

# >PC Update

May 2021

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Publishing Information _____	2
Editorial May 2021 _____	3
Presidential Musings May 2021 _____	4
Monthly Meeting May 2021 _____	6
Building a DIY CNC Router (Part 1) _____	7
Casting, not in the theatrical sense _____	10
Backing Up _____	12
Remember, Apple AirTags and 'Find My' app only work because of a vast, largely covert tracking network _____	15
Want to become a space tourist? You finally can — if you have \$ 250,000 and a will to sign your life away _____	18
Book Review _____	21
Interesting Internet Finds _____	23
DOTW Winners April 2021 _____	24
East SIG Report April 2021 _____	25
Yammer Highlights April 2021 _____	34

# Publishing Information



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**Responsibility for content in this newsletter lies with individually named authors**

**Please remember to always bring your membership card to meetings**

SIG Listings and up to date calendar are available on our homepage

# Editorial May 2021

**Hugh Macdonald**

Hello and welcome to another edition of PC Update.

This month the highlights include:

- Dave Williams with the first part of his series on building his own CNC Router
- Dan Douglas with tips on backing up your Windows PC (I'll have a follow up next month on backing up your Linux PC)
- Phil Sorrentino on using casting, not in the theatrical sense (i.e. how to use a Chromecast)

Plus there's some of the usual features: Presidential Musings, Interesting Internet finds, Yammer Highlights, DOTW Winners and the East SIG Report.

Enjoy the issue!

# Presidential Musings May 2021

David Stonier-Gibson

## Successful Covid-be-gone party Sunday 18<sup>th</sup> April

I think I can confidently declare the Party at Moorabbin on Sunday 18<sup>th</sup> April a success. We all had fun with frivolous games, pizza, and a lot of socialising.



## Email Transition

The transition to Google continues, and is now roughly 65% complete.

The migration team are migrating 1400 member accounts, of which 900 have already been created in their new quarters in Google Workspace. 800 of the members affected have already logged in to their new accounts and are using them for their Melb PC email. The Transition support team will shortly contact the remaining 100 members offering further assistance to make the change. The accounts still awaiting migration will follow, first those where the member is using the account for email, then the others.

It is important to understand that during the transition, particularly for those members who are already migrated to Google Workspace, that you have two separate accounts with the same email address `yourname@melbpc.org.au`. One account with Microsoft allowing you access to Yammer and the member-only areas of the Melb PC website, and one account with Google for email and other Google Workspace features.

At present the migration process is focused exclusively on email, but once that stage is completed, members using the OneDrive cloud storage service will be contacted with advice on moving their files. Finally the successor to Yammer will be selected after consultation with Yammer users, and put into use.

Thank you to the transition team for all your hard work!

## Resumption of Home Visit Assist program

Cedric Wyndham posted on Yammer:

*“All club members are invited to comment on how we should open the Home Visit Assist program.*

*To allow everyone to see what others have suggested, this discussion is located on the teams site, at [https://teams.microsoft.com/\\_#/conversations/Home%20Visit%20Assist?threadId=19:32c1521fc2fa4b089bbda74c2d6eb705@thread.skype&ctx=channel](https://teams.microsoft.com/_#/conversations/Home%20Visit%20Assist?threadId=19:32c1521fc2fa4b089bbda74c2d6eb705@thread.skype&ctx=channel).*

*This is a valuable program for club members who for one reason or another (usually medical issues) cannot attend meetings where someone could help with problems, and the iHelp team cannot fix a problem over the phone.*

*I would appreciate further feedback on what COVID precautions we should be taking, in view of the risks when club volunteers are visiting often elderly and infirm members.”*

## **Committee resignation**

I have no pleasure in reporting that Paul Hattam has resigned from Committee. Paul moved out of the City last year as a result of Covid, and his work and new location make it too difficult for him to continue. Paul was important in establishing the Coder Dojo, which is involving kids and parents, and in general transformation of the club.

Thank you, Paul, for your contribution.

## **New Honorary Life Member**

A special general meeting was conducted in April, coincident with the monthly meeting, and voted Harry Lewis as an Honorary Life Member. Congratulations to Harry!

## **Vale Judy Bednar**

I received the tragic news on Monday of the murder of one of our long-term members, Judy Bednar. Judy was quite prominent on our members-only online chat platform, Yammer, having started the very popular Chit Chat group. She was always ready with an insightful comment.

While I never met her in person, I enjoyed engaging with Judy online, as one of her “Clayton’s spouses”. The social interactions she engaged in online within the club were clearly important to her. From time to time she would express concerns for her safety from her mentally ill son, and frustration over the authorities’ inability to keep him in check. She also reported her efforts to physically secure her home, but it would seem the measures were insufficient to keep her safe.

Our club is poorer for the loss of Judy.

# Monthly Meeting May 2021

The May 2021 Monthly Meeting was held in person and online on Wednesday 5th May 2021, with over 20 members in attendance at Moorabbin and over 70 members in attendance via Zoom. This was the program for the evening:

**Guest Speakers: Adrienne Fleming and Chris Hodges**

## **Topic: Australian Air League**

Adrienne is Australian Air League Victorian Executive Commissioner and an aviation training specialist with over 30 years' experience in the aviation industry. As a flight examiner, aviation educator and business owner, she is one of only 4% of female professional pilots in Australia. Adrienne and her husband founded Tristar Aviation which is now the oldest single ownership flight training school on Moorabbin Airport.

Her volunteer work earned her an Order of Australia Medal in 2016 for Service to the Aviation Industry. She has extensive professional relationships with the industry throughout Australia and India.

Chris is an Australian Air League volunteer and developer of FlySima tech-head who has been developing something, inventing something or turning something into commercial reality for as long as he can remember. Chris believes that business success is based on: Quality, ethics, looking after the customer, the staff and the shareholders.

## **Meeting Agenda**

7pm: Meeting commences with host Peter Bacon

Guest speakers: Adrienne Fleming and Chris Hodges from the Australian Air League,

Q & A: George Skarbek with Adrienne Fleming and Chris Hodges.

Interval: Winch launching at Mount Beauty (video by George Skarbek). The flight simulator will also be available for use.

Fireside Chat: Stephen Zuluaga and Aavon Fernando on 'How technology has influenced manufacturing'

Presidents Report: David Stonier-Gibson

iHelp Online with Mike Allison

9.30pm: Meeting close. iHelp Online will continue informally afterwards.

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If you missed out the first time and would like to view any of these presentations, you can do so at <http://services.melbpc.org.au/videos/>

The username is videos and the password is drum286.

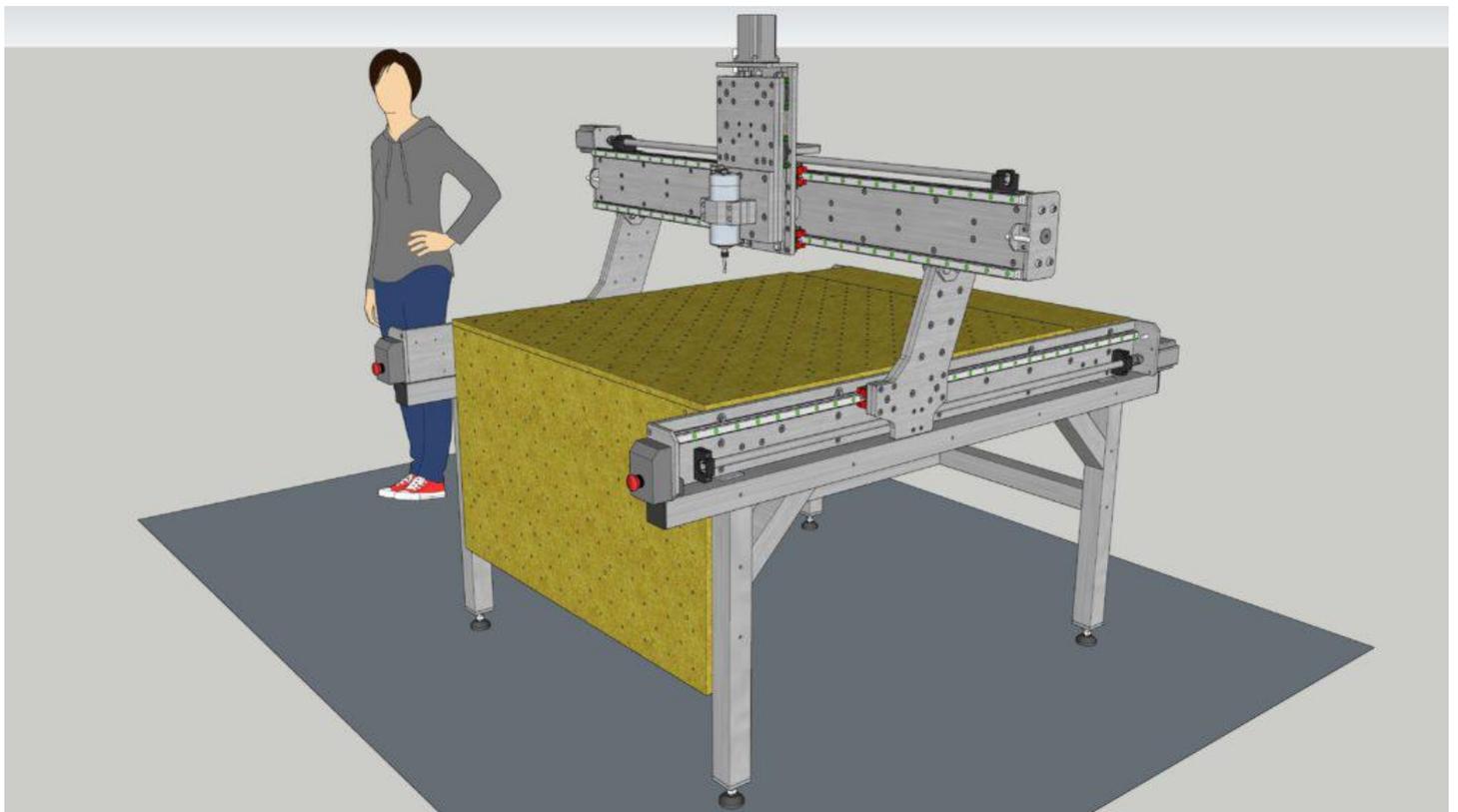
# Building a DIY CNC Router (Part 1)

Dave Williams

*This is the first part of a series of articles on Dave Williams' experience of building a CNC (computerised numerical control) router, which is an automated cutting machine that can be used on materials such as wood, composites, aluminium etc.*

It's been a long time coming, but I've finally made some good progress with my CNC router project. After my move up to Queensland, I finally had the shed space to work on this, and spent quite a significant portion of 2020 researching and working on the design and deciding what features I wanted, with near constant tweaking of the design in CAD. I'm a big fan of the CAD design process because it allows me to test ideas virtually before having to commit to any big purchases.

