DIGITAL IMAGING ESSENTIALS

Techniques and Tips for Genealogists and Family Historians

by Geoffrey D. Rasmussen

DIGITAL IMAGING ESSENTIALS

TECHNIQUES AND TIPS FOR GENEALOGISTS AND FAMILY HISTORIANS

Geoffrey D. Rasmussen

2013

Middleton, Idaho

About the author

Geoffrey D. Rasmussen is the father of four budding genealogists. He graduated with a degree in Genealogy and Family History from Brigham Young University and has served as director and vice-president of the Utah Genealogical Association. He is a dynamic genealogy speaker on all forms of genealogy technology, and as host of the Legacy Family Tree webinar series, has spoken virtually to nearly 100 different countries. He recently received the Distinguished Presenter Award at the prestigious RootsTech conference in Salt Lake City. He has authored books, videos, articles, and websites, and develops the Legacy Family Tree software program. On a personal note, Geoff enjoys playing the piano, organ, cello and basketball. His favorite places are cemeteries, the ocean, and hanging out with other genealogists.

He met and proposed to his wife in a Family History Center.

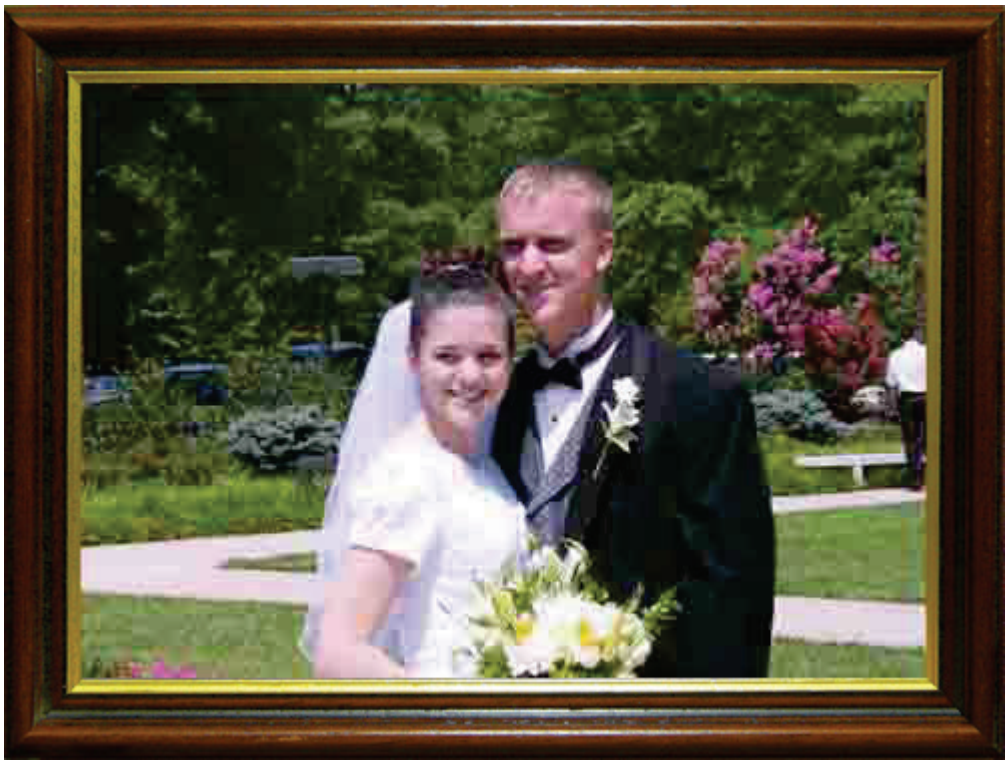
Contact Geoff at Geoff@GeoffRasmussen.com.

Contents

Preface

Twelve years ago I was asked by my younger brother to be his wedding photographer. Other than my fee (free) I had no professional qualifications to capture the memories of his special day. But I did have a digital camera. With it I could take up to 118 pictures! Just imagine all the money they would save by not having to develop a dozen rolls of 24s or 32s. In addition to my "professional" services, my gift to the newlyweds would be framed 8x10s of the best shots.

They got what they paid for.



When I returned home, I loaded all 118 digital pictures onto my computer. I chose the best ones, and printed each on my brand new color ink jet printer. To my horror, every picture looked like it was made up of a bunch of tiny squares. The printer was just fine. My computer was fairly new. My digital camera was the top-of-the-line. The problem lay in my non-understanding of *resolution*. You see, in order to take 118 pictures, and hoping to impress everyone at the wedding party, I changed the resolution on my camera to its lowest setting. I did not think for a moment this meant the resulting digital images would be made up of fewer pixels and, therefore have no ability to increase the size of the final product.

Oh how I wish now I would have read a book like this a few days before the wedding. If I had, I would have understood:

- What makes up a digital picture (lots of pixels)
- The importance of choosing the right resolution (dots per inch or dpi) settings on my camera or scanner software
- Which file format to use to safely preserve my digital images (jpg vs. tif)
- The importance of making editing changes only to a COPY of the digital image

Sounds like pretty boring, technical stuff, eh? (My wife is Canadian – have to impress her with my knowledge of 'eh' every now and then.) When these four concepts are understood, genealogists can safely preserve their original documents and old photographs – without regrets.

Over the years my personal and genealogical digital photo collections have grown to nearly 20,000 items, and now I have the desire to:

- Locate any media item (digital picture or video) quickly
- Share them easily
- Have access to my collections from any Internet-connected computer, tablet, or smart phone
- Ensure that I will never lose one of them

Through years of trial and error, learning from the experts, and staying on top of the latest technologies, I have developed a strategy that helps me accomplish my goals of digitizing, editing, preserving, searching, and sharing effectively and efficiently. Here is the strategy in its most elementary form:

1. Use a good digital camera or scanner to digitize family pictures and genealogy documents.
2. Use software that aids in the both the digitization *and* the organization of the digital media. Through this lens, I use Adobe's Photoshop Elements.
3. Use software to easily and inexpensively allow me to share my digital media with others through email, the cloud, and mobile devices. I use a combination of Photoshop Elements, Google's Picasa, and a number of online services.
4. Use multiple backup tools to ensure that my digital media will always be safe.

