Chapter 2. Sculpting the Character's Base Mesh

In this chapter, we will cover the following recipes:

- Using the Skin modifier's Armature option
- Editing the mesh
- Preparing the base mesh for sculpting
- Using the Multiresolution modifier and the Dynamic topology feature
- Sculpting the character's base mesh

Introduction

In the previous chapter, we built the base mesh by using the **Skin** modifier and on the base of the reference templates; in this chapter, we are going to prepare this basic mesh for the sculpting, by editing it and cleaning up any *mistakes* the **Skin** modifier may have made (usually, overlapping and triangular faces, missing edge loops, and so on).

Using the Skin modifier's Armature option

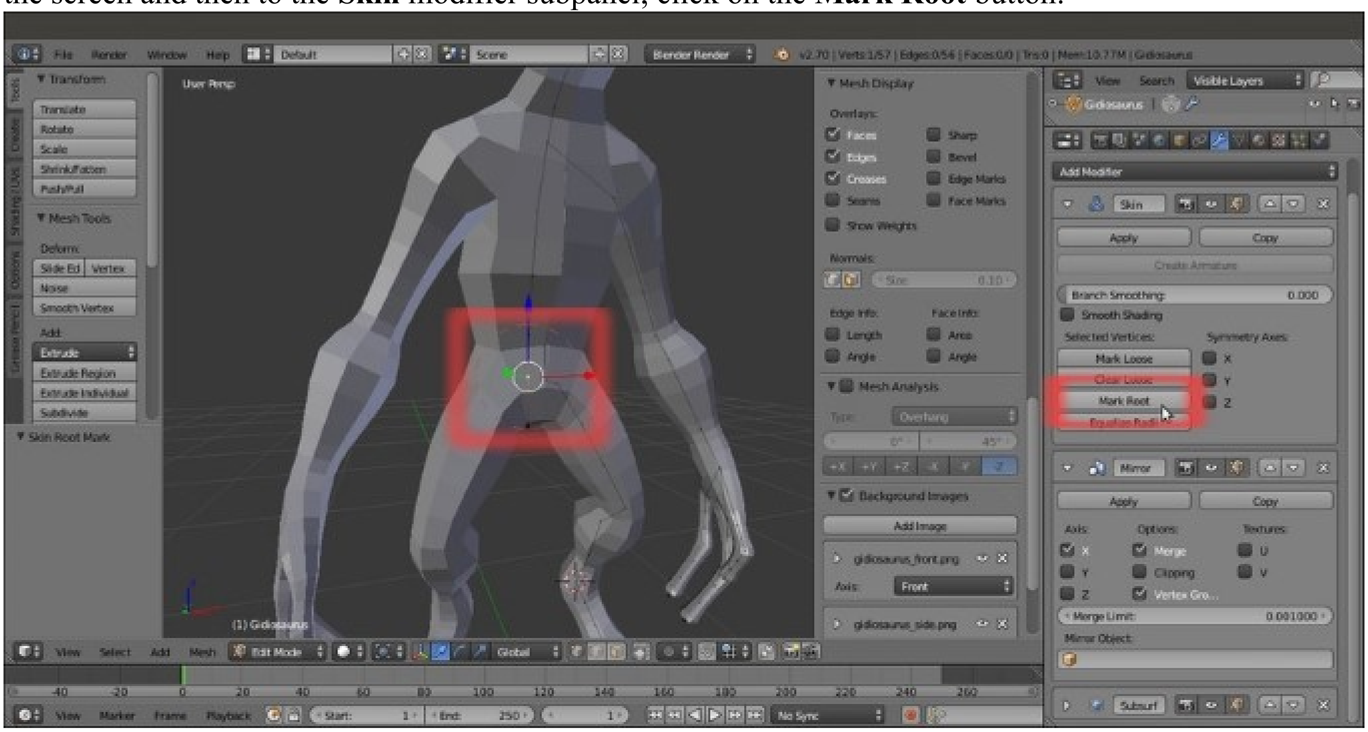
The **Skin** modifier has an option to create an **Armature** on the fly to pose the **generated mesh**. This **Armature** can just be useful in cases where you want to modify the position of a part of the generated mesh.

Note that using the generated **Armature** to pose the base mesh, in our case, is not necessary, and therefore this recipe is treated here only as *an example* and it won't affect the following recipes in the chapter.

Getting ready

So, let's suppose that we want the **arms** to be posed more horizontally and widely spread:

1. If this is the case, reopen the `Gidiosaurus_base_mesh.blend` file and save it with a different name (something like `Gidiosaurus_Skin_Armature.blend`).
2. Select the **Gidiosaurus** mesh and press *Tab* to go into **Edit Mode**; then, select the central pelvis vertex.
3. Go to the **Object Modifiers** window under the main **Properties** panel to the right-hand side of the screen and then to the **Skin** modifier subpanel; click on the **Mark Root** button:



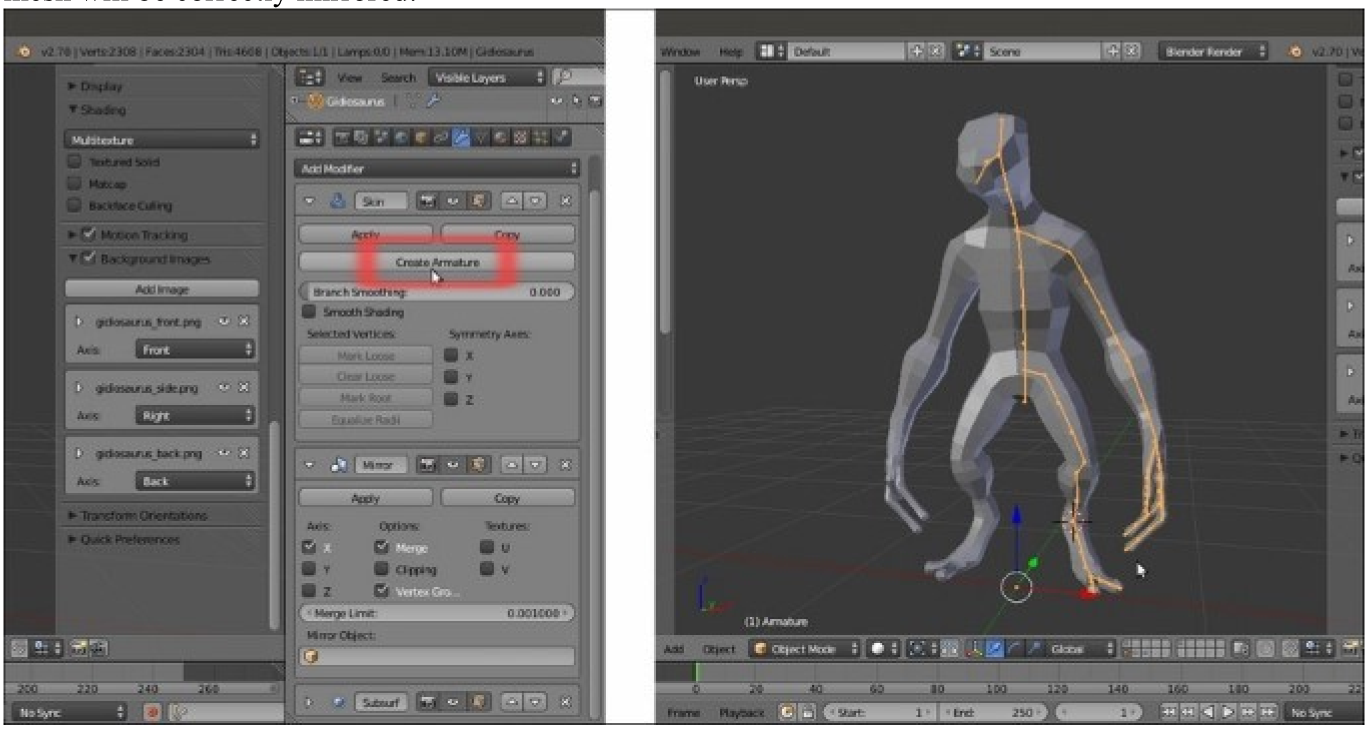
The root vertex

4. Press *Tab* again to exit **Edit Mode**.

How to do it…

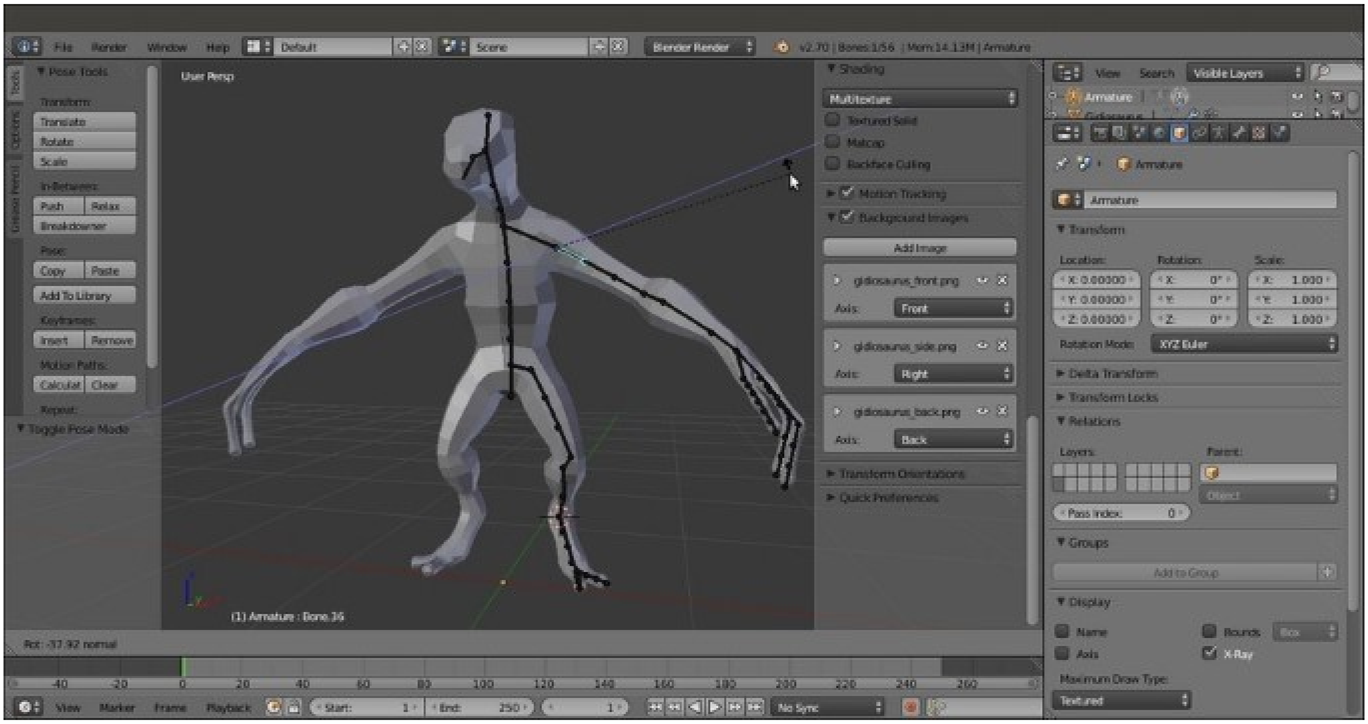
Creating the rig (that is the skeleton **Armature** made by bones and used to deform, and therefore, animate a mesh) for our character's base mesh is really simple:

1. Again, in the **Skin** modifier subpanel, click on the **Create Armature** button. The **Armature** is created instantly and an **Armature** modifier is automatically assigned to the mesh; in the modifier stack, move it to the top so that it is above the **Mirror** modifier and our posed half-mesh will be correctly mirrored:



The Armature created by the Skin modifier

2. Press *Ctrl* + *Tab* to enter **Pose Mode** for the already selected **Armature** and then select the upper bone of the **arm**.
3. In the toolbar of the 3D viewport, find the widget manipulators panel, click on the rotation **Transformation manipulators** (the third icon from the left), and set **Transform Orientation** to **Normal**.
4. By using the rotate widget, rotate the selected bone and consequently the arm (be careful that, as already mentioned, the newly created **Armature** modifier is at the top of the modifier stack, otherwise the rotation will not correctly deform the mirrored mesh):



Rotating the arms through the Armature

5. Exit **Pose Mode** and reselect the **Gidiosaurus** mesh.
6. Go to the **Skin** modifier subpanel under the **Object Modifiers** window; click on the **Apply** button to apply the modifier.
7. Go to the **Armature** modifier and click on the **Apply** button to also apply the rig transformations.
8. At this point, we can also select the **Armature** object and delete it (*X* key).

