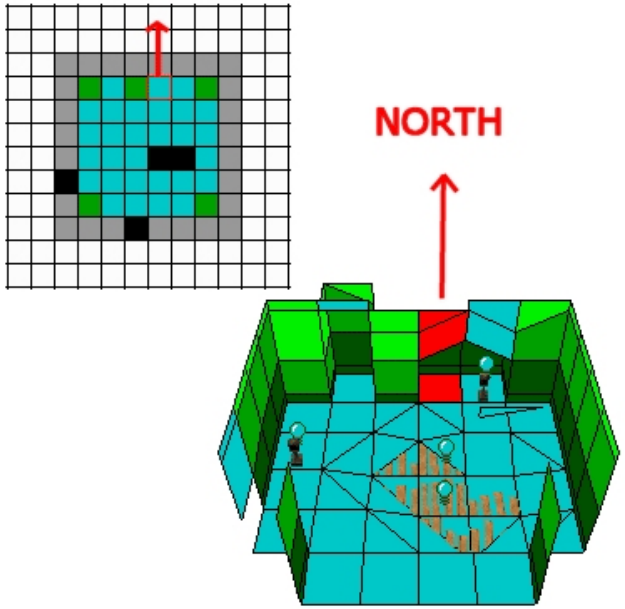
In addition to all this, you can also use the pickups to trigger events. I'm not sure about the reach in the **hole pick-ups**, but certainly for the others you can trigger an event by adding 64 to the value in the timer field in the OCB setting dialogue box for the pickup.

For example, if you want a piece of music to play when Lara picks up a star she has prized from the wall with her crowbar, add 64 to the 2 in the timer field, and make the value 66. The same thing happens with the **ground**, **normal pedestal** and **high pedestal pickups**. To trigger an event from a **ground pick-up**, bring up the OCB box and put 64 (64 + 0) in the timer field.

Be sure to also place a **pickup trigger** for the object on the same tile and a trigger for the event or nothing will happen!

[The Burning Floor]

by Titak



To set this up you need some objects, a flipmap and a lighted torch.

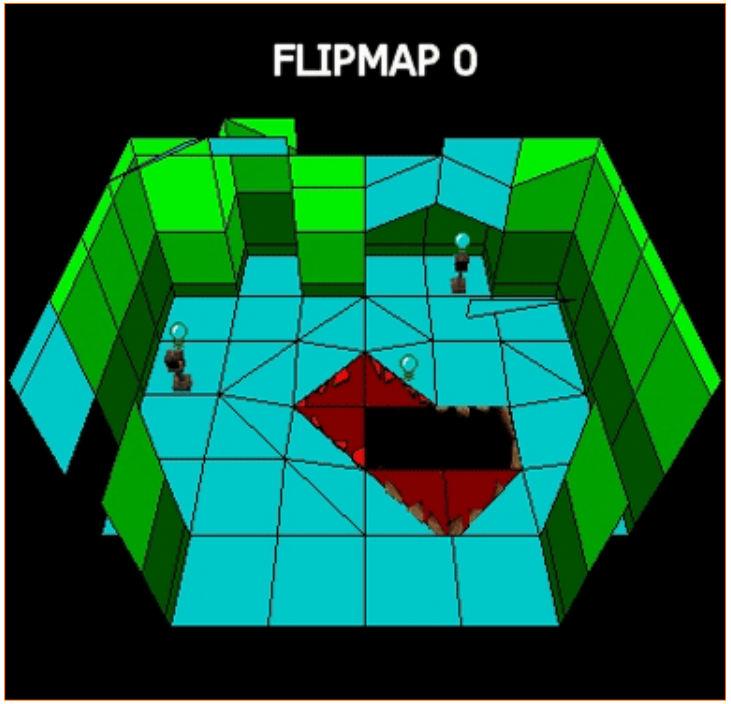
Objects needed:

- Burning floor
- Rock 8
- Rock 9
- Burning-torch
- A flame-emitter to light the torch on

The objects can be found in the **Library.WAD** and can be copied into your level WAD using WadMerger.

Setup

1. Create two rooms and connect them with a horizontal door. Raise some triangles around the door to create the shape of the burning-floor object.



2. Use **Toggle Opacity** on the door to the lower room, so Lara can walk on the floor and the torch won't fall through.

3. Place the **BURNING_FLOOR** object on the door. Place it exactly as shown in the screenshot on the right (top screenshot). Why? Because the position of the flames appearing after you throw the torch onto the floor is hard coded and they will always appear the same way: in the way the floor is placed in the screenshot.

4. Trigger the **BURNING_FLOOR** in a place where you can't see it but that Lara will cross for sure.

5. Now flip the upper room and make it Flipmap 0. No need to place a trigger for the flipmap.

6. Go to the flipped room and place the **rock8** and **rock9** objects on the floor. These are the burnt leftovers from the floor (rock 8 is the one marked in red – bottom image).

7. Don't use **Toggle Opacity** this time and apply **No collision** on the triangles of the door.

[Lyre and Music Scroll OCBs]

by George Maciver

Type -422 in the OCB options for the **Music Scroll puzzle hole** and Lara will play the lyre when placing the scroll puzzle piece. The **lyre static object** must be placed at an angle to the left of the scroll puzzle hole. The sound track that plays is hard coded, so make sure you leave that track alone (track 6) in the audio folder.

SCRIPT.TXT - Notepad

File Edit Format View Help

```
Level=          DATA\TITLE,104

;-------------------------------------
; Levels
;-------------------------------------

[Level]
Name=           Playable Tutorial Level
Legend=         The year 2000, somewhere in Egypt...
Horizon=        ENABLED
Layer1=         160,160,192,7
PuzzleCombo=    3,1,Cartouche Piece 1,  $0000,$0400,$0000,$0000,$0000,$0002
PuzzleCombo=    3,2,Cartouche Piece 2,  $0000,$0400,$0000,$0000,$0000,$0002
Puzzle=         3,Ba Cartouche,         $0000,$0400,$0000,$0000,$0000,$0002
Puzzle=         5,Eye Of Horus,         $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    5,1,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    5,2,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
Puzzle=         6,The Hand Of Orion,    $0000,$0400,$8000,$c000,$0000,$0002
Puzzle=         8,The Hand Of Sirius,   $0000,$0400,$8000,$c000,$0000,$0002
LoadCamera=     0,0,0,0,0,0,255
LoadCamera=     11088,-1100,28896,11119,-1399,31486,0
Level=          DATA\TUT1,107

[Level]
Name=           The Tomb Of Seth
Puzzle=         1,Eye Of Horus,         $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    1,1,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    1,2,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
Puzzle=         2,The Timeless Sands,   $0018,$0300,$0000,$0000,$0000,$0002
PuzzleCombo=    3,1,Cartouche Piece 1,  $0000,$0400,$0000,$0000,$0000,$0002
PuzzleCombo=    3,2,Cartouche Piece 2,  $0000,$0400,$0000,$0000,$0000,$0002
Puzzle=         3,Ba Cartouche,         $0000,$0400,$0000,$0000,$0000,$0002
```

Script Editing Tutorials

[Script Editing – Reference]

by Uvavoo

Level

This is a basic script command which should be present on all levels and it takes the following form:

Level= DATA\PALACES,107

This takes the form DATA, (the data folder where .tr4 files are kept) followed by the .tr4 name (wad name) followed by the background audio track which plays on opening the level.

Load Camera Coordinates

This item appears in the script as follows:

LoadCamera= 11088,-1100,28896,11119,-1399,31486,0

This is used to set the Load screen for the level. If you have not set this up in your level the game will crash when existing back to the main menu or when Lara dies in game.

How to set up the Load Camera coordinates
When developing a new level the easiest way is to set up all the coordinates as zeros:

LoadCamera= 0,0,0,0,0,0,0

You won't get a nice load screen but the game won't crash. When you are ready to release your new, magnificent level do the following: Place Lara in a room which you would like to display as a Load Screen. Play the game. Press the **F1** key. In the top left hand corner you will see a set of numbers. Jot these down and transfer these to your **Script** file. Convert the script and the next time you play you will see your new Load Screen.

Lensflare

Lensflare is a global lens flare (not to be confused with the Lensflare nullmesh object). It is defined in the script as follows:

LensFlare= 250000,-32000,110000,128,96,0

Where the first three numbers are the 'world' coordinates and the last three numbers are the RGB values for the colour of the Lensflare. Trial and error is required for the position. An example of global lens flare is shown on the right, where I used it in Planet of the Ancients III.

Note: The **NL** button in the Level Editor switches global lens flare off in that particular room.

Horizon and Sky

If you wish a horizon to appear in your level you need to enable it in the Script. Ensure you have a **Horizon object** in your Wad.

Horizon= ENABLED

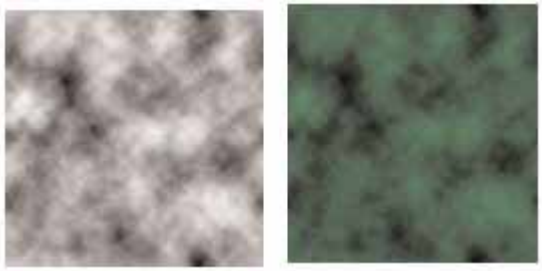
When using TR4 horizons, additional script lines are needed for the **scrolling sky effect**. Note that the clouds and background are a separate image file stored alongside the wad (eg. City.raw).

Layer1= 56,72,8,16

This command controls the colour of the clouds and the scroll speed

Layer1= x,y,z,speed

Where x, y and z are the RED, GREEN, BLUE components of the cloud colour and speed is the scrolling speed. Negative number causes scroll direction to be reversed.



The colour in the example script line is a dark green, which will colour the cloud area in the sky to that dark green colour when seen in game.

A final command relating to sky is the ColAddHorizon

ColAddHorizon= ENABLED

Add this in addition to the **Layer1** command when you wish to retain the original colours of theRAW file. For example, the bright blue in the Coastal level. The Layer1 colour will affect the cloud colour.

Mirror

This script has the form:

Mirror= 11,$7000

This script item is used when you create a **mirror** room as seen in the Coastal level. The first number is the room number of the **mirrored** room. The second number is the **hexadecimal** number required. How to create a mirror room is fully explained in the manual.

UV Rotate

This is a command used to *scroll* textures in game. It takes the following form:

UVrotate= 8

Where the number is the speed of scrolling (between -16 to +16, where a negative number reverses the direction). To set up a UV tile I suggest downloading Icebergs TBuilder. This program enables you to create your own UV tiles.

[If the link is broken check at Skribblerz (thread: **Script Editing – Reference**). The link should have been updated.
URL: http://s10.invisionfree.com/Skribblers/index.php?showforum=44]

Iceberg fully explains the principles behind UV rotate and how to create a UV texture in his help file. In short, once you have created your texture, in the Room Editor you need to delete all existing animation ranges and define the UV rotate texture FIRST, then your other animation ranges (such as water). Add the UV rotate line to your script and place the texture in your level and it will scroll when viewed in game.

ResetHUB

This command is primarily used when you need to change Lara's costume. It takes the form:

ResetHUB= 3

The number refers to the next level, the level Lara jumps to next and should be placed in the current levels script. For example if Lara changes costume in Level 3, the **ResetHUB** line should be in the script for level 2.

Using this command has the effect of also losing certain items from her inventory such as pickup items, new guns, etc. Also if she jumps back to the previous level all puzzles and triggers will be reset in this level.

A note about costume changes: If you change any of Lara's meshes, you need to use the **ResetHUB** line (if you do not the level will crash). If you just retexture Lara then you do not need to include the **ResetHUB** line.

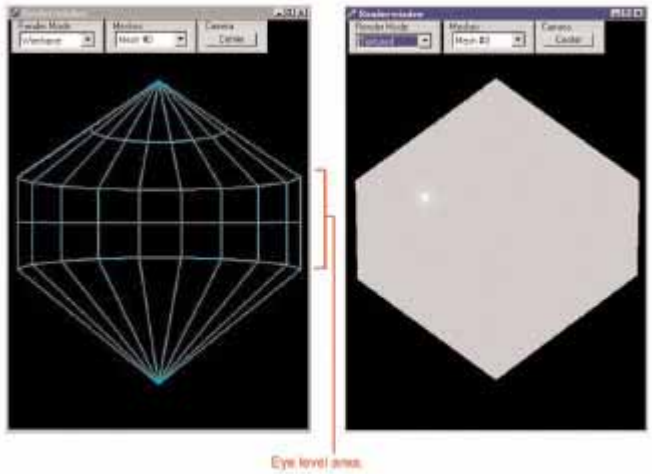
Puzzle, Key and Pick Up Items

Puzzle and Key items take the following form:

Key= 2,The Guards Keys, $0004,$0300,$0000,$c000,$0000,$0002 Puzzle= 5, Holy Scripture, $0017,$04b0,$4000,$0000,$0000,$0002

Where the first number is equal to the puzzle item in the wad, for example PUZZLE ITEM 2 in the wad would of course be Puzzle= 2 in the script. This is followed by the name of the item. You can change the name of the puzzle item, but you must also change the name in the **English.txt** file. The next group of 6 hexadecimal numbers represents how the object is displayed in the inventory menu. If you do not add puzzle or key items to your script your level will still work ok, but the item will displayed as **Load** in the inventory menu.

Fog



When this script command is used, the level will contain a distance fog throughout. Not to be confused with fog bulb. To make distance fog work, **Volumetric FX** needs to be switched off. Conversely fog bulbs require **Volumetric FX** to be switched on. So the two fogs are mutually exclusive. The fog command takes the form:

FOG= x,y,z

Where x,y and z are the Red, Green and Blue components of the fog colour.

Uses of distance Fog

Using distance fog is useless if not combined with a suitable horizon. The main purpose of using distance fog (and I am a big fan of this) is to prevent Pop-up and visible polygon redrawing in large outdoor areas. Here is the best approach to achieve this.

1. Use a TR3 style horizon.

2. Texture this horizon with textures of predominantly the same colour. The example below (shot is taken from StrPix) shows the predominantly grey horizon with a faded sun. Note that you cannot have details such as buildings, mountains, etc appearing at eye level (see diagram). Although you can have detail higher up, for example planets, sun, moon, stars, clouds etc. In this example a grey colour is used. So the resulting line would be FOG= 128,128,128

When no fog line appears in the script, the game engine uses a 'black' fog, thus when using black horizons (such as in the city level) no distance fog needs to be defined as it uses the black default effectively.

The images show an effective use of distance fog. Titia's **Stargate** (left) and my **Planet of the Ancients III** (set on Mars).

Lightning

Takes the form:

Lightning= ENABLED
Enables a lightning type effect where thunder sounds play and the sky flashes intermittently.

Examine Item

Takes the form:

Examine= 2,The Rules of Senet,$0000,$0500,$0000,$0000,$0000,$0002

The examine item is quite interesting as when selected in the inventory menu it shows a scroll and text. You can change the text which appears by doing the following.

Open the **English.txt** file and look for the block of text, about three quarters way through, which looks like this:

PETEPOO:For the serpents to live,**\n**all must first be stilled.**\n**provoke each in turn,**\n**and the circle will burn**\n**complete

Edit the text to the text of your choice. Where you wish a line break to occur press backslash (****) followed by a lower case **n**. For example if you wished to have the following text appears:

The examine item
is a useful item for
conveying information
to the player.

You need to alter the script to read as follows:

PETEPOO:The examine item**\n**is a useful item for**\n**conveying information**\n**to the player.

Do not use carriage returns. The **\n** is highlighted in red for clarity. (Before you ask I don't know who PETEPOO is!).

Train

Takes the form:

Train= ENABLED

This script line is used when you wish to create a Train type level. The **UVRotate** line must also be added. A full explanation of train levels is beyond the scope of this datasheet and will be the subject of a complete tutorial in the future.

[Changing the Load Screen Coordinates]

by George Maciver

When levels load you see a screen shot of an area in game. You can change this very simply so that a nice screen shot of your level will show during load.

First, play your level and find a nice camera angle. Press **F1** (this will only work if you have FlyCheat enabled) and write down all the figures you see on screen (just the numbers, not the letters). They will look like the image on the right.

Leave the game, open the **Script** file in your script folder and find the script for your level.

```
Level=          DATA\TITLE,104

;---------------------------------------
; Levels
;---------------------------------------

[Level]
Name=           Playable Tutorial Level
Legend=         The year 2000, somewhere in Egypt...
Horizon=        ENABLED
Layer1=         160,160,192,7
PuzzleCombo=    3,1,Cartouche Piece 1,  $0000,$0400,$0000,$0000,$0000,$0002
PuzzleCombo=    3,2,Cartouche Piece 2,  $0000,$0400,$0000,$0000,$0000,$0002
Puzzle=         3,Ba Cartouche,         $0000,$0400,$0000,$0000,$0000,$0002
Puzzle=         5,Eye of Horus,         $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    5,1,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    5,2,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
Puzzle=         6,The Hand of Orion,    $0000,$0400,$8000,$c000,$0000,$0002
Puzzle=         8,The Hand of Sirius,   $0000,$0400,$8000,$c000,$0000,$0002
LoadCamera=     0,0,0,0,0,0,255
LoadCamera=     11088,-1100,28896,11119,-1399,31486,0
Level=          DATA\TUT1,107
```

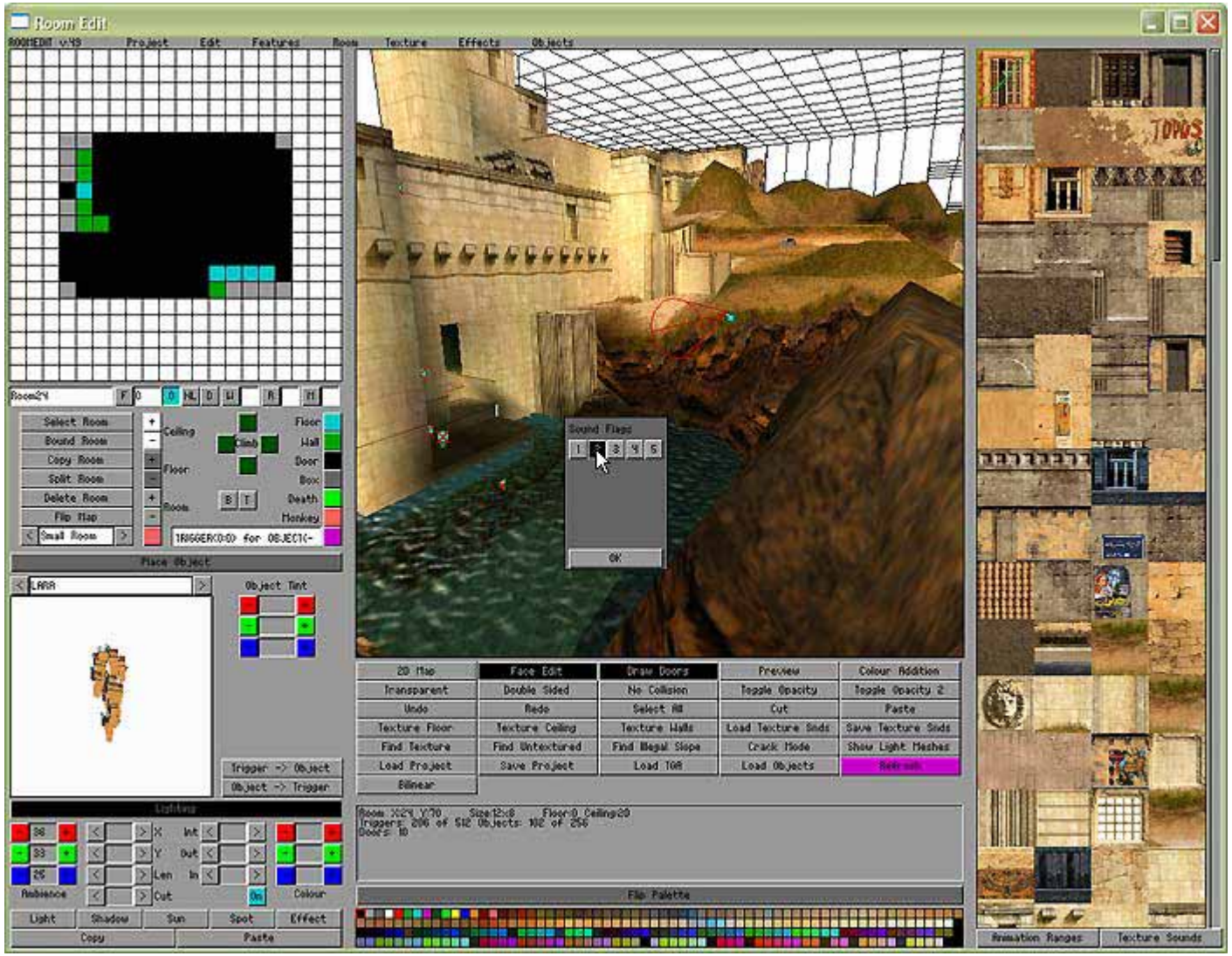
Replace all the figures in the **LoadCamera** line with your new figures, leaving the commas and inserting any minus signs. The last figure is the room number. The finished script should look like the image on the right.

```
Level=          DATA\TITLE,104

;---------------------------------------
; Levels
;---------------------------------------

[Level]
Name=           Playable Tutorial Level
Legend=         The year 2000, somewhere in Egypt...
Horizon=        ENABLED
Layer1=         160,160,192,7
PuzzleCombo=    3,1,Cartouche Piece 1,  $0000,$0400,$0000,$0000,$0000,$0002
PuzzleCombo=    3,2,Cartouche Piece 2,  $0000,$0400,$0000,$0000,$0000,$0002
Puzzle=         3,Ba Cartouche,         $0000,$0400,$0000,$0000,$0000,$0002
Puzzle=         5,Eye of Horus,         $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    5,1,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
PuzzleCombo=    5,2,Eye Piece,          $0017,$0500,$0000,$0000,$0000,$0002
Puzzle=         6,The Hand of Orion,    $0000,$0400,$8000,$c000,$0000,$0002
Puzzle=         8,The Hand of Sirius,   $0000,$0400,$8000,$c000,$0000,$0002
LoadCamera=     0,0,0,0,0,0,255
LoadCamera=     28443,-5162,52893,29777,-4935,53112,0
Level=          DATA\TUT1,107
```

Convert the script and enjoy your new in game screen shot between levels. ■



Sound Issues

[Sound Issues: Audio]

by Titak

The LE uses two different sound types: **Audio** and **sound effects**.

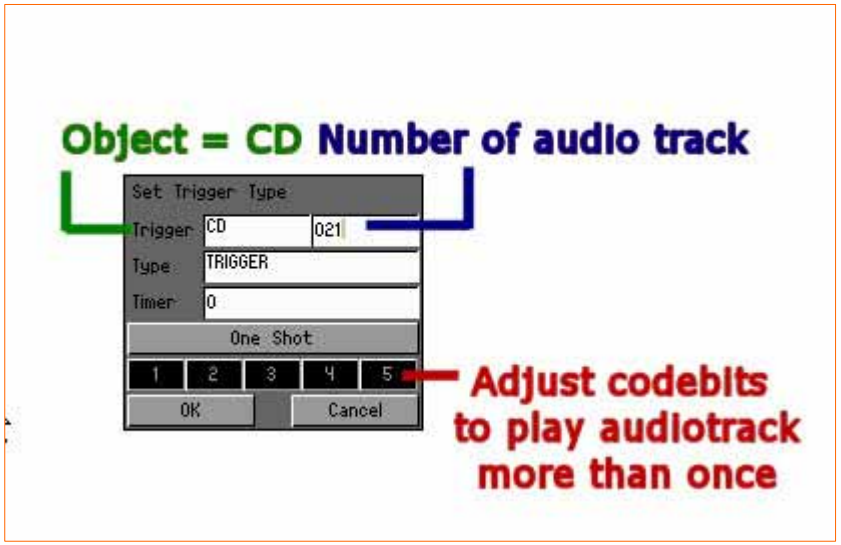
Audio

The audio files are located in the **TRLE/ audio** folder and they are in ***.wav** format. The audio files are basically background music, like background ambience, thrill music, mysterious music and off course the well known secret tune.

