

CryptoParty London - Recognition

Monday 16th July 2018



CRYPTOPARTYLDN PRESENTS
RECOGNITION
/Rɛkəg'niʃ(ə)n/
A NIGHT OF FREE WORKSHOPS + TALKS + MUSIC + SURVEILLANCE SELF-DEFENCE
FREE ENTRY + ALL WELCOME | BRING LAPTOP + CHARGER + SMARTPHONE

PHOTO: [HTTPS://UNSPLASH.COM/@HEVERLEIN](https://unsplash.com/@HEVERLEIN)

JUJU'S BAR & STAGE
15 HANBURY ST / E1 6QR
16 JULY 2018
630PM TIL LATE

MORE INFO AND SCHEDULE
[HTTPS://CRYPTOPARTY.IN/LONDON](https://cryptoparty.in/london)
[@CRYPTOPARTYLDN](#)

BIG BROTHER WATCH **CRYPTO-PARTY** **JUJU'S**

PRIVACY | DIGITAL RIGHTS | OPSEC | ENCRYPTED COMMS | PGP + ENIGMAIL | SAFE INTERNET BROWSING
SIGNAL | ADBLOCKERS | TOR | FREE SOFTWARE | BITCOIN | QUBES | SUBGRAPH | TAILS | AND MUCH MORE

Setting up a forensics resistant live boot TAILS USB key

@CryptoPartyLDN

<https://cryptoparty.in/london>

@SpyBlog

What is TAILS ?

- Tails is a live system that aims to preserve your privacy and anonymity. It helps you to use the Internet anonymously and circumvent censorship almost anywhere you go and on any computer but leaving no trace unless you ask it to explicitly.
- It is a complete operating system designed to be used from a USB stick or a DVD independently of the computer's original operating system. It is [Free Software](#) and based on [Debian GNU/Linux](#).
- Tails comes with several built-in applications pre-configured with security in mind: Tor web browser, instant messaging client, email client, Libre office suite, image and sound editor, BitCoin Wallet Client, GPG encryption

What is TAILS

- Because it is a live boot linux based operating system, all the temporary swap files, backup copies of documents, any crash dumps and log files etc. only reside in memory *not* on the hard disk of your computer. Anything configured to be Persistent is strongly encrypted
- This makes computer forensics examination of a seized or stolen computer much, much harder

When *not* to use TAILS

- If you are a whistleblower or confidential source and you are the only person in the list of people with access to a leaked document and you are the only person with TAILS installed on a USB device (if legally / illegally seized or “voluntarily” examined)
- Read *all* the TAILS / Tor warnings and caveats
 - <https://tails.boum.org/doc/about/warning/index.en.html>

When *not* to use TAILS

Warning

← System requirements

Even though we do our best to offer you good tools to protect your privacy while using a computer, **there is no magic or perfect solution to such a complex problem.** Understanding well the limits of such tools is a crucial step to, first, decide whether Tails is the right tool for you, and second, make a good use of it.

1. [Tails does not protect against compromised hardware](#)
2. [Tails can be compromised if installed or plugged in untrusted systems](#)
3. [Tails does not protect against BIOS or firmware attacks](#)
4. [Tor exit nodes can eavesdrop on communications](#)
5. [Tails makes it clear that you are using Tor and probably Tails](#)
6. [Man-in-the-middle attacks](#)
7. [Confirmation attacks](#)
8. [Tails doesn't encrypt your documents by default](#)
9. [Tails doesn't clear the metadata of your documents for you and doesn't encrypt the Subject: and other headers of your encrypted email messages](#)
10. [Tor doesn't protect you from a global adversary](#)
11. [Tails doesn't magically separate your different contextual identities](#)
12. [Tails doesn't make your crappy passwords stronger](#)
13. [Tails is a work in progress](#)

Downloading and Verifying TAILS iso

- The main TAILS front end website URL is
- <https://tails.boum.org>
- N.B. if you are a whistleblower, just accessing this from your work computer may be enough to make you the prime suspect in any leak investigation

Downloading and Verifying TAILS iso

- Download the latest TAILS .iso distribution
- You can use the GPG signature to verify that the .iso has not been corrupted in transmission (unlikely)

```
c:\tails_iso>gpg --verify tails-amd64-3.8.iso.sig tails-amd64-3.8.iso
gpg: Signature made 06/25/18 12:14:47 GMT Summer Time
gpg:         using EDDSA key CD4D4351AFA6933F574A9AFB90B2B4BD7AED235F
gpg: Good signature from "Tails developers <tails@boum.org>" [unknown]
gpg:         aka "Tails developers (offline long-term identity key) <tails@boum.org>" [unknown]
gpg: WARNING: This key is not certified with a trusted signature!
gpg:         There is no indication that the signature belongs to the owner.
Primary key fingerprint: A490 D0F4 D311 A415 3E2B B7CA DBB8 02B2 58AC D84F
Subkey fingerprint: CD4D 4351 AFA6 933F 574A 9AFB 90B2 B4BD 7AED 235F
```


Downloading and Verifying TAILS iso

- But the integrity of this relies on that of the <https://> TLS website or the GPG Keyserver you got the Signing Key from
- N.B. Even this does not completely guarantee that this is an untampered version of the software, if a Nation State is doing Man in the Middle / or NSA / GCHQ QUANTUM side jacking

Downloading and Verifying TAILS iso

- Since TAILS is open source, it is theoretically possible to build it from the (examinable) source code.
- Almost no real users can or will ever do this
- However, the threat to Nation State attackers is that someone **could** detect and reverse engineer and steal any Zero Days malware, thereby limiting the chances of such attacks except against unsophisticated high value targets e.g. ISIS or Trump henchmen (but not Putin etc.)

Check your USB is formatted to FAT32

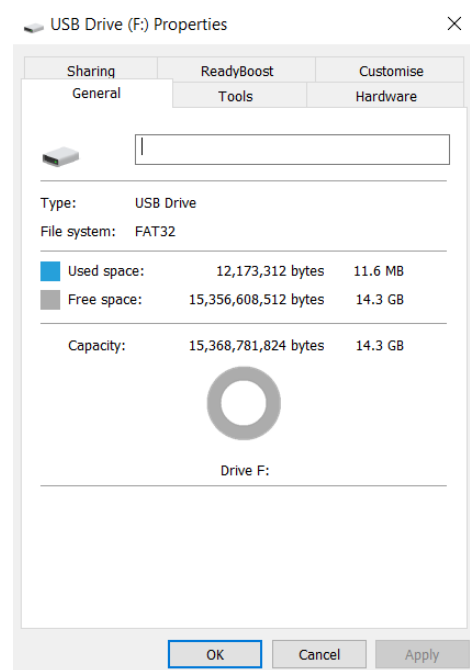
- It can be hard to forensically securely erase data on a USB flash memory pen drive / key due to the Wear Levelling Algorithms which spread the logical file system locations around underneath the physical Flash Abstraction Layer
- Use two fresh USB keys of the same size and model bought over the counter for cash in e.g. Tesco's
- Do not order these online e.g. via Amazon even if slightly cheaper, but leaving a financial data trail & tipping off potential Supply Chain tampering attackers

Check your USB is formatted to FAT32

- If you are being targeted by a sophisticated attacker, they could change the firmware of the Flash Memory Controller chip to include e.g. pass phrase or crypto key or bitcoin etc. stealing malware so do not reuse USB sticks from dodgy sources

Check your USB is formatted to FAT32

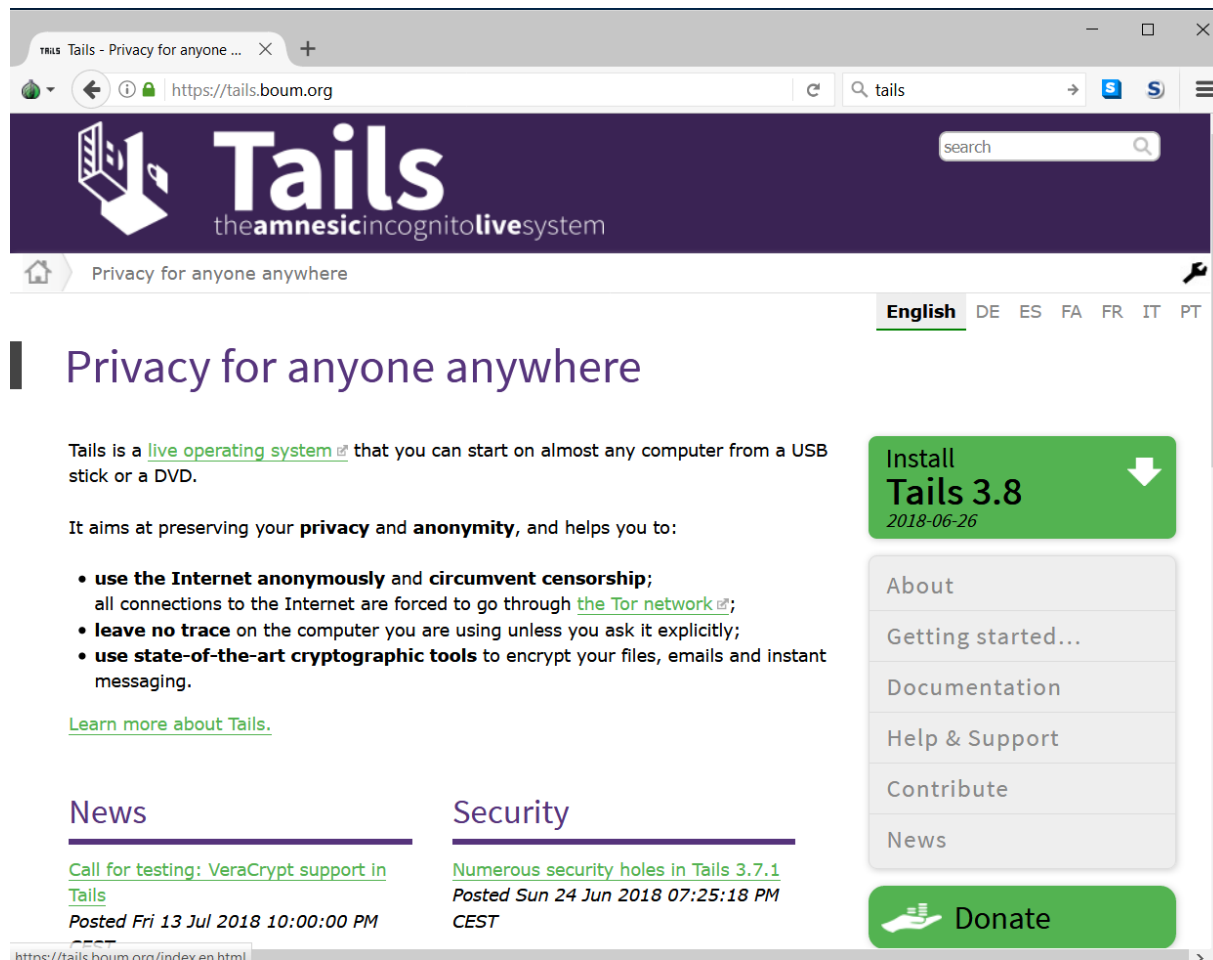
- By default your out of the packaging USB key will be formatted as FAT32 but right click and look at the Properties to check



