

Bits of Bytes

Newsletter of the Pikes Peak Computer Application Society, Colorado Springs, CO

Volume XL

April 2020

Issue 4



The Prez Sez

by John Pearce, President,
P*PCompAS

By now you know I canceled the April meeting scheduled for March 28th. I considered a number of things in making the decision and these two made the top of my list. One: someone infected with Covid-19 can be spreading the virus for two to five days before symptoms appear. Two: compared to people under age 60 infected with Covid-19, those over age 60 infected with the virus have a higher fatality rate and that rate skyrockets over age 80.

I enjoyed Cary's presentation on the WayBack Machine and Old Time Radio at the February meeting. I have used the WayBack Machine on several occasions to see what a web site looked like months or even years prior. As a kid growing up before we had TV, I remember listening to Fibber McGee and Molly and The Great Gildersleeve on the radio after dinner. It has been a long time since I listened to these on OTR.

My crystal ball is malfunctioning so I don't know when the next meeting will happen. The optimist in me would like to resume meetings in May. The realist in me knows it could be several months.

Regardless, Cary is preparing a presentation on Project Gutenberg. It has been many, many years since I browsed the Project Gutenberg catalog. I expect they have steadily improved their selection of texts. They have also adopted scanning technology and optical character recognition to improve the quality of their product.

Take care of yourself. ☺

Next P*PCompAS meeting: **Canceled**

The April meeting has been canceled. Stay tuned for the next meeting announcement.

Meeting Minutes

by Greg Lenihan,
for the P*PompAS Secretary

President John Pearce began the 7 March 2020 meeting at 9 am. John stated the coffee and doughnuts are free to first time visitors (there were none), and a dollar donation for members. A motion and voice vote to approve the minutes from the February meeting passed.

OFFICER REPORTS

Vice-President Cary Quinn said he has a friend to present at the end of March on Project Gutenberg, and he has some experience with the Wayback Machine.

Secretary Phyllis Butler has health issues and was not present.

Treasurer Chuck Harris sent in a report. We have \$81.29 in checking, which went down due to the Volunteer's Luncheon and a contribution to the church, and \$3227.52 in savings (money market account).

Membership Chair Ann Titus had nothing to report.

Newsletter Editor Greg Lenihan announced the next deadline as 14 March.

Librarian Paul Godfrey was not present.

Hospitality Chair Ilene Steinkruger sent a sympathy card to the Brunk family. Ilene complimented Toni Logan for her newsletter article on the club's history.

BOD Chairman Peter Rallis was not present for a report, and

neither was Paul Godfrey.

APCUG Rep/Webmaster Joe Nuvolini had nothing to report.

OLD BUSINESS

Bill Gardner said the financial review of the treasurer was done.

NEW BUSINESS: None

ANNOUNCEMENTS

President Pearce said he also appreciated Toni Logan's latest history update of the club.

Daylight Saving Time begins the following day.

The next social breakfast was 21 March (*Ed Note: but has since been canceled*).

Our next meeting will be on 28 March (*Ed Note: since canceled*).

PRESENTATION

Cary Quinn did an informative presentation on the Wayback Machine at archive.org. ☺

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P*PCompAS

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Officers

President: John Pearce
jljnet@comcast.net

Vice President: Cary Quinn
cary.quinn@gmail.com

Secretary: Phyllis Butler
phylbutler@aol.com

Treasurer: Chuck Harris
charris7525@gmail.com

Staff

APCUG Rep/Webmaster: Joe Nuvolini

Barista: David George
Drawings: Cary Quinn
Editor: Greg Lenihan
Librarian: Paul Godfrey
Membership: Ann Titus

Committees

Audio: A.J. Whelen
Hospitality: Ilene Steinkruger
Programs: Cary Quinn
Publicity: Cary Quinn
Nominating: Vacant

Board of Directors

Peter Rallis
Paul Godfrey
Ann Titus
Harvey McMinn
Jeff Towne

How to Use Dropbox Transfer

By Ann Titus, P*PCompAS

Dropbox Transfer is a simple way to send files you don't need to collaborate on. For example, you might use Dropbox Transfer to send a finished product or contract to a client.

Dropbox Transfer gives transfer owners more control than sharing a folder because:

- Transfer owners can see the number of times a transfer was viewed or downloaded
- Files shared via a transfer won't appear in the recipient's Dropbox folder
- Transfers automatically expire after 7 days
- Recipients can't edit files within a transfer

When you send a transfer, the recipient will get a link with your name, a list of file names and sizes, and the expiration date of the transfer. Recipients can share the transfer link. A Dropbox account is not required to access or download a transfer.

