

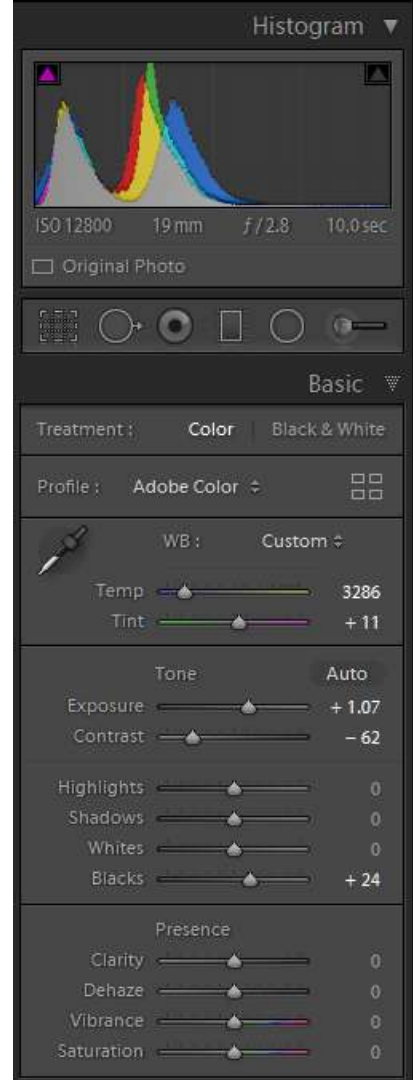
# Starry Landscape Stacker Procedure

David Swindler – Action Photo Tours



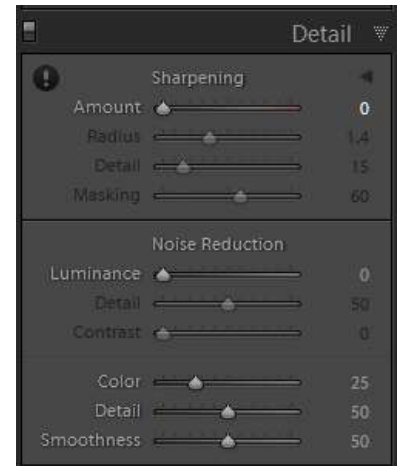
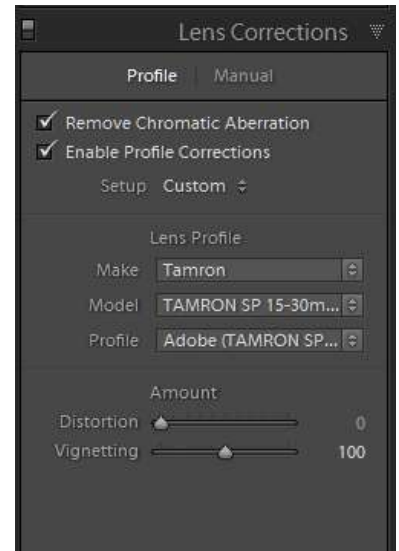
# Preparing Images for Stacking

- The best stacking results are obtained from doing the least amount of pre-processing as possible in Lightroom or Camera RAW.
- Recommended Adjustments:
  - Use Custom WB
  - Increase Brightness
  - Decrease Contrast
  - Increase Blacks (look at left side of histogram)
  - Remove Lens Vignetting and Chromatic Aberration
  - Mild Color Noise Reduction



# Things to Avoid

- Auto White Balance
- Adding Contrast, Clarity, and DeHaze.
- Adding Color through Vibrance, Saturation, and HSL
- Pushing the Bright Tones through Highlights and Whites
- Noise Reduction & Sharpening
- Lens Distortion Corrections
  - Move distortion to zero. Still need vignetting correction.





If done properly, the resulting image will look flat, dull, and noisy.



If too much contrast is added in pre-processing, Starry Landscape Stacker tends to blow out the bright tones. Radial banding is especially problematic and is primarily caused by using lens distortion corrections.

