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# Are your memories safe?

For more than 150 years, people have recognized the unique value of photography. Imagine how this groundbreaking invention has shaped our lives, giving way to preserving precious memories of the people, places and events in our world. And while digital technologies have changed the way we capture and share photos, the desire to safeguard our visual heritage today, and in the future, remains essentially the same.

The companies that comprise the International Imaging Industry or I3A understand this all too well. That is why we created this site to help you understand the how to prepare and preserve your photographic memories for years to come.

## Quick start

### 1. Protect your Pictures

If you have all of your digital photos stored on your computer but have yet to do anything else with them, take steps to protect them right away. [Make prints](#), copy to [CDs or DVDs](#), a [second hard drive](#), or upload them to an [online service](#) for storage.

### 2. Get Organized

Whether you use a photo software program or create your own system based on folders and file names, your digital photos need to be organized in a way that lets you find them when you want them; [Learn more here](#). You will also want to create a place or use a method that will help you to locate them easily and quickly so as to be sure not to lose them.


### 3. Stay Informed

Watch the industry for technical developments, always use proven technology and products based on well-established standards for equipment and media, including CDs or DVDs and the like.

### 4. Stick To It

Use the information on this website to develop a system that will personally work for you - and stick to it! Taking care of your life's memories is an important and ongoing task, and not just a one time project.



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## Knowing the Digital Difference

In case you're more familiar with traditional photography, it's important to understand that digital photography differs from film in many ways, and demands a different set of memory-keeping techniques.

With film, you take pictures, get film processed, order prints, store them in albums and usually keep the negatives as a backup. With digital, your photos are recorded as electronic data that's saved onto a limited-space memory chip in your camera. You can instantly preview your photos on the viewing screen, delete, "re-shoot," download them onto your computer, share and save electronically as well as print. But what about backing up?

### Hardware

Computer hardware and media are very convenient ways to store and manage your photo collections. However, you should be aware of some of the issues around using them to store your precious memories for the long term.

### Storage Devices

You may have noticed that some of the storage devices that were popular a few years ago are no longer used or even available. While floppy disks were the main storage medium in the early nineties, today you can't fit a single photo from a high-quality digital camera onto a floppy. In addition, new media will eventually replace the media we're using today. For example, CDs and DVDs will be replaced by media with higher capacities such as Blu-ray and HD DVDs. Over time, other media will replace these.

Do keep in mind that some computers and readers are built to read older storage media, but in general, you'll need to transfer your photo files from one medium to another as the technology evolves.

### Tips:

- Make sure that all of your photos are stored on media that you can read on the computers you are using at any particular point in time.
- If you get a new computer, check all of your previous storage media to make sure the new computer can read them before you dispose of your old computer.
- If a medium is becoming harder to find in the stores, make sure you transfer your photos to a newer medium. Most likely, you'll be able to use a program like Windows Explorer or a backup program to make the transfer. If you use a backup program, make sure that it stores your files in a format that can read by other programs such as Windows Explorer. Some backup programs store files in a format that can be read only by that program.
- Make sure you create backups on media with up-to-date technology.



## Hard Disk Drives

Keep in mind that computer hard drives have a limited lifespan, and at some point in time, they will most likely fail. While they generally last for several years or more, they can also fail without warning. And when they do, it's sometimes, but not always, possible to "rescue" some of the files from the drive. Unfortunately, this can be quite expensive, and there's no guarantee that all photos - or the organizational structure of your collection - can be recovered.

An [external hard drive](#) that is disconnected from your computer is a good option for preserving digital photos; however it's possible for this drive to fail as well, especially if you haven't used it for a long time. In any case, it's likely to last longer than the one you keep running at all times.

### Tips:

- Store your photos on more than one drive: It's unlikely that more than one drive will fail at the same time unless they are both connected to the same computer, which is then affected by either a virus or power surge.
- Store an extra copy of your photo collection on CD or DVD.
- Treat your hard drives very gently: They are susceptible to shock.
- Do not plug or unplug external drives from your computer while they're transferring photos or other data.
- If you keep photos on an external hard drive that's not connected to a computer, make sure you connect it to a computer and power it up every couple of months to make sure it's working properly.

## CDs and DVDs

CDs and DVDs deteriorate over time, and their longevity depends on the quality of manufacture. It's better to purchase high-quality discs designed for archival applications or photo preservation. [These discs](#) are significantly more expensive than standard discs but are predicted to last a century or more. Low-quality discs may only last a few years, depending on storage conditions.

At the same time, CDs or DVDs written on one computer may not be readable on the CD/DVD drive in another computer. This may be due to the poor quality of the initial recording or an incompatible recording format.

### Tips:

- Store your photos on more than one CD or DVD as it's unlikely that more than one disc will fail at exactly the same time
- Store your CDs and DVDs in high-quality sleeves or boxes, and in a cool, dark place. Store them vertically rather than horizontally stacked on one another.
- Make sure that you use a DVD format that you can read on all your computers (i.e. DVD+, DVD-, Blu-Ray and HD). Most computers can read the original DVD formats. The new high definition Blu-Ray



and HD DVD formats require compatible read/write devices as they are not compatible with earlier DVDs.

- Use write-once (+/-R) CDs or DVDs as opposed to read-write (+/-RW) as they are more reliable and more robust for reading on different computers.
- If you buy a new computer, make sure that it can read your old discs.
- If you want to label a DVD or CD, use only special disc marker pens, disc label paper or products that label discs directly (i.e., Epson printers, HP LightScribe).
- Access more detailed information on the proper care and handling of CDs and DVDs at <http://www.itl.nist.gov/div895/carefordisc/>.

### Camera Phones

Have you noticed an improvement in the quality of pictures people are taking with camera phones? Combined with the fact that you almost always have your mobile phone with you, it's likely that some of your valued photo memories are on your phone! Unfortunately, many people leave photos on their phones and never transfer them to store, print and share with others. As a safety measure, make sure that you frequently copy your valued camera phone photos to your computer or wireless service, and then make sure these photos are backed up along with your other photos.

Check the user manual of your phone to learn how to do this. Typical methods for transferring photos are:

- Use a data cable or wireless connection to connect the phone with your computer and transfer your photos or "synchronize" your phone and computer.
- Some phones have a memory card that you can remove and insert directly into your computer, or into a card reader that connects to your computer. Sometimes these cards are hidden behind the battery so you may need to consult the user manual to find it.
- If it has the capability, send photos from your phone to your own e-mail address. Note that depending on your service plan you may be charged extra fees.
- Upload to your provider's online storage service, if available. Make sure that the storage service supports full-resolution pictures taken by your camera phone, and not thumbnail or scaled-down version of your pictures.
- Make prints. Some mobile service providers let you order prints, or you can use your phone's memory card to have them made at compatible retail kiosks.

#### Tip:

- Always transfer photos from your phone to your computer or to the storage service provided by your wireless carrier when you've taken any important photos that you don't want to lose.

### Flash Memory

Flash memory, also referred to as USB drives, thumb drives, jump drives and camera cards are convenient for short-term portable storage and transferring your photos between devices. However, these devices are



not designed for long-term storage. Also, due to the large number of types of flash memory formats, [technology obsolescence](#) is a concern five to ten years from now.