Note: The size limit of your transfer depends on the plan you have.

- Basic (free): 100 MB
- Plus: 2 GB
- Professional: 100 GB
- Business Standard: 2 GB
- Business Advanced, Enterprise, or Education: 100 GB

How to create a transfer

1. Sign in to dropbox.com.
2. Click Transfer.
3. Click Create transfer.
4. You can add files to your transfer one of three ways:

- Click the plus icon
 - Drag and drop files from your computer
 - Click Add from Dropbox
5. Click Next.
 6. Choose your expiration date using the dropdown menu. Transfers are automatically set to expire after 7 days, but Professional, Business Advanced, Enterprise, and Education users have the option to set the transfer to expire in 7, 30, 60, or 90 days
 7. Click Next.
 8. Click Copy link or Send via email.

To create a transfer from the Dropbox folder on your computer:

1. Open the [Dropbox folder on your computer](#).
2. Right-click the file or folder you'd like to add to the transfer.
3. Click Send with Transfer...
 - To set the expiration date or set a password for your transfer, click the gear icon
 - To add more files, click the plus icon
4. Click Next.
5. Click Copy link or Email transfer to share your transfer link.

Note: You'll only see Views and Downloads for transfers sent via e-mail.

How to delete a transfer

Deleting a transfer removes that transfer from your account

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The 6 Best Free Conferencing Apps

By Tim Brookes, reprinted with permission from HowToGeek.com

Original article at: <https://www.howtogeek.com/661906/the-6-best-free-video-conferencing-apps/>

If you suddenly find yourself working from home or another remote location, you're going to miss those interactions with other people. Video conferencing can help by allowing you to talk face-to-face, even if it is via a screen.

Fortunately, there are plenty of free video conferencing apps you can use to connect.

Google Hangouts



Supports: Up to 10 participants for an unlimited duration.

If you have a Google account, you have access to Google Hangouts. For free Gmail and G Suite Basic customers, Google Hangouts allows for up to 10 people to chat in a video call. The service also supports simultaneous voice chat and allows participants to join a conference via email or a shareable link.

In response to the coronavirus crisis, Google has relaxed some restrictions for all G Suite and G Suite for Education customers, regardless of tier. Customers can now hold video conferences with up to 250 participants

through to July 1, 2020.

Other Enterprise-level features that are available to all G Suite customers include the ability to stream video to up to 100,000 viewers within a domain, and the ability to record and save meetings directly to Google Drive.

You can use Google Hangouts in most web browsers, or via the Google Hangouts apps for [iPhone](#) and [Android](#).

CISCO Webex Meetings



Supports: Up to 100 participants for an unlimited duration.

CISCO is a name usually associated with pricey Enterprise products, generally beyond the reach of free users. Webex is the company's web conferencing solution, and it comes with a robust free option for those looking for a barebones video conferencing solution.

Host up to 100 participants in a single call, for as long as you want. There are no limits on the number of calls you can place, and you get 1 GB of cloud storage with your free account.

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How to Use Dropbox Transfer (Cont. from page 2)

and anyone with the link will be unable to view the files. To delete a transfer:

1. Sign in to dropbox.com.
2. Click Transfer.
3. Click the ... (ellipsis) icon next to the transfer you want to delete.
4. Click Delete.

Deleted transfers cannot be recovered.

To download files from a transfer to your computer:

1. Open the Dropbox Transfer link.
2. Click the Download button.

The files will be downloaded to your browser's default download location in a .zip file titled Transfer.

To save files from a transfer to your Dropbox account:

1. Open the Dropbox Transfer link.
2. Click Save to Dropbox.

The files will be saved to a new folder inside your Dropbox Transfer files folder. ☺



Cary Quinn explaining the Wayback Machine at the March meeting.

Conferencing (Cont. from page 3)

Conferences include support for features like screen sharing, video recording, and file sharing.

Webex allows users in up to 52 countries to use a standard telephone to join any conference. Participants who want to use their webcams have a choice of website, dedicated desktop apps, or mobile apps for [iPhone](#) and [Android](#) (complete with their own screen sharing features).

Zoom Meetings

Supports: Up to 100 participants for 40 minutes.

Zoom is a full video conferencing suite aimed at Enterprise-level users, with an attractive free option. Users with a free account can host video conferences for up to 100 participants, but conferences of 3 members or more are limited to 40 minutes.