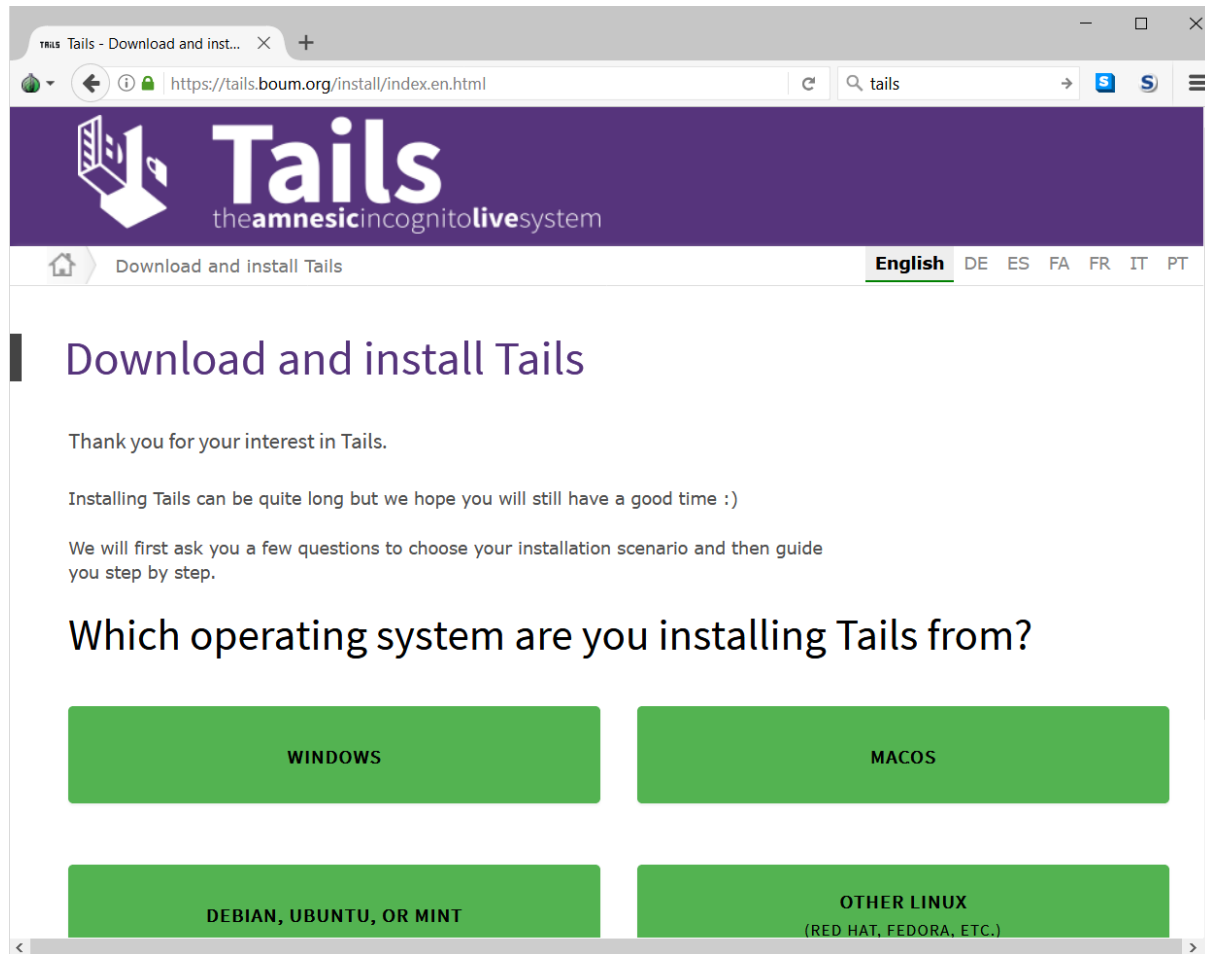
Follow the TAILS website workflow

- The TAILS website has good screenshots and workflow of how to install TAILS using Windows or Apple Mac or Linux.
- We will follow the Windows workflow (N.B. once completed the TAILS USB key can be used to boot on e.g. Apple Mac even if created on Windows and vice versa)

