






PWC G8
Gals@Technology

Digital Archiving


May 16, 2022

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Scott Ksander

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- 40+ years in the IT field, 26 years at Purdue
- Wrote his first program (FORTRAN) when he was in 5th grade. Purdue degree in Computer Science.
- Areas of interest – systems development, networking, security
- In retirement, Scott writes a technology column for the Purdue Retirees Newsletter and does presentations for the Purdue Women’s Club
- Scott and Peggy enjoy life with their kids and grandkids – especially on trips to DisneyWorld
- Scott grew up in Chicago and Peggy grew up in Fish Lake, Indiana (city boy meets farm girl at Purdue story – and the adventure continues ...)

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Zoom Tech

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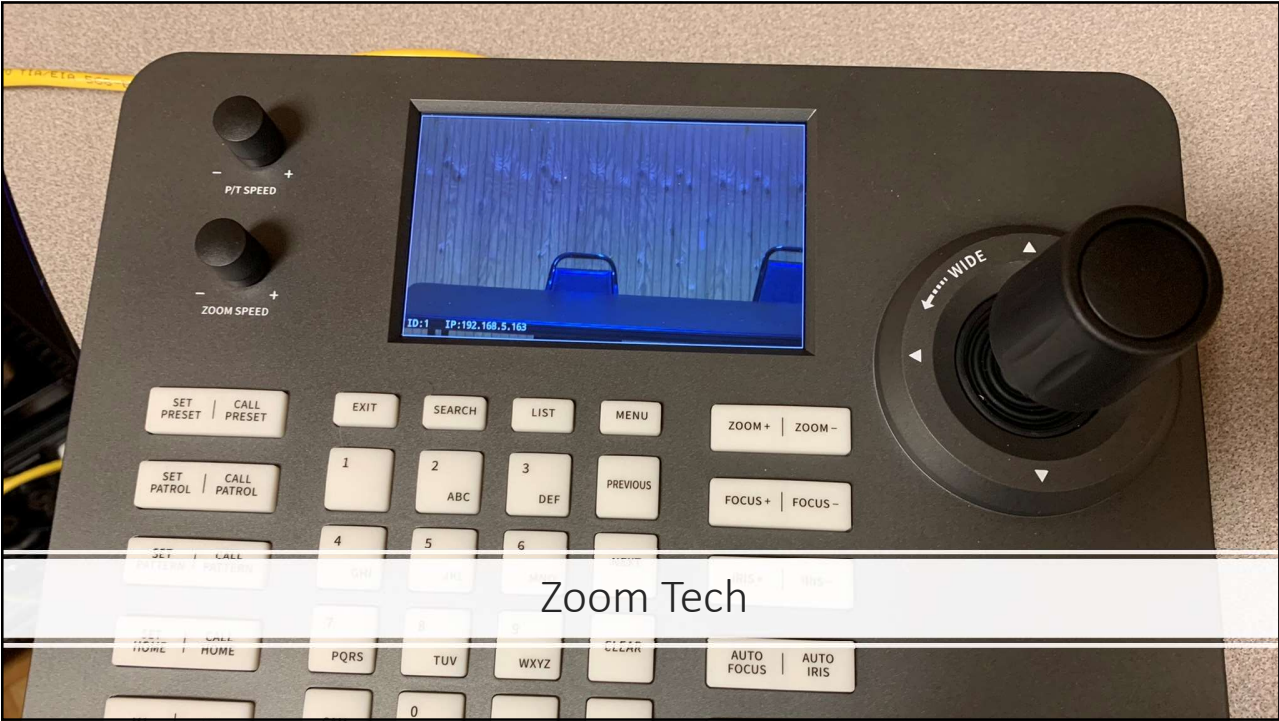