You can upgrade to a paid plan to remove these restrictions, or simply keep your conferences short and sweet. There are no limits on the number of meetings you can host, so you could simply host a new call once you've hit the limit.

Zoom allows participants to join via the web, dedicated apps, browser extensions, and mobile devices using [iPhone](#) and [Android](#) apps. Users can call in via phone if they need to. Free users can also record video or audio locally and share screens with other conference participants.

Skype

Supports: Up to 50 participants for an unlimited duration.

Skype is a popular VoIP app that most users will have heard of by now. It's suitable for video conferencing for small teams of up to 50 people (including the host), free of charge. The company [rolled out](#) the expanded video calling feature in April 2019, improving on the previous limit of 25.

The main drawback to using Skype in this manner is that each participant will need to sign up and download Skype in some capacity, whether it's an app for desktop or mobile.

Skype includes a useful cloud-based [call recording feature](#) that any member of the call can trigger. This will notify other participants that the call is being recorded, and allows users to save and share the recording for up to 30 days.

FreeConference

Supports: Up to five video participants and 1000 audio participants for an unlimited duration.

Contrary to what the name suggests, FreeConference isn't a free service. It's a premium service with a decent free option that might be useful in some instances. For video conferencing, FreeConference only supports up to 5 participants on the free tier.

What makes FreeConference potentially shine, however, is its support for up to 1000 audio participants to call in via telephone. The service also takes a software-free approach to video calling, allowing most users to connect with nothing more than a browser.

FreeConference also offers mobile apps for iPhone and Android, which are open to free users. Unfortunately, there is no ability to record your call unless you're willing to upgrade to a [premium package](#).

Jitsi

Supports: An "unlimited" number of participants for an unlimited duration.

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CD Players—Where Did They Go? What About All My Music CDs?

By Phil Sorrentino, The Computer Club, Florida, www.sccccomputerclub.org, [Philsorr \(at\) yahoo.com](mailto:Philsorr@yahoo.com)

CD players used to be all around us, well, at least they could be found in our computers and our automobiles, but not so anymore. In the age of streaming Netflix videos and delivery of software applications by downloads, CD players have lost their significance. But if you feel you must have a CD player on your computer, you can add an external CD player. These types of devices will usually read and write CDs and DVDs. They are fairly inexpensive, around \$30, and they connect to the computer using USB. (As always, the more USB ports on your computer, the better.)



In our automobiles, many domestic and foreign car models that used to have CD players as part of their infotainment center have eliminated the CD player. In its place, they have included a USB port, and they have included an MP3 player in the infotainment electronics. The MP3 player, in conjunction with the USB port, allows the entertainment center to play MP3 music from a flash memory device plugged into the USB port. That's all well and good, but how do you get your music on to a flash memory device? Fortunately, there is a simple answer – Windows Media Player (WMP). But before we look into how to use WMP, let's take a quick look at recorded music and a brief history thereof. Recorded music began with Thomas Edison, who invented the phonograph in 1877. Initially, the music was stored on metal cylinders. The cylinders were replaced by disks, tape, and finally CDs. The disks evolved from 78s to 45s and finally the 33 $\frac{1}{3}$ albums. Tapes developed from reel-to-reel to 8 Track and finally the very popular tape cassettes. All of these were developed to record “analog” music and was the way we recorded and played back music until around the late 1980s.

During the 1980s, even before the release of the iPod, research was being done to develop methods of compressing digital music. (The iPod would eventually replace the

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Conferencing (Cont. from page 4)

Jitsi is a 100% free and open source project with a fantastic feature set. You can choose between using the hosted version of Jitsi at meet.jit.si, or you can download and host your own video conferencing solution for total flexibility.

Of note is the service's theoretically “unlimited” number of participants. The service supports phone-in audio participants in both the hosted and self-hosted versions. The service supports

screen sharing and has mobile apps for [iPhone](#) and [Android](#) (plus an [F-Droid package](#)).

To record your Jitsi conference, you can stream to YouTube and then pass the link around (private or unlisted) or simply download the file for safekeeping.

There are no premium tiers to Jitsi, and the project remains free thanks to [8x8](#), which uses the technology in its own products.

Keep Working Remotely

Video conferencing is a powerful tool for businesses, students,

and groups who want to stay connected over long distances. It's also a great way of staying in touch with colleagues and classmates when you simply can't be there in person.