**Tip:**

- Always transfer photos from your camera card to your computer, or copy them to online storage, make a backup, or make prints of the important photos you don't want to lose. [Learn more.](#)

**Older Storage Media**

Floppy disks and tapes will deteriorate over time with their actual longevity depending on the quality of manufacture and conditions of storage and handling. The contents can be damaged by magnetic fields, and unfortunately, there's currently no easy way for you to determine the expected lifespan of the storage media.

In addition, please be aware of possible incompatibilities:

- Tapes come in many different formats, and tapes written on one computer may not necessarily be readable on another computer.
- Floppy disks or tapes written on older or faulty computers may not be readable on another computer. Also, floppy disks will not hold enough of your photos to make it worth using for backup. [Learn more.](#)
- Newer computers will not have the ability to read these media.

Also, floppy disks will not hold enough of your photos to make it worth using for backup. [Learn more.](#)

**Copying Photos from One Place to Another**

When you copy your photos from one place to another such as from a hard drive to a CD, it's always possible that something could go wrong. For example, a photo may not be readable in the new location because the file is corrupted in some way. It's also possible that not all files transfer because there's not enough space in the new location.

**Tips:**

- Double check that the correct number of photos transferred.
- Check the combined file sizes of all the photos in the folder where the photos came from as well as in the folder where you copied them. Make sure that the same amount of data is stored in both places. With Windows, right click on the folder name, then click on "properties" to get the combined size of all files plus the number of photos.
- Use photo software to check the photos in the new location.

If you're copying large folders containing many photos onto CDs or DVDs, you might want to break them up into subfolders that match the capacity of your disc so that you can keep track more easily. Be aware, that a DVD labeled with 4.7 GB capacity, for example, may in reality only hold around 4.2 GB of photos, so you may want to limit your folder sizes to this amount. Other disc types have similar capacity limitations where the



actual available capacity is less than that indicated on the packaging. This is because extra administrative data takes up space on these discs.

## Software

Because of the complexity of modern software, including operating systems and applications, and because of malicious viruses, it's also possible that photo files can get lost or damaged because of software problems.

### Viruses

Computer viruses can damage, alter or erase photo files, and as a result, the photos may no longer be visible.

#### Tips:

- Always use the most up-to-date anti-virus software.
- Keep backup copies of your most valuable photos on media or devices that are not connected to a computer such as CDs, DVDs or external hard drives or make prints.
- Even photos stored on a computer that's not connected to the Internet can be vulnerable to a virus, and should be protected with anti-virus software. Viruses may be transferred via media that you attach to the computer such as USB drives, external hard drives or insert such as CDs or DVDs created on another computer.
- Use write-once CD-R and DVD-Rs to backup your data: Even if a virus affects your computer, the photo files on the disc cannot be damaged. Ask for assistance at the store to find these types of discs.

### Mistakes

It happens: People lose photos. At some time, you may have mistakenly erased an entire folder on your computer that's full of photos, or dragged and dropped a folder into another folder where it's gone "missing." In effect, those photos could get lost, especially if the folder isn't backed up again

#### Tips:

- Always be very careful when moving folders around with Windows Explorer or other applications that allow you to drag and drop, or cut and paste complete folders.
- If you're concerned that you or someone might have made this kind of mistake on your computer, take a look at your photo collection to see if anything appears to be missing. Some software packages allow you to print out a list of the folder names together with the file names, and you can use these lists to make sure your collection is complete.
- If you know that some photos are missing, search your entire computer for those photos. You might find them in an unexpected location. [Note: the computer's search function does not search the recycle bin or trash can, so you'll need to open it and see if the missing photos are there.]



- Warning: If you use Windows Explorer to erase photos from your camera, they will not be saved to the recycle folder on your computer, they'll permanently be deleted.
- Always double check to make sure you've copied all the photos onto your computer before erasing them from the camera.

### Outdated Software

Just as computer hardware becomes obsolete, it's possible that the software you've been using will no longer work on a brand new computer with a new operating system. While this shouldn't affect your ability to look at your photos using a different program, you may have stored important information about your photos using the old software such as:

- Assignments of your photos to one or more albums
- Keywords
- Titles or captions
- Some edits to the photos

If you then decide to buy a different software package, this information may no longer be available to you.

### Tips:

- Before buying a new computer, make sure your favorite software will work on it, or that a new version of that software is available.
- Go to the website of the company making your software periodically to make sure it's still providing support. Sometimes it happens that the software stops working on your computer and you'll need to reload it or get help from the manufacturer. This is also the case if you have a hard drive failure and need to reload the software onto a new disk drive.

### File Format

Just as there are changes in computer hardware and computer software, it's possible that the file types we use for storing photos may also change in the future. While "JPEG" is currently the most popular format for consumer photos, discussions arise in the digital photo industry about possible new formats that will bring about quality improvements and other advantages. On the other hand, this means that you may end up with multiple file formats in your photo collection and may need to convert your photo collection to the new format. Please ask knowledgeable friends for advice or check with your camera or software manufacturer to find out what file format they support. Not to worry: JPEG will continue to be supported for many years to come, but best to remain watchful!



## Other Factors

In addition to hardware and software issues, there are a number of other factors that can impact the longevity of your stored photo collection. Here you can learn more about maximizing the life of your photos — whether printed or stored digitally.

### Aging of Storage Materials

All materials may be vulnerable to the effects of aging, and the term “degradation” refers to the reduction in quality of the materials used to preserve a photo. It’s a natural consequence of the chemical changes that happen to plastics, dyes, adhesives and even metals over time — the same materials that are used for [prints](#), [hard drives](#), and for [CDs and DVDs](#) which we use to store digital photo files.

The rate of degradation of hard drives, magnetic tape, and CDs and DVDs will also depend on:

- Proper disc handling (i.e., no scratches, shock)
- Proper storage (i.e., temperature, light, humidity)
- Initial recording quality (i.e., defect free disc, recorder quality)
- Disc construction which varies by manufacturer

While magnetic media are vulnerable to chemical degradation, physical damage and demagnetization, mechanical failure may also reduce the expected lifetime of your photos. Lifetimes range from about five years for the typical hard disk to 10-30 years for magnetic tape.

In general, high quality CDs and DVDs will last longer than magnetic media, however these discs are also vulnerable to chemical degradation and corrosion. Life expectancy predictions from manufacturers and others for CD and DVD discs range from five to 300 years, depending on the disc type and the person making the prediction. While a standard International Organization for Standardization, or ISO, test method for making CD-R lifetime predictions does exist, manufacturers do not yet consistently use this method to test their products.

In the future, the industry will develop test methods to provide better information for consumers to answer such as:

- Which disc should I buy?
- Will the brand make a difference?
- What should I look for in a disc?
- What is the minimum number of years the disc will last?
- Will price make a difference?



## Technology Obsolescence

Computer and digital photo technologies have continued to evolve rapidly, and as a result, we have seen constant improvements in camera, scanner, computer and software capabilities. The downside of this tremendous development is, of course, technical obsolescence: Computers, storage devices, media, cameras, camera phones and software purchased as recently as three years ago may no longer work as well with newer products. This means that you'll need to watch what's happening with computers, or get some sound advice on how to maintain your photo collection over time so that you may continue to enjoy it, always.

