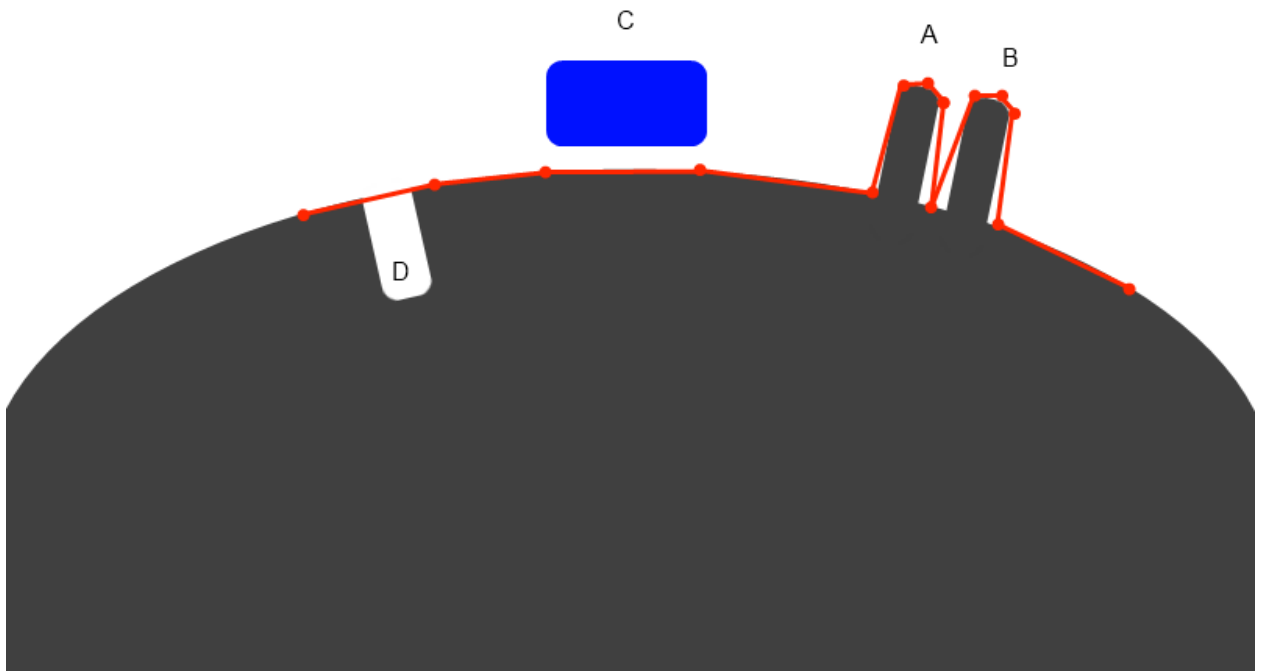
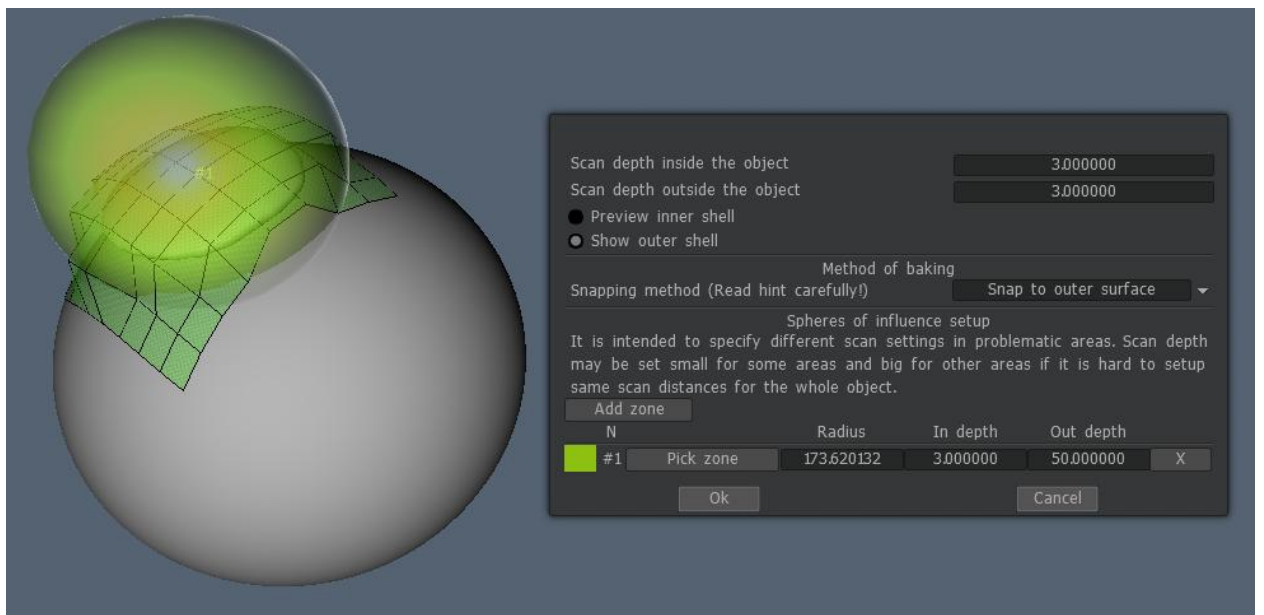


