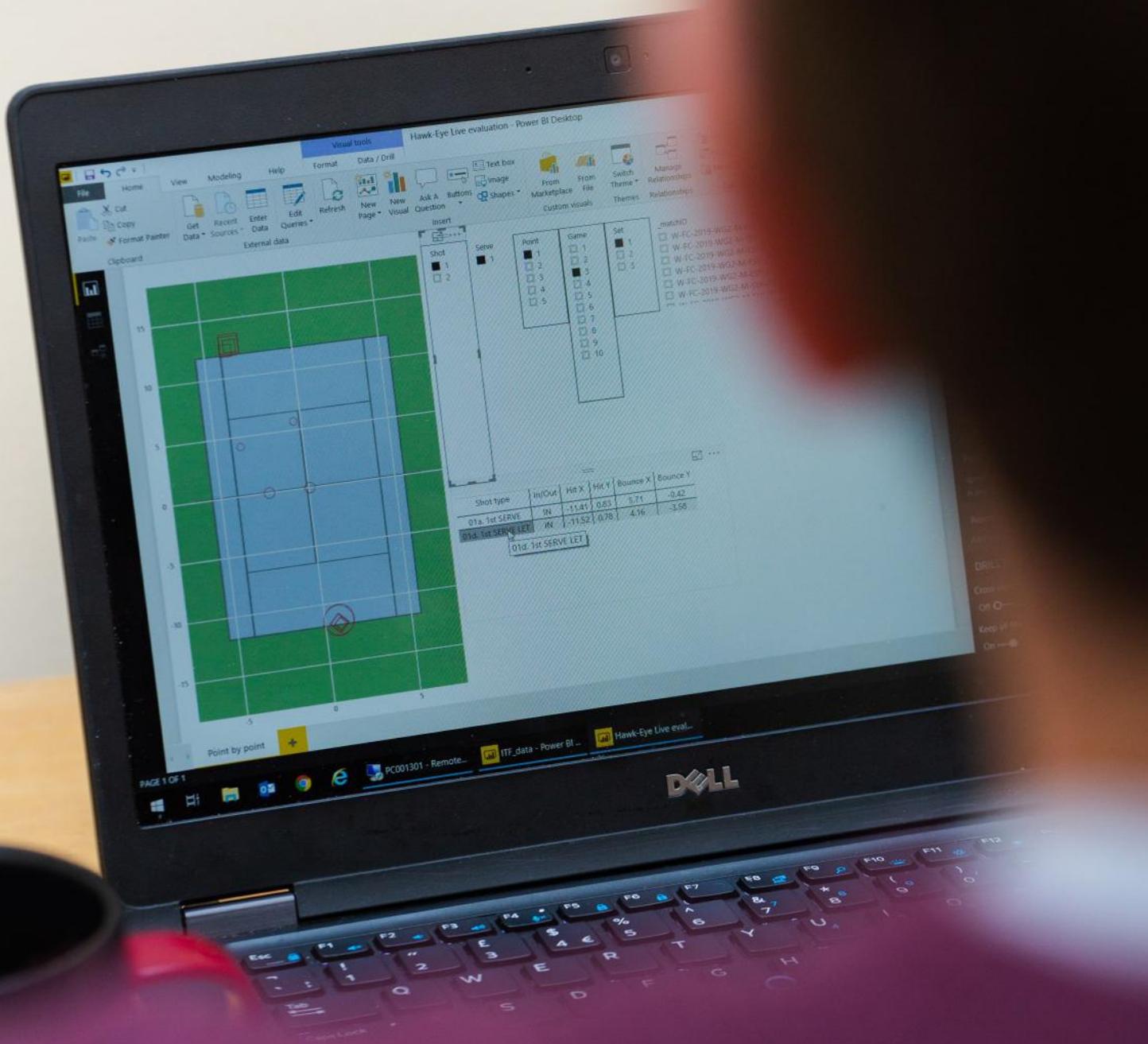


>PC Update

December 2020



Publishing Information _____	2
Editorial December 2020 _____	3
From The President December 2020 _____	4
New Tools For The Maker Room _____	7
Monthly Meeting December 2020 _____	8
How To Install WordPress On Your Portable Web Server _____	10
Your Favourite Linux Apps _____	19
Your Favourite Windows Apps _____	20
Australian hospitals are under constant cyber attack. The consequences could be deadly _____	22
From Hobart, to London, to Dhaka: using cameras and AI to build an automatic litter detection system _____	27
Book Review _____	32
East SIG Report November 2020 _____	33
DOTW Winners November 2020 _____	44
Yammer Highlights November 2020 _____	45

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

iHelp - Get the help you need with your computer, Ph: (03) 9276 4088,

Email: ihelp@melbpc.org.au, Live Chat!, Online Support Request

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 December 2020



Hugh Macdonald

Hello and welcome to the December 2020 edition of PC Update, the final issue for this year.

It was a year that started with high hopes for the club with some interesting events like the 3D Printing Introduction and moves to transform the space in Moorabbin and we all know what happened from there. Thankfully the transformation of Moorabbin was slowed but not stymied, and a few months ago Stephen Zuluaga reported on the former training room becoming the Maker Room and this month in his President's Report, David Stonier-Gibson provides an update on the continuing transformation of the Internet lounge.

Despite the challenges faced by the club in staying relevant in 2020 I believe the club did as well as it possibly could. We came to grips with online platforms like Google Meet and Zoom for meetings, and finished up having some very interesting and successful monthly meetings and SIG meetings as well.

From the perspective of PC Update, since taking over the editorship I've seen it as an amalgam of a contemporaneous record of the happenings of the club and a traditional PC magazine with reviews and tips for getting the most out of your computer. With the events that have taken place this year, I've had to focus attention on the latter. I hope you've found some of the articles interesting and have learned a few things about using your PC along the way.

As editor, I've been pleased that we've managed to produce a number of issues this year completely in house. That is to say I haven't had to draw upon the well of APCUG articles, as good as they are. I hope the trend continues next year and more people in the club come forward with articles they'd like to share.

So on that note I'd like to thank the in house contributors this year (In no particular order): Fleur Stephens, Tim McQueen, Roger Brown, Dennis Parsons, Neil Muller, David Hatton, David Stonier-Gibson, Stewart Gruneklee, John Nelson and Graham Swanston. Also a big thank you to everyone who contributed their Linux story a couple of months ago.

I'd also like to thank the people who help me to put PC Update together each month, the technical editors and the proofreaders: Roger Brown, Dennis Parson, Malcolm Miles, Kevin Martin, Harry Lewis, Tim McQueen and Paul Woolard.

So on that note I'd like to wish everyone a Happy Holidays and a Happy New Year and PC Update will return in February 2021.

From The President December 2020



David Stonier-Gibson

Reopening

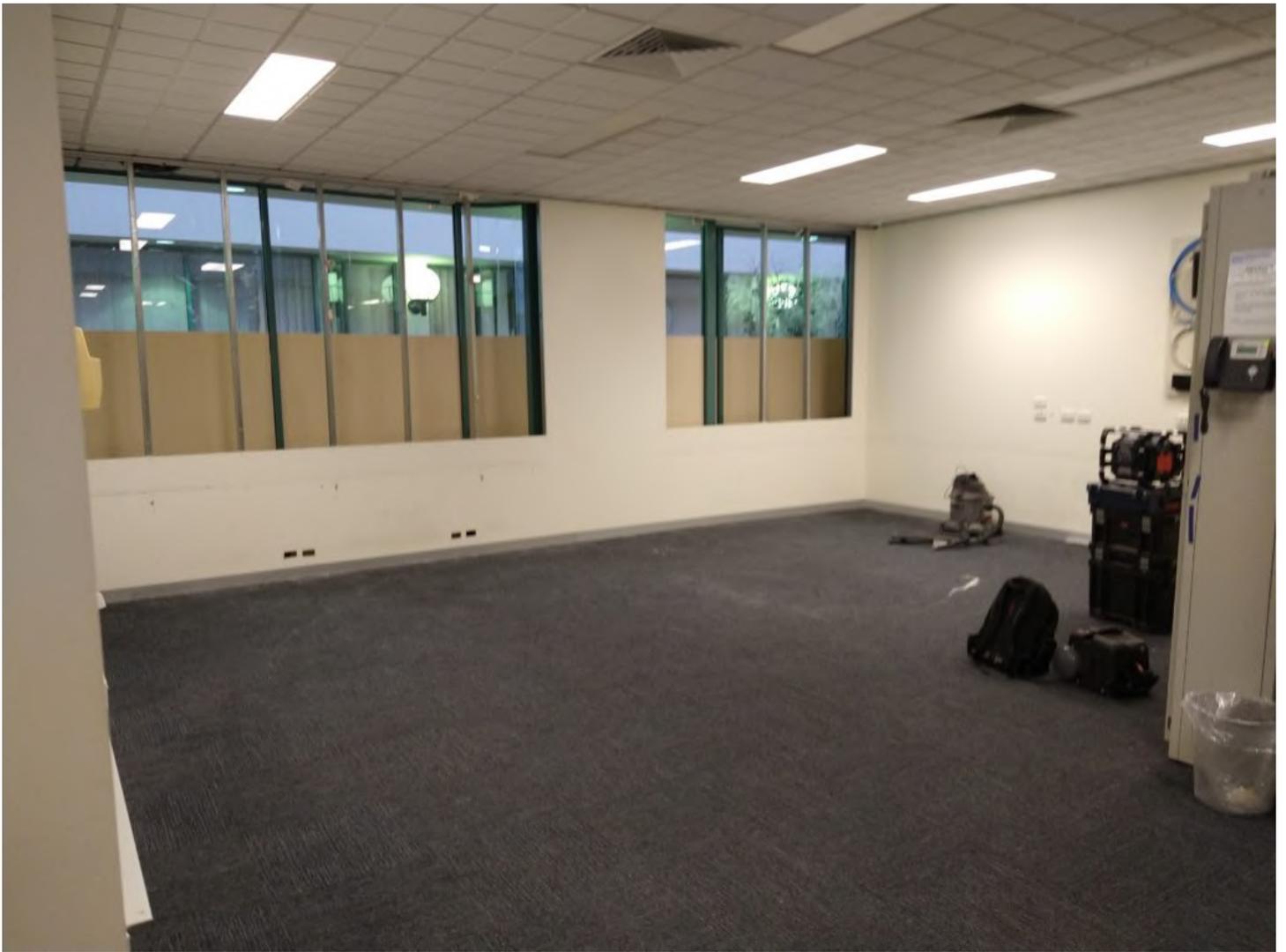
I was delighted earlier in the month to be able to put out an all-member email heralding the re-opening of our Moorabbin club rooms and workshop. Some rules and restrictions still apply, but we can now go back in. The first face to face SIG meeting will be “Microcontroller Workshop” on Saturday 5th December. I am also planning a Christmas party for the Microcontroller SIG at its traditional December meeting.

Do note that SIG leaders must preregister 5 days ahead with the office (9276 4000) to use the rooms, just to avoid conflicts. If you want to make an individual visit please call ahead to be sure it’s open - full time staffing is not guaranteed at present.

Non-Moorabbin SIGs must comply with whatever rules are set by the venues they use.

Club rooms transformation

The erstwhile Internet Lounge has now been stripped right back, and the windows opened up to let in daylight from the atrium. Soon it will be ready to put back together again as a totally transformed space. I am hoping we can make it into a place for members to simply hang out and socialise with comfortable furniture and inviting décor and lighting, maybe with a coffee machine, video games, magazine rack, a large screen TV for members to get together and watch the footy finals.



As you can see from the picture all the computers have been relocated. If you want to use any of the specialised machines, please contact the office (9276 4000) to make arrangements. Remember: we are all volunteers so we can't offer instant service. Sorry for the disruption, but eggs sometimes have to be cracked.

Jaycar discount

I am delighted to report that *finally* I have an arrangement for all members to receive a discount at Jaycar electronics. There seemed to be some administrative holdups at the Jaycar end, and maybe I wasn't pestering enough during peak Covid, but one phone call to the *new* manager at our local Cheltenham store got it sorted - I hope! When shopping at any Jaycar you should be able to get the discount simply by showing your Melb PC membership card and quoting our customer account number **JTA006405**. Please let me know if you experience any difficulties - I am frankly unsure of how well the arrangement will work.

ASCCA courses

The ASCCA (Australian Seniors Computer Clubs Association) ran a number of computer related courses in November, and is doing more in December. I picked up on that and publicised it to our members. As a result Melb PC provided the bulk of enrolments for the courses: 55 members attended in November and so far 49 have applied for December courses. The program has been so successful, with our involvement that ASCCA had to apply limits to the number of participants. A win-win for both organisations and a big win for our members.

Transition to Google

The transition to Google Workspace continues slowly but surely. The issue with email forwarding caused by something outside our control being changed, is now resolved. Happily, no emails have been lost.

The transition team is giving priority to members who use Melb PC as their primary email service. 40% of those members have been successfully migrated.

The iHelp team report that the average time spent providing personalised help to those members who need it is one hour. It is proving to be a massive job, much bigger than anticipated. So I thank all those iHelp people who are putting in all this effort, especially as the response has been 95% favourable.

New Tools For The Maker Room

David Stonier-Gibson

I purchased a comprehensive set of tools for the Moorabbin Maker Room this morning, just in time for members of the Microcontroller Workshop SIG to enjoy with their face to face meeting tomorrow. The collection includes

- Soldering irons
- A vacuum desoldering station
- "Third hand" work holders and magnifiers
- Cutters and pliers
- A huge screwdriver set
- A hot glue gun
- Wire stripper

We already have a fair collection of test instruments. I have worked professionally in labs no better equipped.

All members are welcome and entitled to use the Maker Room. Just for now you should call ahead to the office if you want to come in, simply because the office is not being staffed all day at the Covid moment. Please treat all this with respect and report any losses or breakages to the office.



Monthly Meeting December 2020

The December 2020 Monthly Meeting was held online on Wednesday 2nd December 2020, with over 75 members in attendance. This was the program for the evening:

Guest Speakers: Cameron McKenzie and Angela Stubbs

Topic: Empowering businesses to exchange waste as a resource - ASPIRE



ASPIRE is a digital tool that supports a social business network, across a region. As industries face the challenge of rising waste disposal costs and the pressure to reduce greenhouse gas emissions from excessive landfill, it is neither cost-effective, operationally efficient nor socially responsible for companies to ignore the end of life impacts of unwanted resources.

Cameron McKenzie

Cameron McKenzie is the CEO of ASPIRE.

ASPIRE is an online platform and marketplace that helps drive innovation in the transition to a circular economy in Australia.

Cameron started his career in construction and was always bothered by the amount of waste that this industry creates. He has several trade skills under his belt including Engineering and Carpentry but has also studied to acquire a Masters Degree in Entrepreneurship & Innovation and holds an MBA.

He is the winner of the Fillion Award for Entrepreneurial Excellence and worked closely with CSIRO and Kingston Council during the transition phase of moving ASPIRE out of CSIRO and into a new entity and upgraded platform.

