

# State of the Onion

**The Tor Project**  
**LibrePlanet**  
**March 23, 2019**

# What is Tor?

# **A nonprofit organization and community of volunteers around the world**

# Free and open source software for privacy and freedom online

**We believe everyone should  
have private access to the  
open web**

# The Tor Network

- A decentralized network of volunteer run servers around the world
- Before reaching the website you're visiting, your traffic is encrypted three times as it passes through a randomly chosen route through these servers
  - We call the servers “relays”

# The Tor Network

- Over 6,400 relays active

(img from  
@TorAtlas  
on Twitter)



# Tor Browser

- Built from Firefox
- Traffic goes over the Tor network
- Protects you from tracking, surveillance, and censorship
  - If you're in a country or on a network where sites are blocked, Tor can help you access blocked sites



108 **CENSORED** 40

Obscures your Real IP Address



Prevents Network Observation



Prevents Location Determination



Blocks Fingerprinting



Prevents Cross-Site Correlation



Isolates Cookies & Scripts



Writes Nothing to Disk



No Browser History

# Onion Services: Publish & Share with Privacy

- Traffic never leaves the network – no exit relays
  - Meet at “rendezvous points” in the network
  - End to end encrypted even without https
- Can be used for
  - Secure and private communications
  - File sharing
  - Securing IoT devices
  - Configuring websites: .onion sites

# GLOBALLEAKS



**SECUREDROP**



**OnionShare**

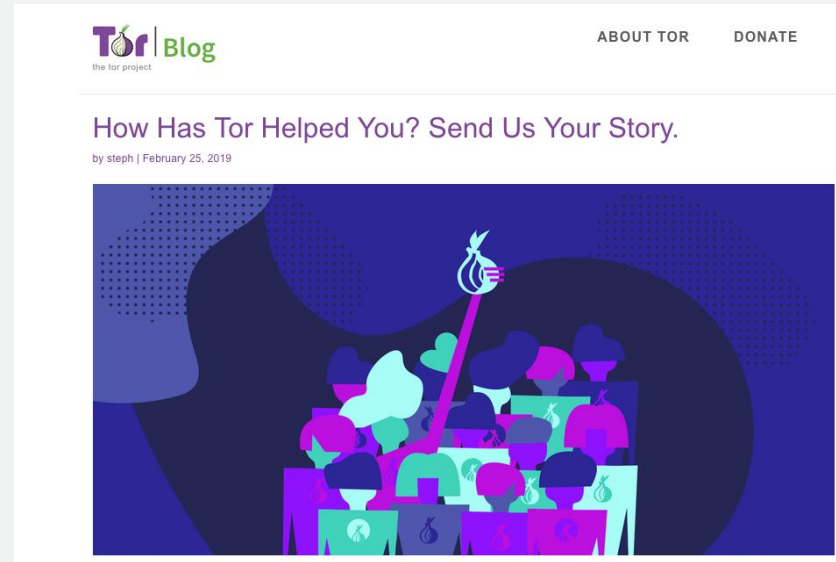
- Whistleblowing platform for reporting corruption
- Secure communication between journalists and sources
- Securely and anonymously share a file of any size

# Onion Services

- Who has .onion sites?
  - The New York Times
  - ProPublica
  - Privacy International
  - Facebook
  - BuzzFeed News
  - All the orgs using SecureDrop and GlobaLeaks

# Campaign: #TorStories

- We've been sharing stories about how Tor is helping people
- We respect our users' privacy by design, so we don't know these stories unless users tell us



**“I am a father of two teenagers.** As teenagers, they, or their friends :-), are bumping into issues regarding sex, drugs and social media issues and bullying. They are pretty open about many issues and so I try to be up to date with research, information and details if anything arises. **I use Tor to do the research to basically avoid telling google (and others) that my children have these issues.**”

It would be unethical of any parent NOT to do so and expose their childrens issues to these corporations. **I also encourage my children to use Tor for their research for the same reasons...**”

- Anonymous Tor User

**“I live in Iran and I have been using Tor for censorship circumvention. During political unrest while the government tightens grip on other censorship circumvention alternatives, Tor with obfuscation plugins remain the only solution.**

**Tor changed my personal life in many ways. It made it possible to access information on YouTube, Twitter, Blogger and countless other sites.**

**I am grateful for the Tor Project, people working on it as well as people running Tor nodes.”**

**- Anonymous Tor User**

I'm a doctor in a very political town. I have patients who work on legislation that can mean billions of dollars to major telecom, social media, and search concerns.

When I have to do research on diseases and treatment or look into aspects of my patients' histories, I am well aware that my search histories might be correlated to patient visits and leak information about their health, families, and personal lives. I use Tor to do much of my research when I think there is a risk of correlating it to patient visits.