This is the design I ended up with:



There were certain principles and aspects that I wanted to incorporate into the design, such as the table surface that sat slightly above the sides of the machine and an extra-wide gantry. This was done to maximise the working area, and also to allow for extra long work pieces that could hang off the end of the table. The front 'apron' of the machine is to allow for end-milling, which could allow for things like dovetail or mortice & tenon type joinery, or any other techniques that require the work piece to be mounted vertically.

Another key aspect that I wanted to integrate into the design was the ability to upgrade the machine as time goes on. For example, the extra-wide gantry allows for a possible automatic tool change (ATC) spindle to move off to the side to a rack that has multiple tool holders lined up. Or alternatively, there could be a rotary fourth axis mounted there. I don't know how far I will want to upgrade this machine, but I knew that it was important for me to allow for that possibility, even if I don't end up going down that path.

During the early design and concept phase, I kept having this idea bouncing around my head, which was

that rigidity is a key requirement in a CNC router, and that steel has 3 times the stiffness of aluminium for a given cross section; so I made the decision to design it all around 16mm thick steel plates for the main frame components. After a lot of exchanging emails and getting quotes from many places, I settled on a business in Brisbane that does laser cutting of steel, and they were also able to tap the holes for me as well, which was quite a relief, because manually tapping hundreds of holes wasn't too appealing to me. I did have to clean up the tapped holes, but this was pretty easy with a spiral point tap mounted in a hand drill.

Here are all the parts freshly collected from the laser cutting place:



The laser cutting worked rather well, it's quite a clean-cut edge compared to the plasma cutting that I was initially considering.

The other skill that I needed to develop for this project was welding. It's something I've been wanting to learn for a very long time, and I also wanted to have the capability to weld aluminium and other alloys for future projects, so I pulled the trigger on a Unimig 200A AC/DC TIG welder. Youtube is such an amazing resource for learning new skills... A welder I certainly ain't (yet), but it provided enough of a basic introduction to get started, and I'm pretty happy with how this base frame turned out.

I got the steel (65 x 65 x 4mm SHS) cut to size for me, so I could rely on the cuts being fairly square and hopefully, that squareness would translate to my welded frame somewhat.

The legs were first, and I used that as an opportunity to get my eye in as far as the welding process was concerned.

The question remained, how do I weld up a frame as flat as possible when I don't have a flat reference surface? (The concrete slab in the shed is no way near even or flat). The answer to this was slowly and carefully. I used little wooden wedges to chock things up and spent a great deal of time tapping things around and using a level and engineers square to check every single part of it, then just slowly and carefully started tacking everything up while continually checking everything as I went.

Judicious use of ratchet straps throughout the welding process helped to pull things straight and square.

It started to get quite heavy, which is good, but still (just) manageable for one person to kind of manoeuvre around.



It was a couple of weeks until I was able to do a second lot of welding, but I was able to get all joins finally welded up. It's nice and heavy and solid, and should serve as a good base for the machine!

*To be continued next month...*

# Casting, not in the theatrical sense

**Phil Sorrentino, Sarasota Technology Users Group**

Most modern computers have HDMI outputs so it is easy to display your computer screen on a big-screen TV, but what about displaying your smartphone screen on that same big screen? Most phones do not have HDMI or more specifically micro-HDMI connectors. (Though I have seen some tablets with micro-HDMI connectors, in fact, I even had one that I used for teaching a smartphone/tablet class.) So, you have to find another way to get the smartphone screen displayed on the larger TV screen. Fortunately, Google has provided a solution with its Chromecast hardware device and Casting software that is becoming part of many Apps. (If your App supports Chromecast, you will see the Chromecast icon somewhere on the App's opening screen). The Chromecast device gets plugged into an HDMI input port on the big screen TV, and power is provided to the device by a micro-USB connection. A Chromecast device and an App that supports casting can turn a dumb TV into a pretty smart TV, at least for those Apps that support casting.

Besides the Chromecast device, the only other thing you need is Wi-Fi. Wi-Fi is the mechanism used to transfer the smartphone screen information to the Chromecast device which in turn provides the HDMI interface to the big screen TV. So, to make it work, both the smartphone and the Chromecast device have to be on the same Wi-Fi network. Many current Wi-Fi routers provide many networks. Usually, the main network is in the 2.4 GHz frequency band and there may be another network in the 5 GHz band. The 5 GHz network sometimes includes 5G in the network name which can possibly be confused with the 5G wide area network provided by companies like Telstra and Optus. (Future Wi-Fi routers can even take advantage of a new 6 MHz band.) Also, some routers may provide a guest network in the 2.4 GHz or 5 GHz band. The trick here is to make sure that when you set up the Chromecast device you choose the same network that your smartphone is using. You can see what network your smartphone is using by going into Settings on the smartphone and selecting "Network & internet" or "Wireless", or something like that, where the network name will be shown. This is usually early in the list of settings. (When you select this screen, you will also see the other networks that are available but are not currently being used by your smartphone.)

Once you know the Wi-Fi network you will be using you can set up the Chromecast device. This will be done using your smartphone and usually the Google Home App.

You can download the Google Home App from the Google Play Store or the Apple App Store. Apps are updated regularly and screens may change so specific directions for this setup may be different by the time you need them but when you do need directions, Google something like "How to set up a Chromecast device using the Google Home app". The results will probably be several tutorials or even better a few videos with up-to-date instructions. (The Google Home App provides a control for many devices besides the Chromecast. Home automation lights, cameras, and switches are also set up using this App. Additionally, this App also provides a control for Google's "Google Home" assistant.) Once you have set up the Chromecast device you can cast your smartphone screen to your big screen TV. (And to see what else you can do with the Home App, just find the "Discover" icon which looks like two sheets of paper. This is really an advertisement for all the wonderful things Google can do for you once you have their products.) As well as Google Home their other Apps that can be used to set up the Chromecast device and that support Casting, such as LoCast for Chromecast, iMediashare, Cast to TV, Mirroring360 Sender, and Plex but I have not tried any of these.

With the Chromecast device setup, all we need to do is find Apps that can Cast. Some of the more popular Apps are YouTube, YouTube Music, Google Photos, Disney+, Prime Video, Netflix, Crackle, Tubi, and Hoopla. There are even a lot of Apps that appear to be cable channels like A&E, History, AMC, MTV, and TNT. Many more Apps may have this ability in the future. You may already have some of these apps on your smartphone like YouTube, but the other Apps are available at the Google Play Store or the Apple App Store. Once you've downloaded the App of interest, look for the Cast icon somewhere on the opening screen.

Hoopla is an App that supports casting. This means that you can now take advantage of all the video media at your local library; videos, TV shows, and feature-length movies. You can use your phone to access the media and then cast the media to your Chromecast device plugged into any TV that has an HDMI input. Using Wi-Fi to cast the media means you are also using Wi-Fi to access the media from the library, so there is no cost associated with the whole process. You can think of that as free movies for the whole family, at least if the big screen TV is big enough to satisfy the whole family. All you have to do is supply the popcorn. By the way, as was discussed in a previous article in September, Hoopla can also bring you E-books to read, audiobooks to listen to, and even music to listen to. What a bargain. If you haven't gotten the Hoopla App yet, go to the Google Play Store, or the Apple App Store and download it and start taking advantage of this very useful, and did I mention, free App.

*Reprinted from the March 2021 edition of STUG Monitor (with some edits to make it more appropriate to a Melbourne PC User Group audience)*

# Backing Up

**Dan Douglas, President, Space Coast PC Users Group**

Two types of files are required to be backed up. There are your personal files, normally stored in the following folders under your login account in Windows: Desktop, Documents, Downloads, Favorites, Music, Pictures, and Videos. Each user that has an account on a PC has their own set of these folders. If the user only uses the programs that come with Windows or has a standard set of programs that they add to Windows that can be easily re-installed either from a DVD/CD backup or a download file, then that makes backup and recovery much easier. The other type of files to be backed up would be the Windows System Files. These include the Windows Operating System itself plus all of the programs/apps, files, and data used by those programs/apps.

If you have all of your personal files backed up and you have the files required to reinstall your programs, then you can easily get a replacement PC or hard drive restored completely.

Just about every PC user has heard that they should back up their PC, but based upon what I've seen, only about 20% have an active plan in place.

The reasons that I've been told that users do not perform backups regularly are along these lines:

- I don't know how to set it up
- It will slow down my computer too much
- It's too costly
- I forget to do it

None of these are acceptable excuses anymore!

Let's go through these one by one and see how to address the issues.

## Setting up your backup

In Control Panel, under every version of Windows since Vista, there is an app named Backup and Restore or Backup and Restore (Windows 7). In Windows 10, in the search box on the taskbar, type **control panel**. Then select **Control Panel > System and Security > Backup and Restore (Windows 7)**. This app is suitable for 99% of the user community.

