superhighways

harnessing technology for community benefit

Cyber security basics:

An introduction to cybersecurity for everyone

Paul Firby

#DigitalFoundations

Some context about Cyber Attacks

Question:

In the annual DCMS survey 2023, what percentage of charities reported having a cyber security breach in the last 12 months?

24% 30% 56% 76%

Official Statistics

Cyber security breaches survey 2023

Published 19 April 2023

Type of breach or attack in the last 12 months	Businesses	Charities
Phishing attacks	79%	83%
Others impersonating organisation in emails or online	31%	29%
Viruses, spyware or malware (excluding ransomware)	11%	9%
Hacking or attempted hacking of online bank accounts	11%	6%
Takeovers of organisation's or users' accounts	9%	5%
Denial of service attacks	7%	7%
Ransomware	4%	4%
Unauthorised accessing of files or networks by staff	2%	4%
Unauthorised accessing of files or networks by outsiders	2%	2%
Unauthorised listening into video conferences or instant messages*	0.5%	1%
Any other breaches or attacks	4%	4%

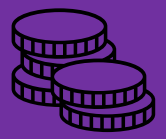
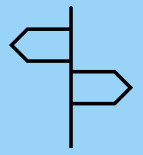
Visit the full report

Data protection – GDPR principles

1. Process lawfully, fairly and in a transparent manner
2. Collect for specified, explicit and legitimate purposes
3. Only keep what is adequate, relevant and limited to what is necessary
4. Store accurate information and keep up to date
5. Retain only for as long as necessary
6. Process in an appropriate manner to maintain security

Why are charities at risk?

National Cyber Security Centre

Charities...	Hold funds 	Personal, financial and commercial data of interest or monetary value 	Data is sensitive, valuable and vulnerable to attack 
Impact.... Data gets lost 	You have to stop operations 	Financial/Time cost to recover 	Reputation 

How are charities being attacked?

- ✓ Ransomware

  A type of malware that makes data or systems unusable until the victim makes a payment.

- ✓ Malware and Spyware

  Malicious software that is designed to interfere with a computer's normal functioning and that can be used to obtain information and commit cybercrimes.

- ✓ Business email attacks (phishing)

  Scam emails sent to people asking for sensitive information (such as bank details) or encouraging them to visit a fake website

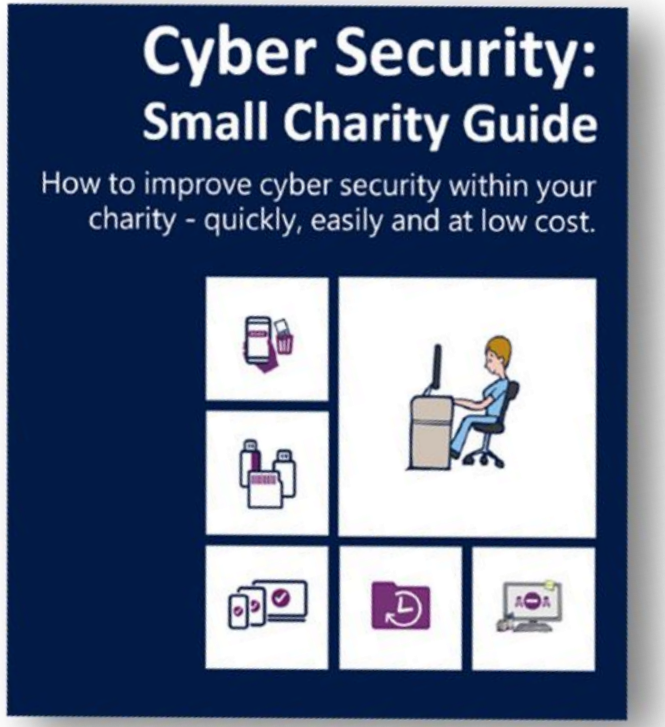
- ✓ Fake organisations and websites

National Cyber Security Centre

What can you do to protect your charity?

The National Cyber Security Centre's 5 quick, simple, free or low cost steps

1. Backing up your data
2. Protecting against malware
3. Securing your mobile devices
4. Password best practice
5. Avoid phishing attacks



Download the full guide

Download the infographic

National Cyber Security Centre
a part of GCHQ

Cyber Security
Small Charity Guide

This advice has been produced to help charities protect themselves from the most common cyber attacks. The 5 topics covered are easy to understand and cost little to implement. Read our quick tips below, or find out more at **www.ncsc.gov.uk/charity** .

