How to create a HDR PanoPlanet (Polar Panorama)

Author: panoplanet

There have already been some basic tutorials on creating PanoPlanets or polar panoramas, so I thought I'd step it up with an interesting variation of a tone mapped High dynamic range (HDR) version.
These little planetoid photos are created by shooting an entire 360 degree panorama of a scene then warping it in Photoshop, using different filters. Making a HDR PanoPlanet, gives an additional hyper real feeling. This instructable will take you through the process step by step using the following pieces of software.

Photomatix Pro - HDR software

Photoshop with Flexify2 Plug-in.

The steps to create one of these images are as follows

- Shoot bracketed 360 degree by 180 degree panorama
- Process single bracketed set of photos to HDR.
- Tone map to taste.
- Batch process all photos to get individual tone mapped results
- Photo merge tone mapped images into panorama
- Level and Crop the image to 360°
- Fix the size to equirectangular proportions
- Warp the image into a PanoPlanet (Polar Panorama)
- Image Clean Up

Step 1 Shoot Bracketed 360 degree Panorama

The first step is to shoot all the photos you need for your panorama. If you have a tripod the results will be much better especially as this is a HDR PanoPlanet and you want each bracketed shot to align as much as possible.

To shoot a good panorama, you should set the camera in portrait orientation on a tripod, with the widest lens you have. Take meter readings at 90 degrees apart to get the average light reading in all directions. Then set the camera to manual and use the average settings you just read. Now set the camera to bracket exposures either 3 or 5 (if your camera can do them) I usually select 0 +2 and -2 stops to give the widest range.

Repeat each bracketed shot rotating throughout your 360 degree panorama. For example with a 16mm lens on a full frame camera I need to take eight shots to make up a full 360° view, add bracketing means I need to take twenty four photos to make the panorama.

Related


Shooting Hand held Panoramas
by panoplanet

Photoshop Tutorial: Creating HDR Images
by Fiberflex


How to make Polar Panorama with Photoshop
by iSuat


Making panorama photos with any digital camera
by marijnkampf


How to make 360 degree flash/polar panoramas
by dopman


guide to HDR photography
by biozz


Creating a seamless landscape panorama in photoshop
by micotto


How to make a Panorama Picture (Photomojo entry)
by Peter,


by PetervG


How to make a 360 degree panorama in Hugin
by xilefakamot

More Related

Info Stats

4.74 (9 ratings)

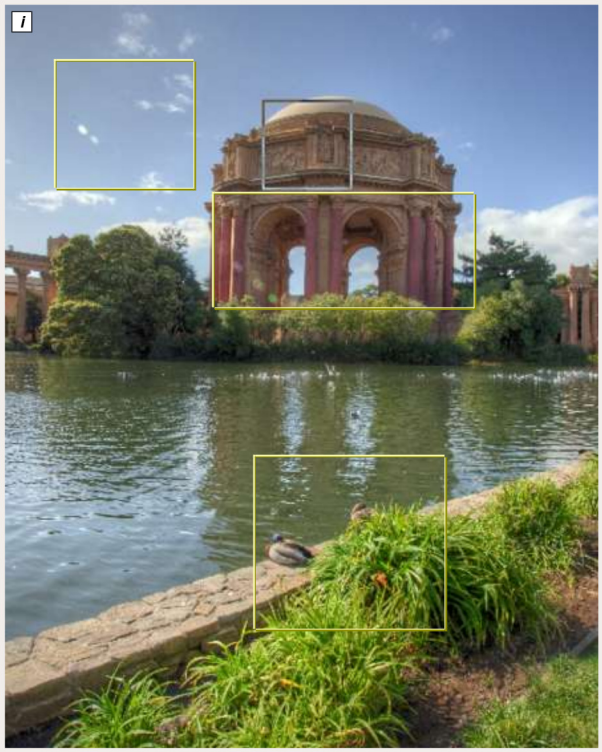
15,476 views

Author: panoplanet
Published: May 11, 2010
License: (cc) BY-NC-SA

Related: Panoplanet, Polar Panorama, Photography, Photoshop, HDR, Photomatix, Panorama, San Francisco, Legion of honor