ASPIRE now has the independence to branch out beyond Victoria to be a national program and more recently, connecting to Hong Kong circular economy stakeholders.

Angela Stubbs

Angela has held a senior position in the City Economy & Innovation department at Kingston Council for the past 10 years. Business sustainability and industrial symbiosis are a focus for her work with businesses in the Kingston municipality, which has a large manufacturing base.

In 2014 she led a project team to establish a 'proof of concept' for an innovative online waste materials exchange register, now called ASPIRE.

The ASPIRE program was launched online in November 2016 and continues to expand locally, interstate,

and more recently, globally. Cameron McKenzie has now taken over the entity of ASPIRE and is leading it forward with a circular economy approach.

Angela strives to bring companies from different industry sectors together to identify business opportunities that keep resources in the economy in a perpetual productive cycle that avoids waste and reduces business operating costs and supports the concept of The Circular Economy.

In 2020 she launched the Circular Advantage online business education program which is the focus of her presentation.

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 Harry Lewis.

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, 2 December.

Meeting Agenda

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

Guest speakers: Angela Stubbs, Cameron McKenzie.

Q & A with Stewart Gruneklee.

Social break.

President's Report: David Stonier-Gibson.

What's New? with George Skarbek (for the final time).

iHelp Online: Harry Lewis 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/>

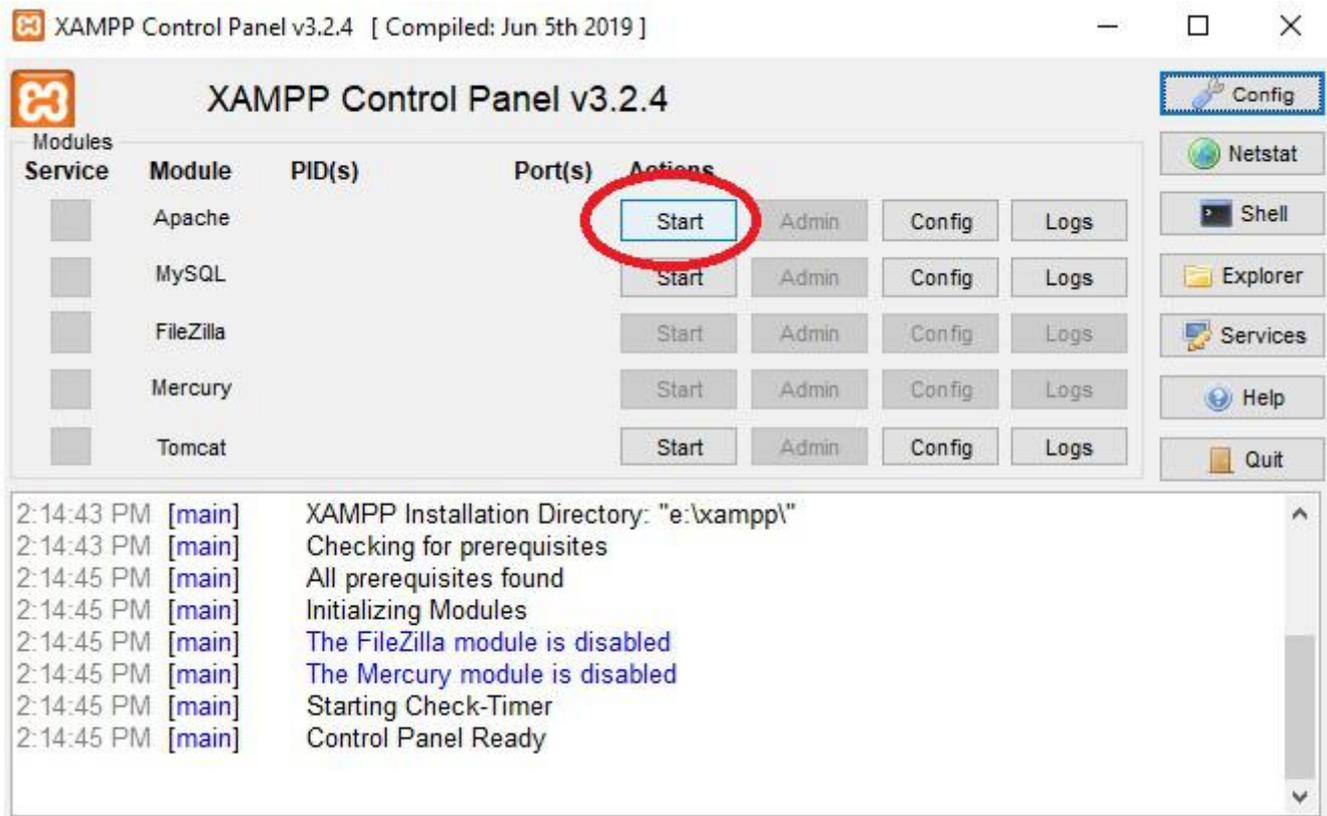
The username is videos and the password is drum286.

How To Install WordPress On Your Portable Web Server

Fleur Stephens

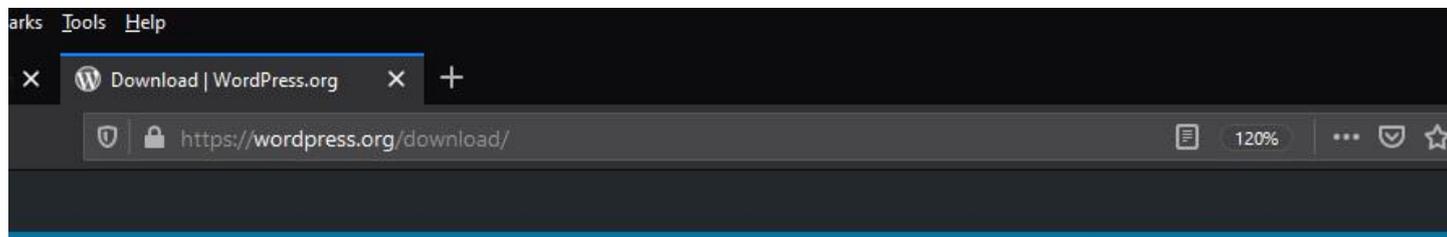
Now that you've created your portable web server, you might like to install WordPress. An offline WordPress installation is great for practising WordPress, testing themes and plugins, and offsite website development. Follow the tutorial below to create a WordPress installation of your own.

- First, we need to enable our webserver.



Locate your USB stick/portable drive, open the Amp folder, locate and open the xampp-control.exe file (right-click Run As Administrator). When xampp opens, locate and hit the Start button for the Apache module (as shown in the picture above) and the MySQL module (just below the Apache module). This will start the webserver and the MySQL component.

- Next => download WordPress, go to <https://WordPress.org/download/> and select WordPress 5.5. See the screenshot below.



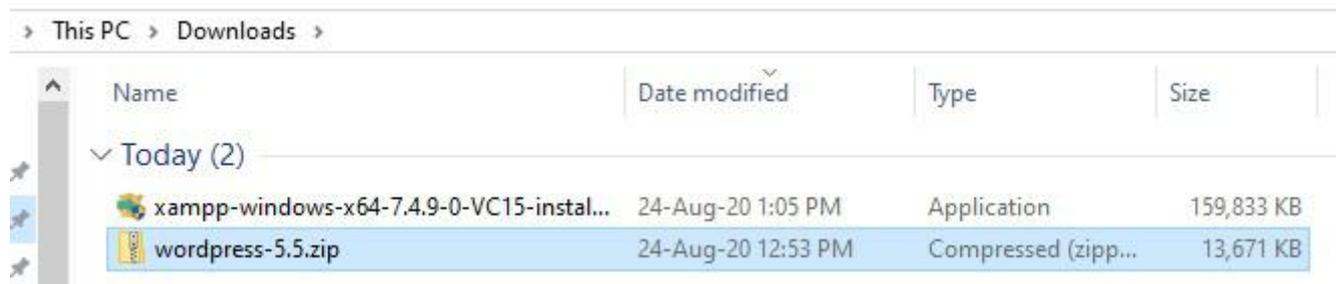
Priceless, and also free

Download WordPress and use it on your site.

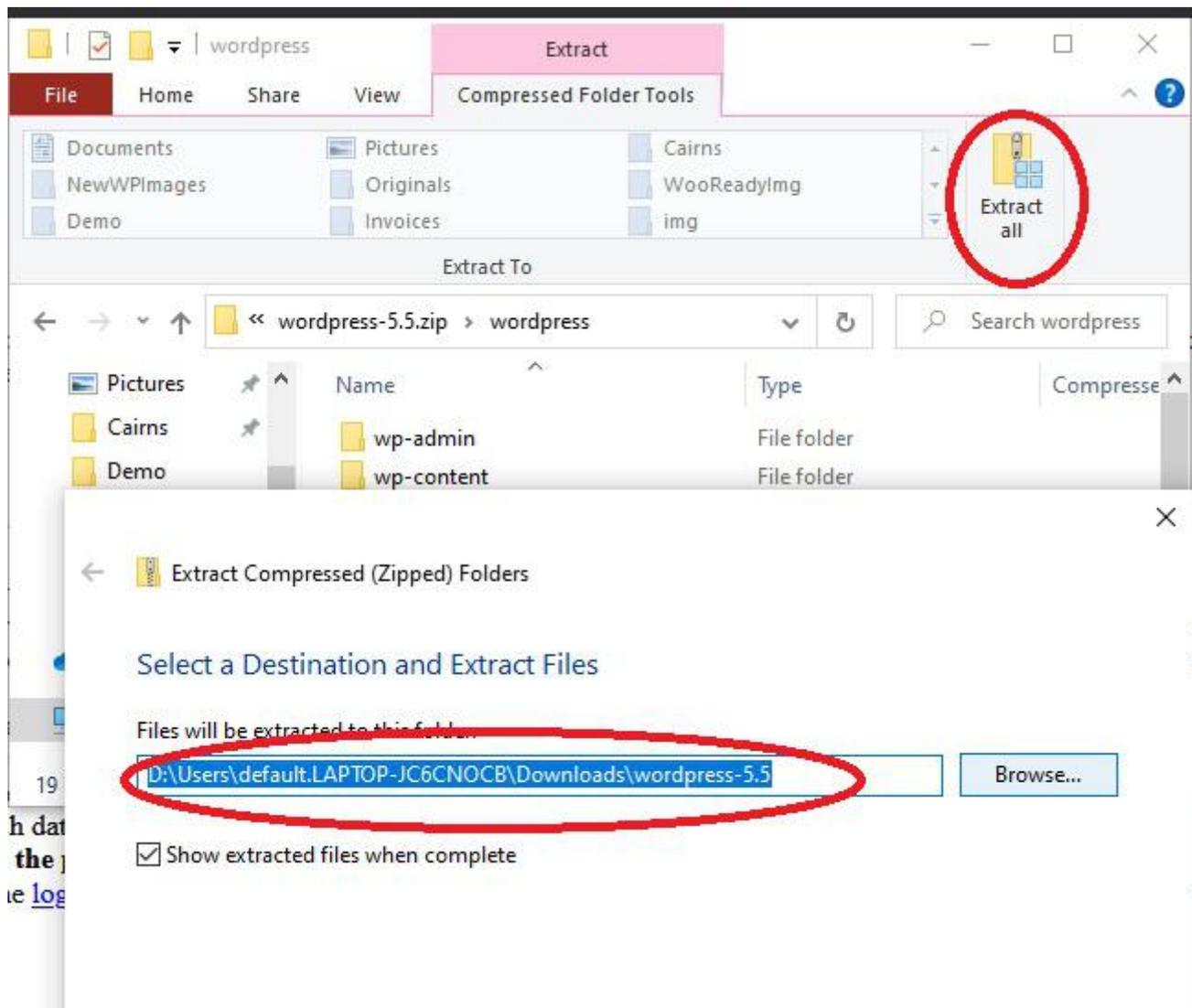
 [Download WordPress 5.5](#)

[Download .tar.gz](#)

- Now we need to find and unzip the download. It should be in your Downloads folder, double click the file to unzip it.

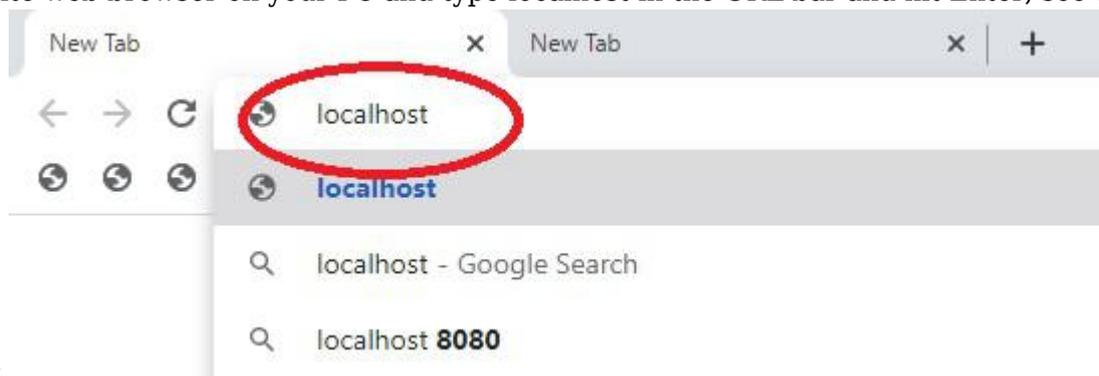


Then select Extract all. This will pop up an input page that asks you to select the destination for the files. Select the Browse button and locate your USB drive followed by xampp and htdocs (htdocs folder is inside the xampp folder) and hit Select. Do not hit Extract yet. Instead I want you to add a backslash then your website name followed by another backslash. E.g. '\Demo\' , so my full path now looks like 'E:\XAMPP\htdocs\Demo\' . Once you have done this hit Extract. This will create a folder and place my WordPress folder in it. See the screenshot below, the Extract all button is circled in red (top right), by hitting this button the Select a Destination and Extract Files pop up is launched. The area circled in red is where the path E:\XAMPP\htdocs\Demo\ was created before selecting the Extract button (located in the bottom right-hand corner, not shown in this screenshot).



