

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



- Whistleblowing platform for reporting corruption

- Secure communication between journalists and sources



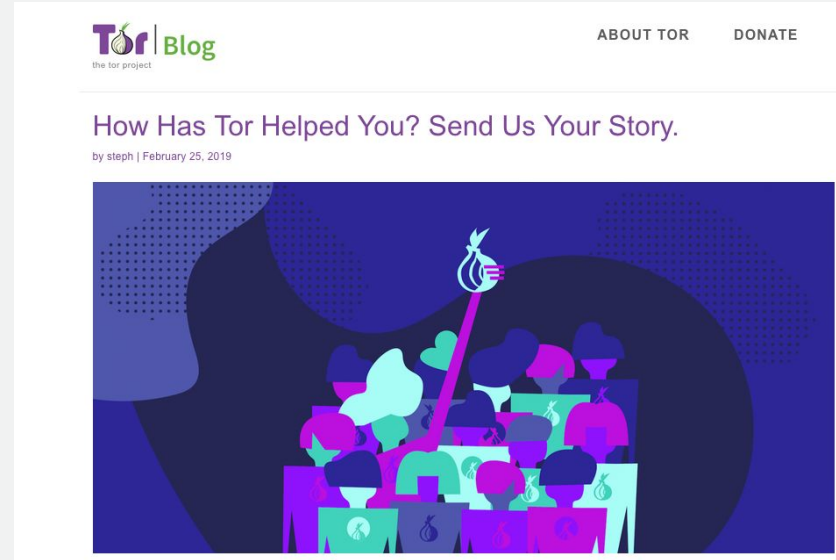
- Securely and anonymously share a file of any size

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
- 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

Full Access (product)

- Any person on the planet can access the Tor network
- Any person on the planet can use the Tor network to access any website or online services
- Ensure the Tor network is diverse, healthy, stable, and scalable