The files are numbered 000 to 111. You can replace existing files with new ones or you can add files. TRLE only came with a couple of audio tracks, but the LE won't accept files with numbers higher than 111!

WAV Format:
Microsoft ADPCM
44,100 kHz
4 Bit
Stereo

** If your audio is not in the correct format (as the above), you need to convert it. The next tutorial (Correct format for WAVs in the Audio folder) explains the procedure.*



Activation:
The audio files need to be activated with a trigger.

Open the **trigger type window** and choose **CD** in the trigger box. Put in the number of the audio file you want to be triggered in the box next to it.

Audio files can only be played once in a level. Exceptions are 005.wav (secret tune) and the background audio loops, unless you change the codebits of the trigger.

You can trigger an audio track to play up to six times when you adjust the codebits of the first trigger for that particular audio track. The image on the right shows you how to set the codebits. The image is taken from the manual.

	1	2	3	4	5	6
Bit 1	ON	ON	OFF	OFF	OFF	OFF
Bit 2	ON	OFF	ON	OFF	OFF	OFF
Bit 3	ON	OFF	OFF	ON	OFF	OFF
Bit 4	ON	OFF	OFF	OFF	ON	OFF
Bit 5	ON	OFF	OFF	OFF	OFF	ON

The numbers in the top row indicate how many times the track can be triggered.

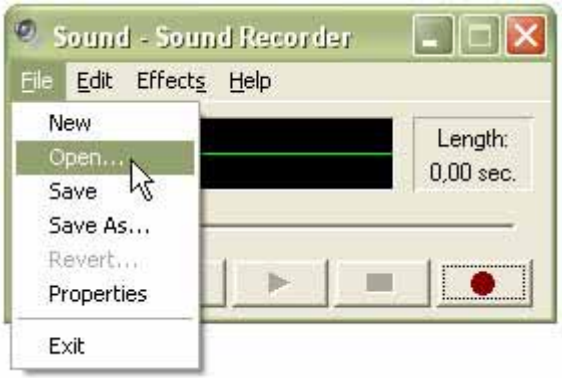
For example: If you want to play the track 3 times during the level you will only need to click **codebit2**. (It turns black when clicked.)

[Correct format for WAVs in the Audio folder]

by George Maciver

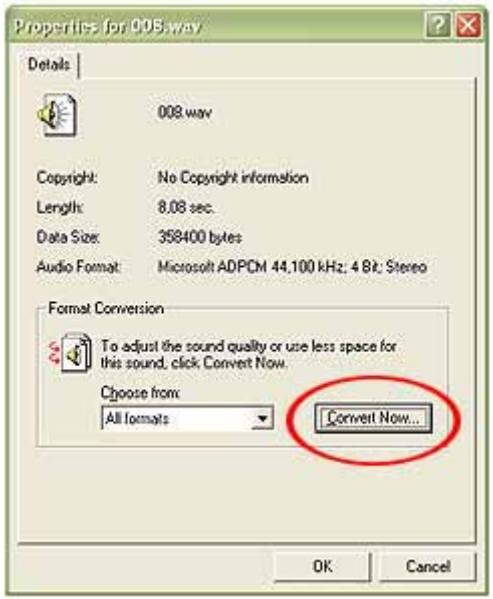
Before the tracks in the **Audio** folder will play in game, they need to be in the correct format. If your audio tracks are not playing, you need to convert them into the correct format.

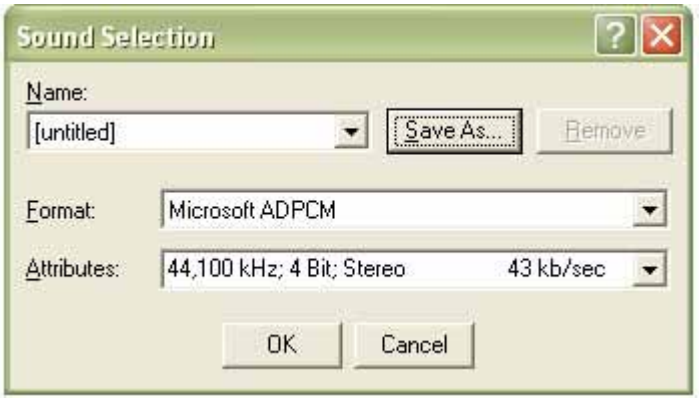
Open the **Windows Sound Recorder** [Start, All Programs, Accessories, Entertainment, Sound Recorder] and open the audio track [File, Open].



Once you open it, select **File** and then **Properties**.

Hit the **Convert Now...** button





Select **Microsoft ADPCM**, **44.100 kHz**, **4 Bit**, **Stereo** format and hit **OK**, then **OK** again. The track will open in the Sound Recorder with the new format. Select **File**, **Save As...** and save the file.

PS: some programs, like GoldWave, although they save in the correct format, the WAVs they convert will not play in game. If this happens, convert them again using the Sound Recorder, or your audio program of choice.

[PCWADSFSX]

by Idealist

The **LevelSFX Creator** is the wad sound creation tool that was supplied with the **Tomb Raider Level Editor**, which the original builders of **Tomb Raider: The Last Revelation**, **Tomb Raider: The Times Exclusive**, and the original levels that came with **Tomb Raider Level Editor** used to create the *.sam and *.sfx files that were needed to add sound to the levels in each of the games. The Tutorial Manual touches briefly on editing sound (pp. 64-65):

Editing Sound

You may want to change some of the sound files (be nice!). There are two different locations for the different sound files used in the game. The "Samples" folder (in "Sounds") contains mostly all the sounds associated with Lara, the baddies and any of the animated traps, puzzles and props. ...
Samples Folder (standard 22khz wav files) To change these, name the new files the same names as the ones you want to replace and copy over the existing files. You will then need to make new SAM and SFX files for the level(s) affected by the change.

Go to your DOS window.

From the LevelSFX Creator directory type the following DOS command: pcwadsfx settomb c Of course, use the WAD (along with its associated letter) you wish to change. The letters associated with the different WADs are as follows:

tut1 Tu (upper and lower case)
settomb c (lower case)
karnak h (lower case)
coastal p (lower case)
cleopal r (lower case)
catacomb s (lower case)
city w (lower case)

Two new files (with SFX and SAM extensions) will be generated in your LevelSFX Creator folder. Move these into the WADs directory. You will have to make a new TR4 file before the changes will take effect.

Of course, this really doesn't say very much, and builders have learned that to change the sounds in the wad, all they need to do is overwrite the existing *.wav files in the **Samples** folder and rebuild. Once this change has been made, making new *.sam and *.sfx files, following the procedures in the manual, really doesn't do anything.

To add, remove, or change sounds that are assigned to a wad, or to change their pitch, volume, or range, or to cause a particular sound to loop, it is necessary to change the contents of the **Sounds.txt** file, which is found in the **trle\ sound\ LevelSFX Creator** folder. Before making any changes to **Sounds.txt**, however, it is advisable to make a back-up copy of the original.

Section 4: Sound Issues

There are 370 lines in the **Sounds.txt** file (numbered 0 through 369, though this is a reference only since the numbers do not actually appear in the file itself). Although I have not tried adding lines to it, I suspect that 370 lines is likely the limit of the editor's capability. Any line may be used for a sound in any level, although line 27 (*Don't_Use_This_Space*) indicates that it shouldn't be used, and I haven't tested to find out if it can be.

The **first column** contains a description of the sound. These are not sacred and hallowed, and may be changed as you see fit.

The **second column** contains the names of the *.wav files in the samples folder that are associated with the sound. Most of these contain only one filename, although several contain two or more.

Suppose that you have an animating object, such as a baddy or a door, from TR 1, 2, or 3, or Chronicles. Take the sound file that is associated with that object and put it in the samples folder. Next, find a line in sounds.txt that has a sound that is not being used by the level(s) you are building and replace the filename(s) with the filename(s) of the sound file associated with that object. You will need to make sure that the correct sound is associated with the object in the Animation Editor in WadMerger.

The **next column** indicates the volume of the sound. To be heard in the level, the volume needs to be set. Obviously, the larger the number, the louder the sound will be in the level. The highest number in the Sounds.txt file is 99. I have not tested to see if this can be exceeded.

The **fourth column** contains the letters **P**, **V**, **R**, and **L**. These indicate **Pitch**, **Volume**, **Range** (or radius), and **Looping**. Except for L, I am not at all sure of the necessity of these when creating *.sam and *.sfx files, since the pitch, volume, and range are set by other columns. In order for a sound to loop, the letter L must be present in this column.

The **fifth column** has the letters **CH** followed by a **two-digit number**. To be perfectly honest, I am not entirely certain what this value controls, since I have not experimented with it.

The **sixth column** controls the pitch. To raise the pitch, type in the letters **PIT** followed by a positive number. Likewise, to lower the pitch, type the same letters followed by a negative number. To keep the pitch the same, leave the space in this column blank.

The **seventh column**, I suspect (I really haven't tested it), indicates radius, or the range from the origin of the sound from which it can be heard.

The **final column** contains a sequence of letters preceded by the **# sign**. These indicate the level (or wad) that each sound is associated with, and are case sensitive. All sounds associated with the **#g** will be added to all *.sam and *.sfx files (except *.sam and *.sfx files associated with the #t), since they are considered vital to every wad. The **#t** is associated only with the *Title Load Screen* level, and only those sounds associated with the **#t** will be included with any *.sam and *.sfx files built with it. All other letters and combination of letters (except **#G**) may be used as associated with a level. These are the same as the sound code letters indicated on p. 65 of the Tutorial Manual (and also in the readme.txt file included with the New Wads download). The complete list is as follows:

g	General; all levels	u	The Lost Library (library)
t	Title Load Screen (title)	v	Hall Of Demetrius (libend)
a	Angkor Wat (angkor, angkor1)	w	City Of The Dead (city, bikebit; also New City [newcity])
b	Race For The Iris (ang_race)	x	Trenches (nutrench)
c	The Tomb Of Seth (settomb, settomb1)	y	Chambers Of Tulun (cortyard)
d	Burial Chambers (settomb2)	Z	Street Bazaar (lowstrt)
e	Valley Of The Kings (jeepchas)	A	Citadel Gate (highstrt)
f	KV5 (jeepchs2)	B	Citadel (citnew)
h	Temple Of Karnak (karnak, karnak1)	C	The Sphinx Complex (joby1a)
i	The Great Hypostyle Hall (hall)	D	The Valley Temple (joby 1b - Level associated with TR:TLR included on the CD, but not in the game)
j	Sacred Lake (lake)	E	Underneath The Sphinx (joby2)
k	Lake 2 (Level associated with TR:TLR that was not released)	F	Menkaure's Pyramid (joby3a)
l	Tomb Of Semerkhet (semer)	H	Inside Menkaure's Pyramid (joby3b)
m	Guardian Of Semerkhet (semer2)	I	The Mastabas (joby4a)
n	Desert Railroad (train)	J	The Great Pyramid (joby4b)
o	Alexandria (alexhub)	K	Khufu's Queens Pyramids (joby4c)
p	Coastal Ruins (coastal, alexhub2)	L	Inside The Great Pyramid (joby5a)
q	Pharos, Temple Of Isis (palaces)	M	Temple Of Horus (Part I, joby5b)
r	Cleopatra's Palaces (cleopal, palaces2)	N	Temple Of Horus (Part II, joby5c)
s	Catacombs (catacomb, csplit1)	Ti	The Times Exclusive (times)
T	Temple Of Poseidon (csplit2)	Tu	Playable Tutorial Level (tut1)

Finally, to build new *.sam and *.sfx files after having assigned all the relevant sounds to the level, save and close **Sounds.txt**, and open a session of DOS in trle\ sounds\ LevelSFX Creator (if you are unfamiliar with DOS commands, review the DOS 101 section on p. 95 of the Tutorial Manual). Type in pcwadsfx <levelname> <soundcode>, where <levelname> is the name of the wad and <soundcode> is the letter code you assigned to this wad after the # sign in the final column of sounds.txt. This will create two new files: <levelname>.sam and <levelname>.sfx. Move these two files to the trle\graphics\wads folder, where you have the <levelname>.swd, <levelname>.wad, and <levelname>.was files.

Addendum by Geckokid

The VOL, if not indictated, the default is 100 and it seems that the **V** means varied. A sound with **V** will have a random slight pitch change each time it is played, while not giving it a **V** doesn't.

CH is the chance of the sound to be played when triggered. Default is 100, means it will sound every time when it is called. For example Lara's jumping grunts have a CH of some numbers, resulting in Lara only make grunts randomly. The smaller the CH number the less it will be played.

PIT50 raises 10 notes if I remember correctly. -50 lowers 10 notes. The sound file will also play faster when PIT is a + number, and vise versa.

RAD is indeed the radius, the rollingball and spikes have a RAD of 26, which makes them heard from very far away. Normal sounds have RAD06. I am not sure the default value of this one though.

[Sound issues: Sound effects]

by Titak

Sound effects are the sounds Lara makes, like her footsteps, grunts, gunfire, etc. But also all other sounds an animating object, like a trap blade, or baddies make.

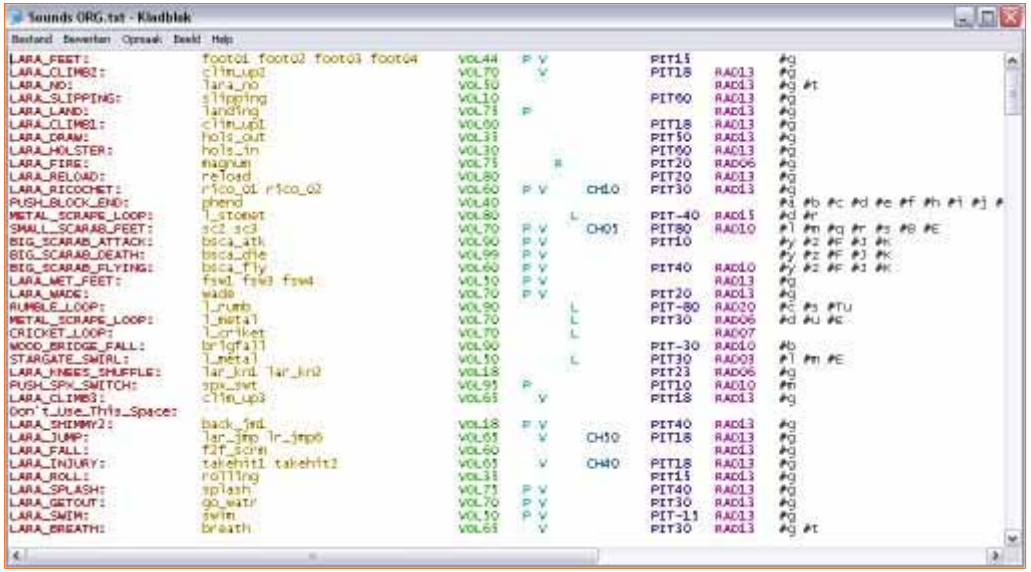
These so-called sound samples are located in the **TRLE\ Sound\ Samples** folder.

Format:
PCM
22,050 kHz
16 Bit
Mono

The game can crash if the format is wrong!

Activation:
A sound effect is activated by assigning the sound to the wad AND the object. When you add a new object with sound to your wad using WadMerger the sound will usually automatically be added to your wad. If this does not happen or if you have been creating your own objects you need to manually add the sound to the wad. To do so you need to edit the **Sound.txt**.

Sound.txt
The **Sound.txt** contains all sounds used by the LE and it is located in the **TRLE\ Sound\ LevelSFX Creator** folder. I've coloured the text on the screenshot to make the columns I'm describing below more visible.



First column (LARA_FIRE) is a description of the sound. This can be changed as you see fit.

Second column (magnum) contains the name(s) of the associated samples. You can simply assign a new sound to an object by changing the name of the sample in this column.

Third column (VOL75) indicates the volume of the sound. The higher the number, the louder the sound will be in game. If the VOL is not set you won't be able to hear the sound in game.

Fourth column can contain the letters: **P**, **V**, **R**, **L**

P – Pitch

V – Stand for Volume (Varied): A sound with V will have a random slight pitch change each time it is played. If you carefully listen to the shotgun sound in game you will notice that not every shot sounds

the same: the LARA_SHOTGUN line has V assigned to it. If V is not assigned to a sample it will sound the same every time.

R – Radius

L – Stands for Looping. This needs to be assigned if you want a sample to play over and over again (=loop) The WATERFALL_LOOP line has an L assigned to it.

The **fifth column** can contain the letters **CH** followed by a **two-digit number**.

CH is the chance of the sound to be played when triggered. The smaller the CH number the less it will be played. If no CH is included in this column the sound will play every time it is triggered. CH is assigned to Lara's climbing grunt: you don't hear it all the time when she is climbing.

The **Sixth column** contains the PIT of the sound, which stands for pitch. PIT followed by a positive number raises the pitch. PIT followed by a negative number lowers the pitch. Leave the PIT out and no pitch change will occur.

The **Seventh column** contains the RAD values. RAD stand for radius/range. This value determines from how far away the sound can still be heard. The higher the number the further away the sound can still be heard. The rollingball and spikes for example have a RAD of 26, which makes them heard from very far away. Normal sounds have RAD06.

The **eighth and last column** contains a series of letters preceded by **#**. These letters are associated with wads. The letters are case sensitive, so a is not the same as A.

From Idealist's tutorial

g	General; all levels	u	The Lost Library (library)
t	Title Load Screen (title)	v	Hall Of Demetrius (libend)
a	Angkor Wat (angkor, angkor1)	w	City Of The Dead (city, bikebit; also New City [newcity])
b	Race For The Iris (ang_race)	x	Trenches (nutrench)
c	The Tomb Of Seth (settomb, settomb1)	y	Chambers Of Tulun (cortyard)
d	Burial Chambers (settomb2)	Z	Street Bazaar (lowstrt)
e	Valley Of The Kings (jeepchas)	A	Citadel Gate (highstrt)
f	KV5 (jeepchs2)	B	Citadel (citnew)
h	Temple Of Karnak (karnak, karnak1)	C	The Sphinx Complex (joby1a)

i	The Great Hypostyle Hall (hall)	D	The Valley Temple (joby 1b - Level associated with TR:TLR included on the CD, but not in the game)
j	Sacred Lake (lake)	E	Underneath The Sphinx (joby2)
k	Lake 2 (Level associated with TR:TLR that was not released)	F	Menkaure's Pyramid (joby3a)
l	Tomb Of Semerkhet (semer)	H	Inside Menkaure's Pyramid (joby3b)
m	Guardian Of Semerkhet (semer2)	I	The Mastabas (joby4a)
n	Desert Railroad (train)	J	The Great Pyramid (joby4b)
o	Alexandria (alexhub)	K	Khufu's Queens Pyramids (joby4c)
p	Coastal Ruins (coastal, alexhub2)	L	Inside The Great Pyramid (joby5a)
q	Pharos, Temple Of Isis (palaces)	M	Temple Of Horus (Part I, joby5b)
r	Cleopatra's Palaces (cleopal, palaces2)	N	Temple Of Horus (Part II, joby5c)
s	Catacombs (catacomb, csplit1)	Ti	The Times Exclusive (times)
T	Temple Of Poseidon (csplit2)	Tu	Playable Tutorial Level (tut1)

Converting:
Once you have edited the **Sound.txt** you need to convert it into new .sfx and .sam files.

If you are running the LE on XP and if you are using one of the letters listed above you can do this by simply double clicking the **SFX_Example.bat** in the **TRLE\ Sound\ LevelSFX Creator** folder. The new files will automatically be placed in the Wads folder.

If you are using a custom letter sequence (e.g. I'm using hm for my levels) you need to use the DOS Prompt to convert the sound.txt file.

The manual says: From the LevelSFX Creator directory type the following DOS command: pcwadsfx settomb c. Of course, use the WAD (along with its associated letter) you wish to change.

Settomb being the name of your wad, **c** being the letter or letter combination associated with your wad. Once converted you need to put the new files into the Wads folder.

Convert the **TOM** file of your **wad** and if all has been done correctly you will hear the changes you have made!

Many thanks to Idealist and Geckokid for the info on sound samples!

Metasequoia, StrPix & WadMerger Tutorials

[Metasequoia Explained]

by Bedazzled

This document explains the function of almost all the buttons & menu items found in the Freeware version of Metasequoia.

Title Bar: Displays the name of the program (Metasequoia) and the name of the document that is being edited.

THE TOP TOOL BAR

Menu FILE

- **New:** Closes the existing document, and starts a new blank document. If you have made changes to an existing document, you will be asked whether or not you want to save the changes.
- **Open:** Closes the existing document, and opens the document that you specify using the Open File Dialog. If you have made changes to an existing document, you will be asked whether or not you want to save the changes.
- **Save:** The currently edited document is saved. If you haven saved the document before, you will be asked where to save it using a Save File dialog.
- **Save As:** Allow you to save a new copy of the current document, with a new name. This new copy becomes the current document.
- **Insert:** Loads an object from a file and inserts it into the current document.
- **Configuration:** Brings up a dialog that allows you to configure various options.
- **Basic Mode:** This menu item toggles Basic Mode on and off. When Basic Mode is on, only the most important commands and menu items are visible.
- **Latest Files:** Shows recently opened documents.
- **Quit:** Exits Metasequoia. If your document has been edited, you will be asked if you want to save it.

Menu EDIT

- **Undo:** Undoes the last operation. You can undo multiple operations.
- **Redo:** Redoes the most recently undone operation. If you have undone multiple operations in a row, you can redo one or more of them.
- **Select All:** All the vertices, edges, and faces are selected.

- **Invert all the Selection of Vertices:** Selects all the currently unselected vertices, and at the same time unselects all the currently selected vertices.
- **Invert all the Selection of Faces:** Selects all the currently unselected faces, and at the same time unselects all the currently selected faces.
- **Unselect All:** Cancels the current selection. After using this command, nothing is selected.
- **Select All in a Current Object:** Like "Select All", except that only vertices, edges, and faces that are part of the "Current Object" are selected.
- **Invert all the Selection of Vertices in a Current Object:** Like "Invert all the Selection of Vertices", except that it only applies to the current object.
- **Invert all the Selection of Faces in a Current Object:** Like "Invert all the Selection of Faces", except that it only applies to the current object.
- **Unselect All in a Current Object:** Like "Unselect all", except that it only applies to the current object.
- **Select all the Faces in a Current Material:** Selects all the faces that are set to the current material.
- **Unselect all the Faces in a Current Material:** Unselects all the faces that are set to the current material.
- **Lock Selection:** If this menu item is checked, then the current selection is locked, which means that it won't be changed by any of the 'Move' or 'Selection' commands.

Menu ATTRIBUTE

- **Hide selected faces:** The currently selected faces are hidden. (Use 'Show hidden faces' to make them visible again.)
- **Hide unselected faces:** All faces that are not currently selected are hidden. Use 'Show hidden faces' to make them visible again.
- **Show hidden faces:** Any faces hidden by 'Hide selected faces' or 'Hide unselected faces' are shown.
- **Fix selected faces and vertices:** The currently selected faces and vertices are fixed in place, so they can't be moved by the 'Move', 'Rotate' or 'Scale' tools.
- **Unfix selected faces and vertices:** This menu item reverses the effects of the 'Fix selected faces and vertices' command. It makes all the currently selected faces and vertices free to move again.
- **Fix selection:** Using this menu item when you have the 'Move', 'Rotate', 'Scale', or 'Select' tools active, makes the current selection sticky - the current items will stay selected, even if you select some other items as well.

