Internet Monitoring Action Project

# iMAP India 2023 Internet Censorship Report

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## About iMAP

The Internet Monitoring Action Project (iMAP) aims to establish regional and in-country networks that monitor network interference and restrictions to the freedom of expression online in 10 countries: Myanmar, Cambodia, Hong Kong, India, Indonesia, Malaysia, Philippines, Thailand, Timor-Leste, and Vietnam. Sinar Project is currently working with national digital rights partners in these 10 countries. The project is done via Open Observatory Network Interference (OONI) detection and reporting systems, and it involves the maintenance of test lists as well as the collection and analysis of measurements.

More information is available at imap.sinarproject.org. Any enquiries and suggestions about this report can be directed to team@sinarproject.org.

## About the Centre for Internet and Society

The Centre for Internet and Society (CIS) is a non-profit organisation that undertakes interdisciplinary research on internet and digital technologies from policy and academic perspectives. The areas of focus include digital accessibility for persons with disabilities, access to knowledge, intellectual property rights, openness (including open data, free and open source software, open standards, open access, open educational resources, and open video), internet governance, telecommunication reform, digital privacy, and cyber-security. The researchers at CIS seek to understand the reconfiguration of social processes and structures through the internet and digital media technologies, and vice versa.

Through its diverse initiatives, CIS explores, intervenes in, and advances contemporary discourse and regulatory practices around the internet, technology, and society in India and elsewhere.

## About Sinar Project

Sinar Project is a civic tech initiative that uses open technology, open data, and policy analysis to systematically make important information public and more accessible to the Malaysian people. It aims to improve governance and encourage greater citizen involvement in the public affairs of the nation by making the Parliament and the Malaysian Government more open, transparent, and accountable. More information is available at https://sinarproject.org.

## How to Use This Report

This report is aimed at researchers, policymakers, and the general population interested in understanding the state of internet censorship in India. We analysed the public data published by the Open Observatory of Network Interference (OONI) to provide evidence of the websites and web services that are being blocked in the country and the method of their blocking. The goal of this report is to highlight the fairly opaque processes of internet censorship in India and make a case for regulation to make website blocking more transparent and accountable.

This report is not meant to provide a comparison of measurements across countries or measurements among different website categories covered by the iMAP project.

# Abbreviations

| | |
|---|---|
| ALDR | Alcohol & Drugs |
| ANON | Anonymization and circumvention tools |
| ASN | Autonomous System Number |
| COMT | Communication Tools |
| CTRL | Control content |
| CULTR | Culture |
| DNS | Domain Name System |
| COMM | E-commerce |
| ECON | Economics |
| ENV | Environment |
| FILE | File-sharing |
| GMB | Gambling |
| GAME | Gaming |
| GOVT | Government |
| HACK | Hacking Tools |
| HATE | Hate Speech |
| HOST | Hosting and Blogging Platforms |
| HUMR | Human Rights Issues |
| HTTP | Hypertext Transfer Protocol |
| IGO | Intergovernmental Organisations |
| ICCPR | International Covenant on Civil and Political Rights |
| iMAP | Internet Monitoring Action Project |
| IP | Internet Protocol |
| ISP | Internet Service Provider |
| MMED | Media sharing |
| MISC | Miscellaneous content |
| NEWS | News Media |
| DATE | Online Dating |
| OONI | Open Observatory Network Interference |
| POLR | Political Criticism |
| PORN | Pornography |
| PROV | Provocative Attire |

| PUBH | Public Health |
|------|---------------|
| REL | Religion |
| SRCH | Search Engines |
| XED | Sex Education |
| GRP | Social Networking |
| MILX | Terrorism and Militants |
| TCP | Transmission Control Protocol |
| TLS | Transport Layer Security |

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# Key Findings

- After strict rules governing their use came into effect, there has been a sharp increase in the blocking of Virtual Private Networks (VPNs), which are popular tools to circumvent censorship.
- A number of innocuous LGBTQIA+ websites were found to be blocked by privately owned network firewalls in the country.
- An analysis of news websites reported as blocked by OONI data shows little change from previous years. This indicates a need for expansion of the OONI test list and new research methodologies to detect the content that is being blocked on social media platforms.
- OONI data confirmed government-ordered blocks of China-based and secure messaging applications.

# Introduction

Amid increasingly stringent and opaque laws around online content takedown in India, there is a need to increase transparency around blocked content to hold censors accountable and make a case for reform. In this report, we summarise reports of censorship in India over the past year, examine their legal basis, and present an analysis of a public dataset on what content is blocked online.

This work is part of a broader effort by the Internet Monitoring Action Project (iMAP), a group of 10 countries in South and Southeast Asia that are collaborating to examine internet censorship in the region. We analysed internet measurements collected and published by the Open Observatory of Network Interference (OONI) project. The dataset contains 8.6 million measurements from 2707 websites across 307 unique networks in India, collected between July 2022 and June 2023.

Our key findings are as follows:
- Since strict rules governing their use have come into effect, there has been a sharp increase in the blocking of Virtual Private Networks (VPNs), which are popular tools to circumvent censorship.
- A number of innocuous LGBTQIA+ websites were found to be blocked by privately owned network firewalls in the country.
- An analysis of news websites reported as blocked by OONI data shows little change from previous years. This indicates a need for expansion of the OONI test list and new research methodologies to detect the content that is being blocked on social media platforms.
- OONI data confirmed government-ordered blocks of China-based and secure messaging applications.

# Background

Article 19(1)(a) of the Constitution of India guarantees its citizens the freedom of speech and expression. However, these freedoms appear to be on the decline. India ranked 161st out of 180 on the Freedom of the Press rankings in 2023[1] and scored 51/100 or "partly free" on the Freedom on the Net rankings in 2022.[2]

In this section, we provide an overview of India's online censorship laws and summarise media reports of censorship over the past year.

| Population | 1.4 billion |
|---|---|

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[1] *Freedom of Press, India*. (2023). Reporters Without Borders (RSF). https://rsf.org/en/country/india
[2] *India: Freedom on the Net 2022 Country Report.* Freedom House. https://freedomhouse.org/country/india/freedom-net/2022

| Internet penetration (% of population using the internet) | 52%[3] |
|---|---|
| Mobile subscriptions (per 100 inhabitants) | 82.29 (Urban: 127.79, Rural: 57.49)[4] |
| Freedom on the Net score (2022) | 51/100; Partly free |
| Religion (%) | Hinduism: 79.8%, Islam: 14.2%, Christianity: 1.7%, Others: 4.3% (2011 Census) |
| ICCPR Ratification | Yes |

Table 1: A summary of the demographics of India

# Legal Environment

In this section, we describe the legal landscape that enables online content to be blocked. The government and courts derive their power to block websites from the IT and Copyright Acts. While blocking orders issued by courts are in the public domain, government orders lack transparency due to confidentiality requirements. The government's practice of blocking websites has also been criticised for being executive-driven and not giving website owners a chance at a fair trial.[5]

## Section 69A of The Information Technology Act, 2000

Section 69A of the Information Technology (IT) Act regulates the blocking and takedown of online content. It grants power to the central government and courts to issue directions for blocking public access to "any information generated, transmitted, received, stored, or hosted in any computer resource". The act stipulates that information may be blocked in relation to (i) the interest of sovereignty and integrity of India, (ii) defence of India, (iii) security of the State, (iv) friendly relations with foreign States, (v) public order, and (vi) preventing incitement to the commission of any cognizable offence relating to the above.

The Information Technology Act (Procedure and Safeguards for Blocking for Access of Information by Public Rules, 2009) spells out specific procedures for blocking content under Section 69A. Notably, Rule 16 requires that blocking orders remain confidential.

## Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021

The IT Rules, 2021, were issued under the rule-making power granted to the government under sections 69A, 79, and 87(2) of the Information Technology Act, 2000. These also

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[3] Majumdar, R. (n.d.). 52% of Indian population had internet access in 2022, says report. The Economic Times. https://economictimes.indiatimes.com/tech/technology/52-of-indian-population-had-internet-access-in-2022-says-report/articleshow/99964704.cms

[4] Wireless tele-density reported by TRAI: https://www.trai.gov.in/sites/default/files/PR_No.66of2023_0.pdf

[5] *To preserve freedoms online, amend the IT Act.* (2019, April 15). Hindustan Times. https://www.hindustantimes.com/analysis/to-preserve-freedoms-online-amend-the-it-act/story-aC0jXUId4gpydJyuoBcJdI.html

contain provisions for content blocking and takedown that apply to social media intermediaries and digital media publishers.[6]

In April 2023, an amendment to the IT Rules empowered the central government to set up a fact-check unit to identify any false information relating to the government, mandating that social media intermediaries take action against content identified by the unit or risk their safe harbour protections.[7]

## Copyright Laws

A number of website blocking orders are issued each year on grounds of copyright infringement. Section 52 of the Copyright Act, 1957, and Section 79(3)(b) of the IT Act deal with the blocking of online content for copyright purposes.[8]

# Ongoing Challenges

## Challenges to the IT Rules and Amendments

There have been at least 17 different challenges to the IT Rules, 2021, in various High Courts in India. Furthermore, the Kerala, Bombay, and Madras High Courts have passed interim stay orders against certain provisions of the rules. The Union Government has argued for these various challenges to be heard together by the Supreme Court. However, the latter has stayed all pending proceedings and new matters on this issue before the High Courts while leaving the interim orders operational.[9]

The Bombay High Court is currently hearing multiple petitions challenging the constitutionality of the April 2023 amendment to the IT Rules. This amendment allows the government to set up a fact-checking unit to identify and take down false information relating to the government. The petitioners, Kunal Kamra (a political satirist and stand-up artist), the Editors Guild of India, and the Association of Indian Magazines are arguing against requiring social media intermediaries to act on content arbitrarily identified by the government with no legal basis.[10,11]

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[6]*On the legality and constitutionality of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021* — The Centre for Internet and Society. (2021, June 21). https://cis-india.org/internet-governance/blog/on-the-legality-and-constitutionality-of-the-information-technology-intermediary-guidelines-and-digital-media-ethics-code-rules-2021

[7] *Statement on the notification of the IT Amendment Rules,* 2023. (2023, April 6). Internet Freedom Foundation. https://internetfreedom.in/statement-on-the-notification-of-the-it-amendment-rules-2023/

[8] *Finding 404: A Report on Website Blocking in India* (2023, January 12). Software Freedom Law Center, India. https://sflc.in/finding-404-report-website-blocking-india/

[9] *Supreme Court stays proceedings before High Courts challenging IT Rules, 2021, interim orders to continue.* (2022, May 9). Internet Freedom Foundation. https://internetfreedom.in/supreme-court-stays-proceedings-before-high-courts-challenging-it-rules-2021-interim-orders-to-continue/

[10] Mathi, S., Author, G., Johari, S., M., Deep, A., & Barik, S. (2023, April 11). *IT Rules fact-check amendment faces first legal challenge in Bombay HC.* MediaNama. https://www.medianama.com/2023/04/223-kunal-kamra-it-rules-fact-check-amendment-bombay-high-court/

[11] *Centre says it will not notify fact checking unit till September 4.* (2023, July 21). The Hindu. https://www.thehindu.com/news/national/wont-notify-fcu-under-new-it-rules-till-september-4-centre-to-hc/article67105366.ece

## X Corp. vs. Union Of India

In June 2023, the High Court of Karnataka dismissed a petition filed by X Corp. (formerly known as Twitter, Inc.) against blocking orders related to 39 URLs issued by the government between February 2021 and February 2022. X Corp. argued that the orders violated Section 69a of the IT Act "both substantially and procedurally" and that account holders were not notified of the blocks.[12] In addition, the courts imposed exemplary costs for this case. This imposition obstructs access to justice as it would discourage similar intermediaries from approaching a court, even if they have genuine claims that blocking orders substantively or procedurally violate Section 69A.

# Reported Cases of Internet Censorship

This section examines reported cases of internet censorship in India.

## Right to Information (RTI) request on website blocking

A 2023 report by the Software Freedom Law Centre detailed the responses to Right to Information requests on website blocking.[13] The report found that a total of 55,607 websites, URLs, applications, social media posts, and social media accounts were blocked in India between 2015 and 2022. About half of these blocks were ordered by the executive branch of the government and the other half by the judiciary.

## Blocking of messaging apps in Jammu and Kashmir

In May 2023, news reports indicated that 14 instant messaging applications were blocked in Jammu and Kashmir on grounds of national security. Messaging apps including Crypviser, Enigma, Safeswiss, Wickrme, Mediafire, Briar, BChat, Nandbox, Conion, IMO, Element, Second Line, Zangi, and Threema were blocked under Section 69A of the IT Act.[14] OONI measurements further confirmed these blocks, as detailed below.