Happy baking guide.

Let us have a mesh like on example. This is pictured schematically as side view, objects to be baked are grey and blue, red is retopo mesh.

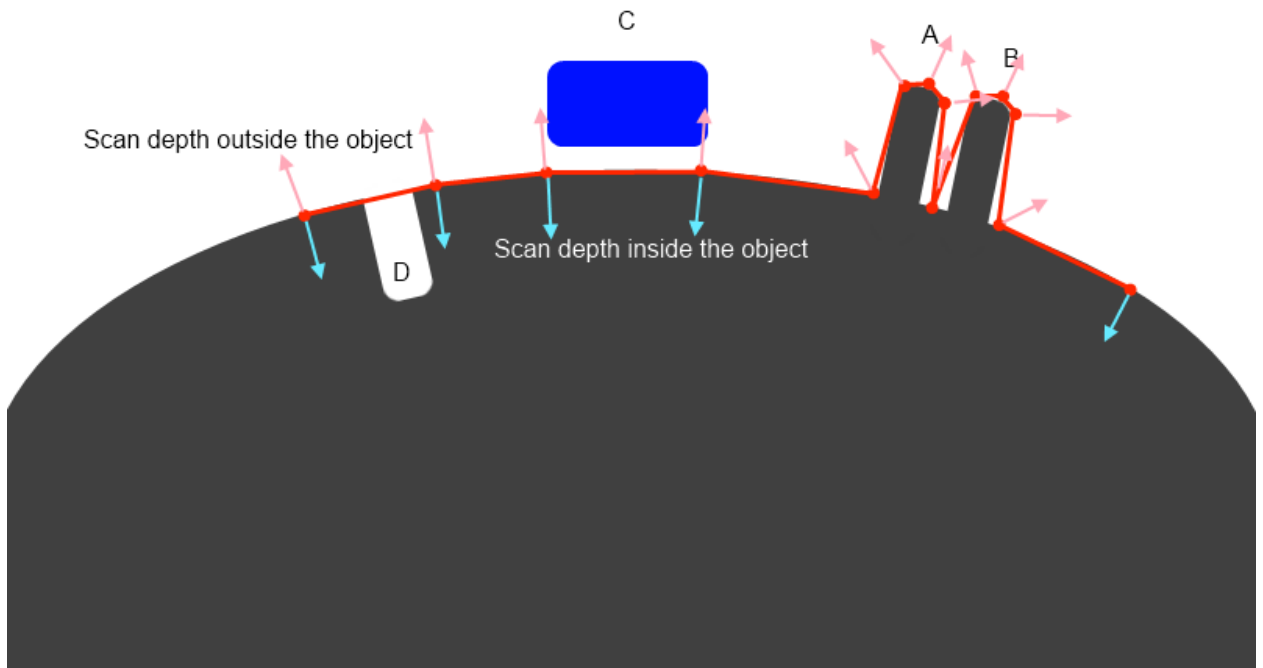


If you will try to bake in retopo room using Retopo->Merge with NM (to get normalmap) you will see the dialog:



Let us look on settings. The principle of baking is scanning along retopo mesh normal to get to the baked object surface. Later we will describe several approaches for this purpose.

Scan depth settings are well understood from this picture:



It are lengths or rays that follow normal direction. The longer rays, the more distant objects will be taken into account. But if you will make it too long A and B will be baked incorrectly, if you will set it too short, C and D will not be captured. We will describe later how to solve such problems in 3D-Coat. Let us continue options discovering.

There are 2 methods of baking:

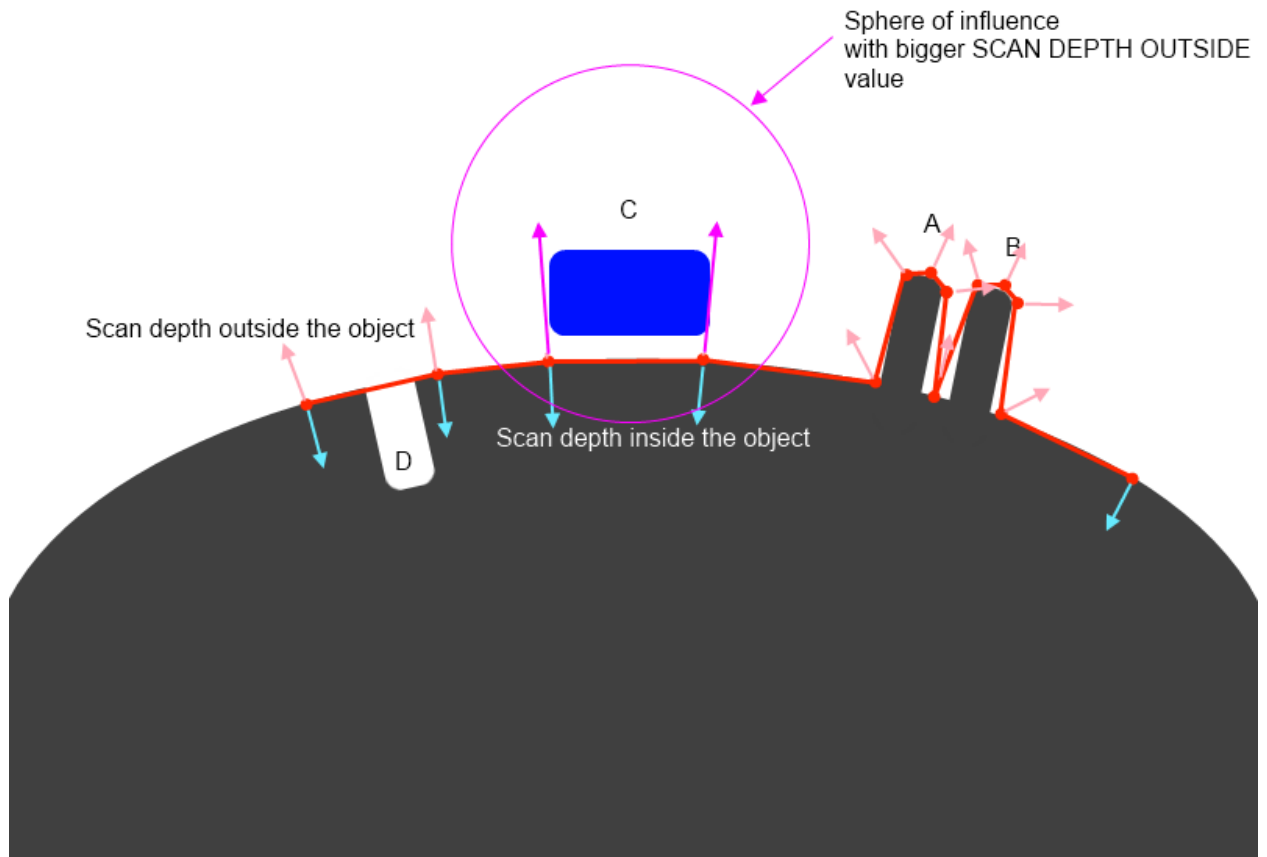
1) Snap to closest along normal

It is simplest approach that will work well in simple cases. It is default mode. In this case the point closest to the retopo mesh will be baked. You may set bigger scan depth for this method and it still will work. In our example you may set it twice longer and it will correctly capture details A, B, D. But C will not be captured at all because grey surface is closest to the retopo mesh.

2) Snap to outer surface

This method is intended for complex cases and rather pro users. It captures most distant details in normal direction. Let us look on our example. If we will set outer scan distance twice longer then C will be correctly baked, but A and B will not because of most outer will be neighbor spike and you will get mess on normalmap. So you should not set big scan distance for this method. But if you will set it too small so that A and B will be captured, C will not be captured. For this purpose Spheres of influence are

introduced. Press Add zone to create new sphere. Then press Pick zone and click on mesh. Zone radius will correspond to the pen radius. You may use RMB to resize pen. Click and drag on sphere on the object if need. You may set different values of scan distances inside zones. This is what will we do in our example:



Sphere of influence with bigger Scan depth outside value solves all our baking problem. Now ray is long only for texels inside the sphere and all details A, B and C will be captured correctly.

There are several additional tips for baking:

- If you made not successful pass of baking and want to try it again, delete object that was add during baking process in paint room using Objects palette. Usually it is last object in Objects palette (Windows->Popups->Objects)
