

# HDR Photography & RAW image format

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<http://BobFoto.com>

# Who is Bob Randklev?

- | Website designer / developer / technology consultant

- § Started CyberInnovation.com in 1998

- § Membership sites, custom Facebook sites

- | Commercial Investment Realtor

- § Primarily apartment buildings

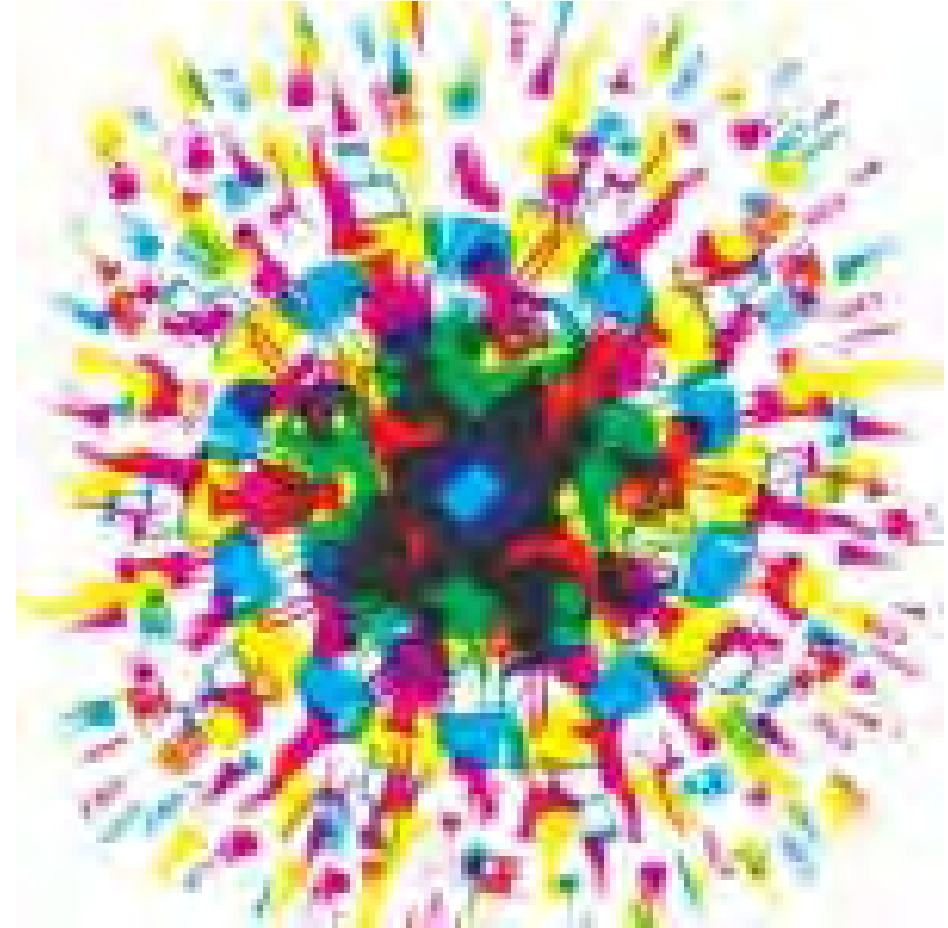
- § Some residential real estate

- | Graphic design / print layout

- § Business cards, flyers, letterhead, newsletters

- | "Prosumer" photographer

- § I make some \$\$ with photography but not full time



# Today's Presentation Goals

1. Understanding HDR Photography
  - § Who, What, Where, When, Why
2. Understanding RAW Image format
  - § Who, What, Where, When, Why
3. Giving you the tools/ideas to go create HDR
4. Share your work/ideas/experiences with the group!  
(90% rule vs. 10% exceptions)

# What is HDR?

- High Dynamic Range = HDR (HDRI)
- Your eyes & brain can view more than the camera
- HDR is combining/merging/blending multiple shots of the same scene into one final photo
- Take the best parts of each image to create a final image



# When to take HDR?

- | High contrast compositions
- | Sunrise or sunset with shadows
- | Mid-day shots!
- | Architecture, landscapes, objects
  - § Items which generally don't move
- | Interior shots with sunlit windows
- | Not for high motion shots
  - § Advanced HDR fixes with Photoshop



# How to take HDR photos

- ! Tripod is almost a requirement!
- ! You have to take 3 or more photos of the same composition
  - § Under exposed, Correct exposure, Over-Exposed
  - § Shadows, Mid-tones, Highlights
- ! Understanding the histogram is required or
- ! You have to understand exposure bracketing



# HDR Gear

• Digital SLR is almost a requirement

§ Point/shoot or range finder cameras generally don't have

- Manual Mode
- Histogram.... ????
- AEB bracketing (Auto Exposure Bracketing).... ????
- RAW format...???