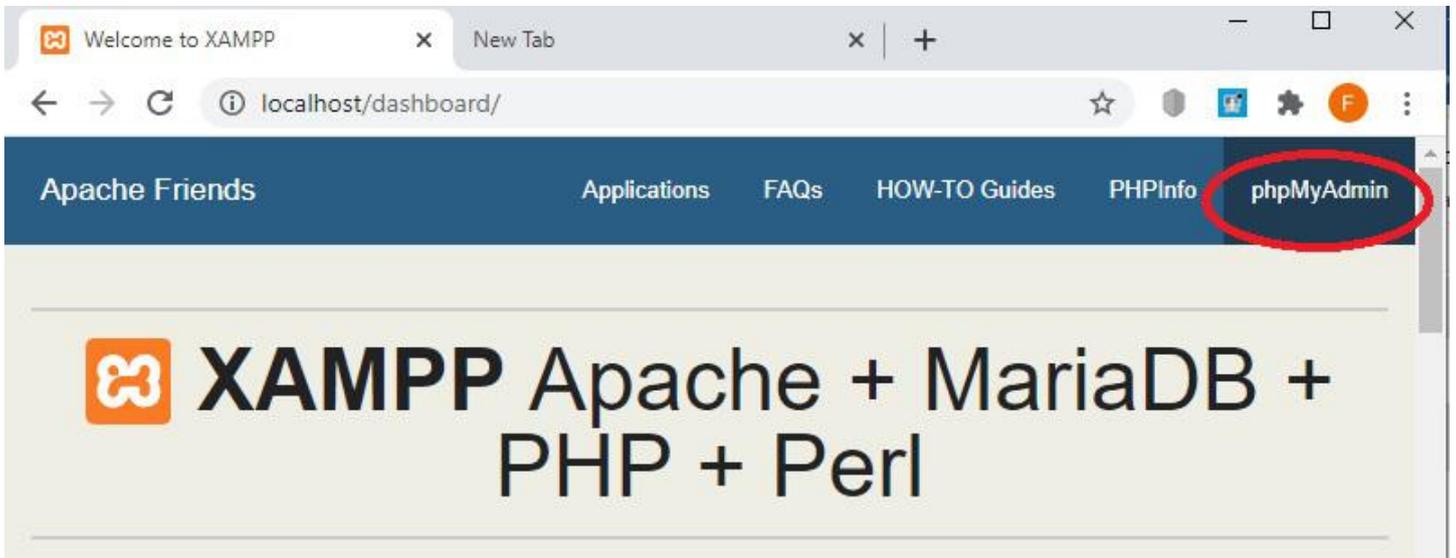
- While WordPress is copying let's open phpMyAdmin and create our database.

Open your favourite web browser on your PC and type localhost in the URL bar and hit Enter, see the

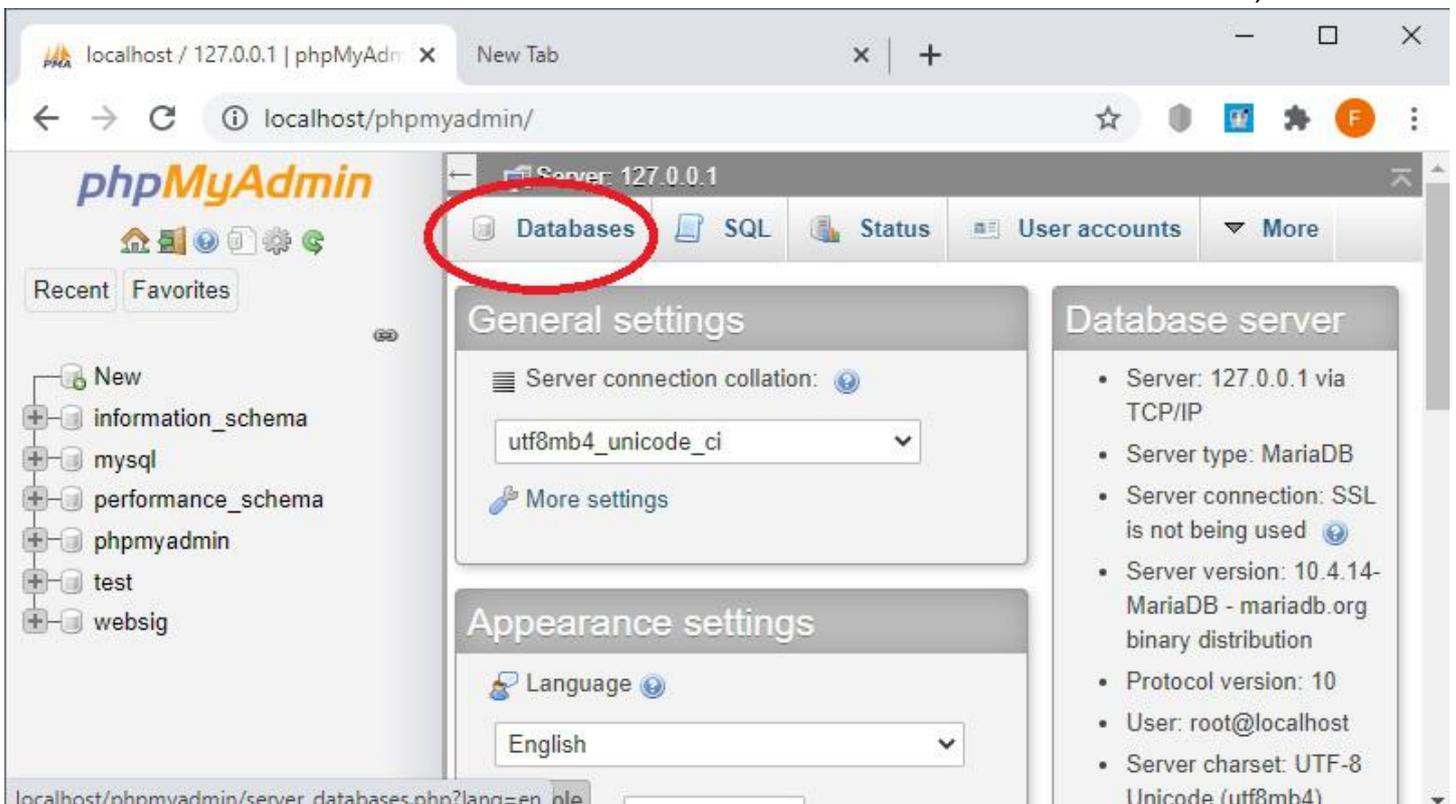


screenshot below.

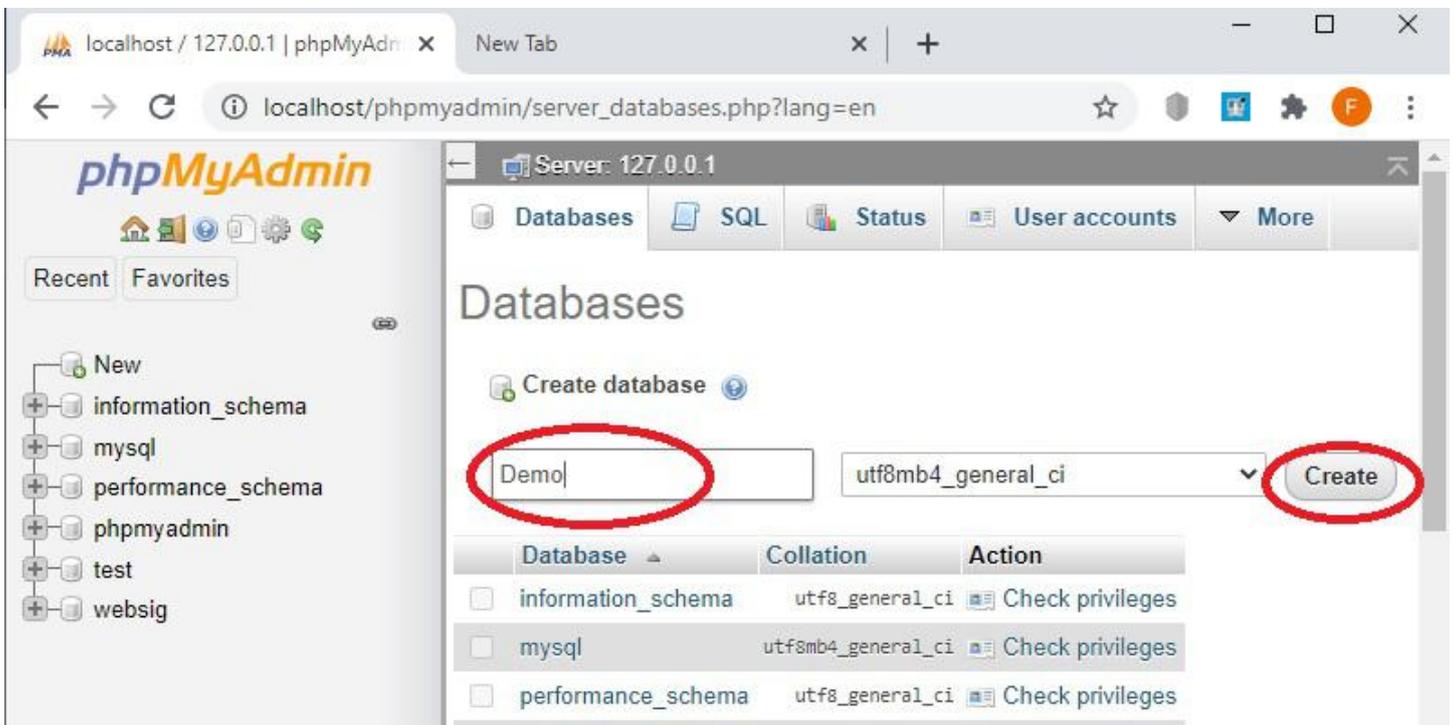
This should open the localhost index page. On the top right-hand side of the page you should see the phpMyAdmin, select it to open phpMyAdmin. See the screenshot below.



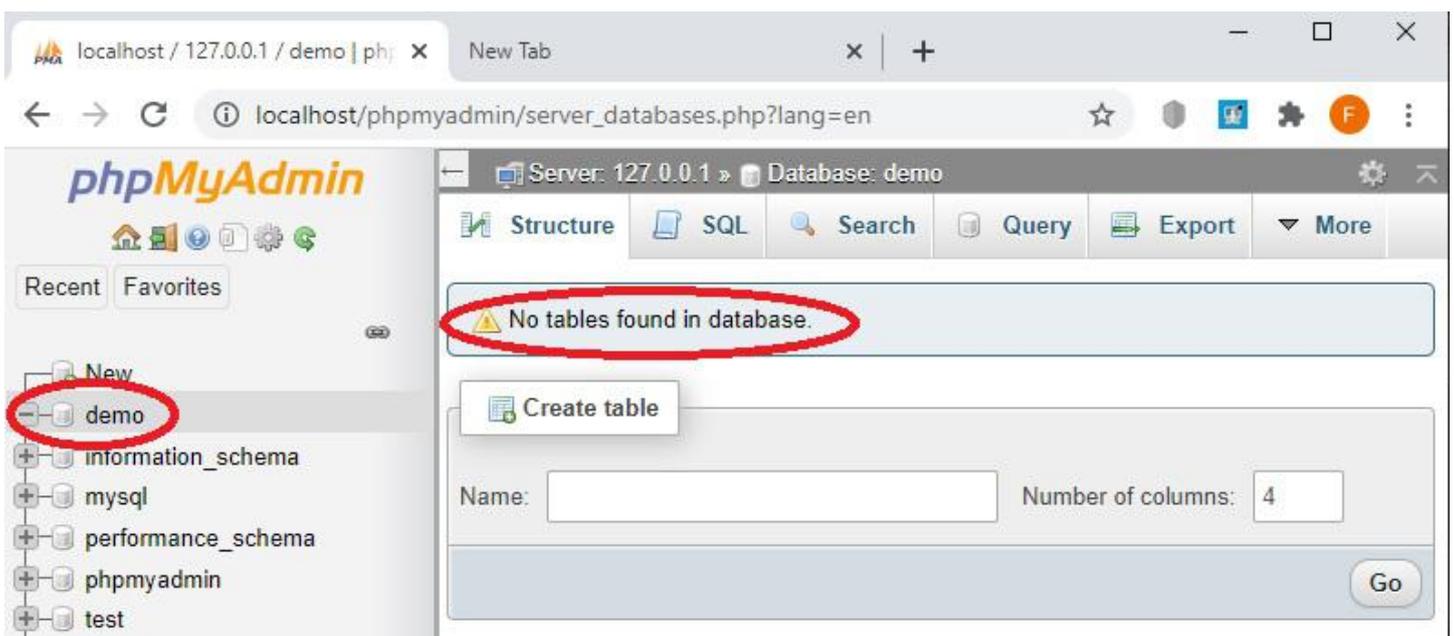
This should open the phpMyAdmin page shown below. PhpMyAdmin is a user interface for MySQL, we want to use it to create a database for WordPress to use. To do this locate the Databases tab, see below.



Enter a name for your database. Please see the picture below (I called my database Demo). Type in your database name, leave the database type as default (mine is utf8mb4_general_ci) and hit the Create button.



If you have successfully created your database you should see your database on the left of your screen and a “No tables found in database” warning. See the screen shot below.

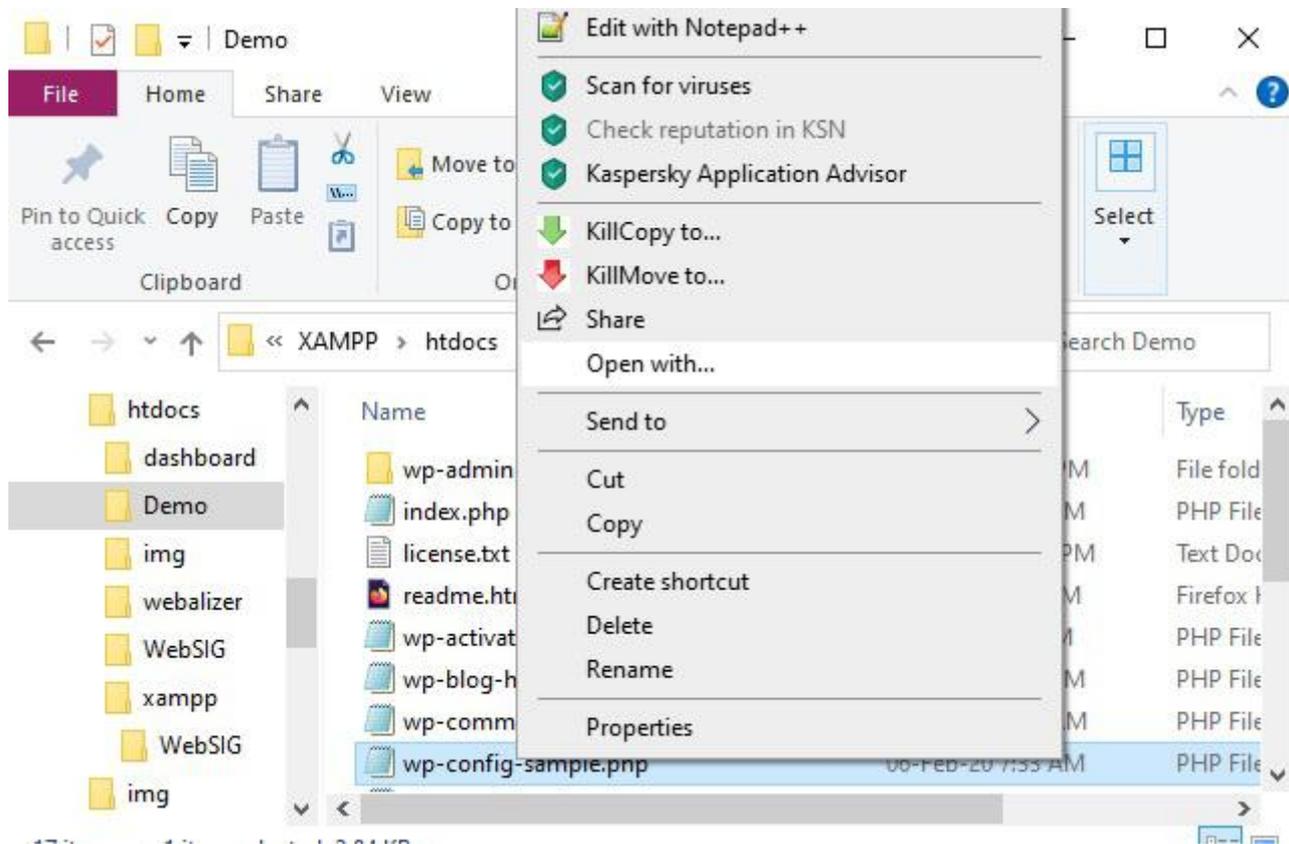


Our WordPress files should have finished extracting by now so navigate to your xampp WordPress files, mine are located at E:/xampp/htdocs/Demo/WordPress, select all of the contents in the WordPress folder then right click on the contents and select cut, now navigate back to your website folder and paste the contents in. Basically, we are removing the WordPress folder by copying its contents directly into our website folder. This will reduce the need to add WordPress in your URL to get to your website later. If we omit this step our website URL will be localhost/Demo/WordPress/ after moving our files one folder up we now have a URL that is shorter which is localhost/Demo/.

