Nikon Capture NX "How To..." Series

Article 18: How to reduce the effects of Chromatic Aberration.

Purpose: The "Color Aberration Tool" in Capture NX may be used to reduce or eliminate the effects of 'color fringing' caused by lateral chromatic aberration.

Before: Cyan and Red fringes are visible in the boundaries of this image.

After: Color Aberration Control reduces color fringing in the images so that it is no longer noticeable.

The "Before and After" images have been enlarged to make the effects of lateral chromatic aberration more easily seen.

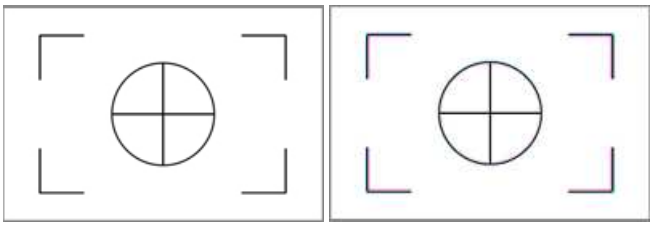
Process:

Step 1 - Enlarge image display so that lateral chromatic aberration is clearly visible.

Step 2 - Apply "Color Aberration Correction" adjustment and enhancement is complete.

Lateral chromatic aberration: Light wavelengths differ depending upon color. Differences in the length of the wavelengths result in changes in image magnification and become visible at image peripheries. This is known as "Lateral Chromatic Aberration" and is the cause of color fringing. Lateral chromatic aberration is reduced to some degree by combining different lens elements with different refractive indexes, but optically speaking, it cannot be completely eliminated. In addition to red and its complimentary color, cyan, and blue and its complimentary color, yellow, some lenses may exhibit complex color fringing that combines these two primary types.

The two images shown below show how chromatic aberration typically appears. The illustration on the left exhibits no chromatic aberration, while the image on the right shows what happens when chromatic aberration (red and cyan color fringing) occurs. When this occurs, color fringing becomes especially noticeable in areas of HIGH contrast. The "purple fringe appears where the black brackets meet the white background.

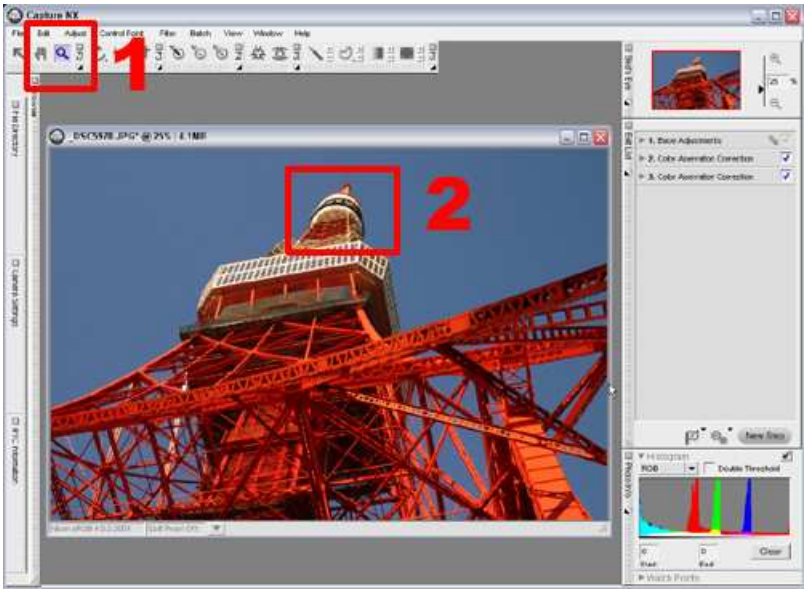


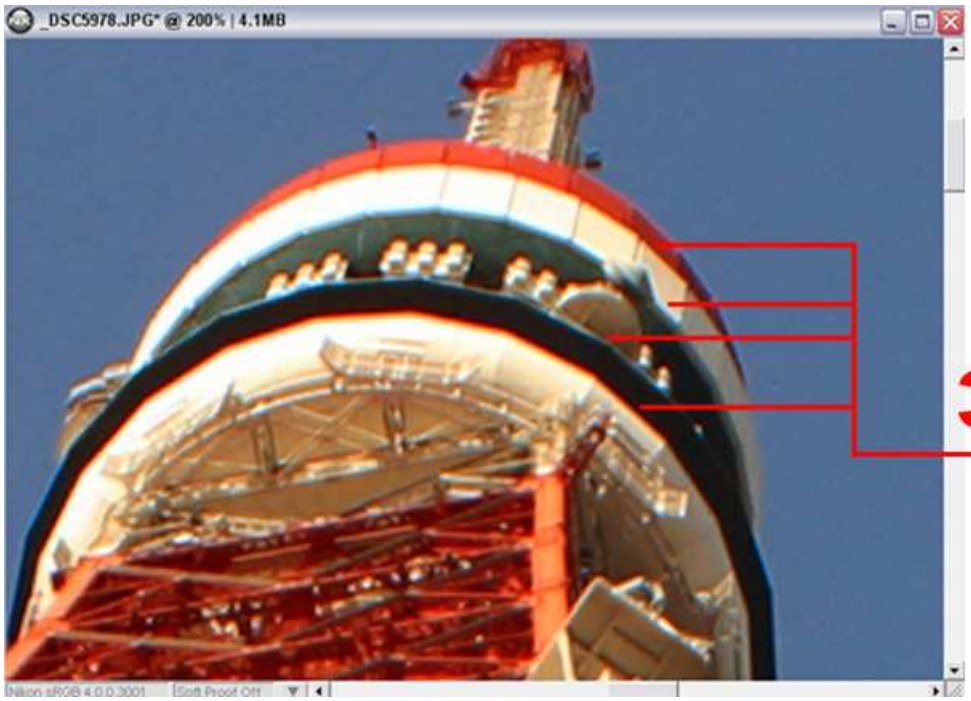
Step 1 - Enlarge image display so that lateral chromatic aberration is clearly visible.

