# Internet 101

**AP**NIC

How secure are you?

Warren Finch

https://wiki.apnictraining.net/20201201-pacnog



# Attack Trends



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### DON'T WAIT TO BE ATTACKED PREVENTION STARTS NOW>

### TOP TARGETED COUNTRIES

Highest rate of attacks per organization in the last day.



### TOP TARGETED INDUSTRIES

Highest rate of attacks per organization in the last day.

- S Education
- 💼 Government
- **@** Communications

### TOP MALWARE TYPES

Malware types with the highest global impact in the last day.

Bac	-kd	00	r
Dat	.ĸu	UL	л

Banking

**b** Botnet

£33

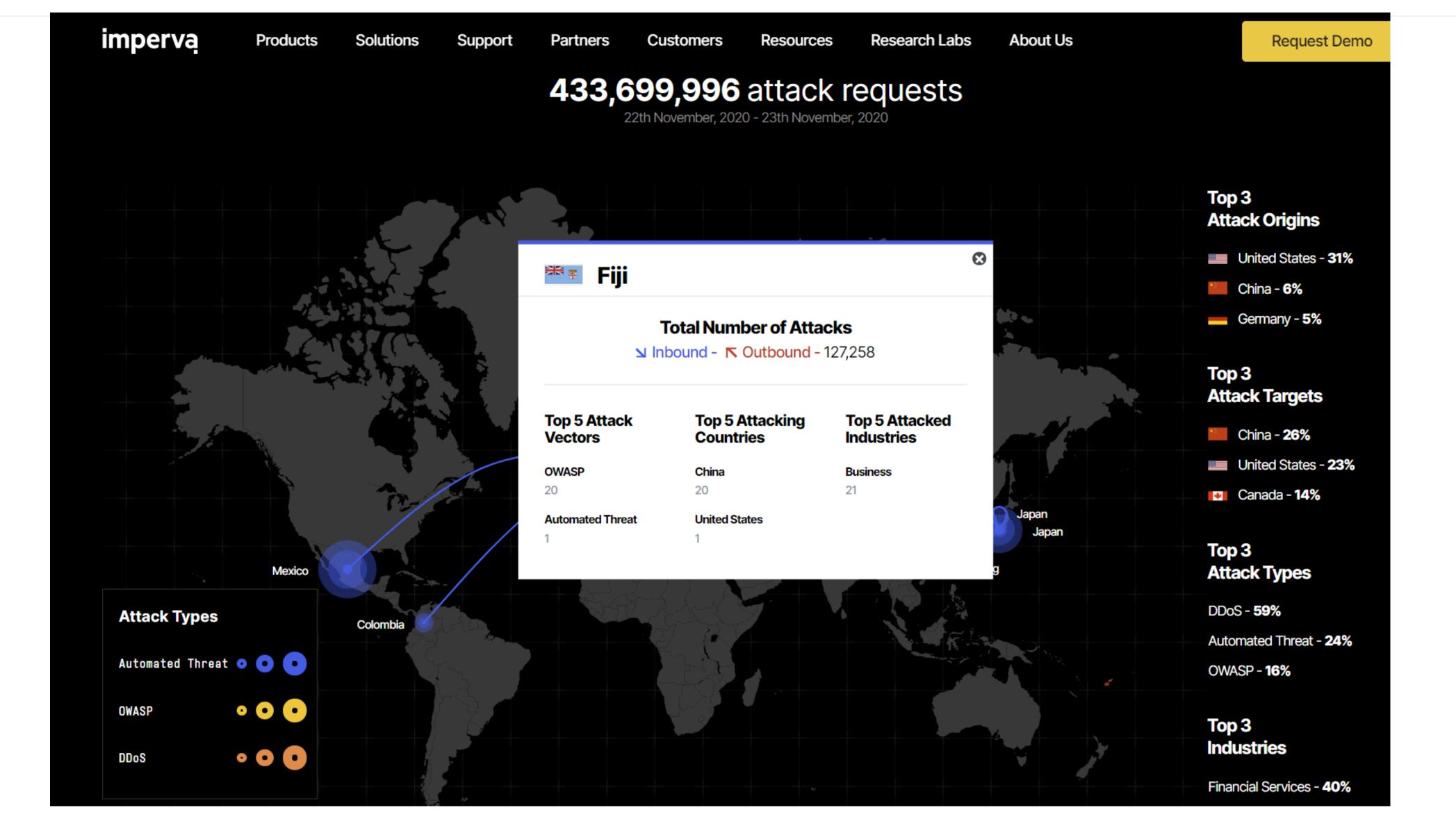
### https://threatmap.checkpoint.com







# Attack Trends



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https://www.imperva.com/cyber-threat-attack-map/





# Internet usage

Internet Usage and Population Statistics for Oceania - 2019						
OCEANIA	Population (2019 Est.)	Users, in Dec/2000	Internet Usage, 30-June-2019	% Population (Penetration)	Internet % users	Facebook 31-Dec-2018
American Samoa	55,727	n/a	24,000	43.1 %	0.1 %	22,000
Antarctica	2,700	n/a	4,400	100.0 %	0.0 %	1,800
<u>Australia</u>	25,088,636	6,600,000	21,711,706	86.5 %	75.8 %	15,000,000
<u>Australia, Ext. Terr.</u>	1,651	n/a	n/a	n/a	n/a	n/a
Christmas Island	2,205	464	1,000	45.4 %	0.0 %	400
<u>Cocos (Keeling) Is.</u>	596	n/a	80	13.4%	0.0 %	70
Cook Islands	17,462	n/a	11,377	65.2 %	0.0 %	8,600
<u>Eiji</u>	918,757	7,500	500,958	54.5 %	1.7 %	470,000
French Polynesia	288,506	8,000	209,744	72.7 %	0.7 %	150,000
<u>Guam</u>	167,245	5,000	134,649	80.5 %	0.5 %	110,000
<u>Kiribati</u>	120,428	1,000	32,947	27.4%	0.1 %	30,000
Marshall Islands	53,211	500	20,593	38.7 %	0.1 %	20,000
<u>Micronesia</u>	106,983	2,000	56,193	52.5 %	0.2 %	21,000
<u>Nauru</u>	11,260	n/a	6,418	57.0 %	0.0 %	3,400
New Caledonia	283,376	24,000	232,368	82.0 %	0.8 %	150,000
New Zealand	4,792,409	830,000	4,351,987	90.8 %	15.2 %	3,100,000
<u>Niue</u>	1,618	450	1,485	91.2 %	0.0 %	820
Norfolk Island	1,748	n/a	796	45.5 %	0.0 %	80
Northern Marianas	55,246	n/a	40,000	72.4 %	0.1 %	36,000
<u>Palau</u>	22,206	n/a	7,860	35.4 %	0.0 %	5,800
Papau New Guinea	8,586,525	135,000	962,550	11.2 %	3.4 %	670,000
Pitcairn Islands	50	n/a	170	n/a	n/a	150
<u>Samoa</u>	198,909	500	100,000	50.3%	0.3 %	94,000
<u>Smaller Territories (4)</u>	3,902	n/a	n/a	n/a	n/a	n/a
Solomon Islands	635,254	2,000	75,722	11.9 %	0.3 %	68,000
<u>Terres Australes</u>	n/a	n/a	n/a	n/a	n/a	n/a
<u>Tokelau</u>	1,340	66	800	59.7%	0.0 %	410
<u>Tonga</u>	110,041	1,000	57,822	52.5 %	0.2 %	54,000
<u>Tuvalu</u>	11,393	n/a	5,619	49.3 %	0.0 %	1,700
<u>Vanuatu</u>	288,017	3,000	82,764	28.7%	0.3 %	63,000
Wallis & Futuna	11,617	n/a	3,900	33.6 %	0.0 %	3,400
TOTAL OCEANIA	41,839,201	7,620,480	28,636,278	68.4 %	100.0 %	20,068,690