- Next, we need to add our login details to our wp-config.php file. If you plan to launch your site/webserver on the Internet you need to create a user and password to ensure your site is secure. This tutorial assumes the webserver will stay offline and as such we will use our defaults values; they are as follows

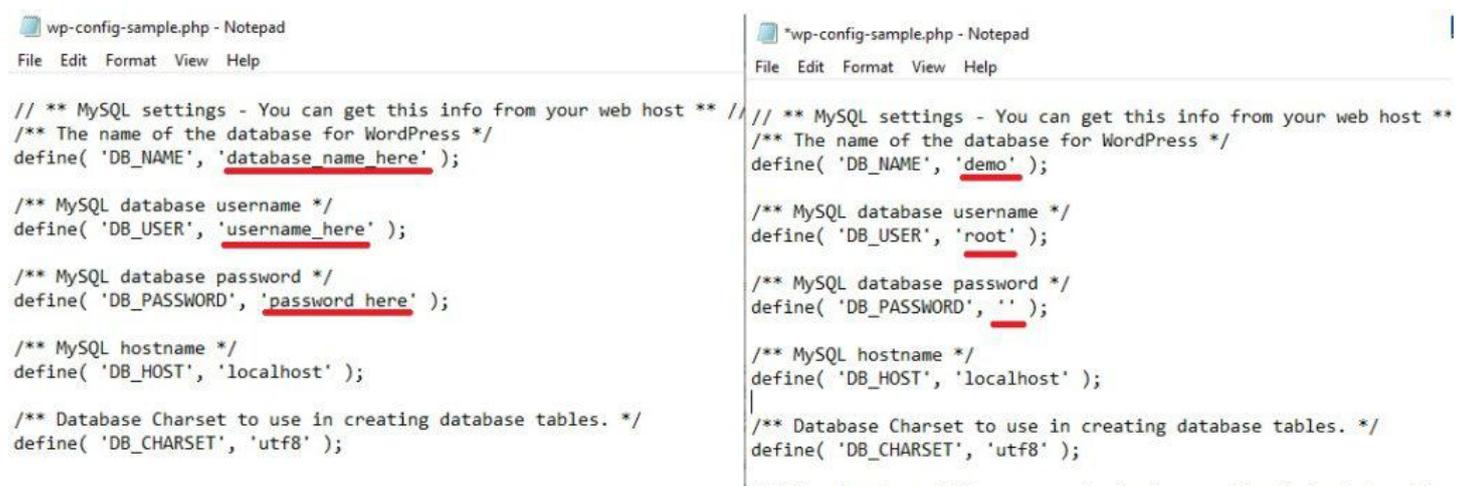
- The name of the database for WordPress; DB_NAME = demo (the name I gave my database)
- MySQL database username; DB_USER = root
- MySQL database password; DB_PASSWORD= (we left it blank)
- MySQL hostname; DB_HOST = localhost

Now that we have our values, we need to open the wp-config-sample.php file, it should be located in the first folder of our WordPress installation.

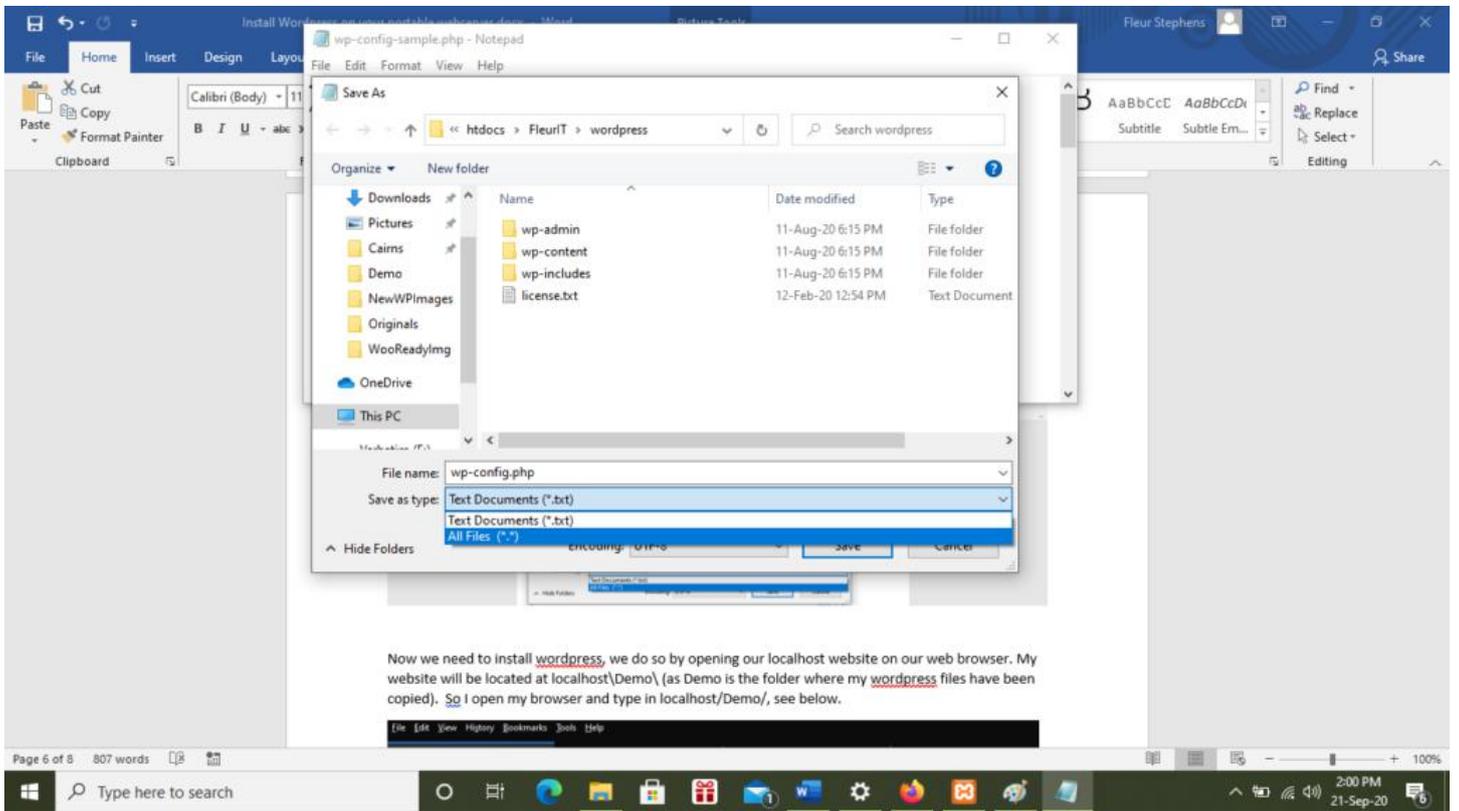


My wp-config-sample.php file is located at E:/Xampp/htdocs/Demo, now that I've found my file I need to right-click, select open with, then select Notepad. Alternatively, I could first open Notepad, by typing notepad in my Windows search bar and opening the file using Notepad.

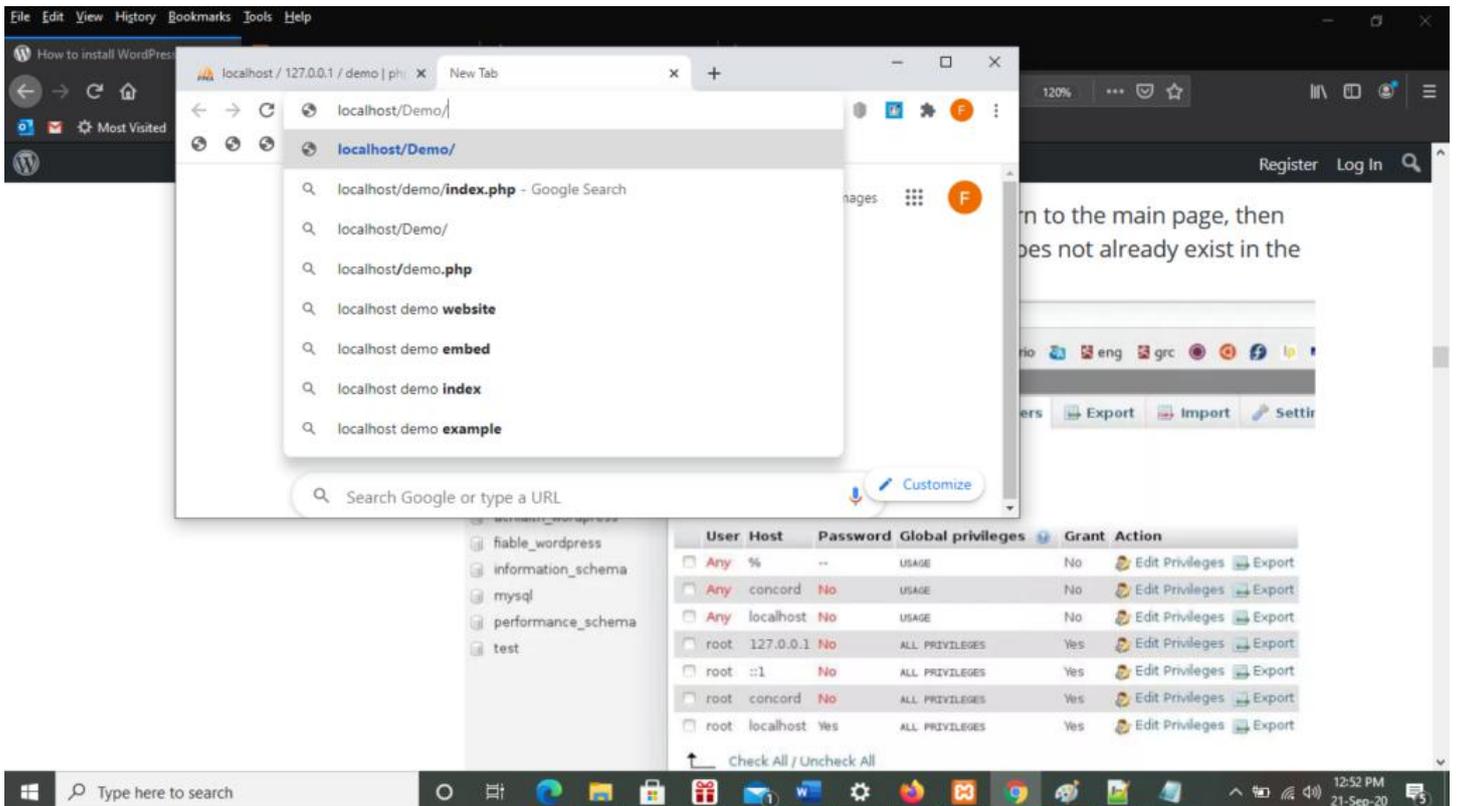
When you have opened your file, scroll down to the MySQL values and add your values. The screen shot below shows your wp-config-sample file values on the left and our new values on the right.



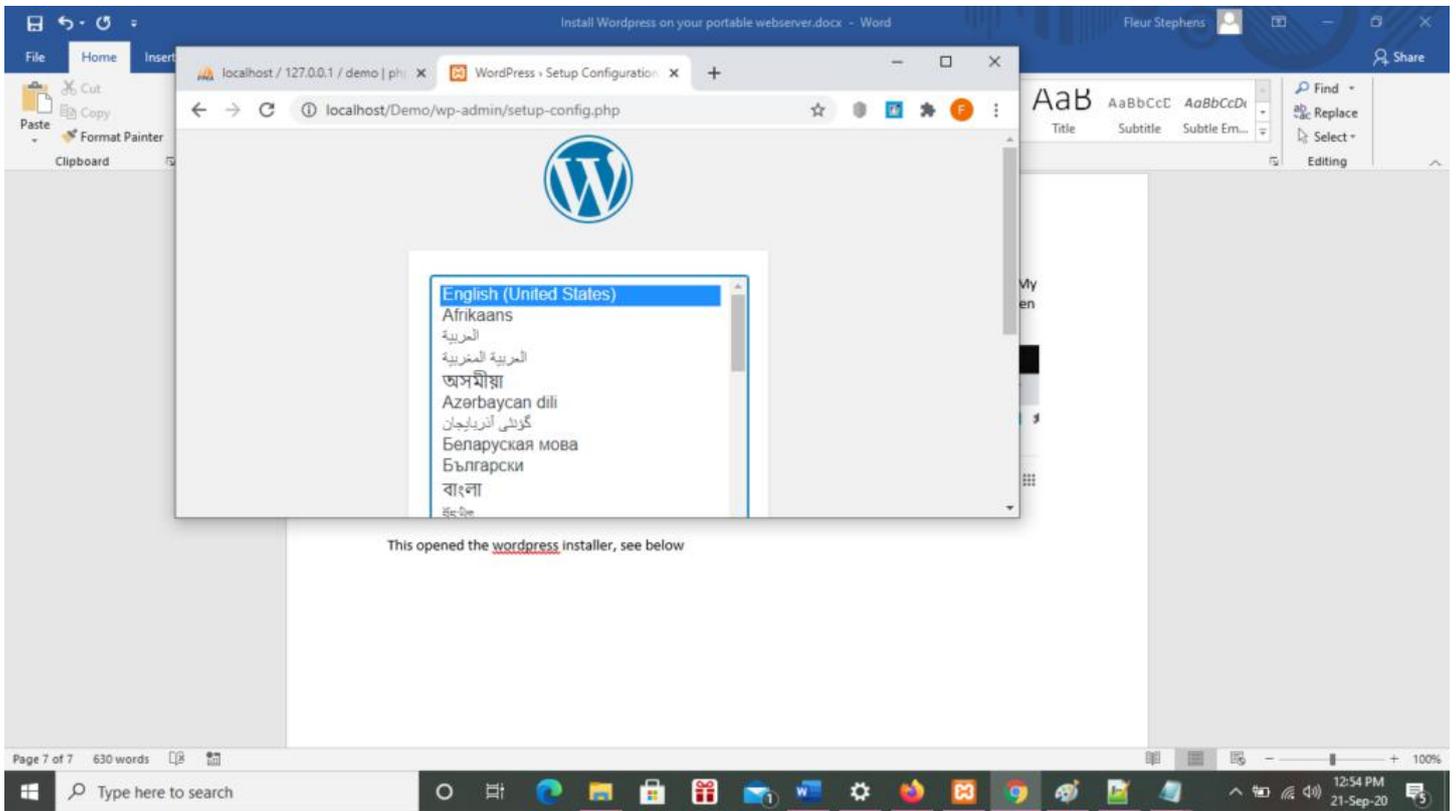
Now save your file as wp-config.php. To save this file as a PHP file, remember to select All Files (*.*) when saving, see the screen shot below. Note, we are saving this file as wp-config, not wp-config-sample.



