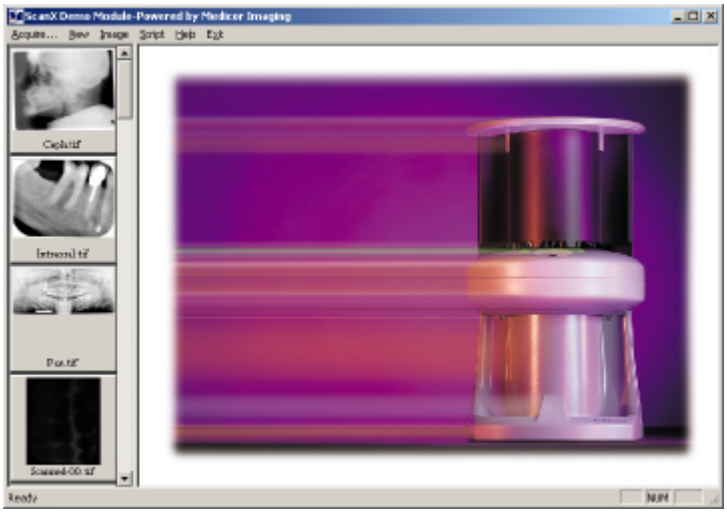
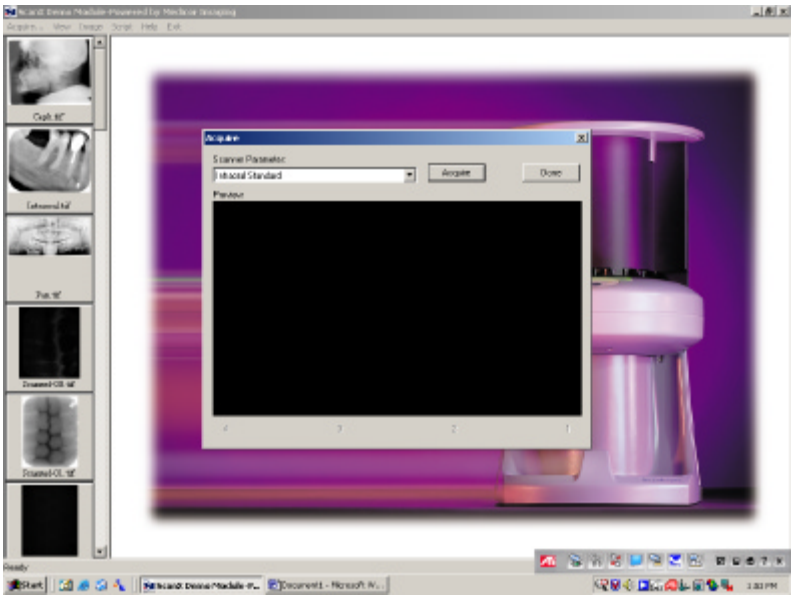
ScanX Demonstration Program
Users Guide

Acquiring Images

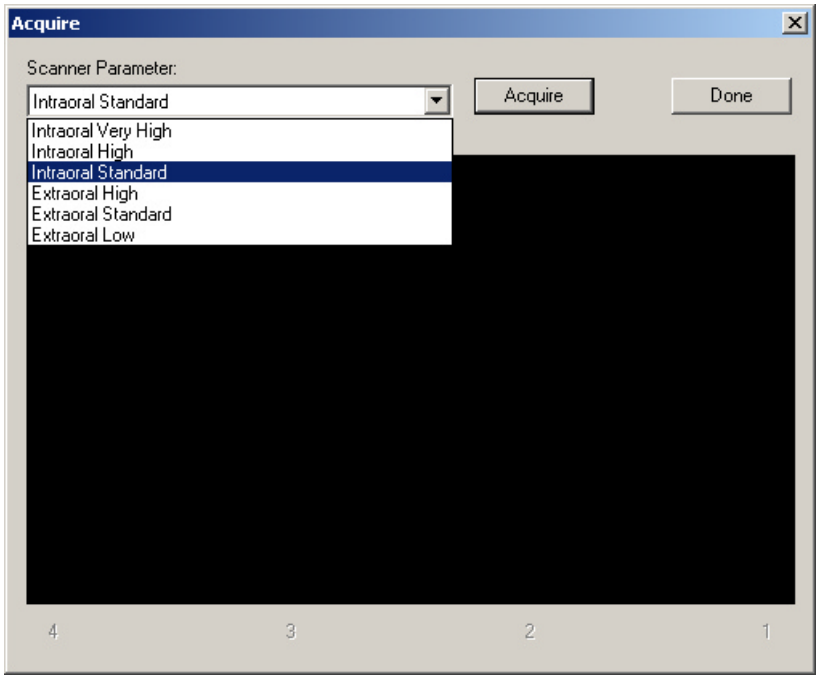
1. Select the **Air Tech Scan Demo** icon; this will launch the Lead Tools Scan Demo program.
   a. You should see 3 images on the left hand side.
      i. 1 Ceph
      ii. 1 Intraoral
      iii. 1 Pan
   b. You may see additional images or solid black images if Lead Tools has been used on this computer before.



