Security 1 Layers

Exposures - what can you lose

- Identity, accounts
- Privacy, data
- Dollars
- Functionality
- Communication ability
- Time

Privacy, data

- Documents
- Photographs
- □ Video
- Email, chat
- Programs

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Who/what are the threats?

- Hardware malfunction
- ☐ Fire, flood, theft
- Power glitches/failure
- Internet thieves/vandals
- State actors vs. journalists, protestors
 - Need extreme security!!

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		<u>Exposure</u>									
Action_	#	Privacy & Data Loss	Loss of function	Physical Theft	Travel exposure	Inter- ception	Ads Ability to	Communicate	Power loss	<u>Hardware</u> <u>Malfunction</u>	Web Account Loss
Keep software up-to-date	6				✓	Z					
Local backup	5	☑	☑	☑					☑	☑	
Router firewall	3	☑	✓				☑				
DNS protection	3	☑			☑		☑				
Cloud/Friend backup	3	✓×			☑						
Local data encryption	3	☑	✓	☑							
Multifactor account authentication	3	☑	✓					☑			
Save old software installs	3		☑								
Virtual Private Network	3	☑			☑	☑					
Social media circumspection	3	☑		☑	✓						
Cover camera, microphone	2	☑		☑							
PC firewall	2	☑					☑				
Software updates	2	∠	☑								
Browser settings, addons	2	✓		☑							
Erase data before discarding	2	☑		☑							
Phishing awareness	2	☑									
Uninstall old software	2	☑	✓								
Uninterruptable Power Supply	2								✓		
Short key time	2					✓					
HTTPS/SFTP (ecrypted communications)	2	☑				✓					
Long unique recorded passwords	2	☑									✓
Active antivirus	1	✓									
Antivirus scans (on/off-line)	1	☑									
Beware "Popups"	1	☑									
Alert new/deleted startup programs	1	✓									
	1	✓									
Standard Windows User	1										
Threat awareness	1										
Alerts of new wifi devices	1					✓					
Isolate guests & IOT devices	1										
Fire extinguisher	1										
HavelBeenPwned registration		☑									✓
		===	===	===	===	===	===	===	===	===	===
Count		27	9	6	6	6	4	4	3	4	2
											11.1

Act to avoid or mitigate damage

- Encrypt data, communications
- Backup data, programs hardware
- Authenticate user
- Prevent problems
- Detect problems & correct

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Encrypt Disks

- □ Hardware Set password in BIOS
- Veracrypt (Win, Mac, Linux)
 - https://www.verac.ypt.fr/code/VeraCrypt/
- Windows

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Windows

- "Device Encryption"
 - https://www.howtogeek.com/234826/how-to-enable-full-disk-encryption-on-windows-10/
 - Requires MS account, PC support
 - Can recover encryption key from MS
 - Often default on some PCs, e.g. ASUS T100
- Bitlocker (in Windows Pro)

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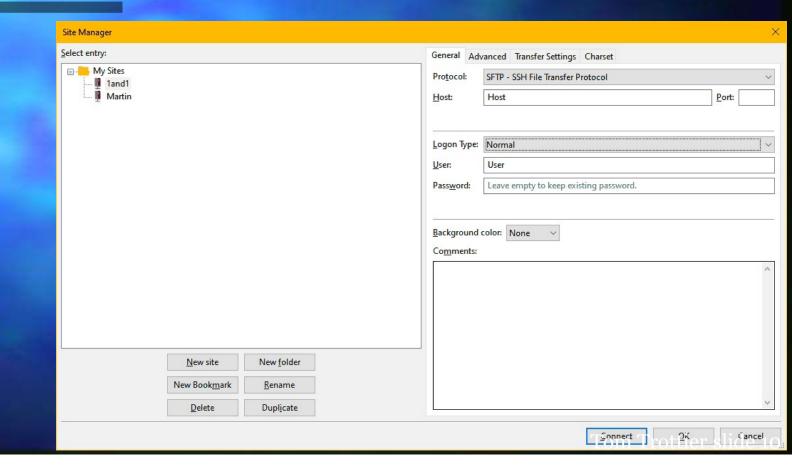
Encrypt Communications

- No guarantee of other end identity that's Authentication
- □ HTTPS Hypertext Transfer Protocol Secure
- SFTP Secure File Transfer Protocol