- Anonymous Tor User



# What you can do to help

- Stay connected with Tor on social media and our newsletter: [newsletter.torproject.org](https://newsletter.torproject.org)
- Set up an onion site
- Share your Tor story with us
- Make a donation to the Tor Project
- Come visit our booth! We've also got lots of tees and stickers. Ask your questions if we don't get to them now

**Hello World!**  
**I'm the new ED**  
**since November 2018**

# A Mature Tor Project (organization/community)

- Stable income flows from a diverse funding base
- Diverse and robust organization that meets our needs
- Strong organizational culture, focused on employee and volunteer happiness and stability
- Global brand recognition - Tor means strong privacy

**Any person on the planet  
can access the Tor  
network**

- **Anti-Censorship team**
- **OONI team**
- **Tor Browser 8.0 UX improvements**
- **Website redesign**

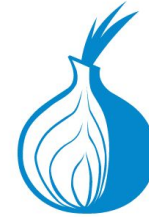
# OONI Tests



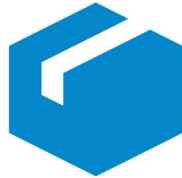
**Web Censorship**



**Instant Messaging  
Apps**



**Censorship  
Circumvention**



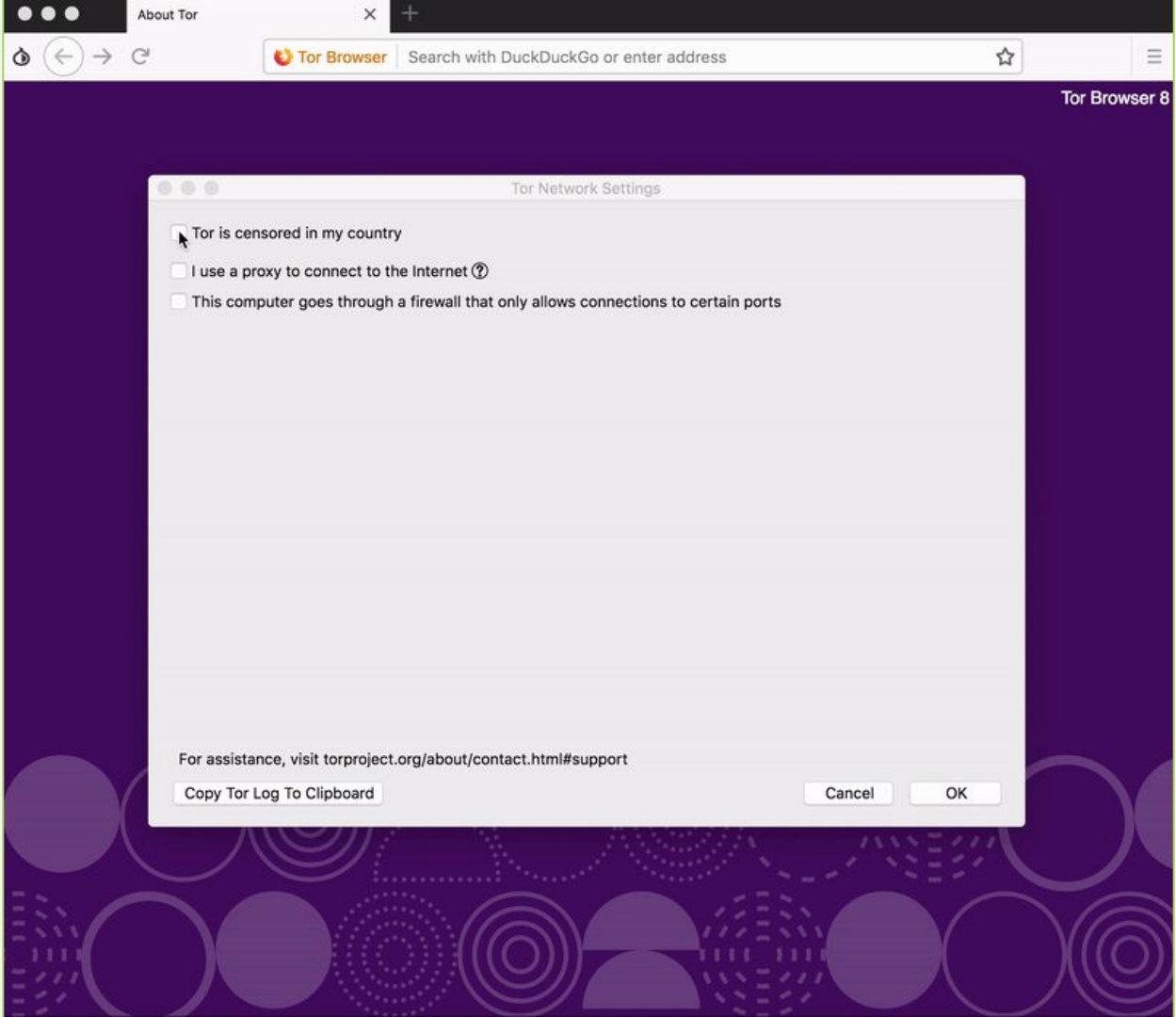
**Middleboxes**



**Speed & Performance**

# OONI TODAY

**34** PUBLISHED RESEARCH REPORTS  
TEAM OF **7** PEOPLE WORKING FULL-TIME  
**200+** COUNTRIES, **4.5K** NETWORKS EVERY MONTH  
**20K+** MONTHLY ACTIVE USERS  
IS A GROWING GLOBAL COMMUNITY  
OF CENSORSHIP MEASUREMENT RESEARCHERS!