- **Store Selection:** Will allow the storage of up to four different selections.
- **Restore Selection:** Will allow you to recall selections previously stored with 'Store Selection'. Restored Selections add to the current selection.
- **Set centre of rotation:** The currently selected items become the centre-of-rotation for the perspective view. If you don't have anything selected, then the origin (point 0,0,0) is chosen. This menu item only works if you have set the 'Centre of Rotation' to 'Fix' on the 'Action' panel of the 'Environment Options' panel. ('Fix' is the default setting.)
- **Fit to view:** Adjusts the perspective window's camera position so that the current selection is fully visible. If nothing is currently selected, then the whole scene is made fully visible.

Menu SELECTED

- **Cut:** Deletes the selected vertices, edges, and faces, and copies the deleted items to the clipboard.
- **Copy:** Copies the selected vertices, edges, and faces to the clipboard.
- **Paste:** A new object is created from the vertices, edges, and faces that are on the clipboard.
- **Delete:** Deletes the selected vertices, edges, and faces.
- **Invert:** Flips the direction that the selected faces are pointing in.
- **Double Sided Face:** The selected faces are made into double-sided faces. This means that the faces will be visible when viewed from both the front and backsides.
- **Extrude Faces:** Extrudes the currently selected faces. Works just like the Extrusion tool. One benefit of using the Extrusion tool instead of the 'Extrude Faces' menu item is that with the tool you can specify the distance moved.
- **Mirror:** Creates a mirror-image copy of the selected vertices, edges, and faces. When you choose this menu item, a dialog box appears that allows you to specify which plane to use as the mirror.
- **Move Faces to New Object:** A new object is created, and the selected faces are moved from their old object to the new object.
- **Merge Two Triangles:** Two adjacent selected triangles are merged into a single quad. This is the same as the Wire Tool's 'Merge two triangles into a quad' button. Divides each selected quad into two triangles. This is the same as the Wire Tool's 'Divide a quadrangle into two triangles' button.
- **Triangulate Selected Faces:** Divides each selected quad into two triangles. This is the same as the Wire Tool's 'Divide a quadrangle into two triangles' button.

- **Symmetry:** The two selected vertices are moved into a symmetrical position. In order for this menu item to work, the two selected vertices have to be part of the same mesh, and they have to already be on opposite sides of the Y-Z plane. (In other words, one pixel has a positive X position, and the other pixel has a negative X position.)

- **Join Vertices:** Two or more vertices are joined together. In order to be joined, vertices have to be in the same mesh.

- **Align Vertices:** Allows you to align a group of selected vertices to the same X, Y, and/or Z position. A dialog box allows you to specify which axes to align upon, as well as what value to align the points to.

- **Flatten:** Allows you to flatten out irregularities in a mesh. You are presented with a dialog box that you can use to interactively adjust your mesh. Moving the slider towards the 'Rough' side increases the irregularities in the mesh. Moving the slider towards the 'Smooth' side decreases the irregularities.

- **Round:** The selected edges are replaced with quads and triangles, so that the mesh becomes more rounded.

Menu OBJECT

- **Freeze:** Converts a smoothed or mirrored object into a simple polygon mesh.

- **Shift the Position:** Brings up a dialog box that allows you to position the selected object relative to the X, Y, and/or Z-axes.

- **Join Closed Vertices:** Any vertices in the current object, which are close to each other, are joined together. (A dialog box appears, which you use to specify how close together the vertices need to be.)

- **Reduce Polygons:** Simplifies a mesh. Brings up a dialog box that allows you to specify how many vertices to reduce the mesh to.

- **Align Faces:** Attempts to align all the faces to point in the same direction.

- **Delete Overlapped Faces:** When two faces share the same set of vertices, one of the two faces is deleted.

- **Unify Faces:** If any double-sided faces are found in the current objects mesh, one of the two faces is deleted.

Menu VIEW

- **Document Information:** Brings up a dialog that displays information about the currently open document. This dialog also lets you set the colour and direction of the light for the 3D Perspective view. (Using the 'Lighting' command panel can also set the direction.)

- **Set View:** Brings up a dialog box that lets you interactively edit the camera orientation for the perspective view. If you hold down the 'Shift' key when choosing this menu item, the perspective view is reset to the default orientation. (When you use the Shift key no dialog box is displayed.)

- **Grid:** Brings up a dialog box that lets you change the properties of the grid. The grid is used for snapping vertices to evenly spaced locations, which can make it easier to draw 3D shapes.

- **Show Precisely:** Enables the display of lighting in the Perspective view. If you have a slow system this might slow down the display of the mesh. Use the 'Document Information' menu item to set the lighti¯s colour and direction.

- **Show Textures:** Enables the display of textures in the perspective view. Depending on your graphics hardware this might slow down the display of the mesh.

- **Smooth Shading:** Enables smooth shading.

- **Show only faces in a current object:** Only the current object's faces are displayed. Use the 'Object Panel' to switch which object is the current object.

- **Show only lines and vertices in a current object:** Only the current object's edges and vertices are shown. Use the 'Object Panel' to switch which object is the current object.

- **Show selected parts only:** Only selected vertices and edges are shown.

- **Lines overwrite faces:** Edges and vertices are drawn in front of faces, even if they would normally be hidden behind the faces. This gives you an 'X-Ray' view of the object.

- **Object Panel:** This panel displays a list of all the objects in your document, and lets you control whether each object is visible, and/or locked. You can also select the current object.

- **Edit Panel:** An alternate way of performing the Movement, Scale, Rotation, commands. You use the panel by clicking down on one of the buttons, and then dragging the mouse Left/Right. (Or Up/Down if you prefer.) Be careful using the scale operation - if you don't scale all three axes equally you will be changing the shape of your object. Hold the 'Shift' key down to constrain the rotation to 15-degree increments.

STATUS BAR

Displays context-sensitive help. Typically tells you what clicking the mouse would do, given the currently selected tool. The status bar also displays the number of currently selected vertices (V), the number of currently selected faces (F) and whether or not the current selection is 'locked' or not.

SUB PANEL

There is a floating panel, called the sub panel, which displays additional controls related to the currently selected command. It can be positioned anywhere inside the main Metasequoia window.

FLOATING PANELS

There are four floating panels (controlled by four buttons on the 'System' command panel) that give additional information about your scene. They are the 'Object' panel, which lists all the objects in your scene, the 'Object Properties' panel, which lists the properties of the currently selected object, the 'Material' panel, which lists the materials in a scene, and the 'Material Properties' panel, which lists the properties of the currently selected material.

COMMAND PANELS

The command panels allow you to choose commands, set command modes, and set display options. There are six groups of commands. You can expand or contract the panels by clicking on their titles. If the main Metasequoia window is too small to display all of the panels, you can scroll the panels vertically by clicking on the grey area of the left or right margin of the command panels, and dragging vertically.

- **System:** File input and output, material set-up, and so on. These operations are identical to the corresponding Menu items.
- **Edit:** Undo / Redo, selection modification, and hiding / locking of objects. These options are mostly the same as the corresponding Menu items.
- **Command:** These buttons allow you to perform various operations details below.
- **Selection:** You can select vertices, edges, and faces by choosing the Select tool and clicking in the 3D window. There are four different ways of using the 'Select' tool. Clicking on the corresponding button in the Select sub-panel controls these.
- **Normal:** This is the normal selection method, if you click on a vertex, edge, or face, you will select it. If you hold the shift key while clicking you can add to or remove from your selection. If you hold down the shift key and drag, you can select multiple vertices or faces at once.
- **Joined Face:** Click on a vertex (or a face), and all connected vertices (or faces) will be selected. Use with the shift key to add to, or remove from an existing selection. You can't use this selection mode with edges.
- **Belt:** A belt is a continuous strip of quads that share alternate edges. Belts do not have to be closed. Click on an edge, and the belt of vertices and faces associated with that edge would be selected. Click on more than one edge to select multiple belts at once. If you click on an already-selected edge, you will deselect the belt associated with that edge.
- **CurObj:** The object that you click on becomes the current object.

Rect and Rope

These tools select the vertices, edges, and faces in the area you define by dragging the mouse. Hold down the Shift key to add to the current selection. Hold down the Ctrl (Control) key to subtract from the current selection.

- **Rect:** Rect allows you to drag out a rectangle from where you click down on the mouse button until you let go of the mouse button. The vertices, edges, and faces in this area are selected.

- **Rope:** Rope allows you to draw a freehand shape with the mouse. The vertices, edges, and faces in this freehand area are selected.

Note: If you're using another tool, such as the 'Move' or 'Rot' tool, you can select faces without switching tools. Just click and drag on an unselected area of the 3D window. When you do this, the selection operation acts like either the Rect tool or the Rope tool, depending upon how you've set the 'Rc' and 'Rp' controls in the 'Edit Options' command panel.

Move & Scale

- **Move:** The Move tool moves the currently selected vertices, edges, and faces.
- **Rel:** Move the selected items relative to the current position of the object. So +1 in the X field moves the object one unit in the X direction.
- **Abs:** Move the selected items relative to the origin of the 3D scene.
- **Scale:** Enlarge or shrink the currently selected vertices, edges, and faces.
- **Proportional:** When you scale using the centre of the handle, every axis (Xi¢i¢Y Z) is scaled by the same amount. This maintains an objecti¯s proportions.
- **Screen:** Scales taking perspective effects into account.
  X Y Z Axis
  Constrains scaling to only affect the X, Y, or Z dimensions of the selected items.
- **Number:** Brings up a dialog box that lets you type in the exact X, Y, and Z scale factors, as well as the 3D point that serves as the origin for the scaling operation.
- **Rot:** Rot allows you to rotate the currently selected vertices, edges, and faces.
- **Trackball:** Lets you tumble the object in three directions, as if you were rotating a ball.
- **Screen:** Rotation using screen coordinates. Can cause distortion if you rotate in the perspective view.
- X-axis, Y-axis, and Z-axis: Used to constrain the rotation to a particular direction.
- **Number:** Brings up a dialog box that you can use to accurately control the amount of rotation, as well as the origin of rotation and the axis around which the rotation occurs.
- **Primitive:** You can create nine different primitive shapes:

Tire, cone, rounded cube, rounded cylinder, plane, cube, sphere, cylinder, and torus. The Property button brings up a dialog box that lets you enter exact numbers for the measurements of the primitive. The Create button actually creates the primitive shape. You will get a new primitive each time you press the Create button.

Create: Create a triangle or quad face by directly specifying 3 or 4 vertices. You can either create new vertices, or reuse existing vertices. If you have the Ctrl key pressed when you left-click, then you will re-use the closest existing vertex. If you don't have the Ctrl key pressed, but you are close to an existing vertex, you will reuse it, otherwise a new vertex will be created.

Note: You can change the distance that is considered 'close' by changing the Vertex setting of the Action panel of the main Configuration dialog.

THE CREATE SUB PANEL

- **Front:** Create front-facing faces.
- **Back:** Create back-facing faces.
- **Both:** Create both front and back faces. (Two faces will be created.)
- **Line:** A line is automatically created when the second point is specified.
- **Tri:** A triangle is automatically created when the third point is specified.
- **Face:** A face is automatically created when the fourth point is specified.
- **Undo:** Undoes the last point that was entered.
- **Add:** Adds the current line or triangle, rather than waiting for you to enter additional points.
- **Direct Face Tools:** Del, Invert, Mat
  These commands allow you to interactively change faces by clicking on them. You could also select the faces first, and then use the corresponding menu items.
  - **Del:** The specified face is deleted.
  - **Invert:** The specified face is flipped.
  - **Extrd** (Extrude): The selected faces are extruded.

Moving the mouse to the left will indent the faces into the surface. Moving the mouse to the right will extrude the faces out of the surface. The Extrude command is similar to the 'Extrude faces' menu item. The difference is that the menu item lets you enter a numerical value, while the 'Extrd' tool is interactive.

- **Normal:** The face is extruded normally. If multiple faces are selected and they are adjacent, then they will be extruded as a group.
- **Bevel:** The face is extruded, but becomes narrower as it is pushed further. If multiple faces are selected, they will be extruded individually, even if they are adjacent.

Lines and Vertices

- **Pull:** As you drag the mouse, each selected line becomes a quad. Since only one action is required, the Pull command can be more convenient than the Create Face command.
- **Bevel:** The line you click on will be replaced with a face that you can interactively resize.
- **Magnet:** Allows you to smoothly adjust a collection of vertices. This command only operates on the vertices of the current object.
- **Form Icons:** These specify the shape of the magnetic field.
- **Only selected:** If this checkbox is checked, only the selected vertices are affected.
- **Joined distance:** If this checkbox is checked, the distance is measured along the edges of the mesh, rather than the distance in space.
- **Range:** Specifies the range (radius) of the magnetic field.
- **Set Range:** Lets you interactively set the range of the magnetic field. Click the 'Set Range' button, then click on a vertex and drag out the range.
- **Wire:** The Wire command lets you edit your mesh. First you choose which of the five operations you want to perform, then you click and/or drag on the lines or vertices of the mesh to perform the operation.

  From Top to Bottom

  - Create a triangle
  - Divide a quadrangle into two triangles.
  - Insert a point on a line.
  - Swap a line two triangles share.

- Merge two triangles into a quadrangle.

- **Create a triangle**
This command works two ways:

1. Given two lines that share a vertex, click on one of the unshared vertices and drag to the other one. A triangular face will be created.

2. Click on any line and drag to either side. You will drag out the vertex of a new triangular face. Be careful if you do this on top of an existing face. The operation will succeed, but you will end up with a complicated shape that you may find hard to work with.

- **Divide a quadrangle into two triangles:** Drag from any vertex of the quad to the opposite vertex. You will rubber band out a line that becomes the edge that splits the quad into two triangles.

- **Insert a point on a line:** Click on any line and drag. A new vertex will be created, and when you let go one or more new triangles will be created.

- **Swap a line two triangles share:** Click on any line that two triangles share. The line will be swapped. (You can click on the new line to swap back to the original line.)

- **Merge two triangles into a quadrangle:** Click on any line that two triangles share. The line will be deleted, and the two triangular faces will be merged into a single quad face.

Knife

Cut with a knife: Click and drag out the line across your mesh. Any face that is completely crossed by the line will be divided.

- **Cut straight faces:** Drag from one side of a quad to the opposite side. The quad is divided in half, and the cut continues through neighbouring faces, in both directions. This can be used to quickly add more vertices to the mesh.

- **Erase chained lines:** This operation is the opposite of 'Cut straight faces'. Click on any edge that divides two quads, and those two quads will be joined together into one quad. If there were two similarly joined quads on either side of the original pair, they are joined as well, and so on.

View

The View command panel has several commands that can be used to change the 3D Perspective Window's camera's position and orientation. If you get lost, and can't figure out where the camera is pointing, use the 'View: Set View' menu item.

- **Zoom:** Left button up/down expands or contracts the view. By default you can also zoom by rotating the mouse wheel, even if you aren't currently using the Zoom Command.

- **Move:** The left button lets you move the camera position. This is also known as the 'Pan' operation. By default you can also move the camera by pressing the middle mouse button, even if you aren't currently using the Move Command.

- **Rotate:** The left button lets you rotate the 3D scene around the current centre of rotation. Use the menu item 'Attribute: Set centre of rotation' to set the centre of rotation. By default you can also rotate the camera by pressing the right mouse button, even if you aren't currently using the Rotate Command.

- **Perspective:** Left button up/down changes the perspective.

- **Dolly:** Left button up/down moves the camera forwards or backwards through the 3D scene.

Basic Concepts

- **Coordinate Axes:** Metasequoia's 3D coordinate system is organized as in the diagram on the right. It is a right-handed coordinate system. By default, X is horizontal, Y is vertical, and Z is into and out of the screen. Notice the colour coding: X is red, Y is green, and Z is blue.

- **Objects:** One document can contain two or more objects. Object panel You can use the object panel to perform 'layer'-like operations, where some parts of your document are visible, but inactive, while other parts can be freely edited. Objects are made up of three parts: vertices, edges, and faces. (Abbreviated V, E, and F.) Faces have two sides: a front and a back.. When viewed from the back, a face is not visible. In Metasequoia only triangles and quads are allowed. Faces with more than four edges are not allowed.

- **World coordinates vs. Screen Coordinates:** With some commands, such as the 'Movement' command, you can choose which coordinate system to use to perform the command. World coordinates are relative to the scene, no matter how the camera is pointed. Screen coordinates are relative to the camera. You can switch between coordinate systems by pressing the 'W' and 'S' buttons in the 'Edit Option' panel.

Edit Options

These options affect various editing commands, such as movement, rotation, and scale.

X,Y,Z: Allows you to enable or disable movement in each axis.

These buttons may change to H, P, B (Heading, Pitch, Bank) depending upon the current command.

- W Commands such as Move use World coordinates.

- S Commands such as Move use Screen coordinates.

- Pt You can perform the operation on Points (Vertices).

- Ln You can perform the operation on Lines

- Fc You can perform the operation on Faces
- Rc You can drag-select using a rectangle. This option is especially helpful when face selection (Fc) is disabled.
- Rp You can drag-select using a rope (also known as a Lasso). This option is especially helpful when face selection (Fc) is disabled.
- CObj Only allow you to select parts of the current object.
- Grid Turns on the snap-to-grid feature. Use the menu item 'View: Grid' to set the grid properties.
- Sym Turns Symmetry on and off.

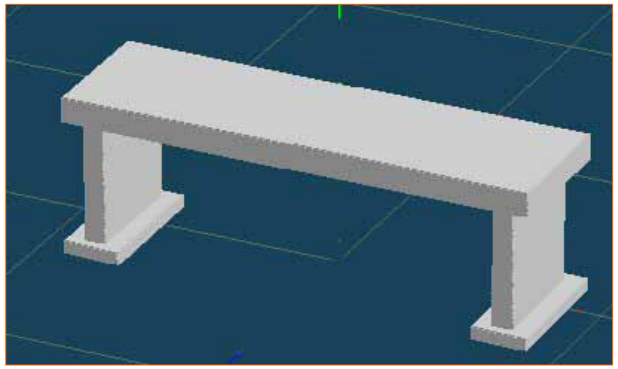
View: Seta the properties of the Perspective window

- GDI Use GDI to draw. GDI is the standard 2D drawing library that is built in to Windows. Faces can't be displayed when using GDI.
- MQR Use Metasequoia's built in software renderer to draw.
- D3D Use Direct3D to draw. If you right-click on the D3D button a dialog box will be displayed that lists how much graphics memory is free.
- GL Use OpenGL to draw.
- YZ,ZX,XY Display a reference grid on the named plane. You can turn on more than one reference grid at once, but the result can be confusing to look at. You can control the grid line spacing by choosing the menu item 'View: Grid'.
- Ax Displays the XYZ axes.

Lighting: Click and drag in the view to set the direction of the light in the perspective view. You can check the 'Back' checkbox to set the light behind the object. (Which is known as a 'backlight').

[Creating a Simple Bench in Metasequoia]

by Bedazzled

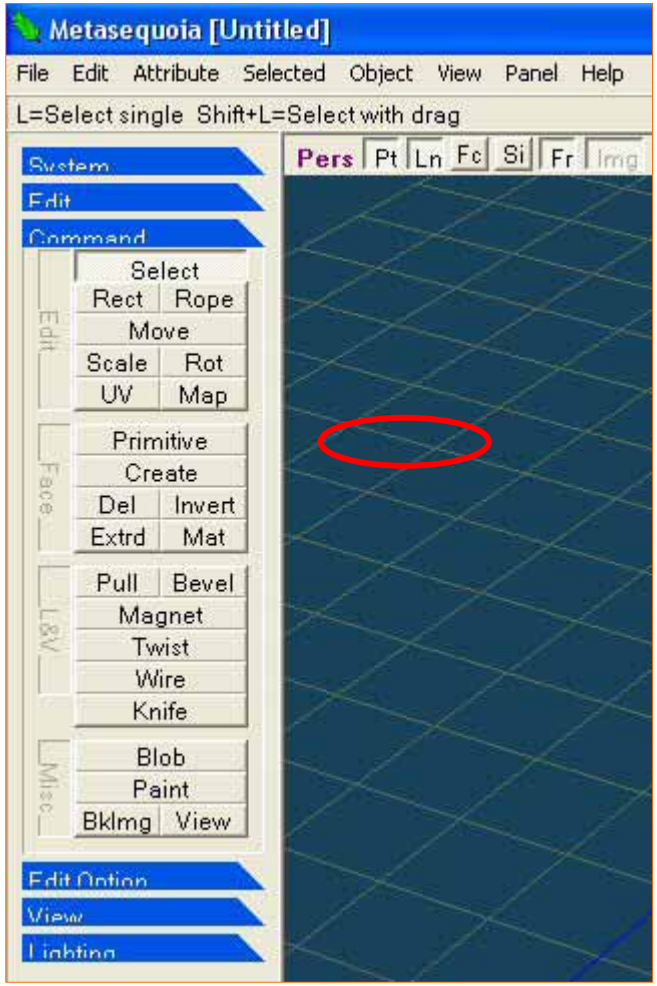


This tutorial will help you to take your first steps towards creating your own custom objects in **MetasequoiaLE**, by creating this simple bench.

Note: I have used MetasequoiaLE R2.2 Beta, Version 1.2a can also be used, but drag handles will not be available. And it will be more difficult to move objects accurately.

If you make a mistake, use CTL+Z to undo it.

When you start Meta the left side of the work area Should appear like this.

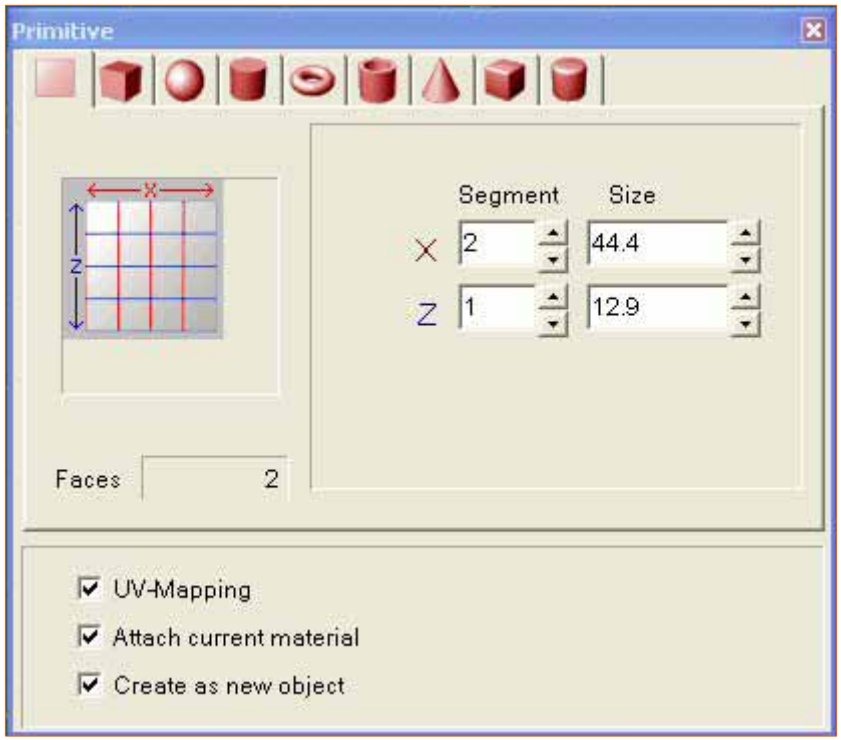


If the panel on the left is not visible, left click on the blue *Command Tab* to expand it. Ensure that only the **Pt** (show points) and the **Ln** (show lines) buttons just above the black workspace area are selected.

