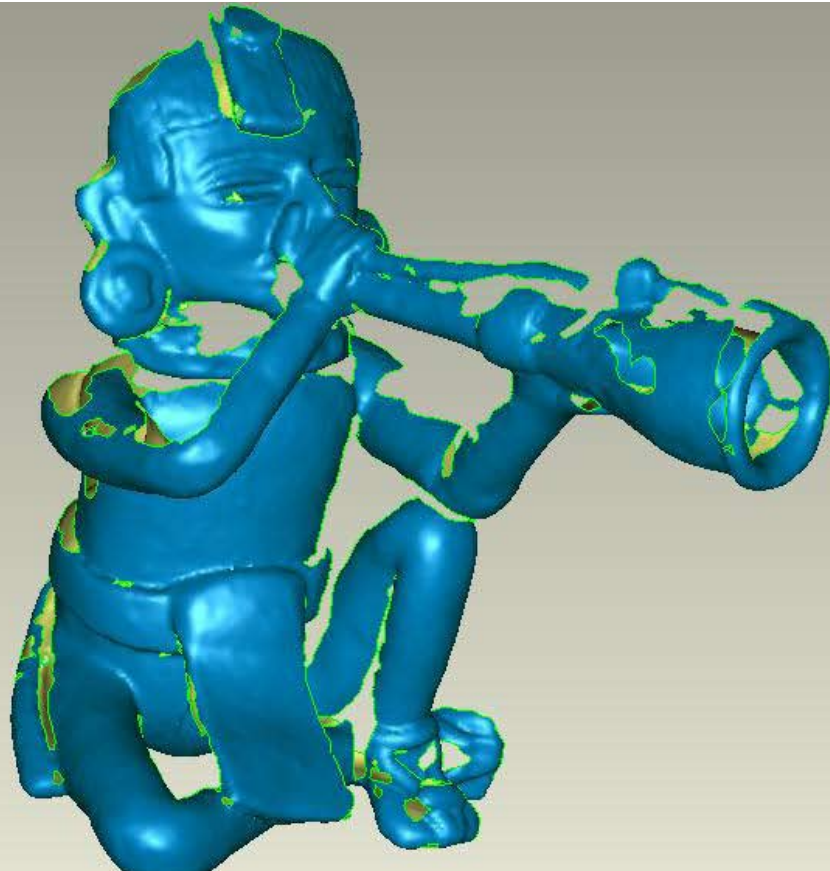


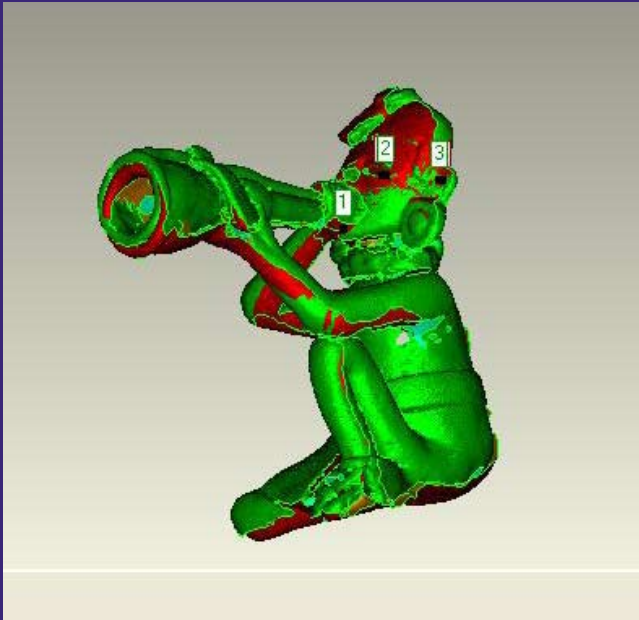


3D Software for Maya Archaeology Musician Artifact



Geomagic

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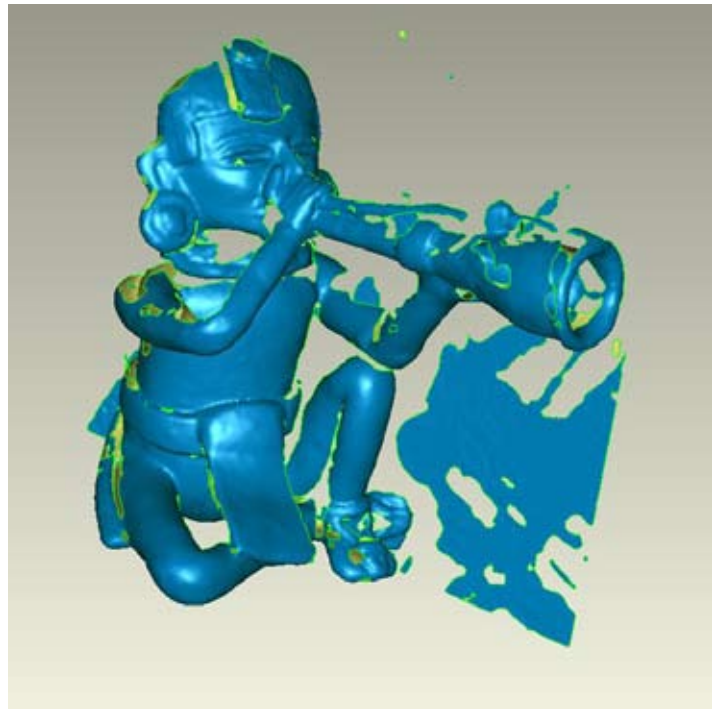
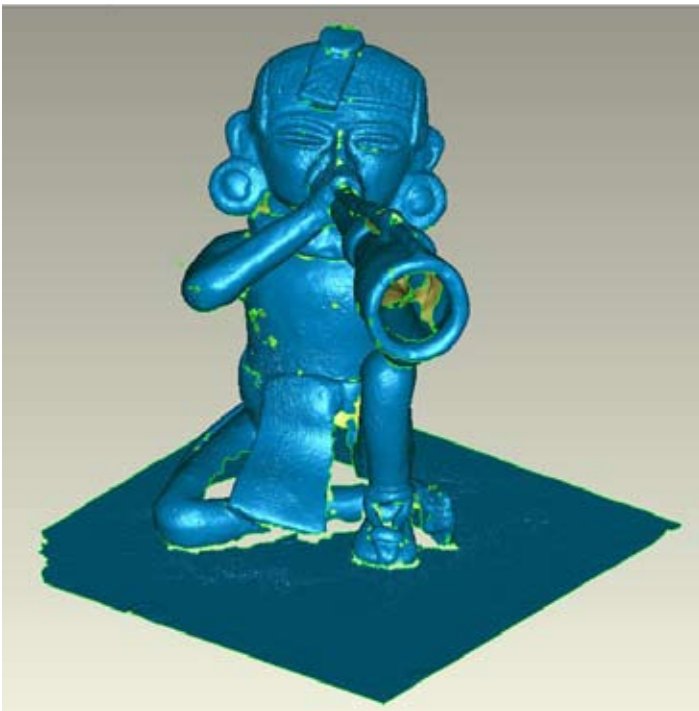
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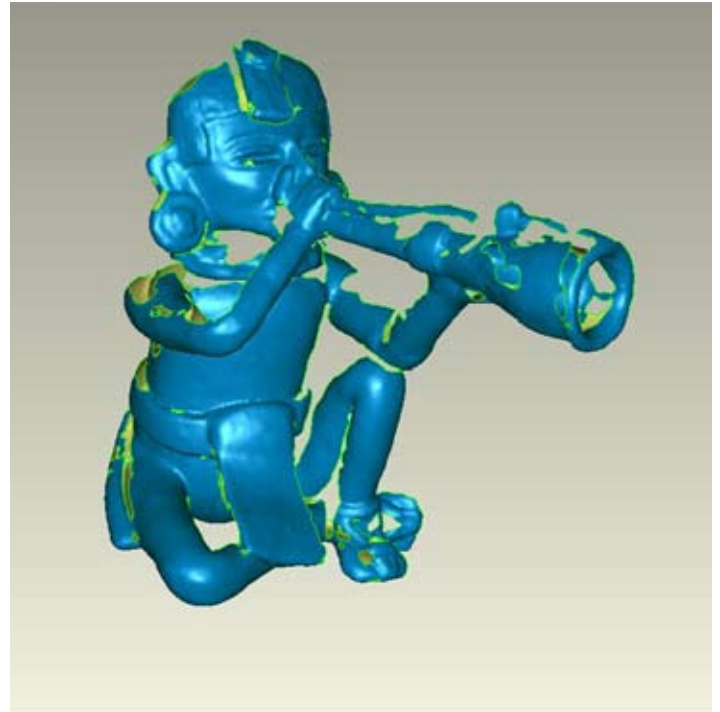
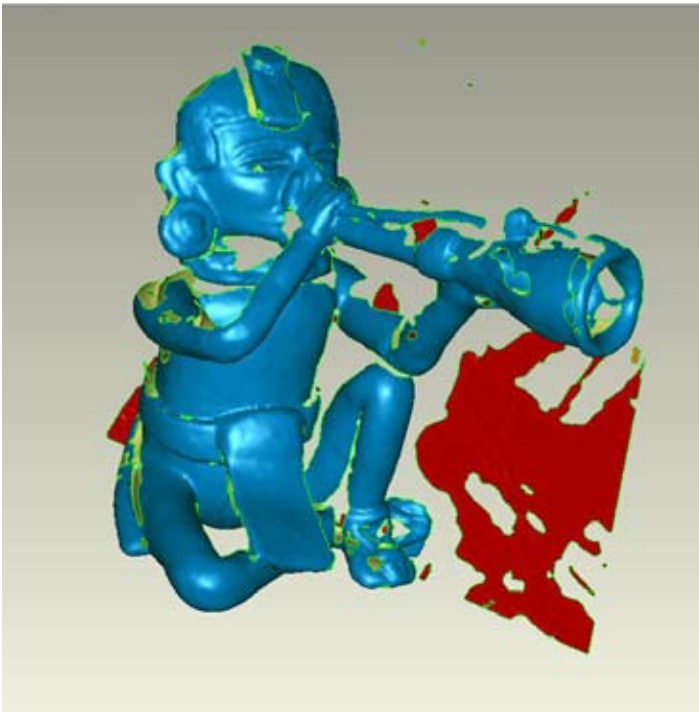
In December 2009 two persons of the FLAAR staff, together with FLAAR director, attended a special three-day 3D scanner training course at Z Corp, where