Photo Correction Filters

Mendocino College - Digital Image Manipulation with Photoshop

Photo Corrections

- Most of your basic photo corrections will be working with color corrections.
- Now we will look into using filters to correct for specific issues

Camera Raw Filter
Adaptive Wide Angle Filter
Lens Correction Filter
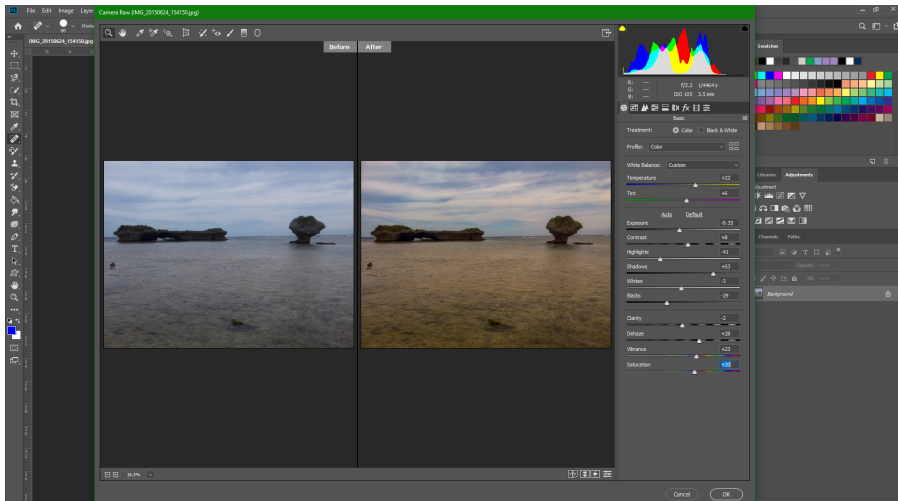Vanishing Point Filter

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Camera Raw Filter

- Adobe Camera Raw Filter is a Photoshop plug-in for making color and tonal adjustments.
- In its editing window, there is a large preview image and the adjustment tools are laid out in the order that you would normally use them.
- If you want to apply the same adjustment to multiple images, you can save the settings as a preset and apply as needed.
- Y Switches between Before/After modes

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Camera Raw Filter Example

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Camera Raw Options

- Basic - All of your basic adjustment options, such as contrast/exposure/vibrance/etc
- Tone Curve - Similar to Curves adjustment layer, but for the highlights/Lights/Darks/Shadows
- Detail - Adjustment sliders for Sharpening and Noise
- HSL Adjustments - Sliders to adjust Hue, Saturation, and Luminance.
- Split Toning - Hue/Saturation sliders for Highlights and Shadows.
- Lens Correction - Sliders to adjust Distortion, Defringe, Vignetting.
- Effects - Sliders to adjust Grain and Post Crop Vignetting.
- Calibration - Slider to adjust Shadows, Red Primary, Green Primary, Blue Primary.
- Presets - Preset adjustments to easily apply to images.

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Adaptive Wide Angle filter

- The Adaptive Wide Angle filter to correct lens distortions due to using wide angle lenses.
- Straighten lines that appear curved in panoramas, or photos taken with fish-eye and wide angle lenses.
- The filter detects the camera and lens model and uses the lens characteristics to straighten the images.
- You can add multiple constraints to indicate straight lines in different parts of the picture.
    - Using this information, the Adaptive Wide Angle filter removes the distortions.
    - You can also use this filter on images that do not contain camera and lens information, though it's some extra work.

Adaptive Wide Angle filter Example

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Adaptive Wide Angle filter Options

- Crop Factor - Specify a value to determine how the final image is cropped. Use this value in combination with Scale to compensate for any blank areas that are introduced while applying the filter.
- Correction Types:
  - Fisheye - Corrects extreme curvature caused by a fisheye lens.
  - Perspective - Corrects converging lines caused by angle of view and camera tilt.
  - Panorama - Corrects a Photomerge panorama.
  - Full Spherical - Corrects 360-degree panoramas. The panoramas must have a 2:1 aspect ratio.
  - Auto - Detects the appropriate correction automatically.
- If you want to edit the filter settings later, convert the layer to a smart object. Select the layer and choose: Layers → Smart Objects → Convert to Smart Object.

