

How to keep you and your family safe on the Internet

- *a guide for the non-technical!*

1. How to easily and effectively control what the computer(s) in your house can access online WITHOUT having to install and configure software on each desktop and laptop.
2. How to easily protect yourself against identity theft, phishing scams and other internet criminality.
3. Viruses and Malware - best and most economical ways of protecting your computers and what to do when the worst happens (because it will!)
4. Easy and effective backup solutions that don't depend on you remembering to make copies.

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Some terminology;

“Server”

- A computer out on the Internet that remains on 24-7 waiting for other computers to make use of its services. Web server, email server, streaming video server etc. Probably lives in a **data centre**.

“Client”

- Your computer! Might be a Windows PC, a Mac, a Linux computer, Xbox360, smart phone, tablet etc.

To make things confusing the software that runs on a server is sometimes referred to as ‘the server’ and the software on your PC is sometimes called ‘client software’ – your email programme, your web-browser etc.

“I.P. Address”

- Although hidden from you this is like your computer’s ‘phone number when you’re on the Internet

“D.N.S. aka *Domain Name System*”

- The way a domain name (like `www.youtube.com`) gets turned into an IP address that computers deal with. Your ISP has a DNS server that does that hard work for you.

“ISP”

- Internet Service Provider – the company who provides your connection, could be Virgin, BT, TalkTalk or many others.

Some history;



82.53.67.123

Party like its 1999...!

- Computer turned on for half an hour in the evening to check email
- Slow analogue modem used to make the connection
- One computer connected to the Internet occasionally

How things are today; (a bit like a 'phone exchange in an office)



192.168.0.2



192.168.0.3



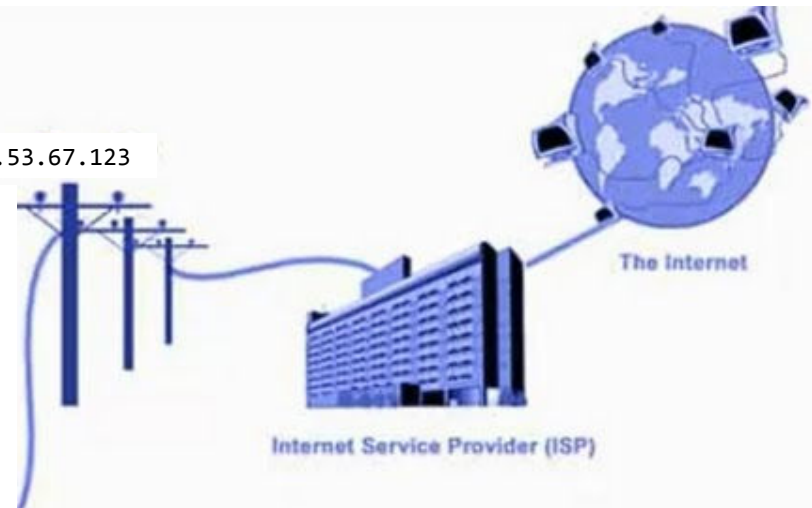
192.168.0.4



192.168.0.5



192.168.0.1 - 82.53.67.123



- Computers left switched on often
- Fast broadband connection
- Several devices use the internet simultaneously

BluRay player, iPhone, Blackberry, Fridge(really!) etc, etc....

How to easily and effectively control what the computer(s) in your house can access online WITHOUT having to install and configure software on each desktop and laptop.

Why would we want to control this?

- All of human life is online.
- Violent, obscene & hate filled content is readily available.
- There are times when Instant Messenger and certain web sites distract from homework etc.
- Hackers and other ne'er-do-wells rely on the same underlying technology for villainy.

Why not just run some software on my PC?

- What about all the devices that don't run Windows?
- It relies on you having access to each machine
- Kids are clever!

So, for best protection it's best to extract it from your network and have it on your router or even totally outside, *upstream*.

Three methods;

1. Your ISP may offer protection, if so turn it on – *The very easy option*

TalkTalk HomeSafe



There's nothing to download or update and it won't slow down your internet connection. It's simple to set up, just use the buttons below to switch it on and off.

IT'S FREE!

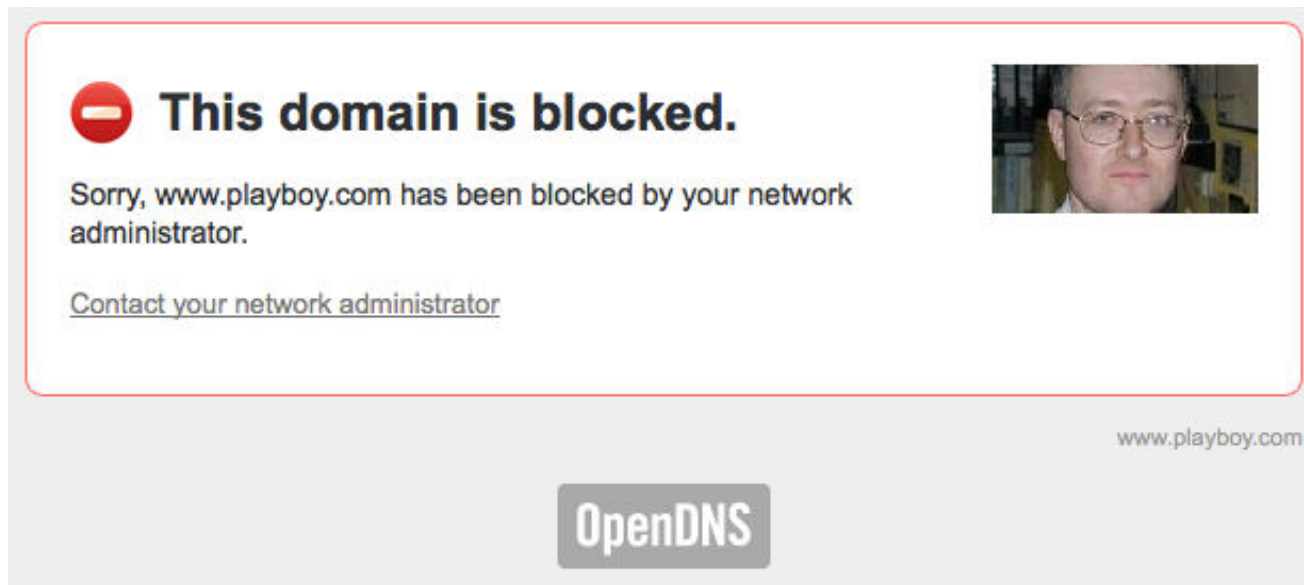
Kids Safe	Homework Time	Virus Alerts
<input type="radio"/> OFF: No website restrictions	<input checked="" type="radio"/> OFF: No website restrictions	<input type="radio"/> OFF: No website restrictions
<input checked="" type="radio"/> ON: Help protect your kids from inappropriate websites	<input type="radio"/> ON: Set a time limit to block social networking and gaming websites	<input checked="" type="radio"/> ON: Block websites infected with viruses
	4:30 pm to 6:00 pm Monday to Sunday	
Edit settings	Edit settings	

Outside your network so it doesn't suffer from

- The kids figuring out how to disable it!
- Friends bringing around their laptops and getting past it.
- Other machines (iPhones etc) are also protected even if you haven't loaded your filtering software onto them.

