

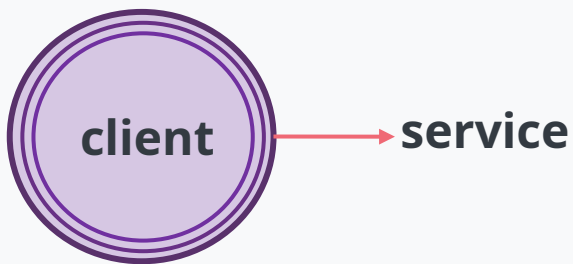
Updates from the Onion Space

State of the Onion 2024

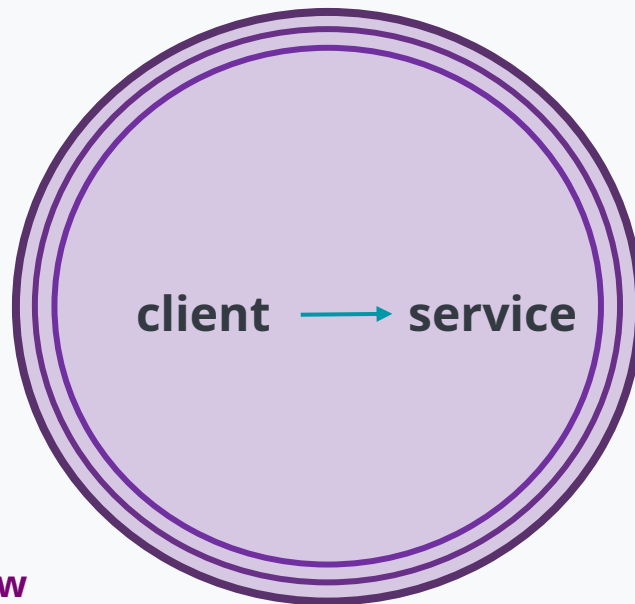


Onion Services intro

Just Tor



.onion services






community.torproject.org/onion-services/overview

Onion Service benefits


- For **users**: additional **privacy safeguards**, such as **improved anonymity** and **end-to-end encryption**.
- For **service operators**: also brings **censorship resistance** and built-in **protections against denial of service (DoS)**.
- For the **Tor network**: **alleviates the load on exit nodes**, since its connections don't need to reach the exits.
- More benefits at <https://onionservices.torproject.org/technology/properties/>

Onion Services Ecosystem

 The Onion Services Ecosystem   Search


The Onion Services Ecosystem

This [Onion Services](#) Ecosystem Documentation aggregates content from many projects into a single searchable website for the wider Tor community.

 **Technology**


Discover the Onion Services technology.

[→ Technology docs](#)

 **Applications**


Check the documentation for existing Onion Service applications.

[→ Application docs](#)

 **Development**

Specific development docs are intended to be available in the upcoming [Tor Developer Portal](#). While this not happens, a temporary location for dev docs is available here.

[→ Developer docs](#)

 **Research**

Onion Services research is documented at the Onion Plan.

[→ Research docs](#)

Celebrating 20 years of Onion Services
technology with improved documentation!

onionservices.torproject.org

Onionspray: onion site manager

A **proxy** that adds Onion Service support to **existing** websites.

onionservices.torproject.org/apps/web/onionspray



Onionspray features

- Self-contained software with everything needed to configure an onionsite.
- No need to adapt existing setups: **Onionspray** can be installed in a separate environment, and no changes are usually needed in the website.
- Details at <https://onionservices.torproject.org/apps/web/onionspray>

Onion Service implementations

Feature matrix

Onion Service servers

Feature	Specification	Status on C Tor	Status on Arti	Config on C Tor	Config on Arti
Load balancing	Unspecified ⁴	✓ Implemented	Partially supported ⁸	<code>HiddenServiceOnionBalanceI nstance; MasterOnionAddress</code>	
Vanguards (lite and full)	vanguards-spec , prop333 , prop292	✓ Implemented	✓ Implemented (1.2.2)	<code>VanguardsLiteEnabled</code> ; full mode with plugin	<code>vanguards</code>
Restricted discovery ⁹	rend-spec	✓ Implemented	✓ Implemented (1.2.7)		<code>restricted_mode</code>
Introduction-point auth ⁶	Draft	✗ Unlikely	✗ Not implemented		
Stealth/hidden auth mode	Unspecified ⁷	✗ Unlikely	✗ Not implemented		
Single Hop Mode	prop260	✓ Implemented	Planned	<code>HiddenServiceSingleHopMode; HiddenServiceNonAnonymousM ode</code>	

onionservices.torproject.org/dev/implementations



Oniongroove prototype

- **Onionspray**: works with the **legacy C Tor**
- **Oniongroove**: will work **both** with **C Tor** and the newer **Arti**
- onionservices.torproject.org/apps/web/oniongroove



Onion Services and certificates

- Certificates: used to authenticate and validate connections.
- Not a strict requirement for Onion Services, but brings additional features.
- Automating Onion Service certificate issuance: acmeforonions.org
- Existing certificate proposals for Onion Services:
onionservices.torproject.org/research/proposals/usability/certificates/

Upcoming: Onion Discovery research

- Typical .onion address:
2gzyxa5ihm7nsggfxnu52rck2vv4rvmdlkiu3zzui5du4xyclen53wid.onion
- What we want: relate a human-friendly name with an .onion address.
- Example: **something** =>
mxeapd5xof3blvnynaqvmusnq3wx6c7mstcl6aph3yiw4fnt5yzqj3ad.onion
- Onion Discovery in detail:
onionservices.torproject.org/research/proposals/usability/discovery/

Recap

1. Onion Services: a shield for your communication!
2. New docs at onionservices.torproject.org
3. Running *onionsites*: **Onionspray** and **Oniongroove**
4. Certificates improvements for Onion Services
5. Onion Discovery research



Thank you!

forum.torproject.org/c/support/onion-services