Tor Network Settings

- Tor is censored in my country
- I use a proxy to connect to the Internet ?
- This computer goes through a firewall that only allows connections to certain ports

For assistance, visit [torproject.org/about/contact.html#support](https://torproject.org/about/contact.html#support)

Copy Tor Log To Clipboard

Cancel

OK





# Browse Privately. Explore Freely.

Defend yourself against tracking and surveillance. Circumvent censorship.

[Download Tor Browser](#)



## BLOCK TRACKERS

Tor Browser isolates each website you visit so third-party trackers and ads can't follow you. Any cookies automatically clear when you're done browsing. So will your browsing history.

## DEFEND AGAINST SURVEILLANCE

Tor Browser prevents someone watching your connection from knowing what websites you visit. All anyone monitoring your browsing habits can see is that you're using Tor.



## RESIST FINGERPRINTING

Tor aims to make all users look the same making it difficult for you to be fingerprinted based on your browser and device information.

## MULTI-LAYERED ENCRYPTION

Your traffic is relayed and encrypted three times as it passes over the Tor network. The network is comprised of thousands of volunteer-run servers known as Tor relays.



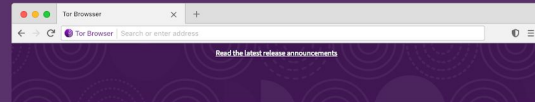
# Defend yourself.

Protect yourself against tracking, surveillance, and censorship.



[Download in another language](#)

[Advanced Install Options](#)



## Get connected

If you are in a country where Tor is blocked, you can configure Tor to connect to a bridge during the setup process. Select "Tor is censored in my country."

If Tor is not censored, one of the most common reasons Tor won't connect to an incorrect system clock. Please make sure it's set correctly. Read other FAQ's at our [Support Portal](#).



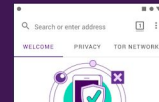
## Stay safe

Please do not torrent over Tor. Tor Browser will block browser plugins such as Flash, RealPlayer, QuickTime, and others: they can be manipulated into revealing your IP address.

We do not recommend installing additional add-ons or plugins into Tor Browser, as these may bypass Tor or compromise your privacy. Tor Browser already comes with HTTPS Everywhere, NoScript, and other patches to protect your privacy and security.

[Check out the tor browser manual for more troubleshooting tips.](#)

[Verify Tor Browser signature here.](#)



**Any person on the planet  
can use the Tor network  
to access any websites  
and services**

# ● Tor Browser 8.0 UX improvements

- **.onion security indicator**
- **New circuit display**
- **Onboarding**
- **TB icon [8.5 release]**
- **Security Settings [8.5 release]**

# ● Website redesign

The screenshot shows a web browser window with the title "Tor Styleguide | The Tor Project". The address bar contains the URL "buq1pzbbcyat2jij.onion". The page header features the Tor Project logo (a green onion) and the text "The Tor Project Styleguide" on the left, and a "Download Tor Browser" button on the right. A left-hand navigation menu lists "About", "Getting Started", "Visuals", and "Components". The main content area is titled "About" and contains the following text:

We are making Tor usable for everyone.

The visual identity of software is an integral part of its user experience. Correctly using a consistent and attractive style is important to the Tor Project **to build user trust in our work**. This guide can help you create materials and answer questions you might have about using the Tor brand.

Conventions

This guide aims to show by doing. The main body of each page contains examples of graphic elements that are (and, in some cases, are not) conformant with the style being described. The column on the left specifies the details of each style and offers guidance on when and how to use it.

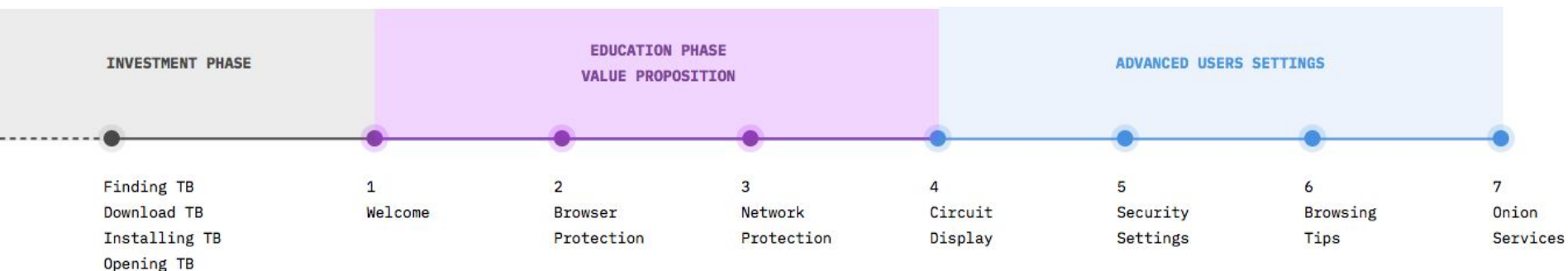
Contact

Please reach out to the UX team if you encounter a situation this guide does not cover. We will work with you to help you find a solution for your design problem, and your feedback will also help us expand and refine the guide to help it better meet the Tor Community's needs. You can also reach out to the UX team for any other styleguide related questions or inquiries.