• Tripod and a cable/wireless shutter release

(Optional) Adobe Lightroom

Photomatix HDR software

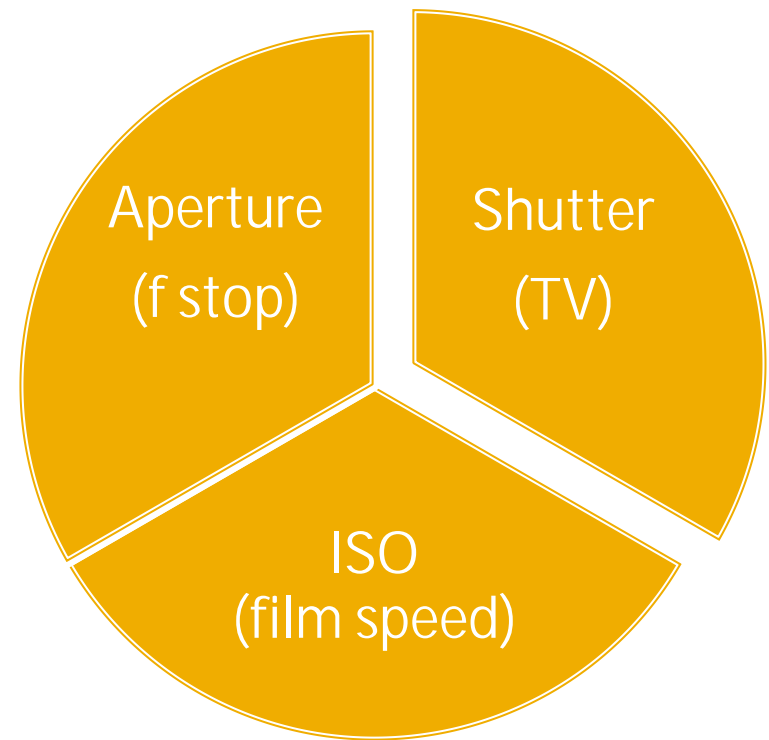
• Computer with some horsepower (XP or Vista)



# How I shoot HDR

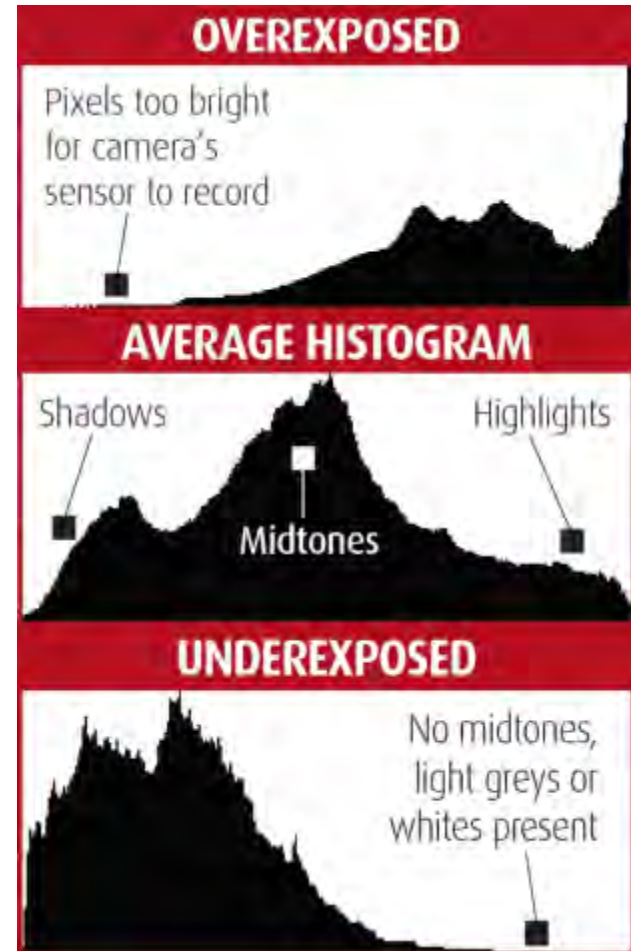
- ⌋ Set my camera in manual mode
- ⌋ Lock my ISO (take off auto)
- ⌋ Setup your tripod, camera & cable release
- ⌋ Take first corrected exposure and look at histogram