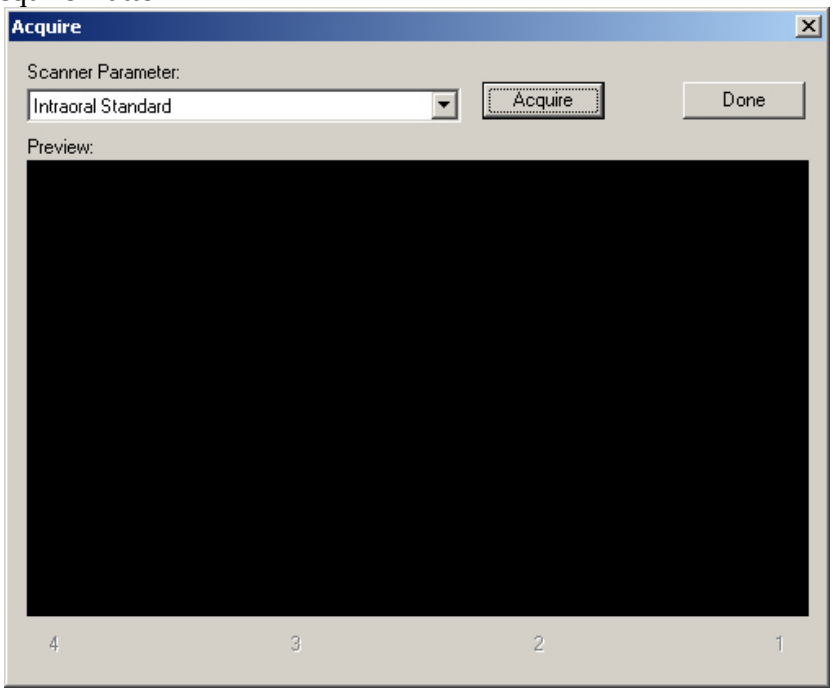
2. Select **Acquire** from the upper left tool bar.
3. The Acquire menu will appear.



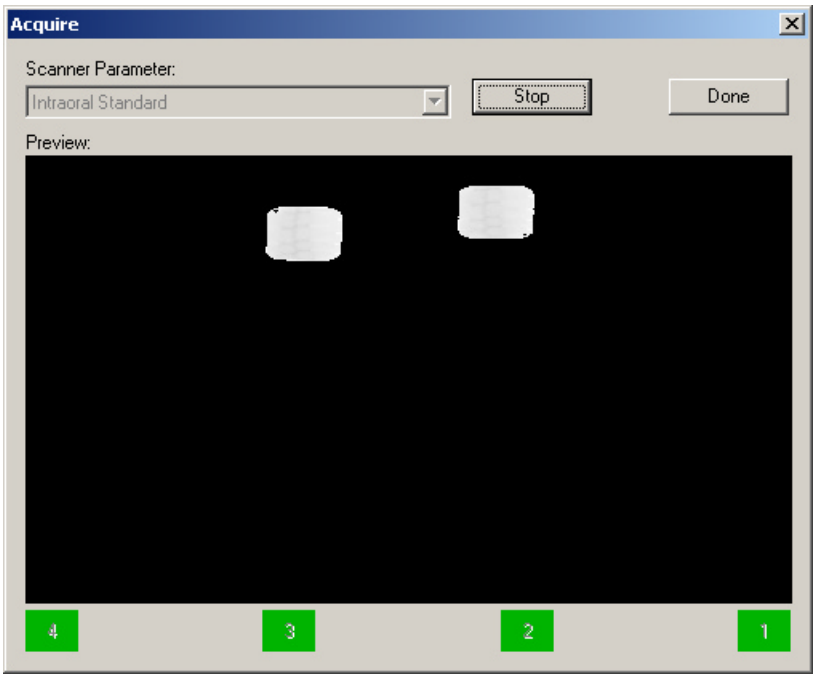
4. Select the appropriate Scanner Parameters for the plate to be scanned from the acquire menu. (See Below)