This app lets you pick a target location for where your backup will be stored either on a local drive or a network storage location, which can include cloud storage. A schedule can be set for what frequency you want to use for creating your backups - daily and what time of day or weekly by day of the week and time of day or monthly by day of the month and at what time of day. You can also determine if you want just your file libraries backed up or the whole disk(s). If you choose 'Let Windows choose (recommended)', your file libraries will be backed up and a System Image will always be created as well. If you choose 'Let me choose' then you can choose what to backup on your computer and you can choose whether to create a system image or not. The System Image can be used by a restore program to exactly duplicate your hard drive onto a new PC or a new hard drive. (You can restore by creating a system repair disc from the Backup and Restore interface or you can use a Windows installation disc or USB to run the restore). The retention period can also be set for how long to keep a backup for or you can allow Windows to manage the space and to automatically replace the oldest backup with the newest.

## Selecting the best time to perform your backup

When you select the time of day to run the backup as described in the previous section, you must pick a time that will be when your computer will be powered on. The backup program cannot power on a PC that is turned off to perform a backup. So if you use it each Sunday at 7 pm, make sure you leave your PC on every Sunday evening. A backup that runs when you are using the PC can impact your responsiveness and will take longer to complete than running at a time that no one is using the PC.

## Cost of running the backup

Since the backup program is included with every copy of Windows, there is no software cost. In addition, almost all external backup drives include a backup program of some sort. Cloning/backup software from Macrium is also recommended. The only cost is that of providing a backup drive, either as a local hard drive or a network-accessible location such as a Network Accessible Storage (NAS) or cloud storage. This drive can be used for other purposes so even that cost can be split across other activities. An external 5TB USB 3.0 drive can be bought for less than \$130 lately, so that's cheap insurance for not losing all of your data.

## Set it once and it's automatic

As we saw in the sections above, once you set up the backup program, it will run automatically as long as the backup location is accessible and the computer is turned on at the scheduled time. Perhaps a repeating calendar reminder note will help make sure that you are always protected!

Restoring from a backup is best suited to situations where your hard drive is damaged and some files can no longer be accessed or the system won't even boot up. I've seen a lot of computers recently, where the owner complains of poor performance and upon investigation, I've been able to determine that it was a hard drive failure that was causing the lack of responsiveness. The hard drive would sometimes retry reading a file hundreds of times before either being successful or unsuccessful. This causes the hard drive to fall behind in any other requests for data and therefore the whole system slows down.

**The File History app**, which was introduced in Windows 8, is the best program to use for restoring individual files. Every time a file is created, changed, or deleted a copy can be written to the file history backup drive. This drive can then be used to restore a previous version if required. This is a great recovery tool if you are ever a victim of a ransomware attack where your personal files are encrypted. You can add additional directories to be backed up in addition to the normal set of personal file folders.

The option of Save copies of files specifies how often File History runs automatic backups. The default is hourly, but you can set the frequency to 10, 15, 20, or 30 minutes; 3, 6, or 12 hours; or choose to back up files once a day. Please note that a new version is created only when at least one item has changed in the file. The Keep saved versions option specifies how long to keep the backups. By default, these are kept forever, but you can also select 1, 3, 6, or 9 months, or 1 or 2 years. If your backup drives are tight on space, you can select the "Until space is needed" option and risk losing older backups quickly.

The best approach is to use the Backup and Restore program regularly, perhaps just using the System Image backup function, together with File History to fully protect all of your important files and folders. That way you will be protected against both hardware failures of the hard drive as well as accidental deletion or corruption of important documents.

Don't pass up the free cloud storage from Microsoft, Google, and others that can supplement what you backup to a local/network drive. Cloud storage is impractical for full drive/image backups due to the extremely long time that it would take to do a full recovery over the internet, but for individual files, it's great.

*Republished from The Space Coast Journal.*

# Remember, Apple AirTags and ‘Find My’ app only work because of a vast, largely covert tracking network

**Paul Haskell-Dowland, *Edith Cowan University***

Apple recently launched the latest version of its operating system, iOS 14.5, which features the much-anticipated app tracking transparency function, bolstering the tech giant’s privacy credentials.

But iOS 14.5 also introduced support for the new Apple AirTag, which risks doing the opposite.

For the uninitiated, an AirTag is a small device (similar to a Tile) that can be attached to personal items such as keys, wallets or luggage. The tag periodically sends messages that can be used to track its location, letting you find any lost or missing items with the help of an app.

While clearly useful, AirTags can also potentially be misused. Concerns have been raised they might facilitate stalking, for example.

And there’s also a more fundamental issue with this technology. Its euphemistic description as a “crowdsourced” way to recover lost items belies the reality of how these items are tracked.

What you won’t find highlighted in the polished marketing statements is the fact that AirTags can only work by tapping into an Apple-operated surveillance network in which millions of us are unwitting participants.

## **So, how exactly do AirTags work?**

AirTags are small, circular metal discs, slightly larger and thicker than an Australian one-dollar coin. Once paired with your Apple ID, the tag’s location will be shown in the “Find My” app, whenever location data are available.



Apple airtag.  
Apple newsroom

Each tag transmits a unique identifier using Bluetooth. Any compatible Apple device within range (up to 100 metres in ideal conditions) will then relay that identifier to Apple’s servers, along with its own location data. The tag’s owner can then log onto the Find My app and access those location details, and bingo — you now have a pretty good idea of where your lost bag is.

The AirTags themselves have no positional location capability - they do not contain GPS technology. Rather, they merely “ping” the nearest Bluetooth-enabled device and let that device’s location data do the rest.

Besides Bluetooth, AirTags also use a relatively new technology called Ultra Wideband. This new feature is supported only by recent Apple devices such as iPhone 11 and 12, and allows for much more precise location tracking.

This precision extends to directional finding - now, your phone can literally point you towards the missing tag.

While the actual nature of the data transmitted is not too concerning (tag ID and location), what makes it worrying is the sheer scale and number of devices involved. By using an AirTag, you are effectively availing yourself of a global monitoring network containing millions and millions of devices.

Everyone’s iPhone (assuming Bluetooth is enabled) is listening for AirTags. When it “hears” one, it uploads details of that tag’s identifier and the phone’s location to Apple’s servers.

Besides any privacy concerns, this also likely uses small amounts of your data allowance. That’s probably fine most of the time, but if you are travelling internationally you might be hit with unexpected charges if you’ve forgotten to disable data roaming.

## **Stalking technology?**

Apple says it has implemented a range of safeguards to detect and prevent attempts to use AirTags for

stalking, including an alert triggered when an AirTag seems to be accompanying someone who's not its owner. The alert can appear on the victim's phone (if they use an iPhone) but can also raise an audible alert on the tag itself. But these measures are relatively easy to circumvent.

One experiment showed a tag can be placed on a person and would not trigger any of the safeguards if reconnected to the stalker's device regularly enough. This could be done by the victim returning home or within range of their stalker within a three-day window.

More concerningly, the alerts can be turned off - which a victim of domestic violence may be coerced into doing by their aggressor. What's more, as AirTags and similar devices become more common, we will inevitably encounter more warnings of tags appearing around us. Just like other commonly encountered alerts, many users will tire of seeing them, and dismiss the prompts.

It is also presumably only a matter of time until these devices are hacked and put to other nefarious purposes.

Apple isn't the only technology company drawing unwitting users into large networks. Amazon's SideWalk creates a network that allows your neighbours' doorbell to connect through your Echo device (if their WiFi doesn't extend to the front door), effectively sharing your internet connection!

All of this functionality (and the inherent privacy risks) are covered in the standard terms and conditions. That lengthy, legalese document we never read allows tech companies to hide behind the claim that we have willingly opted into all this.

## **Can we opt out?**

A simple option to avoid your device acting as a cog in Apple's machine is to turn off Bluetooth and location services. With Bluetooth disabled, your device won't "see" the beacons coming from AirTags, and without location services you can't report the proximity of the tag.

Of course, turning off this functionality means losing useful capabilities such as hands-free kits, Bluetooth speakers and satellite navigation, and of course makes it harder to find your phone if you lose it.

Ultimately, if we want to benefit from the ability to locate missing keys, wallets and luggage through AirTags, we have to accept that this is only possible through a global network of sensors - even if those sensors are our own phones.

Paul Haskell-Dowland, Associate Dean (Computing and Security), *Edith Cowan University*

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# Want to become a space tourist? You finally can — if you have \$250,000 and a will to sign your life away

*Cassandra Steer, Australian National University*

Billionaire Jeff Bezos's space launch company Blue Origin has announced it will sell its first flights into microgravity to the highest bidder.

Blue Origin and its two greatest competitors in the "space tourism" field, SpaceX and Virgin Galactic, claim to be advancing humanity through the "democratisation" of space. But these joyrides aren't opening up access to space for all.

## A changing landscape

At face value, the prospect of a space tourism industry is exciting.

It promises an easier path to space than the one followed by astronauts, who must go through higher education, intense training and extremely competitive selection processes. Astronauts must also have the right nationality, because few countries have access to human spaceflight programs.

In theory, the opening up of a commercial spaceflight industry should make space more accessible and democratic. But this is only partly the case; what was once the domain of only the richest countries is now an industry headed predominantly by commercial entities.

Adding to this, these companies are prepared to take more risks than government programs because they don't have to justify their spending — or failures — to the public. Blue Origin and SpaceX have seen many explosions in past tests, yet fans watch with excitement rather than dismay.

This has pushed the rapid development of space technologies. Reusable rockets — particularly SpaceX's Falcon 9, which just made its tenth successful launch — have reduced the cost of launching tenfold.

Besides driving down costs, reusable technology is also working to solve the problem of sustainability.

## Considering sustainability

There have been thousands of launches since 1957, when the first human-made object (Sputnik I) was launched by the Soviets. Apart from Falcon 9, however, every single launch vehicle has been used once and disposed of immediately — akin to throwing away an aeroplane after one flight.