Based on training by  
Adam Jones @ Canon



# Understanding Histograms

- Histogram is all of the pixels in the photo
- If the image is a perfect bell, little need for HDR
- Generally the left and right sides will crop off
- Next Step: "Roll shutter wheel" or take our shutter speed down one full stop



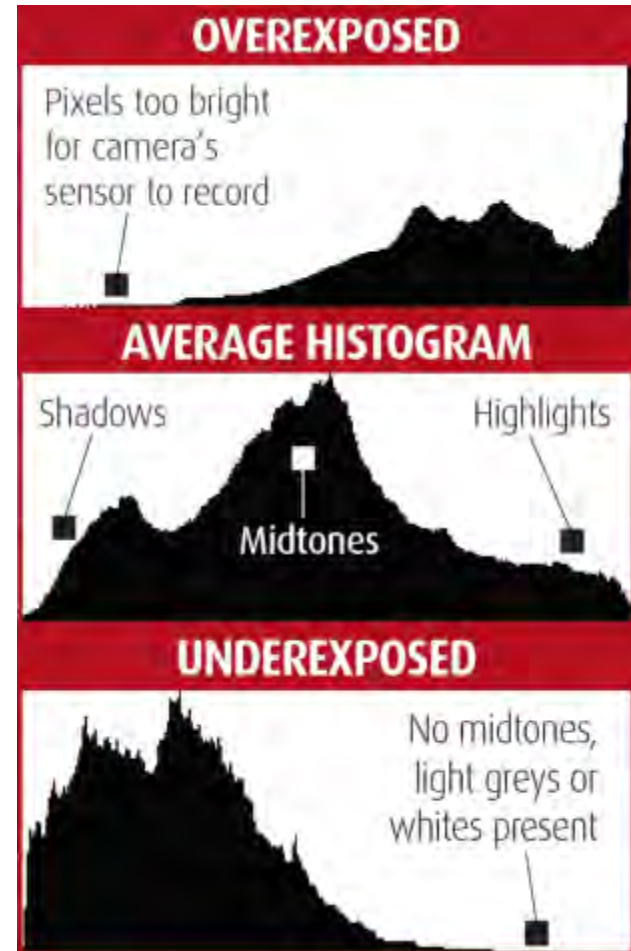
# Shadows -Step down 1-3 stops

- Roll your wheel to change shutter down one stop
- Take another photo, look at the histogram
- Roll down another stop, look at the histogram
- Continue until trailing edge is in the mid tones of the histogram
- You now have all the images for the shadows now we do the same for highlights



# Highlights – Step up 1-3 stops

- Roll wheel back to first exposure and then roll up one full stop and take a photo
- Look at the histogram
- If you took 3 shots under exposed you'll need 3 shots over exposed
  - § The first shot is a balanced shot per the camera
- Compose the first image and don't look at any others... look at the histogram!



# Photo shoot summary

- Now have 3-7 photos over/under exposed
- Import them to a folder on your computer
- DO NOT crop cut or edit the images in any way!
- Install and start up Photomatix
- Lightroom users can select the images and right click to export to Photomatix



*HDR image (created from the 3 left photos) + Tone Mapping*

# HDR via Bracketing

- Easier way of getting multiple images
- Results may be less but still a good way to start
- May be an option for point/shoot or range finder cameras
- Setup bracketing in your camera settings,
  - § Click the shutter 3-5 times
  - § Results are 3-5 images over/middle/under exposed



# Single image HDR

## PROS

- ⌋ HDR from one image
- ⌋ Create virtual copies of a RAW image
- ⌋ Change exposure plus/minus 1-2 stops
- ⌋ Merge images in Photomatix

## CONS

- ⌋ Not suggested
- ⌋ Lower quality
- ⌋ Original RAW image may not have details needed
- ⌋ IF you have an old image may be your only option?

