TOR and the DARK ART OF ANONYMITY

How to Be Invisible From NSA Spying

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Table of Contents

Preface

You want what you want.

Invisibility. Anonymity. Ghost protocol.

You've taken the red pill and have seen the truth, and you don't like it. I don't blame you. I didn't like it either. But what I thought I knew about Tor and other incognito tools was only a drop in the ocean next to what's really out there. Stuff you don't find on many tech forums. They're whispered in private, of course, but it's all invisible to you. Until now.

Which brings us to you and I, or rather what I can do for you. It's amazing what a guy can learn in a decade when he rolls his sleeves up and gets his hands dirty. Private hacker forums. Usenet. Freenet. I scoured them all for years and what I've learned isn't anywhere else on Amazon.

Equally amazing is what you can learn for a few dollars in a weekend's worth of reading. That's me, and soon to be *you*. Where you will be by Monday is where I am now, only without the years of mistakes. Mistakes I made using Freenet, Tails, PGP. You name it, I did it. And boy did I make BIG ONES. Mistakes you'll avoid because after you read this guide, you'll know more than 85% of the Tor users out there, and know more about anonymity than most Federal agents. Yes, even the so-called superhackers at the NSA.

If you don't come away satisfied, return it for a full refund.

But I know you won't. Because once you've taken the red pill, there ain't no going back. You can't unlearn what you've learned, unsee what you've seen, and you'll want more. Much, much more.

First off, we're not sticking with the basics here. If all you want is Tor for Dummies, look elsewhere. Where we're going is dangerous territory. It's shark territory when you get right down to it. But not to worry. We've got shark repellant and everything you need to surf safe. You'll reap benefits you've only dreamed of and by the time we're done, you'll have gained NSA-level anonymity skills with a counter-surveillance mindset that rivals anything Anonymous or those goons at the NSA can counter with.

Speaking of which, they won't have a clue as to how to find you.

Secondly, for a few dollars you will know every exploit those superhackers like to wield against Tor users and more: How to avoid NSA tracking. Bitcoin anonymity (*real* anonymity), Opsec advice and Darknet markets and Darkcoins and, well, it's a long list frankly, but by the time you're done you'll be a Darknet *artist* when it comes to marketplaces and buying things incognito.

Third, we'll go over many techniques used by the CIA and FBI to entrap users. False confessions. Clickbait. Tor honeypots. It's all the same. You'll learn the same techniques used to catch terrorists, hackers and the group Anonymous and couriers for Reloaded. Baits and Lures and how to spot an LEA agent from a mile away. I break it all down into simple steps that you can understand. A few dollars for this info will save you a LIFETIME of grief. No, you won't find it on Reddit or Ars Technica or Wired. If you're mulling this over, don't. You need this now, not when you're framed for something you didn't do.

Fourth... reading the dangerous material herein requires you take ACTION. The Feds take action. Identity thieves take action. Hackers take action. Will you? Make no mistake - This is not a mere guide. It is a *mindset*. It's professional level stuff meant to keep you and your family safe for a decade out, going far beyond apps and proxies. And it's all yours if you do two simple things: You read, then act. Simple. Because you know what they say: Knowledge is power.

No, strike that. Knowledge is *potential* power. *Your* power. But only if you act.

Fifth... I update this book every month. New browser exploit in the wild? I update it here. New technique for uncloaking Tor users? You'll read it here first. We all know how Truecrypt is Not Safe Anymore, but that's only the beginning.

Besides, freedom isn't free.

Lastly... The scene from Jurassic Park with Dennis Nedry, I believe, is a nice frightful analogy to what happens if you don't take your security seriously. We see poor Dennis try to get his jeep out of the muck in the middle of a tropical storm. Lightning unzips the sky and the rain pours. The thunder rolls. A dilophisaur bounds upon him, beautiful, yet painted across his ugly mug is a deadly curiosity as it sniffs the air and cocks it's head at Nedry - moments before spraying his chubby eyes with poison. Blinded, he staggers back to the safety of the jeep, wailing and gnashing teeth, only to discover a visual horror to his right: he's left the passenger-side door ajar - wide enough to let Mr. Curious in for a juicy evening meal - which it savors with a row of sharp teeth.

The point is this: Don't be Dennis Nedry. There are far bigger creatures who'd like nothing better than to split your life (and family) wide open if for no other reason than THEY CAN, such is the nature of the elite.

Unless, of course, you tame them...

Not bloody likely.

Is Tor Safe?

That seems to be the question, alright. And to that, well, it really depends on whom you ask, because there are always wolves in sheep's clothing out there who stand to gain from your ignorance. Many say no. A few say yes. The media, for all their expertise in things political and social, come up woefully lacking when something as complex as Tor is discussed.

Case in point: Gizmodo reported that in December, 2014, a group of hackers managed to compromise enough Tor relays to decloak Tor users. If you're just hearing this for the first time, part of what makes Tor anonymous is that it relays your data from one node to another. It was believed that if they compromised enough of them, then they could track individual users on the Tor network and reveal their real life identities. Kind of like how the agents in The Matrix find those who've been unplugged.

Anyway as luck would have it, it turned out to be kiddie script-hackers with too much time on their hands who simply wanted a new target to hack. Who knows why. Could be that they'd toyed with the Playstation Network and Xbox users long enough and simply wanted a curious peak here and there. These were not superhacker-level NSA members, either.

But as is usually the case with the media, this attack attracted the attention of a few bloggers and tech journalists unsympathetic to Tor and frankly, ignorant of what really constitutes a threat. The Tor devs commented on it, too:

"This looks like a regular attempt at a Sybil attack: the attackers have signed up many new relays in hopes of becoming a large fraction of the network. But even though they are running thousands of new relays, their relays currently make up less than 1% of the Tor network by capacity. We are working now to remove these relays from the network before they become a threat, and we don't expect any anonymity or performance effects based on what we've seen so far."

What those conspiracy bloggers failed to report was that any decentralized network like Tor is a prime target for attacks such as the above. But to truly stand a chance at punching a hole through this matrix, hackers would need Tor to implicitly trust every new node that comes online. That doesn't happen.

It also takes time for fresh relays to gather traffic - some as long as sixty days or more and the *likelihood* of being reported is rather high since the IP addresses are out in the open - which only speeds up malicious reporting. The *real* danger, and has been since inception, is scaring Tor users to less secure methods of communication. That's what the NSA wants. The CIA already does this in foreign countries. Now the NSA is following their lead.

The REAL Risk of Using Tor

I list them here before we dive deep into enemy territory so you'll know what to avoid before installation, and maybe get an "a-ha!" moment in subsequent chapters. As you read, remember that having Javascript on is really only a drop in the ocean next to what is possible for an enemy to kill your anonymity.

Javascript

It's widely known that leaving Javascript on is bad for a Tor user. Ninety-five percent of us know this, but the mistakes of the 5% get blown out of proportion and thrown into the face of the rest of us. Worse, many websites now run so many scripts that it seems as though they hate Tor users.

One site required over a dozen. Without it, the page was/is/will be pretty much gimped. Sometimes not even *readable*. You can imagine what might happen if you were using Tor and decided to visit that site if it was set up to lure users into a honeypot.

I remember one researcher claimed that "81% of Tor users can be de-anonymised."

Bull.

That 81% figure came about because the targeted users knew little about the NoScript browser add-on, and likely mixed Tor usage with their daily open net usage, providing ample data for a correlation attack. But that was just the icing on the cake. They left personal details *everywhere* - using the same usernames and passes they do elsewhere on the open net. Bragging about their favorite Netflix movies. Talking about local events (Jazzfest in New Orleans!). The weather (Hurricane in the French Quarter!). You get the idea.

Volunteering as an Exit Node

Another doozy, though not quite the granddaddy of all risks, but still risky. On the plus side, you as a valiant believer in anonymity graciously provide bandwidth and an "exit pipe" to the rest of the Tor users (hopefully none of whom you know) so that they may pass their encrypted traffic through your node. Generous? Certainly. Wise? If you live in the States... hale no as my Uncle Frick in Texas used to say.

It isn't that it is illegal *per se* to do so. On the contrary, but what passes through your node can land you in hot water if you live in a police state. All exiting traffic from your node (i.e. *other people's traffic*) is tied to your IP address and as others have found, you put yourself at risk by what others on the other side of the planet do with your node.

Lots of new Tor users fire up BitTorrent configured for Tor and suck down all the bandwidth. It makes for a very miserable Tor experience for other users. You may get served with a copyright violation notice (or sued), or perhaps raided if child porn flows out of your pipes. Think carefully and do your research before taking on such a risky charge, lest your computer be seized and your reputation ruined.

Running an Exit Relay From Home

Running it from home is even worse then using cloud storage, and is infinitely dangerous in the USA and UK. If the law for whatever reason has an interest in your Tor traffic, your PC might be seized, yes, but that's only the start. In the UK, there is no 5th amendment protection against self-incrimination. A crusty old judge can give you two years just for not forking over the encryption keys (which if they had, they would not have bothered raiding at 6AM).

Use a host instead that supports Tor. There is Sealandhosting.org, for one. They accept Bitcoins and do not require any personal info, only an email. They offer Socks, Dedicated Servers, Tor Hosting and VPS as well as Domains.

We'll get into the nitty details later, but these are the Rules I've set for myself:

- Refrain from routing normal traffic through it
- Never do anything illegal (more later as it's a grey area)
- Never put sensitive files on it (financial info, love notes, court docs)
- Be as transparent as possible that I'm running an exit
- If I get complaints from The Olde ISP (or university), I use this template.

Intelligence Agencies

They've declared war on Tor and its stealth capabilities, no doubt about it. And though they will fight tooth and nail to convince you it is for your own good, really what it all comes down to isn't so much national security as it is national **control**: Control over you in that they know not what you're doing on Tor, nor why.

They don't like that.

It's quite galactically pompous of them to spend so much money and waste so much time chasing you simply because they don't like you or your actions not being **easily identifiable**.

As you probably know, it's more costly to go after a high-value target. But they do not know if you are a high-value target or merely low-hanging fruit. As we've seen in the case of bored Harvard students, anyone can get into serious trouble if they go into Tor blind as a bat.

Even Eric Holder has publicly pointed out that Tor users are labeled as "non-US persons" until identified as citizens. It's beyond pompous. It's criminal and unconstitutional. It sounds as if they view ALL Tor users as high-value targets.

And by the time you are identified as such, they have acquired enough power to strip you as well as millions of other citizens of their rights to privacy and protection under the Fourth Amendment of the Constitution.

They do this using two methods:

The Quantum and FoxAcid System

More on how to defeat this later, but here is the gist of it:

- Both systems depend on secret arrangements made with telcos

- Both involve lulling the user into a false sense of security

- Neither system can make changes to a LiveCD (Tails)

- Both can be defeated by adhering to consistent security habits.

Defeating this requires a mindset of diligence. DO NOT procrastinate. Decide ahead of time to avoid risky behavior. We'll get to them all. A good, security mindset takes time and effort and commitment to develop but should be nurtured from the very beginning, which is why the RISKS are placed up front, ahead of even the installation chapter. Things tend to drag in the middle of a book like this, and are often forgotten.

Speaking of risk... if you wonder what truly keeps me up at night, it's this: What do other nations tell high-level CEOs and Intelligence agencies (Hong Kong, for instance)?

If the only thing I can trust is my dusty old 486 in my attic with Ultima 7 still installed atop my 28.8k dialup modem, then it's safe to assume *every* commercial entity is jeopardized by the NSA. And if that's true, if the NSA has to jump hoops to spy on us, how easy is it to infiltrate American-owned systems *overseas with our data on those systems*?

To that, if no corporation can keep their private info under wraps, then eventually the endgame may evolve into a Skynet grid similar to the Soviet-era East/West block in which CEOs have to choose east or west. But that's like trying to decide whether you want to be eaten by a grizzly bear or a lion.

So then, you now know the real risks. The main ones, anyway.

Every one of these risks can be minimized or outright defeated using knowledge that is in this book. The sad part is that most readers will forget roughly 80% of what they read. Those who take action will retain that 80% because they are making what they've read a **reality**: Making brilliant chesslike countermoves when the NSA threatens your Queen. If you do not take action ,but merely sit there like a frog in a slowly boiling pot of water, not only will *you* perish but your future generations will as well. Alright then. Enough of the risks. Let's get to it.

Tor Step-by-Step Guide

Now let's answer *what Tor is* and *what it does* and *what it cannot do*. You've no doubt heard it is some kind of hacker's tool, and you'd be right, but only from the perspective that a powerful tool like Tor can be used for just about anything. In fact anything can be bought (except maybe voluptuous blondes in red dresses) anonymously... as long as you're *cautious* about it.

Before you knock Tor, remember that it is not about buying drugs or porn or exotic white tiger cubs. It's about anonymous communication and privacy - with the main function being to grant you anonymity by routing your browsing session from one Tor relay to another--masking your IP address such that websites cannot know your real location.

This allows you to:

- Access blocked websites (Facebook if you are in China)
- Access .onion sites that are unreachable via the open internet
- Threaten the president with a pie-to-the-face...and no Secret Service visit!

It does all of this by a process called ***onion routing***.

What is onion routing?

Think of it as a multi-point-to-point proxy matrix. Unlike peer to peer applications like BitTorrent or eMule which expose your IP to everyone, Tor uses a series of intermediary nodes (and thus, IPs) that encrypt your data all along the network chain. At the endpoint, your data is decrypted by an exit node so that no one can pinpoint your location or tell which file came from which computer. Due to this anonymizing process, you are anonymous on account of the packed "onion layers" that hide your true IP address.

It is even possible to build a site such that only Tor users can access it. Also called "Onion Sites," though technically challenging, you don't need a Ph.D in computer science to build one. Or even a Bachelor's degree. These Onion sites are unaccessible by anyone using the regular web and regular, non-Tor Firefox.

We'll delve deeper into that later, as well as construct a fortress of doom that nothing can penetrate.

Installation

Installing Tor is dirt simple. You can download it here.

If your ISP blocks you from the Tor site, do this:

- Shoot an email to Tor. Tell them the situation. You can get an automated message sent back to you with the Tor installation package.

- Go to Google. Do a search for any cached websites, including Tor, that might have the install package to download. Many tech sites may just have it in the event of all-out nuclear war.

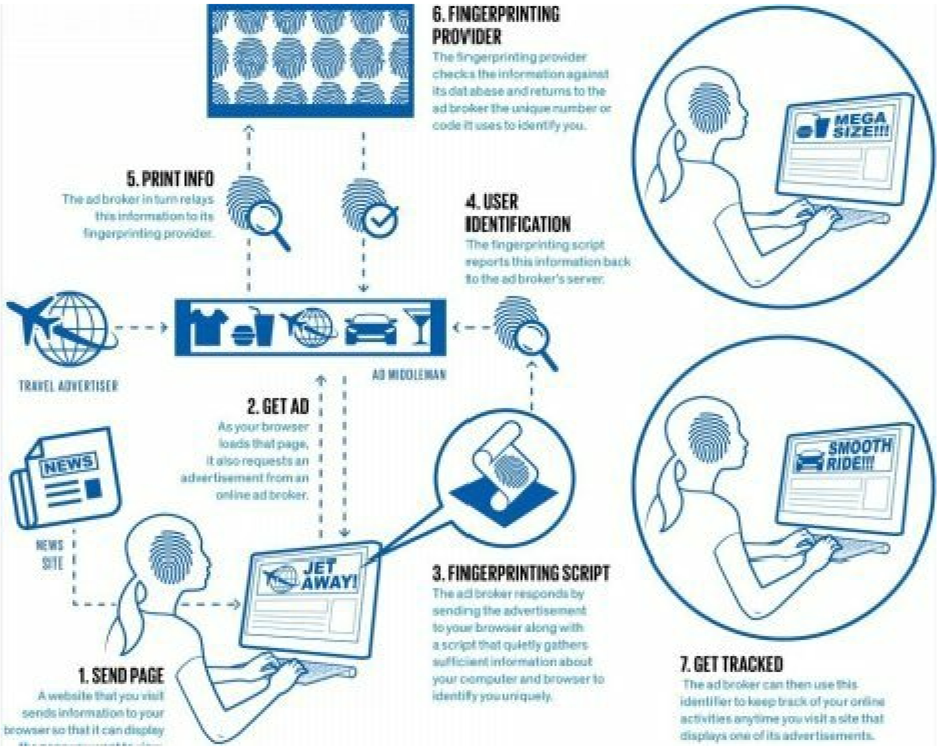
- Visit rt.torproject.org and ask them to mirror it.

- Get a friend to email you the Tor installation. Ask for Tails, too.

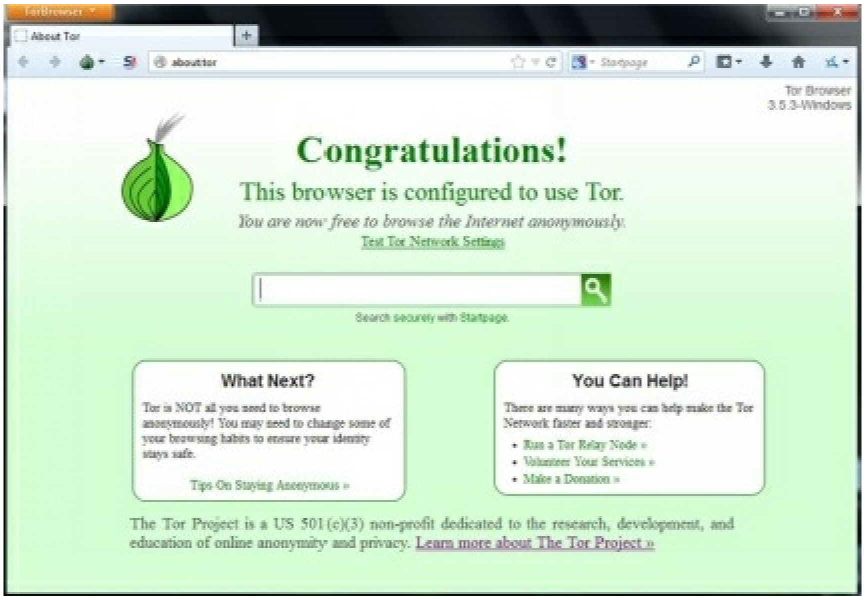
- VERIFY the signature if you obtain it elsewhere other than from the main Tor site, but for the love of all that is sacred and holy, Threepwood, **verify** it even if your friend hand-delivers it. I've gotten viruses in the past from friend's sharing what they thought were "clean" apps.