## Blocking of a BBC documentary

In January 2023, the BBC released a two-part documentary titled "India: The Modi Question", which was critical of Prime Minister Modi. The Ministry of Information and Broadcasting exercised its emergency blocking powers under the IT Rules 2021 to order Twitter to block more than 50 tweets linking to the documentary.[15] The ministry also issued

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[12] *Twitter loses plea challenging Centre's blocking orders, Karnataka HC imposes ₹50 lakh cost.* (2023, June 30). The Hindu. https://www.thehindu.com/news/national/karnataka-hc-dismisses-twitter-petition-challenging-centres-blocking-orders-imposes-50-lakh-cost/article67026370.ece

[13] *Finding 404: A Report on Website Blocking in India* (2023, January 12). Software Freedom Law Center, India. https://sflc.in/finding-404-report-website-blocking-india/

[14] *India blocks 14 apps in Jammu and Kashmir for spreading terror.* (n.d.). The Economic Times. https://economictimes.indiatimes.com/news/defence/india-blocks-14-apps-in-jammu-and-kashmir-for-spreading-terror/articleshow/99900313.cms

[15] *Under what emergency powers has the BBC documentary on PM Modi been blocked?* (2023, January 21). The Indian Express. https://indianexpress.com/article/explained/under-what-emergency-powers-has-the-bbc-documentary-on-modi-been-blocked-8396305/

takedown orders to YouTube to remove the documentary and any future uploads of the video[16].

## Blocking of Chinese apps

Following the blocking of 267 China-based mobile applications in 2020, the Ministry of Electronics and Information Technology, under the instruction of the Ministry of Home Affairs, utilised its powers under Section 69A of the IT Act to order the blocking of 54 more apps in August 2022. While the ministry cites security and privacy concerns posed by these apps as the reason behind the ban, others argue that in the absence of regulatory frameworks governing such blocks, this move is retaliatory in nature.[17,18]

## Blocking of online news channels

The Ministry of Information and Broadcasting also periodically issues blocking orders against online news content that it deems to be "spreading disinformation related to India's national security, foreign relations, and public order".[19,20] Reports indicate that it has blocked over 150 YouTube-based news channels and websites over the past two years, with a total of 12 million subscribers and over 1.3 billion views.[21]

## Blocking and unblocking of VLC Media Player

VLC Media Player, a popular free and open-source software to view video content, was blocked in India in March 2021. While the government initially provided no reasoning or notice, an RTI application and subsequent legal notice by the Internet Freedom Foundation revealed that the Ministry of Electronics and IT ordered the blocking of the VLC website after discovering that the site was communicating with the servers of "Onmyoji Arena", a video game that was blocked as part of an earlier ban on Chinese apps.[22, 23] The VLC website was subsequently unblocked in November 2022.[24]

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[16] https://www.medianama.com/2023/01/223-indian-govt-blocking-order-bbc-modi-documentary/

[17] *54 Chinese apps banned in India including Garena Free Fire, AppLock! Check full list of banned apps here*. (2022, February 14). HT Tech. https://tech.hindustantimes.com/tech/news/54-chinese-apps-banned-in-india-including-garena-free-fire-applock-check-full-list-of-banned-apps-here-71644823709192.html

[18] *Where Does India's Ban on Chinese Apps Fit Into the Global Trade Debate?* (2020, July 5). The Wire. https://thewire.in/tech/india-china-apps-global-trade-debate

[19] Ministry of Information & Broadcasting Press Release (2022, August 18) https://mib.gov.in/sites/default/files/Press%20Release%20dated%2018.08.2022.pdf

[20] Ministry of Information & Broadcasting Press Release (2022, April 5) https://mib.gov.in/sites/default/files/Press%20Release%20dated%2005.04.2022.pdf

[21] *Centre banned over 150 'anti-India' sites, YouTube channels in 2 years*. (2023, June 11). Hindustan Times. https://www.hindustantimes.com/india-news/ib-bans-over-150-websites-in-2-years-officials-101686508242658.html

[22] *VideoLAN has issued a legal notice to DoT and MeitY for banning their website in India.* (2022, October 4). Internet Freedom Foundation. https://internetfreedom.in/videolan-issued-legal-notice-to-dot-and-meity-for-banning-their-website-in-india/

[23] *VLC site ban: Data transfers to servers in 'hostile country.'* (2022, October 10). The Indian Express. https://indianexpress.com/article/technology/vlc-site-ban-data-transfers-to-servers-in-hostile-country-8201259/

[24] Singh, M. (2022, November 14). *India lifts download ban on VLC*. TechCrunch. https://techcrunch.com/2022/11/14/india-lifts-download-ban-on-vlc/

## Blocking and unblocking of Github content URL

In late 2022, the Madras High Court ordered the blocking of the URL "raw.githubusercontent.com", hampering the functionality of the Github Platform.[25] The block was later lifted after the legal suit – likely related to copyright infringement – was withdrawn.

## Rules for Virtual Private Networks (VPNs)

VPNs are important tools that allow users to circumvent censorship and browse the web anonymously by routing their traffic through a privately owned network. In September 2022, new rules issued by the Computer Emergency Response Team (CERT-In) under the Ministry of Electronics and Information Technology came into effect. The rules require VPN services to collect and store identifying information, such as email addresses, phone numbers, and IP addresses, for a period of five years. Citing the potential of these new rules to surveil their customers, several VPN providers including Proton, ExpressVPN, and SurfShark removed their physical servers from India.[26,27] There was a spike in censorship of VPNs around the time the rules came into effect, as detailed below.

# Network Landscape

The broadband network landscape in India is dominated by a few players with the top five service providers holding 98.39% of the market share. These dominant players are Reliance Jio Infocomm Ltd (51.96% of the market share), Bharti Airtel (28.78%), Vodafone Idea (14.42%), BSNL (2.96%), and Atria Convergence (0.25%). Wireless connections are more dominant in the country with wired connections only accounting for 2.5% of internet connections, and private service providers hold 90.93% of the market share of wireless connections.[28]

# Findings on Internet Censorship in India

All of the findings are based on data collected through OONI from 1 July 2022 to 30 June 2023.

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[25] *ACT Fibernet unblocks GitHub content domain*. (2023, January 10). The Hindu. https://www.thehindu.com/sci-tech/technology/act-fibernet-unblocks-github-content-domain/article66361444.ece
[26] *VPNs shut India-based servers, blame invasive government rules*. (2023, September 23). Telegraph India. https://www.telegraphindia.com/business/vpns-shut-india-based-servers-blame-invasive-government-rules/cid/1888380
[27] *After ExpressVPN, Surfshark Leaves India Before New VPN Rules Kicks In*. (2022, June 7). News18. https://www.news18.com/news/tech/after-expressvpn-surfshark-leaves-india-before-new-vpn-rules-kicks-in-5329069.html
[28] *Telecom Regulatory Authority of India Subscription Report* (2023, August) https://www.trai.gov.in/sites/default/files/PR_No.66of2023_0.pdf

# Blocking of Websites

Throughout the one-year period, we tested 8.6 million measurements from 3,415 websites on OONI. As of 30 June 2023, the test list contained 1,629 websites in the Global Test List and 725 websites in the India Test List. Based on the OONI measurements, the following terms are used in this report:

- **Measured or Measurement Counts:** Refers to the total number of measurements collected through the OONI Probe.
- **Blocked**: Refers to "Confirmed Blocked" in OONI measurements. These measurements are from websites automatically confirmed to be blocked (e.g., a block page was served).
- **Likely Blocked**: Refers to "Anomaly" in OONI measurements. Anomalies are measurements that show signs of potential blocking; however, false positives can occur.

The table below summarises the results of testing:

| | Jul-Sep 2022 | Oct-Dec 2022 | Jan-Mar 2023 | Apr-Jun 2023 | Total |
|---|---|---|---|---|---|
| Measured | 1,720,954 | 2,216,972 | 2,538,766 | 2,137,181 | 8,613,878 |
| Blocked | 15 | 6 | 17,458 | 58,953 | 77,187 |
| Block rate | 0.00% | 0.00% | 0.69% | 2.76% | 0.90% |
| Input | 2,707 | 2,673 | 2,525 | 2,581 | 3,415 |
| ASNs | 151 | 139 | 154 | 154 | 307 |

Table 2: Summary of OONI web connectivity measurements for India from 1 July 2022 to 30 June 2023

These measurements were analysed using heuristics as stated in Annex IV. It was found that there were 496 confirmed blocked websites, of which 434 were confirmed by OONI and 62 were confirmed by heuristics. The full list of confirmed blocked websites is mentioned in Annex I.

We also note that the increase in the detection of blocked websites in the year 2023 corresponds to OONI's improved ability to classify websites as blocked and not an increase in censorship.

| Category | Category description | OONI Probe Measurements | Number of blocked and likely blocked measurements | Percentage of blocked and likely blocked measurements |
|---|---|---|---|---|
| ALDR | Alcohol & Drugs | 104,275 | 1,183 | 1.10% |
| ANON | Anonymization and | 461,327 | 17,114 | 3.70% |

| Category | Category description | OONI Probe Measurements | Number of blocked and likely blocked measurements | Percentage of blocked and likely blocked measurements |
|---|---|---|---|---|
| | circumvention tools | | | |
| COMM | E-commerce | 129,199 | 19,442 | 15.00% |
| COMT | Communication Tools | 556,062 | 42,531 | 7.60% |
| CTRL | Control content | 55,465 | 132 | 0.20% |
| CULTR | Culture | 398,433 | 31,017 | 7.80% |
| DATE | Online Dating | 97,002 | 10,057 | 10.40% |
| ECON | Economics | 82,104 | 363 | 0.40% |
| ENV | Environment | 255,054 | 2,706 | 1.10% |
| FILE | File-sharing | 320,199 | 100,197 | 31.30% |
| GAME | Gaming | 94,412 | 12,812 | 13.60% |
| GMB | Gambling | 88,191 | 7,121 | 8.10% |
| GOVT | Government | 148,325 | 11,013 | 7.40% |
| GRP | Social Networking | 798,624 | 59,242 | 7.40% |
| HACK | Hacking Tools | 97,574 | 4,870 | 5.00% |
| HATE | Hate Speech | 21,543 | 348 | 1.60% |
| HOST | Hosting and Blogging Platforms | 445,143 | 17,009 | 3.80% |
| HUMR | Human Rights Issues | 832,299 | 24,438 | 2.90% |
| IGO | Intergovernmental Organizations | 18,616 | 108 | 0.60% |
| LGBT | LGBT | 438,207 | 11,863 | 2.70% |
| MILX | Terrorism and Militants | 76,298 | 33,413 | 43.80% |
| MISC | Miscellaneous content | 8,967 | 44 | 0.50% |
| MMED | Media sharing | 494,439 | 94,411 | 19.10% |
| NEWS | News Media | 1,106,678 | 71,172 | 6.40% |
| POLR | Political Criticism | 505,878 | 46,728 | 9.20% |
| PORN | Pornography | 102,051 | 53,326 | 52.30% |
| PROV | Provocative Attire | 53,373 | 3,910 | 7.30% |
| PUBH | Public Health | 312,791 | 3,025 | 1.00% |
| REL | Religion | 246,172 | 10,906 | 4.40% |
| SRCH | Search Engines | 142,330 | 13,383 | 9.40% |
| XED | Sex Education | 116,326 | 3,903 | 3.40% |

Table 3: Summary of OONI web connectivity measurements for India from 1 July 2022 to 30 June 2023 by category

*Note: Blocked and likely blocked measurements include ones marked as "Confirmed Blocked" and "Anomaly" on OONI measurements.*

The findings in the following sections highlight the blocking of websites by certain categories or events relevant to India.

