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| |  |  | | --- | --- | |  | **Patch mesh roads :: Bjarne Grönnevik** | |

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| This Tutorial will teach you how to make roads out of "Simple patch mesh" segments. This is a step by step tutorial, so just follow the steps as I lay them out from start to finish.  **Index**   * A word on the grid before we start * The 90° turn * Step 1, creating a patch mesh * Step 2, texturing the patch mesh * Step 3, laying the road * Step 4, bending the road * Step 5, adjustments   + 5a, fattening the bend   + 5b, fixing the stretched texture * A final note   **A word on the grid before we start**  Set the grid to an absolute minimum of 8 before starting this tutorial, I'd say use 16. Do this now. NOW! Believe me, you will thank me later... ( actually this is true for all mapping except a few cases, and if you need to read tutorials: those few cases are not for you ) I repeat: GRID, NOW.  **The 90° turn**   |  |  | | --- | --- | | This kind of turn should not be done with patch meshes as the bend will look really ugly. A patch mesh bent this hard will "collapse on it self" at the corner and look like folded paper... that's bad. And besides, only street corners bend that hard, and you can make them easily with regular brushes. | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/90_no.gif |  |  |  | | --- | --- | | This kind of turn should be done with patch meshes as the texture in the bend will look less bent/compressed and therefore more natural. So lets do that. | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/90_yes.gif | |
| **Step 1, creating a patch mesh**  A good road width is 256 units ( the road where the allied spawn in "The Hunt" is about this wide ), so draw a brush that is 256\*256 units. Make sure it is selected and then select Curve->Simple patch mesh... Accept the default lowest values ( 3\*3 ). By now the 6 sided brush should have turned into a single face. Coooool.  **Step 2, texturing the patch mesh**  Select Textures->misc\_outside to load some road textures to play with. Select your patch mesh and then select the misc\_outside/bocroad\_fullns texture. The patch mesh should now be textured, but probably not the way you want it. A patch mesh does not handle textures the same way regular brushes do... basically, your only tools for aligning the texture is the 5 buttons at the bottom of the Surface properties dialog window ( press 'S' with the patch mesh selected to bring it up ) labeled "Cycle>", "Cap", "Natural", "Fit" and "Set". We wont use the first 3 ( because I have no idea what the first 2 does and "Natural" gives the texture a scale of exactly 1... I think...). Press the "Fit" button to make the texture fit the patch mesh exactly.  The texture can not be rotated as we are used to on regular brushes, so to align the road texture as you want it in your map, you will have to rotate the patch mesh instead. This is why it is important to texture the patch mesh before laying out the road... its really annoying to build a long road an finally realize all the texture end up the wrong way.  This is what you should have by now:   |  | | --- | | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/step_2.gif |   **Step 3, laying the road**  Copy the patch mesh you made in the previous steps 2 times by selecting it and pressing the 'space' key 2 times. Now place them like this:   |  | | --- | | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/step_3.gif |   Oh, yes... rotate the "top" one 90° clockwise as the picture shows ( press 'R' to free-rotate it ). None of this should be a problem if you activated the grid as I told you at the start of this tutorial.  **Step 4, bending the road**  Now stretch out the "middle" patch mesh to triple its length ( to 768 units ) to get this:   |  | | --- | | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/step_4a.gif |   Now enter "Bend mode" by pressing 'Ctrl' + 'B'. You will get a dialog window telling you to press 'Tab' to circle to the desired bend axis, and to press 'Enter' when you found it. Do that and press 'Enter' when the purple dots are aligned like this:   |  | | --- | | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/step_4b.gif |   After pressing 'Enter' the dots will turn blue, and you are ready to bend away! Hold down your mouse button on the grid and drag it to bend the road 90 upwards to the empty piece of road. Press 'Esc' to stop the bend mode. Align the upper piece so it aligns perfectly with the bend ( easy if you have had the grid activated all along ) and you should have this:   |  | | --- | | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/step_4c.gif |   How cool is that?  **Step 5, adjustments**  At first glance it looks brilliant. The first time I managed this, I was so proud I cold burst. But it can get better!  **5a, fattening the bend**  The bend is thinner than the rest of the road... the opposite is mostly true for real roads. So lets fix this. Select the bend and press 'V' ( vertex editing mode ) drag the points with red arrows from them in the direction indicated by the arrows. Don't drag to far, as you see the patch mesh will split up into more faces the farther you drag them, and we want as few faces as we can get away with to keep FPS up.   |  | | --- | | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/step_5a.gif |   Now it should look a bit better. One thing remains to make it complete however...    **5b, fixing the stretched texture**  If you zoom in a bit on the texture of the patch mesh that makes up the curve, you will see that it is to stretched out to look really good... lets fix that. Select the curve and bring up the Surface properties dialog window ( press 'S' to bring it up ). At the bottom of the dialog window, there is a button labeled "Set", and 2 text boxes... using these we can "stack" more than one texture on the patch mesh. The patch mesh was stretched to 3 times its original length, but the bending made the inner curve shrink back to almost its original size, so lets put in 2 textures in a row... that's a good "in-between value". So write **2** in the first text box, and **1** in the second and press the "Set" button.  Just one more thing. If you used the grid ( I TOLD YOU TO! ) the three patch meshes should be perfectly aligned. But look closely at the seam... if you can see a line where the patch meshes meet, the end piece is probably the wrong way: if so, rotate it 180° and you will not be able to see the seam any more.  So, what do we do when we know we have done a good job? Naturally, we smile!   |  | | --- | | https://web.archive.org/web/20070921230259im_/http:/map.planetmedalofhonor.gamespy.com/mohaa/tutorials/patch_mesh_road/step_5b.gif |   And remember: If you can make a 90° turn, you can do any degree turn you want to.  **A final note**  The observant reader can't see the point in using patch meshes for the square pieces of road at the two ends of the bend. Normally I would agree, but this is the first of a planned series of tutorials on using patch meshes to create terrain. They will need to be patch meshes for the next stage. |