Now then. Choose Windows, Linux or the Mac version and know that your default Firefox install will not be overwritten unless you want it to. Both use Firefox but Tor is a completely separate deal. You'll notice it has the same functions as Firefox: Tabs. Bookmarks. Search box. Menus. It's all here... except your favorite add-ons.

And on that point, you might be tempted to install your favorites. Don't give in to that temptation. Multiple add-ons that do nothing for your anonymity might assist someone in locating you over Tor by what is known as "Browser fingerprinting."


6. FINGERPRINTING PROVIDER
The fingerprinting provider checks the information against its database and returns to the ad broker the unique number or code it uses to identify you.
MEGA SIZE!!!
5. PRINT INFO
The ad broker in turn relays this information to its fingerprinting provider.
4. USER IDENTIFICATION
The fingerprinting script reports this information back to the ad broker's server.
TRAVEL ADVERTISER
AD MIDDLEMAN
2. GET AD
As your browser loads that page, it also requests an advertisement from an online ad broker.
NEWS
NEWS SITE
SMOOTH RIDE!!!
JET AWAY!
3. FINGERPRINTING SCRIPT
The ad broker responds by sending the advertisement to your browser along with a script that quietly gathers sufficient information about your computer and browser to identify you uniquely.
1. SEND PAGE
A website that you visit sends information to your browser so that it can display
7. GET TRACKED
The ad broker can then use this identifier to keep track of your online activities anytime you visit a site that displays one of its advertisements.

After installation, you should see the green welcome screen below:



Congratulations!

This browser is configured to use Tor.

You are now free to browse the Internet anonymously.

Test Tor Network Settings

Search securely with Startpage.

What Next?

Tor is NOT all you need to browse anonymously! You may need to change some of your browsing habits to ensure your identity stays safe.

Tips On Staying Anonymous »

You Can Help!

There are many ways you can help make the Tor Network faster and stronger:

- Run a Tor Relay Node »
- Volunteer Your Services »
- Make a Donation »

The Tor Project is a US 501(c)(3) non-profit dedicated to the research, development, and education of online anonymity and privacy. Learn more about The Tor Project »

Now you've got some choices. One is to volunteer your bandwidth, which makes it easier for other Tor users but comes with risk. It is explained in-depth by Tor developers here. I'd recommend reading it if you are new to anonymity tools.

After Tor is installed, every page you visit with the Tor Browser will be routed anonymously through the Tor network. There is however an important detail you need to know concerning security, and that is that your Tor settings are merely reasonable **starting points**. They are not optimal. We're still at the infancy stage and quite frankly, optimal as Tor knows optimal is largely dependent on hardware (network, CPU, RAM, VM, VPN), and so each person's setup will be different.

What Tor Cannot Do

Now for what Tor *cannot* do, or at least cannot do very well. In the future this may change so don't fall on your sword just yet.

1.) Tor cannot protect you from attachments.

This is not limited to executables, but anything that can be run via code. This means Flash videos as well as RealPlayer and Quicktime. Those babies can be configured to send your real IP address to an adversary. Not good. So never run any executable or app unless you trust the source. If at all possible, go *open-source*. This also goes for any encryption scheme which you MUST use if you're going to use Tor. It is NOT an option. Some say it is but that's like saying learning Thai is optional if you're going to live in Bangkok. You won't get far that way.

2.) Tor cannot run torrents well.

Old news, right? Thousands still do this. Better safe than sorry, they claim. Only problem is... they are safe and ***everyone else*** is sorry. Tor cannot do P2P apps like Emule and Limewire without making everyone else's Tor experience miserable. It simply sucks down too much bandwidth. In addition to some exit nodes blocking such traffic by default, it's been proven that an IP address can be found by using torrents over Tor. eMule, too, uses UDP and since Tor supports TCP protocol, you can draw your own conclusions about what that does to your anonymity.

True, you may be spared a copyright lawsuit since the RIAA likely won't go through all that trouble in trying to get your IP, but please spare other Tor users the madness of 1998 modem speeds. A VPN is a much better choice. There are a few good ones out there.

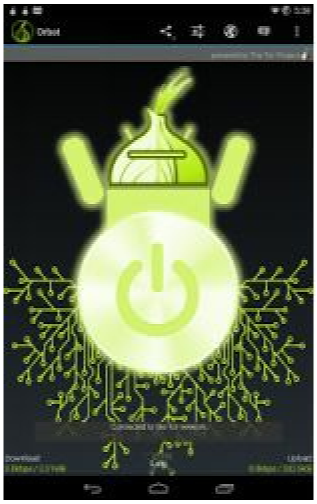
3.) Tor cannot cloak your identity if you are tossing your real email around like Mardi Gras beads. If you give your true email on websites while using Tor, consider your anonymity compromised. Your virtual identity must never match up with your real-life identity. Ever. Those who ignore this rule get hacked, robbed, arrested, or mauled by capped gremlins. Much more on this later.

Tor Apps & Anti-Fingerprinting Tools

A few applications make Tor less of a headache, but they are not particularly well suited for desktop users unless you're doing some kind of emulation. But with everyone using mobile these days, some of these have benefited me in ways I never thought possible. Be sure and read the comments in the Play Store since updates tend to break things.

Orbot: Proxy with Tor

Tor for Android, check it out here.



It is a proxy app that runs similar to the desktop app and encrypts your net traffic and protects you from surveillance and fortifies you against traffic analysis. You can use Orbot with Twitter, DuckDuckGo or any app with a proxy feature. I've used this for a long time now and have gotten used to it. Perhaps it is time to try something else.

Invisibox - Privacy Made Easy

Just plug the InvizBox into your existing router / modem. A new "InvizBox" wifi hotspot will appear. Connect to the new hotspot and follow the one time configuration set up and you're ready to go. All devices that you connect to the InvizBox wifi will route their traffic over the Tor Network.

Text Secure

This app encrypts every message on your mobile phone and is simple to learn. Better still, in the event you leave your phone at Marble Slab (Marble Flab to the Mrs.), rest assured your privacy is safe due to encryption. It's also open-source. Far too many apps aren't, and thus cannot be peer-reviewed by, well, anyone, unlike some proprietary apps like those offered by SecurStar (i.e. Drivecrypt, Phonecrypt).

Red Phone

This app secures every call with end-to-end encryption, allowing you privacy and peace of mind. It uses WiFi and offers neat upgrades if both callers have RedPhone installed.

It's not for everyone. Though it's not as expensive as say, TrustCall, there are convenience issues like lengthy connection times and dropped calls (ever Skype someone from Manila?) so it's not going to be as quick and dirty as Jason Bourne does it.

But the pluses outweigh the minuses. I especially love the two-word passphrase as a security feature: If you fear Agent Boris is dead and has been killed by Agent Doris (who now has his phone), you can request she speak the second passphrase. Simple yet effective.

Google and Tor

What does Google think of Tor? Quite honestly I suspect they try not to.

They probably don't *hate* it like the NSA does, but they know that if every Google user used Tor on a daily basis, much of their ad targeting system would, shall we say, begin firing *blanks*. Imagine if a thirteen year old boy received ads for Cialis, or an eighty-year old woman named Bertha began to see ads for Trojan coupons, or... well you get the idea.

They don't mind donating funds, either, since this allows a future stake in the technology (sort of). To that, they've not only donated to Tor, but to Freenet as well and even Mars rover technology. All kinds of crazy things. They never know which technology is going to rocket into orbit a week or year from now so they throw money around like Scrooge on Christmas morning.

Captchas

At times you'll be using Tor and find that Google spits this requirement out in order to prove you're human. This, on account of their massive analyses on search queries, is what drives some Tor users to think Google has it out for them.

However, Google has to put up with **lots** of spammers and general thievery; bots hammering the servers with tons of queries in short amounts of time that put undue strain on the servers can be one thing, but it can also happen if your employer uses proxies - many employees working for the same company that uses one of these can set off a red flag.

When your Tor circuit switches to a new one, usually it solves itself. There are other search engines like DuckDuckGo you can use, however.

You may find websites do the same thing. Again, this is on account of so many exit nodes (all of which are publicly visible to any website admin), slamming the website with traffic such that the hammering behavior resemble those of a bot, the kind Russian and Chinese outfits like to use.

Tor developers have some interesting things as well on this topic.

https://www.torproject.org/docs/faq.html#GoogleCAPTCHA

SpiderOak

Normally I warn against using Cloud Service for anything you want private. SpiderOak one exception, with some reservation. It's a decent enough alternative to DropBox as it is coded with "Zero Knowledge" (so say the developer) and when you install it, a set of encryption keys is created client-side. When you upload data to SpiderOak servers, they're encrypted on *your* computer and *then* uploaded. Again, according to the developers.

They claim that even if a subpoena requires subscriber data, they could not deliver since only you have the keys. Not bad, but I still would not upload anything unencrypted. A container file, for instance.

The other downside is that it is centralized. Centralization means a single-point-of-failure. As well your data can be deleted by them at any time (true with any online service really). Remember that between you and a judge, they will always side with the judge.

Tails

Ever heard of a "live system"? Neither had I until Tails burst on the scene. Tails allows you to use Tor and avoid tracking and censorship and in just about any location you could want. It houses its own operating system and is designed for those on the go.

You can run it via USB stick, SD or even a DVD. Pretty handy as this makes it resistant to viruses. It's also beneficial if you don't want your hard drive to leave remnants of your browsing session. The best part is that it's free and based on Linux *annnd* comes with chat client, email, office, and browser.

The downside to using a DVD is that you must burn it again each time you update Tails. Not very convenient. So let's install it to USB stick instead.

1.) Download tails installer here. You must first install it somewhere, like a DVD, and **THEN** clone it the USB stick or SD card.

2.) Click Applications --> Tails --> Tails install to begin the installation.

3.) Choose Clone & Install to install to SD card or USB Memory Stick

4.) Plug in your device, then scan for the device in the Target-Device drop down menu. You'll get a warning about it overwriting anything on the device, blah-blah. Choose yes and confirm install.

Tails Limitations

Neither Tails nor Tor encrypt your docs automatically. You must use GnuPG or LUKS for that (included), bearing in mind that some docs like Word or Atlantis may have your registration info **within** the document itself (In 2013, Amazon self-publishers discovered pen names could sometimes be revealed by looking at the code of the above apps and finding out the real identity of authors. Ouch.)

Personally I use fake info when "registering" any app I will use in conjunction with Tor or Tails.

Other noteworthy stuff:

- Document metadata is not wiped with Tails
- Tails does not hide the fact you're using it from your ISP (unless you use Tor bridges). They cannot see what you're doing on Tor, true enough, but they know you're using it.
- Tails is blind to human error. Try not to use the same Tails session to begin two different projects. Use separate sessions. Isolating both identities in this way contributes to strong anonymity for your sessions.

Chrome

Firefox is hardly the only way to slay a dragon. There's also Chrome. Yes, it's Google, and yes Google has strayed far from it's "Do No Evil" motto, but like everything else in life, luck favors the prepared. You just have to have the right sword. The right armor. The right lockpicks. The preparations (reagents) are as follows:

I. Install the ScriptNo extension. It is to chrome what a mouse is for a PC, at least as far as precision aiming goes. It offers excellent control, too, even allowing you to fine-tune the browser in ways that NoScript for Firefox cannot. If you find it too difficult, ScriptSafe is another option. I've used both and came away very satisfied, though like everything else on the internet, YMMV.

II. FlashControl is a nice alternative to Firefox. In the event you don't see it in the Google Play Store, just search for "Flash Block" and it should come up (Google has a habit of removing apps that aren't updated every Thursday under a Full Moon).

III. Adblock. This one is just insanely good at repelling all kinds of malware.

IV. User-agent Switcher for Chrome. Install it. Never leave home (0.0.0.0) without it. It spoofs and mimics user-agent strings. You can set yours to look like Internet Explorer. This will fool a lot of malware payloads into thinking you really are browsing with IE and not Firefox or Chrome, thus firing blanks at you.

It might have saved Blake Benthall, 26 year old operator of Silk Road 2.0, from getting raided by the FBI (among a dozen other drug outfits). This was accomplished over the span of many months since they had to get control of many relays, and if you have *control of relays*, you can use sophisticated traffic analysis to study patterns in IP addresses and match behavior and browser settings with those addresses. Recall that any federal prosecutor will always try to tie an IP address to an actual person where felonies are concerned.

Let me repeat: An IP address is considered an *identity* for the purposes of prosecution. We're all a number to them, regardless. Those of you with student loans know this perhaps more than anyone else. This will change as time goes on of course - as Tor competitors like Freenet and other apps evolve to offer what Tor cannot. Ivan Pustogarov goes into much more detail here on this but suffice to say the FBI did their homework and when all was said and done, had more resources on identifying lazy users than a typical VPN would. /endgame

V. CanvasBlocker - *Annnnd* another great plugin for Firefox. This baby prevents sites from using Javascript <canvas> API to fingerprint users. You can block it on every site or be discriminant and block only a few sites. Up to you. The biggest thing for me is that it doesn't *break* websites. More info here but in case you can't be bothered, here's the gist:

The different block modes are:
</canvas></canvas></canvas>

- block readout API: All websites not on the white list or black list can use the <canvas> API to display something on the page, but the readout API is not allowed to return values to the website.

- fake readout API: Canvas Blocker's default setting, and my favorite! All websites not on the white list or black list can use the <canvas> API to display something on the page, but the readout API is forced to return a new random value each time it is called.

- ask for readout API permission: All websites not on the white list or black list can use the <canvas> API to display something on the page, but the user will be asked if the website should be allowed to use the readout API each time it is called.

- block everything: Ignore all lists and block the <canvas> API on all websites.

- allow only white list: Only websites in the white list are allowed to use the <canvas> API.

- ask for permission: If a website is not listed on the white list or black list, the user will be asked if the website should be allowed to use the <canvas> API each time it is called.

- block only black list: Block the <canvas> API only for websites on the black list.

- allow everything: Ignore all lists and allow the <canvas> API on all websites.

As you can see, it's powerful stuff.

Deadly Firefox Options

Firefox

You might be tempted to enable "Check for counterfeit websites" in Firefox. Don't do this as it will relay sites you regularly visit to Google's servers. Google's "predictive text-search" is also bad as it relays keystrokes to Google as well. To change it you have to do it manually by going into about:config in the address bar. That said, let's look at some other privacy settings you might want to know about.

Javascript - Avoid like the plague. You may notice it is turned on by default under the Firefox options tab, though. The reason is spelled out here by the Tor Developer Team:

We configure NoScript to allow JavaScript by default in Tor Browser because many websites will not work with JavaScript disabled. Most users would give up on Tor entirely if a website they want to use requires JavaScript, because they would not know how to allow a website to use JavaScript (or that enabling JavaScript might make a website work).

There's a tradeoff here. On the one hand, we should leave JavaScript enabled by default so websites work the way users expect. On the other hand, we should disable JavaScript by default to better protect against browser vulnerabilities (not just a theoretical concern!). But there's a third issue: websites can easily determine whether you have allowed JavaScript for them, and if you disable JavaScript by default but then allow a few websites to run scripts (the way most people use NoScript), then your choice of whitelisted websites acts as a sort of cookie that makes you recognizable (and distinguishable), thus harming your anonymity.

Ghostery and Ghostrank - Not deadly, just useless on Tor since Tor disables tracking anyway. If you do use it, either could possibly alter your browser 'fingerprint', though not to the extent of breaking anonymity. Ghostery still blocks any tracking scripts regardless if you're on Tor or not. But use DuckDuckGo if you want to beef up your anonymity.

Adblock - This could also change your fingerprint. Adblock plus has "acceptable ads" enabled by default, and there is also the scandals that Adblock has been in over the years, one implying that Google paid the Adblock CEO for Google Ads to be shown.

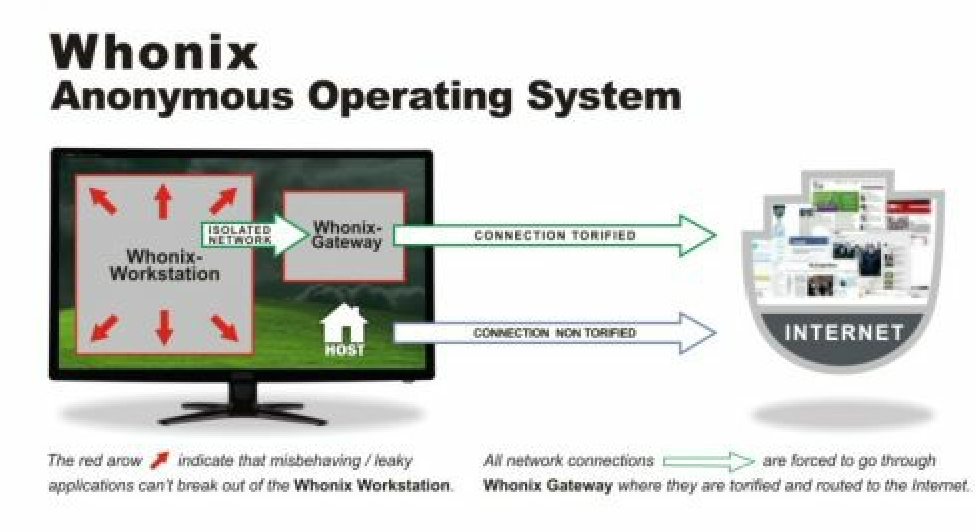
Besides, the basic idea of the Tor Browser Bundle is to use as few addons as possible. They figure that TorButton, NoScript, and HTTPS Everywhere is sufficient to preserve anonymity without the added risk of additional addons. Or um... drama.

