ISLE OF WIGHT PC USER GROUP

IWPCUG

HOTKEY

SUMMER 2008

Richard was giving a talk on 3D Animation Using a program called POVRAY

The Isle of Wight Personal Computer User Group

The Isle of Wight PC User Group

Welcomes all owners and users of IBM compatible Personal Computers
It is a group which seeks to exchange ideas and new information
Our meetings are held on the first Wednesday of each month
at The Riverside Centre, Newport from 7.30 to 9.30 pm
Visitors are welcome. Membership is £6 per annum
A charge of £1 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 Website address is www.iwpcug.org
We also have an e-group discussion area
Yahoo iwpcusers: iwpcusers@yahoogroups.com
See page 4 for how to join

FUTURE MEETINGS

Date	Subject	Speaker
2 July	Simple Desktop Publishing	Bob Groom
6 August	Summer BBQ 7 PM Start	
3 September	Digital Photography	Roger Brown
1 October	Preserving Rare Music	John White

Chairman: David Groom

Vice-Chairman: Cliff Maidment

Treasurer: Bob Groom

Secretary: Susanne Bone

Membership and Database Secretary: Ray Boote

Committee Member: David Broughton

Committee Member: Roger Skidmore

HotKey Editor: Bob Groom (as above)

Contact details removed prior to
publishing to the internet

Sugestions for new events, topics or speakers for talks are
always welcome
Please contact any committee member or the editor with your ideas

If necessary we may be able to find a speaker for your subject

CHAIRMANS REPORT

I'm having to write this a bit earlier than usual, as I am on holiday for the last week of June, which is when the publishers will need to start printing HotKey.   I do hope that we now have a nearly full program of events for the current year. As I write both September & November are unconfirmed, but we have ideas which I hope will be fixed at next weeks committee meeting. If so, details should be shown on page 2.

The current committee have done a fantastic job of keeping the club going over the past few years, but it should be remembered that it is the role of the committee to organise others, and not to do all the work themselves. With a few notable exceptions HotKey is now exclusively written by the committee members, who all have other roles to fulfil, as well as having other demands upon their own time. I'm sure the editor may make further comment on this.

As I sit at my desk it is a beautiful day outside, hopefully we will have similar weather for the Club BBQ on 6th August. Further details on page9.

David Groom
Chairman

HOW TO JOIN THE E-GROUP

Send a blank e-mail to: **iwpcusers-subscribe@yahoogroups.com**

All members are encouraged to join this group (which costs nothing and is private to all club members) in order to keep in touch with events and join in with discussions.
You can also keep in touch regularly by visiting**....**

www.iwpcug.org

COVER DISK

New this month
VirtualBox

Following on from the June talk on Desktop Virtualisation I have included the
Windows version of VirtualBox.

With VirtualBox, you can run unmodified operating systems including all of the
software that is installed on them directly on top of your existing operating system, in
a special environment that is called a virtual machine. Your physical computer is then
usually called the "host", while the virtual machine is often called a "guest".

GAG

GAG (initials, in spanish, of Graphical Boot Manager) is a Boot Manager program. It's
loaded when the computer is turned on and allows you to choose the operating system
you want to use.

New verisons of Inkscape and OpenOffice.

As ever the internet security programs have been updated, and are now the latest free
versions available as at 9 June.

The remainder of the CD remains unchanged from the previous month

PROGRAM	CATEGORY	DESCRIPTION	
VirtualBox	Open Source	Desktop Virtualisation	
POV-Ray	Open Source	3D Graphics software	
Ability Office	Office Software (Trial)		Trial Version of Office Suite
Open Office	Open Source	Office Suite	
Adobe Reader	Utility	PDF Reader	
FileZilla	OpenSource	FTP Client	
GParted	Disk Tools	Disk Partitioning Software	
GAG		Disk Tools	Boot Loader
7-Zip		Open Source	Archive Manager
NVU		Open Source	WYSIWYG Web Page editor
Inkscape	Open Source	Vector Image Editor	
Scribus	Open Source	Scribus is an open source DTP program	
VirtualDub	Open Source	VirtualDub is a video capture/processing utility for Windows	
SpyBot		Internet Security Spyware Remover	
AdAware	Internet Security	Spyware Remover.	
AVG		Internet Security Antivirus	
FireFox	Open Source	Latest version of FireFox web Browser	
Utilities	Utilities	Various Utilities	
Links		Links to IWPCUG members web sites	