## News Sites

An analysis of the news sites on the block list is presented below.

| Websites found to be blocked | Description |
| --- | --- |
| http://bdcburma.wordpress.com/2012/07/27/photos-about-burmese-buddhists-killed-the-muslims-in-burma-2/ | A blog about human rights in Burma. Last updated in 2012. |
| http://drashukumar.files.wordpress.com/2011/10/ashokarorashivaniarticle.doc/ | A blog that describes itself as a "human rescue laboratory". Last updated in 2011. |
| http://drashukumar.files.wordpress.com/2011/10/who_got_shivani_killed.doc/ | A blog that describes itself as a "human rescue laboratory". Last updated in 2011. |
| http://farazahmed.com/wp-content/uploads/2012/07/602535_335682046513473_517563933_n.jpg/ | An IT blog. The URL indicates some content from 2012 on the site was blocked. |
| http://hinduhumanrights.org/ | Currently the website of the "HHR Media & Network", with articles on a variety of random topics. |
| http://lankeshpatrike.com/* | An Indian vernacular weekly published from Bangalore, Karnataka.[29] |
| http://nndh.com/ | Currently an empty domain, likely blocked in 2006. |
| http://sikhsiyasat.in/ | A Punjab-based Sikh news network. |
| http://www.atjehcyber.net/ | Currently an empty domain, likely blocked in 2012. |
| http://www.dailymail.co.uk/ | A UK-based daily newspaper. |
| http://www.imamali8.com/ | Currently an empty domain, blocked in 2006.[30] |
| http://www.rahulyadav.com/ | Currently an IT consultant's personal website. Blocking order was issued in |

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[29] *Lankesh Patrike - Wikipedia*. (2016, May 1). https://en.wikipedia.org/wiki/Lankesh_Patrike
[30] *Left, Right sites also blocked*. (2006, July 19). The Economic Times. https://economictimes.indiatimes.com/special-coverage/blogspots-bombed/left-right-sites-also-blocked/articleshow/1773686.cms

| | 2006.[31] |
|---|---|
| https://currentaffairspk.com/ | Appears to be a job board. |
| https://dunyanews.tv/ | A Pakistan-based news site. |
| https://news.sina.com.cn/ | A China-based news site. |
| https://sheikyermami.com/2012/06/burma-tensions-between-buddhist-residents-and-illegal-muslims-kill-seven/ | A blog titled "Winds of Jihad". Blocking order was issued in 2012.[32] |
| https://sikhsiyasat.net/ | A Punjab-based Sikh news network. |
| https://thepiratescove.us/ | A personal blog. Blocking order issued in 2006.[33] |
| https://www.ashams.com/ | Website of a radio station for the Arab minority in Israel. |
| https://www.indybay.org/ | A San Francisco-based Independent Media Center. Blocking order was issued around 2011.[34] |
| https://www.usatoday.com/ | An American news site. Blocked on AS4758: National Informatics Centre. |

\* This indicates that the block appears to be a local network firewall limited to an individual organisation and is not a government-mandated block.

Table 4: An analysis of blocked websites in the news category

Barring the exception of the Daily Mail, which was silently blocked in India last year,[35] the list of news websites reported blocked by OONI data shows little change from previous years. This contradicts many other reports on censorship in India. For example, the Right to Information (RTI) data published in a report by the Software Freedom Law Centre indicates that over 55,000 websites, URLs, applications, social media posts, and social media accounts were blocked in India between 2015 and 2022.[36] Transparency reports by social media companies also show a large number of takedown requests, and news reports have shown a large number of blocks of fake news on social media platforms.[37] This indicates a

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[31] *Left, Right sites also blocked*. (2006, July 19). The Economic Times.
https://economictimes.indiatimes.com/special-coverage/blogspots-bombed/left-right-sites-also-blocked/articleshow/1773686.cms

[32] *Blocking Notification Government of India (2012, August 18)*
https://www.naavi.org/cl_editorial_12/mit_notification_blocking4.pdf

[33] *Left, Right sites also blocked*. (2006, July 19). The Economic Times.
https://economictimes.indiatimes.com/special-coverage/blogspots-bombed/left-right-sites-also-blocked/articleshow/1773686.cms

[34] *DIT's Response to RTI on Website Blocking* (2011, April 7) Centre for Internet and Society.
https://cis-india.org/internet-governance/blog/rti-response-dit-blocking

[35] *India Silently Banned The UK's Daily Mail And Nobody Knows Why*. (2022, August 8). Indian Defence News. https://www.indiandefensenews.in/2022/08/india-silently-banned-uks-daily-mail.html

[36] *Finding 404: A Report on Website Blocking in India* (2023, January 12). Software Freedom Law Center, India. https://sflc.in/finding-404-report-website-blocking-india/

[37] *Centre banned over 150 'anti-India' sites, YouTube channels in 2 years*. (2023, June 11). Hindustan Times.

need for the expansion of the OONI test list to include more news websites as well as the adoption of research methodologies capable of detecting content takedowns on social media platforms.

Only one of the websites in this list, http://lankeshpatrike.com/, showed a block page that corresponds to a network firewall in an individual organisation. The rest were presumably government-ordered blocks.

## LGBTQIA+

| Websites found to be blocked | Description |
| --- | --- |
| http://gaytoday.com/* | A website that offers LGBT news. This site was found to be blocked on certain networks. |
| http://instinctmagazine.com/* | A gay men's lifestyle magazine. |
| http://lgbtmap.org/* | The Movement Advancement Project (MAP) is a nonprofit that works on issues of equality. |
| http://transsexual.org/* | A blog that provides information about transsexuality. |
| http://www.amnestyusa.org/the-state-of-lgbt-rights-worldwide/* | A report of LGBT rights by Amnesty International, a human rights organisation. |
| http://www.gayegypt.com/* | A travel booking website for the LGBTQ community. |
| https://list.ly/list/FAQ-lgbtq-support-groups-and-resources-in-india | A list of LGBTQ support groups and resources in India. This website is blocked on AS4758: National Informatics Centre. |
| https://www.pinkcupid.com/ | A lesbian dating site. The site was found to be blocked on AS9829 Bharat Sanchar Nigam Ltd. |
| https://www.utopia-asia.com/tipsindi.htm | A site that provides Asian gay and lesbian resources. This website is blocked on AS4758: National Informatics Centre. |

* This indicates that the block appears to be a local network firewall limited to an individual organisation and is not a government-mandated block.
Table 5: An analysis of blocked websites in the LGBTQIA+ category

The blocking of innocuous websites providing educational information, news, human rights resources, dating, and travel information for the LGBTQIA+ community is unlawful. An examination of the block pages documented by OONI revealed that the websites were blocked using commercial network firewalls, such as FortiGuard Intrusion Prevention and CleanBrowsing. This indicates that these sites were not ordered to be blocked by the government or judiciary. Instead, they were blocked on privately owned individual networks.

https://www.hindustantimes.com/india-news/ib-bans-over-150-websites-in-2-years-officials-101686508242658.html

## Communication Tools

| Websites found to be blocked | Description |
| --- | --- |
| http://imo.im/ | An instant messaging app. |
| http://www.domobile.com/ | An app developer. |
| http://www.estrongs.com/ | The website for ES File Explorer. A file management app. |
| http://www.linphone.org/ | An open-source VOIP calling app. |
| http://www.mailinator.com/ | A tool used by software developers to test email and SMS workflows. |
| http://www.netzoola.com/* | Appears to be an empty domain. |
| http://www.parallel-app.com/ | An app that allows users to run multiple social and game accounts simultaneously. |
| https://briarproject.org/ | A secure messaging app. |
| https://ctrlq.org/ | An online forum for technical questions related to Google Workspace and Google Apps. |
| https://element.io/ | A client for the decentralised messaging service Matrix. |
| https://mail.qq.com/ | An email service. |
| https://t.me/ | A short URL for Telegram Messenger. |
| https://tamtam.chat/ | An instant messaging app. |
| https://web.wechat.com/ | An instant messaging app. |
| https://threema.ch/ | A secure messaging app. |
| https://www.apusapps.com/ | An app organiser. |
| https://www.apuslauncher.com/ | Another URL for the APUS app organiser. |
| https://www.camcard.com/ | A business card reading app. |
| https://www.camscanner.com/ | A mobile scanner. |
| https://www.cmcm.com/ | An app developer with offerings such as antivirus and mobile cleaning apps. |
| https://www.ucweb.com/ | A web browsing app. |
| https://www.wechat.com/ | An instant messaging app. |

| https://www.ziggo.nl/ | A Dutch internet service provider. |
|---|---|

\* This indicates that the block appears to be a local network firewall limited to an individual organisation and is not a government-mandated block.

Table 6: An analysis of blocked communication tools

Many websites that were part of the ban on Chinese apps appear in this list; for example, UCWeb, WeChat, Parallel Space, CamScanner, and ES File Explorer. As discussed above, the government cites security and privacy concerns posed by these apps as the reasoning behind the ban. However, others argue that in the absence of regulatory frameworks governing such blocks, this move is retaliatory in nature.[38,39]

The secure messaging apps banned in Jammu and Kashmir are also included in this list. These include Crypviser, Enigma, Safeswiss, Wickrme, Mediafire, Briar, BChat, Nandbox, Conion, IMO, Element, Second Line, Zangi, and Threema.[40] The OONI data for blocking Element Messenger is shown in Figure 1 below.

Other blocks appear to be arbitrary, such as the ones on Linphone, an open-source VOIP calling app, and Ziggo, the Dutch cable operator.

t.me, a short URL used by Telegram messenger, showed a small number of confirmed blocks. Prior work has also documented this block, attributing it to either unilateral action by service providers or a failure to comply with unblocking orders.[41]

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[38] *54 Chinese apps banned in India including Garena Free Fire, AppLock! Check full list of banned apps here*. (2022, February 14). HT Tech. https://tech.hindustantimes.com/tech/news/54-chinese-apps-banned-in-india-including-garena-free-fire-applock-check-full-list-of-banned-apps-here-71644823709192.html

[39] *Where Does India's Ban on Chinese Apps Fit Into the Global Trade Debate?* (2020, July 5). The Wire. https://thewire.in/tech/india-china-apps-global-trade-debate

[40] *India blocks 14 apps in Jammu and Kashmir for spreading terror*. (2023, May 1). The Economic Times. https://economictimes.indiatimes.com/news/defence/india-blocks-14-apps-in-jammu-and-kashmir-for-spreading-terror/articleshow/99900313.cms

[41] Katira, D., Grover, G., Singh, K., & Bansal, V. (2023). CensorWatch: On the Implementation of Online Censorship in India.

**Web Connectivity Test, https://element.io/**
India
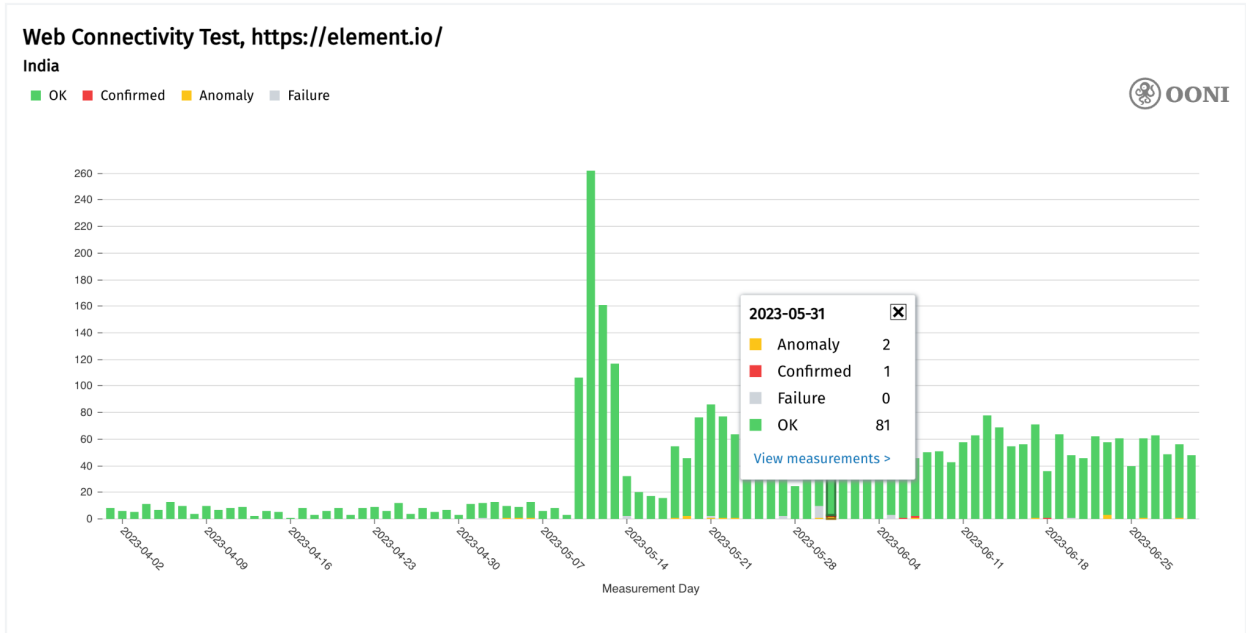


Figure 1: OONI data for the blocking of Element messenger. A small number of confirmed blocks started to appear after the announcement of blocking of the app in Jammu and Kashmir in May 2023.