How it works…

By clicking on the **Create Armature** button, the **Skin** modifier creates a bone for each edge connecting the extruded vertices, it adds an **Armature** modifier to the generated base mesh, and automatically assigns vertex groups to the base mesh and skins them with the corresponding bones.

The bones of this **Armature** work in **Forward Kinematics**, which means they are chained following the **child/parent** relation, with the first (**parent**) bone created at the **Root** location we had set at step 3 of the *Getting ready* section.

There's more…

Note that the bones of the **Armature** can be used not only to rotate limbs, but also to scale bigger or smaller parts of the mesh, in order to further tweak the shape of the base mesh.

See also

- http://www.blender.org/manual/modifiers/generate/skin.html
- http://www.blender.org/manual/rigging/posing/editing.html#effects-of-bones-relationships

Editing the mesh

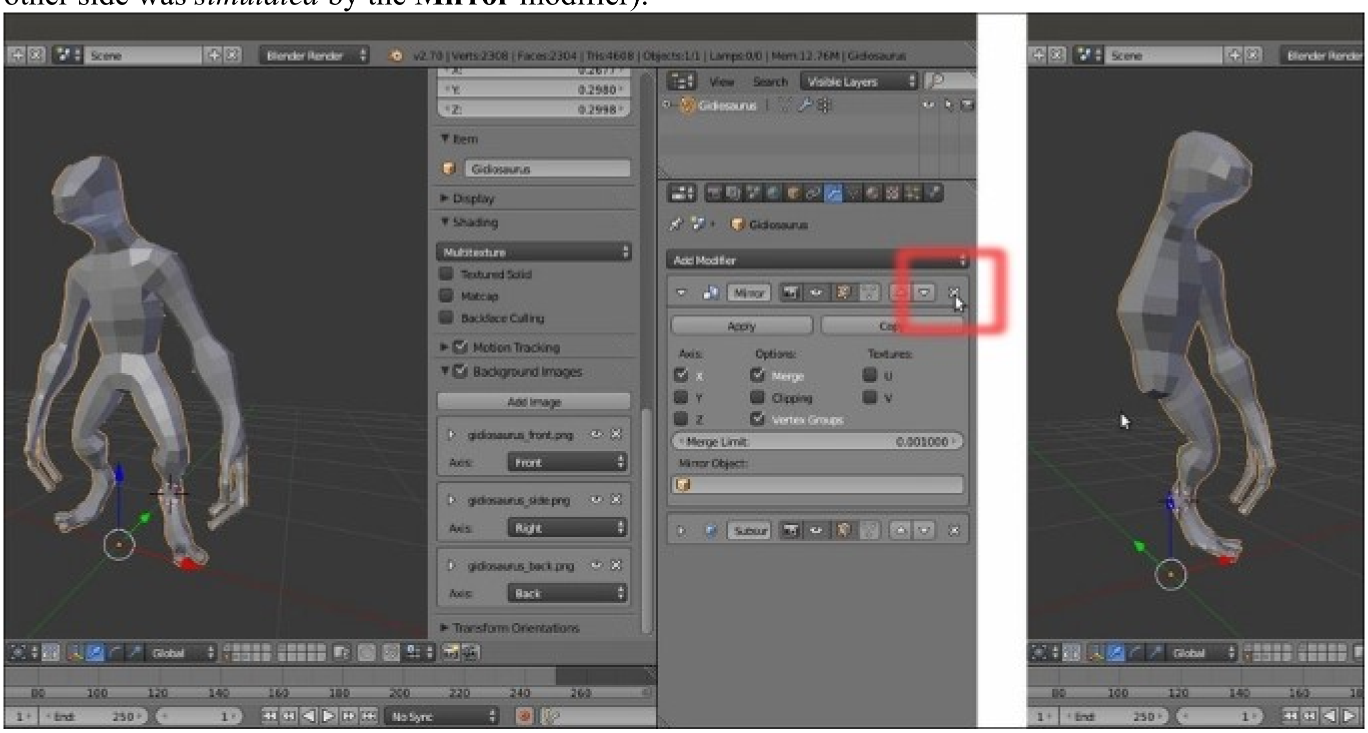
Once we have applied the **Skin** and **Armature** modifiers, we are left with an almost ready-to-use base mesh; what we need to do now is clean the possibly overlapping faces and whatever other mistakes were made by the **Skin** modifier.

Be careful not to be confused by the previous recipe, which was meant only as a possible example; we didn't actually use the **Skin** modifier's **Armature** to change the pose of the base mesh.

Getting ready

Let's prepare the mesh and the view:

1. Go to the **Object Modifiers** window under the main **Properties** panel and then to the **Mirror** modifier subpanel and click on the little **X** icon to the right in order to delete the modifier; you are left with half of the mesh (actually the half that is really generated by the **Skin** modifier; the other side was *simulated* by the **Mirror** modifier):

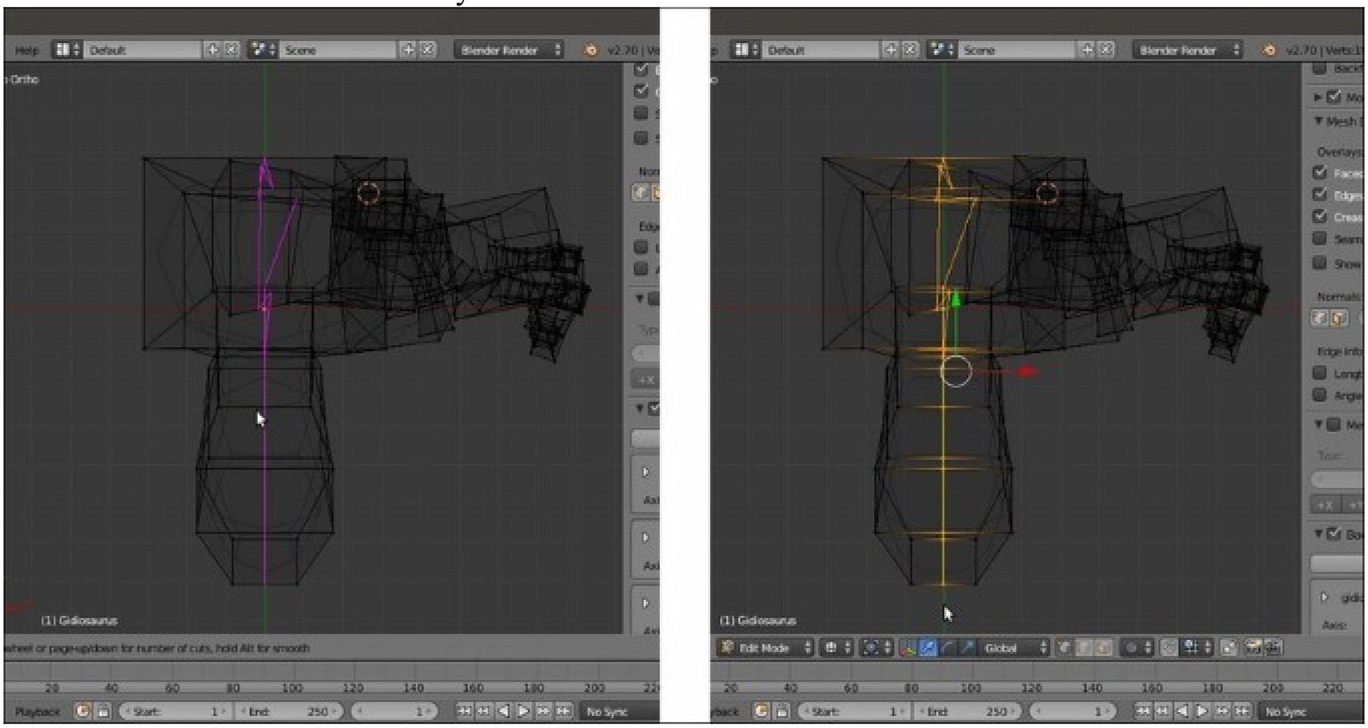


Deleting the Mirror modifier

2. Press *Tab* to go into **Edit Mode**, *7* on the numpad to go into **Top** view, and *Z* to go into the **Wireframe** viewport shading mode.

How to do it…

1. Press *Ctrl* + *R* to add an edge-loop to the middle of the mesh; don't move the mouse, and left-click a second time to confirm that you want it at **0.0000** location:

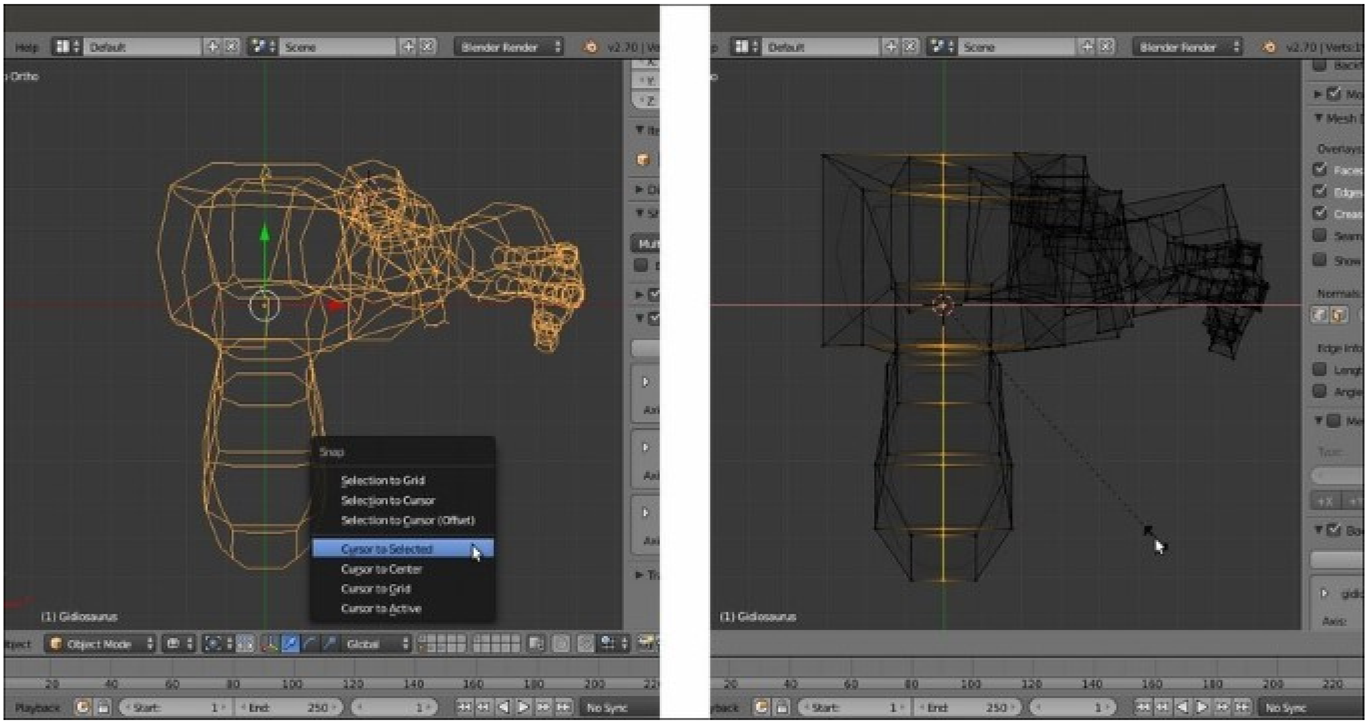


Adding a central edge-loop

Sometimes, depending on the topology created by the **Skin** modifier, you may not be able to make a single clean loop cut by the *Ctrl* + *R* key shortcut. In this case, still in **Edit Mode**, you can press the *K* key to call the **Knife Tool**, left-click on the mesh to place the cuts, and press *Enter* to confirm (press *Shift* + *K* if you want only the newly created edge-loops selected after pressing *Enter*). This way, you can create several loop cuts, connect them together and, if necessary, move and/or scale them to the middle along the *x* axis.

