A vintage beige computer monitor is the central focus, displaying a blue command prompt prompt '>PC' and the text 'Update' in a large, blue, monospace font. Below 'Update' is the date 'November 2020' in a smaller blue font. The monitor is part of a larger beige computer system, with a keyboard visible in the bottom left corner. The scene is lit with a warm, low-key light, creating a nostalgic atmosphere.

>PC

Update

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Publishing Information



The newsletter of

Melbourne PC User Group

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Melbourne PC User Group Inc. is a member of the Association of Personal Computer User Groups

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Online membership form

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 November 2020



Firstly, welcome to another edition of PC Update, namely the November 2020 edition, and our penultimate for this 'year' we call 2020.

Secondly, apologies for the very long wait for this particular edition. Like with the last time PC Update was delayed, I hope the wait was worth it, but I'll let you be the judge of that.

Editing PC Update is my favourite thing I do for Melbourne PC User Group, but as most of you would know, I also do other things. I'm a committee member, and I'm also an integral member of the Email Transition Team. Over the past several weeks there have been problems with members receiving emails at their new G Suite accounts, and so it has been necessary for me to devote the vast majority of the time I can commit to this club to trying to solve that.

Thankfully we were able to pinpoint the issue to some Microsoft servers being used to forward the email from Office 365 to G Suite that had some incorrect DNS records. We have been in constant communication with Microsoft over the past week, and they are close to resolving the problem for us. There will be an official email that offers a much more in-depth report on this situation.

Also as a result of this, some articles on the best Linux and Windows utilities have been held over until next month. Thank you to everyone who contributed to those articles, and you will see the results in the December 2020 issue (which will be out at the start of December).

Happy reading until then!

From The President November 2020



David Stonier-Gibson

Committee changes

There have been a couple of changes in the committee. Kirsten Greed and Aavon Fernando have resigned. The committee voted unanimously to appoint Peter Boin and Aidan Kelly to serve in the period until the deferred elections and AGM.

Transition to Google

The transition to Google Workspace (formerly G-Suite) continues. It is definitely going slower than we had anticipated, due largely to there being more permutations of email setups, and attendant complexities, than we had anticipated. However, the transition team is getting through it, and the feedback from members has been on a whole positive and encouraging. Here are some examples:

My thanks to the team for performing a huge effort

—

Dear Team,

I have followed your instructions and now appear to be successfully migrated to Google.

—

All is good

I really appreciated your excellent help

—

Hi team,

Thanks, my transition to G Suite went pretty smoothly.

—

Transition Team

My email has successfully migrated from Office 365 to G-Suite.

—

Thank you for all your good works. I am happy with my new Gmail setup and have stopped using the old Outlook.

—

Club rooms modernisation

With the relaxing of lockdown 2 or 3 people were able to enter the Moorabbin club rooms last week and make a start on remodelling the lounge area. The first step is/was to remove the power points from the wall out to the atrium, in preparation for removing the panelling and opening up the windows to let in natural light.

Museum

We now have a substantial collection of old computer and related hardware. The latest acquisition is that we have been promised a Digital Equipment Corporation (DEC) Micro-VAX computer. DEC was arguably the company that contributed the most to making computers affordable to smaller companies and scientific organisations, by way of the mini-computer. The VAX family was the last of the line, so has great historical significance.

The Micro-VAX will be in addition to a working PDP8 simulator.

Zoom and SIG accessibility

We are on the verge of a situation where the Zoom addresses for all SIG meetings will be stable and known well in advance. This will allow us to set up a system whereby *all* members can be notified of *all* online SIG meetings well in advance. I have in mind a weekly email bulletin to all members with notices of upcoming meetings. Tim McQueen has been posting notices on Yammer and FaceBook, but without URLs. In the near future he will be able to include Zoom URLs in the member-only channels.

It is the right of all members to attend all SIG meetings, irrespective of whether or not they have signed up for a particular SIG. Having virtual meetings makes it much more possible for that to happen. The challenge is getting the notices and URLs out there. We are now very close to having that ability.

Monthly Meeting November 2020

The November 2020 Monthly Meeting was held online on Wednesday 4th November 2020, with over 100 members in attendance. This was the program for the evening:

Guest Speakers: Jerzy Zywicki and Miroslav Reitikh from Digital Home Systems

Topic: The Z Wave Protocol for 'smart homes'

Jerzy Zywicki

Jerzy Zywicki is a co-founder and director of Digital Home Systems Pty Ltd, based in Melbourne, Australia. Digital Home Systems was the first Australian company to design, customize, certify and distribute Z-Wave products and systems in Australia and New Zealand. Jerzy holds Master's Degrees in Information Technology and Business Administration (MBA), and have over twenty five years of experience in IT and management in electronic manufacture, telecom, banking and utilities industries working for ABB and IBM among others. Contact: jerzy@dhsys.com.au

Miroslav Reitikh

Miroslav Reitikh is a co-founder and director of Digital Home Systems Pty Ltd, based in Melbourne, Australia. Miroslav holds Master's Degrees in engineering, Post Graduate diploma in computer science and over thirty years of experience in IT, manufacturing and shipping working overseas and locally for CPA Australia, Norwich Union/ Aviva and ship management companies.

What is the Z Wave Protocol

The Z-Wave protocol is an interoperable, wireless, Sub-1GHz RF-based communications technology designed specifically for control, monitoring and status reading applications in residential and light commercial environments. Mature, proven and broadly deployed (with over 100 million products sold worldwide), Z-Wave is by far the world market leader in wireless control, bringing affordable, reliable and easy-to-use 'smart' products to many millions of people in every aspect of daily life.

Z-Wave technology is simple: the more Z-Wave products you have in your smart home, the stronger is your smart home network. Z-Wave, enables smart home products like locks, lights and thermostats to talk to each other. This creates the backbone of your smart home and enables you to use your smartphone or tablet to create one-touch scenes that help with daily activities like: saving energy, keeping your home secure, looking after your loved ones and being more comfortable.

From its inception more than a decade ago in Copenhagen, Denmark, Z-Wave has remained committed to providing the interoperability between products and across leading brands to provide consumers more choice, reliability and security than any other Smart Home technology on the market. Your investment is sound.

Z-Wave products are designed to work together even as new generations of products come to market. Whether you are away for business or on holiday, or just simply at work down the street, you have full home control and access with Z-Wave.

New meeting segment: iHelp Online

In a similar vein to the Q&A segment that ran for many years at Moorabbin face to face monthly meetings, a member of the iHelp team will join the meeting each month to answer your technical questions.

This month it is Mike Allison.

You are invited to submit your questions to iHelp for responses during the meeting. Please send your questions by email to: ihelp-questions@melbpc.org.au to arrive by 6pm on Wednesday, 4 November.

Meeting Agenda

7.00pm sharp: Meeting opens. Host is Peter Bacon.

Guest speakers: Jerzy Zywicki, Miroslav Reitikh

Q & A with Rob Brown.

Social break.

President's Report: David Stonier-Gibson.

What's New? with George Skarbek.

iHelp Online: Mike Allison and iHelp Team.

9.00pm (approx): Close.

After the meeting: Informal iHelp discussion continued on an adhoc basis.

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.

Member Wanted Notices

Roman Skarbek

WANTED. An old laptop from around 2000-2008. Must have a serial port and Windows XP and be a 32-bit system. Should be in working condition.

Please call me: 0400 767 594. Will pay. Make My Day. Thanks. Roman Skarbek.

If you have a notice like this that you'd like to include in PC Update, please email it to editorpc@melbpc.org.au

Electronic Circuit Simulation

Dick Maybach, Brookdale Computer Users Group

Circuit simulation will interest only a few, but skimming through this article should impress you with the support a PC can provide for this specialized area. You likely have different interests, and it would probably be worth your while to search for equivalent tools appropriate for you.

When I began my electronics career many years ago, my design tools were pencil, paper, and a slide rule, and to check my circuits I used a soldering iron and a lab full of equipment, but now I can do all this on my PC using circuit simulation software. An easy introduction to circuit simulation is the free SimulIDE, <https://www.simulide.com/p/home.html>. Its main disadvantage is its documentation, which means you may have to approach it as though it were an adventure game. For instance, the examples weren't available in my Linux version, and I had to extract them from a downloaded Windows version. Fortunately, SimulIDE is intuitive to use, making it a good starting point, and once you become acquainted with simulation, stepping up to more capable tools with their steeper learning curves, will be less daunting.

Figure 1 shows SimulIDE with a very simple circuit.

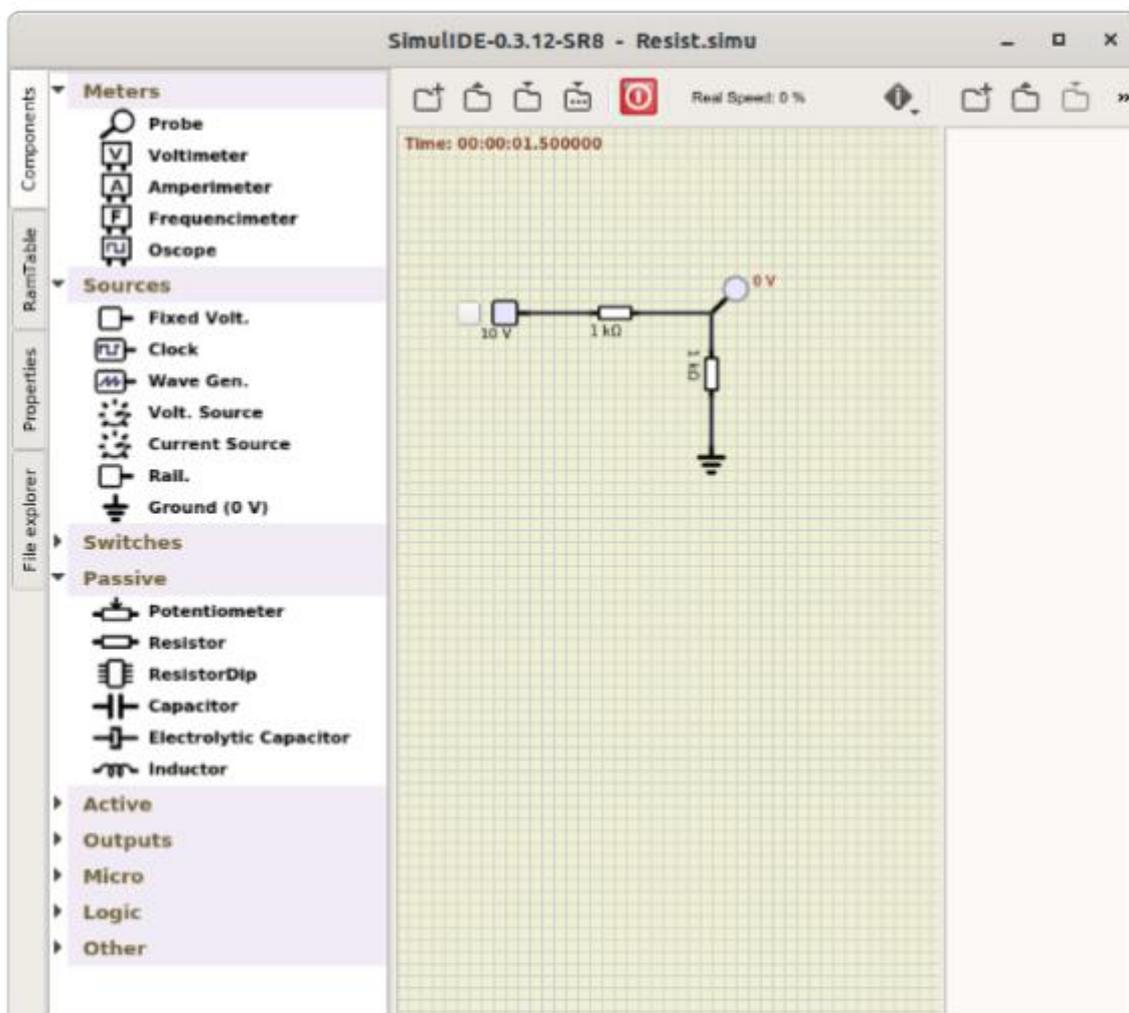


Figure 1. A Very Simple Circuit.

Create the circuit by dragging components from the left to the center panel. Right-click on a component and select Properties to change them from their defaults (5 Volts for the voltage source and 100 Ohms for the resistor). Left-click on a point to start a wire, move the cursor to where it should end, and left-click again to end it. You may notice that the circuit of Figure 1 doesn't appear to be working. Ten volts is applied to the divider circuit, but the probe measures zero. This is because I haven't turned on the fixed voltage source (by clicking on the small square to its left or started the simulation, by selecting the red power button at the top). I've corrected this in Figure 2, and the probe now reads five volts as it should. (The probe is not permanently connected, but can be moved as needed around the circuit.)