they learned how to handle the portable ZScanner 800 and how to process the data from it. They came back to Guatemala with a ZScanner 800 and a HP laptop with one licensed copy of Geomagic installed; both lent from Z Corp.

This report shows the processing of a mayan artifact with the shape of a person playing some sort of flute, found in the Escuintla area.

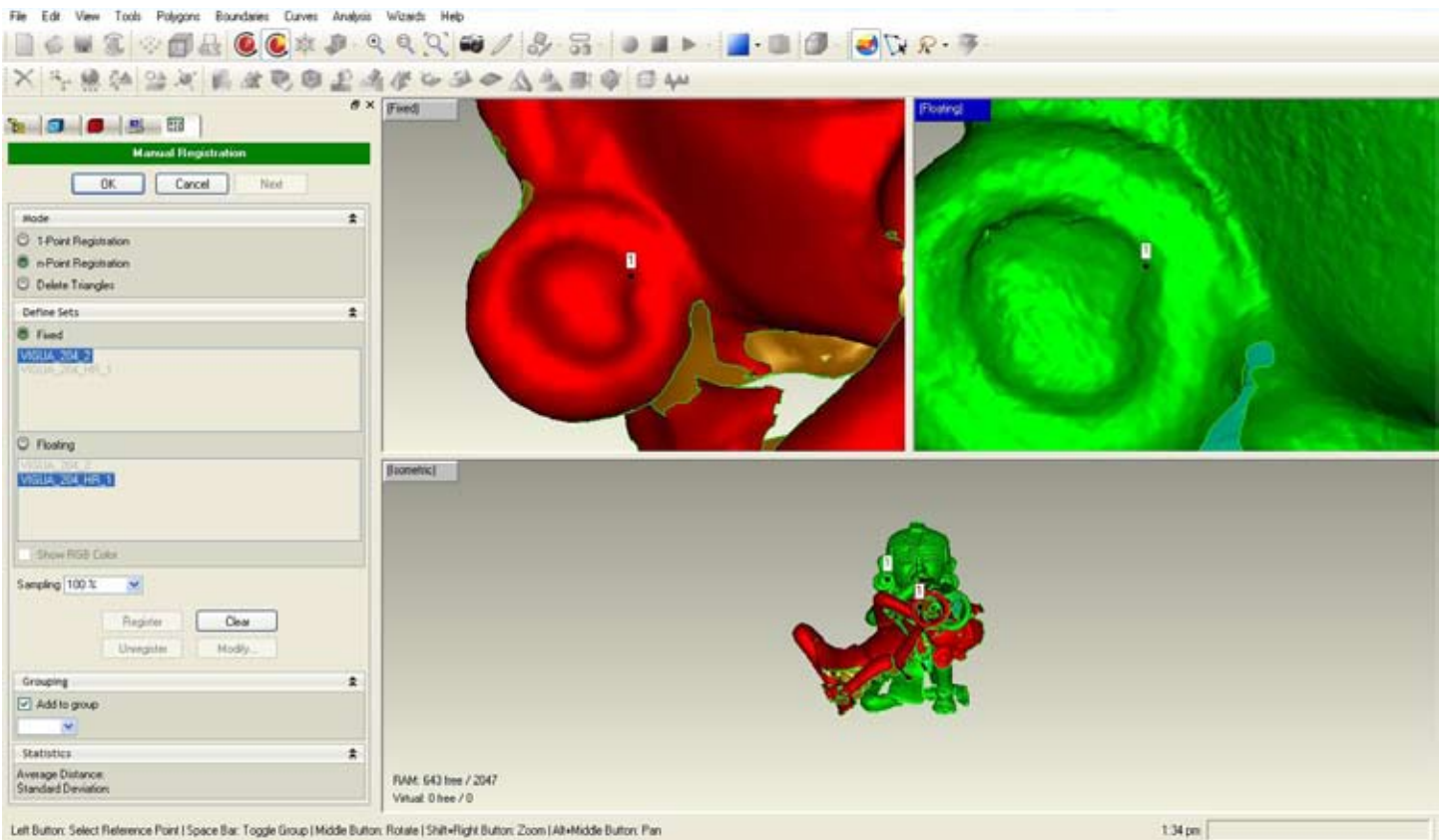
This artifact was scanned at scanned at the Museo VIGUA de Arte Precolombino y Vidrio moderno, which is located in Hotel Casa Santo Domingo in Antigua Guatemala.