- Let's install WordPress; we do so by opening our localhost website on our web browser. My website will be located at localhost\Demo\ (as Demo is the folder where my WordPress files have been copied). So, I open my web browser and type in localhost/Demo/ in the URL bar, see below.



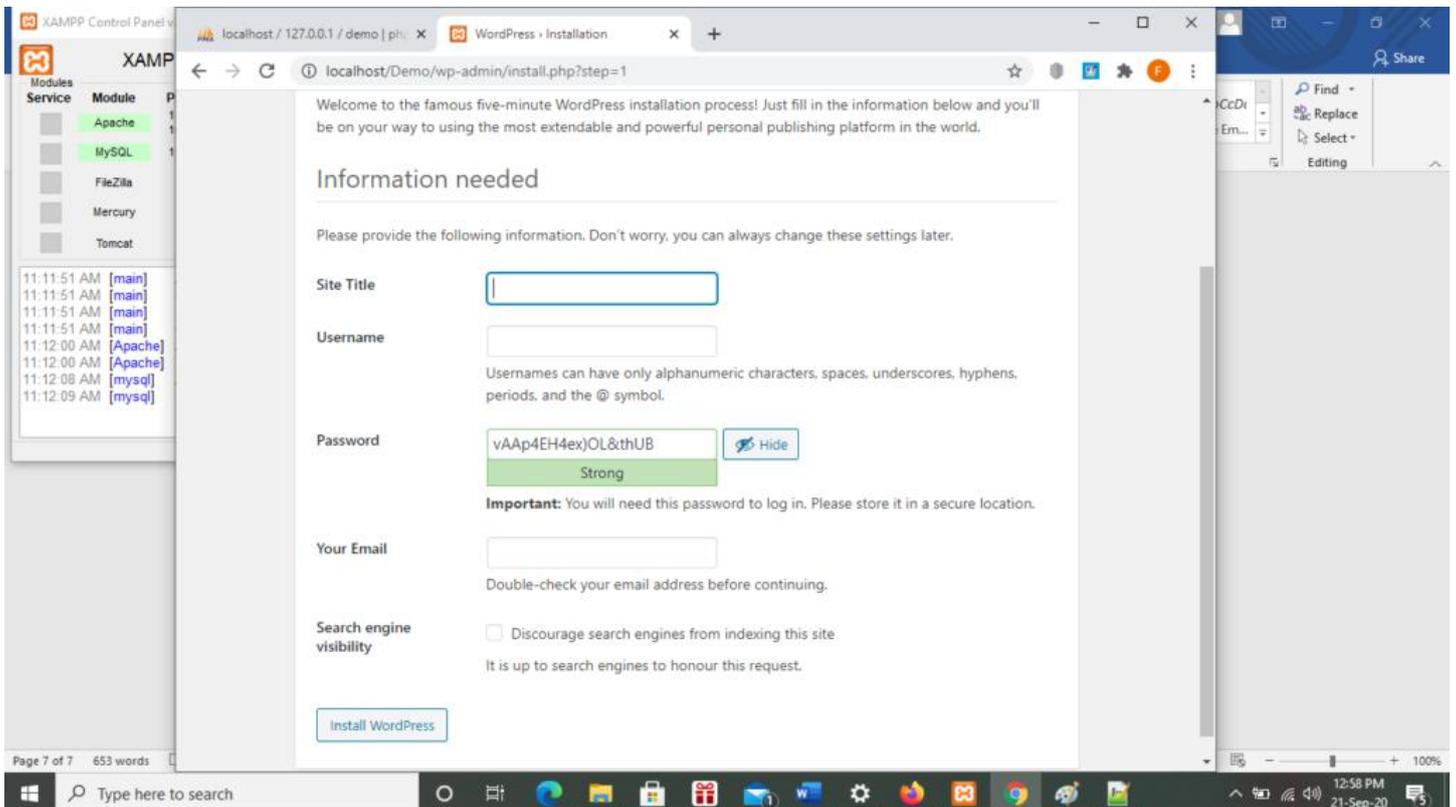
This opened the WordPress installer, see below:



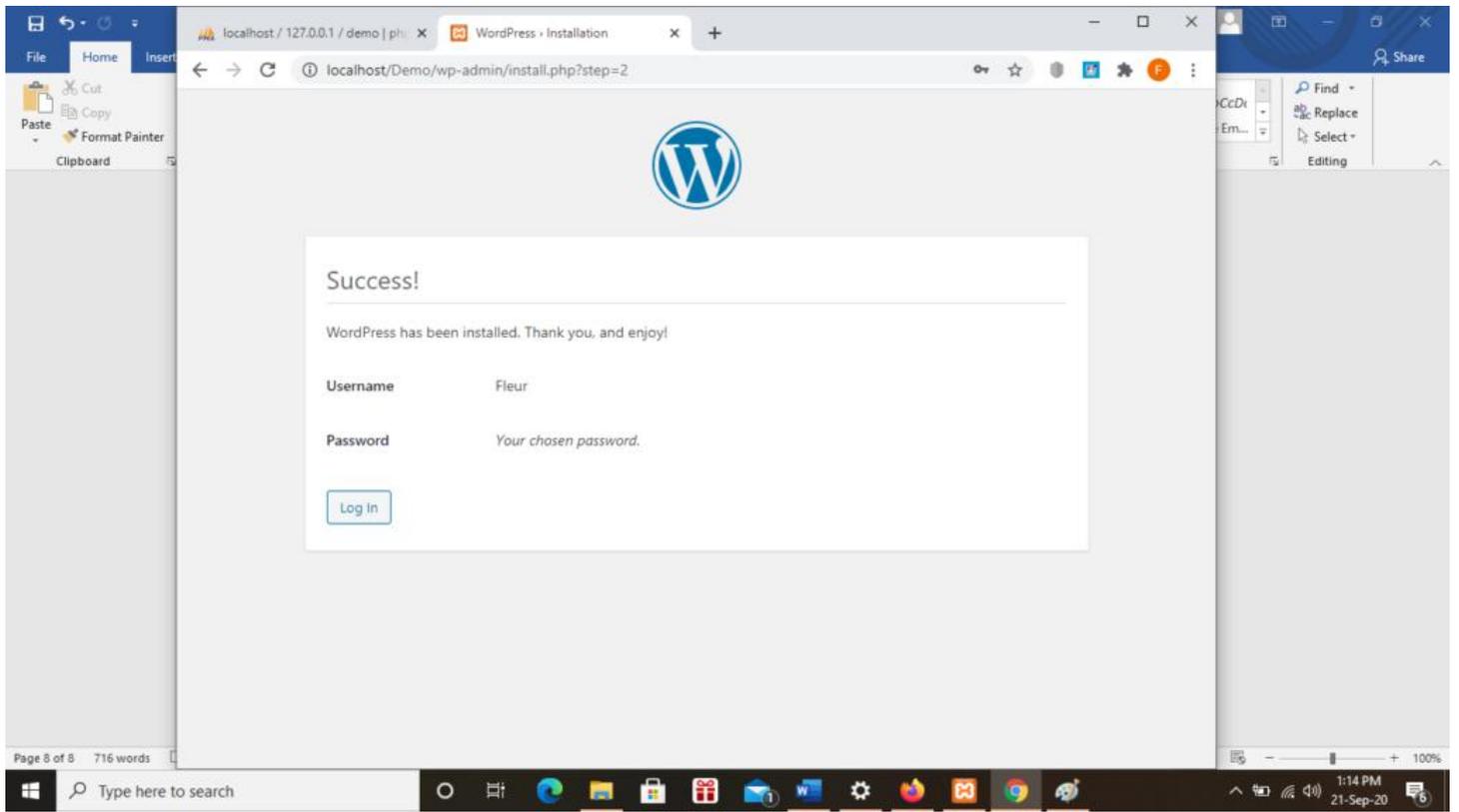
From here I select my language, followed by Continue. This opens the next screen that asks me for the Site Title (website name), Username, Password and Email Address. I have given my website, Demo, as its site title, Fleur as my username (this is the username I will use to log into my WordPress site), a password and my email address. I have opted to leave Search engine visibility unchecked.

Don't forget to record your username and password for the site.

See the screenshot below.



Finally, hit the Install WordPress button, to complete the installation. If things have gone according to plan you should see the screen below. Hit the Log In button to launch WordPress.



Your Favourite Linux Apps

Hugh Macdonald

Two issues ago I detailed my switch to using a Linux distribution on some of my computers and a good number of other members also shared their Linux stories, and the reason they use the various distributions that they do. As was outlined in these articles, one advantage of Linux over Windows is the 'out of box' experience you get when you install your chosen distribution. Rather than having to find a lot of applications to get up and running with, they are included by default. Things like an office suite, PDF viewer, and image manipulation program are all quite often there waiting for you to use in addition to the standard things that even Windows provides like a web browser and email client.

But I was curious to know from the members who were long-standing Linux citizens about what else they used on a regular basis. So I once again turned to Yammer, and specifically to the Linux Chat group, to find out.

So here are some of the less common ones that you might not have used on Windows (if you are switching) or Linux and you might want to explore these further over the holidays:

Midnight Commander - a brilliant dual-pane file manager with full copy, move and edit facilities. And if the worst happens and you can't get into graphics mode, mc is still available to fix your problem because it runs in the terminal.

Evince - if your distribution doesn't have a built in PDF viewer then this is a good choice. It also handles other types of documents as well.

Xsane - a handy utility for scanning documents.

Fwbackups - a full featured backup program for keeping your system secure.

Catfish - a very useful file search tool. If you've come from Windows, it's a bit like Everything.

Skrooge - a personal finance management program.

Calibre - Ebook management software. It imports lots of different formats, allows you to catalogue them and they can be exported in other formats such as EPUB and PDF.

There are quite a number of applications there that might be useful to members. Remember that if you are coming from Windows, you don't have to go searching for these applications, you can generally find them in the software store of your distribution and install them with one click. While you're in the software store looking for these, check out the many categories of different apps that you can install on your chosen Linux distribution.

Thanks to Dennis Parsons, Roger Brown, Neil Barker and Gordon Loughnan for their contributions to this article.

Your Favourite Windows Apps

Hugh Macdonald

I've been paying a lot of attention to Linux of late in the pages of PC Update, but of course the fact remains that the majority of members use Windows as their main operating system. And members love to hear from other members about what applications they're using, in case there is some interesting or useful program that they haven't heard of that might help them to use their computer better. So I also decided to consult Yammer and the Windows 10 group on what their favourite Windows apps were.

I have omitted a lot of run of the mill answers here, in order to save space. Most people know that the major web browsers are Google Chrome, Mozilla Firefox and Microsoft Edge and have chosen their favourite, a lot of members use Mozilla Thunderbird for their email and many members are aware of LibreOffice, which has been previously reviewed in PC Update, and is an excellent free alternative to Microsoft Office.

So in no particular order, I present some of the less common suggestions offered by members in the Windows 10 Yammer group, in the hope you might spot something here that will help you to get more out of your computer:

All of these are free to download and use, unless otherwise noted.

Notepad++ - this is an excellent programmer's text editor. You can edit all sorts of files in it and it colour codes markup and corrects syntax if it is dealing with a familiar language such as HTML.

Macrium Reflect - probably the best way to backup your computer in Windows these days. It takes a full image of your hard drive which you can either restore back to a new drive if your old drive crashes or you can mount in Windows Explorer and restore files from. The Home version is freeware.

TreeSize Free - a handy utility for managing your files and examining your drives, with many more features than are offered in Windows Explorer.

ClipMate - a handy utility that extends the features of the Windows clipboard.

PDFSam - a very handy program for splitting or merging PDF files. Its merging features are actually used in the production of PC Update each month.

Total Commander - an alternative to TreeSize Free above. It has similar features so try them both and see which one you prefer.

CCleaner - probably the best utility for cleaning out the unnecessary files that gather in Windows and slow it down. It can also repair the registry and uninstall programs.

Spotify - If you like to stream your music, Spotify is great if you are prepared to put up with the occasional ad (on the free version).

Gravity - If you are into USENET newsgroups, then Gravity is one of the best choices.

Irfanview - A basic image viewer and editor.

VMWare Player - If you want to run virtual machines such as distributions of Linux from Windows, then this is one of the top choices for doing that.

Audacity - If you are into audio editing, then this is the application that has all the features that you'll

need.

Portable Apps - More of a website (www.portableapps.com) than an actual application but contains versions of a lot of common and popular Windows applications that can either be run from a USB flash drive or simply copied to a directory of your computer and run. Handy if you want to run an application once without installing it, or if you change computers a lot and want to take fully setup applications with you.

All of these applications can be found by doing a search for their name and finding the website to download them from. A lot of them can also be easily installed using www.ninite.com which lets you pick from a list of applications and creates a custom installation program that you download and run which installs them in a batch for you.

Thanks to Stewart Gruneklee, Dave Simpson, Russell Cooper, Ian Mitchell, Nick Downing, Jon Teeuwesen, David McKendry, Phillip Lynch, Shane Mason, Peter Shute, Richard Solly and Graham Swanston for their contributions to this article.

Australian hospitals are under constant cyber attack. The consequences could be deadly

Paul Haskell-Dowland, *Edith Cowan University*

Last week, the Australian Cyber Security Centre (ACSC) issued warnings to Australian health-care providers that it had observed an increase in cyber incidents targeting the sector.

These attacks seem to be aimed at infiltrating networks and burrowing deep into their infrastructure before deploying further attacks.

The ACSC is tasked with improving Australia's cyber security posture, and provides advice and support to help ensure Australia is a secure place to live and work. As part of its warning, the ACSC flagged the possibility of "ransomware" being deployed, which could disable critical systems unless a ransom is paid. In a hospital or other health-care facility, this could be a life-threatening situation.