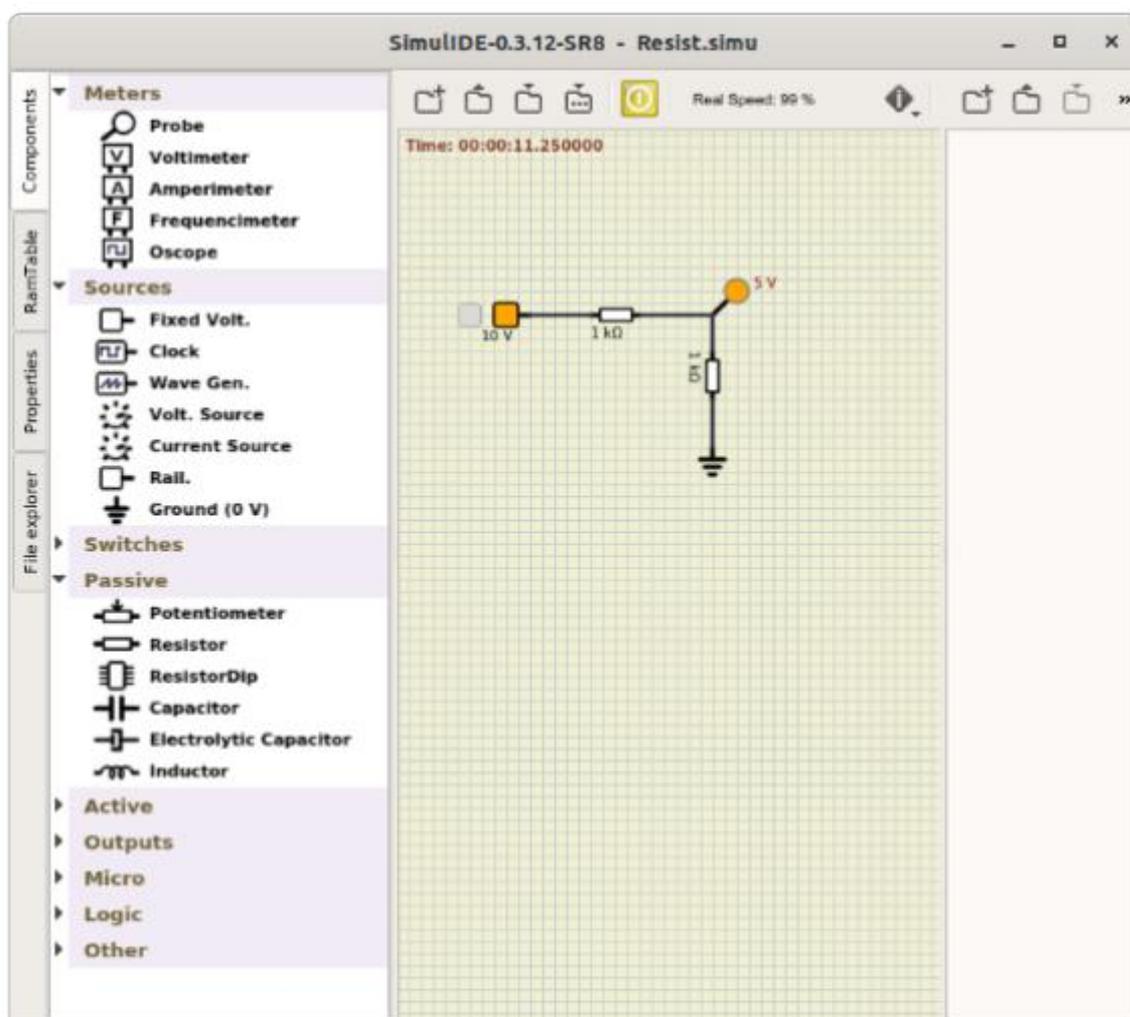


Figure 2. A Very Simple Circuit in Operation.

Turning on the source changed its color to orange, and starting the simulation did the same for the probe, which now displays the voltage at the point it touches. Figure 3 shows a slightly less trivial example.

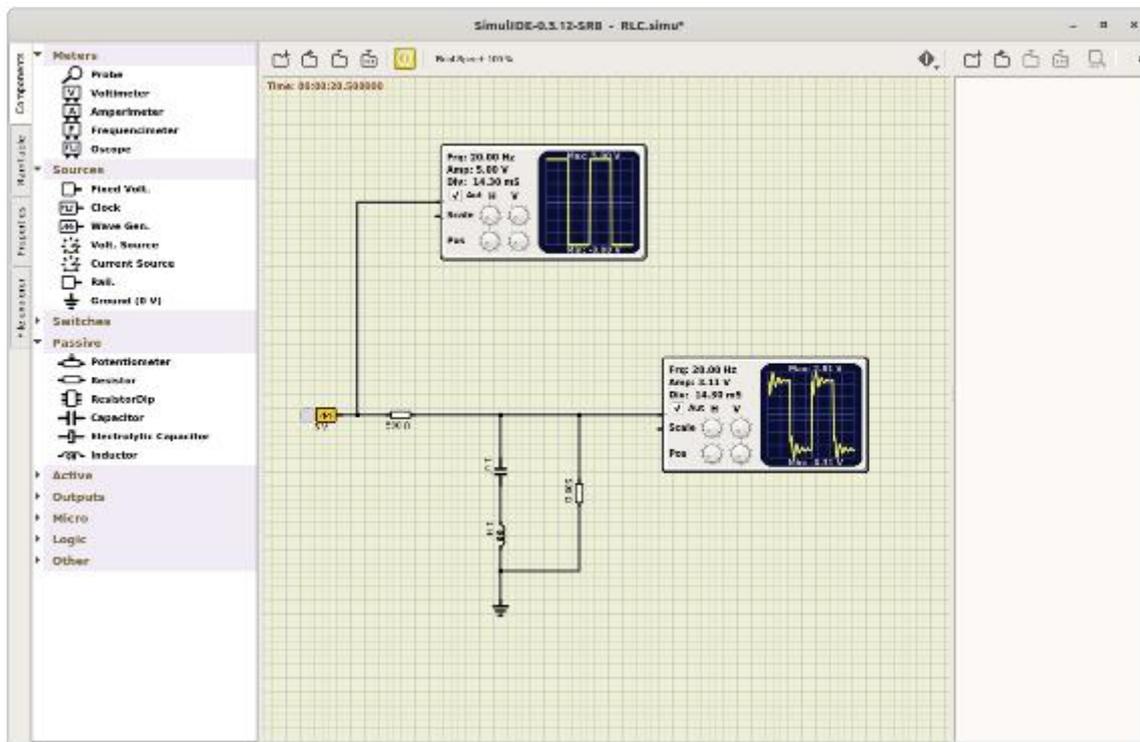


Figure 3. RLC Example.

Here the source is a wave generator set to produce a square wave, the detectors are oscilloscopes, and the circuit includes an inductor and a capacitor. I've found it necessary, after allowing the oscilloscopes to initialize, to turn off their auto feature. (Look carefully at the scope icons to see that Auto is not checked.) Then use the cursor to spin the horizontal and vertical scale controls (on the oscilloscope icons); you will probably have to make many revolutions of the knobs.

Of course, many circuits include active components, such as the one in Figure 4, which is an example included with the software.

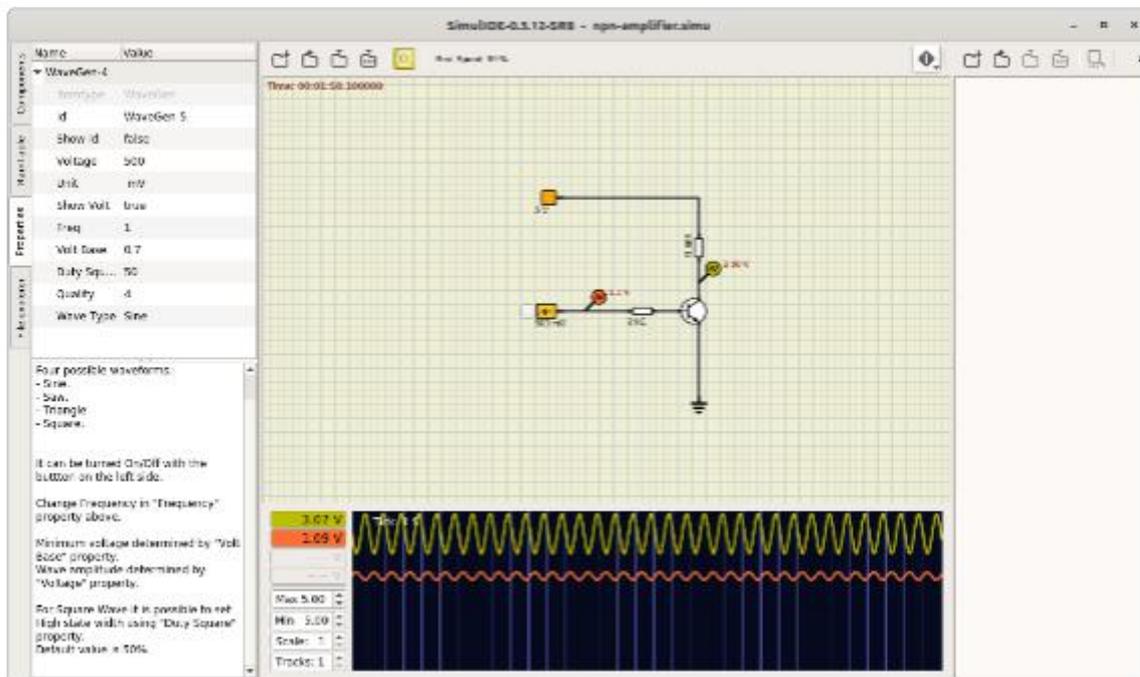


Figure 4. A Simple Active Circuit.

The wave generator is the same one used in Figure 3, but here, as shown by its properties in the left panel, it is set to produce a sine wave. There are also two probes shown, but their outputs are assigned to channel 1 and channel 2 of the plotter (by right-clicking on the icons to display their properties). This causes the waveforms they see to be displayed in the plotter windows, rather than the DC voltage they see being displayed next to their icon. We would obtain more accurate plots with the oscilloscope component used in Figure 3, but it's often more convenient to use probes and their plotter function, as the latter can display up to four waveforms.

The program also simulates logic circuits, like the hexadecimal counter shown in Figure 5.

Here an Arduino Uno has been programmed to move a (white) servo arm back and forth over a 180-degree arc. The left panel shows the microprocessors available for use and, in particular the Arduino models. As usual, the center panel shows the circuit, while the program being run appears on the right, with a debug session below it. (You must have the Arduino IDE software installed to support it.) Unfortunately, the instructions I've found on simulating Arduino processors are specific to the Windows version of SimulIDE, and so far I haven't found how to program the processor simulation in Linux.

SimulIDE is a good tool for the home experimenter, but it does have limitations. For example, there are only a few transistor models, and these aren't adequate for radio-frequency design. However, it is a good starting point, as it's easy to learn. I've begun experimenting with KiCad, <https://kicad-pcb.org/>, which is much more competent. As a result, it's also more difficult to learn, but extensive tutorials are available on their website. Many professional circuit designers use Orcad's PSpice, but its price puts it far out of the reach of home users. A free version is available to students, which is a good choice if you qualify. (Non-students can find a pirate version, but putting one of these on your PC is never a good idea.)

Wifi 6 - What happened to b, g, n, ac

Phil Sorrentino, Sun City Centre Computer Club

Ever since Wi-Fi appeared way back around 2005, the Wi-Fi version has been described by a letter because of the letter reference used in the 802.11 Local Area Network standard. Initially, there were 802.11a and 802.11b. Most of us became familiar with the “b” version because this version used the 2.4 GHz frequency band which had better coverage than the “a” version that used the 5 GHz frequency band. (Today many Wi-Fi routers provide networks at both 2.4 and 5 GHz.) So, until recently the version of the standard has been used as the version for the Wi-Fi router product. When there was only a and b, that was easy enough, but as time went on, faster and more capable standards were developed and each had a new designation, and now the standards are using multiple letters for the designation like ac, and ax (the latest).

To simplify the designation for products, the Wi-Fi Alliance (the group responsible for certifying Wi-Fi products) decided to use numbers to designate the version. The newest standard 802.11ax is to be known as Wi-Fi 6. Earlier versions will be called Wi-Fi 5 (previously ac) and Wi-Fi 4 (previously n), but you will probably never see those designations in practice. This may initially cause some confusion but eventually, it should be a simpler way of determining Wi-Fi product capabilities. Eventually, we'll all know exactly what the 6 in Wi-Fi 6 indicates; well, at least as well as we know what the “n” indicates in the n version of Wi-Fi.

Unlike many of the earlier Wi-Fi updates, Wi-Fi 6 is not just an increase in speed, it also provides the groundwork for future improvements that will ensure that Wi-Fi speeds continue to increase in the future. Wi-Fi 6 is just starting to arrive this year. There is a good possibility that it will be in your next smartphone or laptop. At some time in 2021, new Wi-Fi 6 routers will start to include 6E which will be the use of a new 6 GHz frequency band (I guess the E indicates an extension into the 6 GHz band).

So, what is Wi-Fi 6? Wi-Fi 6 is just the next generation of the Local Area Network standard that will do the same thing past Wi-Fi standards have done - it will connect your many devices to the internet, but it will do that at faster speeds, and it will introduce new, faster and more efficient technologies into the router. Wi-Fi provides the critical link between our Client Apps and the internet Servers (remember Client-Server Technology?). Much of the improvements with Wi-Fi 6 are aimed at handling the demands of the Internet of Things (IoT). (In fact, very small networks might not even notice much of an improvement. A single Wi-Fi 6 device connected to a Wi-Fi 6 router may only be slightly faster than a single Wi-Fi 5 device connected to a Wi-Fi 5 router.) Another benefit of Wi-Fi 6 will be the fact that all Wi-Fi 6 certified devices will include WPA3, a new, stronger, Security Protocol that improves on WPA2 making it harder for hackers to infiltrate a network.