Tor UX Team  
[ux@lists.torproject.org](mailto:ux@lists.torproject.org)

# about:tor - Onboarding

<https://trac.torproject.org/2569>  
5



About Tor

Tor Browser Search with DuckDuckGo or enter address

Tor Browser 8

New to Tor Browser?  
Let's get started.


# Explore. Privately.

You're ready for the world's most private browsing experience.

Search with DuckDuckGo

Questions? [Check our Tor Browser Manual »](#)

The Tor Project is a US 501(c)(3) non-profit organization advancing human rights and freedoms by creating and deploying free and open source anonymity and privacy technologies, supporting their unrestricted availability and use, and furthering their scientific and popular understanding. [Get Involved »](#)

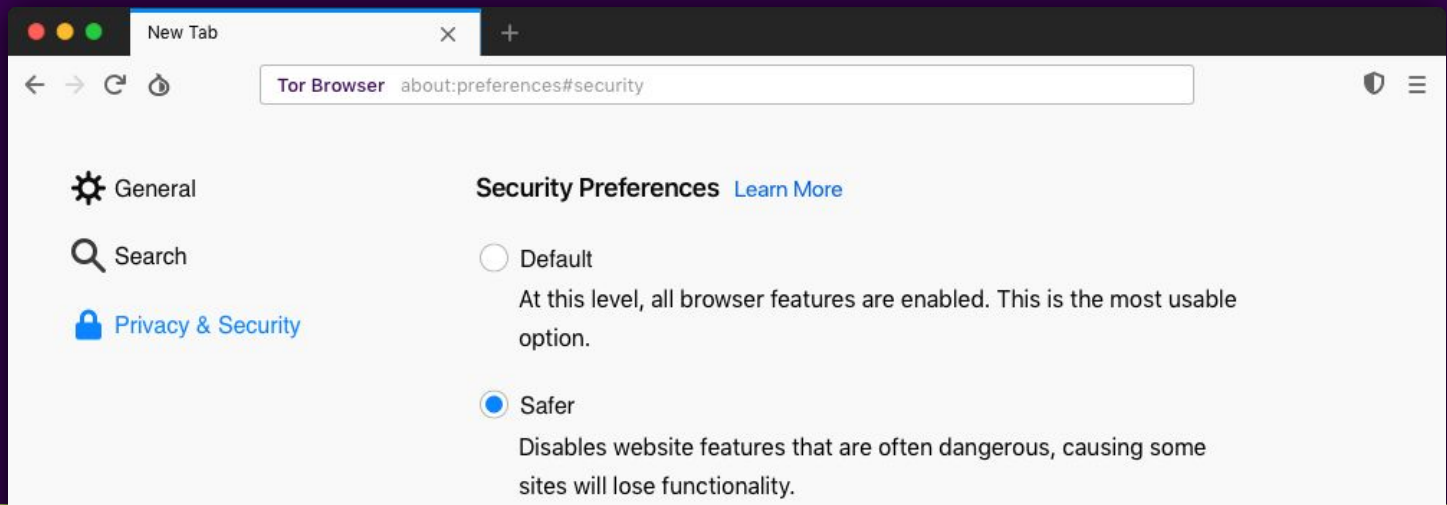
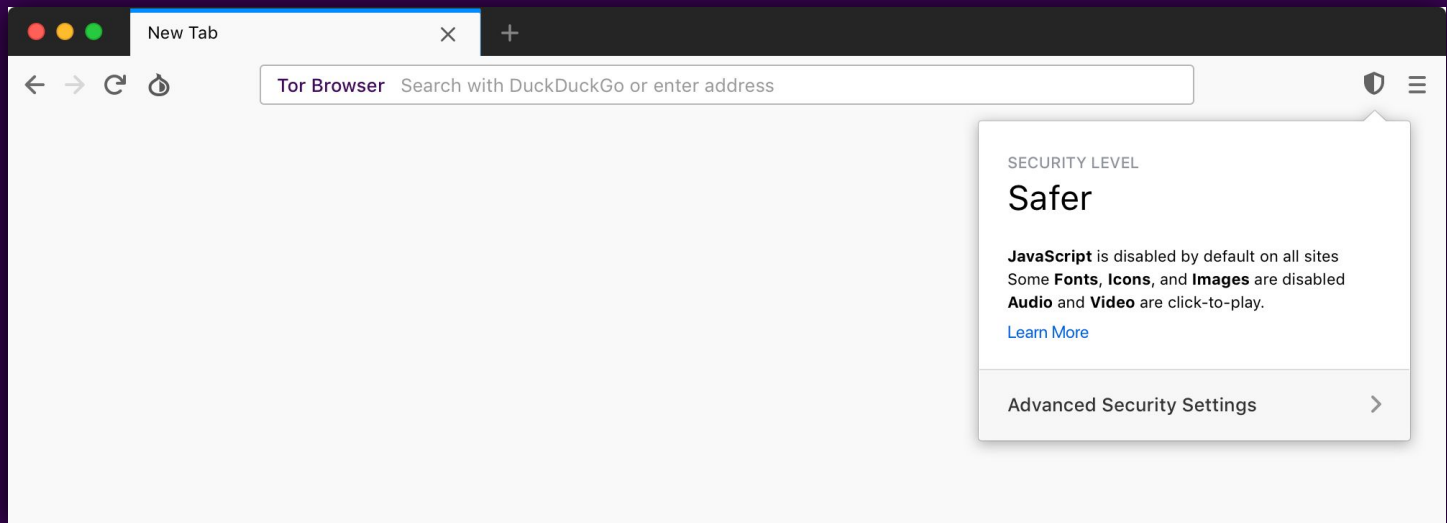