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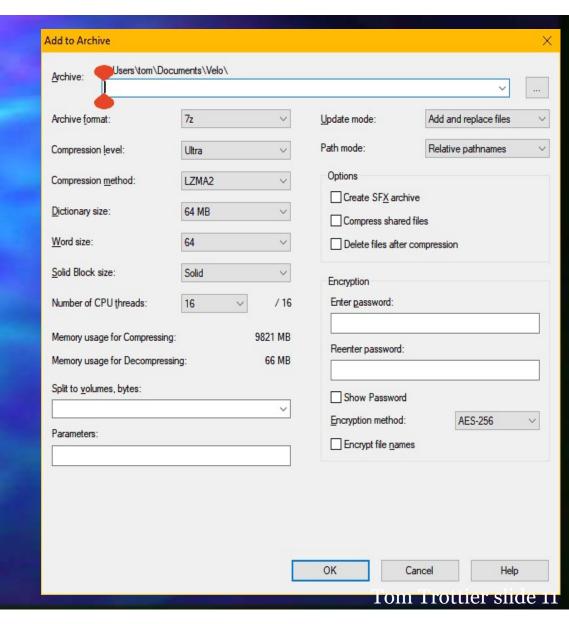
SFTP - Secure File Transfer Protocol

E.g.Filezilla



Encrypt Files

7-zip offersarchive encryptionwith compression



Backup

- Keep original/previous program install
 CDs/DVDs/ZIPs/MSIs/EXEs
- Hardware extra/old cables, disks, routers, PCs in case of failure & immediate need
 - For devices, need to keep software current
- PC Account
 - Have backup Admin account

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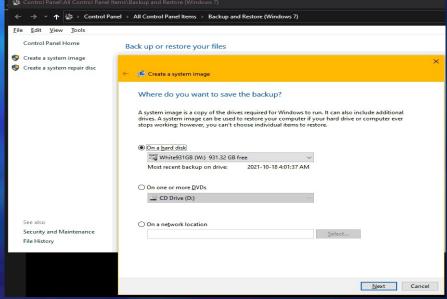
Data, programs

- Cloud backup, e.g., https://www.backblaze.com/Google,
 Dropbox, Onedrive
- Local attached storage
 - Network attached(NAS) available to all devices, e.g., phone, TV
 - USB attached (3, 3.1, 3.2 is faster than gigabit NAS)
 - Might avoid ransomware by attaching only when backing up
- Backup Software

Backup Software

- https://opcug.ca/Reviews/EaseUSBackup65.htm
- □ Windows File History OS system disk image





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Authentication - who are you?

- Passwords
 - PC, Disk can set in bios
 - Windows
 - 21 characters plus to avoid Rainbow tables discovery
 - Password manager PC, phone, tablet
 - Lastpass, 1pass
 - https://keepass.info/
- Multifactor

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Multifactor - something you:

- □ Have, e.g. "key"
 - FIDO2(USB/bluetooth/NFC "key"), bank card, ...
- □ Know
 - Password, pass-phrase, PIN,...
- □ Are
 - Fingerprint, face, retina, voice, iris,...
- Can do
 - Recognize Amazon obfuscated characters, reCaptcha images,...
- Fit
- Location, connection, network, software,...

Prevention

- Circumspect social awareness posts
 - Avoid telling world you are on vacation!
- ☐ Fire extinguisher for "class C" (electrical) fires
 - https://wiki.ezvid.com/best-fire-extinguishers
- Careful power, wire management
- Surge suppressors to manage lightning surges
- □ For floods, plans (attic, sand bags,...)
- Use <u>standard</u> account <u>ordinarily</u>, <u>administrator</u> account for installs
- Virus/privacy filter , firewall
- Uninterruptable Power Supply for graceful PC, NAS shutdown
- **Your network awareness -**

Uninterruptable Power Supply

- Gives 10-15 minutes
 for graceful PC, NAS shutdown
- Plus generator if power failures common
- Data Centres are usually put on the boundary of two power grids & tied to both to avoid shutting down if one fails.