**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



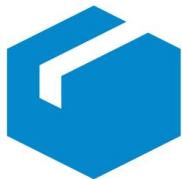
Web Censorship



**Instant Messaging
Apps**



**Censorship
Circumvention**



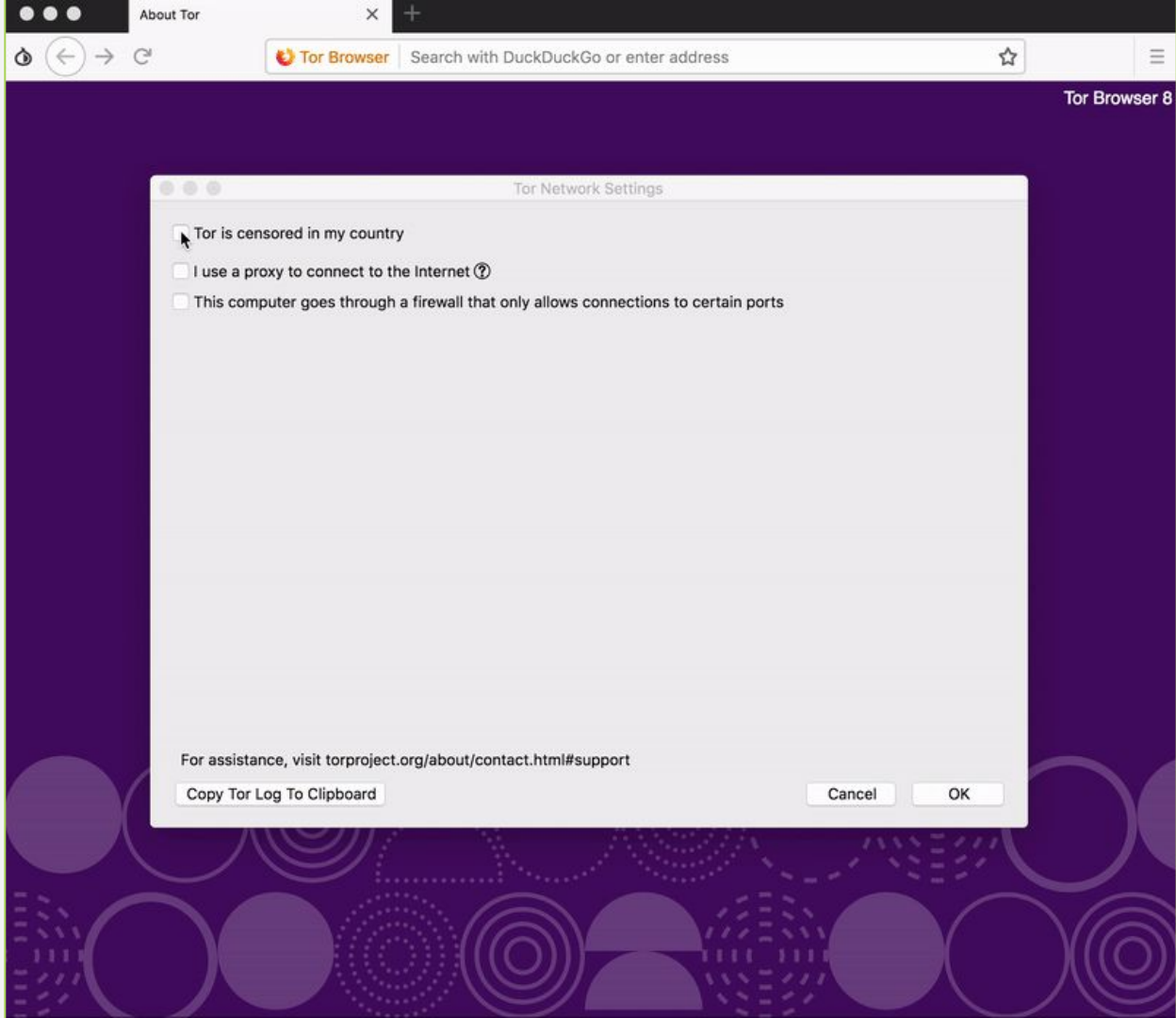
Middleboxes



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!





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English (En)

[Download Tor Browser](#)

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.



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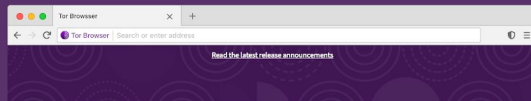
Defend yourself.

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 is an incorrect system clock. Please make sure it's set correctly. Read other FAQs at our [Support Portal](#).



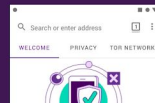
Stay safe

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 \[here\]\(#\).](#)