Guides

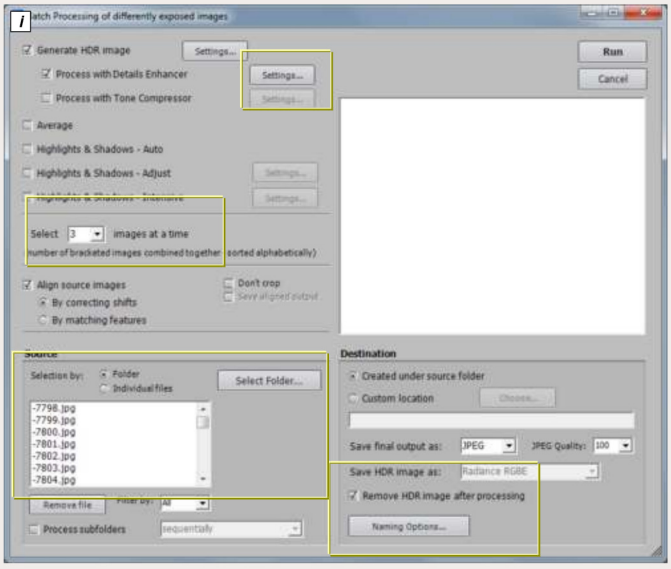
Step 2 Process Bracketed Shots in PhotoMatix Pro



The next step is to get the HDR look you want form this particular photo. As the whole panorama will be similar lighting, we can process one HDR shot to a tone mapped result that we like then process the rest in batch with the same settings

Pulling three the photos into Photomatix pro we process the HDR, ensuring to align the photos. Next we process the HDR into a tone mapped result. You can either choose a more photorealistic result using the “tone compressor” option or a more painterly effect of the details enhancer. As these aren’t realistic images anyway I tend to use the details enhancer. You can tweak the settings to your taste then process the HDR. This has the result of storing those settings in the previous processing option (which we can now use to batch process the whole panorama.)

Step 3 Batch Process all photos in Panorama into HDR Tone Maps



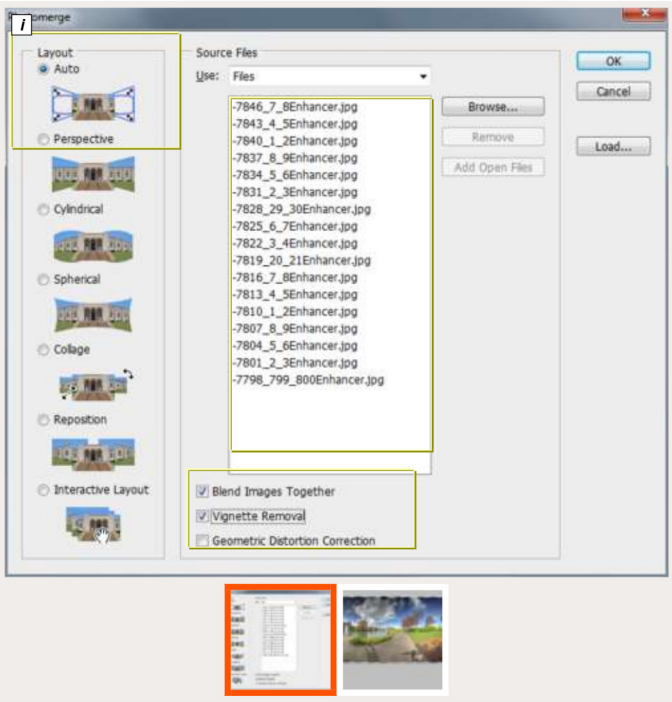
The best thing about Photomatix Pro I think is the simplicity of the batch processing option.

From one single screen we can point Photomatix to a folder containing all our bracketed photos, then indicate how many photos are in each bracket, (3 or more) We then can process into HDR and tone map, and save the results in a folder.

Using the previous defaults option the processing will pick up the settings we made in the previous step

Just click run and let it churn away

Step 4 Photomerge Tone Mapped Images into Photoshop



Once the HDRs have been processed, the panorama can be stitched and blended into one panoramic image in Photoshop.

Select the File > Automate > Photomerge

Menu option

With the photo merge dialog visible select all the tone mapped shots. I generally leave photomerge in Auto and it does ok. Then select to blend the images and to remove any vignettes. Photoshop may take some time to process the panorama, I have a quad core machine and it can easily take 40 minutes.

The resulting image is a multilayer HDR panorama.

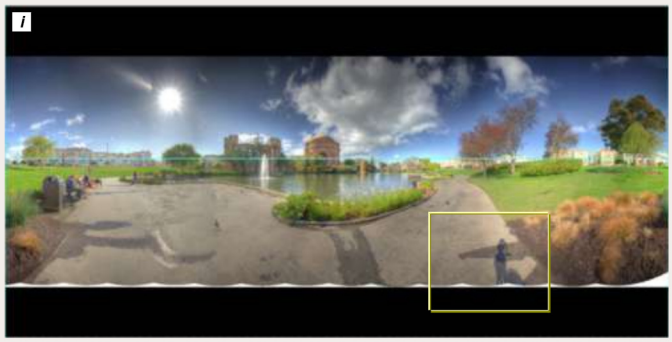
Step 5 Level and crop image to 360 Degrees

The next step is to level the image and limit it to only 360°. I do this by placing two vertical guides at the same element that is repeated on both ends of the photo this gives me m 360°.