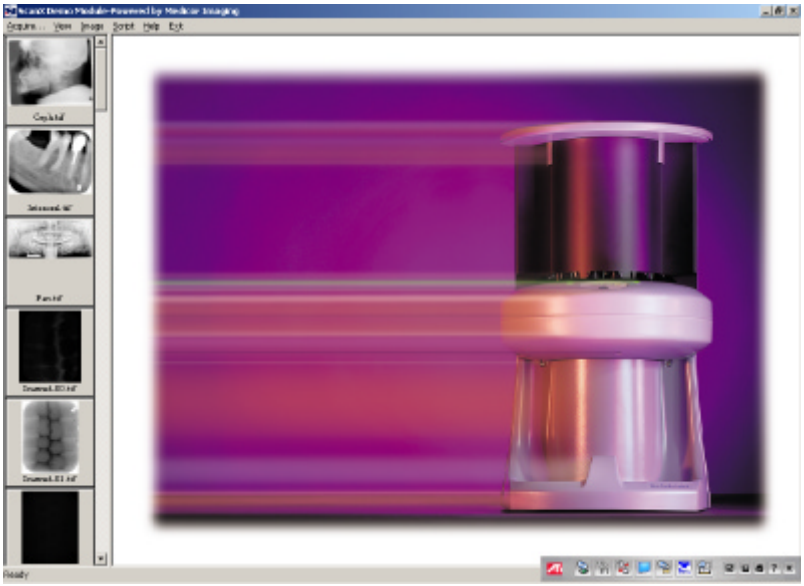
5. Select the Acquire Button



6. The lights will turn Green at the bottom of the Acquire Menu.
7. Scan through your Plates
   a. Note: The software will only hold 10 additional images besides the 3 already in the system.
8. Once the plates are scanned through select the stop button.

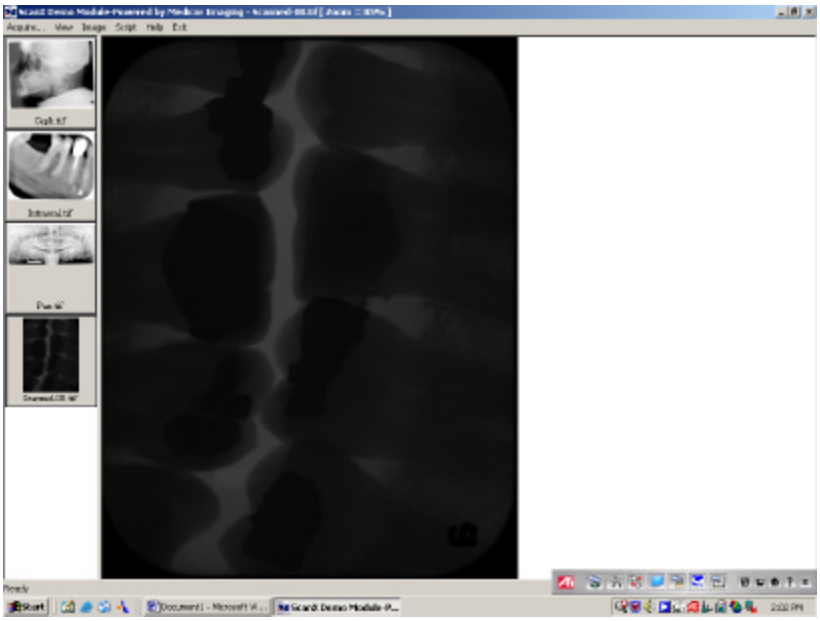


9. Once you have selected the stop button you will notice your images on the left.
   a. Depending on your exposure settings the images may come in all Black
10. Images will be numbered Scanned-00 to Scanned-09.
    a. Once you scan the 11th image it will replace image # Scanned-00 and the 12th, 13th and etc.