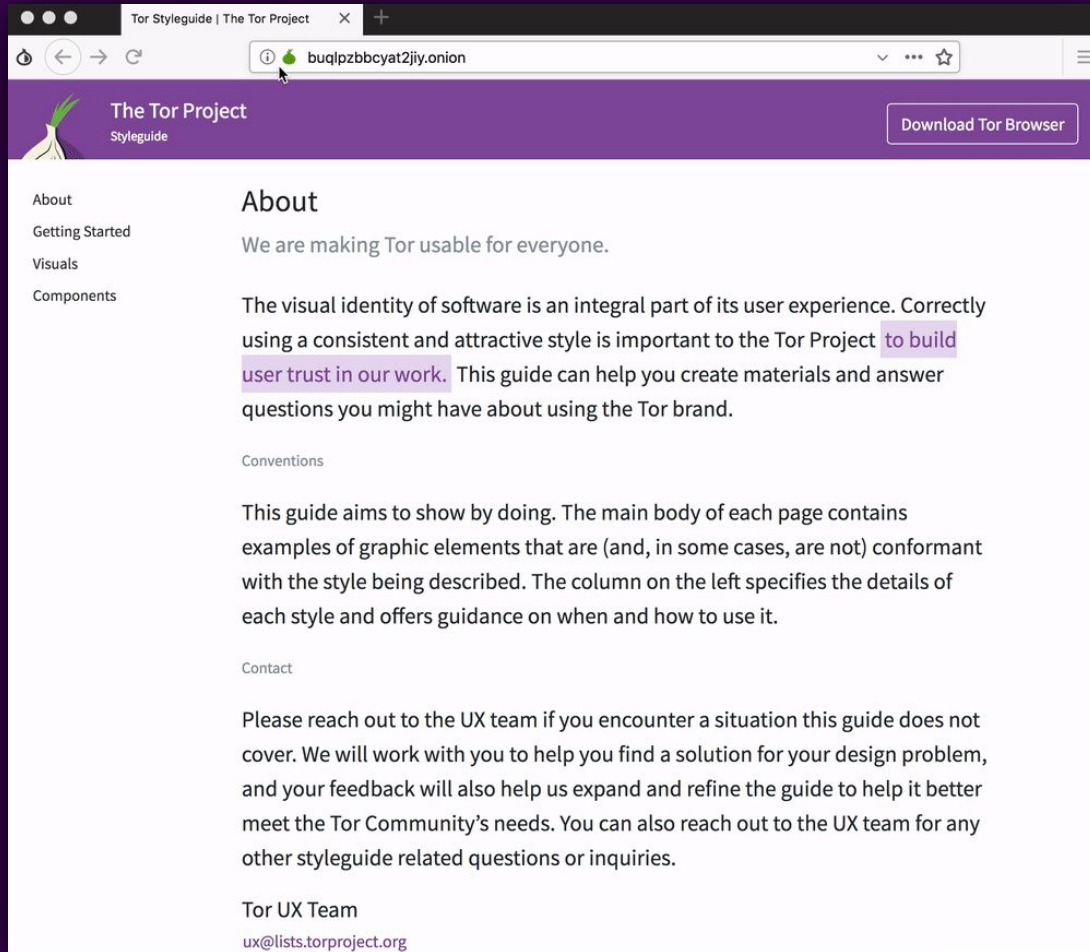


**Any person on the planet
can use the Tor network
to access any websites
and services**

● Tor Browser 8.0 UX improvements

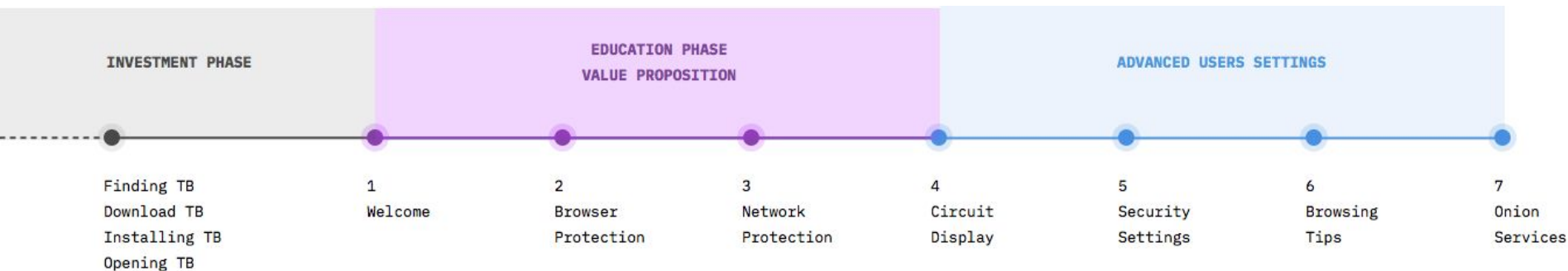
- **.onion security indicator**
- **New circuit display**
- **Onboarding**
- **TB icon [8.5 release]**
- **Security Settings [8.5 release]**

