Introduction to Personal Digital Security and Privacy

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Robert Hurlbut

RobertHurlbut.com • @RobertHurlbut
Robert Hurlbut

Software Security Consultant, Architect, and Trainer
Owner / President of Robert Hurlbut Consulting Services
(ISC)2 CSSLP 2014-2017
Co-host Application Security Security Podcast (@appsecpodcast)

Contacts
Web Site: https://roberthurlbut.com
LinkedIn: RobertHurlbut
Twitter: @RobertHurlbut

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Connected world

We live in a very connected and tracked world
When we …
  - browse the web,
  - send an email,
  - turn on our phones,
  - purchase items with our credit cards
- all of it is tracked for various reasons
Some of this may be useful, but in some cases, this information can be harmful or used for nefarious purposes
Privacy

The desire of a person to control the disclosure of personal information
Confidentiality

The ability of a person to control release of personal information to another entity under an agreement limiting further release of that information
Security

Protection of privacy and confidentiality through policies, procedures and safeguards
Why do they matter?

Ethically, privacy and confidentiality are considered to be rights (in our culture)

Information revealed may result in harm to interests of the individual
Solutions to Personal Digital Privacy and Security

Passwords, Password Manager, and 2FA
Email
Credit Cards
Cloud Storage
Virtual Private Network (VPN)
Browsing Options
Tor
Tails
Other Recommendations
Personal Mobile and Wi-Fi Security

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Passwords

Passwords are not easy to manage
Need to remember the rules – and many still write them down
Many use a version of $<\text{password}>1, <\text{password}>2, <\text{password}>3$ to keep them different

Best passwords are passphrases (25+ characters)
  Green Horses Jumps Orange Fences
  Tiny Elephant Is 35% Home Cooked

Check if your email / password has been compromised by entering your email:  https://haveibeenpwned.com/
Password Manager

Help manage passwords – one master password to unlock many passwords
Helps with creating secure passwords
Helps with managing unique passwords (one per website)
Can also use to keep track of answers to security questions, etc.

1Password  https://1password.com/
Blur  https://dnt.abine.com/  (many other services)
2FA – Two Factor Authentication

One password is not enough for keeping accounts safe

Many services now offer 2FA – Amazon, Google, Microsoft, etc.

https://twofactorauth.org/

Set up with SMS, or better, with an Authenticator App

Google Authenticator (avail. for iOS, Android, etc.)
Email

All email is wide open – anyone could potentially read it

Plus, it is stored in copies somewhere (even if deleted on your local email app)

Use PGP (Pretty Good Privacy)

http://openpgp.org/
Credit Cards

Criminals will target your debit and credit cards

Check your free credit report (once a year)

https://www.annualcreditreport.com

Experian and TransUnion also free once a year

Consider Fraud Alert

Watch for card skimming

Consider virtual and prepaid cards
Cloud Storage

Cloud storage makes it convenient to back up data
Not all cloud storage options are encrypted or secure enough

- Microsoft OneDrive (no encryption)
- Google Drive (128-bit encryption – they own keys)
- Apple iCloud (128-bit encryption – they own keys)
- Dropbox (256-bit encryption – they own keys)

Best: SpiderOak (256-bit AES encryption – 2FA and you own keys)
Virtual Private Network (VPN)

Virtual Private Networks (VPNs) provide good mix of security and privacy
Route internet traffic through a secure channel
Privacy – not anonymity
Available for desktop, laptop, mobile phones

Select a reputable paid VPN provider (do not use free ones) that states no or minimal logging
Private Internet Access (PIA)
https://www.privateinternetaccess.com/
F-Secure Freedome
Virtual Private Networks (VPN)
Basic Architecture
OpenVPN

Many firewalls / routers have built-in OpenVPN
Easy to set up, install OpenVPN Client on computer

OpenVPN How To

https://openvpn.net/index.php/open-source/documentation/howto.html
Browsing Options

Most browsers track what you are doing (Google Chrome, Mozilla Firefox, Microsoft IE/Edge)
This helps advertisers know what you like, etc.

Other options:
DuckDuckGo
https://duckduckgo.com
Tor

Tor (acronym for “the onion router”) is network and software package that helps anonymity.
Tor encrypts data and hides source / destination of internet traffic.

Tor Browser Bundle to navigate the web on the internet.

https://www.torproject.org
Tails

Using Tor on your own computer may not be enough to keep it anonymous

Tails is a live operating system (using DVD, USB, SD card)
It routes all connections through Tor network
Provides anonymity and privacy solution
Using DVD, no internet session information is saved

https://tails.boum.org

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Other Recommendations

Virtual machines (VirtualBox, VMWare, Parallels, etc.)
Separate laptop / separate identities (email, etc.) – keep these separate to truly be anonymous and private
Personal Mobile Security

1. Update to latest version / patch
2. Password/Passcode protect your device
3. Lock your device
4. Review / adjust permissions per mobile app
5. Use anti-virus software (mainly Android)
6. Sync/back up your data
7. Install a phone finder app
8. Turn off Wi-Fi / Bluetooth when not home and not around trusted endpoints (i.e. almost everywhere!)
Personal Wi-Fi Security

Don’t connect to public Wi-Fi – if so, use VPN
Ideally, use Mobile Hotspot tethered to Phone (turn off Wi-Fi/Bluetooth)
For Home Wi-Fi, set up WPA2 (AES) with secure password
Never use WEP, and don’t use the automatic “button” feature on Wi-Fi routers – not secure
Lots of things to do!

All important methods for keeping secure and private

Mix and match – use what works best for you
Resources - Books

Personal Digital Security: Protecting Yourself from Online Crime  
  Michael Bazzell

Hiding from the Internet: Eliminating Personal Online Information  
  Michael Bazzell

The Complete Privacy and Security Desk Reference: Volume 1: Digital  
  Michael Bazzell and Justin Carroll

The Art of Invisibility: The World’s Most Famous Hacker Teaches You How to Be Safe in the Age of Big Brother and Big Data  
  Kevin Mitnick
Questions?

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