If you're new to the world of working remotely, don't miss [our top tips for effectively working from home](#). We recommend video calls over phone calls for better interactions with your coworkers.

RELATED: [Tips for Working from Home \(From a Guy Who's Been Doing It for a Decade\)](#)

©

CD Players (Cont. from page 5)

Walkman, a device that almost every music lover owned.) The outcome of the research was the .mp3 music file specification that allowed music files to be created that would be small enough to fit into the amount of memory that could be put into a portable device in those days. Large memory devices were not as available then, as they are now, so the size of a music file was very important. (By the way, there are other music file types, but .mp3 has become the de facto music standard.) The .mp3 file type is considered a lossy compressed file, meaning that there is some quality degradation in the resulting music. The amount of “loss” is established when the original uncompressed file is compressed. This is accomplished by the use of a “Quality” setting. The quality is indicated in “Kilobits per second” (kbps). A setting of 128 kbps is termed “near-CD” quality, which gives you a file size of about one-tenth the size of the original file, and sound quality that is quite impressive. A file that produces a higher quality will be larger, but I’d be surprised if those of us over 65 could tell the difference, so the near-CD quality is probably more than adequate.

The .mp3 file specification allows us to create music files that we can use on our devices but it is the .wav file that creates a music file that is an exact reproduction of the originally recorded music; this is what you find on music CDs. The .wav file contains all of the musical quality of the original performance. The .wav file contains the digital results of the analog music signal being sampled at a rate so as to include all frequencies that can be heard by the human ear. This sampling results in a digital representation of the original music. To be technical, this is called a linear pulse-code modulation format. When played on a CD player, the stream of digital information produces music exactly as it was originally performed. But these .wav files are fairly large; most music selections will create files in the 30 to 40 Mbytes range.

So now that we know about .wav and .mp3 file types, we can get back to Windows Media Player. WMP is a component of Windows 10, so everyone has a copy of WMP which is currently at version 12. WMP not only plays CDs and music files, but it is capable of “ripping” the tunes from a standard CD. (“Ripping,” though it sounds horrible, is perfectly legal.) When you start WMP, you will not have controls for ripping if there isn’t a CD in the CD tray (you will see “No disk”

under the Tools tab). Once you put a CD into the tray, the “Rip CD” and “Rip settings” controls will appear on the WMP toolbar.

Before you rip the CD, check that the settings are to your needs. Click the down-facing arrow next to “Rip settings” to check a few of these settings. First, select “Format” and then check the box next to “MP3” in the pop-up window. Next, select “Audio Quality” and check your selection (128 Kbps is probably fine and it will create the smallest files). Next, select “More Options” and it will open a window for making “Rip Music” adjustments. The first adjustment is where the ripped files will be stored. If you want to change the destination, click “Change” and in the pop-up window navigate to the location of your choice. Next, on the Options window, click “File Name.” This is where you determine how the ripped music file will be named. Check the items that you want to be in the file name, like “Artist” and “Song title,” and move the items up or down to get the right sequence. Next, choose the “Separator” like space or dash. The “Preview” shows the choices that have been made. (I typically name the files “Artist dash Song title”.) Click OK on the “File Name Options” window. The other two Rip settings, Format and Quality, have already been set up so now you’re good to go. Click “OK” in the Options window to get back to the main WMP window. Now all you have to do is click “Rip CD” and let’er rip.

When you originally put the CD into the tray, all tunes were selected. If you don’t want a particular tune ripped, uncheck the box next to the tune’s name. The “ripped status” will show how the process is proceeding. When all the tunes are ripped, you will find them in the location that you set up in the Rip settings. They will be in a folder with the name of the artist or CD. Using File Explorer, move the tunes to your permanent “Music” folder. From here, you can put them on a flash memory device for use in your car, or put them directly into any of your devices, like a tablet, a music player, your smartphone, or another computer. Now you’re ready to take advantage of the music you previously purchased for a CD player on any of your other devices. ☺



Drowning in Your E-mail Inbox?

By Bob Rankin, <http://askbobrankin.com>, published through the APCUG



Do you sometimes feel like you're slowly being buried under a pile of unread, unanswered

e-mail? Are you starting to run out of free storage space in your Gmail account? It's time to go on an e-mail diet and shed a few gigabytes. Read on for my advice...