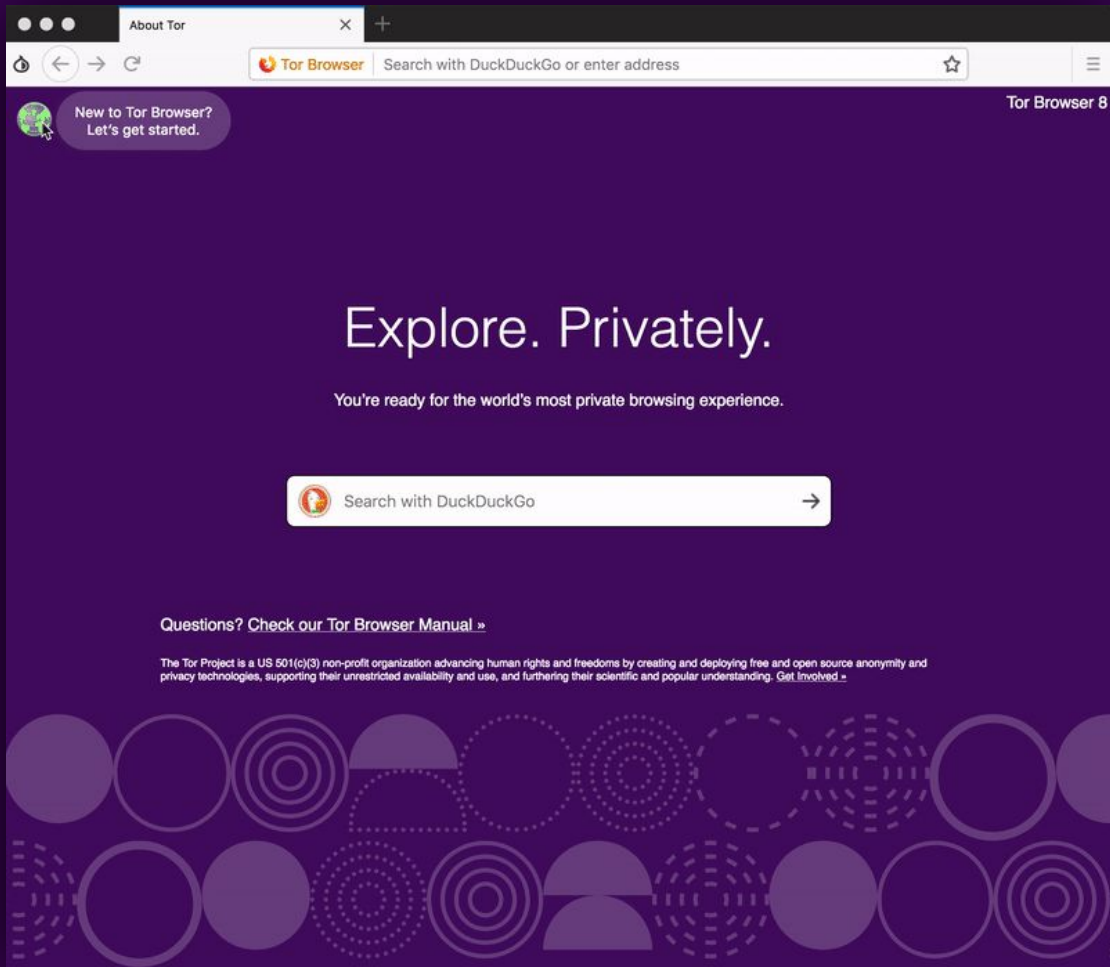
● Website redesign



about:tor - Onboarding

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



