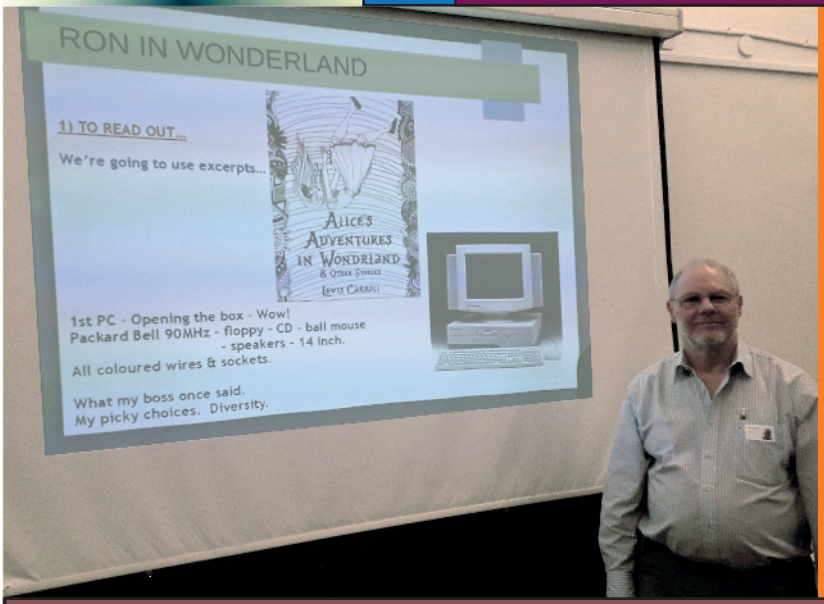
Issue 205

SPRING 2019

ISLE OF WIGHT PC USER GROUP

HOT KEY

APRIL 2019



In January Ron Keeler gave us a talk entitled "Ron in Wonderland" - 23 years of computing experiences

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The Isle of Wight Personal Computer User Group

We welcome anyone who has an interest in computers and related technology and what you can do with them.
We are a group which seeks to exchange ideas and new information.
Membership is £12 per annum

Our meetings are normally held on the first Wednesday of each month at
The Riverside Centre, Newport from 7.00 to 9.00 pm
Visitors are always welcome.

A charge of £2 is made per meeting, which includes tea or coffee during the break.

If you would like to know more about us, you are most welcome to come along to one of our meetings, or you can contact one of our Committee Members listed on page 3.

The Club web site address is **www.iwpcug.org**
We also have an e-group discussion area on Yahoo groups: **iwpcusers@yahoogroups.com.**
Details of how to join are on page 6.

FUTURE MEETINGS

Date	Subject	Speaker
3 April	CGI Flights of Fancy	Richard Burkill
1 May	TBC (but something about video)	Maurice Gilliam
5 June	Managed WiFi Systems	Jonathan Thornton
2 July	Why I Need a NAS Server	Jonathan Burt
7 August	Summer BBQ	

ISLE OF WIGHT PC USER GROUP COMMITTEE

Chairman : David Groom

Secretary : Susanne Bone

Treasurer : Mike Hoar

Membership and Database Secretary : Roger Skidmore

Committee Member : Steve Sutters

Treasury Supervisor : Phil Rogers

Note: Contact details removed prior to publishing on the internet.

Suggestions for new events, topics or speakers for talks are always welcome.
Please contact Steve Sutters, or any committee member, with your ideas.
If necessary we may be able to find a speaker for your subject.

Chairman's Report

Since the last issue of HotKey we have held our AGM. The committee remains largely unchanged, though Soren has stepped down as Treasurer and been replaced by Mike Hoar. Roger Skidmore (Membership Secretary reported that we currently had 39 members. The committee recommended no change to subscription levels, and the members approved that decision.

Thanks to Steve and Roger we have a full calendar of events up to the annual BBQ in August.

It has been a struggle to fill this issue of HotKey, and if it does not go out on time it will be down to the fact that as I write this report I still have one blank page and don't know what to put on it, and I really need to get this to the printers in 12 hours time if I have a chance of collecting it on Wednesday afternoon! For some years we have relied upon articles submitted from my cousin in the USA which were originally intended for publication in the monthly magazine which she produces. However for various reasons the supply of those articles has dried up.