Creating the Top

Click the *Primitive* button on the Command panel (as circled in the image on the right) and the Primitive panel will open.

The flat square is selected by default. If required, checkmark the *preview box* and click the *Property* button, and a 2nd new panel opens (as shown below).



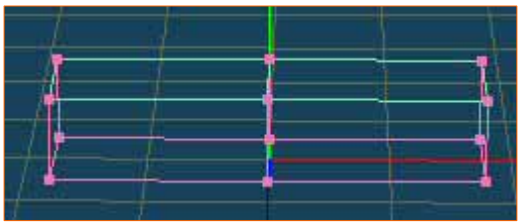
Enter 44.4 into the X size box and 12.9 into the Z size box, advance the X segment box to show 2. This will divide the top of our bench into two segments making it easier to texture.

Make sure the *Create as new object* box is checked and close this panel. Click the *Create* button on the previous panel and the object will appear in the workspace.

Now we need to give the top some thickness. First click the *Select* button on the Commands panel, then press Control + A on the keyboard to select your entire object. Click the *Extrd* button on the Commands panel and a small panel with two options will open. Leave the normal option selected for now. We will use the bevel option later.

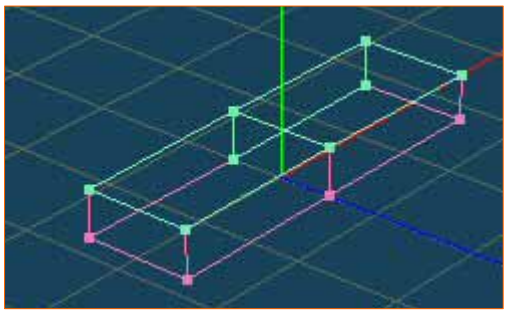
Position your cursor inside you object and left Click & drag your mouse, to move a blue copy of your object about 0.5 cm above the original. Your object should now look like this.

(You can right click & drag in the work area to rotate the view if required.)



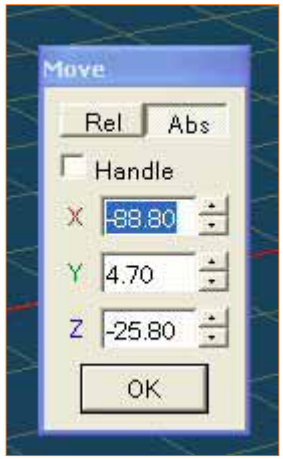
As you can guess this is far too thick, so we'll correct that next. Rotate the view until it's similar to this screen shot.

Click on a blank area of the workspace to deselect everything. Now click *Select* on the Command panel, and whilst holding down the shift key, click on the dots & lines forming the top half of the object as shown here.



Click on *Move* on the Commands panel and the Move panel will open.

Make sure the *Abs* (Absolute) option is selected and enter 4.7 into the Y box & click OK. Our top is now the correct thickness. Click the small *Fc* (show faces) button near the top of the workspace to view it in solid form.



Now would be a good time to protect our work. Go to the top toolbar, select Panel > Object panel.

Click *obj2* in order to select it, click the box just to the left of it. A key icon appears and the object can no longer be edited. Click the *eye icon* to hide the object & clear the workspace.

Constructing the supports

Each support consists of two parts: a **base** and an **upright**. We are going to make one of each component, then combine them into a new object and finally clone this new object to give us two supports.

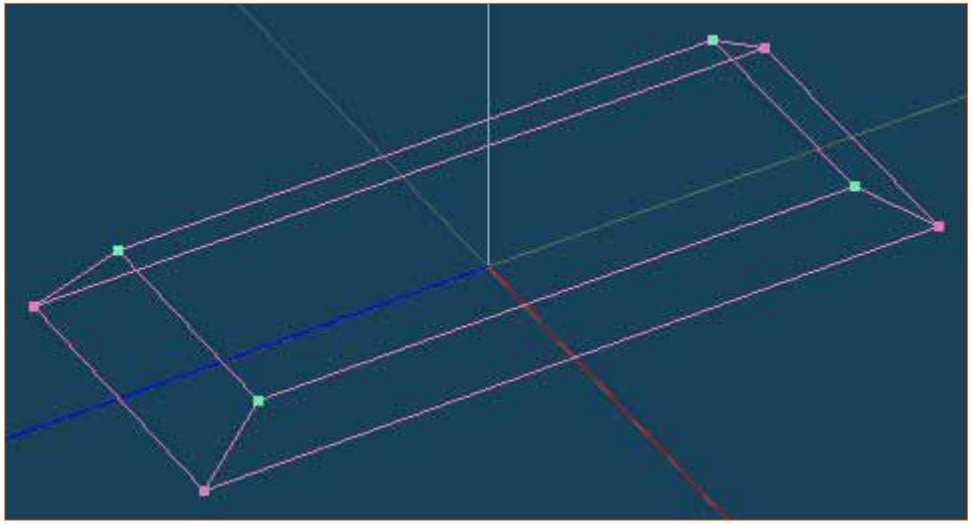
The base

If the *show faces* button is still selected, click on it to deselect it. Using the *Create Primitive panels*, create a flat base with these dimensions X= 5.2 Y= 12.9 leave both segment boxes set to one.

Select *All* and open the *Extrude* options panel, by clicking on the *Select* and *Extrd* buttons. This time we are going to use the Bevel option. Click *Bevel* in the options panel to select it. Once again click & drag to extrude the flat surface, as you can see the sides of our base are now bevelled.

Rotate the view until you can clearly see the four points, which mark the top corners of the base. It may help to zoom in by left clicking & dragging on the magnifying glass icon, just above the top right corner of the workspace.

Shift click on each point to select it. The screenshot on the right shows the correct points.



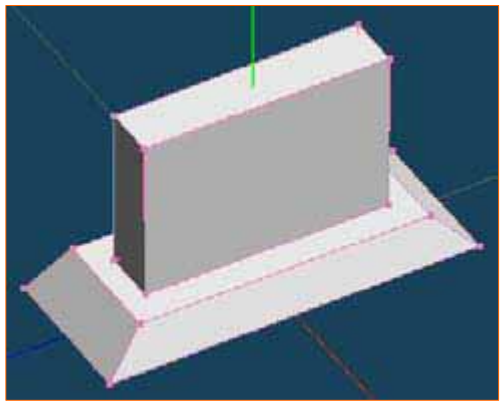
Click on *Move* on the Commands panel, make sure the *Abs* (Absolute) option is selected and enter 2.7 into the Y box & click OK. Click the *Fc* (show faces) view it in solid form. Use the objects panel to lock *obj 3*.

The upright

Open the *Create Primitive panels* and select the *cube icon* in either panel. Create a cube with these dimensions X= 3.7 Y= 16.88 Z = 11.4 Leave all segment boxes set to one and ensure the *cube checkbox* is not checked. Select all and bring up the move panel enter 14.1 into the Y field. Click OK. The upright has now moved into the correct position on the base. Using the objects panel unlock *obj 3*.

Finishing & cloning the support

With only the *base* & *support* visible and unlocked, click the *Misc* tab in the object panel. Scroll down and click *Merge all visible*. Answer **yes** to the prompt. The base and support is now a single object. (obj 4) Again on the objects panel click the *clone* tab, accept the default settings and click OK. We now have two supports in exactly the same place (obj 1 and obj 4.).



Putting it all together

In the objects panel lock and hide *obj 4*. Select *obj 1* and click *Select* on the Command panel. Then click one of the points at the top of the support, click move and note down the reading in the Y axis box .Just in case you close the move panel by accident.

Lock *obj 1* and unlock & make visible *obj 2* (the bench top). If the move panel is still open check the X value = 44.40 Z value = 12.90. Note these values may be negative.

Enter the value you noted down into the Y-axis box and click OK. With all objects visible and obj 's 2 & 4 locked, select all.

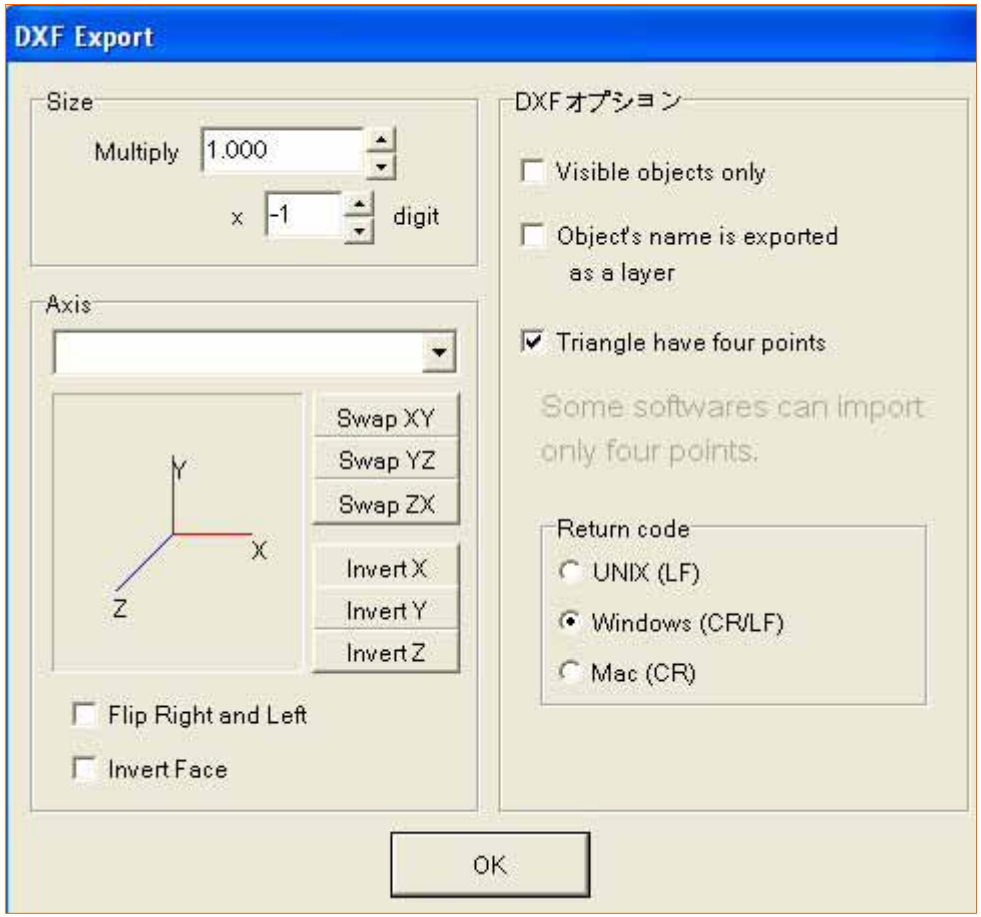
Move the support into position near one end of the bench, by dragging the red cone on the drag handle or clicking and dragging the support. If you have dragged the support you can position it exactly along the Z and Y-axis, by entering these values into the move panel Z = -8.71 Y = 14.1 and clicking OK.

Lock *obj 4* and unlock *obj 1*. Move the other support into position and once your happy with the position of both supports, unlock all of the objects and click on *Misc*. Merge all visible.

Exporting your new creation

Click on *File* > *Save as*. Enter the filename and folder you want to save to. In the *Save as type* box choose AutoCAD (*dxf). Set the Export options as shown below and click once on the *SWAP YZ* button.

Multiply – 1.000
Digit = -1
Triangles have four points box checked.



[Turning an Object upside down using Metasquoia]

by Dhama

Exporting the object as a DXF

Open StrPix and load in a WAD, any WAD will do.
Now select an object, one near the end of the list would be best. Anything but a box.
Now **EXPORT** that object. This will be saved as a .DXF.

Working with Metasquoia

Open Metasquoia. Load in the object that you saved as a DXF and you will get a window open up. In this window, alter the following parameters:

Multiply =1
X = 1
Click on **SWAP YZ**
And check the box named **INVERT FACE**

Click *OK*. Now your object is loaded

Press **F1**. This will face the object to you. At the top right of the screen there is a magnifying glass. Place the mouse pointer over the top of it and hold down the **LEFT** mouse button. When you move the mouse your object will zoom in and out. Position it so that you can see all of it. There is also a green cross with arrows next to the magnifying glass. Click and hold on the to move your object in the selected direction.

Take a look at the **EDIT** buttons on the left of the screen. Click on **SELECT ALL**.

Now in the **COMMAND** buttons on the left of the screen. Click on **ROT** and you will notice a small floating window open on the other side of the screen. Click on the **X-AXIS** button.

Now move the mouse pointer over to your object. Select one of the small square boxes that are at each intersection of the object, preferably one at the top right of the object. Click and hold down the **LEFT** mouse button and move the mouse. This will cause the object to rotate. Keep rotating till the object is upside down. Make sure that the edges look straight (that there are no steps in them). Your object should now be upside down.

Now save your object, again as a .DXF. A window will now open. Alter the following parameters in the following manner.

X = 1
Click on **SWAP YZ**
And click OK.

Texturing the object with StrPix

Now go back to StrPix and **IMPORT** you object back in. If you are using StrPix XP version, a little window will open. Select **STATIC MESH** and move the slider to 4. Not sure about other versions but at least one of them didn't have that little window.

It will look white, so you just need to retexture it. All collision should be ok, but as this is just a quick tutorial, I'll only cover the basics. Once textured, save your WAD and load it into the editor. You now have an upside down object.

If you wish to use it as a reflection object, import it back into a different slot. You'll need to know how StrPix functions to do the collision box, but you may already know how to do that.

As always, back up your WAD before editing it.

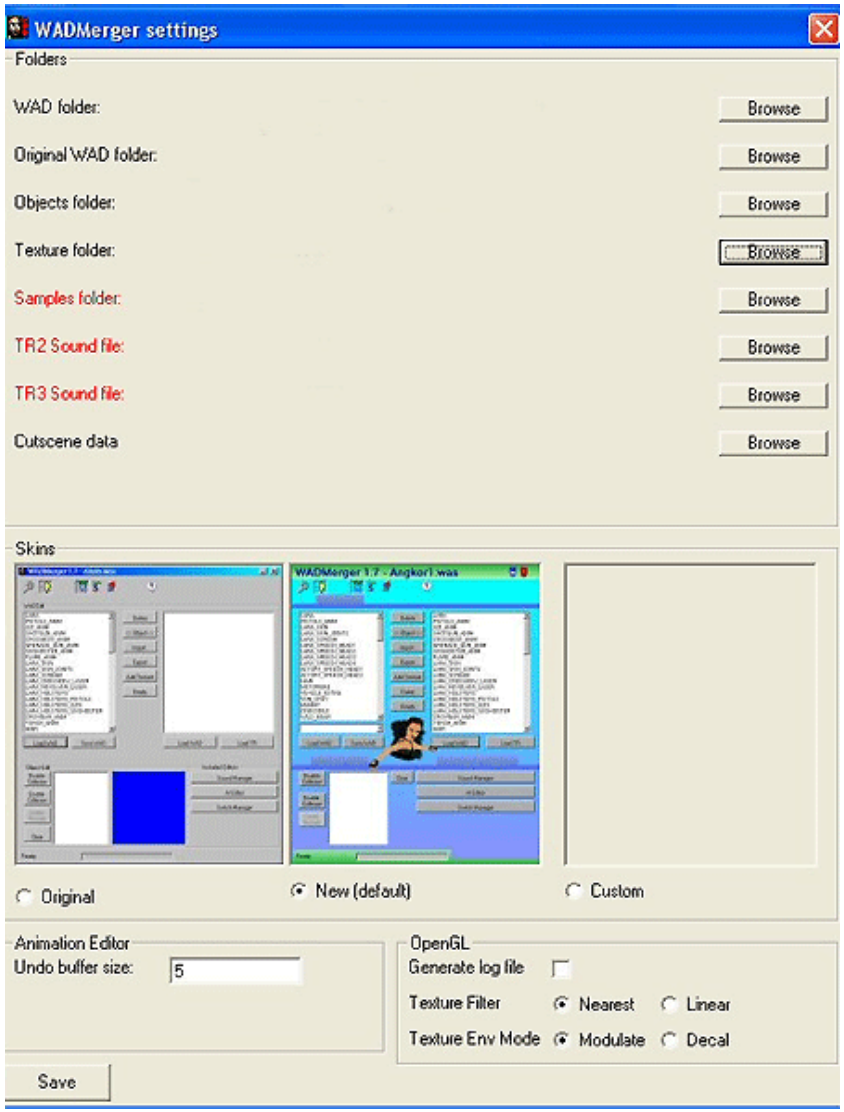
[How to install WadMerger]

by Bedazzled

Note: This guide relates to the newest **WADMerger version 1.95 Alpha 12**. You will also need to download the previous **version 1.95 Beta** and the required **VB Runtimes**.

First unzip the **VB Runtime files** to a temporary directory, and run their install programs. Now create a directory named WADMerger on your C: drive, and extract both of the zipped WADMerger archives into it. Change your screen resolution to 1024x768 pixels and run WADMerger by opening this folder, and double clicking on the **WM195A12** icon.

When you start WADMerger for the first time, the settings window will appear (image on the right). This only shows the first time you run WADMerger, but you can get it by selecting **Options** (the spanner icon) in the main window.



Important information provided by TRWad (the maker of the program):
Applies to older versions only

This window only shows up with the original version! There are some modified packages flying around which don't show that dialog on the first run. The one from the official WADMerger site does work correctly.

Folders: You must first use the **Browse** buttons to set the locations of your WAD folders.

WAD folder: Set to **C:\ Program Files\ Core Design\ trle\ graphics\ wads**.

Original WAD folder: If you have a separated folder with original Wads, select it; or else set to the normal WAD folder.

Objects folder: WADMerger can also export objects. Here you can set the default location to save them in.

Texture folder: Set to **C:\ Program Files\ Core Design\ trle\ graphics\ Extra Textures**.

There are 3 things shown in red. These need to be set in order to make WADMerger work:

Samples folder: When you save objects from other TR games, the sound samples must be saved too. This must point to **TRLE\ sound\ samples** folder (where TRLE is the place where you installed the Level Editor).

The **TR2** and **TR3 Sound File** must point to the games main.sfx file. When you click **Browse** a dialog will show that needs to load the main.sfx. It will be opened when saving TR2/3 levels. This file can be found in the data folder of the TR2/ 3 CD.

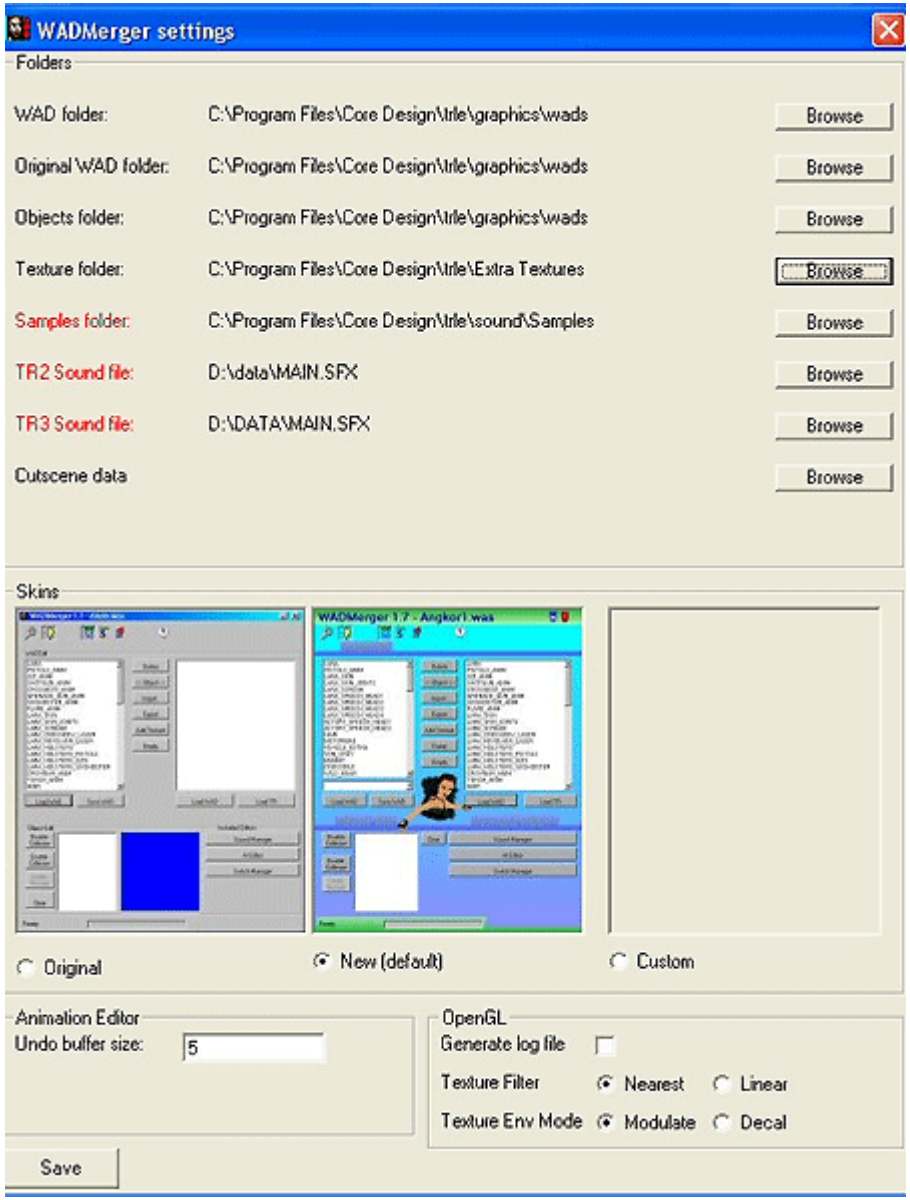
Example: If you have the CD-ROM drive as D and you run TR2/ 3 from CD, insert the CD and choose the **Browse** button after the **File name**. Go to the CD and open **data\ main.sfx**. When you load a level, make sure the CD is in the drive so it can be loaded. After loading the level you can remove the CD safely.

Cutscene data: You can open cutscenes with it but can't view frames other then the first one and neither can you copy the frames.

The settings window should look like the image ON THE RIGHT after setting the folder locations.

Leave the other settings at their default values and press the **Save** button.

When creating a shortcut to WADMerger, remember to link to the **WM195A12** file.