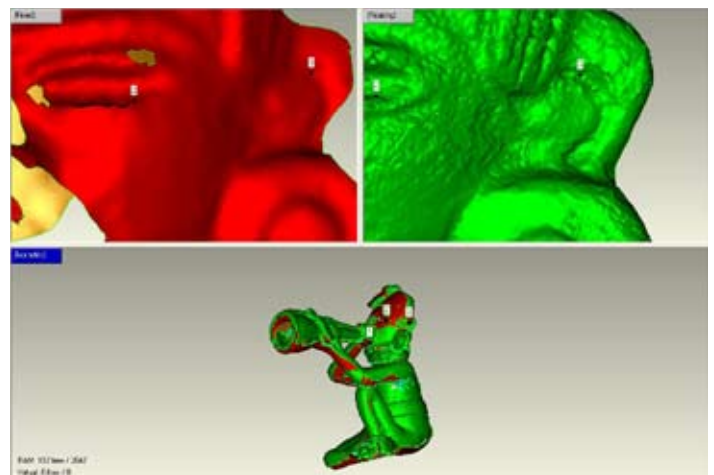
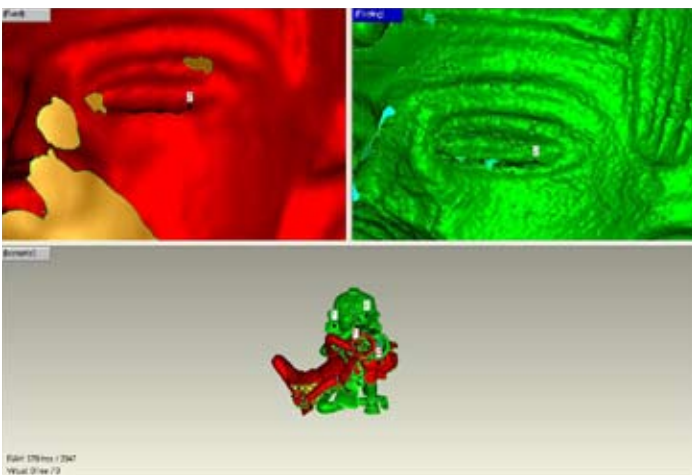
This is the raw data of the two scans we used. Even though they both seem very complete there are some areas that were not captured in one and were captured in the other and vice versa.