The Panopticlick website may also be useful to you.

Whonix & Tor

If you're paranoid that using Tor could get you into trouble (if you are hosting a Hidden Service), you might want to look into Whonix before running anything. Many power users who use Tor daily like the tighter security it offers. This is not to say that it is *better* than Tails by default. Both tools offer strengths and weaknesses meant for different purposes, and you may find one is better than the other for *your personal situation*.

Like Tails, Whonix is built with anonymity *and* security in mind. It's also based off of Debian/Linux, so it's a good synergy where anonymity is concerned. This synergy grants anonymity by routing everything through Tor. The advantages are that DNS leaks are next to impossible and malware cannot reveal your IP address. In fact, the only connections possible are routed through Tor via the Whonix-Gateway.


Whonix
Anonymous Operating System
ISOLATED NETWORK
Whonix-Gateway
Whonix-Workstation
HOST
CONNECTION TORIFIED
CONNECTION NON TORIFIED
INTERNET
The red arow indicate that misbehaving / leaky applications can't break out of the Whonix Workstation.
All network connections are forced to go through Whonix Gateway where they are torified and routed to the Internet.

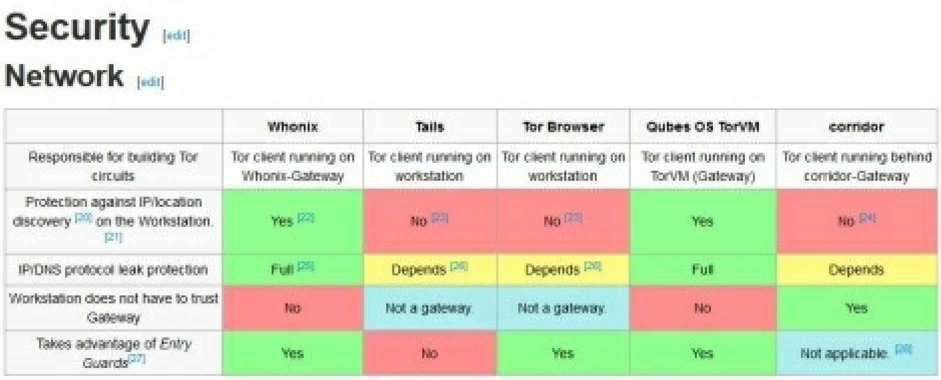
The question you may be wondering is: how much security is too much security? What's overkill and what isn't?

Well, you should ask how far will you fall if caught, and how much time are you willing to invest in reading to prevent it. Tails is easier to grasp, and if you do not expect attacks from sites you visit then by all means use Tails.

If you live in North Korea or China then there is a possibility of hard labor hammering worthless rocks if they see any Tor activity coming from your location that correlates to "things they don't like" activity... or anything else in the case of NK that offers hope. Guilty until proven innocent.

So if the above applies to you, use Whonix as it offers more security.

From Whonix.org:



Security [edit]

Network [edit]

	Whonix	Tails	Tor Browser	Qubes OS TorVM	corridor
Responsible for building Tor circuits	Tor client running on Whonix-Gateway	Tor client running on workstation	Tor client running on workstation	Tor client running on TorVM (Gateway)	Tor client running behind corridor-Gateway
Protection against IP/location discovery [20] on the Workstation. [21]	Yes [22]	No [23]	No [23]	Yes	No [24]
IP/DNS protocol leak protection	Full [25]	Depends [26]	Depends [26]	Full	Depends
Workstation does not have to trust Gateway	No	Not a gateway.	Not a gateway.	No	Yes
Takes advantage of *Entry Guards*[27]	Yes	No	Yes	Yes	Not applicable. [28]

A few notable features of Whonix that make it more secure:

Anonymous Publishing/Anti-Censorship
Anonymous E-Mail w/Thunderbird or TorBirdy
Add proxy behind Tor (user -> Tor -> proxy)
Chat anonymously.

IP/DNS protocol leak protection.

Hide that you are using Tor

Hide the fact you are using Whonix

Mixmaster over Tor

Secure And Distributed Time Synchronization Mechanism

Security by Isolation

Send E-mail anonymously without registration

Torify any app

Torify Windows

Virtual Machine Images (VM)

VPN Support

Use Adobe Flash anonymously

Use Java/Javascript anonymously

The following is an example of a moderately secure system:

- Host Whonix on a memory stick with a flavor of Linux of your choice

- Use a VPN you trust (for privacy, not anonymity)

- Use Macchanger to spoof any mac address every session (Whonix does not hide your mac address from sites you visit!). If Macchanger isn't to your liking, give Technitium MAC Address Changer a try.

- Avoid regular calls of non-Tor WiFi tablets if using Cafe WiFi

- Know where every CCTV is located in the area you plan to use Tor

MAC Addresses

We mentioned Mac addresses. Well as technology would have it, your new WiFi/Ethernet card has something that can aid intelligence agencies in tracking you. It's a 48-bit identifier burned-in by the manufacturer. Sort of like an IMEI for your phone. If by chance you were not thinking clearly and bought your computer with Tor in mind using a credit card, you may later get targeted by an FBI "NIT" that swipes your MAC number. If that happens, you're toast. More info here on this: Torsploit.

The way to defeat this is to have a disposable MAC (the number, not the Apple product). One that you bought with cash with no security cams. That way you can get rid of it in a flash or swap it out.

They are also soft-configurable. Believe it or not, Tails itself alters this randomly with every session. With a virtual machine, the FBI Nit may target a MAC number from the VirtualBox pool. Not really an issue unless they happen to raid your house and snag your system simultaneously. So swapping this out on a daily basis, as you've probably guessed, can be quite a pain. It's mainly for guys who run illegal markets. Guys who are *always* in the crosshairs of alphabet agencies.

But then, so can you. I've found it pays to think of oneself higher than what one is actually worth when traversing dark nets. I.e. Thinking of yourself as a **high value target**. You'll subconsciously program yourself to research more, learn more - from everything from bad security mistakes to bad friendships to bad business practices. To that, you don't have to be in the top 5% of guys who've mastered network security. Being in the top 25% pool is more than enough to make The Man get frustrated enough to look for his flashy headlines elsewhere... for a low hanging fruit named Neb who lives in mama's basement, for instance.

Whonix Bridges

If you live in a communist hellscape where even mentioning Tor can get you into trouble, using a Bridge with Whonix can be quite literally a life saver.

What Bridges Are

Bridges are obfuscation tools to cloak your Tor usage from a nosy ISP or government who might see you are using Tor, but not know what you are doing with it. To that end, Tor bridges are alternative ways to enter the Tor network. Some are private. Many are public. Some are listed on the Tor homepage. In a hostile environment you can see the value in using it to your advantage as it makes it *much more* difficult for an ISP to know you're using Tor.

What Bridges Are Not

While not especially *unreliable*, they are certainly *less* reliable than regular Tor usage where performance goes. But the tradeoff may be in your best interest. Only you can decide if the performance hit is warranted. Here's how to do it in Whonix.

Bridges must be added manually since there is no auto-install method for Whonix, but it is not difficult. You simply must enter them into the proper directory:

/etc/tor/torrc.

If you're using a graphical Whonix-Gateway, then browse to:

Start Menu -> Applications -> Settings -> /etc/tor/torrc.examples

To edit your torrc file (necessary for bridge adding), browse to:

Start Menu -> Applications -> Settings -> /etc/tor/torrc

Then add whatever bridge you copied from the Tor bridges page (or a private one if you have it). Then restart Tor for it to take effect. If you run into trouble (and most likely will if it's your first time) there are a few forums to help you out.

Whonix Forum

Tor Reddit

Wilders Security Forum

Quora

Tor and VPNs

There is a lot of confusion among beginners when it comes to VPN companies. They read one thing and see something else in the media that contradicts that one thing. The cold, hard truth about VPN companies is that a few want your patronage so badly that they're likely to bury the fine print on their web page where it is difficult to read. Believe me, that's fine print that can get you sent to the Big House if you're not careful. It really is a minefield where these companies are concerned.

For this reason, you need to decide whether you want privacy or anonymity. They are different beasts that require different setups. And not every VPN user uses Tor and not every Tor user uses a VPN service, but it is advantageous to combine two powerful tools; one that affords privacy (the VPN) and one anonymity (Tor). Like I said, two different beasts.

But for what it's worth, if you like this combo then find a VPN that offers 128 bit encryption and that does not store **activity logs**. That's the first rule of business.

And here's the part where the fine print comes in. Many VPN companies *claim* they do not log a thing... but will gladly offer your subscriber data on a silver platter if a subpoena demands it. Between Big Money and Your Freedom, money always wins. They will not go to jail for you, ever. So do your due diligence and research.

Obviously a VPN service is not anonymous by default. Providers love to tout that it is, but let's face it there is nothing anonymous about using someone else's line if you left a money trail leading straight to your front door.

Enter Tor, slayer of gremlins and we-know-what-is-better-for-you nanny staters. Tor makes for an extra and formidable layer of security in that the thieves will have to go an extra step to steal something from you. Thieves come in all flavors, from simple jewel thieves to border guards who want to make you as miserable as they are. So it is a good idea to ensure all the holes in your Tor installation are updated.

Updated applications are resistant to malware attacks since it takes time to find exploitable holes in the code. But... if you do not update then it does not matter which VPN you use with Tor since your session may be **compromised**. Here is what you can do:

Option 1

<u>Pay for a VPN anonymously</u>

This means no credit cards. No verified phone calls. No links to you or anyone you know. In fact, leave no money trail to your real name or city or livelihood at all and never connect to the VPN without Tor.

For optimal anonymity, connect to your VPN through Tor using Tails. Even if the VPN logs every session, if you *always* use Tor with Tails, it would take an extremely well-funded adversary to crack that security chain. Without logging, it's even more secure.

But always assume they log.

Option 2

Pay for a VPN using a credit card

Connecting with Tor when using a card with your name on it does nothing for anonymity. It's fine for privacy, but not for anonymity. This is good if you want to use Pandora in Canada for instance but not if you want to hire a contract killer to loosen Uncle Frick's lips a bit. Uncle Frick, who is 115 years of age and being tight-lipped on where the sunken treasure is.

Ahem, anyway, VPN services sometimes get a bad rap by anonymity enthusiasts, but signing up *anonymously* for a VPN has advantages. It strengthens the anonymity when using Tor, for one.

Even if the VPN keeps logs of every user, they will not know even with a court order the real identity of the user in question. Yet if you used Paypal, Bitcoin, credit cards or any other identifiable payment methods to subscribe to a VPN for the express purpose of using Tor, then anonymity is weakened since these leave a paper trail (Bitcoin by itself is not anonymous).

But the real down and dirty gutter downside is .onion sites. These are sites that can only be accessed by using Tor. The problem is that the last link of connectivity for these sites needs to be Tor, not the VPN. You'll understand what is involved once you connect with one which brings up our next question.

How Tor Friendly is the VPN?

That depends on you. Spammers use Tor. Hackers use Tor. Identity thieves use Tor. A few VPNs have reservations about letting users attain 100% anonymity by signing up anonymously. But if you signed up anonymously then you have little to fear since at that point it is *their* ass on the line.

Only there is one problem: the hardliners at the FBI do not like this attitude. In fact, they'd just as soon go after you if you use a VPN over Tor. Might a person come under twice the suspicion by using both? Maybe.

From Fee.org

"The investigative arm of the Department of Justice is attempting to short-circuit the legal checks of the Fourth Amendment by requesting a change in the Federal Rules of Criminal Procedure. These procedural rules dictate how law enforcement agencies must conduct criminal prosecutions, from investigation to trial. Any deviations from the rules can have serious consequences, including dismissal of a case. The specific rule the FBI is targeting outlines the terms for obtaining a search warrant.

It’s called Federal Rule 41(b), and the requested change would allow law *enforcement to obtain a warrant to search electronic data without providing any specific details as long as the target computer location has been hidden through a technical tool like Tor or a virtual private network. It would also allow nonspecific search warrants where computers have been intentionally damaged (such as through botnets, but also through common malware and viruses) and are in five or more separate federal judicial districts. Furthermore, the provision would allow investigators to seize electronically stored information regardless of whether that information is stored inside or outside the court's jurisdiction.*

The change may sound like a technical tweak, but it is a big leap from current procedure."

The NSA does this without hindrance. We know this from Snowden's leaks that the FBI uses the NSA's metadata from private citizen's phone records. Thus, a VPN is not a truly formidable obstacle to them.

But this takes it to an entirely different level since if merely signing up for a VPN provides a basis for a legal search, then they can snoop on any ISP's server they want with no legal grounds at all to justify it. They've done similar things in Brazil.

But here in the good ole U.S. of A, it usually goes down like this:

1.) Spy on JoBlo to see what he's up to.

2.) Make justification to seize PC/Raid/Data by reconstructing case

3.) Apply pressure to the right people with direct access to subscriber info

4.) Subpoena to decrypt subscriber's data. If they've done it once, they can do it a hundred more times. No Big Deal.

Solution:

If you're going to go the VPN route, then use PGP: Pretty Good Privacy. Never, ever transmit plain data over a VPN, not even one that offers SSL.

Final thoughts:

1.) Talking to police will never help you. Even in a raid situation. They (Homeland, possibly) wake you at gunpoint at 6AM and corral your family and threaten to take everyone to jail unless someone confesses. It's all lies, all the time by these agencies. A friend once remarked that a plain-clothes officer once knocked on his door to ask him if he was using Tor, only to *make sure he wasn't doing anything illegal*. He answered yes, but nothing illegal sir. That gave incentive to go forward like a giant lawnmower right over his reputation. He was proven innocent later on but not before the cops dragged that man's reputation through the mud. No public apology came (Do they ever?).

2.) If they don't charge you for running a hidden service, walk out. In fact, if they don't charge you with *anything*... walk out. Every word out of your mouth will aid them, not you.

3.) You have no reason to justify anything done in your own home to them, or anywhere else. The responsibility to prove guilt is theirs, not yours.

But, if you are in a situation where you have to talk or give up your encrypted laptop, always *always* give up your laptop first. Laptops are cheap and easy to replace. Five years is not.

Using Bitcoins to Signup Anonymously to a VPN Service

Bitcoins are not designed for absolute anonymity, but neither are VPNs. They're designed for privacy, yes. So why use them?

Well, because any extra layer that strengthens your anonymity is a layer you want. But just as with any advanced tool, you can lessen anonymity if you are careless with it. Good, tight anonymity tools can be a bane or a boon: A boon provided you do your homework. If not, folly and embarrassment ensues, possibly a situation where, depending on the country you're in, you might as well slap the cuffs on yourself. It's sad that the times have come to this predicament.

So let's consider then how one pays for a VPN and obtains this level of absolute anonymity... recognizing that a VPN **by itself** will do nothing to further this goal. It is only one tool in a toolbox full of tools and Bitcoin is only one of them as well. You wouldn't try to repair a Camaro engine with only a wrench, would you?

Now then, about Bitcoin...

Bitcoins are open source coins, a digital currency that utilizes P2P-like code, and like *real* money you can buy online products with it. Products like memory cards at Newegg or even a Usenet or VPN premium service. These are useful to us. Using these Bitcoins, you the end-user, completely bypass the need for a credit union or bank. Pretty neat. But, they're not without their shortcomings. More on that in a moment.

For now simply know that they are created from the collective CPU computations of a matrix of users (like you, for instance) who donate to their creation. Bitcoin mining is involved, and though you may have seen images of Bitcoins on websites stamped with a golden "B", they are actually not something you can carry around in your pocket.

Not in the way you think, at least.

They have something in common with PGP - public and private keys - just like the PGP application, only instead of verifying your identity like PGP does, Bitcoins verify your *balance*. This is where **Bitcoin wallets** come in. Again, not a magic bullet but rather one tool at our disposal.

On that point, Bitcoin Wallets will only get better at strengthening anonymity in the coming years. They will accomplish this by breaking the trail to our real identities. Oh, and their development is constantly improving.

However as we mentioned earlier--embarrassment will result if you neglect to do your homework, for every purchase by a particular wallet **can be traced**. That's right. If you buy a new video card at Newegg with it, the same that holds your credit card details, and then subscribe to a Usenet service or VPN, guess what... you've now established a trail to your real identity. The FBI or Chinese government will not need baying bloodhounds to sniff you out.

But not if you make only one purchase per wallet.

This means never using it for *any* online entity in which you've purchased goods while your real IP is connected. It also means forgoing Google Plus, Facebook, Skype and all social media outlets with said wallet. Twitter, Wal-Mart, BestBuy and even small mom & pop stores with multi-social media buttons splattered all over their websites--these are enemies of anonymity whether they know it or not (more likely they don't). They are not our friends anymore than a grenade is your friend after pulling the pin.