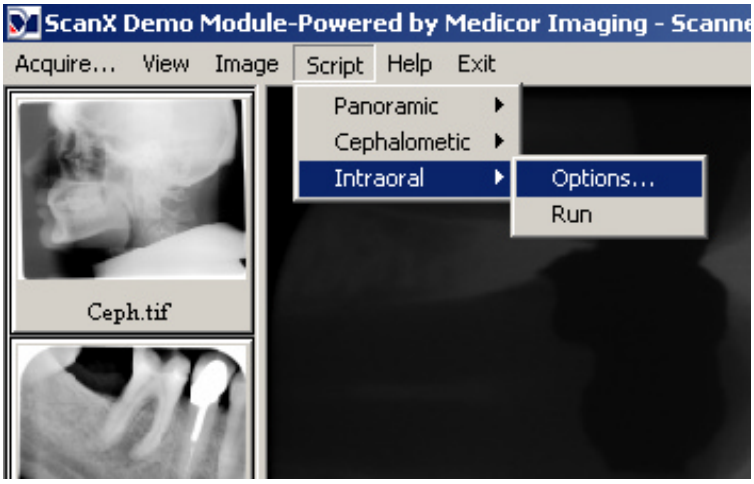


Applying Filters

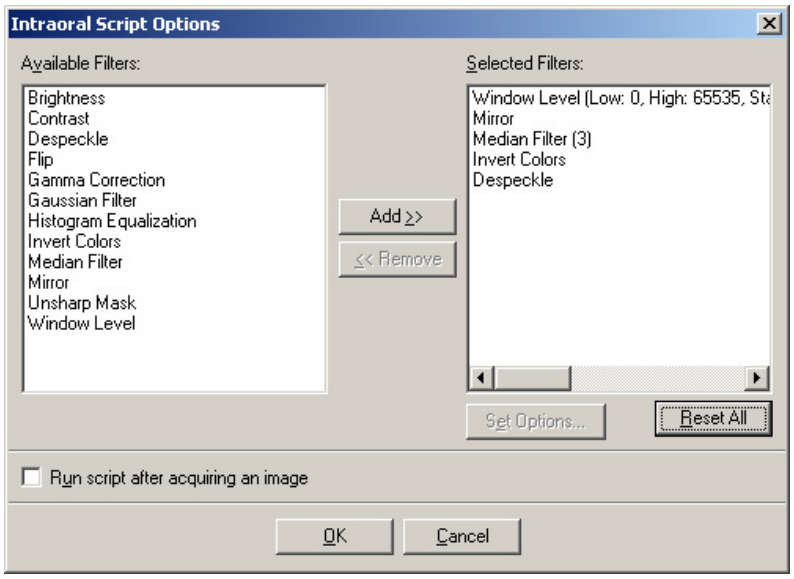
11. Select your test image from the left side.



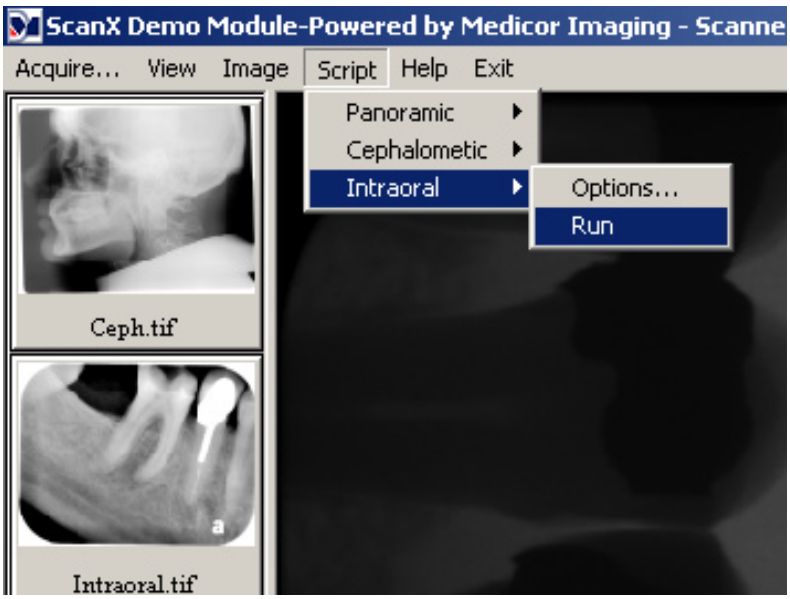
12. Got to **Script=> Intraoral=> Options** to change your filters options.
    a. Note: Select the appropriate option depending on image (Ex. For Pans select Panoramic)



13. Under the script options the available filters are on the Left. The filters being applied to the image are on the right.
14. To use Air Techniques recommended default filters select **Reset All** below the selected filters window.
    a. This default setting is designed to get you close to the image you desire.
    b. From the default settings you can add or remove filters based on the desired changes you wish to make to the images.



