Adobe ACR 360–Aware Feature Overview

Some images can represent an entire "sphere" – data capture in all directions. These are usually captured with dual-fisheye lenses, stitched in external software, "flattened" using equirectangular projection into a 2D image. They would next be edited in ACR or Lightroom, and then posted or shared using viewer software or web browsers with 360 support. The flattened 2D images are in a 2:1 aspect ratio, and the left and right edges "wrap around." Editing such an image in ACR or Lightroom requires some care, both from Adobe's algorithms and also on the part of the user, because otherwise the left and right edges of the processed result will no longer "line up" – resulting in a visible and distracting seam.

Many of the controls like White Balance, Exposure, Contrast, etc. have no problem with 360 images. They never result in a seam.

Other controls, however, such as Clarity and Dehaze which involve "neighborhood" or "area" operations known as convolutions, need to be modified to support 360 images. This support is being added to ACR 11.4.

Technical Notes

The 360-aware property is a property specific to the cr_negative object and is determined at negative read time. If a negative is determined to be a 360 image, then all of the image processing will be 360-aware. Otherwise, the usual non-360 imaging path will be used.

A negative is determined to be 360 if it meets these criteria:

1. The Original Default Size is a 2:1 aspect ratio, **and** at least one of the following is true:
    - The metadata of the asset contains the GPano: Projection Type XMP property and its value is equirectangular or cylindrical.
    - The EXIF Model Name matches a recognized model.

Supported Camera Models

RICOH Theta V
RICOH Theta Z1
RICOH Theta S
GoPro Fusion 360
Insta360 ONE
Kandao Obsidian Go
Kandao Obsidian R
KanDao QooCam
Panono 360
PisoftTech-Pilot Era
Xiaomi MiSphere Camera
Madventure Camera

How to test 360 support

First, there should be no changes whatsoever to the rendering of standard images because they are non-360 images.

It's easiest to test with Clarity and Dehaze. For example, try setting Clarity to -80 and/or Dehaze to +50. Open the resulting image into Photoshop and apply the Offset filter horizontally (Filter menu → Other → Offset). Set the Undefined Areas to "Wrap Around".

With older builds (like ACR 11.3.x) that don't have 360 support, you will see a vertical seam after applying the Offset filter where the left and right edges join up. Note that the source and unedited images won't show a seam; it's only after applying processing such as Clarity or Dehaze. With newer builds that do have 360 support, the processed images should be seamless.

Supported Controls

· Basic (ACR and Classic)
· Light & Color (Lr eco)
· Tone Curve
· Color Mixer / HSL / Gray
· Detail
· Split Toning
· Calibration (Shadows, Red/Green/Blue Primary)

Unsupported or Partially-Supported Controls

Note that there are some ACR controls that are not intended to be applied to 360 images and will always result in a seam regardless. Some of these include the Grain control, warp adjustments (lens profiles, Upright, etc.), and so on. Cropping a 360 image would not be logical and will also result in the left and right edges of the cropped result not matching. If using spot heal, be careful not to heal the left & right edges directly. Local corrections can be used but needs to be applied carefully; stay away from the left/right edges.