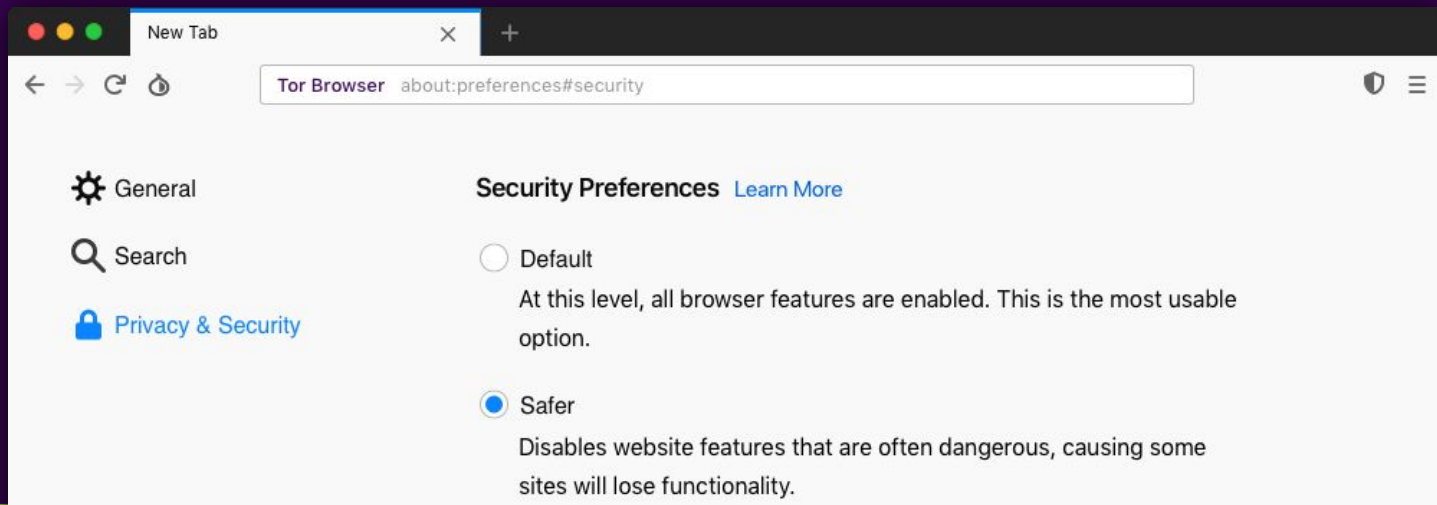
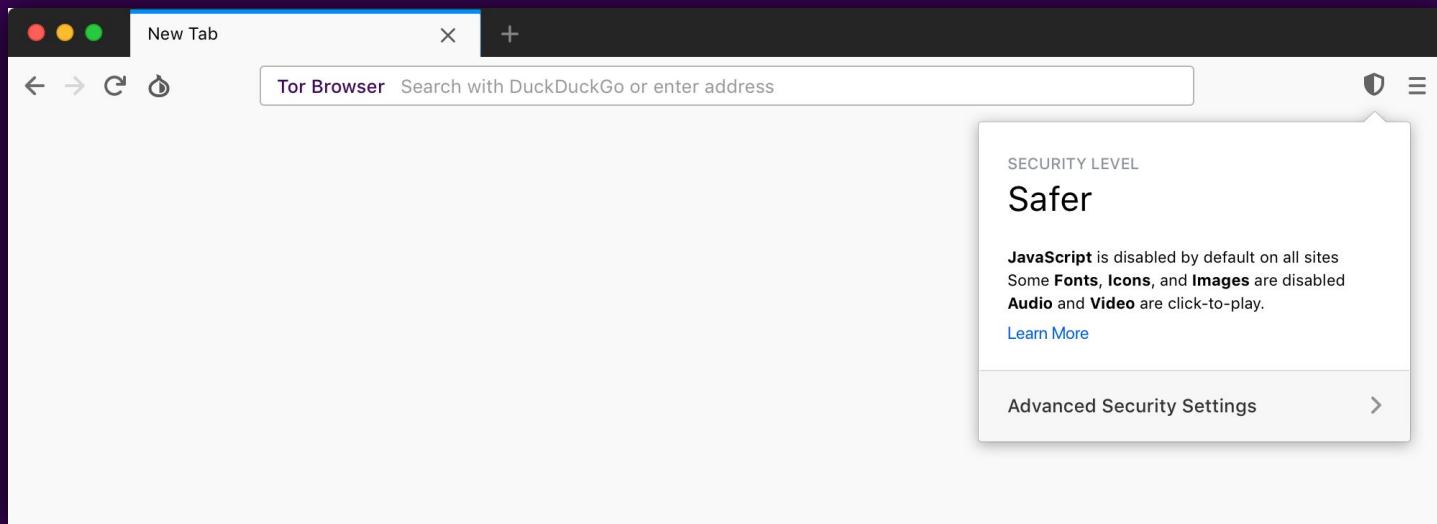