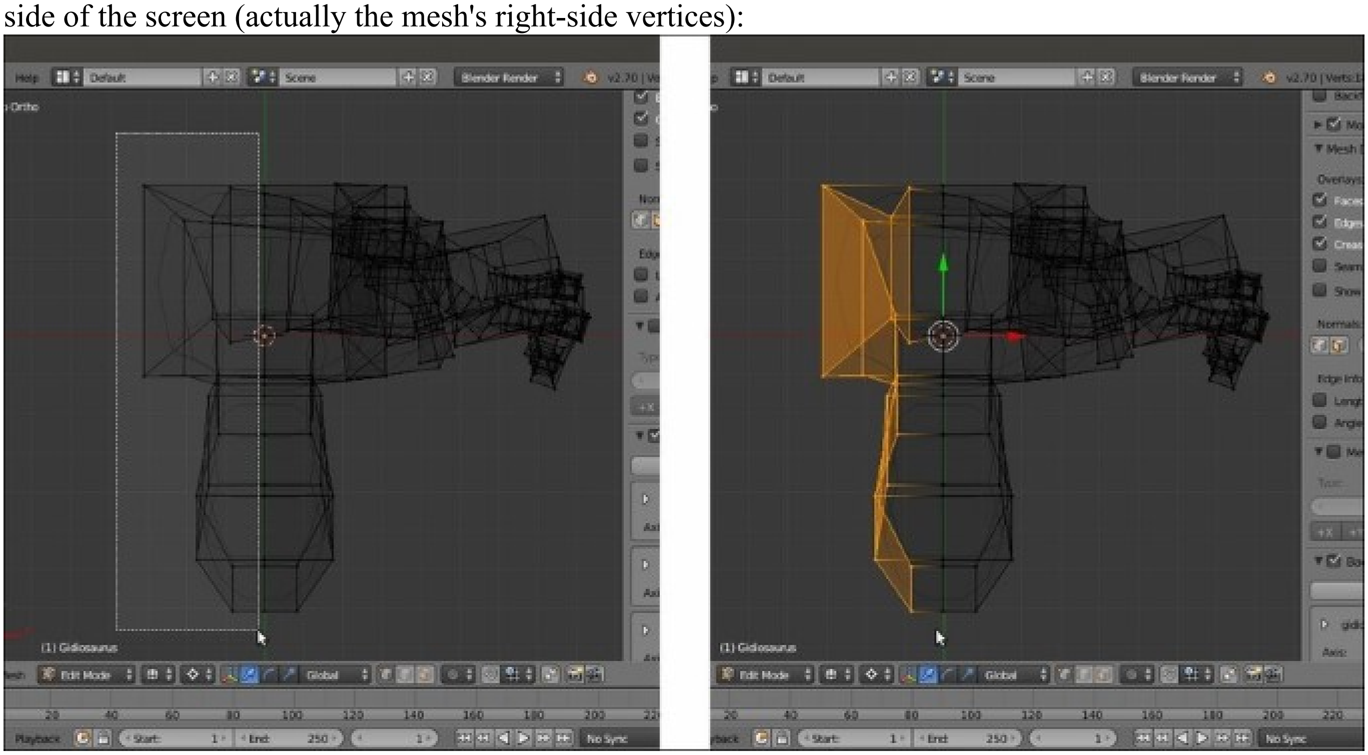
In fact, you can do the following:

2. Go out of **Edit Mode** and press *Shift* + *S*; in the **Snap** pop-up menu, select **Cursor to Selected** (to center the cursor at the middle of the mesh).
3. Press the period (.) key to switch **Pivot Point** to **3D Cursor** and then press *Tab* to go again into **Edit Mode**.
4. With the middle edge-loop already selected, press *S* | *X* | **0** | *Enter* to scale all its vertices to the **3D Cursor** position along the *x* axis and align them at the perfect center:



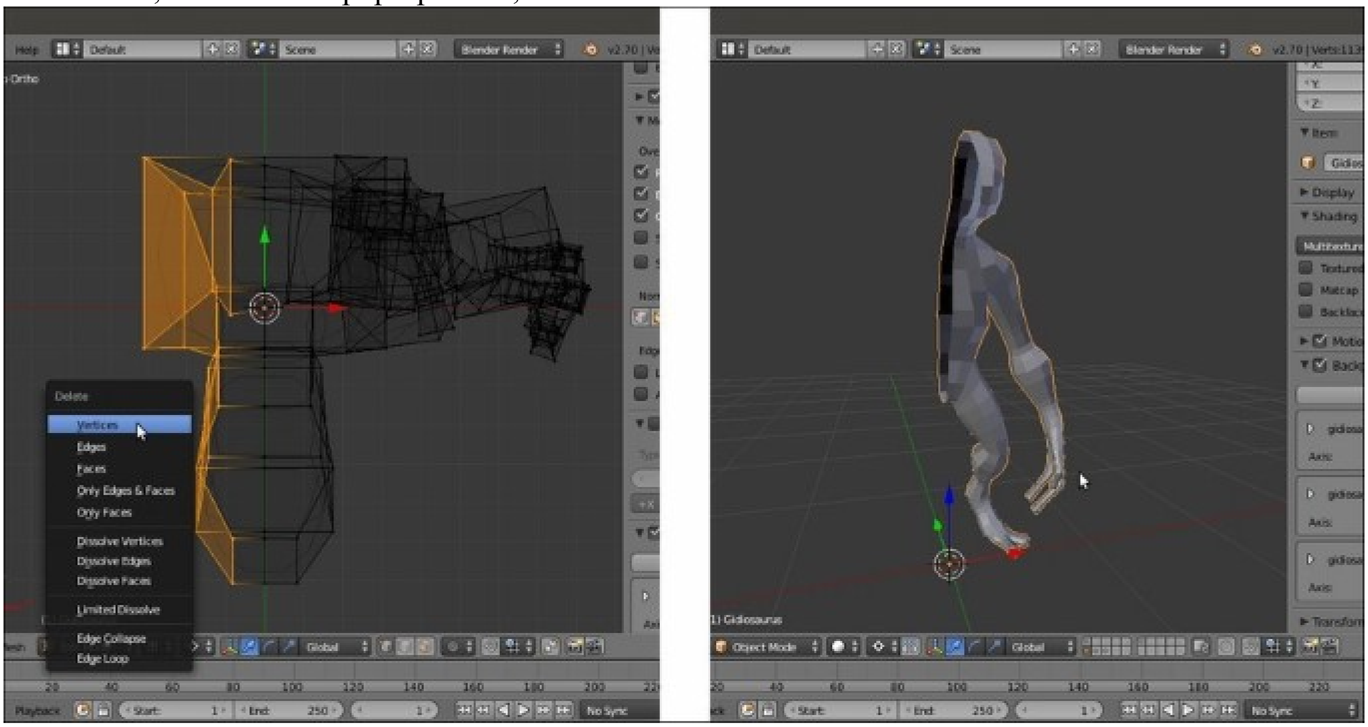
Scaling the central edge-loop vertices along the x axis

5. Press *A* to deselect all the vertices and then press *B* and box-select the vertices on the left-hand side of the screen (actually the mesh's right-side vertices):



Box-selecting the left vertices

6. Press *X* and, in the **Delete** pop-up menu, select the **Vertices** item to delete them:



Deleting the left vertices

7. Go out of **Edit Mode** and, in the **Object Modifiers** window, assign a new **Mirror** modifier (check **Clipping**) to the mesh; move it before the **Subdivision Surface** modifier in the stack.
8. If needed, this is the point where you can manually edit the mesh by converting triangle faces to quads (select two consecutive triangular faces and press *Alt* + *J*), creating, closing, or moving edge-loops (by using the **Knife Tool**, for example, around the arms and legs attachments to the body), and so on.
9. Save the file as `Gidiosaurus_base_mesh.blend`.

Well, in our case, everything went right with the **Skin** modifier, so there is no need for any big editing of the mesh! In effect, it was enough to delete the first **Mirror** modifier (that we actually used mostly for visual feedback) to get rid of all the overlapping faces and obtain a clean base mesh:

The "clean" mesh with new Mirror and Subdivision Surface modifiers

In the preceding screenshot, the base mesh geometry is showing with a level **1** of subdivision; in **Edit Mode**, it is still possible to see the low-level cage (that is, the *real* geometry of the mesh) as wireframe.

There are a couple of triangular faces (that, if possible, we should always try to avoid; quads faces work better for the sculpting) near the shoulders and on the feet, but we'll fix these automatically later, because before we start with the sculpting process, we will also apply the **Subdivision Surface** modifier.

How it works…

To obtain a clean half-body mesh, we had to delete the first **Mirror** modifier and the vertices of the right half of the mesh; to do this, we had also added a middle edge loop. So, we obtained a perfect left-half mesh and therefore we assigned again a **Mirror** modifier to restore the missing half of the body.

Preparing the base mesh for sculpting

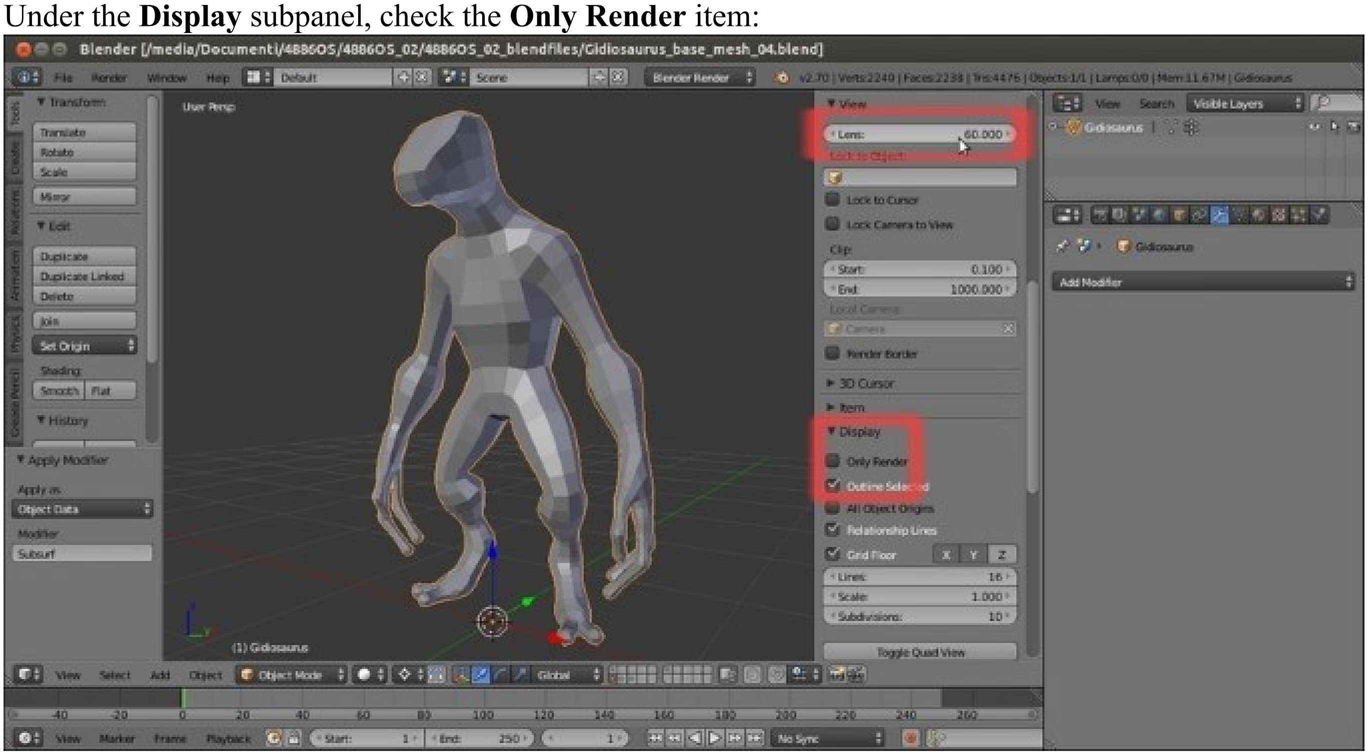
Once we have our base mesh completed, it's time to prepare it for the sculpting.

Getting ready

Open the `Gidiosaurus_base_mesh.blend` file and be sure to be out of **Edit Mode**, and therefore in **Object Mode**.