Many of our homes now have many devices that need to be connected to the internet. Think about it, there are smart bulbs, smart plugs, smart assistants (Alexa comes to mind), indoor and outdoor cameras (Ring doorbell camera comes to mind), door or garage locks, smart thermostats, door or garage door magnetic sensors, as well as laptops, desktops, smartphones, streaming devices (Amazon fire stick comes to mind), and tablets. The last time I had to change the password on my router, I had to change it in 23 devices before I was finished, though the number for an average house today is about nine. (I have seen

predictions that the average home in the future may have up to 50 devices.)

Wi-Fi 6 introduces some new technologies to help mitigate the issues that come from putting tens of Wi-Fi devices on a single network router. Wi-Fi 6 has been designed to handle many devices efficiently, by splitting up the available bandwidth so that many devices can be serviced simultaneously. Without getting into any technical detail, Wi-Fi 6 will let routers communicate with more devices at one time, let routers send data to multiple devices in the same broadcast, and let devices schedule check-ins with the router, all features that will allow more devices to be serviced. Where current routers might start to get overwhelmed by requests from a multitude of devices, Wi-Fi 6 routers will keep all those devices up to date with the data they need.

Without the improvements that Wi-Fi 6 will bring, the performance of your future network would slow down as you increased the number of devices on a given network. You may even want to use the fact that things may slow down with your old router to your benefit and wait till you notice your internet connection “seems to be a little slow” before you take the plunge into Wi-Fi 6.

To get Wi-Fi 6, you’ll need to purchase a new Wi-Fi 6 router. Without a Wi-Fi 6 router, all the devices that may be Wi-Fi 6 compliant will not have any advantage. To take full advantage of Wi-Fi 6, all the devices connected to your Wi-Fi 6 router will have to be Wi-Fi 6 compliant. So, the improvements we get from having Wi-Fi 6 will probably only slowly be incorporated into our internet experience, but it eventually will be worthwhile. New devices will slowly appear with Wi-Fi 6 incorporated, but it will probably take a few years to get to the point where your whole network is compliant with the Wi-Fi 6 standard (and by that time we’ll probably be talking about Wi-Fi 7).

Just a brief review of the new technologies. Two technologies are helping speed up Wi-Fi 6. One is “Multi-user, Multiple-input, Multiple-output” (MU-MIMO), which is already in use in some high-end routers and devices, which allows the router to communicate with multiple devices at the same time, rather than broadcasting to one device, and then the next, and then the next, etc. Current high-end MU-MIMO routers can communicate with four devices at a time, Wi-Fi 6 will increase this to 8. (You have probably seen routers that incorporate MIMO because it involves multiple antennas, which let the router talk to multiple devices at one time.)

The second technology is “Orthogonal Frequency Division Multiple Access” (OFDMA) which allows one transmission to deliver data to multiple devices at once. Both of these technologies are used to get more out of each transmission from your router to your devices. Most of the details of these technologies will probably never become too apparent to most of us, but we all will benefit from them in that we will be able to attach more and more devices to our router, without slowing it down, so we can enjoy the benefit of all the features provided by all of those wonderful internet servers.

Interesting Internet Finds

Steve Costello, SEFCUG

In the course of going through the more than 300 RSS feeds, I often run across things that I think might be of interest to other user group members.

The following are some items I found interesting during the month of June 2020.

Why Am I Getting Calls When Do Not Disturb Is On

<https://www.guidingtech.com/why-getting-calls-do-not-disturb-on/>

This is a question I had myself. After reading this post and applying what I learned, it is no longer a problem for me. If you keep getting calls while do not disturb is on, check out this post for a solution.

The Ultimate Guide To Privacy On Android

<https://www.computerworld.com/article/3545530/ultimate-guide-to-privacy-on-android.html>

If you are an Android user, like me, you should check out this post. About every six months, or so, I run checks on most of the items outlined here. I use a paid VPN whenever I am not using my home Wi-Fi, and I encourage others to do the same.

Why Am I Connected To Wi-Fi But Not The Internet?

<https://www.howtogeek.com/676918/why-am-i-connected-to-wi-fi-but-not-the-internet/>

I am sure that at one time or another you have shown to be connected to Wi-Fi but not connected to the internet. If you would like to know more about why that happens and what might be a solution, check out this post.

Vivaldi Browser Tips And Tricks

<https://www.thewindowsclub.com/vivaldi-browser-tips-and-tricks/>

I have been using Vivaldi (on both Windows 10 and Linux) off and on for a few months now, and I like it. This post gives some tips and tricks, that should make using it a better experience.

Can You Use Bluetooth Speakers If Your TV isn't Bluetooth Ready?

<https://thevisualcommunicationguy.com/2020/06/22/can-you-use-bluetooth-speakers-if-your-tv-isnt-bluetooth-ready/>

I have two TVs that are over 10 years old but work fine. I have plenty of Bluetooth speakers and headphones, but neither TV supports Bluetooth. (*Note: I have a soundbar hooked to the main TV now, and it supports Bluetooth.*)

How To Reduce Microphone Background Noise On Your PC

<https://www.maketecheasier.com/reduce-microphone-background-noise-on-pc/>

I have been attending a lot of Zoom conferences since the COVID-19 crisis started. There are sometimes where participants have a lot of background noise in their audio. So, I thought this would be good to post for those having problems.

3.2 billion images and 720,000 hours of video are shared online daily. Sorting real from fake is an increasing challenge.

T.J. Thomson, Queensland University of Technology; Daniel Angus, Queensland University of Technology, and Paula Dootson, Queensland University of Technology



Twitter screenshots/Unsplash, Author provided

Twitter over the weekend “tagged” as manipulated a video showing US Democratic presidential candidate Joe Biden supposedly forgetting which state he’s in while addressing a crowd.

Biden’s “hello Minnesota” greeting contrasted with prominent signage reading “Tampa, Florida” and “Text FL to 30330”.

The Associated Press’s fact check confirmed the signs were added digitally and the original footage was indeed from a Minnesota rally. But by the time the misleading video was removed it already had more than one million views, The Guardian reports.

If you use social media, the chances are you see (and forward) some of the more than 3.2 billion images and 720,000 hours of video shared daily. When faced with such a glut of content, how can we know what’s real and what’s not?

While one part of the solution is an increased use of content verification tools, it’s equally important we all boost our digital media literacy. Ultimately, one of the best lines of defence — and the only one you can control — is you.

Seeing shouldn’t always be believing

Misinformation (when you accidentally share false content) and disinformation (when you intentionally share it) in any medium can erode trust in civil institutions such as news organisations, coalitions and social movements. However, fake photos and videos are often the most potent.

For those with a vested political interest, creating, sharing and/or editing false images can distract,

confuse and manipulate viewers to sow discord and uncertainty (especially in already polarised environments). Posters and platforms can also make money from the sharing of fake, sensationalist content.

Only 11-25% of journalists globally use social media content verification tools, according to the International Centre for Journalists.

Could you spot a doctored image?

Consider this photo of Martin Luther King Jr.

This altered image clones part of the background over King Jr's finger, so it looks like he's flipping off the camera. It has been shared as genuine on Twitter, Reddit and white supremacist websites.

In the original 1964 photo, King flashed the "V for victory" sign after learning the US Senate had passed the civil rights bill.

Beyond adding or removing elements, there's a whole category of photo manipulation in which images are fused together.

Earlier this year, a photo of an armed man was photoshopped by Fox News, which overlaid the man onto other scenes without disclosing the edits, the Seattle Times reported.

Similarly, the image below was shared thousands of times on social media in January, during Australia's Black Summer bushfires. The AFP's fact check confirmed it is not authentic and is actually a combination of several separate photos.

Fully and partially synthetic content

Online, you'll also find sophisticated "deepfake" videos showing (usually famous) people saying or doing things they never did. Less advanced versions can be created using apps such as Zao and Reface.

A team from the Massachusetts Institute of Technology created this fake video showing US President Richard Nixon reading lines from a speech crafted in case the 1969 moon landing failed. (Youtube)

Or, if you don't want to use your photo for a profile picture, you can default to one of several websites offering hundreds of thousands of AI-generated, photorealistic images of people.



These people don't exist, they're just images generated by artificial intelligence.

Editing pixel values and the (not so) simple crop

Cropping can greatly alter the context of a photo, too.

We saw this in 2017, when a US government employee edited official pictures of Donald Trump's inauguration to make the crowd appear bigger, according to The Guardian. The staffer cropped out the empty space "where the crowd ended" for a set of pictures for Trump.



Views of the crowds at the inaugurations of former US President Barack Obama in 2009 (left) and President Donald Trump in 2017 (right).

AP

But what about edits that only alter pixel values such as colour, saturation or contrast?

One historical example illustrates the consequences of this. In 1994, Time magazine's cover of OJ Simpson considerably "darkened" Simpson in his police mugshot. This added fuel to a case already plagued by racial tension, to which the magazine responded:

No racial implication was intended, by Time or by the artist.

Tools for debunking digital fakery

For those of us who don't want to be duped by visual mis/disinformation, there are tools available — although each comes with its own limitations (something we discuss in our recent paper).

Invisible digital watermarking has been proposed as a solution. However, it isn't widespread and requires buy-in from both content publishers and distributors.

Reverse image search (such as Google's) is often free and can be helpful for identifying earlier, potentially more authentic copies of images online. That said, it's not foolproof because it:

- relies on unedited copies of the media already being online
- doesn't search the *entire* web
- doesn't always allow filtering by publication time. Some reverse image search services such as TinEye support this function, but Google's doesn't.
- returns only exact matches or near-matches, so it's not thorough. For instance, editing an image and then flipping its orientation can fool Google into thinking it's an entirely different one. Most reliable tools are sophisticated

Meanwhile, manual forensic detection methods for visual mis/disinformation focus mostly on edits visible to the naked eye, or rely on examining features that aren't included in every image (such as shadows). They're also time-consuming, expensive and need specialised expertise.

Still, you can access work in this field by visiting sites such as Snopes.com — which has a growing repository of “fauxtography”.

Computer vision and machine learning also offer relatively advanced detection capabilities for images and videos. But they too require technical expertise to operate and understand.

Moreover, improving them involves using large volumes of “training data”, but the image repositories used for this usually don't contain the real-world images seen in the news.

If you use an image verification tool such as the REVEAL project's image verification assistant, you might need an expert to help interpret the results.

The good news, however, is that before turning to any of the above tools, there are some simple questions you can ask yourself to potentially figure out whether a photo or video on social media is fake. Think:

- was it originally made for social media?
- how widely and for how long was it circulated?
- what responses did it receive?
- who were the intended audiences?

Quite often, the logical conclusions drawn from the answers will be enough to weed out inauthentic visuals. You can access the full list of questions, put together by Manchester Metropolitan University experts, [here](#).

T.J. Thomson, Senior Lecturer in Visual Communication & Media, *Queensland University of Technology*;
Daniel Angus, Associate Professor in Digital Communication, *Queensland University of Technology*, and
Paula Dootson, Senior Lecturer, *Queensland University of Technology*

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How Australia can reap the benefits and dodge the dangers of the Internet of Things

Kayleen Manwaring, UNSW and Peter Leonard, UNSW

The Internet of Things (IoT) is already all around us. Online devices have become essential in industries from manufacturing and healthcare to agriculture and environmental management, not to mention our own homes. Digital consulting firm Ovum estimates that by 2022 Australian homes will host more than 47 million IoT devices, and the value of the global market will exceed US\$1 trillion.

The IoT presents great opportunities, but it brings many risks too. Problems include excessive surveillance, loss of privacy, transparency and control, and reliance on unsafe or unsuitable services or devices.

In some places, such as the European Union, Germany, South Korea and the United Kingdom, governments have been quick to develop policies and some limited regulation to take advantage of the technology and mitigate its harmful impacts.

Australia has been late to react. Even recent moves by the federal government to make IoT devices more secure have been far behind international developments.

A report launched today by the Australian Council of Learned Academies (ACOLA) may help get Australia up to speed. It supplies a wide-ranging, peer-reviewed base of evidence about opportunities, benefits and challenges the IoT presents Australia over the next decade.