OpenDNS – *The moderately easy, but more powerful option*

- The Domain Name System allows your computer to convert the hard-to-remember IP addresses that the Internet really runs on to and from the easy-to-remember names people use.
- It does this by asking your ISP every time you use a domain name (e.g. `www.bbc.co.uk`) to turn it into the necessary IP address.
- What if you could use another DNS provider that only returned sensible IP addresses for websites and other Internet services you wanted accessible in your network.



OpenDNS works by replacing your ISP's DNS server with its own servers and from then on all DNS look-ups by ANY of the computers (or other machines) on your home network is done by OpenDNS rather than your ISP.

Settings for: Home Cable (78.145.26.96) ▾ Add/manage network

Web Content Filtering

Security

Customization

Stats and Logs

Advanced Settings

Users can contact you

Your users can contact you directly from the block page if they have questions. It'll show up as an email in your inbox.

Note about DNS forwarding

If you are forwarding requests to OpenDNS, domain blocking may not work properly if the domain's address is in your forwarder's cache.

Check a domain

Find out whether it would be blocked, and why.

Support Articles

Web Content Filtering

Choose your filtering level

☐ **High**

Protects against all adult-related sites, illegal activity, social networking sites, video sharing sites, and general time-wasters.
26 categories in this group - [View](#) - [Customize](#)

☐ **Moderate**

Protects against all adult-related sites and illegal activity.
13 categories in this group - [View](#) - [Customize](#)

☐ **Low**

Protects against pornography.
4 categories in this group - [View](#) - [Customize](#)

☐ **None**

Nothing blocked.

☒ **Custom**

Choose the categories you want to block.

<input type="checkbox"/> Academic Fraud	<input type="checkbox"/> Adult Themes	<input checked="" type="checkbox"/> Adware
<input type="checkbox"/> Alcohol	<input type="checkbox"/> Auctions	<input type="checkbox"/> Automotive
<input type="checkbox"/> Blogs	<input type="checkbox"/> Business Services	<input type="checkbox"/> Chat
<input type="checkbox"/> Classifieds	<input type="checkbox"/> Dating	<input checked="" type="checkbox"/> Drugs
<input type="checkbox"/> Ecommerce/Shopping	<input type="checkbox"/> Educational Institutions	<input type="checkbox"/> File storage
<input type="checkbox"/> Financial Institutions	<input type="checkbox"/> Forums/Message boards	<input checked="" type="checkbox"/> Gambling
<input type="checkbox"/> Games	<input type="checkbox"/> German Youth Protection	<input type="checkbox"/> Government
<input checked="" type="checkbox"/> Hate/Discrimination	<input type="checkbox"/> Health	<input type="checkbox"/> Humor
<input type="checkbox"/> Instant messaging	<input type="checkbox"/> Jobs/Employment	<input type="checkbox"/> Lingerie/Bikini
<input type="checkbox"/> Movies	<input type="checkbox"/> Music	<input type="checkbox"/> News/Media
<input type="checkbox"/> Non-profits	<input checked="" type="checkbox"/> Nudity	<input type="checkbox"/> P2P/File sharing
<input checked="" type="checkbox"/> Parked Domains	<input type="checkbox"/> Photo sharing	<input type="checkbox"/> Podcasts
<input type="checkbox"/> Politics	<input checked="" type="checkbox"/> Pornography	<input type="checkbox"/> Portals
<input checked="" type="checkbox"/> Proxy/Anonymizer	<input type="checkbox"/> Radio	<input type="checkbox"/> Religious
<input type="checkbox"/> Research/Reference	<input type="checkbox"/> Search engines	<input checked="" type="checkbox"/> Sexuality
<input type="checkbox"/> Social networking	<input type="checkbox"/> Software/Technology	<input type="checkbox"/> Sports
<input checked="" type="checkbox"/> Tasteless	<input type="checkbox"/> Television	<input checked="" type="checkbox"/> Tobacco
<input type="checkbox"/> Travel	<input type="checkbox"/> Video sharing	<input type="checkbox"/> Visual search engines
<input type="checkbox"/> Weapons	<input type="checkbox"/> Webmail	


How do I get hooked up with OpenDNS?

Sign up for a free account at www.opendns.com


OpenDNS basic

You're just three steps away from a safer, faster, smarter and more reliable Internet — for free!


1. Sign in or create account → 2. Change your settings → 3. Customize your account



A faster Internet
Websites will load faster, and with OpenDNS' 100% up-time, you won't have to worry about unreachable websites and DNS outages from your ISP.
[Learn more](#)



Robust Web content filtering
With over 50 customizable filtering categories, OpenDNS Web content filtering keeps parents in control of what websites children visit at home.
[Learn more](#)



Phishing protection
OpenDNS blocks phishing websites that try to steal your identity and login information by pretending to be a legitimate website. Surf the Web with confidence.
[Learn more](#)

Create a free account

Already have an account? [Sign in.](#)

Email:

Confirm Email:

Password:

Confirm Password:

Where did you hear about OpenDNS?

Where will you use this account?

Change the setting on your router to use OpenDNS rather than your ISP

Tools	LAN	
Ping	Router IP Address	10.100.100.8
Trace	Subnet Mask	255.255.255.0
Wireless Survey	Static DNS	208.67.222.222
WOL		208.67.220.220
Basic		
Network		
Identification		

This is the hardest part of the process and you may need to read the manual that came with your router.

Essentially changing settings on your router is done via your web browser (Internet Explorer, Firefox, Safari) by using the router's IP address, typically;

`http://192.168.0.1`

When you get into the router's configuration page you need to change the DNS server settings from 'assigned by service provider' (or something like that) to;

`208.67.222.222`

`208.67.220.220`

You may need to get a geeky friend in for this step, but it'll take five minutes and is **very worth it**.

