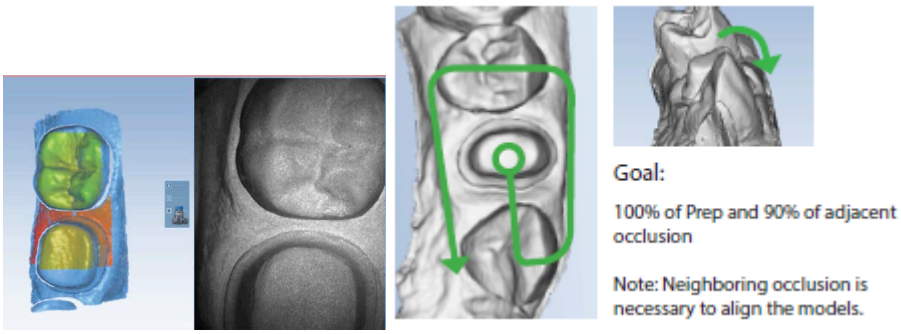
Scanning procedure:

1. Connect the thunderbolt adaptor to the laptop
2. Connect the scanning tip
3. Log in to aXium and select the patient in the rolodex.
4. Open **Romexis** by clicking once on the icon (icon is tooth on lower left of aXium home screen)
5. The patient's name should be listed in upper right box
6. Select **CAD/CAM** (tooth icon on upper left)
7. Select **New Scan and Design**
8. The **Setup** tab appears
9. Select the interested tooth by clicking on the anatomical model. If no teeth have been selected, the anatomical model is closed until the mouse cursor is near it.
10. Select choices for the Tooth Library, Material, and Shade.
11. Click the **Scan** tab.
12. Click **Prep** on the left side of the screen. (This should be automatically selected when enter Scan tab.)
13. For digital implant restorations only: Remove the healing abutment and insert the scan body into the implant.
14. The scanned area should be dry. Saliva and moisture control and tissue management are key points to succeed with the digital impression.
15. Hold the scanner close to the tip like a handpiece or a "pen grip." Rest the neck of the scanner on the adjacent teeth. The tip of the scanner should point towards the distal of the preparation and it should not be tilted when compared to the occlusal plane.
16. Press the button on the scanner to begin scanning. Following the scanning guidelines for direction of scan.
    a. Start the scan at **occlusal/incisal** position with the head of the scanner pointing to the distal of the preparation.
    b. Move in slow and steady motion toward the **MESIAL**, keeping the scanner parallel to the occlusal table.
    c. Rotate the scanner to the **RIGHT** (either facial or lingual) first and scan the complete surface.
    d. Transition to the opposite surface and scan the complete surface. ***Scanning pattern should be in the shape of a **lowercase "e."**



The system changes the Live View to orange if you have moved too far and the system needs data overlap.

The most recent scan added to the model displays with a color coding to indicate the focal distance of the data added.

- Green - close to the tip
- Yellow/Orange - middle of the range
- Red - end of the range (far away from tip)

Note: Any color shown means the scanner IS capturing data. The colors only correspond to the focal distance.

17. Click the button on the scanner to stop scanning.
18. A raw data model is displayed.
19. Click **Generate Model** or press M on the keyboard to create the 3D model. If you exit without generating the model, the scans will be lost.
20. Click **Data Density View** to evaluate the model for low data. Dark blue and purple areas indicate low data. Ensure there is no missing data on the preparation or critical areas of the adjacent teeth (e.g., interproximal contacts). Rescan the area if needed.
    Goals of the scan:
    a. 100% of the prep and interproximal contact areas
    b. 90% of the adjacent teeth
    c. Good axial data for design (buccal and lingual contours of adjacent teeth and occlusal morphology)
    d. 2-3 mm gingival tissue on buccal and lingual
21. Scan the opposing dentition
    a. Scan the occlusal and buccal surfaces of the teeth opposing the prepared tooth and its mesial and distal adjacent teeth.
    b. Starting with the distal tooth, scan the occlusal data.
    c. Transition to the buccal and scan the buccal side of the opposing dentition. Include 2-3 mm of gingival data.

    Goals of the scan:
    a. 100% of the occlusal and buccal surfaces
    b. 2-3 mm gingival tissue on the buccal surface
    c. Lingual wall data is not necessary except areas to capture occlusal contacts

22. Scan buccal bite
    a. Click Scan Buccal.
    b. Ask patient to bite down and stay closed. Verify that his/her bite is stable and accurate. If it shifts during the scanning, the alignment may be incorrect.
    c. Scan the buccal surfaces of the teeth that were captured in the preparation and opposing models. Ensure some gingival data is captured. Start scanning on the most distal maxillary tooth from the gingival aspect. Continue to the mandibular tooth following a “zig zag” or “snaking” pattern.

    Goals of the scan:
    a. Capture the buccal surface of the dentition in the prep and opposing 2-3 mm gingival data.
    b. No rotations necessary to capture occlusal and lingual surfaces.

23. After scanning the preparation, opposing dentition, and the buccal bite, erase any unnecessary data such as tongue, cheek, and cotton rolls and click “Generate Model” or press M on the keyboard to finish building the virtual model. Evaluate the data collected. If there is missing data (blue marks), these areas should be rescanned.
24. If the area is scanned more than 3 times to get necessary data, delete the scan and start again.
25. Verify the buccal alignment. A green dot in the Buccal icon indicates a successful alignment
26. Return to the Patient’s screen by clicking the CAD/CAM icon (tooth on upper left part of screen). This saves your scanning data.
27. Close the patient in Romexis before exiting Romexis (Icon in upper right part of screen)
28. Close Romexis
29. Close axiUm
30. Notify the Digital Design Technician (via axiUm message) to design the CAD/CAM restoration.
31. Once the design is complete, the Digital Design Technician will notify the student and faculty (via axiUm message)
32. The CDE or IIC faculty must approve the design prior to sending the design to the mill.
33. The Digital Design Technician will mill, crystallize, and characterize the restoration.
34. The student and faculty will receive notification through axiUm that the restoration is complete and ready to be delivered.