Windows Firewall Control

- https://www.binisoft.org/wfc.php
- Nicer interface to Windows Firewall
- Alerts about new accesses
- Create, delete edit firewall rules

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Firewall alerts

☑ Malwarebytes Windows Firewall Control - Connections Log

Time generated	Name	Program			Acti.	Dir	Destination ad	De	Pro	Service	Source address	Sour
2021-12-05 14:34:25	WiFi network monitoring application	C:\program files\softperfect wifi guard\wifiguard.exe			Block	Out	192.168.1.122	161	UDP		192.168.1.78	50727
2021-12-05 14:34:24	WiFi network monitoring application	C:\program files\softperfect wifi guard\wifiguard.exe			Block	Out	192.168.1.102	161	UDP		192.168.1.78	50725
2021-12-05 14:34:24	WiFi network monitoring application		n files\softperfect wifi			Out	192.168.1.100	161	UDP		192.168.1.78	50726
2021-12-05 14:34:17	WiFi network monitoring application	C:\program files\softperfect wifi	✓ Outgoing connection blocked - 14:34:25 ×		Block	Out	192.168.1.1	161	UDP		192.168.1.78	60211
2021-12-05 14:34:15	WiFi network monitoring application	C:\program files\softperfect wifi	Program wifiguard.exe Name WiFi network monitoring applic		Block	Out	192.168.1.122	5353	UDP		192.168.1.78	60210
2021-12-05 14:34:14	WiFi network monitoring application	C:\program files\softperfect wifi			Block	Out	192.168.1.102	5353	UDP		192.168.1.78	60208
2021-12-05 14:34:14	WiFi network monitoring application	C:\program files\softperfect wifi			Block	Out	192.168.1.100	5353	UDP		192.168.1.78	60209
2021-12-05 14:34:13	WiFi network monitoring application	C:\program files\softperfect wifi			Block	Out	192.168.1.122	137	UDP		192.168.1.78	60207
2021-12-05 14:34:12	WiFi network monitoring application	C:\program files\softperfect wifi	_	32 11 27 = 0.000 (0.000 A) A (0.000		Out	192.168.1.102	137	UDP		192.168.1.78	60205
2021-12-05 14:34:12	WiFi network monitoring application	C:\program files\softperfect wifi			Block	Out	192.168.1.100	137	UDP		192.168.1.78	60206
2021-12-05 14:34:07	WiFi network monitoring application	C:\program files\softperfect wifi			Block	Out	192.168.1.1	5353	UDP		192.168.1.78	51113
2021-12-05 14:34:05	WiFi network monitoring application	C:\program files\softperfect wifi	Signed	Yes (SoftPerfect Pty. Ltd.)	Block	Out	192.168.1.1	137	UDP		192.168.1.78	51112
2021-12-05 14:31:01	WiFi network monitoring application	C:\program files\softperfect wifi	Process ID 16568 () Customize this rule before creating it 1/1 BI		Block	Out	198.211.116.136	80	TCP		192.168.1.78	61135
2021-12-05 14:30:23	WiFi network monitoring application	C:\program files\softperfect wifi			Block	Out	198.211.116.136	80	TCP		192.168.1.78	61120
2021-12-05 14:29:37	WiFi network monitoring application	C:\program files\softperfect wifi			Block	Out	192.168.1.122	161	UDP		192.168.1.78	51530
2021-12-05 14:29:37	WiFi network monitoring application	C:\program files\softperfect wifi	Allow this	is program	Block	Out	192.168.1.102	161	UDP		192.168.1.78	51529
2021-12-05 14:29:36	WiFi network monitoring application	C:\program files\softperfect wifi	L▼ Always all	allow this program to access the Internet	Block	Out	192.168.1.100	161	UDP		192.168.1.78	51528
2021-12-05 14:29:28	WiFi network monitoring application	C:\program files\softperfect wifi	Block this	is program	Block	Out	192.168.1.1	161	UDP		192.168.1.78	49432
2021-12-05 14:29:27	WiFi network monitoring application	C:\program files\softperfect wifi	L× Always bl	olock this program to access the Internet	Block	Out	192.168.1.122	5353	UDP		192.168.1.78	49431
		C:\program files\softperfect wifi	- Plack for	r now and ask me later	Block	Out	192.168.1.102	5353	UDP		192.168.1.78	49430
2021-12-05 14:29:26	WiFi network monitoring application	C:\program files\softperfect wifi	Block for i	now and ask me later	Block	Out	192.168.1.100	5353	UDP		192.168.1.78	49429
2021-12-05 14:29:25	WiFi network monitoring application	C:\program files\softperfect wifi g	guard\wifiguard	.exe	Block	Out	192.168.1.102	137	UDP		192.168.1.78	49427
2021-12-05 14:29:25	WiFi network monitoring application	C:\program files\softperfect wifi g				Out	192.168.1.122	137	UDP		192.168.1.78	49428