Zoom Tech

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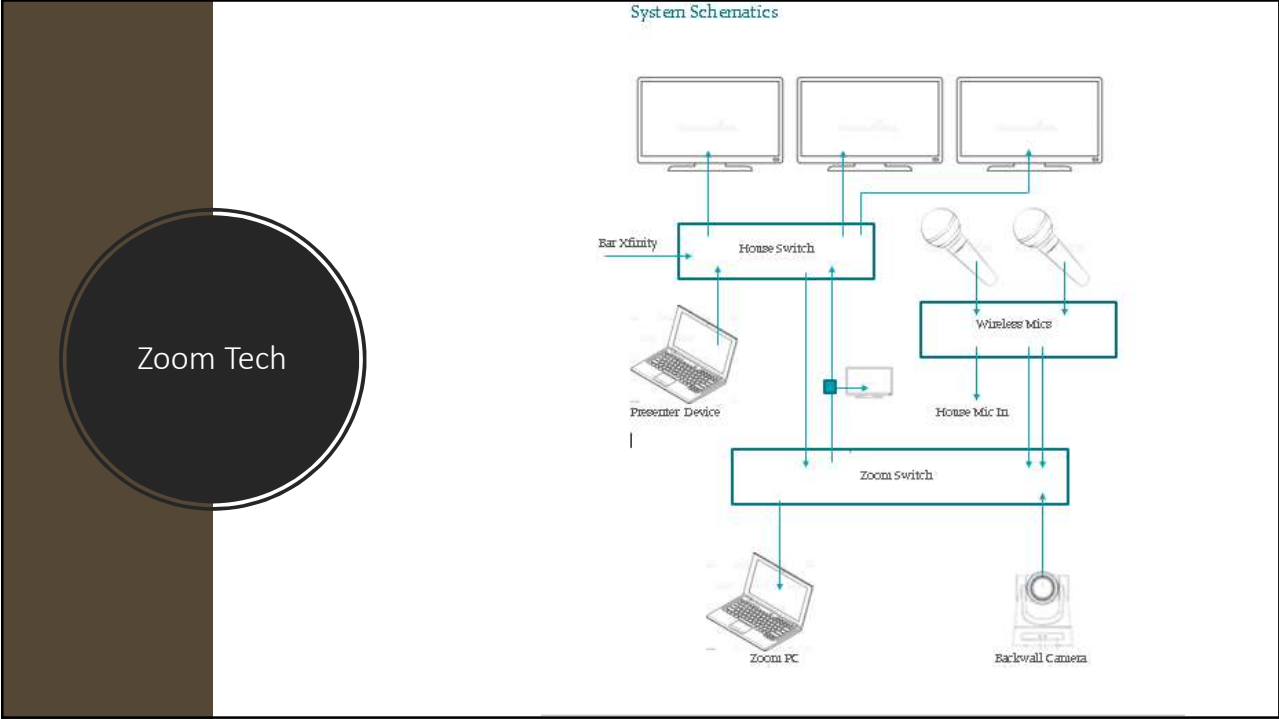
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A Story About Photos and Backup

Date	Location	Total Number of Files	Total File Size (GB)
12/28/2018	Phinda	3930	96.9
12/29/2018	Phinda	8978	228.5
12/30/2018	Phinda	6960	180.8
12/31/2018	Phinda	6514	189.5
1/1/2019	Phinda/Tintswalo	4109	131.7
1/2/2019	Tintswalo	6888	180.6
1/3/2019	Tintswalo	2013	54.5
1/4/2019	Tintswalo	3728	86.3
	TOTAL	43120	1148.8

- My sister Karen, husband Bill, and son David.
- 8 Day Photo Safari in Southern Africa
- 3 people, 6 Nikon camera bodies, 8 lenses, 1.2TB

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A Story About Photos and Backup

- Cameras have digital memory cards
- Nightly backups of “daily memory cards” to 2 different portable USB drives
- 1 USB drive was used, the other was new
- Towards the end of the trip, things got busy and daily backups were only made to the new USB drive
- At home, the USB drive was unreadable!!
- There are lost photos!! These are some of what would have been lost.



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A Story About Photos and Backup

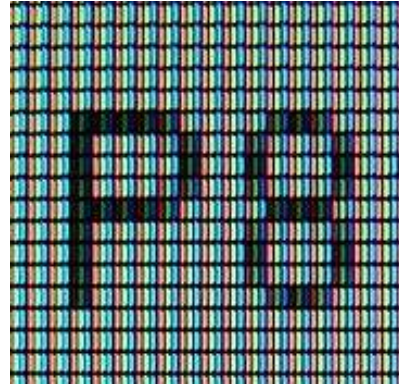
- Scott’s recovery tools didn’t work
- Drive sent to Drive Recovery Group for lab recovery
- 3 of 4 heads were good. 4th head was failing. After 3 weeks of the 4th head somewhat working, it finally completely failed.
- 4th head was replaced using a new technique (first time used)
- All photos recovered
- **5 weeks and \$1,795 later**