How to do it…

1. Select the character's mesh and go to the **Object Modifiers** window under the main **Properties** panel to the right.
2. Go to the **Mirror** modifier panel and click on the **Apply** button.
3. If this is the case, expand the **Subdivision Surface** modifier panel, be sure that the **View** level is at **1**, and click on the **Apply** button.
4. Press *Tab* to go into **Edit Mode** and, if necessary, select all the vertices by pressing *A*; then, press *Ctrl* + *N* to recalculate the normals and exit **Edit Mode**.
5. Go to the **Properties** sidepanel on the right-hand side of the 3D view (or press the *N* key to make it appear) and under the **View** subpanel, change the **Lens** angle to **60.000** (more natural looking than **35.000**, which is set by default).
6. Under the **Display** subpanel, check the **Only Render** item:

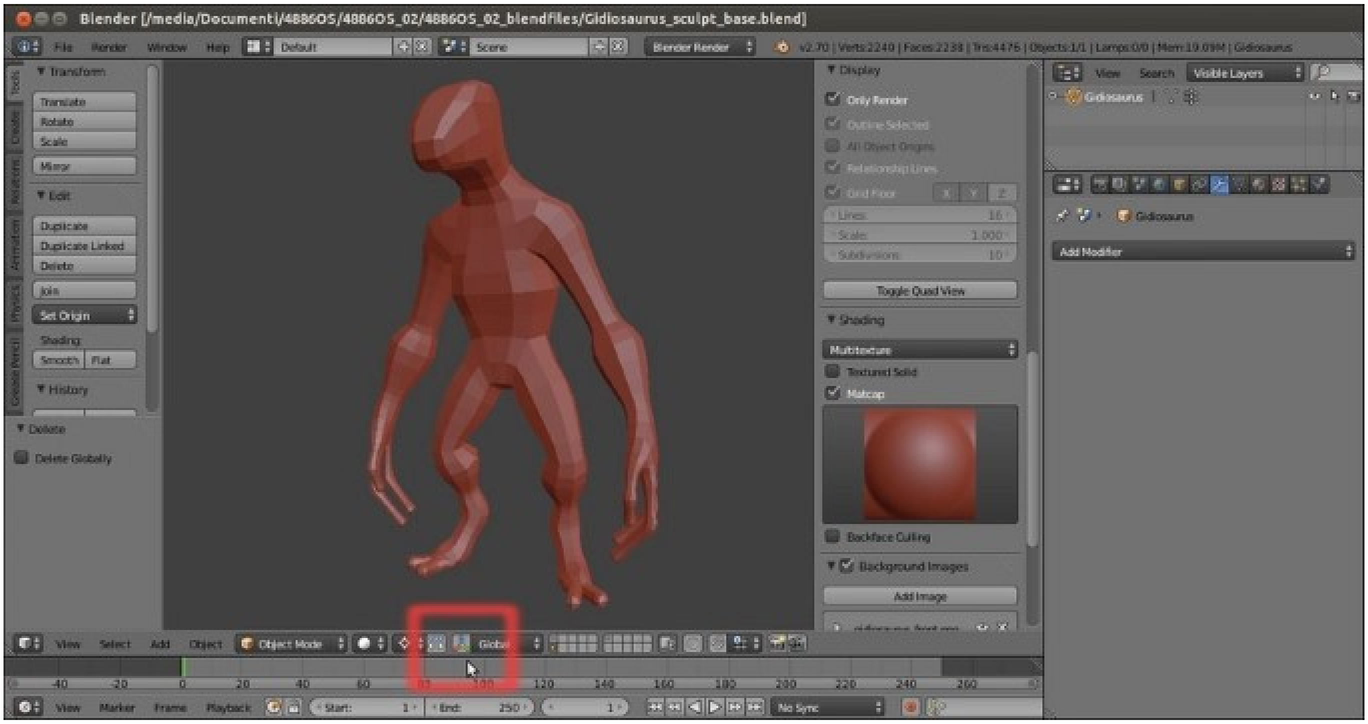


Setting the view through the 3D window N sidepanel

7. Go to the **Shading** subpanel on the sidepanel on the right-hand side of the 3D viewport and check the **Matcap** item.
8. Left-click on the preview window that just appeared and, from the pop-up panel, select the red colored brick material, the one that looks like ZBrush material; obviously, you can choose a different one if you prefer, but in my experience, this is the one that gives the best visual feedback in the 3D view:

The available matcaps menu and the selected Zbrush-like matcap

9. Put the mouse cursor inside the active 3D window and press *Ctrl* + Spacebar to disable the widget:



The matcap assigned to the mesh and the widget button in the 3D window toolbar

10. Press *N* to get rid of the **Properties** 3D window sidepanel.
11. Save the file as `Gidiosaurus_Sculpt_base.blend`.

How it works…

By checking the **Only Render** item in the **Display** subpanel under the **Properties** 3D window sidepanel, all the possible disturbing elements that cannot be rendered (such as the **Grid Floor**, **Empties**, **Lamps**, and so on) are hidden, in order to give a clean 3D viewport ready for sculpting.

Note that with this option enabled, sadly, the **Image Empties** we set in the previous chapter to work as templates for references are not visible—instead, the templates we had set as **Background Images** are perfectly visible in the **3** orthographic views.

Matcaps can in some cases slow the performance of your computer, depending on the hardware; in any case, **Matcaps** is a very useful feature, especially for sculpting, as you can see the mesh shape easily.

Changing the **Lens** angle from **35.000** to **60.000** makes the perspective view look more similar to the natural human field of view.

Using the Multiresolution modifier and the Dynamic topology feature

To be sculpted, a mesh needs a big enough amount of vertices to allow the adding of details; in short, we now need a way to add (a lot of!) geometry to our simple base mesh.

Besides the usual subdividing operation in **Edit Mode** (press *Tab*, then *A* to select all the vertices, then press *W* to call the **Specials** menu, click on **Subdivide**, and then set the **Number of Cuts** value in the last operation subpanel at the bottom of the **Tool Shelf**) and the **Subdivision Surface** modifier, in Blender, there are two other ways to increase the amount of vertices: one is by assigning a **Multiresolution** modifier to the mesh (a nondestructive way) and the other is by using the **Dynamic topology** feature. We are going to see both of them.

Getting ready

As usual, let's start from the last `.blend` file we saved: in this case, `Gidiosaurus_Sculpt_base.blend`.

How to do it…

Let's start with the **Multiresolution** modifier method:

1. First of all, save the file as `Gidiosaurus_Multires.blend`.
2. Select the base mesh and go to the **Object Modifiers** window under the main **Properties** panel on the right-hand side of the screen; assign a **Multiresolution** modifier.
3. Click on the **Subdivide** (*Add a new level of subdivision*) button **3** times; the mesh has now reached **143,234** vertices and **143,232** faces.
4. Check the **Optimal Display** item in the modifier panel:

The mesh with a Multiresolution modifier assigned at level 3 of subdivision

5. On the toolbar of the 3D window, click on the mode button to go into **Sculpt Mode**.
6. On the **Tools** tab on the left-hand side of the screen (if necessary, press the *T* key to make the **Tool Shelf** containing the tabs appear), go to the **Symmetry\Lock** subpanel and click on the **X** button under the **Mirror** item.
7. Click on the **Options** tab and, under the **Options** subpanel, uncheck the **Size** item under **Unified Settings**.
8. Start to sculpt.

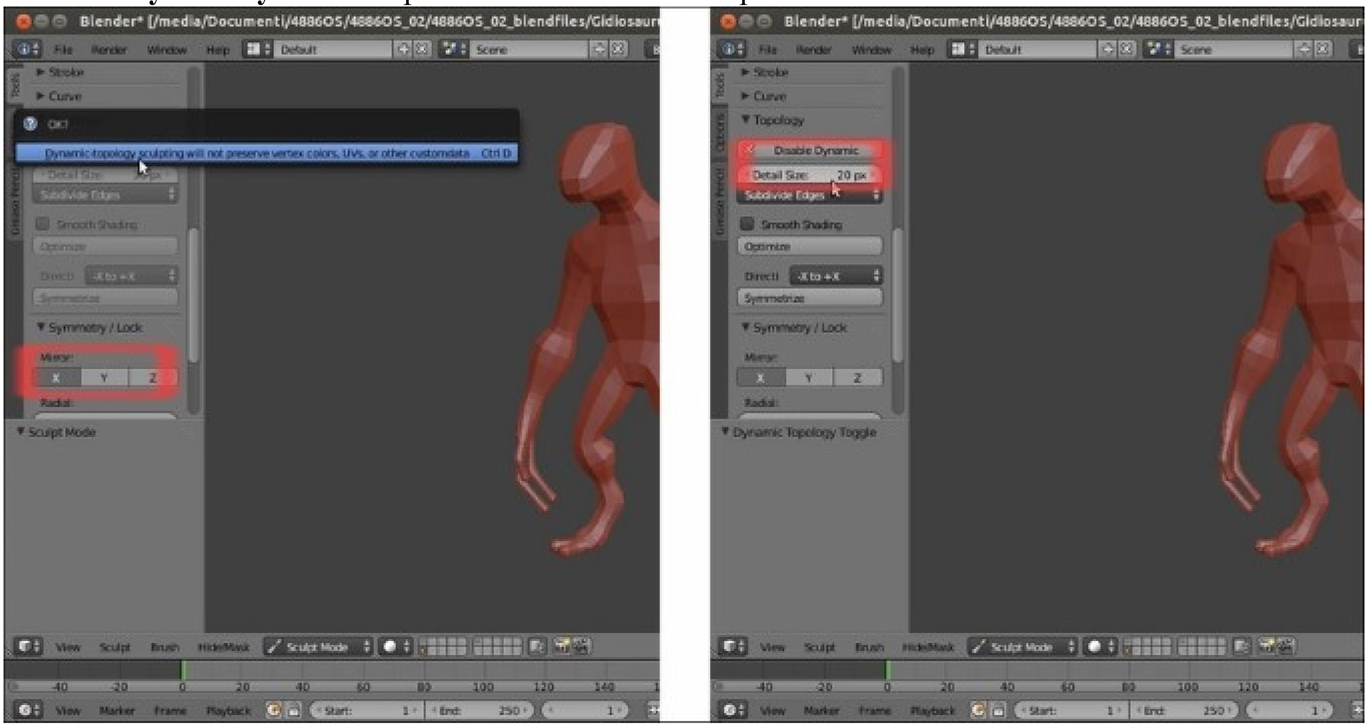
   At this point, to proceed with the sculpting, you should jump to the next recipe, *Sculpting the character's base mesh*; instead, let's suppose that we have already sculpted our base mesh, so let's move ahead:
9. Exit **Sculpt Mode**.
10. Save the file.

Now, let's see the quick and easy preparation necessary to use the **Dynamic topology** feature for sculpting:

1. Reload the `Gidiosaurus_Sculpt_base.blend` blend file.
2. Then, save it as `Gidiosaurus_Dynatopo.blend`.
3. On the toolbar of the 3D window, select **Sculpt Mode**.
4. On the **Tools** tab on the left-hand side of the screen (press the *T* key to make the **Tool Shelf** containing the tabs appear), go to the **Topology** subpanel and click on the **Enable Dyntopo** button; a popup appears to inform you that the **Dynamic topology** feature doesn't preserve any

already existing **Vertex Color**, **UV layer**, or other custom data (only if the mesh has them). Then click on the popup to confirm and go on.

5. Change the **Detail Size** value to **15/20** pixels.
6. Go to the **Symmetry\Lock** subpanel and click on the **X** option under the **Mirror** item:



The dynamic topology tool warning and the settings

7. Start to sculpt.

Again, here you can jump to the next recipe, *Sculpting the character's base mesh*; in any case, remember to save the file.

How it works…

The **Multiresolution** modifier increasingly subdivides the mesh at each level by adding vertices; we have seen that from **2,240** starting vertices of the base mesh, we have reached **143,234** vertices at level **3**, and clearly this allows for the sculpting of details and different shapes. The vertices added by the modifier are *virtual*, exactly as the vertices added by the **Subdivision Surface** modifier are; the difference is that the vertices added by the latter are not editable (unless you apply the modifier, but this would be counterproductive), while it's possible to edit (normally through the sculpting) the vertices at each level of subdivision of a **Multiresolution** modifier. Moreover, it's always possible to go back by lowering the levels of subdivision, and the sculpted details will be stored and shown only in the higher levels; this means that the **Multiresolution** method is a nondestructive one and we can, for example, rig the mesh at level **0** and render it at the highest/sculpted level.