## Internet Services

Online services such as Kodak EasyShare Gallery, Shutterfly, Snapfish and others provide convenient ways to backup, print and share your photos with family and friends. Some wireless carriers such as Sprint also offer Internet photo sharing and storage services that allow subscribers to upload, print and share pictures taken from your camera phone or computer.

In addition, some services provide fee-based online backup services. In looking into these, be aware of their terms and conditions, and be sure to ask some basic questions such as, *"Does the service allow me to store my photos at their original resolution or does it always compress them to save space? Does the service guarantee the safety of my photos? If so, does this require payment of fees? What happens if the service is discontinued?"*

These services may or may not be suitable for long-term storage of your photos. In addition, some of the sites expect you to purchase prints or other products on a regular basis in order to continue storing the photos.

### Tips:

- Be aware of the terms and conditions under which the website will keep your photos, and make sure that you meet any purchase requirements or fee payments.
- Keep high-resolution copies of your photos at home or other secure location, using one or more of the recommended alternatives.

## Fading

During the long history of photography, materials, just like cameras, equipment and techniques, have also evolved. This has presented additional challenges to scientists who work to develop methods that predict how a photograph will look 10, 50, or even 100 years from now. A new set of print technologies known as digital inkjet, dye diffusion thermal transfer (often called "dye sublimation"), and digital versions of traditional "silver halide" photos has emerged out of the range of digital photographic techniques in practice.

While there's no accelerated method that simultaneously combines all the relevant factors that degrade photographs, there's general agreement regarding which individual factors are primary sources of



degradation. This allows scientists to estimate the effects of each primary factor, and also enables recommendations on how best to display and store photographs in a way that minimizes the degradation resulting from each of these factors.

It's very important to create suitable storage and display conditions for printed photographs in order to preserve them as long as possible. Storage and display conditions have a dramatic effect on photo fading and the overall longevity of the photos. To maximize long term preservation of the print, it's important to control the factors that can cause prints to degrade. Begin by keeping the print environment "comfortable," meaning moderate temperature and relative humidity. For maximum print life, store the print in a dark location. "Dark storage" is best accomplished in high quality albums, with pages or sleeves designed for long term storage.

A few things to avoid:

- Avoid photo albums with storage sleeves made with polyvinyl chloride, as chemical out-gassing can damage the prints. Using high quality albums will help you avoid this plastic (which smells like a new shower curtain). Albums designated as "archival quality" may be a good choice.
- Avoid using ink and paper combinations that manufacturers of inkjet printers do not support.
- Avoid storage in hot, humid, or excessively dry areas.
- Avoid placing prints near un-vented kerosene furnaces and natural gas heaters, or near copiers, laser printers or air cleaners that may generate ozone. Pollutants generally do not affect prints in albums or prints framed behind glass.
- When displaying prints, avoid brightly lit areas—especially areas with direct sunlight—and use UV-protective glass or Plexi-Glass™ types of materials to protect the print. Again, to maximize the life of the print, store the print in the dark.

Manufacturers' claims regarding the display and storage longevity of their products often come from testing at an independent test lab, from measurements performed by the manufacturer, or in some cases, a combination of both. To best interpret these claims, follow the guidelines below:

1. Be sure to differentiate between "display" and "storage longevity" claims. For example, a claim that read "lasts 100 years when stored in a photo album" suggests that if stored in a quality photo album at moderate temperature and humidity, it should last approximately 100 years—and not that the print can be displayed in the presence of light for 100 years.
2. When determining storage longevity, look for key words such as "album", "stored in dark", "thermal degradation," "temperature-induced fade testing" or "based on dark fade testing." By contrast, claims relating to "display longevity" are typically associated with words such as "light-fastness," "light fade," "air pollutant fade," or "ozone fade." While "thermal degradation testing" applies to both storage and display longevity, it's generally more important in storage longevity estimates. In addition, the reason glass or other protection is strongly recommended for display, is because it



essentially removes the effect of airborne pollutants, but of course, light fade will still be a relevant factor.

3. How is the longevity claim supported? On packages where there's little room for detailed footnotes, visit the company's website to view their test assumptions. In other cases, the test details may be listed in the footnote near the claim.
4. Be clear on the system for which the claim is valid. For example, if an inkjet ink or printer package claims "50 years of display fade resistance," make sure the manufacturer specifies what type of papers will validate the claim.
5. Take the time to go to manufacturers' website and access the section that explains their photo longevity claims in more detail.
6. Be cautious about generic terms such as "archival quality," especially if specific testing doesn't support the use of such a term.

While the rapid changes in the newer digital printing technologies, such as inkjet, have created challenges for measuring and predicting print life, it's clear that fade resistance of name-brand digital media for making prints has improved significantly over the last several years. These include:


- Traditional photographic prints ("silver halide") made by traditional photographic companies and usually obtained from retail stores or through online or mail order services. This includes on-site one-hour processing and overnight or two-day processing, but not prints made from kiosks.
- Photographic quality thermal prints made by traditional photographic companies for printing at home (often in camera printer docks), and from many retail kiosks.
- Photographic quality inkjet prints made by name-brand printer and imaging companies when used with specific brands of ink and paper for printing at home and on kiosks at some retail locations. For best longevity, it's important to follow manufacturer recommendations about paper and ink types since certain ink and paper types are designed to work best with each other.

Remember that good control of the storage environment is important to maximizing long-term preservation of the print together with the quality of materials used to make the print. From category to category—traditional, thermal, inkjet—as well as within the category, you'll notice a wide range of quality and performance. For additional information on the stability characteristics of the various media used for digital printing, please see the section called "[Printing](#)." And remember the basic, common-sense usage guidelines: avoid brightly-lit display (or better yet, store away from light), and avoid conditions such as high humidity or temperature—if they make you uncomfortable, they'll probably make your treasured photos uncomfortable as well.

### Natural Disasters

The destruction caused by hurricane Katrina in August 2005 and the Pacific tsunami in December 2004 demonstrated how suddenly disaster could hit. The magnitude of these events dominated the media and our lives for months, but disasters on a smaller scale from fires to floods, continue to destroy homes and



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property on a daily basis. Of course, human safety and basic needs — food, water, and shelter — remain immediate concerns, but the emotional healing from the sense of grief, loss and displacement can take much longer.

At I3A, we believe that photographs help with the healing process. Sadly, when your photos are also casualties of the disaster, the sense of loss only becomes magnified.

**Tips:**

- Keep a copy of your important photos in locations outside of your home, such as at an Internet photo service, in a bank safety deposit box or at the house of a friend or relative.
- If you live in an area prone to natural disasters, make sure that you keep a backup in a location far away from your home.

**Theft or Loss**

Physical photo storage in the form of negatives, prints and albums are unlikely candidates for theft. However, thieves target many of today's electronic photo storage options and laptops, portable multimedia players and digital cameras, both at home and on the go.

Nowadays, you can store your entire photo collection on a single compact desktop computer, laptop or portable hard drive while in the past, negatives, prints and albums made for a very bulky collection. Unfortunately, if one of these devices is stolen, your photo collection is missing also.