Tor Browser



Tor Browser Android

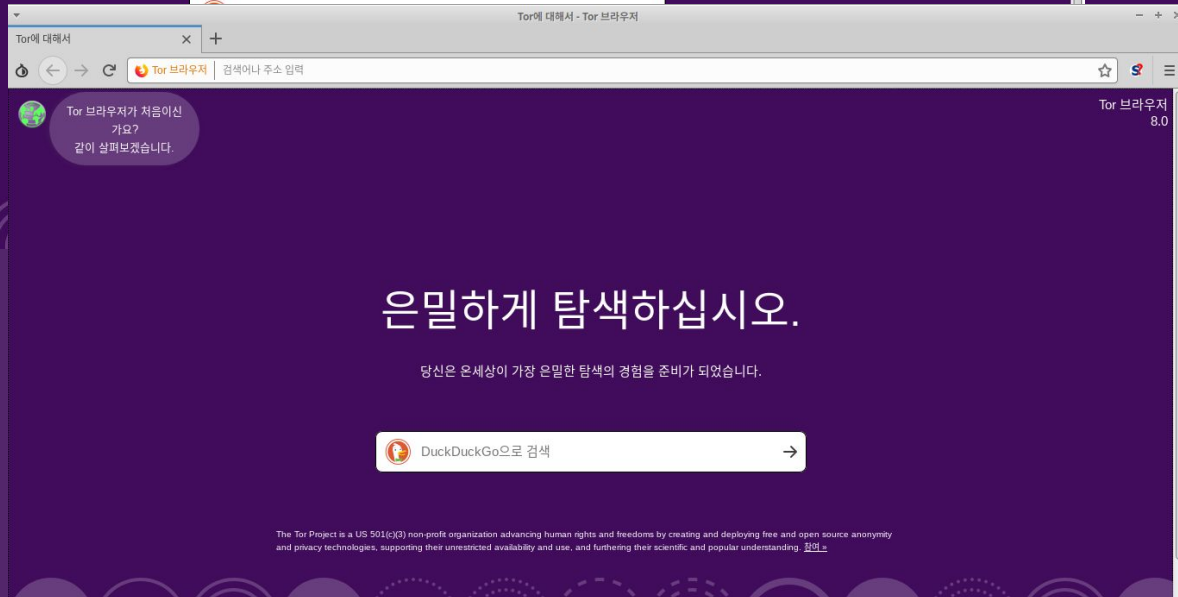
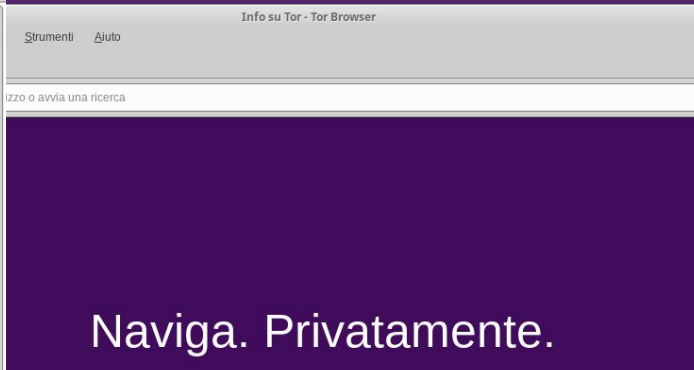
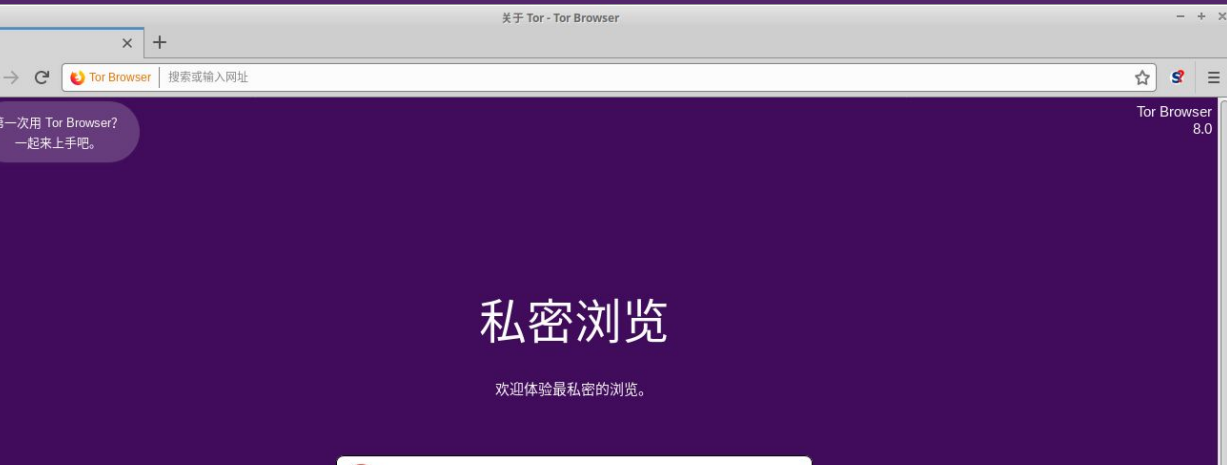