A single individual might hold several addresses and make only two purchases a year, but if he cross-contaminates by mixing up (each transaction is recorded in the Bitcoin blockchain), then anonymity is weakened and in most cases, destroyed by his own making. Not good.

The trick is this: don't create a pattern. A string of purchases create a pattern; the exact sort of pattern Google and Amazon code into their algorithms to search and better target you with interest-based ads. Bad for anonymity and that's far from the worse that can happen.

We get around this problem by using **Bitcoin mixers**. These weaken the links between several different Bitcoin addresses since the history of that purchase is wiped by the exchange of Bitcoins among other Bitcoin users. There are a few options available to you. One is BitFog but there are many others.

Bitcoin Wallets

In order to subscribe to a VPN or buy anything online with Bitcoins, a Bitcoin wallet is required. More than one type is available to us. We'll go through each and list their pros and cons.

Desktop Wallet

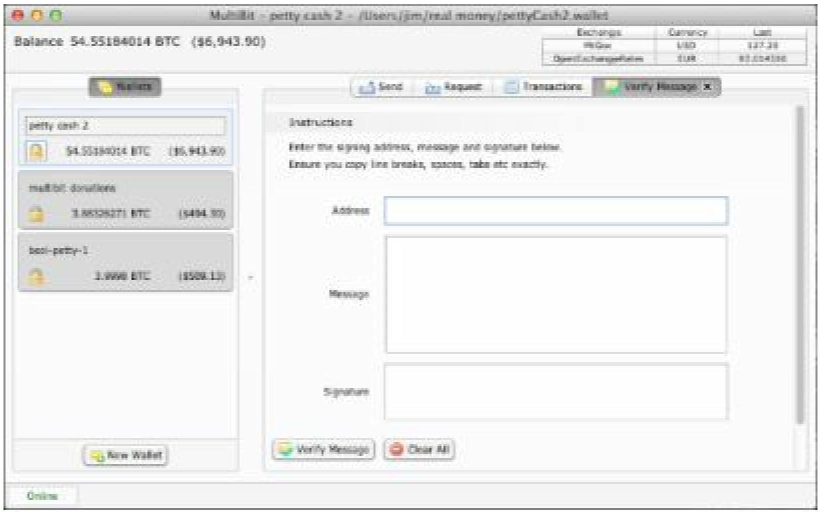
This is what I use and for good reason: I have absolute control over it not to mention the thought of having to access my money on someone else's web server defeats the entire idea of anonymity. I would never store my encrypted files "in the cloud" and neither should you. At least, not without an insanely secure system.

Think about it. Would you bury your safe in the neighbor's yard with a For Sale sign out front? Same deal. The server could go down. The company could go bankrupt. Any person on the other end on the hosting side can install a keylogger without your knowledge. Nasty buggers, those things. Desktop wallets aren't perfect, mind you, but they are better than The Cloud. One downside is that you must backup your Bitcoin wallet, an especially imperative task if it contains a lot of money. I do this quite religiously every week, as should you. Apologies if this all sounds like a Sunday sermon, but some of this stuff really must be taken as gospel.

Mobility/Travel Wallet

As the name implies, you carry this on you to make purchases in the same way you would a credit card. Convenience x 1000.

There are many types of wallets such as Coinbase and Electrum but I found **Multibit** to be very easy to learn. It is available in both Linux and Windows and offers a pass phrase option. Even the balance sheet looks like a PGP interface, but yet is beginner-friendly and open-source, so no backdoors. Good for anonymity.


MultiBit - petty cash 2 - /Users/jim/real money/pettyCash2.wallet

Balance 54.55184014 BTC ($6,943.90)

Exchange	Currency	Last
MtGox	USD	127.29
OpenExchangeRates	EUR	[illegible]

Wallet	BTC	USD
petty cash 2	54.55184014 BTC	($6,943.90)
multibit donations	3.88326271 BTC	($494.39)
test-petty-1	3.9998 BTC	($509.13)

Instructions

Enter the signing address, message and signature below.
Ensure you copy line breaks, spaces, tabs etc exactly.

Multibit Windows Install

Now we come to the instructions for a clean install of this work of wonder.

Download the Windows installer from this link.

Run the installer.

The possible problems we may run into: On Windows 7 64-bit which is the system of choice outside of Linux these days, it may be that the Java Virtual Machine (JVM) is not correctly located, or "Failed to create a selector" is shown in the error message. A solution is to change the compatibility setting:

Choose the compatibility dialog (right click--> icon - Properties --> Compatibility)
Choose: "Run this program in compatibility mode for Windows XP SP3."
Check the box: "Run this program as an administrator"

Multibit Linux Install

If you're a Linux fan (and you should be if anonymity is something you strive for), then download the Linux / Unix installer.

Open a terminal window and create an installer executable with:

```
chmod +x multibit-0.5.18-linux.jar
```

Run the installer: java -jar multibit-0.5.18-linux.jar

Install.

Thereafter you will have a shortcut to start MultiBit in your "Applications | Other" menu. If you see no MultiBit shortcut, you can run MultiBit manually by doing the following:

open a terminal window and 'cd' to your installation directory
type java -jar multibit-exe.jar

Now it is time to purchase Bitcoins. There are a few useful guides around which list possible advantages unique to your geography.

As you can see from the link, there are several options but what we want to do is execute an offline option; to buy Bitcoins *off the grid* which cannot be traced. Cash n' carry.

LocalBitcoins looks promising as does TradeBitcoin. But as Trade looks down so let's go with LocalBitcoins.

- After you choose a Bitcoin outfit, you must signup for the site (anonymously) but be aware of the interest charges which vary from one to another depending on how much you want to deal in. For this transaction, use an email in which you anonymously signed up. That means:

- Tor Browser/Tails
- No Facebook or other Social Media/Search cookies present on machine
- Only accessed for Tor/Bitcoins.

Choose 'Purchase' on the seller's page and the amount we wish to buy. Remember, we're not buying a house here, only a VPN to use with Tor. Once funds are transferred out of escrow, you will be notified.

Notice that the trader you are dealing with might be able to see your financial information, i.e. which bank you use, etc., but you can always opt to meet up in person if you want. This carries a whole other set of risks.

Check to make sure the funds are in your Bitcoin Wallet.

Paying for the VPN to Use with Tor

Now it is time to pay for your VPN service... *anonymously*. Let's choose Air VPN at $9/mo and who also accepts Bitcoins for payment.

First: Sign up for the service but do not put any information that you've used on any other site such as usernames or passwords. Also, since we do not need to input any banking info, no money trail will be traced to us. The email we use is a throwaway email (you did use Tor to signup, right?)

Second: Give them the wallet address for our Bitcoin payment. Hit send.

Done!

Like any Usenet service, a VPN service will send confirmation to your email with details you need to use that service. Afterward you can see the details of this payment in your Bitcoin wallet.

As you can see, a Ph.D in Computer Science is not needed for this extra layer of anonymity. The problem with the mass of people on Tor, however, is that they cannot be bothered to do these simple extra steps. That's bad for them. Good for you. Those that wear extra armor are often the ones left standing after a long battle. But there is one topic left to discuss, and it's the most important:

Using Your Real Name Online Outside of Tor

This is a big one. One that I'm guilty of breaking because even anonymity nuts can crack under peer pressure every now and then and do something dumb like use Facebook over Tor (my early days, thankfully). A question I kept asking back then was this:

What kind of danger is there in using your real name online?

Well sir, it depends.

Law enforcement and prospective employers who mine your social media presence for data are often worse than thieves who salivate when you announce on Twitter you'll be out of town for two weeks. Thieves, while unsavory and criminally deviant to be sure, rarely profess to be just. And thieves, as stated before, come in all shapes and sizes. If they take your private data without asking you first, that's stealing.

Employers can be the worst of the lot, as hypocritical as Harvey Two-Face, demanding transparency in *your* life but not their *own*. Make an inflamed political post or drink wine on vacation in Bora Bora with half-naked Filipinas twirling fire sticks and you could lose your job... or be *denied* one. Not kidding. Mention you use Tor and you may hear your interviewer ask:

"I noticed you're a big fan of Tor. Could you elaborate on why you need to use an anonymizing service? We like transparency in our employees."

Yes, I was actually asked this in an interview for a position that handled a lot of money. It came out of nowhere, but what really bothered me was the casual way it was asked, like every applicant should have something to hide if they desire anonymous communications. Maybe I was some rabid fan of Jason Bourne and up to no good. At any rate, they did not like my answer.

"Because I value freedom."

I came out of that interview perplexed, yet jobless, viewing privacy as somewhat of a double-edged sword since one *needs* an online presence for many higher paying employers. It did not sit well with me. I felt a little cheated to be honest and as I drove home, some of the mumblings I overheard later on became as loud as roaring trains in my ears:

Don't like someone on Facebook? You probably won't like working with them.

Like the competitor's products? Here's our three-year non-compete agreement for you to sign.

You use Tor? The only people that use that are terrorists, pedos and hitmen.

Soon thereafter, any time a prospective employer noticed "Tor" under the Hobbies section of my resume, it would always illicit a negative reaction. My breathing would become erratic as my heart raced, as if they were about to summon an unbadged "authority" to warn me of being *too private*.

He would dress a lot like Dilbert, only he'd be skinnier, and with a bumblebee-yellow pen and a clipboard. He'd have multiple facial tics and a quirky habit of raising a Vulcan eyebrow as if it were purely illogical to value privacy. I have no idea why he'd have a clipboard, but he always did.

My solution was to rightly divide my public and private identity in social settings and remove any trace of it on my resume. In fact, I did not give any indication on any social media site, either, that I was into any of the following:

- PGP
- Encryption, or encrypting files or Operating Systems
- Tor Relays
- I2P
- Freenet
- Anonymity in general
- *Anything* linking to Edward Snowden

Such is the nature of the masses. One simply cannot rely on Facebook or Twitter or Google to respect one's freedom to use Tor without announcing it to the whole world.

But with Tor, Google cannot mine your browsing session for ads. No ads = no soup for them. From NBC:

"The Internet search giant is changing its terms of service starting Nov. 11. Your reviews of restaurants, shops and products, as well as songs and other content bought on the Google Play store could show up in ads that are

displayed to your friends, connections and the broader public when they search on Google. The company calls that feature "shared endorsements."

So I firewall everything I do. I use Ghostery for social sites and offer only pseudonymous details about myself. In fact, I try to avoid any correlation between Tor and any social media site just as one would a can of gasoline and a lighted match.

Anonymous Bullies

The media along with Google and Facebook seems to think that if only everyone's name were known to them, then every bully from California to Florida would go up in smoke.

Vampirism, like bullying, comes in many forms, but if you've ever read Anne Rice then you know every clan is as different as diamonds are to lumps of coal. But they do usually share similar *beginnings*. Take adolescence for example.

Were you ever bullied in school?

I was. I remember every buck toothed spiked-club wielding ogre who pelted me into nothing but a wet snowball in 7th grade, and it didn't stop there. How I wished it had, but not having Aladdin's lamp made things difficult. I watched as they spread like cancer, sludging upward to other grades for easier victims. Ninth on upward to 12th and even into the workforce. Bullies who'd make great orc chieftains if there were any openings, such was their cruelty and ire.

I recall one particularly nasty breed of ogre in 8th grade. He was the worst of the lot. A walking colossus who sweat when he ate as though he were being taken over by something in The Thing. Either that or Mordor. He certainly had the arms for it. When he arced an arm over me it sounded like a double-bladed axe slicing the air in half.

Harassment grew more fierce and fiery every year. Later I would learn that his entire family, perhaps his entire *generation*, grew up being the baddest of the bad - bullies that thrived on terrorizing to make a name for themselves. Every one of them went on to become cops in the New Orleans area. One died of diabetes. Another went on to join the ATF to fight the evil scourge called *drugs* (how'd that work out?).

I knew everything about these cretins and not just their names. I knew who their parents were. What they did for a living. Who they hung out with. What beers their dad's drank and with what porn mags. Gossip spread like wildfire in high school and no detail of identifying information was ever left out.

And yes, I told the principle, a great big lady named Beverly whose former job was working in some HR high-rise. I remember multiple times meeting her in that office where glitzy awards hung like a safari hunter's office and thinking if only she had an elephant gun I could borrow. Boom! My trouble's be over (so thought the 13 year old).

Meetings between my circus acrobat mother became fruitless and rather embarrassing. Absolutely nothing positive came of it. The point, however, isn't that nothing came of it, but that nothing came of it even as I knew **everything** about the scourge I faced daily. Knowing their identities did NOTHING. Knowing their names did nothing. Knowing how many other kids they tormented did nothing and, let's face it, kids just aren't smart enough to band together and attack (despite how many times we watched Road Warrior).

We can see how bullying spreads on Facebook. Like anthrax. Little wolves ostracize a rejected member when a drop of fear is shown, so they crucify without knowing much of anything about him or why he's being targeted. Real names? Check. Real addresses? Yep. Everything is traceable now just as it was way back then. And still the orcs come in a blood-toothed frenzy like sharks to a wounded dolphin.

When 13 year olds begin hanging themselves in mom's bedroom to escape the torture, one thing is immediately obvious: what they really want is to *disappear*. They want *anonymity*.

But that's not something bullies think highly of. They won't allow it. Neither do they allow running away, not that a kid has the means anyway: No money. No car. No distant relatives in Alaska to run and live with and hunt moose all winter.

Anonymity, therefore, is not an option. It's a requirement for sanity. It should be the law on some level, but isn't. This is because if they gave us true anonymity, they would lose the precious power they wield over us. If Google and Facebook ever teamed up with the federal government to require ID to access the internet, we'd all be better off going face-to-face with an Alaskan grizzly.

Email Anonymity

There was a time when we didn't have to worry about what we said in emails. Security? That was something geeks did. Geeks and supergeeks who attended hacker conventions and scoured Usenet for zero-day exploits. It was the days of Altavista and Infoseek, when Google was still wet behind the ears and Microsoft was still struggling to satisfy every Dos user's whim. We wrote whatever we wanted and hit send with nary a worry about third parties intercepting it and using our own words against us. Sadly, no longer.

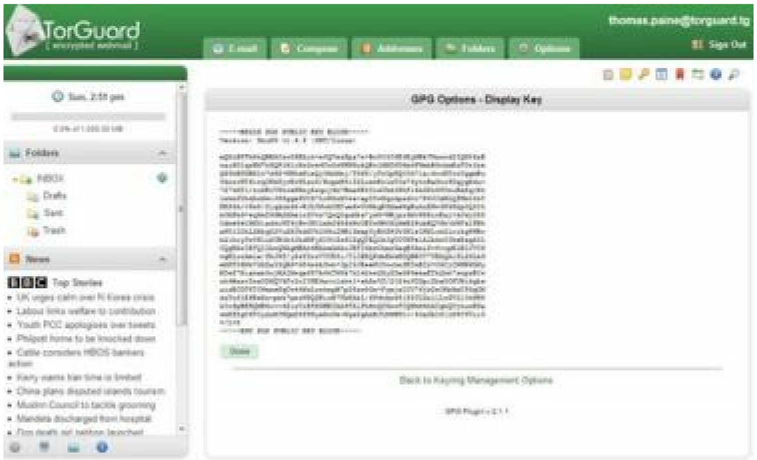
Advertising and search engines now tailor advertisements to individuals based on what you like and are sure to click. Trails are left. Messages are scanned. And Gmail is no different than Yahoo or Microsoft. In fact, judges wield more power with the pen than any CEO in any company in North America.

When a trailer is leaked or someone says something nasty about the government, you can bet IP addresses will be subpoenaed. Sometimes I imagine a lot of ex-Soviet officers are laughing at how many snitches the Internet produces on a yearly basis. Subversion to the extreme.

But... is it possible to send a message that is *foolproof* against subpoenas?

There are, in fact, many flavors to choose from to accomplish this task. Below are a few rock-solid services. Combined with Tor, they grant you a virtual fortress. Anonymity squared if your message is encrypted.

The first is **TorGuard**.



- UK urges calm over N Korea crisis
- Labour links welfare to contribution
- Youth PCC apologises over tweets
- Philpott home to be knocked down
- Cable considers HBOS bankers action
- Kerry warns Iran time is limited
- China plans disputed islands tourism
- Muslim Council to tackle grooming
- Mandela discharged from hospital

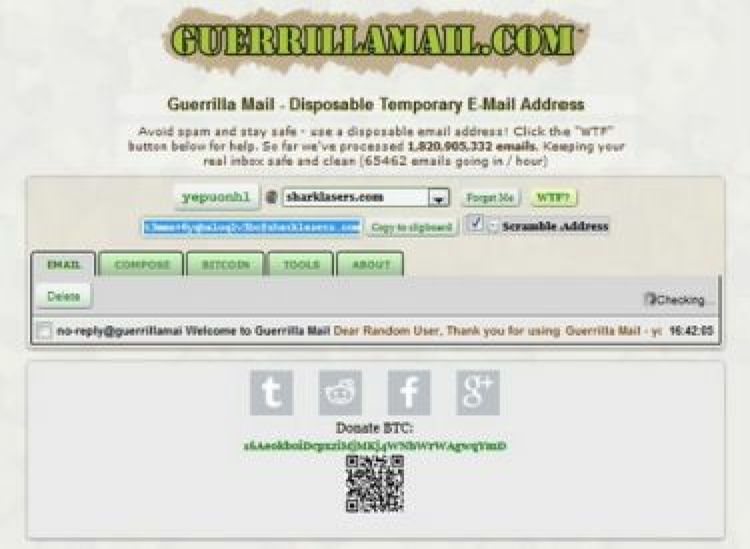
```
-----BEGIN PGP PUBLIC KEY BLOCK-----
[illegible]
-----END PGP PUBLIC KEY BLOCK-----
```

TorGuard allows users to use PGP (Pretty Good Privacy) in email so you needn't worry about snooping. You get 10MB plus several layers of protection with mobility support.