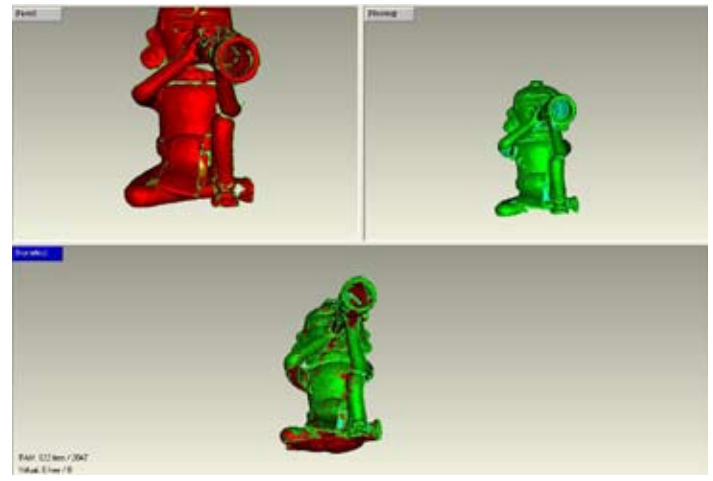
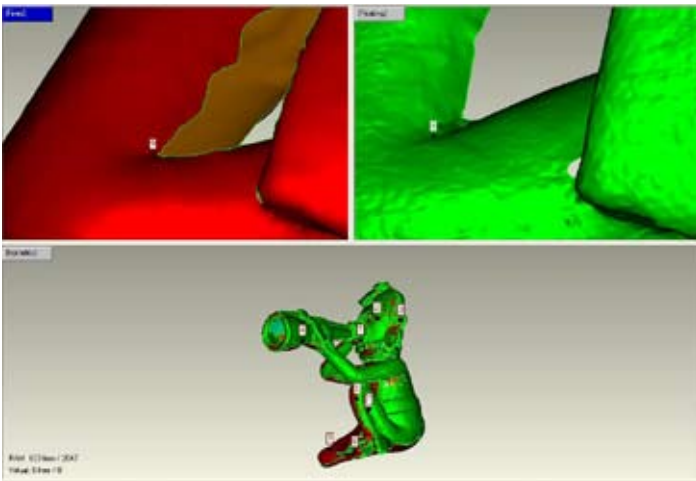
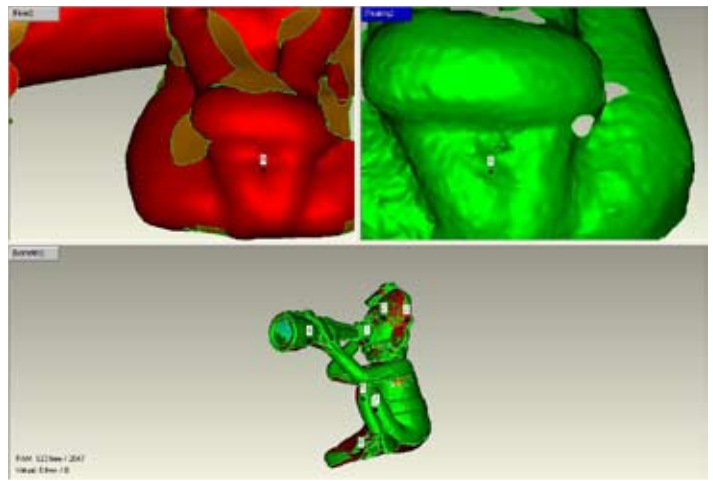
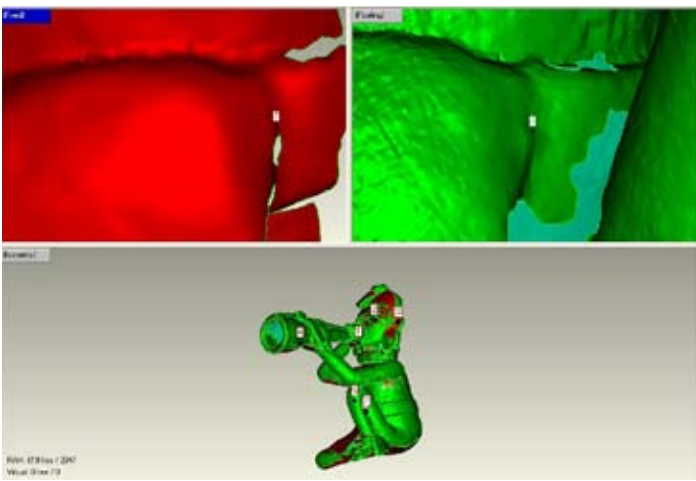
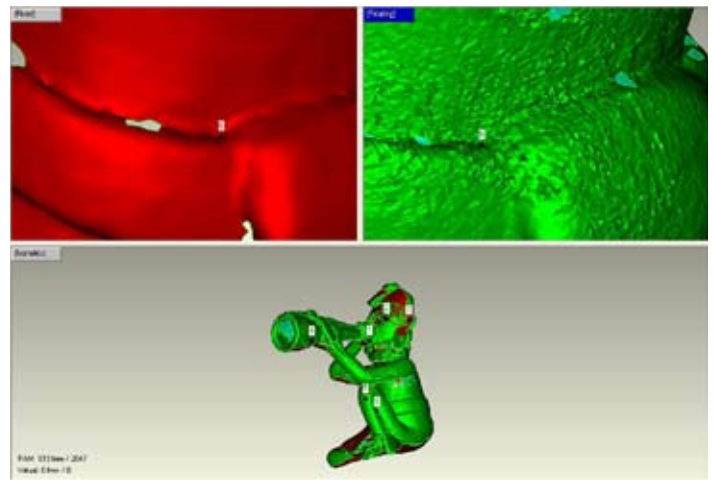
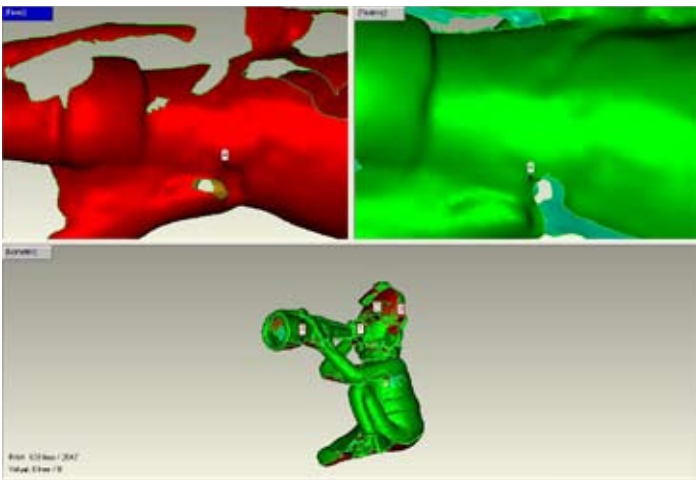
First of all we clean up the scans. An easy way to do so is to use Edit > Select > By area. This way all the unattached elements that are smaller to the indicated percentage of the whole scan will get selected. In most cases the smaller elements are the ones we want to get rid of.



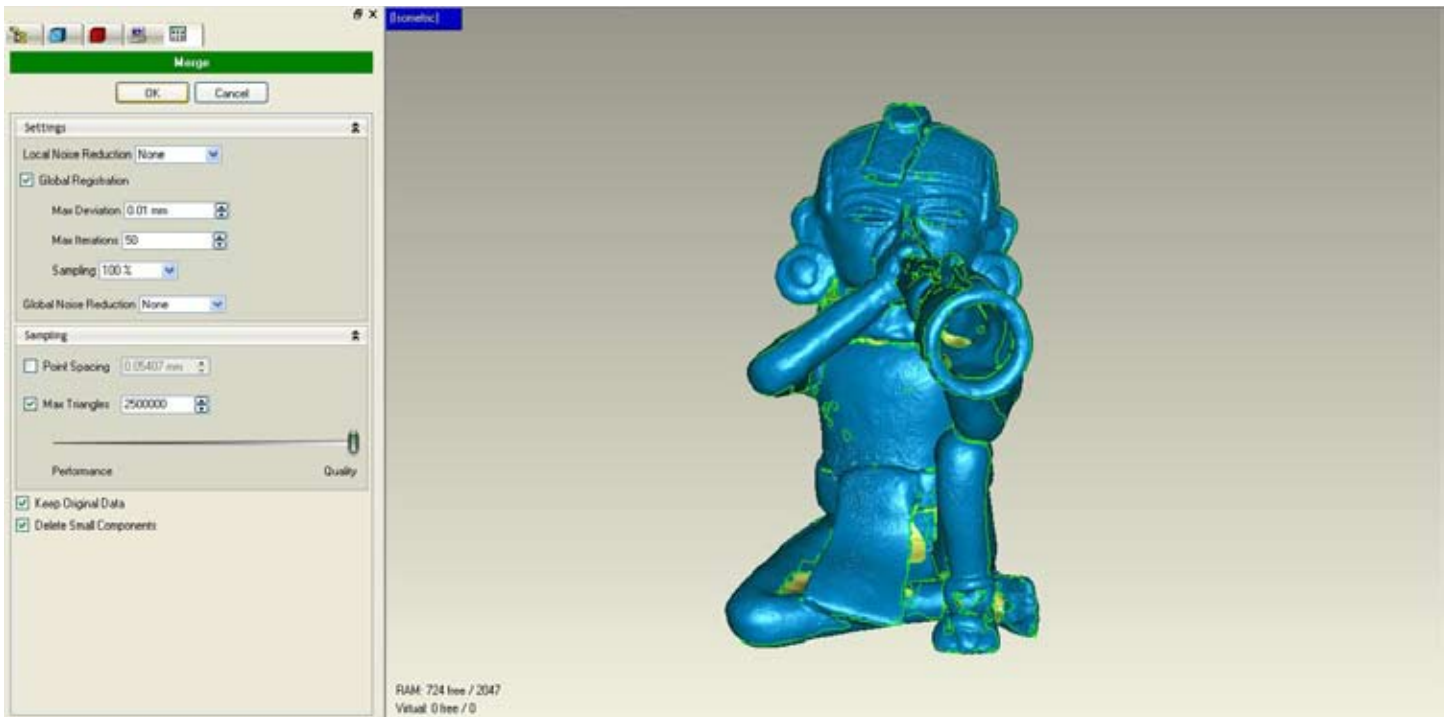
To register the scans, select all of them and go to Tools > Registration > Manual Registration. Now the viewing area is divided in three. From the left panel we select one scan to be fixed and one to be floating. The bottom frame shows how the scans are being aligned. To make the registration points we move the fixed and floating objects until they are in the same angle and just click in the same spots as shown above. The registration points are indicated with a number, in this case: 1.