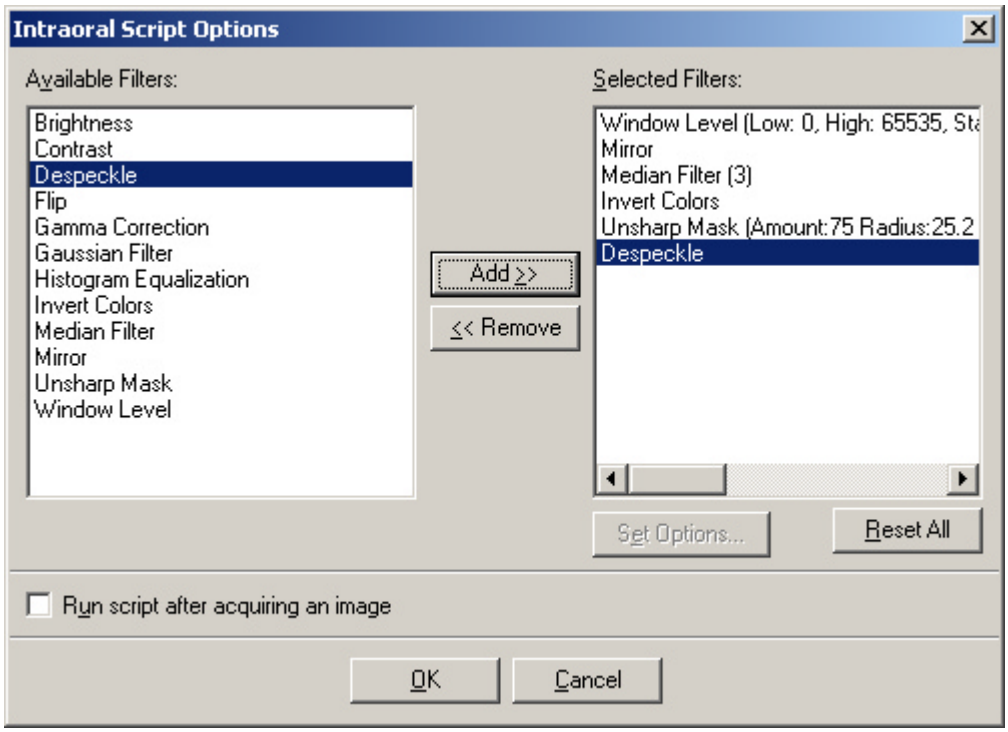
15. To apply filters to the image Select **Script=>Intraoral=>Run**
    a. This will run your preset script against the raw data of the scanned image.
        i. Note: Be sure to select the appropriate script for the image you scanned in; e.g., for pans select Panoramic instead of Intraoral



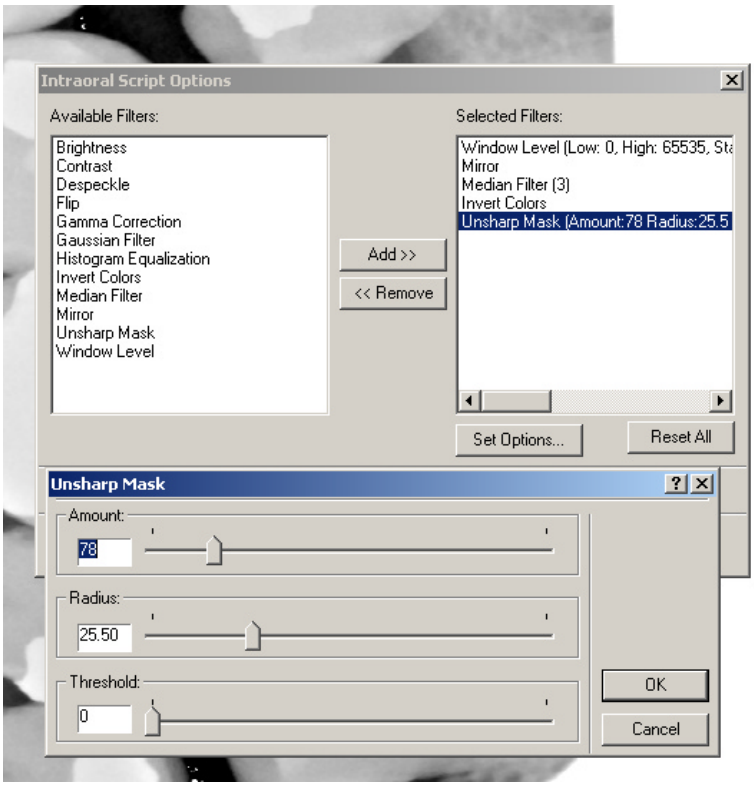
16. If the Dr. would like to see different characteristics in the images you can add or remove filters to obtain the desired effect.