SQUARES WITHIN SQUARES
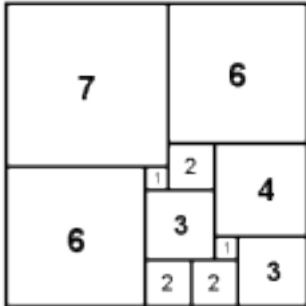
The square shown is of size 13x13 units and contains 12 other squares that completely cover the area. The puzzle this month is to construct a similar square, 13 x 13 units and fill it completely with just 11 smaller squares.
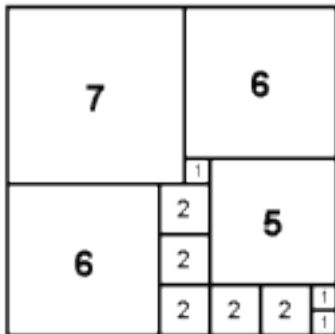
Answer

Here is one possible answer, sent in by Richard Birkhill, John Stafford and Colin Rowe. Whether there are other ways is not known but I suspect not. I received answers from the three members mentioned above and Richard Birkhill was the lucky one who received the £5 book token. Well done all three.

PRIZE PUZZLE for July 2008

COLOURING THE PLATONIC SOLIDS

Many years ago I set the following puzzle in Hot Key: In how many ways can you colour the faces of a cube using 6 colours? The colourings must be such that each coloured cube must be unique whatever way it is orientated.

The answer is 30. This is the way I did it. I notionally numbered the colours 1 to 6 and chose number one as a vertical face facing me. This could always be the case. Then I asked myself 'where could I place colour number 2?' It could be adjacent to the face coloured 1 or it could be opposite. Taking the adjacent case first, the cube could be orientated by rotation so that the face coloured 2 was on top leaving face 1 facing me. This fixes the orientation and there are 4 faces left to colour so the number of colouring must be 4! (factorial 4 = 24). Considering the case when the face coloured 2 is opposite, the cube is not fixed in orientation as it can rotate without changing the assumptions so we can colour one of the other faces with colour number 3 and rotate the cube so that this face is uppermost. This will fix the orientation, leaving three faces to colour. The permutations this time are 3! = 6. These 6 are independent of the 24 we have already found so the answer is 6 + 24 = 30.

If F = the number of faces; E = the number of edges; V = the number of vertices (corners), the full set of five regular Platonic solids are the

Tetrahedron (F=4; E=6; V=4)
Octahedron (F=8;E=12; V=6)
Cube (F=6; E=12; V=8)
Icosahedron (F=20; E=30; V=12)
Dodecahedron (F=12; E=30; V=20)

Note that in every case, V+F=E+2. This is known as Euler's theorem. The number of edges that bound each face is P=2E/F.

My first question this month is very easy. In how many ways can the

tetrahedron faces be coloured using four colours? Same rules as before.

My next question is about the octahedron which some people have difficulty in visualising. Think of it like this: place four equilateral triangles side by side so that they form a square pyramid. Now create a second square pyramid in your mind and glue their bases together.   You now have an octahedron with eight triangular faces.

The octahedron is the dual of the cube which means that the vertices are replaced by faces and vice versa. So you could, instead, colour the corners of the cube rather than the faces of the octahedron. (They have to be the same answer!)

So, in how many ways can you colour the faces of an octahedron with eight different colours, making sure that no two colourings are the same however orientated?

That's two questions in one month! New solvers need only answer the first easy one about the tetrahedron: regular solvers must do both.
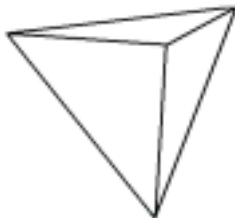
I hope that the puzzle this month will get you all thinking about platonic solids and permutations but if not, you may have found the puzzle page informative if nothing else.