Second is W3, The Anonymous Remailer

Connectable with Tor, you only need an email address to send the message to (preferably encrypted with PGP--more on that in a moment).

Another is Guerrilla Mail. They allow users to create throwaway emails to be used at leisure. Emails sent are immediately wiped from the system after you hit Send. Well, within one hour at any rate.



Guerrilla Mail - Disposable Temporary E-Mail Address

Avoid spam and stay safe - use a disposable email address! Click the "WTF" button below for help. So far we've processed **1,820,905,332 emails**. Keeping your real inbox safe and clean (65462 emails going in / hour)

yepuonh1 @ sharklasers.com

□ no-reply@guerrillamai Welcome to Guerrilla Mail Dear Random User, Thank you for using Guerrilla Mail - yo 16:42:05

Donate BTC:

All of these services claims of anonymity would be pretty thin if we did not encrypt our messages-- which brings us to PGP.

PGP is the encryption standard of choice for many old users like myself, and for good reason. It has never been cracked by the NSA or FBI or any intelligence agency and likely won't until quantum computers become common. It works by way of key pairs, one which is public and one private (the one you will use to decrypt your messages with).

Worry not about the term "keys". It is not difficult to grasp and will be as easy as hitting send once you've done it a few times.

```
-----BEGIN PGP MESSAGE-----
Version: GnuPG v2.0.20 (MingW32)

hQIOA/JaPOGD+v5AEAf/X8wITCjFe/I4afbfaNnlpacLGUOtnwnHerOaEMMQ5L7E
QNANSfyZmi+c1Daa4lAdsRd5z3fo5EjA0uxUO6NbJbREfo4uU4M5YdlqjdA3Txsa
SK+Z9XJqaTYn29j2byNk84g+lITalrmydIp8c5AGqHZwPv4IvnTL5w+FIVeZONBp
BcQ3xEMMXr1Hi5NmkLOrg7VceyBZ9rZ0wJ8jwxlEtOIBe0AyeN16+9U0eFRYI+TC
Mn18mGkAhGB15/vuS1XjSU6XRiy7D5xK90x496zGjaOFyveHM1At2l3OM3f7yijl
YSyIld13IoAxLzxowBc5cnzcb/jtCm8hlnBxZd+LYwf/d/93mL+Tie18xiG46SOZ
ukm01ZjeFVw/lx/EoDPJjOM9TzGZtxoCfbxUqTudex7akdlmOxo9sBP3jaGw9/EH
TOgjb2afbkoXC+aAbDu+B7G3/hl1l3R+7QgMx5cHDQUDmTVyZPEMtxA4rz5FcVhr
aTwrHSPLgAJ6b24XC6+JVmAnepBtt78c+RpmNKJyQxt9n1Y4obcBwPIkDghdvflu
mpiiL1y+1oomk2krTaEuLNJBOFrrtON2NlAwIn53xuFaqEFUdD5LNedgJujkoNmC
NR3xIYerYI8Uav32wtEkFOx2CGLMXjUfCSVjdjyr6Tyn6oPv02pvg6Pfryhbnmkz
SdLApWGToT59V8EyuAB0lXfZ6OxnGH88BxtpA7dt+h1HB2xChAlFQm2RSFC9ZJ9O
mb4/rMQtTo4MvexflsrmI/IUT+fxFpsqeErbLZCH8jEezX7Qi3elcwfVZtQMI3xD
PMJ4sxUi271JzLDU4zPqiKj/ZKFxpUz2oibxjmYSdgDvSCXvrSMaoSbtmAXBq+oT
ZUSQOE9h1CVIwj6tJYJV2GZe5B2GqF180ymfD+aZ5jmMNJ3dQJLzwgXCUBjwS1ID
h9TqO2mNPCQpYOkj8+wOMdZ4+bj15wfmIHKnsNgnwfOp5B5K+qgihJPu/AZcNTON
i1rKo86F9i5CvyS5jTuxbjeRCcGGRdGDwhmqfLxvxzymBxy0/VLrYAiicOtBnZFdq
hJHiceDoHQoO4lKCqwW3cqqvHhqsr/a7JBJo60/SdluuxnOlOl2ryTNp4fhz3729
rDMaMCrn5EX2HSFyMzao/AX+BcpKBiHbx3vf
=kKBF
-----END PGP MESSAGE-----
```

The first thing you must do is make your public key available. This is only used to verify your identity and is not the same as divulging your passphrase for say, a Drivecrypt container. Your recipient must also share with you their key so you can respond in turn.

The good news?

Only the two of you will be able to read each other's messages. The caveat is if the other person is compromised and you don't know about it. They will read everything you encrypt. Here is what you need to know:

1.) To begin, make two keys, one public--for everyone else but you--and one that you wouldn't even share with your own mother. You should back this key up in a secure medium, and remember that if it isn't backed up to three different types of media, it isn't backed up. If your truly **paranoid**, send one on an encrypted microSD to your parents in case of housefire. Yes, it does happen.

2.) If however you opt to tell mom, then she will need your public key (you did publish it on a public key server, right?) Then you can read it by way of your private key. She doesn't know this key (thank the gods!)

3.) You can "sign" any message you want over Tor or anywhere else (Freenet, for example, the highest security setting of which demands absolute trust of your friend's darknet connection) to verify it is really you sending it.

...Unless Norman Bates does a shower scene on you and takes your keys. Your mom can then verify with your public key that it is really you.

4.) Users you've messaged with (or not) can sign your public key as a way of verifying your identity. As you can see, the more people that do this, that is, *vouch for you*, the better.

Important:

Unless you've got the photographic memory of Dustin Hoffman in Rainman, it's a good idea to store your public/private keys and passwords and also revocation-certificate to backup media so you can retrieve it five years down the line... should you need it. And believe me, you will!

Encrypt them in containers. Always print your key-file or pass phrase and deposit in a safe place. If you lose it, all documents encrypted with it are permanently lost. There are no back-doors and no way to decrypt without it. Also, consider making an expiration date at key-pair creation.

If you like nice and easy interfaces, try Mymail-Crypt for Google's Gmail. It is a plugin that allows users to use PGP-encrypted messages in a handy interface, though ensure your browser is air-tight secure and you trust it with your private key.

One other thing

Rather than having to encrypt files and upload them somewhere unsafe, look at AxCrypt encryption tool. This is useful if you're used to uploading to Dropbox or Google Drive. Just remember that in the event you upload an encrypted file to "The Cloud," you will not know it if your password to said file has been compromised without setting strict security rules.

With that said, let's configure PGP for Windows

- Install Gpg4Win

- Next, create your key in Kleopatra and choose Export-Certificate-to-Server by right click so you can publish it to a keyserver. Get a trusted friend to "sign" and establish trust.

- Use Claws-Mail client that comes packaged with it or use Enigmail if you're using Thunderbird.

- Send a few messages back and forth to your trusted friend via PGP to get the hang of things.

- Optionally you can set a Yahoo/Gmail/Hotmail filter so as to forward any messages that contain "Begin PGP message" to a more private account.

Tor Instant Messaging Bundle

It is no secret that the NSA has Skype, Yahoo Chat and other instant message services in their hands, but as long as the Tor development team knows about it, they can do something about it.

Enter Tor Instant Messaging Bundle.

True anonymity is the goal of this application. It is built by the very same who developed the Tor browser bundle and like that application, will route all communication through Tor relays... encrypted *backwards and forwards* and hidden from the NSA's prying eyes.

There is also Torchat.

Torchat, like Yahoo's IM, offers encrypted chat and even file-sharing. Since it is built upon Tor, you are assured absolute privacy on what you say and to whom you say it. Both Windows and Mac versions are available and no install is necessary. Just unzip anywhere and run (preferably from an encrypted hard drive or USB-Drive) the blue earth symbol titled 'Torchat'.

A few more useful apps:

ChatSecure - ChatSecure is mainly used for encrypted messaging on mobility devices but they offer PC, Linux and Mac versions as well. From their website:

The Guardian Project creates easy to use secure apps, open-source software libraries, and customized mobile devices that can be used around the world by any person looking to protect their communications and personal data from unjust intrusion, interception and monitoring.

Whether your are an average citizen looking to affirm your rights or an activist, journalist or humanitarian organization looking to safeguard your work in this age of perilous global communication, we can help address the threats you face.

Telegram - This app also focuses on messaging but with superior speed and is similar to SMS and allows for picture/video sending. There are also 'Secret Chats' that offer encrypted sessions. They claim no data is kept on their servers and you can even set the app to permanently delete all messages.

CryptoCat - Billed as an alternative to social media chat apps like those seen on Facebook, Twitter and the like, CryptoCat gives you encrypted communications using the AES encryption standard. All encrypted info is deleted after an hour of inactivity.

Freenet - This is the granddaddy of all anonymous systems the world over, both for file sharing or any kind of secret chats. Explaining everything it has to offer goes far beyond our Tor discussion as they are two different systems, but I include it here as an alternative if you find Tor lacking.

And it is not as simple as Tor, nor is it as fast unless you leave it running 24/7. It is not for everyone as there are all manner of criminal entities that use it and you will notice this if you load up any groups. It is hard to ignore and unlike Usenet, there is no one to file a complaint with. No one to report. It is anarchy multiplied many times over in many groups, but there are ways of mitigating the damage.

But for *absolute anonymity* and freedom of speech, there is no better tool to use if you have the patience to learn its darknet offerings.

From the website:

Freenet is free software which lets you anonymously share files, browse and publish "freesites" (web sites accessible only through Freenet) and chat on forums, without fear of censorship. Freenet is decentralised to make it less vulnerable to attack, and if used in "darknet" mode, where users only connect to their friends, is very difficult to detect.

Communications by Freenet nodes are encrypted and are routed through other nodes to make it extremely difficult to determine who is requesting the information and what its content is.

Users contribute to the network by giving bandwidth and a portion of their hard drive (called the "data store") for storing files. Files are automatically kept or deleted depending on how popular they are, with the least popular being discarded to make way for newer or more popular content. Files are encrypted, so generally the user cannot easily discover what is in his datastore, and hopefully can't be held accountable for it. Chat *forums, websites, and search functionality, are all built on top of this distributed data store.*

An important recent development, which very few other networks have, is the "darknet": By only connecting to people they trust, users can greatly reduce their vulnerability, and yet still connect to a global network through their friends' friends' friends and so on. This enables people to use Freenet even in places where Freenet may be illegal, makes it very difficult for governments to block it, and does not rely on tunneling to the "free world".

It is not as simple as using a Usenet provider's newsgroup reader. No sir, Freenet requires **patience**. Using Frost or Fuqid (Front End apps for the main Freenet program), it might be half an hour before you can "subscribe" to groups or download in the way you can Usenet. Some groups, like the Freenet group and other technical groups will be immediately available, but with few messages. Time will solve this. So keep it running in the closet and forget about it for a day or so if you plan on subscribing to a lot of groups.

It will be worth the wait.

Frost & Fuqid

The two free front ends I recommend are: Frost and Fuqid.

Frost has seen a lot of improvements but I recommend you try Fuqid first as it is the first external app for Freenet that acts as as an insert/download manager for files. Fuqid stands for: Freenet Utility for Queued Inserts and Downloads and runs on Windows or Linux under wine.

The Fuqid freesite is on Freenet itself at:

USK@LESBxzEDERhGWQHl1t1av7CvZY9SZKGbCnsD7txqX0I,nP0CKHB-W8HHi9dM,AQACAAE/Fuqid/-1/

You will need to paste the above into Freenet's front control panel where it says "Key". It can take several minutes to load if you're new to the system.

After you've installed it, right click on the left side with your list of boards and choose "Add new board". For the name put in "**fuqid-announce**" with out the quotes. You will now find a new board called "fuqid-announce" in your list of boards.

Right click this board and choose "Configure selected board". This will bring up a new window. On that window click "Secure board" to change it from a public board. Now in the section that says "Public key" paste in the key below:

SSK@qoY-E5SKRu66pmKH64xa~R~w3hXmS5ZNtqnpEGoCVww,HTVcdWChaaebfRQE,AQACAAE

Now you have the announce board for Fuqid added to your Frost boards. The latest releases of Fuqid will be posted to this board along with the fuqid board on FMS. Questions? Direct them to the Frost or FMS board called Fuqid.

Passwords

Good, strong passwords are like having a couple of Rottweilers sleeping in your den. Most intruders will leave when the chaos starts. Weak passwords are like having a Golden Retriever. Nice and friendly and easy to trust around kids, but might just let out a little woof at 3AM when said intruder comes. Then he will hide under the coffee table (the dog, not the intruder).

I've heard for years that you should never use anything personal as your password. That includes family names. Favorite books. Movies. So what's the solution?

Remix your passwords with a symbol or two. If you think a hacker won't be able to guess the name of your girlfriend's locker combination, you'd be mistaken. It is dirt simple to guess even if you mix it up a bit. Computers devoted to this practice can guess many in less than a nanosecond.

But how do you remember a password for a site used over Tor that has symbols?

- Easy. Use a passphrase that is simple to recall for you only. First write out the first letter of each word, taking not of case and position. Insert symbols therein. For instance:

Last Sunday, the wife bought me a Rolex watch and it was too ugly.

Which when changed is:

LS,twbmarwaiw2u

The above pass is hard for a hacker to guess but easy for you to remember... assuming you are good at substitution.

Changing Your Passwords

Provided you've followed the above to the letter, you shouldn't have to rotate out your passwords every 90 days. I'm sure you've heard from both sides of the aisle their say on the subject, but I believe research has proven that keeping a strong password (unless proof of compromise) is a safe bet.

The research paper from ACM/CCS 2010: "The Security of Modern Password Expiration: An Algorithmic Framework and Empirical Analysis" by Yinqian Zhang, Fabian Monrose and Michael Reiter came to the conclusion that changing passwords every few months did not, repeat, did NOT increase security:

at least 41% of passwords can be broken offline from previous passwords for the same accounts in a matter of seconds, and five online password guesses in expectation suffices to break 17% of accounts.

....our evidence suggests it may be appropriate to do away with password expiration altogether, perhaps as a concession while requiring users to invest

the effort to select a significantly stronger password than they would otherwise (e.g., a much longer passphrase). ....

In the longer term, we believe our study supports the conclusion that simple password-based authentication should be abandoned outright.

Storing Passwords in Tor Browser

You may have noticed that the "Remember Password" option in Tor Browser is not available, or so it seems. But if you look at the privacy setting and alter the history setting to "remember history" and "remember passwords for sites," it will no longer be greyed out.

Diceware

If you must store passwords, a good option for a unique random one is Diceware, (there are others, too) where you can get an expire date for any password months from the date of creation. You can copy any password to a text file then encrypt it and mail it to yourself or place on a removable (encrypted) drive or USB stick.

Remember: Tor does nothing to improve the security of your *system* to everyday attacks. It only improves security online, and even then only when used responsibly. Tor has no idea if your version of Windows is unpatched and infected with a zero-day malware payload that infected it with a keylogger.

One way in which a hacker could guess your complex password is if they linked your Tor usage with non-Tor usage and compromised your passwords from a non-Tor site. This is why you should never use the same usernames/passwords for Tor that you do for non-Tor activity.

Preventing Non-Tor Activity From Being Linked with Tor Activity

It is risky to browse different websites simultaneously and preserve anonymity since Tor might end up sending requests for each site over the same circuit, and the exit node may see the **correlation**.

It is better to browse one site at a time and thereafter, choose "New Identity" from the Tor button. Any previous circuits are not used for the new session.

Further, if you want to isolate two different apps (allow actions executed by one app to be isolated from actions of another), you can allow them to use the same SOCKS port but change the user/pass.

Another option is to set an "isolation flag" for the SOCKS port. The Tor manual has suggestions for this but it will lead to lower performance over Tor. Personally I like to use Whonix. Two instances, two VMs. One of them runs Tor and the other with Tor Firefox.

Keyloggers

You might wonder what a keylogger has to do with Tor. Or for that matter, what a keylogger even is. You're not alone. In fact you'd be surprised how many people don't know and shocked how many techs consider them a non-issue.

In 2010 I caught up with an old childhood friend of mine I had not seen in over a decade. He was now an ATF agent. I was surprised and (falsely) assumed his extensive training meant he knew as much as an NSA agent when it came to computer security. Wrongo.

He replied to a post I made on a Facebook regarding the hacking group "Anonymous."

"What's a keylogger?" he asked. I waited for someone else to reply. No one did so I told him. He seemed amazed, dumbfounded, as though it were something only recently unleashed upon the net. I then told him that they had been around a long time.

But (sigh), there's a lot of confusion on what they do exactly. Some people call them spyware. Others say they're trojans. Still others, exploits. They're a little bit of everything to be honest.

They are *surveillance* software that tracks and records every click you make, every website visited, every keystroke typed. Chats, Skype, Emails. If you can type it, it can record it and all right under your very nose. It can even email what you type to a recipient on the other side of the world. CC numbers, passwords and Paypal login details are just the short list of targets it can acquire.

So how does one get in infected?

- Opening an email attachment
- Running an .exe file from a P2P network from an untrusted user
- Accessing an infected website with an outdated browser
- The NSA, if they can grease the right palms

Some employers use them to track productivity of employees. Some wives attach one via USB (Hardware version) to see who their hubbies are conversing with at night after bed. Parents use them on the kid's computer. So it isn't like they're 100% malicious *all the time*.