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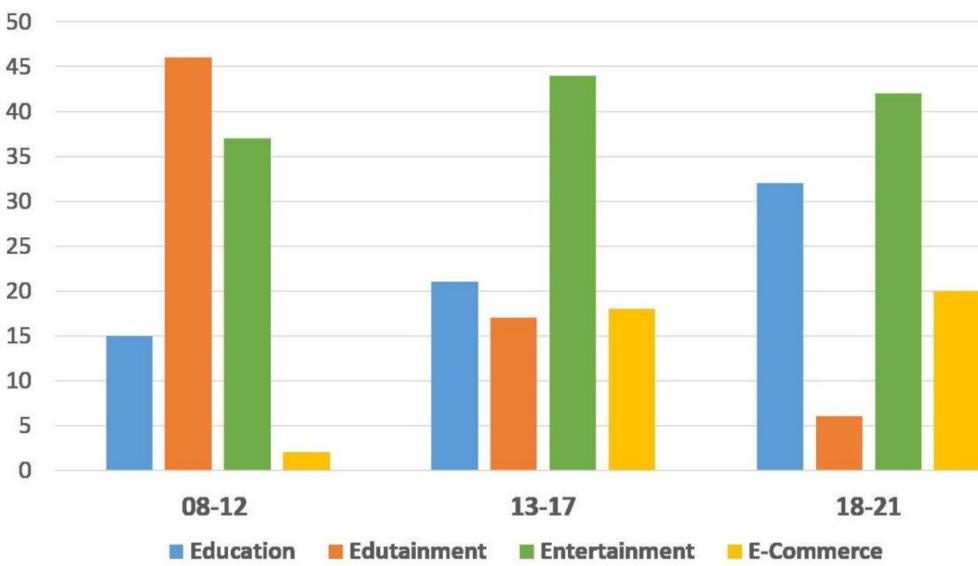
https://www.internetworldstats.com/stats6.htm





# Internet usage

- How do you use the internet?
- What information do you share?
- What information do you look  $\bullet$ at?
- What information do you search for?
- Do you use it for banking?



Age	Male	Female	NA	Total	Ratio
08-12	256	145	43	444	20.91
13-17	325	346	89	760	35.80
18-21	421	285	213	919	43.29

TABLE I: Statistics of age and gender-wise participation

https://www.researchgate.net/publication/316449708\_A\_survey\_on\_internet\_usage\_and\_cybersecurity\_awareness\_in\_students

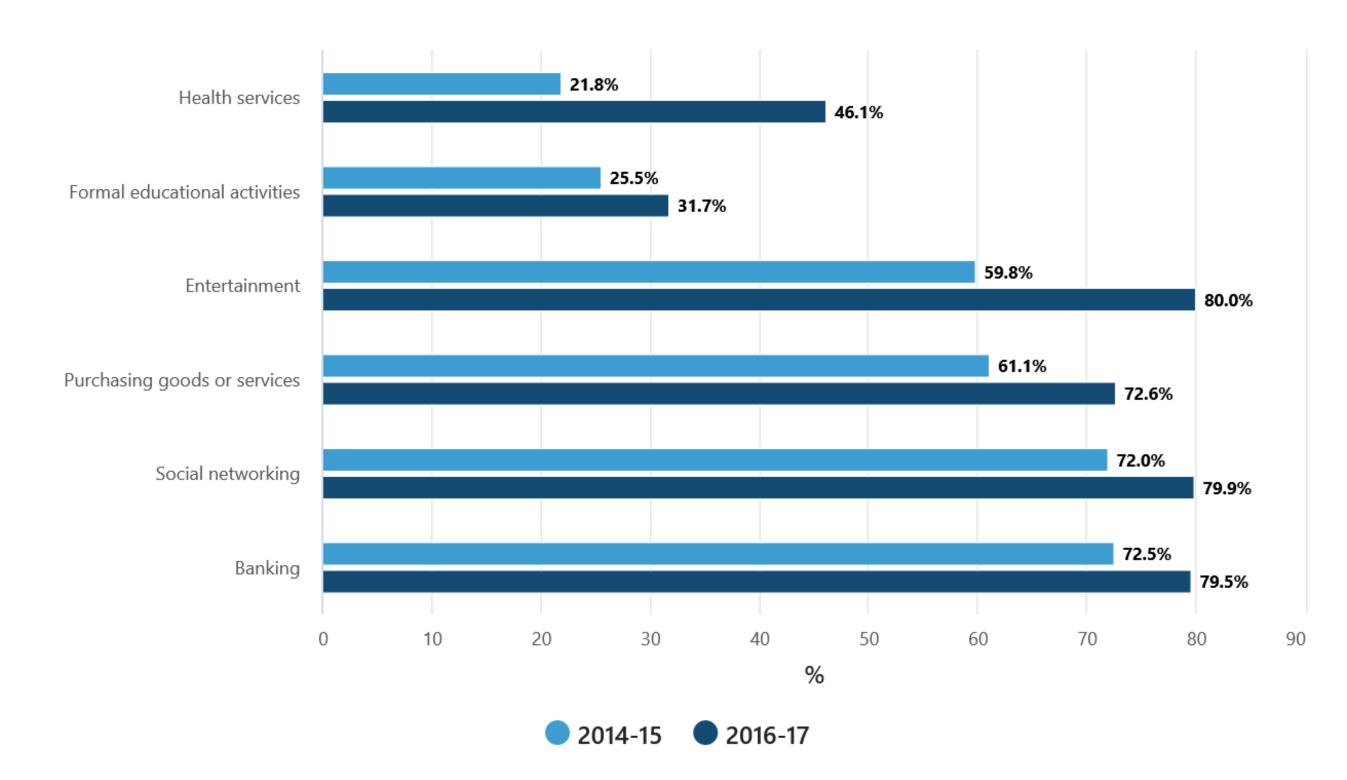






# Internet usage

- How do you use the internet?
- What information do you share?
- What information do you look at?
- What information do you search for?
- Do you use it for banking?



### Internet users, by reasons for accessing the internet, 2014-15 and 2016-17

https://www.abs.gov.au/statistics/industry/technology-and-innovation/household-use-information-technology/latest-release

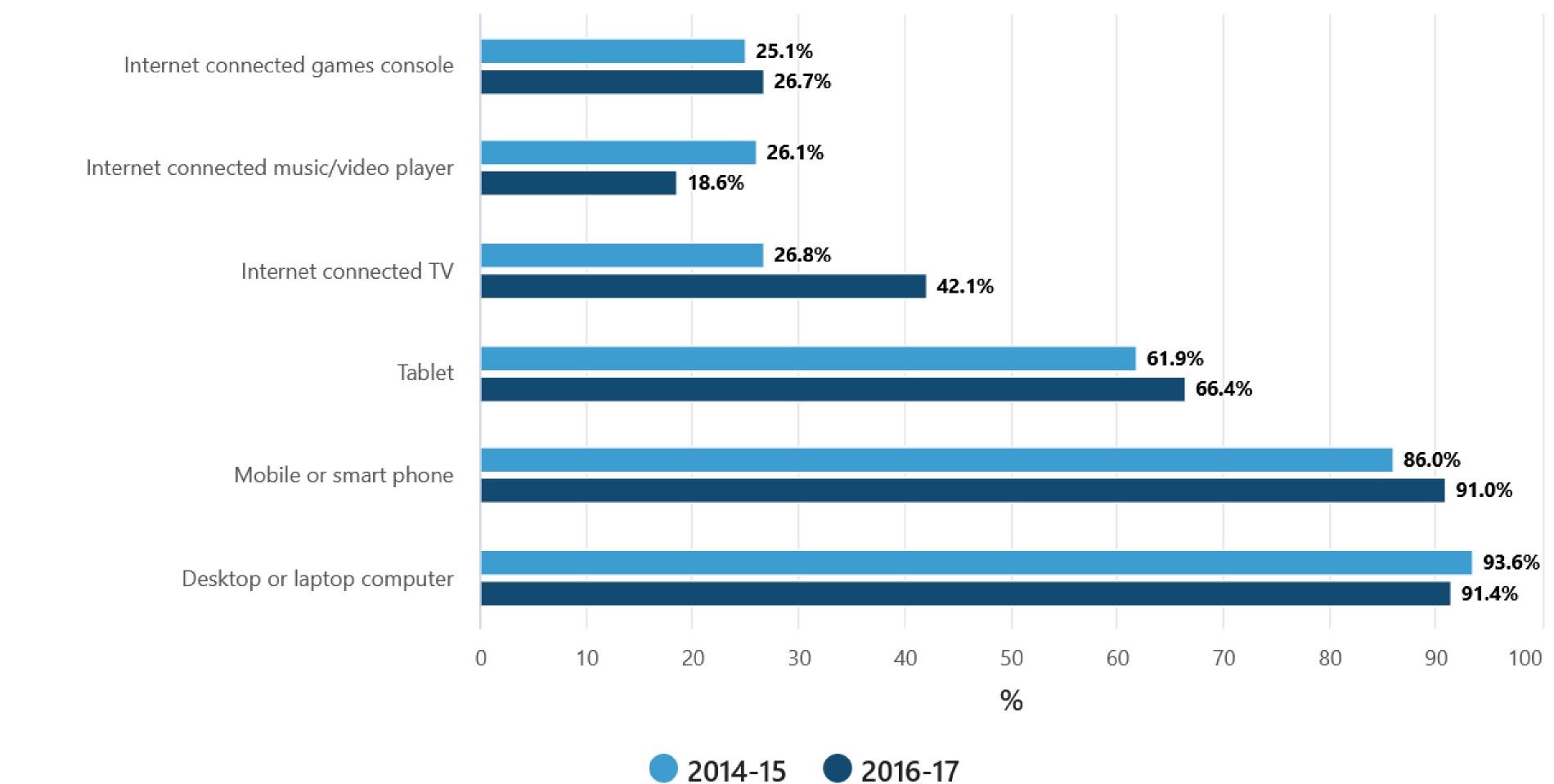






# Which Device

### What devices do you use?



https://www.abs.gov.au/statistics/industry/technology-and-innovation/household-use-information-technology/latest-release