Adding & Removing Filters

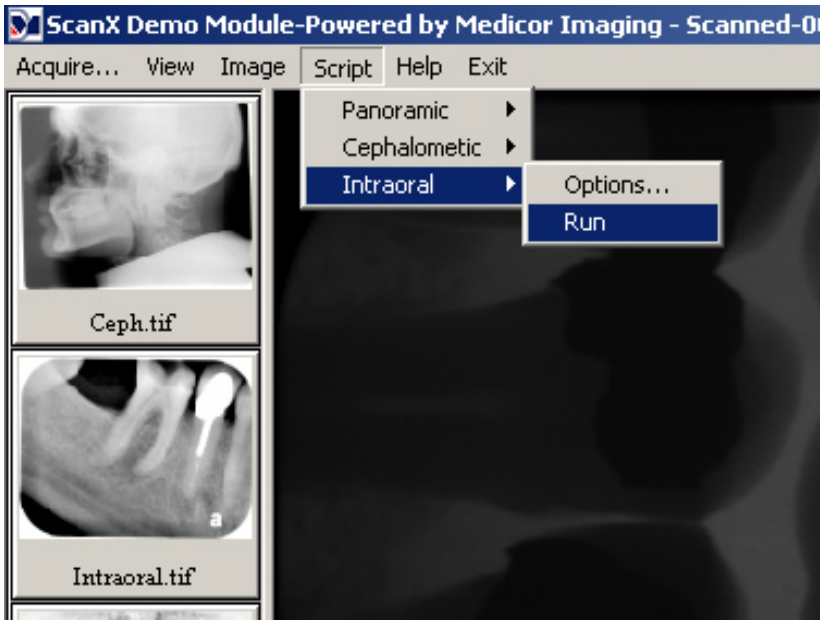
17. To add a filter to the selected filters highlight the filter on the left and select add.
    a. The filter will be added to the bottom of the script and will be applied in the order from top to bottom.
18. To remove a filter, select the filter from the selected filters on the left and select the remove button.
    a. The filter will no longer be applied to the image when the script is run.
19. A complete description of the filters is located at the end of this document.



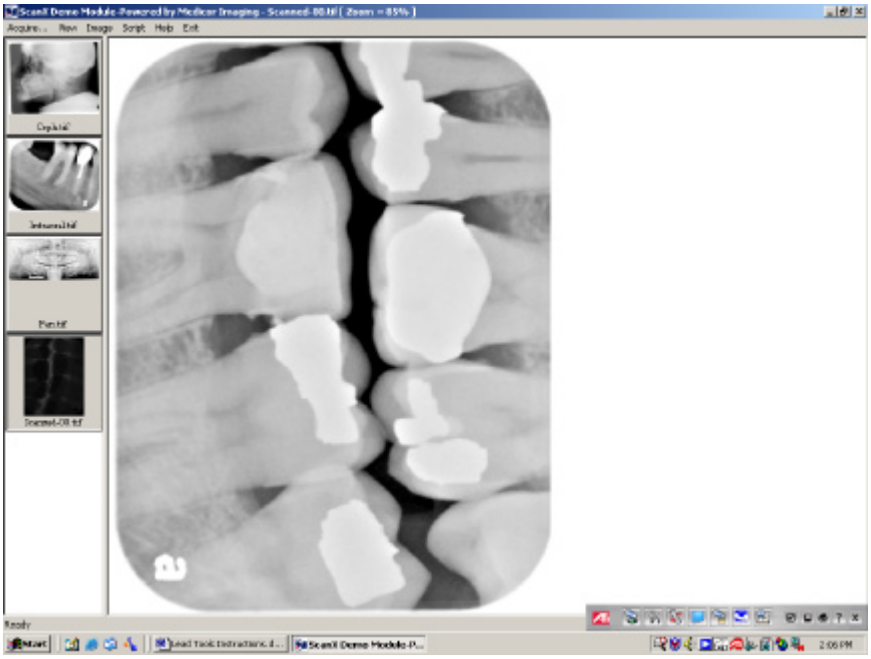
20. Some filters have additional settings. To get to these settings:
    a. Highlight the filter from the selected filters on the left.
        i. If the Set options button below the filters is active then there are additional settings for that filter.
    b. Select the Set Options button.
        i. This will open a new menu for the settings of that filter.
        ii. Adjust accordingly



21. To apply filters to the image Select **Script=>Intraoral=>Run**
    a. This will run your preset script against the raw data of the scanned image.
        i. Note: Be sure to select the appropriate script for the image you scanned in; e.g., for pans select Panoramic instead of Intraoral