Benefits of the Internet of Things

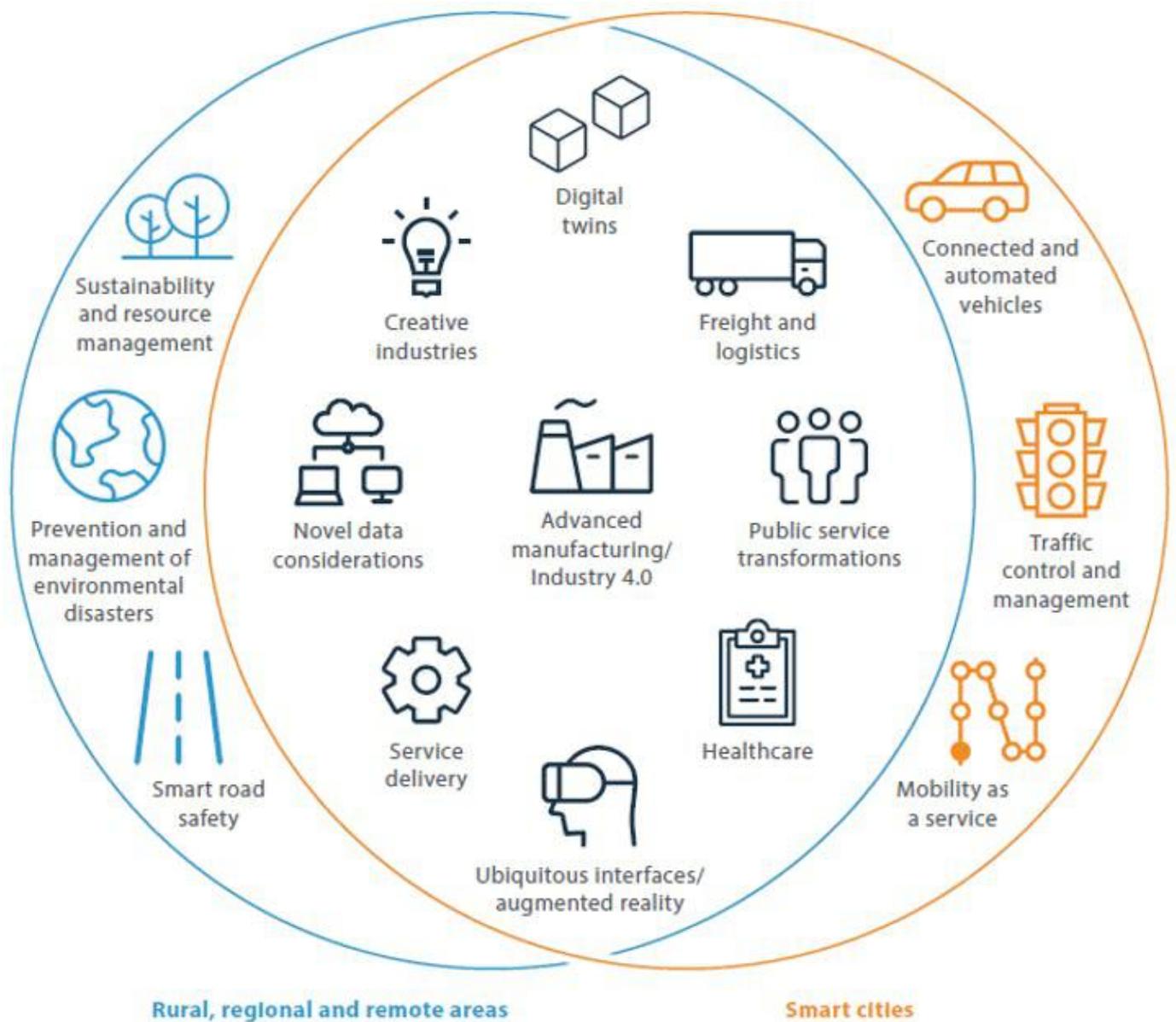
The report examines how we can improve our lives with IoT-related technologies. It explores a range of applications across Australian cities and rural, regional and remote areas.

Some IoT services are already available, such as the Smart Cities and Suburbs program run by local and federal governments. This program funds projects in areas such as traffic congestion, waste management and urban safety.

Health applications are also on the rise. The University of New England has piloted the remote monitoring of COVID-19 patients with mild symptoms using IoT-enabled pulse oximeters.

Augmented and virtual reality applications too are becoming more common. IoT devices can track carbon emissions in supply chains and energy use in homes. IoT services can also help governments make public transport infrastructure more efficient.

The benefits of the IoT won't only be felt in cities. There may be even more to be gained in rural, regional and remote areas. IoT can aid agriculture in many ways, as well as working to prevent and manage bushfires and other environmental disasters. Sophisticated remote learning and health care will also benefit people outside urban areas.



While some benefits of the IoT will be felt everywhere, some will have more impact in cities and others in rural, remote and regional areas.

ACOLA, CC BY-NC

Opportunities for the Australian economy

The IoT presents critical opportunities for economic growth. In 2016-17, IoT activity was already worth A\$74.3 billion to the Australian economy.

The IoT can facilitate more data-informed processes and automation (also known as Industry 4.0). This has immediate potential for substantial benefits.

One opportunity for Australia is niche manufacturing. Making bespoke products would be more efficient with IoT capability, which would let Australian businesses reach a consumer market with wide product ranges but low domestic volumes due to our small population.

Agricultural innovation enabled by the IoT, using Australia’s existing capabilities and expertise, is another promising area for investment.

Risks of the Internet of Things

IoT devices can collect huge amounts of sensitive data, and controlling that data and keeping it secure presents significant risks. However, the Australian community is not well informed about these issues and some IoT providers are slow to explain appropriate and safe use of IoT devices and services.

These issues make it difficult for consumers to tell good practice from bad, and do not inspire trust in IoT. Lack of consistent international IoT standards can also make it difficult for different devices to work together, and creates a risk that users will be “locked in” to products from a single supplier.

In IoT systems it can also be very complex to determine who is responsible for any particular fault or issue, because of the many possible combinations of product, hardware, software and services. There will also be many contracts and user agreements, creating contractual complexity that adds to already difficult legal questions.

The increased surveillance made possible by the IoT can lead to breaches of human rights. Partially or fully automated decision-making can also lead to discrimination and other socially unacceptable outcomes.

And while the IoT can assist environmental sustainability, it can also increase environmental costs and impacts. The ACOLA report estimates that by 2050 the IoT could consume between 1 and 5% of the world's electricity.

Other risks of harmful social consequences include an increased potential for domestic violence, the targeting of children by malicious actors and corporate interests, increased social withdrawal and the exacerbation of existing inequalities for vulnerable populations. The recent death of a woman in rural New South Wales being treated via telehealth provides just one example of these risks.

Maximising the benefits of the IoT

The ACOLA report makes several recommendations for Australia to take advantage of the IoT while minimising its downsides.

ACOLA advocates a national approach, focusing on areas of strength. It recommends continuing investment in smart cities and regions, and more collaboration between industry, government and education.

ACOLA also recommends increased community engagement, better ethical and regulatory frameworks for data and baseline security standards.

The ACOLA report is only a beginning. More specific work needs to be done to make the IoT work for Australia and its citizens.

The report does outline key areas for future research. These include the actual experiences of people in smart cities and homes, the value of data, environmental impacts and the use of connected and autonomous vehicles.

Kayleen Manwaring, Senior Lecturer, School of Taxation □ Business Law, *UNSW* and Peter Leonard, Professor of Practice (IT Systems and Management and Business and Taxation Law), *UNSW Business School, Sydney, UNSW*

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East SIG Report October 2020

Neil Muller

East SIG meeting host Paul Woolard opened the October virtual meeting with Frank Maher as the Zoom host. The meeting then commenced with **George Skarbek** presenting Q&A.

1. I've recently had my Melbourne PC email successfully moved to Google G-Suite by the Office 365 Translation Team. I use Microsoft Mail and have been unable to move my Melbourne PC mail from Google G-Suite to Microsoft Mail. Another member mentioned he had the same problem. However he has not yet had his Melbourne PC email moved to G-Suite so thought the problem the member had may not be due to translation to G-Suite.
2. George was unable to assist with this problem and there were no further questions.

The night's first presentation was on "Virtual Backgrounds on Zoom" by **Dave Botherway**.

Zoom is constantly being updated so needs to be checked regularly for updates. The updates are not automatic so will need to be performed manually. Open Zoom from the Windows start menu and the Zoom home page as shown in Figure 1 opens.

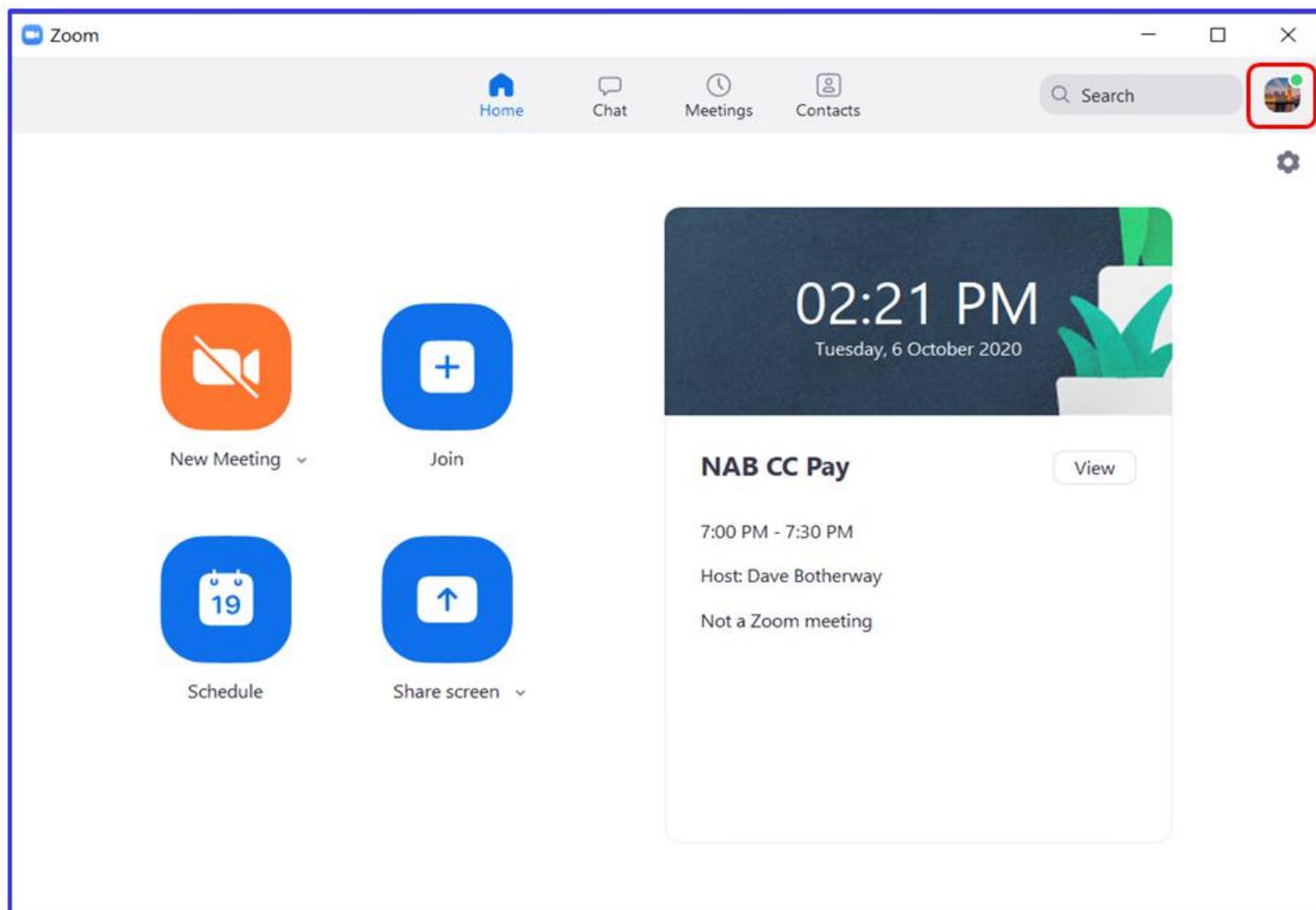


Figure 1 -Zoom's Home Window

Click on the user's avatar at the top right corner of Zoom's home screen and an Options window appears. (Figure 2) Select "Check for updates" in this window and if an update is available the "Zoom Update" window appears. This window gives the new version number along with the current installed version and version changes. From the "Zoom Update" window select "Update" and the progress of the update is shown as can be seen in Figure 2.