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# YOU ARE A TARGET

### Username & Passwords

Once hacked, cyber criminals can install programs on your computer that capture all your keystrokes, including your username and password. That information is used to log into your online accounts, such as:

- Your bank or financial accounts, where they can steal or transfer your money
- Your iCloud, Google Drive, or Dropbox account where they can access all your sensitive data
- Your Amazon, Walmart or other online shopping accounts where they can purchase goods in your name
- Your UPS or FedEx accounts, where they ship stolen goods in your name

You may not realize it, but you are a target for cyber criminals. Your computer, mobile devices, accounts and your information have tremendous value. Check out the different methods a criminal could use your information against you to make money or commit other crimes.

### Email Harvesting

Once hacked, cyber criminals can read your email for information they can sell to others, such as:

- All the names, email addresses and phone numbers from your contact list
- All of your personal or work email

### Virtual Goods

Once hacked, cyber criminals can copy and steal any virtual goods you have and sell them to others, such as:

• Your online gaming characters, gaming goods

### Botnet

Once hacked, your computer can be connected to an entire network of hacked computers controlled by the cyber criminal. This network, called a botnet, can then be used for activities such as:

- Sending out spam to millions of people
- Launching Denial of Service attacks

Fortunately, by taking a few simple steps, you can protect your organization and your family. To learn more, visit: sans.org/security-awareness. This poster was developed from security awareness expert Brian Krebs. Learn more about cyber criminals at: krebsonsecurity.com.

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### Financial

Once hacked, cyber criminals can scan your system looking for valuable information, such as:

- Your credit card information
- Your tax records and past filings
- Your financial investments and retirement plans

### Extortion

Once hacked, cyber criminals can take over by:

- Taking pictures of you with your computer camera and demanding payment to destroy or not release the pictures
- Encrypting all the data on your computer and demanding payment to decrypt it
- Tracking all websites you visit and threatening to publish them

### Identity Hijacking

Once hacked, cyber criminals can steal your online identity to commit fraud or sell your identity to others, such as:

- Your Facebook, Twitter or LinkedIn account
- Your email accounts
- Your Skype or other IM accounts

### Web Server

Once hacked, cyber criminals can turn your computer into a web server, which they can use for the following:

- Hosting phishing websites to steal other people's usernames and passwords
- Hosting attacking tools that will hack people's computers
- Distributing child pornography, pirated videos or stolen music

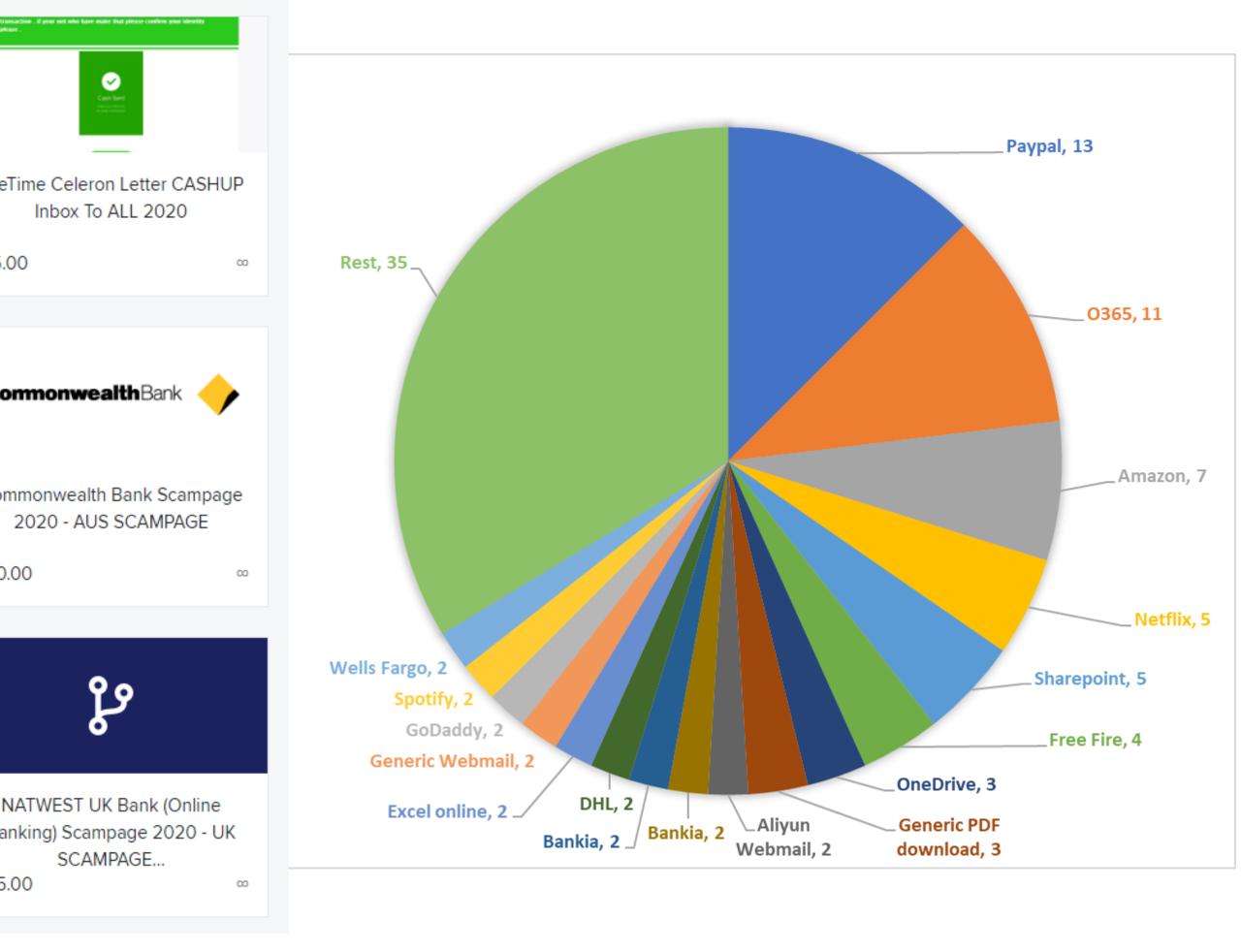




# Phishing kits

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		ama	zon	CHAS	E	
APPLE LETTER IN	BOX TO ALL	Amazon.com LET ALL 202		10 K Chase Login , + E	Email Access	LifeTi
\$5.00	00	\$3.00	00	\$400.00	00	\$15.00
Capita	lOne <sup>®</sup> Bank	<i>Тинн</i> е	lBear			Con
Capital One Scam FRESH AND F	page 2020	TUNNEL BEAR OPEN BULLE		Office365 Emails Ch	ecker 2020	Comr 2
\$30.00	00	\$5.00	00	\$25.00	00	\$50.0
		Huntu	ngton	Australia's Fi		
Scotia	ank <sup>®</sup>					
ScotiaBank (Onlin Scampage 2020 - C		Huntington Bank INBOX I BYPAS		Westpac One Ban Banking) Scampage SCAMPA.	2020 - AUS	NA Banl
\$50.00	00	\$8.00	00	\$50.00	00	\$25.0

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https://isc.sans.edu/forums/diary/Phishing+kits+as+far+as+the+eye+can+see/26660/







# How much is your data worth?



and hands on experience of Experian cyber analyst the last two years.

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https://privacyaustralia.net/dark-web-personal-data/







# What data are you leaking

- Operating system
- Browser details
- Hardware details
- Location information
- Passwords  $\bullet$
- Auto-fill information



It has long been believed that IP addresses and Co things got out of hand when modern web technolog knowledge and with no way to avoid it.