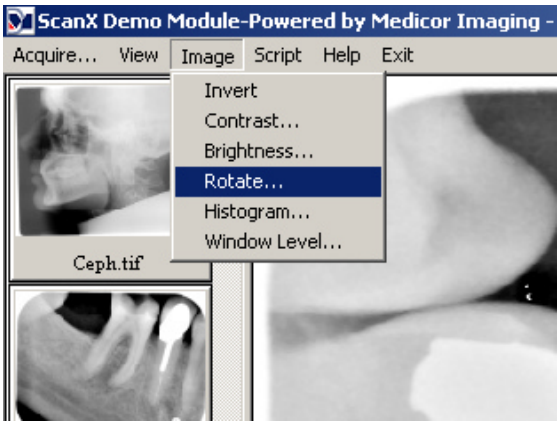


22. After the Script is ran you will see the results on the screen (As seen below).

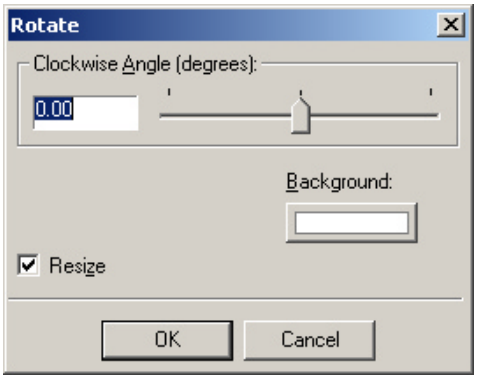


Rotating Images

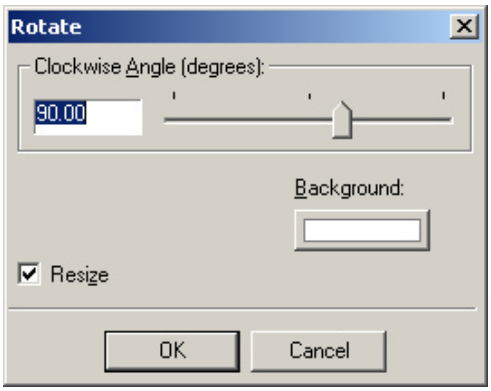
23. To rotate the image go to **Image=> Rotate**



24. The rotate image menu will open

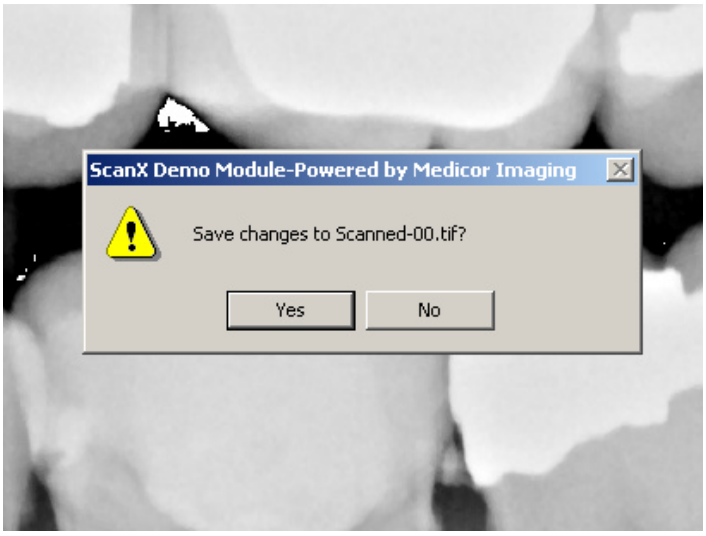


25. Select the desired Rotation angle in degrees.
    a. You can Highlight the degrees and type them in using the number keys
        i. To rotate clockwise use positive degrees
        ii. To rotate counter clockwise use negative degrees
    b. Make sure the Resize button is checked