On one computer you'll need to install the OpenDNS updater

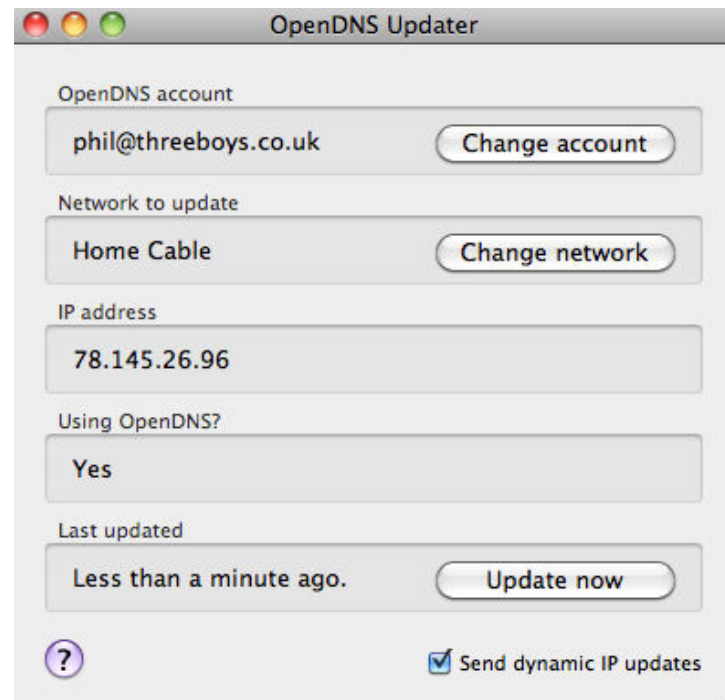
<https://www.opendns.com/dashboard/support>

Once it's downloaded and installed set it up using the details you signed up with;

This is the Mac version, but the Windows one is much the same. From then on it'll run quietly in the background whenever your machine is switched on. **It's needed because ISPs change your IP address occasionally.**

Download the OpenDNS Updater

We recommend that you use our **client-side software** to keep your dynamic IP updated for your network.

A screenshot of the OpenDNS Updater application window on a Mac. The window has a title bar with standard Mac OS window controls. The main content area includes an "Email:" field with the text "phil@threeboys.co.uk", a "Password:" field with masked characters, and "Quit" and "Login" buttons. Below these is a section for "IP address" with a field showing "invalid", a "Using OpenDNS?" section with a field showing "invalid", and a "Last updated" section with a field showing "invalid" and an "Update now" button. At the bottom, there is a checkbox labeled "Send dynamic IP updates" which is checked, and a help icon.A screenshot of the OpenDNS Updater application window on a Mac, showing the main configuration screen. The window has a title bar with standard Mac OS window controls. The main content area includes an "OpenDNS account" section with a field showing "phil@threeboys.co.uk" and a "Change account" button. Below this is a "Network to update" section with a field showing "Home Cable" and a "Change network" button. Further down is an "IP address" section with a field showing "78.145.26.96", a "Using OpenDNS?" section with a field showing "Yes", and a "Last updated" section with a field showing "Less than a minute ago." and an "Update now" button. At the bottom, there is a checkbox labeled "Send dynamic IP updates" which is checked, and a help icon.

2. Upgrade your router – *The top-geek **but** very powerful option !*

- You probably have a router provided by your ISP or maybe you bought a better one – with WiFi
- The router allows you to connect many devices to the internet
- The router is in fact a small computer that manages your network

Like any computer the router can have new software loaded into it. The software that allows us to filter and control the network as we want is called Tomato Firmware. <http://www.polarcloud.com/tomato>

Tomato
Version 1.23

Status

Overview

Device List

Logs

Bandwidth

Real-Time

Last 24 Hours

Daily

Weekly

Monthly

Tools

Ping

Trace

Wireless Survey

WOL

Basic

Advanced

Access Restriction Overview

Description	Schedule
Bed time!	Sun, Mon, Tue, Wed, Thu 0:00 to 6:30
Getting ready for school	Mon, Tue, Wed, Thu 7:00 to 7:30
James bedtime	Sun, Mon, Tue, Wed, Thu 21:30 to 6:30 (the following day)
Minecraft	Mon, Tue, Wed, Thu
Steam games	Sun, Mon, Tue, Wed, Thu 17:30 to 15:30 (the following day)
YouTube	Mon, Tue, Wed, Thu 17:30 to 20:00
w/e bedtime	Fri, Sat 1:00 to 8:00
wireless off overnight	Mon, Tue, Wed, Thu, Fri 0:00 to 5:45











So can I run this on my Internet router?

Only some routers can have Tomato loaded onto them;

- Linksys [WRT54GL v1.x](#), WRT54G v1-v4, [WRT54GS v1-v4](#), [WRTSL54GS](#) (no USB support)
- Buffalo [WHR-G54S](#), [WHR-HP-G54](#), [WZR-G54](#), WBR2-G54, WBR-G54, [WZR-HP-G54](#), WZR-RS-G54, WZR-RS-G54HP, WVR-G54-NF, WHR2-A54-G54, WHR3-AG54
- Asus [WL520GU](#) (no USB support), [WL500G Premium](#) (no USB support), WL500GE
- Sparklan WX6615GT, Fujitsu RT390W, Microsoft MN-700

However – if yours isn't in there no worries; eBay is your friend. Most of these can be picked up for around £25, and even if you don't fancy rolling up your sleeves to load in Tomato to the device lots of people sell them upgraded.

eBay search done on 16/09/2011

	ASUS Wireless Router WL-520GU Enhanced TOMATO installed Tomato Firmware v1.28.1815(06/27/2010) From Taiwan			£35.42 Free	£35.42
	LINKSYS WRT54GS Wireless G Speedbooster Router Ver 6 DD-...			3 Bids £2.20 +£5.00 2h 41m	£2.20 +£5.00 p&p
	ASUS Wireless Router WL-520GU Enhanced TOMATO installed Tomato Firmware v1.28.1815(06/27/2010) From Taiwan			£36.99 Free	£36.99
	★Wireless Router 8M 32M USB2.0 ddwrt dd-wrt tomato★			£31.00 +£3.50	£31.00 + £3.50 p&p
	CISCO LINKSYS WRT160N TOMATO FIRMWARE WIRELESS N BROADB...			£44.99 +£5.99	£44.99 +£5.99 p&p

A closer look at a Tomato restriction rule;

Access Restriction

Enabled ☒

Description

Schedule ☐ All Day ☐ Everyday

Time -

Days ☒ Sun ☒ Mon ☒ Tue ☒ Wed ☒ Thu ☐ Fri ☐ Sat

Type ☒ Normal Access Restriction

☐ Disable Wireless

Applies To

MAC / IP Address

10.100.100.239

10.100.100.242

Add

Blocked Resources ☐ Block All Internet Access

Rules

Port / Application

youtube.com
iplayer

time & days for the restriction.

which computers or devices?

what's being restricted?