I then place a horizontal guide at the intersection of the horizon and my vertical guide on the left hand side. Scrolling to the right hand side guide I check that it is also intersecting the horizon at the same point. If not I need to rotate the image until the horizon matches.

Once I have the shot level I crop to the 360° lines

Step 6 Fix the Size to Equirectangular Ratio



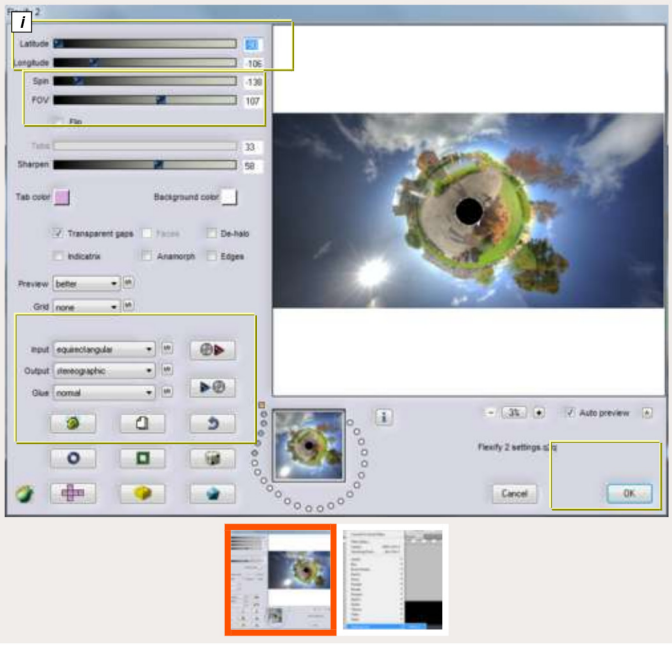
Before warping the panorama into a planet, it is a good idea to add a little extra space to the bottom of the image. This prevents the middle of the planet being overly distorted when it is folded in on itself; however it means you have to perform more patching in Photoshop afterwards. To do this I measure the image dimensions in Photoshop and the goal is to make a 360 degree x 180 image as the input (this is called an equirectangular image) basically 360x180 is a ration of 2:1 so whatever the horizontal pixel count is I halve it to get the ideal height. I then subtract the real height this gives me the amount I'm missing. I then split that evenly on the top and the bottom.

For example my image is 15904 pixels by 5546 which is a ratio of 2.87:1 dividing 15904 by 2 (m ideal ratio) gives 7952 pixels which should be the height of m image. 7952 – 5546 = 2406 missing pixels. Adding even amounts to the top and bottom of the image will mean adding 1203 to each end.

I do this by using the canvas size option to add 1203 to the bottom and 1203 to the top.

This gives me a panorama that has the same dimensions as a 360x180 panorama which is known as Equirectangular.

Step 7 Warp the image into a PanoPlanet (Polar Panorama)



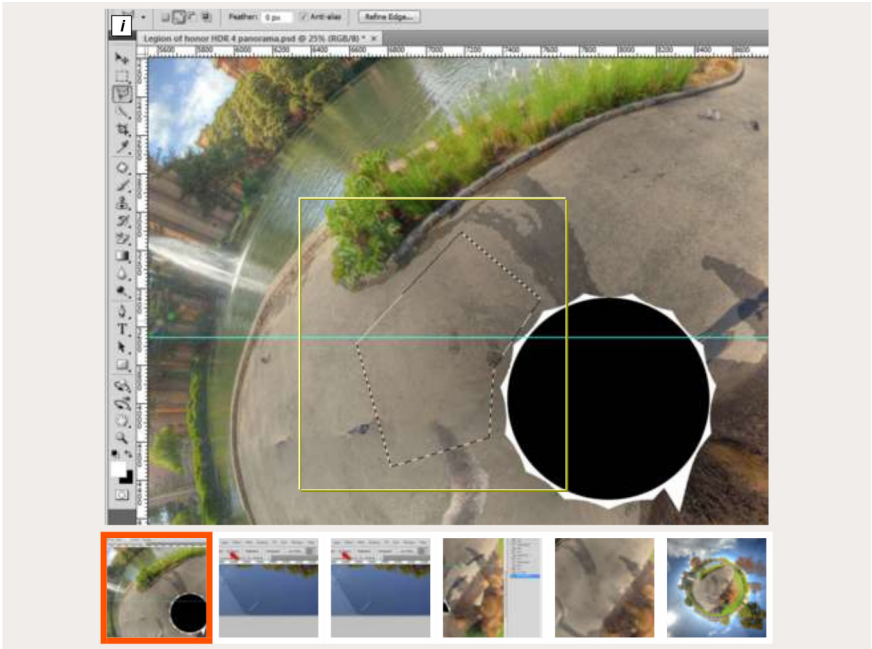
We're almost there. The next step is to warp the image into a planet. This article describes how to do this using the flexify2 plug in, you can use the built in Rectangular to Polar filter to make polar panoramas, however if you want to make other types of planet such as the stereographic projection you will need a plug-in of some kind.