This book will:

- Teach what makes up a digital image
- Explain the three golden rules of working with digital images: 1) right resolution, 2) right file format, and 3) make editing changes to a copy of the original
- Show what to look for in a good digital camera and scanner
- Help you use your photo management software
- Explain the four steps of scanning a document or picture
- Teach how to import pictures from a digital camera
- Demonstrate how to repair your digital photos and improve their quality, while safely preserving the original
- Present an easy-to-use organization system for your digital media with the goal of finding anything in under a minute
- Give step-by-step instructions for using the two most popular photo management programs: Photoshop Elements and Picasa
- Describe and illustrate how to best share your pictures via email, CDs and DVDs, printing and mailing, Dropbox, and online via cloud technology
- Introduce a backup strategy to protect you from the day your computer quits

So if you are ready to take your digital pictures to the next level, go ahead … turn the page … and have fun!

A Digital Image is…

When the average genealogist hears the phrase *digital image* they first think of their digital camera. While this is 100% true – a digital camera does produce digital images (and digital movies too) – a scanner (flat-bed, wand, or even the popular Flip-Pal mobile scanner) also produces digital images. Therefore, an original will, a newspaper clipping, or even an old photograph can turn into a digital image.

Before digitization:

After digitization:

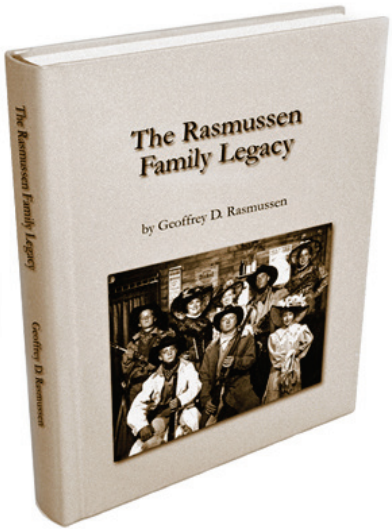
Digital images also come from the Internet. In fact, every picture that we look at online is a digital image. We sometimes download those images for our private use.

Whether we download an image or create it ourselves with our digital camera or scanner it is imperative to know what makes up a digital image so we know how to manipulate it later if needed. Digital images are made up of *pixels*! When we look at a printed picture we often do not notice the pixels, but when that image is digitized and we zoom in on it, we soon notice that the image is made up of hundreds or thousands of tiny dots. Zoom way in and you will find that each dot, known as a pixel, has one unique color. All of these pixels with all of their individual color variations, when put together make up a digital image.

Take a look at the images below. The one on the left is my favorite ancestor, Asa Clark Brown. Looks pretty good for an old photo, doesn't it? The one on the right is a zoomed-in image of his nose. Notice all the tiny pixels that make up this image. Each has its own color, and when all of these colorful pixels are put together and zoomed-in at 100%, they make up a nice image.

What will you do with the digital images?

To get started, you should have an idea of what you will do with the digitized images. Will you:



- Use them in a presentation?
- Publish in a book?
- Email to family?
- Enlarge to hang on the wall?

The answer to this question can help you determine how you should use your digital camera or scanner to digitize the document – sort of. But because you cannot possibly foresee all future uses for a digitized image, follow this 2-part golden rule:

1. Save the original digitized image at a high **resolution** (between 300-600 dots per inch)
2. Save the original digitized image as an archival-type **file format** (TIF) or be careful to only make editing changes to a copy of the original

Remember, you may get just one opportunity to digitize the image. For example, you are at your Aunt Clara's home in England. She will not give permission to take her original photographs with you for fear that they would get lost or never be returned to her. But she does give you permission to scan them while you are there. This may be your one chance to digitize. Someone who does not understand the golden rule may decide to save hard drive space by choosing a lower resolution (the resulting digital file will be smaller) and a file format like JPG that uses less room. These settings will be fine if all you want to do is view the digital image on your screen, but when you want to publish it in a book or enlarge it for framing, you will be out of luck. Therefore, understanding which resolution settings and which file format to save the digital image as is crucial.

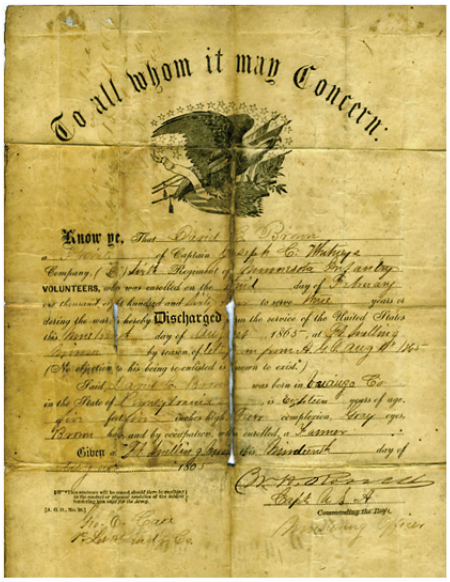
Resolution

Resolution means different things for a digital output (screen) versus a printed output (paper). A document scanned at 300 dots per inch (dpi) will appear very large on the computer screen, and the quality will be pretty good when printed. The same document scanned at 72 dpi will appear much smaller on the screen, and the quality will be less when printed. However, the document scanned at either 72 dpi or 300 dpi will have the same dimensions when printed. You'll have to re-read that a couple of times! If you scanned a document at low resolution because you wanted to cut down on the file size, and then later you wanted to use the same image for a professional publication, you would not be able to unless the original was re-scanned at a higher resolution.

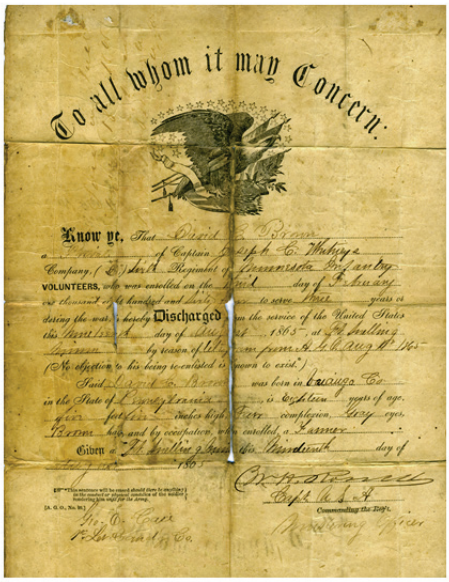
There are two categories of resolution:

Printing resolution. For images digitized and then printed, *resolution, to an extent, determines the quality of the image, not its size.*

If you will be printing your digital image to paper, the higher the resolution you choose when you create the digital image (via your camera or scanner) the better it will look when printed. The more dots in the picture the smoother and crisper the picture will look. There are limitations of course, depending on the type of printer you have, but for the most part – higher resolution results in a better-looking picture when printed. This is known as the *printing resolution.*



Scanned at 300 dpi.



