A brief guide to Passwords and Internet Security

By Giles Godart-Brown

What is a virus?

What is a Virus?

- Wikipedia definition:
  "A computer virus is a type of computer program that, when executed, replicates itself by modifying other computer programs and inserting its own code. If this replication succeeds, the affected areas are then said to be "infected" with a computer virus"

- Strictly speaking a it's a virus only if it gets itself buried into a host program (e.g. Microsoft Mail) if it runs on its own its called a Worm

- People create Viruses for a number of reasons, profit (e.g. ransomware where it demands payment to restore your computer), political power, to demonstrate a vulnerability of a product, corporate gain, or just plain devilment.

A VERY simple virus example

- A simple program to print "Hello Mendlesham"
  - print ("Hello Mendlesham");

- Now with a virus
  - print ("Hello Mendlesham");
    # the next line will delete your windows directory rendering your computer useless
    rmdir "C:/Windows"; ;

- Typically they are much more complex than this and include mechanisms for infecting other computers

Anti-Virus

Anti-Virus

- Attacks range from annoying e.g. sending an embarrassing email to everyone on your email contacts list to devastating e.g. encrypting your hard disk and only allowing you to access it if you pay a ransom.

- Viruses usually propagate as email attachments.

- Prevention
  - Be very wary of any email attachment.

- Protection
  - Always check that Anti-Virus software is installed on any PC you use and check that it is active.

Anti-Virus software

- Never rely on the Microsoft built-in Anti-Virus software or software that came 'Free" with your computer e.g. McAffee or Norton. Your license will expire after a year, it may not be working and you are NOT PROTECTED.
- We recommend that near the end of your free license, you uninstall the current Anti-Virus and install the free (Basic) AVG software instead.
  – Settings>Apps & features, then scroll down to the app you want to uninstall, left click on it and select uninstall
  – Go to https://www.avg.com/en-gb/free-antivirus-download and follow the instructions to install AVG.
- NEVER have 2 anti-virus software programs running at the same time.
- ALWAYS keep your Anti-Virus software up-to-date
- AVG will often ask if you want to upgrade to their Pay version, you almost certainly do not need to do this.

Passwords

How to get someone's password

- Guess it
  - 'brute force'
  - 'dictionary'

or

- Steal it
  - from you
  - from the network
  - from a company

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# How to stop someone guessing your password and minimise the impact if it is stolen

- Make it long
- Include mixed cases (Cc), numbers, and odd characters (-,+ etc)

But this makes them harder to remember so;

- Have a code
  - e.g. instead of Pass, use ssaP
- Use a phrase you can remember
  - e.g. mY-soN-waS-borN-iN-1990
- Have a different password for each site
  - e.g. for Amazon use Amazon-ssaP1

How to prevent your passwords being stolen

- ## NEVER WRITE THEM DOWN !!!!!

- If you have problems remembering them, use a password vault
  - e.g. LastPass – Cloud based or
  - KeePass for local storage or
  - MacPass
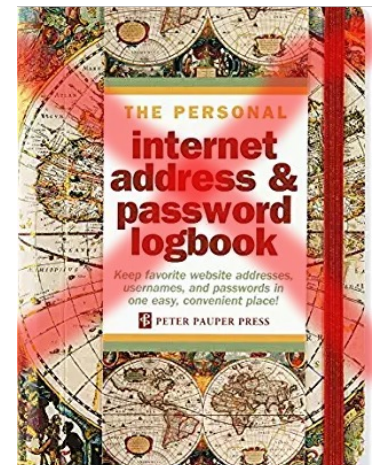
(demo of Keepass)

Two Factor Authentication

What is 2-Factor Authentication ?

- 2 Factor Authentication (sometimes called Multi Factor Authentication or MFA) is based on "something you know (a password) and something you own (a mobile phone or email account) thus doubling the security of the connection. Increasingly web sites that involve money or private data will implement this.

- How it works
  - When you register on a web site, in addition to your password, you also register your email address and mobile phone number.
  - When you log into the site, it first asks for your password (factor 1), then sends you a text or email.
  - The text or email contains a code (usually a 6 digit number) that you must enter into the web site in order to log on. This confirms that whoever is logging in also has your mobile phone (factor 2).

- If you are in an area with poor mobile coverage, some sites allow you to specify an email address instead of mobile number. If you get a new phone, don't forget to update the number on the web sites that use it.

Advanced Security

- Use fingerprint or face recognition if possible on phones and laptops

- Face recognition only works on a few, more modern phones e.g. iPhone 11 and above, Google Pixel 6, Samasung Galaxy S21, OnePlus 9, Xiaomi Redmi Note 10 Pro

Security hints and tips

More hints and tips

- NEVER click on a link or attachment from an email you don't recognise even if it was forwarded from someone you know.