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Adaptive Wide Angle filter Options

- If the image has lens data, these values are automatically detected, and some options are not displayed.
- Focal Length - Specify the focal length of the lens. This value is automatically populated if the lens information is detected in the photograph.
- Scale - Specify a value to scale the image. Use this value to minimize the blank areas that are introduced after applying the filter.
- Focal Length - Specify the focal length of the lens. This value is automatically populated if the lens information is detected in the photograph.
- Crop Factor - Specify a value to determine how the final image is cropped. Use this value in combination with Scale to compensate for any blank areas that are introduced while applying the filter.

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Additional Resource for using the Adaptive Wide Angle filter

- Walk-through example using 11-steps to correct an image.
    - https://creativepro.com/how-to-use-the-adaptive-wide-angle-filter-in-photoshop/
- Quick video walk-through how to use the filter.
    - https://www.youtube.com/watch?v=2qSEIHXkFsM

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Lens Distortions

- Barrel distortion is a lens defect that causes straight lines to bow out toward the edges of the image.

- Pincushion distortion is the opposite effect, where straight lines bend inward.

- Vignetting is a defect that darkens the corners of an image due to light falloff around the perimeter of the lens.

- Chromatic aberration appears as a color fringe along the edges of objects, caused by the lens focusing on different colors of light in different planes.

- Some lenses exhibit different defects at certain focal lengths, f-stops, and focus distances. With the Lens Correction filter, you can specify the combination of settings used to make the image.

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Lens Correction Filter

- The Lens Correction filter fixes common lens flaws such as barrel and pincushion distortion, vignetting, and chromatic aberration.

- The filter works only with 8- and 16-bit-per-channel images in RGB or Grayscale mode.

- You can also use the filter to rotate an image or fix image perspective caused by vertical or horizontal camera tilt.

- The filter's image grid makes these adjustments easier and more accurate than using the Transform command.

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Lens Correction Filter Example

Examples of barrel distortion (left) and pincushion distortion (right)

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Lens Correction Options

- Correction - Select the problems you want to fix. If corrections undesirably extend or contract the image beyond original dimensions, select Auto Scale Image.

- The Edge menu specifies how to handle blank areas that result from pincushion, rotation, or perspective corrections. You can fill blank areas with transparency or a color, or you can extend the edge pixels of the image.

- Search Criteria - Filters the Lens Profiles list.
    - By default, profiles based on image sensor size appear first.
    - To list RAW profiles first, click the pop-up menu , and select Prefer RAW Profiles.

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Lens Correction Options

- Lens Profiles -
  - By default, Photoshop displays only profiles that match the camera and lens used to create the image. (The camera model does not have to match perfectly.)
  - Photoshop automatically selects a matching sub-profile for the selected lens based on focal length, f-stop and focus distance.
  - To change the automatic selection, right-click the current lens profile, and select a different sub-profile.
- Remove Distortion -
  - Corrects lens barrel or pincushion distortion.
  - Move the slider to straighten horizontal and vertical lines that bend either away from or toward the center of the image.
  - Drag toward the center of the image to correct for barrel distortion and toward the edge of the image to correct for pincushion distortion.
  - If any blank image edges result, adjust the Edge option on the Auto Correction tab.
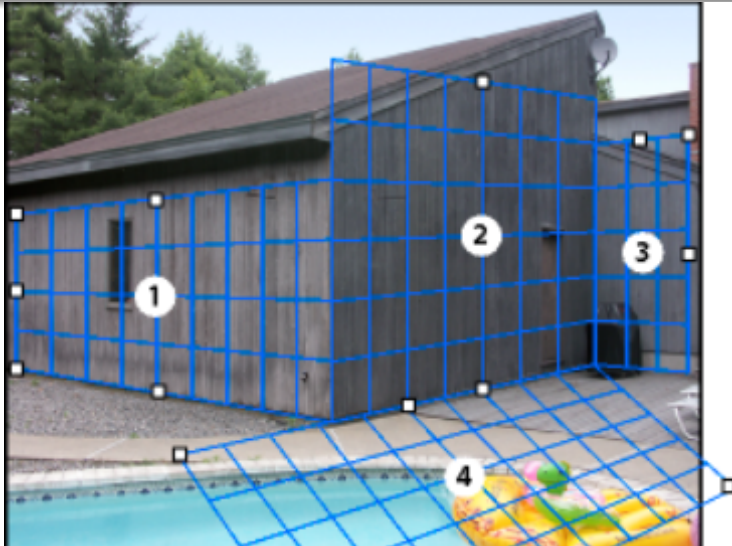
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Additional Resource for using the Lens Correction filter