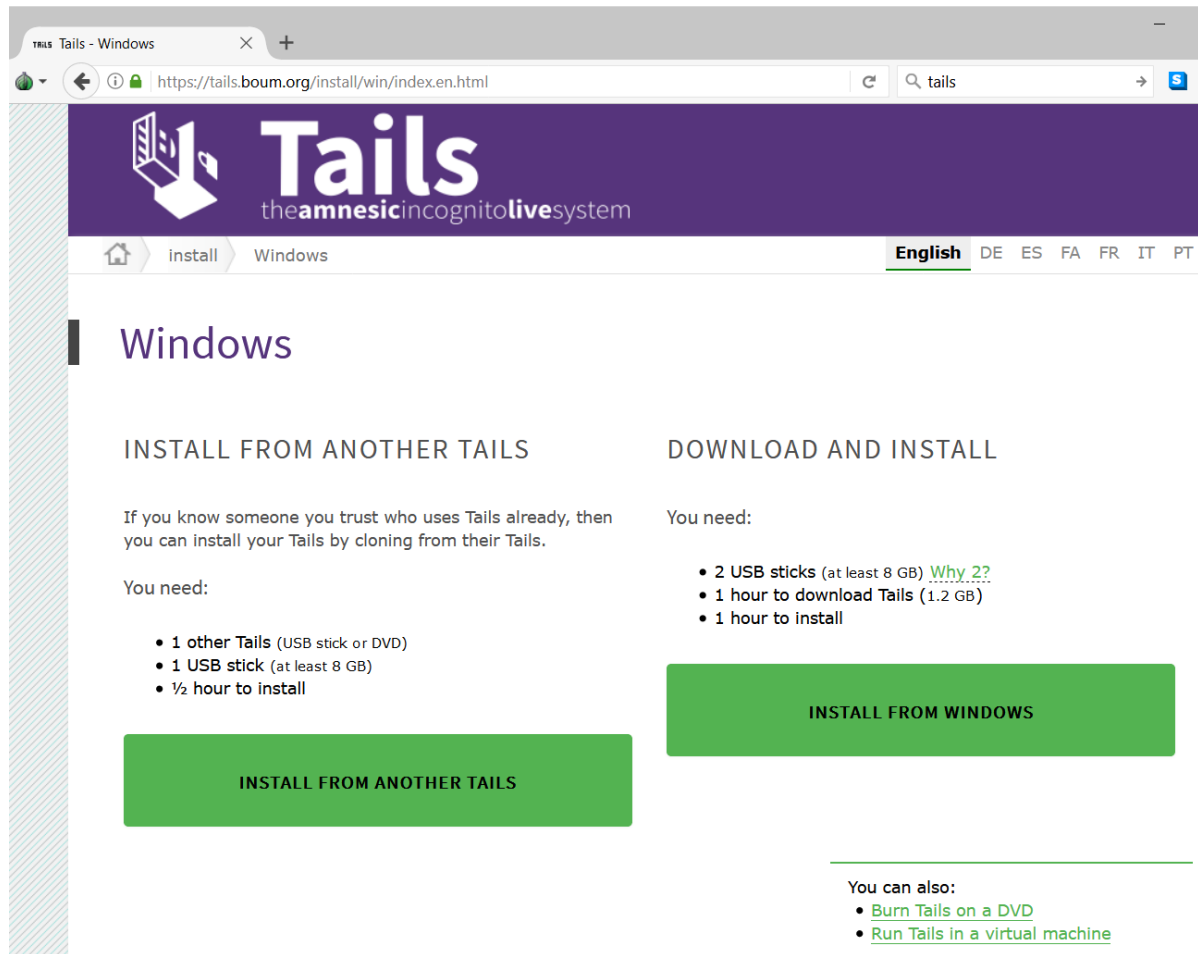
Follow the TAILS website workflow



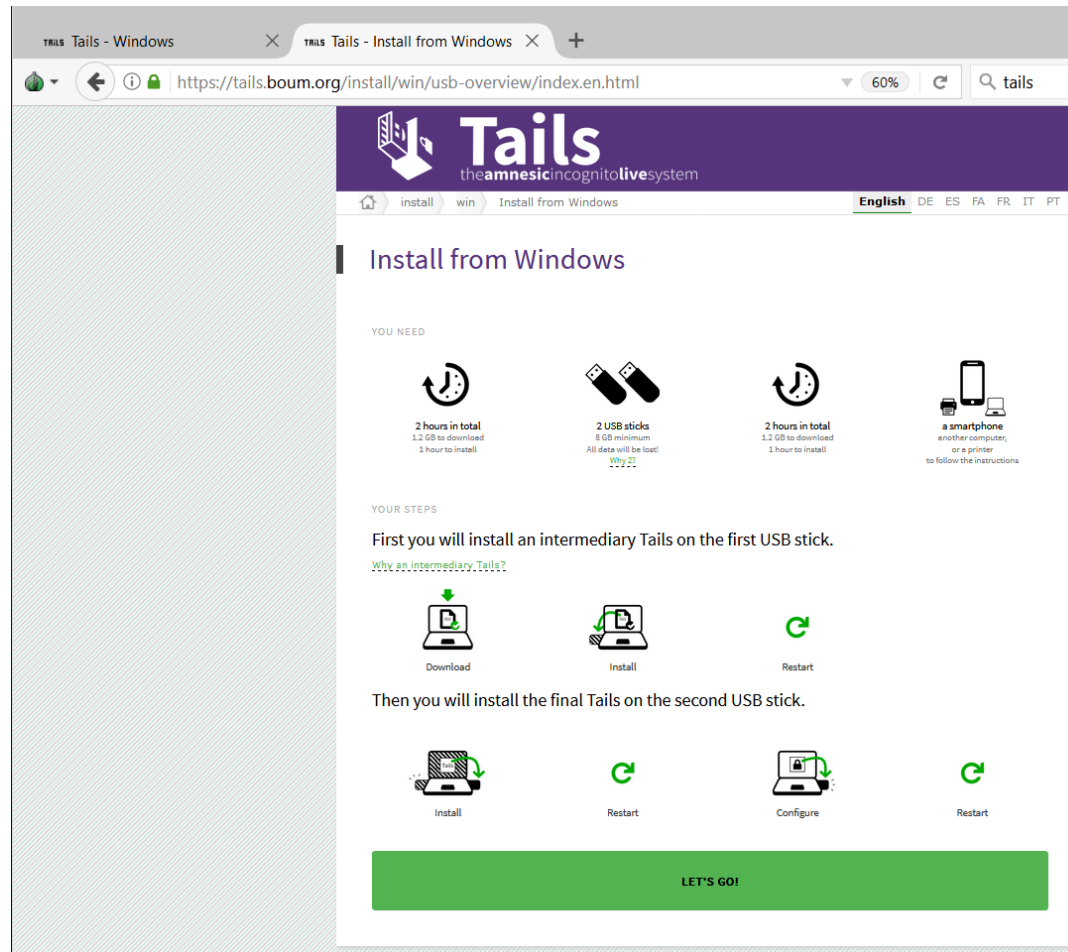
Follow the TAILS website workflow



Follow the TAILS website workflow



Follow the TAILS website workflow



Follow the TAILS website workflow

The screenshot shows a web browser window with two tabs: 'TAILS Tails - Windows' and 'TAILS Tails - Install from Windows'. The address bar shows the URL <https://tails.boum.org/install/win/usb-download/index.en.html>. The page features the Tails logo and navigation links for 'install', 'win', and 'Install from Windows'. The main heading is 'Install from Windows', followed by a progress indicator '1/7 Download Tails 3.8'. The page is divided into two columns. The left column, titled 'Direct download', includes a '1.1 DOWNLOAD TAILS' section with a green button 'Download Tails 3.8 ISO image (1.2 GB)' and a link 'I already downloaded Tails 3.8.'. Below this is a '1.2 VERIFY YOUR DOWNLOAD USING YOUR BROWSER' section with a warning icon and text: 'For your security, always verify your download! Why? Our browser extension makes it quick and easy.' with a green button 'Install Tails Verification extension'. At the bottom of this column is a '1.3 CONTINUE INSTALLING' section with a green button 'Skip download'. The right column, titled 'BitTorrent download', includes a link 'What is BitTorrent?', a '1.1 DOWNLOAD TAILS (TORRENT FILE)' section with a green button 'Download Tails 3.8 Torrent file', a '1.2 VERIFY YOUR DOWNLOAD USING BITTORRENT' section with text 'Your BitTorrent client will automatically verify your download when it is complete.', and a '1.3 CONTINUE INSTALLING' section with text 'Open and download the Torrent file with your BitTorrent client. It contains the Tails 3.8 ISO image that you will use in the next step.' and a green button 'Skip download'. At the bottom of the page is a section 'Verify using OpenPGP (optional)' with text 'If you know OpenPGP, you can also verify your download using an OpenPGP signature instead of, or in addition to, our browser extension or BitTorrent.' and two numbered steps: '1. Download the Tails signing key.' and '2. Download the Tails 3.8 OpenPGP signature and save it to the same folder where you saved the ISO image.'

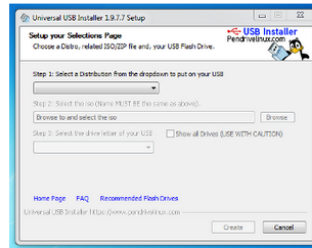
Follow the TAILS website workflow

- The TAILS .iso distribution is just over a 1 Gigabyte in size, so the time it takes to download will vary with your available internet connection speed
- For this workshop the .iso has already been downloaded (and verified, but see above)

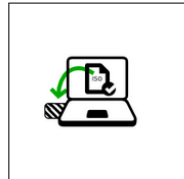
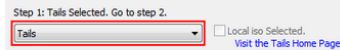
Follow the TAILS website workflow



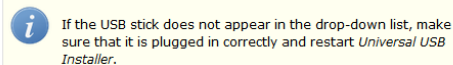
2. Click on the following link to download *Universal USB Installer*:
[Download Universal USB Installer](#)
3. At the Windows security warning, confirm that you want to run the program.
4. Read the license agreement and click **I Agree** to continue and start *Universal USB Installer*.



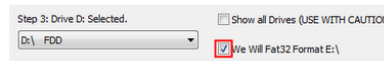
5. Select **Tails** from the drop-down list.



6. Click **Browse** and choose the ISO image that you downloaded earlier.
7. Use the drop-down list to specify the USB stick on which you want to install the ISO image.



8. Select the **Fat32 Format** option.



Follow the TAILS website workflow

- Down loading a copy of the Universal USB Installer software relies on the integrity of the <https://tails.boum.org> TLS encrypted website

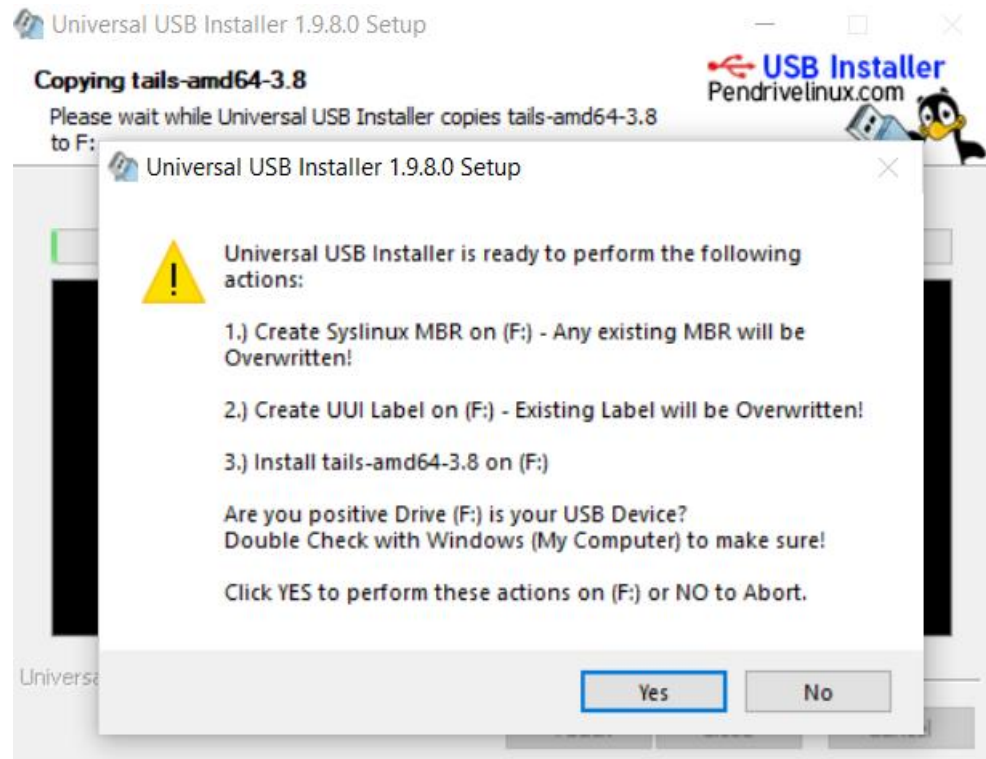
Universal USB installer

- Select Tails from the long list of standard Linux and Windows .iso distributions - the software is designed to allow you boot and install various software distributions from a USB stick rather than having to burn a DVD disc, which not all computers have these days
- It puts its own small bootable Linux distribution on the USB, hence why TAILS is a 2 stage process, primarily to get rid of this bootstrap when no longer needed

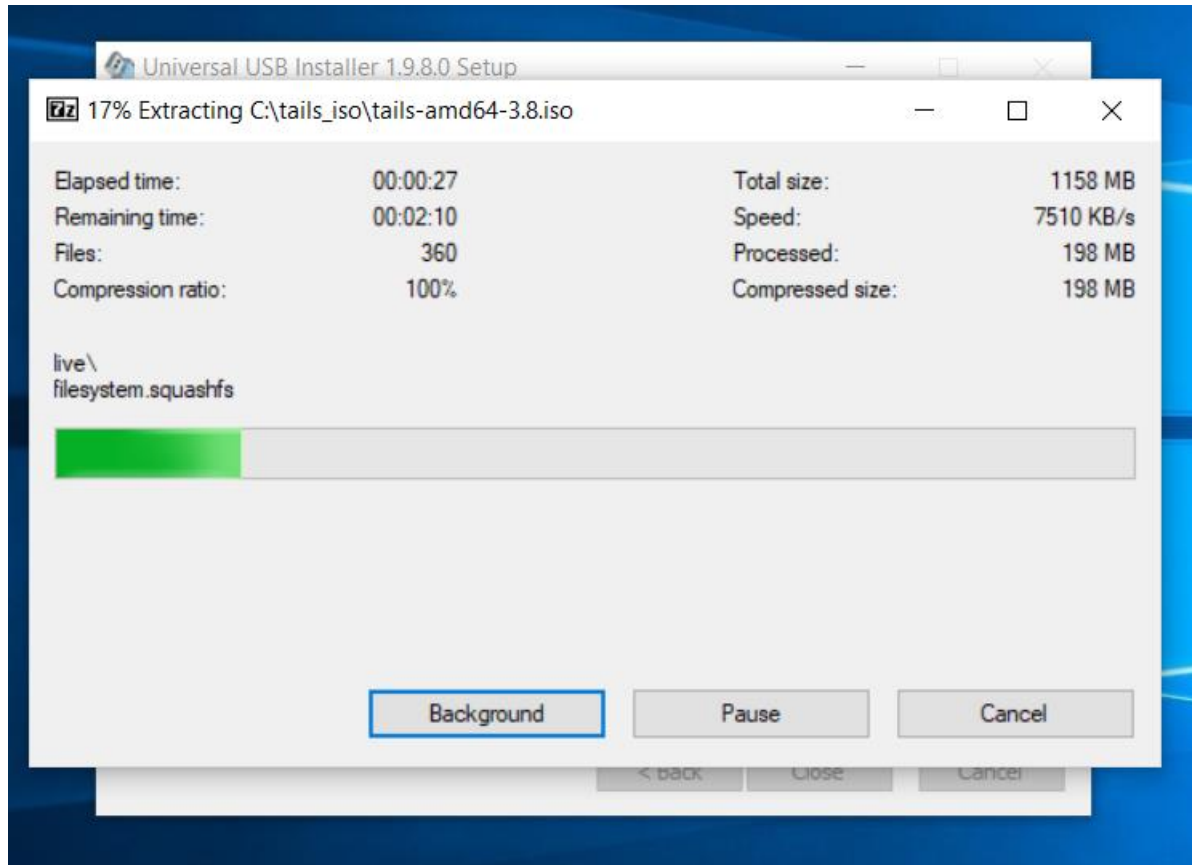
Universal USB installer

- Select the Tails .iso in the folder you downloaded it to
- Tick the Format as FAT32 if your USB device is not already formatted as such
- Start the install.