- Be especially wary of emails from Banks and Insurance companies.

  – if in doubt ignore them, a genuine Bank will find another way of contacting you.

- Be wary of sites that ask for the entire password in financial transactions.

Secure communications

- Never put personal details into a site which starts with http rather than https – s means secure! Look for the padlock.

These sites encrypt all messages

Examples
http://example.com
https://example.com

Software updates

- Always keep your software up to date;
  - Windows and MAC OSX usually update automatically, but phones often need you to do something
  - Browsers (Explorer, Chrome, Safari etc.) usually update automatically
  - Anti Virus usually updates automatically – It's essential that you have one on a PC (search. AVG free), less so on phone/tablet though this will change.

Beware of offerings to 'fix' your PC

- There have been many reports of scammers pretending to be Microsoft or BT calling to offer to help you speed up your PC or 'fix' it.

- These are always BOGUS, just politely hang up.

- NEVER let ANYONE instruct you to install software, especially if it lets them control your PC e.g. TeamViewer

Phishing

Phishing email

Subject: Customer Notice: Your Account Summary - December 2018
From: "NatWest Bank plc" <noreply@alertsp.com>
Date: 17/12/2018, 08:41
To: Recipients <noreply@alertsp.com>

On Sunday 16 December 2018 at 11.27 EST
We detected unusual activity on your account and as a result,
for your protection, we temporarily suspended online access to your account.
To re- activate your online access please complete our verification form below.

Complete Verification Process

It is mandtory in such cases to complete our verification process,
failure to adhere with our secirty policies may result to permernent account closure.

1) Content – what is it about?

2) Sender

3) Spelling and Grammar

4) Links – is there another way?
use copy-paste to verify link,
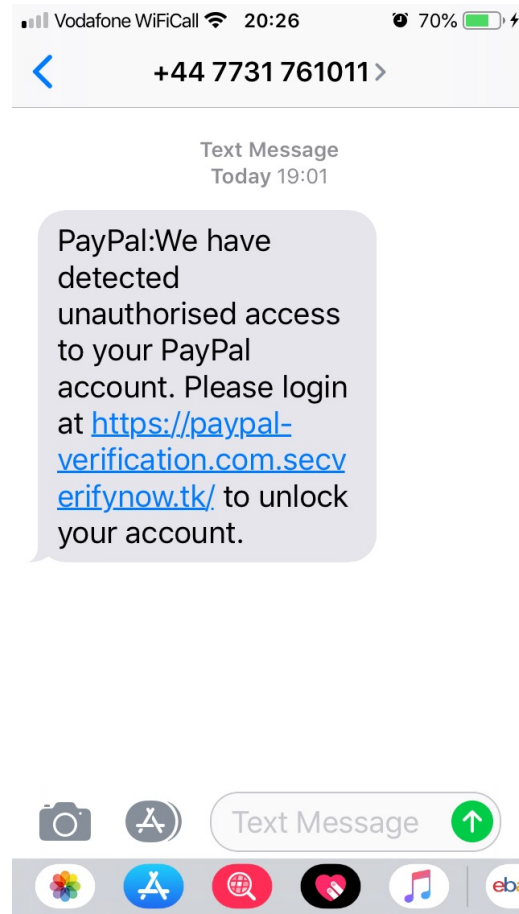in this case it was;
http://antiquecarriages.com/images/smilies/zzoundt.php

5) If in doubt - delete

What to do if you get a phishing email

- Do not click on any links

- Report it to the National Fraud and Cyber Crime Centre, Action Fraud by calling 0300 123 2040 or report it online on https://www.actionfraud.police.uk/

Phishing text

Text Message
Today 19:01

PayPal:We have detected unauthorised access to your PayPal account. Please login at https://paypal-verification.com.secverifynow.tk/ to unlock your account.
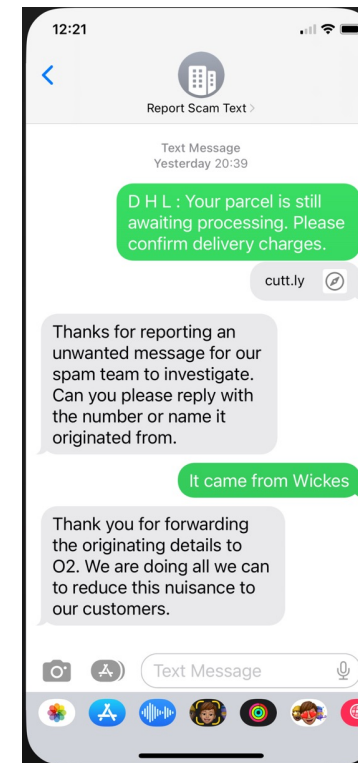
.tk is for Tokelau, a territory of New Zealand

