7. Check Socket Modification Workflow

7.1 BK Socket with Posterior Shelf and Puck Lock Attachment

1. Open digital scan file in the Raw Scans folder within your Cloud Account.

2. Perform a Plane Cut operation to remove any artifacts such as vacuum tube, scanning table surface, or any other items encountered when scanning a live limb.
3. Plane cut always bisects the model parallel to the print bed as indicated by the gray line at the bottom of the screen. Use the mouse cursor to specify plane cut height relative to the print bed. The plane cut tool always discards the minority part (smaller in mass) of the bisected model.

4. If a user receives an undesired result from plane cut operation, use the Ctrl-Z keyboard shortcut or History → Undo menu to restore the positive model to its pre-plane cut state. Multiple plane cuts may be required, especially when operating on a scan of a live limb with multiple artifacts.

5. Orient the model using the Move tool so that the distal end of the model is at the bottom and the anterior edge is facing the user. The posterior edge should be facing away from the user.

![Figure 68: Orient Model](image)
6. The distal end should be positioned closest to the print bed and the proximal end away from the print bed. Medial and lateral edges should be perpendicular to the print bed.

7. Using the measurement tool, verify circumferences with measurements of patient’s limb at the key landmarks. This will ensure that the scale is correct.

8. Click the **Camera → Reset** button to fix the default model orientation. Once the default model orientation is set, the other camera buttons will allow easy and rapid perspective navigation by using the Camera buttons to toggle between:

   - **Anterior (F):** Anterior/Posterior
   - **Medial (L):** Medial/Lateral
   - **Top (T):** Proximal/Distal
   - **[Optional] Add Brim:** AK/BK, Left/Right

![Figure 69: Add Brim Example](image)

For this example, the patient is a BK left and the posterior shelf will be selected.
9. Position the brim relative to the positive model using the Move Tool.

10. Check the position of the shelf from multiple perspectives using the Camera feature.
Figure 72: Medial Example

Figure 73: Lateral Example
Figure 74: Proximal Example

Figure 75: Distal Example
11. Use the Stretch tool to resize the brim for the desired fit prior to merging. The **Merge All** feature fixes the position of the brim relative to the positive model.

12. After merging the brim, use the Remesh tool to remesh the merged model to a resolution of 200. This will simplify the process of blending the merged positive model with the brim.

13. Blend the brim with the positive model merge point.

14. Blend brim using a combination of the following tools:

   - **Flatten tool**
   - **Carve/Build tool**
   - **Inflate tool**
   - **Smooth tool**
   - **Remesh tool**
15. Perform any model modifications (optional).

**Figure 77: Build Up on Tibia**

**Figure 78: Carve Relief Points on Posterior**
Figure 79: Carve Out Around Patella Tendon

Figure 80: Smooth Transition Points
16. Verify measurements for circumference and height.

Figure 81: Verify Measurements (Circumference)

Figure 82: Verify Measurements (Height)
17. Save the model to your Cloud Account prior to adding the distal attachment. This will save time in the event you need to update the design or change distal attachments.

18. Add the desired distal attachment.

![Figure 83: Add Attachments Example](image)

19. RAPID PLASTER® will import the selected object and center it flat on the print bed.

20. Fix the alignment by orienting the positive model relative to the distal attachment. Check the alignment of the distal attachment from multiple perspectives using the Camera feature.
21. Since the distal attachment placement now defines the print bed center, move the model and orient it relative to the distal attachment.

22. Once satisfied with the alignment, use the **Merge All** function to fix the position of the model and distal attachment. Save the model prior to slicing. This will enable you to easily modify later or re-slice using another relevant slicing profile. Currently, only the Puck Lock attachment has multiple slicing profiles.

23. Slice the model using a relevant slicing profile that factors in printer model, material, and attachment type.
24. Once the model is uploaded and successfully sliced, the following confirmation should appear.

Figure 84: Slice Model Example

Figure 85: Preview G-code
25. Click the **Preview G-code** button to preview the resulting G-code with the G-code Viewer prior to downloading. This can identify issues prior to printing, saving time and filament.

![GCode Viewer](image)

**Figure 86: Preview G-code Viewer**

The G-code should have the device to be printed centered on the print bed and ready for printing. If preview looks good, the printer-ready G-code file can be downloaded by clicking **Download**.

![Download GCode](image)

**Figure 87: Download G-code**
The compressed G-code will be downloaded to the selected device’s default download folder.

26. Unzip the G-code file using the free Windows 10 zip extractor (or any file compression utility that can unzip a compressed file) so that the G-code file is ready to be copied to an SD card.

27. Copy the G-code file from the unzipped directory to the SD card. Insert the SD card into the printer for printing. Alternatively, files can be sent to the printer wirelessly via the Emergence PRO™ Web interface (Emergence PRO™ only).