Scanned at 72 dpi.

Wireless. Imagine snapping a picture and having it automatically transferred to your computer at home, your online photo album, and emailed to your mother. Your family or friends can join you on your vacation without you having to put up with them. If the digital camera has wireless capabilities built in, you are that much closer to making this happen.

Keep in mind that the camera will not have Internet built-in, just the ability to *use* Internet tools *if*:

- the camera has the wireless capability
- *and* you are within a wireless network
- and can connect to the wireless network

That might seem like a lot to keep straight. Here's an example – you are on vacation in a city which has free wireless access everywhere. Using your camera, you can connect to the open Wi-Fi network. Using either the camera's built-in tools, or an Eye-Fi card (sold separately), after snapping a picture, you can have that picture sent to your Facebook, Picasa, Flickr, other accounts, or even your computer.

You can still go wireless with your digital camera (or even the Flip-Pal mobile scanner because it too uses an SD card) even if it is not built in. All you need is a different kind of SD card (this is the memory card that you insert into your camera that stores the digital images) called an Eye-Fi card. Stick the Eye-Fi card into the SD card slot and snap away. There is a little setup involved on your computer first, but depending on your settings, once you are within a wireless network range and your camera is turned on, the Eye-Fi card begins transmitting your digital pictures to your computer at home or to your favorite photo sharing site.

My parents live over 1,300 miles away, and do not get to spend many holidays with us. Imagine this – Christmas morning comes and I snap a few dozen pictures. As I snap the pictures, they are instantly uploaded to my Picasa web albums account, to which I have given my mother access. She receives an automated email notifying her that I have added new pictures to my album, and she is able to watch the new pictures arrive. Wonderful technology!

If you are snapping pictures in an area without access to a wireless network, consider purchasing and bringing your mobile broadband card with you. Though not inexpensive, these cards, like the MiFi card from Verizon, act as mobile Wi-Fi hotspots. In other words, you can bring access to the Internet with you – for a monthly fee of course. This works well when you are at the cemetery snapping away. With your MiFi card in your pocket, and your Eye-Fi card in your camera, your pictures are automatically uploaded to your computer, Facebook, genealogy society's Dropbox folder, or your favorite photo sharing site.

The same holds true with the Flip-Pal mobile scanner. Simply remove the included SD card, insert the Eye-Fi card, and after scanning your image/document, it gets wirelessly transmitted to your desired location. Although I have not heard of it being done, imagine the possibilities of a genealogy society working together. They have a couple of people scanning documents at the courthouse with their 1) Flip-Pal mobile scanner, 2) Eye-Fi card, and 3) wireless access. As the documents get scanned, because of how they set up the Eye-Fi settings, the digital images wirelessly transfer to the society's Dropbox where everyone now has access. The possibilities seem endless.

How to Import from your Scanner or Camera

Now that you have the perfect scanner, it is connected to your computer, and your software is set up, it is time to make your first perfect scan. Here is the summary of the process.

4 Steps to digitizing a photograph or document using a Flat-bed scanner

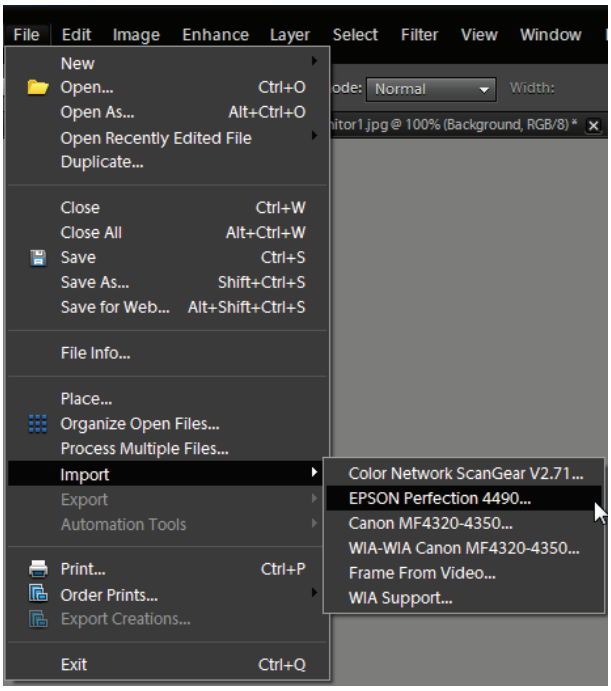
1. Open your photo editing software (Photoshop Elements, Picasa) and initiate the scan.
2. Set your scanning preferences.
3. Scan.
4. Immediately save the original image.

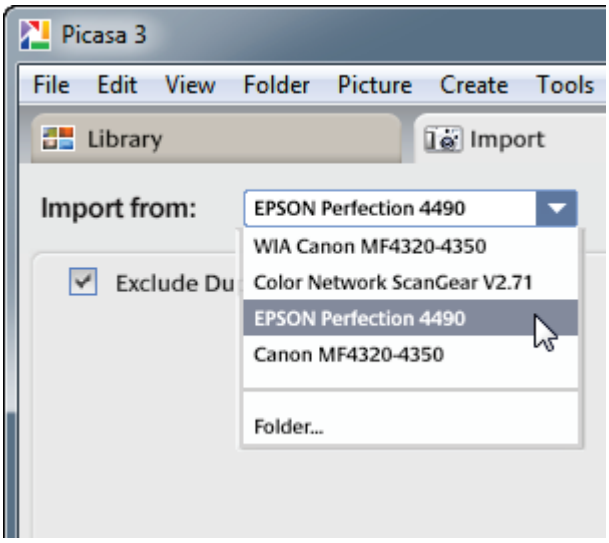
Step #1 – Open your photo editing software (Photoshop Elements, Picasa) and initiate the scan.