BrowserLeaks is all about browsing privacy and we tools that will show you what kind of personal ident

((•)) IP Address

The main tool that illustrates server-side ca the user's identity. It has basic features such Address and HTTP Headers, IP-based ge determines your Country, State, City, ISP/ There's also TCP/IP OS Fingerprinting, We DNS Leak Test, IPv6 Leak Test.

### WebRTC Leak Test

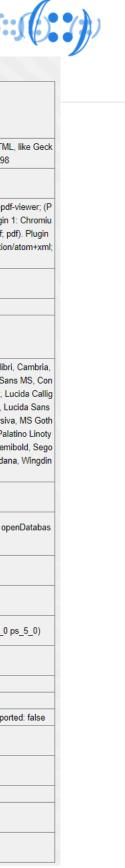
IP address detection using JavaScript. WebRTC API, the web browser communic server and shares information about addresses even if you are behind NAT and This tool will show if your real public IP is lea

### WebGL Report

WebGL Browser Report checks WebGL supp produce WebGL Fingerprinting, exposes and other WebGL and GPU capabilities web browser identity. Also, this page c enable or disable WebGL in your web brows

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Accented Content Types				10 10			
Provide Part of the set of t					identifying	browsers have this	value
Accepted Content Types     Birowser Full Screen Mode     Content Full System: Window Size     Content Full System: Undows 10 version 10.0 (64-bit)     True Birowser Full Screen Mode	colm			User Agent	10.73	1698.7	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTM o) Chrome/85.0.4183.121 Safari/537.36 OPR/71.0.3770.198
Accepted Content Types         Battery Status         Battery Status <td< td=""><td></td><td>IP Address Lookup Q</td><td></td><td></td><td>2.8</td><td>6.98</td><td>text/html, */*; q=0.01 gzip, deflate, br en-US,en;q=0.9</td></td<>		IP Address Lookup Q			2.8	6.98	text/html, */*; q=0.01 gzip, deflate, br en-US,en;q=0.9
browser full Screen Mode Bilbuetooth Bilbu				-	6.94	122.52	Plugin 0: Chromium PDF Plugin; Portable Document Format; internal-po ortable Document Format; application/x-google-chrome-pdf; pdf). Plugin m PDF Viewer; ; mhjfbmdgcfjbbpaeojofohoefgiehjai; (; application/pdf; j 2: News feed handler; ; enmlgamfkfdemjmlfjeeipglcfpomikn; (; application ) (; application/rss+xml; rss).
Accepted Content Types     Accepted Content Types     Accepted Content Types     Accepted Content Types     Accepted Content Encodings     Accepted Content Encodings     Accepted Content Encodings     Accepted Content Encodings     Accepted Content Types     Accepted Content Encodings     Accepted Content Encodings     Accepted Content Encodings     Accepted Content Encodings     Accepted Content Types     Baltery Status     Bluetooth     Bartery Status     Browser Full Screen Mode     Browser Status     Browser Full Screen Mode     Browser Status     Browser Full Screen Mode     Browser Status     Browser St	b browser fingerprinting. Here you will find a gallery of	web technologies security testing			5.82	56.53	-600
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Accepted Content Types     Accepted Content Encodings     Accounts Logged In     Accounts Logged In     AcciveX     ActiveX     ActiveX     Ad Blocker     Add Blocker     AudioContext     Battery Status     Bituetooth     Bluetooth     Bluetooth     Bitueser     Browser     Bitueser     Browser     Bitueser     Device Type / Model: Desktop or laptop     True Operating System Core: Unknown. Detection     Borowser Full Screen Mode     Browser Setting(s)/extension(s).     True Browser Core: Chrome     I     Browser Suid Number / Identifier: 2003-01-07 / Unknown. Detection     blocked by browser setting(s)/extension(s).     I     IP Address (WAN):     I     Connection Type     Content Filtering     VPN IP Address: No     I     VPN IP Address: No     I				fingerprint	5.07	33.48	184c42ab72952c9ea0b2ef182038a365
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Accounts Logged In     Accounts Logged In     ActiveX     Ad Blocker     Add Blocker     Add Blocker     Operating System: Windows 10 version 10.0 (64-bit)     AudioContext     Battery Status     Bluetooth     Bluetooth     Bluetooth     Browser     Browser Full Screen Mode     Browser: Opera version 71.0.3770.198 (64-bit) (Engine: Blink)     Browser: Opera version 71.0.3770.198 (64-bit) (Engine: Blink)     Browser Plugins     Browser Plugins     Browser Plugins     Browser Plugins     Browser Build Number / Identifier: 2003-01-07 / Unknown. Detection     blocked by browser setting(s)/extension(s).     IP Address (WAN):     Connection Type     Content Filtering     VEN IP Address: Not detected     VEN IP Address				& Renderer			Google Inc.~ANGLE (Intel(R) UHD Graphics 620 Direct3D11 vs_5_0
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Cookies     VPN IP Address: Not detected     i	Content Filtering						
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# What data are you leaking?

- Every time your visit a web page, you leave a trace.
- Demo websites:
  - https://webkay.robinlinus.com
  - https://clickclickclick.click/
  - https://browserleaks.com
  - https://browserleaks.com/social
  - http://www.deviceinfo.me/

# https://www.ghacks.net/2015/12/28/the-ultimate-online-privacy-test-resource-list/







# What do you search?

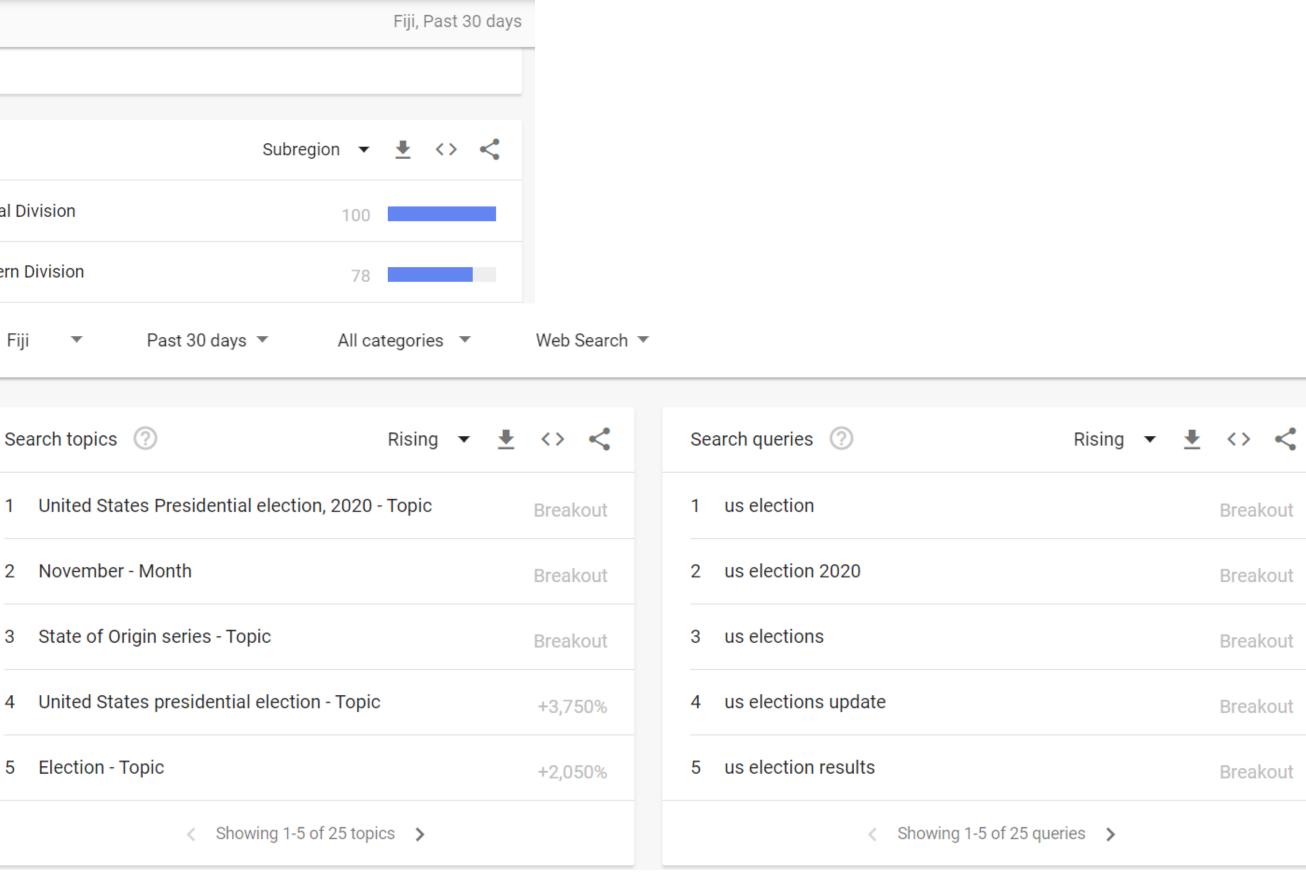
Every time you search, you leave a trace. 