## Anonymization and circumvention tools

| Websites found to be blocked | Description |
| --- | --- |
| http://anonymizer.secuser.com/ | A proxy service to load websites that may be blocked. The service does not appear to be functional at the time of writing. |
| http://anonymouse.org/ | A proxy service that allows users to access blocked websites. |
| http://fteproxy.org/ | A proxy service that allows users to access blocked websites. |
| http://guardster.com/ | A proxy service that allows users to access blocked websites. The service is no longer operational. |
| http://proxy.org/ | A proxy service that allows users to access blocked websites. |
| http://proxytools.sourceforge.net/ | A proxy software to bypass censorship. |
| http://www.anonymizer.ru/ | A proxy service that allows users to access blocked websites. |
| http://www.anonymsurfen.com/ | A proxy service that allows users to access blocked websites. |
| http://www.http-tunnel.com/ | A proxy service that allows users to access |

| | blocked websites. |
|---|---|
| http://www.inetprivacy.com/ | A blog that advertises a search tool. |
| http://www.jmarshall.com/tools/cgiproxy/ | The personal web page of a proxy software author. |
| http://www.peacefire.org/circumventor/simple-circumventor-instructions.html | A developer of censorship circumvention software. |
| http://www.ultimate-anonymity.com/ | A website that offers a number of anonymous internet services. |
| http://www.xroxy.com/ | A proxy service that allows users to access blocked websites. |
| https://api.protonvpn.ch/tests/ping | A popular Virtual Private Network (VPN) service. |
| https://googleweblight.com/i?u=https%3A%2F%2Fexample.com%2F | A Google-operated proxy service that can be used to access blocked websites. |
| https://hola.org/ | A peer-to-peer web proxy and VPN service that can be used to access blocked websites. |
| https://proxify.com/ | A proxy service that allows users to access blocked websites. |
| https://speedify.com/ | A service that lets users combine bandwidth from multiple internet connections. |
| https://surfshark.com/ | A Virtual Private Network (VPN) application. |
| https://www.hidemyass.com/ | A proxy service that allows users to access blocked websites. |
| https://www.megaproxy.com/ | A proxy service that allows users to access blocked websites. |
| https://www.purevpn.com/ | A Virtual Private Network (VPN) application. |
| http://131.188.40.189/tor/server/authority* | A router in the Tor network. |
| http://154.35.175.225/tor/server/authority* | A router in the Tor network. |
| http://171.25.193.9:443/tor/server/authority* | A router in the Tor network. |
| http://193.23.244.244/tor/server/authority* | A router in the Tor network. |
| http://194.109.206.212/tor/server/authority* | A router in the Tor network. |
| http://199.58.81.140/tor/server/authority* | A router in the Tor network. |
| http://204.13.164.118/tor/server/authority* | A router in the Tor network. |

| | |
|---|---|
| http://66.111.2.131:9030/tor/server/authority* | A router in the Tor network. |
| http://86.59.21.38/tor/server/authority* | A router in the Tor network. |

* This indicates that the block appears to be a local network firewall limited to an individual organisation and is not a government-mandated block.
Table 7: An analysis of blocked anonymization and circumvention tools

The Computer Emergency Response Team (CERT-In) under the Ministry of Electronics and Information Technology issued new rules that came into effect in September 2022. Following this, we observed a significant increase in anomalies and a few confirmed blocks for three popular VPN services. The measurements for Surf Shark, Pure VPN, and Proton VPN are shown in Figures 2, 3, and 4, respectively.

We also noticed some blocking of Tor routers by firewalls on individual networks.
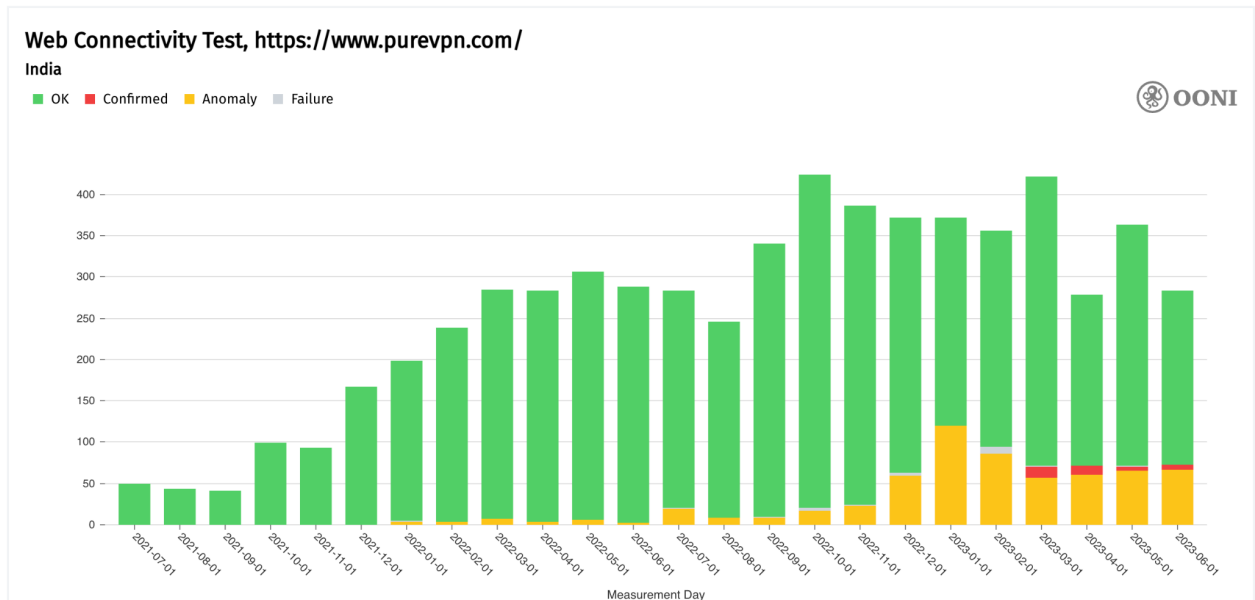


Figure 2: OONI measurements for Pure VPN over the past two years. There was a significant increase in anomalies and few confirmed blocks after the new VPN rules came into effect in 2022.

**Web Connectivity Test, https://surfshark.com/**

India

OK ■ Confirmed ■ Anomaly ■ Failure
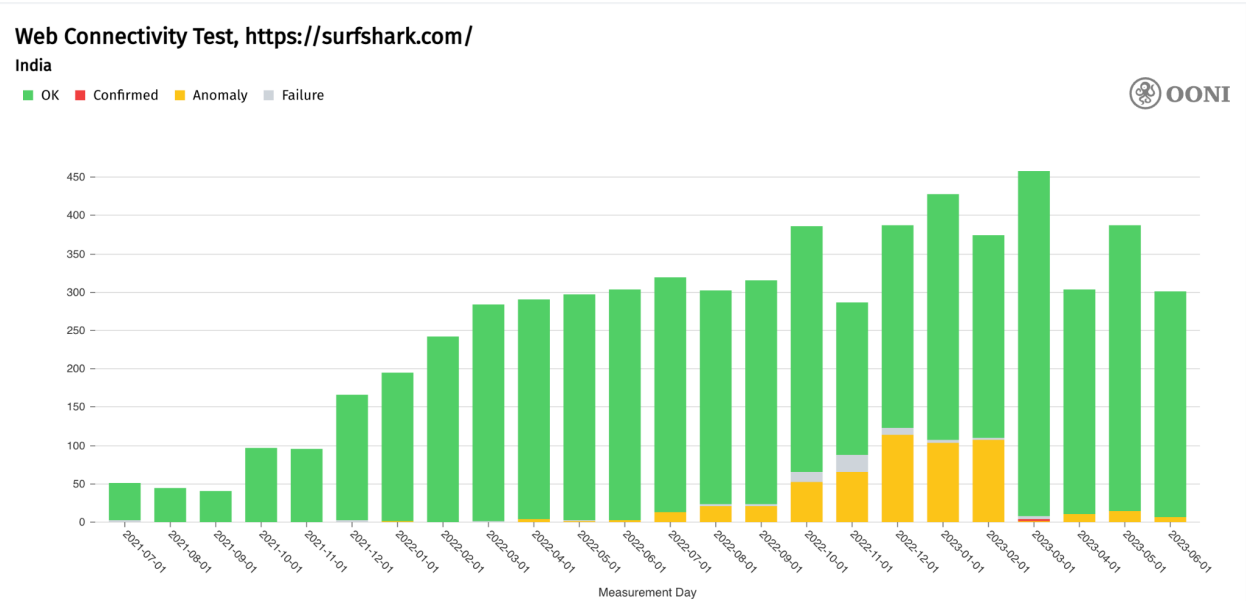
Figure 3: OONI measurements for Surf Shark VPN over the past two years. There was a significant increase in anomalies and few confirmed blocks after the new VPN rules came into effect in 2022. Many of the blocks appear to have been lifted in 2023.

**Web Connectivity Test, https://api.protonvpn.ch/tests/ping**

India

OK ■ Confirmed ■ Anomaly ■ Failure
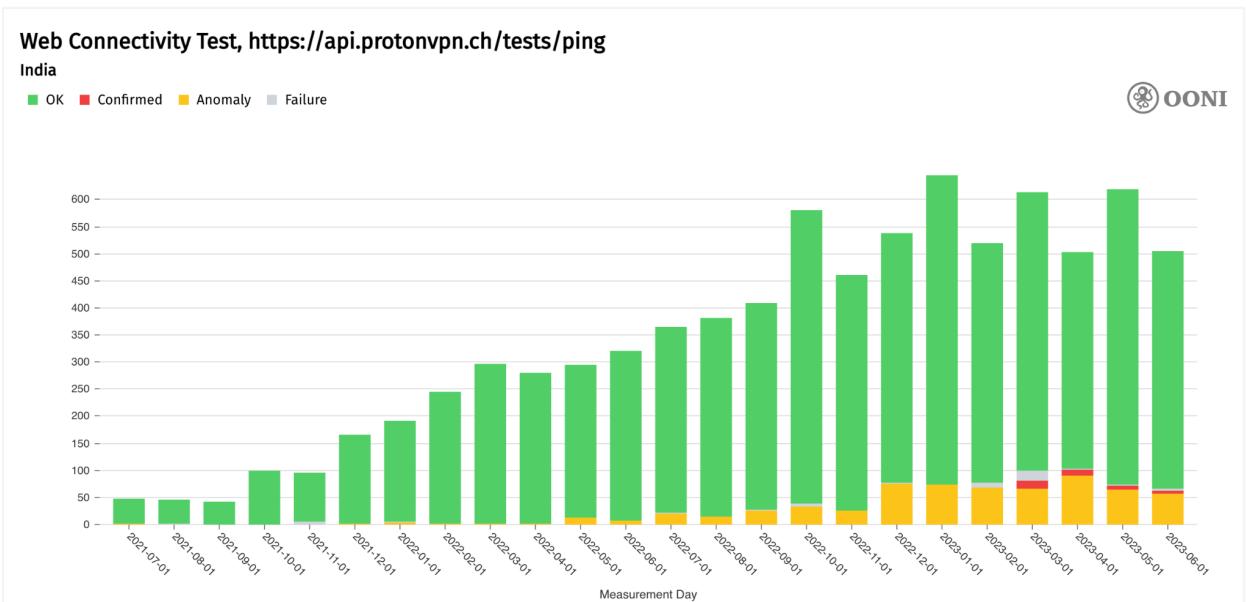
Figure 4: OONI measurements for Proton VPN over the past two years. There was a significant increase in anomalies and few confirmed blocks after the new VPN rules came into effect in 2022.

## Blocking of Instant Messaging Apps

|  | Facebook Messenger | Signal | Telegram | WhatsApp |
|---|---|---|---|---|
| **Total Measurements** | 91,938 | 53,534 | 89,320 | 88,192 |

| Percentage of blocked and likely blocked | 1.2% | 1.3% | 0.7% | 2.6% |
|---|---|---|---|---|

Table 8: Summary of tests for popular messaging apps

There does not appear to be any significant blocking of the popular instant messaging apps Facebook Messenger, Signal, Telegram, and WhatsApp. However, as described in the "Communication Tools" section above, the websites of several other less popular messaging apps have been blocked in India, hampering their functionality.

## Blocking of Circumvention Tools

|  | Psiphon | Tor | Tor Snowflake | Vanilla Tor |
|---|---|---|---|---|
| Total Measurements | 91,109 | 87,548 | 52,706 | 52,063 |
| Percentage of blocked and likely blocked | 3.4% | 6.9% | 14.9% | 0.0% |

Table 9: Summary of tests for popular circumvention tools

There does not appear to be any significant blocking of the Psiphon and Vanilla Tor circumvention tools. We encountered some blocking of Tor router URLs on specific networks, as detailed in the "Anonymisation and circumvention tools" section above. There was also significant blocking of the Surf Shark VPN, Pure VPN, and Proton VPN websites, which hampers the functionality of these VPN apps.

## Acknowledgement of Limitations

- **Period of study**
  This study's findings are limited to network measurements collected from 1 July 2022 to 30 June 2023 in order to examine the most recent censorship trends and events.

- **Vantage points**
  Although the network measurements were collected from 307 vantage points in India, testing using the OONI software was not done consistently across all networks.

- **Use of input/URL as unit of measurement of websites**
  In general, "URL" (or in OONI's terms – input) and "domain" are interchangeable terms used to refer to a website. In the OONI test list, full URLs are input in the probe to be tested for censorship, similar to a URL starting with "https" or "http" in a browser. The censorship can involve tampering of DNS, HTTP, or other types of censorship. Depending on the method, the blocking can either be at the URL or domain level. However, when analysing results on OONI, the reader needs to note that there are differences in the numbers with respect to the specific input or domain.