David Groom

Car Sharing / Lifts

It is possible that a number of our members do not attend our monthly meetings because they find transport to Newport difficult and the committee have wondered if it might be possible to arrange lifts for those members. With a membership as large as ours it is not always obvious who might like to attend but has difficulty with transport, and secondly, who might live nearby and be able to offer them a lift.

As a first step, if you would like to attend the meetings, currently can't get to the Riverside Centre on a Wednesday evening and would like to see if there is a nearby member who might offer you a lift, then could you please get in contact with me. We will then try and find a member who might be willing to give you a lift.

Secure Passwords

The speaker wasn't available for the March meeting, so Jonathan Burt stepped in to answer questions and we had a great session on security and passwords.

I think the most interesting was what he called something like 'the brute force method'. You basically ask the code-breaking computer to try every possible character for the first position – 250 possibilities, including lower and upper case, * / & ^ etc. Then you add another character to follow the first, and the computer will try all the permutations with 1st and 2nd positions. Then you add the 3rd position with all 250 possibilities, and all permutations of the first 3 characters, and so on.

There's a web site available that can tell you how long a home computer will take to crack any given password, and when Jonathan said 4 random words to string together, David Groom looked it up and came up with thousands of years! Jonathan said this is the best way to make a strong password. Forget upper-case and strange symbols – it's the LENGTH that counts, (that and not using anything guessable).

This brings us to combinations NOT to use. '1234' is very common. 'password' is too, and '000000'. A simple name (of a grandchild, say) is going to come up very often – even with a few digits to follow. These can be cracked possibly in seconds because the hacker has furnished his code-breaking computer with a list of all such words and number combinations, and PCs are VERY fast.

However, unrelated words are another matter and the combinations are almost endless, so your word-string won't be on the code-breaker's custom list. SUNSEAGULLSTANDMATHEMATICS would be fantastic – who could have guessed I would have chosen those particular words? All you have to do is be sure you won't forget them! Maybe the words can be special to you personally...

SUN because my wife adores the sun.
SEAGULL because we found a sick one on our doorstep in Teignmouth.
STAND because I have a bad back and I can't stand for long.
MATHEMATICS because I taught maths to Andrew Ridgley of Wham!

It is a very long password and maybe David will look it up and see how long a home computer would take to crack it.

Ron Keeler

Note from David: one web site gave the answer as 69,717,596,898,410,406,000 years to crack Ron's password.

Here are estimated maximum times to crack passwords, based on password length, taken from that web site. As you can see there is a great benefit in moving to 12 characters, or even 14 characters.

Password Length	**Time to crack**
up to 6 characters	less than 1 second
7 characters	2 seconds
8 characters	1 minute, 13 seconds
9 characters	31 minutes, 52 seconds
10 characters	13 hours, 48 minutes
11 characters	14 days, 23 hours
12 characters	1 year, 29 days
13 characters	28 years, 1 month
14 characters	730 years, 6 months

However I tried two other websites, and they gave completely differnet results, though both these others also showed a significant step up when using 14 characters.

David Groom

Joining the Yahoo Group

Send an email to: **iwpcusers-subscribe@yahoogroups.com** with "join" in the subject line.

All members are encouraged to join this group (it's free and private to club members) so you can keep in touch with events and join in with the discussions.

You can also keep in touch by regularly visiting **www.iwpcug.org**

What is Python?

Python is a general-purpose programming language which can be used for a wide variety of applications. A great language for beginners because of its readability and other structural elements designed to make it easy to understand, Python is not limited to basic usage. In fact, it powers some of the world's most complex applications and website.

Python is an interpreted language, meaning that programs written in Python don't need to be compiled in advance in order to run, making it easy to test small snippets of code and making code written in Python easier to move between platforms.

First developed in the late 1980s by Guido van Rossum, Python is currently in its third version, released in 2008, although the second version originally released in 2000 is still in common usage.

Why use Python?

There are several reasons why Python could be a good choice for your next programming project, whether it's your first attempt at coding or if you're a seasoned developer looking for a new frontier.

Perhaps most importantly, Python has an enormous user community. This means that no matter what problem you're trying to solve, chances are there is already strong documentation, tutorials, guides, and examples to help you along your way. There are numerous integrated development environments and other development tools to choose from, and thousands of open source packages available to extend Python to do just about anything you can think of.

What is Python used for?