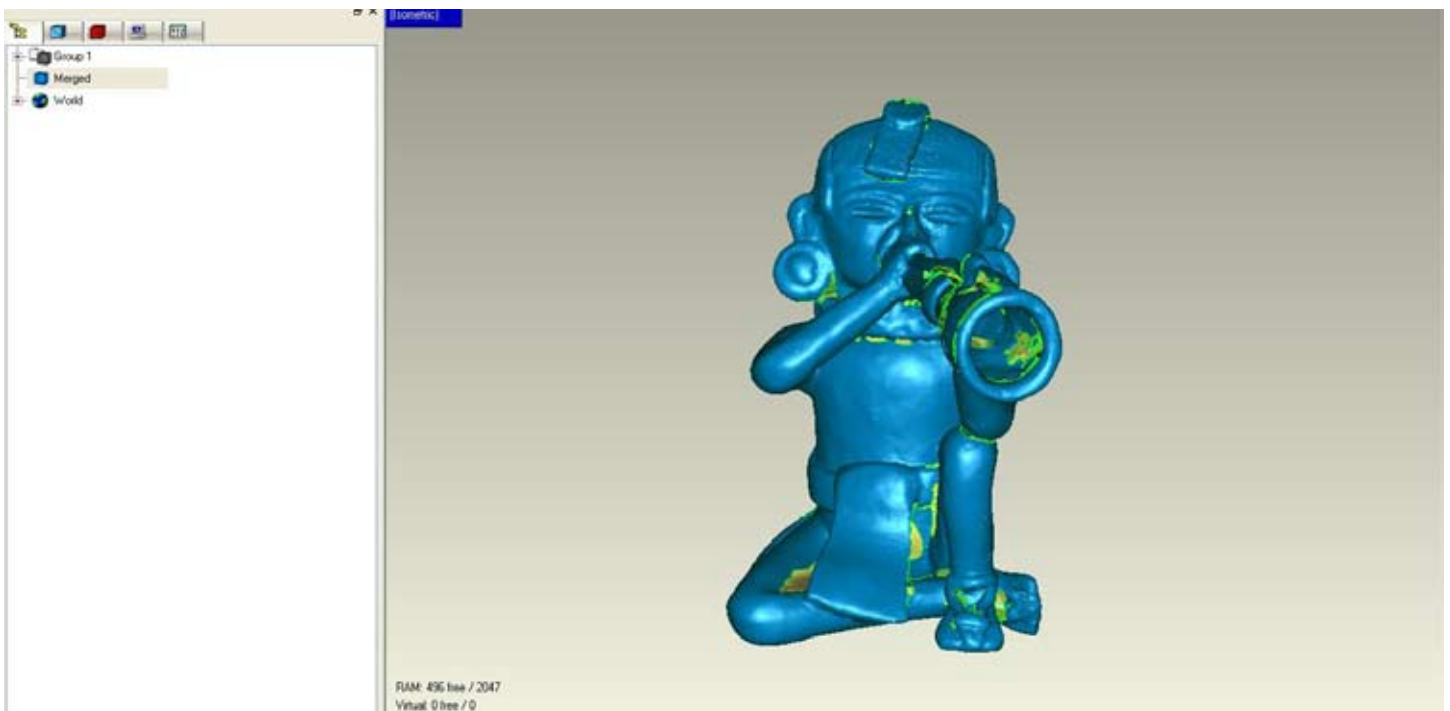
These images show the second and third registration points.