# Questions so far?



# RAW format vs. jpg

- | All cameras shoot RAW (proprietary format)

  - § From point-shoot to SLR's

- | Cameras are computers

  - § Cameras process, color correct and compress RAW images into JPG files

- | Why a 10mb camera creates 5mb JPG's

  - JPG - 256 shades of gray

  - 12 bit RAW – 4,096 shades

  - 14 bit RAW – 16,384 shades

**RAW RULES!**



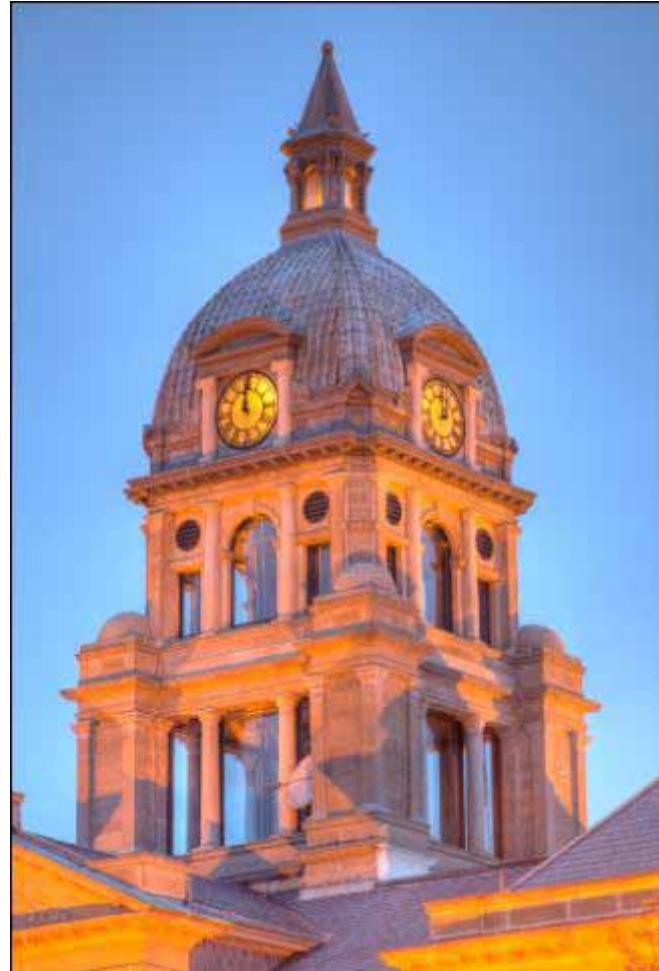
# Why would you let your camera do that?

- i I prefer to see my images RAW and then AFTER my corrections convert to JPG
- i I've spent a lot of \$\$ on my gear, time to take the photo, setup, software that I'm not going to let my camera compress and process my photos!
- i I have RAW images from years ago that I thought were great but now with what I've learned in Photoshop I can go back and make them better!



# Objections to RAW

- i RAW images are bigger so you need bigger:
  - § Memory cards in the camera
  - § Bigger hard drives in your computer
  - § Faster USB 2.0 to transfer
  - § More computer memory to load
- i Consumer – Prosumer – Professional
  - § Your gear, computer, cameras must match



# “RAW creates an extra step”

I don't know where the extra step is?

1. Take a photo
2. Import from memory card to computer
3. Manage in Lightroom, Photoshop or Picasa
4. Crop/edit/color correct
5. Export to printer, web, Facebook, Twitter etc.

The extra step must have something to do with multiple programs out of the camera box?



# Adobe DNG format

- ! DNG stand for Digital Negative
- ! Adobe standard being adopted over the past few years
- ! RAW format from Canon, Nikon, Leica and others is proprietary
- ! DNG is universal to all
- ! Convert RAW to DNG and save around 25% disk space



# Questions on RAW?



# First photo



- First  
“Center Exposure Shot”
- “Balanced Exposure”