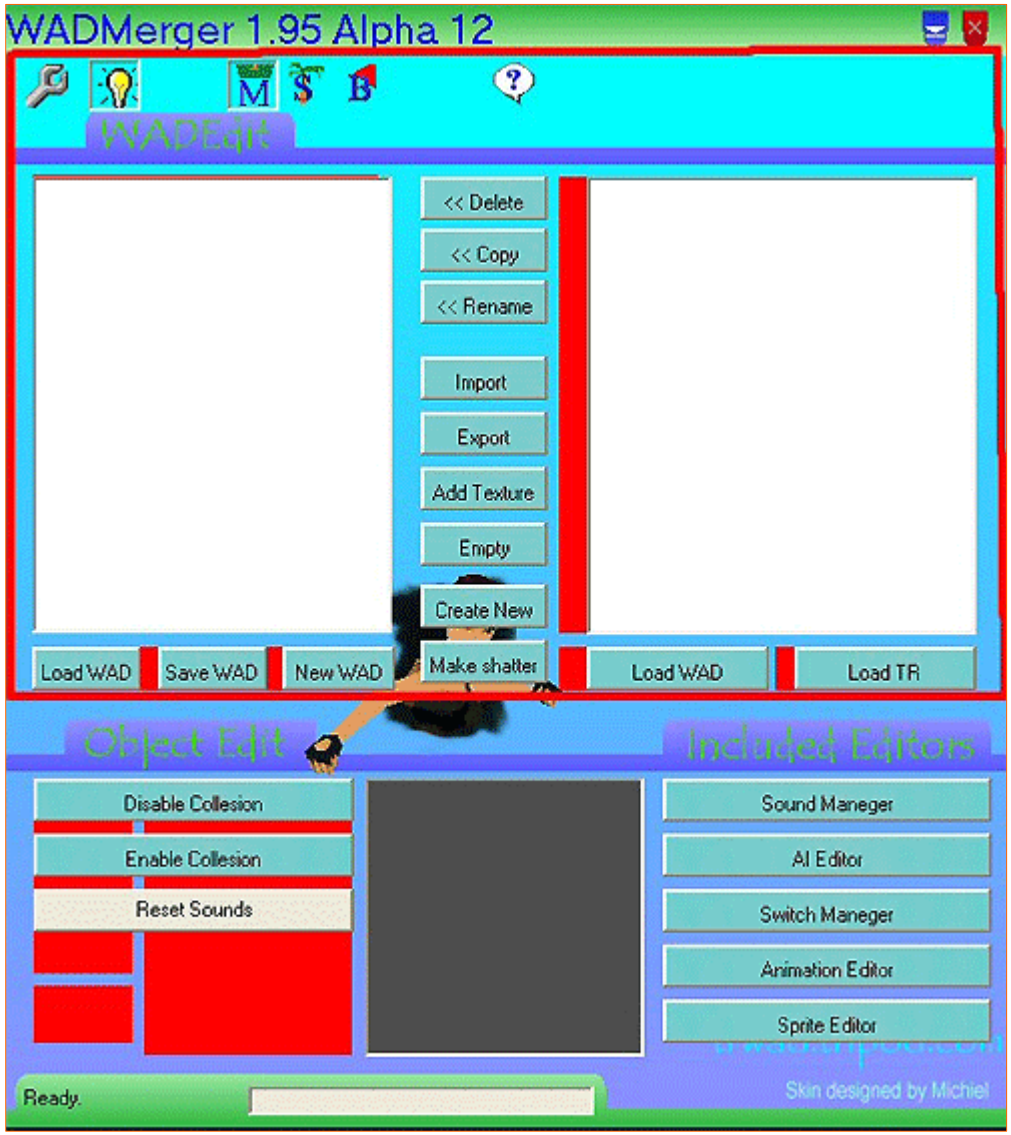


[Wad Editing for Beginners]

by Bedazzled

This tutorial is intended to get beginners started creating a custom wad using WADMerger.

The section you will be using is the Wad editing area outlined in red in the picture on the right. The function of all buttons for this section is described below.



The top Toolbar

(Listed in order, from left to right.)

Options: Displays options screen. You can set-up the folders from TRLE and change skins in this.

Use Smartcopy: If it's pressed Smartcopy is used. If not, Smartcopy is ignored.

Moveable: Displays the movables in the list.

Static: Displays Static meshes in the list.

Sprites: Displays Sprites in the list.

About: Displays the About dialog. It contains the names of the people working on WADMerger (including the skins and documentation).

The Main Buttons

Load WAD: Click this button *under the left window* to load an existing WAD, which you want to work on. Click the Load Button *under the right window* to load a WAD, from which you want to copy objects.

Save WAD: Use this button to save your edited WAD.

New WAD: Click on this button, if you want to build a completely new WAD.

Load TR: This Button will load a TR level (TR1-5) from which you can copy objects. **NOTE:** This function does not always work with TR4 levels.

<<DELETE: Deletes the selected moveable in the WAD you are editing.

<<Copy: Copies the moveable, mesh or sprite you selected on the right to the left list. If you already have the object in your WAD, you will be asked whether you want to overwrite it.

<<Rename: With this button an object can be copied into another Slot. A dialog will ask you for the new slot name

Import: Will show a dialog to load a moveable and add it.

Export: Will show a dialog to save the selected moveable to a file.

ADD Texture: Will show a dialog to load an image file and add it to the texture data. You will use it with StrPix, when texturing objects you have created.

Empty: Will make this moveable or static empty. It will be invisible in the game. You must use this on SKIN_JOINTS when using TR1-3 outfits or TR will crash.

Create new: Creates a total new object. You will be asked for the name. After creating it, the object will be empty. In the animation editor you can add meshes to it (meshes can be created using StrPix).

Make Shatter: This button opens the shatter wizard which allows you to make shootable walls and windows up to 8 clicks high.

Note: You must have the texture you want to use saved as a **.bmp** or **.jpg** format file, and it must be no larger than 128 x 128 pixels in size.

Building a shatter object is very easy. Load your WAD, then start the wizard and click on the Load button. Browse to your saved texture file then click the **Open** button. Your texture will appear in the small window. Select how high you want it and click build.

The new shatter object will be added to your wad, click on the **S** button on the top toolbar to see it listed.

Let's practice editing a wad

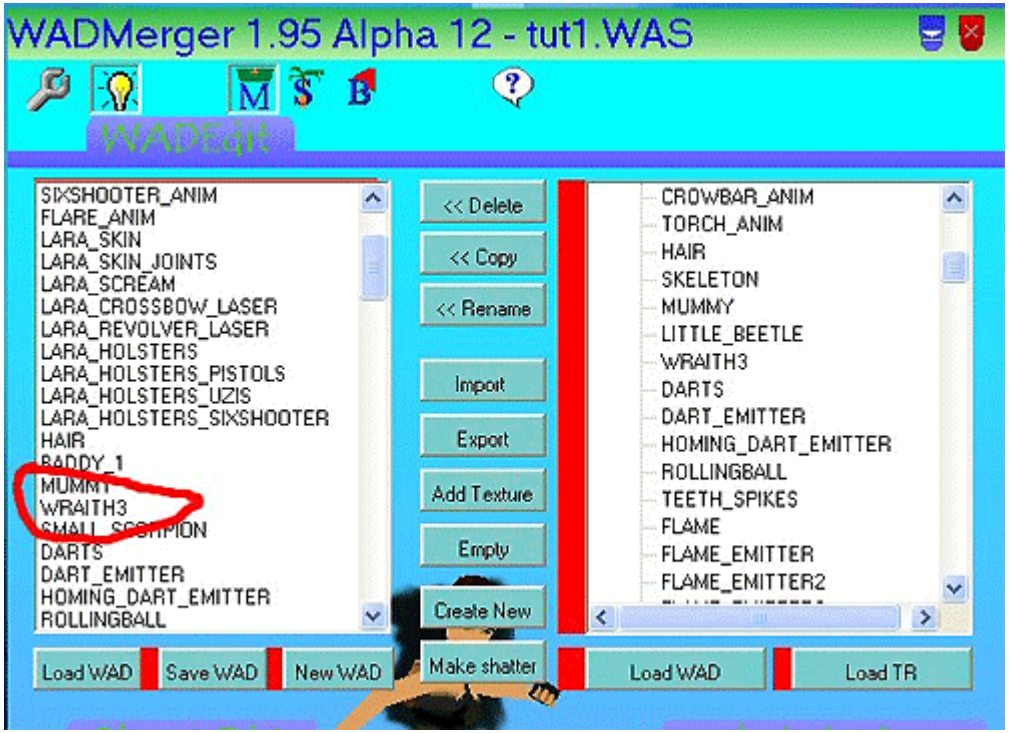
Go ahead and click the **Load WAD** button under the *left hand window*. A new window will open displaying a list of your wads.

Click on the **tut1.was** listing. Next click the **Load wad** button under the *right hand window*, but this time select the **Catacomb.was** file.

Now click on the small square with a **+** sign next to the level name to display a list of objects in the wad. Use the scroll bar on the left to scroll down through the objects.

Click on the **WRAITH3** to highlight it (see image below for reference). You will see it previewed in the small window at the bottom of the WADMerger interface. If you hold the left mouse button down in this window, the object will rotate. Now press the **<<Copy** button. The WRAITH3 has now been added to the tut1.wad.

Just for fun click on the **Mummy** in the left hand list. You will see the preview feature works for both lists.



Smartcopy helps you when you copy objects that can use more then 1 slot (like DOOR_TYPE1, DOOR_TYPE2). Doors, Switches, Animatings.

With Smartcopy enabled (the default setting) doors, switches, animatings, trapdoors, pushables and quest items are not copied to the edit WAF with the same ObjectID. Smartcopy looks in the edit wad if there are any **DOOR_TYPEx** slots free. It will copy the object to the first free slot. If no slots are free, a message will warn you.

To see how this works in practice, click on **Door_Type 2** in the *right hand list*. At the moment there is no Door Type_2 in the tut1.wad. Click the **<<Copy** button. The door has appeared as **Door_Type3** in the tut1.wad, since this was the first free slot. Repeat this again and the door will be entered into the **Door_Type 5** slot, because the **Door_Type 4** slot is already in use.

Now we will return your WAD to its original state. Highlight the **WRAITH 3** object in the *left list* and click the **<<Delete button**. Repeat this for the **Door_Type 3** & **Door_Type 5** objects.

So far we have only worked with movables. Now let's turn our attention to static objects. Leave the tut1.wad loaded in the left window and click the **Static** button on the top toolbar. A list of the static objects in the WAD is displayed. Load the **coastal.wad** into the right window and scroll down until you can see the **rock**, **architecture** and **debris** items. **Make sure Smartcopy is enabled**.

Copy these items from the coastal.wad: **architecture 0**, **architecture 2**, **rock 6**, and **debris 0**. When you look at the tut1.wad, you'll see the items have been added into empty plant slots. This has occurred even through the **debris 0** and **architecture 2** slots were originally empty in the tut1.wad.

Let's see what happens with Smartcopy *switched off*. Click the Smartcopy button then reload the tut1.wad into the *left window*. Once again copy these items from the coastal.wad: **architecture 0**, **architecture 2**, **rock 6**, and **debris 0**.

This time when you look at the tut1.wad, you'll see the objects have been copied into the correct slots. But there are now two **architecture 0** items listed. This is because the slot was already in use. The second one is the item you copied; the first was originally in the tut1.wad and will not be saved when you save your wad.

If you want to add objects from a Tomb Raider CD, insert the CD and click the **Load TR** button. In the new window, which opens browse to the **data** folder of the CD and select the level you want. It will then be loaded into the *right hand window*.

You should now be able to create a custom wad. For further information see the **Documentation** found in the WADMerger Documentation folder in the directory where you installed WADMerger. ■

[How to add collision to an Object]

by Titak

First you have to determine what kind of object it is: *animating* or *static*.

Animating objects

You can add collision to animating objects using either Fexanim or WadMerger.

NOTE: Objects placed in the animating15 and animating16 slots can't have collision. This is a hard-coded thing and cannot be adjusted using one of these programs.

Fexanim

1. Open Fexanim and load the TR4 (Fexanim doesn't work with WAD files) which has the animating object that needs a new collision box.

2. Select the object from the list.

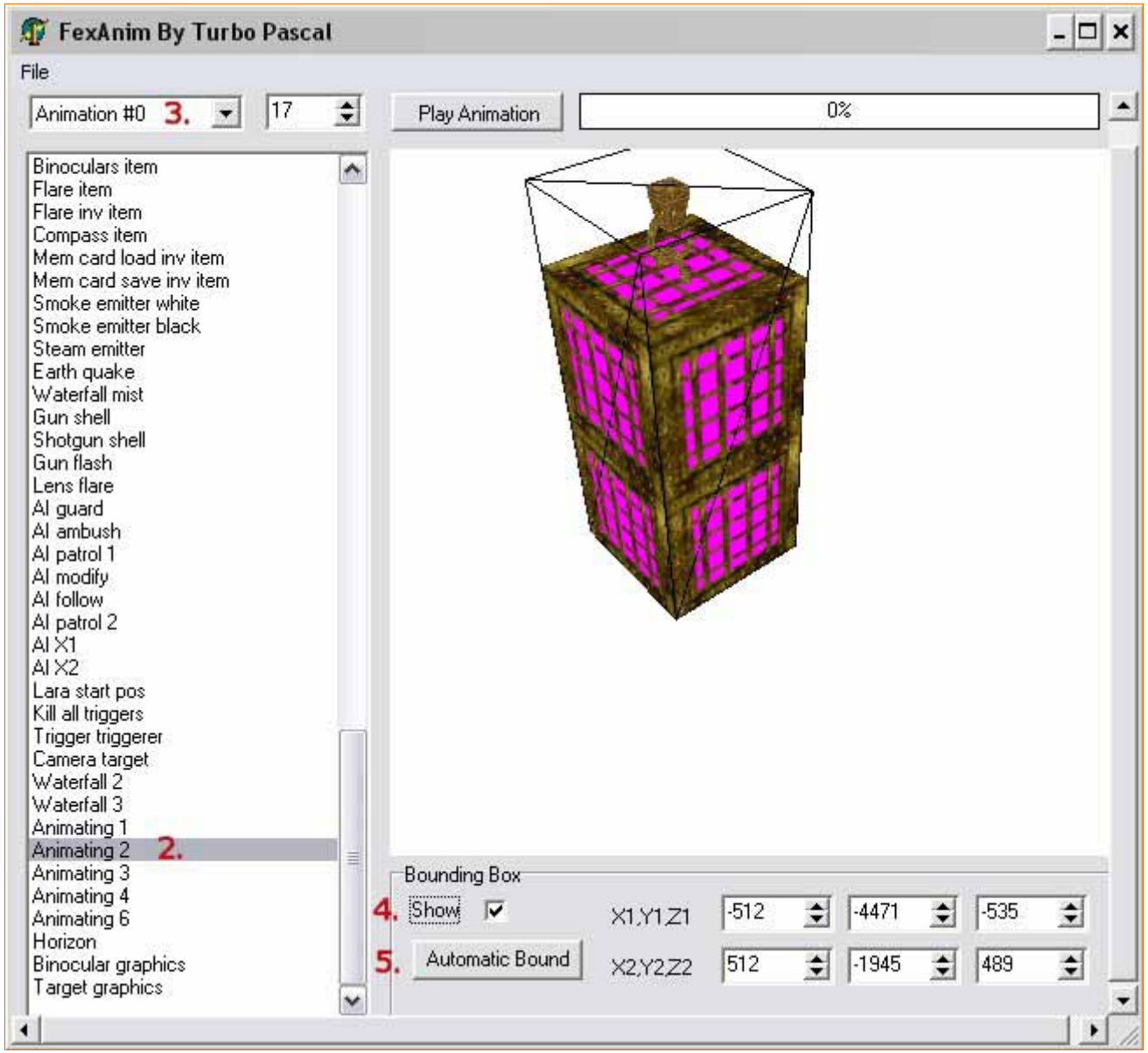
3. Select the animation that needs adjusting. Next to this box is the frame list. Make sure it is set to 0 or higher. You can't adjust collision when the animation is set to frame -1.

4. Check *Show Box*. A black wire frame will appear around the object.

5. Manually adjust the collision coordinates or click the *Automatic Bound* button.

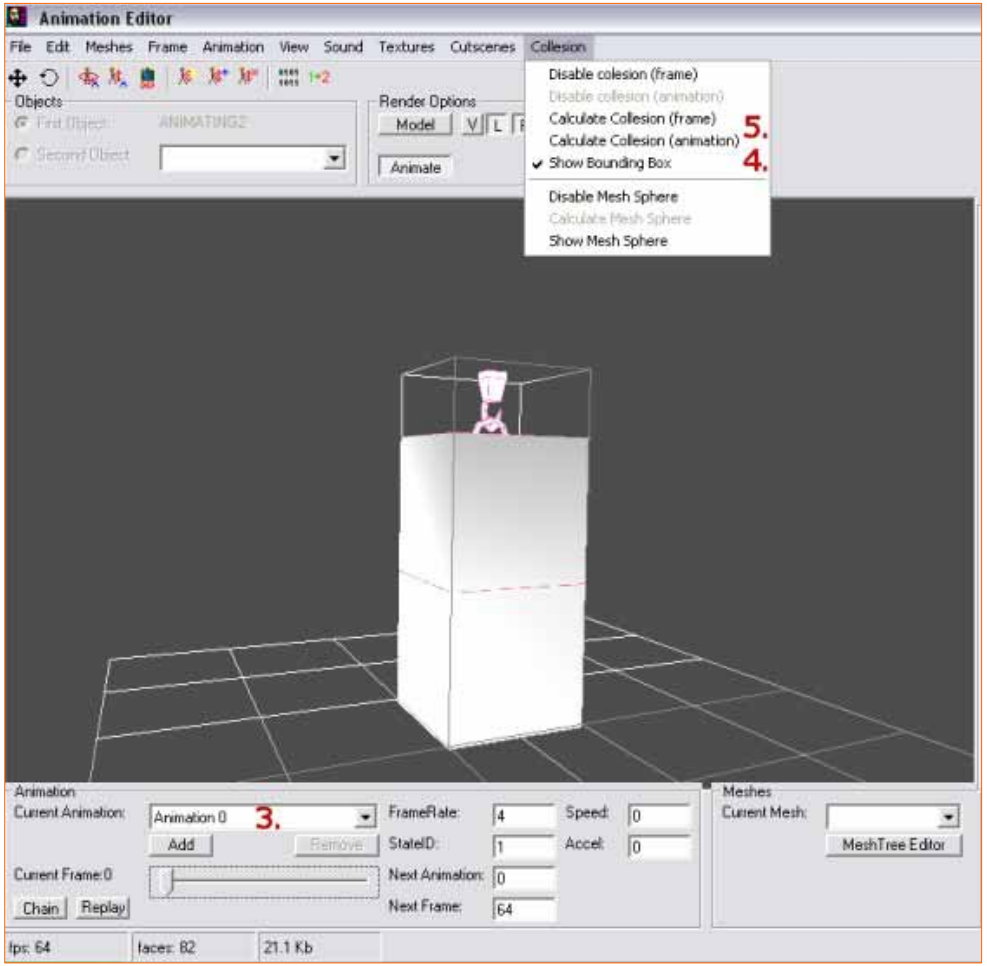
6. Save the TR4 file.

7. Use *Trupdate* to transfer the new collision data back into your wad.



WadMerger *(image on the right)*

1. Open WadMerger and load your wad.
2. Select the animating object that needs adjusting and open Animation Editor.
3. Select the animation.
4. In the *Collision* dropdown menu select *Show Bounding Box* so the collision box becomes visible.
5. Adjust he collision by clicking either *Calculate Collision (frame)* or *Calculate Collision (animation)*.
6. Save the changes and save your WAD.



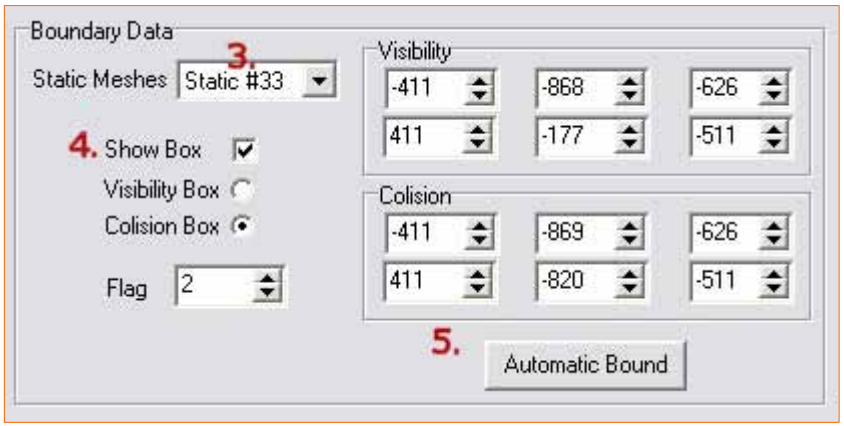
Addendum added by Michiel

Static objects have a special flag in the WAD that enables/ disables collision. It also has 2 bounding boxes, visibility and collision. The collision BB is ignored when the flag is set to disable collision. In WadMerger, if you select a static you can click Enable collision to set the flag to enable and Disable collision to set the flag to disable.

If setting the flag to enable doesn't work, you need to recall the collision. If you hold SHIFT when pressing the button the collision is recalculated.

Static objects *(image below)*

You can add collision to static objects using StrPix.
1. Open *StrPix* and load your wad.
2. On the upper left of the screen you will see the textures and right below that is the Boundary Data window.

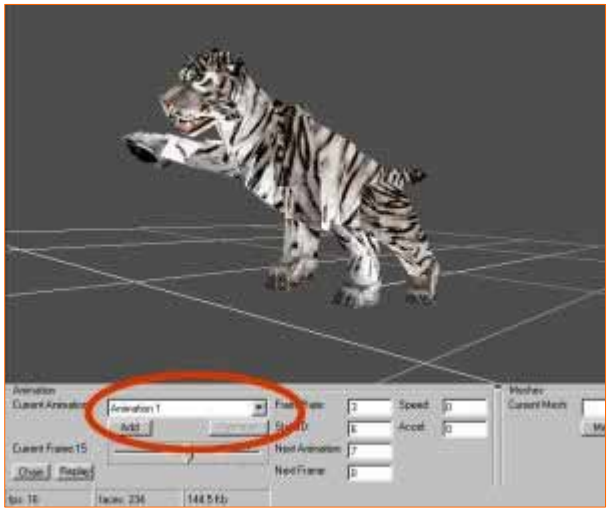


3. Select a static object in the static meshes box. The object will appear on the right of the screen.
4. Check *Show Box*. A yellow wire frame appears around the object.
5. Usually the *Visibility Box* and the *Collision Box* have the same size, but they can be different. I sometimes create a smaller collision box for plants.
To adjust the collision, check *Collision box*. You can now either adjust the coordinates in the boxes or simply click *Automatic Bound*.
6. Save the WAD and check out the new collision! ☐

[Making Enemies non Attacking]

by Michiel

This tutorial describes how to disable attacking animations from enemies using WadMerger. Please note that this completely disables attacking even if you shoot them. Some enemies can be made friendly with AI items but then they attack when you shoot.



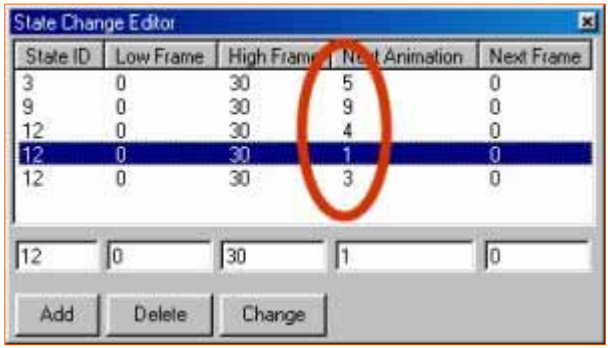
Step 1

First of all, load the object in the animation editor.

Take some time to view each animation and write down the animation numbers of the animations where it attacks. The animation number can be seen below the 3D window. You also need to write down the number of the standing animation.

Step 2

Now go back to the first animation and hit the most right button in the toolbar to open the *State Change Editor* (second image on the right).



Look in the 4th column. It says *Next Animation*. Look below that list if there are any of the numbers you just wrote down. Click on that item in the list. The values will be filled in below the table. Fill in the number of the standing animation in the 4th textbox and press the *Change* button. Do this for all attack animations in this list.