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Photo Basics

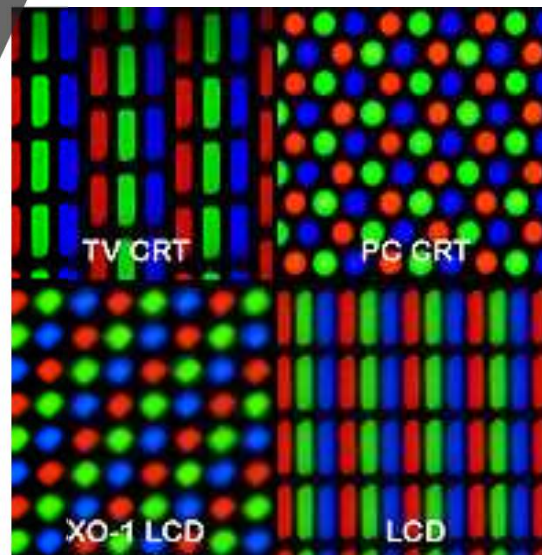
- Pixel (sometimes called Pel or Picture Element) is the physical point at which light is captured. The smallest addressable element
 - Intensity or brightness is variable
 - Component parts – red, green, blue or cyan
 - Sometimes cameras are rated at megapixels
 - For example, a 640x480 pixel image is 307,200 pixels
- Bits per Pixel or bpp
 - 1 bpp = 2 colors (B&W)
 - 2 bpp = 4 colors
 - 24 bpp = 16,777,216 colors (also know as “Truecolor”)



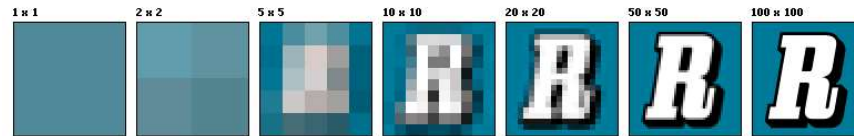
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Photo Basics

Not all colors can be sensed at the same physical site



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- Resolution – the image can never be better than the original capture

Photo Basics

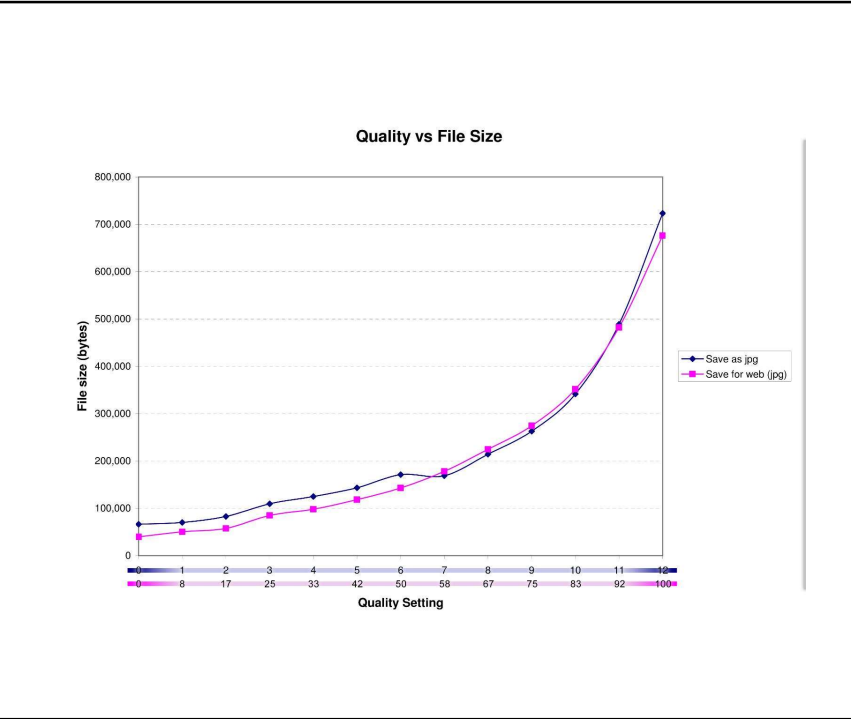
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Photo Basics