Backing up your data

Take *regular* backups of your important data, and *test* they can be restored. This will reduce the inconvenience of any data loss from theft, fire, other physical damage, or ransomware.

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- **Ensure the device containing your backup is *not* permanently connected** to the device holding the original copy, neither physically nor over a local network.
- **Consider backing up to the cloud.** This means your data is stored in a separate location (away from your offices/devices), and you'll also be able to access it quickly, from anywhere.

Keeping your smartphones (and tablets) safe

Smartphones and tablets (which are used outside the safety of the office and home) need even more protection than 'desktop' equipment.

- **Switch on PIN/password protection/fingerprint recognition** for mobile devices.
- Configure devices so that when lost or stolen they can be **tracked**, **remotely wiped** or **remotely locked**.
- Keep your **devices** (and all **installed apps**) **up to date**, using the '**automatically update**' option if available.
- When sending sensitive data, don't connect to public Wi-Fi hotspots - **use 3G or 4G connections** (including tethering and wireless dongles) or **use VPNs**.
- **Replace devices that are no longer supported by manufacturers** with up-to-date alternatives.

Preventing malware damage

You can protect your charity from the damage caused by 'malware' (malicious software, including viruses) by adopting some simple and low-cost techniques.

- **Use antivirus** software on all computers and laptops. **Only install approved software** on tablets and smartphones, and prevent users from downloading third party apps from unknown sources.
- **Patch all software and firmware** by promptly applying the latest software updates provided by manufacturers and vendors. Use the '**automatically update**' option where available.
- **Control access to removable media** such as SD cards and USB sticks. Consider disabling ports, or limiting access to sanctioned media. Encourage staff to transfer files via email or cloud storage instead.
- **Switch on your firewall** (included with most operating systems) to create a buffer zone between your network and the Internet.

Avoiding phishing attacks

In phishing attacks, scammers send fake emails asking for sensitive information (such as bank details), or containing links to bad websites.

- Ensure staff **don't browse the web or check emails** from an account with **Administrator privileges**. This will reduce the impact of successful phishing attacks.
- **Scan for malware** and **change passwords** as soon as possible if you suspect a successful attack has occurred. **Don't punish staff** if they get caught out (it discourages people from reporting in the future).
- Check for obvious signs of phishing, like **poor spelling and grammar**, or **low quality versions** of recognisable logos. Does the sender's email address look legitimate, or is it trying to mimic someone you know?

Using passwords to protect your data

Passwords - when implemented correctly - are a free, easy and effective way to prevent unauthorised people from accessing your devices and data.

- Make sure all laptops, MACs and PCs **use encryption products** that require a password to boot. Switch on **password/ PIN protection** or **fingerprint recognition** for mobile devices.
- **Use two factor authentication (2FA)** for important websites like banking and email, if you're given the option.
- **Avoid using predictable passwords** (such as family and pet names). Avoid the most common passwords that criminals can guess (like *passw0rd*).
- Do not enforce regular password changes; they only need to be changed when you suspect a compromise.
- **Change** the manufacturers' default passwords that devices are issued with, before they are distributed to staff.
- **Provide secure storage** so staff can write down passwords and keep them safe (but not with the device). Ensure staff can reset their own passwords, easily.
- **Consider using a password manager.** If you do use one, make sure that the 'master' password (that provides access to all your other passwords) is a strong one.