Virus/privacy filter

- Windows "Security" very good
- Windows Firewall good
- Browser add-ons
 - Umatrix
 - Ublock origin
 - Privacy badger

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Umatrix

- Add-on (extension)for most browsers
- Can clickboxes/linesto allow/disallow

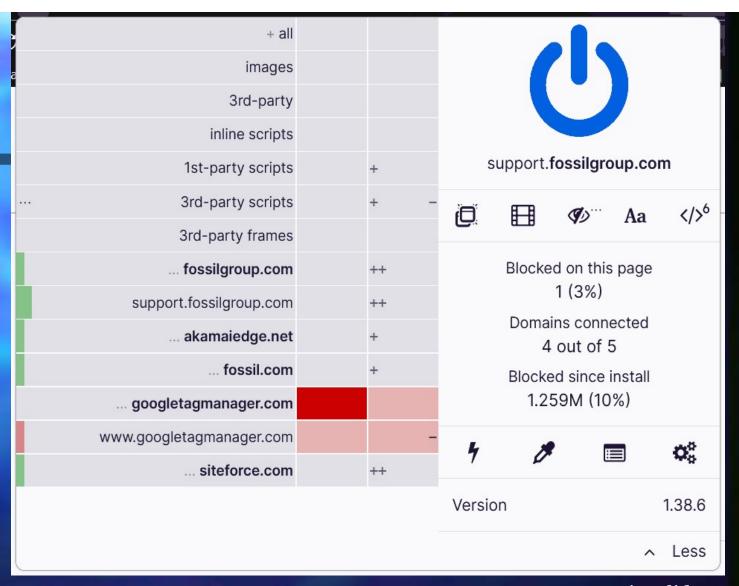
uMatrix 1.4.4								
pathofex.com	*	ل, ا	ři-	<u> </u>	7	\mathcal{C}	(
all	cookie	css	image	media	script	XHR	frame	other
1st-party								
pathofex.com	18	22	6		22	7		
ezodn.com								
go. ezodn.com					1			
ezoic.net								
go .ezoic.net			1					
fonts.googleapis.com		1						
gravatar.com								i
secure.gravatar.com			1					
gstatic.com								
fonts.gstatic.com		15		Janes de la composito de la co				
4 blacklisted hostname(s)					4			

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Ublock

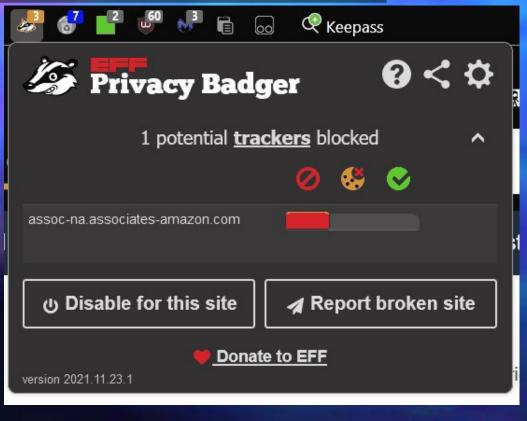
Od Billion (extension) for most browsers

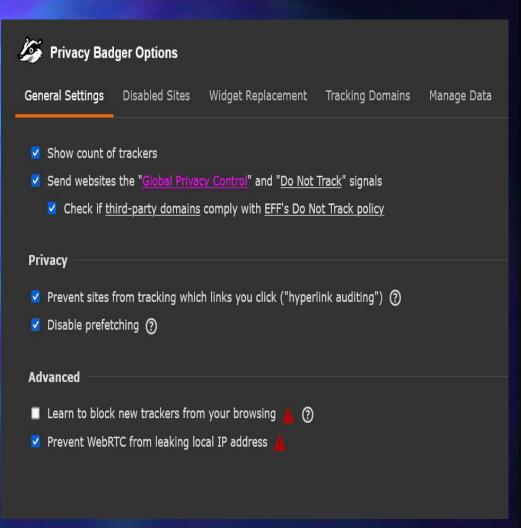
Can clickboxes/lines toallow/disallow



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Detection

- https://haveibeenpwned.com/
- Virus scans
 - Windows
- Phishing/popup awareness
 - Don't click links!
- POPfile
- Winpatrol
- WifiGuard

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Virus scans

- Bootable Offline virus scans available
 - Safer
 - Works with dead systems
 - https://www-aymond.cc/blog/portable-emsisoftanti-malware-5-0-from-free-emergency-kit/

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Phishing/popup awareness

- Phishing emails/posts/popups often look like:
 - Friends' links!
 - Deliveries
 - Invoices
 - Email host hiccups
 - Bank notices
- Don't click! Use your or google links to correct site.