### https://trends.google.com.au/trends/explore?geo=FJ

<ul> <li>State of Origin series</li> </ul>	
Interest by subregion ②	
	1 Central Division
	2 Western Division
	Fiji 🔻 Past 30
	Search topics
	1 United States Presid
	2 November - Month
	3 State of Origin serie

5	Election - Topic

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# Are you being tracked?

- Browser fingerprinting
- Tracking ads
- Do not track option

Bloc

Bloc

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Prote

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Does

Does

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**Our tests indicate that you have** you have **strong protection** against Web tracking, though your software isn't checking for Do Not Track policies.

### **IS YOUR BROWSER:**

cking tracking ads?	Yes
cking invisible trackers?	Yes
locking 3rd parties that honor Do Not Track?	No
tecting you from fingerprinting?	Your browser has a unique fingerprint

https://coveryourtracks.eff.org

Test	Result
our browser blocking tracking ads?	🗸 yes
our browser blocking invisible trackers?	▲ partial protection
es your blocker stop trackers that are included in the so-called ceptable ads" whitelist?	🗸 yes
es your browser unblock 3rd parties that promise to honor Do Not Track?	X no
es your browser protect from fingerprinting?	X your browser has a unique fingerprint

https://panopticlick.eff.org







# What websites you visit?

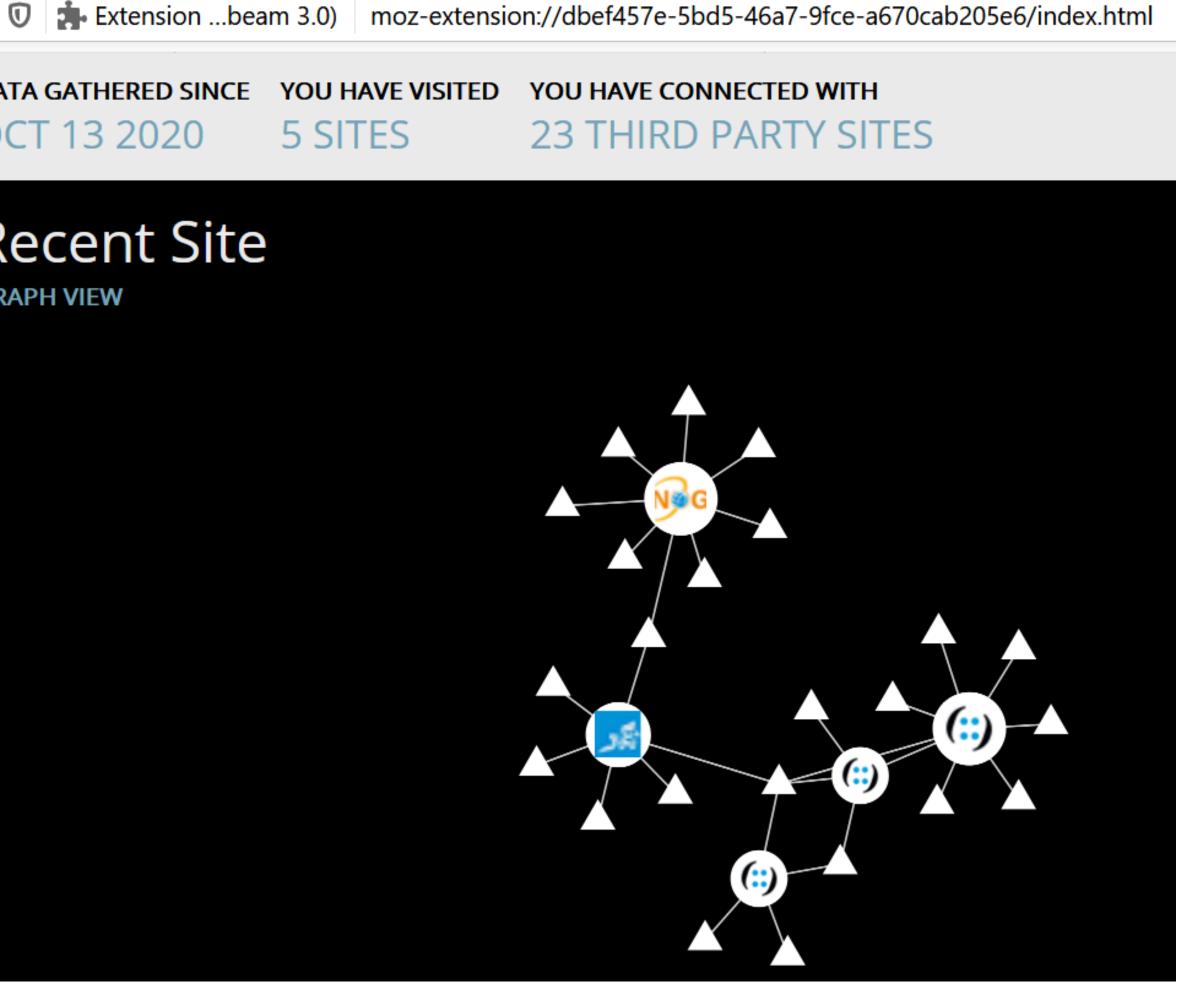
- What happens when you visit a website?
- You may get more than you think?
- How are these sites connected?
  - <u>https://academy.apnic.net</u>
  - <u>https://nog.bt/</u>
  - <u>https://kuenselonline.com/</u>



YOU HAVE VISITED YOU HAVE CONNECTED WITH DATA GATHERED SINCE OCT 13 2020 5 SITES

# **Recent Site**

**GRAPH VIEW** 



https://addons.mozilla.org/en-US/firefox/addon/lightbeam-3-0/

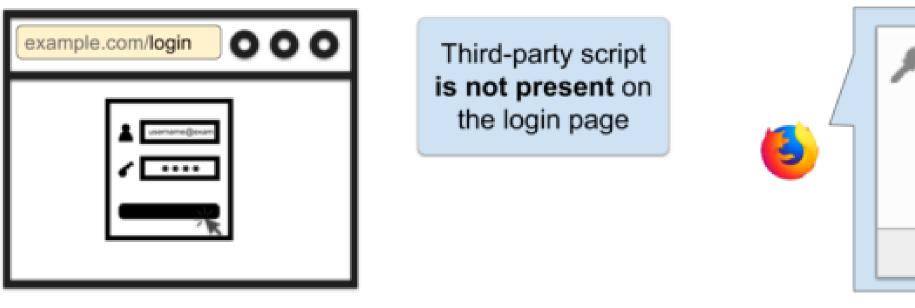




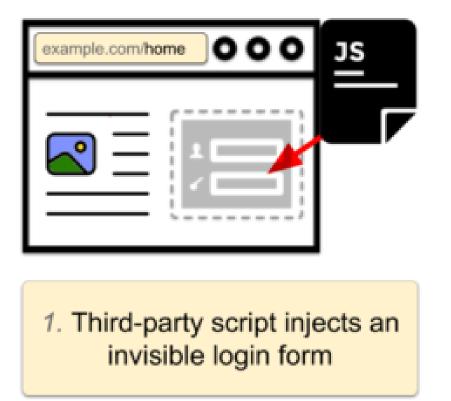
# Passwords

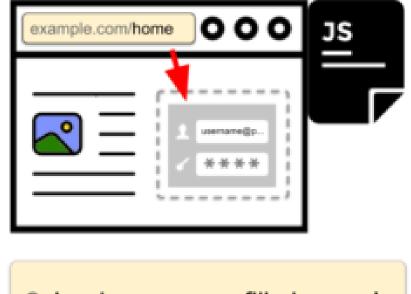
### Do you save passwords in the web browser?

User submits a login or registration form, clicks "Save" to store the credentials.