## **+9 languages**


**Catalan, Irish, Indonesian, Icelandic,  
Norwegian, Danish, Hebrew,  
Swedish, and Traditional Chinese.**



**[support.torproject.org](https://support.torproject.org)**

How can we help? | Tor Project | Su. X +

4bflp2c4tnynnbes.onion

 [About](#) [Documentation](#) [Press](#) [Blog](#) [Newsletter](#) [Contact](#) English (En) ▾ [Download Tor Browser](#)

# How can we help?

## Topics

- Most Frequently Asked Questions
- Tor Browser
- Tor Messenger
- Tor Mobile
- GetTor
- Connecting To Tor
- Censorship
- HTTPS
- Operators
- Onion Services
- Misc

## MOST FREQUENTLY ASKED QUESTIONS

When I use Tor Browser, will anyone be able to see the websites I visit?

Our website is blocked by a censor. Can Tor Browser help users access our website?

Should I install a new add-on or extension in Tor Browser, like Adblock Plus or uBlock Origin?

Which platforms is Tor Browser available for?

Can I use a VPN with Tor?

## TOR BROWSER



Wie können wir helfen? | Tor Project

4bf1p2c4tmyrnbes.onion[de]

About Documentation Press Blog Newsletter Contact Deutsch (De) Download Tor Browser

# Wie können wir helfen?

**Topics**

- Am häufigsten gestellte Fragen
- Tor Browser
- Tor Messenger
- Tor Mobile
- GetTor
- Mit Tor verbinden
- Zensur
- HTTPS
- Betreiber
- Onion-Dienste
- Verschiedenes

**AM HÄUFIGSTEN GESTELLTE FRAGEN**

Kann jemand feststellen, welche Webseiten ich besuche, wenn ich Tor Browser verwende?

Tor Browser verhindert, dass andere sehen können, welche Webseiten du besuchst. Einige Organisationen, wie z.B. dein Internetprovider (ISP), sind möglicherweise in der Lage zu erkennen, dass du Tor verwendest. Sie können aber nicht sehen, was du darüber aufgerufen hast.

Permalink

Unsere Website wird blockiert. Kann Tor Browser den Benutzern helfen, die Website trotzdem zu erreichen?

Soll ich neue Add-Ons oder Erweiterungen wie Adblock Plus oder uBlock Origin im Tor Browser installieren?

আমরা কিভাবে সাহায্য করতে পারি? | Tor Project

4bf1p2c4tmyrnbes.onion[bn]

About Documentation Press Blog Newsletter Contact বাংলা ভাষা (Bn) Download Tor Browser

# আমরা কিভাবে সাহায্য করতে পারি?

**Topics**

- প্রায়শই জিজ্ঞাসিত প্রশ্নাবলী
- টর ব্রাউজার
- Tor Messenger
- টর মোবাইল
- GetTor
- টর সংযুক্ত করা হচ্ছে
- সেন্সরশিপ
- HTTPS
- অপারেটর
- ওনিওন সেবা
- বিবিধ

**প্রায়শই জিজ্ঞাসিত প্রশ্নাবলী**

যখন আমি টর ব্রাউজার ব্যবহার করি, তখন কেউ কি বলতে পারবে যে কোন ওয়েবসাইটগুলি আমি ভিজিট করি? ?

আমাদের ওয়েবসাইট একটি সেলুলার দ্বারা অবরুদ্ধ। টর ব্রাউজার কি আমাদের ওয়েবসাইট অ্যাক্সেস করতে ব্যবহারকারীদের সাহায্য করতে পারে? ?

আমার অ্যাডব্লক প্লাস বা ইউব্লক এর মত একটি নতুন অ্যাড অন বা এক্সটেনশন টর ব্রাউজারে ইনস্টল করা উচিত?

কোন প্ল্যাটফরমটি টর ব্রাউজারের জন্য উপলব্ধ?

আমি টর এর সঙ্গে একটি ডিপিএন ব্যবহার করতে পারি?