Now close this window. It is very important to close it or you might damage your object and have to start all over.

You have to do this step for each animation the object has. This way you make sure there is no link to the attack animations. Of course not all animations have a link to one so sometimes there is nothing to remove.

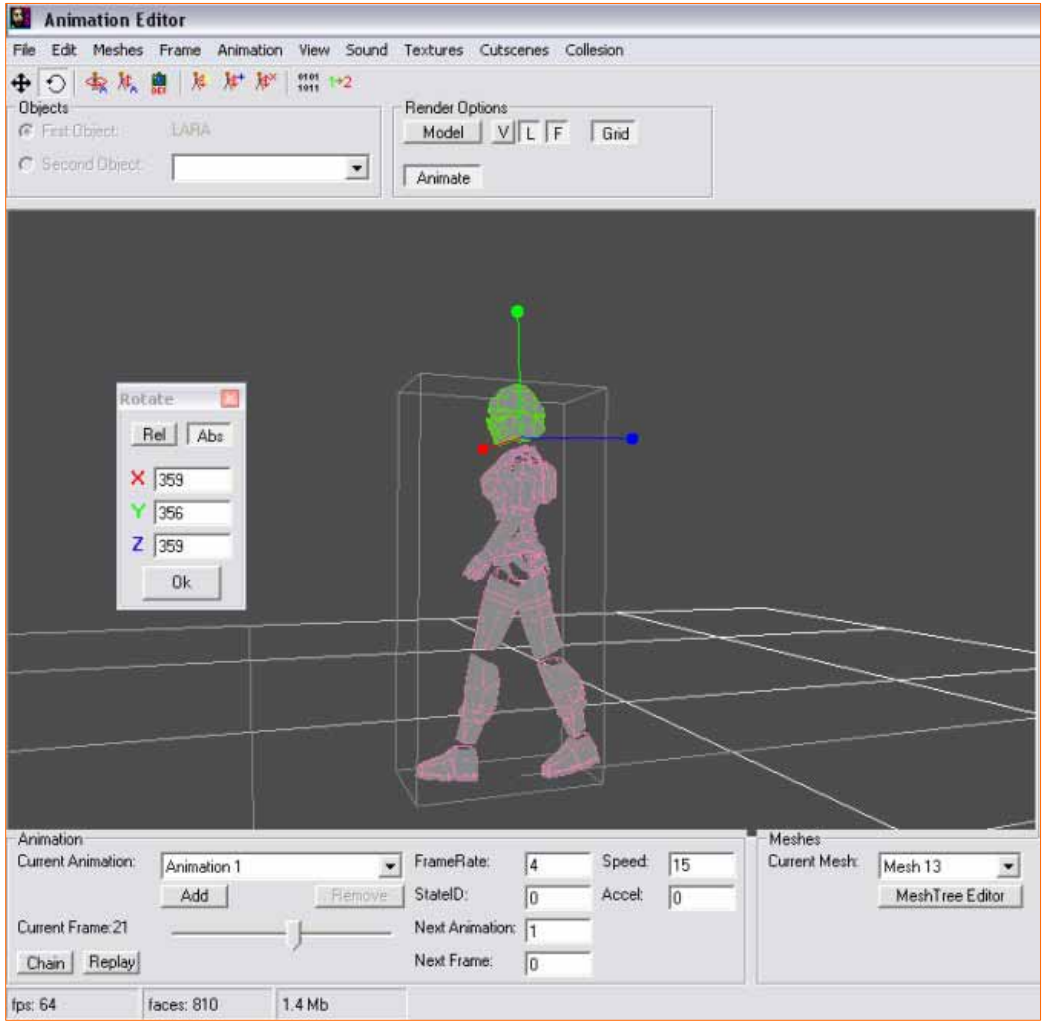
Step 3

Now close the animation editor and save your WAD. If everything worked fine, the enemy will follow Lara and stop next to her.

[How to create custom animations]

by Titak

You can create your custom animations using *WadMerger's Animation Editor* or *3d Studio Max*.



WadMerger

1. Open WadMerger and load your wad.
2. Select the object you want to animate.
3. Open Animation Editor.
4. Select the animation you want to change/create in the Current Animation box.
5. Create the animation. The basics:

- Select mesh: right mouse click.
- You can rotate or move the mesh after clicking the Move or Rotate buttons, right below the File and Edit dropdown menus. Three coloured arrows representing the X, Y and Z axis will appear. Pull these to move or rotate the mesh.
- You can add extra animations by clicking the Add button.
- You can delete frames using the button.
- The button let's you add effects to the animation, such as sounds.
- *Frame rate* determines the speed of the animation: the higher the number, the slower the animation.
- If you want to link several animations into one long one you can put the number of the Next Animation in this box. Also put in a *Next Frame*.

Copy and paste frames or entire animations using the Frame and Animation dropdown menus.

6. Save the changes and save your wad.
7. Check out your new animation.

Animation Editor also has an *Animation Wizard* feature. This feature allows you to create the first frame, and then the last frame and the Wizard will then calculate the frames in between. Saves time and makes the animation smoother.

The WadMerger download comes with a ReadMe file describing more features. It is best to also read that. Creating animations isn't as easy as it looks. But practice makes perfect.

3d Studio Max

1. Create a dummy wad, containing at least the animating object you want to change.

2. Convert the wad into a dummy level (tr4)

3. Open TRViewer and open your dummy tr4.

4. Select the animating object you want to change in 3d Studio Max.

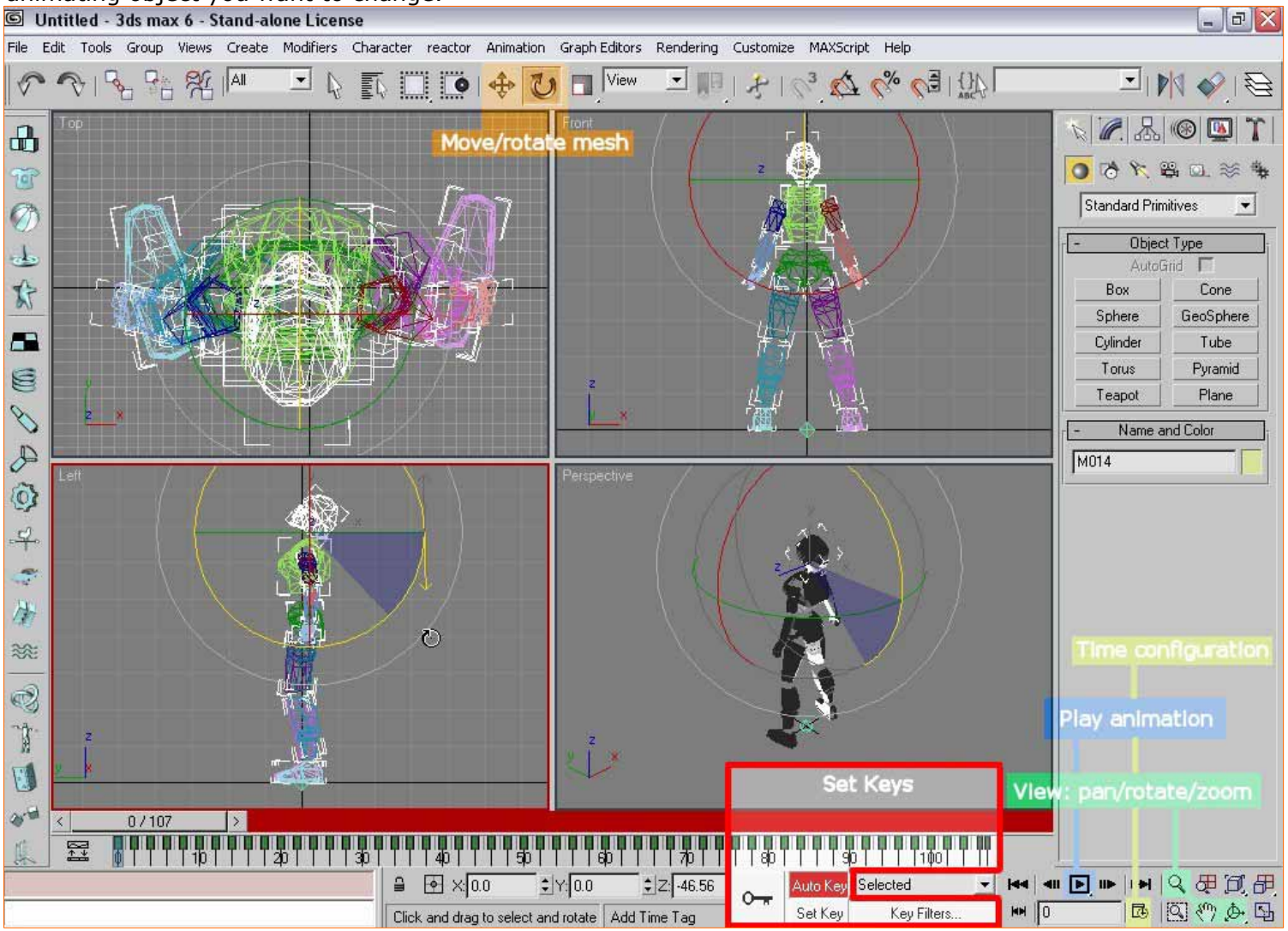
5. Export into 3ds format.

- If the animating object has more than one animation, you can select which animation you want to export with the object.
- If you want to change one of Lara's animations, you first need to export the skin meshes (select skin meshes and export into **TRMVB** format) and then import them again in the Lara object.

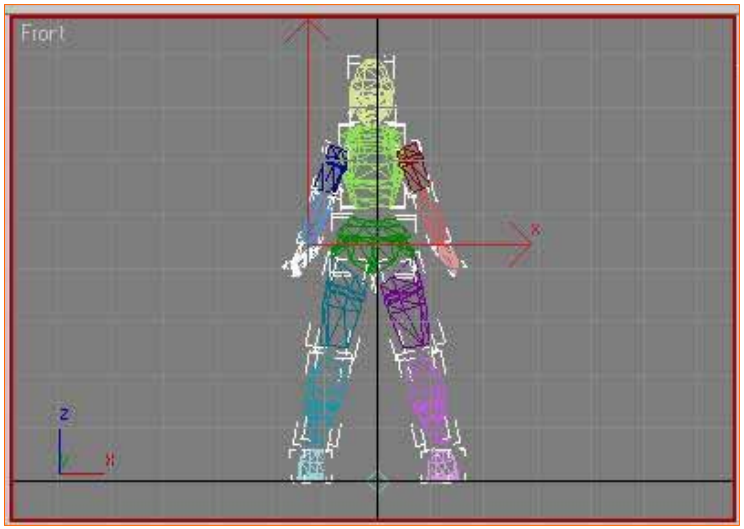
After that you can export the Lara object with one animation.

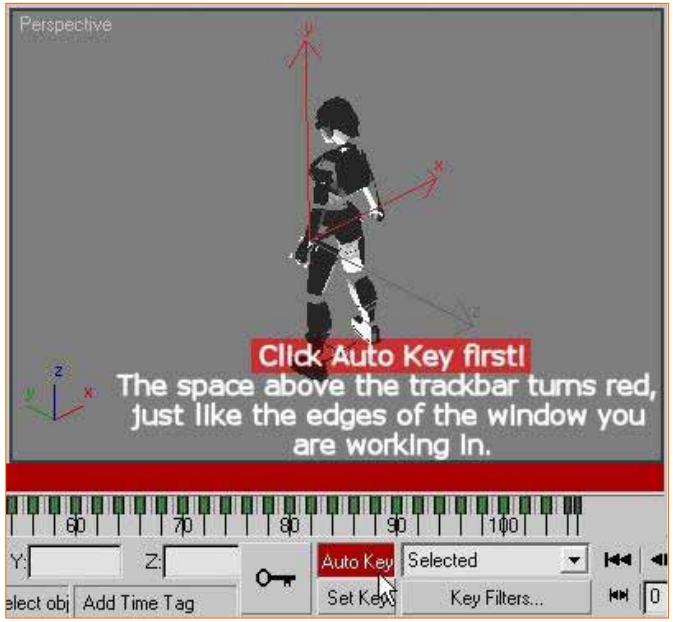
6. Import the object with animation into 3d Studio Max and create the animation.

Here is a full screenshot of the 3d Studio Max 6 window.

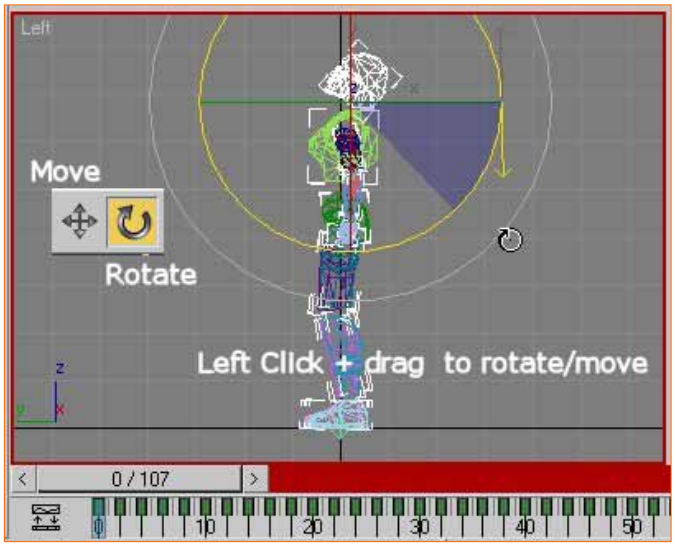


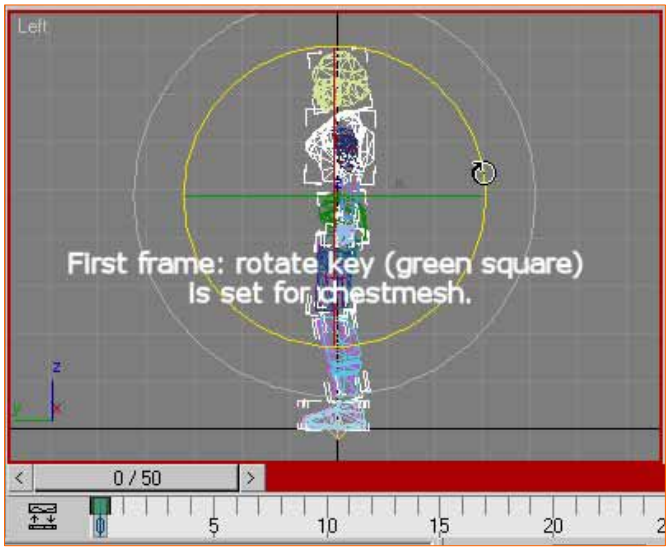
(two images on the right)
Use import instead of open!
Click the **Auto** button before starting to animate the object.

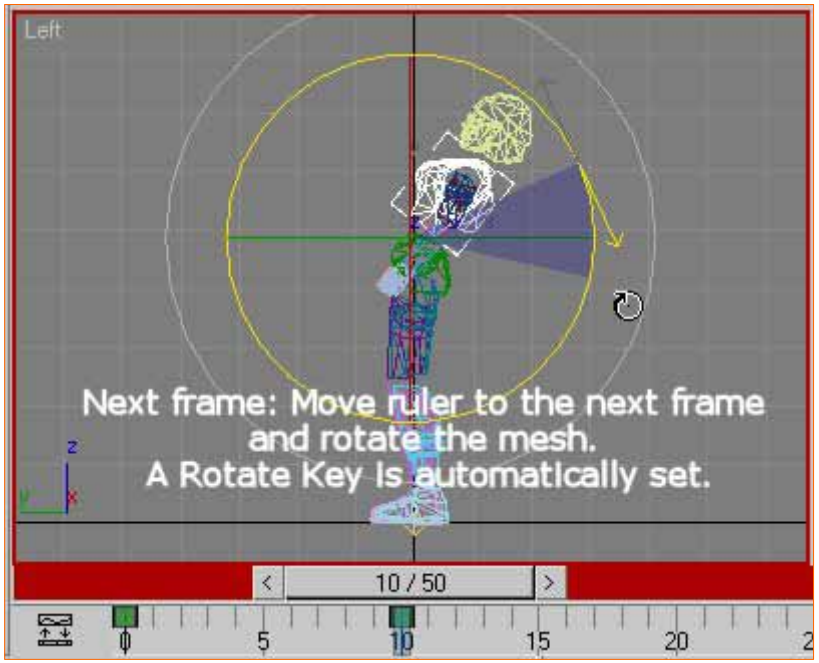


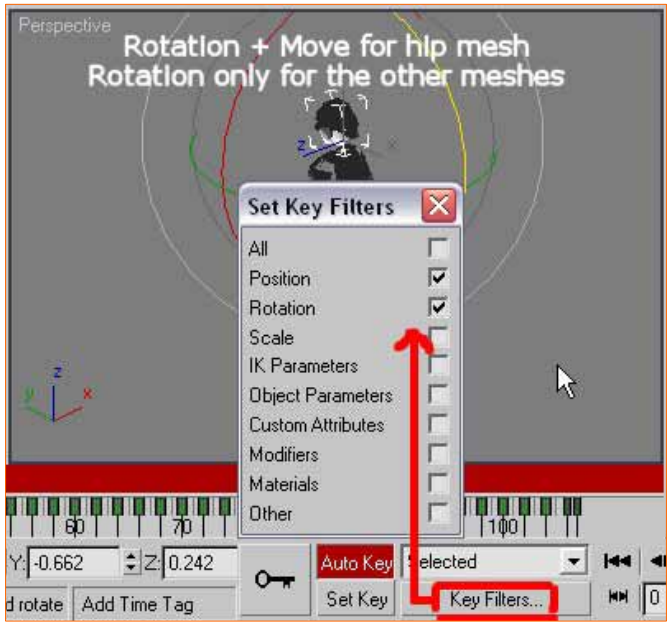


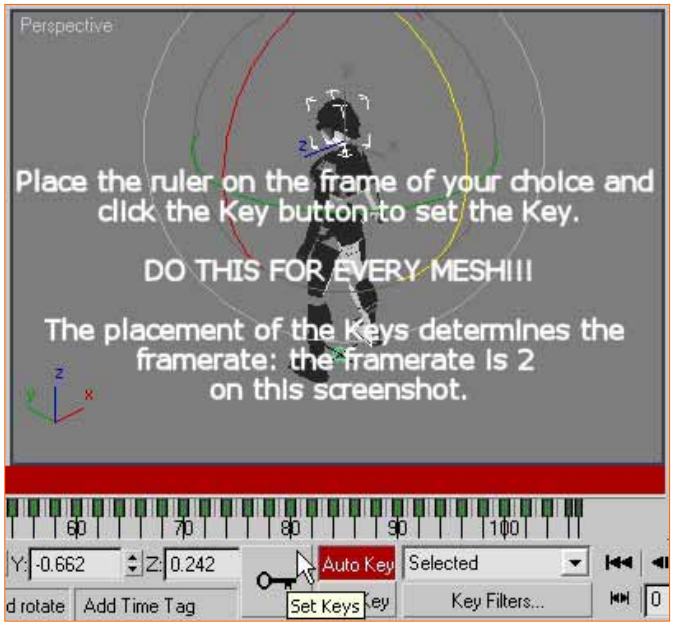
(three images below)
Set the first key (=frame), move the strackbar thingy and create the next key. 3D Studio Max will calculate the frames in between.
Use the *Move* feature only on Lara's hip mesh when animating Lara!











After you have finished the animation you need to set keys to every frame, depending on the frame rate you want. In the screenshot the animation will have frame rate 2.

The keys need to be set for every mesh!!!!!

Rotate key to every mesh, position key and rotate key to the hip mesh! Select the frame using the trackbar and click the set key button.

7. Export the object.

8. Open Trviewer and open the dummy tr4.

9. Import the object with the new animation and save the tr4.

10. Open Fexanim and select the object. Fix the collision and save the tr4 again.

11. Open Trupdate and run the program to transfer the new animation data to the dumy wad.

12. Open WadMerger and load the dummy wad. Select the object and open Animation Editor.

13. Select the new animation from the animation list and copy the entire animation (*Animation* dropdown menu > Copy)

14. Close Animation Editor and load your level wad. Select the object that needs the new animation and open Animation Editor again.

15. Paste the new animation into the right animation slot [Animation > Copy (replace)]

Note: I tried to copy and paste the entire object with the new animation into the level WAD using WadMerger, but that caused bugs in the animation ingame. That's why I only copy and paste the animation.

16. Save the changes and save the WAD. Convert the WAD and check out your new animation!

[Lara Rolling from Crawlspace]

by SSJ6Wolf

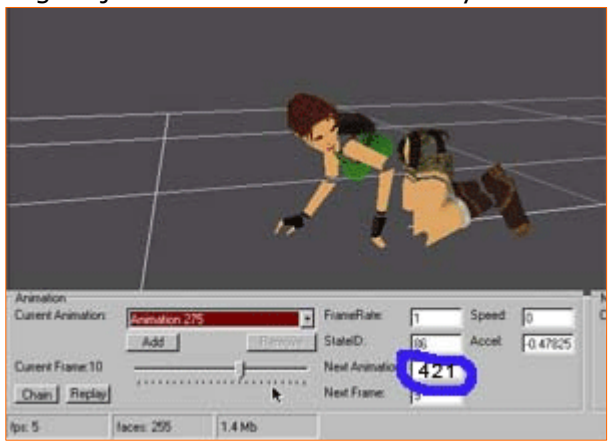
In Tomb Raider Chronicles, Lara has a nifty move that enables her to roll forward out of a crawlspace by facing the edge and pressing the Jump button. It turns out that you can use this in your custom level as well, but not in the same way. You must sacrifice one of Lara's other moves, preferably a crawling animation. This tutorial will explain how to set it up just as I did and why I did it that way.

Step 1: Get the rolling animation

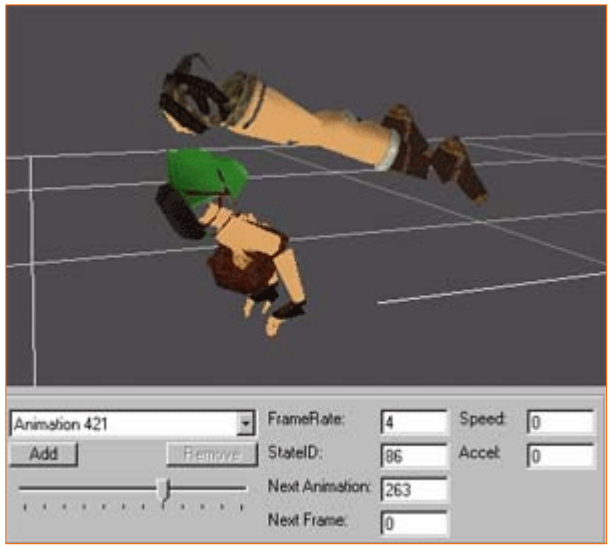
You will need to have an animation first to use the move. The easiest way to do this is to take the rolling animation from a Tomb Raider Chronicles file. Load a TRC file into WadMerger, open up the animation editor for Lara, and the animation is in slot 421. Export it. Then, in your own wad, go to the animation editor and import the animation. It shouldn't really matter what slot you put it in, but I used slot 421 again just to be safe. Make sure you aren't replacing anything important.

Step 2: Set up the animation

Select animation 275, and in the "next animation" field enter 421 instead of 276. Animation 275 starts having Lara crawling backwards. Changing the "next animation" field means that after animation 275 plays, where Lara starts going backwards, then instead of continuing to go backwards (anim 276), she will do the rolling move (anim 421). This was the way I liked it.