Attacks against the health-care sector are dangerous at any time. But when services are under pressure from COVID-19, and information-sharing (including tools such as contact tracing) is increasingly important, an all-out cyber attack against the health sector could be very damaging.

The current threat

The ACSC guidance identifies two significant threats.

The first is the SDBBot Remote Access Tool (often referred to as a RAT), whereas the second is a ransomware tool named Cl0p. While neither is desirable, the combination of the two is particularly concerning in a health-care setting.

SDBBot Remote Access Tool (RAT)

A RAT is a piece of malicious software designed to allow criminals to remotely access and control one or more systems in an organisation. Once run, the SDBBot RAT installs itself, downloads additional components and deploys the remote-access capability.

Once fully installed, criminals will often use a compromised computer to explore other systems - a technique often referred to as "pivoting". As the criminals move through the network, they often take the opportunity to make copies of sensitive data. This can be a valuable asset to use for coercion, blackmail or even sell through the underground economy.

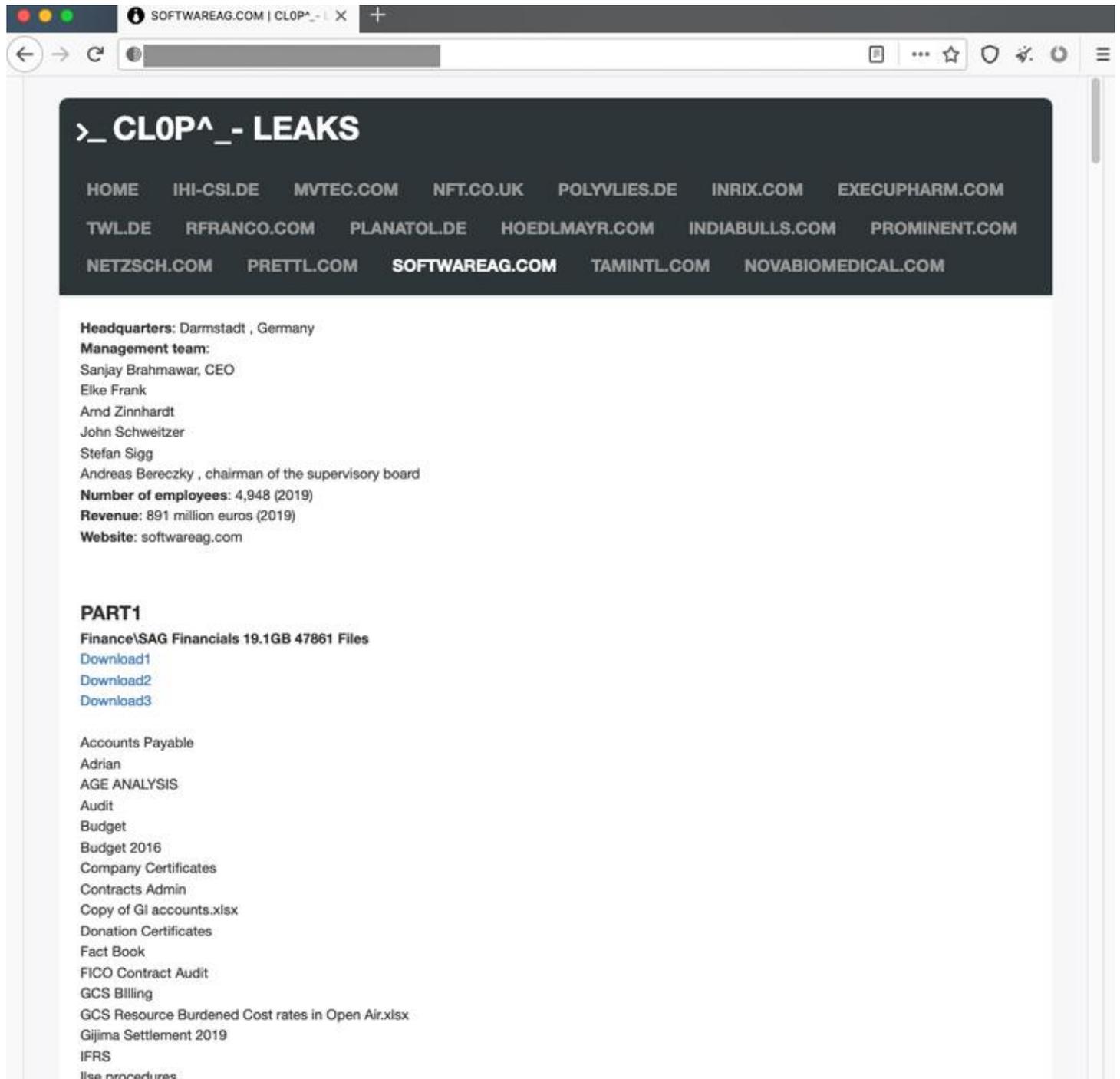
Cl0p ransomware

Having the SDBBot RAT successfully deployed enables other attacks - one of the most concerning is that of ransomware. While not an inherent feature of SDBBot, a frequent consequence of infection is the subsequent deployment of the Cl0p ransomware.

Ransomware generally encrypts an organisation's files or data so they are no longer accessible. Recovering the files typically involves paying a ransom, often in Bitcoin or another cryptocurrency.

In October, German company Software AG faced a US\$20 million ransom demand after a Cl0p ransomware attack. In this incident, the criminals claimed to have more than a terabyte of stolen data,

including emails, financial records and even scanned copies of passports. This data trove was published online when the company failed to pay the ransom.

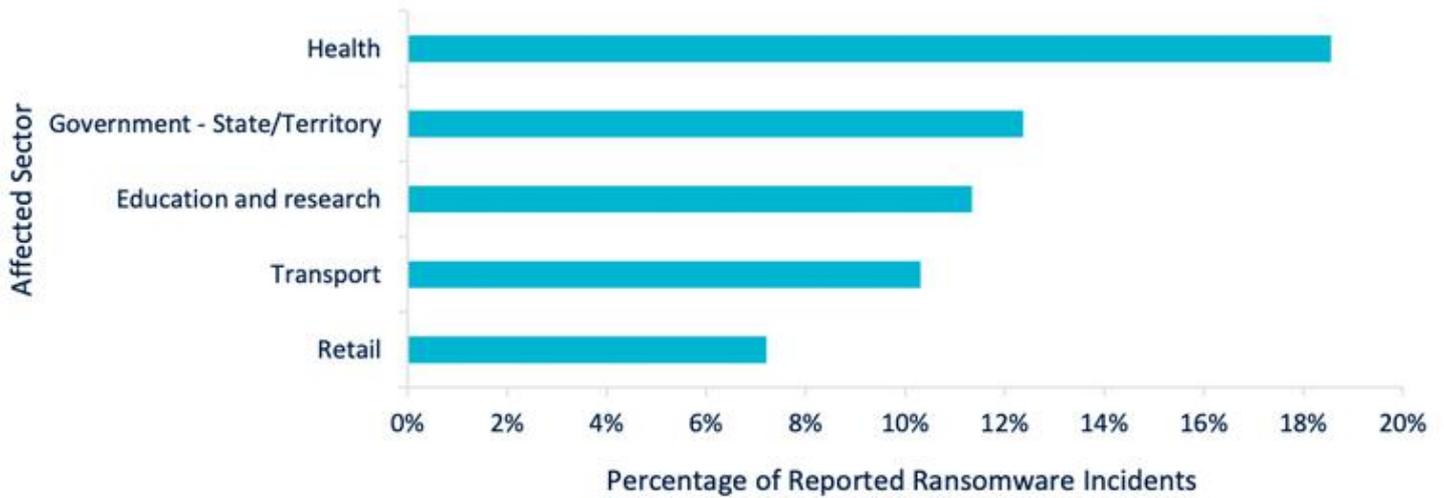


Screenshot of Cl0p Leaks website showing Software AG financial data available for public download (taken from dark web site).

This is an example of an increasingly common tactic referred to as “double extortion”, in which not only is data stolen and held to ransom, but there is the added threat the data will be posted in public or auctioned to interested parties. The threat of public exposure of the breach, coupled with the potential release of confidential data, can often encourage organisations to pay the ransom.

Potential consequences

A recent ACSC report on ransomware in Australia identified the health-care sector as the most targeted, by a significant margin. This is perhaps not surprising, given the sector’s lack of training, lax security practices and chronic underinvestment in technology and digital infrastructure.



ACSC report on impacted sectors for reported ransomware incidents - October 2020.

ACSC

Health-care providers face two significant consequences of cyber compromise. First, personal or sensitive data are valuable to criminals. Having such data leaked online is embarrassing and has significant legal implications for the organisation and the government.

A second, more serious, consequence can be seen when a ransomware attack impacts critical systems. The most notable example in recent years was the Wannacry attack in 2017 that targeted the UK National Health Service, among others.

The NHS suffered a major outage over several days following the Wannacry ransomware attack, resulting in thousands of operations and appointments being cancelled. Wannacry was estimated to have cost billions of dollars globally, with the UK NHS spending close to US\$100 million to recover and strengthen its cyber defences.



Screenshot of Wannacry ransom demand.

Wikimedia

A ransomware incident earlier this year in Germany had deadly results. When ransomware crippled a hospital in Dusseldorf, an emergency patient was sent to another facility instead. She died, and her death has been attributed to the delay in treatment.

Australia has had similar incidents in the past. Last year saw seven hospitals affected by a ransomware attack.

Should we be worried?

Cyber attacks are a constant threat, and most organisations are well aware of the risks to their business operations, intellectual property, sensitive data and reputation.

But in the health-care sector the stakes are higher. Losing data can cost lives, and patient records being stolen is a breach of privacy that can have long-lasting effects for the patient.

With systems intertwined and dependent on each other, just one compromised target can have major implications.

Interestingly, the ClOp Leaks website (only available on the dark web through the TOR web browser) features the following reassuring statement in relation to hospitals - perhaps showing an ethical streak to the criminal group.

ATTENTION!!!

We have never attacked hospitals, orphanages, nursing homes, charitable foundations, and we will not.

Commercial pharmaceutical organizations are not eligible for this list;

they are the only ones who benefit from the current pandemic.

If an attack mistakenly occurs on one of the foregoing organizations, we will provide the decryptor for free, apologize and help fix the vulnerabilities.

Cl0p Leaks screenshot (taken from Dark Web site)

Cyber criminals are usually motivated by profit. Ransomware attacks work because individuals within organisations make mistakes. When combined, there is a strong motivation for criminals to continue these actions and for organisations (and us) to continue to pay to clean up the mess that's left behind.

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

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From Hobart, to London, to Dhaka: using cameras and AI to build an automatic litter detection system

Arianna Olivelli, CSIRO and Uwe Rosebrock, CSIRO

It's estimated about two million tonnes of plastics enter the oceans from rivers each year. But our waterways aren't just conveyor belts transporting land waste to the oceans: they also capture and retain litter.

Currently, the most common method for monitoring litter relies on humans conducting on-ground visual counts. This process is labour-intensive and makes it difficult to monitor many locations simultaneously or over extended periods.

As part of CSIRO's research to end plastic waste, we've been developing an efficient and scalable environmental monitoring system using artificial intelligence (AI).

The system, which is part of a larger pilot with the City of Hobart, uses AI-based image recognition to track litter in waterways.

Global insights help build a reliable model

The technology is underpinned by two branches of AI: computer vision and deep learning. Computer vision involves training computers to understand and interpret images and videos, whereas deep learning imitates how our brains process data.

Drawing on these capabilities, we worked in partnership with Microsoft (using its Azure cloud computing services) to develop an automated system for monitoring river litter.

We have been detecting and classifying items floating on the surface of Hobart's stormwater channels, the River Thames in the UK and the Buriganga River in Bangladesh.

We've remotely analysed the amount of litter, the type of litter and how this changes across locations.



CSIRO research scientist Chris Wilcox setting up a fixed camera to monitor litter in Hobart.

Major damage from food packaging and bottles

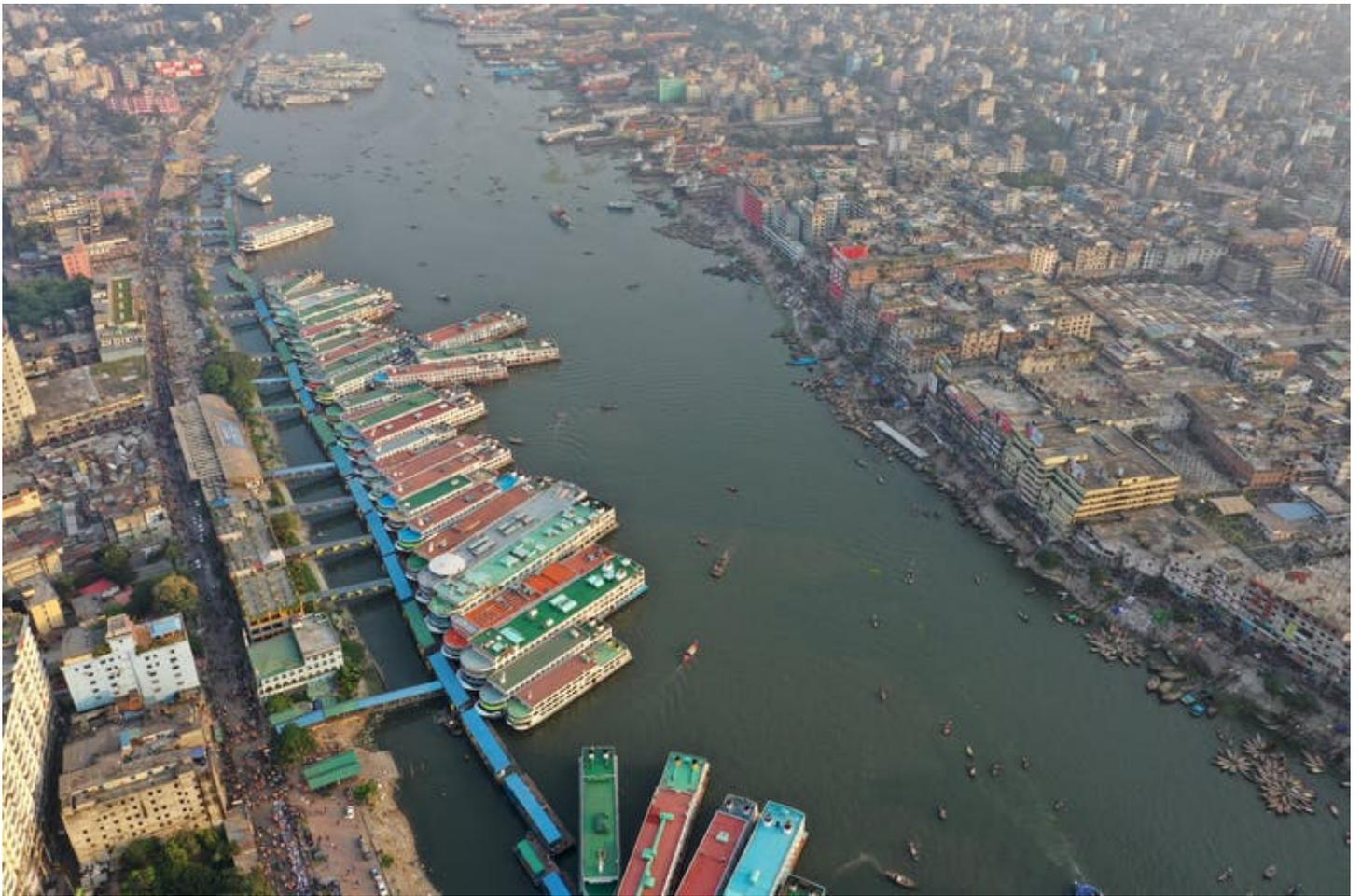
Our work relies heavily on two applications of computer vision. These are “object detection” and “image classification”.