Universal USB installer



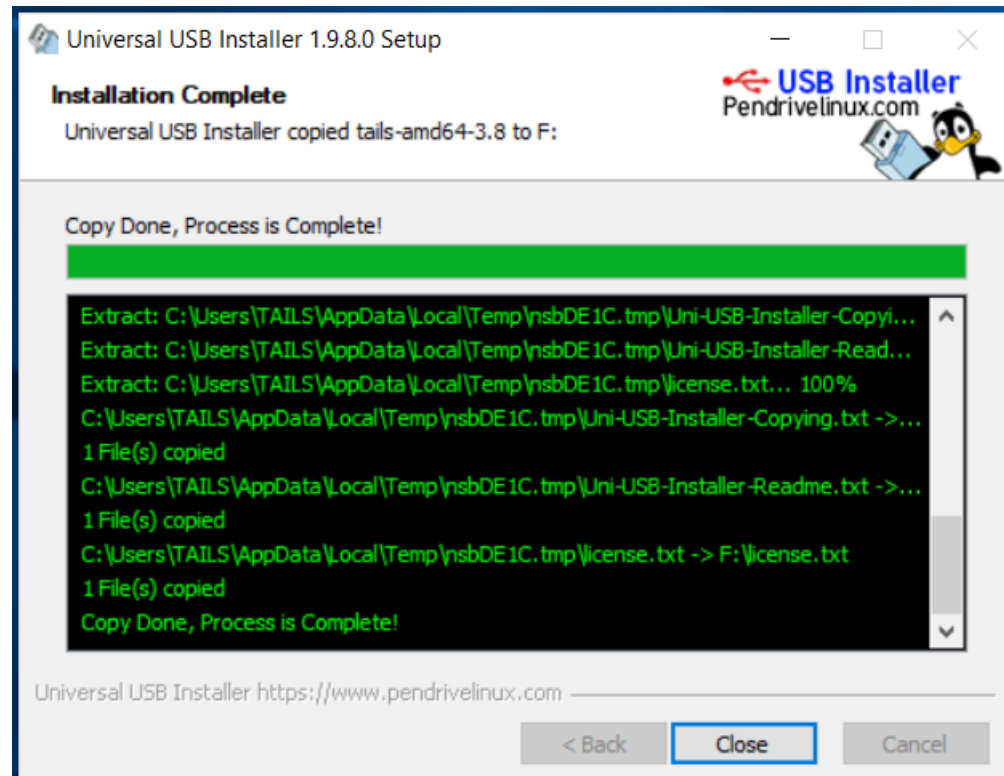
Universal USB installer



Universal USB installer

- Using USB 3.0 the process takes a couple of minutes for a 16 GB USB device
- For USB 2.0 it takes about 10 minutes for a 16 GB USB device
- TAILS needs a minimum of 4GB USB devices, but you cannot easily buy anything smaller than 16 GB nowadays over the counter

Universal USB installer



Universal USB installer

8. Select the **Fat32 Format** option.

Step 3: Drive D: Selected. ☐ Show all Drives (USE WITH CAUTION)

D:\ FDD ☒ We Will Fat32 Format D:\



If you forget to select the **Fat32 Format** you will not be able to install the final Tails in step 4.

Step 3: Drive D: Selected. ☐ Show all Drives (USE WITH CAUTION)

D:\ FDD ☒ We Will Fat32 Format D:\

9. Click **Create**.

10. A warning appears. Click **Yes** to start the installation. The installation takes a few minutes.

11. After the installation is finished, click **Close** to quit *Universal USB Installer*.



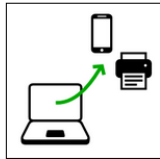
Cool, you now have an intermediary Tails on your first USB stick. You will soon have to restart your computer on this USB stick. It can be a bit tricky, so good luck!

Boot the Intermediate TAILS USB

- Shut down Windows and boot from the TAILS USB device
- You may first have to turn off Secure Boot setting in your BIOS, but UEFI boot does work ok on some models and on Apple etc.

Use TAILS Installer to Clone to 2nd FAT32 USB of same size / make

3/7 Open these instructions on another device



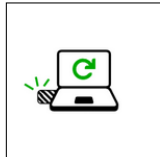
In the next step, you will shut down the computer. To be able to follow the rest of the instructions afterwards, we recommend you either:

- Open this page on your smartphone, tablet, or another computer (recommended).
- Print the rest of the instructions on paper.
- Take note of the URL of this page to be able to come back later:

<https://tails.boum.org/install/win/usb/#back>



4/7 Restart on the intermediary Tails



1. Shut down the computer while leaving the first USB stick plugged in.
2. Switch on the computer.
3. If the computer starts on Tails, the *Boot Loader Menu* appears and Tails starts automatically after 4 seconds.

Most computers do not start on Tails by default. If it does you are lucky. Otherwise, if the computer starts on Windows, refer to [the troubleshooting section about Tails not starting at all](#).



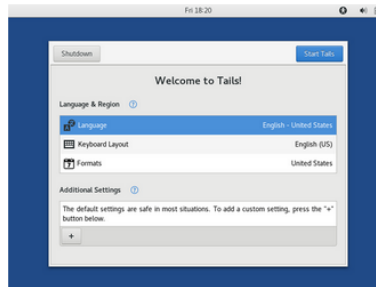
4. After 30–60 seconds, another screen called *Tails Greeter* appears.

Use TAILS Installer to Clone to 2nd FAT32 USB of same size / make

4. After 30–60 seconds, another screen called *Tails Greeter* appears.

If the computer display the error message **Error starting GDM with your graphics card**, refer to our [list of known issues with graphics cards](#).

If the computer stops responding or displays other error messages before getting to *Tails Greeter*, refer to [the troubleshooting section about Tails not starting entirely](#).



5. In *Tails Greeter*, select your language and keyboard layout in the **Language & Region** section. Click **Start Tails**.

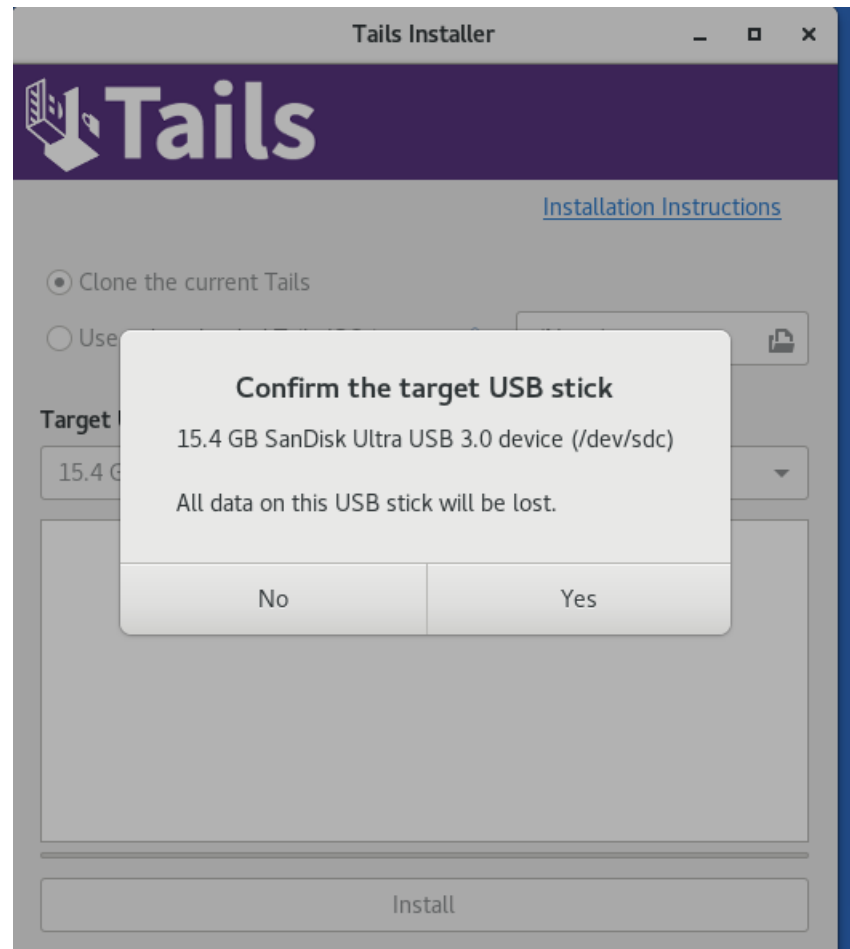
6. After 15–30 seconds, the Tails desktop appears.



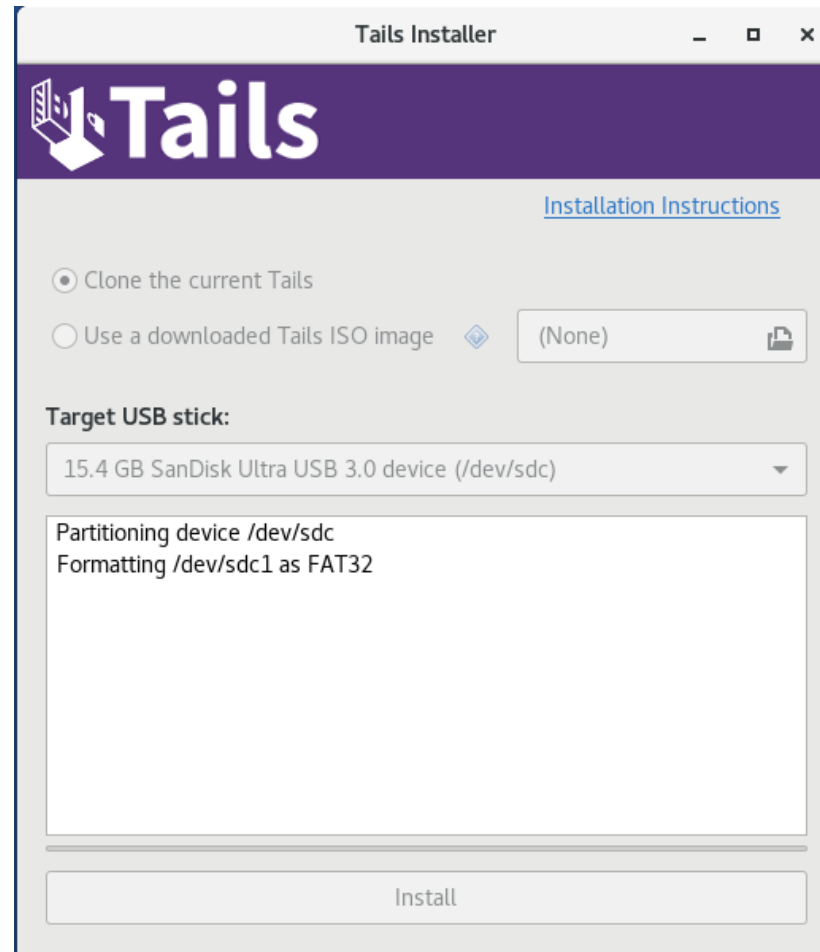
Use TAILS Installer to Clone to 2nd FAT32 USB of same size / make