In the 2022 report, domain was used as a unit of measurement of a website so as to reduce duplicates when measuring the number of websites blocked. For this 2023 report, however, input is used instead, as it may give more context as to why the web page is blocked. The findings would also be categorised more accurately according to the CitizenLab test lists, which are in URL format. To better understand the findings on the state of censorship, we used percentage of blocked or likely blocked instead of actual counts based on OONI test results.

- **Differences in numbers with OONI data**
  The findings in this report have been further processed from OONI's data, whereby more confirmed blockings were obtained and false ones eliminated through additional heuristics and manual verification by iMAP researchers based on country or local context. While these heuristics will eventually be added to OONI's fingerprints, OONI will only process them for future testing.

Additionally, iMAP researchers have categorised blocked websites that were not part of the CitizenLab test lists but were tested on OONI via custom test lists. Hence, the figures in this report may differ from the results on the OONI Explorer.

- **Testing of instant messaging apps and circumvention tools**
  The instant messaging apps and circumvention tools included in this report are limited to those tested on OONI. Therefore, they may not reflect the state of censorship of apps more commonly used in India.

## Conclusion

In this report, we summarised news reports of censorship in India over the past year, examined the legal basis for blocking online content in India, and presented an analysis of the OONI dataset.

Based on our research, we observed a sharp increase in the blocking of Virtual Private Networks (VPNs) after rules governing their use came into effect. We also encountered the unlawful blocking of a number of innocuous LGBTQIA+ websites by firewalls on privately owned networks. Furthermore, we analysed the blocking of news sites but did not identify many new blocks; most of the websites on the list were blocked more than a decade ago. We were also able to confirm a number of government-ordered blocks on secure messaging applications and China-based applications.

It must be said that our analysis only scratched the surface of online censorship in India. Reports indicate that a total of 55,607 websites, URLs, applications, social media posts, and social media accounts were blocked in India between 2015 and 2022 – which is far more than what was uncovered by OONI data and previous studies. There is a need to increase internet measurements and conduct new types of measurements to uncover the large volume of content being censored online in India.

## Contribute to the study

If you would like to contribute to the OONI measurements, there are several ways to get involved:

- Testing: You may test on [various platforms](#), both on Mobile (iOS and Android) and Desktop, including on the CLI on Linux platforms. The domains you test can be either randomly selected from the [Citizenlab Test Lists](#) or custom test lists specific to your needs.
- Contribute to the test lists: You can contribute to the test lists on GitHub or on [OONI](#).
- Translation: Translate the OONI Probe to your local language [here](#).
- Join the community: Participate in community discussions on [OONI's Slack channel](#).

# Acknowledgements

We are grateful to local partners, activists, academicians, researchers, and anonymous users in India for running the OONI Probe.

# Annex I: List of confirmed blockings

| |
|---|
| [http://131.188.40.189/tor/server/authority](http://131.188.40.189/tor/server/authority) |
| [http://1337x.to](http://1337x.to) |
| [http://154.35.175.225/tor/server/authority](http://154.35.175.225/tor/server/authority) |
| [http://171.25.193.9:443/tor/server/authority](http://171.25.193.9:443/tor/server/authority) |
| [http://193.23.244.244/tor/server/authority](http://193.23.244.244/tor/server/authority) |
| [http://194.109.206.212/tor/server/authority](http://194.109.206.212/tor/server/authority) |
| [http://199.58.81.140/tor/server/authority](http://199.58.81.140/tor/server/authority) |
| [http://1tamilmv.pics](http://1tamilmv.pics) |
| [http://204.13.164.118/tor/server/authority](http://204.13.164.118/tor/server/authority) |
| [http://30plusgirls.com/](http://30plusgirls.com/) |
| [http://66.111.2.131:9030/tor/server/authority](http://66.111.2.131:9030/tor/server/authority) |
| [http://666games.net/](http://666games.net/) |
| [http://86.59.21.38/tor/server/authority](http://86.59.21.38/tor/server/authority) |
| [http://89.com/](http://89.com/) |
| [http://anonymizer.secuser.com/](http://anonymizer.secuser.com/) |
| [http://anonmouse.org/](http://anonmouse.org/) |
| [http://apniisp.com/](http://apniisp.com/) |
| [http://appairbrush.com/](http://appairbrush.com/) |

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| http://apunkabollywood.com/ |
| http://article.wn.com/view/2012/08/01/myanmar_troops_opened_fire_on_rohingya_muslims/ |
| http://azatlan.blogspot.in/2005/10/iipm.html |
| http://bannedthought.net/ |
| http://bannedthought.net/India/index.htm/ |
| http://bdcburma.wordpress.com/2012/07/27/photos-about-burmese-buddhists-killed-the-muslims-in-burma-2/ |
| http://blogs.outlookindia.com/default.aspx?ddm=10&pid=2536&eid=31 |
| http://blogs.wsj.com/indiarealtime/tag/arindam-chaudhuri |
| http://bolly-zone.me/ |
| http://bollyextreme.com/ |
| http://bondedlabour.org/ |
| http://caravanmagazine.in/reportage/sweet-smell-success |
| http://carc.org.in/ |
| http://cckerala.com/ |
| http://collegehumor.com/ |
| http://cricfree.be/ |
| http://curiousgawker.blogspot.in/2005/10/iipm-to-inaugurate-new-answering.html |
| http://downloadming.com/ |
| http://drashukumar.files.wordpress.com/2011/10/ashokarorashivaniarticle.doc/ |
| http://drashukumar.files.wordpress.com/2011/10/who_got_shivani_killed.doc/ |
| http://dropmms.com |
| http://duckduckgo.com |
| http://earth-liberation-front.org/ |
| http://eimitimes.in/ |
| http://ethiomuslimsmedia.com/index.php/news-paper/132-burma/ |
| http://exposingtheleft.blogspot.com/ |
| http://farazahmed.com/wp-content/uploads/2012/07/602535_335682046513473_517563933_n.jpg/ |
| http://filefreak.com/ |
| http://filmimusic.com/ |
| http://freefundoo.com/ |
| http://freestreams-live1.com/ |
| http://fteproxy.org/ |
| http://ganduhotspot.blogspot.com/2012/07/intl-union-of-unified-ummah-condemns.html/ |
| http://gauravsabnis.blogspot.in/2005/08/fraud-that-is-iipm.html |
| http://gaytoday.com/ |
| http://givemetheheadlines.wordpress.com/2012/07/29/hindus-kill-muslims-in-india-44-dead-170000-made-homeless/ |
| http://gmail.com/ |
| http://goku.to |
| http://gos.mechanist.co/ |
| http://guardster.com/ |

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| http://hellohyderabad.com/ |
| http://hentairead.com |
| http://hinduhumanrights.org/ |
| http://hotgaylist.com/ |
| http://iipmexposed.blogspot.in/ |
| http://imagessearchyahoo.com/ |
| http://imo.im/ |
| http://influence.in/ |
| http://instinctmagazine.com/ |
| http://karachimag.com/ |
| http://katcr.to |
| http://khilafah.net/ |
| http://kitabkhana.blogspot.in/2005/10/free-speech-and-iipm.html |
| http://kitty.live/ |
| http://lankeshpatrike.com/ |
| http://lgbtmap.org/ |
| http://ljp.org.in/ |
| http://loverollers.com/ |
| http://m.tiktok.com |
| http://mazafm.com/ |
| http://merrimusings.typepad.com/ |
| http://micous.com/ |
| http://mio.to/ |
| http://mobidreamz.com/ |
| http://mpaper.sakshi.com/ |
| http://muskurahat.com/ |
| http://mymaza.com/ |
| http://nanopolitan.blogspot.in/2005/10/breaking-news-iipm-faculty-pages-have.html |
| http://nndh.com/ |
| http://onlybingo.com/ |
| http://paktimes.com/ |
| http://pctvbill.blogspot.in/2012/08/hindu-women-in-india-found-raped-and.html/ |
| http://pornhub.com |
| http://pornhub.org |
| http://problems.in/ |
| http://proxy.org/ |
| http://proxytools.sourceforge.net/ |
| http://ramblingz.blogspot.in/2005/10/blogs-v-iipm.html |
| http://rawpoint.biz/ |
| http://riya-kapoor.com/ |
| http://rogerfacts.blogspot.in/2011/06/sweet-smell-of-success-true-story-of.html |

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| http://sambharmafia.blogspot.in/2006/08/plagiarism-charge-on-iipm.html |
| http://sflix.to |
| http://sikhsiyasat.in/ |
| http://songs.pk/ |
| http://songsinn.com/ |
| http://songslover.com/ |
| http://speed-new.com/ |
| http://standupamericanow.org/ |
| http://streamsport365.com/ |
| http://sunomusic.com/ |
| http://takbeeremusalsal.blogspot.com/2012/07/myanmar-muslims-massacre.html/ |
| http://takbeeremusalsal.blogspot.in/2012/07/myanmar-muslims-massacre.html |
| http://tamilyogi.best |
| http://thenationalcampaign.org/ |
| http://thepiratebay.org/ |
| http://theporndude.com |
| http://tiktok.com |
| http://titre1.ir/ |
| http://topupmp3.com/ |
| http://transsexual.org/ |
| http://twocircles.net/ |
| http://twocircles.net/2012jun01/petty_dispute_leads_death_one_mathura.html/ |
| http://uploaded.net/ |
| http://vijayknair.blogspot.in/2011/07/caravan-and-arindam-chaudhuri-pot-and.html |
| http://wapindia.net/ |
| http://waprocks.in/ |
| http://watchcric.org/ |
| http://www.4online-gambling.com/ |
| http://www.888casino.com/ |
| http://www.89.com/ |
| http://www.abcunderwear.com/ |
| http://www.amnestyusa.org/the-state-of-lgbt-rights-worldwide/ |
| http://www.anonymizer.ru/ |
| http://www.anonymsurfen.com/ |
| http://www.apkpure.com |
| http://www.appzplanet.com/ |
| http://www.atjehcyber.net/ |
| http://www.bannedthought.net/SriLanka/Sanmugathasan/ItalianPartyCongress-1969.pdf/ |
| http://www.beer.com/ |
| http://www.betfair.com/ |
| http://www.bglad.com/ |

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| http://www.bhandafodu.blogspot.com/ |
| http://www.bitcomet.com/ |
| http://www.bittornado.com/ |
| http://www.blackjackinfo.com/ |
| http://www.blogster.com/ |
| http://www.caravanmagazine.in/category/tags/arindam-chaudhuri |
| http://www.caravanmagazine.in/perspectives/iipms-rs500-million-lawsuit-against-caravan |
| http://www.casinotropez.com/ |
| http://www.ceramopolis.com/ |
| http://www.chantelle.com/ |
| http://www.collegehumor.com/ |
| http://www.consumercourt.in/other-product-services/114783-fraud-done-iipm-delhi.html |
| http://www.consumercourtforum.in/f39/iipm-abusing-student-62309 |
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| http://www.domobile.com/ |
| http://www.drugsense.org/ |
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| http://www.europacasino.com/ |
| http://www.figleaves.com/ |
| http://www.freshpair.com/ |
| http://www.fuckingfreemovies.com/ |
| http://www.gayegypt.com/ |
| http://www.gayscape.com/ |
| http://www.globalfire.tv/ |
| http://www.globet.com/ |
| http://www.goldenrivieracasino.com/ |
| http://www.gotgayporn.com/ |
| http://www.helo-app.com/ |
| http://www.hinduunity.org/ |
| http://www.http-tunnel.com/ |
| http://www.hustler.com/ |
| http://www.idsoftware.com/ |
| http://www.imamali8.com/ |
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| http://www.indianexpress.com/news/iipm-can-t-confer-degrees-ugc/679253/ |
| http://www.indianexpress.com/news/iipm-students-file-cheating-complaint-against-dean/790646 |
| http://www.inetprivacy.com/ |

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| http://www.joinrlp.org/ |
| http://www.khilafah.com/ |
| http://www.lesbiansubmission.com/ |
| http://www.linphone.org/ |
| http://www.luckynugget.com/ |
| http://www.mailinator.com/ |
| http://www.mofept.gov.pk/ |
| http://www.monacogoldcasino.com/ |
| http://www.netzoola.com/ |
| http://www.nmrc.org/ |
| http://www.nndh.com/ |
| http://www.no-ip.com/ |
| http://www.no-porn.com/ |
| http://www.parallel-app.com/ |
| http://www.partypoker.com/ |
| http://www.pcgamer.com/ |
| http://www.peacefire.org/circumventor/simple-circumventor-instructions.html |
| http://www.playboy.com/ |
| http://www.pof.com/ |
| http://www.pogo.com/ |
| http://www.poker.com/ |
| http://www.pokerpages.com/ |
| http://www.pokerstars.com/ |
| http://www.pornhub.com/ |
| http://www.positive.org/ |
| http://www.rahulyadav.com/ |
| http://www.realbeer.com/ |
| http://www.riverbelle.com/ |
| http://www.rockstargames.com/ |
| http://www.rollitup.org/ |
| http://www.royalvegas.com/ |
| http://www.ruf-ch.org/ |
| http://www.rxmarijuana.com/ |
| http://www.scarleteen.com/ |
| http://www.scientificastrology.com/ |
| http://www.sex.com/ |
| http://www.sexedlibrary.org/ |
| http://www.sina.com.cn/ |
| http://www.slotland.com/ |
| http://www.spinpalace.com/ |