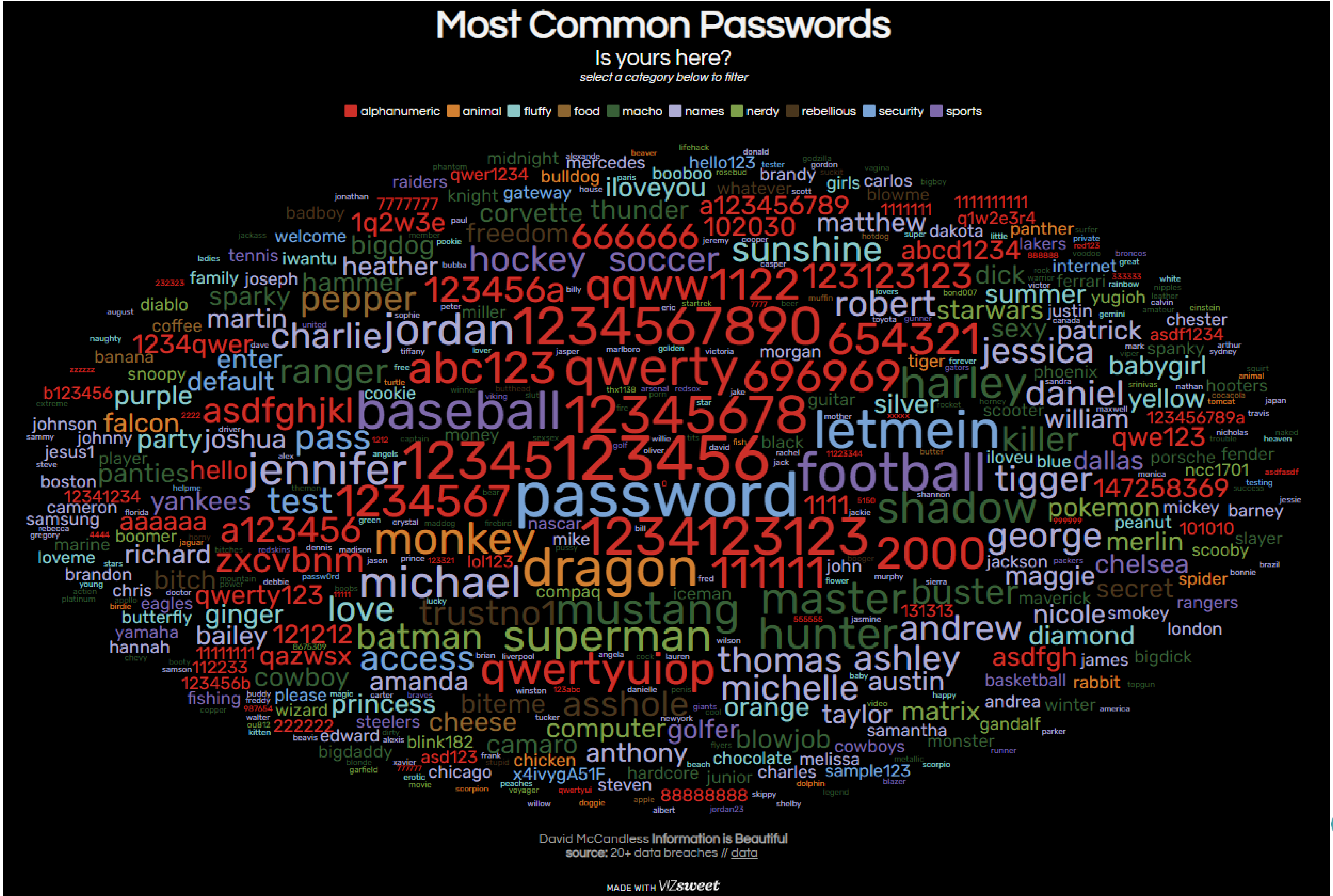
Passwords: protecting our accounts & devices

- ✓Emails
- ✓Files
- ✓Databases / CRMs
- ✓Microsoft 365
- ✓Websites
- ✓Social Media
- ✓And more!

- ✓Phones
- ✓Tablets
- ✓PCs & laptops

But also

- ✓Firewalls
- ✓Routers
- ✓Servers


Most Common Passwords
Is yours here?
select a category below to filter
alphanumeric animal fluffy food macho names nerdy rebellious security sports
password
123456
12345678
1234567890
qwerty
baseball
football
letmein
dragon
1234567
jennifer
michael
monkey
superman
mustang
master
shadow
abc123
654321
696969
123123123
1234123123
qqww1122
123456a
jordan
charlie
harley
hunter
2000
111111
tigger
killer
asdfghjkl
a123456
zxcvbnm
qwertyuiop
hockey
soccer
sunshine
666666
robert
jessica
batman
access
michelle
thomas
ashley
andrew
buster
trustno1
love
asshole
princess
David McCandless Information is Beautiful
source: 20+ data breaches // data
MADE WITH VIZsweet

Passwords: often the weakest link

How Secure is my password?