The increasingly small size of portable electronic storage devices also makes them easy to lose. Consider that a 1GB camera flash card can hold about 500 of your photos in a package the size of a postage stamp.

**Tips:**

- Keep a copy of your important photos in locations outside of your home, such as at an Internet photo service, in a bank safe deposit box or at the house of a friend or relative.
- Copy your photos from your digital camera to your computer as soon as possible after you took them in case your camera gets lost or stolen
- Keep the original film negatives, slides or prints if you created your digital photo files with a scanner - they are less susceptible to theft.



## Finding Your Solution

As you build your photo collection, designate one computer - and one main folder on that computer - to be the primary location where you keep all of your photos. Otherwise, it's difficult over time to remember where you've put them all. It's also much easier to create a backup from a designated computer and the designated "photo" folder. Of course, once you have the "master" copy of a photo on your main "photo computer," feel free to keep copies on as many other computers as you like.

Next, organize your photos in a way that you can easily find them in the future. And finally, decide what backup method you'll use to safeguard your photo files.


To help you set up a backup plan that will work for you personally, we've assembled a table to compare the different media and methods you can use to preserve your photo memories. The single most important thing to consider as you look through the options, is to pick something that will work best for you — something that you get started using right away and you'll be likely to stick with as your photo collection grows.

## Backup Methods at a Glance

	Longevity	Capacity*	Cost	Comments
<b>Prints</b>	70+ years if the right combination of ink and paper is used or if printed commercially	Unlimited!	10 to 39 US cents per standard size (4"x6") print	Most suitable for your most valuable photos that you absolutely do not want to lose. Human-eye readable - no device required to view photos!
<b>External hard drive</b>	Variable, generally 4-5 years, but may fail without warning	Up to 750 GB	\$100-\$500 (prices continue to drop)	Easy to store and backup large numbers of photos. Backup process can run unattended.
<b>CD</b>	Use 'archival or photo grade quality' only.	Low, only 600 or 700 MB (less than a 1GB camera card)	CD discs and burners are relatively inexpensive. Most personal computers are now sold with CD burners (CD-RW drives).	May need dozens of CDs to store all the photos in a typical collection, and thus difficult to search. Some compatibility issues reading discs on different computers.
<b>DVD</b>	Use 'archival or photo grade quality' only.	4.7 GB (stores photos from four 1 GB camera cards). Blu-Ray and HD DVD versions available with higher capacities (need special drives)	DVD discs and burners are relatively inexpensive. Blu-Ray and HD versions are currently relatively expensive.	Probably need several DVDs to store all the photos in a typical collection, and thus difficult to search. Some compatibility issues because of different formats and from reading discs on different computers. The lifetime of Blu-ray and HD DVD discs may be less than the lifetime of standard DVDs.
<b>Online storage</b>	As long as the company lasts, and the customer meets purchase or subscription requirements. Also depends on the quality of the company's own backup procedures	Varies: may be limited in terms of total capacity or number of photos. Resolution/quality of stored photos may also be limited.	Can be free, but be sure to read terms & conditions. For example, you may have to make a regular purchase. Paid services may offer more storage and guaranteed data backup (\$15 - 20/mo).	Requires uploading. Downloading of photos back to computer may not be possible, or may require a payment. Usually possible to order CDs or DVDs as well as prints, albums and other photo items

\*Note: One gigabyte (GB) of storage capacity will hold about 850 photos from a 3 MP (megapixel) digital camera or 400 photos from a 5 MP camera.



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### Other Backup Methods

	<b>Longevity</b>	<b>Capacity</b>	<b>Cost</b>	<b>Comments</b>
<b>Networked hard drives for home storage</b>	Variable, generally 4-5 years, but may fail without warning. Special techniques such as 'RAID' can be used for greater security of your photos	Up to 1 Terabyte (TB) = 1,000 GB	Relatively expensive (\$600-\$2000)	May be complex to set up and maintain, may be more reliable than a single hard drive

Backing up digital photos onto film will soon be provided as a service to consumers. Specially designed film should last for decades to 100+ years with proper storage methods. Film IS recommended for long-term backup; however at this time services are not readily available to consumers. Keep an eye out for this type of service to become available soon.

Methods NOT recommended for long-term backup include regular camera cards, USB flash drives, magnetic tape, and floppy disks.



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## Getting Organized

Like most of us, getting your photos in order represents the big and often daunting task of organizing your life and memories. But when you think about the once-in-a-lifetime photos you've captured, it is well worth the time and effort. By putting these priceless moments into the best available long term, archival preservation repository, we're safeguarding them for today as well as for future generations.

So whether you're going to organize traditional, digital or a combination of both types of photos, it's important to create a logical method that will help to preserve as well as make them easier to find later.

## Creating Categories

With today's digital cameras, it's easy to take a lot of photos. Yet if you don't take steps to organize them, it will be difficult to find the ones you want later. It's much easier to organize a bit at a time - or as you capture your digital photos - than to wait until you have so many that it seems overwhelming.

One way to organize your photos is by creating categories. And believe it or not, there's a logic to it: Do it in a way that makes sense to you! After all, there's no "right" or "wrong" way, yet the options following may inspire you to choose a method that works with the way you think:

### Organize by date

The number of photos you have or intend to have will determine your categories - years, seasons, months or days. If you take a lot of photos throughout the year, this may be the best way.

### Organize by subject

If you shoot most of your photos during special occasions, you may want to categorize them by "key words or phrases" - Family Reunion, Ethan's Graduation, European Vacation, Hobbies, and the like.

### Sort by project

If you want to share your photos by "special projects," you may want to give them titles - E-mails to Mom, Vacation Album, Father's Day Slideshow, Friends' Collage and the like.

### Combination approach

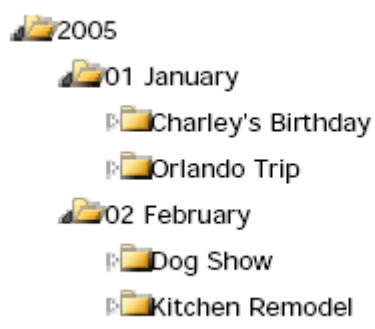
With this method, you can organize by subject, and within the subject folders use "date sorting." Re-naming your favorite photos with the date will help with sorting. For example, in a folder such as "European Vacation," rename a photo in this way - "2006\_09\_05\_Joe.jpg" - to help you easily sort by date. (Try it - you'll be surprised at how well it works!)



## Label Photos

Your digital camera automatically assigns names to your photos. Temporary at best, they refer to the numerical sequence in which you took them. Clearly, renaming each photo will help you find them later.