What to do if you get a phishing text

- If you suspect a text is a scam, DO NOT CLICK on the link, but instead forward it to the National Cyber Security Centre on 7726.
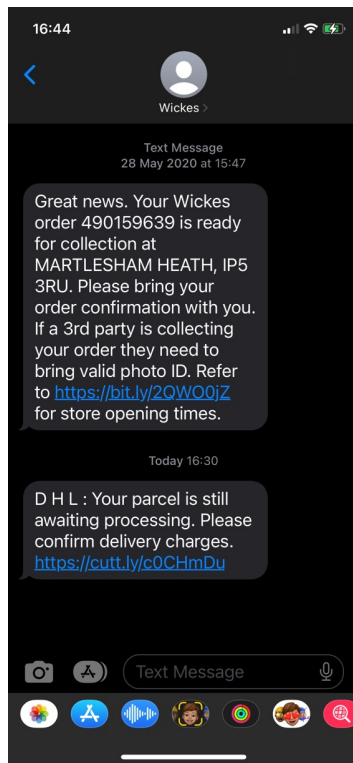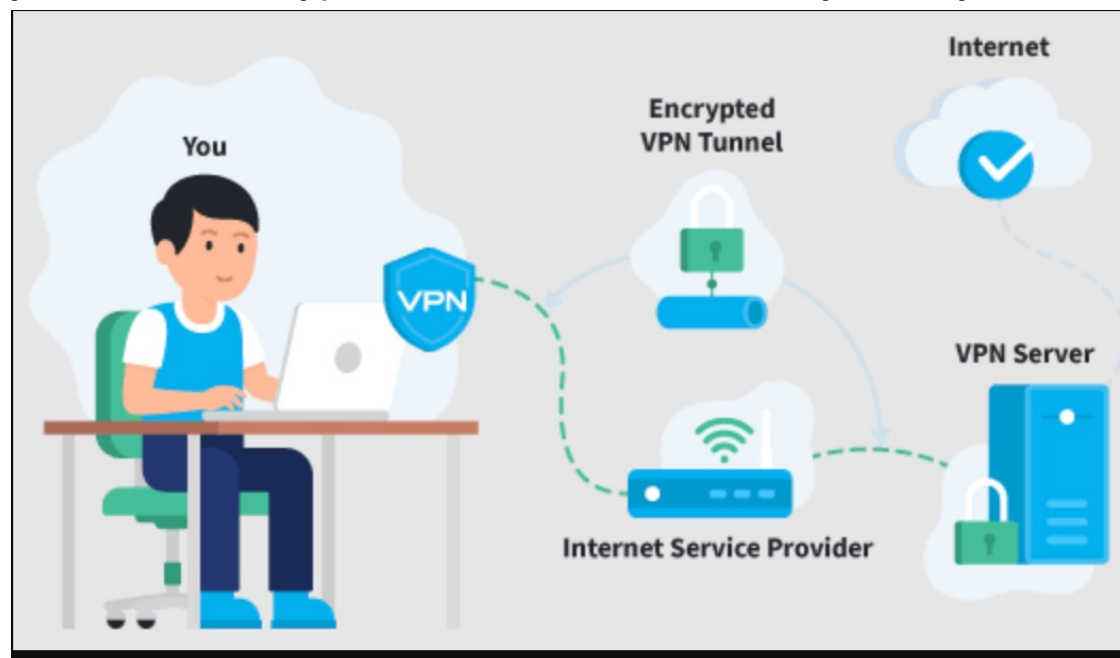
The Virtual Private Network (VPN)

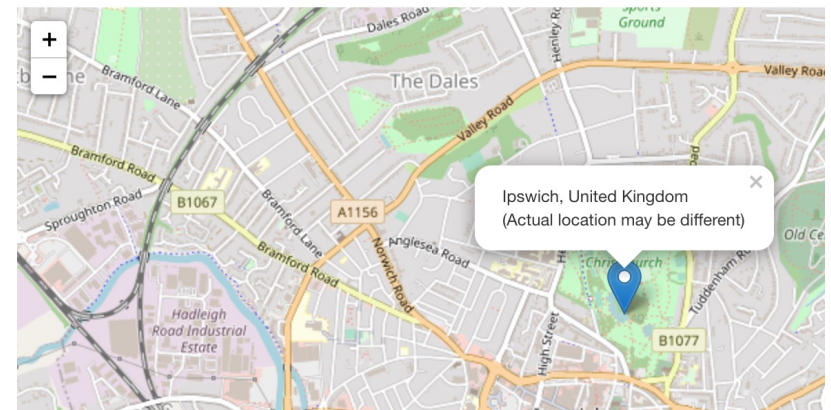# What is a Virtual Private Network (VPN)

- A VPN is an encrypted tunnel through the internet between a client (e.g. your PC) and a VPN server that acts as a gateway to the internet.