Python's ease of use and compatibility across a variety of operating systems makes it an ideal language for a number of uses. Many complex websites either currently or historically have used Python to power their back ends, from YouTube to Instagram to Reddit, and thousands of other well-known examples. But Python isn't only a web language.

Python is the primary language used for the massive cloud computing project OpenStack, powering private and public clouds in data centers all over the world. It's also used to write desktop software, like Calibre, OpenShot, and the original client for BitTorrent. It's also a popular language for machine learning, scientific, statistical, mathematical, and other types of specialized computing.

Even the Raspberry Pi gained its name from the founders plan to use the platform for teaching Python.

So in short, what is Python used for? Nearly everything!

Article available under a CC-BY-SA licence at https://opensource.com/resources/python

Memory Upgrades

My main desktop computer is a number of years old, however I thought it had a reasonable specification since it is based around an AMD Phenom II X6 1090T processor, which is a six core processor running at 3.2Ghz. I remember when I got it I was impressed with how fast it was compared to the computer it replaced! Originally I believe the computer ran Windows 8 (though it is possible it was old enough to run my installation of Windows XP) but I had upgraded the operating system to Windows 10 (64-Bit) some years ago.

During the course of last year various programs seemed frustratingly slow, Firefox, and my email program causing particular problems, and after pressing CTRL-ALT-DELETE to bring up the task manager there was always a long wait. I decided that maybe it was time to think about increasing its memory! The computer had 4Gb and I had always thought this would be OK considering I did not (or so I thought) use memory intensive programs.

I looked on the Crucial Memory web site and found I could buy a further 8GB (two 4Gb DIMMs) for just under £53.

I placed an order and a few days later the memory arrived. It didn't take long

to install the memory alongside the existing memory (though it took a little longer to track down the fact that I had unwittingly disconnected a wire causing the computer not to power up!).

The benefits of the increase in memory from 4Gb to 12Gb can not be understated. The programs which used to crash no longer do so, I can bring up the task manager almost instantaneously, and I hope to be able to start using some memory intensive programs. It is interesting to note that with no programs running my computer is using 3.5Gb of memory (almost as much as the total memory available before the upgrade). This memory upgrade is one which I really wished I had made sooner.

Spurred on by the success of this I decided to upgrade my laptop memory as well, the laptop having only 4Gb of memory. I don't often use the laptop, just really an occasional presentation using LibreOffice Impress, and a few evenings of using music DJ software. Given the infrequency of use of my laptop I did not want to spend a lot. I decided to buy two 4Gb SODIMMs on Ebay for £29.99 (these would have been £53 new from Crucial). If anything installation was even easier than on my desktop computer. However due to the limited number of slots for memory I had to remove the existing memory before installing the new, so the total memory was only 8Gb. Disappointingly I didn't notice much improvement in performance, and certainly nothing like the improvement I had on my office computer. However I am sure that there must have been some benefit to doubling the memory size, and were I to use the laptop more often then this might become apparent.

David Groom

How Buying a 3D Printer Can Save You Money

If you're looking for free and open source designs to replicate on your desktop 3D printer, you have about two million choices.

Because the open source ethic is rooted so deeply in the 3D printing community, many of the consumer products you would normally buy are already among those millions of predesigned products. You can download the designs and save a lot of money. My group has shown in studies in both 2013 (on a self-built 3D printer) and 2017 (on an out-of-the box 3D printer) that peer-to-peer sharing prosumers (producing consumers) gain an incredible return on investment: > 100% at minimum and more likely ~1000% by 3D printing products to offset purchases only once a week.

Your "investment" in this case is an open source 3D printer derived from the RepRap (self-REPlicating RAPid prototyper). These open source 3D printers cost < $500 if you build one yourself or $1,250 to $2,500 if you buy one preassembled. Ebay has some for under £200.

Downloading a predesigned open source file and clicking print is pretty easy. Here I will lay out the steps you need to take to make a product no one has open sourced yet.

In this article I'll share an example. My daughter recently started Nordic skate skiing, which means I needed a waxing rack. We went to the local outdoor sports store and the cost for a rack was a whopping $125. It was so expensive they had the box locked behind a glass display. All I needed to do, however, was see the basic physical makeup of the product to make a better one using the open source design method. To demonstrate the method, I'll walk through how I made my daughter a Wonder Woman themed set of ski wax racks for less than $5.

5 steps to leverage open source hardware. Obliterate the costs of consumer goods!