## AVERAGE HISTOGRAM



# 1 stop under ..... 2 stops under



# 1 stop over..... 2 stops over



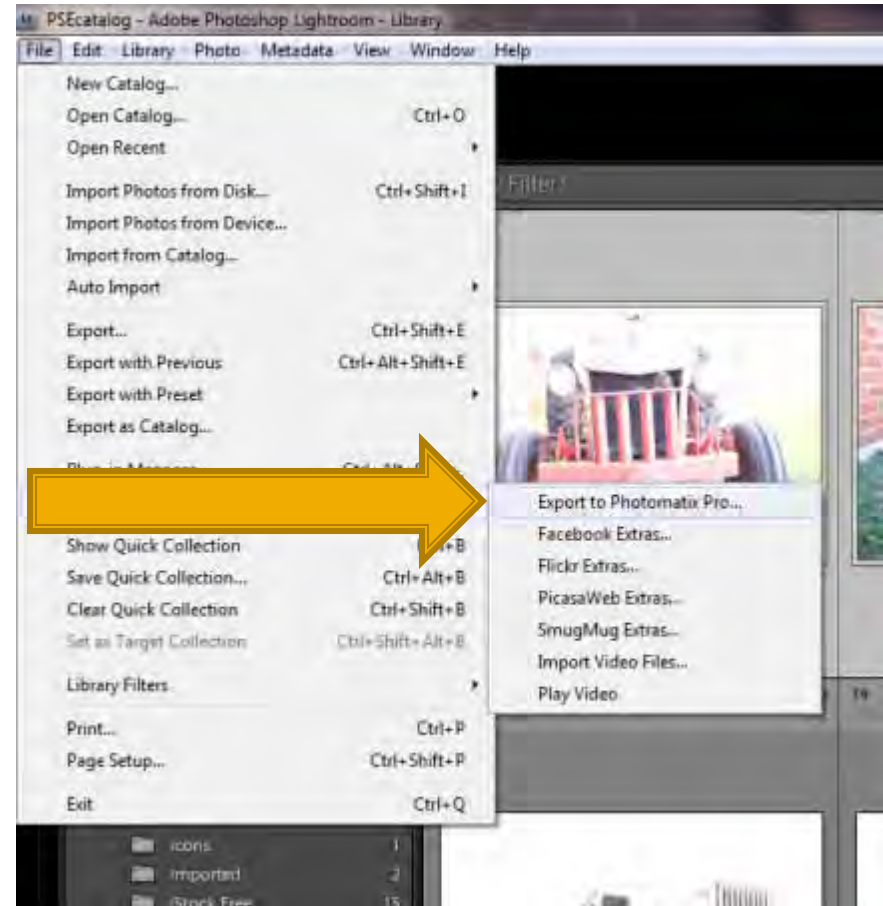
## OVEREXPOSED

Pixels too bright  
for camera's  
sensor to record

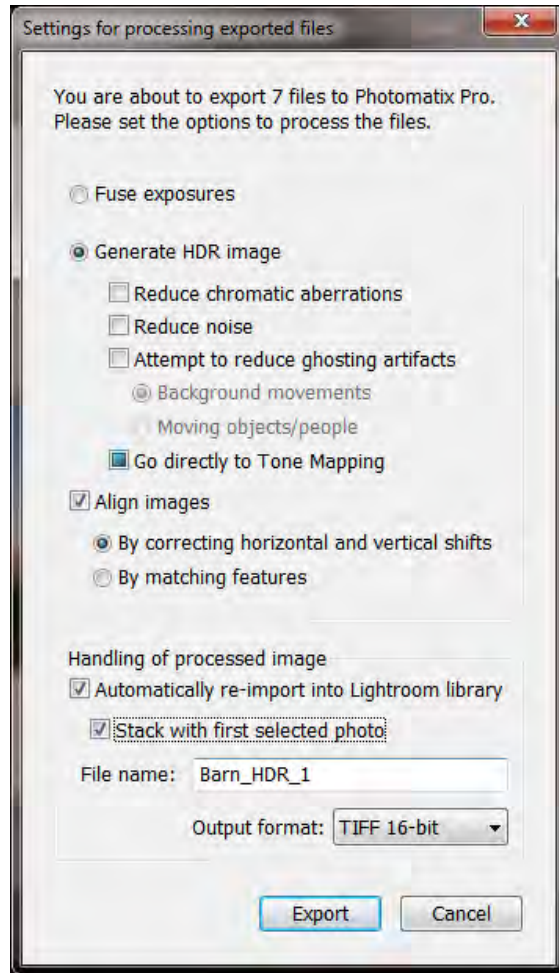


# Lightroom users

- From within Lightroom choose the first image then shift-click the last image to choose the group
- Right click and export to Photomatix
- This automates the create HDR process and takes you right to tone mapping