- Internet traffic from your PC is encrypted and web sites can only track you to the VPN server.
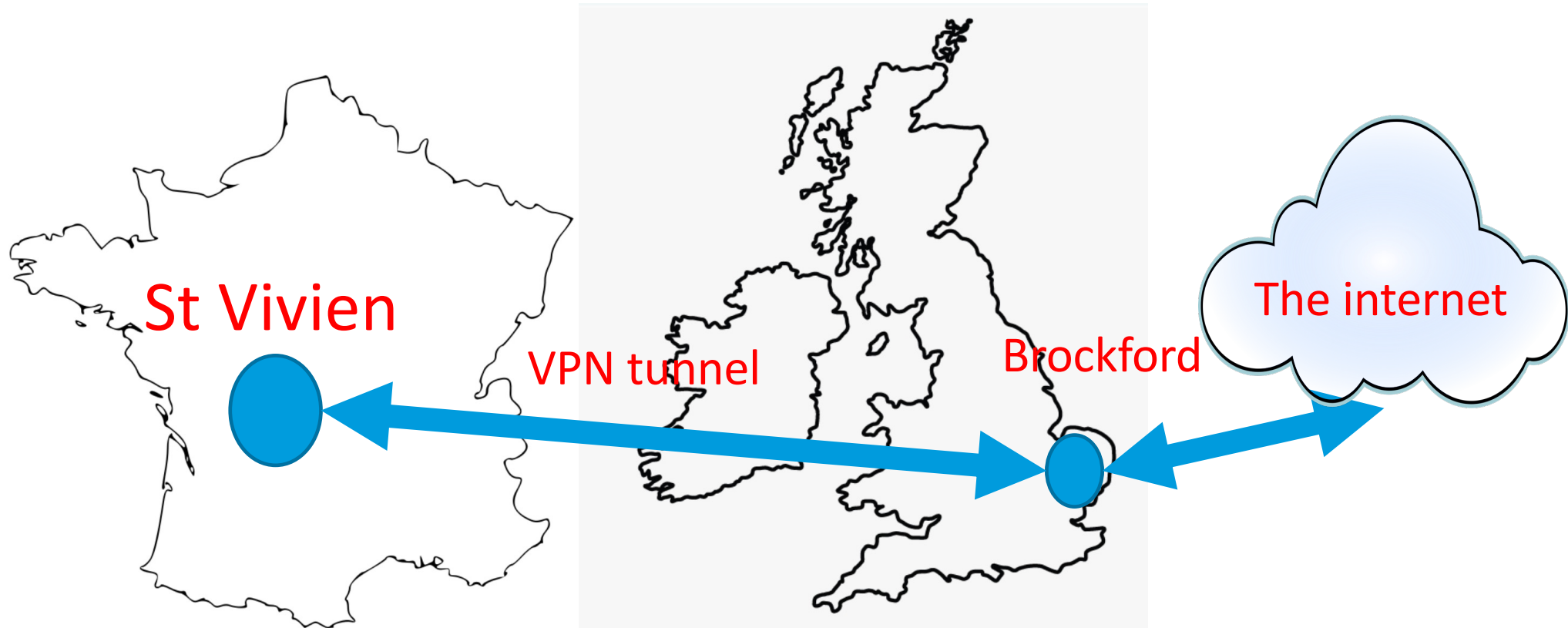
Do I need a Virtual Private Network (VPN)

- There are a lot of adverts on the TV trying to scare you into buying a VPN (NordVPN, Norton).

- They prey on the fact that:

  1. That you need to encrypt ALL of your Internet traffic.

  2. You need to avoid 'Trackers'

  3. Your location can be accurately tracked and

- This is overkill for regular consumers because;

  1. Most internet traffic is already encrypted (urls start with https)

  2. Browsers with Ad blockers prevent trackers

  3. The location is pretty inaccurate

Internet Service Provider (ISP)	BSkyB Broadband
Organization	Sky Network Services
AS number and name	AS5607 Sky UK Limited
User agent	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWe Chrome/108.0.0.0 Safari/537.36

Ipswich, United Kingdom (Actual location may be different)

Why does Giles have a VPN?

St Vivien

VPN tunnel

Brockford

The internet

The internet thinks we are in the UK!

Questions

https://www.avg.com/en-gb/free-antivirus-download