টর ব্রাউজার



# Coming Next

More portals

- [dev.torproject.org](https://dev.torproject.org)
- [community.torproject.org](https://community.torproject.org)
- UX improvements for onion services
- More UX improvements for Tor Browser experience
- New censorship circumvention options
- and more!

# Network Team

# Network Team

We write the software that makes Tor go!

Current top goals:

- Make Tor more secure
- Make Tor work for everybody
- Let everybody work on Tor



# Network Team

Security improvements since last year:

- Onion service authorization (v3)
- Onion service vanguards

# Network Team

In progress:

- Circuit padding (backend done)
- Proposal for new relay crypto
- Coding in Rust (more later)
- Privcount for safe statistics
- Better bandwidth measurement tool

# Network Team

In the future:

- Even better crypto
- Even better routing choices

# Tor for Everybody

New since last year:

- Dormant mode: use no resources when unused
- NSS support: no OpenSSL required
- Faster startup on mobile

In progress

- Better reporting of censorship failures

In the future:

- "Walking onions" (design only) -- no more directory downloads

# Tor for Developers

New since last year:

- New, rational code layout
- Actual CI
- Embedding API

In progress:

- Beginning work on modularization and refactoring
- Coding in Rust

## Want to join in?

See the doc/HACKING directory in our source code repository for information on getting started.

# Tor on Mobile

# Orbot Evolution

Orfox is now **Tor Browser for Android** AND has Tor built-in

BIG WIN!

Is Orbot no longer needed then? *Of course not!*



# Orbot Evolution

Orbot is moving forward focusing on:

- Allowing any developer & app to integrate with Tor and onion services
- Unblocking, protecting traffic for any app with “VPN Mode” features
- Allowing any Android phone to become a Tor Bridge (Snowflake!)
- Getting on as many Android-powered device as possible (TVs, Chromebooks, cars, IoT)
- Being the smallest, lightweight, most efficient way to get and use Tor

# Supporting Mobile Developers

Tor-Android, TorOnionProxyLibrary and Tor-Android-Services

- Integrate Tor directly into your Android app; No Orbot required!

Android and iOS Pluggable Transports libraries

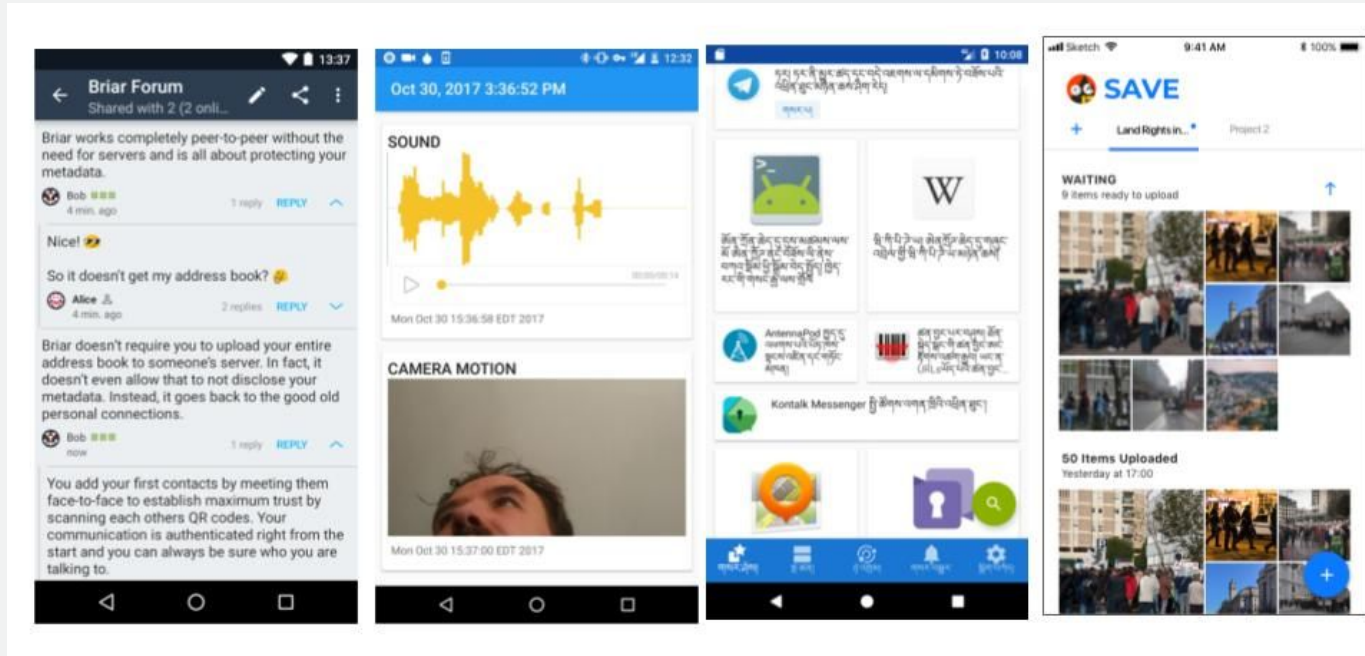
- Integrate Meek, Obfs4 and emerging Pluggable Transports into your Android or iOS app
- Android PT Library and iOS iObfs4 on Github