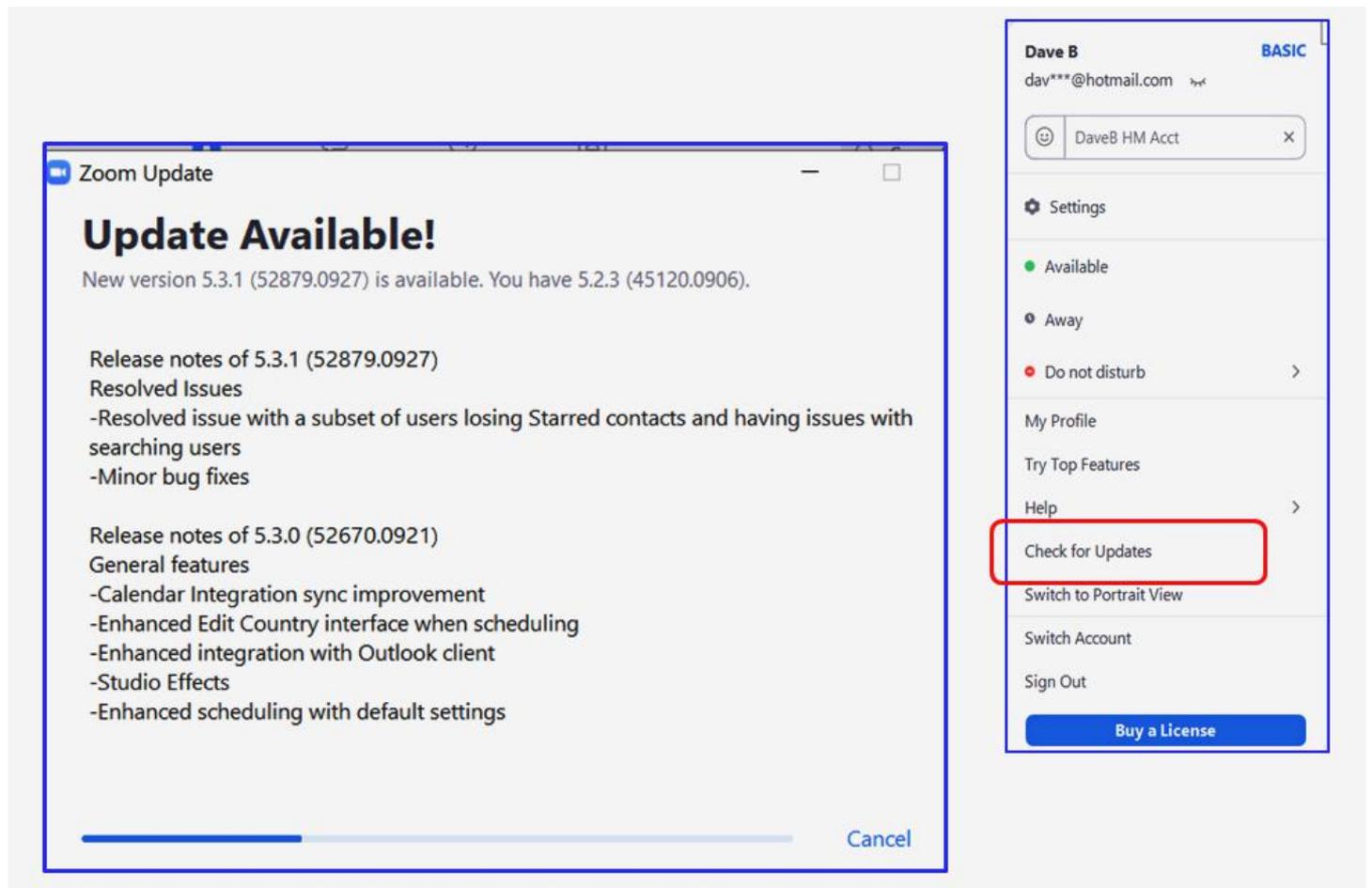


Figure 2 -Zoom's Options & Update Windows

When attending a Zoom meeting the user's webcam sends out the video feed to all those attending. Often to save system resources or to leave a meeting briefly, the video may be turned off. When this is done a blank screen is displayed in place of the video feed. By updating the user's profile image, a static picture can be displayed instead of showing a blank screen.

To change a user's default picture, select "Settings" from either the Options window (Figure 2) or from the cog wheel below the user's avatar (Figure 1). From the Settings window select "Profile" then "Edit my Profile". From here select a picture to use as your user profile.

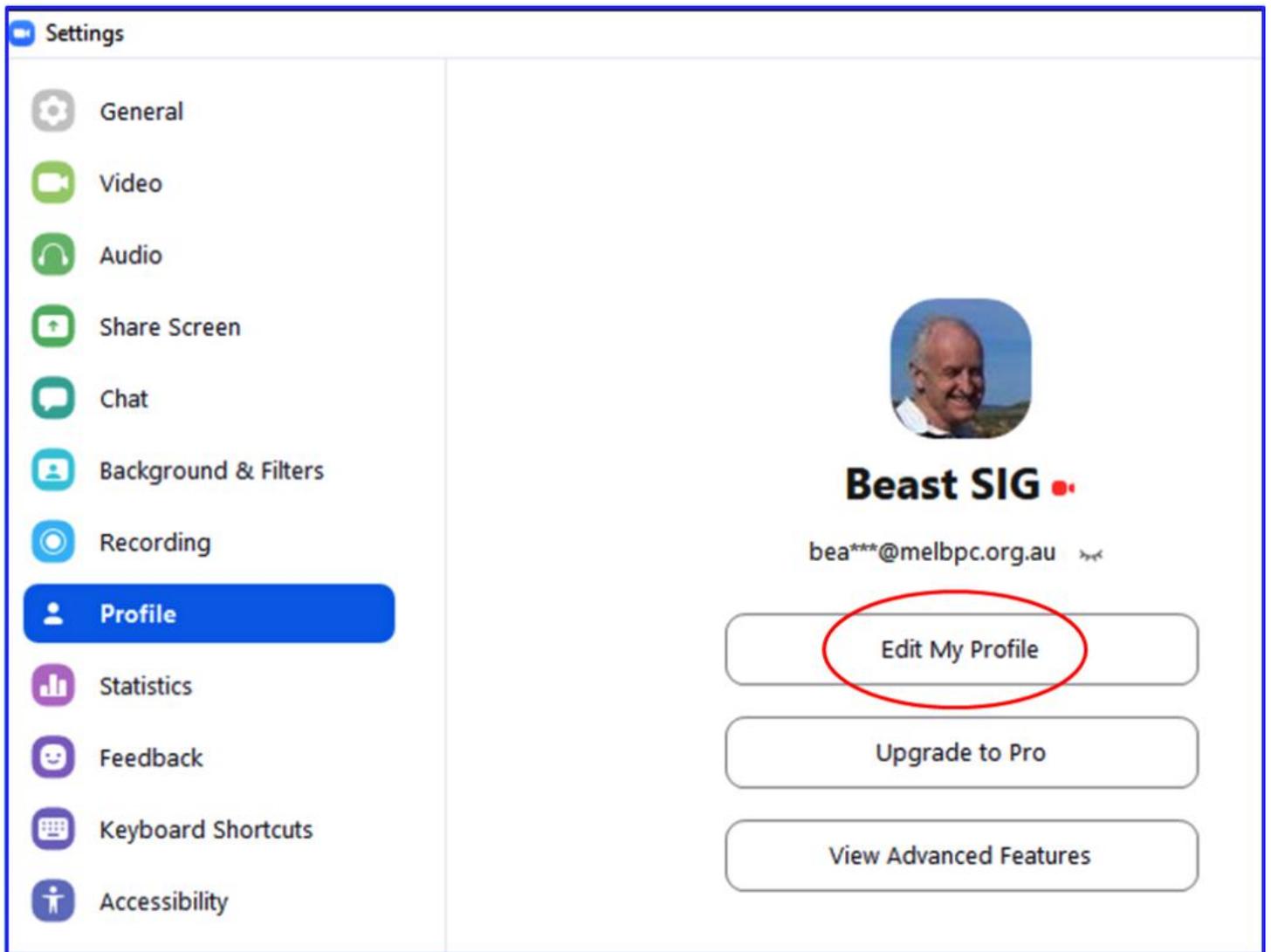


Figure 3 -Zoom's Setting Window

Using a Virtual Background in Zoom allows the user to display an image or video as a background to their image. This feature works best with a physical green screen and with uniform lighting. A contrasting background allows Zoom to detect the difference between the user and their background.

Virtual backgrounds can be chosen either from the Setting window above (Figure 3) by selecting "*Backgrounds & Filters*" (Figure 4) or from the Zoom toolbar by clicking on the up arrow besides video icon. (Figure 5)

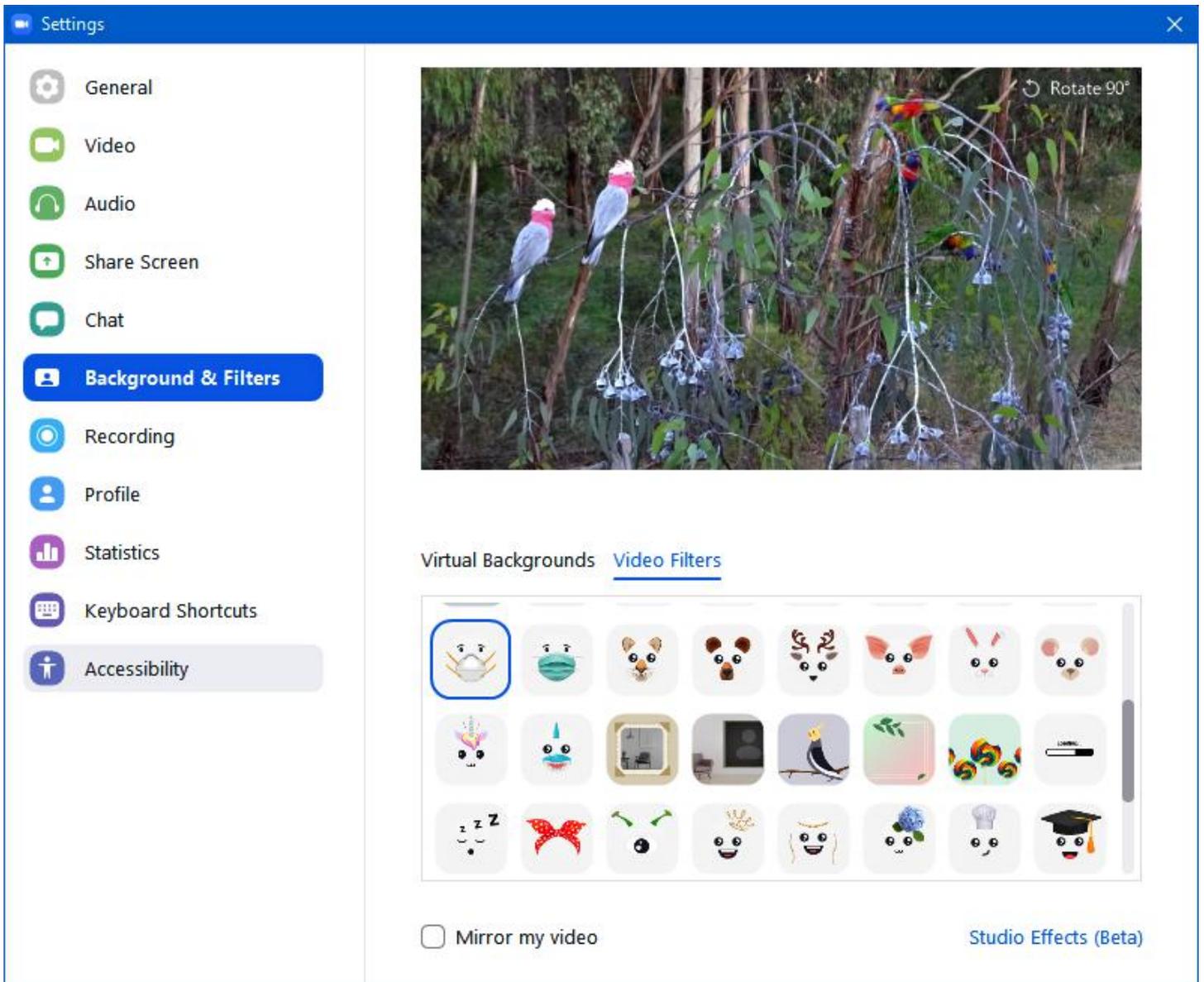


Figure 4 - Background & Filters

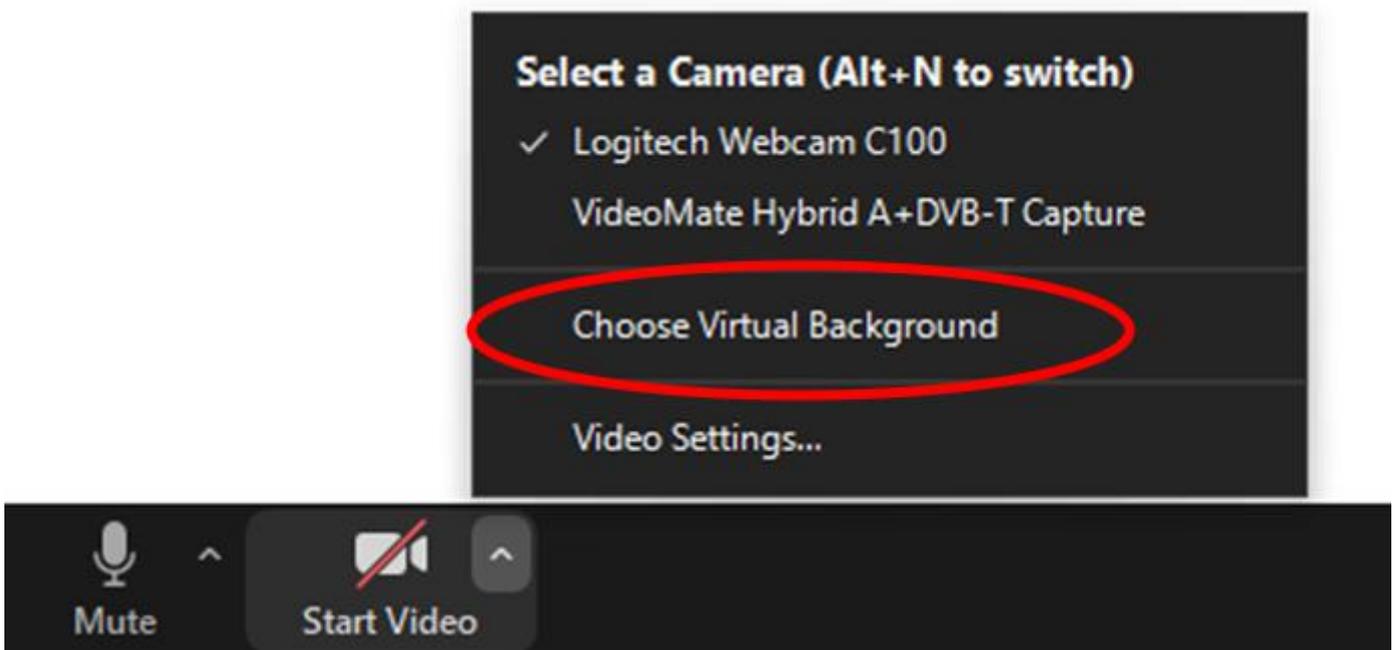


Figure 5 -Zoom Toolbar, “Choose Virtual Background”

The following items need to be considered when planning to use a Virtual Background

- Considerable image processing is involved separating the user from the background
- A reasonably fast CPU is needed. Dave recommends at least an Intel i5 or equivalent AMD
- A background that is a uniform colour or “green screen” is desirable
- Default pictures are available but it’s easy to add your own
- Use contrasting colour clothing
- Select a background that isn’t a distraction
- If the CPU allows you can add your own video background

After selecting “Backgrounds & Filters” from the “Settings” window, 2 tabs appear under the video feed where either *Virtual Backgrounds* or *Video Filters* (Figures 4 & 6) can be selected. Under the Virtual Backgrounds tab are a number of default backgrounds that are available to use, or you can add your own background picture or video by clicking on the plus icon (+) located above the scroll bar on the right. .