Make your operating system work for you by using folders to sort your photos. Renaming the photos isn't necessary in this method as long as you label the folders and use the "thumbnail view" to see the contents of each folder. For example:



For even more precision, add the date of the event to the folder names:



Another method of organization is to re-label the file names of your photos. With this systematic method, your photos will automatically be sorted in order. Here's one way to rename photos:

YEAR\_MONTH\_DATE \_BRIEFEXPLANATION [See 'Manage Photos' for description ideas](#). For example:

- 2005\_04\_07\_Noah + Mark\_Puerto Rico.jpg
- 2005\_06\_09\_Mastersons Family Reunion.jpg
- 2005\_06\_09\_Jake + Emily Family Reunion.jpg
- 2006\_01\_20\_Big Snow Front Yard.jpg



Alternatively, some photo management software will sort and organize your photos for you, based on the key words linked to the photo by dates, people, events and the like. Keep in mind, however, that your software may not exist permanently into the future, and the software program typically relies on fragile linkages between the files and the associated metadata - the extra information you may have entered about your photos - stored in a separate database.

Be sure to organize and label photos you print out as well. Typically, organizing by date is a good way to go, yet be sure to document the back of the photograph with "who, where and when" in photo-safe pencil. Many online services will automatically do this for you when you order prints from them, provided that you have entered this information on the website (usually in captions).

*Note: don't make your folder and file names longer than necessary, as some software programs have difficulty dealing with the combination of long folder and file names for a particular photo.*

## Time & Importance

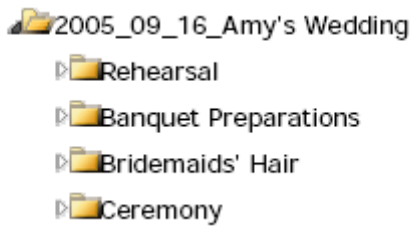
Sorting your digital photos and electronic memorabilia is a specialized and personal undertaking. While "when," "where" and "who" are the most common methods for describing photos, you can also sort photos based on events and importance. In addition, you may want to use more than one of these methods to sort your photos and memorabilia:

### Date

The easiest sorting technique is to place the photos in the order they were taken. Simply identify the date or approximate date of the photo or memorabilia, and label folders or the photos themselves in the same way. For efficiency, some people prefer to label folders and leave the file names as is. In any case, your description should include the date such as "2005\_08\_10\_Yellowstone Trip.jpg."


### Big Events

Any event that is monumental in your life should be considered a "big event," right? This includes vacations, celebrations and even experiences such as "first hot air balloon trip." The best sorting technique for theme-related organization is to use of folder subcategories to separate your photos. For example:



Take care! If you implement this system using the album structure provide by a photo management software program, it's critical that you never change the Windows folder names or "folder hierarchy" where your photos are stored, using anything other than the photo management program itself. If for example, you use



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Windows Explorer to change the folder names, your photo management software may not be able to locate your album and photo files.

### **Family Members**

Sorting by family members requires the most concentration and planning, and requires the discipline to label every photo. Label by date and then family members' names. Your description should include who's in the photo such as "2005\_08\_10\_Mom and Eric at Yellowstone."

### **Meaningful categories**

Some people prefer using meaningful categories over dates such as - My Hobby, Holidays, Friends, and the like - and within the main category, you can date-sort using subfolders or even individual files. Plan ahead by creating the right set of top-level folders that will stay the same over time.

For more details about naming folders and photos, see [Label Photos](#).



## Protecting and Preserving Your Photos

In the past, when we took photos, film served as both the recorder and our backup. The backup contained our processed slides or negatives. With digital photography, the camera's "camera card" can be considered the recorder. Yet if you only keep your photos on the camera card, it will eventually run out of space. And not only that: In case the card is erased, lost or damaged, you'd be left with no photos at all. To safeguard your photos, it's good practice to frequently transfer your photos to a new location — usually a computer — to view, share and manage more easily.

### Quick Tips for Backing Up:

- Copy photos from the camera card to another location as soon as possible after a significant event.
- Before you erase your camera card and reuse it, make sure you've stored your photos in at least two locations such as an external hard drive, CD or DVD, or online storage service.
- Make and store prints under recommended conditions to create an additional backup that will survive time and technology advances.
- Monitor technology changes to keep your collection up-to-date with current hardware and software developments.

### Transfer to Working Storage

There are many options for backing up your digital photos, but no matter what method you choose, the first step is to get your photos off of the camera and onto your working storage location.

*"Working storage"* is the place where you store, edit and manage your photo collection - usually your home computer hard drive. This is different from your backup storage.

*"Backup storage"* is the place where you keep an extra copy of all your photos in case your working storage fails, or you accidentally erase some of your photos. You should never edit your photos directly on the backup storage, and instead do all of your work on your "working storage". For greater safety, you may even have several sets of backup storage, each containing a copy of your photo collection.


### How often should you transfer your photos from your camera to your computer?

The obvious answer may be "when the camera card is full." While this seems logical, it may not actually be the best answer. If your camera card can store hundreds of photos at a time, and anything goes wrong with the card or you lose it, you run the risk of losing a lot of good photos that you intended to keep.

We recommend transferring photos to your computer:

- When you've just taken some great photos you'd like to share or keep
- Right after taking photos at a significant event
- Before performing a backup
- When your camera card is nearly full



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There are many options available to easily transfer your photos to your computer or other storage location, including card reader, data cable, camera dock, and even wireless connections. Consult your camera manual for step-by-step instructions.

### **Card Reader**

Most digital cameras and many camera phones have removable camera cards. These cards can be removed from the camera and inserted into a card reader connected to, or built into, your computer, or directly into a printer or external hard drive. Camera cards come in many different formats and sizes, but fortunately, multi-format card readers are readily available, relatively inexpensive and easy to install using your computer's USB port.

### **Data Cables**

Most digital cameras, and some camera phones, come with a data cable to transfer your photos to your computer. The most common connection type is Universal Serial Bus (USB). Some cameras support FireWire, another high-speed data transfer method common in video cameras and DVD recorders. Check to see which connection methods your computer supports.

### **Camera Docks**

These accessories, available for a large number of digital cameras, provide an easy way to transfer your photos, when connected to a PC (usually via USB) and recharge your batteries at the same time. Printer docks add a third feature - quick 4x6 prints!

### **Wireless**

Digital cameras and camera phones with wireless connectivity (e.g. WiFi or Bluetooth) can transfer photos directly to computers, kiosks, and online services over wireless networks. In addition, many wireless service providers offer a wide range of camera phones with the ability to connect directly to services to upload, share, print and store your photos.

To assist you with transferring and managing your digital photos, most cameras come with photo management and organization software. Some of these software programs are available at no charge online. In addition, you can purchase more comprehensive programs from major retailers.

### **TIP:**

Use the software and cable bundled with the digital camera (or use other photo organization and management software) to transfer photos from your digital cameras to your PC or Mac. The process is almost automatic. Be sure to follow manufacturers' directions for connecting and transferring the photos, and make sure you know where the software stores your photos so that you can make backups.



## The Backup Plan

Over time, the photo collection in your working storage location — usually the hard drive on your computer - can grow quite large and valuable. To protect your memories over the long term, it's important to create a backup plan and practice it on a regular basis. We use the term "backup" to mean a second copy of your digital photo file collection, and also the process of creating that copy.

Your backup plan in its simplest sense is the answer to four questions:

### 1. What backup method will work best for me?

Using the information in the [Learn](#) and sections of this website, choose one or more backup storage methods consistent with your needs, goals and budget. Then review the [How to backup](#) section to ensure the time and effort required meets your schedule.