- 500×480 : [Digital8](#)
- 720×480 : [D-VHS](#), [DVD](#), [miniDV](#), Digital Betacam (NTSC)
- 720×480 : Widescreen DVD (anamorphic) (NTSC)
- 720×576 : [D-VHS](#), [DVD](#), [miniDV](#), [Digital8](#), Digital Betacam (PAL/SECAM)
- 720×576 : Widescreen DVD (anamorphic) (PAL/SECAM)
- 1280×720 : D-VHS, [HD DVD](#), [Blu-ray](#), HDV (miniDV)
- 1440×1080 : HDV (miniDV)
- 1920×1080 : HDV (miniDV), AVCHD, HD DVD, Blu-ray, HDCAM SR
- 1998×1080 : 2K Flat (1.85:1)
- 2048×1080 : 2K Digital Cinema
- 3840×2160 : [4K UHDTV](#), [Ultra HD Blu-ray](#)
- 4096×2160 : [4K Digital Cinema](#)
- 7680×4320 : [8K UHDTV](#)
- 15360×8640 : [16K Digital Cinema](#)
- 61440×34560 : [64K Digital Cinema](#)
- Kodak claims the equivalent resolution of 35mm film is 6K.

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Photo Compression (Raw – JPEG)



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Digitizing

- Do-it-yourself – takes lots of time
- Pay somebody – not particularly inexpensive

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Do It Yourself

- \$100 - \$150
- 5473x3648 pixel scan (20 Megapixels)
- Approx. 5 seconds/image

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Pay Somebody

- Wait for at least 25% discount.
- Have seen 45%.

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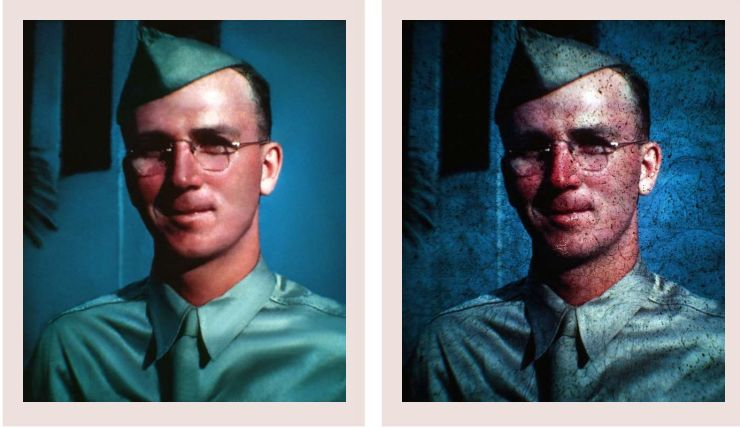
Scan and Select



- We scan your images in high resolution: 3000/4000 dpi for 35mm negatives, slides, APS, special media, and 600/1200 dpi for paper photos
- Each of your images will be reviewed and corrected as needed, one at a time, by an assigned technician.
- When your scans are done, we will send you an email.
- You'll have the chance to review all your scans. If there are scans you don't want, simply delete them and you won't be charged for them. You may delete up to 20% of your order.
- When complete, you will check out, and pay the remaining balance on your order.

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Photo Enhancement



- \$4.99 for this one.
- Max I have seen so far is \$9.99.

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Movies (8mm and Super 8)

- Generally, \$0.30 per foot
- HD scans to capture details
- Full frame scanning—nothing cropped out
- Scene-by-scene color correction

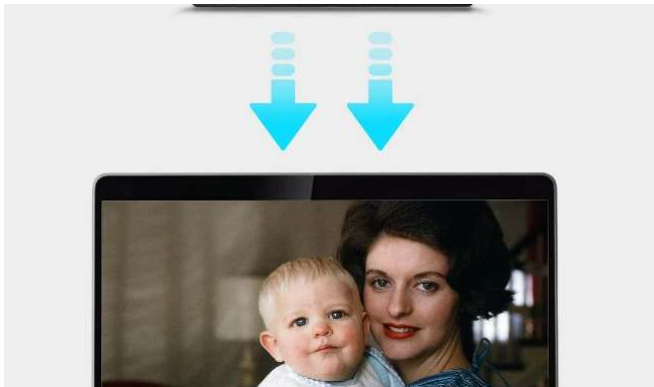
We will splice together your small reels of film onto a larger 7 inch spool. Your film will be returned to you on the larger spool. Your original empty spools will be returned to you as well. Your movies will be transferred at our Indianapolis lab with a 3-4 week turnaround

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Video Tape (VHS/VHS-C, MiniDV, and Hi8/Digital*)



Full VHS tape \$22.99

VHS enjoyed surprising longevity for nearly 40 years, before the last remaining VCR/VHS factory was shuttered in 2016.