Please send your answers to me, David Broughton (see addresses page 3), to arrive by 6th August 2008.
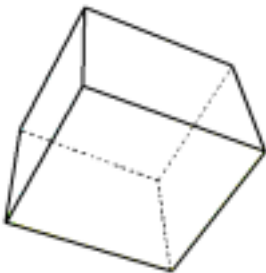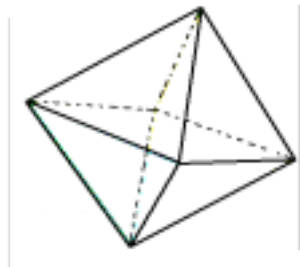
CUBE   TETRAHEDRON   OCTAHEDRON

Quick Tip 1   By David Groom

If you use Outlook Express as your email client then you should regularly " compact " its folders, which will save you hard disk space, and to make Outlook Express more efficient.

To do so, go to the main menu, then to **File > Folder . Compact All folders.** You will need space on you hard drive which is slkightly bigger than the largest Folder in Outlook Express (as a backup copy of the folder is kept whilst the compacting occurs)

Before compacting the Outlook Express Folders, my email folders took up 1.62 Gb of space, my Hotmail inbox alone was 223,431 Mb, and my inbox for Vectis Webdesign 534,521 Mb.

After compacting my email folders now take up 1.16 Gb of space, my Hotmail inbox is now 117,440 Mb, and my inbox for Vectis Webdesign 241,641 Mb.

I'll admit that I might have an extreme case, I have had the same computer for a number of years, subscricb to a few newsgroups, and use email a lot for work. However I believe everyone would benefit from compacting their folders.

The Annual Club BBQ on August 6th

This will be held again at Bembridge Lodge, 114 High St, Bembridge. **Starting at 7 PM**

It would assist catering for the event if you could let me know if you are planning to come, no definite commitment needed just some idea of thenumbers expected. It would be appreciated if you could either call on

873853, or email **david@vectis-webdesign.com** before 30 July.

MULTIBOOTING

By David Groom

What is Multibooting?

A personal computer normally has one operating system (OS) installed, such as MS-DOS, Windows 95, Windows XP, etc. You can however partition your hard drive, and install different operating systems in each partition. "Multibooting" is the process of installing more than one OS on a computer and selecting at start-up which OS to use.

Having multiple versions of Windows available can be helpful in many ways for home as well for business use. For example, you prefer working with Windows NT 4, but other family members prefer Windows 98 and Windows 95. Or maybe you mainly use Windows ME but you have a game that only runs in Windows 98.

You might also want to install one or more of the many variants of Linux, and see what they are like.

How to Multiboot?

There are various ways to multiboot:

a) Hide partitions
b) Use XP boot loader (not recommended - see last HotKey edition)
c) Use a boot manager such as GAG or BootMagic

A) Hiding partitions

Disk partitioning tools also normally allow you to hide a partition so that it can not be seen by the BIOS. If you hide the partitions you don't want to boot from then the unhidden partition will be the one which boots

B) Use XP Bootloader

If you install XP when there is already other operating systems on the hard drive then XP will recognise these and add them to a menu before the main

part of XP starts to load. You then have the choice whether to run one of these operating systems, or XP itself. This was covered in more detail in the last issue of HotKey, pages 10 & 11, together with why it may cause problems later.

C) Use an alternative Boot Manager

Essentially this uses the same process as you would manually do in method (A), but installing a boot manager makes toggling the hidden/active status easier. Installing the boot manager replaces the code of the standard MBR (the embryonic startup code in the first sector on the hard disk) to divert the boot process to the boot manager. The boot manager displays a menu, and based on the menu selection made by the user, the appropriate partition is designated "active" and the boot process continues through that partition. OS's are kept totally independent. Non-booted partitions may optionally be set "hidden" so they can't be interfered with by the booted partition.