The **Dynamic topology** setting is different from the **Multiresolution** modifier because it allows you to sculpt the mesh without the need to heavily subdivide it first, that is, the mesh gets subdivided on the fly *only where needed*, according to the workflow of the brushes and settings, resulting in a much lower vertex count for the final mesh in the end.

As you can see in the screenshots (and in the `.blend` files provided with this cookbook), starting to sculpt the character with the **Multiresolution** modifier or the **Dynamic topology** is quite different. In the end, the process of sculpting is basically the same, but in the first case, you have an already smoothed-looking mesh where you must add or carve features; in the second case, the low resolution base mesh doesn't change its raw look at all until a part gets sculpted and therefore subdivided and modified, that is, all the corners and edges must first be softened, in order to round an otherwise harsh shape.

Sculpting the character's base mesh

Whatever the method you are going to use, it's now time to start with the effective sculpting process.

However, first, a disclaimer: in this recipe, I'm not going to teach you *how to sculpt*, nor is this an anatomy lesson of any kind. For these things, a book itself wouldn't be enough. I'm just going to demonstrate the use of the Blender sculpting tools, showing what brush I used for the different tasks, the sculpting workflow following the reference templates, and some of the more frequently used shortcut keys.

Getting ready

In this recipe, we'll use the **Dynamic topology** method. If you haven't followed the instructions of the previous recipe, just follow the steps from 12 to 17; otherwise, just open the `Gidiosaurus_Dynatopo.blend` file that is provided.

How to do it…

As usual, it's a good habit to save the file with the proper name as the first thing; in this case, save it as `Gidiosaurus_Dynatopo_Sculpt.blend`.

If you are going to use a graphic tablet to sculpt, remember to enable the tablet pressure sensitivity for both size and strength; in any case, it is better to set the respective sliders to values lower than **100 percent**; I usually set the size slider around **30/35** and the strength slider to **0.500**, but this is subjective:

The tablet pressure sensitivity buttons for the size and the strength

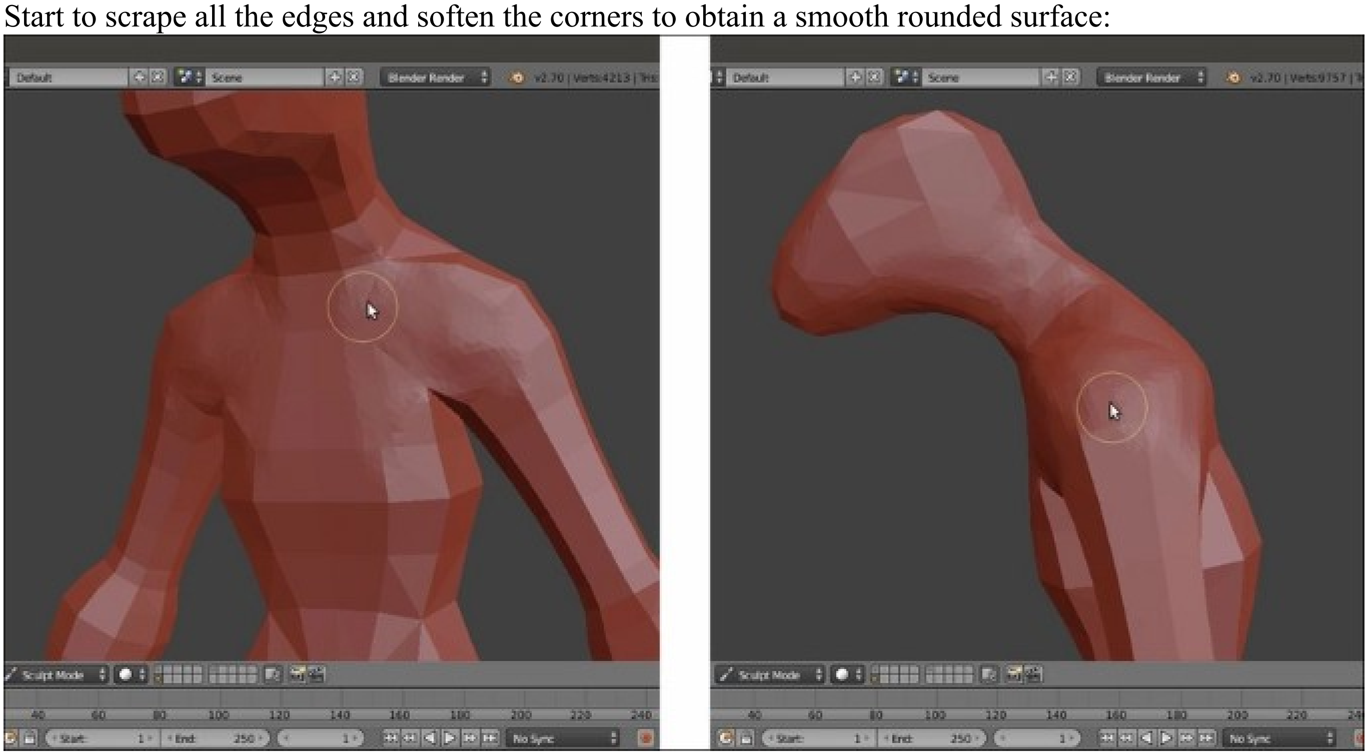
1. If you haven't already, go into **Sculpt Mode** and enable the **Dynamic topology** feature by clicking on the **Enable Dyntopo** button in the subpanel with the same name under the **Tool Shelf** panel or by directly pressing *Ctrl* + *D*.
2. Set the **Detail Size** value to **15**, either by using the slider under the **Enable Dyntopo** button or by pressing *Shift* + *D* and then moving the mouse to scale it bigger or smaller:

Starting to sculpt

3. Click on the **Brush** selection image (*Brush datablock for storing brush settings for painting and sculpting*) at the top of the **Tools** tab under the **Tool Shelf** panel, and, from the pop-up menu, select the **Scrape/Peaks** brush (otherwise press the *Shift* + *3* key shortcut):

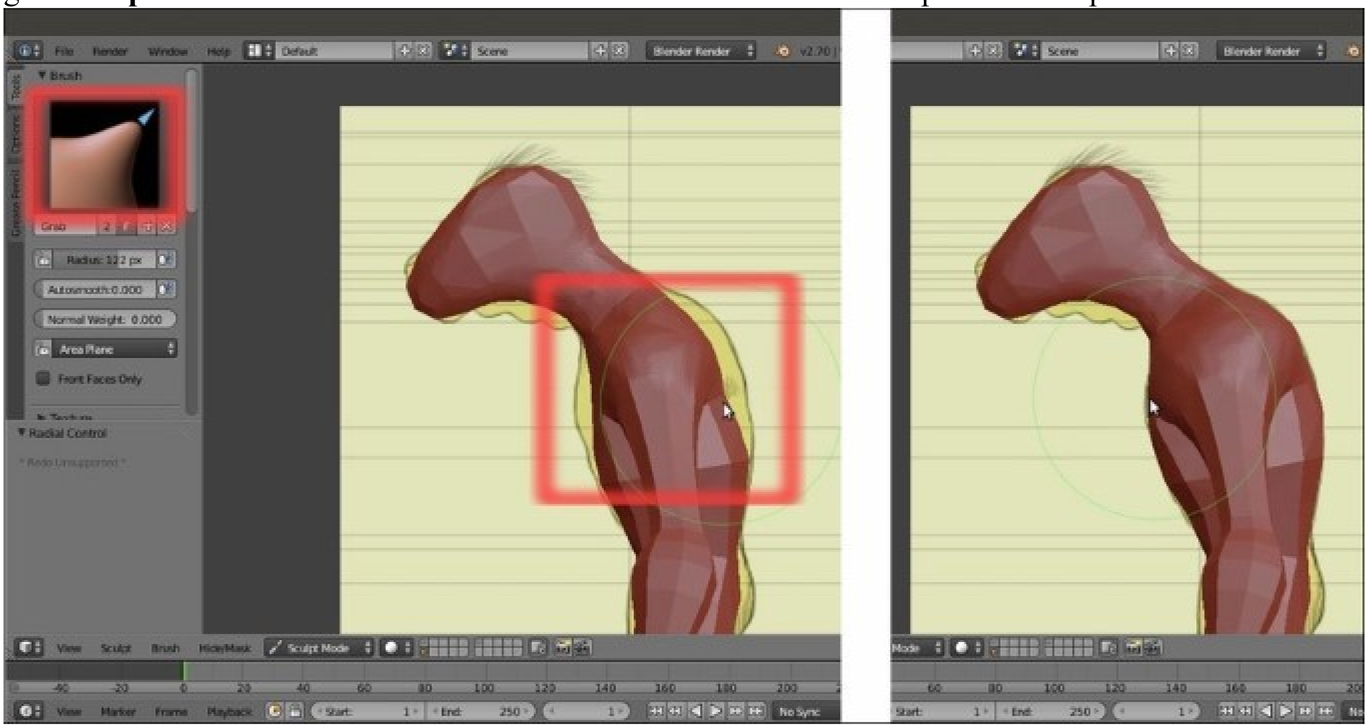
Selecting the Scrape/Peaks brush in the sculpt brushes menu

4. Start to scrape all the edges and soften the corners to obtain a smooth rounded surface:



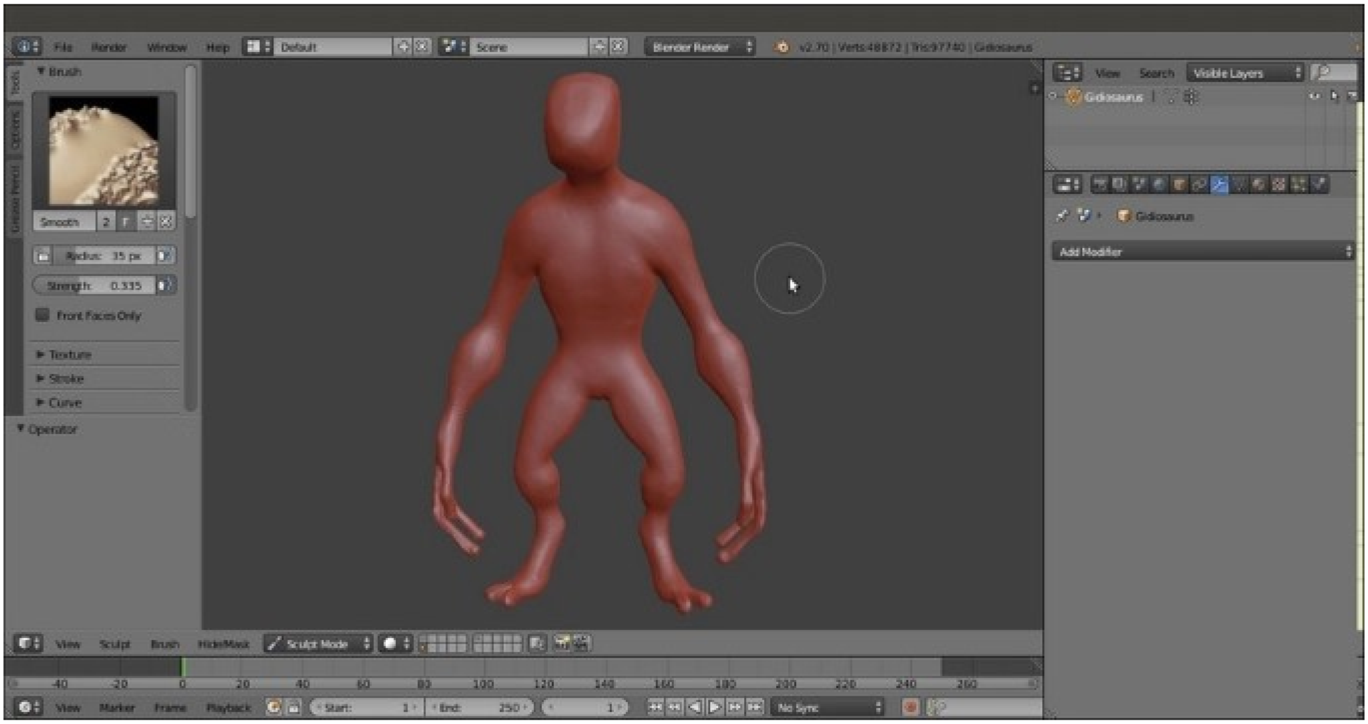
Softening the edges of the mesh

5. Change the brush; select the **Grab** brush (*G* key) and press *3* in the numpad to go into **Side** view; press the *F* key and move the mouse cursor to scale the brush, in this case, to scale it much bigger, around **120** pixels (*Shift* + *F* is to change the strength of a brush, instead).
6. Using the **Background Image** showing in the orthographic view (the *5* key in the numpad), grab the **spine** and **chest** areas of the mesh and move them to fit the shape of the template:



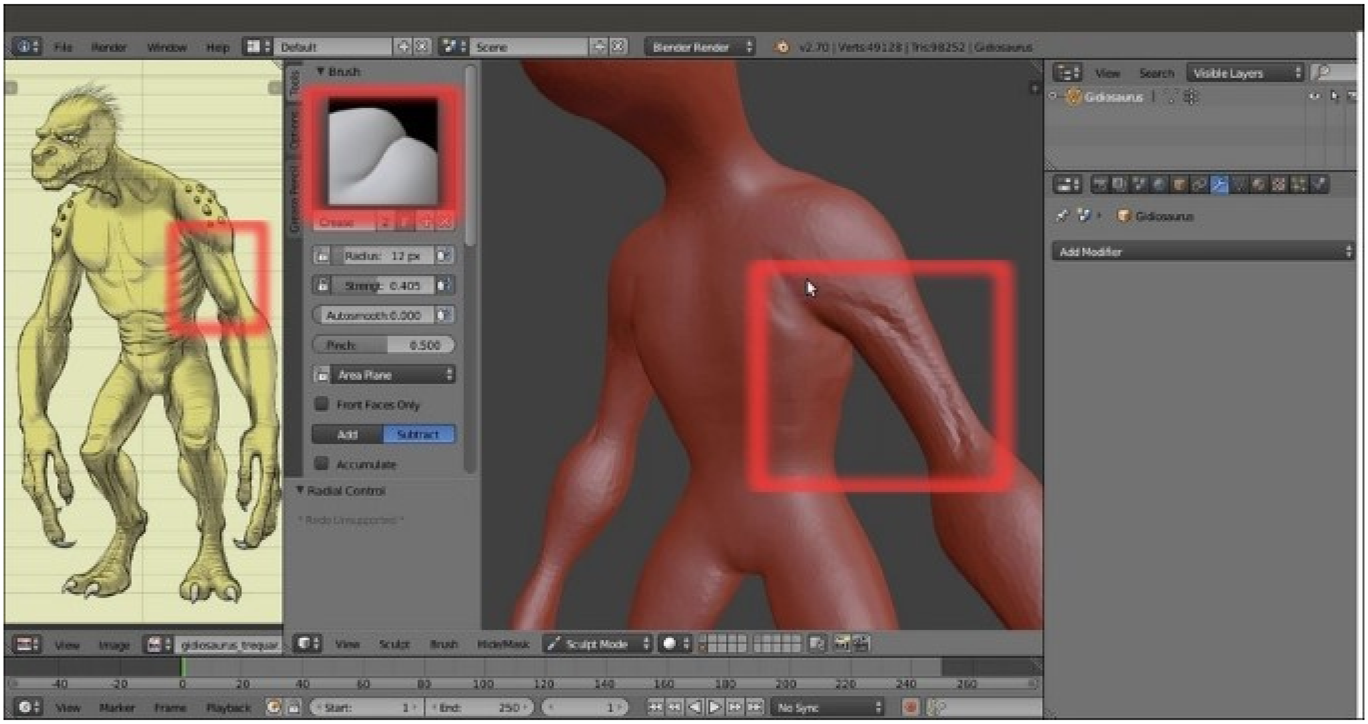
Using the Grab brush to modify the mesh

7. Do the same for the other parts of the mesh that don't fit yet, and do it also in **Front** view (*1* key in the numpad) and **Back** view (*Shift* + *1* in the numpad).
8. Select the **Scrape/Peaks** brush again (*Shift* + *3* keys) and keep on softening the mesh until almost every part gets rounded and more organic-looking; you can also use the **Smooth** (*S* key) brush to further soften the mesh:



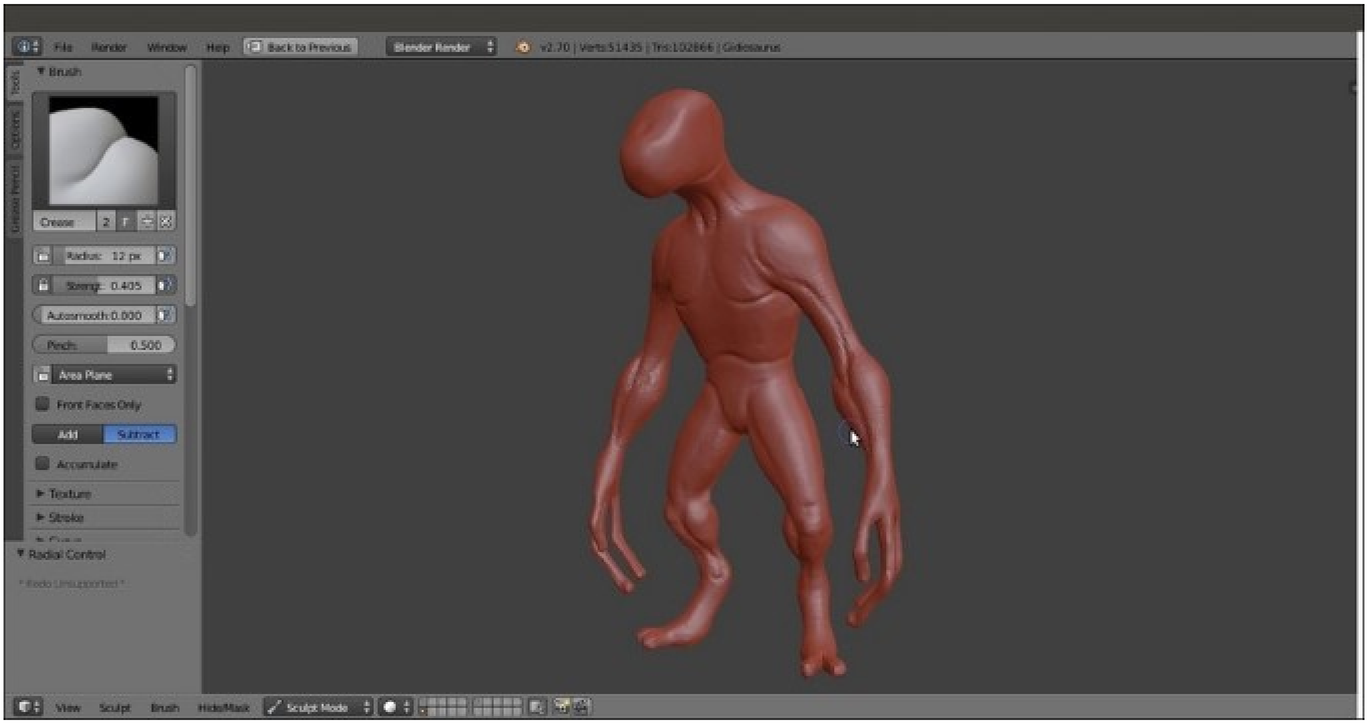
The character is starting to take a shape

9. Open a new window, switch **Editor Type** to **UV/Image Editor** and click on the **Open** button in the toolbar; browse to the `templates` folder and select the `gidiosaurus_trequarters.png` image. Then, click on the little pin icon on the right-hand side of the image name on the window toolbar (*Display current image regardless of object selection*).
10. Select the **Crease** brush (*4* key); using it as a chisel and following the loaded image as a reference, start to outline the character's more important features on the mesh, *drawing* the character's anatomy:



Using the Crease brush as a chisel

11. By pressing *Ctrl* while sculpting, we can temporarily reverse the effect of the brush; so, for example, the **Crease** brush, which usually carves lines in the mesh, can sculpt ridges and spike protrusions. We can use this to add details to the **elbow bones** and **knees** on the fly.
12. By pressing the *Shift* key while sculpting instead, we can temporarily switch whatever brush we are using with the **Smooth** brush, in order to instantly soften any newly added detail or feature.

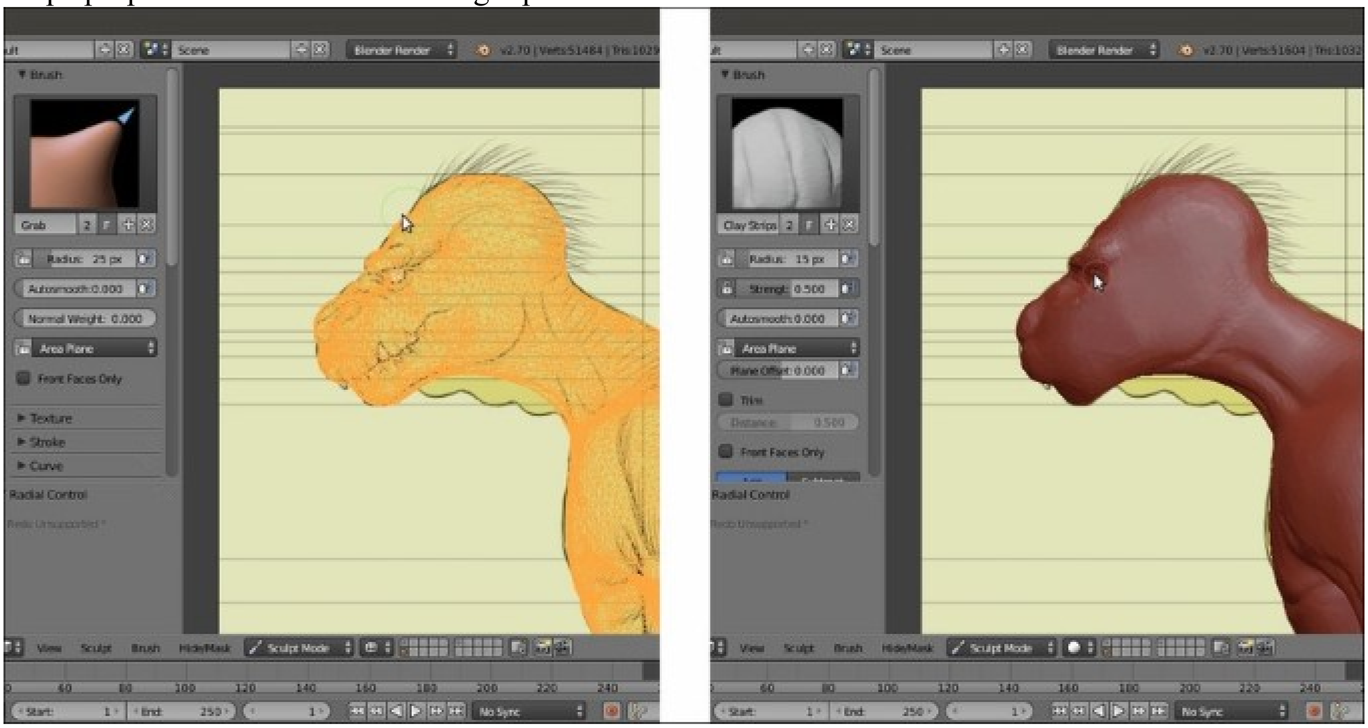


Outlining the major body features

13. When finished with the **body**, exchange the brush for the **Clay Strips** brush (*3* key), start to add stuff (the **nose**, **eyebrows**, and so on), and outline the features of the **head**. Again, press *Ctrl* to subtract clay (for the **eye sockets**, for instance) and *Shift* to soften.