When you send your VHS tapes to us, they aren't outsourced to another country. All services are performed at our state-of-the-art lab in the USA. When you choose ScanCafe to digitize your nostalgic VHS tapes, you'll be delighted to see that the final output is often better than the original.

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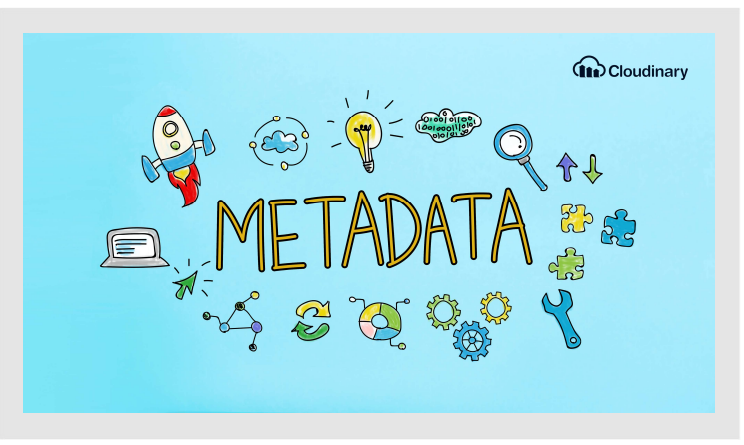


ScanCafe (now local in Indy)
 Kodak
 Memories Renewed
 ScanMyPhotos
 Camera Outfitters (local in Lafayette)

Legacybox
 GoPhoto
 ScanDigital
 Dijifi

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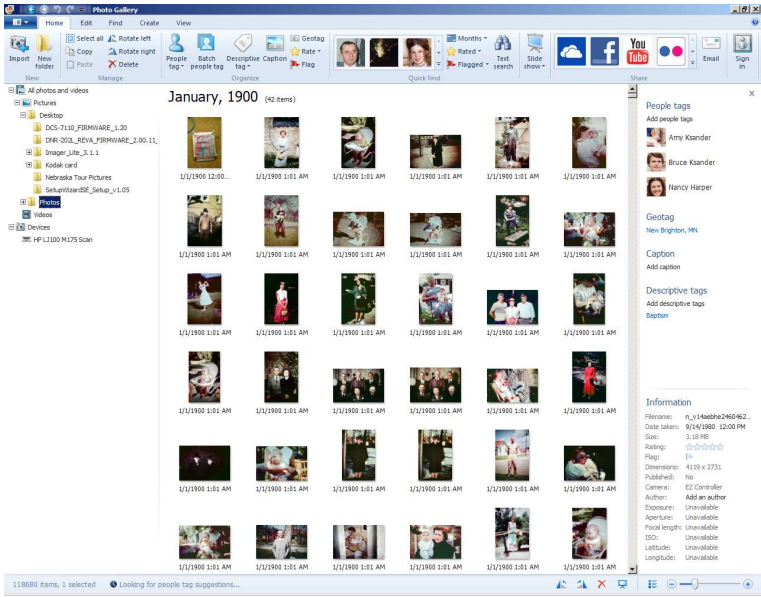
Where is the Metadata?



- Back of the photo
- Match photos to negative
- Notes on the negative envelope
- Nothing on negatives
- Processing date on slide mount
- Family notes, calendars, diaries, ...
- "Forensic" investigations