“How to easily and effectively control what the computer(s) in your house can access online WITHOUT having to install and configure software on each desktop and laptop” – *review*;

1. Use your ISP's filtering; currently TalkTalk offer best protection in this area
Very easy to do **but** depends on your service provider.
2. Sign up for a free OpenDNS account and use their service
Mostly easy to do, might need a hand when adjusting your router.
3. Upgrade your router with Tomato and really get control!
Moderately hard – **easy** if you're willing to buy a pre-upgraded second-hand router.

I use all three methods at the same time (belt, braces, and *another* belt!) but any of them will make your network much more family friendly than it currently is.

“Norton 360”, “AVG Complete” and other paid-for packages that **run on each computer** are less-than-effective, expensive and reduce your once-speedy PC to a crawl. Best avoided.

How to easily protect yourself against identity theft, phishing scams and other internet criminality.

The Internet is big business and bad guys would like to get a cut of;

- Financial services
- Shopping
- Hijacking the power of your PC

Almost all of the ways criminals operate online now involve some aspect of *social engineering*

- Persuading you to part with important data
- Convincing you something is wrong that you need to pay them to fix

Your web browser

The software you use to browse the world wide web.



Internet Explorer – Windows

Safari – Mac and Windows

Firefox – Mac and Windows

Google Chrome – Mac and Windows

Not all browsers are created equal and security-professionals recommend **Firefox** or **Chrome** over Internet Explorer and Safari.

Support Centre 'phone calls

You may have already received a call from an “IT support centre” claiming they have identified some problem with your PC. They may even have talked you through a procedure that seems to confirm what they are saying. They may even claim they are your ISP or Microsoft.

This is impossible!

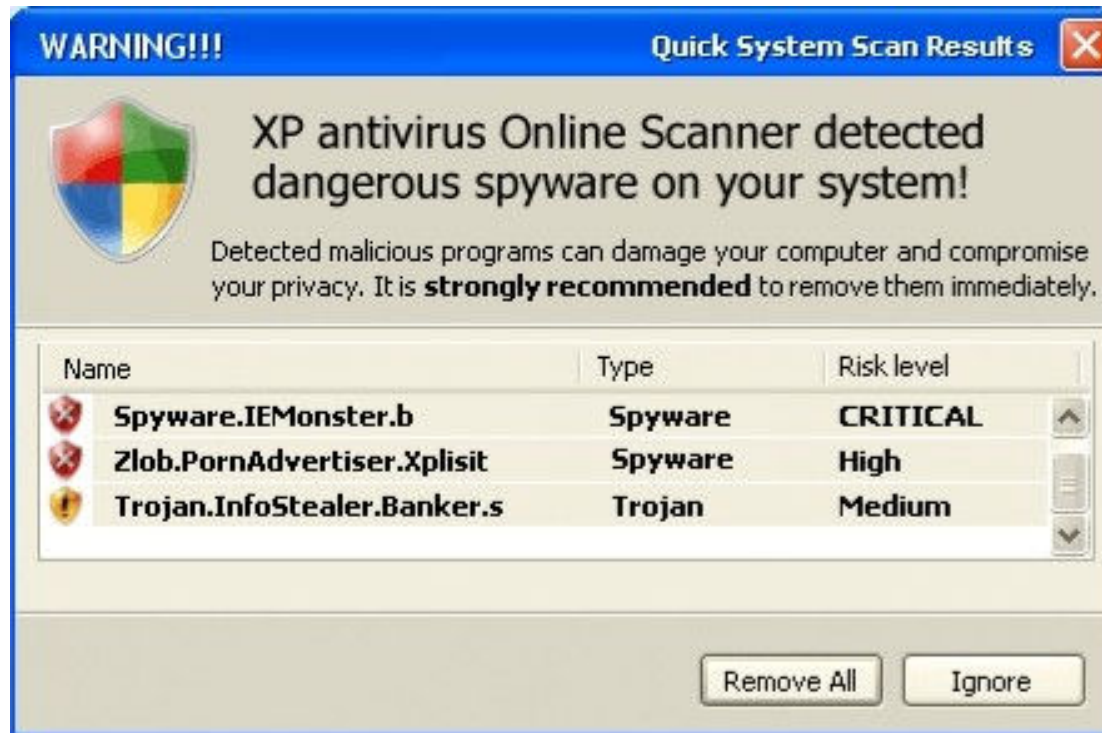
- You can't determine someone's IP address from their 'phone number
- Computer viruses do their best to hide their tracks
- Your router's firewall prevents people from being able to do a 'scan of your system' from afar.

The best thing is to hang up. If you think it may be legitimate then call back (with the number you have, not the one they gave you!) and never do any of the things they ask (“..go to this website and install our remote support software”).

This example of social engineering is increasingly fooling people in 2011.

Scareware

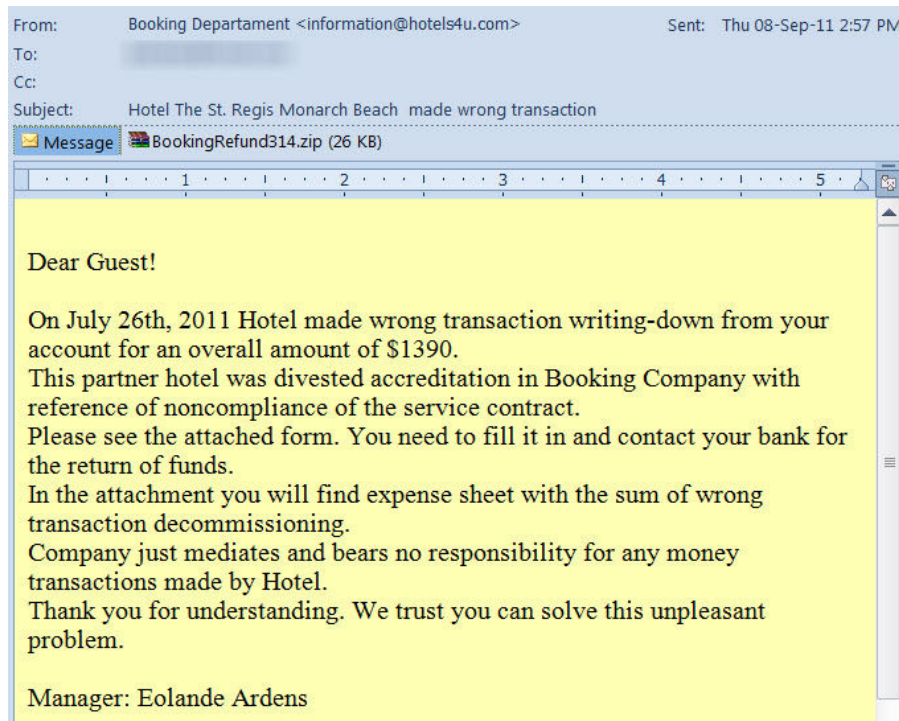
This box popped up on my Mac!