Before powering on your scanner and placing the picture or document on the scanning bed, check the bed and the photo for any lint, dirt, or smudges. You can use canned air to blow off the dust on the photo or bed, but probably do not use it for old photos that could crack. Now, carefully position your photo or document on the glass just as you would with a photocopy machine. Next, close the cover and launch your photo editing software.

Photoshop Elements
In the Editor (not to be confused with its Organizer), go to File > Import and click on the desired scanner. Piece of cake. Done with step 1.

Picasa
Click on the Import button (upper left) or go to File > Import from and click on the desired scanner. Piece of cake. Done with step 1.





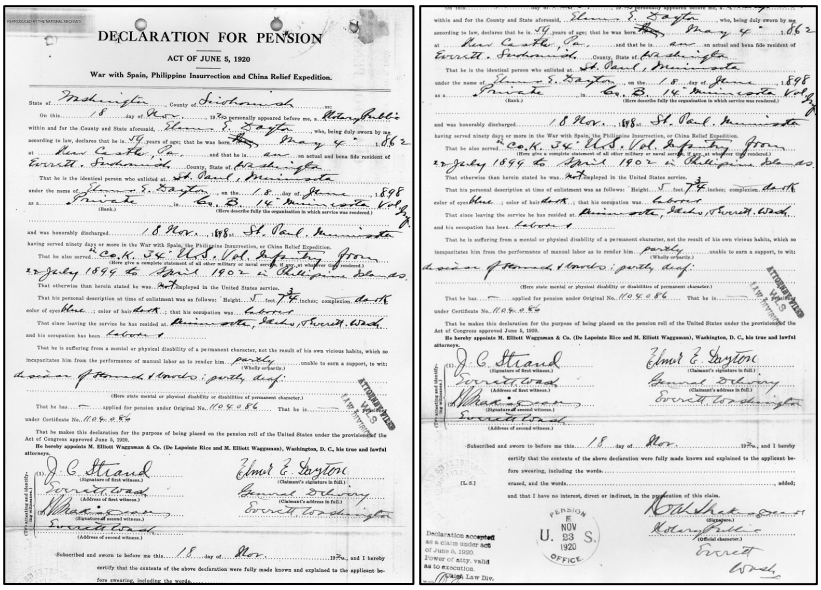
Step #2 – Set your scanning preferences.

This is the part where my illustrations below will probably be a little different than what your screen looks like – it depends on the driver software that works with your scanner. But the principles are the same. At the very least, your preferences screen should give you the ability to adjust the image type (color, grayscale, black&white), and resolution (dots per inch). If not, look for a *customize* or *advanced* button. In the example below, its default is "Full Auto Mode" where the decisions are made for you. You can change this to either Home Mode or Professional Mode which give you more control of the scanning preferences.

Stitching

Sometimes you run into the problem of the document being too large for the scanner. My scanner, which has an 8 ½" x 11.7" scanning surface is not quite large enough for the thousands of 8 ½" x 14" pension papers I copied at the National Archives.

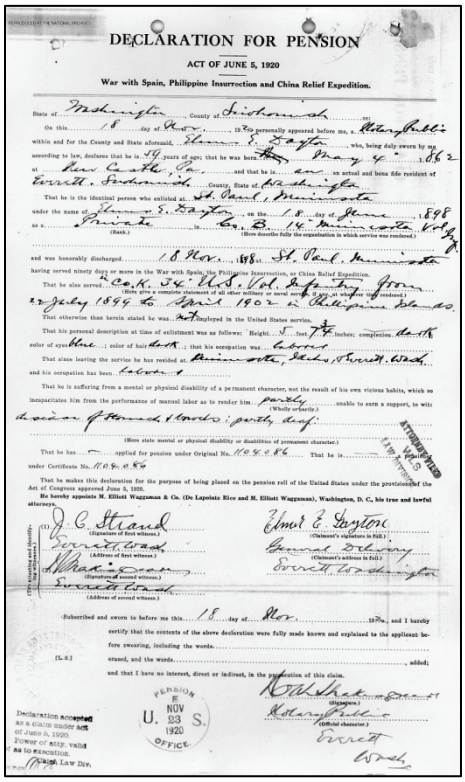
Below are two separate images – the top 85% of the document, and the lower 85% of the document. It is the overlap of the image that enables the software to properly merge the two together.



To digitize and stitch/merge an oversized document, follow these steps:

1. Scan the top part of the document and save it.
2. Scan the bottom part of the document and save it with a different name.
3. In Photoshop Elements, click the Expert tab and then go to Enhance> Photomerge > Photomerge Panorama.
4. Click on the Browse button and select both files.
5. Click OK. If you get the question, "Would you like to automatically fill in the edges of your panorama, click Yes, and see how it looks.

The result is a beautifully-stitched document – the full 8 ½" x 14" document as one digital image.



DECLARATION FOR PENSION

ACT OF JUNE 5, 1920

War with Spain, Philippine Insurrection and China Relief Expedition.

Another use for stitching is when you want to take a picture of a beautiful scene, but the scene is wider than the width of the picture your camera can take. With your camera, stand in the same place and take several shots, rotating a little each time to take separate pictures until you have photographed the entire scene. Make sure that with each picture you take that you overlap the previous picture by about one-third. This enables the photo editing software to effectively stitch everything together.

I found a beautiful two-story cemetery in Oslo, Norway. I stood atop and took seven pictures. With Photoshop Elements, I followed these steps to create the panorama:

1. In the Organizer, highlight each picture you wish to combine. Shortcut: click on the first picture, then Shift-Click on the last picture. This highlights all pictures in between.
2. Go to Edit > Photomerge > Photomerge Panorama.
3. Click the Add Open Files button, then click OK.
4. Crop the final, combined picture so the edges are filled in how you would like.
5. I like to then "flatten" the image (Layer > Flatten Image) so I can then Enhance the image (Enhance > Auto Smart Fix).
6. Save the new picture.

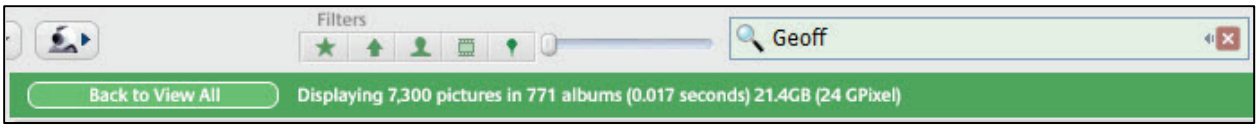
This new picture ended up being 88 inches wide – perfect to hang on my, uh, 88 inch wide extra wall.