User visits a non-login page on the same site; this time the third party script is present



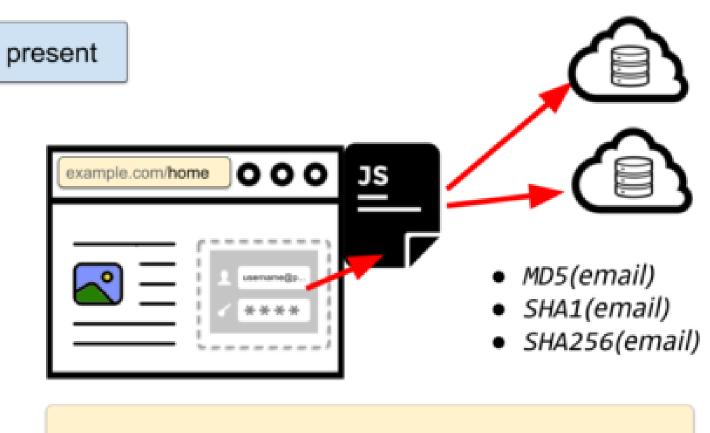


2. Login manager fills in user's email and password

### **AP**NIC

https://freedom-to-tinker.com/2017/12/27/no-boundaries-for-user-identities-web-trackers-exploit-browser-login-managers/

P	Would you like Firefox to save this login for princeton.edu?						
	username@example.com						
	•••••						
	Show password						
Do	n't Save 🗸 🗸	Save	*				
			· K				



3. The script reads the email address from the form and sends it hashes to third-party servers







# Passwords

# Do you save passwords in the web browser?

WebBrowserPassView			
<u>File E</u> dit <u>V</u> iew <u>O</u> ptions <u>H</u> elp			
🔜 😰 🗈 😭 🔕 📲			
URL 🛆	Web Browser	User Name	Passv
• https://login.live.com/login.srf	Opera	login	passv
🛛 🕛 https://login.yahoo.com	Opera	nirsoft456764	Hyg6
<b>O</b> https://www.facebook.com	Opera	hgyejdjs@nisoft.net	6326/
https://www.facebook.com/login.php	Chrome	myfacebookaccou	1234.
🕑 https://www.google.com	Firefox 3.5/4	testtesttest	1234
https://www.google.com/accounts/servicelogin	Internet Explorer 7.0 - 8.0	fdweferf	4234:
https://www.google.com/accounts/servicelogin	Internet Explorer 7.0 - 8.0	frwferfer	5564!
https://www.google.com/accounts/servicelogin	Internet Explorer 7.0 - 8.0	gmailuser748314	8996;
<b>O</b> https://www.google.com/accounts/ServiceLo	Opera	nuhaguyhba	1234!
🛛 🥶 https://www.linkedin.com	Firefox 3.5/4	hello@testonly.com	bhy6
•			
15 Passwords, 1 Selected	NirSoft Freewar	e. http://www.nirsoft	t.net

### Demo - Login manager autofill abuse

### Result

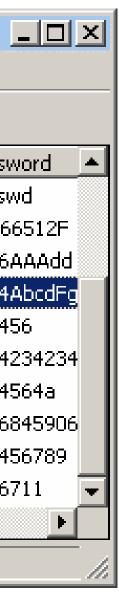
Sniffed email: fake@fake.com

Sniffed password: fakepassword

On Chrome you need to interact with the page (i.e., click anywhere) for the password to be sniffed.

An invisible form has been injected into this page by a script loaded from a third-party domain (also controlled by us). This causes the browser's built-in login manager to automatically fill the injected form with the credentials you saved on the previous page. These credentials belong to the first-party domain (senglehardt.com). Once the form is filled, our third-party script retrieves the information and displays it above. Check out our blog post for more information.

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# Demo - Login manager autofill abuse

This demo checks whether your browser's built-in login manager will automatically fill an invisible login form.

We found tracking companies using the login managers built-in to browsers to sniff email addresses without any visual indication to the user. Check out our blog post for more information.

To start, we'll need you to save some test credentials using the form below. On a later page, we'll demonstrate how a third-party script can retrieve these saved credentials. Note that the third party does not need to be present when the credenitals are saved, and that none are present on this page.

### Demo steps

- 1. Submit the following form with **fake credentials**
- 2. Your browser will ask whether you want to save this login. Click "Save".

### Fake Email address

Enter a fake email

Please do not enter a real email address.

### Fake Password

Enter a fake password

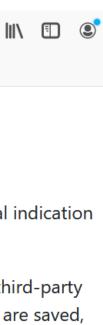
Please do not enter a real password.

Submit

https://senglehardt.com/demo/no\_boundaries/loginmanager/

https://www.nirsoft.net/utils/web\_browser\_password.html



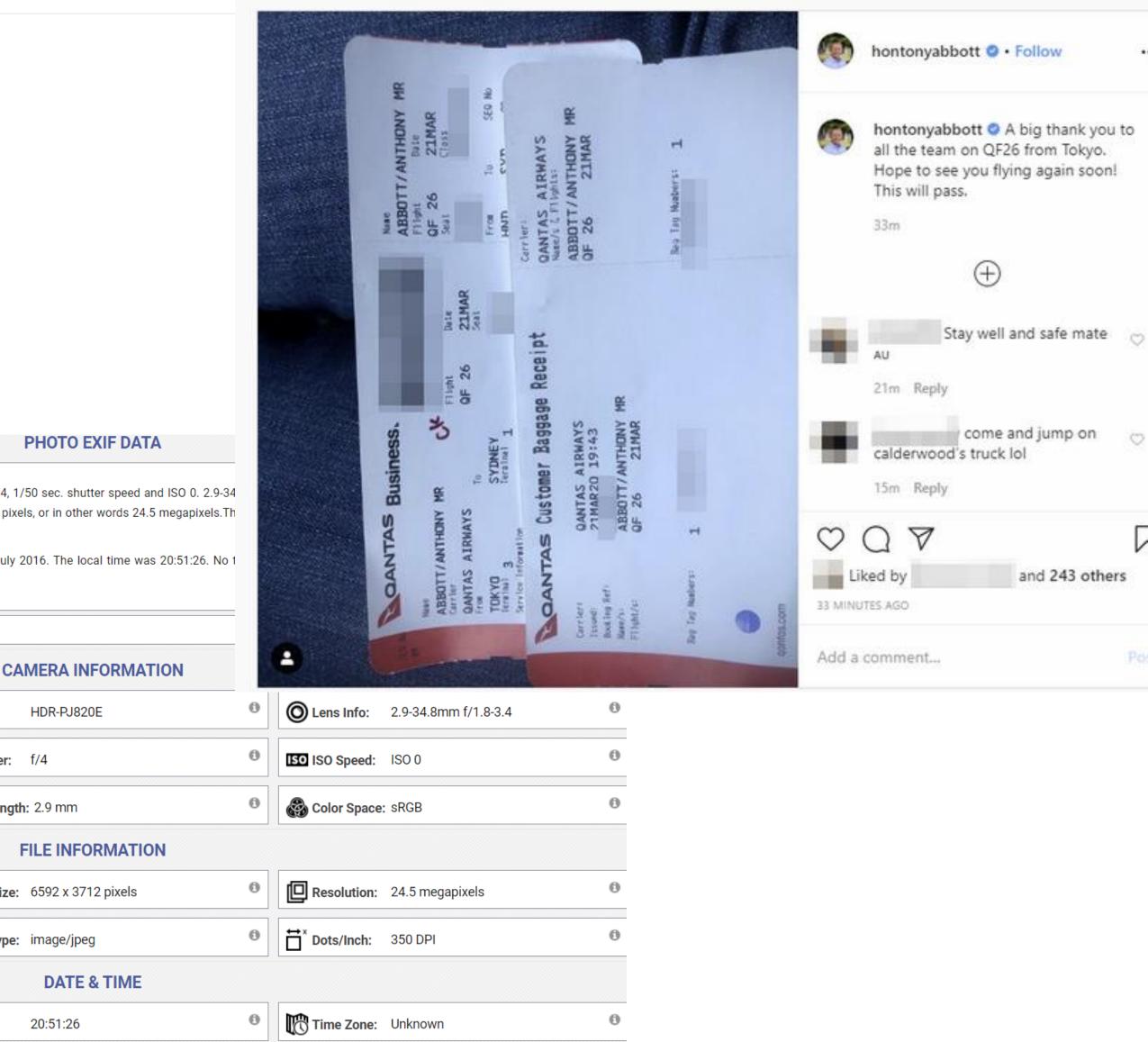




# Uploading photos

www.pic	2map.com/ezvtcb.html			
<b>₩</b> P	C2MAP Online EXIF Viewer			
Contraction of the local division of the loc	Text & Network Rowling Workshop           Formation was found	The photo was shot using a SONY HDR-PJ820E compulsory flash mode. The original image file has a megabytes.	a resolution as shot on	n of 6592 x 3712 pixels, or in other Monday 4th of July 2016. The loca
and the second second	SONY HDR-PJ820E			CAMERA INF
Date:	Mon 4th of July 2016	Brand: SONY	0	Model: HDR-PJ820
) Exposure:		<b>Shutter:</b> 1/50 (0.02 seconds)	0	<b>OF Number:</b> f/4
F Number:		Flash: Not Used	0	Focal Length: 2.9 mm
		8		FILE INFO
ISO:	ISO 0	File Name: track1-routing-group[1].jpg	0	tmage Size: 6592 x 3712
C Lens:	2.9-34.8mm f/1.8-3.4	Unique ID:	0	MIME Type: image/jpeg
wiew View	w More Info 👘 Delete Photo			DATE &
		Date: 2016-07-04	0	• Time: 20:51:26