With the cropped image go to the filter menu and select flexify (this assumes the plug-in is installed and working)

After some working the flexify pop up will appear. Select the input as equirectangular and the output can be what you want. In this example I will choose stereographic projection, some other good ones are polar (which is the same as the standard polar Photoshop filter) or hyperbolic which is very similar to the stereographic.

There are a number of settings to adjust but if you're using stereographic be sure to set the latitude to -90° as this will have a big impact on how the image looks. You can adjust the field of view to fit everything in and alter the spin to move some of the taller objects into the horizontal plane. Once you're happy with the image hit ok to process

Step 8 Image Clean Up



Now there are a few things to clean up. Primarily the big gaping hole in the middle of the planet and the seam often needs blurring.

I use two main techniques for these. Firstly the seam, I Find the best way to blend that is to use the patch tool

With the patch tool set on source select a patch that encloses the join line, drag the cursor into some clean area that looks similar. Keep repeating this; do not try to capture too much area in a single patch keep the patches small and only patch similar content. Once you have blended the join completely we can clean up the hole in the middle.

To fill in the hole in the middle I use the lasso tool. I select areas from each side of the hole and copy and paste the patches to new layers. I then slide them over the hole. Do this multiple times until the hole is more than obscure. Then the trick is to blend the edges using a layer mask

Once you have completely filled the hole with patches it probably looks a mess. At this point you can hide the individual patch layers one by one then resize and warp the patches to best align with the hole. You definitely want the patches to be bigger than the holes as the next step is to blend the edges using a layer mask and a soft brush

Hiding all the patch layers and showing only the bottom patch layer add a layer mask. Make sure the layer mask is set to white to allow the image to show through. Then select a feathered brush and painting in black start to blend away the edges.

Once you are relatively happy with your blending you can flatten all the layers then touch up with the patch tool. At this point your HDR PanoPlanet or Polar panorama is complete

If ou enjoyed this tutorial and would like more detailed instructions, or would just like to see more of these PanoPlanets, head on over to my website devoted to making these images.
http://www.panoplanets.com

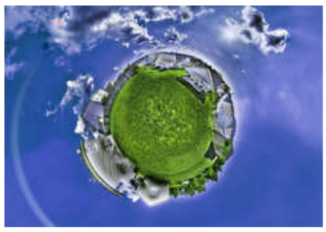
5 comments **Add Comment**

#OccupyInstruct says: Jan 15, 2012. 8:04 PM
my mind has been blown for this sir i will buy a camera and practice making these
Reply

aidanjarosgrilli says: Nov 10, 2011. 8:13 PM
What program is this????
2
Reply

the_burrito_master says: Oct 20, 2011. 11:10 PM
Congratulations on inventing super mario galaxy.
41
Reply

Messy1551 says: Aug 14, 2011. 9:24 PM
I know this is an old instructable but i have to say ...These are awesome!! I just recently bought the cannon t2i. I made one these using my backyard. i could/should have spent a little more time in photoshop cleaning up some of the edges..I am just having a hard time getting the exposures to match when i stitch them together in PS. it blends well using the level bracketed pics but when i use the the level +30 degrees and -30 degrees all the pics have really harsh edges and i had to blend them one by one



Reply

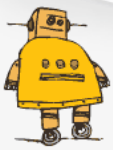
PRO **startree** says: May 28, 2010. 10:04 PM

wow!! such fantastic little worlds you have created - thanks for posting your website link, they are fabulous little artworks.

The whole process is too complicated for me as I don't have photomatix and only an old version of photoshop (and am not that well acquainted with it) - but it's a great 'ible and if i had the time I'm sure i could do something from your instructions. Thanks!

Reply

Add Comment



Google™ Custom Search

Explore Channels in Technology

3D Printing
Apple
Arduino
Art
Assistive Tech
Audio
Cell Phones
Clocks
CNC
Computers
El Wire
Electronics
Gadgets
Laptops
Lasers
LEDs
Linux
Microcontrollers
Microsoft
Photography
Remote Control
Reuse
Robots
Science
Sensors
Soft Circuits
Software
Soldering
Speakers
Steampunk
Tools
USB
Websites
Wireless

Join Our Newsletter

Join over 800,000 Instructable fans who receive our DIY newsletter.

enter email Join!

About Us

About
Advertise
Press
Contact
Jobs
Legal
Help
Privacy Policy

Go Pro! get more out of Instructables

Give Pro! give the gift of DIY