But they are devilishly difficult to detect. They wield an almost vampiric presence, but like vampires there are subtle signs you can glean without whipping out a wooden stake.

Vampire Signs

- Sluggish browsing speed
- Laggy mouse/pausing keystrokes in a text doc
- Letters don't match on display with what you type
- Errors on multiple webpages when loading heavy text/graphics

There are two types:

Software Keyloggers

This type hides inside your operating system. They *lurrrve* Windows. Linux, not so much. The keylogger records keystrokes and sends them to a hacker or other mischief maker at set times provided the computer is online. Cloaked, most users will never see it working its dark art. Many popular anti-virus vendors have trouble identifying it because the definitions change so frequently.

Hardware Keyloggers

Bond might have used one of these. Being hardware, it is a physical extension that can plug into any USB on a PC and can be bought online by suspecting spouses or kids wanting access to their dad's porn stash. Keystrokes are logged to ram memory. No install needed.

Thus, unless you're the type to check your PC innards every day, you might not spot it until it's too late. They also can be built right into the keyboard. The FBI loves swapping the target's out with a carbon copy custom-built surveillance device. Granted, this is mainly for high-value targets like the Mafia but they're available to anyone.

For The Children...

Those that sell these usually do so under the guise of *protecting the children*. You know, keeping an eye on them at all times like mom should be doing. Problem is, what is good for the goose is good for the gander and that usually involves Big Brother lending a helping hand. And not only him, either.

Thieves and hackers love these. That means you must be all the more vigilant. If a keylogger is installed, all encryption is defeated. PGP, Tor, Freenet. Everything is compromised and you must do a full wipe of your hard drive and start over, paying close attention to whether you burned any media with infected files - lest you be infected all over again after a fresh OS install. If you used the same password for BIOS entry as *anything* else-- forum, websites, Paypal-- you must change it immediately.

Keylogger Prevention

- Check your keyboard for suspicious attachments. If you are an employee at X company and a new keyboard arrives at your desk one morning, exercise caution unless you trust your boss 200%.

- Use a Virtual Keyboard. No keystrokes = no logging!

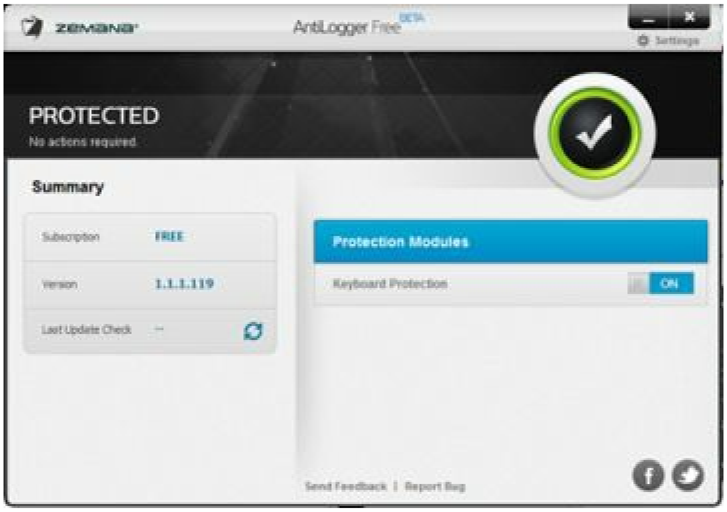
- Use Guarded ID to prevent hackers from capturing your keystrokes. It works by scrambling everything you type, rendering any info useless to hackers.

- Use a decent firewall to stop a keylogger from delivering your data. A year ago, my Comodo firewall alerted me to suspicious network activity seemingly out of nowhere when I wasn't doing anything online. Turns out I had the Win64/Alureon trojan. I had to use Malwarebytes to detect and remove it. Norton was useless! Imagine that.

Other Anti-Keyloggers

If you do not mind spending some coin, there are a few more:

Zemana AntiLogger (Free)



PROTECTED
No actions required

Summary

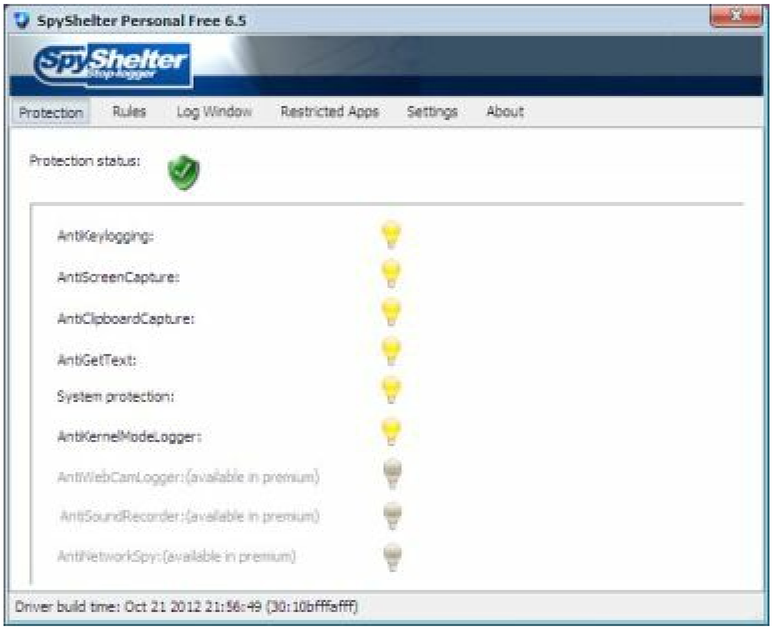
Subscription FREE
Version 1.1.1.119
Last Update Check --

Protection Modules
Keyboard Protection ON

This "free" version is a bare-bones keylogger-detector. In fact, it's quite stripped down but if all you require is being alerted then this might be for you. The Keylog Guard offers encryption for all things typed at the keyboard. Any snooper will only get garbled letters from you. The paid version is somewhat pricey at $29.99 and comes with extra-protection for malware and such but is a bit overkill.

Also, it will nag you if you try and run something safe it doesn't like, much like every other anti-virus will.

SpyShelter STOP-LOGGER



Protection status: ✓

AntiKeylogging: ●
AntiScreenCapture: ●
AntiClipboardCapture: ●
AntiGetText: ●
System protection: ●
AntiKernelModeLogger: ●
AntiWebCamLogger:(available in premium) ○
AntiSoundRecorder:(available in premium) ○
AntiNetworkSpy:(available in premium) ○

Driver build time: Oct 21 2012 21:56:49 (30:10bfffafff)

The Free version offers more than Zemana does in that you get screenshot capture. It will also alert you to any code that tries to swipe your keystrokes from you but the Free version is not 64-bit compatible. It is $24.99.

Be aware, however, that removing a keylogger is nasty business as they have a habit of reinstalling themselves. Keyloggers will often hide as a service in svchost.exe so task manager isn't much help without a dedicated app. The optimal way of prevention is to stop them in their tracks before insertion.

Be proactive. Anticipate a password compromise. Remember, vigilance!

Darknet Markets

Some of you might be wondering how safe a Darknet really is in light of the vulnerabilities discussed. The short answer is this: *As safe as you make it.*

You are the weak link. The last link in the security chain. And although you need Tor to access Onion sites, the term can apply to any anonymous network - networks like I2P or Freenet or anything else that cloaks the source of data transmit, and by extension, your **identity**.

Which brings us to the *Darknet Marketplace*.

The complete list of such marketplaces on the deep web are numerous, and the risk of getting scammed is quite high. It's one reason why you may not have heard about them. They are often taken down quickly by either a venomous reputation or a law enforcement bust. Sometimes they piss off the wrong people and then spammers ddos the site. But there are numerous places one can go if you're curious about what is sold by whom.

When I say *sold*, what I mean is... Anything you want that cannot be gained through the usual legal channels. And remember that what is legal in one country may be illegal in another. In Canada, lolicon comics are illegal and can get you in big trouble if you cross the border. But not in America. In the USA you can pretty much write any story you want. In Canada? TEXT stories involving minors are verboten.

The other difference is that there are safety nets in buying almost anything in a first world country on the open market. Think BestBuy. Mom and Pop stores. Florist shops. If customers get injured, what happens? Customers sue via the legal safety net and make a lot of lawyers a lot of money.

But the Darknet Marketplace laughs at any such safety nets. In fact, you're likely to get scammed at least a few times before finding a reputable dealer for whatever goods you seek. And it really doesn't matter what it is, either - Teleportation devices? Pets? Exotic trees? It's all the same that goes around. Whatever is in demand will attract unsavory types and not just on the buyer's end.

Therefore, research any darknet market with Tor, being careful to visit forums and check updated information to see if any sites have been flagged as suspicious or compromised. Some other advice:

- Always use PGP to communicate.
- Never store crypto-currency at any such marketplace.
- Assume a den of thieves unless proven otherwise by *them*. The responsibility is theirs just as it is offline, to prove they are an honest business. If you open your own, keep this in mind: customers owe you nothing. You can only betray them once.

Now for some examples of Phishers and Scammers and other Con men. By their fruits, ye shall know them.

1.) **Silk Road 2.0** (e5wvymnx6bx5euvy...) Lots of scams with this one. Much like Facebook and Google emails, you can tell a fake sometimes by the address. Paste the first few letters into a shortcut next to the name. If it doesn't match, steer clear.

2.) **Green Notes Counter** (67yjqewxrd2ewbtp...)

They promised counterfeit money to their customers but refuse escrow. A dead giveaway.

3.) **iPhones for half off**: (iphoneavzhwkqmap...)

Now here is a prime example of a scam. Any website which sells electronic gadgets on the deep web is ripe for scamming customers. Whereas in the Far East you will merely get counterfeit phones with cheap, Chinese made parts that break within a month, on the Deep Web they will simply take your money and say adios. Actually, they won't even bother saying that.

So then, how does one tell a scam?

Because many new darknet vendors will arise out of **thin air**, with rare products that will make customers swoon and send them money... without doing any research on their name or previous sales. A real hit and run operation. Hit quick and fast and dirty. Seduce as many as they can before the herd catches on to the wolf in disguise. Many are suckered, thinking "it's only a little money" but a little money from a lot of Tor users goes a long way in encouraging other scammers to set up shop.

When you ask them why they do not offer escrow, they say "We think it is unreliable/suspicious/unstable" amid other BS excuses. It is better to hold on to your small change than leave a trail to your treasure chest. And make no mistake some of these scammers are like bloodhounds where identity theft is concerned.

- Do your research! Check forums and especially the dates of reviews they have. Do you notice patterns? Are good reviews scattered over a long period of time or is it rather all of a sudden--the way some Amazon affiliate marketers do with paid reviews that glow? Not many reviews from said customers?

If you've seen the movie "Heat," with Al Pacino and Robert de Niro, you know when it is time to Walk Away. In the middle of a nighttime heist, Niro goes outside for a smoke. He hears a distant cough. Now, this is middle of the night in an unpopulated part of the city that comes from across the street - a parking lot full of what he thought was empty trailers. Hmm, he thinks. Not so empty (it was a cop). He walks back into the bank and aborts.

The other aspect is time. Some fake sites will set a short ship time and count on you not bothering to see the sale as finalized before you can whistle Dixie out of your ass. After finalization, you're screwed since the money is in their wallet before you can even mount a protest.

Fraud Prevention

One is Google, believe it or not, at http://www.google.com/imghp. Dating sites like Cherry Blossoms and Cupid sometimes use reverse image search to catch fakers and Nigerian scammers masquerading as poor lonely singles to deprive men of their coinage. If they can catch them, so can you. If the image belongs to some other legit site, chances are it is fake. Foto Forensics also does the same, and reports metadata so that it becomes even harder to get away with Photoshop trickery.

When it is Okay to FE (Finalize Early)

FE means 'Finalize Early'. It's use online can usually be found in black marketplaces like Silk Road and Sheep's Marketplace. It simply means that money in escrow is released before you receive your product. Every customer I've ever spoken with advises against this unless you've had great experience with that business.

Buuut... Quite a few vendors are now making it a *standard practice* to pay funds up front before you have anything in your hands.

On more than one Marketplace forum, there's been heated exchange as to when this is proper. You might hear, "Is this guy legit? What about this Chinese outfit over here? He seems shady," and others: "A friend said this guy is okay but then I got ripped off!". You get the idea.

Here is my experience on the matter.

1.) It is okay when you are content with not getting what you paid for. This may seem counterproductive, but think how many gamblers go into a Las Vegas casino and never ask themselves "How much can I afford to lose?"

The answer, sadly, is not many. Vegas was not built on the backs of losers. Some merchants do not like escrow at all. Some do. So don't spend more than you can afford to lose. Look at it the way a gambler looks at making money.

2.) It is okay when you are **guaranteed shipment**. There are FE scammers out there that will give you an angelic smile and lie right into your eyes as they swindle you. Do not depend solely on reviews. A guy on SR can be the best merchant this side of Tatooine and yet you will wake up one day and find yourself robbed. He's split with a million in BTC and you're left not even holding a bag. Most won't do this to you. But a few will.

When it is NOT Okay to FE

- When losing your funds will result in you being evicted or a relationship severed. Never borrow money from friends and especially not family unless you want said family to come after you with a double-bladed ax. If you get ripped off, you lose not only the cash but the respect and trustworthiness of your family. Word spreads. You don't pay your debts. What's that saying in Game of Thrones?

Right. A Lannister always pays his debts. So should you.

MultiSigna

Sounds like something from Battlestar Galactica to pass from ship to ship. A badge of honor perhaps some hotshot flyboy wears on his fighter jacket that bypassed a lot of red tape.

While not exactly mandatory, it makes for interesting reading, and is something Tor users might want to know about if they wish to make purchases anonymously. Here's what happens:

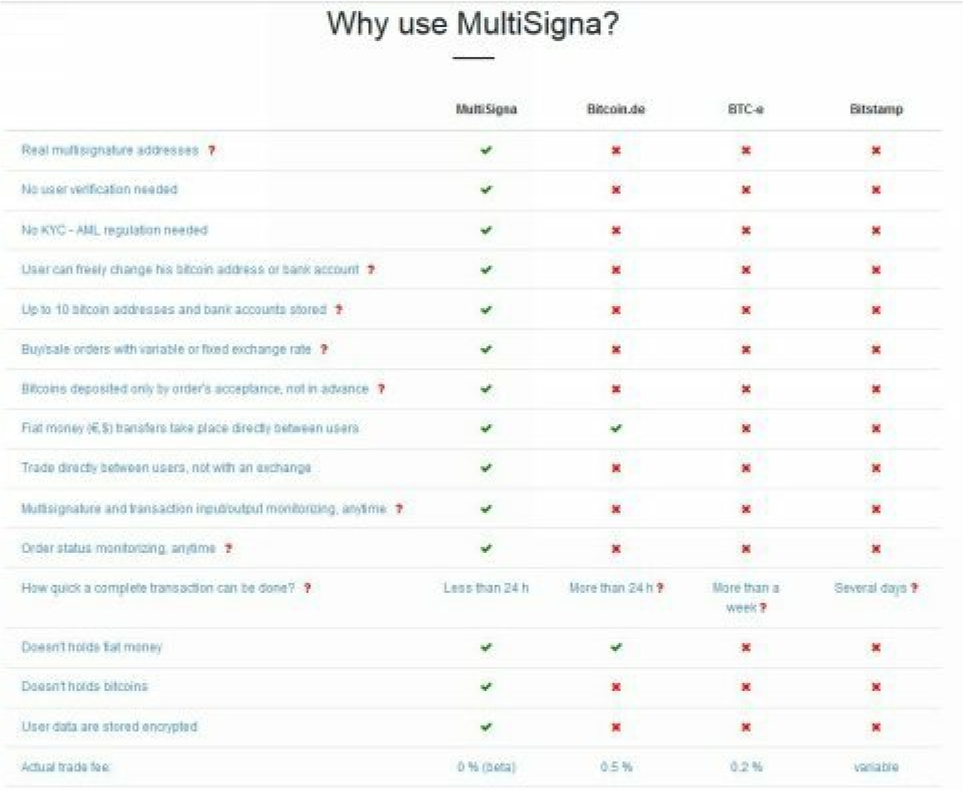
When a purchase is enacted, the seller deposits money (in this case, Bitcoins) in a multi-signature address. After this, the customer gets notification to make the transaction ($,€) to the seller's account.

Then after the seller relays to MultiSigna that the transaction was a success, MultiSigna creates a transaction from the multi-signature address that requires both buyer and seller so that it may be sent to the network. The buyer gets the Bitcoins and ends the sale. Confused yet? I was too at first. You'll get used to it.

Critical:

MultiSigna only exists as a verifier/cosigner of the entire transaction. If there is disagreement between seller and buyer, **no exchange** occurs. Remember the scene in Wargames when two nuclear silo operators have to turn their keys simultaneously in order to launch? Yeah, that.

MultiSigna will of course favor one or the other, but not both if they cannot mutually agree. The upside is that is if the market or purchaser or vendor loses a key, two out of three is still available. A single key cannot spend the money in 2/3 MultiSig address.



Why use MultiSigna?

	MultiSigna	Bitcoin.de	BTC-e	Bitstamp
Real multisignature addresses ?	✓	✗	✗	✗
No user verification needed	✓	✗	✗	✗
No KYC - AML regulation needed	✓	✗	✗	✗
User can freely change his bitcoin address or bank account ?	✓	✗	✗	✗
Up to 10 bitcoin addresses and bank accounts stored ?	✓	✗	✗	✗
Buy/sale orders with variable or fixed exchange rate ?	✓	✗	✗	✗
Bitcoins deposited only by order's acceptance, not in advance ?	✓	✗	✗	✗
Fiat money (€,$) transfers take place directly between users	✓	✓	✗	✗
Trade directly between users, not with an exchange	✓	✗	✗	✗
Multisignature and transaction input/output monitorizing, anytime ?	✓	✗	✗	✗
Order status monitorizing, anytime ?	✓	✗	✗	✗
How quick a complete transaction can be done? ?	Less than 24 h	More than 24 h ?	More than a week ?	Several days ?
Doesn't holds fiat money	✓	✓	✗	✗
Doesn't holds bitcoins	✓	✗	✗	✗
User data are stored encrypted	✓	✗	✗	✗
Actual trade fee	0 % (beta)	0.5 %	0.2 %	variable

Is it safe? Is it secret?