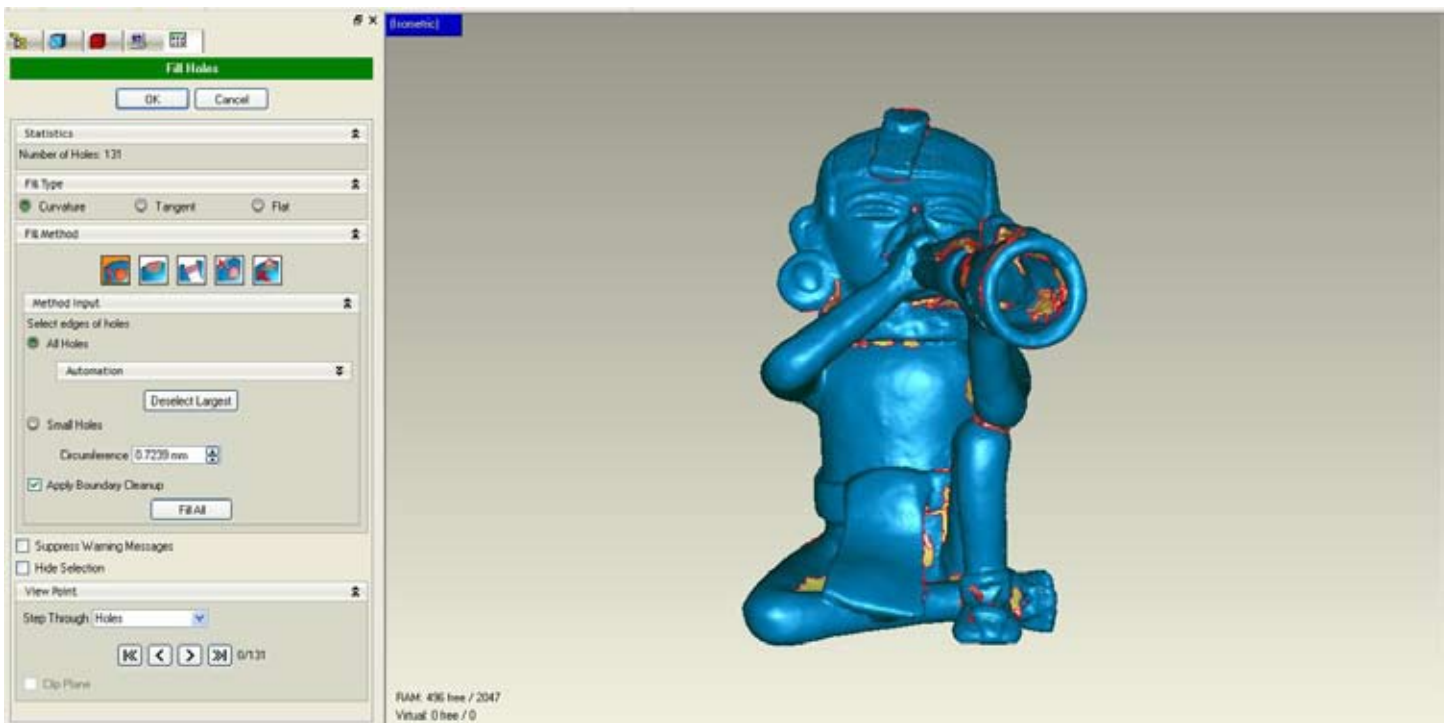
This is the process of how the two scans of this artifact were registered. We used nine registration points. You can see at the bottom frames how the scans mix better with every registration point. Even though the scans looked aligned at the registration point number three, it is better to put more registration points to make sure the two scans are well aligned from all sides. In this case since there are no more scans to register, click Register and then OK.



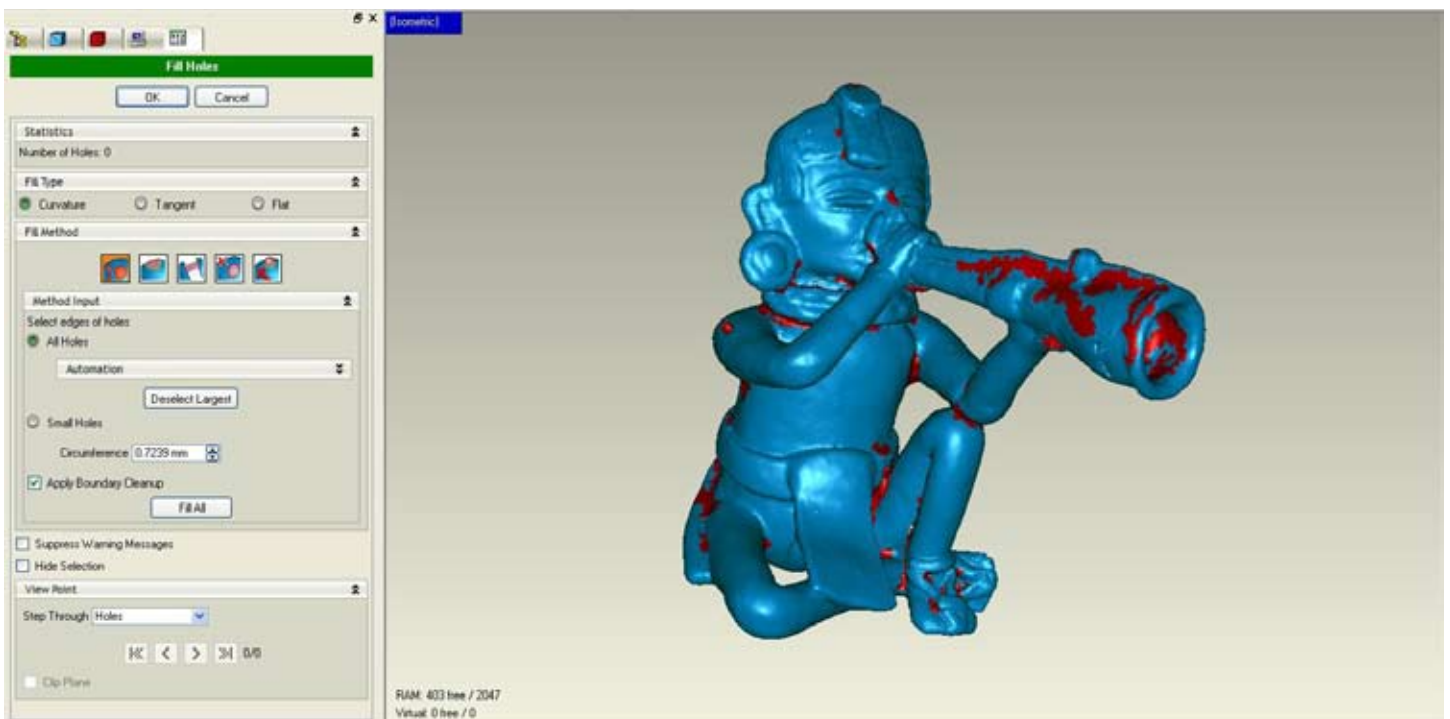
The image shows the object after registration. The scans are still separated in the carpet called Group 1, the green lines shows the border of each scan. The next step would be to apply Merge to convert them into one object.