Using the Clay Strips brush to add details and/or carve stuff

14. Always use the templates to check for the proportions and positions of the character's features. Also, use **Wireframe** mode if necessary, by going into **Ortho** view and comparing the sculpted mesh outline with the background template image; use the **Grab** brush to quickly move and shape proportionate features in the right places:

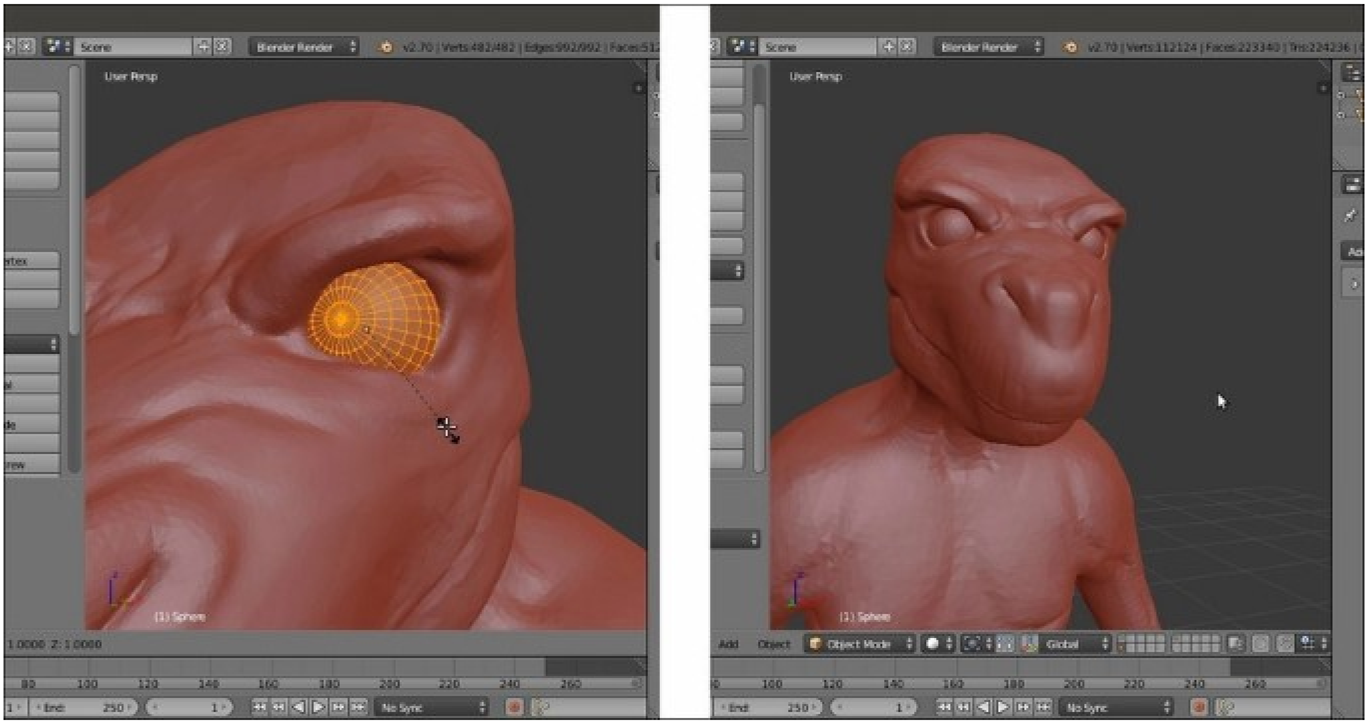


Temporarily switching to the Wireframe viewport shading mode to check the proportions in Side view

15. Using the **Clay Strips** (*3* key), **Smooth** (*S* key), **SculptDraw** (*Shift* + *4* key), **Crease** (*4* key), and **Pinch** (*Shift* + *2* key) brushes, build the **head** of the creature and define as many details as possible such as the **eyebrows**, **mouth rim**, **nostrils**, and **eye sockets**; experiment with all the different brushes:

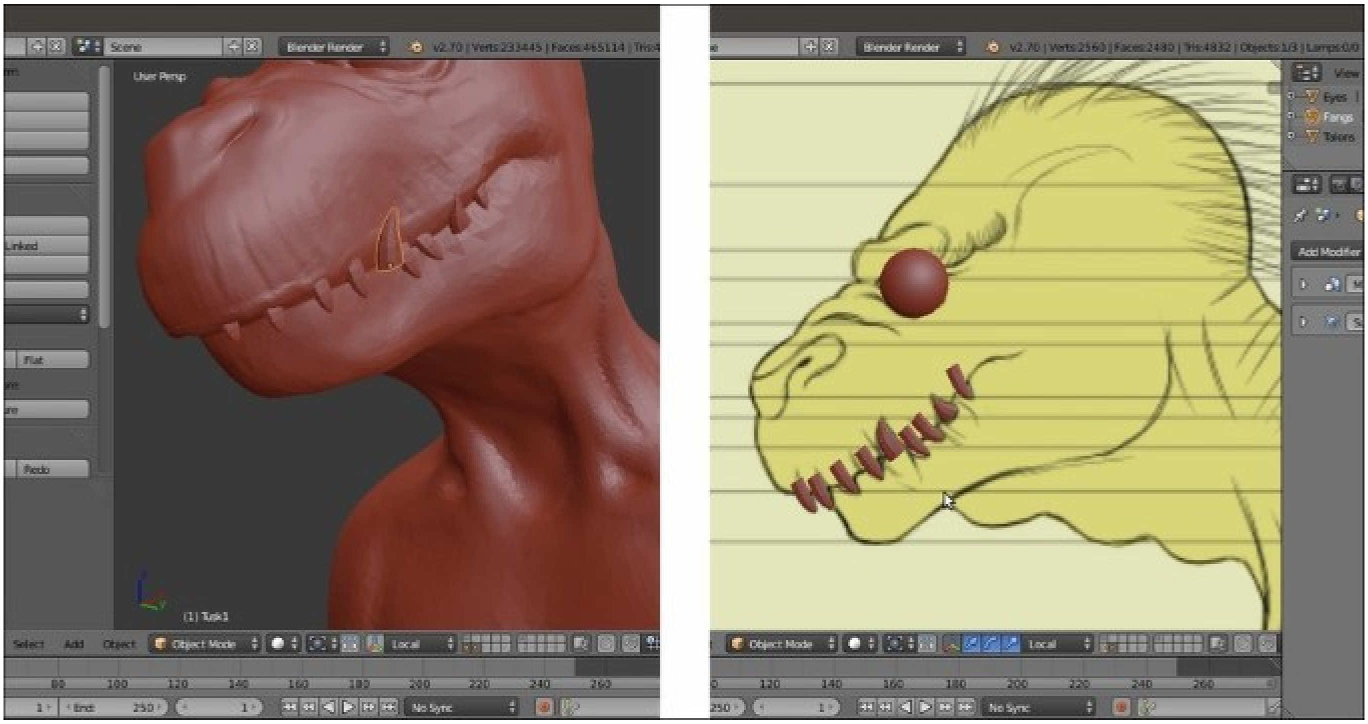
Detailing the head

16. Go out of **Sculpt Mode** and press *N* to make the **Properties** 3D window sidepanel appear; uncheck the **Only Render** item under the **Display** subpanel.
17. Press *Shift* + *A* and add a **UV Sphere** to the scene. Go into **Edit Mode**, if you haven't done so already, select all the vertices and rotate them **90** degrees on the *x* axis; then, scale them to **0.1000**. Finally, scale them again to **0.3600**.
18. Exit **Edit Mode** and move the **UV Sphere** to fit inside the **left eye socket** location.
19. Select the character's mesh and press *Shift* + *S*; then, in the **Snap** pop-up menu, choose **Cursor to Selected**. Select the **UV Sphere** and go to the **Tools** tab under the **Tool Shelf**; click on the **Set Origin** button and choose **Origin to 3D Cursor**. This way we have set the origin of the **UV Sphere** object at the same place as the character's mesh, while the **UV Sphere** mesh itself is located inside the **left eye socket**.
20. Go to the **Object Modifiers** window under the main **Properties** panel and assign a **Mirror** modifier to it.
21. Go to the **Outliner**, press *Ctrl* + left-click on the **UV Sphere** item, and rename it **Eyes**:



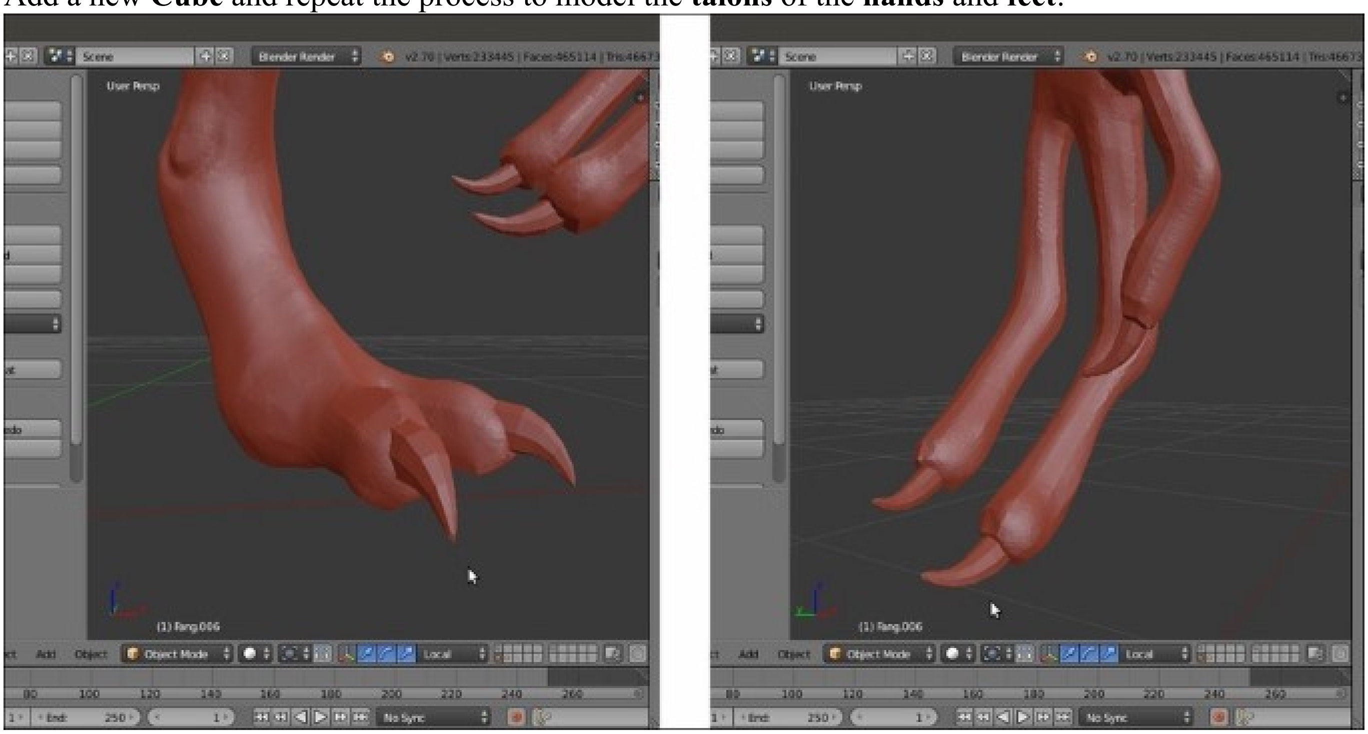
Positioning the eye spheres

22. Press *Shift* + *A* and add a **Cube** primitive. Go into **Edit Mode** and scale it a lot smaller; use the side template as a reference to modify by scaling, extruding, and tweaking the scaled **Cube's** vertices in order to build a low resolution **fang**. Go out of **Edit Mode** and go to the **Object Modifiers** window to assign a **Subdivision Surface** modifier.
23. Duplicate the **fang** and, as always, following the side and front templates as a guide, build all the necessary **teeth** for the **Gidiosaurus**.
24. Select all of them and press *Ctrl* + *J* to join them into one single object; press *Ctrl* + *A* to apply **Rotation & Scale**; then, do the same as in steps 19 and 20.
25. Go to the **Outliner** and rename the new object **Fangs**.