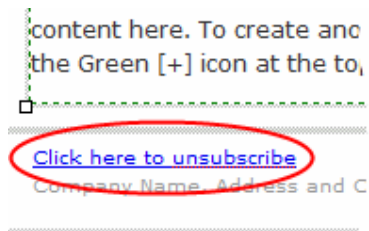
Very prevalent – an element of a web page that looks very much like a piece of software that is warning you about malware infection. They are faked to persuade you to sign up to their \$99 software that will clean this imaginary threat from your system.

Recently the software they sell you comes with real viruses!

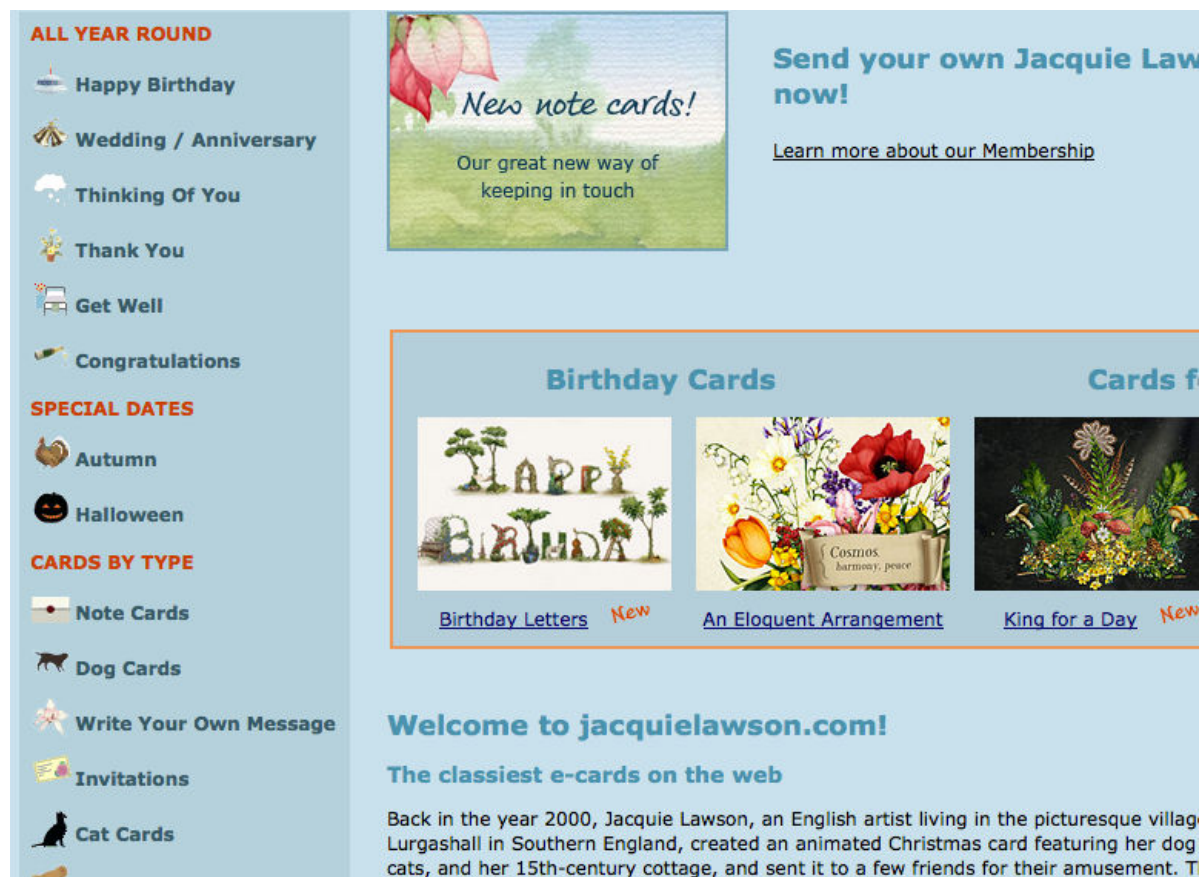
Email – best practise;



- Don't open **attachments** that you weren't expecting, no matter how interesting or enticing they seem.