Launch numbers are increasing each year, with 114 carried out in 2020 alone. Over the weekend, the uncontrolled reentry of debris from China's Long March 5B rocket made world news because of its sheer size and the risk of damage. It is just one example of the problems of space debris and traffic management.

Safety is a key issue for human spaceflight. Currently, there are about 3,400 operational satellites in orbit and about 128 million pieces of debris. There are hundreds of collision risks each day, avoided by expensive and difficult manoeuvres or, if the risk is low enough, operators wait and hope for the best.

If we add more human spaceflight to this traffic, countries will need to adopt stricter requirements to de-orbit satellites at the end of their lives, so they burn up on reentry. Currently, it's acceptable to de-orbit

after 25 years, or to put a satellite into an unused orbit. But this only delays the problem for the future.

Nations will also need to implement the 2019 United Nations guidelines on the Long-term Sustainability of Activities in Outer Space.

The environmental impact of launches are another important factor. SpaceX's Falcon 9 burns as much fuel as an average car would over 200 years, for a single launch.

On the ground there are impacts on terrain and waterways, which we have to keep in mind when building future launch sites in Australia. Launch permits currently require environmental impact statements, but these should include long-term effects and carbon footprints as well.

## **Keeping billionaires in check**

In the coming years, it will be crucial for independent spaceflight companies to be tightly regulated.

Virgin Galactic has long advocated a "shirtsleeve" environment wherein customers can experience the luxury of spaceflight unhindered by awkward spacesuits. But the death of one of its test pilots in 2014 is evidence spaceflight remains dangerous. High altitudes and pressure require more precaution and less concern for comfort.

Although regulators such as the US Federal Aviation Administration have strict safety requirements for space tourism, pressurised spacesuits are not among them — but they should be. Also, space tourism operators can require passengers to sign legal waivers of liability, in case of accident.

And while it's laudable SpaceX and Blue Origin are making technological leaps, there is little in their business plans that speaks to diversity, inclusivity and global accessibility. The first space tourists were all wealthy entrepreneurs.

In 2001 Dennis Tito paid his way to a seat on a Russian Soyuz rocket to visit the International Space Station (ISS). Since then, there have been eight more space tourists, each paying between US\$20 million and US\$30 million to fly through the Russian program.

In 2022, the Axiom crew is scheduled to fly on a SpaceX Dragon flight to the ISS. Each of the three wealthy, white, male passengers will have paid US\$55 million for the privilege. Meanwhile, Blue Origin's upcoming auction will last five weeks, the highest bidder winning a seat for a few minutes of microgravity.

Virgin Galactic's 90-minute joyrides, also scheduled to fly as early as 2022, have already sold for US\$250,000. Future tickets are expected to cost more.

## **A matter of time?**

Of course, conventional recreational air travel was also originally for the wealthy. Early cross-continental flights in the United States cost about half the price of a new car. But technological advances and commercial competition meant by 2019 (pre-COVID) there were nearly five million people flying daily.

Perhaps it's only a matter of time before space tourism becomes similarly accessible. Ideally, this would mean being able to fly from Sydney to London in a matter of hours.

Then again, spaceflight carries much greater risks and much greater costs than airflight, even with reusable rockets. It's going to be a long time before these costs are driven down enough to allow the "democratisation" of space.

This is a compelling narrative which commercial spaceflight companies are eager to adopt. But there will always be a portion of society that won't have access to this future. Indeed, as many science-fiction stories

predict, human spaceflight or habitation in space may only ever be accessible to the very wealthy.

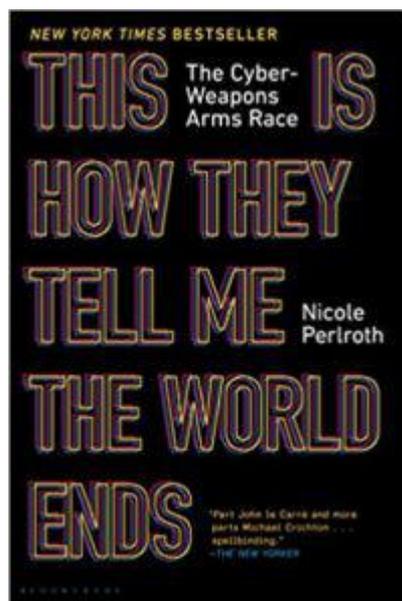
We know there are benefits to space-based technologies — from tracking climate change, to enabling global communications and health services, to learning from scientific experiments on the ISS. But when it comes to space tourism specifically, the payback for the average person is less clear.

Cassandra Steer, Senior Lecturer, ANU College of Law; Mission Specialist, ANU Institute for Space, *Australian National University*

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# Book Review

Tim McQueen



## ***This is how they tell me the world ends - the cyber weapons arms race***

Nicole Perlroth

Bloomsbury 491 pages

On 10 May 2021 The Age carried a story 'DarkSide, ransom group linked to Colonial Pipeline hack, new but not amateur'. This attack could, and should have been prevented. *'This is how they tell me the world ends - the cyber weapons arms race'* by Nicole Perlroth anticipated this and other aggression against American infrastructure. Perlroth is a staff writer for the New York Times covering cyber security and digital espionage. She previously covered Silicon Valley for Forbes.

She starts the story with Russia's cyber attack on the Ukraine in 2017 that shut down government services, railways, ATMs, the postal service and even the radiation monitors at Chernobyl. How did we come to that state?

Most Melb PC members will have at least some knowledge of zero day exploits and their use in hacking. What many may not know is that these may not be diligently reported to developers for patching, but collected by agencies for espionage and data collection or more nefarious activities. The early attitude of some developers was to attempt to sue hackers who discovered and reported bugs.

Nathaniel Borenstein, one of the inventors of the email attachment said: 'The most likely way for the world to be destroyed ... is by accident. We're computer professionals. We cause accidents'.

After 9/11 American security services changed their emphasis. They acted against Huawei, suspecting backdoors for Chinese infiltration into American products. The National Security Administration (NSA) began to believe it was smarter than anyone else. In 2007, in apparent conjunction with Israel, Stuxnet (the Natanz worm) was developed. It worked well and apparently disrupted Iran's nuclear program. But it escaped and caused havoc in commercial installations throughout the world including the Cadbury factory in Hobart. (The worm, at 500 kb, was 100 times the size of the software used in the Apollo moon launch).

Michael Hayden, former NSA director said: 'This has the whiff of August 1945 ... Somebody just used a new weapon and [it] will not be put back in its box'.

Perloth describes many exploits, the people who used them and some who tried to expose them. A problem is that exposing weaknesses can attract attention to them. Americans tried to work with 'friendly' nations; but some US allies (UAE, Saudi Arabia, Mexico) turned the tools against their own citizens.

Software security is only ever as good as its weakest link. And that weakest link is often the user who clicks on a phishing email.

Google set up in China, but soon found its tools being used against Chinese citizens and decided to abandon the attempt. (Later, the lure of the large market took it back.) In the meantime, China had hacked Google's source code. Software developers had historically concentrated on the security of customer data rather than that of their own intellectual property. James Coney (FBI) stated: 'there are two kinds of countries; those who've been hacked by the Chinese, and those who don't know they've been hacked by the Chinese'.

In 2011 a whistleblower tipped off the Pentagon that its security software was riddled with Russian backdoors. The Pentagon had paid Computer Sciences Corporation \$US613 million to secure its software. CSC subcontracted the job to a Massachusetts outfit which, in turn, farmed out the coding to programmers in Moscow. Why? Greed. The Russian contractors charged one third the price of their US peers.

In 2015, Apple resisted requests by the FBI to unencrypt an iPhone. (Apparently they eventually paid a hacker who found a way to access the information.)

Perloth attended a hacker conference in Buenos Aires. Talking to a hacker she asked 'will they only sell their exploits to good Western governments?' The response was: '...who is good? Who is bad? The last country that bombed another country into oblivion was not China or Iran.'

The US (and Australia) are vulnerable. How secure is our IT infrastructure? How many systems are cobbled together with obsolete computers running outdated, unpatched software? How many default passwords have never been changed? How many staff can consistently recognise and avoid phishing attacks? How many staff have unsecured social media accounts (that may share passwords with office systems)?

In 2012, Russia proposed a cyberwar treaty; the US didn't want one. President Trump refused to accept the concept of Russian interference in the 2016 election and scrapped the position of White House cybersecurity chief. Republican Senator Mitch McConnell (who has again been in the news recently because of his support for Trump's rejection of the 2020 election results) prevented passage of an election security bill.

As long as we continue to design software with the aim of being first on the market, with no thought of security, using Open Source software that could be compromised, there is no solution in sight. There are moves to increase the security in chips (CHERI - Capabilitiy Hardware Enhanced RISC instructions). But there is still the issue (and costs) of fixing all the old hardware and software. Read this book and weep.

# Interesting Internet Finds

Steve Costello

*What Is Archive In Gmail And How To Archive And Unarchive Emails*

<https://www.guidingtech.com/what-is-archive-in-gmail-how-to-archive-unarchive-emails/>

Do you know what archiving in Gmail is? If so, do you know why and how to use it? The answers to these questions are in this post.

*How To Clear Cache On Android (And When You Should)*

<https://www.makeuseof.com/tag/clear-cache-android/>

Do you use an Android? If the answer is yes, you need to read and follow what this post says.

*What Is A USB Security Key, And Should You Use One?*

<https://www.reviewgeek.com/63448/what-is-a-usb-security-key-and-should-you-use-one/>

I read this post and think it is overkill for my needs. But, if you use your laptop for business, have a lot of confidential information on your laptop when you travel, this post explains how you can benefit from a USB security key and what the disadvantages are.