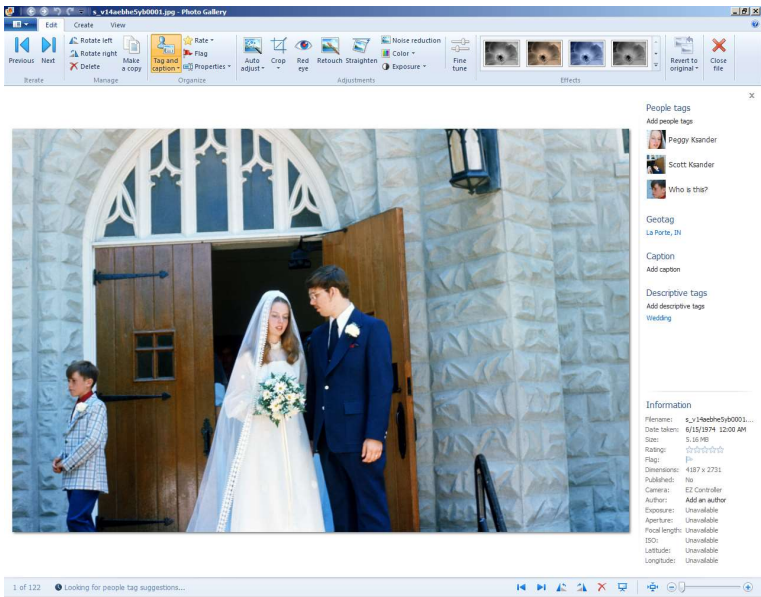
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97,240 images!!



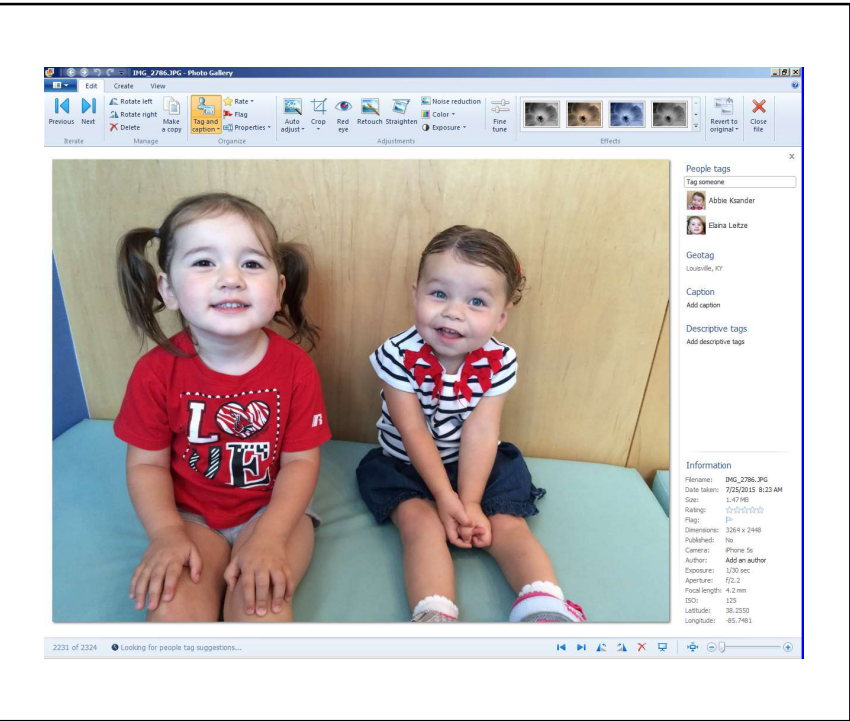
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Adding Metadata – Date/Location



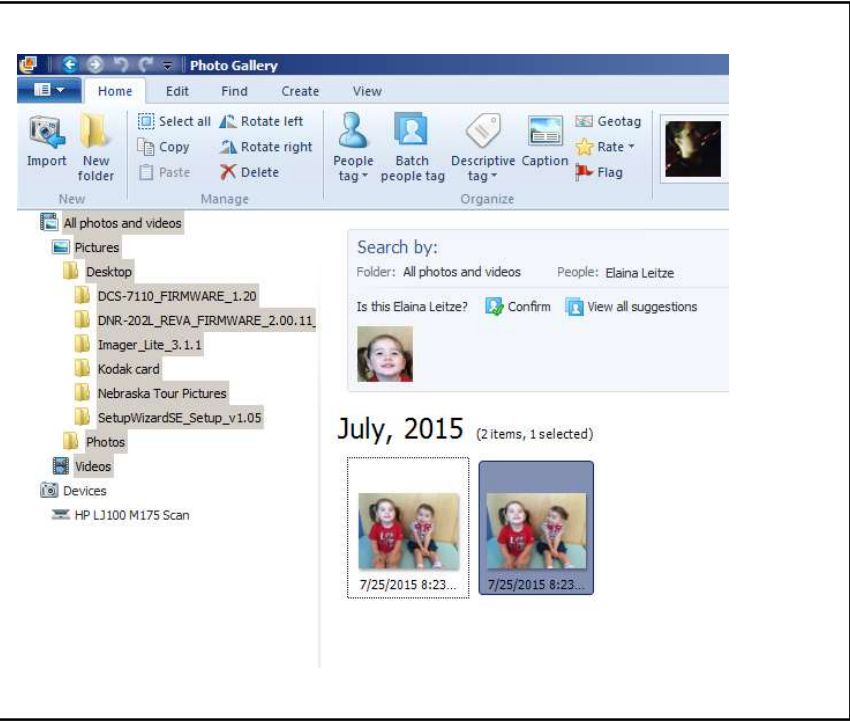
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Adding Metadata – People Tags