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| http://www.sportingbet.com/ |
| http://www.sportsinteraction.com/ |
| http://www.square-enix.com/ |
| http://www.thehacktivist.com/ |
| http://www.tiktok.com |
| http://www.topdrawers.com/ |
| http://www.ultimate-anonymity.com/ |
| http://www.ultimatebirthcontrol.com/ |
| http://www.unipay2u.com/ |
| http://www.usacasino.com/ |
| http://www.veoh.com/ |
| http://www.videolan.org/ |
| http://www.visarev.com/ |
| http://www.warhammeronline.com/ |
| http://www.wetplace.com/ |
| http://www.winespectator.com/ |
| http://www.xender.com/ |
| http://www.xnxx.com |
| http://www.xnxx.tv |
| http://www.xroxy.com/ |
| http://www.xvideos.com/ |
| http://www.youjizz.com |
| http://www.youporn.com/ |
| http://www.zone-h.org/ |
| http://xanga.com/ |
| http://xhamster.com |
| http://xnxx.com |
| http://xvideos.com |
| http://youthcurry.blogspot.in/2005/10/lies-damned-lies-and-fake-blogs.html |
| https://1337x.st/ |
| https://1337x.to/ |
| https://1escorts.net/ |
| https://1movieshd.com/tv/free-quantum-leap-hd-88330 |
| https://1tamilgun.com/ |
| https://2020sikhreferendum.org/ |
| https://2adultflashgames.com/ |
| https://300mbfilms.org/ |
| https://9anime.live/ |
| https://9gag.tv/ |
| https://aadharcardstatusdownload.com/ |
| https://abs.twimg.com/sticky/default_profile_images/default_profile_normal.png |

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| https://acefile.co/ |
| https://adf.ly/ |
| https://adultfriendfinder.com/ |
| https://adultwork.com/ |
| https://alfafile.net/ |
| https://alipay.com/ |
| https://api.polargrizzly.com/ |
| https://api.protonvpn.ch/tests/ping |
| https://api.tunnelbear.com/v2/status |
| https://beeg.com/ |
| https://betway.com |
| https://brandonly.in/ |
| https://briarproject.org/ |
| https://citizensinchargefoundation.org/ |
| https://clarionproject.org/ |
| https://cloud.mail.ru/ |
| https://corenortheast.wordpress.com/ |
| https://coronavirus.app/ |
| https://coronavirus.app/tracking/india |
| https://cramanipur.wordpress.com/ |
| https://ctrlq.org/ |
| https://currentaffairspk.com/ |
| https://dafabet.com/ |
| https://depositfiles.com/ |
| https://desijammers.com/ |
| https://downace.com/ |
| https://dpboss.net |
| https://dubai2020.us/ |
| https://duckduckgo.com/ |
| https://dunyanews.tv/ |
| https://element.io/ |
| https://external-content.duckduckgo.com/robots.txt |
| https://eztv.ag/ |
| https://eztv.re/ |
| https://fabulous.com/ |
| https://fbcdn.net/robots.txt |
| https://flixtor.to |
| https://funscrape.com/ |
| https://gogoanime.tv/ |
| https://googleweblight.com/i?u=https%3A%2F%2Fexample.com%2F |
| https://hidester.com/ |

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| https://hola.org/ |
| https://ihago.net/ |
| https://imgbox.com/ |
| https://imgur.com/ |
| https://indiansexstories.net/ |
| https://isoland2.lilithgames.com/ |
| https://kashmirawareness.org/ |
| https://kashmircivitas.com/ |
| https://kashmirscholarsnetwork.org/ |
| https://kat.am/ |
| https://katcr.to/ |
| https://kickasstorrents.to/ |
| https://kikass.to/ |
| https://limetorrents.pro/ |
| https://list.ly/list/FAQ-lgbtq-support-groups-and-resources-in-india |
| https://lockerdome.com/ |
| https://lovelykashmir.wordpress.com/ |
| https://m.dafabet.com/ |
| https://mail.qq.com/ |
| https://mega.io/ |
| https://mega.nz/ |
| https://mirrorace.com/ |
| https://musicindiaonline.com/ |
| https://mycasino.in/ |
| https://myrailinfo.in/ |
| https://myspace.com/ |
| https://newgrounds.com/ |
| https://news.sina.com.cn/ |
| https://nitroflare.com/ |
| https://nyaa.si |
| https://occupystreams.org/ |
| https://ok.ru/ |
| https://pastebin.com/ |
| https://pb13.org/ |
| https://pb4u.org/ |
| https://pbteam.org/ |
| https://piratebay.live/ |
| https://popularfrontindia.org/ |
| https://pornhub.com/ |
| https://proxify.com/ |
| https://pun2k.org/ |

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| https://qqplayer.net/ |
| https://racaty.net/ |
| https://rapidgator.net/ |
| https://rargb.to/ |
| https://raw.githubusercontent.com/ooni/spec/master/README.md |
| https://rj10.org/ |
| https://romwe.co.in/ |
| https://romwe.com/ |
| https://runforkashmir.org/ |
| https://sadapind.org/ |
| https://savefrom.net/ |
| https://savitabhabhi.com/ |
| https://secure.avaaz.org/ |
| https://sendit.cloud/ |
| https://sendspace.com/ |
| https://shareit.one/ |
| https://sheikyermami.com/2012/06/burma-tensions-between-buddhist-residents-and-illegal-muslims-kill-seven/ |
| https://sikhsarenotindian.org/ |
| https://sikhsforjustice.org/ |
| https://sikhsiyasat.net/ |
| https://speedify.com/ |
| https://spideroak.com/ |
| https://standwithkashmir.org/ |
| https://stdfireworks.com/ |
| https://streamplay.to/ |
| https://subscene.com/ |
| https://surfshark.com/ |
| https://t.me/ |
| https://tamtam.chat/ |
| https://taobaolive.taobao.com/ |
| https://telegra.ph/ |
| https://thepiratebay.asia/ |
| https://thepiratebay.org/ |
| https://thepiratescove.us/ |
| https://threema.ch/ |
| https://tiktok.com |
| https://translate.baidu.com/ |
| https://tse1.explicit.bing.net/robots.txt |
| https://turbobit.net/ |
| https://video.webcric.com/ |

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| https://vimple.ru/ |
| https://vipmarathi.com/ |
| https://vivavideo.tv/ |
| https://vshare.eu/ |
| https://web.wechat.com/ |
| https://weibo.com/ |
| https://ww7.0123movie.net/home.html |
| https://www.300mbfilms.ws/ |
| https://www.40somethingmag.com/ |
| https://www.abc.net.au/news/ |
| https://www.actionbd.net/ |
| https://www.aliexpress.com/ |
| https://www.alqassam.ps/ |
| https://www.americansforkashmir.org/ |
| https://www.antarvasnax.com/ |
| https://www.apusapps.com/ |
| https://www.apuslauncher.com/ |
| https://www.ashams.com/ |
| https://www.azaadmic.com/ |
| https://www.b4blaze.com/ |
| https://www.baidu.com/ |
| https://www.beautyplus.com/ |
| https://www.bigo.tv/ |
| https://www.binance.com/ |
| https://www.buydomains.com/ |
| https://www.camcard.com/ |
| https://www.camscanner.com/ |
| https://www.chessrushgame.com/ |
| https://www.ciqff.org/ |
| https://www.cmcm.com/ |
| https://www.comdotgame.com/ |
| https://www.crickethighlights.cricket/ |
| https://www.cyberhunter.game/ |
| https://www.dafabet.com/ |
| https://www.dailymail.co.uk/ |
| https://www.dailymotion.com/ |
| https://www.datsbrandstore.in/ |
| https://www.dawn-of-isles.com/ |
| https://www.desitellybox.me/ |
| https://www.doffitt.com/ |
| https://www.dowrycalculator.com/ |

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| https://www.epa.gov/ |
| https://www.flirthookup.com/ |
| https://www.goarainbowtrust.com/ |
| https://www.hidemyass.com/ |
| https://www.hypeshop.in/ |
| https://www.imqq.com/ |
| https://www.indybay.org/ |
| https://www.kraken.com/ |
| https://www.kwai.com/ |
| https://www.lalamove.com/ |
| https://www.lifeafter.game/ |
| https://www.limetorrents.info/ |
| https://www.limetorrents.lol/ |
| https://www.liveleak.com/ |
| https://www.lushstories.com/ |
| https://www.megaproxy.com/ |
| https://www.meitu.com/ |
| https://www.mgtv.com/ |
| https://www.mobilelegends.com/ |
| https://www.mp3.com/ |
| https://www.namecheap.com/ |
| https://www.nutaku.net/ |
| https://www.pinkcupid.com/ |
| https://www.pornhub.com/ |
| https://www.pornhub.org |
| https://www.pornhub.org/ |
| https://www.privateinternetaccess.com/ |
| https://www.pubgmobile.com/ |
| https://www.purevpn.com/ |
| https://www.rarbg.to/ |
| https://www.referendum2020.org/ |
| https://www.replaymatches.net/ |
| https://www.sendspace.com/ |
| https://www.shein.com/ |
| https://www.shein.in/ |
| https://www.shop101.com/ |
| https://www.singoldating.com/ |
| https://www.snapdealwinner.org/ |
| https://www.studycrux.com/ |
| https://www.tencent.com/ |

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| https://www.themoviedb.org/ |
| https://www.tiktok.com/ |
| https://www.torproject.org/ |
| https://www.totalsportek.com/ |
| https://www.trolleytimes.online/ |
| https://www.ucweb.com/ |
| https://www.usatoday.com/ |
| https://www.ushareit.com/ |
| https://www.utopia-asia.com/tipsindi.htm |
| https://www.vigovideo.net/ |
| https://www.wechat.com/ |
| https://www.weiyun.com/ |
| https://www.wemeet.net/ |
| https://www.x-art.com/ |
| https://www.xnxx.com/ |
| https://www.ziggo.nl/ |
| https://x1337x.eu/ |
| https://xhamster.com/ |
| https://xnxx.com |
| https://y.qq.com/ |
| https://yes2khalistan.org/ |
| https://yesfor2020.org/ |
| https://yourlust.com/ |
| https://yts.lt/ |
| https://yts.mx/ |
| https://z-lib.org/ |
| https://zeefiles.download/ |
| https://zupload.me/ |