*How To Log Out Of Facebook On Any Devices You're Logged Into*

<https://www.digitalcitizen.life/where-you-are-logged-on-facebook-log-out/>

Have you signed in to Facebook on different devices? If so, you need to periodically follow the directions in this post to be sure you are logged out of any devices you don't need to be logged in on.

*It's Unsubscribe Season! Clean That Inbox*

<https://www.askwoody.com/2020/its-unsubscribe-season-clean-that-inbox/>

I followed the advice in this post and now have a much cleaner inbox.

*How to Buy a Laptop for Linux*

<https://www.howtogeek.com/185286/how-to-buy-a-laptop-for-linux/>

This post from HowToGeek explains why you shouldn't just buy a Windows laptop and then install Linux on it. Instead, it explains the advantages of buying a laptop designed for Linux from the start, with links to some Linux you can buy now.

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# DOTW Winners April 2021

**Roger Brown**

DOTW is a lighthearted look at some of the sillier events of the week. Don't take it too seriously and do pop over to Chit Chat and vote each week. Thanks to those of our members who occasionally 'feature' for taking the gentle humour in such good part.

April winners were:

- The person responsible for hurling golf balls which damaged a State Emergency Service helicopter performing vital flood recovery services during take off.
- The taxpayer-funded aged care homes which funnelled \$31 million back into the coffers of one of Australia's largest churches despite being almost totally unprepared for Covid 19.
- Andrew Bolt, for an article claiming that the AstraZeneca vaccine is more deadly to Australians than Covid 19 itself.
- The two Victoria Police off-duty officers were among five men who allegedly fled from on-duty police when their on duty officers attempted to stop their unregistered Mercedes-Benz. Apparently drugs were involved.

Thanks to all participants, including those who feature in our supplementary LOSER award!!

# East SIG Report April 2021

**Neil Muller**

Host Paul Woolard opened the April meeting again presented via Zoom. After welcoming members, the meeting commenced with **George Skarbek** presenting Q&A.

Q: I have a problem with printing. I've done all the maintenance tasks on the printer and the printers test page prints perfectly. When I open and attempt to print a pdf file from Adobe Acrobat, I only get the top half of every line of text. The print preview does not show up any problems. Any graphics are not affected and print in full. I've uninstalled and reinstalled Acrobat but still have the same problem. Do you have any suggestions that could help?

A: I would try a different Pdf viewer and see if you can print from that. George then asked the audience if anyone has encountered similar behaviour. One member had a similar problem when one line covered another, both on the screen and on the print. He was often able to correct this by altering the magnification of the screen. Another member suggested before doing a print you look at print preview and fiddle with the size of the file on the paper. The consensus from the audience was to try another pdf viewer such as Foxit.

[Reply from questioner] As images are printing correctly, I've taken a screen copy of the pdf and plan to see whether that image will print correctly.

[George] If you need to print large pdf files, there are many free sites on the web that you can upload your pdf to and it will be converted to Word. By and large they do a very good to excellent job. Some have a limit to the size of the original pdf file.

Q: I have a problem with photoshop. When I try to do anything, I get a message "Can't repeat your request due to a program error". I've uninstalled and reinstalled Photoshop but that didn't solve the problem. A Google search shows others have this same problem but no suggestions worked. The problem only occurred a few days ago when I updated photoshop.

A: The cause is most likely due to the update. I get Photoshop updates almost weekly, so I'd wait a few days in the hope others are experiencing the same problem and Adobe will send out a new update to correct the problem.

[John Hall] You could try using System Restore to roll back pre the update, given the problem only occurred a few days ago.

Q: Given that Adobe Flash is no longer supported and is being removed from our computers, what programs use Flash, and what will we expect to see malfunction? What will be the effect of not having Flash anymore?

A: Flash is no longer supported and by uninstalling it you'll notice no difference whatsoever. Flash was introduced a very long time ago [by Macromedia] for rendering animations in web browsers. Since then, HTML code and browser functionality has evolved with many new features which have made Flash obsolete.

[Note: Up until the last year, many online photobook creation websites used Flash. These sites are now using HTML instead]



Figure 1 - Flash & Java Logos

Q: Is Flash the same as Java? I got rid of Java and I've noticed no difference.

A: Java is different from Flash and it's still being used fairly extensively. Some older programs may still use Java but if you've noticed no difference then you don't have a problem. Java is still used in a lot of embedded devices but on computers it's been phased out to a large extent, because it still has vulnerabilities. Java is basically an interpretive compiler.

**Dave Botherway** followed with his ongoing series on "Making more use of Zoom", this time using remote control. When screen sharing in Zoom, the person sharing their screen has an extra icon on their tool bar called "Remote Control".

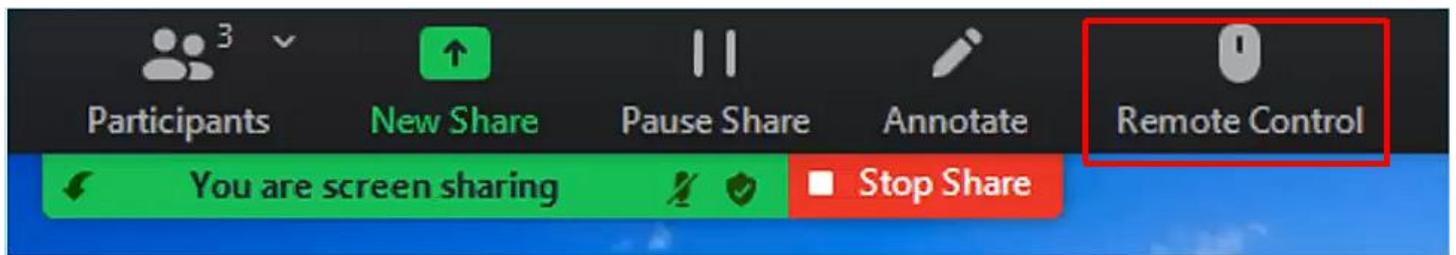


Figure 2 - Remote Control icon

When the "Remote Control" icon is selected on the person's screen that is being shared, the following options shown in Figure 3 are available:

- Auto accept all requests (i.e. others can request taking control of the shared screen)
- Share clipboard (i.e. share the clipboard with others)
- Give Mouse /Keyboard Control to: (i.e. gives control to anyone from the participant list)

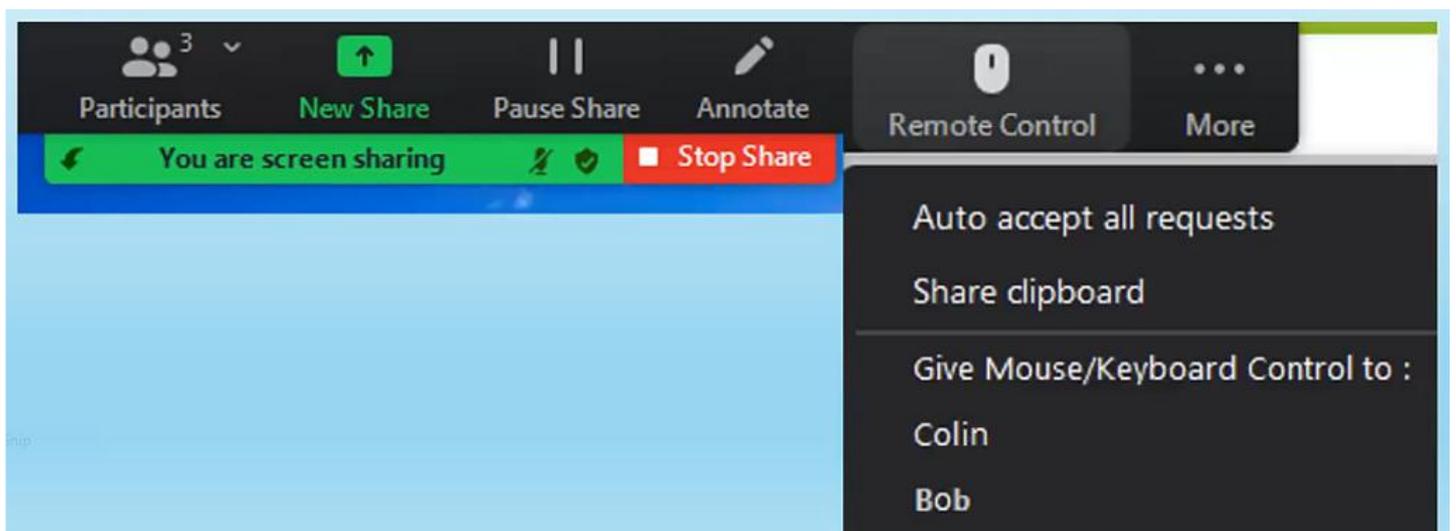


Figure 3 - Remote Control options on the sharer's screen.

Alternatively, other participants can request control of the screen being shared.

In the example below, participant Bob is currently viewing Dave's shared screen. Bob wishes to take "Remote Control" of Dave's screen. To do this he selects "View Options" then clicks "Request Remote Control". When Bob clicks "Request Remote Control" a window opens. Bob then confirms he wants to take remote control of Dave's screen by selecting "Request". Dave will then see a window open on his screen that Bob wants to take control, and he accepts this request by clicking "Approved". Bob can now manipulate Dave's mouse and take control of the screen.