# Sync and Export

- Sync your Lightroom adjustments to the rest of your sky images.
- Export all sky images as 16-bit TIFF files and save them to disk.
  - Can use Adobe RGB or ProPhoto RGB.
  - No image resizing
  - Include all Metadata

The screenshot displays the Adobe Lightroom Export dialog box with the following settings:

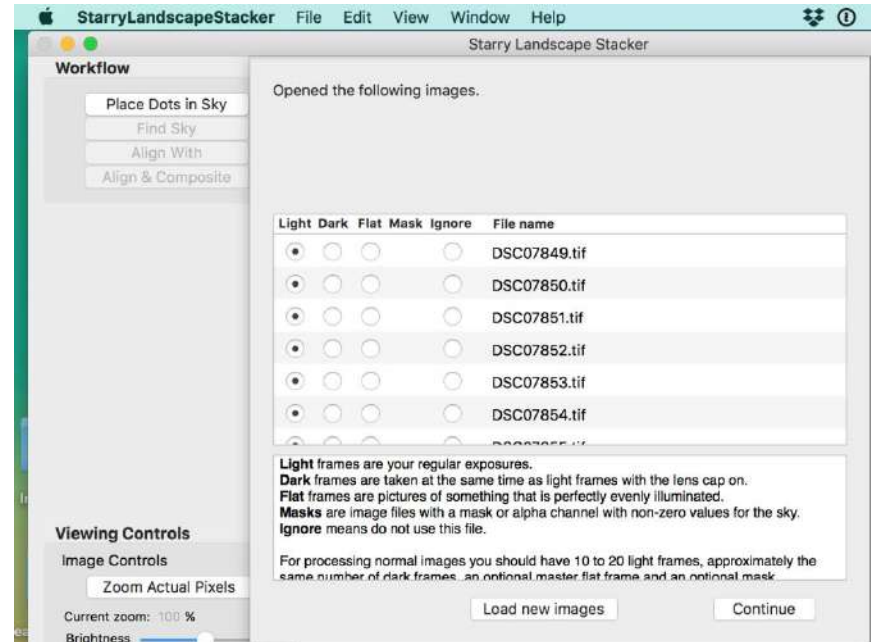
- File Settings:** Image Format: TIFF, Compression: None, Color Space: AdobeRGB (1998), Bit Depth: 16 bits/component, Save Transparency:
- Image Sizing:** Resize to Fit:  Long Edge, Don't Enlarge:  2048 pixels, Resolution: 72 pixels per inch
- Output Sharpening:** Sharpen For: Screen, Amount: Standard
- Metadata:** Include: All Metadata, Remove Person Info: , Remove Location Info: , Write Keywords as Lightroom Hierarchy:
- Watermarking:** Watermark:  APT Standard
- Post-Processing:** After Export: Do nothing, Application: Choose an application... Choose...

Buttons: Export, Cancel

# Load Images



- Open Starry Landscape Stacker and Open the TIFF files you just saved.
- These files are called “Lights” by the software.
  - More advanced users can load additional files types like Darks, Flats, and Masks. These file types will not be covered in this procedure.
  - All your files should be brought in as “Lights”.



# Commands



- The same keyboard commands that work in Photoshop also work in Starry Landscape Stacker:
  - Command +: Zoom In
  - Command -: Zoom Out
  - Hold Spacebar: Brings up Hand tool to move around image
  - Left Bracket Key: Reduce Brush Size
  - Right Bracket Key: Increase Brush Size



# Dots



- Starry Landscape Stacker finds the brightest stars that are common across all files and identifies them as red dots. It uses these dots to try and identify the sky vs the land.
- Automatic Dot placement will usually work best. Your job is to remove any red dots from the landscape by using the Eraser.
- Once this is cleaned up, you will click on the Find Sky button. It should do a good job segmenting the sky from the landscape.
- A little bit of sky/land cleanup will likely be required. Use the Paint Sky/Land brush for that.
  - If you have complicated land like trees, bridges, arches, etc, you'll want to use the "Mask With Islands of Sky" option.

# Start With Automatic Dots

**Workflow**

Adjust Dots in Sky  
Find Sky  
Align With  
Align & Composite

Select how many dots to start with. Remove red dots on the horizon and on the ground. Also add red dots in the sky in areas where there are no red dots. When you are done press "Find Sky".