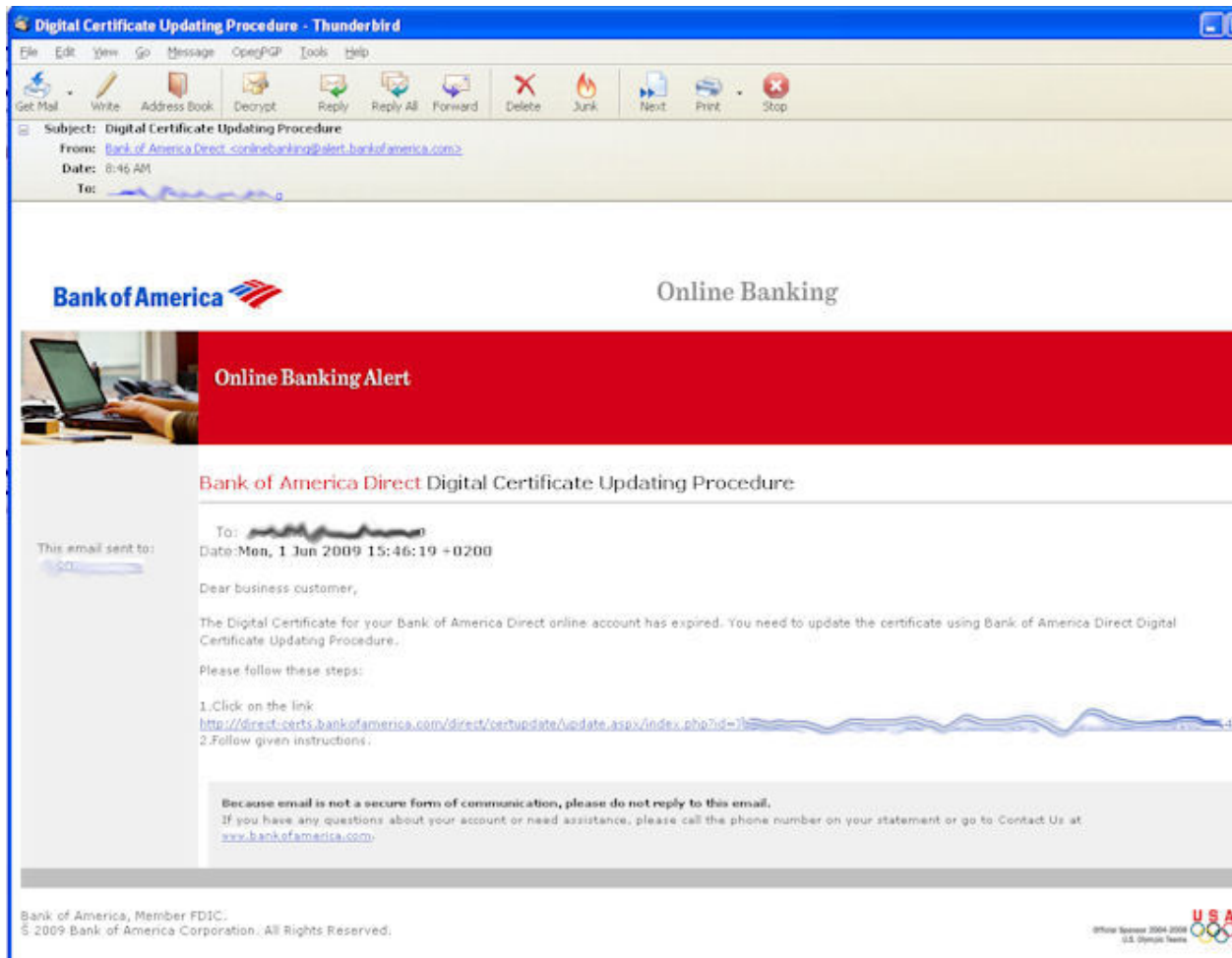


- Never click a link in an email – particularly the one inviting you to **unsubscribe!** It alerts the sending server to the fact that your email address is 'live' and your spam-load will increase ten-fold!

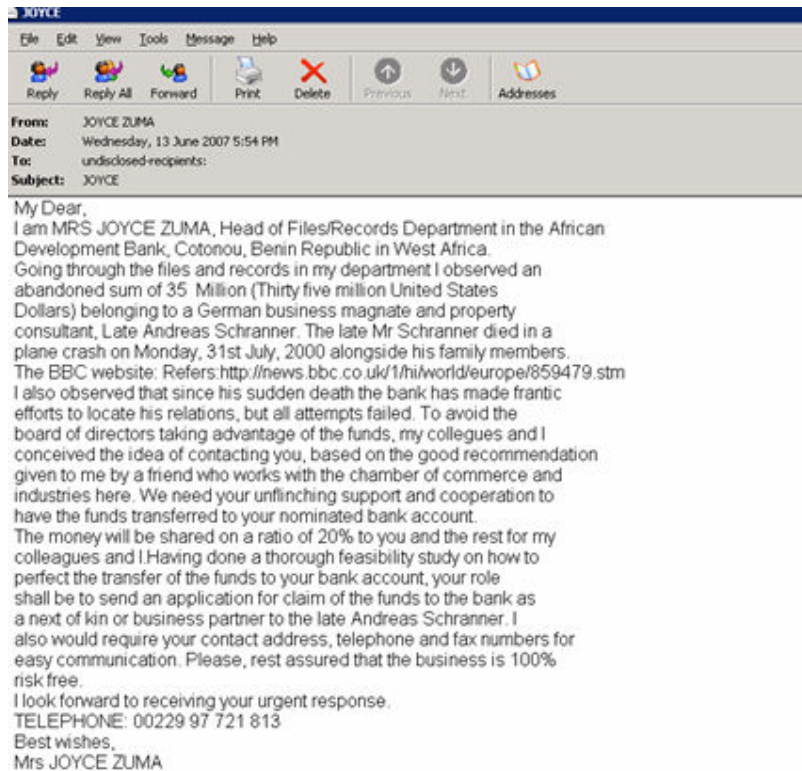


Avoid **animated greetings cards** – at best they sell email addresses on to marketing firms and at worst they come loaded with viruses!

Banks don't do this!



There is never any \$35,000,000!



An advance-fee fraud is a confidence trick in which the target is persuaded to advance sums of money in the hope of realizing a significantly larger gain.

Last year the CIA recorded more than thirty-nine thousand people who lost money to this scam. *A fool and his money....*

OpenDNS

Our friend OpenDNS protects from a lot of these scams because clicking a link in a fraudulent email will cause your computer to lookup the fraudster's server domain name.

`www.nationwidebuildingsociety.com` *(for example)*

...and realise it isn't the legitimate Nationwide site and stop your computer from going there.

As well as protecting you whilst browsing the web and from some email scams OpenDNS stop keyloggers – malware that sits quietly sending your keyboard keypresses to fraudsters.

Viruses and Malware - best and most economical ways of protecting your computers and what to do when the worst happens (because it will!)

“**Malware**, short for **malicious software**, consists of programming (code, scripts, active content, and other software) designed to disrupt or deny operation, gather information that leads to loss of privacy or exploitation, gain unauthorized access to system resources, and other abusive behaviour.” - Wikipedia.

It sounds awful! Why do people want to do this?

- Historically for fun (or ‘for the Lulz’!)
- For financial gain (stealing your credit card details etc)
- To get a foothold into your computer to use it in other criminal ventures (DDOS etc)

What can I do to protect myself?

- Use a good Antivirus package and keep it up to date!
- Make sure you have a Firewall – the best kind is that built into your router
- Stay away for dark corners of the web (but OpenDNS helps with that!)
- A few other tricks!
- What to do if you do get a virus on your machine.