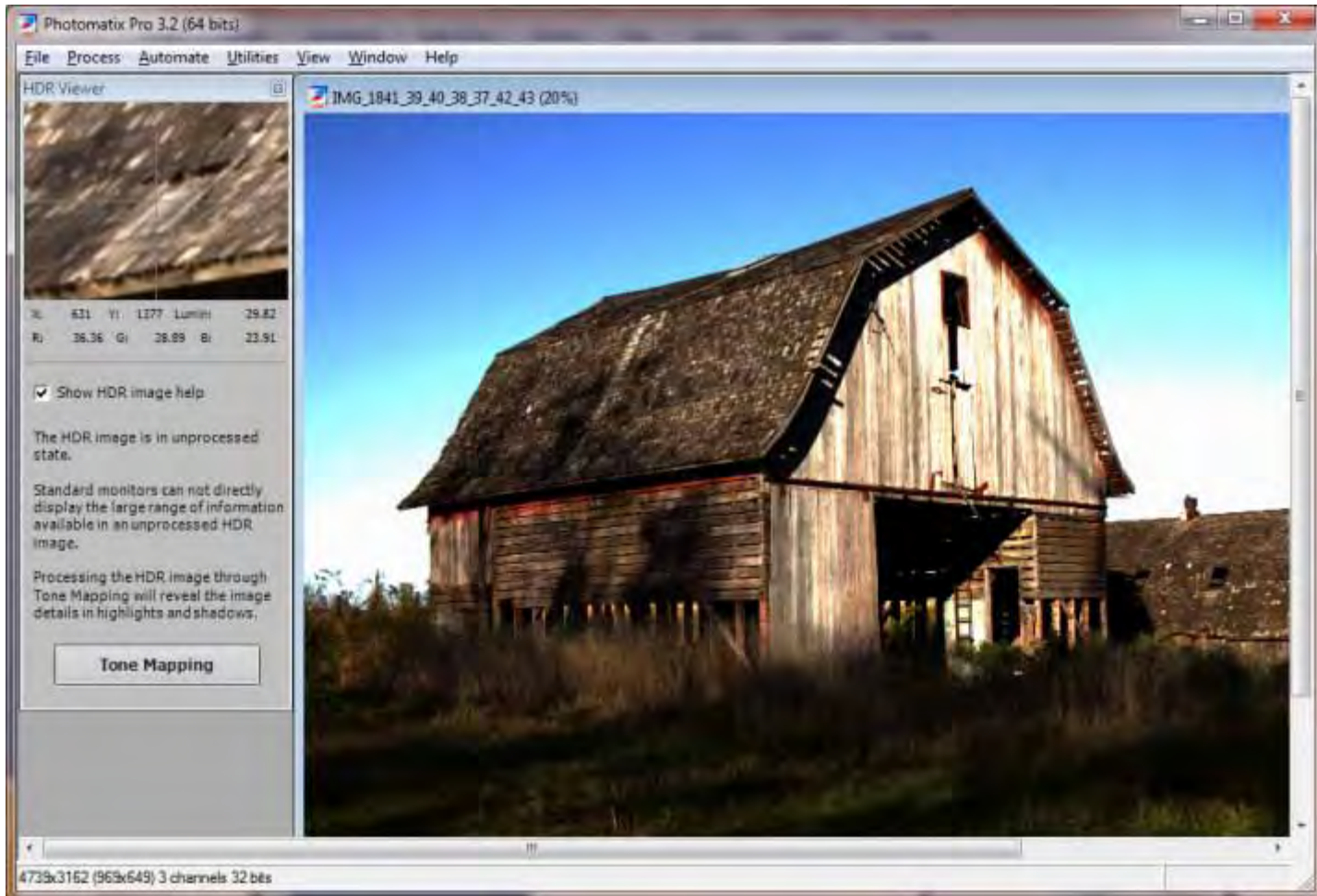


# Next choose your settings



- Generate HDR
- Go directly to Tone Mapping
- Align Images
- Auto re-import
- Stack
- Name
- 16 bit - TIFF

# HDR image will look rough!



# Tone Mapped image

Photomatix Pro 3.2 (64 bits)

File Process Automate Utilities View Window Help

Tone Mapping Settings - IMG\_1841\_39\_40...  
**Details Enhancer** **Tone Compressor**

Strength 70  
Color Saturation 46  
Luminosity 0.0  
Microcontrast 0.0  
Smoothing 0.0

Light mode

▶ Tone Settings  
▶ Color Settings  
▶ Miscellaneous Settings

▶ ?