How to selectively adjust dark areas of a picture

If only a part of the image is too dark, create an Adjustment Layer to fix it. Follow these steps:

1. In the Layers palette, click on the circle which is half black and half white. Click on Levels.
2. Drag the black Input Levels slider to the right until the dark area is lightened to your satisfaction. The rest of the image will be too light. We will fix this in the next step.
3. Select the Brush tool in the toolbar and choose a large, soft-edged brush (300 px should do).
4. Press the letter D to select the default foreground and background colors, then press X to set the Foreground color to black.
5. Finally, paint over the area of the picture that is too light. You might need to adjust the brush's opacity level (found at the top) to make sure the lighting is applied evenly.

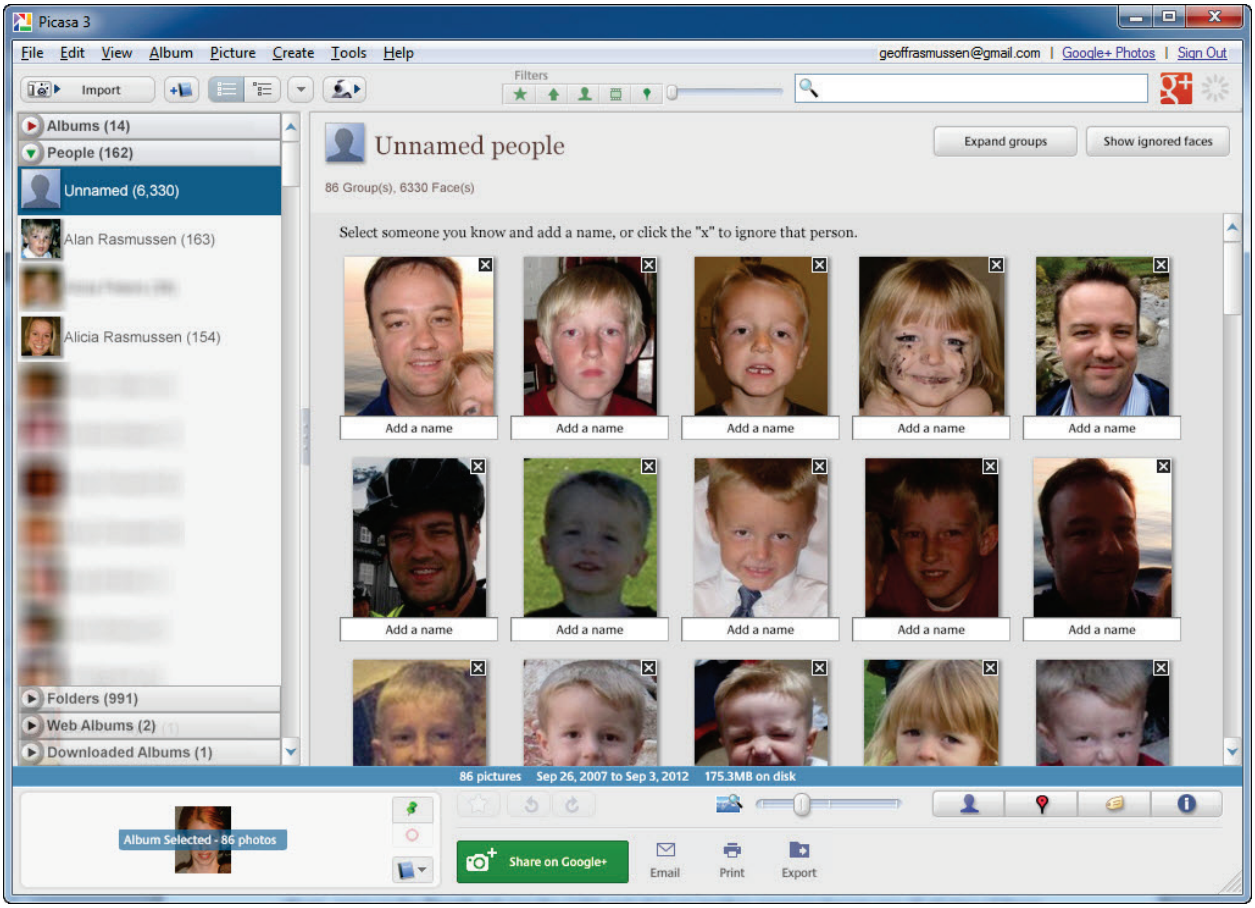
Once your photos are tagged, you can use the search box in the upper right-hand corner to quickly find pictures that you have tagged:



Picasa's name tags

If you would prefer not to manually tag every picture, Picasa's Name Tag feature is one of the areas where the program really shines. Just like Photoshop Elements, it will not do a perfect job. Nor can it really replace your efforts in identifying each and every photo, but it is just really neat!