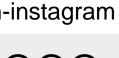
# **AP**NIC



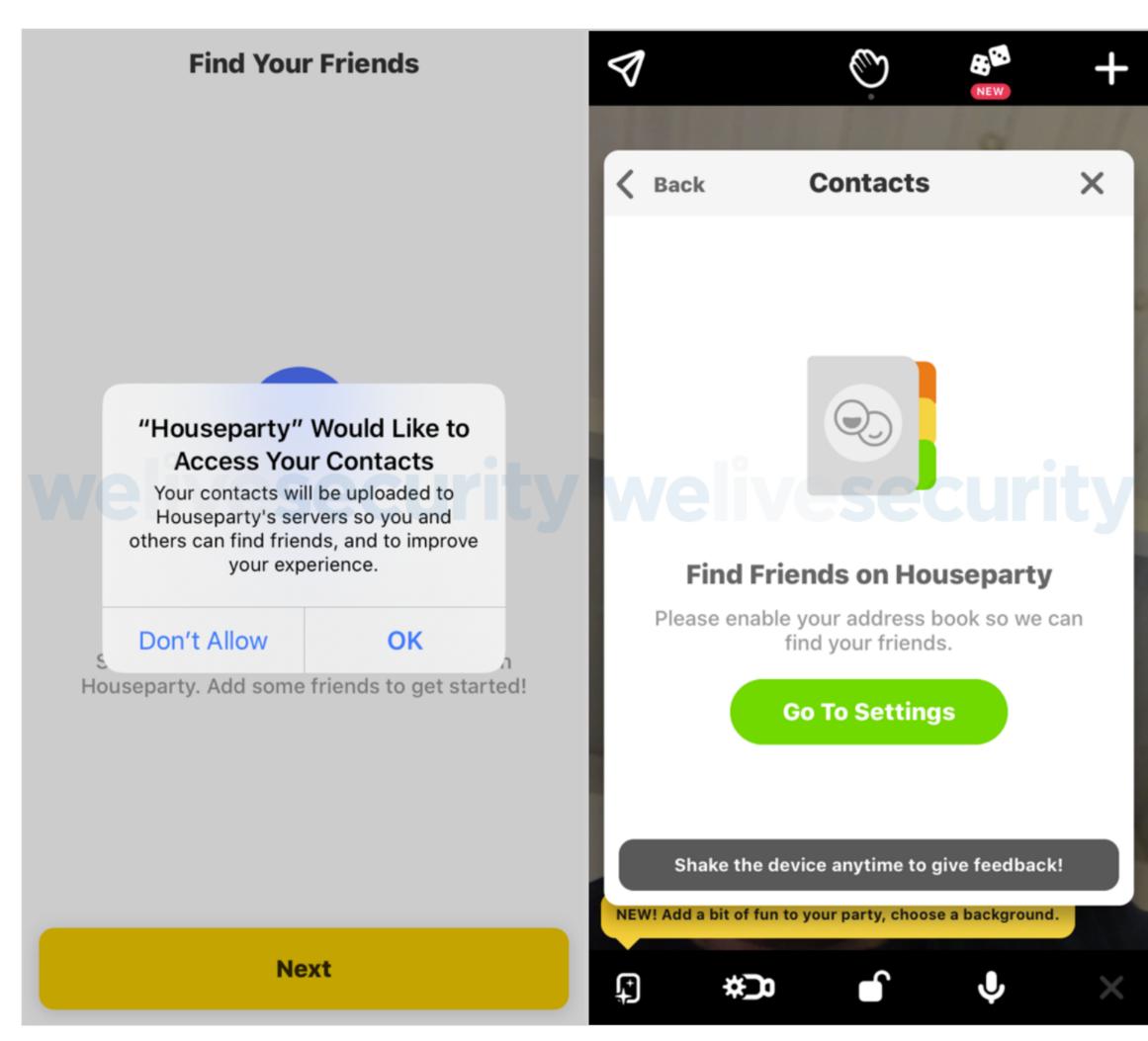
https://mango.pdf.zone/finding-former-australian-prime-minister-tony-abbotts-passport-number-on-instagram







# Social media and other apps



# **AP**NIC

69*       Image:		hal" Would Like to ess Your Contacts ses your contacts to find ou know. We do not store contacts on the server.	"WhatsApp" Would Like Access Your Contacts Upload your contacts to Whats servers to help you quickly get in with your friends and help us pro- better experience.		
phone number. Enter your country code and phone number:	Don't A		Don't Allow OK Welcome to Whats		
+		what they	re sharing.		
Car	0 mat	ches	Select a		
To easily connect with friends and family, and send and receive photos and videos, allow WhatsApp access to your contacts and your device's photos, media, and files.			/ould Like to ur Contacts		
NOT NOW CONTINUE	2				
	2	Don't Allow	ок		
	2				

https://www.welivesecurity.com/2020/10/09/so-you-thought-your-personal-data-was-deleted-not-so-fast/