POPfile

- Used with offline mail like Outlook, Thunderbird
- Acts as proxy to get mail
- Uses bayseian logic to classify email

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Popfile

X-Text-Classification: virus

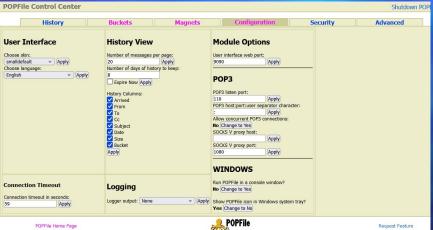
X-POPFile-Link: http://127.0.0.1:9090/jump_to_message?view=45211

X-PM-PLACEHOLDER:

X-Text-Classification: 2-fraud

X-POPFile-Link: http://127.0.0.1:9090/jump_to_message?view=45221

X-PM-PLACEHOLDER:



History Buckets			Magnets Configura	ation Secu	curity Advanced		
Bucket Configuration							
Bucket	Distinct	Subject Header	X-Text-Classification	X-POPFile-Link	Quarantine	Bucket	
lame	Words	Modification	Header	Header	Message	Color	
)-lists	36,801						<u> </u>
l-rv	35,632						<u> </u>
2-fraud	42,902						<u> </u>
3-subs-acnts	29,129						<u> </u>
1x4-canoe-camping	23,551						<u>~</u>
5-computing	57,372						<u> </u>
5-nation	17,747						<u> </u>
7-thinkpad	3,361						v)
3-radio	5,882						v)
9-ofn-buy-sell	16,556						v
abc-words	6,507					gray	v)
piketour	29,110		<u> </u>			blue	v
cyclegroups	45,148					brown	v
d-stockfraud	0					red	v
email-pegasus	6,743					black	v)
amily-friends	19,119					magenta	v
games bridge	30,874					blue	~)
nealth	12,923					darkcyan	v
	32,757					darkorange	v
-ebay	27,322					black	v
9	6,122					darkcyan	v
inux-open-source	9,121					black	v
mensa	22,684			✓		green	v
n-bbo	31,160					black	v
om	2,665					blue	v
other	0					brown	V
oda-phone	18,652					darkcyan	·
quiz	2,371					black	v
residence	4,993					brown	v)
spam	77,776		☑			red	v
oastmasters	5,671					blue	v)
urbis	57,692		☑			purple	v)
virus	51,162					red	v)
work	6,970					blue	~)
c-taxi	528						v)
z-cfsc	5,979						v
unclassified					- i		

Popfile

TeachingPopfile



Single Message View

Message Header | Message Body | QuickMagnets | Scores

Clos

From: Checkout 51 < no-reply@offers.checkout51.com>

To: tom@abacurial.com

Cc:

Date: 12/02/21 10:48

Subject: tom, holiday gift essentials are inside! ðŸŽ

Bucket: unclassified

Should be:

Reclassify

```
Return-Path: <bounces+6759496-d248-tom=abacurial.com@abmail.offers.checkout51.com>
Authentication-Results: mgeueus007.server.lan; dkim=pass header.i=@offers.checkout51.com
Received: from o920.abmail.offers.checkout51.com ([168.245.36.27]) by
mx.perfora.net (mxeueus006 [74.208.5.3]) with ESMTPS (Nemesis) id
1MYMms-1n6TI81nuc-00V00W for <tom@abacurial.com>; Thu, 02 Dec 2021 16:48:58
+0100
DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed; d=offers.checkout51.com;
h=content-type:from:mime-version:subject:reply-to:list-unsubscribe:to;
s=s1; bh=LsIryu4Ze6PtHnWwBMaoy5Jn18PrYcaTCATRO+/CBBs=;
b=vjZL1X4OtETomIhcr0VkIt9hfYDN8urJ+qoETJOrRFAESG6W66yKwJQa1Zs8T85CU+H4
LB3F+RyNpZ950yrQXxk+eYUzJwN0RpzZkMPUdk3n84m/mBHvUzyHGVcZ6eSzLMmXA0ODLJ
qNhMOcayRk9YF7MzIqusbQtEiv9deH27kEkoDDmpMjMH425wNcVHqfN/tvPEz6yVKo634e
LQCNJ353CMC4B5GYDOZCC+1IdSEeb2ojSu87J3Lpqfoq/DhRztyCTfSNCaR/utac0Io0yc
+KMNPxiVDvhNuJrX4AEV6wI/NnT1fiLHLYxh6nMc92bj6Qq6f0XHWVunS3c9V7SQ==
Received: by filterdrecv-7b5d7dc7c5-zbpxs with SMTP id filterdrecv-7b5d7dc7c5-zbpxs-1-61A8EAE9-4E
2021-12-02 15:48:57.700637208 +0000 UTC m=+6882712.511811414
Received: from Njc1OTQ5Ng (unknown)
by geopod-ismtpd-5-2 (SG) with HTTP
id JxhrRoq5Rs-S9mw3WNxLxq
Thu, 02 Dec 2021 15:48:57.657 +0000 (UTC)
Content-Type: multipart/alternative; boundary=4a0b8c4dbf8bd021371536879b161333830143d5bc7b111297d212377a43
Date: Thu, 02 Dec 2021 15:48:57 +0000 (UTC)
```