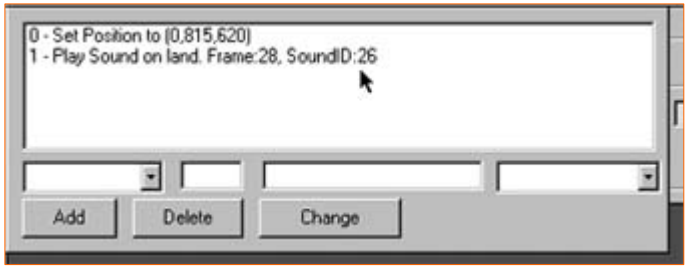
Then select animation 421. In the "StateID" box enter 86. This will have the game engine think that Lara is still crawling backwards and will let Lara carry out her rolling move. In the "next animation" field enter 263.



Why have it go to this animation? This is the animation where Lara is in her crawl position and not moving anywhere. Think about playing a level in TR4, where you are crawling backwards and the floor collapses underneath you. The truth is that Lara goes to animation 263 first and then falls down. This is hard to notice because she starts falling almost instantly. So we want this animation because the game engine still things that she is crawling backwards, and we're having her fall out from the crawlspace, so we need the proper animation for her to fall from.

Do NOT have it go straight to animation 23 because this can cause bugs in the game such as Lara not being able to crawl back and forth, or not being able to do a mid-air grab.

While you're here, look at the animation command window and make sure it looks like the one in the picture below (you can choose a different sound ID though if you wish). Also look in the StateID change editor and make sure there is nothing there. Then you should be all set!



Step 3: Test the move

Save your WAD with these changes, and then test the move. Go up to a ledge while crawling and press backwards. Lara pulls back and then flips over. If it does not work make sure you made all of your changes correctly. If a player attempts this move without a ledge in front, Lara will hit the floor in her crouched animation and should be fine.

So there you have it. This is how I gave Lara one of the most convenient moves in the TR series!

[Outfit Tutorial – Beginners]

by Trinity

This tutorial is for complete beginners, so if you want to make outfits but have no idea how, this tutorial is for you. Ok, important things first. You are going to need a few tools to get you started.

1: The Level Editor

This is the most important thing. Some people make outfits without the Level Editor but that's a very bad idea. The level editor is what you will test your outfit in. The Level Editor (LE) is what comes with Tomb Raider Chronicles (TRC), if it didn't come with TRC (if you got it as a jewel case or off of Ebay maybe), then you can download it.

2: StripX

This is the program that you import your meshes into and texture Lara's outfit. This is the program that makes the outfit. (Note: This works great with 98 & ME, but it runs really slow on XP pro edition.)

3: WadMerger

This tool converts your outfit into the right file so you can test it in the level editor. This is also an extremely useful tool for making levels and other things related to the LE, but we won't get into that. You'll also need Runtime 5 and Runtime 6 to make this run properly on your computer.

4: Metaseqouia

(Optional)

If you want to make meshes for Lara, (If you don't know what meshes are, they're basically Lara's Polygons. The thing that makes Lara 3D) then I'd suggest Meta. Meta is a ton easier to use then, say, programs like 3D studio Max, Rhino or Gmax. I've worked with all of them, and I learned Meta in 10 minutes, as for the other tools, I'm still learning

5: Texture making tools

(Optional)

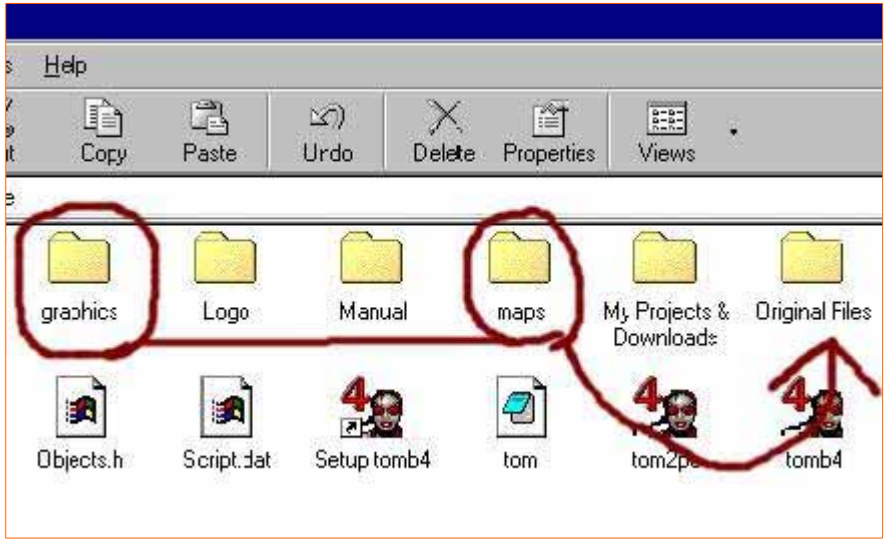
A photo enhancing tool is great for making textures. The best are *Photo shop pro* and *MGI photo suite*. If you don't want to download a demo of those or buy them then the next best thing is to go online and get textures from web page background sites and resize them in Paint. Ok, don't try making your own textures in paint, no matter how good you are it'll probably look very bad. The internet textures will probably be good looking enough for your outfit.

Backups & Finding files

Assuming you have installed your Level Editor by now, and all the needed programs listed above, then you're ready for the next step.

StrPix is not a hard program to use; it's got a simple layout. Click *Open*, and you will find your WADs under: C:\ Program Files\ Core design\ TRLE\ Graphics\ WADs (or wherever you have installed LE).

If you haven't already, make a back up copy of your ''Graphics' and 'Maps' folder. Make an "Original files" folder and put the backups in there (as shown in the image below). These files are often saved over, and you can't get them back unless you reinstall the level editor, or download them.

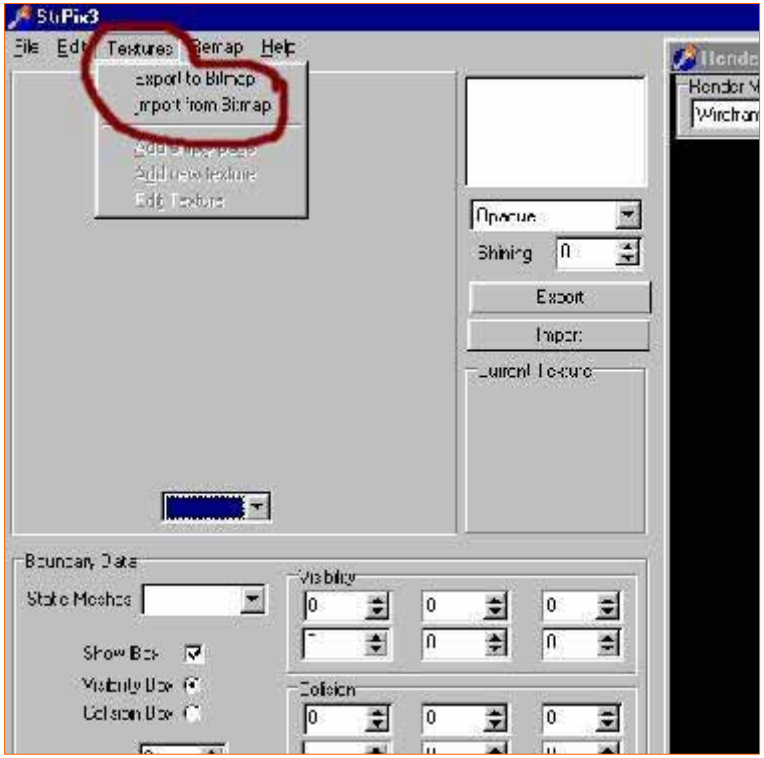


Loading & Saving Textures

Are you ready to texture? Texturing is not hard, so don't sweat it. Load *StrPix* and open the WAD you want to start with.

Let's use the *Tut1.WAD* file. (Remember to make a backup copy of it before you start). On the task bar at the top there is a button called "Textures". Click on it and a bar will appear beneath it. It says 'Export bitmap' and the other says 'Import bitmap'.

Basically: **Export = save** and **Import = load**. Click on *Export bitmap* and save your texture to a folder that you won't forget how to get to. What that does is it saves all of the textures from all of the objects in your Tut1.WAD into a picture format. It will be the exact same thing as the textures to your right when in StrPix.



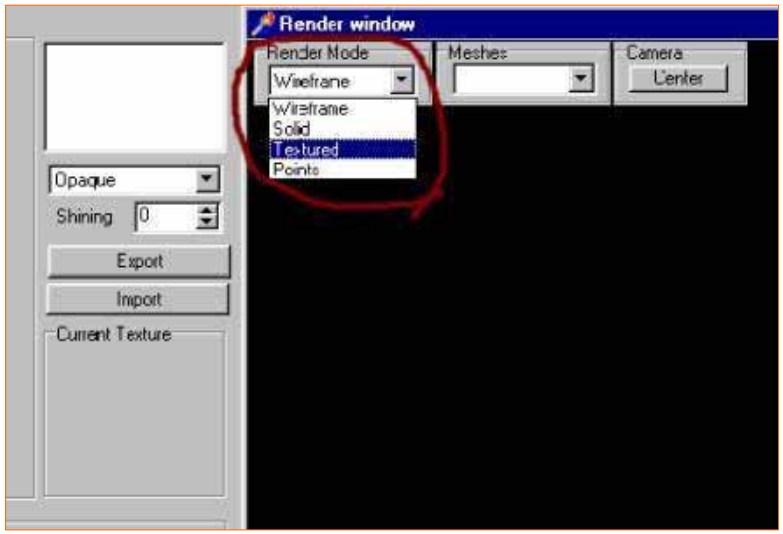
Making Textures

Choose your best photo enhancing program, one that you know how to use, and load the Bitmap that you just saved. It might look like a lot of textures, but zoom in and start at the top. It might look overwhelming but you'll get used to it. Take a look at the textures, you'll see that some are squares and some are rectangles.

Note: If you've explored any in StrPix, you will have noticed that if you select a texture it will have a little white box around the texture that you clicked on. They are many textures put into one big picture.

Have you gotten or made any textures for your outfit? If you haven't, then go online and search for some good outfit textures or make your own. If you are loading a picture into your texture set, then you'll probably need to resize it. ***You'll need to make the picture you loaded the same size as the texture you want to replace it over.*** If the texture is too big, when you load it in StrPix the white box will only take a piece of it, and if it's too small it'll take off of the texture behind it. It might sound confusing, but they best way to understand it is too test it your self. And if you make a mistake, you can always save your modifications as a separate file then the original texture. Or load the original Tut1 again and save the texture from StripX.

Placing textures on Lara



Once you are finished making your textures, load it (Import it) in StrPix. It will take maybe 5 seconds at most to load them all. When you first load a WAD it will be in *Wireframe* mode. Look to the top right of your screen where the wire frame mesh is. See the little gray box? Click on it, it will say four things: **wire frame**, **Solid**, **Texture** and **Points**. Now, scroll down to Texturing. You'll now see some parts of Lara. She made up of several pieces and you'll need to texture each part you want to change. If you scroll through the meshes you see lots of pieces of Lara and some of her objects and enemy. Feel free to look, but all of Lara is located in the first part of your WAD.

To place a texture, click on the texture you want then click on the place you want the texture to go.

When you get to Lara's face, you'll probably notice that when you place new lips it looks odd. That's when mirroring or flipping the texture is needed. The **Left click** places the texture, **Alt** rotates, **Shift** mirrors and **Ctrl** selects a texture from the mesh (Ctrl isn't needed much).

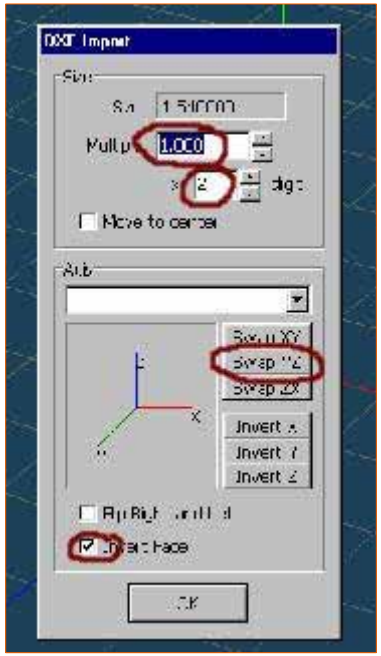
Loading & Saving Meshes

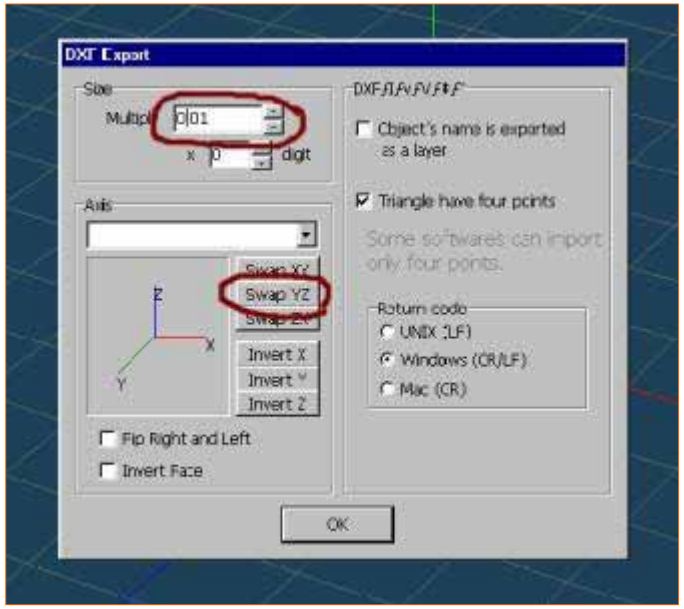
Select the mesh you would like to modify/ change. Let's say you want to change her chest. Go under **File** and you will see *Export DFX* and *Import DFX*. Remember, just like with the textures, **Export = Save** and **Import = load**. The DFX is the file that the mesh is saved in.

Making meshes in Metasquoia

If you are going to use Metasquoia then read this, if not then this probably won't do you any good. Load Meta and open the mesh you saved. It will come up with a box. (See the left hand picture below for reference). Multiply should be: 1.000. Digit should be: 2. Axis: Click on Swap YZ. And do the check box for "Invert Face".
The basic tools that you will need to learn how to use: Create, Primitive, Extrude, Mirror & Delete.

Don't use "Knife" for now, it cause's holes most of the time. And a good little feature is if you want one point to join to another point just drag the point to the one you want it to connect to and right click once. It won't work if the two points are not close. (If you have problems, don't forget that Meta includes a tutorial in its files on your hard drive.). And to save the DFX, Multiply should be: 0.01. And click Swap YZ. (See right hand picture below for reference.)





A few little things that you should know

Making a high polygon outfit is difficult and may cause problems. If you are in StrPix you will see some numbers in the bottom left corner. The one that says Vercites, if the number is above 255, the outfit probably will not work when you test it.

If you want to use a mesh that someone else uses then load their outfit and save the mesh you want then load it in your outfit. But do not forget, they spent time working on that mesh! So credit them. If you include a ReadMe file with your outfit (under the start & accessories bar there is a 'notepad', that's a great program to make simple ReadMe's) then say in that ReadMe something like *The head mesh was made by - their name here!-.* The same goes for textures, if you use a texture, credit the person who made it. If you don't know who made it then state that you didn't make it but don't know who did. One last thing about credits, most authors like it if you add credits in the description of your outfit when you add it to the site.

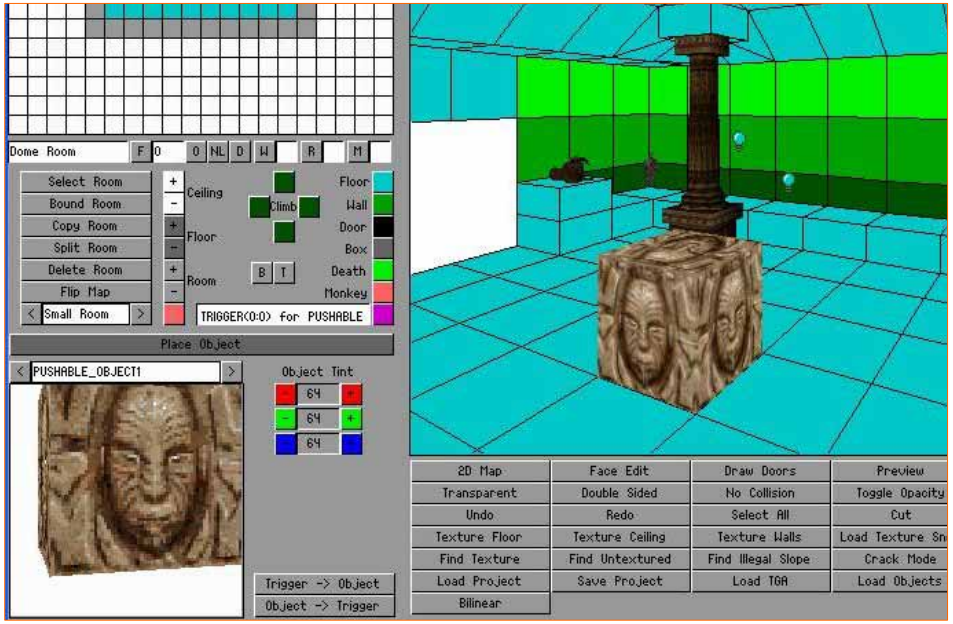
Last but certainly not least. For a first outfit there is no need to over do it, no one expects a first outfit to be a master piece. Even experienced outfit creators have bad outfits from time to time. But the best thing to remember is if you make an ugly outfit is that maybe the outfit wasn't a success to other people but it is a success to you. If you learn from that outfit your next outfit will be better. Don't give up just keep trying, you'll get better, and I know you will.

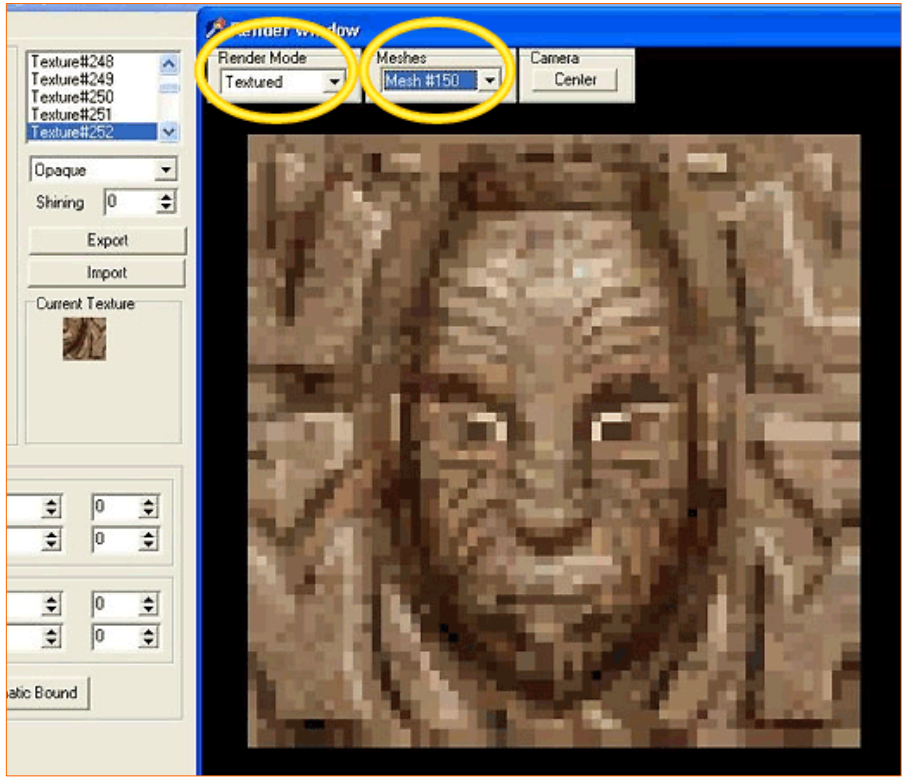
[Basic Texturing with Strpix]

by George Maciver

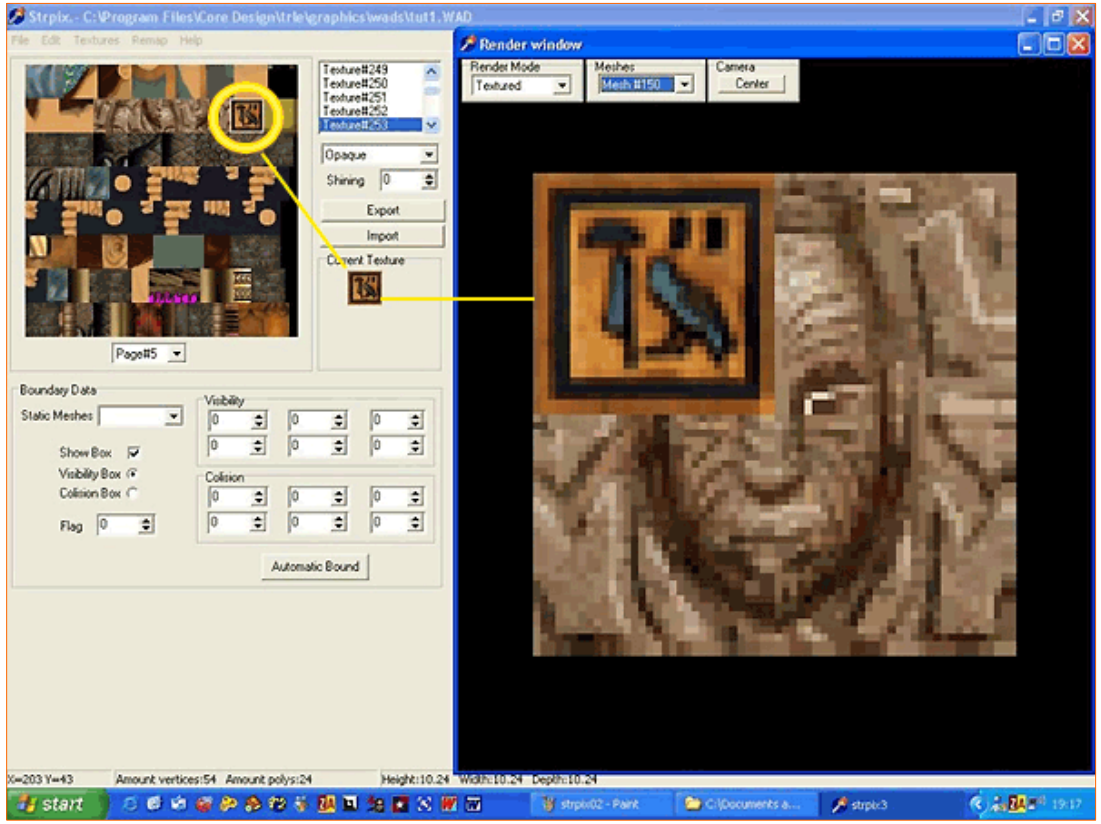
This is an extremely basic tutorial to show you how to retexture a pushable block using Strpix.