Presets: Default

Save and Re-import

Tone Mapping Preview - IMG\_1841\_39\_40\_38\_37\_42\_43


Ratio to Original:  1/8  1/4  1/2 Show Original

Preview Magnification: 100%



Histogram - IMG\_1841\_39\_40\_38\_37\_42\_43

Luminance Red Green Blue



Level: 58 Count: 952 Percentile: 7.52

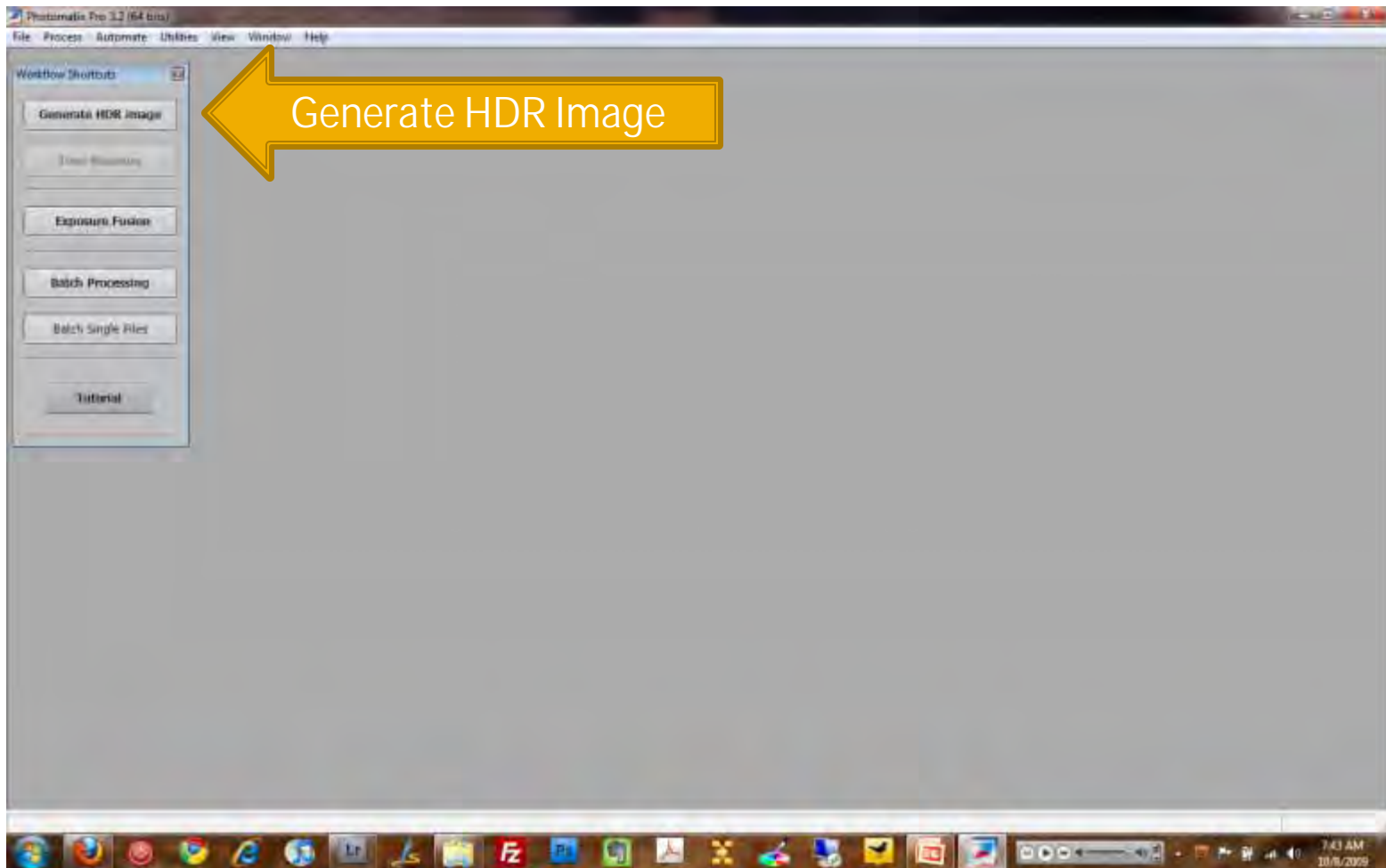
# Tone Adjustments in Photomatix

- | I change very little in Photomatix
- | Use Photoshop for levels/color correction
- | I suggest you don't change anything at first to test and experiment
- | Too the right is the softer more "life" like HDR
- | Too the left is more "grunge" like HDR
- | I make my levels/curves adjustments in Photoshop