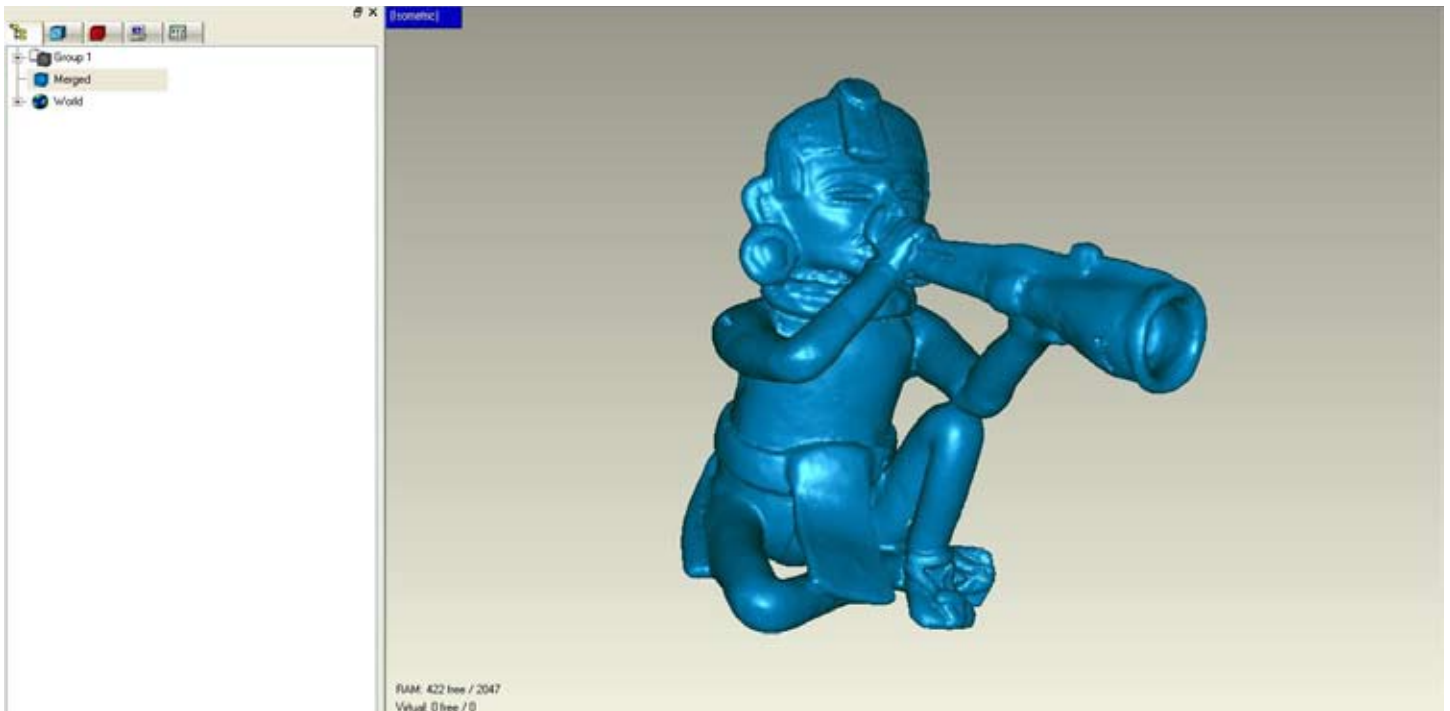
This is our object after applying Merge. In the left panel there is still the carpet named Group1 but now there is a new object called Merged.



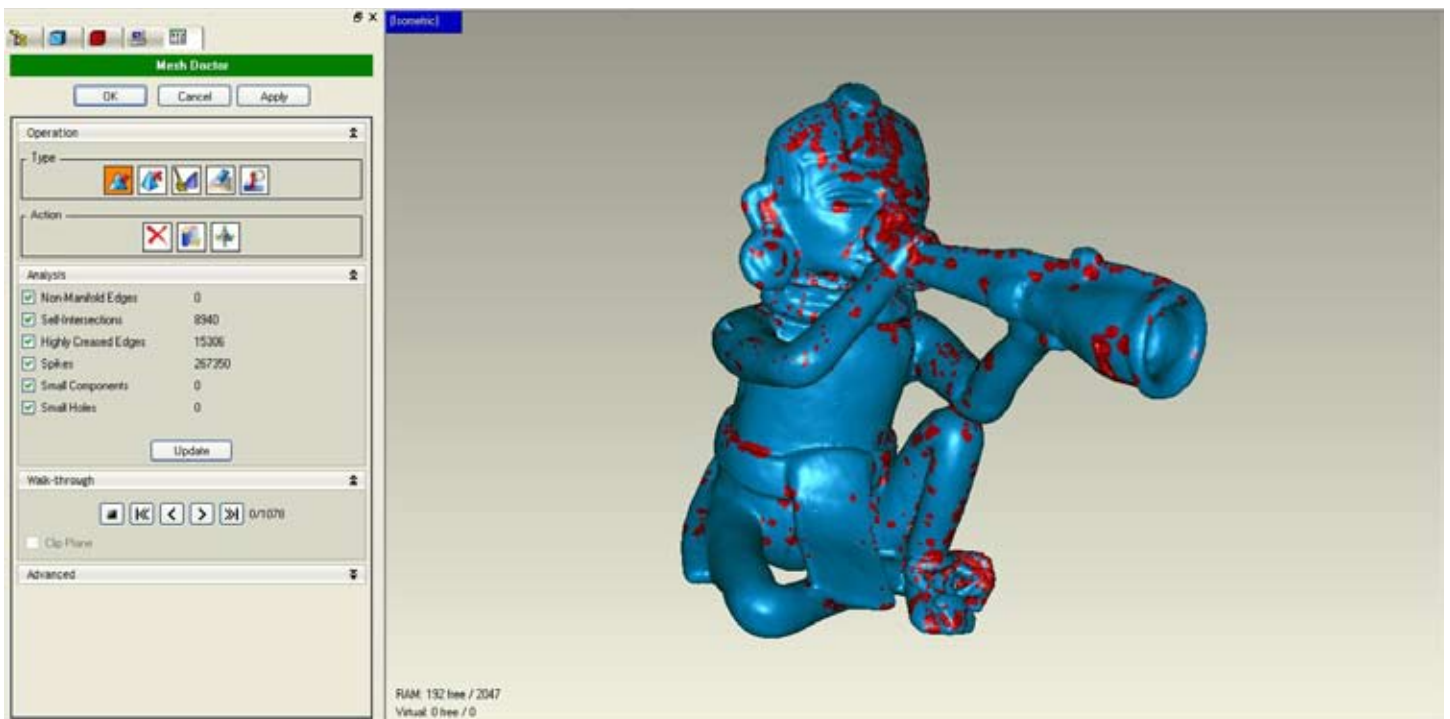
To make the holes disappear we go to Polygons > Fill Holes. There are several options, depending on how you want to fill out the hole. Normally the default setting will do a good job.