1. See if anyone has designed the product you want already. I recommend using Yeggi (https://www.yeggi.com/), which is a 3D printable search engine to find premade free designs. I knew there was at least one ski wax rack

available because one of my Michigan Tech students had designed an excellent set of ski wax vices. Someone named Mosquito4 had made a complete skivise for downhill skiing as well. I didn't want a vice, however, I wanted a system for Nordic cross-country skis. It turns out that Jerry Trantow had made some Nordic ski wax table fittings if you already had a table. I didn't and just wanted to use the kitchen table, so I needed to make something new. Even though these designs were not exactly what I wanted they provided some good ideas on how I would do my design. To make it interesting I chose to design maximizing the printable components to minimize the cost.

2. Stand on the shoulders of giants and use similar designs for components of what you want. If no one has yet made what you want, then see if they have made anything similar. In my case, I needed some C-clamps or G-clamps to hold the skis to the kitchen table. It turns out Johann Joe had made and shared some pretty nice fully printable ones. Unfortunately, Johann only shared the STLs (STL stands for the STereoLithography CAD software file format). These are the files you need to print with and represent the outer surface of a 3D object. Ideally, he would have shared the source code for the design using an open source CAD package to make the design, but, no matter, most CAD packages allow you to edit the STL as well.

3. Use an open source CAD package like OpenSCAD to adapt the design for your needs. I can't say enough good things about OpenSCAD and the good people that have contributed to the code base and free tutorials. It is a powerful, parametric script-based CAD package. What this means is that it allows you to computer code 3D objects. If you know a little bit of coding, you will be right at home with OpenSCAD. I took some measurements of my daughter's skis to ensure customized designs. All measurements in OpenSCAD are in millimeters. I used the import command to bring the core part of Johann's G-clamp into OpenSCAD, and then because I wanted this to look nice I also used a round-edged cube library created by P. Towalski to build up the parts I wanted.

I made three clamps, the middle one that holds the ski by the standard binding and two tilting holders. The middle holder is the only one with any metal. I found the metal wire I needed from a broken clothes hanger from that same daughter's closet. I was careful to make all the parts easy to print from the surface of the print bed while minimizing overhangs. This meant that same

middle piece needed to be in two parts. I did this because I wanted to minimize the use of plastic (you can do overhangs even with a single-nozzle 3D printer, but then you waste plastic building up support and have to spend time cleaning up your parts afterwards). Here I had the ugly overhang hidden in the square hole of the middle piece.

4. Print on an open source 3D printer. I printed all the parts in PLA (PolyLactic Acid) filament on an open source Lulzbot 3D printer. Buying a prebuilt 3D printer like a Lulzbot is easier for most people, but all the steps would be the same on a RepRap you built yourself like our MOST Delta 3D printer.

To put the pieces together I used filament as rivets following a great tutorial by Jason Welsh who needed them for his line of open source 3D printable action figures. You can use a soldering iron, but if you don't have one, a clothes iron set to medium works just fine.

I didn't want the top of the skis to get scratched when in the mount, so I printed some covers with NinjaFlex filament. Later, I found this was not at all necessary. Finally, to add a superheroine flourish I borrowed the Wonder Woman design from a cookie cutter made by g33kgirl.

5. Share! You can download all of the ski wax system files for free on MyMiniFactory (https://www.myminifactory.com/object/3d-print-nordic-skate-skiing-waxing-rack-28893).

My versions of the ski waxing systems worked great, looked cool (see back page), and destroyed the cost of a generic commercial product. By how much? Commercial PLA filament costs about $0.025/g and NinjaFlex costs $0.086/g, which means that the Wonder Woman hard parts cost $3.25 and the soft pads cost $1.73. All in all, my completely 3D printable ski waxing system prints for $4.98 for the Wonder Woman version.

Article written by Joshua Pearce and available under a CC-BY-SA licence at https://opensource.com/article/17/3/how-to-create-consumer-goods-open-hardware

Learn Linux with the Raspberry Pi

One barrier to trying Linux might be the thought of having to install the OS on your existing computer, or the thought that buying a dedicated new computer will be expensive. But with the Raspbery Pi available for £30 then this is an option for trying out Linux. It's impossible to tackle a topic as big as "how to use Linux" in a short article like this, so instead I'll give you some ideas about how you can use the Raspberry Pi to learn more about Linux in general.