The *Video Filters* tab offers filters that can change your video appearance. In addition there are a multiple amusing effects that can be added to your video image, such as hats, glasses and even face masks. These latter filters move with the user’s image as if they are attached to it.

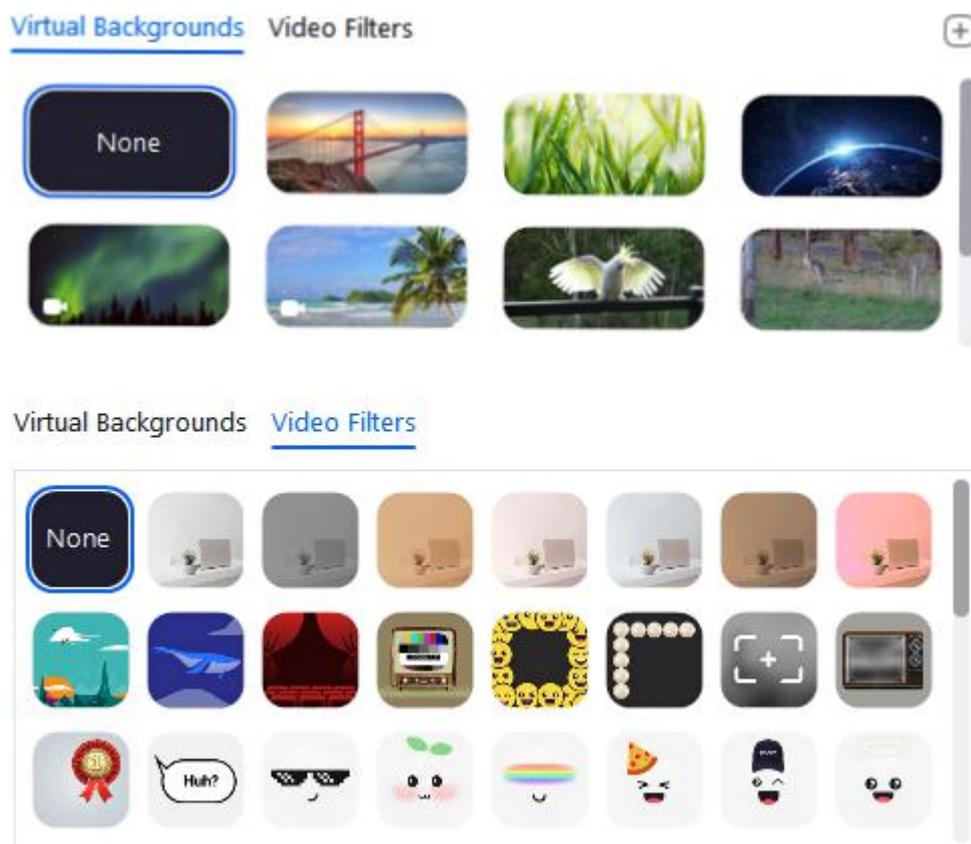


Figure 6 -Combined “Virtual Backgrounds” & “Video Filters” Dialogue panels

At the conclusion of his presentation, Dave gave members the opportunity to investigate Virtual backgrounds and filters. Much entertainment was had by audience members trying the various filters including face masks, hats, eye brows, glasses together with experimenting with the various virtual backgrounds available.

At the start of his presentation, Dave recommended updating Zoom regularly. Changes to the way “View” is displayed and the numbers of emoji’s now available, are 2 of the changes that have been observed since last month’s meeting report on Zoom. These changes are depicted in Figure 7 below.

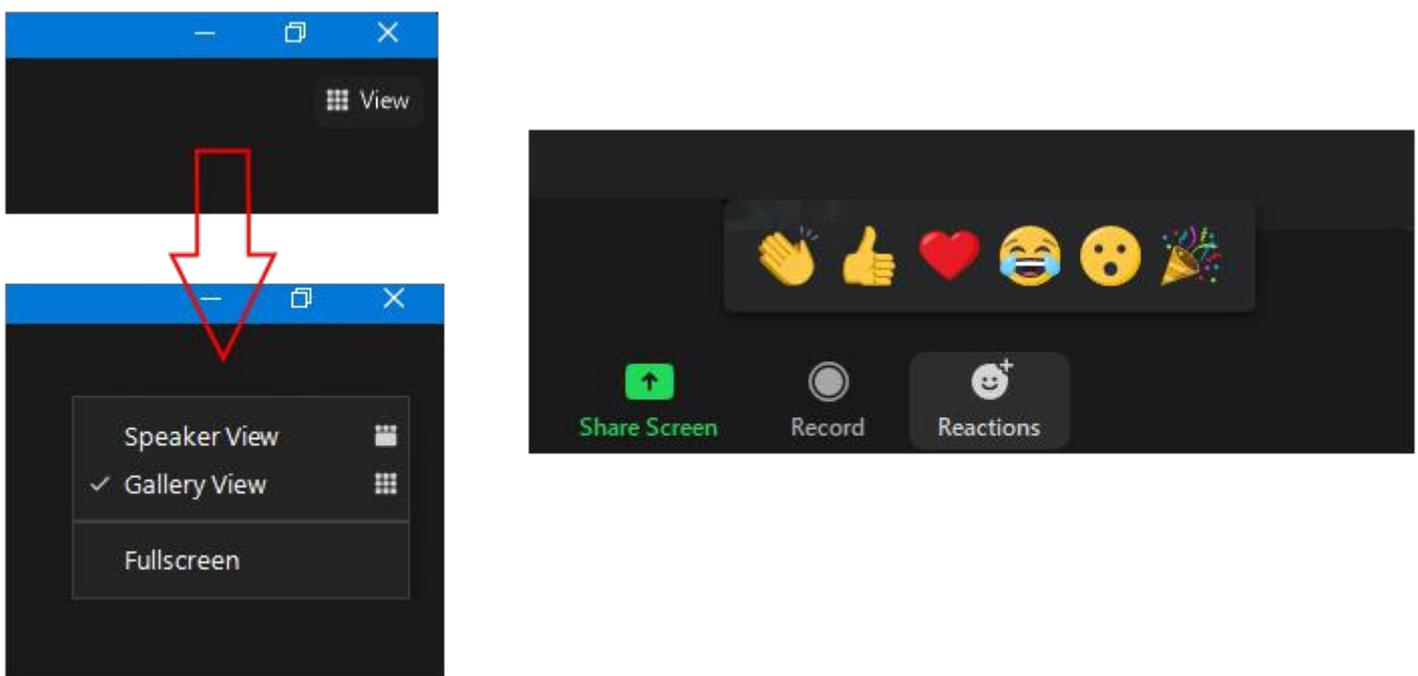


Figure 7 -New “View” & Emojis

Stewart Bedford followed Dave with a presentation titled “My experience setting up and using a Linux-Windows Dual Boot Operating System”. As a long term Windows user Stewart opted for a dual boot Linux setup, more out of curiosity than any real need. Linux could have been run as a virtual machine, but a dual boot arrangement was chosen partly due to its lower system overheads.

Stuart’s dual boot setup comprised Windows 10 running on one Solid State Drive (SSD) and Linux Mint, Cinnamon edition 19.3 running on another SSD. Normally a dual boot would have both operating systems (OS’s) on the same SSD or HDD. Stuart chose a separate SSD for Linux to avoid using up space on the Windows SSD and because SSD were now more affordable than when the Windows SSD was purchased.

To make the transition to Linux easier, the Cinnamon distro of Linux Mint was selected due to its close resemblance to Windows 10.

Having installed the second SSD in his computer, the next step in the process is to download a Linux Mint ISO file from <https://www.linuxmint.com/download.php>. The Linux Mint ISO file has the file extension .iso and is an exact operating system image of the Linux file system. Once the ISO file is downloaded it needs to be flashed to a USB flash drive or written to a DVD. Linux can then run from the USB flash drive or DVD as a “live distro” or be installed as in Stuart’s case on the second SSD.

To create a bootable USB flash drive Stuart used a program called **Etcher**. Etcher converts the downloaded ISO file to a bootable USB flash drive. After running Etcher the next step is to restart the computer with the flash drive in a USB slot. When the computer boots in reads the USB flash drive and the Linux desktop loads (Figure 8). If the computer boots to Windows 10 it will be necessary to go into the BIOS and change the boot order so that the USB drive rather than the Windows 10 SSD boots first.

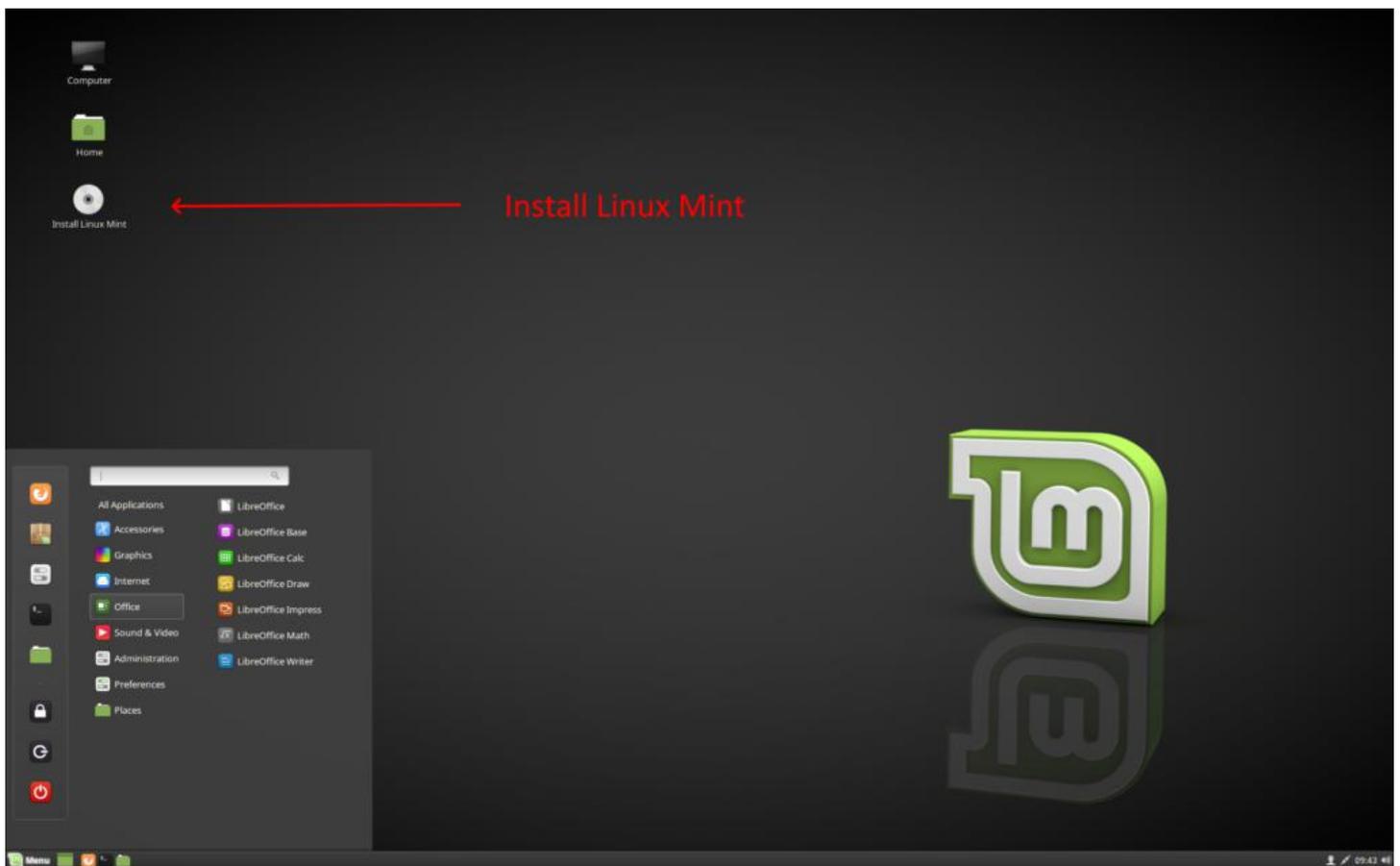


Figure 8 -Linux Mint Desktop Screen

From the Linux desktop shown in Figure 8, Linux can be run either as a “live distro” from the flash drive or installed on the second SSD. Stuart selected the install option and Linux immediately identifies that Windows 10 is already installed and offers a number of different installation options.