Tor Browser



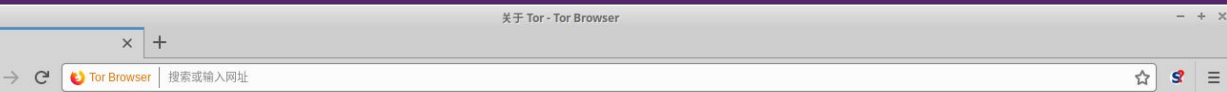
Tor Browser Android





+9 languages

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



第一次用 Tor Browser?
一起来上手吧。

私密浏览

欢迎体验最私密的浏览。

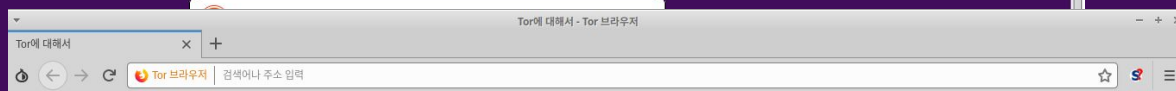
Tor Browser
8.0

Info su Tor - Tor Browser
Strumenti Aiuto

izzo o avvia una ricerca

Naviga. Privatamente.

Sei pronto per l'esperienza di navigazione più privata al mondo.



Tor 브라우저가 처음이신
가요?
같이 살펴보겠습니다.

은밀하게 탐색하십시오.

당신은 온세상이 가장 은밀한 탐색의 경험을 준비가 되었습니다.

DuckDuckGo으로 검색

Tor 브라우저
8.0

Cerca con DuckDuckGo

zione non-profit allo scopo di avanzare i diritti e le libertà umane creando e distribuendo software libero con tecnologie per la
ando la loro disponibilità e utilizzo senza restrizioni e avanzandone la loro comprensione scientifica e popolare. [Unisciti a noi](#)


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. [Learn more](#)



support.torproject.org

How can we help? | Tor Project | Su

4bflp2c4tnynnbes.onion



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Italiano (it)
Português (pt-BR)
Türkçe (tr)

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

4bf1p2c4tynnnbes.onion/de/



About Documentation Press Blog Newsletter ContactDeutsch (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

4bf1p2c4tynnnbes.onion/bn/



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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 সেন্সর 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 প্ল্যাটফর্মটি টর ব্রাউজারের জন্য উপলব্ধ?

আমি টর এর সঙ্গে একটি ডিপিএন ব্যবহার করতে পারি?