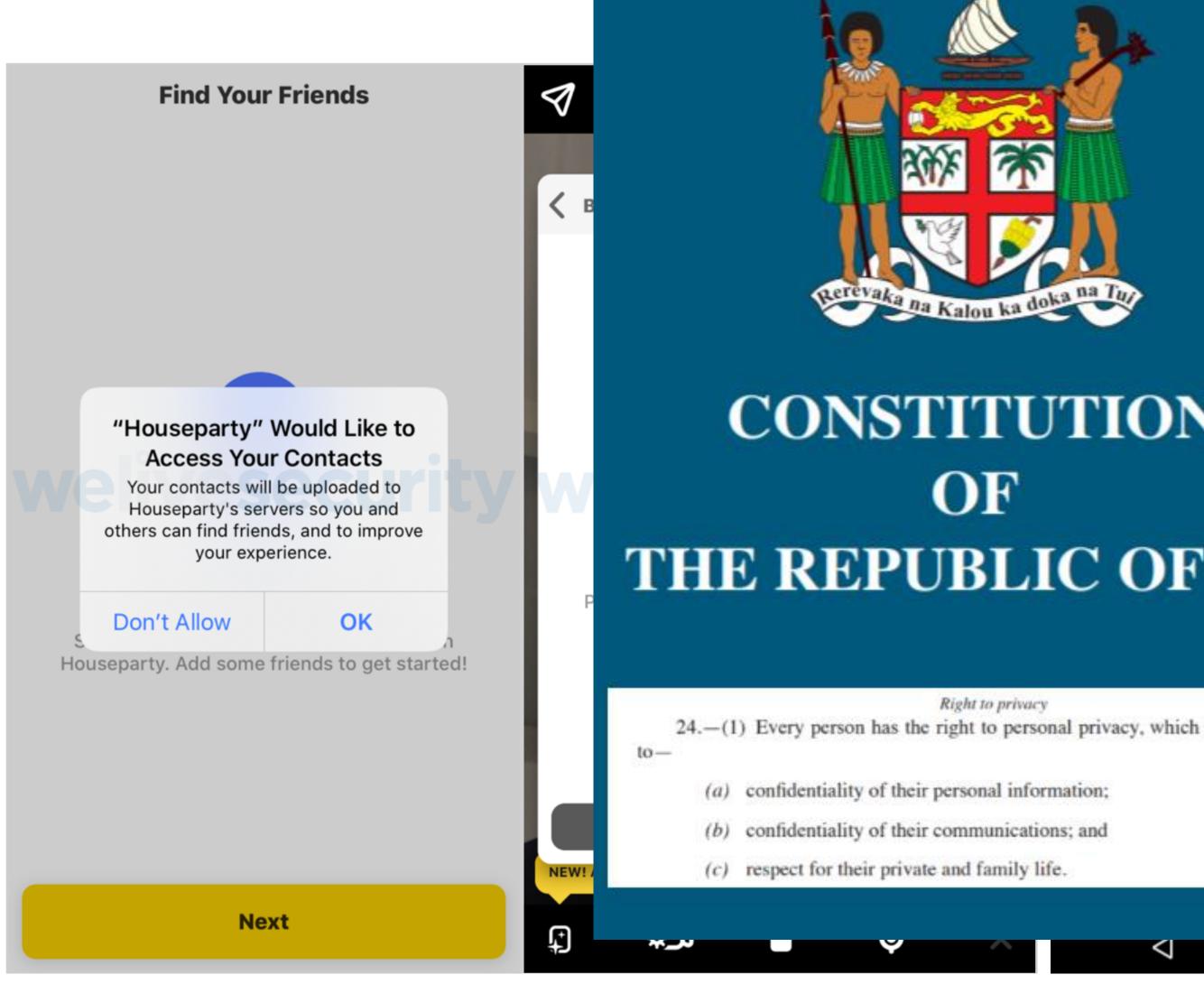








# Social media and other apps



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### (::**ʃ**::ʃ::ʃ::ʃ::ʃ()**;** /

	to verify your de and phone	Acce Signal us users yo	Allow OK	"WhatsApp" Would Li Access Your Contact Upload your contacts to What servers to help you quickly get with your friends and help us p better experience. Don't Allow		
J		0 mat		're sharing. Select		
FIJI	family, videos, intacts nd files.			Vould Like to ur Contacts		
h includes the right	ITINUE	2	to help you conne	pload your contacts ect with friends and o follow on Twitter.		
		• •	Don't Allow	OK		
O						

https://www.welivesecurity.com/2020/10/09/so-you-thought-your-personal-data-was-deleted-not-so-fast/









# Credentials and personal info

- Do you use the:
  - same email address to login for multiple sites?
  - same password?
  - same personal information?
  - auto-fill option in browsers?
  - Facebook or Google Single Sign-On
  - multi-factor or two-factor authentication
- If a site asks for personal information, do you think why? lacksquare
- What other information is being gathered?





# Think before you click

- Everything online is tracked
- Everything online is logged
- Your personal information is worth something \$\$\$\$
- Your digital habits/behaviour impacts this worth

# Your friends and online contacts share your personal information





# Strategies

- At a minimum:
  - Setup ad blocker
  - Enable do not track
  - Use some sort of end point protection
  - Use privacy mode for sensitive pages eg banking sites
  - Use email aliases (eg Gmail pacnog+apnictalk@gmail.com)
- Which device?
- Which browser?
- What plugins?
- What search engine?
- Uninstall unused apps, plugins or software

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# Strategies

# **Browser extensions**

Extension	Description	Website	٢	0
uBlock Origin	An efficient ad and tracker blocker with a small performance footprint!		2	2
Ghostery	Protect your privacy by blocking trackers on the Web and by learning who is watching you!	C	2	2
HTTPS Everywhere	Encrypt the web! Enable HTTPS automatically on websites that are known to support it. A project by the EFF (Electronic Frontier Foundation). This extension includes an option to verify SSL certificates directly by C the EFF SSL Observatory.	2	2	2
Lightbeam	Visualize in details the servers you are contacting when you are surfing on the Internet! Developed by Mozilla. Presentation of Lightbeam by Gary Kovacs, former CEO of Mozilla, in a TED talk.		2	0
AdBlock Plus	Block advertisements, trackers and more! We recommend the use of additional lists like the Fanboy Complete AdBlock list.	C	2	2
Disconnect	Stop tracking by third-party sites and visualize who is tracking you!	C	2	2
Privacy Badger	Block spying ads and invisible trackers! A project by the EFF (Electronic Frontier Foundation).	C	2	2
NoScript	Take control of what is running in your browser by blocking unwanted scripts!	C	2	0
Self-Destructing Cookies	Remove cookies that are no longer used as soon as you close a tab!		2	0

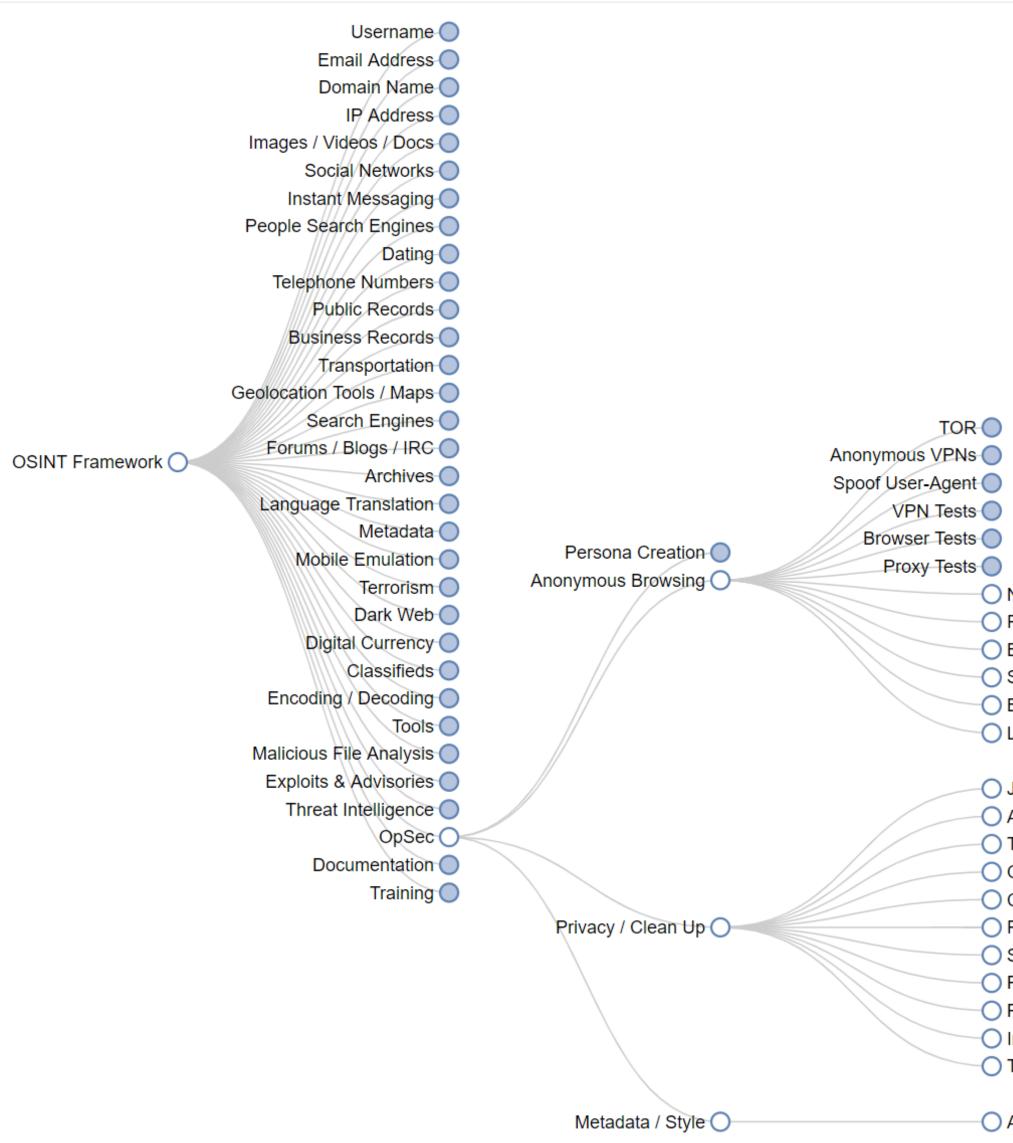
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https://amiunique.org/tools/





# Strategies



### **AP**NIC

- O NoScript (T)
- Firefox-debloat
- Browser Leaks
- Self-Destructing Cookies (T)
- O BrowserSpy.dk
- LocaBrowser.com
- Just Delete Me
- Accountkiller.com
- O The Internet Privacy Handbook
- OptOut Credit Prescreen
- Credit Freeze
- Fake US Identities
- Social Media Fingerprint
- Privacy Tools
- O Panopticlick
- O Intel Techniques Hiding from the Internet
- O The Many Hats Club Privacy Resources
- Anonymouth Document Anonymization (T)

### https://osintframework.com





# Thank You!

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