Light Beams :: [Wacko](http://www.mohaaaa.co.uk/mohaa/forum/profile.php?mode=viewprofile&u=58)  
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This tutorial will show you how to create light beams.

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Creating the Textures  
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First of all, you need the textures, that will be used for the beam. Using your prefered picture-editor, do one picture for the dust-particles like this one:

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| <http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image1.jpg> |

This is almost the same as you can find in one of the original pk3-files, airdust.tga, but for our purpose thatone is to bright, so I inverted it and made white black and vice versa. In the game, black will be completey invisible and white opaque, so our new image will be only slightly visible.

For the light-beam itself, make another tga-picture, with a gradient from black (0%) to dark grey (50%), like this one:

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| http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image2.jpg |

I’ve started the gradient a little away from the edges, this will look better in the final game.

Save them as targa 24-bit files, 1st as beamdust.tga, 2nd as beamfade.tga in a folder mohaa/main/textures/beam/ which you might have to create first…

The values of brightness depend on your monitor and the Gamma-Correction in MOHAA, so this might be too dark for you. If so, choose brighter values, but keep in mind that real black must be applied for invisible parts.

Writing a shaderTo use these textures, you must write a shader-file which tells the engine what this is all about:

Open notepad an copy/paste the following in a new txt-file:

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| textures/beam/beamfade // this is the name of the texture, which will appear in MOHradiant and the directory, where it can be found.  {  qer\_editorimage textures/beam/beamfade.tga  // the picture that shall be shown in the MOHradiant textureviewer  qer\_keyword utility  qer\_trans .4  // the amount of transparency in mohradiant. It has nothing to do with the transparency in MOHAA game.  surfaceparm nolightmap  surfaceparm nonsolid  surfaceparm trans  cull none  sort additive     {  map textures/beam/beamdust.tga  blendFunc add  tcMod scroll 0.05 0  // the speed of texture scrolling in x and y direction  tcMod scale 1 1 // size of applied texture higher value is a smaller texture. Smaller textures scroll proportionally faster  nextbundle  map textures/beam/beamfade.tga     }  } |

Save this file as mohaa/main/scripts/beam.shader. Great! Next time you start MOHradiant, you will find a new directory ‘beam’ in your textures, and in there the texture ‘beamfade’. If you see other textures written in black, then these are NO shader textures and won’t be animated or anything. Best thing is, you switch them off: In Preferences, unselect ‘Show Shader Textures’. Our beamfade must be written in blue!

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The Room with Light  
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For this test-map, build a little room with an info\_playerstart. A worldspawn key ambientlight with value 10 10 10 will make it a little brighter in our room. Add a 'static\_lamp\_lightbulb-covered-on-wire-short' under the ceiling. Then a 'static\_corona\_reg' (make it's scale 0.25, so it won't show through the lamp's cover in case you could look from above on it) and place it directly in the center of the lamp's bulb! Add a light under the lamp.

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| http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image3.jpg |

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| http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image4.jpg |

Select only the light and press 'n'. In the Entity-Inspector give the light two new key/values:

angles: 90 0 0  
spot\_angle: 35

The keyangles makes the light a spotlight, the value tells it where to shine to (down in this case).  
  
The key spot\_angle with value 35 says, that this spotlight has an angle of 35° from the direction it shines (see key angles) in all direction outwards. A key of 90 would make half a sphere.

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| http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image5.gif |

Fine! Light a cigarette and (Stop! No! Smoking causes serious damage to your health and there won't be any medikits for this) lean back:  
  
You should now compile the map and take a look, what this 35° will look like in the game. Maybe you want to change it to a different value? Also, it is useful to check how wide the spotlight is on the floor, because this is the lower diameter of the lightbeam, our next task.

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The Beam Itself  
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In my map, the light-circle on the floor was 12 wooden boards wide, so I make a curve cylinder under the lamp in this size: Create a square brush of this wide and any height, and with it being selected, choose Curve-->Primitive-->Cylinder. Make the cylinder reaching from the floor to the lower edge of the lamp-cover:

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| http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image6.gif |

Next, we must make a cone out of the cylinder. Select it and press 'v'. You'll see nine pink and green boxes appear on the cylinder. In the XZ-View select the upper left box by dragging a mouse-window over it. You have now selected 3 points. Pull them to the edge of the lamp and to make it more easy, count how many units of the actual grid you have to go. Now select the middle left points the same way, make the grid half the size and drag the point(s) the same number of units to the middle. This way, the left side of the (ex)cylinder should still be a strait line afterwards. Do the same on the right side and then again on both sides in the YZ-View. If some boxes stay where they were, take them where they belong afterwards. Great!

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| http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image7.gif |

Select your beam, and apply the beamfade texture, and you're done! Save the map, compile it and it might look like this:

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| http://www.mohaaaa.co.uk/mohaa/tutorials/lightbeams/image8.jpg |

If everything is too dark, choose a higher value for the ambientlight, a brighter light and if then the lightbeam isn't almost visible, you could change the tga-files from the beginning: Maybe you prefer a brighter version of the dust and in the beamfade.tga a gradient from 0% to 80%? Then change the textures!

Haappy mapping  
Wacko

Need any help : Ask in the [Forum](http://www.mohaaaa.co.uk/mohaa/forum/index.php)