Start with

Add red dots  
 Erase red dots

Eraser size

**Viewing Controls**

Image Controls

Current zoom: 12.6 %

Brightness   
Contrast

Overlay

Opacity

Current Image:



# Erase Dots in Landscape – Find Sky

**Workflow**

Adjust Dots in Sky

**Find Sky**

Align & Composite

Select how many dots to start with. Remove red dots on the horizon and on the ground. Also add red dots in the sky in areas where there are no red dots. When you are done press "Find Sky".

Start with

Add red dots

Erase red dots

Eraser size

**Viewing Controls**

**Image Controls**

Current zoom: 12.6 %


Brightness

Contrast

**Overlay**

Opacity

**Current Image:**



# Create Sky Mask

**Workflow**

Adjust Points Sky  
**Find Sky**  
Align & Composite

Select how many dots to start with. Remove red dots on the horizon and on the ground. Also add red dots in the sky in areas where there are no red dots. When you are done press "Find Sky".

Start with

Add red dots  
 Erase red dots

Eraser size

**Viewing Controls**

Image Controls

Current zoom: 12.6 %  
Brightness   
Contrast

Overlay  
  
Opacity

Current Image:

# Refine Sky Mask

**Workflow**

Adjust Dots in Sky  
Adjust Sky  
Align With  
Align & Composite

**Start with**  
mask with islands of sky

Clean up the mask by painting in sky or ground as needed. When you are done press "Align and Save".

Paint  Sky  
 Ground

Brush size

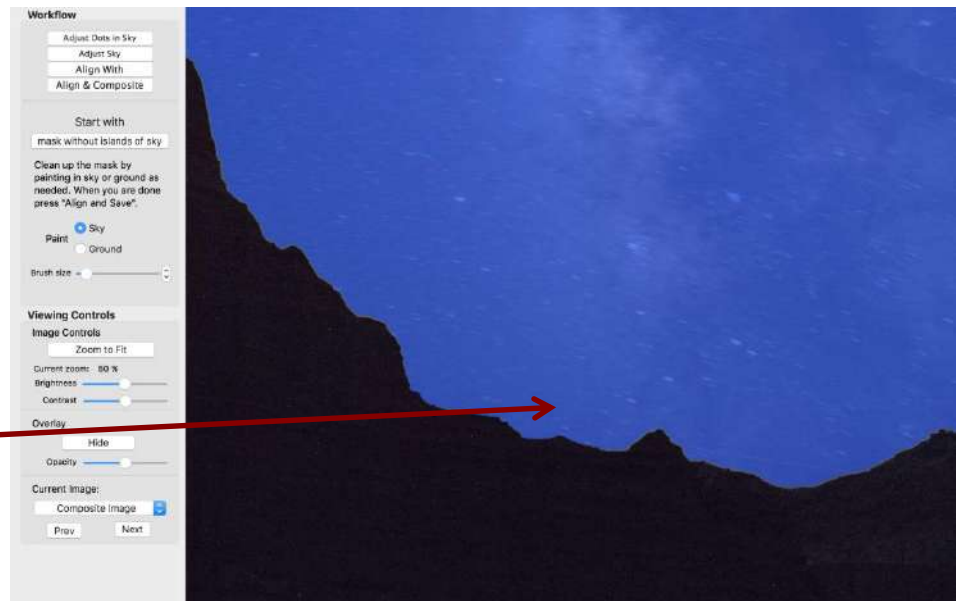
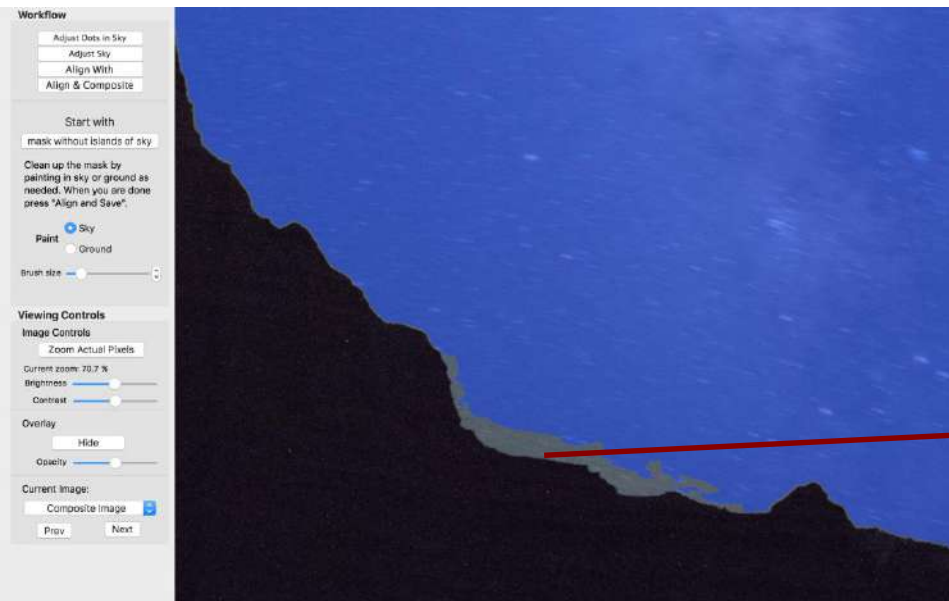
**Viewing Controls**