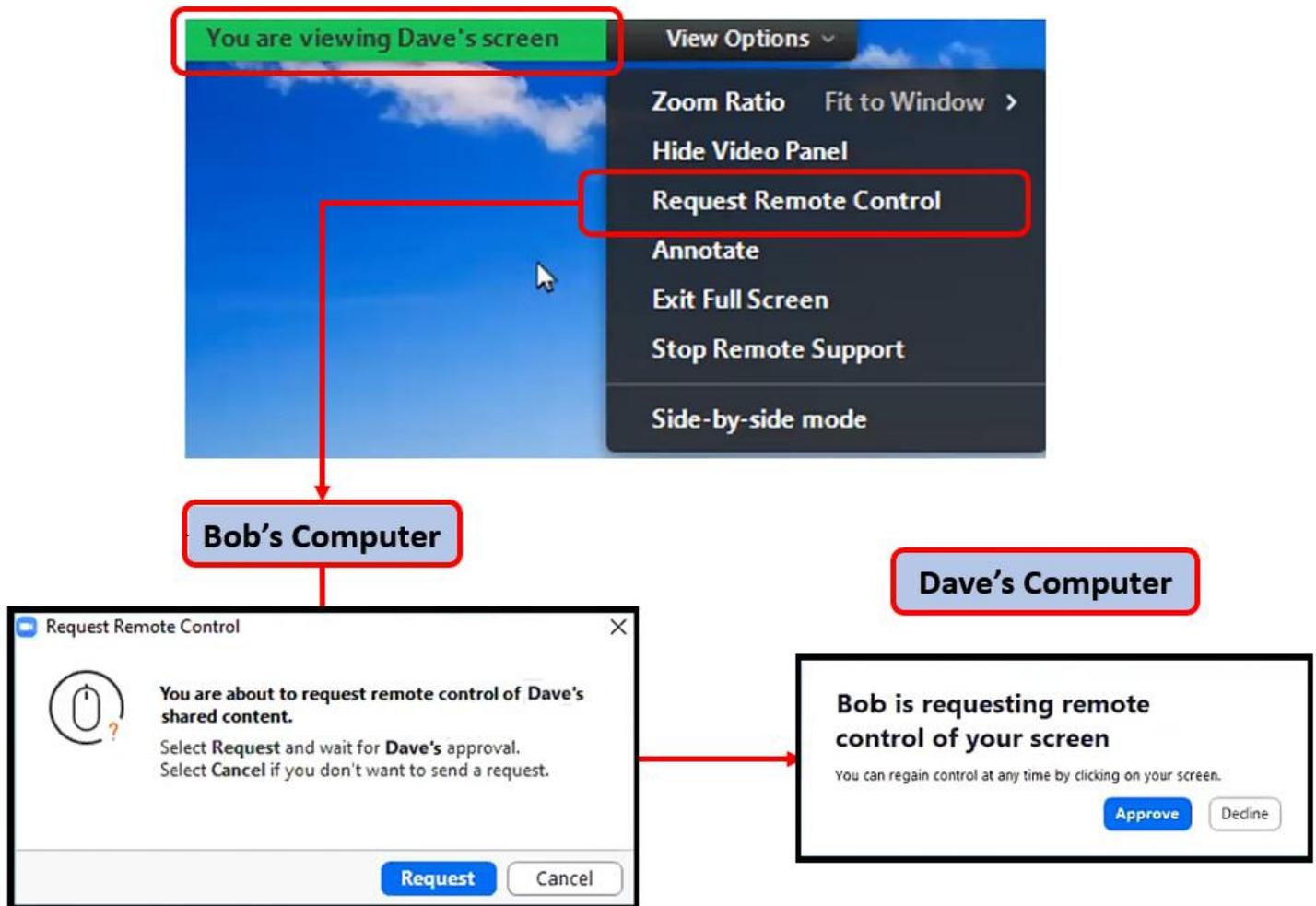


Figure 4 - Requesting "Remote Control" menu & screens

To summarise "Remote Control", the participant sharing their screen can give remote control to another (as shown in Figure 3), or another participant can request remote control of the participants screen being shared (as shown in Figure 4). Once permission is given, you control the mouse and keyboard and even copy text from the shared screen to yours.

At the conclusion of the presentation, Dave demonstrated remote control by using the mouse to open a and type text into a program on a screen being shared by another. An alternative to Zoom "Remote Control" is Microsoft "Quick Assist". This will be a topic for a presentation at next month's meeting.

Following Dave's presentation, **Trevor Hudson** played 2 videos he's uploaded to YouTube. The first was the latest of a series of Trevor's magic tricks, this one titled "Trevor's Magic Moving Coin". This video can be found at <https://www.youtube.com/watch?v=OFoQ59zF730> . In the comments section below the YouTube video, is a list of Trevor's previous magic videos.

Trevor's second video was titled "How to Convert HEIC to JPG". HEIC (High Efficiency Image Container)

is a new file format for saving digital photographs. Images saved in HEIC have smaller file sizes and can have higher image quality than JPEG images. The major benefit of HEIC over JPG's, is that the smaller file size of HEIC allows more images to be stored on a camera's memory card or a phone's internal memory.

HEIC is a relatively new image format, so not all current programs are able to view or read HEIC images. As a consequence, it is necessary to convert to the more common JPG format if you wish to edit an HEIC image. To view HEIC images in Windows 10, a free "HEIC Image Extension" is available from the Microsoft Store. After installing this add-on, clicking on an HEIC image opens that image in the Windows Photos app. Trevor notes that this extension allows you to view, but not convert the HEIC images to other formats.

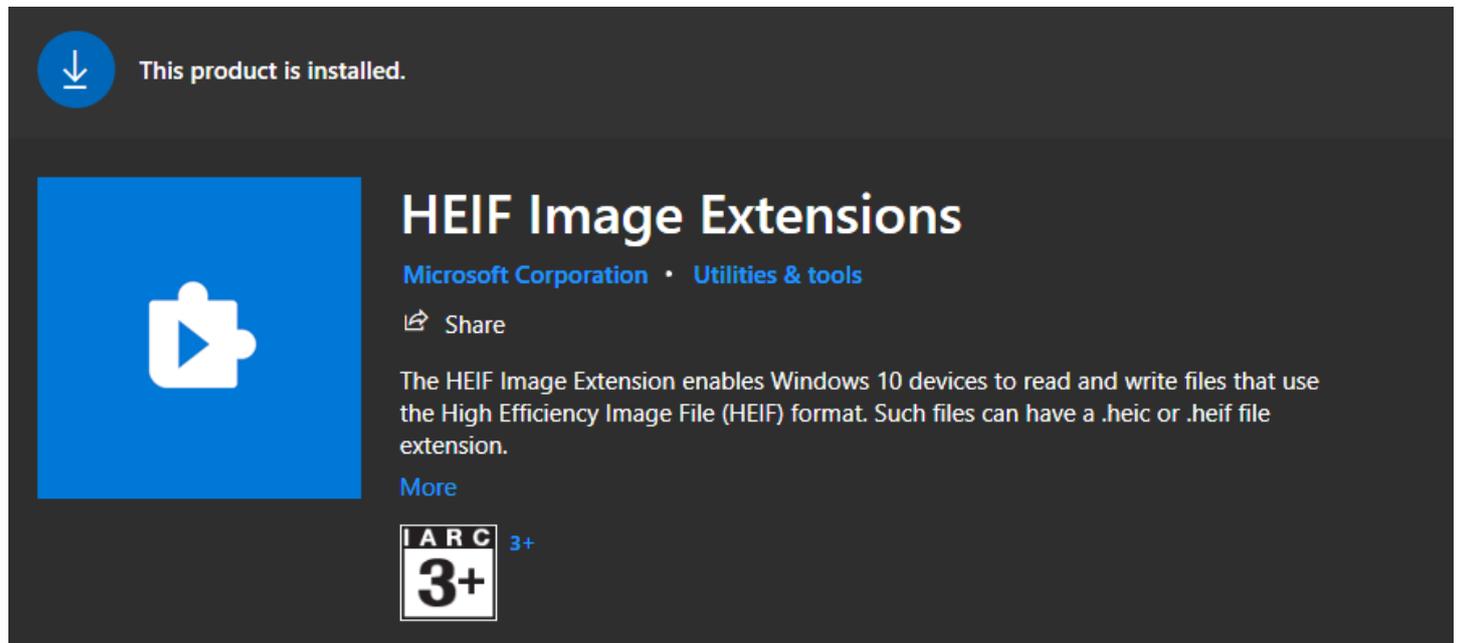


Figure 5 - Microsoft HEIF Image Extensions

In addition to installing the Microsoft add-on, Trevor suggests downloading the "iMazing HEIC Converter" from <https://imazing.com/heic/download>. This program converts HEIC image files to JPG at varying image qualities or to PNG format. Trevor then demonstrated the use of this program by converting single and multiple HEIC images to PNG and JPG. This is done by dragging the HEIC image file from File Explorer into the "iMazing HEIC Converter". Trevor's video can be viewed on YouTube at [https://www.youtube.com/watch?v=cH\\_AgsStrwk](https://www.youtube.com/watch?v=cH_AgsStrwk).