1) Open an image and select the "Zoom" tool.

2) Click or drag the "Zoom" tool over the portion of the image exhibiting chromatic aberration.

3) Confirm chromatic aberration in the enlarged portion of the image. In the sample image, we see red and cyan color fringing.





Cyan and red fringes are visible in the boundaries of this image. This is known as Red and Cyan chromatic aberration.

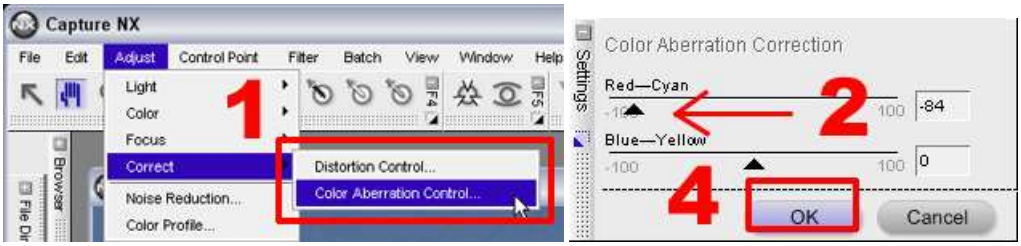
Step 2 - Apply "Color Aberration Correction" and enhancement is complete.

1) Select "Color Aberration Correction Control..." from the "Correct" submenu in the "Adjust" menu.

2) Correct color fringing by dragging the Red-Cyan slider in the "Color Aberration Correction" dialog to the left or right. Here we have moved the slider to the left (to a value of -84).

3) Chromatic aberration is corrected.

4) Click "OK".



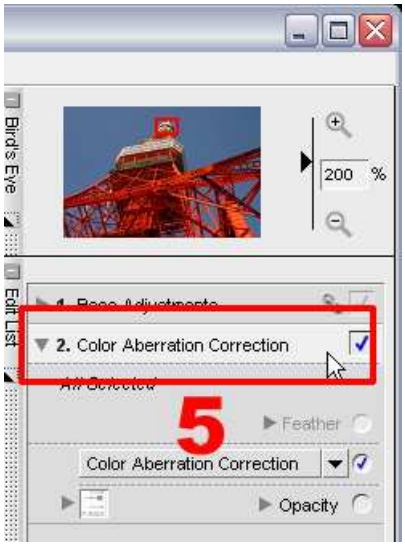
Color Aberration Correction slider operation:

The Red-Cyan slider adjusts the red channel in a color (RGB) image to correct red and/or cyan color fringing. Moving the slider to the left reduces red color fringing, while moving the slider to the right reduces cyan fringing.

The Blue-Yellow slider adjusts the blue channel in a color (RGB) image. Moving the slider to the left reduces blue color fringing, while moving the slider to the right reduces yellow color fringing.

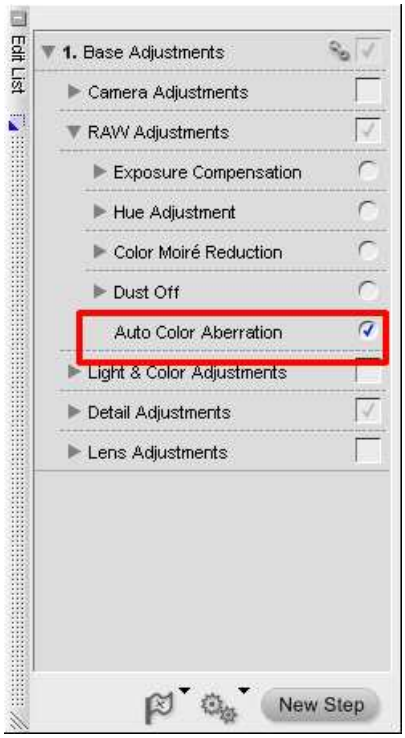
Chromatic aberration is corrected so that color fringing is no longer noticeable.

5) A "Color Aberration Correction" step is added to the "Edit List".



Auto Color Aberration for RAW images.

When RAW images are opened, the Auto Color Aberration item in the RAW Adjustments submenu of 1.Base Adjustments is enabled. This makes reducing chromatic aberration simple. Remove the checkmark to remove the effects of chromatic aberration correction.


Edit List
1. Base Adjustments
Camera Adjustments
RAW Adjustments
Exposure Compensation
Hue Adjustment
Color Moiré Reduction
Dust Off
Auto Color Aberration
Light & Color Adjustments
Detail Adjustments
Lens Adjustments
New Step