Making the teeth

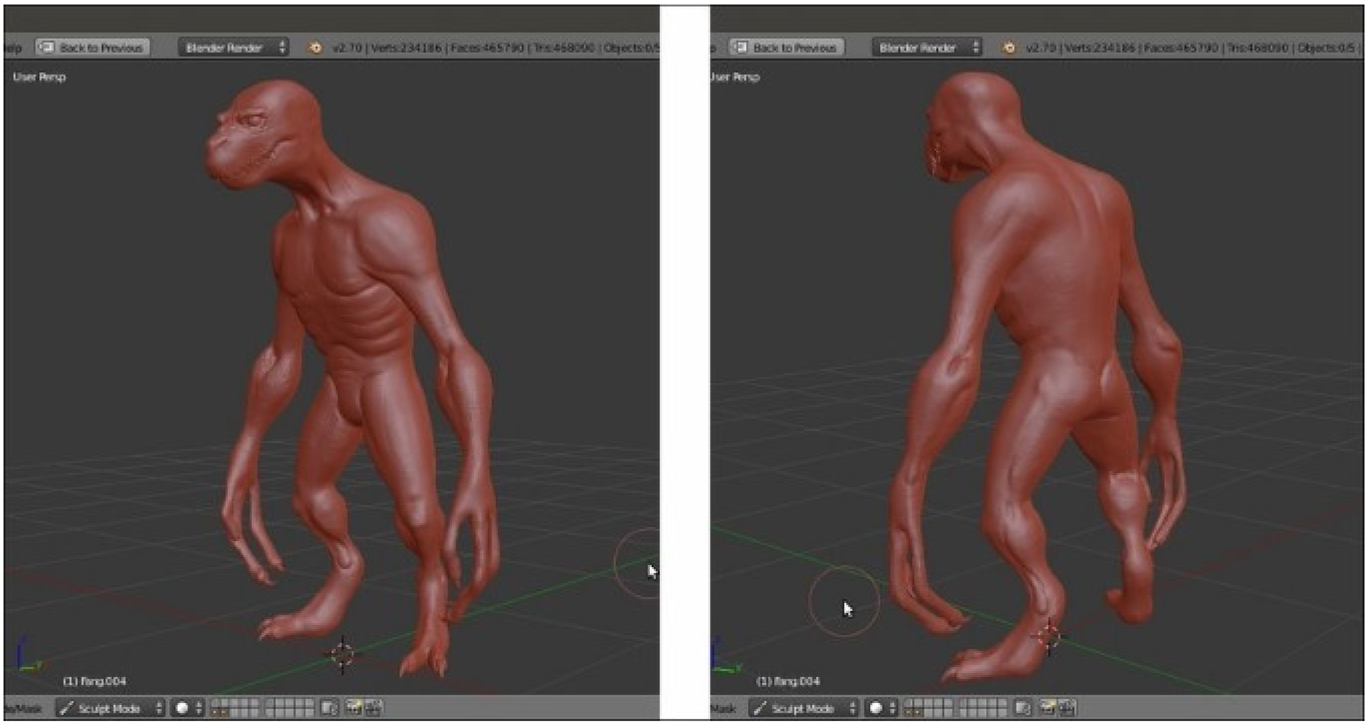
26. Add a new **Cube** and repeat the process to model the **talons** of the **hands** and **feet**:



Making the talons

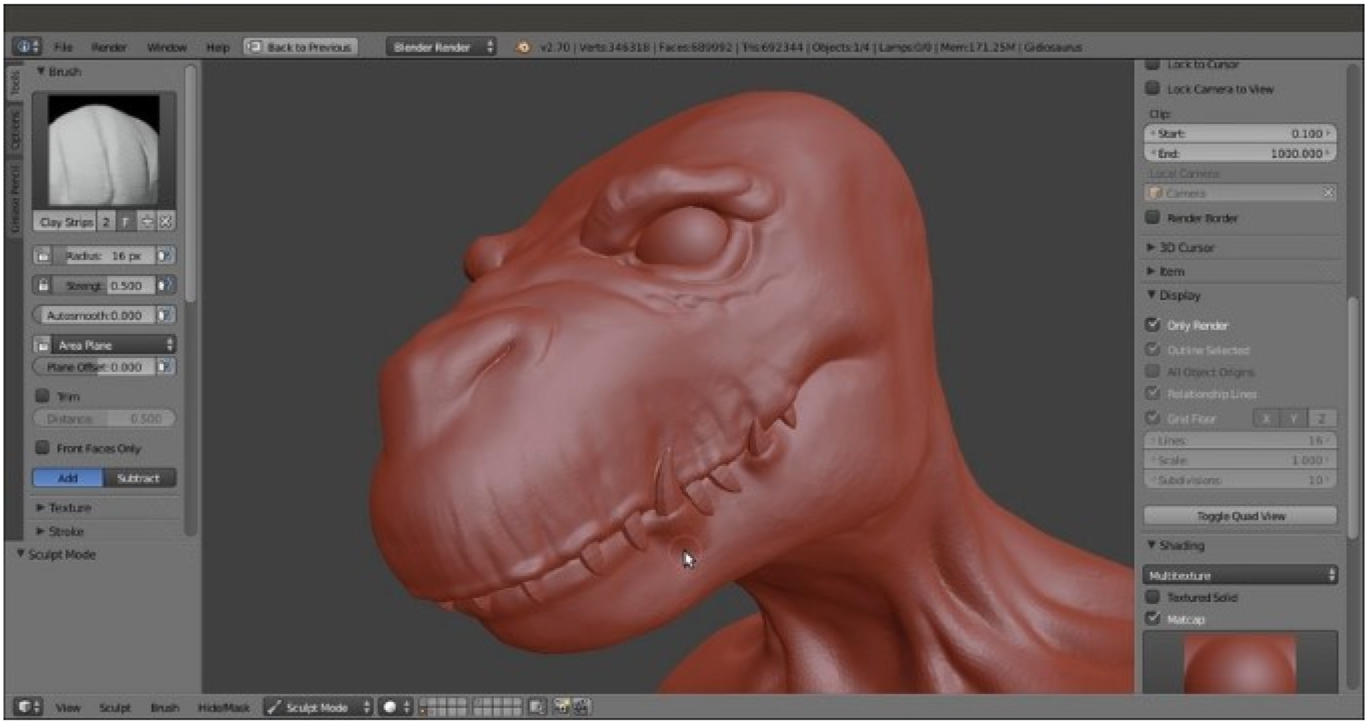
Note that the **Eyes**, **Fangs**, and **Talons** objects are not going to be sculpted, and therefore they are kept as separate objects. Later, we'll start to retopologize the sculpted body of the creature, while the **eyes** will be modeled and detailed in the traditional polygonal way; **fangs** and **talons** are good enough as they are.

27. Reselect the **Gidiosaurus** object and go back into **Sculpt Mode** to keep on refining the creature's shape more and more; don't be afraid to exaggerate the features, we can always smooth them later.



The almost completed sculpted mesh

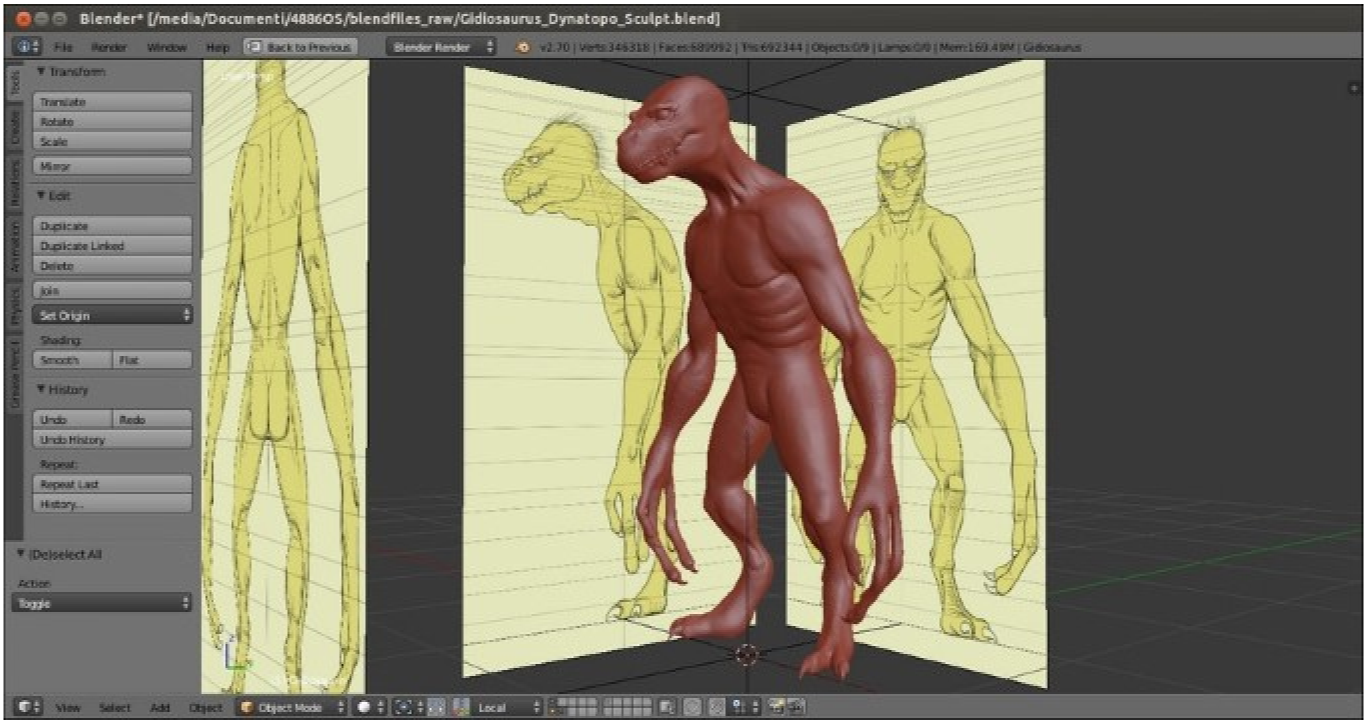
28. Adjust the shape of the **eyebrows** to perfectly fit the **Eyes** object; then, work more on the **mouth rim** to accommodate the **fangs**.



Refining the eyebrows and the mouth rim

29. When you think you have arrived at a good enough point, just go out of **Sculpt Mode** and *remember to save the file!*

Just a quick note: we don't actually need to go out of **Sculpt Mode** to save the file, it's possible to save it periodically (press *Ctrl* + *S* or *Ctrl* + *W* to save the file over itself, and *Ctrl* + *Shift* + *S* to *save as*) without needing to exit the sculpting session each time.



The completed sculpted mesh compared with the reference templates

So, here we are; the character's sculpting is basically done. We can work on it a lot more, tweaking the shapes further and adding details such as **scales**, **wrinkles**, and **veins**, but for this exercise's sake (and for this recipe), this is enough.

There's more…

A nice aspect of the **Dynamic topology** feature is the possibility to actually join different objects into a single mesh; for example, with our **Gidiosaurus**, we can join the **teeth** and the **talons** to the sculpted base mesh and then keep on sculpting the resulting object as a whole.

Actually, there are two ways to do this: simply by joining the objects and by the **Boolean** modifier.

To join the objects in the usual way, we can do the following:

1. Go out of **Sculpt Mode**.
2. Select the first object (that is, the **teeth**), press *Shift* + select the second object (the **talons**), and lastly press *Shift* + select the sculpted base mesh so that it's the active object (the final composited object will retain the active object's characteristics).
3. Press *Ctrl* + *J* and it is done!

This is the way you join objects in Blender in general, and it can actually work quite well. There is only one problem: there will always be a visible seam between the different objects, and although in the case of **teeth** or **talons** this will not be a problem, in other cases it should be avoided. Let's say you are working on a separated **head** and later you want to join it to a **body**; in this case, you don't want a visible seam between the **head** and **neck**, obviously!

So, the option is to use the **Boolean** modifier:

1. Go out of **Sculpt Mode**.
2. Select the character's base mesh and go to the **Object Modifiers** window under the main **Properties** panel; assign a **Boolean** modifier.
3. Click on the **Object** field of the modifier to select the object you want to join (let's say, the **Talons** object) and then click on the **Operation** button to the left to select **Union**.
4. Click on the **Apply** button to apply the modifier.
5. Hide, move onto a different layer, or delete the original object you joined (the **talons**).

Unlike the previous method, with Booleans, it will be possible to sculpt and smooth the joining of the different objects without leaving visible seams.

Chapter 3. Polygonal Modeling of the Character's Accessories

In this chapter, we will cover the following recipes:

- Preparing the scene for polygonal modeling
- Modeling the eye
- Modeling the armor plates
- Using the Mesh to Curve technique to add details

Introduction

In the previous two chapters, we did the following:

- Quickly modeled a simple base mesh, as close as possible to the shape of the reference templates
- Sculpted this base mesh, refining the shapes and adding details to some extent

We have also quickly modeled very simple teeth and talons, and placed bare UV Spheres as placeholders for the eyes.

It's now time to start some polygonal modeling to complete the eyes, but especially to build the armor that our character is wearing.