Wanting to run Linux Mint from the second SSD Stuart selected the first option “Install Linux Mint alongside them”. The “them” refers to the other OS’s the Linux installation found (i.e. Windows 10). The remainder of the installation was quick and went very smoothly, with only requiring time zone, language and password to be entered along the way. All hardware was identified and installed correctly, which came as a pleasant surprise to Stuart. When the computer now starts it boots to a menu offering the choice of either Linux Mint or Windows 10. The top entry in the menu is Linux Mint with Windows 10 at the bottom of the menu. Selecting either menu option causes the computer to boot to that operating system. A similar Dual Boot menu to the one Stuart sees is shown in Figure 9.

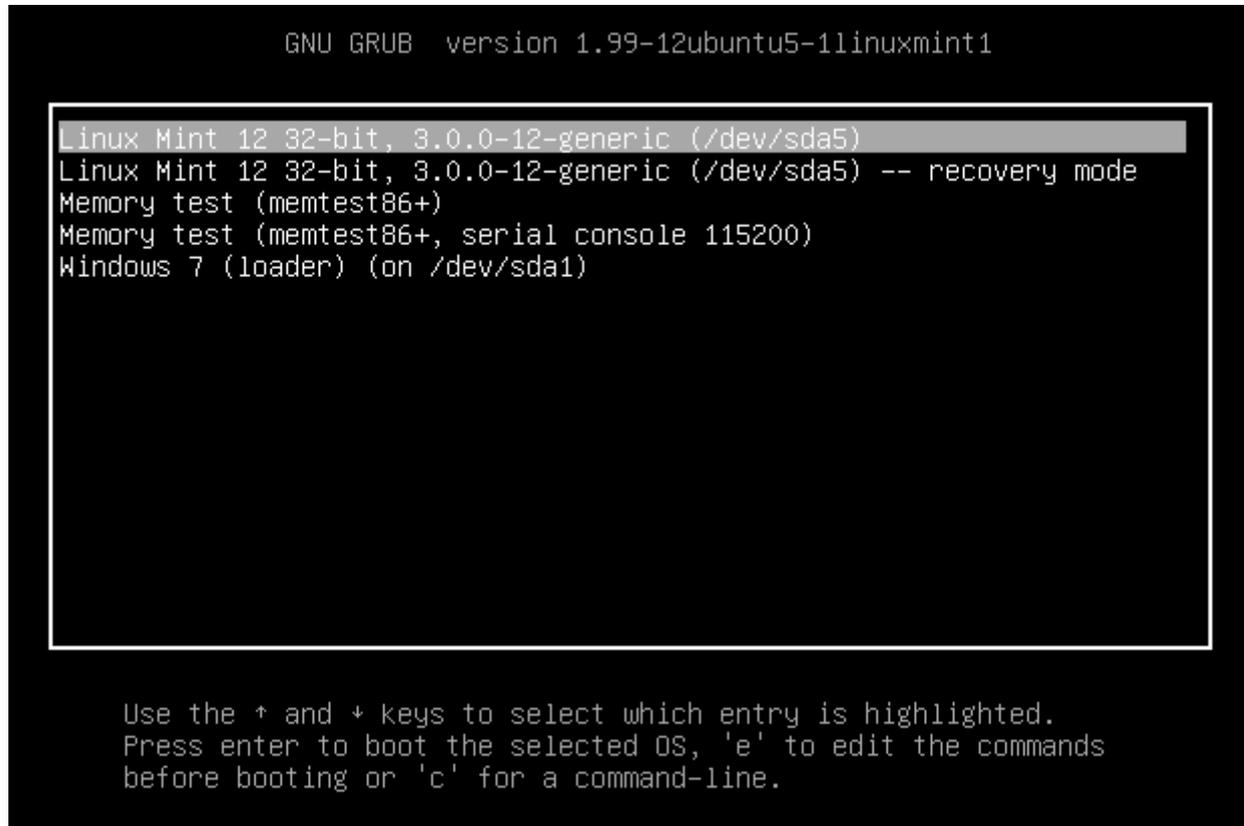


Figure 9 - Dual Boot menu for Linux Mint 12

Stuart has been a Linux user for 2 years, but this is the first instance he’s used Linux in a dual boot arrangement. From his experience to date, Stuart went on to describe the positives and negatives he’s found using both Linux Mint and Windows 10.

Advantages of Linux over Windows

- Linux is free while Windows is not
- Installation was simple and relatively quick.
- Installation identified all hardware correctly
- A hard disk running a Linux OS can be moved to another computer and will work straight away. A hard drive with a Windows OS (OEM or Full licence) in the majority of cases cannot be moved to another PC and work straight away.
- There are numerous versions of Linux that will run on lower powered or older computers that may struggle to run Windows 10. e.g. 700 MHz processor with 512 MB RAM and 5GB hard drive space on a VGA monitor (1024 x 768)
- Linux distros come preloaded with most of the software the majority of users need. i.e. an Office suite, Firefox, Thunderbird for email, GIMP as a replacement for Photoshop & many other programs.
- Updates can be controlled and set to update automatically in the background while working

- Generally there is no need to reboot after a Linux update
- Linux is less vulnerable to viruses due to its small market share.
- A Linux “live distro” can be used to boot a dead Windows computer to problem solve.

Advantages of Windows over Linux:

- User familiarity with Windows
- Larger variety of free and paid software is available
- Windows is better for gaming
- Most users with a moderate skills can use the Windows command line
- Popular programs such as Photoshop, Lightroom and Video editing software are not available in Linux.

Followed Stuart’s presentation we looked at “Advanced Google Searching”. **Paul Woolard** commenced by asking those present who uses Google to search the Internet. Most used Google and were unconcerned that Google tracks their search terms in order to target them with more relevant advertisements. One member commented that it was better to see advertisements that may be of interest, rather than random irrelevant ones. A small number present used Bing and others more concerned about their privacy used DuckDuckGo for internet searches.

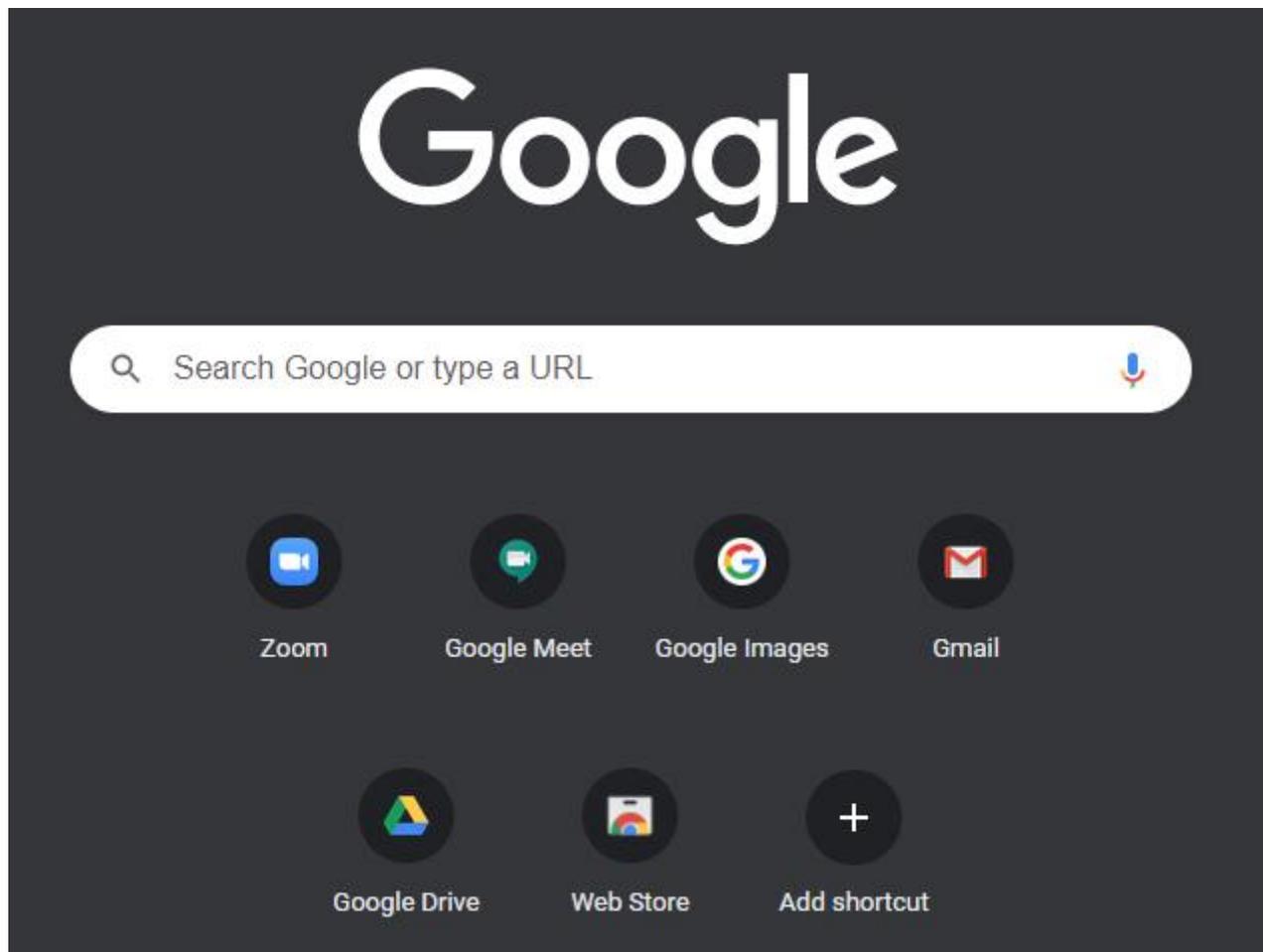


Figure 10 - Google Search Box

Most Google users simply enter their search terms into the search bar. However by using a few simple search techniques, it's possible to narrow down the search to give more accurate results. Some of the more useful of the techniques Paul mentioned in his presentation are included below.

- To search for an exact phrase, include the phrase in *quotation marks*
g. "notebook computer"
- To search for an exact phrase when a word is unknown use an *asterisk* for that word
g. "Mary had a * lamb"
- To search for items that may be known by 2 different names, use *OR* (in capitals) between the names
g. "miniature OR small"
- To exclude a word from a search add a *minus sign* (no gap) in front of the word.
g. "notebook computer" -HP
- To include a word in a search use *AND* (in capitals).
g. "laser printer" AND colour
- To search within a website use *site*:
g. site:Melbpc.org.au PCupdate
- To find the definition of a word use *define*:
g. define: megabyte
- To translate words from one language to another use *translate*
g. translate "Mary had a little lamb" to French.
- Google can also be used for arithmetic calculations to Add, Subtract, Multiple, Divide, Percentage and Power.
g. 1024+456, 1024-456, 1024*456, 1024/456, 45% of 456 & 6⁴.

The term "Advanced search techniques" is a little misleading as most would find the techniques presented are simple and easy to remember. For those wishing to further investigate Google searching Paul has provided links to 3 web pages below.