**Image Controls**  
Zoom Actual Pixels  
Current zoom: 12.6 %  
Brightness   
Contrast

**Overlay**  
Hide  
Opacity

**Current Image:**  
Composite Image   
Prev Next

# Refine Sky Mask



# Final Sky Mask

**Workflow**

Adjust Dots in Sky  
Adjust Sky  
Align With  
Align & Composite

**Start with**  
mask without islands of sky

Clean up the mask by painting in sky or ground as needed. When you are done press "Align and Save".

Paint  Sky  
 Ground

Brush size

**Viewing Controls**

Image Controls

Zoom Actual Pixels

Current zoom: 12.6 %

Brightness

Contrast

Overlay


Hide

Opacity

Current Image:

Composite Image

Prev Next



# Align With

Unless there is a specific star/feature alignment you are concerned with, just align with the center image of the sequence.

The screenshot displays a software interface for image alignment. On the left is a control panel with the following sections:

- Workflow:** A vertical stack of buttons: "Adjust Dots in Sky", "Adjust Sky", "Align With", and "Align & Composite".
- Will align with:** A dropdown menu showing "DSC07852.tif", which is highlighted with a red rectangular box.
- Optional:** A text block stating: "Optional: You can align the images to any image by making it the current image and clicking below." Below this is a button labeled "Align to current image".
- Viewing Controls:**
  - Image Controls:** Includes a "Zoom Actual Pixels" button, "Current zoom: 12.8 %", "Brightness" slider, and "Contrast" slider.
  - Overlay:** Includes a "Show" button and an "Opacity" slider.
- Current image:** A dropdown menu showing "DSC07852.tif" with a blue arrow icon to its right. Below it are "Prev" and "Next" buttons.

The main area on the right shows a photograph of a desert landscape at night. A prominent, jagged rock formation is illuminated from the left, set against a dark sky filled with stars and the Milky Way galaxy.



# Select Composition Algorithm

**Workflow**

Adjust Dots in Sky  
Adjust Sky  
Align With  
Align & Composite

Select a composition algorithm and save the result.

- ✓ Min Horizon Noise
- Min Horizon Star Dupe
- Mean Min Hor Noise
- Mean Min Hor Star Dupe
- Max Value
- Min Value

**Viewing Controls**

**Image Controls**

Zoom Actual Pixels

Current zoom: 12.6 %

Brightness

Contrast

**Overlay**

Show

Opacity

Current Image:

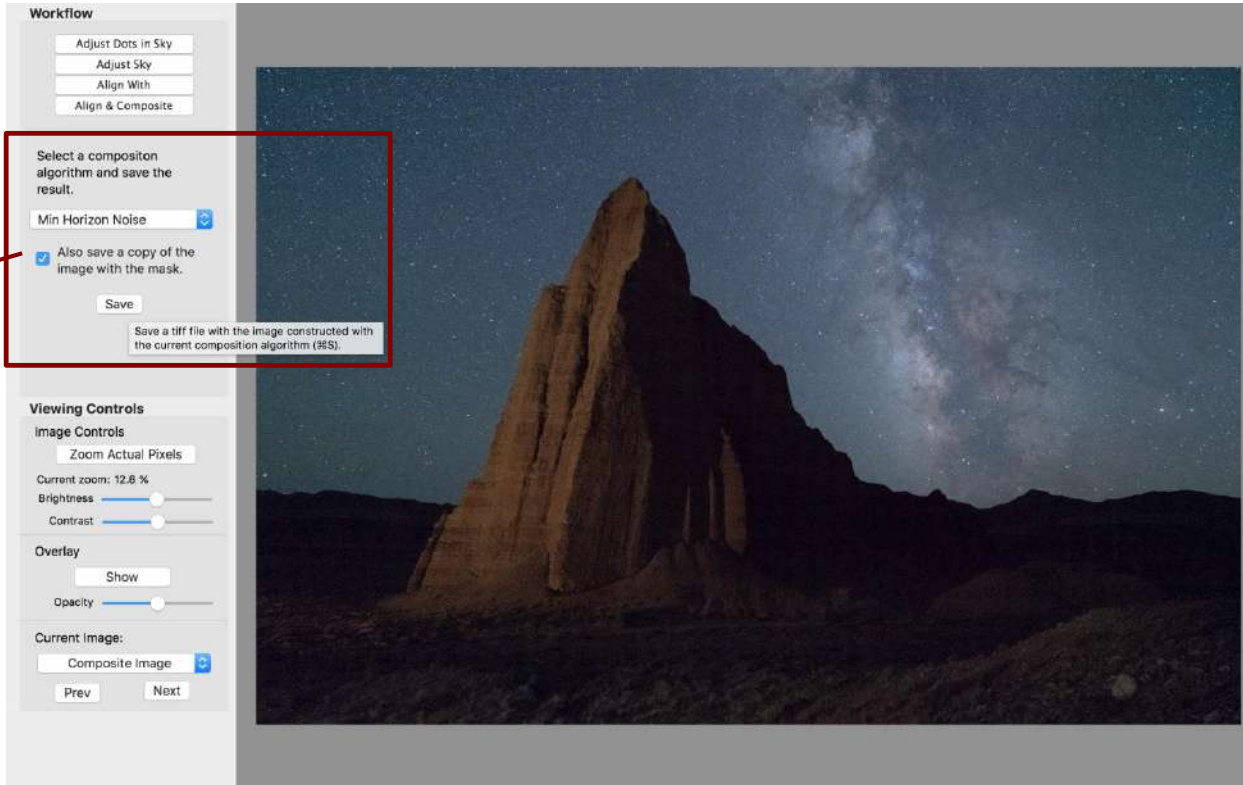
Composite Image

Prev Next

# Save Final File

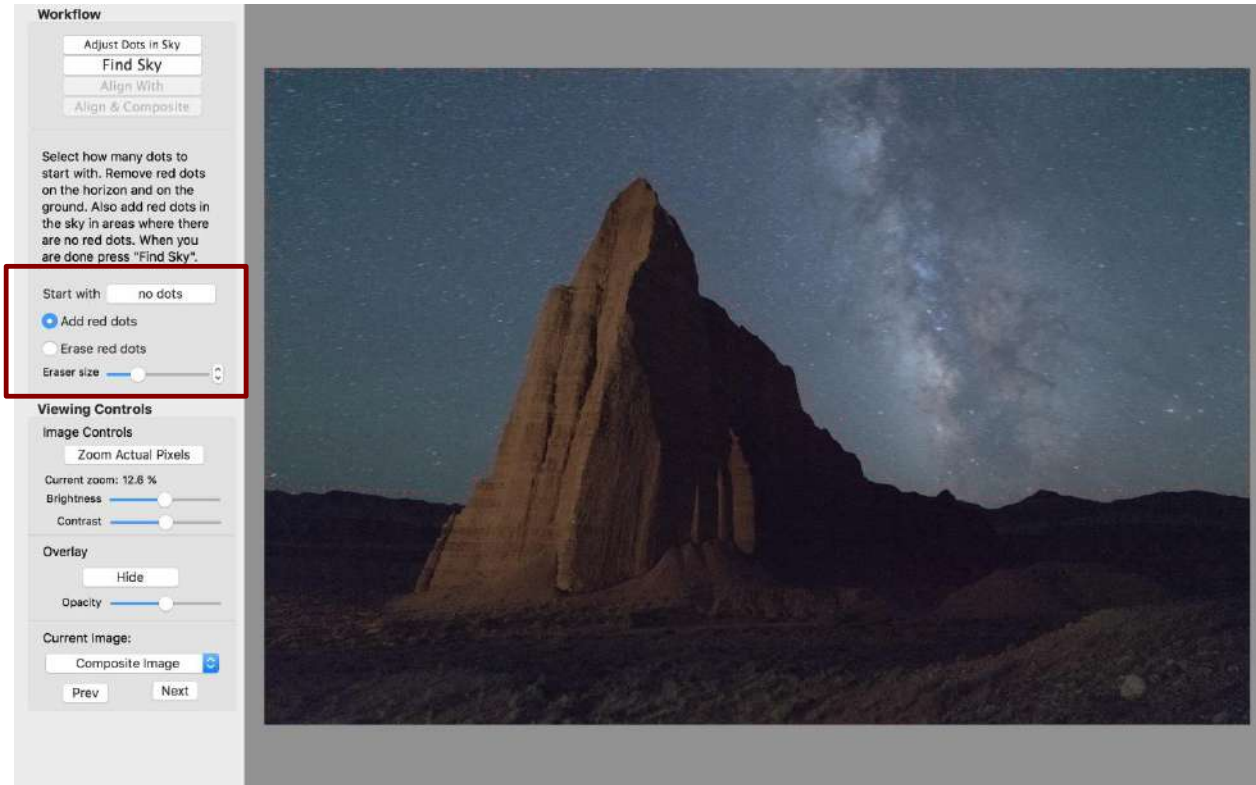
You can save multiple TIFF files if you want to experiment with different algorithms.

Optional



# No Automatic Dots

If automatic dots don't work well, you can draw your own dots around the outer edge and land/sky interface. You don't have to be very exact with this.



The screenshot displays a software interface for sky alignment. On the left is a control panel with the following sections:

- Workflow:** Contains buttons for "Adjust Dots in Sky", "Find Sky", "Align With", and "Align & Composite".
- Instructions:** A text block explaining the process: "Select how many dots to start with. Remove red dots on the horizon and on the ground. Also add red dots in the sky in areas where there are no red dots. When you are done press 'Find Sky'".
- Start with:** A dropdown menu set to "no dots".
- Buttons:** "Add red dots" (selected with a blue radio button), "Erase red dots" (unselected).
- Eraser size:** A slider control.
- Viewing Controls:**
  - Image Controls:** "Zoom Actual Pixels" button, "Current zoom: 12.6 %", "Brightness" slider, "Contrast" slider.
  - Overlay:** "Hide" button, "Opacity" slider.
  - Current image:** "Composite image" dropdown menu, "Prev" and "Next" buttons.

The main image on the right shows a night landscape with a prominent rock formation in the foreground and the Milky Way galaxy visible in the dark sky. A red dot is visible on the horizon line of the rock formation.

# Algorithms



- Min Horizon Noise
  - Uses advanced median filtering and helps reduce noise right near the horizon line.
  - Downside is that stars near the horizon will often go missing.
  - This is the algorithm you will use most often.
- Min Star Duplication
  - You will see more stars near the horizon, but you may see more noise and artifacts from the stacking.
- Max
  - Produces the brightest image. Useful if you want to mask in streaks from satellites or meteors.
- Min
  - Produces the darkest image. Will often highlight the Milky Way the best.

# Min Horizon Noise



Note ring of missing stars around rock feature.

# Min Horizon Star Dup



More stars near edges but note numerous stacking artifacts.

**Max**



**Min  
Horizon  
Noise**



**Min  
Horizon  
Star Dup**



**Min**