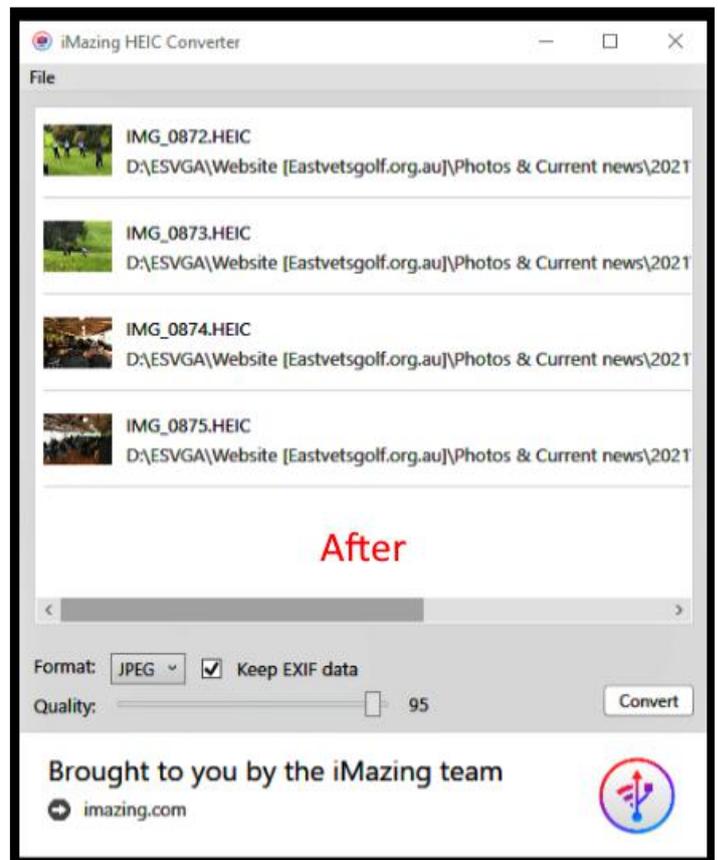
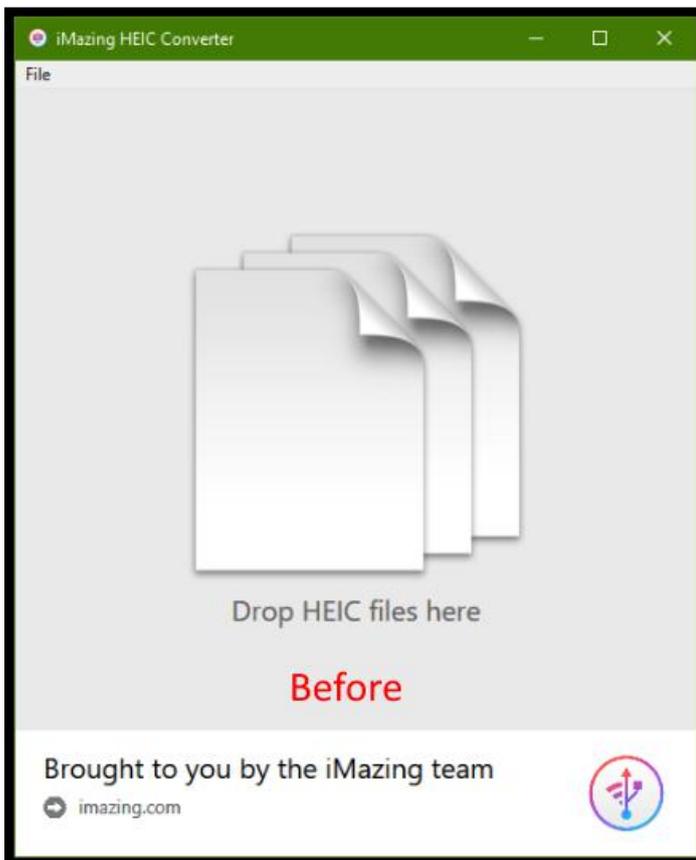


Figure 6 – Before and After dragging files into “iMazing HEIC Converter”

Questions and comments from audience members followed Trevor’s presentation. It was mentioned that the latest versions of Faststone Viewer, Irfanview and GIMP will open and convert HEIC images. When the Microsoft HEIF extension is installed XnView can view HEIC images but not convert them to JPG. Both new Apple iPhones and Google Pixel phones save images in HEIC, while Samsung phones currently don’t.

Over the last two months, Dave Botherway has run Zoom polls to help determine the future format of East SIG Meetings. Previous polls showed there was an even split between those who preferred Zoom meetings to those who favour face to face meetings. Since the last poll, John Swale has been testing hybrid meeting at both Wadham House and at Heidelberg for the North East SIG. Although in the early-stage of testing, hybrid meetings appear a distinct possibility at venues this year other than Moorabbin. A new 2 questions poll which including an hybrid option was taken. Results were:

- Question 1
  - 77% would attend face to face meeting if Zoom wasn’t available.
  - 20% would not be able to attend face to face meetings
- Question 2
  - 40% would attend face to face meeting if a hybrid Zoom meetings was available.
  - 60% would use Zoom if a hybrid meeting was available.

Prior to a break in proceedings, Dave Botherway summarised the presentation he gave last month on Zoom Breakout Rooms. Dave then opened Breakout Rooms to audience members who had 15 minutes to attend one of four breakout rooms.

The main session of the night was George Skarbek demonstrating a set of free utilities from Microsoft called “PowerToys”. “PowerToys” are designed for Windows power users to add new features that

maximise productivity in Windows. They have been designed by MS Windows and Office programmers and are available for Windows XP, Windows 95 and Windows 10. At the time of writing the current version for Windows 10 is 0.35.0.

“PowerToys” can be downloaded from the Microsoft Store or GitHub. Some of the utilities within PowerToys are accessed from the right click context menu in File Explorer, while others are accessed from the PowerToys icon in the notification area on the Windows 10 taskbar.

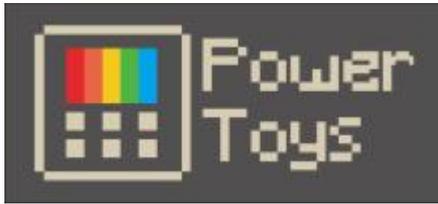


Figure 7 - PowerToys Icon

George then listed the various utilities within PowerToys and demonstrated those he finds most useful.

- **ColorPicker** - This is an eye dropper tool similar to that found in Photoshop. When selecting a colour on your computer screen, a window displays the colour code in both hex and RGB for that colour. This can be useful when wanting to use that colour in another program.



Figure 8 - PowerToys Color Picker

- **FancyZones** - This tool is a Windows manager that lets you create layouts or “zones” for windows on your desktop. Windows 10 already lets you snap open windows in a side-by-side orientation or in a four-window grid. FancyZones lets you create more complex layouts in varying orientations.
- **File Explorer** - The preview pane in File Explorer displays the contents of a file, without having to open the file in a program. With PowerToys comes the ability to view .svg (scalable vector graphics) icon images and documents formatted in Markdown in the preview pane.
- **Image Resizer** - This is a Windows shell extension that allows you to quickly resize images. Simply right-click on a single or on multiple image files in File Explorer and select “Resize Picture” from the context menu. There are 4 pre-determined resize options to choose from, or you can input your own size. Further options are available via 3 checkboxes as seen in Figure 9. This tool is very useful if you need to send photos via email and the original files aren’t required. It can also save a huge amount of disk space and was one of the PowerToys George demonstrated.

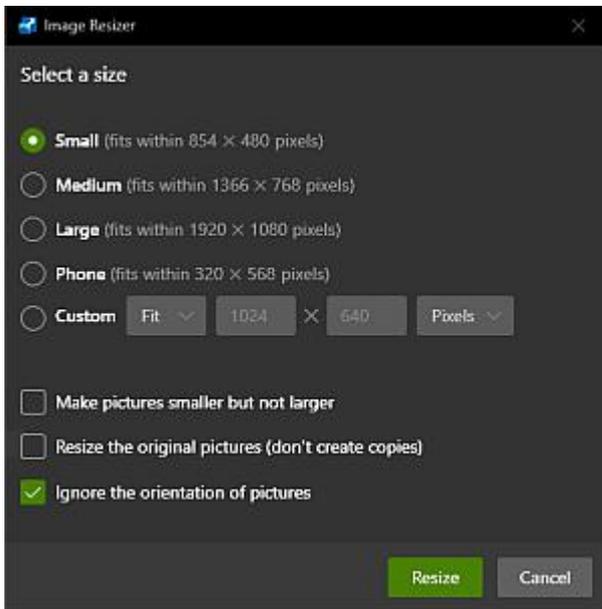


Figure 9 - PowerToys Resize Picture

- **Keyboard Manager** - This utility contains 2 tools, “Remap Keyboard” and “Remap Shortcuts”. The “Remap Keyboard” tool lets you change a single key to a new key on the keyboard. An example would be to remap the unused tilde key ( ~ ) to a pound symbol. The “Remap Shortcuts” tool lets you change multiple-key shortcuts into other shortcuts.
- **PowerToys Run** - This is a text-based program launcher. It runs by pressing Alt + Spacebar followed by typing the first few letters of the name of a program. Programs starting with those letters start to appear from which you can then select the program you wish to open from a list. Rather than going through your “Program List” to run a program, this key combination enables programs to open from the keyboard. This utility is only available in later versions of Windows version 1903 or later.
- **Power Rename** -From File Explorer, right-click on the files you wish to rename to bring up the context menu and select “PowerRename”. A window then opens giving numerous text and check boxes to batch rename files. This is another useful utility that George demonstrated.