# Creating the HDR in Photomatix

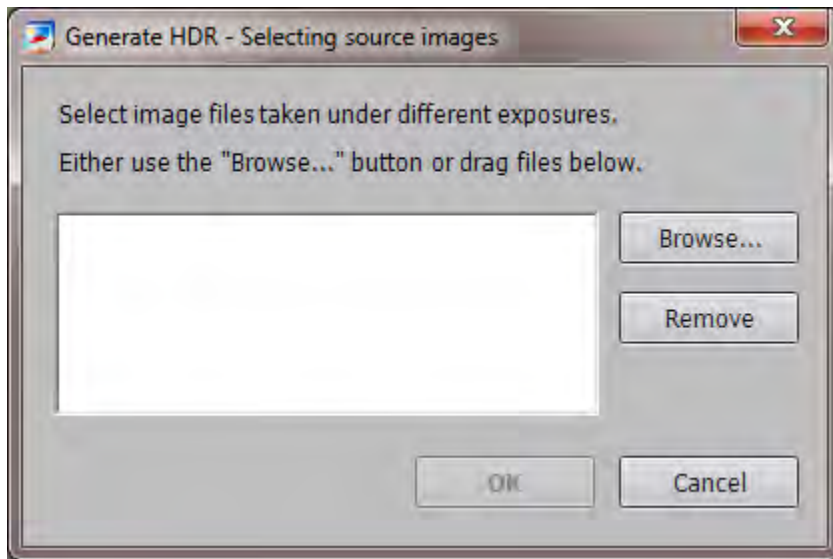
1. Open Photomatix
2. Click generate HDR
3. Choose the 3-7 RAW or JPG images we took previously
4. Merges best pixels together to create RAW HDR
5. Won't look too good yet!
6. Save the HDR file but it's big!
7. Try different tone mapping from here!

# Photomatix - Stand Alone



# Choose file

- | Browse to choose files
- | RAW or JPG



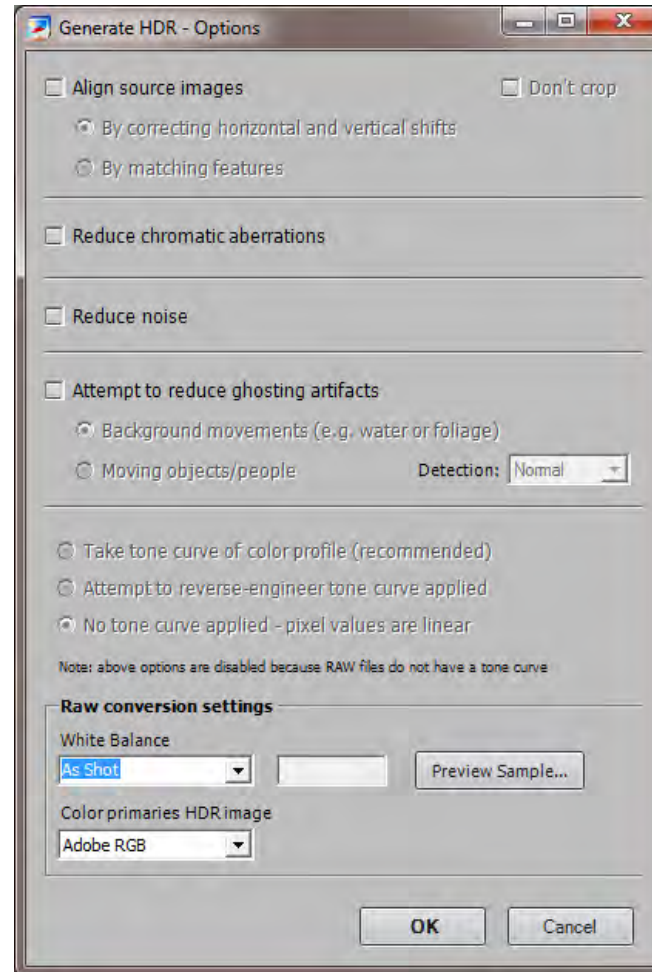
Browse and choose files

# Set your options

Align Images

Reduce Noise

sRGB Color Space



# Final Image

- i After image processing is complete you can crop/cut, color correct etc..
- i Advanced editing in Photoshop:
  - § Replace fluffy sky with single layer
  - § Replace moving flag in wind
  - § Replace water layer



# Final Images













# Summary of HDR Process

- | Shoot 3-7 images 1 -2 stops apart
- | Tripod mounted (no movement)
- | RAW format
- | Import into Lightroom / Photoshop
- | Highlight images/export to Photomatix
- | Create HDR and save as TIFF back in LR
- | Stack all your images together in LR
- | Advanced editing in LR or Photoshop

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