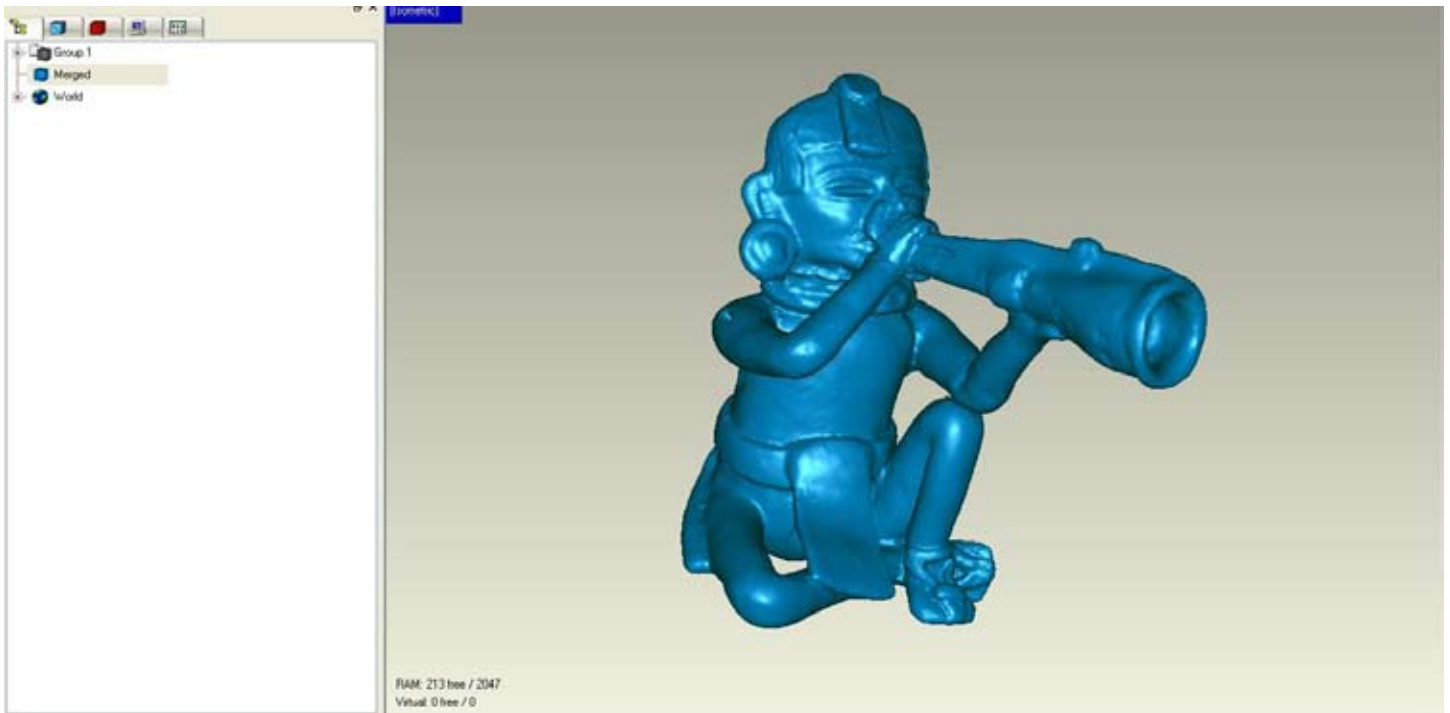
By clicking on Fill All, the software will fill all the holes indicating them with a red color as shown in the picture. If you are satisfied with the result, just click OK.



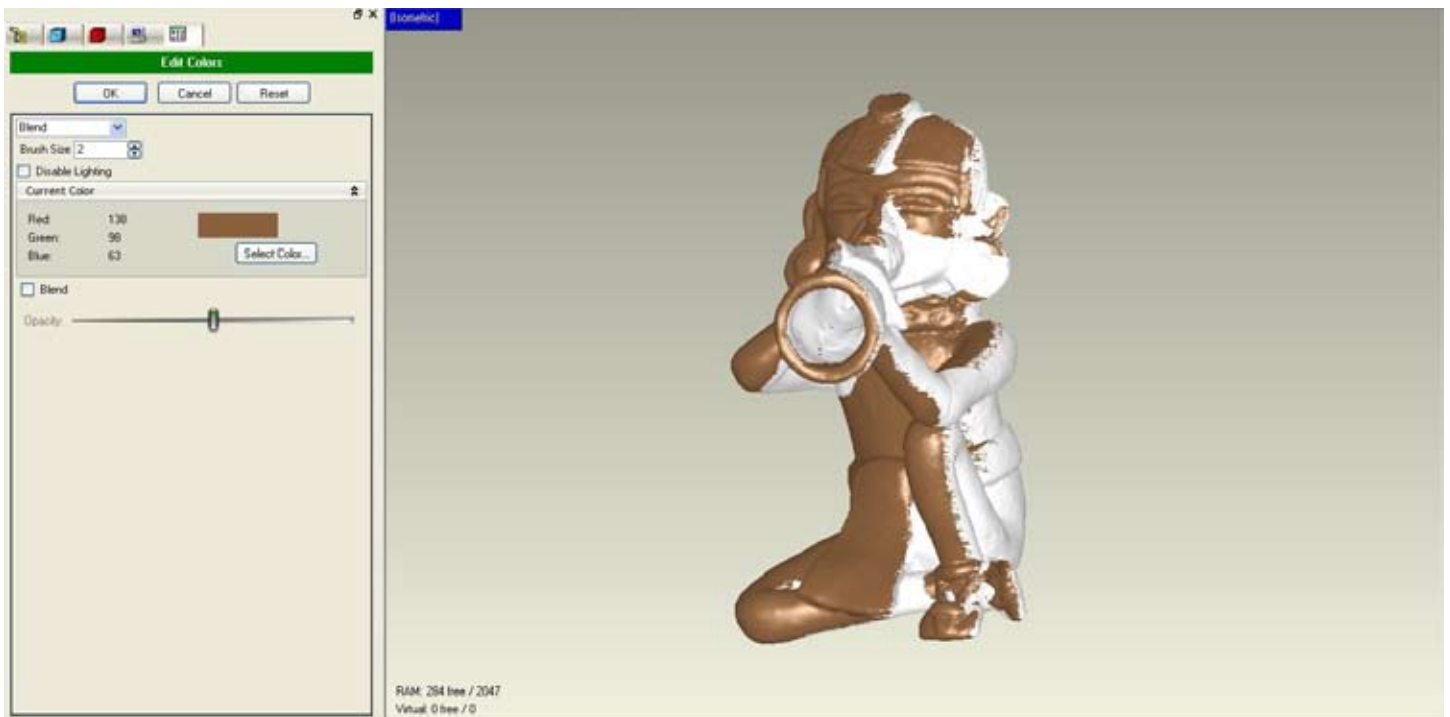
This is our object after filling out the holes.



To reduce the noise on the surface we applied the Mesh Doctor tool. The spots in red are the areas that will be softened.



This is the result after applying the Mesh Doctor tool.



To give it a more realistic look we applied color to the artifact.



These are the images of the processed scan and the photos of the actual musician artifact viewed from both sides so you can compare them.

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