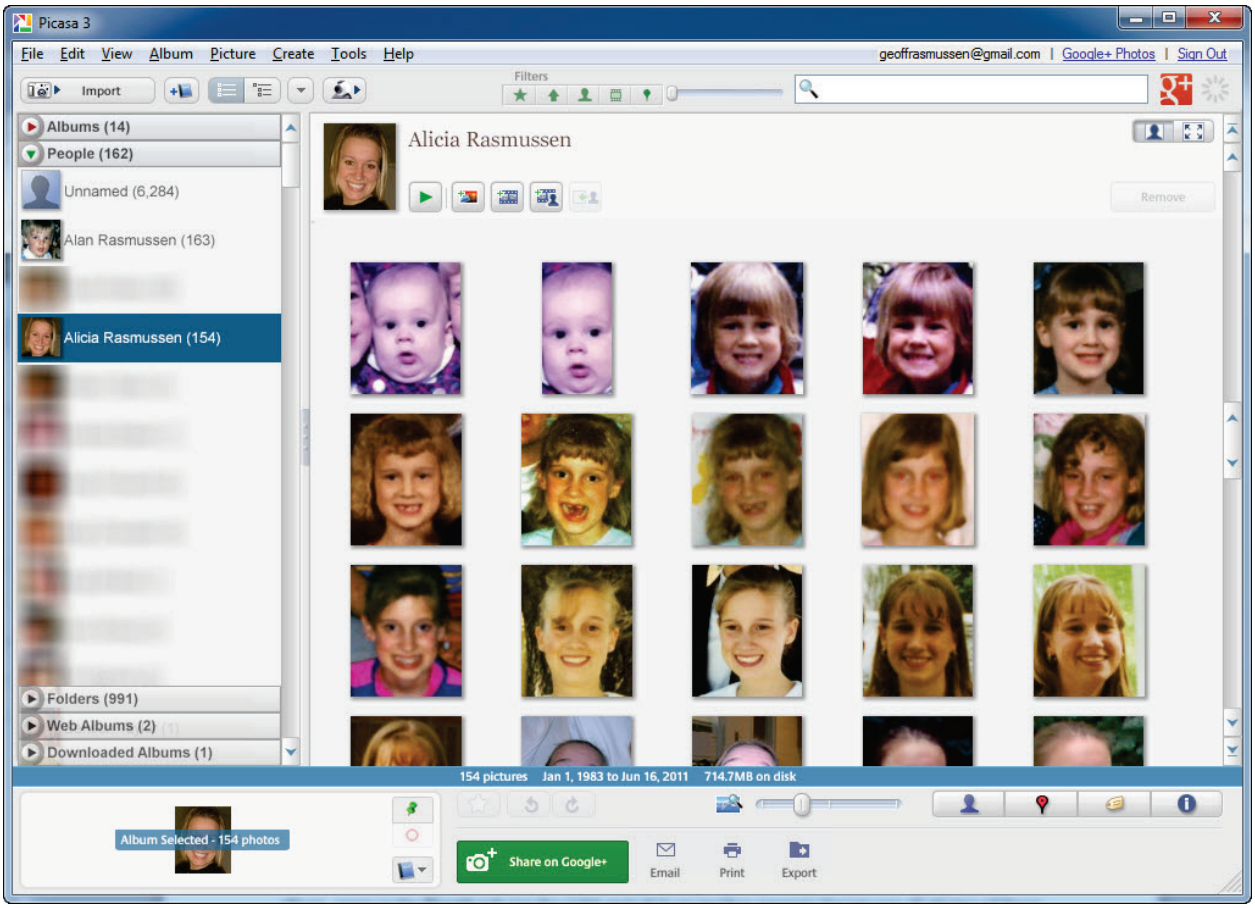
Click on the People group in the left panel and off Picasa goes. When you click on the "Unnamed " name tag, it will show you thumbnails of unidentified faces it has collected. Below it found 86 groups (each group can have dozens or hundreds of faces that Picasa has detected as belonging to the same person – you can click on the Expand Groups button to see everyone in the group) and 6,330 faces.



When you type in that person's name, everyone in that group is now tagged with that Name Tag. For instance, for the top left picture above I typed in my name, which brought the total unnamed faces down to 6,284. There must have been 46 pictures in that particular group where my face was identified in the photo. Now, because I identified that group as belonging to me, Picasa took another look at other unidentified photos with faces and would potentially suggest other pictures with my facial features in it.

The first time I did this I was stunned. I began by identifying a face of my mother, which I labeled as Debbie. It then took another look at the remaining unnamed faces and gave me another group of suggestions. In this next group were pictures of my mother when she was about twenty years younger. So I agreed with Picasa's suggestion by selecting her name, and thus associating this next group with her. It then found a bunch more pictures of her, this time when she was even younger. I do not know how it does it, but it must look for similar facial features such as the eyes, nose, glasses, and more to positively connect the same person over the years.

When you are finished identifying all the faces it presents to you, just click on that person's name in the People group, and immediately every picture where they are included appears.



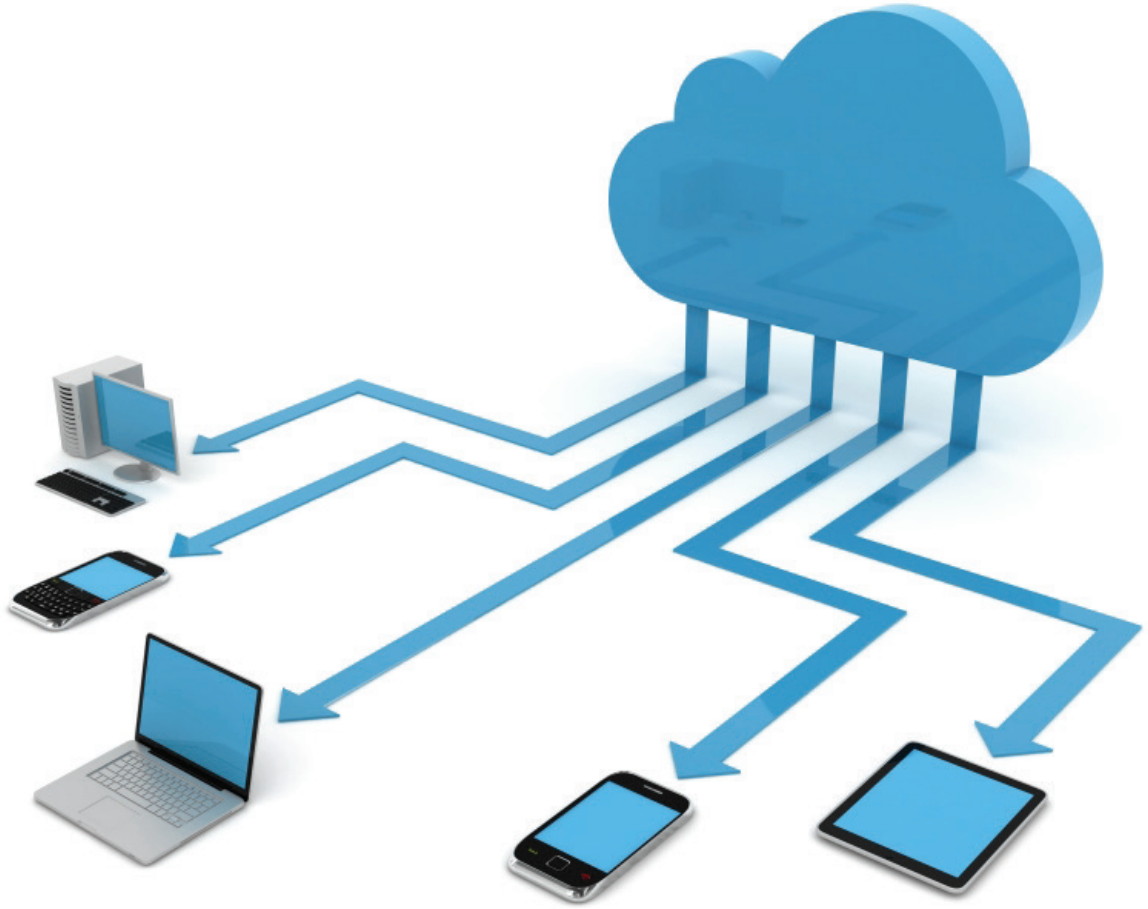
Double-clicking on any of the faces will open the full picture:

The Cloud

In my perfect digital images world, I would have access to my digital images from my home computer, my laptop, my smart phone, my tablet, and from any Internet-connected device in the world. I could view them, edit them, print them, or email them. My mother would also have access to *view* my pictures. My friends would have access to view certain pictures. And my genealogy colleagues would have permission to view selected genealogy digital files.

This perfect world is finally here. It is often referred to as the *cloud* or *cloud computing*. Wikipedia describes this term as "the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet)." Sounds boring, doesn't it? What it means is that through the Internet, we can have access to our files from our computers or mobile devices, and we can grant others permission to access these files.

Living in the state of Arizona, our children are thousands of miles away from their grandparents in Oregon and Idaho. While we do not get to visit as often as we would like, we have bridged the gap a little through our digital pictures and the use of the cloud. To do this, I have configured my photo management software to upload my family pictures to a



private account on the Internet, and have granted my parents, my wife's parents, and other immediate relatives permission to view and print these pictures. The best part is that once the pictures are on my computer, it is an automated process to share them in this way – almost. I do have to intentionally tell my software which pictures I want to share. When new pictures are added my family is automatically notified of the updates.

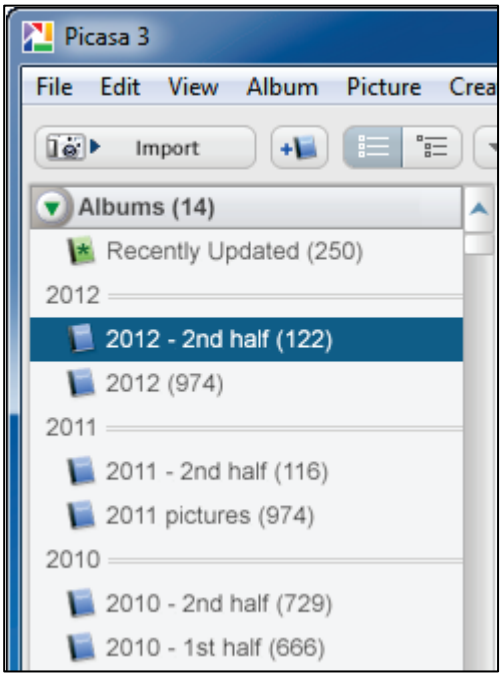
4 Steps to Sharing via the Cloud

1. Digitize and organize the pictures on your computer with Photoshop Elements.
2. Using Picasa, create an album to be synchronized online.
3. Select which pictures to share.
4. Select who you will share with.

Here are the detailed step-by-step instructions with explanations.

Step 1. Using Photoshop Elements, I digitize and organize the pictures on my computer. You know how to do this by this point in the book.

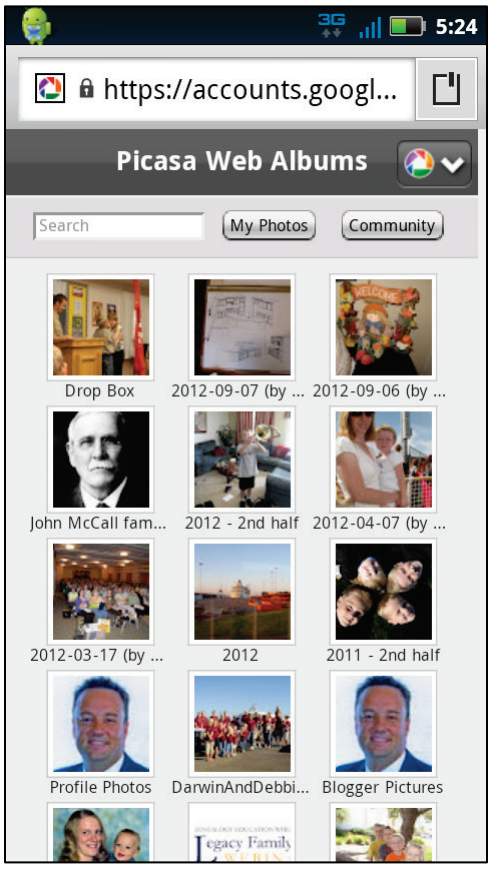
Step 2. Next, in Picasa create an Album. The albums section is found at the top of the left side panel. Since each album can only hold 1,000 digital images, sometimes I create two albums for the year. Click on the blue Create a New Album button to create a new album.

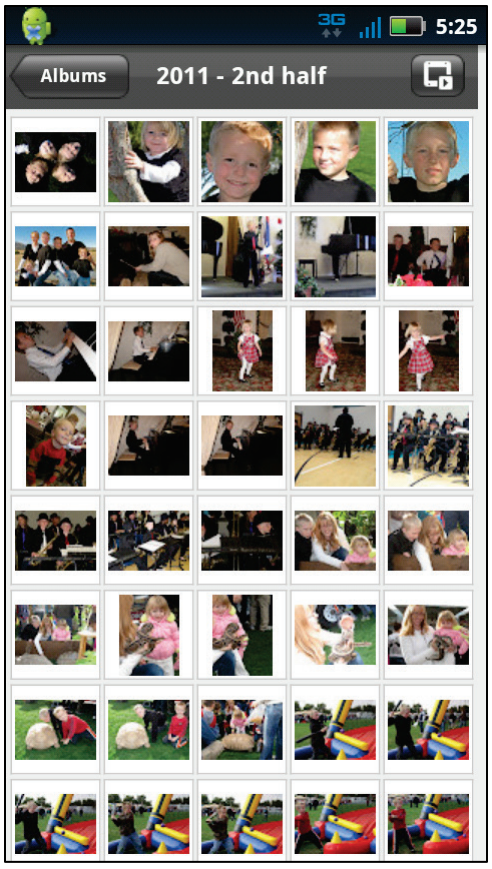


Picasa Web Albums – anywhere

Now that your pictures are in the cloud, you can begin accessing them with your mobile devices. My android-based smartphone's screen is shown below. Using the web browser software, I navigated to http://picasaweb.google.com and my web albums appear (shown on left).