Get a good anti-virus package

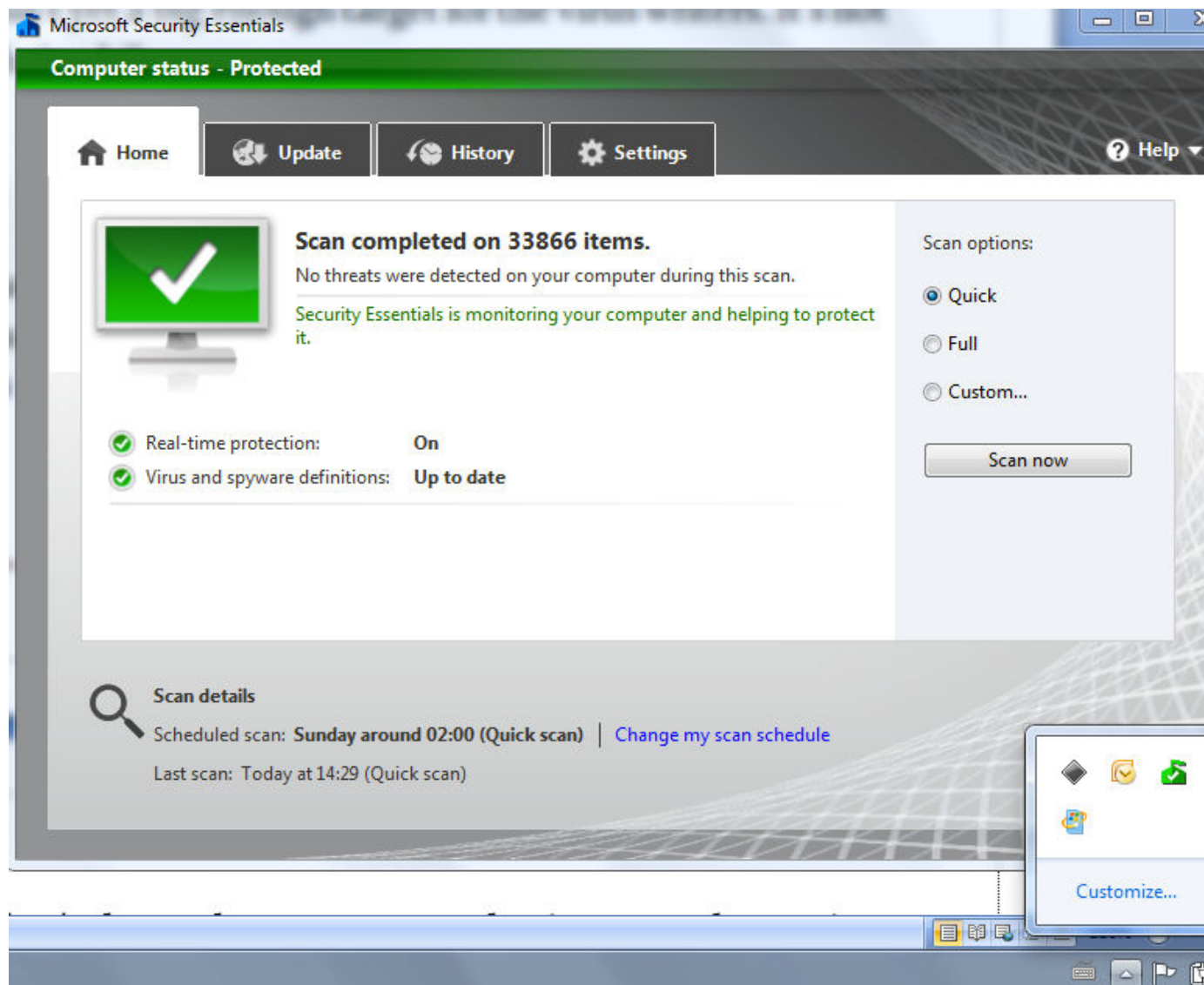
I don't recommend any of the paid-for programmes. They represent poor value and slow your computer down. The best approach (in Windows) is Microsoft Security Essentials:

http://www.microsoft.com/en-gb/security_essentials

I have tried maybe half-a-dozen paid-for anti-virus packages and this is the one I use on all my Windows PCs.

I don't use anti-virus on my Macs – the Mac isn't yet a big enough target for the virus writers. It's not that it's any more secure, it's just not worth their while.

So far there have been only a couple of Mac viruses (against the tens of thousands of Windows ones).



Make sure you have a firewall

All modern computer operating systems have a built-in firewall; don't pay Mr. Norton et al for something you had already! Additionally your Internet router functions as a very effective firewall because of the way it does Network Address Translation.



The screenshot shows the Windows Firewall control panel window. On the left is a navigation pane with links: 'Control Panel Home', 'Allow a program or feature through Windows Firewall', 'Change notification settings', 'Turn Windows Firewall on or off', 'Restore defaults', 'Advanced settings', and 'Troubleshoot my network'. The main area is titled 'Help protect your computer with Windows Firewall' and contains explanatory text and links. Below this is a summary box for 'Home or work (private) networks' which is 'Connected'. The summary box lists: 'Windows Firewall state: On', 'Incoming connections: Block all connections to programs that are not on the list of allowed programs', 'Active home or work (private) networks: internal.root6.com and Network', and 'Notification state: Notify me when Windows Firewall blocks a new program'.

Control Panel Home

Allow a program or feature through Windows Firewall

Change notification settings

Turn Windows Firewall on or off

Restore defaults

Advanced settings


Troubleshoot my network

Help protect your computer with Windows Firewall


Windows Firewall can help prevent hackers or malicious software from gaining access to your computer through the Internet or a network.

[How does a firewall help protect my computer?](#)


[What are network locations?](#)



Home or work (private) networks

Connected 

Networks at home or work where you know and trust the people and devices on the network

Windows Firewall state:	On
Incoming connections:	Block all connections to programs that are not on the list of allowed programs
Active home or work (private) networks:	 internal.root6.com  Network
Notification state:	Notify me when Windows Firewall blocks a new program

What to do when you think the worst has happened.

- Don't panic – after tonight you've been backing up and so you're covered.
- Make sure you have all your CDs and DVDs that came with your computer.
- Make sure you finished tonight's course and are using Dropbox
- Set aside a few hours to re-install your computer

Every computer benefits from having its operating system re-installed every couple of years. Like the footwells of your car your computer collects digital crud which accumulates and slows your PC down. I have friends who never both and end up deciding to replace their machine every couple of years because they think its 'worn out'!

If you've had a virus on your machine this is essential and even if you think you've managed to remove the infection you don't know what other nasties crawled in and **you can never trust that machine again.**

Easy and effective backup solutions that don't depend on you remembering to make copies.

Increasingly we live our lives digitally;

- Photos
- Music
- School & College work
- Financial records etc.

Computers store files on mechanical hard-drives. They have a typical MTBF of 20,000 hours. This means that every computer hard drive in the world **will fail** – maybe today, maybe in ten years. Unless you are prepared for when your laptop or desktop's hard drives dies you will lose lost of your stuff, **probably when it is most inconvenient**.

You need a 3:2:1 backup strategy (like Ted Rogers & Dusty Bin!)

- 3 copies
- 2 types of storage – Hard Drive **and** DVD **or** memory-stick
- 1 offsite backup

Unfortunately houses burn down or get burgled; if your backup is sitting next to your computer... This happened to film director Francis Ford Coppola; he lost several scripts when burgled.