Password Tester | Test Your Password Strength | Bitwarden

Have I been PWNed?

Have I Been Pwned: Check if your email has been compromised in a data breach

Creating a Secure Password

- ✓Choose three random words
  - ✓carrot printer sparrow
- ✓Add some punctuation
  - ✓carrot”printer”sparrow”
- ✓Add some numbers
  - ✓20carrot”printer”sparrow”24
- ✓You now have a 27-character password that’s easy to remember!
- ✓Free Password Generator | Create Strong Passwords | Bitwarden

[Two Factor Authentication (captioned) Explained by Common Craft (VIDEO)]

Multi (or Two) Factor Authentication

- ✓Have you had to sign in to a website or service that requires two factor authentication?
- ✓Describe the experience.
- ✓What are the advantages and disadvantages of using two factor authentication?

PINs and biometrics

- Switch on PIN / fingerprint /facial recognition recognition for all devices (maybe not facial on Android!)

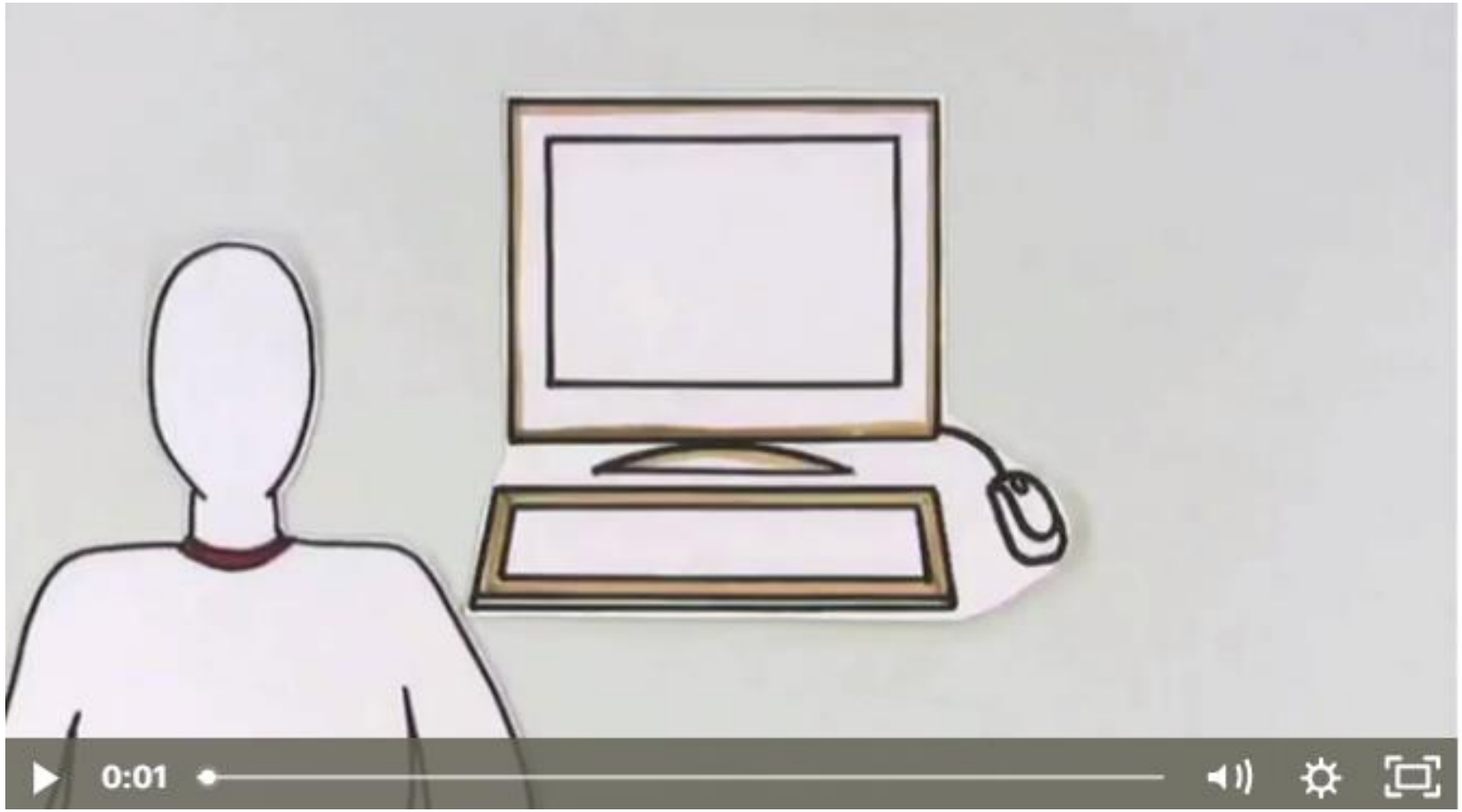
- If using Windows laptops – new installations use the **Windows Hello** feature, where you choose a PIN specific to that device and with single sign on, signs on to your Office 365 account. But it can't be used to sign on another device. (See Why a PIN is better than a password)