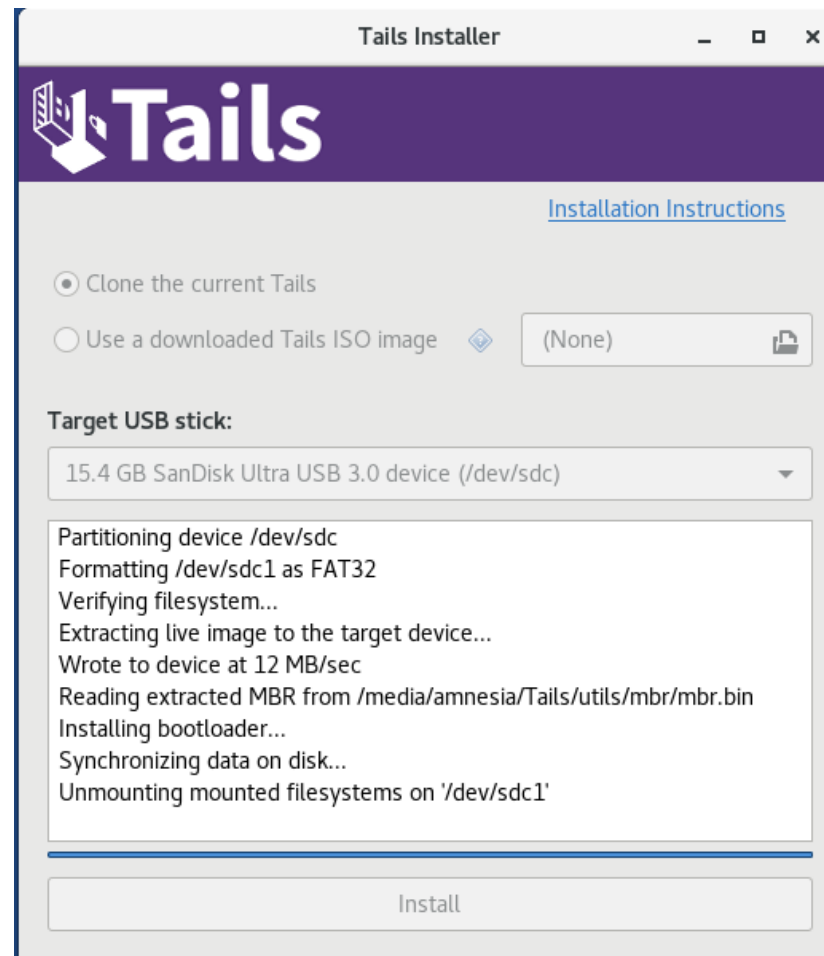
Use TAILS Installer to Clone to 2nd FAT32 USB of same size / make



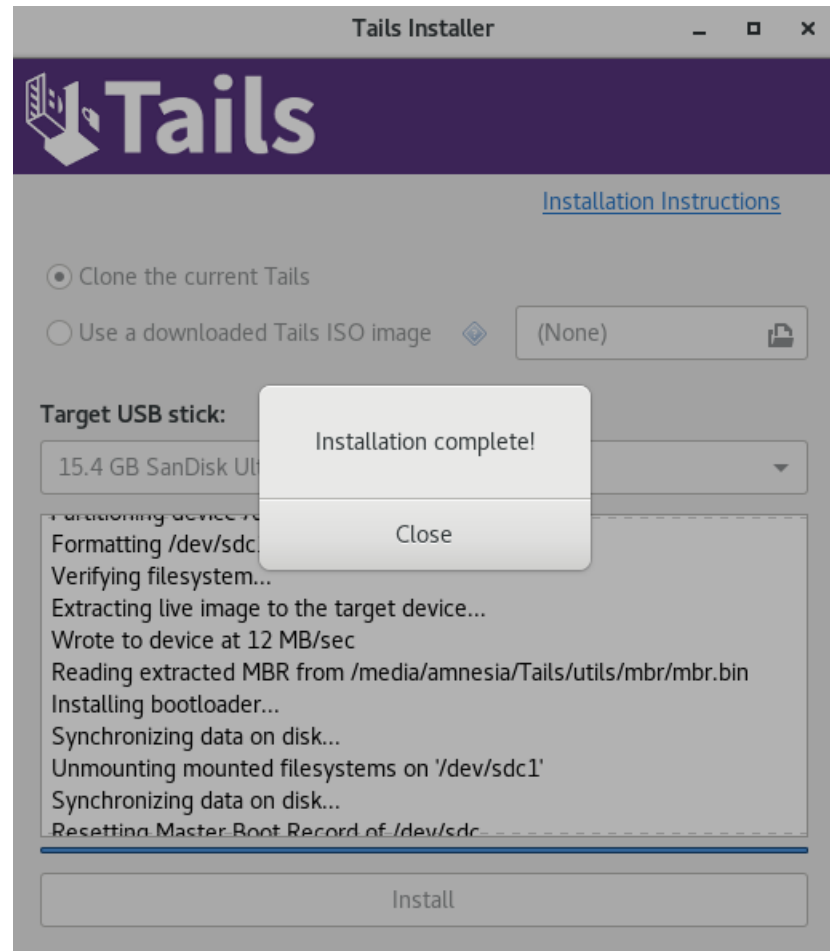
Use TAILS Installer to Clone to 2nd FAT32 USB of same size / make



Use TAILS Installer to Clone to 2nd FAT32 USB of same size / make



Use TAILS Installer to Clone to 2nd FAT32 USB of same size / make



Remove Intermediate TAILS & boot
the"real" Cloned TAILS USB

Create a Persistent Encrypted partition on the TAILS USB

Setup Tails persistent volume

Persistence wizard - Persistent volume creation


Beware! Using persistence has consequences that must be well understood. Tails can't help you if you use it wrong! See [Tails documentation about persistence](#) to learn more.

Choose a passphrase to protect the persistent volume

A 6.32GiB persistent volume will be created on the **SanDisk Ultra USB 3.0** device. Data on this volume will be stored in an encrypted form protected by a passphrase.

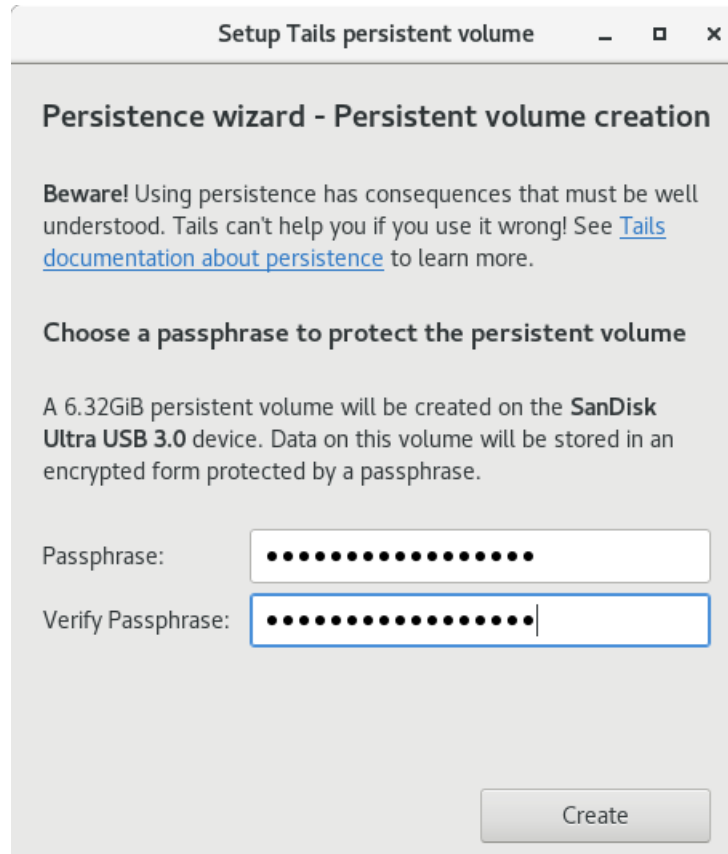
Passphrase:

Verify Passphrase:

 *Passphrase can't be empty*

Create

Create a Persistent Encrypted partition on the TAILS USB



Setup Tails persistent volume

Persistence wizard - Persistent volume creation

Beware! Using persistence has consequences that must be well understood. Tails can't help you if you use it wrong! See [Tails documentation about persistence](#) to learn more.

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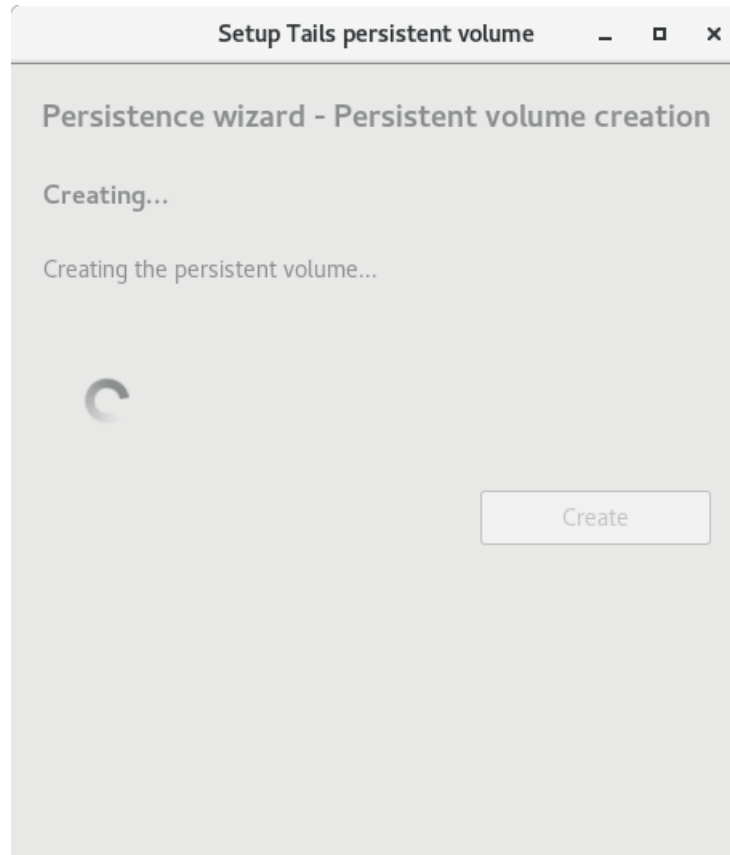
A 6.32GiB persistent volume will be created on the **SanDisk Ultra USB 3.0** device. Data on this volume will be stored in an encrypted form protected by a passphrase.