Best backup practise

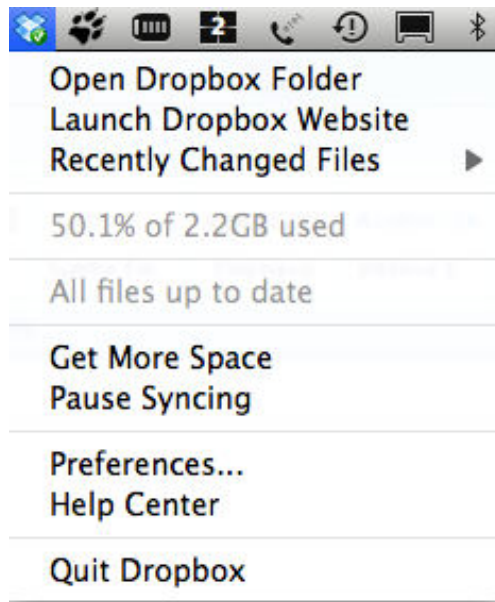
You can backup different things at different times;

- When your digital camera is full and you copy the pictures across make a point of **backing up all** of your photos to a memory stick or a DVD disk. Mail the DVD to your Auntie Rose. Keep the memory stick at work. Never erase your camera without doing this.
- Have a USB backup drive connected to your computer and use Karen's Replicator to back up your Documents folder every day. <http://www.karenware.com/powertools/ptreplicator.asp>
- Sign up for one of the many online 'cloud' backup services – the best is **DropBox**

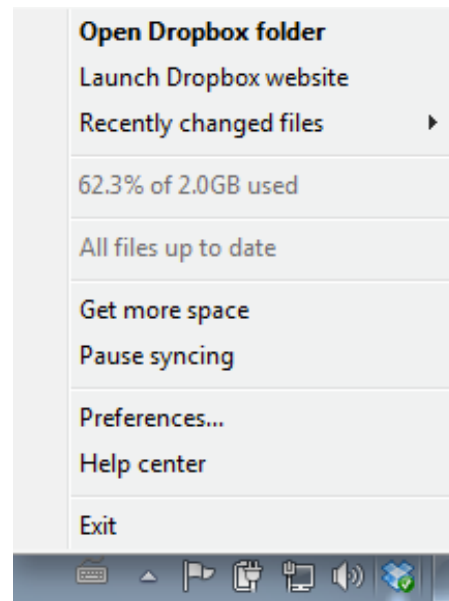
The great thing about an online or 'cloud' service is that it happens without you needing to do anything. Additionally you can have the same Dropbox on several computers so your files are available wherever you are. You can even log in via the web if you've left your laptop at home.

- <http://www.dropbox.com>
- Sign up for a free account – up to 2 Gbytes
- Download and the Dropbox installer – Mac, Windows or Linux
- Once installed enter the username and password and choose the folders to backup
- Repeat on other computers

How does Dropbox work on my computer?



On Mac OS-X

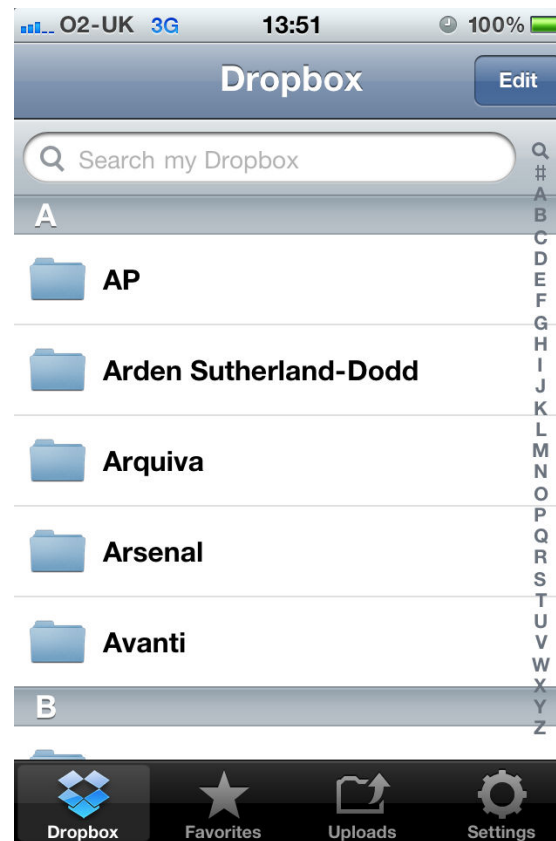
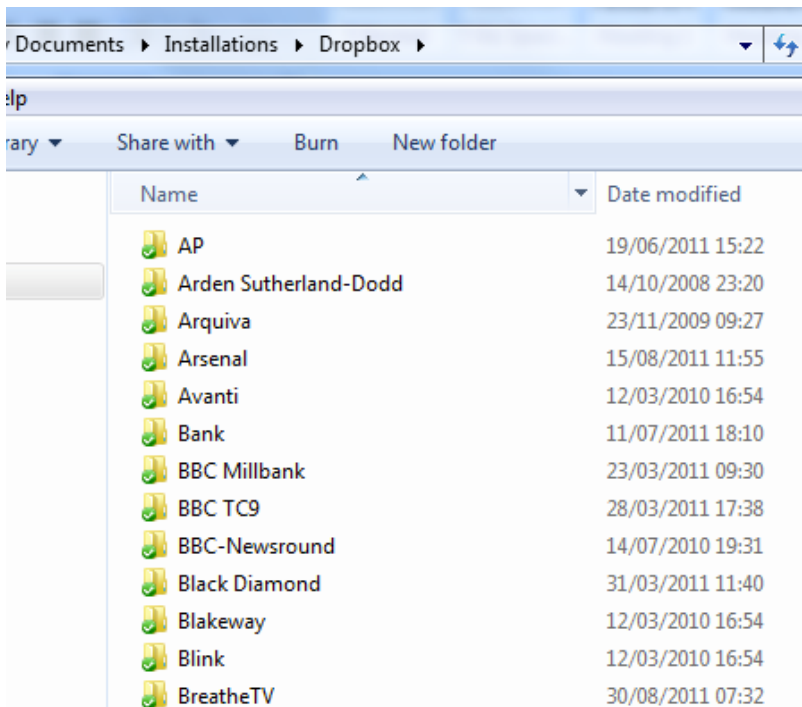


On Windows

- Every time you save a file into your Dropbox it gets copied to their server (in Texas!)
- That file is then available wherever you are via your other Dropbox folders on other computers or via the web
- Great for families – homework on laptops etc.

Another great thing about Dropbox is being able to get to your files on your 'phone.

Take a photo!



As soon as I update a file on my computer it is available on my 'phone – they have versions for iPhone, Blackberry, Android etc.

“Easy & effective backup solutions that don't depend on you remembering to make copies” – *review*;

- Computer hard-drives fail – not a question of *if*, rather *when*!
- 3:2:1 back strategy, 3 copies, 2 storage types, 1 offsite (and done automatically)
- A single copy of anything is vulnerable – don't backup & delete the original!
- Different file type, different back schedule
- Dropbox is offsite AND very convenient –free for 2 Gbytes, cheap for more.
- When you move to a new computer Dropbox means you don't need to transfer your stuff.

Remember – start your backup strategy today and you'll never worry about losing that assignment, photo, or financial record ever again – **peace of mind**!



Feedback

How useful did you find this evening?

☐ too technical ☐ about right ☐ too light weight

What about the length?

☐ way too long! ☐ about right ☐ left wanting more

What other IT-subjects might interest you?

☐ digital media – how to manage my photos, music and films

☐ podcasting – what's that all about?

☐ websites, blogging and social media, where do I start?

Any further comments?