- Adobe's guide for lens and noise correction.
  - https://helpx.adobe.com/photoshop/using/correcting-image-distortion-noise.html
- Manual Lens Correction
  - https://expertphotography.com/photoshop-lens-correction/

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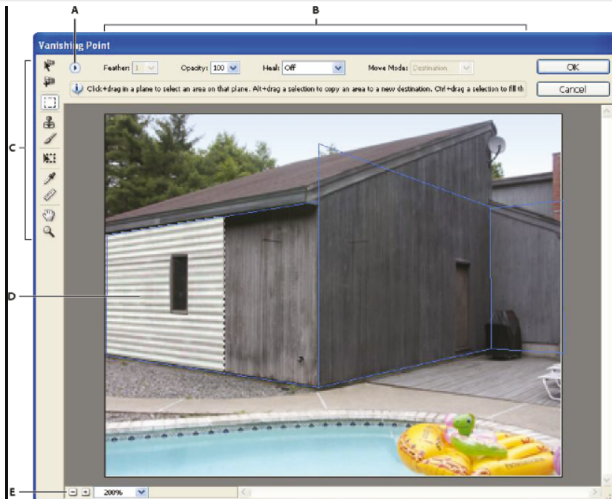
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Vanishing Point Filter

- Vanishing Point simplifies perspective-correct editing in images that contain perspective planes
  - for example, the sides of a building, walls, floors, or any rectangular object.
- You specify the planes in an image, and then apply edits such as painting, cloning, copying or pasting, and transforming.
- All your edits honor the perspective of the plane you're working in.
- When you retouch, add, or remove content in an image, the results are more realistic because the edits are properly oriented and scaled to the perspective planes.
- After you finish working in Vanishing Point, you can continue editing the image in Photoshop.

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Vanishing Point Filter Dialog Box

Vanishing Point dialog box

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Vanishing Point Tools

- Create Plane tool - Defines the four corner nodes of a plane, adjusts the size and shape of the plane, and tears off a new plane.
- Edit Plane tool - Selects, edits, moves, and resizes planes.
- Marquee tool - Makes square or rectangular selections, and also moves or clones selections.
- Stamp tool - Paints with a sample of the image. Unlike the Clone Stamp tool, the Stamp tool in Vanishing Point can't clone elements from another image.
- Measure tool - Measures distances and angles of an item in a plane. See also Measure in Vanishing Point
- Transform tool - Scales, rotates, and moves a floating selection by moving the bounding box handles. Its similar to using the Free Transform command on a rectangle selection.
- Eyedropper tool - Selects a color for painting.

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Additional Resource for using the Vanishing Point filter

- Adobe's walkthrough for working with Vanishing Point
  - https://helpx.adobe.com/sg/photoshop/using/vanishing-point.html

Destructive Edits

- Applying some of these tools permanently alters the image information.
- It is recommended to always work using nondestructive edits.
- To edit your images nondestructively, always work on a duplicate layer.