Key takeaways

1. **Switch on password protection** - where this not enabled by default
2. **Change all default passwords** – to mitigate against 'open door' access
3. **Avoid predictable passwords** – have an organisational password policy, implementing NCSC's 3 random words plus a number and symbol
4. **Use two factor authentication** – where available for the tools you are using
5. **Individual accounts for everyone where possible** – easier to control authorised access Remember to block accounts / change passwords when people leave your organisation

Action planning – questions to ask

1. What accounts do you have? Which of these contain personal and potentially sensitive information? (prioritise these)
2. Are people using weak / 'easy to crack' passwords?
3. Can you enable multi factor authentication on your accounts?
4. Do people share account log ins?
5. Do you change passwords when people leave your organisation?



[Phishing video from CommonCraft]

What is Phishing?

- ✓A scam in which a criminal impersonates a trusted online organisation, sending fake emails to thousands of people to trick them into handing over important sensitive information like account numbers and passwords, or containing links to bad websites.

- ✓Scammers might try to trick you into sending money, steal your details to sell on, or send you to a dodgy website which could download viruses onto your computer or steal your passwords.

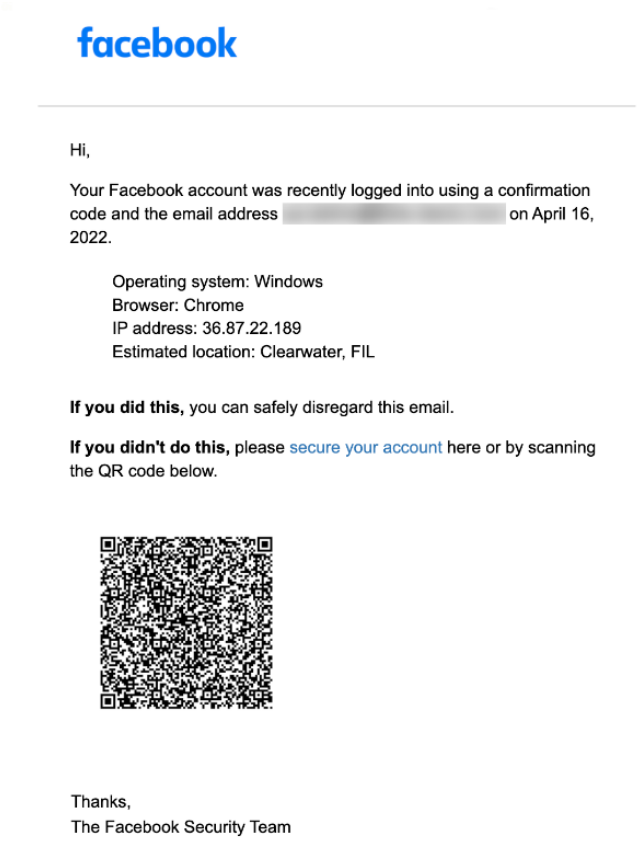
Spotting Phishing Emails

This was put together by a team from Google

[Jigsaw | Phishing Quiz]

Let’s take the quiz together.