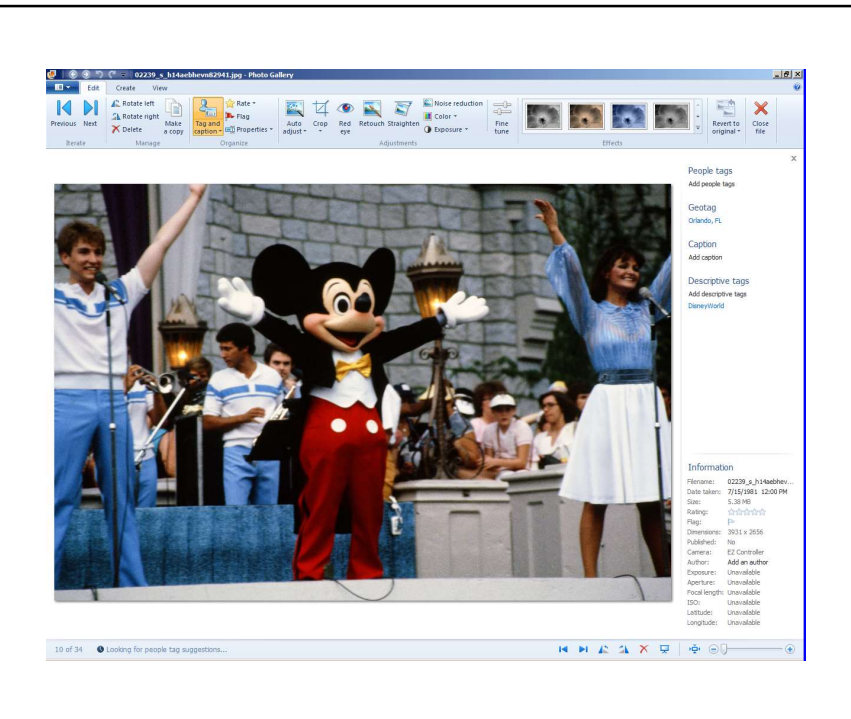
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Facial Recognition



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Adding Metadata Caption/Description



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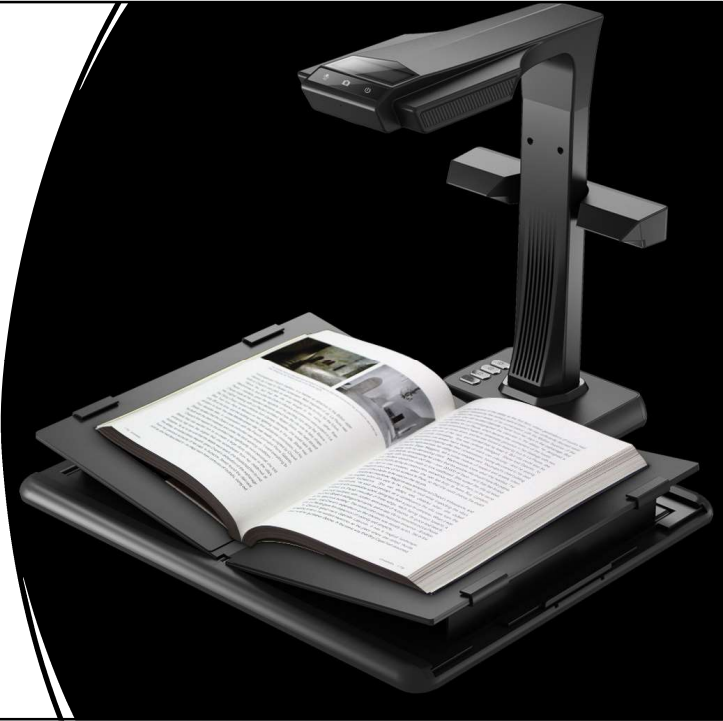
Document & Book Scanning