**Tip:** If you're familiar with most of the issues, go directly to the [Table: Backup Methods at a Glance](#) and pick the method or methods that meet your requirements.

### 2. Where will I keep my backup copy?

The best way to be sure that your photos will be safe is to keep your backup copy in a separate physical location outside your home. Granted, this takes more effort, but it will guarantee that your memories will survive fire, flood, theft and other disasters. Suggestions include:

- o Your office
- o The home of a relative or close friend
- o A safe deposit box at a bank
- o An online storage service

Choosing a different geographic region will provide additional security for your collection in case of a big natural disaster.

### 3. When, and how often, will I backup my photo collection?

Make a backup any time you have taken photos that you consider to be valuable, or whenever you have spent a lot of effort organizing your collection. You should make a complete backup on CD or DVDs at least once a year as insurance in case your storage media unexpectedly fail. Making successive "generations" of backups each year is a good way to prevent problems caused by [aging media](#).

We recommend backing up new photos right after a significant event or occasion when you've taken photos that are important to you. Of course, if they're still on your camera or camera card, you'll want to first transfer them to your working storage. This is also the best time to organize and label these photos, making sure that they're easy to find as well as protected.



You should also back up your collection whenever you've spent a lot of time organizing, labeling or editing your photos. Don't forget to make backups of slideshows, collages, artwork and other creative projects on your computer.

When you want to make a new backup, you might be tempted to overwrite an old backup on an external hard drive. Our recommendation is that you keep two or three generations' worth of backups before you reuse the media. This way you have extra backups on hand in case one of them fails.

As you know from the [Learn section](#), the aging of media means that at some point in the future, your backup media will become unreadable. You can guard against this possibility by making sure that you make a complete backup of your collection once a year on a day you can remember such as New Year's Day.

**Tips:**

- Make a backup on an external hard drive or on CDs or DVDs when you buy a new computer, and just before you use your old computer for the last time. You can then copy your photos from this backup to your new computer. Make sure that all your photos are on the new computer before you recycle or give away your old computer. Don't forget to check various folders and sub-folders (including MyPictures) on your old computer to make sure you haven't forgotten any photos.
- If you're very confident about your knowledge of computers, you may want to make smaller backups by performing a backup on only a portion of your collection whenever you have made some changes or added photos. While this is more economical and saves storage space, you need to be very disciplined in order to make these partial backups work reliably.

If you have a large collection of photos which is greater than, say 12GB, you'll require more than three DVDs, and might like to use the following backup schedule:

- o The basic rule of storing photos in at least two places still applies.
- o Whenever you've taken a set of important photos or edited them, make a backup to CDs or DVDs, or to an external hard drive.
- o Once a year, backup your entire collection to a hard drive. Nowadays, you can store several years' worth of backups in separate directories on the bigger hard drives available. This way you have protection in case you accidentally erase a folder of photos one year.
- o Every three years, backup your entire collection to a set of write-once DVDs.

If you have a very large collection, say 100GB or more, you might like to use several hard drives, and store each annual "generation" of backup on a different drive. It's still wise to keep a set of write-once CDs or DVDs containing your photos because of the remote possibility of viruses erasing data on your hard drive.



#### 4. How should I guard against my storage becoming obsolete?

You know from the [Learn](#) section that most storage devices will become obsolete over time. Because of this, you may have no way of retrieving your photos. This is why you need to keep an eye on trends in the technology marketplace, and move your photos to newer technology devices as frequently as every five to 10 years.

##### **Monitor**

Monitoring is a continuous process over the lifetime of your collection. You are the curator of your photo collection, much as the curator of an art gallery maintains both the condition of and access to the exhibits. The condition of your backup storage relates to its age and to its [physical properties](#).

You should monitor the condition of your backup storage once a year by doing the following:

- o Check to see that you can view photos from your backup storage on your computer.
- o Check your CDs and DVDs for scratches and dirt.
- o If there's an increase in the noise level coming from your hard drive, there's an increased risk of failure.
- o If you encounter any problems or errors, make a new backup right away.

##### **Access**

This refers to the support for and compatibility of your backup given the current hardware and software technology. [Learn more here](#). For example, you may have documents on a 15-year-old 3.5" disk, but may be hard-pressed to find a compatible disk drive or software program capable of reading it on today's computers. There are no rules for when a particular digital photo format or technology will no longer be supported. Storage formats used for commercial content such as CDs or DVDs are often supported longer, yet these formats may eventually be replaced by newer technologies. An easy way to monitor changes of this type is to take notice of the features that appear — and disappear — in new personal computer models to ensure you'll be able to access your backup.

##### **Migrate**

When monitoring tells you that a technology change in storage media is imminent, you'll need to change or update your backup technology to become compatible with current standards

In effect, if you see new storage technologies coming, we recommend that you wait for a year or two to make sure that the new storage technologies are viable, and can make fresh backups to the new medium. Just make sure you create backups on the new medium before the old storage method becomes obsolete.

Obsolescence of a storage technology means that you can no longer buy compatible reader devices in regular retail stores. Today, for example, while it's still possible to obtain floppy disks, it's more difficult to get writing or reading devices for them. Given the high capacity of DVDs, it's likely that CDs will become less popular over time — even while most DVD devices can still read or write CDs.



## How to backup?

Digital photos can be backed up in a variety of ways. To protect and preserve your photo memories, we recommend the following two-part approach:

1. For your most valuable and irreplaceable photos: [Make or order high quality prints](#) or photo albums, and store them under recommended conditions to ensure that they will survive time and technology advances.
2. For your entire photo collection, backup using one or more of the following methods:
  - o [Copy to an external hard drive](#)
  - o [Make CDs or DVDs](#)
  - o [Upload to online photo services or dedicated online storage services](#)

## Prints

While you may not immediately think of printing as a way to backup your photos, you should definitely do this for your most valuable ones. The biggest advantage of printing is that you can enjoy your photos even if you don't have a computer, and if your other backup methods fail.

### Making your prints at home:

- With the wide range of printers and printing materials to choose from, and with varying levels of longevity, be sure to choose carefully.
- Stick to well-known brands and manufacturers: Follow your printer manufacturer's recommendation for the paper and ink combination with the best longevity.

### Making your prints at a retail store from your CD or DVD or camera card:

- Services for printing your digital photos are now widely available at retail locations where you've had your film processed, including supermarkets, drug stores, department stores and photo-specialty shops. Many are also equipped with self-service kiosks where you can select, edit and print your photos directly from your camera card or CD. Ask a sales person for help if you're not sure how to use these devices.
- Some retailers will also let you order calendars, photo albums and the like. Make sure that your albums are printed on acid-free buffered paper for best longevity.

Ordering your prints from an online photo website such as Creative Memories' Photo Center, Fujifilm's YourPix.com, Kodak EasyShare Gallery, Shutterfly, or Snapfish:

- Visit the website and follow the instructions. In most cases you need to first upload your photos, and then you select the ones you want to have printed and you place your order using a credit card.
- See if the photo site also allows you to create and order photo albums or calendars. Make sure that your albums are printed on acid-free buffered paper for the best longevity.