Popfile

POPFile Control Center

History Buckets Magnets Configuration

Ignored Words

POPFile ignores the following frequently-used words:

- a abacurial, abacurial.com, abacurial.com@returns.groups.yahoo, abbrev, acronym, address, advanced, align, all, also, alt, and, anotherbigword, any, applet, apr, are, area, ask, aug, author
- ${f b}$ banner, base, basefont, been, being, bgcolor, bgsound, big, blink, blockquote, body, border, but
- c can, caption, cdt, cellspacing, center, cgi, charset, cite, clean, code, col, colgroup, color, com, content-type, could, cst
- d date, dec, del, delivery-date, dfn, did, dir, div, does, doing, done
- e edt, edu, embed, encoding, esmtp, est, etc
- f feb, fig, font, for, form, frame, frameset, fri, from
- g gmt, goes, going, gone
- ${f h}$ had, has, have, having, head, header:From, header:Subject, header:To, height, helo, helvetica, her, him, his, htm, html, https
- i iframe, img, inbound, inc, input, ins, isindex, it's, its
- j jan, jul, jun
- k kbd
- I lang, link, listing, localhost, ltd
- $m{m}$ mail, mailto, map, mar, marquee, math, may, mbox, menu, message, message-id, meta, mon, multicol, mx.perfora
- ii nosp, net, nobi, noframes, not, note, nov

All POPFile Parar

This is the complete list of P(Update; there is no validity of See <u>OptionReference</u> for mo

Configuration file: C:/Users/t

Paramet

bayes_bad_sqlite_version

bayes_corpus

bayes_database

bayes_dbauth

bayes_dbconnect

bayes_dbuser

bayes_hostname

bayes_localhostname

bayes_nihongo_parser

bayes_sqlite_journal_mode *

bayes_sqlite_tweaks

Lookup

Lookup word in buckets:

Lookup

Lookup result for linux									
Bucket	Frequency	Probability	Score						
0-lists	0.0000104560	0.0012820306	2.4787561126						
1-rv	0.0000364323	0.0044670138	3.0208749991						
3-subs-acnts	0.0000115586	0.0014172117	2.5222924367						
5-computing	0.0001548584	0.0189874187	3.6493236336						
6-nation	0.0000130258	0.0015971068	2.5741916710						
7-thinkpad	0.0007780890	0.0954026515	4.3504181517						
8-radio	0.0001727265	0.0211782516	3.6967478104						
9-ofn-buy-sell	0.0000150866	0.0018497901	2.6379801600						
abc-words	0.0000759763	0.0093155666	3.3400669822						
biketour	0.0000086229	0.0010572690	2.3950432115						
email-pegasus	0.0007323708	0.0897970719	4.3241198825						
health	0.0000184891	0.0022669727	2.7263040048						
image	0.0000405806	0.0049756444	3.0677070407						
j-ebay	0.0000104782	0.0012847509	2.4796766401						
k9	0.0000403210	0.0049438123	3.0649196763						
linux-open-source	0.0057087782	0.6999617845	5.2159320365						
mensa	0.0000111618	0.0013685692	2.5071244845						
n-bbo	0.0000430262	0.0052755032	3.0931216004						
pda-phone	0.0000644558	0.0079030254	3.2686510849						
spam	0.0000056319	0.0006905394	2.2100461782						
urbis	0.0000091388	0.0011205224	2.4202782667						
work	0.0001940918	0.0237978898	3.7473961553						
Source is most likely to appear in linux open source									