Object detection specifies the location of a particular object in an image and assigns it a label. Image classification assigns one or more labels to the image as a whole.

Before either of these models can be applied reliably, however, they have to be trained, tested and validated using a large number of labelled images. For this, we drew from our footage of river litter collected from Hobart, London and Dhaka.

Our dataset now contains more than 6,100 images with 14,500 individual items. The items are labelled across more than 30 categories including plastic bottles, packaging, beverage cans, paper and plastic cups.

Our data revealed food packaging, beverage bottles and cups were by far the most frequently spotted litter items across all three countries.



The Buriganga river flows by Dhaka. It's one of Bangladesh's most polluted rivers due to the ongoing dumping of industrial waste (such as from leather tanneries) and human waste.
Shutterstock

Fake images aren't always harmful

To build a well-performing machine learning model, we needed a balanced set of training images featuring all item categories — even if certain categories are more frequent in real life.

Introducing synthetic (computer generated) images to our dataset was a game changer.

These images were generated by Microsoft's synthetics team based in Seattle. They rendered various objects and superimposed them over backgrounds obtained from our field photos.

Once the digital objects were created, the superimposition process was automatic. Thus, the team managed to produce thousands of synthetic pictures over just a few weeks, rapidly expanding our training dataset.



In this synthetic image, the transparent cup, face mask and aerosol container are digital renderings superimposed over an original photo taken by one of our cameras.

How are objects identified?

There are a few steps by which our system identifies litter objects in photos. First, the photos are all scored against a single-label (“trash”) object detector. This identifies items of litter in the frame and stores their coordinates as annotations.

These coordinates are then used to isolate the items and score them against an image classifier which includes all the litter categories.

Finally, the model presents the category it thinks the item most likely belongs to, along with a suggested probability for how accurate this guess is.



Here's an example of the system detecting a water bottle and packaging as trash, and then placing both items into their respective categories. Probabilities are provided for the likely accuracy of the system's guess regarding an item's classification.

An AI-driven approach to litter management allows a quicker response than a manual system. But when it comes to litter, the major challenge lies in creating a model that can account for millions of different shapes, colours and sizes.

We wanted to build a flexible model that could be transferred to new locations and across different river settings, including smaller streams (such as Hobart's stormwater system) and large urban rivers (such as the River Thames or the Buriganga River).

This way, rather than building new models for each location, we only have to deploy more cameras. Data retrieved could help identify litter hot spots, implement better waste-related policies and improve waste management methods to make them safer, smarter and relatively cheaper.

Keeping an eye on Hobart's litter

We've also been collaborating with the City of Hobart to develop an autonomous sensor network to monitor gross pollutant traps, such as floating barriers or litter socks.

These structures, integrated into Hobart's stormwater drainage system, are supposed to prevent solid waste such as cans, bottles, tree branches and leaves from reaching the estuary and ocean.

We currently have a network of sensors and six cameras installed under bridges tracking litter in the traps. The system can inform an operator when a trap requires emptying, or other maintenance.

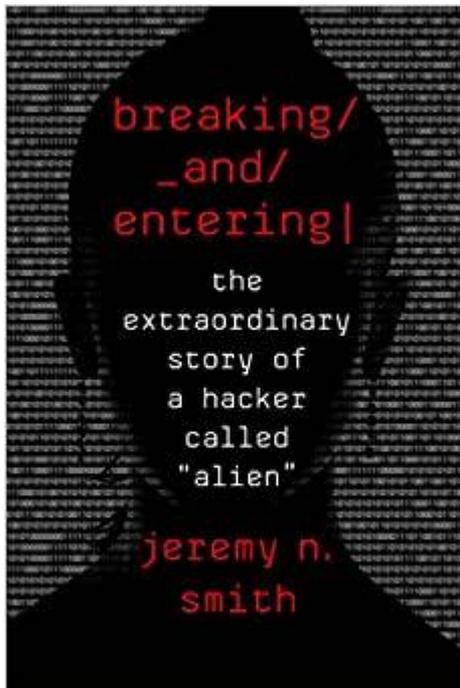
Once in full use, the technology will provide almost real-time monitoring of litter around Hobart — assisting efforts to reduce environmental harm caused by stagnant, and potentially hazardous, waste lost to the environment.

Arianna Olivelli, Research Affiliate, *CSIRO* and Uwe Rosebrock, Senior Software Engineer, *CSIRO*

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Book Review

Tim McQueen



Breaking & Entering

The extraordinary story of a hacker called 'Alien'

Jeremy N Smith

Scribe 2019, 292 Pages.

Here's a book on computing that can make one feel old. Smith outlines the career of 'Alien'; a username selected when she started at MIT in 1998. Her early hacking consisted of invading 'off limits' areas of the MIT campus. After the death of a boyfriend from a drug overdose Alien slowly became interested in computer hacking. She combined her computing skills with her breaking and entering talents to find security problems in banks, hospitals and defence organisations. Alien eventually ran her own successful company.

This is quite an entertaining read. Smith covers the methodology of 'white hat' hacking without disclosing details.

East SIG Report November 2020

Neil Muller

Host Paul Woolard opened East SIG's November virtual meeting again via Zoom. The meeting then commenced with **George Skarbek** presenting Q&A.

Q. As a consequence of the changeover from Office365 to G-Suite, I'm not receiving all the MelbPC emails being sent to me. It appears that some of my emails are being bounced back to the sender. The sender receives the message "Your message to xxxxxx@melbpc.org.au couldn't be delivered. Security or policy settings at melbpc.org.au have rejected your message."

As a result of the sender received this warning, I've been deleted from important mailing lists and in one case a sender phoning to see if I was still alive. I've followed the discussion on this issue in Yammer and it appears it's a significant problem that others are also experiencing and is not yet solved.

A [Group discussion] Others at the meeting joined in commenting they had also experienced the same problem. Some members, who were unaware of the problem till hearing this question, were extremely concerned that they may also be missing important emails. One member commented "You don't know who might have sent you emails, so it's possible there's been important emails that have been missed. This is very concerning to me".

[Answer from the floor] During the transition to G-suite, all emails are still arriving in Office365 outlook and are then forwarded to Gmail. Throughout the transition process when checking your email, use the nine dot menu top left of Outlook to check your email from the old system, as all emails should still be there.

[George] I know of a number of MelbPC members whose only involvement with the club is for the MelbPC email address. If the club lose those members it would be significant loss to the club.

[General consensus] It was recommended that as the president is part of the transition team, he write to all MelbPC members alerting them to the problem". Bill Ford agreed to advise the president of this recommendation.

[John Swale] When sending emails, do not send emails from Outlook as they won't be forwarded across to Gmail. Also look at the spam folder in Outlook, because if there's any email identified as spam it won't be sent to the inbox. If there's any email in the spam folder you wish to keep, move it across to the inbox and it will then go across to Gmail.

Further discussion ensued at the conclusion of the meeting that helped explain the email problems being experienced. All mail is still coming into the Office365 server and is then forwarded to the Gmail server. It appears that the mail that is not being passed to the Gmail server is tagged as spam and not forwarded on. The problem first appeared on 5th November and the Transition Team has been very actively investigating the cause since then. All these issues will vanish when all MelbPC accounts are transitioned and the O365 server is turned off giving pure Gmail access.

Q. I'm using the BOM (Bureau of Meteorology) widget on my mobile phone and as of today it's stopped working. Does anyone know whether the app has stopped working or should I be looking at a problem with my phone?

A. [John Hall] On my phone the BOM site is working but shows there's a new version of the app required. When the BOM app was updated later in the evening, the questioner found the BOM site started working again.

Q. I've received emails from one particular friend that contain pictures. When I forward these emails on, the pictures disappear leaving a blank square box where the pictures were. Can you explain why I can't forward those embedded pictures within emails?

A. Most likely the originating email was sent in plain text mode. You will need to change the format from text to html to be able to send on the pictures as you received them.

To determine whether an email is in text mode, try changing the text to Bold. If you can't change the text to bold, that indicates the original email is in plain text. Any reply or forwarding of that email will also be in plain text. Change to html to overcome this.

Q. I'm still using Outlook from Office 2010 which contains years of emails that I don't want to lose. Am I likely to have trouble received emails into Outlook from G-suite after the transition?

A. [John Hall] I think you might run into trouble. I've seen posts on Yammer that Google has imposed some restrictions on what mail clients they will receive from after a certain date. You should notify someone in the Transition Team before you're transferred over, as you may need special assistance.

[Paul Woolard] All your old emails are stored in a .pst file, so you'll still be able to go back and read them after the transition.

The next presentation of the night was on "Zoom Polls" by **Dave Botherway**. Running polls is one of the newer features to be added to Zoom, but is only available to those using a licenced version. Polls can only be conducted by the meetings host or co-host. However when testing this feature, Dave found only the initiator of the poll could run it. Polls can be created in advanced or during a meeting, with Dave demonstrating both options.

Before a poll can be conducted, the Polls feature has to be enabled in the "Account Settings" menu. The "Polls" icon (Figure 1) will then be visible on the host's toolbar.

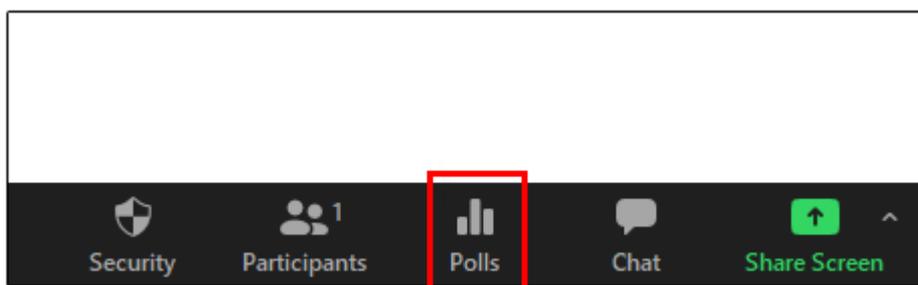


Figure 1 - Polls icon

Before a poll can be created a meeting has to be scheduled first. At the bottom of the "Schedule a New Meeting" page is an icon titled "Add". Besides the icon is the following text, "You have not yet created any poll yet". When you select the "Add" icon to create a poll, the window shown in Figure 2 opens. This window is where you enter the title for the poll and questions. If you want answers to the poll to be anonymous place a tick in the checkbox, next enter the first poll question and then select whether the poll is single or multiple choice. Finally you add answers to the poll question. More questions can be added by selecting the "Add a Question" at the bottom of the window. When finished select "Save" (Figure 2).

When a presentation requires multiple polls, the polls can be made and saved pre meeting or prepared on

the fly. Once the meeting has commenced the “Polls” icon is displayed on the Zoom toolbar of the host’s computer (Figure 1). Audience members will not see the “Polls” icon on their toolbar. To run a poll during a meeting, the host selects the “Polls” icon. If multiple polls have been saved for the meeting, a popup appears where the host selects either “Add a Poll” or “Select a Poll”. When clicking on “Select a Poll”, the host highlights the poll he wishes to run and then clicks “Launch a Poll”.

To illustrate how a poll is created Dave selected “Add a Poll” and created a simple but rather topical Poll titled “TrumpMania”. This poll was created on the fly and is shown in Figure 2 below.

Add a Poll



TrumpMania

Anonymous?

1.

Should Trump concede now ?

Single Choice Multiple Choice

Yes

No

Dont Care

246

Answer 4 (Optional)

Answer 5 (Optional)

Answer 6 (Optional)

Answer 7 (Optional)

Answer 8 (Optional)

Answer 9 (Optional)

Answer 10 (Optional)

Delete

[+ Add a Question](#)

Save

Cancel

Figure 2 - "Add a Poll" Window

After entering data into the required fields, Dave saved the "TrumpMania" poll. He then selected "Launch Polling" for audience members to complete. The creation of this poll took less than 30 seconds illustrating how simple the process of polling is. During polling, the host (and any co-hosts) cannot vote, but instead see the progress window shown in Figure 3. The "in Progress" window depicted shows that polling is currently being viewed by attendees, has been running for 8 seconds and 12 of the 42 attendees have currently voted. When Dave felt there were no more answers forthcoming, he stops the poll by selecting the "End Polling" icon. The results of the poll were then be shared with the audience.

Following the "TrumpMania" poll demonstration, Dave conducted 3 more polls, all of which were prepared pre-meeting. The results for one of those polls, a multiple choice question "What web browser do you regularly use?" is shown in Figure 4.