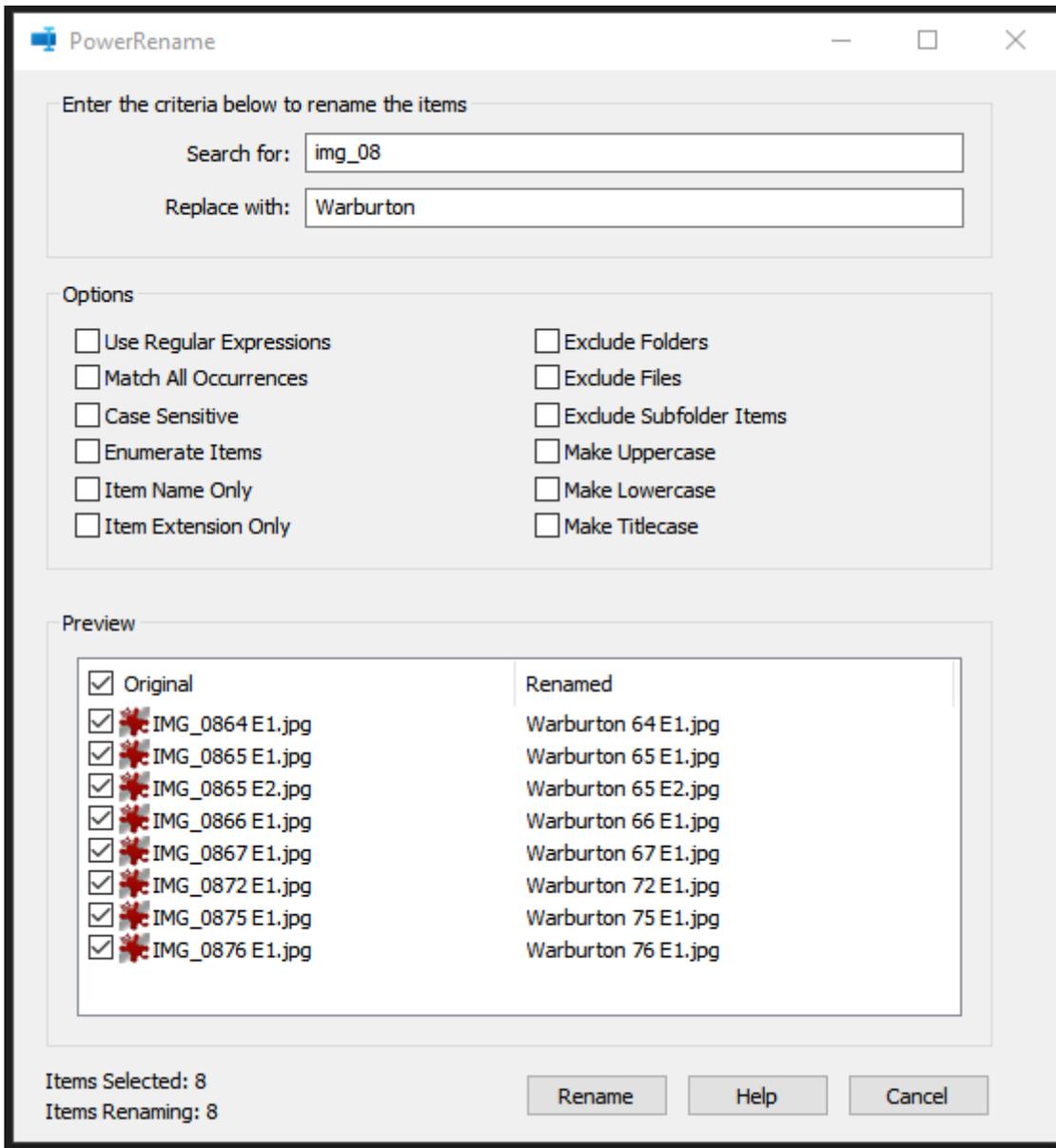


Figure 10 - PowerToys, PowerRename.

- **Shortcut Guide** -The “Shortcut Guide” appears as an overlay on the screen when the Windows key is held down for more than 1 second. It disappears when the Windows key is released. The purpose of the guide is to aid the remembering of Windows key and other keyboard shortcuts available in Windows 10. Along with the numerous Windows key shortcuts is a guide for snapping windows to various parts of the screen and the quick access to programs on the taskbar using the Windows key and numbers 1 through 9. This is another useful feature that George demonstrated.

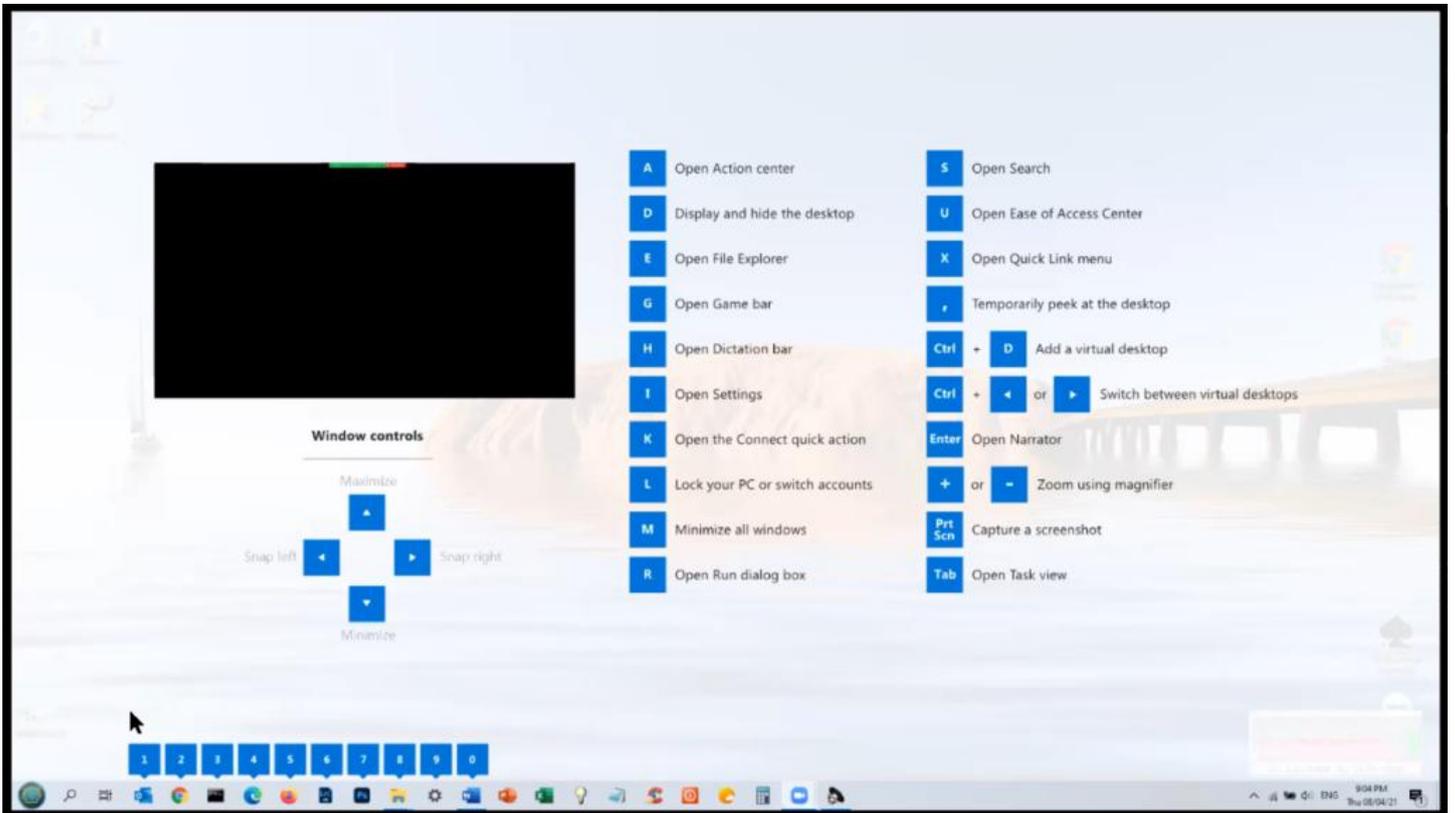


Figure 11 - PowerToys, Shortcut Guide.

The meeting concluded with informal discussions between audience members.

# Yammer Highlights April 2021

Dennis Parsons

## Coronavirus Discussion & Comments

The use of QR codes for “checking in” to many businesses and venues for COVID tracking purposes, including Melb PC for those physically attending our premises for meetings, raised some discussion around the difficulty of scanning the codes and deficiencies in the system.

The necessity of having a smart phone with a data plan to use the QR code systems was raised as an issue because, despite it being a legal requirement, venues often aren’t providing assistance to check in using alternative means.

Most of us have found that the Services Victoria app works well and is easy to use, although some with older phones found they have trouble scanning the QR codes probably due to the camera resolution struggling with the density of the code and less than steady hands.

Some venues are using third party QR code providers instead and these seem more problematic to use, including requesting more identifying information than is necessary. It’s worth noting that from May 28<sup>th</sup> Services Victoria issued QR codes will be the only ones permitted so the problems with others are more or less a moot point.

It’s interesting to note some phones will automatically scan a QR code when the camera app is activated while others require manual activation of the Services Victoria app or QR code scanner app.

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=1188817999233024>>

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=1198419224838144>>

## Computer Help

-

Di’s posting of: “A friend’s son who works in computers has put off once again, her upgrade -from XP

□.Looking it up, it was released 19 years ago...” raised a few eyebrows among our regular readers. Support for consumer users ceased in 2014 so you really wouldn’t want to take it online. Fair enough if you have some ancient piece of software or hardware that requires WinXP but air gap it! I continued using WinXP at work for 18 months after that but we were paying MS for the extra support.

Our collective jaws hit the floor when we were informed a nameless government department still uses Win2000, thankfully for a specific purpose and **not** as their routine system. Hopefully network access is really locked down as it’s very definitely out of any form of support, paid or otherwise.

The discussion moved on to utilising aged hardware by running Linux on it - Merv noted that 32-bit support has ceased for many distributions because he was contemplating dusting off a 15 year old box and installing Linux and was wondering what his options were. We thought 32-bit would still be supported for some time by the specialist distributions aimed at running on low spec systems. 64-bit would be suitable for most systems under 10 years old but almost certainly not for a 15 year old one!

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=1183679787130880>>

### Windows 10

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It’s that time of year again - the next Win10 update, the May 2021 or 21H1 Update, is upon us. Malcolm noted it will only be a minor update if your system is up-to-date and running 20H2. Stewart mentioned his ASUS laptop was stuck on 1902 - Windows was refusing to update to a newer version due to potential problems with Conexant audio drivers causing a blue screen during the update. Bizarrely his wife’s laptop which is exactly the same model had updated and was running 20H2.

-

A bit of Googling came up with a possible work-around - changing the problem Conexant driver to a generic MS one, installing the update and letting Windows do it’s thing. The end result was that after several hours of updating Windows was running 20H2, the Conexant driver was reinstated and everything was working as before. It should be noted the time taken to update isn’t unusual when jumping versions.

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It’s certainly a nifty trick that would probably work in other circumstances, but use at your own risk. As they say, your mileage may vary.

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<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=1186641020911616>>

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