linux is most likely to appear in linux-open-source



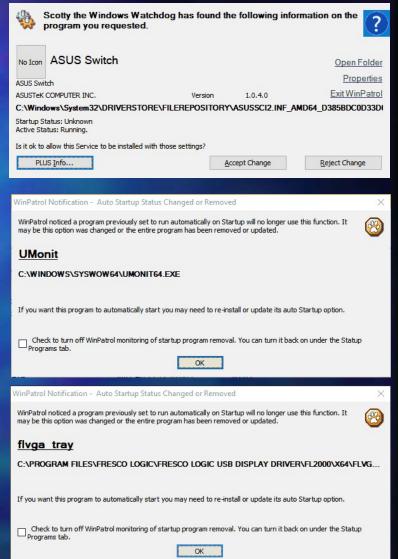
v1.1.3

14:09 - tom@abacurial.com)

Winpatrol

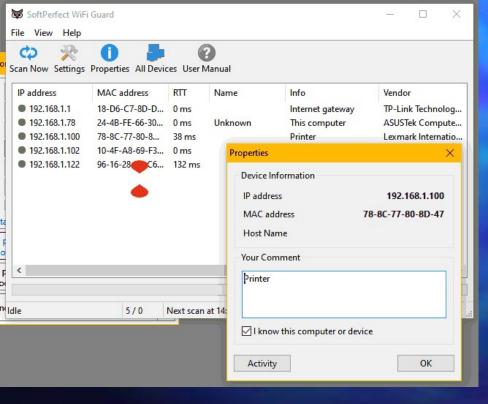
- Abandonware
- Alerts changes to startup programs

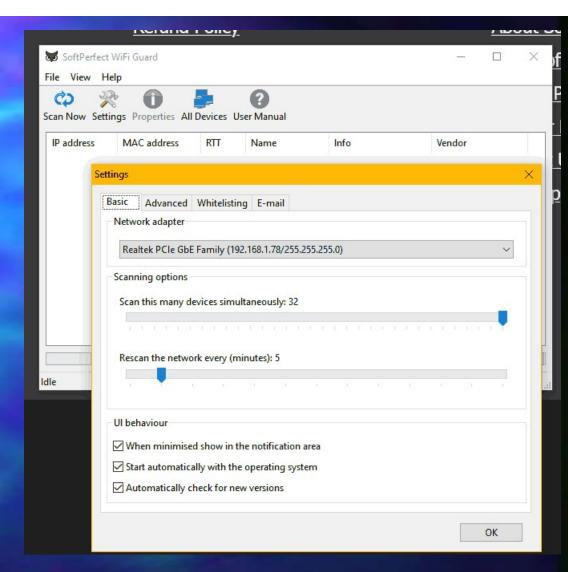




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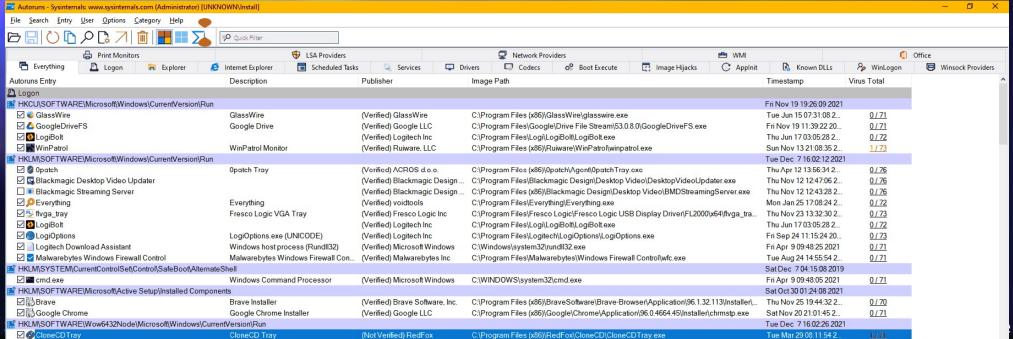
WifiGuard





Autoruns

- Microsoft program
- https://docs.microsoft.com/en-us/sysinternals/downloads/autoruns



Security layers

- No single magic bullet
- Action + awareness
- □ Good Luck!

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