Tapping one of the albums brings up the display of all the pictures in the album (shown on right).

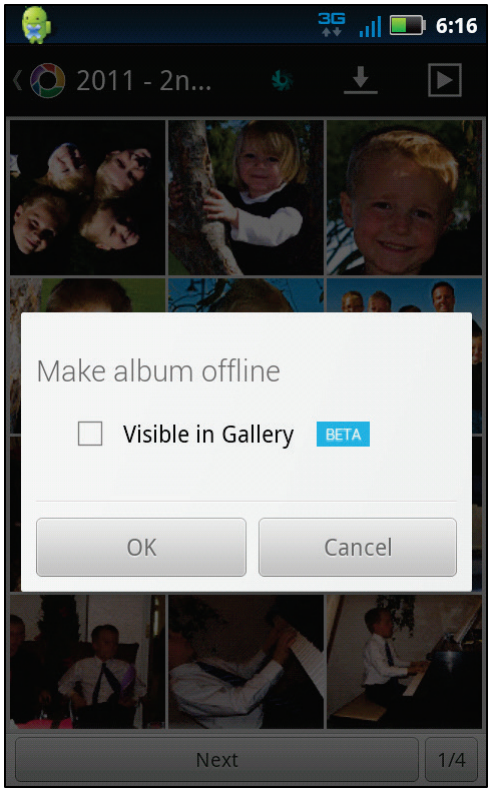




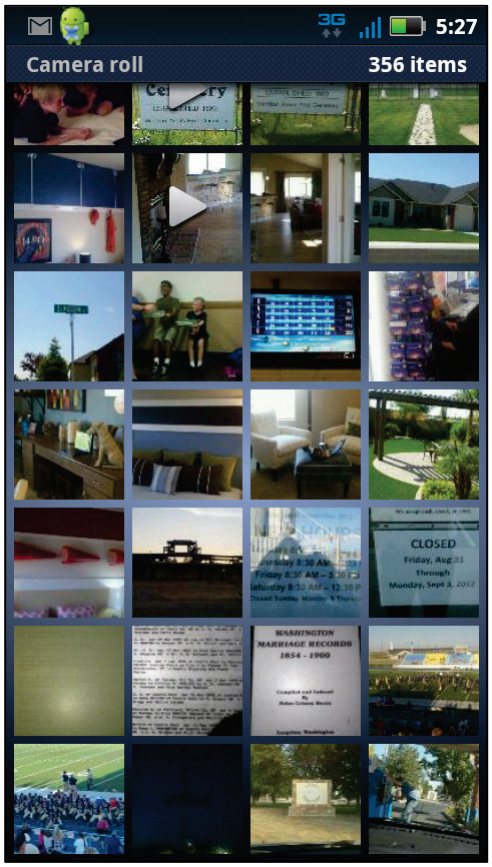
Tapping a picture displays it in this mode. I cannot count the number of times that having these pictures on my phone calmed my 2-year-old when she was sad. We could look at them in bed, at the store, anywhere! This same ability is available on my tablet as well.

About the only complaint I have had with this is when I am in an area where Internet access is not available for my phone. Without the Internet, I am unable to browse to http://picasaweb.google.com.

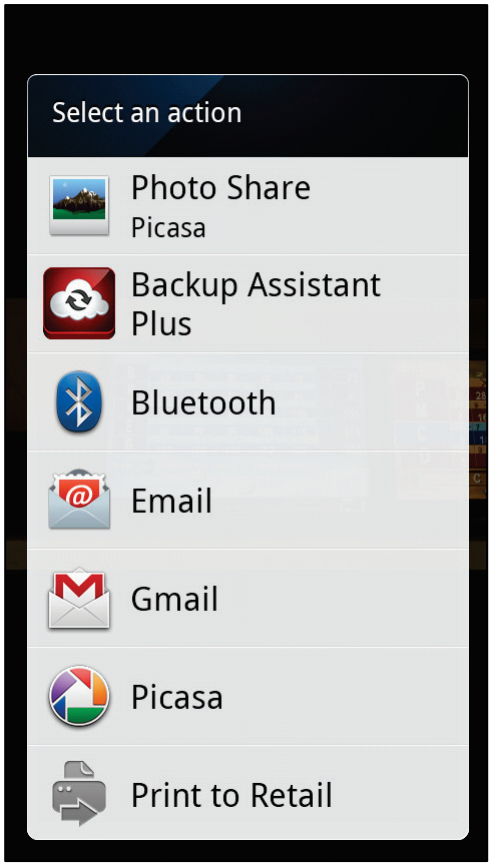
This is where a third-party app like **Perfect Tool for Picasa** comes in. Found in the Google Play store, it, too provides the ability to browse albums and look at individual pictures, but it also provides the ability to make the album available offline, meaning the pictures can be viewed even without the Internet – good for airplanes and basements where your phones Internet signal may not work.



If you are like me and now carry your smart phone with you everywhere (I used to make fun of people who could not detach themselves from their phone) you always have access to your camera. With my current phone I have taken hundreds of pictures, but unless you transfer them from your phone to the cloud or your hard drive, you run the risk of losing them all. Fortunately smart phone software makes it simple to share the photos if you know where to look.



Here is a portion of my phone's gallery. It has pictures of the football game, my bowling high score (232!), and even a few home décor samples. Tapping on a picture brings up a share button, that leads to the "Select an action" screen where you have lots of sharing choices. Clicking the Picasa icon lets you add a caption and choose the album to which you wish to upload. Or tap the Facebook, Google+, or Dropbox icons to upload to any of these services.



Our discussion of cloud-based photo services would not be complete without at least a mention of some of the other online services. In addition to Photoshop.com and Picasa Web Albums, these also deserve consideration:

- Flickr
- Photobucket
- Shutterfly
- SmugMug
- Snapfish
- Facebook
- Google+
- SlickPic
- Many more…

Index