- If you like result and want to export lowpoly mesh and textures - delete your reference objects (hide voxel objects or delete paint object) and export from paint room using File->Export or Textures->Export
- It is convenient to hide reference objects after baking to estimate result. Use VoxTree to hide voxels and Objects to hide paint and reference objects. Don't forget to turn it on again if you want to bake them again!
- It is much better to use Retopo->Merge with NM/Merge into scene (microverts)/Merge with Ptex instead of using Retopo->Texture baking tool because of much better flexibility.
- In some cases it is easier to add details to retopo mesh in problematic areas than add Sphere of influence.

- If you are baking for microverts/ptex to get displacement and can't get good result because of spikes in just several single points, use Layers->Clamp depth of the layer to cut off problematic spikes.
- If you retopo each voxel layer separately you will get set of intersecting retopo layers. It usually happens if you are using Autopo. It is problematic to bake all that straightforward. If you have same names for retopo and voxel layers use Retopo->Use names correspondence for baking. You may also check if all is correct using Retopo->Check groups and volumes correspondence
- If you have huge reference mesh 5-100 M don't try to import it as reference mesh, it will fail anyway. Use File->Import for vertex painting instead. It will work much better. You may use startup screen options
- It is better to avoid sharp angles between faces (like in example, retopo mesh between A and B), even angle a little less 90 degrees are not recommended, it will lead to problems if you are using 3D-Coat's method for calculating normals (Edit->Preferences->Normals calculation). Maya normals calculation method will work correctly in this case, so if you need sharp angles, use Maya normals calculation in Preferences. This is related to method of calculation. 3D-Coat calculates normals as weighted average of neighbor faces, weight is proportional to face square. It allows to display bevel between faces correctly. But if there is sharp angle between big and small faces then vertex normal will be negative to small face normal and baking on that face will fail. Maya's method calculates vertex normal as arithmetical average of neighbor faces normals. It is more appropriate for baking, but not good to display meshes without normalmap. Generally we recommend to add bevel between sharp edges.