### Storing your prints:

- Keep your prints “comfortable.” They like to live where you live, and are best kept at a moderate temperature and relative humidity. For maximum print life, keep them in the dark.
- High quality albums with pages or sleeves designed for long-term storage will best preserve your prints.
- For prints on display, avoid bright light, and ideally display prints under UV protective glass or a Plexi-Glass™ type of material.
- Label the print with the file name so you can find the file and make a reprint, or use the photo for a calendar or memory book at a future date.
- To access additional information on standards and the assessment of print permanence, visit the section titled “Fading” in the [Learn](#) area.
- Make sure that you store your prints in accordance with the recommendations in this section.

### External Hard Drives

An external hard drive may serve as a relatively safe and easy to use backup device on both PCs and MACs. Be aware, however, the limited lifetime of these drives. [Learn more here](#). Expect five years of service, but some drives fail earlier, especially if they’re jolted while in operation. Some drives last longer. External hard drives generally have a large capacity (300 GB are common as of 2006) and can store tens of thousands of photos for average consumers. They offer a convenient way to backup your entire computer hard drive and, when needed, to migrate to a new computer.

### When purchasing a hard drive:

- Look for a well-respected manufacturer that provides a good warranty.
- Don’t buy the latest and highest-capacity drive: It’s best to allow the technology to evolve to the point where it’s more reliable.
- Most drives have USB to connect to your computer. Some drives have FireWire (or iLink or IEEE1394) connectors that are much faster than USB. It’s best to stick to USB, which is much more common on computers, unless you know your computer already has FireWire. Back-up speed is not so critical — you can always let the backup run overnight.

### Copying your photos to your external hard drive:

- Use Windows Explorer (or FileManager) on your computer to transfer the photos to the hard drive. If you keep all your photos within a specific folder and its sub-folders, you can easily copy them to your external hard drive in one step using the “drag and drop” technique.
- Many photo management programs and external hard drives come with backup software that can make the backup process easier. With such software, make sure that other programs such as Windows Explorer can read the files copied to your external hard drive.



*Note:* Some proprietary backup software will store your photos in a special format that can be retrieved only by that software. If you need to restore some photos several years down the road, you could be out of luck if that software is no longer available.

- Don't forget to label your external hard drive with its contents and date of backup.

**Storing your external hard drive:**

- Store your hard drive at room temperature away from heat sources.
- Treat your hard drives very gently: They are susceptible to shock.
- Keep your backup drive disconnected and away from your computer, and maybe even in a different location altogether. Be aware that computer viruses can still get onto your hard drive when connected. If you suspect that your computer has a virus, ask a knowledgeable person to help you before you reconnect your backup drive to the computer. [Learn more here](#).
- Do not plug or unplug external drives from your computer while they're transferring photos or other data.
- If you keep photos on an external hard drive that's not connected to a computer, make sure you connect it to a computer and power it up every couple of months to make sure it's working properly.
- Any time you make a backup on a hard drive, write the date of the backup and what set of photos you actually backed up onto the drive with a stick-on label. Trust us, you'll be very glad you labeled your backups should you ever need them in future.

**CDs and DVDs**

CDs and DVDs are optical discs that rely on lasers to record and read digital data. They're used extensively in the marketplace for pre-recorded music and movies. Consequently, these formats have a far greater chance of surviving the test of time than magnetic tapes or disks used for limited applications within the computer industry. Pre-recorded CDs and DVDs use a different technology to store data, and may have very different lifetimes from discs designed for home recording — even though the same mechanism may be used to read the discs.

These discs provide a good and inexpensive way to back up your photos, but you need to be aware of the varying longevity of these storage media. A major advantage of CDs or DVDs is that you can purchase discs that can be written to only once - a great way of keeping your photos from being deleted accidentally or by viruses.

**When purchasing CDs or DVDs:**

- Look for well-respected brands, yet be aware that some companies sell discs made by manufacturers that may have lower quality standards.
- Use high-quality archival or photo grade CDs or DVDs if you decide to make use of these media as your primary backup copies. Because of the materials used to make them, these CDs or DVDs generally cost significantly more.



- Avoid the lowest-cost CDs and DVDs, which may compromise both materials and manufacturing quality due to the fact that these manufacturers shift production of the discs to facilities designed for low cost over high quality.
- Use media such as CD-R, DVD-R, and DVD+R that are not rewritable. These discs use a permanent dye change that is more stable than the reversible phase change used for rewritable media such as CD-RW, DVD-RW, DVD+RW and DVD-RAM. Discs that are not rewritable also prevent files from being accidentally deleted and eliminate the virus threat.
- There's no easy way for a consumer to determine which CDs or DVDs are best for long-term backup. To get the best quality discs, check with your retailer or online store for:
  1. Write-once CD-Rs with a phthalocyanine dye layer and an inert gold metallic layer. They appear greenish-yellow and are available from various suppliers including MAM-A with their Gold CDR 74, Delkin with their eFilm Archival Gold, Apogee with their CD-R Gold, and Kodak with their Gold Preservation Disc.

*Note:* Accelerated aging tests at the National Institute of Standards and Technology and at the Canadian Conservation Institute confirm that these CD Rs are more stable to light, heat and humidity and significantly less vulnerable to data loss than other CD-Rs.
  2. Write-once DVDs of archival quality.
  3. If you're unable to identify the type of CD-R that you're using, be sure to contact the supplier for information.
- If you get a DVD, make sure you buy the right type for your CD/DVD drive. Examples include DVD+, DVD-, DVD-RAM, Blu-Ray and HD-DVD.
- In general, you're better off sticking to more established technologies for your backup needs: CD, DVD+, and DVD-. As usual, it takes newer technologies some time to get established.
- High-quality CD-Rs last longer than high-quality DVDs, so for particularly valuable photos, you might select CDs. Even though these CD Rs have better inherent stability than DVDs, they're more vulnerable to physical damage than DVDs, so take care when handling these discs.

**Copying your photos to your CDs or DVDs:**

- Use Windows Explorer on your computer to transfer the photos to the CD/DVD. If you keep all your photos within a specific folder and its sub-folders, you can easily copy them to a CD/DVD drive in one step using the "drag and drop" technique. For DVDs, you may have to use an additional program that is usually shipped with your computer or DVD drive to copy your photos or "burn" them to the DVD. Some software programs for recording CDs and DVDs will provide additional information on disc quality that will help ensure that your discs last as long as possible.
- Many photo management programs and external hard drives come with backup software that can make the backup process easier. With such software, make sure you can read the files on your CD or DVD by other programs such as Windows Explorer. Some proprietary backup software may store



photos in a special format that can be retrieved only by that software. If you need to restore some photos several years down the road, you could be out of luck if that software is no longer available.

