

The Onion Unpeeled: User Perceptions vs. Realities of Tor's Security and Privacy Properties

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Survey Topics

- **Motivations** and reasons for using Tor
- **Usage patterns:** frequency of use, devices used
- **Understanding of Tor's security,** comparisons to VPNs and private browsing modes
- **General security** questions
 - **Demographics**

Background

Tor is used by millions of daily users.



Tor enables anonymous communication by relaying traffic through a series of volunteer-operated "relays" or proxies.

Tor protects users' anonymity, but its security and privacy properties are *nuanced*.

This project aims to understand how users' **perceptions** of Tor's security and privacy match (or don't match) the realities of what Tor provides.

Research Questions

RQ1: What are the differences between Tor users' perceptions of its privacy features and its actual privacy capabilities?

RQ2: How do users' expectations of Tor's censorship resistance compare to its actual functionalities?

RQ3: How do misconceptions about Tor's functionality affect user behavior and trust in the network?

Methodology

Our plan is to conduct an online survey of Tor users, hosted on an onion service.

Types of questions

Combination of multiple choice, Likert scale, and open questions to assess users' perceptions of how Tor works and what protections it offers

Recruitment

Ads on **r/Tor** subreddit and Prolific



Anticipated Contributions

Reveal Gaps: identify discrepancies between perceptions and capabilities

Clarify Realities: offer more accurate understanding of how Tor functions

Improve Tor: recommend enhancements for user education