Here’s two phishing examples



facebook

Hi,

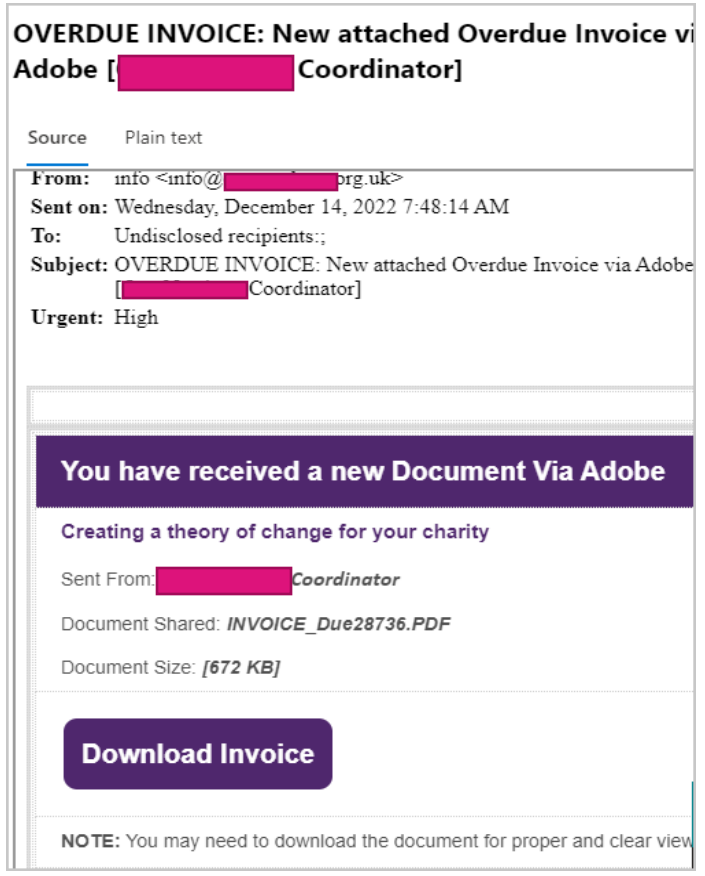
Your Facebook account was recently logged into using a confirmation code and the email address [redacted] on April 16, 2022.

Operating system: Windows
Browser: Chrome
IP address: 36.87.22.189
Estimated location: Clearwater, FIL

If you did this, you can safely disregard this email.

If you didn't do this, please secure your account here or by scanning the QR code below.

Thanks,
The Facebook Security Team



OVERDUE INVOICE: New attached Overdue Invoice vi
Adobe [[redacted] Coordinator]

Source Plain text

From: info <info@[redacted]org.uk>
Sent on: Wednesday, December 14, 2022 7:48:14 AM
To: Undisclosed recipients:;
Subject: OVERDUE INVOICE: New attached Overdue Invoice via Adobe [[redacted]Coordinator]
Urgent: High

You have received a new Document Via Adobe

Creating a theory of change for your charity

Sent From: [redacted] *Coordinator*

Document Shared: ***INVOICE_Due28736.PDF***

Document Size: ***[672 KB]***

Download Invoice

NOTE: You may need to download the document for proper and clear view

[Other examples at Which Consumer Rights News]

Know the obvious signs of phishing

A phishing attack is a type of cyberattack that tries to trick users into revealing their personal or financial information. Some of the common features of a phishing attack are:

- ✓ - A fake sender: The attacker pretends to be someone else, such as a trusted company, a friend, or a government agency. They may use a similar email address, logo, or website to fool the user.
- ✓ - A sense of urgency: The attacker creates a false sense of urgency or threat, such as saying that the user's account has been compromised, that they have won a prize, or that they need to update their information immediately.
- ✓ - A request for information: The attacker asks the user to click on a link, open an attachment, or provide their personal or financial information. The link may lead to a malicious website that looks legitimate, the attachment may contain malware, or the information may be used for identity theft or fraud.

https://youtu.be/TFICLREWxfU

Text scams

If you receive a suspicious text message

- ✓Most phone providers are part of a scheme that allows customers to report suspicious text messages for free by forwarding it to **7726**.
- ✓If you forward a text to **7726**, your provider can investigate the origin of the text and arrange to block or ban the sender, if it's found to be malicious.
- ✓Find further information on the Action Fraud website.