- If you have insufficient space on the disc to store your folder, break up the folder into smaller sub-folders and store each of them on its own disc. Be aware that a DVD labeled with 4.7 GB capacity may actually hold only about 4.2 GB of photos, so you'll need to limit your sub-folder sizes to 4.2 GB. Other disc types may have similar capacity limitations because administrative data take up space on these discs. You can check the size of your sub-folder by right clicking on the folder name in Windows Explorer, and then clicking on "Properties."
- If possible, avoid using the full disc capacity. Studies at the National Institute of Standards and Technology show that files are vulnerable to an edge effect that begins to appear at 10 percent from the end of the disc, and becomes significant around five percent from the end of the disc. Some CD recorders can even exceed stated disk capacity, compounding the problem even more.
- After "burning" your CD or DVD, check the recording by using the "verify" function of your software or another software package such as CDCheck, which is available at no cost for personal use at <http://www.kvipu.com/CDCheck/>. Verification does not ensure that the discs will be readable in a wide variety of players so you may want to test different drives to ensure compatibility.
- Don't forget to label your CDs or DVDs with their contents and date of backup. Use a special marker specifically designed to label CDs and DVDs. Solvent-based pens, ballpoint pens or other sharp writing instruments and adhesive labels may damage CDs. The best location to label a disc is near the reinforced hub where there's no stored data. You'll be very glad you labeled your backups should you ever need them in future.
- Unrecorded CDs and DVDs have a limited shelf life and should be used within five years.


### Storing your CDs or DVDs:

- Store your CDs or DVDs at room temperature away from heat sources.
- Store your CD or DVDs in an upright position, and not stacked horizontally.
- Use translucent CD or DVD cases which don't have a plastic insert to hold the disc. Some of the colored plastic inserts for standard jewel cases contain plasticizers or other materials that may reduce disc lifetime.
- Avoid storing acidic paper inserts with your CDs or DVDs.
- For more details on handling CDs and DVDs, the National Institute of Standards and Technology guide is available at <http://www.itl.nist.gov/div895/carefordisc/disccare.html>.

### TIPS:

- Check that you've transferred the correct number of photos. With Windows, right click on the folder name, then click on "Properties" to get the total number of photos in the folder.
- Check the combined file sizes of all the photos in the folder where the photos came from as well as on the CD or DVD you copied them to. Make sure that you store the same amount of data in both places.



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With Windows, right click on the folder name, and then click on “Properties” to get the size of all photo files combined.

- Use photo software to check if you can view the photos on the CD or DVD.

## Online Storage Services

Online photo services such as Kodak Gallery, Shutterfly, Snapfish, Fujifilm.net and Sprint Picture Mail Service can provide a useful backup capability for your photo collection. These services also provide a variety of handy features such as sharing photos with your friends and family through email or ordering prints, printed albums, CDs and DVDs. In addition, you might like to keep an eye out for online backup services that are emerging, and that will store any files from your computer including photo and video.

Selecting an online site to store your photos:

- Read the terms and conditions to make sure that the site will work for you. For more information, visit the [Learn](#) section.
- Check with friends and relatives to see what sites they might recommend.
- Select a site run by a reputable company – you don’t want a site to go out of business when you most need the backup.
- Check to see if the site can upload your full resolution photos.
- Check to see how you can get your photo files back from the site through download or by ordering CDs or DVDs. Some companies charge fees. In some cases, you can download individual photos to your computer, but it might be very tedious to download thousands of photos.

### Copying your photos to a photo site or backup service:

- Follow the instructions on the website for uploading your photos. Often, there’ll be a small program that you can download from the site that will make it easier to make the upload.
- Even with a high-speed Internet connection, it can take many hours to upload your photo collection to the site. Let the backup run overnight so that no one is using the computer during the backup.
- Break up your collection into smaller chunks and upload only a few sub-folders at a time so that you have fewer problems if the Internet connection fails.

### TIPS:

- Share your important photos with friends and relatives as an informal way of backing up your photos.
- Make sure that you understand the terms and conditions of a photo website regarding payments, minimum orders required to maintain your account, and appropriateness of the photos.
- Use the online photo site to order prints of your most valuable photos.



## Other Backup Methods

Keep an eye out for new backup technologies. Some promising technologies include:

- Networked hard drives for centralized home storage. These systems, while still expensive, are becoming more available, and can be advantageous for large collections kept on multiple computers in a household.
- Digital photo to film: Digital photos printed onto traditional film. Since film can last a very long time with good storage, this is a method that may become more available to consumers in the future.

### **Backup methods not recommended for long-term backup:**

- Tape: not easily available to consumers
- Regular camera cards
- USB or thumb or flash drives
- Old computer media such as floppy disks



## Recovering Lost Photos

While it's never good news to discover that your computer has "crashed", it is an unfortunate reality — once in awhile. That said, it's a topic that we must address. As frustrating as this can be, there's some sleuthing that may recover lost photos and other data.

If you think you've lost photos because your computer hard drive crashed, check to see what, if anything else, has been damaged. You will probably need to purchase a new hard drive and install it or get it installed together with the software you need. Please read on and follow the recommended procedure to recover your photos.

### Hard Drive Crash

If you lose photos because your computer hard drive has crashed, here are the steps you should follow to restore your backup collection to your new hard drive or computer:

1. Check to see if anything else on your computer has been damaged, and then get a new hard drive installed together with any software you need.
2. Check to see which photos are missing. It's possible that your entire collection will need to be restored from your backup.
3. Set up your backup external hard drive or insert CDs and DVDs, and copy your photos back to your new hard drive.

Check your photo folders to see that all photos have transferred properly. You can do this by checking that both the number of files and the total amount of storage in your photo folders is the same on your backup disc as on your computer hard drive. The easiest way to find this out using Windows Explorer is to:

- a. Right click on the folder name
- b. Then click on 'Properties'
- c. Check the size of all the files combined in the folder in bytes as well as by the number of files.

### When Backups Don't Work

If your backups fail for some reason, and your hard drive is unreadable, you will need to resort to a commercial service. It will, most likely, be successful in recovering some data from your damaged hard drives. Unfortunately, these services can be expensive - ranging from \$500 to \$2000 or more. Unfortunately, they're not always able to recover your photos or the organizational structure from badly damaged disks. If you can't get a recommendation from a friend, check for "data recovery" services in your local yellow pages or on the web.




## Virus Attack

If you lose photos because of a virus attack, here are the steps we recommend that you follow. If you're uncomfortable following these steps, ask a trusted friend who is knowledgeable about computers to help you, or call a commercial computer support service.

1. Disconnect any external hard drive and run your anti-virus software on your computer. Make sure the software is up-to-date.
2. If you have a backup on an external hard drive:
  1. Connect the drive to your computer and run your anti-virus software on that drive.
  2. Copy your photos from that drive back onto the internal drive of your computer.
3. If you have a backup on CDs or DVDs, copy your photos from them back to your computer hard drive.
4. Check your photo folders to see that all photos have been properly transferred. You can do this by using special comparison software or by checking that both the number of files and the total amount of storage in your photo folders is the same on your backup disc as on your computer hard drive. The easiest way to find this out using Windows Explorer is to:
  - a. Right click on the folder name
  - b. Then click on 'Properties'
  - c. Check the size of all the files combined in the folder in bytes as well as by the number of files.



 **SaveMyMemories.org**

## About this Site

The following members of the [International Imaging Industry Association](#) have contributed to the development of this educational website.



I3A is the leading imaging industry trade association. Its members are experts in setting standards, providing education, and supporting safe environmental practices for the photographic and mobile imaging markets. The goal of I3A is to find common ground for advancing the industry, and to enable better products and services for its customers.