37 Advanced Google Search Tips for Smarter Searching

<https://www.coforge.com/blog/advanced-google-search-tips>

How to Use Advanced Google Search Commands

<https://www.lifewire.com/advanced-google-search-3482174>

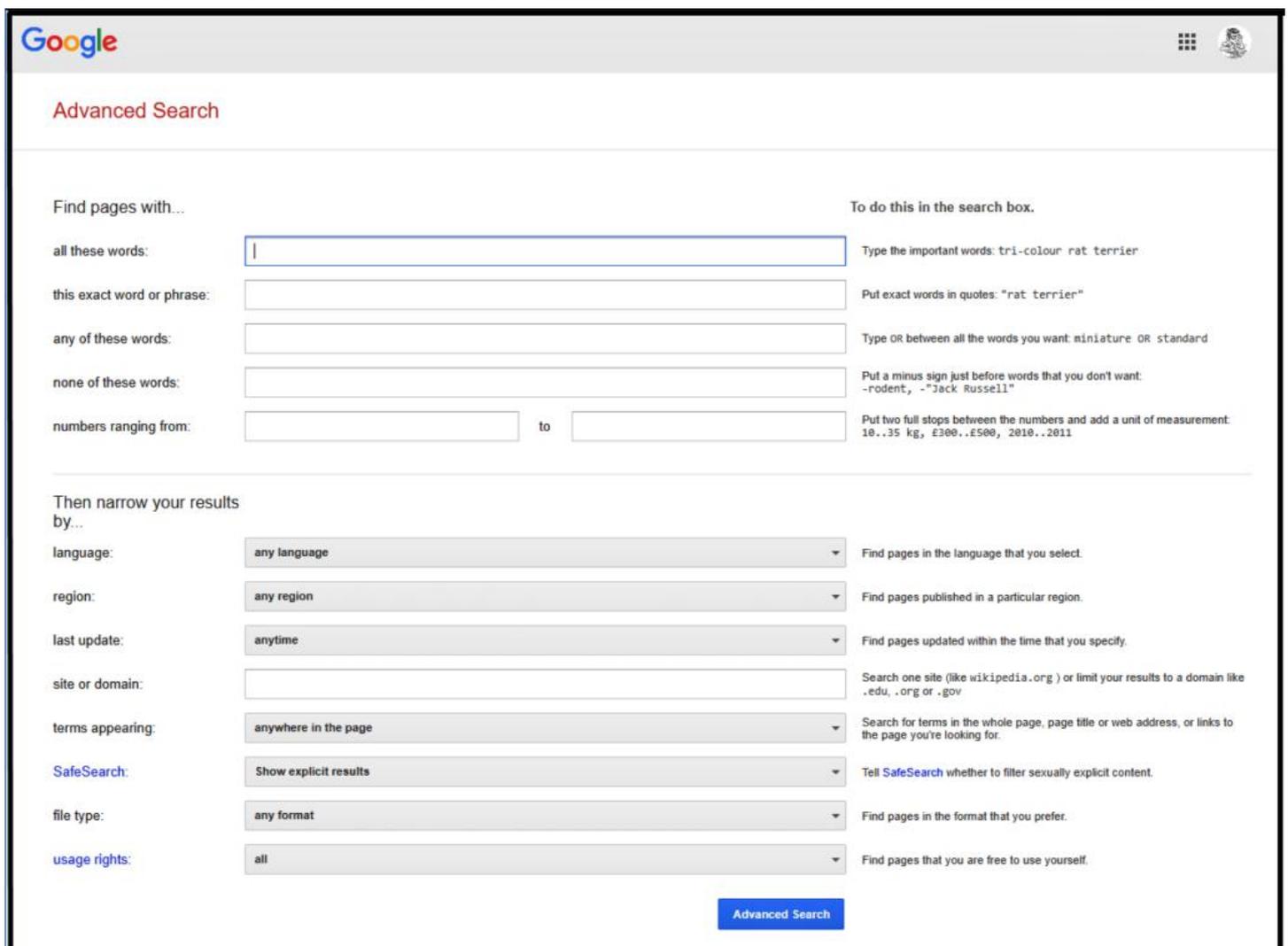
Google Tricks That Will Change the Way You Search

<https://time.com/4116259/google-search-2/>

To conclude this topic **George Skarbek** suggested members should consider using Google's "Advanced Search". To display Google's "Advanced Search" window, select "settings" then "Advanced Search" from the Google home page. (Figure 11). Alternatively enter "advanced search" in the standard Google search box.

The "Advanced Search" window displays rows of search boxes where the different type of search queries can be entered. The search terms used in these boxes have been mentioned earlier but don't need to be remembered because examples are shown to the right of each box. As the graphic below (Figure 12) is a little hard to read, the title of each search boxes is listed below.

- Box 1 - All these words e. type in all important words
- Box 2 - This exact word or phrase e. quotation marks
- Box 3 - Any of these words e. OR
- Box 4 - None of these words e. -
- Box 5 - Numbers ranging from e. place 2 full stops between the numbers



The screenshot shows the Google Advanced Search interface. At the top left is the Google logo, and at the top right are the menu and profile icons. The main heading is "Advanced Search". Below this, there are two columns of options. The left column is titled "Find pages with..." and the right column is titled "To do this in the search box.".

Find pages with...	To do this in the search box.
all these words: <input type="text"/>	Type the important words: tri-colour rat terrier
this exact word or phrase: <input type="text"/>	Put exact words in quotes: "rat terrier"
any of these words: <input type="text"/>	Type OR between all the words you want: miniature OR standard
none of these words: <input type="text"/>	Put a minus sign just before words that you don't want: -rodent, -"Jack Russell"
numbers ranging from: <input type="text"/> to <input type="text"/>	Put two full stops between the numbers and add a unit of measurement: 10..35 kg, £300..£500, 2010..2011

Then narrow your results by...

language:	<input type="text" value="any language"/>	Find pages in the language that you select.
region:	<input type="text" value="any region"/>	Find pages published in a particular region.
last update:	<input type="text" value="anytime"/>	Find pages updated within the time that you specify.
site or domain:	<input type="text"/>	Search one site (like wikipedia.org) or limit your results to a domain like .edu, .org or .gov
terms appearing:	<input type="text" value="anywhere in the page"/>	Search for terms in the whole page, page title or web address, or links to the page you're looking for.
SafeSearch:	<input type="text" value="Show explicit results"/>	Tell SafeSearch whether to filter sexually explicit content.
file type:	<input type="text" value="any format"/>	Find pages in the format that you prefer.
usage rights:	<input type="text" value="all"/>	Find pages that you are free to use yourself.

At the bottom right, there is a blue button labeled "Advanced Search".

Figure 11 - Google Advanced Search Window

After entering search terms in the 5 search boxes above, searches can then be narrowed further according to language, region, last update, site or domain, terms appearing, safe search, file type, and usage rights in the "*narrow your results by*" section below. George mentioned how useful he finds the "*last update*" option when for example searching for "recent windows problems".

A tip from an audience member suggested using *startpage.com* for anonymous internet searching. Startpage uses Google's search engine, but acts much like a VPN yielding search results that appear to Google as originating from Startpage. Therefore Startpage can be viewed as an intermediary with search results that are anonymous and encrypted.

The meeting concluded with a general discussion and testing of screen sharing using Zoom. The reason for this was to investigate why the audience found text from one of the night's presentations at times unreadable. It was eventually found that the presenter had ticked the "*Optimise Screen sharing for video clip*" box when sharing webpages from his screen. This discussion & testing will prove very worthwhile when Screen sharing is used in future meetings. The conclusion, only tick "*Optimise Screen sharing for video clip*" when showing videos, then untick when the video is completed.

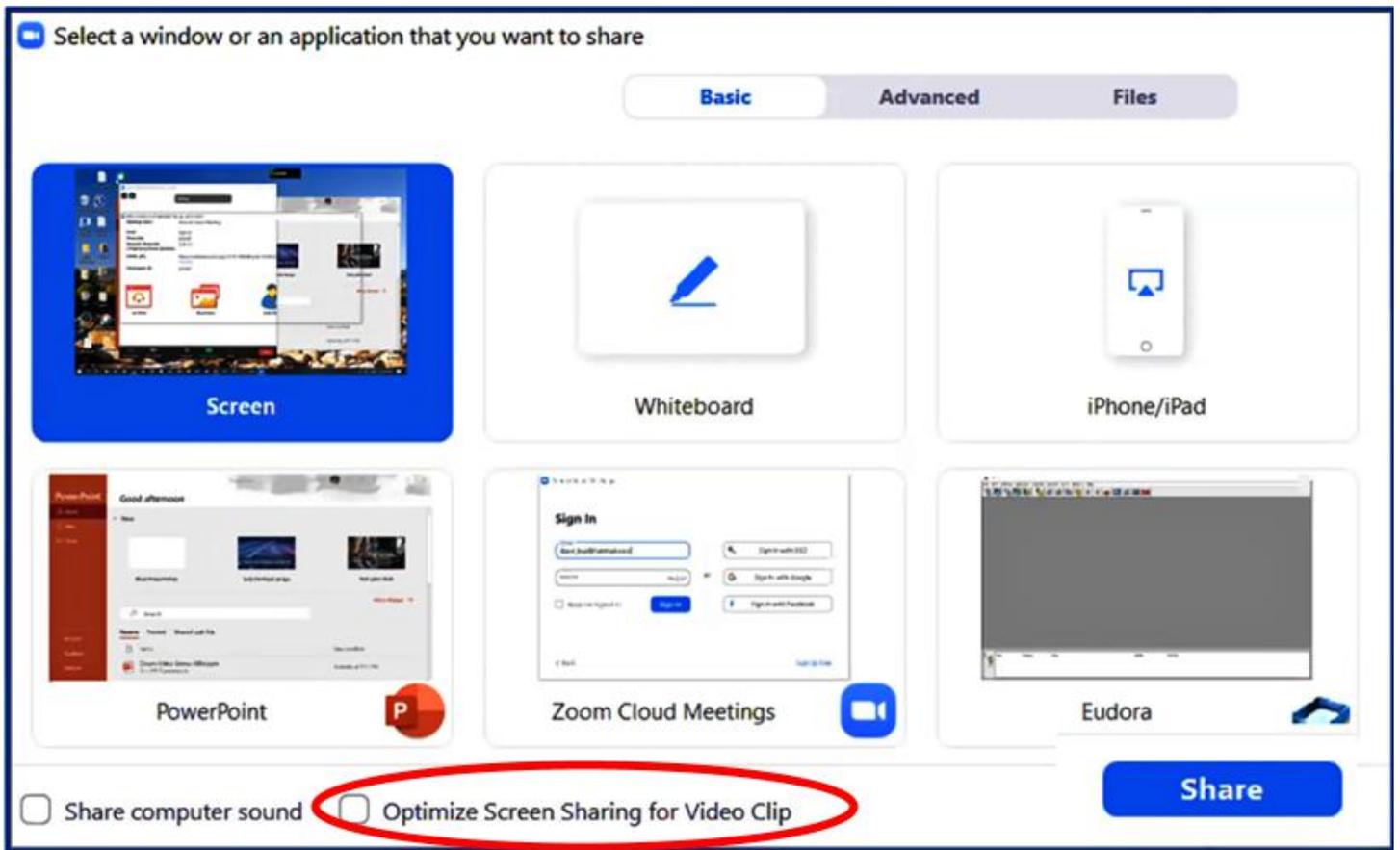


Figure 12 - Zoom Screen Sharing Window

DOTW Winners October 2020

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.

Again DOTW was dominated by the pandemic although there were other topics emerging and even a return of some rather awful jokes! Let's hope the good news continues.

Our October winners were:

- The Frankston cleaner who chose to work at busy Chadstone shopping centre when he knew he should have been self isolating due to other family members being Covid-19 positive. We all know the disastrous results
- And, the very next week, more Covid idiots after Victoria Police issued 124 fines for corona-virus breaches across the state in the past 24 hours, including to 53 people who refused to wear a mask in public.
- Epping Gardens Aged Care Home for its disgraceful treatment of a resident with severe corona-virus including attempting to prevent hospitalisation and gross mishandling of her personal effects. Thankfully the resident survived.
- The Victorian Police Professional Standards Command for dropping criminal charges against a senior constable from Pakenham despite overwhelming evidence. Yet another case of police immunity!
- The Commonwealth Department of Health which we now know to have treated 2865 aged care providers seeking personal protective equipment from the National Medical Stockpile in an appalling fashion, declining almost all requests/

Yammer Highlights October 2020

Dennis Parsons

Phones

We had a couple of interesting threads this month concerning phones and plans that ranged far and wide but proved very useful to both the users asking the questions and the other participants. As is our wont on Yammer we often wander well off topic but this frequently takes us to interesting places.

I asked about options for a cheap phone plan for a friend who was coming out of contract on her current phone. She wanted unlimited calls, only a small amount of data (3-5GB would do) and wasn't particularly fussed about which network it used. I'd been doing my own research but it's always good to seek other opinions when there are so many options to pick from.

Along the way Merv was bagging out a certain phone network for having a very slow data connection, suggesting it be steered clear of. He'd been trying to improve matters for some time, to the extent of taking the phone into the network shop and complaining there but having no luck. Turns out there was a very good reason for the poor speed - the phone isn't actually 4G capable! We did make some suggestions of cheap options but Merv managed to bag a hand-me-down from a family member that would do the job.

<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=899346848104448>

This led onto Bill asking a supplementary question about a replacement for his trusty but ageing S5 along with a cheaper plan to go with the new phone - he was paying for far more data than he was using so wasn't getting great value for his money.

His requirements for the new phone weren't demanding - dual SIM, 32GB+ storage, good camera, large display and a headphone socket. A Motorola 5G model had caught his eye but was priced above what he wanted to pay. Our resident Android phone geek Greg highlighted 5G models from manufacturers such as Xiaomi, Oppo and OnePlus which were around the right price and had the desired features. There are plenty of models out there to choose from which makes it hard to choose the right one, so asking on Yammer is useful step, particularly if you need help with explaining what the various features are.

<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=910854403899392>

Computer Help

-

Andrea asked for some help with buying a webcam - a bit of a tricky task these days where COVID induced work from home rules have emptied the shelves of many stores and made finding the model you want at the price you want a bit difficult.

-

We were able to explain what various terms such as HD and FHD meant, and what was going to be suitable for the intended use of making video calls to family and friends. In the end she had to purchase what was available but was at least able to pick something suitable and knew what she was getting.

-

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=880772877066240>>_

G Suite Help & Discussion

-

To support our move from Office365 based products to G Suite Greg created the "G Suite Help & Discussion" group. This is where to come to get general help with using everything G Suite, finding tips and links to tutorials, and posts highlighting various tools. There is a huge range of apps available for both in browser use and on your phone, from office type apps to photography apps and everything in between.

-

Wanting to know about two-factor authentication (2FA) to secure your accounts? And yes, you should be using it. This is the place to ask.

-

If you have a question about the e-mail transition please use "Our move to Google G Suite" group which is dedicated specifically to this.

-

<https://www.yammer.com/melbpc.org.au/#/threads/inGroup?type=in_group&feedId=42234568704>