# Annex II: List of ISPs

| ASN | ASN Name |
|---|---|
| AS55836 | Reliance Jio Infocomm Limited |
| AS138730 | Sns Internet Services Private Limited |
| AS16276 | OVH SAS |
| AS45609 | Bharti Airtel Limited |

| ASN | ASN Name |
|---|---|
| AS45271 | Idea Cellular Limited |
| AS9829 | Bharat Sanchar Nigam Ltd |
| AS24560 | Bharti Airtel Limited |
| AS24309 | Atria Convergence Technologies Pvt. Ltd., |
| AS134033 | HIREACH BROADBAND PRIVATE LTD |
| AS31898 | Oracle Corporation |
| AS58966 | <unknown> |
| AS133982 | Excitel Broadband Private Limited |
| AS17665 | ONEOTT INTERTAINMENT LIMITED |
| AS38266 | Hutchison Max Telecom Limited |
| AS147267 | GBPL GLOBAL BROADBAND PRIVATE LIMITED |
| AS132770 | Gazon Communications India Limited |
| AS135718 | DISHAWAVES INFONET PVT. LTD |
| AS55577 | Beam Telecom Pvt Ltd |
| AS55352 | Microscan Computers Private Limited |
| AS45820 | TTSL-ISP DIVISION |
| AS141806 | SANSOM NETTECH PVT LTD |
| AS134674 | Tata Play Broadband Private Limited |
| AS55824 | National Knowledge Network |
| AS138245 | Xpress Net Solution |
| AS55947 | Bangalore Broadband Network Pvt Ltd |
| AS135760 | Speednet Unique Network Pvt Ltd |
| AS136714 | Stampede Communications Pvt. Ltd. |
| AS17488 | HATHWAY CABLE AND DATACOM LIMITED |
| AS14061 | DigitalOcean, LLC |
| AS24186 | RailTel Corporation of India Ltd. |
| AS58906 | Shivansh Infotech pvt Ltd |
| AS141317 | Neha Infonet |
| AS23860 | Alliance Broadband Services Pvt. Ltd. |
| AS18209 | Beam Telecom Pvt Ltd |
| AS17747 | SITI NETWORKS LIMITED |
| AS9498 | Bharti Airtel Limited |
| AS45916 | Gujarat Telelink Pvt Ltd |
| AS133596 | Infranet Services Private Limited |

| ASN | ASN Name |
|---|---|
| AS141556 | Rv Infotainment Private Limited |
| AS138754 | Kerala Vision Broad Band Private Limited |
| AS17465 | Asianet Satellite Communications Pvt Ltd |
| AS133311 | Maxtech Broadband Pvt Ltd |
| AS136334 | Vortex Netsol Private Limited |
| AS133696 | Fastway Transmission Private Limited |
| AS138225 | One Eight Technologies Private Limited |
| AS133968 | Logon Broadband |
| AS45769 | D-Vois Broadband Pvt Ltd |
| AS4755 | Tata Communications Limited |
| AS13335 | Cloudflare, Inc. |
| AS133648 | MNR Broadband Services Pvt. Ltd. |
| AS132453 | TRIPLE PLAY BROADBAND PRIVATE LIMITED |
| AS132758 | Eye Fastnet Service Private Limited |
| AS133301 | DWANIRINN |
| AS132754 | Realtel Network Services Pvt Ltd |
| AS45194 | Syscon Infoway Pvt. Ltd. |
| AS7633 | Software Technology Parks of India - Bangalore |
| AS21859 | Zenlayer Inc |
| AS133287 | Andhra Pradesh State FiberNet Limited |
| AS16509 | Amazon.com, Inc. |
| AS17813 | Mahanagar Telephone Nigam Limited |
| AS131442 | Digital Network Associates Pvt Ltd |
| AS131473 | SRM University |
| AS133007 | UCN CABLE NETWORK PVT. LTD |
| AS131269 | Beam Telecom Pvt Ltd |
| AS45184 | DEN Networks Limited |
| AS132296 | Seven Star Digital Network Private Limited |
| AS58762 | Candor infosolution Pvt Ltd |
| AS136318 | Inter Net Ly Private Limited |
| AS58678 | Intech Online Private Limited |
| AS18002 | World Phone Internet Services Pvt. Ltd. |
| AS134946 | Indophone Networks |
| AS131210 | Yashash Cable Network Pvt Ltd |

| ASN | ASN Name |
|---|---|
| AS45775 | WISH NET PRIVATE LIMITED |
| AS56268 | Northeast Dataa Network Pvt Ltd |
| AS132215 | Power Grid Corporation of India Limited |
| AS137956 | Indian Institute of Technology Ropar |
| AS17754 | Excellmedia |
| AS133661 | Netplus Broadband Services Private Limited |
| AS10029 | SHYAM SPECTRA PVT LTD |
| AS56166 | Indian Institute of Science Education and Research Bhopal |
| AS58898 | Rainbow communications India Pvt Ltd |
| AS40676 | Psychz Networks |
| AS133001 | Airnet Cable And Datacom Pvt Ltd |
| AS138296 | Juweriyah Networks Private Limited |
| AS58765 | Bittel Telecom Pvt Ltd |
| AS58971 | Shine Communications Pvt Ltd |
| AS24554 | Fivenetwork Solution India Pvt Ltd Internet |
| AS132116 | Ani Network Pvt Ltd |
| AS45582 | VAINAVI INDUSTIES LTD, INTERNET SERVICE PROVIDER, INDIA |
| AS45117 | Ishan's Network |
| AS18229 | CtrlS Datacenters Ltd. |
| AS45536 | Readylink Internet Services Limited |
| AS18196 | 7 STAR DOT COM Pvt. Ltd |
| AS137000 | VIJAYALAKSHMI NET SERVICES PVT LTD |
| AS135834 | Multicraft Digital Technologies Private Limited |
| AS135031 | RI Networks Pvt. Ltd. |
| AS138790 | Sankrish Systems And Technologies Pvt Ltd |
| AS45804 | Meghbela Cable & Broadband Services (P) Ltd |
| AS138771 | Specific Net Pvt. Ltd. |
| AS141514 | Sancfil Technologies Internet Services Pvt.Ltd |
| AS134259 | Skynet |
| AS17483 | City Online Services Ltd |
| AS9830 | SWIFT ONLINE BORDER AS |
| AS135139 | SKYLINK NETWORKS |
| AS17917 | Quadrant Televentures Limited |

| ASN | ASN Name |
|---|---|
| AS55847 | National Knowledge Network |
| AS141536 | Interlock Communication |
| AS18101 | Reliance Communications Limited |
| AS63949 | Linode, LLC |
| AS137085 | Ani Broadband Service Pvt Ltd |
| AS147216 | Solanki Fibre Connect Pvt Ltd |
| AS133590 | Wow Solutions and Systems Pvt Ltd |
| AS137282 | KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY |
| AS146902 | BIGVENTURES MEDIA PVT LTD |
| AS42201 | PVDataNet AB |
| AS58405 | 18A/19,DODDANEKUNDI |
| AS141270 | Indian Institute Of Technology Indore |
| AS136284 | Paradise Telecom Pvt Ltd |
| AS132768 | Five network Broadband Solution Pvt Ltd |
| AS134426 | Mahataa Information India Private Limited |
| AS18207 | YOU Broadband & Cable India Ltd. |
| AS45415 | Vasai Cable Pvt. Ltd. |
| AS59164 | Apollo Online Services Pvt ltd |
| AS133973 | Net Connect Wifi Pvt Ltd |
| AS136946 | Weebo networks Pvt Ltd |
| AS132757 | Sristi Sanchar Webnet Ltd. |
| AS135719 | Lm Energy And Software Private Limited |
| AS134023 | Aligarh Muslim University |
| AS55862 | Wan and lan Internet Pvt.Ltd |
| AS132497 | DIGITAL NETWORK ASSOCIATES PRIVATE LIMITED |
| AS136336 | Thamizhaga Internet Communications Private Limited |
| AS135722 | Teleglobal Communications Pvt Ltd |
| AS45528 | Tikona Infinet Ltd. |
| AS10199 | Tata Communications Limited |
| AS45235 | GEOCITY NETWORK SOLUTIONS PVT LTD |
| AS133997 | E and U Technology Services LLP |
| AS134875 | ZPOINT KOTA |
| AS132556 | Blue Lotus Support Services Pvt Ltd |
| AS135801 | C32 Broadband Pvt. Ltd. |

| ASN | ASN Name |
|---|---|
| AS135207 | Cloudnet Communications Pvt Ltd |
| AS17426 | Primesoftex Ltd |
| AS138272 | Hi5 Multimedia Services Pvt Ltd |
| AS55839 | Microsense Private Limited |
| AS136373 | Allied It Infrastructure And Services Pvt Ltd |
| AS17762 | Tata Teleservices (Maharashtra) Ltd |
| AS135247 | K Net Solutions Pvt Ltd |
| AS58965 | ANJANI BROADBAND SOLUTIONS PVT.LTD. |
| AS135872 | <unknown> |
| AS136374 | Microtalk Communications Pvt Ltd |
| AS210777 | Daryll Swer |
| AS133652 | Zapbytes Technologies Pvt. Ltd. |
| AS132559 | Gatik Business Solutions |
| AS133232 | SAMPARK ESTATES PVT. LTD. |
| AS141799 | INDTEL INFRA PRIVATE LIMITED |
| AS133589 | DECO MEDIA AND COMMUNICATIONS PVT LTD |
| AS135239 | Sonali Internet Services Pvt Ltd |
| AS55410 | Vodafone Idea Ltd. (VIL) |
| AS58659 | Quest Consultancy Pvt Ltd |
| AS132971 | Sikka Star powered by Sikka Broadband |
| AS134026 | Ultranet services private limited |
| AS139537 | SFour Cablenet Pvt. Ltd. |
| AS135845 | Krishiinet Infocom Private Limited |
| AS134886 | Super Sonic Broadband Pvt Ltd |
| AS133647 | ELXIRE DATA SERVICES PVT. LTD. |
| AS135697 | Tachyon Communications Pvt Ltd |
| AS134009 | NETCOM ENTERPRISES PVT LTD |
| AS134177 | Rural Broadband Pvt. Ltd |
| AS132785 | Shiv Nadar University |
| AS135208 | <unknown> |
| AS141834 | Neolog Online Services Private Limited |
| AS137133 | Billa Broadband Network Pvt Ltd |
| AS138671 | SAHYOG OPTIC PVT. LTD. |
| AS134052 | LANCEFIBERNET PVT LTD |

| ASN | ASN Name |
| --- | --- |
| AS212238 | Datacamp Limited |
| AS135692 | Global Ra Net Services Pvt. Ltd. |
| AS136323 | Ngc Broadband Pvt. Ltd. |
| AS141340 | IIT Madras |
| AS137679 | Shree Net Online Services Private Limited |
| AS59162 | U.P. COMMUNICATION SERVICES PVT LTD |
| AS134053 | ETHERNET XPRESS PVT. LTD. |
| AS134042 | MAHA Mediacom LLP |
| AS138281 | Hybrid Hash Pvt. Ltd. |
| AS135734 | Birla Institute Of Technology And Science |
| AS134375 | Fusionnet Web Services Private Limited |
| AS138778 | Skyrocket Network Solutions |
| AS134032 | INFONET COMM ENTERPRISES |
| AS142508 | Netfirst Communication Pvt Ltd |
| AS135763 | GAYATRI COMMUNICATIONS |
| AS140137 | Starplanet Technovision Private Limited |
| AS36351 | SoftLayer Technologies Inc. |
| AS55644 | Vodafone Idea Ltd. (VIL) |
| AS146860 | Skytech Mediacom Opc Private Limited |
| AS134316 | World Star Communication |
| AS136696 | Arktel Networks Pvt. Ltd |
| AS138277 | Radinet Info Solutions Private Limited |
| AS135817 | ESTO MEDIA PRIVATE LIMITED |
| AS134341 | jdm broadband services pvt ltd |
| AS135738 | Adn Broadband |
| AS133278 | Dehradun Enet Solutions Private Ltd |
| AS132420 | E2E Networks Limited |
| AS132220 | JPR Digital Pvt. Ltd. |
| AS136633 | Sanhati Infocom Services Private Limited |
| AS132335 | LeapSwitch Networks Pvt Ltd |
| AS4758 | National Informatics Centre |
| AS133227 | Anish Infoline Pvt Ltd |
| AS141303 | Dvr Broadband Services |
| AS20473 | The Constant Company, LLC |

| ASN | ASN Name |
|---|---|
| AS133685 | SDN TELECOM PVT LTD |
| AS136724 | Praction Networks Pvt Ltd |
| AS135706 | Ddc Broadband Pvt. Ltd. |
| AS140171 | Reis Network Solutions |
| AS140118 | Indian Institute Of Technology Banaras Hindu University |
| AS142498 | AJINKYA INTERNET PVT LTD |
| AS134307 | Classicnet Broadband Network |
| AS137125 | Netsat Communications Private Limited |
| AS8075 | Microsoft Corporation |
| AS133720 | SOFT CALL CUST-O-CARE PRIVATE LIMITED |
| AS36492 | Google, LLC |
| AS139557 | Abis Badlapur Network Private Limited |
| AS138290 | Unigro Infranet Online Pvt. Ltd. |
| AS133273 | Tata Institute of Social Sciences |
| AS55814 | Siliguri Internet & Cable TV Pvt. Ltd. |
| AS30337 | Deloitte Services LP |
| AS135780 | AirFiber Networks Pvt Ltd |
| AS135269 | Fast 4 Technologies |
| AS131299 | tornado net private limited |
| AS140952 | Strong Technology, LLC |
| AS132934 | Skymax Broadband Services Pvt. Ltd. |
| AS139490 | Aspt Networks Pvt Ltd |
| AS134860 | Entire Cable And Broadband Opc Private Limited |
| AS141014 | Balaji Teleworks Development Pvt Ltd |
| AS45648 | Bell Teleservices India Pvt Ltd |
| AS146872 | Weblink Systems Private Limited |
| AS136704 | Apex Broadband Network Pvt. Ltd. |
| AS45433 | Kappa Internet Services Private Limited |
| AS133255 | Elxer Communications Private Limited |
| AS135214 | Spider Broadband Pvt. Ltd. |
| AS134337 | R2 Net Solutions Pvt Ltd |
| AS134899 | Cityzone Infonet Pvt Ltd |
| AS137087 | Sb Networks |
| AS55832 | HOME SYSTEMS PVT.LTD |

| ASN | ASN Name |
|---|---|
| AS138311 | Limerick Technologies Pvt Ltd |
| AS58763 | Balaji Services |
| AS133275 | Gigantic Infotel Pvt Ltd |
| AS137114 | Kwikzo Telecomm Pvt Ltd |
| AS134258 | Bhawani Cable and Broadband Services |
| AS137678 | Protoact Digital Network Pvt. Ltd. |
| AS141837 | Goodluck Broadband Private Limited |
| AS133674 | Adarsh Infosolutions |
| AS136637 | Cify IT Services Pvt Ltd |
| AS133289 | Deshkal Network Pvt Ltd |
| AS141295 | Madhya Pradesh Agency For Promotion Of Information Technology |
| AS135714 | Fans Networks Private Limited |
| AS132976 | Kings Broadband Pvt Ltd |