টর ব্রাউজার



Coming Next

More portals

- dev.torproject.org
- 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

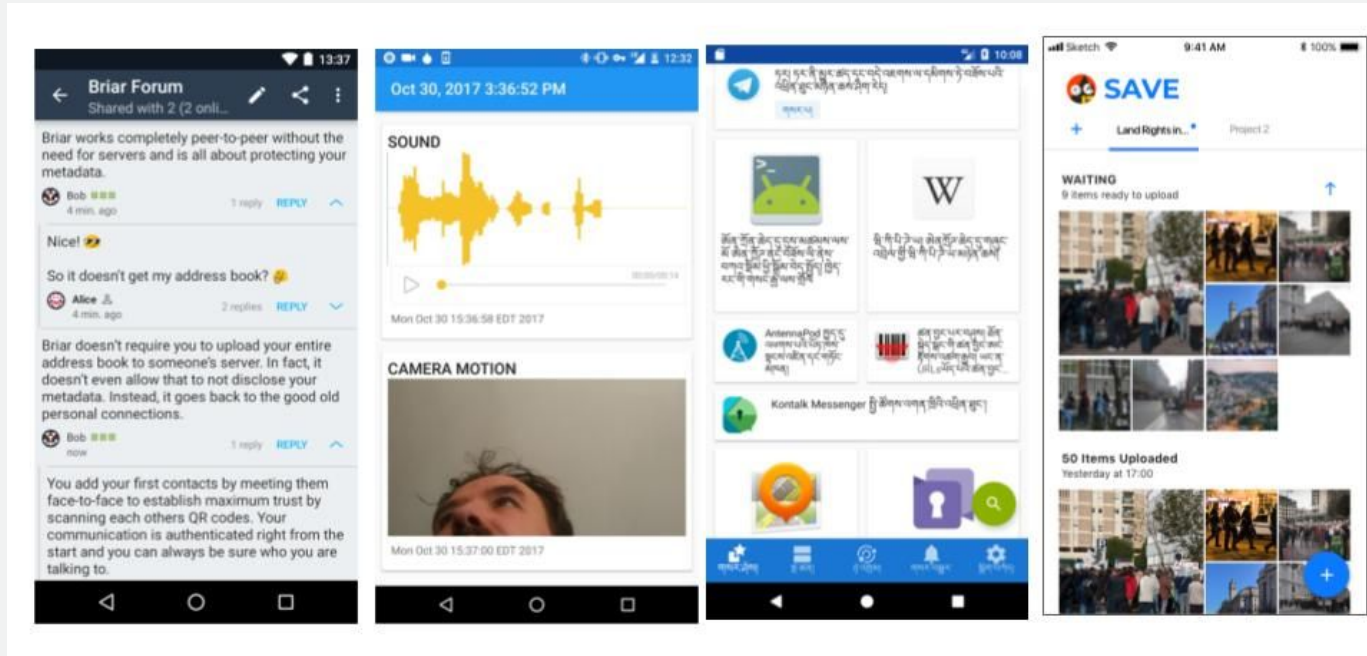
- Integrate Meek, Obfs4 and emerging Pluggable Transports into your Android or iOS app
- Android PT Library and iOS iObfs4 on Github

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)

<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.

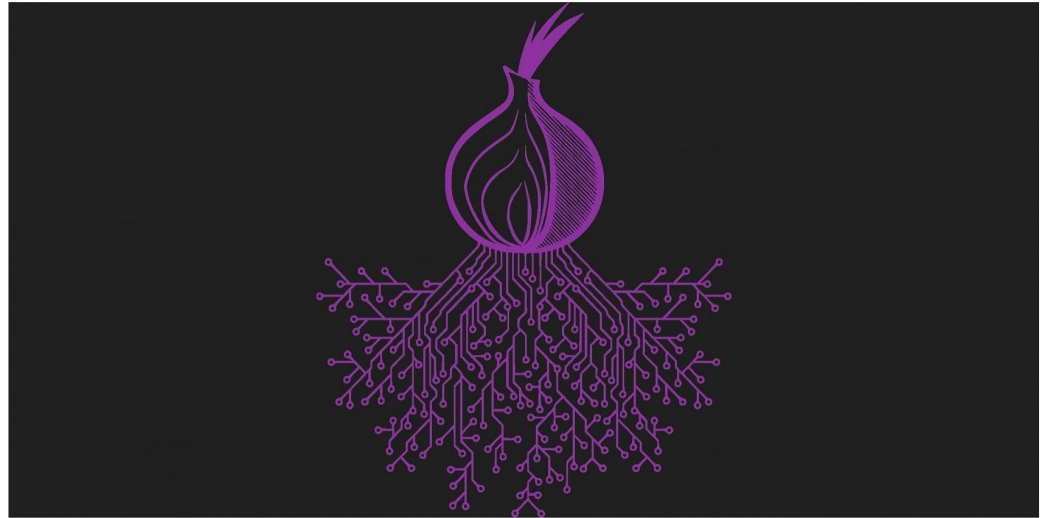


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Library Freedom Project

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 – 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.**