Phone scams

If you receive a suspicious phone call

- ✓Phone scammers will call you unsolicited, pretending to be from an organisation you trust, such as your bank, a service provider or even the police.
- ✓These scam calls may be automated, or from a real person. They may ask you for your personal information like banking details, or tell you, you need to transfer money.
- ✓If you've lost money or have been hacked as a result of responding to a call, you should report it to Action Fraud online or call 0300 123 2040.

Report all attacks

- ✓Encourage your team to ask for help if they think they might have been a victim of phishing and to raise as soon as possible
- ✓Take immediate steps if you suspect a successful attack has occurred including scan for malware and change passwords as soon as possible
- ✓Avoid a blame culture – this may discourage people from reporting in future
- ✓If you believe you have been a victim you should report this through:
  - ✓ Action Fraud (www.actionfraud.police.uk)
  - ✓ Charity Commission – where there's been a serious incident
  - ✓ Information Commissioners Office – where this has led to a data breach

Configure accounts appropriately

- ✓ Use the principle of 'least privilege'. Give trustees, staff and volunteers the lowest level of user rights required to perform their role, so if they are the victim of a phishing attack, the potential damage is reduced.

- ✓ Ensure users aren't logged on with Administrator privileges. Administrators can change security settings, install software and hardware, and access all files on the computer. An attacker having unauthorised access to an Administrator account can be far more damaging than accessing a standard user account

- ✓ Use two factor authentication (2FA) on your important accounts such as email. This means that even if an attacker knows your passwords, they still won't be able to access that account if someone has given away their password.
- ✓ Check what other security measures your tech providers offer e.g. Office 365 has features to detect spoof emails and e.g. quarantine them before reaching your inbox

Check your digital footprint

- ✓Attackers use publicly available information about your charity and staff to make their phishing messages more convincing, often gleaned from your website and social media accounts
- ✓What do visitors to your website and social media followers need to know, and what detail is unnecessary (but could be useful for attackers)? What do trustees, staff and volunteers give away about your charity online?
- ✓See the CPNI's Digital Footprint Campaign's useful resources including posters and booklets to help you work with staff to minimise online security risks.

I’m pretty alert to scammers, I think I’m safe…

https://youtu.be/Ic7scxvKQOo

What is Malware?

- ✓Malicious software that is designed to interfere with a computer's normal functioning and that can be used to obtain information and commit cybercrimes.

- ✓**Ransomware** - a type of malware that makes data or systems unusable until the victim makes a payment

NCSC's 5 tips to protect against malware

1. Use antivirus software on all computers
2. Patch all software and firmware
3. Control access to removable media
4. Switch on your firewall
5. Smartphone guidance

Antivirus options

- ✓Free or paid options – better to go with paid options(watch out for personal use vs organisational/business use criteria)

CHARITY DIGITAL

- ✓Security products catalogue with discounts for registered charities including Bitdefender, Avast & Norton
- ✓Alternatively purchase via e.g. Amazon
- ✓Check pricing at point of renewal – it may be cheaper to rebuy the product

Keep everything up to date

- ✓Patch all software and firmware by promptly applying the latest software updates (don't ignore these!)provided by manufacturers and vendors
- ✓This protects against identified vulnerabilities and is needed for PCs & laptops as well as mobile devices
- ✓Use 'automatic update' options where available
- ✓Be aware of software 'end of life' e.g. Windows & Office suites, where security updates are no longer provided

Control software installation

- ✓Only install approved software on tablets and smartphones from your relevant app stores
- ✓Stop users from downloading third party apps from unknown sources
- ✓Prevent users from routinely logging on with administrative privileges (limits potential damage malware can carry out)

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Digital Foundations programme

There are many ways we can help small community organisations make sound choices about the digital tools and technology they use.

Communications made easy

Raise your profile using digital tools to engage supporters and fund your future

Read more »

Digital basics

Work and collaborate online using free and affordable digital tools and technology

Read more »

Websites for communities

Put your website at the heart of your charity or community organisation's story

Read more »

[Find out more about the Digital Foundations programme]

About Superhighways

Providing tech support to small local charities in London for over 20 years

- ✓ Support
- ✓ Training
- ✓ Consultancy
- ✓ Digital inclusion
- ✓ Datawise London
- ✓ See all services

- ✓ E-news sign up

Thank you for listening

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#DigitalFoundations