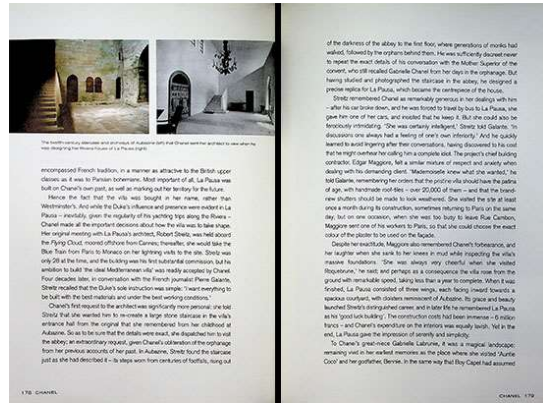
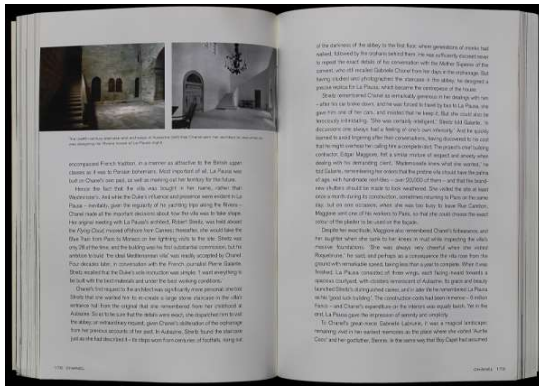
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CZUR Scanners

- Smart tilt correction & auto-cropping
- 5 color mode
- OCR Technology to produce editable documents
- Hand button and foot pedal
- Up to 11 x 17 scanning




Digital Flattening



HP ScanJet Pro 2500

- 20 pages per minute/40 images per minute
- 50 page auto document feeder
- OCR technology to produce editable documents
- Scan bed 8.5 x 11.7
- Up to 8.5 x 122 inches via document feeder




17.8" W 13.8" D 4.8" H

CLICK DOWN TO "FROM THE MANUFACTURER" TO LEARN MORE.

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Tools

- Adobe Photography Plan CC (Creative Cloud)
 - <https://www.adobe.com/creativecloud/photography.htm>
 - Adobe Lightroom
 - Adobe Photoshop
 - Cloud storage
 - \$9.99/month (look for discounts sometimes available)
- Adobe Acrobat (for working with PDFs)
 - Limited free version
 - Standard and Pro (\$12.99/month, \$14.99/month)



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Exposure Program:	Aperture-priority AE	<p style="text-align: center; font-size: 2em; font-weight: bold;">Tools</p> <ul style="list-style-type: none"> • Beyond Compare 4 <ul style="list-style-type: none"> • https://www.scootersoftware.com/ • Standard \$30, Pro \$60 • Duplicate Cleaner Pro <ul style="list-style-type: none"> • https://www.digitalvolcano.co.uk/dcpurchase.html • \$29.95 • Picture Information Extractor (PIE) <ul style="list-style-type: none"> • https://www.picmeta.com/products/picture-information-extractor.htm • \$29.00 • EXIF Data Changer <ul style="list-style-type: none"> • https://www.relliksoftware.com/exifdatechanger/ • Free and \$14.95
Exposure Time:	0.6	
Face Info Length:	37	
Face Info Offset:	94	
Faces Detected:	0	
File Format:	ARW 2.3.1	
Flash Action:	Did not fire	
Flash Exposure Compensation:	0	
Flash Level:	Normal	
Flash Mode:	Fill-flash	
Focal Length:	8.8 mm	
Focus Mode:	AF	
Full Image Size:	5472x3648	
HDR Setting:	Off	
HDR:	Off; Uncorrected image	
High ISO Noise Reduction 2:	Normal	
High ISO Noise Reduction:	Off	
Image Stabilization:	On	
Intelligent Auto:	Off	
JPEG Quality:	Fine	
Lateral Chromatic Aberration:	n/a	
Lens Spec:	24-200mm F2.8	
Lens Zoom Position:	0%	

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