I don't recommend enacting a million dollar exchange for a yacht, or even a thousand dollar one as they both carry risk, but ultimately it is up to you. Just remember that trust is always an issue on darknets, and you're generally safer making several transfers with a seller/buyer who has a good history of payment. In other words, reputation as always, is everything.

Alas, there are a few trustworthy markets that have good histories of doing things properly, thank heavens.

Blackbank is one. Agora is another. Take a look at the Multi-Sig Escrow Onion page here with Tor:

http://u5z75duioy7kpwun.onion/wiki/index.php/Multi-Sig_Escrow

Security

Now then. You might be wondering what the effect would be if a hacker gained entry to the server. What mischief might he make? What chaos could he brew if he can mimic running a withdrawal in the same manner that the server does?

Well it's like this: If a hacker were to gain access and attempt to withdraw money, a single-signature would be applied and passed to the second sig signer for co-signature. Then the security protocol would kick in where these policies would be enforced:

1.) Rate limits: the rate of stolen funds slows

2.) Callbacks to the spender's server: Signing service verifies with the original spender that they initiated and intended to make the spend. The callback could go to a separated machine, which could only contain access to isolated approved withdrawal information.

3.) IP limiting: The signing service only signs transactions coming from a certain list of IPs, preventing the case where the hacker or insider stole the private key.

4.) Destination Whitelists: Certain very high security wallets can be set such that the signing service would only accept if the destination were previously known. The hacker would have to compromise both the original sending server as well as the signing service.

Let me repeat that MultiSigna are *never in possession* of your bitcoins. They use 2 of 3 signatures (seller, buyer & MultiSigma) to sign a transaction. Normal transactions are signed by the seller and then by the buyer.

Purchaser Steps for MultiSig Escrow

1.) Deposit your Bitcoins. Purchase ability is granted after 6 confirmations
2.) Make a private & public key (Brainwallet.org is a JavaScript Client-Side Bitcoin Address Generator)
3.) Buy item, input public-key & a refund BTC address (Luck favors!)
4.) Retrieve purchased item
5.) Input the private key and close

Below is a list of exchanges that support Multisig:

Bitstamp - Multisig service: https://www.bitgo.com

Rock Trading - Multisig service: https://greenaddress.it

TeraExchange - Multisig service: https://www.bitgo.com

BitQuick - Multisig service: https://www.bitgo.com

There is also this monster list:

http://bitcoinx.io/exchanges

The Long Arm of the Law

Can the law steal funds?

- Assuming you mean U.S. law, no... since the wallet does not contain the money. The Bitcoin blockchain prevents this. Hackers cannot steal it either since two private-keys are required and they will have had to steal 2 out of 3 private key holders... not likely.

What about safety in using the private key?

- Never irresponsibly use the private key from your Bitcoin wallet. Create a new one instead. Give it the same love you give your Truecrypt/DiskDecryptor master keys. Lots and lots of special love that no one else gets.

This sounds awfully risky. Won't I get caught?

Here is how most people get caught, and it really matters not what it is. You could be dealing in illegal Furbies (Believe it or not, back in 1999 the NSA felt these toys might be able to record highly-classified intel). Most dealers get busted making the usual mistakes:

- Bar Bragging
- Dropping too much personal data to strangers (See Ross Ulbricht)
- Selling contraband to undercover law enforcement
- Snitches
- Committing crimes while under surveillance
- Managing an operation that grows by leaps and bounds (with loads of newbies making mistakes).

How far will the police go to catch you? That's a good question. The answer thought is pretty simple: As far as resources allow. If they want you badly enough but lack the funding, they'll ramp up the threat you present to the media and churches and synagogues and cold call everyone begging for money to catch you, you damned dirty ape!

Just kidding. It'll probably be no worse than what Charleton Heston suffered being hogtied and dragged around the ape city. Some apes are worse than others...usually the military apes.

But really, it all boils down to if whatever you're doing and if it is illegal, Furbies included. They really could care less what it is as long as it grants the department flashy headlines. Flashy headlines mean more funding. More funding = higher salaries. Bigger guns. If not guns, then armor.

Case in point: In 2010, police in L.A. organized a phony sweepstakes scheme in order to lure in those with outstanding warrants. I kid you not, they did not come up with this idea themselves, but rather took it from The Simpsons.

They sent out close to a thousand fake letters under the name of a marketing group only to have a little over half a dozen show up at the La Mirada Inn for their free prize: A BMW 238. Nice, eh? Only the joke was on them as their smiles melted upon hearing those four dirty words, "You're all under arrest!"

The poor saps even brought ID to verify their identities. Dumb. They might as well have slapped on the cuffs themselves. And if they're willing to go through all that trouble just for a few misdemeanor crimes, imagine what they, along with the NSA, will do with a group of Tor users selling Furbies!

And this is an OFFLINE example. Imagine what one department can do by lying alone to an ISP or search engine. Threats of fines. Warrants. Bad publicity. Subpoenas of users. A bad reputation they are not likely to recover from soon. Police in Vegas in particular love to play dirty like this, dredging up old laws to ensure every member in that Ferbie operation has the book thrown at him.

In 2013, a Secret Service Agent arrested several online by selling them fake IDs. The kicker?

They were all charged under the RICO Act of 1970. Originally created to put away mobsters, it allows them to lasso entire groups and charge each individual as if he committed the same crime everyone else in the group did... no matter the role.

Translation: The courier gets the same treatment as the ringleader, as do the buyers. Individually, not much prison time in the grand scheme of things in 1970, but being charged as a GROUP? Twenty years minimum. Al Capone never saw such a hefty sentence.

It simply doesn't matter to a prosecutor if you're OS is encrypted and they can't get the data. All they need to prove is that you were part of the *enterprise* operation. That can be done outside of your shiny new Western Digital hard drive by subpoena to your ISP and a few other services you subscribe to. They've done this (and succeeded) with the newsgroup porn bust years ago in which every member of that hideous pedo group had encryption coming out of their ears.

Here, according to "Grugq" at Github, was the short list of rules in that group.

- Never reveal true identity to another member of the group
- Never communicate with a member of the group outside usenet

- Group membership remains strictly within the confines of the Internet
- No member can positively identify another
- Members do not reveal personally identifying information
- Primary communications newsgroup is migrated regularly
- If a member breaks a security rule/fails to encrypt a message=BAN
- Periodically reduce chance of law enforcement discovery on each newsgroup migration by:
- Creating new PGP key pair, unlinking from previous messages
- Each member creates a new nickname
- Nickname theme selected by Yardbird (Group leader)

The affidavits read like a Hell's Angels list of rules. And though I disagree with his (the website owner, not Yardbird) conclusion that "there are basically no nice people who provide case studies of OPSEC practices," I believe much can be learned by studying the habits of law-abiding citizen and criminal alike, especially considering the wide net over which the NSA is casting over *law abiding citizens*.

Remember that in Nazi Germany, if you slandered the SS, that was a capital offense. The film 'Sophie Scholl' is an excellent example of underground resistance movement for the right reason. It won accolades for its realistic portrayal of a college woman who stood up to the SS elite and was beheaded for it.

North Korea, 2015... same. They'd have little issues with doing worse. Beheading might be almost too lenient for them as they prefer prolonged, tortuous environments for their subjects. China? China has done some strange things, like outlawing stripping at funerals and banning Bitcoin transactions, and I do recall the violent protests by Muslims in 2010 and thinking "Those communist schmucks will round up all those screaming fools and shoot them at dawn and not look back!"

My Chinese girlfriend leaned over to me as we watched and mumbled, "They won't wait till dawn."

I like to think of Darkcoin as Bitcoin's smarter brother. Much smarter in fact, and darker. The best part of course being that it is constantly evolving.

Like Bitcoin they are a privacy-centric digital money based on the **Bitcoin** design. It's a design that allows for anonymity as you make day-to-day purchases on, well, just about anything so long as the digital store offers it.

With Bitcoin, anyone can see who made a purchase by only looking at the public blockchain. What Darkcoin does is anonymize your transaction *further* by using *Master nodes* - a decentralized network of servers that negate any requirement for third-parties: Parties that could scam you out of your coins.

Though few outlets use it, it is one of the quickest growing digital currencies out there, with an economy breaching over twenty million. Impressive. And that's not all. It's "Darksend" feature is quite fascinating--increasing privacy by compounding a typical transaction with *two* other users.

Needless to say, this is immensely attractive to a lot of Tor users who value high anonymity. Whistleblowers, journalists, underground political movements. That's the good list. The bad list though, well, you can never have the good without the bad: Terrorists. Contract killers. Tax evaders. Fallout players with the child-killing perk.

I hear the same arguments against its use that I heard with Freenet: Bad guys want to evade detection. Bad guys trade Darkcoins. You use Darkcoins. Therefore, you're a bad guy. Cue torches and pitchforks and black cats catapulted over the moat.

Heroin dealers love to use cash yet you never hear news outlets screaming about cash-only users linking to such a crime. Besides, the most corrupt money launderers are the central banks. It is *they* that allow states to borrow from future citizens to pay *today's* debts. One need only look at the National Debt to realize this.

But that's not to say Darkcoins are without issues. A few excellent questions have arisen:

- What if these "Masternodes" eventually form centralization?

- What if Darkcoin is abandoned by the creators once the price goes through the roof?

- Who is trustworthy enough to "audit" Darkcoin? We saw an audit with Truecrypt in 2013 which turned out to show no backdoors... except that the developers shut it down with a cryptic message saying Truecrypt was Not Secure Anymore. We can argue all day about what that meant.

These questions may never be answered. But that should not stop us from forging a new frontier in anonymity services.

Using Darkcoin for Business

It is much harder to run a Hidden Tor Service than it is to open a business using Darkcoin. It's so simple really that it boggles the mind what might be available in the future... and with minimal risk to you.

If this appeals to you, then get the Darkcoin Wallet. This is used to send/receive/store Darkcoin with the benefit of using Darksend for 100% anonymity. More info here on this. Most of your patrons will want you to have a wallet, so better to learn it early in the business rather than later.

Pick a Transaction Processor

Below are a few you can research to your liking. Not every processor will suit everyone just as every bank or credit union will not appeal to everyone. You must judge these yourself, weighing your needs with whatever risk your business entails. I've tried most of these and came away satisfied but like everything else with crypto currency, what works for me may not work for you.

AltAccept

Fees

Transaction: 0.25% + 0.0005 DRK; Withdrawal: 0.01 DRK

CoinPayments

Transaction: 0.50%; Withdrawal: Network transaction fee (TX)

CointoPay

Transactions: 0% (coin to coin) 0.5% (coin to fiat); Withdrawal: Network transaction fee (TX)

Transaction: 0.5%; Withdrawal: Included with transaction fee

Some promo-graphics for your site, or whatever else you're using to advertise to your customers--you want them to know you accept Darkcoins, right?

Darkcoin Graphics (courtesy of the Darkcoin homepage)

After this you should signup to the Merchant Directory.

Then (optionally), do some reading on InstantX here. InstantX is a double spend proof instant transaction method via the masternode network. Not exactly light reading, but the more you know...

Further thoughts

No single entity has control of the entire system. Though the chance of an accident borders on the *not bloody likely*, you need to remember that Darkcoin is still in development and because of that, unforeseen things happen. So a healthy dose of due diligence is required. I suggest only purchasing with money that doesn't break the bank in case bad luck happens upon you.

Frequent backups are mandatory for your wallet, more than Bitcoin since the anonymizing process executes more transactions in the background. If you've ever used Freenet, you know how slow the network can be and how much of a system resource hog anonymity often requires. Thus, make a new backup of your wallet whenever a you hit a coin ceiling.

Darknet OPSEC

"Three can keep a secret if two of them are dead..."
- Ben Franklin

The above quote was a favorite of mine in elementary school. It was applicable then just as it is now to having a secure mindset, and boy how I loved spouting that line whenever a friend begged me to confirm a rumor he'd heard. A rumor that, if validated, could have landed me in hot water with my red-headed chem teacher. Luckily I knew when to keep my mouth shut.

As you should.

Keeping your mouth shut about Darknet markets is more important than any encryption scheme you use, passphrase you know, Freenet group key or anything related to your Bitcoin wallet. Knowledge is power.

No, strike that. Knowledge is *potential* power. And power in slippery hands can be **disastrous**. Playing the bar braggart might be fun after a few beers and win you a few points with other guys, but it gets more people imprisoned over frivolous reasons than anything else I can think of. And I've seen more than one friend go down in flames because they mentioned a darknet market to someone they thought they could trust. But then that friend told someone else he trusted, more than anyone in the world. We"ll call my friend Grady.

Grady told his girlfriend. Spared no details of his darknet ops and how they traversed several continents. He made himself sound like Agent Smith from the Matrix. I shook my head upon hearing this...

Cue Fred Sanford: "You Big Dummy!"

Trusting her to keep his secret was not just dumb, it was galactically stupid. Like expecting Eve to eat the forbidden fruit all by herself. And we know how *that* story ends. Misery truly loves company.

Next thing he knew, he attracted the attention of the authorities in Hong Kong, one of which was her father. The secret was safe enough he supposed, until he refused to marry his hyper-critical girlfriend, claiming he had taken the "Red Pill" and feared settling down with an ultra-hardline feminist harpy (his words) would kill his dreams. Well it killed something alright. His freedom.

Lesson? You can't fix stupid, so why would you trust it?

While you needn't go totally dark about your darknet knowledge for all eternity, in real life conversations, Social Media outlets, Tinder, Skype, etc., *mums the word*. Invoke radio silence where applicable or better yet, feign ignorance. If they show you proof, simply say you have good connections. Then buy them a beer and *leave*. If they still persist, consider warning them you're about to sever all connections to them. Friends come and go, but freedom is priceless.

How to Setup a Hidden Service on Tor

A benefit to using Tor is that it allows you to create hidden services that will mask your identity to other users. In fact, you can have a website that is untraceable to you personally, provided you've taken all security precautions to keep your system updated. Here is an example of an onion site only accessible by using Tor:

http://duskgytldkxiuqc6.onion/

Naturally you can't access this with your Firefox browser without Tor. hence the "hidden" name.

This chapter will give you the basics on what you need to set up your own Tor hidden service. It's not meant to be all-inclusive that covers everything and the kitchen sink, but only to give you an idea of the technical know-how you need to possess.

Step One: Ensure Tor Works

Follow the directions on installing Tor, securing it against exploits and security vulnerabilities first and foremost. Windows directions are here, Linux here, and OS X here. Each OS has it's own vulnerabilities, with Windows being the worst. I recommend you go with Linux after you've mastered the basics as it gives you more control over Tor and is far more resistant to attacks than Windows.

Now might be a good time to state the obvious, something you've probably realized by now, and that is this: That no two counter-intelligence experts ever do the same thing the same way all the time. There is no red pill that makes it "All Clear." No cheat sheet of Magic Opsec Sauce that everyone can master if they only gulp it down. You can't memorize every organic compound combination in Organic Chemistry. Believe me, I tried. There were far too many.

What you do however is memorize the *general principles*, from which you can derive a solution to every problem that comes about. Anonymity is sometimes like that. Your strengths will not be your neighbor's strengths. Your weaknesses will be different as well. You adapt as you go along, and I can guarantee you your skills as a hobbyist will far exceed those working on the government dole.

Step Two: Installing Your Own Web Server

A local web server is the first thing you need to configure. It is a bit more involved than space here allows (without jacking the price) but if you do not know what a web server is, there is a simple guide here.

You also want to keep this local server separate from any other installations that you have to avoid cross-contamination. In fact, you don't want ANY links between your hidden server and your day-to-day computer usage outside Tor.

Your server must be set to disallow any data leaks that might give away your identity. So you must attach the server to **localhost** only. If you're swapping trade secrets and don't want the boss to know, use a virtual machine to prevent DNS and other data leaks, but **only** if you can access the physical host yourself. Professional web hosting services (i.e. the Cloud) are a big no-no since it is stupid easy for the admin to snatch your encryption keys from RAM.

Go to http://localhost:8080/ via browser, since that is the port-number you entered at creation. Copy a text doc to the usual html-folder and ensure it copies successfully by logging into the webpage.

Configuration Time

Now comes the part where most people quit. Don't worry, it isn't hard. It's just that beginners see these numbers and think "Oh no... math!" and throw the book out the window.

But that's not what you'll do... because you're a *smart cookie*.

First, set your hidden-service to link to your own web-server. You can use Notepad to open your "torrc" file within Tor directory and do a search for the following piece of code:

```
########### This section is just for location-hidden services ###
```

As you can see, the hidden services function of Tor is edited out by the "#" sign, where each row relates to a hidden service. HiddenServiceDir is the section that will house all data about your own hidden service. Within this will be the hostname.file. This is where your onion-url will be.

The "HiddenServicePort" allows you to set a decoy port for redirects to throw off any efforts at detecting you. So add these to your torrc file.

```
HiddenServiceDir /Library/Tor/var/lib/tor/hidden_service/
HiddenServicePort 80 127.0.0.1:8080
```

Next, alter the HiddenServiceDir to the real directory from which Tor runs.