Partition Magic comes with its own bootloader, BootMagic. I have included on this months cover disk a free alternative called GAG.

Is there an alternative to Multibooting?

Those of you who attended the June meeting will already know the answer.
 But you can create a **"Virtual Machine"** and run a second (or third, fourth...) operating system within that.

Quick Tip 2

Its always worth checking that you are getting the best package available from your ISP for the price. ISPs change their packages every now and then, but if my experience is anyting to go by they don't always inform existing customers.

I happened to be glacning through the "My Account" section of my Orange Broadband account, and found that I could upgrade from my current maximimun of 2Mbs to 8Mbs for no extra charge.

3D ANIMATION USING POVRAY

Synopsis of the May 2008 Talk   **Richard Birkill**

POVRAY is a free piece of software and was included on last quarter's disk. It uses ray-tracing algorithms to produce high resolution three dimensional images in any graphic file format. A single image can be drawn or a series, which can then be combined into a movie file to produce an animation. Whilst this might sound complicated, the input files to produce the image(s) are text based and only require rudimentary knowledge of 3D ideas. The help files provide are very comprehensive with many examples and there are plenty of online tutorials and excellent galleries of POVRAY images.

Ray tracing works by imagining the output file as the user's field of vision. In the real world, light sources and visible objects interact to produce a series of rays, which enter the user's eye and generate an image on the retina. By tracing a ray from each pixel backwards, POVRAY can determine where it originated in the 3D scene along with such details as whether that point is in shadow or whether it is on the surface of a reflective object. From a reflective object, rays can be traced back to where the reflection originated and so on. All these very CPU intensive operations are taken care of by POVRAY and so the user need not worry, but simply marvel at the results!

The text file input can be considered as the "photographer's" instructions – to make a valid photograph there must be at least one source of light, at least one object to look at and a camera. If any of these is missing, the resulting image will be blank as in real life. Each of these items will have to have a 3D position in the scene to be drawn and these are defined in terms of x,y,z co-ordinates (i.e. Cartesian). X,Y,Z co-ordinates are familiar to us all as they specify a number of units across a scene, a number up and a number back into the scene. Think of them as specifying the position of a car in a large multi-storey car-park – travel X metres left, Y metres up and Z metres towards the back of the building. The light source can by default just be defined by its position, whether it is far away like the sun or close like a standard lamp. The camera has to have a position in space and also have a direction in which it is pointing. If necessary, the camera can also be twisted, once again mirroring the real world. Finally the objects within the scene have to be given shapes, positions and colours – more of this later.

The talk began with a simple (static) image of a box with a photo of the Editor pasted on one face and showed that the POVRAY text file to produce it was a

mere three lines long. One line gave the position of the light source, one the description of the camera and one the size and position of the box and the photo to be displayed. It is as straightforward as that. By adding a simple CLOCK variable, POVRAY produces a series of images (known as frames) numbered say 00 to 19, which show the same box rotated by 0 degrees, 18 degrees, 36 degrees and so on. Using a piece of software such as Photoshop, these individual images can be animated as a slideshow to produce a moving image like a cartoon flick book. Microsoft's Movie Maker can alternatively produce a movie file (mpeg, wmv) from the images.

Further examples of animations were demonstrated to show that the camera could be moved as well, to produce a swooping view of the scene. In this way the user can think of himself as a director of a film by moving the camera and the objects in the scene at the same time. Many objects and several lights can be included and these can all be animated in different ways. There are a huge variety of standard shapes available such as boxes, spheres, cones, planes, pyramids, cylinders and even text strings. Colours can be faded from one to another, objects can be rotated or moved along curves, and objects can be made more or less transparent or stretched. Objects can be "subtracted" from one another such as a spherical hole being cut from a cube. Where several shapes are present, then shadows are automatically cast, however complex those shapes. Reflective surfaces can be defined and behave exactly as expected. An example was shown of parallel mirrors reflecting back and ad infinitum (or at least to the level of the POVRAY definable parameters.)