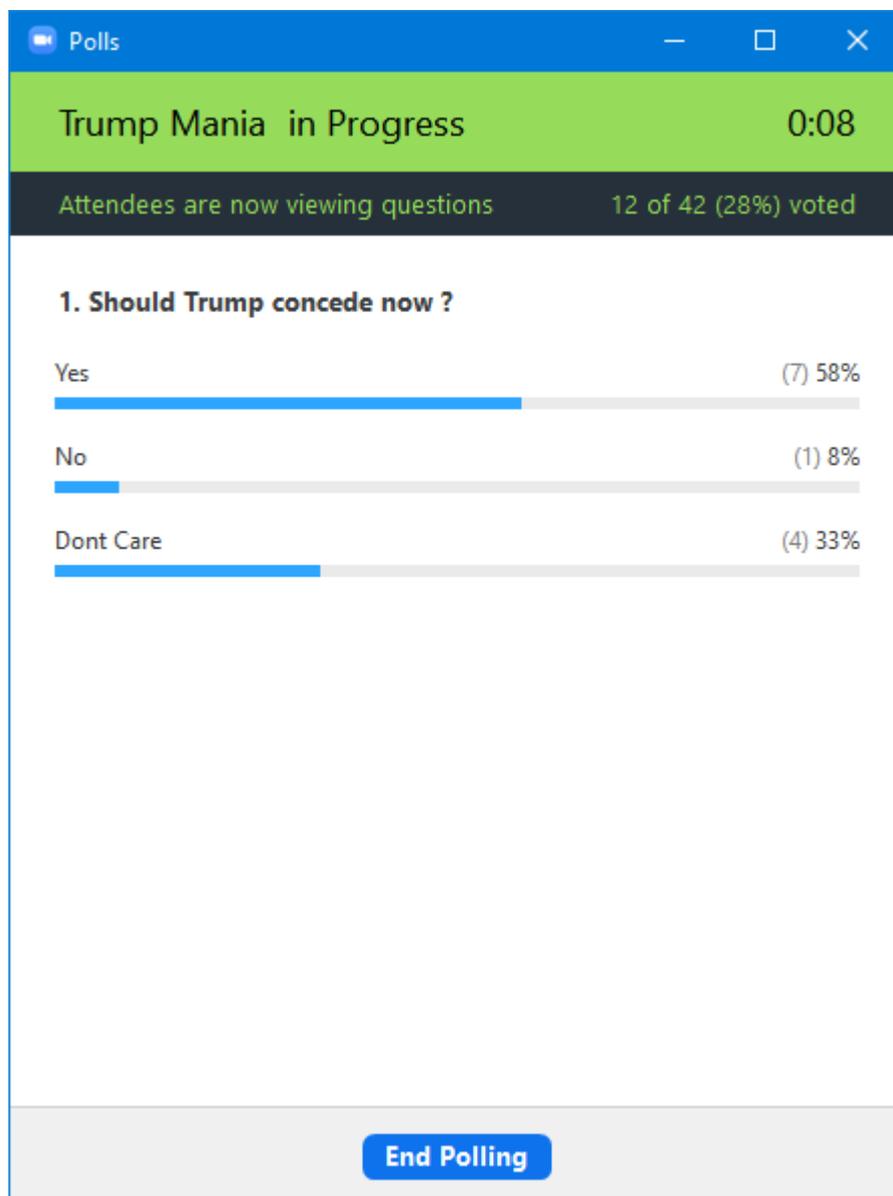


Figure 3 - Polling "in Progress" Window

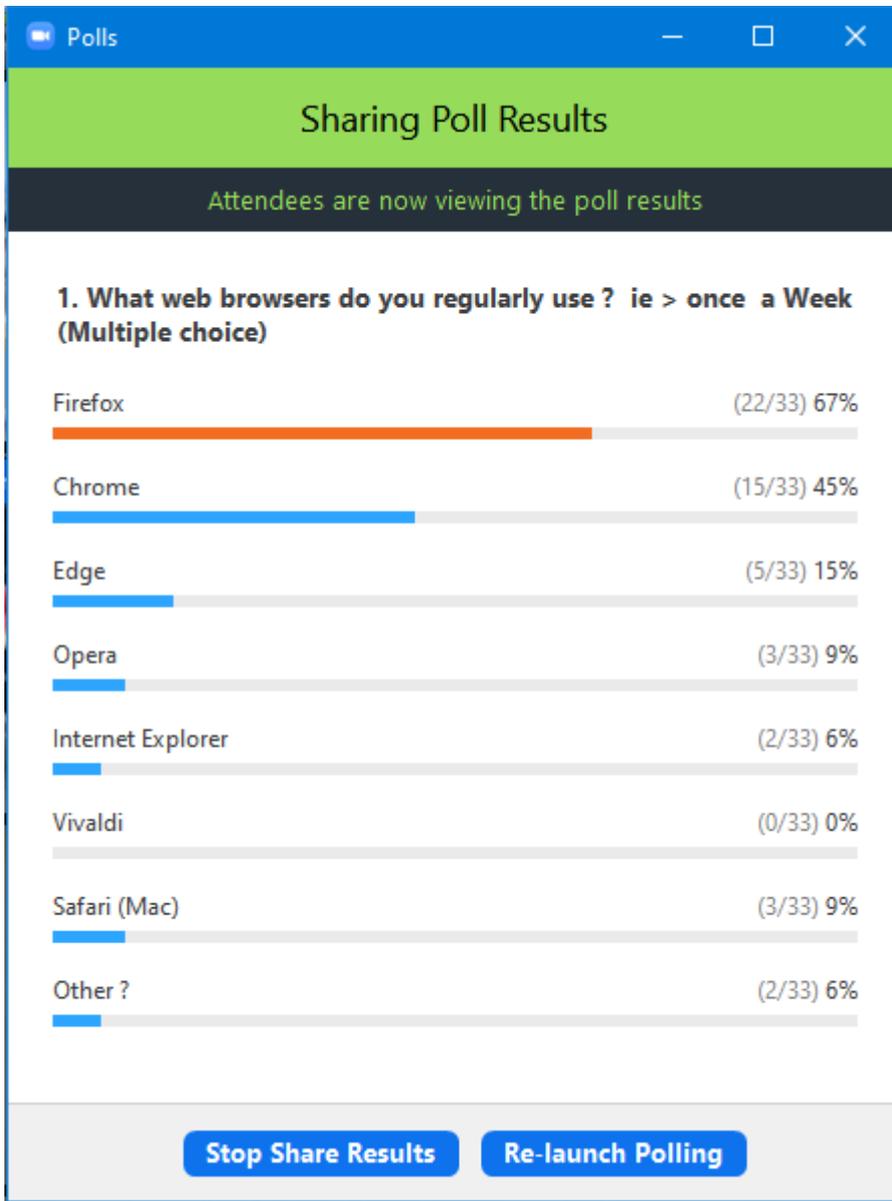


Figure 4 - "Sharing Poll Results" Window

Following Dave's presentation, **Trevor Hudson** presented a video he'd prepared titled "35 Helpful Google Search Tips". This is an excellent video and one that's well worth watching, even if you think you know all you need to about Google searching. I think everyone will find at least one new tip they weren't aware of.



Figure 5 - "35 Helpful Google Search Tips"

Trevor has uploaded his video to YouTube which you'll find by searching the above title, in no other than Google of course. A list of all the search tips shown in the video, are listed below the video by clicking on the "show more" link. There Trevor has listed 36 search tips, yes he found one additional tip that was too good to ignore, but too late to add to the video, plus 4 fun tricks. I'm not going to summarise Trevor's presentation in this report, as I couldn't do it justice because of what I'd have to omit, so recommend readers of this report view it instead.

When watching the video Trevor recommends viewing it on a desktop computer with a keyboard and on a wide screen monitor at 1080 resolution. The video is fast paced to keep it short, so using the keyboard's spacebar to stop or play the video, plus the "J" key to jump back 10 seconds in the video is recommended by Trevor. Although these search tips are shown as typed commands, many can be used by means of "Hey Google" voice commands.

Trevor's video is around 8 minutes long and shows the power and versatility of Google search. It's highly likely you'll pick up something you didn't know or had forgotten about searching in Google by watching this video.

After a short break **Stewart Bedford** followed Trevor with a presentation titled "How Computers and the Internet have changed my life and probably yours". Stewart's presentation is a trip down memory lane which touches on the major changes in his life and possibly many members reading this report. The internet plays a major role in many of the changes Stuart's highlighted.

Mobile Phones:

One of the biggest changes to our lives over recent years is the development of the mobile phone. In a few years it has transitioned from a basic phone to a powerful pocket computer with access to the whole world. It has almost unlimited uses, everything from a GPS which will tell you where you are in the world, to how many steps you took today, along with your pulse and blood pressure.

The term Mobile Phone is fast becoming a misnomer. Recent advertisements suggest Mobile Phones are higher-end cameras and video recorders which also make phone calls. Stuart can't think of an aspect of our lives that hasn't been impacted by this technological development.



Figure 6 - Mobile phones over the years

Banking:

Stewart was unable to remember the last time he visited a physical bank branch. All his banking is now done online either on a mobile phone or on his computer. The banks themselves are recognising this with the closure of bank branches accelerating.

Cheques:

Not having written a cheque in years, Stewart believes the end of cheques as a payment system and the need for cheques is nearing an end. He thinks his grandchildren wouldn't even recognise what a cheque was. Previously one would sit down to pay bills, write out the cheques, place them in envelopes, place a stamp on the envelope and finally leave home to place the envelope in a nearby post box for delivery. All his payments are now done electronically.

Bank notes & cash:

Stewart has a few bank notes in his wallet but rarely has the need to use them. Some of these banknotes have been there since last year. Most cash transactions have been replaced by a computer and the internet. With bank notes and cash in decline, so are ATM's in decline. Often cash is used to avoid a paper or electronic trail. Therefore the move to a cashless society may make the job of the tax department easier as everything can be tracked.

Credit cards:

With the move away from cash, all Stewart's transactions are now with the use of a credit card. Even the plastic credit card may soon be in decline with tap on and pay with a phone or more recently a smart watch. The smart watch is linked to your phone and you simply bring the smart watch close to the terminal to make a transaction.

The future:

Micro-chips similar to those implanted in pets can be implanted in humans. These chips may eventually replace phones and watches for credit card payments. This technology is already here with trials in Sweden using implanted micro-chips. These chips are implanted in the webbing on your hand between the thumb and forefinger. Potentially these chips could replace a passport, driving licence, pension card, car keys, door keys, health cards open security doors and hold health and ID information.

Letters:

Writing letters is a dying art. It wasn't that long ago that if you wanted to communicate with another person or a business you'd write a letter. That's now been replaced by and large by email and other electronic means (social media).



Figure 7 - Airmail letter

Postcards & Christmas cards:

Stewart can remember in his youth that when travelling you'd send friends postcards of places you've visited. Often the postcard would even arrive after you've returned home. Now postcards have been replaced by taking photos and emailing to friends or posting them on social media. The same can apply to sending Christmas cards. Stewart now sends his Christmas greetings back to England electronically. The only cards he now receives are from Real Estate agents.

Travel:

Travel has changed dramatically over the last 20 to 30 years. In the 1960's Stewart can remember if you wanted to travel overseas you had to visit a travel agent. They would contact the airlines either by phone or fax them, to arrange the booking. Tickets would then be receiving in the post some weeks later. Travel today couldn't take place without computers. It's one of the most highly computer oriented businesses in the world. You can still go to a travel agent but these days most travel bookings are done online. Today the ticket comes as a text message and you print your boarding pass at home. Now there's no third person involved.

Because of Google, you can visit a place before you actually go there. Using "Street View" you can look at the various attractions and the hotel you are booked into. You may even be able to go on a hotel walk-through. That's how well the world is covered by Google. Stewart's not sure whether that's always an advantage as it takes away the mystery and anticipation of visiting a place for the first time.

Are Google Maps a curse or boom?

Stewart mentions again how "Street View" can take the mystery away from visiting a place while travelling but can certainly help when you need to find businesses or places around Melbourne for the first time.

Stewart then asks is there anywhere in the world Google hasn't been with a camera mounted on a van or man with a backpack? Stuart then set himself a challenge to find somewhere in the world Google maps hasn't been. He located an uninhabited island in the South Atlantic Ocean, South Georgia and South Sandwich Islands, and even that had signs of Google penetration.

The Internet:

The internet has changed the way we now do many things that were impossible many years ago. Stewart then proceeded to give a number of examples where he's benefitted from the wealth of information available on the internet.

Medical: To Investigate illnesses and the side effects of prescription medications.

Repairs: To repair items that once may have required discarding to landfill. Some years ago Stewart discovered that a fault with his plasma TV was a common known fault that could be easily fixed. He was able to repair the TV himself, giving the TV another 2 years of useful life.

Reviews: Customer reviews of products or services can be very helpful when looking to purchase items. You do have to be careful of competitors putting in false reports or sites with only positive reviews. Select reputable review websites and use more than just one site when reviewing a product or service.



Figure 8 - Review website

Computers: There is an extensive worldwide knowledge base on computer related issues. Any problem you may have with a computer or computer software, someone somewhere else has probably had the same problem and an answer is likely to be available on the internet.

Anything: Finally anything you need to know or find is readily available on the internet.

DOTW Winners November 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.

At long last, Covid 19 was largely absent from our polling this month - our November winners were:

- Former treasurer and US ambassador Joe Hockey who has made the baseless claim that there was "fraud" in the presidential election, citing standard voting statistics as evidence of tampering.
- Scott Morrison, Alan Tudge and Co after the Commonwealth Government agreed to an "on the steps of the court" settlement worth \$1.2 billion over its unlawful Robodebt recovery program, which raised automated debts against welfare recipients.
- Prime Minister Scott Morrison who, astonishingly, this week denied personal responsibility for the Robodebt disaster, which has resulted in a \$1.2 billion class action settlement.

DOTW will return in February 2021 - let's hope in better circumstances than 2020. Happy New Year to all our supporters.

Yammer Highlights November 2020

Dennis Parsons

Windows 10

-

Time for a rant! Why oh why do manufacturers sell Win10 devices that only come with a 32GB eMMC drive that's soldered to the board & has no way of increasing storage?

And why does MS make it impossible to update Windows unless you have 6GB free & make it nigh on impossible to clear enough space? Indicates many GB of temporary files yet only a few MB are actually removable by any means provided by Windows.

I had to uninstall almost every installed program & remove my daughter's profile to free up barely enough space. User friendly Windows is NOT. And don't get me started on the people who buy them without consulting their knowledgeable other half.....

Then it got worse. The update failed & I ended up having to wipe the current installation, reinstall Windows & reinstate the user profiles.

So for heaven's sake, don't buy a laptop with only 32GB of storage or you'll suffer the consequences.

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=934176666124288>>

NBN Questions and Comments

-

Ah, the joys of the monstrosity that is our beloved MTM (Multi Technology Mix) NBN. Members of a SIG group were testing their connections prior to using Zoom for a group video call with one of them reporting 7Mbps down & three figure ping times, which even on the slowest 12Mbps is appalling.

-

Turns out the connection in question did indeed use FTTN, which is susceptible to problems induced by excessive distance from the node, poor condition of the copper phone line between the node to the home & problems with the phone wiring internal to the home. Leaving the legacy internal wiring connected can cause interference with the FTTN signal resulting in degradation in connection quality - slow speed & long ping times. We don't know if that was the actual cause here but it's a distinct possibility.

-

The mixed technology makes it difficult to troubleshoot remotely as many users just know they have NBN but aren't aware of the type. Fortunately knowing the street address allows you look that up on the NBNCo website.

-

Our resident licensed cabler also gave us a pro tip - with phone line splitters becoming increasingly hard to source you can utilise an old dual ADSL filter as a phone line splitter if you wish to run two physical phone extensions from your NBN router.

-

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=926366349238272>>

Computer Help

-

Fancy yourself as a keyboard warrior/wizard? Bruce found an article that might prove useful for those who mouse with their left hand (yes, some of us actually do!) - keyboard shortcuts for cut, copy & paste using keys on the right hand side of the keyboard:

- Cut: Shift+Delete
- Copy: Ctrl+Insert
- Paste: Shift+Insert

-

Just be aware that the "cut" combination is also used in file managers (such as Windows Explorer) to irrevocably delete files, so use with caution.

-

The conversation then moved on to the various types of pointing devices people use - mouse, touchpad or trackpoint (to use the polite name for the doodad in the middle some business laptop keyboards). Some favoured the mouse & couldn't stand a touchpad, others preferred the touchpad & most couldn't stand the trackpoint.

-

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=955152722681856>>

-

Out of curiosity I'm running a poll to find out which pointing device people prefer to use, so feel free to join in the fun. Results published next month.

-

<<https://www.yammer.com/melbpc.org.au/#/Threads/show?threadId=968978150252544>>