Passphrase:

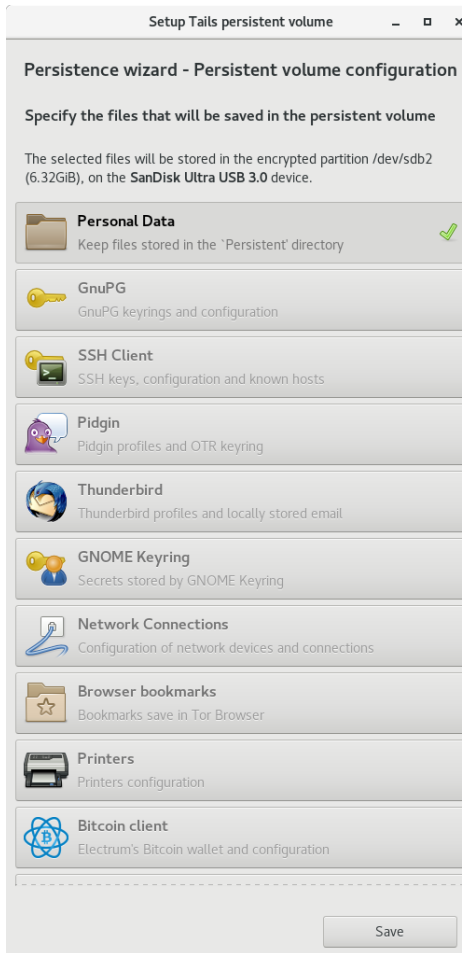
Verify Passphrase:

Create

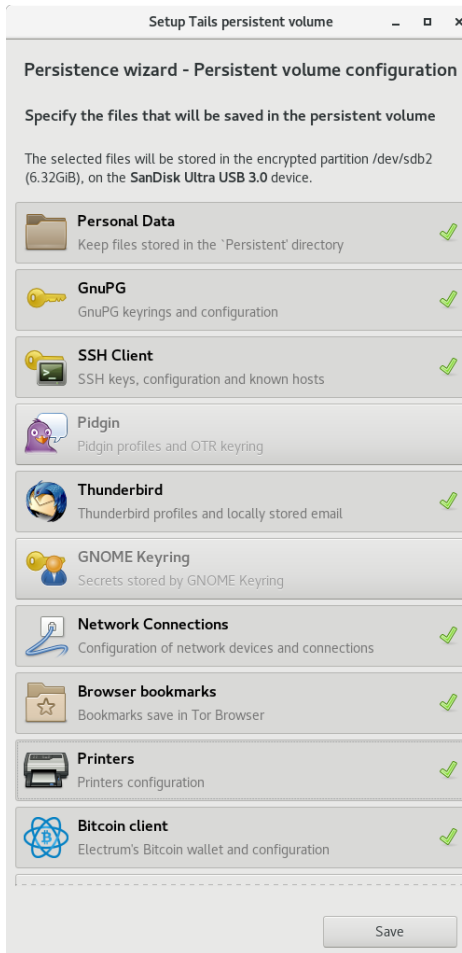
Create a Persistent Encrypted partition on the TAILS USB



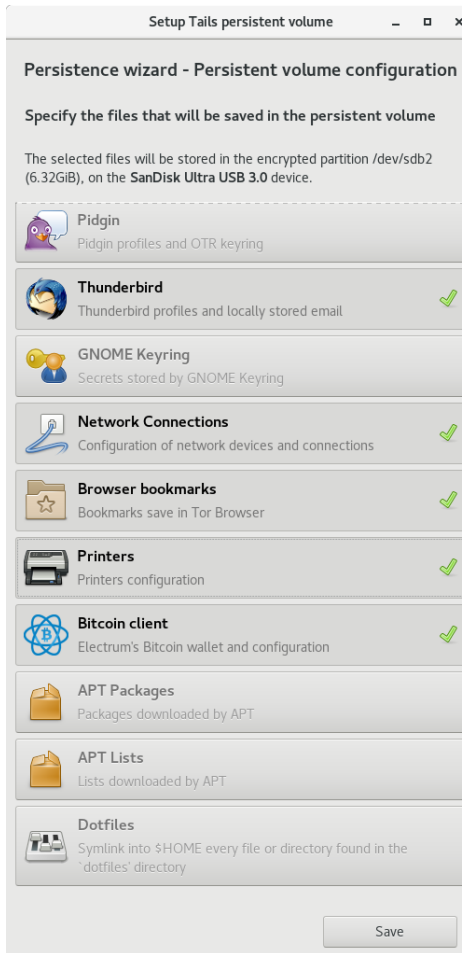
Create a Persistent Encrypted partition on the TAILS USB



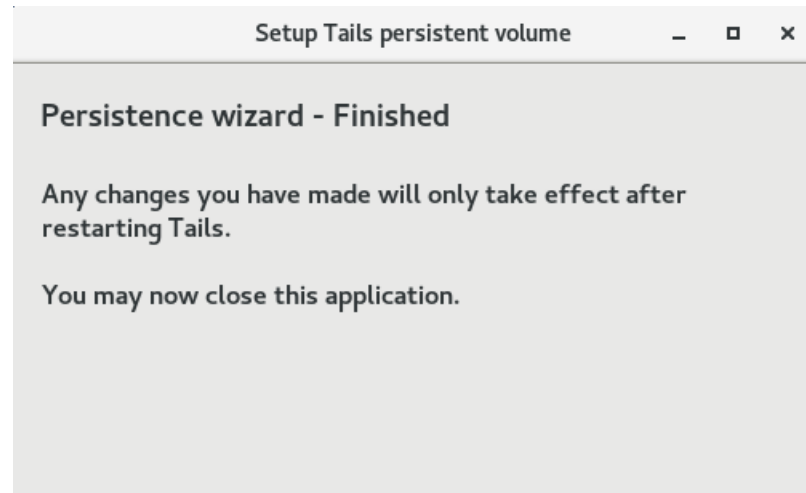
Create a Persistent Encrypted partition on the TAILS USB



Create a Persistent Encrypted partition on the TAILS USB

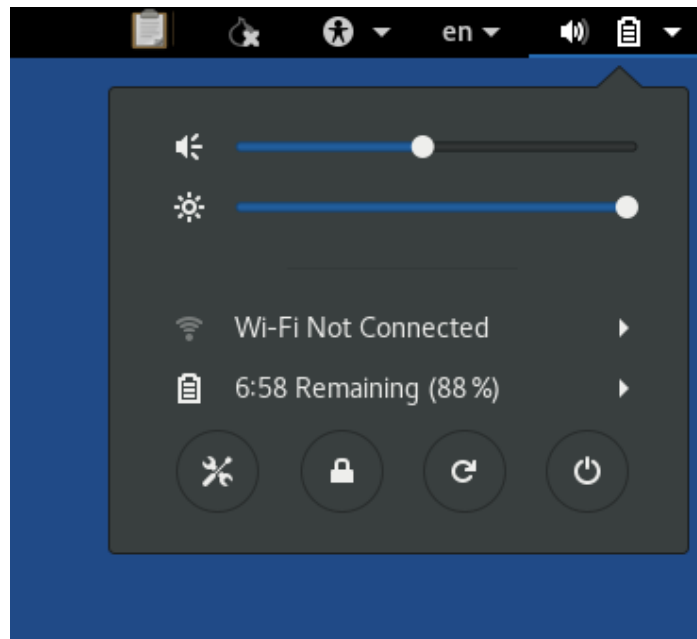


Create a Persistent Encrypted partition on the TAILS USB



Reboot the TAILS USB and set up WiFi & or Ethernet Networking

- https://tails.boum.org/doc/anonymous_internet/networkmanager/index.en.html
- Click top right System Menu



Reboot the TAILS USB with the
Persistent partition & connect to Tor

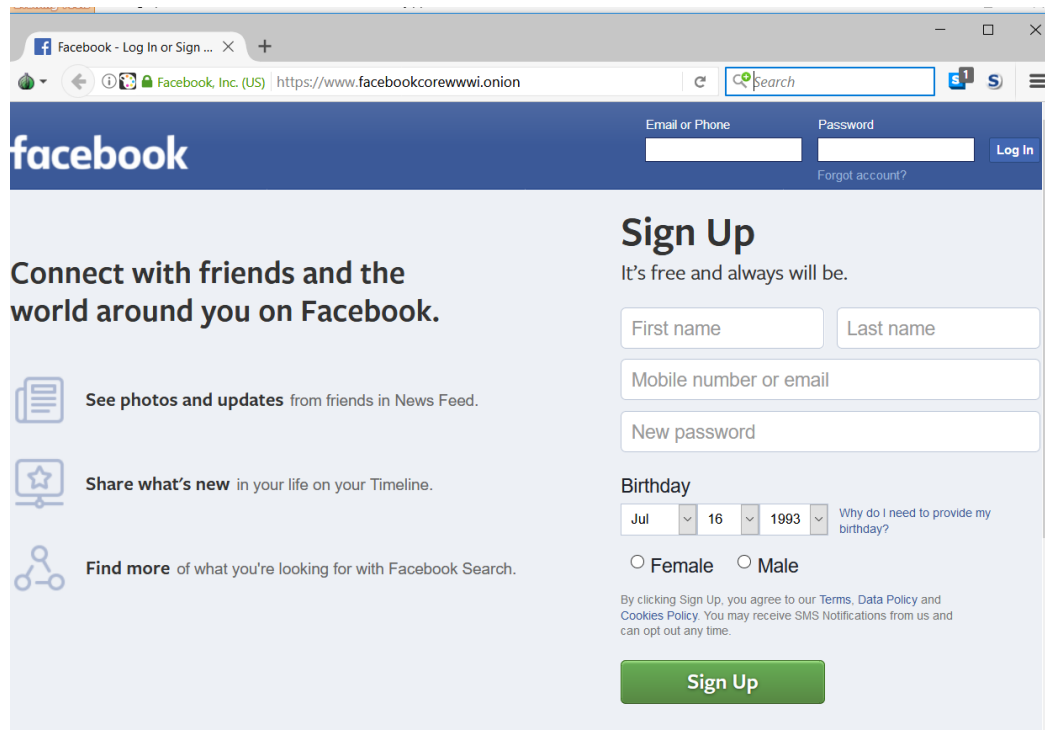
Check your Tor Exit & IP address

Check your Tor Exit & IP address

- Tor Check
- Ping.eu WHOIS
- Onion tool to show connections

Connect to FaceBook .onion

- `https:\\facebookcorewwi.onion`
- Thanks to @AlecMuffett for this censorship resistance and end to end encryption security