How to Declutter Your E-mail Inbox

Just as a diet involves eating less, decluttering your inbox starts with receiving less e-mail. Most people can reduce their daily e-mail loads significantly by simply unsubscribing from all the e-mail newsletters, mailing lists, and other subscriptions they no longer read. E-mail notifications of Facebook posts, Twitter mentions, and other random events are unnecessary. Login to your account and turn that feature off.

If you order stuff online, you probably get regular e-mails from the companies with which you do business. You can unsubscribe from those as well, or at least see if they have the option to reduce the frequency. In my work, I get a lot of unsolicited press releases. When there is no unsubscribe link, I just reply and say "please remove from your list".

Oh, and tell that friend who forwards every Internet rumor, joke, and chain letter that you don't want to receive any more. Actually, you probably have several "friends" who regularly send you "amazing photos," boring Powerpoint slideshows, and riveting videos of some Norwegian farmer whose tractor got stuck in the mud. Expect them to be offended, but brush that off quickly, because these things can chew up hundreds of megabytes of e-mail storage. If you receive too many of these inbox cloggers, it can even cause e-mails that you DO want to be rejected with a "mailbox full" error.

Here's another factor to consider: When I get an e-mail with a link or attachment promising sensational or salacious content,

I assume it's malicious and delete it. Even if such a message comes from someone you know, it could be a trap to get you to download malware.

Sorting and prioritizing e-mail helps you work through it faster. Most desktop e-mail programs have tools to help you sort e-mail manually or automatically. Click the column header for Sender, Subject, or Date to sort your messages quickly and you may find a group of e-mails you wish to delete.

Using Filters to Find Large Attachments

Gmail, Yahoo, and Outlook.com (formerly Hotmail) – provide filters that operate automatically in the background. By filtering on the sender address, subject line, or text in the message body, you can automatically direct messages to a special folder, or send them to the trash. Each of these services also gives you the ability to fine-tune spam filtering manually when necessary.

Find and Zap Large Attachments

When your e-mail collection starts eating up several gigabytes of storage space, it's time to clean house. Gmail and Outlook.com both provide 15 GB on free accounts, with the option to purchase more. Yahoo Mail is more generous, with a 1 TB (1000 GB) limit. I've experienced problems with Thunderbird when the inbox accumulates more than 5000 items.

The quickest way to shrink your e-mail storage is to find and delete messages with large attachments. Some e-mail services let you sort messages by size, so you can quickly identify the space hogs. Gmail doesn't let you sort, but you can still find large messages by entering (for example) **size:30MB** to find all items larger than 30 MB. You can review these large messages first and delete whatever you can to reduce the size of your message database. Some e-mail programs, notably the Mail app in Mac OS X, allow you to zap attachments, but still retain the e-mail message. ☺

Bit Rot: How Hard Drives and SSDs Die Over Time

By Ian Paul, reprinted with permission from HowToGeek.com

Original article at: <https://www.howtogeek.com/660727/bit-rot-how-hard-drives-and-ssds-die-over-time/>



Computer storage is both a blessing and a curse. We can store terabytes of photos, documents, and more at home. But that data is more precarious than we might assume thanks to a phenomenon known as bit rot or data degradation.

Hard Drives and SSDs Don't Last Forever

Take a hard drive and an [SSD](#) and bury them with a book in a time capsule for 100 years. You can bet the book will be legible when it resurfaces, but the storage drives? Good luck.

That's not just because regular storage drives can suffer hardware failures. Whether we're talking about SSDs or old-fashioned mechanical hard drives, these drives have a limited ability to retain data when inoperative. No, that doesn't mean you have to start keeping your computer on at night for fear of losing your photos, but stashing a drive full of home movies in the closet for decades? Not the best idea.

We can't start chiseling 1s and 0s onto stone, of course. Plus, if everyone suddenly printed all their files onto paper we'd quickly run out of trees. So what are we to do with the knowledge that our storage drives and the data on them have a limited shelf life? You should basically do what you're doing now, or what you should've been doing this whole time.

How Drives Store Data (and How It Can Degrade)



Hard drives use magnetism to store bits of data (all those ones and zeros) in clusters. These bits can, over time, flip, which can lead to data corruption if enough flipping happens. To counteract this, hard drives have error-correcting code (ECC) that searches for bits gone wrong. If they find any, the hard drive corrects them, if possible.

Solid-state drives don't have any moving parts like hard drives. They use a different method to store bits. These drives use an insulating layer to trap charged electrons inside microscopic transistors to differentiate between 1s and 0s.