Start by spending time on the command line (aka the "terminal"). Linux window managers and graphical interfaces have come a long way since the mid-'90s. Nowadays you can use Linux by pointing-and-clicking on things, just as easily as you can in other operating systems. In my opinion, there is a difference between just "using Linux" and being "a Linux user," and the latter means at a minimum being able to navigate in the terminal.

If you want to become a Linux user, start by trying out the following on the command line:

- Navigate your home directory with commands like ls, cd, and pwd.
- Create, delete, and rename directories using the mkdir, rm, mv, and cp commands.
- Create a text file with a command line editor such as Vi, Vim, Emacs, or Nano.
- Try out some other useful commands, such as chmod, chown, w, cat, more, less, tail, free, df, ps, uname, and kill
- Look around /bin and /usr/bin for other commands.

The best way to get help with a command is by reading its "man page" (short for manual); type man <command> on the command line to pull it up. And make sure to search the internet for Linux command cheat sheets—you should find a lot of options that will help you learn.

Raspbian, like most Linux distributions, has many commands and over time you will end up using some commands a lot more than others. I've been using Linux on the command line for over two decades, and there are still some commands that I've never used, even ones that have been around as long as I've been using Linux.

At the end of the day, you can use your graphical interface environment to get work done faster, but make sure to dive into the Linux command line, for that's where you will get the true power and knowledge of the operating system.

Original article written by Anderson Silva and available under a CC-BY-SA licence at https://opensource.com/article/19/3/learn-linux-raspberry-pi

WordPad

When I was trying to find an alternative to Microsoft Word I came across WordPad which is bundled with Windows 7 and 10.

It is a basic wordprocessing program. I find it a fast and easy to use way of downloading text without pictures from most web pages. Pictures can be imported but the default setting is not to include them when copying. You can easily change the font size and style.

Just copy and paste in WordPad and if you use a mono laser printer and recycled paper it is a very economical way to read anything.

It does leave big gaps where the pictures were so I use the up and down keys and the delete key to close the gaps.

It numbers the pages when they are printed but unlike many other word processing software programs, WordPad has no visual indicator as to where one page ends and the next page begins. When you are working in a WordPad document, you cannot see a total page count or insert a page break. However, there is a way for you to check the total page count of a WordPad document without having to print it out in its entirety.

How to Count Pages in WordPad
Open your document in WordPad.
Click the WordPad Menu button in the top left.
Hover over "Print" and select "Print Preview"
Click "Next Page" until you reach the end of the document.
Look in the lower left corner for the total page count of the document

By Stephen Sutters with help from Marina Martin

Kexi

Kexi is a visual database applications creator. It can be used for designing database applications, inserting and editing data, performing queries, and processing data. Forms can be created to provide a custom interface to your data. All database objects - tables, queries, forms, reports - are stored in the database, making it easy to share data and design.

Kexi is considered as a long awaited Open Source competitor for Microsoft Access, FileMaker and Oracle Forms. Its development is motivated by the lack of Rapid Application Development (RAD) tools for database systems that are sufficiently powerful, inexpensive, open standards driven and portable across many operating systems and hardware platforms.

Kexi is Free/Libre/Open-Source Software. As a real member of the KDE and Calligra projects, Kexi integrates fluently into both. It is designed to be fully usable while running outside of the K Desktop Environment, so it can run on Linux/BSD/Unix e.g. under the GNOME desktop, on Mac OS X (with Fink), and on MS Windows.

In addition to storing your Kexi databases in files, Kexi can also store your data on a database server. Using a database server allows you to share your database with other people, and also allows more than one person to use the database at one time. Both MySQL and PostgreSQL database servers are supported by Kexi.

Kexi required 225Mb of hard drive space. My first impressions were rather negative, simply based on the fact that the font size seemed very small, with no apparent way of changing this. Having got over that it did in many ways seem familiar to Microsoft Access.

I have to admit to not using it very much, I had no immediate need for a database, but it seemed to me that whilst it might be adequate for simple flat file databases it was harder to see how to create relational databases in it. This may be down to the limited documentation, and the short amount of time I spent using it before writing this article. When I have more time I shall try and investigate further.

David Groom

Jonathan Burt, Richard Burkill, and David Groom fielded questions from the floor after the AGM

The 3D printed Ski Vice, see story starting on page 10.

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No responsibility can be accepted with respect to any advice or suggestions in this journal, and the views expressed are those of the contributors.