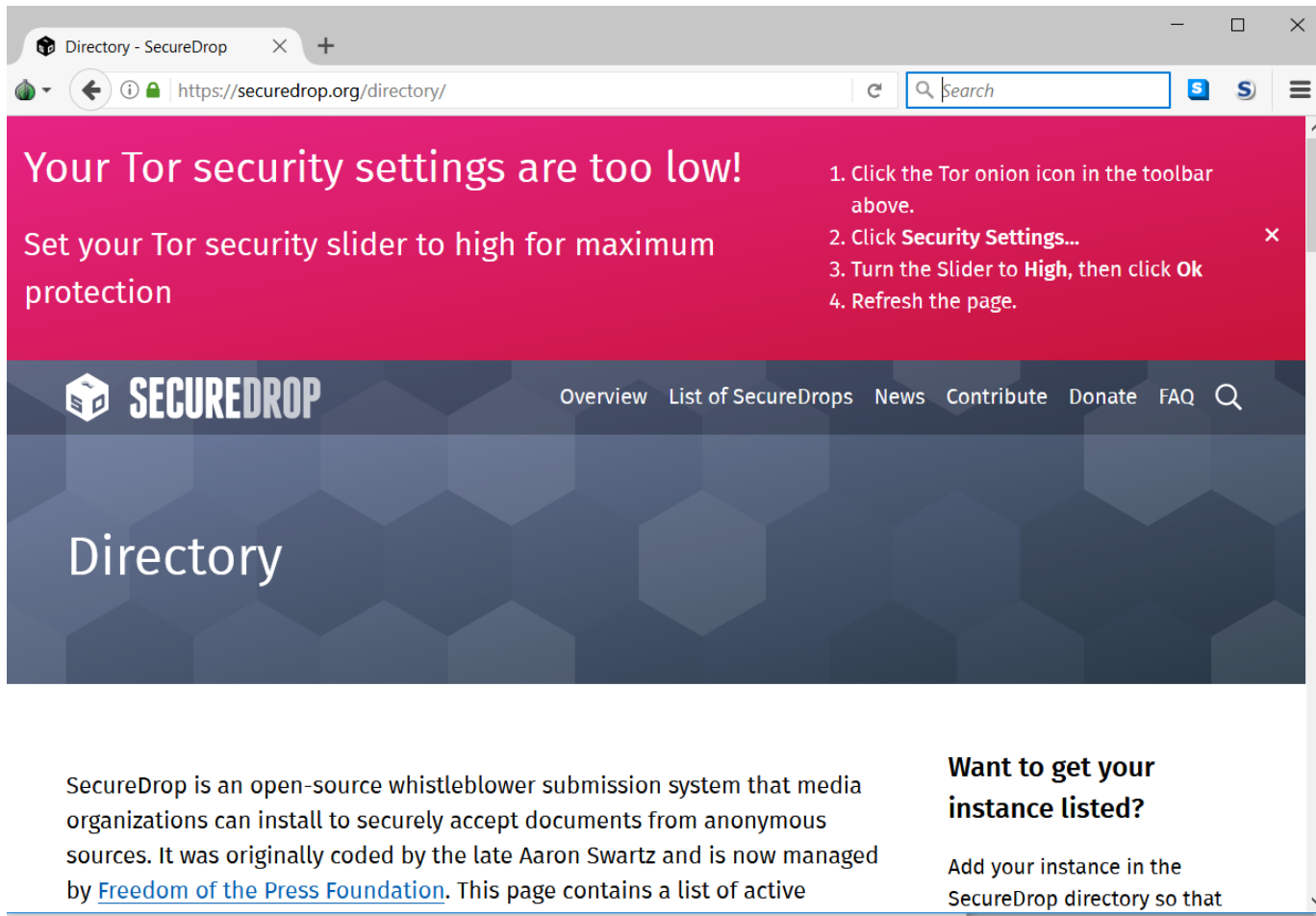


The screenshot shows a web browser window with the address bar displaying `https://www.facebookcorewwi.onion`. The page features the Facebook logo and a navigation bar with input fields for "Email or Phone" and "Password", a "Log In" button, and a link for "Forgot account?". Below the navigation bar, the main content area is divided into two sections. On the left, a section titled "Connect with friends and the world around you on Facebook." includes three icons and their corresponding descriptions: a document icon for "See photos and updates from friends in News Feed.", a star icon for "Share what's new in your life on your Timeline.", and a network icon for "Find more of what you're looking for with Facebook Search.". On the right, a "Sign Up" section is displayed, stating "It's free and always will be." and providing a form with fields for "First name", "Last name", "Mobile number or email", and "New password". Below these fields is a "Birthday" section with dropdown menus for month (Jul), day (16), and year (1993), accompanied by a link "Why do I need to provide my birthday?". At the bottom of the sign-up section are radio buttons for "Female" and "Male". A green "Sign Up" button is located at the bottom of the page. A small disclaimer at the bottom of the sign-up section reads: "By clicking Sign Up, you agree to our Terms, Data Policy and Cookies Policy. You may receive SMS Notifications from us and can opt out any time."

SecureDrop – N.B. Tor level slider

- <https://securedrop.org/directory/>
- Several major newspaper organisations etc. run Tor enabled @SecureDrop anonymous contact / document upload drop boxes
- N.B. the warning about the Tor Security Level Slider

SecureDrop – N.B. Tor level slider



The screenshot shows a web browser window with the address bar displaying 'https://securedrop.org/directory/'. A prominent red banner at the top contains the following text:

Your Tor security settings are too low!

Set your Tor security slider to high for maximum protection

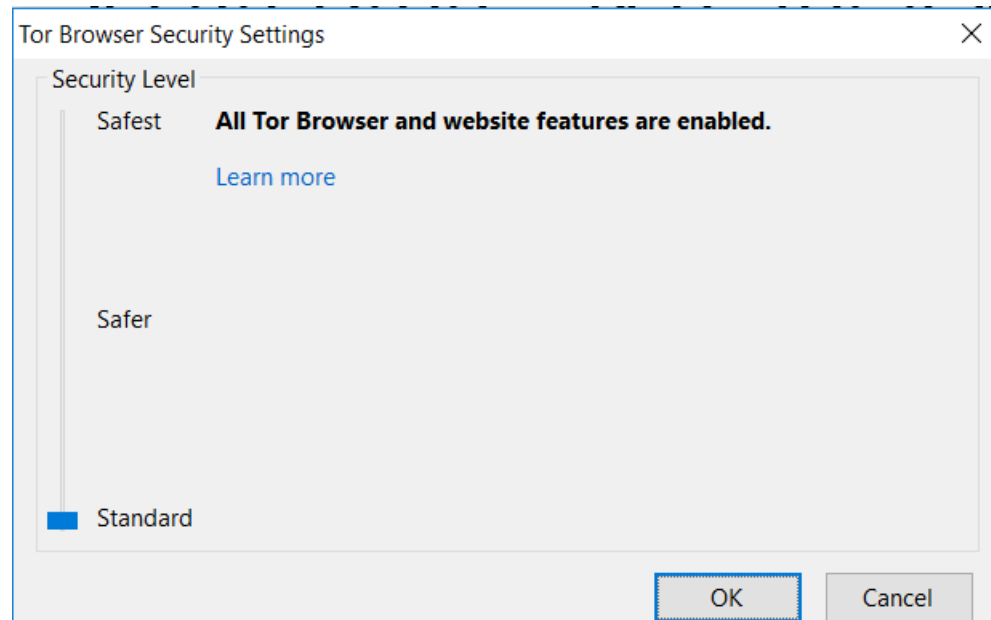
1. Click the Tor onion icon in the toolbar above.
2. Click **Security Settings...**
3. Turn the Slider to **High**, then click **Ok**
4. Refresh the page.

Below the banner, the SecureDrop logo is visible on the left, and a navigation menu on the right includes links for Overview, List of SecureDrops, News, Contribute, Donate, and FAQ, along with a search icon. The word 'Directory' is displayed in large white text on a dark blue hexagonal pattern background.

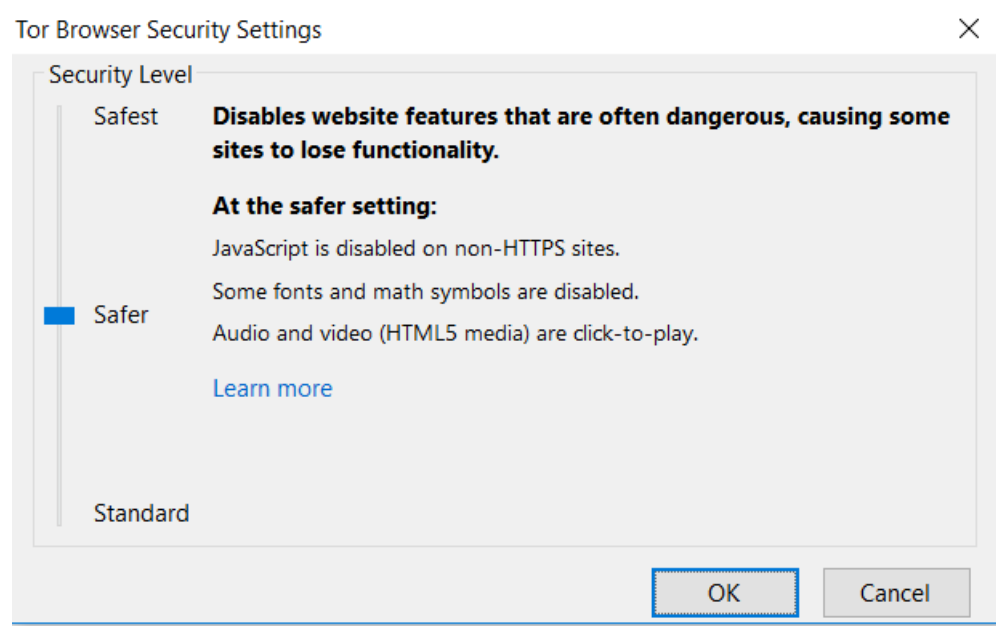
At the bottom, a paragraph states: 'SecureDrop is an open-source whistleblower submission system that media organizations can install to securely accept documents from anonymous sources. It was originally coded by the late Aaron Swartz and is now managed by [Freedom of the Press Foundation](#). This page contains a list of active

To the right of this paragraph, a section titled 'Want to get your instance listed?' includes the text: 'Add your instance in the SecureDrop directory so that

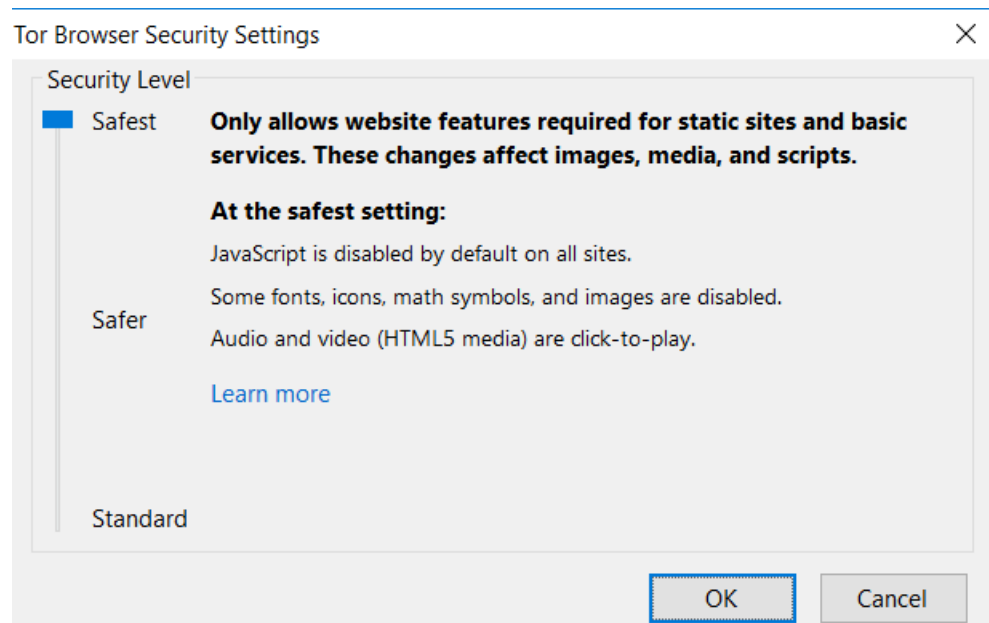
SecureDrop – N.B. Tor level slider



SecureDrop – N.B. Tor level slider



SecureDrop – N.B. Tor level slider



“Dark Web”

- Use the “we don’t log search engine queries, honest” DuckDuckGo default search engine configured in Tor Browser customised Firefox web browser
- e.g. <https://darkwebnews.com/help-advice/access-dark-web/>

“Dark Web”

The screenshot shows a web browser window with the URL <https://darkwebnews.com/help-advice/access-dark-web/>. The website has a dark theme with a black header and a dark grey navigation bar. The header includes the logo "DARKWEBNEWS" and the tagline "The Ultimate Dark Web Resource". The navigation bar lists various categories: ACCESS DARKWEB, DARKNET MARKET LIST, DEEP WEB LINKS, ANONYMITY TOOLS, DEEP WEB, ANONYMITY, BITCOIN, DARKNET MARKETS, HELP & ADVICE, MARKETS COMPARISON, and DICTIONARY. A search bar is also present. Below the navigation bar, there is a yellow box containing the text "Onion Address » darkweba6le5w52w.onion". The main content area features a breadcrumb trail: Home > Help & Advice > How To Access Notorious Dark Web Anonymously (10 Step Guide). The article title is "How To Access Notorious Dark Web Anonymously (10 Step Guide)" by Tarquin, updated on 1 June 2018, with 2314250 views. The article text begins with "Are you trying to find out **how to access the dark web** and what is it?" and "Well, look no further, we have gone and done the". To the right of the article is a "RESOURCES" section titled "Those Must Read Articles" with a list of three items: 1. How To Access The Dark Web, 2. Dark Web Market List, and 3. Dark Web Beginners Security. At the bottom left, there is a social media share button showing 4,192 shares. At the bottom right, there are social media icons for Facebook, Twitter, Google+, and a plus sign for more options.