There's a lot more to it than that, but this provides a basic idea of how the two storage types keep their data. Now let's look at how they can lose it through bit rot. With hard drives, as mentioned above, saved bits can flip their magnetic polarity. If enough of them flip without being corrected, that can lead to bit rot. Solid-state drives, meanwhile, lose their data when the insulating layer degrades and the charged electrons leak out.

How long it takes to see bit rot in practice depends on a variety of issues. Hard drives have the potential to last with their data intact for decades even if powered down. SSDs, meanwhile, are said to lose their data within a few years in the same state. In fact, there are reports that, if they're stored in an unusually hot location, the data on an SSD can be wiped out even faster.

Powered up, these drives are a different story. They usually last until they encounter typical problems, such as hardware failures, or when SSDs max out their read/write cycles. They can also lose data from the usual suspects, such as malware, firmware corruption, coming into contact with water, or any other number of random problems that have nothing to do with bit rot.

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Bit Rot (Cont. from page 8)

How to Protect Your Data from Bit Rot



So what does a wary computer user do to avoid the potential for bit rot and other storage failures? The answer is pretty much what responsible computer owners do now.

First, pay attention to the health of the drives you're actively using. One way to do that is to check the [S.M.A.R.T. \(Self-Monitoring, Analysis, and Reporting Technology\)](#) status.

You can also set a limit on how long you'll keep an active hard drive or SSD. SSDs previously weren't considered as reliable as hard drives when in active use, but that isn't as widely believed as it once was. Most people can expect an SSD to last about as long as the average hard drive.

A good general rule is to keep a storage drive no longer than about five years. That's just a ballpark estimate, and some people keep their drives for much longer than that, basically waiting until they fail. If you do that, however, it's extra important you have a reliable backup strategy.

First, let's talk about archival drives. If you keep data on a regular hard drive or SSD in a closet or safety deposit box, it's a good idea to power them up and let them run on a regular schedule. This keeps them in good condition and reduces the chance of bit rot or other issues.

For a hard drive, you can probably get away with powering them up at least once a year or once every two years to prevent the mechanical parts of the drive from seizing up. You should also "refresh" the data by recopying it or use a third-party tool like [DiskFresh](#). SSDs are a little simpler since they just need to maintain their charge; you can power them up for a few minutes about twice a year.

Another option is to look into [purpose-built archival storage mediums](#) such as [Verbatim's M Disc Blu-ray discs](#) that will supposedly hold their data for 1,000 years. (Of course, you probably won't be around to test that claim.) They come in varying capacities of 25 GB, 50

GB, and 100 GB per disc. Their write speeds are turtle-grade slow, however, so be prepared for a long archival process.

Whichever archival option you choose, keep multiple copies of archival data in different locations to be sure you don't lose your files.

RELATED: [How to Archive Your Data \(Virtually\) Forever](#)

Back Up Your Files



Backups are something that not many people like to think about, but they are easier than ever to carry out. In general, the [best backup strategy](#) accounts for three copies of your data. The first is the one you use every day on your PC.

The second is a local copy you keep on a backup drive, which can be an external hard drive or a NAS box. Windows 10 has a built-in feature called [File History](#) that will automatically back up your PC for you. Many other third-party tools for creating backups are also available. Alternatively, you could manually copy your personal files and folders on a daily or weekly basis.

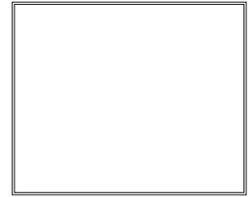
Now you have two copies of your data, but if there's a house fire or a flood, or both drives fail around the same time, you're back to square one. That's why having an ["offsite" backup](#) is also a good idea.

The easiest solution is to [use a cloud backup service](#), such as [Backblaze](#). If privacy is a concern, many of these options allow you to encrypt your backups to prevent the service provider from being able to view your data. For example, Backblaze lets you create your own encryption password. If you lose that second password, however, you lose access to your backups.

Three copies of your data in various places should be enough to prevent data loss, whether your drives end up suffering from bit rot or some other calamity.

RELATED: [What's the Best Way to Back Up My Computer?](#)

P*PCompAS Newsletter
Greg Lenihan, Editor
4905 Ramblewood Drive
Colorado Springs, CO 80920
e-mail: glenihan@comcast.net



Coming Events:
Next Membership Meeting: TBD
Next Breakfast Meeting: TBD
Newsletter Deadline: 18 Apr

Check out our Web page at: <http://ppcompas.apcug.org>