For Windows, use:

```
HiddenServiceDir C:\Users\username\Documents\tor\hidden_service
HiddenServicePort 80 127.0.0.1:8080
```

For Linux:

/home/username/hidden_service/, substituting "username" with whatever you named that directory.

Restart Tor after saving the Torrc-file and it should be operational. Check your spelling if it throws out any errors.

Now then. Two files are created: the private_key and the hostname; private keys for your hidden service which you should keep under lock and key. The hostname is not your private key, however. You can give this to *anyone* you wish.

A descriptor for the hidden service links to other Tor servers and their respective directories so that Tor users can download it anonymously when they link or access to your hidden server.

Other points of note:

- Visitors to your hidden service may be able to identify whether your web-server is Thttpd or Apache.

- If your offline 50% of the time, so will your hidden service. Little bits (or lengthy ones, in this case) of data like this are useful to an adversary creating a profile on you.

- It is wiser to create a hidden service on Tor clients versus Tor relays as the relay uptime is visible to the public.

- Be aware that you are not a Node by default. On that point, it is advised to not have a relay running on the same machine as your hidden service as this opens security risks.

Shallot and Scallion Option

You also have the option of using Shallot or Scallion. Shallot allows one to create a customized .onion address for a hidden service, such as yyyyynewbietestyyyy.onion

On Running a Hidden Tor Server (and other Opsec Magic Sauce)

Having used Tor for many years, it came as a pleasant surprise to learn how few incidents there were in which the NSA managed to disrupt Tor. And I don't mean spam, either, but rather something that brought large sections of the network to a grinding halt. As it turns out, they're bark is much worse than their bite, especially if one is vigilant with their own secure setup.

The thing is, most Tor users couldn't be bothered. But then most users aren't interested in running a hidden server just as most P2P users don't bother seeding. Most are hit n' run downloaders. They know that as U.S. citizens they stand a good chance of getting sued if they leave their balls out there long enough. So some users opt to not further their own security knowledge. Let the Tor devs do it, they say. Can't be bothered.

Except most of the Tor advice by Tor developers I've read come up woefully inadequate. In fact I find that they aren't paranoid *nearly enough*. It's always been my belief that you can never be sufficiently paranoid as far as protecting your freedom is concerned, since the powers that be want to capture it and bottle it the way a cancer captures control of a cell: One organelle at a time with little of it's environment aware of the slow-boiling attack. To be honest... I suspect they *depend* on apathy and ignorance. And a lot of users gladly oblige.

Mr. Frog, meet boiling pot of water...

So then, what can we do? Well for starters, we can get the right security mindset.

Tor and Your PC

A secure computer is your best defense as the NSA mostly relies on man-in-the-middle attacks and browser exploits that deliver payloads to hidden Tor servers. That said, you should anticipate and **expect** such an exploit can infiltrate your system at any point. Things like Nits (network bugs), you have to be aware of. Thus the need to adhere to the following:

- Use Linux whenever possible. Yes, I know you're comfortable using Windows and think Linux too much of a bother. But you won't if you're ISP is subpoenaed for something you said on Facebook. Something anti-feminist, for instance. So learn to use it.

As you can see in these NSA slides - they typically target the weakest system. The Tor Browser Bundle for Windows was instrumental in taking down Freedom Hosting and Silk Road because of unpatched vulnerabilities. That, and a few rogue Tor exit nodes patched unsigned Windows packages to spread malware.

If you're new to Linux, look at Linux Mint. If you're experienced, Debian is a good choice. Windows can't be trusted primarily because it is closed-source, but also because malware is more effective on it than Linux. If Linux is out of the question, consider Tails or Whonix as these apps come preconfigured to not allow any outgoing connections to clearnet.

Update Update Update!

Your PC must also be updated, always. Not updating leads to vulnerabilities and exploits such as those in Windows. Optimally, you should ensure Tails is *always* updated each time you use Tor, and avoid any sites that use Java/Javascript/Flash or any kind of scripting as these execute code in ways you cannot see. Use these only in an emergency and never in your home system.

Avoid using cookies wherever possible. Consider installing the Self-Destructing Cookies add-on.

Again, you should not use anything but a portable PC since your home PC is most likely not portable enough to be discarded in a trash can in the event of compromise.

Avoid Google like the Black Plague. Use DuckDuckGo or Startpage instead for your Tor sessions.

Situation Awareness

Here we go again, preachin' the same old song and dance. But reading things three times often becomes a trigger in the brain later on for taking action, so here it is. Again.

If an agency can monitor your local connection as well as the link you are browsing, then (with sufficient resources) they can apply traffic analysis to pinpoint your real location. Therefore, I recommend you do not use Tor in your residence.

Just to clarify, do not use Tor in your *legal* residence if doing any kind of covert work or anything *illegal* without strict security measures in place; the kind the average Tor user will likely overlook. Let that other guy learn his lesson. It's a tough break, but better him than you. He's a 19 year old named Jimmy who likes hacking. You're a 32 year old construction guy with two kids and a mortgage. Who has more to lose? Right, you. So study counter-surveillance and counter-forensics like your life depends on it... because it does!

For enemies of the state-level operations, I would suggest not engaging anything even **near** your online PC at home. Certainly nothing that makes you think you need Tor to hide it. It may be fine for private browsing but not for someone planning a coup, running an illegal operation (home bible study in Iran, for instance), or trying to disappear.

Be wary of using it in hotels as well, where often there are many cams watching with 24/hr surveillance. That location can be linked to Tor activity.

Do not use Tor more than a day in any specific location. A correlation-attack can be done in less than an hour if a black van is parked nearby--a van you will not see. They may not slap the cuffs on you as you walk out of the cafe that very week, but later they might. Consider the area a toxic dump after a day, regardless if you must travel to the next shop or town.

If you want to get really cloak and dagger about it, have an app running (an MMO, for instance) while you are out and about doing your Tor activity that makes it look like you were home during that time.

"We've been watching you Mr. Anderson, and it seems you've been living... two... lives." -- Agent Smith, The Matrix

Darknet Personas

You've no doubt read of Tor busts where an undercover agent snagged a phone number or clearnet nic from someone they were targeting because said target trusted too much, too quickly. You can avoid this by retraining yourself, *unlearning* what you've learned.

You must consider your Tor sessions the property of your other Self. The cloned You - that shadowy thievish looking guy above. The *second* You. One that despises Incubus and loves Tool and views Neo as just another beta-orbiting punk who got the luck of the draw when Morpheus and crew unplugged him. This clone would not use Twitter or YouTube or other social gunk. He would never hang with you nor call you up for a few beers. In fact, he hates beer, preferring J&B as he hacks with John Carpenter's The Thing OST playing as mood music in the background. That's your other *You*. The smarter you.

And he must be the new You ***on Tor***. And you must forever separate him from the non-Tor You.

His Facebook, Twitter and YouTube accounts are all fake, having never once used them on his home PC. His nics are different, as is his passwords, likes/dislikes and even the fonts he uses to browse the Deep Web. Mixing this dark persona with your own would be like the boy made of matter kissing the anti-matter girl...

BOOM.

Further, any phone calls this person makes is done by prepaid phones that were not purchased by any credit cards he holds. He is a cash n' carry guy and then only if he is twenty miles from home. Any *SIM* cards he uses are strictly used in conjunction with Tor activity and never used in phones the *other guy* uses. And... he deliberately leaves false info wherever he goes. Kinda like the CIA does.

But to better clarify this idea, let's assume John Doe doesn't know any better. He watches a movie on Netflix. Then he mosies on over to Freenet and drops intel without even realizing it, eager to share his great cinema experience with his darknet buds (no pun).

"Hey guys, just watched a cool flick with Russell Crowe. Kinda Michael Bay-ish and Liam Neeson's cameo was too short, but makes for a good flick if you want to learn how to disappear. But those police, sweet Jesus! Those rent-a-cop guys sure are as dumb as a sack of bricks!"

Police are dumb, he says.

Metadata is collected by Netflix just as it is with Google and Yahoo. Every single user. They know every film you viewed and even which ones you hated. He's even made forum posts indicating similar weather and, though not mentioning names, has griped about local politicians being handcuffed in very geo-specific arrests, even dropping the charges!

How many Netflix fans do you think watched this movie at the time of his Freenet post? How many in cities that had local politicians arrested for embezzling? How many with similar weather depicted in the film? Most likely less than ten. Maybe not even that.

There is also the handwriting element. Does he *mispell* the same words over and over? Throw commas like daggers? Misuse semi-colons and run-on sentences? System clock out of sync with his posts? All of this leads to a great profile that ties his IP address to his identity. Often it is enough to get a warrant if he so much as whispers that he's obtained any kind of contraband.

Unless of course, all of this info is tailor-made to fit the other *You*.

We already know that the VPN called Hide-My-Ass as well as Hushmail and Lavabit stabbed their users in the back when threats by a judge became too heated ($5000 a day in Lavabit's case, until they forked over user data). And all this just so they could track Edward Snowden.

Bottom line: Learn from Snowden's mistakes. Take every company's claim of anonymity with a grain of salt. The proof is in the amount of arrests tied to said company or app. In the case of Freenet... none.

But there is always a first time. Recall that they only have to get lucky once, which more often than not relies on your carelessness.

Tor Hidden Services - High Risk, High Reward

CNN along with FoxNews has been trumpeting the defeat of certain hidden services for a few years now. Services like Silk Road and Freedom Hosting, which I'm sure you've heard about. They are a easy target for the FBI since hidden services are not high on the list of priorities by Tor developers yet. Same for the NSA.

Both agencies know every trick and hack there is to know about running a hidden service. And so should you. This is not to say you need the expertise to match their team of super hackers, but that you need even more vigilance to run such a service than you do *visiting* such a service.

Priority number one is simple: if you run one, you must own one. They must not be run under somebody else's control if you can help it, because if that service is compromised, ***everyone*** goes down. That means total anonymity, 100% of the time with world-class jewel-thief stealth ability.

The Silk Road admin did not have this ability. In fact, looking through the online docs detailing the arrest, one gets the impression he was very lax in IT security procedure. He repeatedly made mistakes such that luck on the part of LE never really came into it at all. The guy was just sloppy.

First

Never, ever, ever run a hidden service within a VM that is owned by a friend or a Cloud space provider. Remember, all "The Cloud" is, is someone *else's* drive or network, not your own. Encryption keys can be dumped from RAM. And who owns the RAM?

Right. The Cloud provider. Lightning strikes and there goes your own anonymity as well as the anonymity of your visitors if they are lazy in their browser habits. The FBI delivered a "nit" (network investigative technique) this way to unpatched Tor Browser Bundles in 2013. If, however, you own the machine, then it's a different story. But let's back up a few steps and assume you don't. How might you go about running it on a host system?

Well first off, you would need two separate physical hosts from different parties, both running in virtual machines with a firewall-enabled OS that only allows Tor network activity and *nothing else*.

The second physical host is the one the hidden service runs from, also VM'ed. Secure connections are enabled by IPSec. What's IPSec, you ask?

"IPSec is a protocol suite, for securing Internet Protocol (IP) communications by authenticating and encrypting each IP packet of a communication session. IPsec can be used in protecting data flows between a pair of hosts (host-to-host), between a pair of security gateways (network-to-network), or between a security gateway and a host (network-to-host)."

If an intruder agent tampers with anything, you will know about it and can shut down the service or move it to a safer place, and all while being a ghost in the machine. You can imagine how valuable this would be in North Korea.

If you were in that cesspool of a country, you would be more than a little paranoid if the server went down even for a few seconds. But you could always move it to a more secure location or even start over, and you might just want to since you would not know if a RAID failure had occurred or if some commie jackboot was sending a copy of the VM to the higher ups.

Second

If going the host route, you must ensure that remote-console is always available to you by the host, any time you want. You must do everything remotely, in fact, and change passwords frequently via https. I'd say once per day as paranoia in such a climate as North Korea would be good for your health.

Third

You must never, not even once, access the service from home. Not from your Nexus 7. Not from your girlfriend's Galaxy Note. Not even via Tor from your backyard using your neighbor's WiFi. Using a VPN as well is risky unless you know what you're doing. Only access it via secure locations at least ten miles away from your residence. Overkill, some might say, but then there is no such thing as overkill in a gulag.

Fourth

Move the service on occasion. Again, look at any Youtube video on how snipers train to take out an enemy. They move place to place after each shot to conceal the true location from the enemy. How often is up to you. Once a week? Once a month? Personally I'd say every twenty-one days. You can never be too secure when running one of these.

The Death of Anonymity

Prime minister David Cameron went on record in January, 2015 to say he wanted to outlaw all encryption-enabled messaging apps if the government cannot have backdoor keys to decrypt encryption. It is beyond preposterous. It would be like a farmer allowing easy entry to the henhouse to cougars as well as foxes. While on the campaign trail, he said:

"Are we going to allow a means of communications which it simply isn't possible to read? My answer to that question is: No, we must not."

While he referred to mostly chat programs like WhatsApp and what not, you can bet the ranch he was also talking about apps like PGP, Freenet and the discontinued Truecrypt. Regrettably, he used the Hebdo (cartoonist) attack as justification (don't they all use these to further Big Brother agendas?).

I see a similar trend evolving in Canada regarding VPN usage. New laws now require VPNs to identify customers who download copyrighted works like movies and games so that infringement notices (i.e. scare letters) get to the right person. That sounds rather just on the surface of it, because who wouldn't deny George Lucas's ability to make more Star Wars prequels? Art, you know.

But therein is the problem. Mainly it's that politicians forget how the internet actually *works*.

Doing what they dictate means VPN providers must retain access logs for

6 months, minimum. This alone pretty much guarantees a VPN's ability to sell anonymity services (*privacy*, actually) will dissolve, thus leading to massive losses as customers aren't stupid. They know when their privacy is being targeted. Let the exodus begin! (Government cookie parties)

They also know that VPNs assign shared IP addresses for customers. One might be yourself, there in your jammies sipping Rickard's Red while downloading the latest NiN video YouTube seemingly blocked, while the *other* user is Uncle Frick downloading *something* from the Usenet group guys-who-like-bouncing-pigtailed-girls-on-a-knee.

The only solution is to move out of Canada altogether.

But then, perhaps that is what the government wanted all along.

The saddest part isn't that none of this won't stop terrorism or copyright infringement, or that it will hurt most private encryption vendor's businesses or that only politicians will have encryption while the citizens have none. No, the saddest part is that we will have become the frog-in-the-pot who turns the oven on ourselves to maximum temperature and then slip back into the pot, and all because someone more powerful than you or I said it was the right thing to do.

Our world will become Bizarro World. Where right is wrong and light is dark and no one has security except for the agents of the new Matrix they will build. Where to be more secure is to be *less* secure as us peons go... because if the government says so, well, that must be the gospel truth because when's the last time a politician lied?

If you learn nothing else, remember two things: Backdoors are security holes in 100% of cases. The second one is like it: Anonymity and Privacy and the freedom that comes of it will only die **if we let it**.

Closing Thoughts

As you can see, the powers that be are actively targeting your ability to make choices about your own freedom. They work in baby steps. They think you're stupid. They think they can run your life better than you can. Only they can't. Did the NSA stop the attack on Charlie Hebdo, the French cartoonist? Did they stop 9/11? The bombings in Spain? A death from a thousand cuts, a little at a time, and before you know it you're feeling very light-headed but aren't quite sure why.

Believe me, putting off your security and peace of mind will be enough to fuel that tsunami of cancer they're building up one cell at a time. If you've read this book then you've already taken all the baby steps you need. You've dipped your big toe into that whirlpool and it's high time you **jumped in**. Don't procrastinate. You *know* how warm the water is. Wait too long and the water might get too cold. Worse still is that someone might just lock you out altogether.

Just remember: Always nourish a strong *security mindset*. Develop an ability to configure things logically and anticipate trouble way ahead of time, seeing weaknesses in your submarine before the water comes roaring in. If in doubt about this, watch the film 'The Abyss'. See how Bud reacts when the water comes roaring in? He panics! Most of the crew dies. Don't wait till that fateful day. Have something set up long ahead of time. A plan B. A plan C. Even a plan D if you can afford it.

Any intelligence agency has *unlimited funding* to kill freedom by censoring all of us - even censoring the freedom to buy what you want to buy. With the media in their back pocket they can conjure any boogeyman they want to run over you. It's not illegal for them to lie to you, but it is for you to lie to them. This hypocrisy costs them nothing but costs you everything, so like them, you must keep on top of changes to good security, updating as necessary and being on constant alert of new zero-day threats.

But if there is one thing that you have that they don't, it's the incentive to work harder than they do. They clock out at 5pm every day. Will you? The powers that be play dirty. And so should you.

Want to Know More?

First off, I owe you a big thanks and a round of beer for downloading this book. You could have picked any one of dozens of great books on this topic. You took a chance with mine. So thank you for that. Seriously, reading to the end takes a strong mind. If you liked what you read then I need your help! Please take a moment to leave a review for this book on Amazon so others can learn to use Tor and Freenet and, well, protect themselves.

Speaking of *protection*, I've used a number of tools to get to where I'm at, and some of the topics that failed to pass the censors in *this* book quite miraculously managed to slip through in my *other* books. Go figure.

One thing though: when you have not one but two or three *silver bullets* to take down a werewolf, the better your chances of staying invisible to any other lycans roaming around out there. Mind you, I'm not prejudiced against those with Lycanthropy, as it is no laughing matter. But then neither is herd mentality.

So then. Don't use the same tools everyone else is using all the time. Mix it up a bit by checking out some other stuff of mine that did not see the light of day in this release:

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