How To Access Notorious ... X +

https://darkwebnews.com/help-advice/access-dark-web/ Search

DARKWEBNEWS
The Ultimate Dark Web Resource

ACCESS DARKWEB DARKNET MARKET LIST DEEP WEB LINKS ANONYMITY TOOLS

DEEP WEB ANONYMITY BITCOIN DARKNET MARKETS HELP & ADVICE MARKETS COMPARISON DICTIONARY

Onion Address » darkweba6le5w52w.onion

Home > Help & Advice > How To Access Notorious Dark Web Anonymously (10 Step Guide)

How To Access Notorious Dark Web Anonymously (10 Step Guide)

By **Tarquin** - Updated on: 1 June 2018 2314250

Are you trying to find out **how to access the dark web** and what is it?

Well, look no further, we have gone and done the

RESOURCES

Those Must Read Articles

- 1 How To Access The Dark Web
- 2 Dark Web Market List
- 3 Dark Web Beginners Security

4,192 SHARES

f t G+ +

“Dark Web”


Deep Web Links Grand... Tochka Free Market http://silkr...2puhj.onion/ Dream Market Login - ...

tochka3evlj3sxdv.onion/bot-check?redirect=%2Fauth%2Fregister%2F62e4882184c Search

P • int

Anti-Bot Check

Captcha



I am not a robot and not a cop

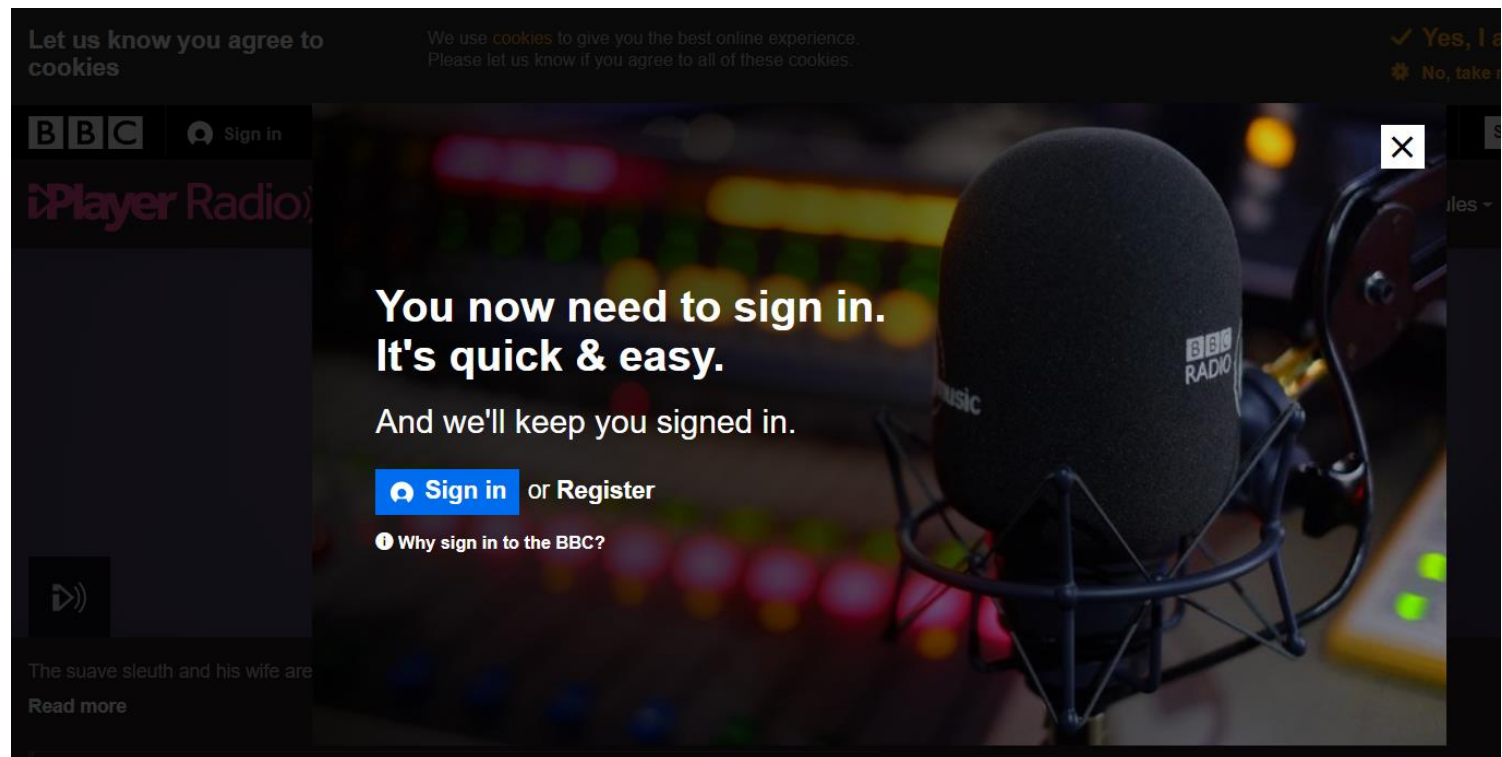
Tochka is [Open-Source Software](#) subject to the MIT License
[Tochka Foundation](#)

BBC Radio streaming without registering a BBC tracking account

- Do you
 - Pay the BBC Licence Fee tax ?
 - Resent having to provide BBC with tracking data about your every use of BBC radio streaming ?
- Then use Tor via TAILS to listen to BBC 4 Extra old comedy or drama radio shows

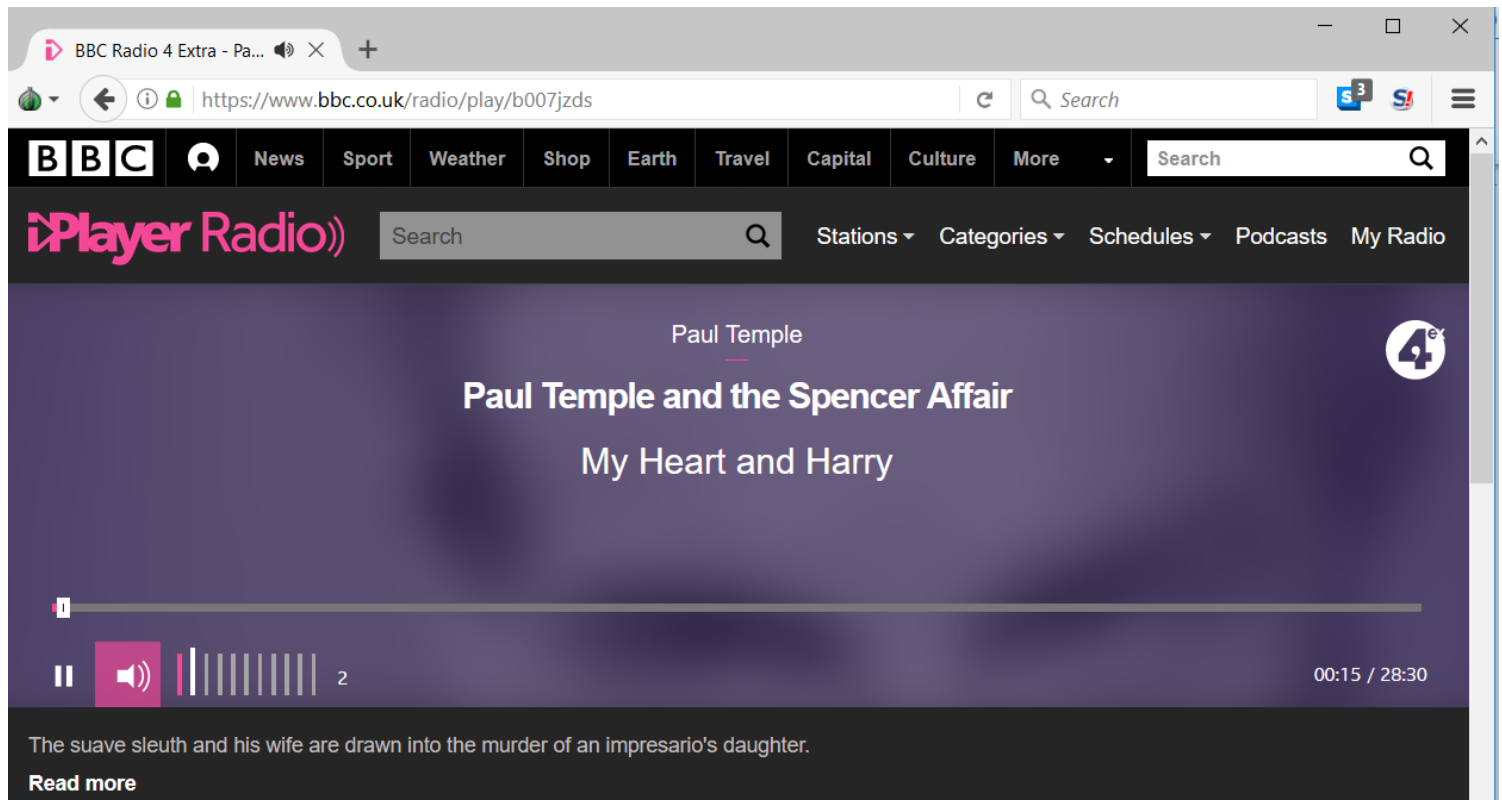
BBC Radio streaming without registering a BBC tracking account

- Without TOR
- <https://www.bbc.co.uk/radio/play/b007jzds>



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Questions ?

Anonymity SwapShop

- Also the regular Anonymity SwapShop - bring along spare social media accounts, SIM Cards, Oyster Cards, burner phones etc. to swap or barter with other people, so as to muddy your data trails.
- See me afterwards