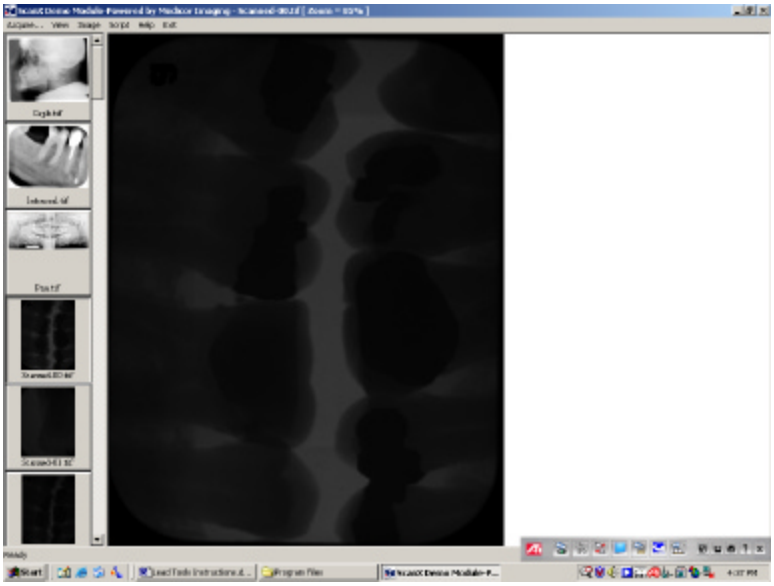


26. Select **OK** and your image will be rotated

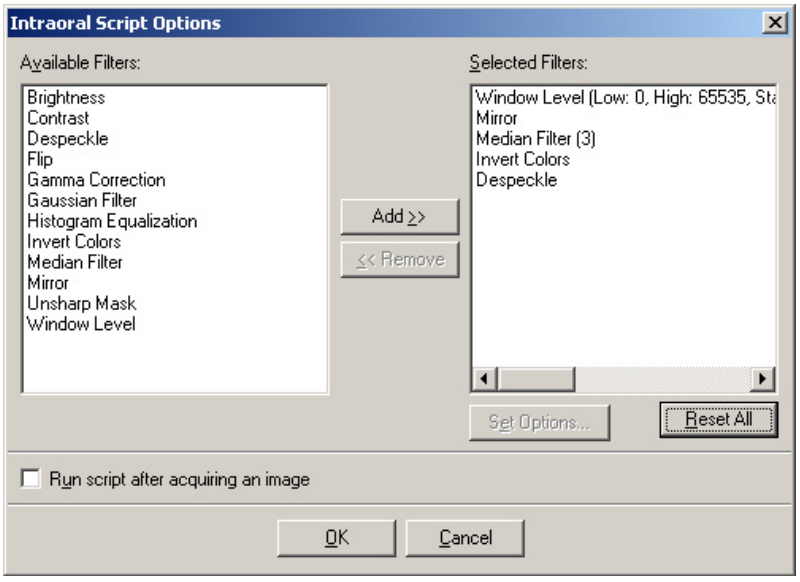
27. To apply additional filters to the image.
    a. Re-select the image from the left
    b. You will be asked if you want to save your changes Select **NO**
        i. Saving your changes will overwrite the raw data and require you to rescan an image to get back to the raw data.
        ii. The advantage to using the raw data is you can take a single image and keep applying scripts to the image until you find the correct combination for the Dr. This will keep you from having to expose and scan multiple plates.



28. Once you have returned to the raw data (As seen below) You can make additional changes to the script and apply them
    a. To make changes to he Script (Filters) go back to step 12



29. Apply the new script to the raw data and you will get different results (As seen below)
    a. Continue to do this until you have obtained the optimal image quality you desire.
    b. **Note:** Should you get lost at anytime you can select the **Reset All** button under the selected filters and return to the Air Techniques original settings. (See Below)



Filter Descriptions

Brightness:
Use the Brightness dialog to increase or decrease the brightness of all pixels in the image.

Contrast:
Use the Contrast dialog to increase the contrast in the image by making bright pixels brighter, and dark pixels darker.

Despeckle:
Detects the edges in an image (areas where significant color changes occur) and blurs all of the selection except those edges. This blurring removes noise while preserving detail.It does that by removing 1-pixel dots from the image. Typically, this method is used to clean up scanned images (such as FAX images).Despeckle can shrink speckles which are larger than 1 pixel. Larger speckles can sometimes be completely removed by running the filter more than once.

Flip:
Reverses the top and bottom of an image. The resulting image is a "mirror image" of the original. Text on the image becomes "Upside-down".

Gamma Correction:
Use the Gamma Correction dialog to change the brightness of image pixels, primarily in the mid-range of intensities. Black and white pixels remain unchanged, while pixels that originally have a mid-range brightness value will be changed the most. Higher gamma values make the image appear brighter and lower gamma values make the image appear darker.
The gamma correction has three components, the red, green, and blue components of the image. You can adjust the color balance of an image by adjusting the red, green and blue components separately. For example, if an image has a red cast to it, decrease the Red component to darken the image slightly, or increase both the Blue and Green components to brighten the image slightly.

Gaussian Filter:
Use the Gaussian Filter dialog to smooth or blur the active image by applying a Gaussian filter. Each pixel in the image is blurred based on neighborhood pixels.

Histogram Equalization:
Linearizes the number of pixels in the bitmap, based on the specified color space. This can be used to bring out the detail in dark areas of an image. Previously, this method only equalized the number of pixels per gray level, using a gray level representation of the image. This method is now obtained by passing GRAY_SPACE for iFlags.

Invert Colors:
Inverts the colors of an image, creating a negative of that image.

Median Filter:
Use the Median Filter to remove or minimize noise, where noise is any random discrepancy in an image. This is done by replacing an individual pixel's intensity with the median intensity of its neighboring pixels. This is similar to the process carried out by the Average Dialog, but the Median process is used for noise reduction, rather than blur effect.

Mirror:
Reverses the left and right sides of an image. The resulting image is a "mirror image" of the original, Text on the image becomes "Backward".

Unsharp Mask:
Use the Unsharp Mask dialog to sharpen the active image.

Window Level:
Detect and set LowBit and HighBit for image data, display images with automatic LUT(look up table) intensity expansion, or set LUT entries and ranges with specific values and gradients. Display images through the LUT without changing the data, or process the image data using the LUT.