PHOTOSHOP TUTORIAL 16B (Revised Version)
Merge to 32 bit HDR Pro in Photoshop CC

Complete the Toning MANUALLY in Adobe Camera Raw (ACR) and output to Photoshop as a 32bit smart object, then reduce the image from 32bit smart object to 16bit non-smart layer so that 16 bit filters can be used for further processing in Photoshop.
(At the time of producing this tutorial I do not know of a way of converting a 32bit smart object to a 16bit smart object, whilst retaining all the 32bit smart object data)

1. IMPORTANT When using Photoshop Merge to HDR Pro the resulting image will be created in your selected Working Color Space, so it pays to check that you have the correct working color Space in place.
   To do this, open Photoshop and select Edit/Color Settings.

In the creation of my HDR images I wish to retain as much information in the image as possible, therefore as my Working Color Space, I choose to use ProPhoto RGB. Please note: Adobe RGB 1998 Colour space is also fine to use.
2. (When saving sets of images for converting to HDR, I find it best to put each set in its own folder to avoid selecting images from different sets). Using Adobe Bridge, select your set of bracketed images for merging to HDR.

3. Before merging the raw files to HDR I find that it is best to apply Lens Profile and remove Chromatic Aberration in each raw file using Adobe Camera Raw, before merging to HDR. To do this select all the set of raw files as in step 1, then double left click on the thumbnail set, to open all of them in the Adobe Camera Raw.
4. Select the middle thumbnail of the set.

5. Click on the **Lens Correction** icon.
6. Select the **Color** tab and tick the **Remove Chromatic Aberration** box

7. Select the **Profile** tab and tick **Enable Lens Profile Corrections**
8. Click on the **Select all** button above the thumbnail set and you will now see that all the thumbnails are highlighted.
9. Click on the **Synchronize** button and a synchronize dialogue box will open, just click **OK**

![Synchronize button](image)

10. You should now see that all the thumbnails have the symbol ![symbol](image) that indicates camera raw adjustments have been applied.
   At this point it is best to make sure that the Adobe Camera Raw output Color Space matches your Photoshop preferred Color Space. Now click the **Done** button

![Done button](image)

11. We now are back to Adobe Bridge and our selected raw files should now have a **lens profile** applied (where possible) and have been corrected for **Chromatic Aberration**.
12. Select **Tools/Photoshop/Merge to HDR Pro...**
13. You will now see the following dialogue screen. Change the mode to **32 bit**.

14. Having changed the Mode to 32 bit, you should now see a different screen.

15. Tick the **Remove Ghosts** box and Photoshop will select what it sees as the best image in the set for ghost removal and remove ghosts. The thumbnail of the selected image will highlight in green.

**Note:** If there is excessive movement between frames, such as cloud movement, you could manually select each thumbnail in turn (by clicking on it) to see which gives the best ghosts.
removal. You may see that a particular image in the set, displays coloured areas where the ghosts cannot be rectified effectively, avoid selecting this thumbnail if possible. Also note: selecting a darker thumbnail may increase noise.

16. Tick the **Complete Toning in Adobe Camera Raw** box. The white point will move to the Photoshop preferred setting and the **OK** button, will be replaced with a **Tone in ACR** button. Click the **Tone in ACR** button.
17. The merged 32 bit HDR image has now been opened in Adobe Camera Raw so you can process it. (This is what is referred to as Tone in ACR).

18. Make your preferred image adjustments, including Lens Correction, Sharpening, Noise Reduction, Tone Curve or any adjustments you would normally do in Adobe Camera Raw then click Ok. (If I need to put a grad on the sky, this is where I do it)
19. With all adjustments done, including an added grad on the sky in this case (The pink is the mask showing where the grad has been added) Click Ok.

20. Your image will now open in Photoshop as a 32 bit Smart object with Camera Raw Filter. You can now work on your Merged to HDR image and manipulate it to your taste.
21. Because the image is in 32 bit you will find that 16 bit filters will not work. If you need to change the image to 16 bit, you can currently only convert the 32bit smart object to a 16bit non-smart object layer. (but it can be made back into a smart object) To change to a 16bit non-smart object layer, select Image/Mode/16bit

22. You will see a message asking you if you wish to Merge Layers before changing bit depth. Click on Merge
23. You will now see the HDR Toning dialogue box.

24. Important Note:
   In order for this HDR Toning dialogue box to appear, the *Use Adobe Camera Raw to convert Documents from 32 bit to 16/8 bit* box in the Photoshop File Handling Preferences must be set to unticked as below. (With Photoshop open, select Edit/Preferences/File Handling)
25. In the HDR Toning dialogue box, select the method as **Exposure and Gamma**.

26. With the method set as **Exposure and Gamma** you can if you wish make minor adjustments, but I find that if I have adjusted correctly in ACR I do not need to change the sliders so I just click **Ok**.
27. You now have your Merged to HDR Pro. file in a normal Photoshop 16 bit layer and can now apply Photoshop and other software 16 bit filters to this layer. You could of course if you wished, convert the layer to a smart object again, but any changes prior to this stage would be lost. From this stage though, it would act once again as a new smart object.
Below is my finished image.  
In Photoshop, I have used Curves and a dodging and burning layer.  
(To learn how to use a dodging and burning layer see my Photoshop Tutorial 3)

The detail in the clouds was enhanced using the Detail Extractor Filter.  
(This can be found in the Google Nik Collection Colour Efex Pro4)

(I have overdone the HDR effect so that you can easily see it for this tutorial.)

I do hope that you found this tutorial useful.

Derek Doar
www.ddimages.co.uk