# Supporting Mobile Developers

Tor.framework on iOS and “Tor.h” in general

- Working with Tor core dev team to make Tor work as an in-process library on mobile apps
- SOLVED: restart Tor when mobile OS kills it in the background
- More improvements coming for reducing memory footprint/overhead
- **Onion Browser 3 and ChatSecure iOS integrate with Tor.framework today**

# Supporting Mobile Developers



Tor-Enabled Apps: BRIAR, HAVEN, F-DROID, OPENARCHIVE

# Guardian Project

<https://gitlab.com/guardianproject>

On Matrix at

[#guardianproject:matrix.org](https://matrix.org/#/guardianproject:matrix.org)

<https://guardianproject.info>

# Community Team

# Helping people who help Tor help people

# Who is the community team?

Alison: team lead, director of Library Freedom Project

Gus: community liaison

Colin: relay advocate

emmapeel: translation coordinator

Maggie: Mozilla Open Web Fellow

Kat: research

Kushal: India outreach

Cybelle: Brazil outreach



# Community outreach

Tons of meetups, talks, and trainings

All over the Global South

- India
- Brazil
- Uganda
- ...and more



# Community outreach

Focusing on all kinds of users, but mostly human rights activists.

Outreach helps inform our UX and other development work.



# Community outreach

In 2018 held our first Tor Meeting in the Global South, in Mexico City.

Dozens of local Tor supporters attended the open hack days.



# Relay advocacy

Supporting the backbone of the Tor network with new resources and a full-time relay advocate.

## Get Help Running Your Relay From Our New Advocate

by phoul | May 24, 2018



# Relay advocacy

Regular in-person meetups in new places.

IRC meetings for those who can't make meetups.

A poster for a Tor Barcelona Meetup. The background is a dark purple night scene with a city skyline and strings of warm white lights. The Tor logo is at the top left. The text is in white and includes the event title, location, date, and times for different activities.

**Tor**

# BARCELONA MEETUP

*[Tor Community Night at PETS]*

Tuesday, July 24 @ 6:30PM  
Operator meetup / Onion workshop @ 7:00PM  
Centre de Cultura Contemporània de Barcelona  
Montalegre, 5, 08001 Barcelona, Spain

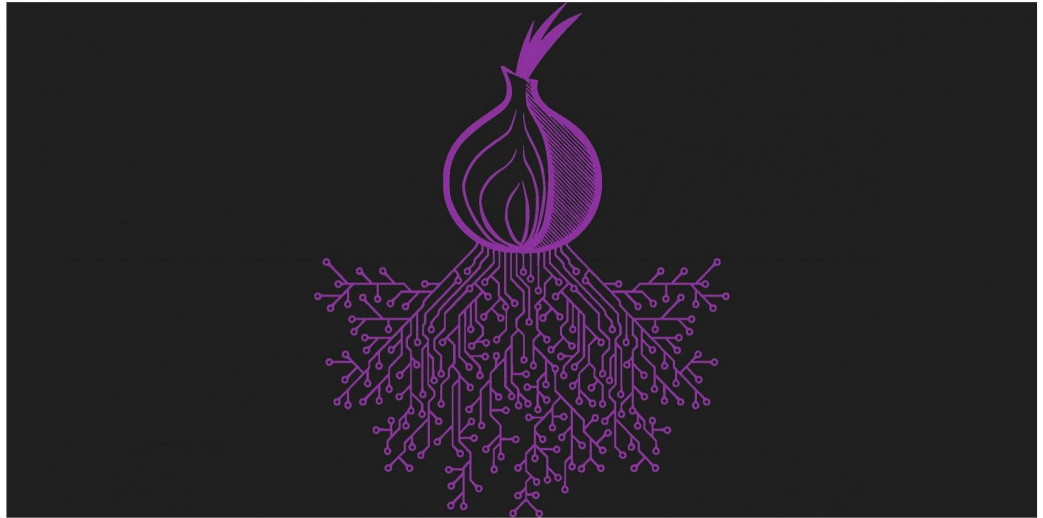
Off-site meetup @ 8:30pm  
Belchica bar, Carrer de Villarroel, 6008011

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by phoul | May 24, 2018





# Library Freedom Project

LFP's newest initiative is Library Freedom Institute - the only intensive privacy and free software training for librarians.



# Library Freedom Project

Toronto Public Library is piloting a program to put Tor Browser on all of their public PCs.

Tor Browser at TPL: Defending Intellectual Freedom, and Winning Awards Doing So

by steph | January 25, 2019





# Coming Next

- [community.torproject.org](https://community.torproject.org) – lots of resources for doing Tor outreach and training
- Library Freedom Institute's second cohort
- More translations
- Community team people at IFF and RightsCon

**tor-community-team@lists.torproject.org**

**alison@torproject.org**

# Time for Questions!

**Come to our booth if we don't get to you!  
We've also got stickers and tees.**