First, let's look at our block in the Editor. →

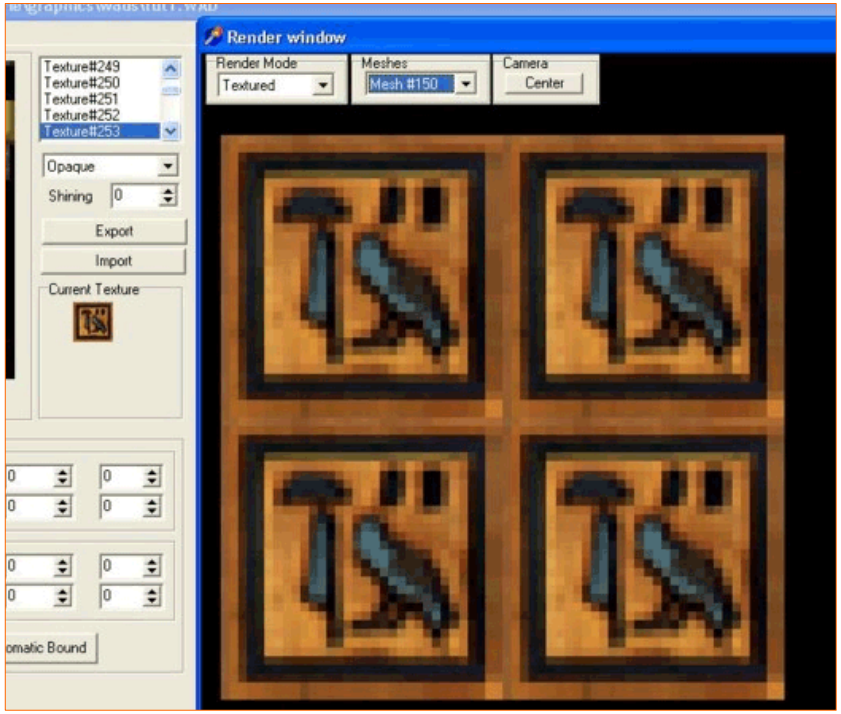




← Now close the Editor, start StrPix, open your WAD (File > Open) and scroll through the meshes until you find your pushable block. Having the **Render Mode** as *Textured* helps enormously. (You can fast scroll through the meshes using the scroll wheel on your mouse.)

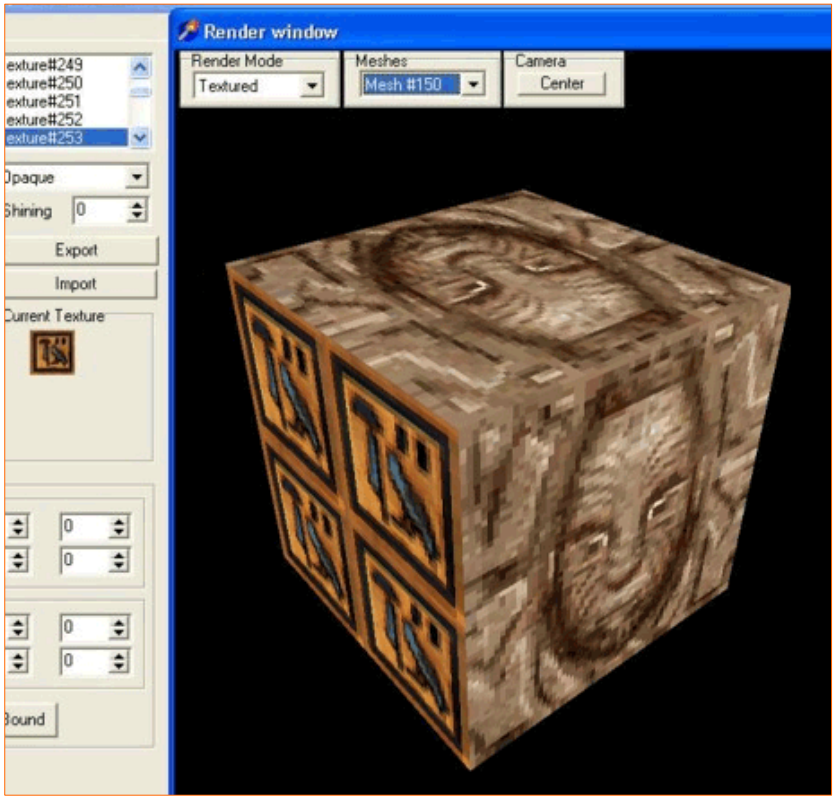


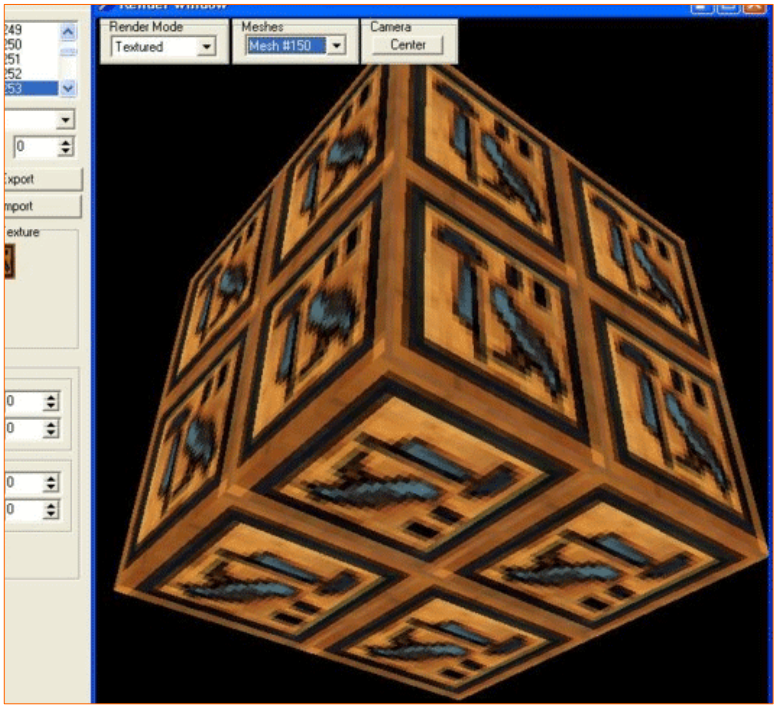
Using your mouse, left click on the texture you want to use in the left window. (There is another method whereby you can export textures, change them using a paint programme and then reimport them, but for now I'm showing you the easy way to get you started). Once you've selected a texture using your left mouse button, left mouse click on the block itself and the texture will be applied. →



← Apply the texture to all 4 squares making up the face of the block.

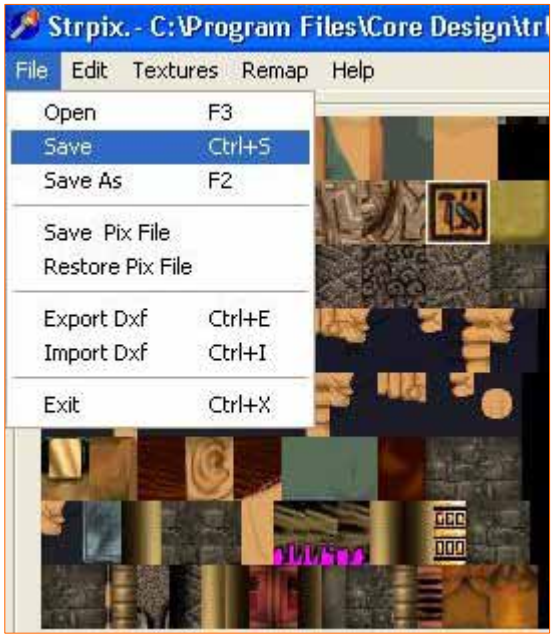
Whilst holding down your right mouse button, rotate the block in the Render Window. →

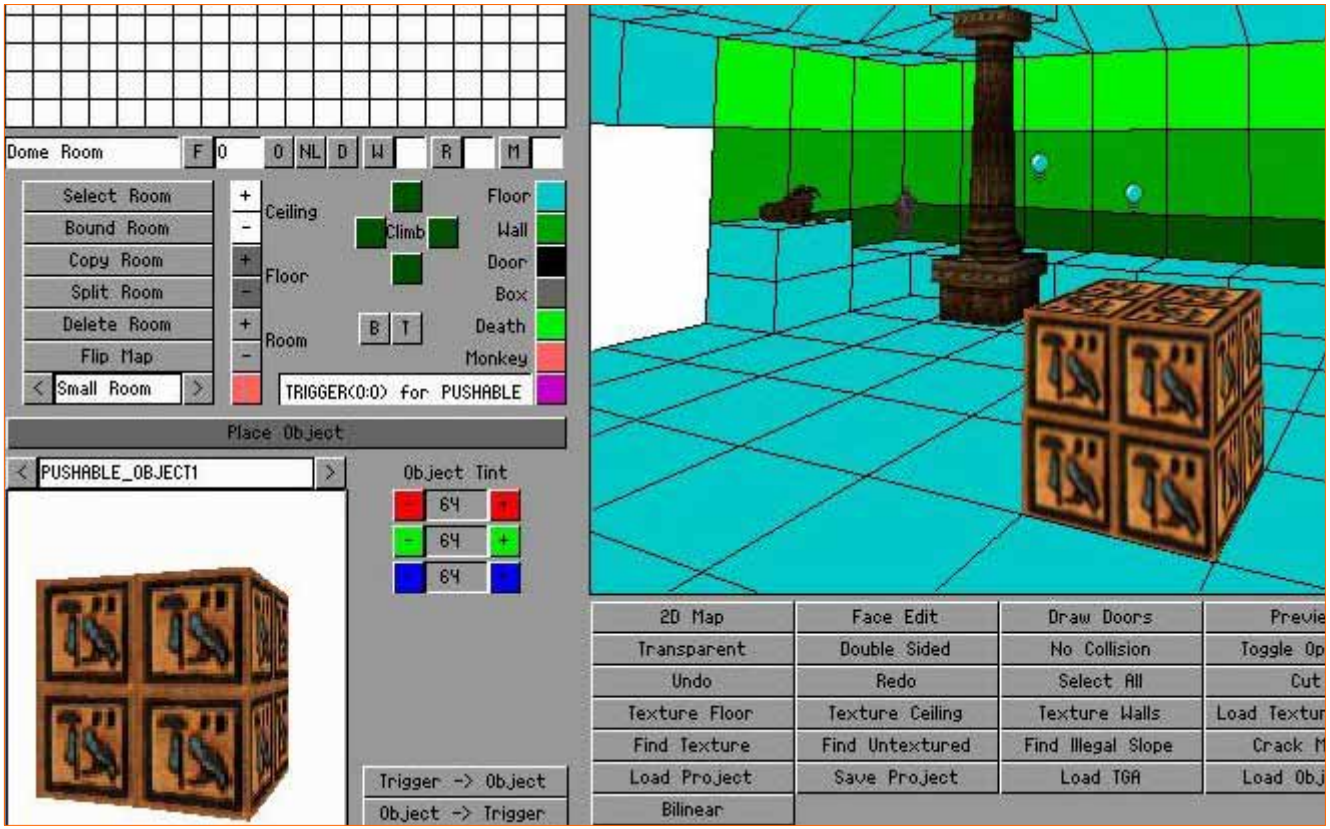




← Texture all the remaining sides, the top and the bottom.

Then save your WAD. →





← Now let's take a look at our newly textured block in the Editor! ■

[Importing texture into Strpix]

by Titak

There are two ways to import textures into StrPix:

1. Replacing existing textures with new ones using the *Import Texture* feature. The imported texture will be the same size as the original one.

2. Importing a totally new texture.

This also means you can import whatever size you want. But you need to use WadMerger for this.

- Open WadMerger and open your wad.
- Click the *Add Texture* button. A window will pop up. Click the *Load* button on that same window and select the texture you want to add. Now click the *Add* button.
- Save your wad and open StrPix.

The newly added texture will be in the textures list somewhere. This depends mostly on its size so you may need to scroll through the texture pages to find it. Select the texture and apply it to your object. *Save*.

ATTENTION: Make sure that you don't make any other changes to the wad and save it again once you have saved it in WadMerger. The wad will lose the newly added texture if you do. Remember: not used textures are automatically deleted from a wad when it is saved.

Note: You can only add one new texture at the time. If you want to add more than one you need to do the above and repeat that over and over again until you have added all new textures. Don't forget to apply them to an object each time you have added a new texture!

[How to add more waterfalls to your WAD]

by Titak

The bad news is that a WAD only has room for 3 waterfall objects: WATERFALL1, WATERFALL2 and WATERFALL3. These slots have in common that the texture they use is scrolling, giving a waterfall effect.

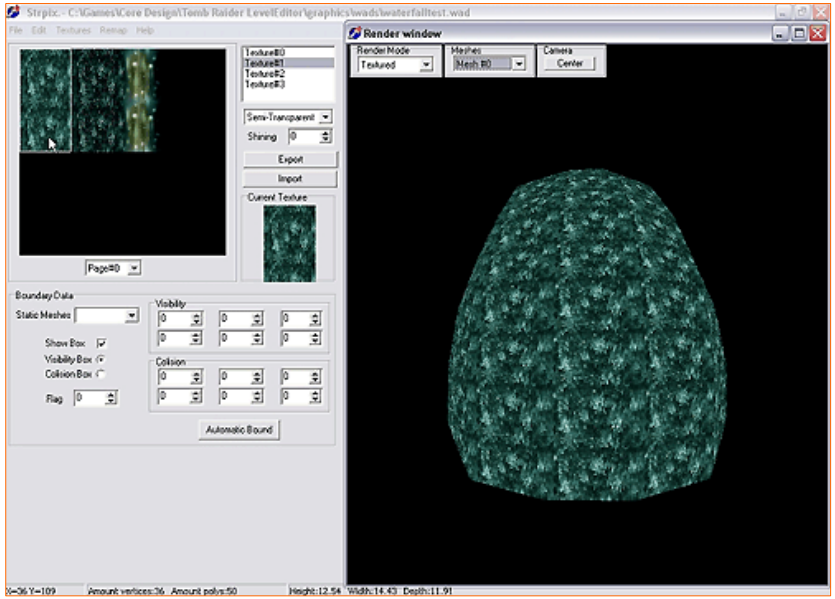
The good news is that you can have more 'waterfalls' in your wad! Those waterfalls will need to use the textures of those in the WATERFALL slots but they can be different in shape. So, waterfall objects can also be placed in a static slot or an animating slot. But there's a catch…

1. Copy a waterfall object into a waterfall slot, using WadMerger. Now you have an object which uses a scrolling texture animation: the water.
2. Once you have filled the waterfall slots you can put other (waterfall) objects in animating or static slots.
3. Make sure that the static or animating slots waterfalls use the same watertexture(s) as the waterfalls in the waterfall slots. So, you may need to retexture the static and animation slots waterfalls using StrPix, replacing their original textures with the waterfall ones. The scrolling texture should be the first texture in the wad's textureset. Because the texture is already scrolling because it was originally used for a 'real' waterfall it will also scroll on the static and animating slot objects. So there's your new 'waterfall'!
4. These new waterfalls won't automatically have sfx assigned to them, by typing in a certain OCB value, so open your project and place sounds near the objects to give them sfx

IMPORTANT: You do need to keep the original waterfall object in the waterfall slot(s). If you take it out the texture will stop scrolling on the static and animating slot objects!!

Note: This trick works with all objects, including puzzle items and puzzleholes. It might even work on Lara's outfit but I haven't tried that.

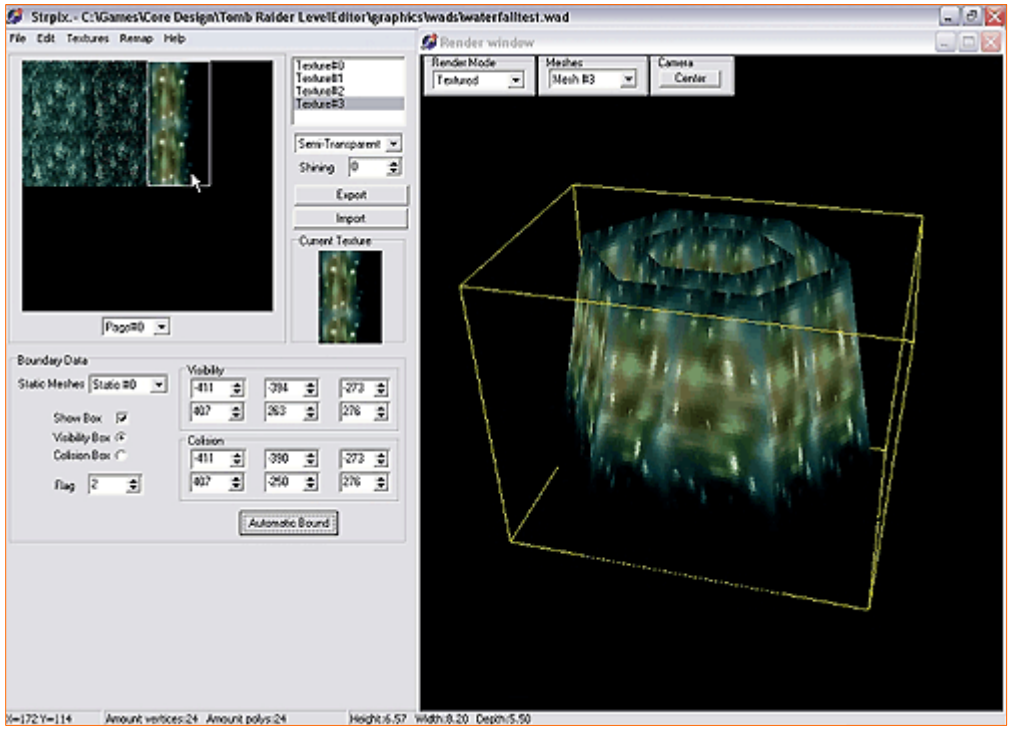
Example



1. The first screenshot shows the object in the WATERFALL1 slot. It uses the first texture in the wad's textureset.

The WATERFALL2 object uses the second texture and WATERFALL3 is a custom made object which uses the third texture.

2. Let's say you want to have another object to have that same scrolling texture: a sort of electrical lightrays that serve as a lamp/heater. Copy an object into your wad and put it, for example, in the PLANT1 slot.



3. Open Strpix again and select your PLANT1 object. Now select the third texture and texture the object with it. Save the wad, place the object in your project and check out the lamp with moving lightrays!

4. Add, in case you want it to have a sound, a sound using the Select Sound feature in the LE. (Make sure that the selected sound is added to your WAD, otherwise you won't be able to hear it in game.)

[How to transfer a Shatter object into a Static slot]

by Bedazzled

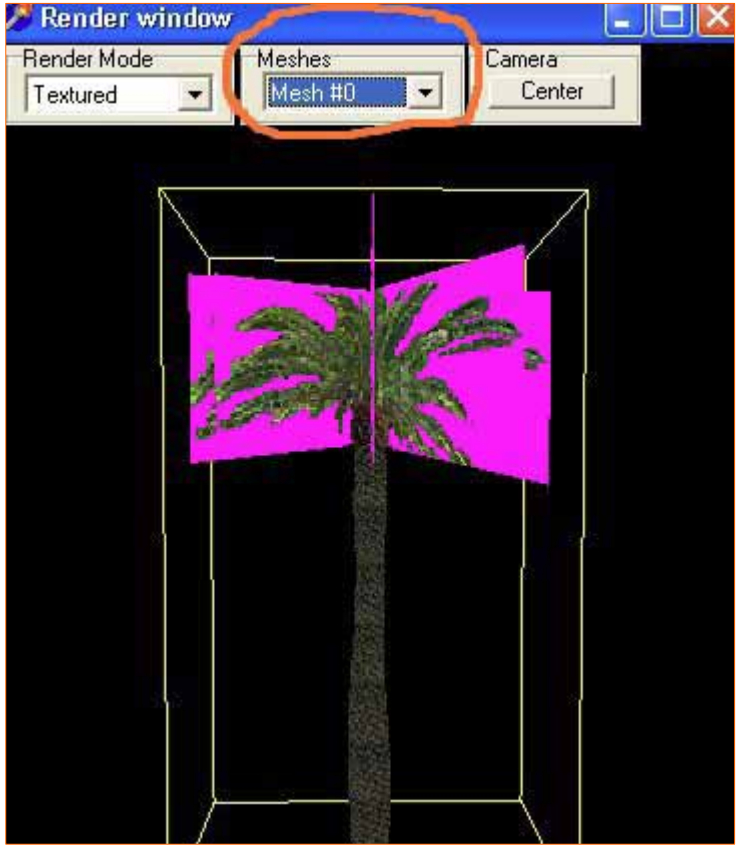
FIRST STEPS

1) Start by creating a new folder on your desktop named *shatter temp*.
2) Using WadMerger create a new WAD containing only, the required shatter object and one unused static object. Save it as *shatter wad* in the folder you created.

TRANSFERRING THE OBJECT

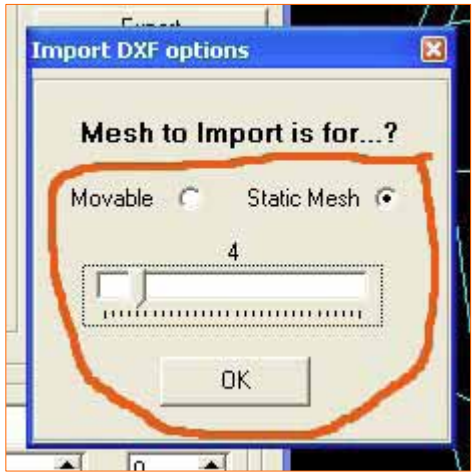
1) Open your shatter wad in StrPix and using the **Meshes** list drop down box select the shatter object mesh. →

← 2) From the **File** drop down menu select **Export Dxf.** Name the file *shatter* and save in your *shatter temp* folder.

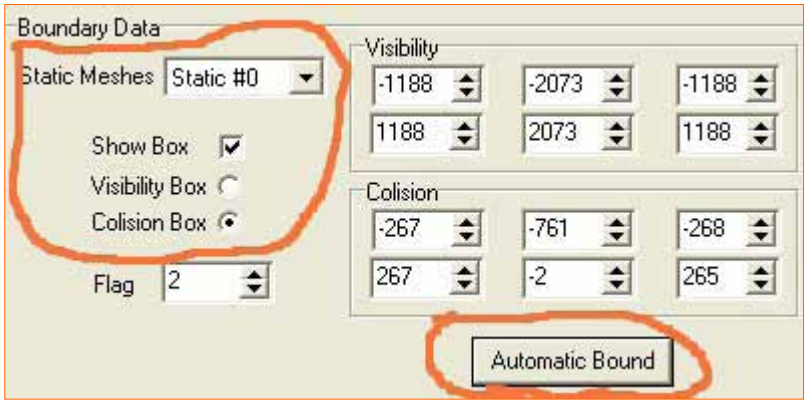


3) Again, using the **Meshes** list drop down box, select the static object mesh. →

← 4) From the **File** drop down menu select *Import Dxf*, and select the *shatter dxf* file from your *shatter temp* folder.



5) Click the **Static Mesh** radio button, move the slider to the left aim for a setting of about 4 and click the **OK** Button
You have now placed the shatter object into a static slot.
All that remains is to set the collision.



6) Ensure **Show Box** is ticked and click on the *collision* box radio button. Using the *static meshes* drop down box select the mesh number of your new static object. It will be the number which is showing in the mesh list drop down box. As a further check, the yellow bounding box in the render window should not fit your object. Click the **Automatic Bound** button. From the **File** menu click *Save*. Now use WadMerger to add your new static object to your levels wad.

USEFUL LINKS

Forums

- Tomb Raider Forums (http://www.tombraiderforums.com)
- Skribblerz (http://s10.invisionfree.com/Skribblers/index.php?act=idx)

Sites

- The Search Engine [for WadMerger, objects and resources (http://www.trsearch.org)]
- Iceberg's TR: LC [for tools (http://www.trlcsoft.com)]
- Lara's Level Base [for miscellaneous TR stuff, like tools, textures, WADs etc. (http://www.laraslevelbase.org)]

NOTES

This book was compiled and edited by ELEN.