The Editor had asked in advance about the "Hawkeye" software used in snooker commentaries. Snooker images are great to draw as they show multiply-reflected surfaces. Whilst an animation was shown, it served to make an important point: POVRAY animations cannot be altered except by redrawing all the frames, which is time-consuming (depending on the scene complexity). This means that they are in no way interactive in the manner of a computer game, mainly because each frame can take many seconds or minutes to draw.

The variety of animations or images that can be produced are really only limited by the user's imagination. A large variety of textures can be applied to objects to produce more life-like scenes. Non-standard shapes can be produced using more advanced techniques – animations of flags blowing in the wind, asteroids, simple robots and even cows were shown. Members were urged to have a go and to enjoy the online galleries.

DeskTop Publishing in LINUX

Originally, I intended to produce this edition of HotKey in Linux using OpenOffice.Of course this is not a true DTP program and so there is no facility for producing a 16 page Booklet but I had checked with our Printer that 16 separate PDF files, one for each page, would be quite acceptable and the production of these pages in our usual form is well within the capabilities of Open Office. I would have used the DRAW section of the program to produce the various coloured text-blocks.

There is, in fact, a " proper " DTP program for Linux called SCRIBUS and having completed the first half dozen pages, including the Front Page using Open Office, I was persuaded by our worthy Chairman that I ought to do the job properly and use Scribus ! One reason was that since I was going to talk about DTP, I should use a real DTP program and Scribus is also available for Windows and would be included in the Cover Disk.

Since I also intended to produce a version using the usual PagePlus 9 (just in case !) it was convenient to have both programs on the same machine. So in fact, some of the page formatting was actually done in Windows Scribus and then transferred to the Linux version.

Scribus is in some respects a more comprehensive DTP program than PP9, and the HotKey that you are now reading is slightly different from the PP9 version (Fingers crossed !)

Using Scribus has meant a very steep learning curve ! There is no "help" file on the program but there is a great deal of information on the Web, actually at

   www.scotsworld.net/Content/Scribus%20Manual.pdf

which was put together by a satisfied user ! Printing out this quick start guide should have been done first !

In my talk I hope to be able to show some simple methods of producing Greeting Cards and Business Cards as well as some of the procedures involved using a DTP program.

Another way to MULTIBOOT

In this method several Hard Drives are mounted in individual sort of drawers called "Caddies" and when the computer is shut down the caddy can be removed and replaced by a different one. These individual disks can use different operating systems and be partitioned as required as a normal hard drive.

Obviously all these hard drives have to be configured to use the same computer hardware if they will be used to boot, but if used in the Secondary EIDE position (this is the lower of the two drawers) the data can be read but no booting The caddy currently shown partway in is the Windows XP disk and those on top have

1: Linux Ubuntu and Kbuntu,

2. General purpose Win 98 (on 3 partitions)

3. (top)Win 98 and all all my registered Radio Decoding programs.

Some years ago I had one disk that I used in a German radio decoder that the installation instructions said would not run on Windows DOS so it had (I think) DOS 6.2 on it. That was 6 or 7 years ago! The modern caddies have small fans on the back to cool the Hard Disk.

IMPORTANT

It may well be that this HotKey will have to be the last !!

As you will see, there are no new contributors and the whole thing depends on the usual few !!

It is getting increasingly difficult to find interesting material.

When I volunteered to take the Editorship on, I did say that I was quite prepared to put the thing together, provided all the material was forthcoming !!

It has been a very uphill struggle to fill each edition !!

This whole subject will be discussed at the next committee meeting and a decision will hopefully have been made by the time you read this.

HOTKEY

IWPCUG

SUMMER 2100

WAKE UP!

TOO MANY ASLEEP !

IWPCUG

IWPCUG USER GROUP

This is not intended to be the new HotKey front page, it was done to fill the colour back page and to show what can be done in a free program. This whole edition could have been done in Windows or Linux and was actually done in both, using OpenOffice and Scibus. It was printed by Island Printers East Street, Ryde.
The views and opinions expressed here are those of the contributors. No responsibility is accepted with respect to any advice or suggestions made here.