# Annex III: Glossary

| DNS | DNS stands for "Domain Name System" and it maps domain names to IP addresses. |
|---|---|
| | A domain is a name that is commonly attributed to websites when they're created. It allows websites to be more easily accessed and remembered. For example, twitter.com is the domain of the Twitter website. |
| | However, computers can't connect to internet services through domain names. They do so through IP addresses: the digital address of each service on the internet. Similarly, in the physical world, you would need the address of a house (rather than the name of the house itself) in order to visit it. |
| | The Domain Name System (DNS) is responsible for transforming a human-readable domain name (such as ooni.org) into its numerical IP address counterpart (in this case:104.198.14.52), thus allowing your computer to access the intended website. |
| HTTP | The Hypertext Transfer Protocol (HTTP) is the underlying protocol used by the World Wide Web to transfer or exchange data across the internet. |

| | |
|---|---|
| | The HTTP protocol allows communication between a client and a server. It does so by handling a client's request to connect to a server and the server's response to the client's request.<br><br>All websites include an HTTP or HTTPS prefix (such as http://example.com/) so that your computer (the client) can request and receive the content of a website (hosted on a server).<br><br>The transmission of data over the HTTP protocol is unencrypted. |
| Heuristics | Heuristics obtain further confirmed blockings other than those which are detected based on OONI blocking fingerprints. More detailed explanation is found here. |
| ISP | An Internet Service Provider (ISP) is an organisation that provides services for accessing and using the internet.<br><br>ISPs can be state-owned, commercial, community-owned, non-profit, or otherwise privately owned.<br><br>Vodafone, AT&T, Airtel, and MTN are examples of ISPs. |
| Middle boxes | A middlebox is a computer networking device that transforms, inspects, filters, or otherwise manipulates traffic for purposes other than packet forwarding.<br><br>Many Internet Service Providers (ISPs) around the world use middleboxes to improve network performance, to provide users with faster access to websites, and for a number of other networking purposes.<br><br>Middleboxes are sometimes also used to implement internet censorship and/or surveillance.<br><br>The OONI Probe app includes two tests designed to measure networks with the aim of identifying the presence of middleboxes. |
| TCP | The Transmission Control Protocol (TCP) is one of the main protocols on the internet.<br><br>To connect to a website, your computer needs to establish a TCP connection to the address of that website.<br><br>TCP works on top of the Internet Protocol (IP), which defines how to address computers on the internet.<br><br>When speaking to a machine over the TCP protocol, you use an IP and a port pair, which looks something like this: 10.20.1.1:8080.<br><br>The main difference between TCP and (another very popular protocol called) UDP is that TCP has the notion of a "connection", making it a "reliable" transport protocol. |

| TLS | Transport Layer Security (TLS) – also referred to as SSL – is a cryptographic protocol that allows you to maintain a secure, encrypted connection between your computer and an internet service.<br><br>When you connect to a website through TLS, the address of the website will begin with HTTPS (such as https://www.facebook.com/), instead of HTTP. |
|---|---|

A comprehensive glossary related to OONI can be accessed here: https://ooni.org/support/glossary/.

# Annex IV: Methodology

## Data

Data computed based on the heuristics for this report can be downloaded here: https://github.com/Sinar/imap-data, whereas aggregated data can be downloaded from OONI Explorer.

## Coverage

The iMAP State of Internet Censorship Country Report covers the findings of network measurements collected through the Open Observatory of Network Interference (OONI) OONI Probe App that measures the blocking of websites, instant messaging apps, circumvention tools, and network tampering. The findings highlight the websites, instant messaging apps, and circumvention tools confirmed to be blocked, as well as ASNs with censorship detected and the methods of network interference applied. The report also provides background context on the network landscape combined with the latest legal, social, and political issues and events, which might have affected the implementation of internet censorship in the country.

In terms of timeline, this iMAP report covers measurements obtained in the one-year period from 1 July 2022 to 30 June 2023. The countries covered in this round are Cambodia, Hong Kong, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam, Timor Leste, and India.

## How are the network measurements gathered?

Network measurements are gathered through the use of the OONI Probe app, a free software tool developed by the Open Observatory of Network Interference (OONI). To learn more about how the OONI Probe test works, please visit https://ooni.org/nettest/.

iMAP Country Researchers and anonymous volunteers run the OONI Probe app to examine the accessibility of websites included in the Citizen Lab test lists. iMAP Country Researchers

actively review the country-specific test lists to ensure up-to-date websites are included and context-relevant websites are properly categorised, in consultation with local communities and digital rights network partners. We adopt the approach taken by Netalitica in reviewing country-specific test lists.

It is important to note that the findings are only applicable to the websites that were examined and do not fully reflect all instances of censorship that might have occurred during the testing period.

## How are the network measurements analysed?

OONI processes the following types of data through its data pipeline:

### Country code

By default, OONI collects the code corresponding to the country from which the user is running OONI Probe tests from. It does so by automatically searching for it based on the user's IP address through their ASN database and the MaxMind GeoIP database.

### Autonomous System Number (ASN)

By default, OONI collects the Autonomous System Number (ASN) of the network used to run the OONI Probe app, thereby revealing the network provider of a user.

### Date and time of measurements

By default, OONI collects the time and date of when tests were run in order to determine when network interferences occur and to allow for comparison across time. The time and date data uses UTC as the standard time zone. In addition, the charts generated on OONI MAT exclude measurements on the last day by default.

### Categories

The 32 website categories are based on the Citizenlab test lists: https://github.com/citizenlab/test-lists. As not all websites tested on OONI are on these test lists, some websites would have unclassified categories.

| No. | Category Description | Code | Description |
|-----|---------------------|------|-------------|
| 1 | Alcohol & Drugs | ALDR | Sites devoted to the use, paraphernalia, and sale of drugs and alcohol irrespective of the local legality. |
| 2 | Religion | REL | Sites devoted to discussion of religious issues, both supportive and critical, as well as discussion of minority religious groups. |

| No. | Category Description | Code | Description |
|-----|---------------------|------|-------------|
| 3 | Pornography | PORN | Hard-core and soft-core pornography. |
| 4 | Provocative Attire | PROV | Websites which show provocative attire and portray women in a sexual manner, wearing minimal clothing. |
| 5 | Political Criticism | POLR | Content that offers critical political viewpoints. Includes critical authors and bloggers, as well as oppositional political organisations. Includes pro-democracy content, anti-corruption content as well as content calling for changes in leadership, governance issues, legal reform. Etc. |
| 6 | Human Rights Issues | HUMR | Sites dedicated to discussing human rights issues in various forms, including women's rights and rights of minority ethnic groups. |
| 7 | Environment | ENV | Pollution, international environmental treaties, deforestation, environmental justice, disasters, etc. |
| 8 | Terrorism and Militants | MILX | Sites promoting terrorism, violent militant or separatist movements. |
| 9 | Hate Speech | HATE | Content that disparages particular groups or persons based on race, sex, sexuality or other characteristics |
| 10 | News Media | NEWS | This category includes major news outlets (BBC, CNN, etc.) as well as regional news outlets and independent media. |
| 11 | Sex Education | XED | Includes contraception, abstinence, STDs, healthy sexuality, teen pregnancy, rape prevention, abortion, sexual rights, and sexual health services. |
| 12 | Public Health | PUBH | HIV, SARS, bird flu, centres for disease control, World Health Organization, etc. |
| 13 | Gambling | GMB | Online gambling sites. Includes casino games, sports betting, etc. |
| 14 | Anonymization and circumvention tools | ANON | Sites that provide tools used for anonymization, circumvention, proxy-services and encryption. |
| 15 | Online Dating | DATE | Online dating services which can be used to meet people, post profiles, chat, etc. |

| No. | Category Description | Code | Description |
|---|---|---|---|
| 16 | Social Networking | GRP | Social networking tools and platforms. |
| 17 | LGBT | LGBT | A range of gay-lesbian-bisexual-transgender queer issues (excluding pornography). |
| 18 | File-sharing | FILE | Sites and tools used to share files, including cloud-based file storage, torrents, and P2P file-sharing tools. |
| 19 | Hacking Tools | HACK | Sites dedicated to computer security, including news and tools. This includes malicious and non-malicious content. |
| 20 | Communication Tools | COMT | Sites and tools for individual and group communications. This includes webmail, VoIP, instant messaging, chat, and mobile messaging applications. |
| 21 | Media sharing | MMED | Video, audio, or photo sharing platforms. |
| 22 | Hosting and Blogging Platforms | HOST | Web hosting services, blogging, and other online publishing platforms. |
| 23 | Search Engines | SRCH | Search engines and portals. |
| 24 | Gaming | GAME | Online games and gaming platforms, excluding gambling sites. |
| 25 | Culture | CULTR | Content relating to entertainment, history, literature, music, film, books, satire, and humour. |
| 26 | Economics | ECON | General economic development and poverty related topics, agencies, and funding opportunities. |
| 27 | Government | GOVT | Government-run websites, including military sites. |
| 28 | E-commerce | COMM | Websites of commercial services and products. |
| 29 | Control content | CTRL | Benign or innocuous content used as a control. |
| 30 | Intergovernmental Organisations | IGO | Websites of intergovernmental organisations such as the United Nations. |

| No. | Category Description | Code | Description |
|-----|---------------------|------|-------------|
| 31 | Miscellaneous content | MISC | Sites that don't fit in any category (XXX Things in here should be categorised). |

## IP addresses and other information

OONI does not collect or store users' IP addresses deliberately. To protect its users from potential risks, OONI takes measures to remove IP addresses from the collected measurements. However, there may be instances where users' IP addresses and other potentially personally-identifiable information are unintentionally collected, if such information is included in the HTTP headers or other metadata of measurements. For example, this can occur if the tested websites include tracking technologies or custom content based on a user's network location.

## Network measurements

The types of network measurements that OONI collects depend on the types of tests that are run. Specifications about each OONI test can be viewed through its git repository, and details about what collected network measurements entail can be viewed through OONI Explorer or through OONI's measurement API.

In order to derive meaning from the measurements collected, OONI processes the data types mentioned above to answer the following questions:
- Which types of OONI tests were run?
- In which countries were those tests run?
- On which networks were those tests run?
- When were the tests run?
- What types of network interference occurred?
- In which countries did network interference occur?
- In which networks did network interference occur?
- When did network interference occur?
- How did network interference occur?

To answer such questions, OONI's pipeline is designed to answer such questions by processing network measurement data to enable the following:
- Attributing measurements to a specific country.
- Attributing measurements to a specific network within a country.
- Distinguishing measurements based on the specific tests that were run for their collection.
- Distinguishing between "normal" and "anomalous" measurements (the latter indicating that a form of network tampering is likely present).
- Identifying the type of network interference based on a set of heuristics for DNS tampering, TCP/IP blocking, and HTTP blocking.
- Identifying block pages based on a set of heuristics for HTTP blocking.

- Identifying the presence of "middle boxes" within tested networks.

According to OONI, false positives may occur within the processed data due to a number of reasons. DNS resolvers (operated by Google or a local ISP) often provide users with IP addresses that are closest to them geographically. While this may appear to be a case of DNS tampering, it is actually done with the intention of providing users with faster access to websites. Similarly, false positives may emerge when tested websites serve different content depending on the country that the user is connecting from or when websites return failures even though they are not tampered with.

Furthermore, measurements indicating HTTP or TCP/IP blocking might actually be due to temporary HTTP or TCP/IP failures; they may not conclusively be a sign of network interference. It is therefore important to test the same sets of websites across time and to cross-correlate data before reaching a conclusion on whether websites are in fact being blocked.

Since block pages differ from country to country and sometimes even from network to network, it is quite challenging to accurately identify them. OONI uses a series of heuristics to try to guess if the page in question differs from the expected control, but these heuristics can often result in false positives. For this reason, OONI only confirms an instance of blocking when a block page is detected.

Upon the collection of more network measurements, OONI continues to develop its data analysis heuristics, based on which it attempts to accurately identify censorship events.

The full list of country-specific test lists containing confirmed blocked websites in Cambodia, Hong Kong (China), India, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam, and Timor-Leste can be viewed here: https://github.com/citizenlab/test-lists.

## Verifying OONI measurements

Confirmed blocked OONI measurements were based on fingerprints recorded here: https://github.com/ooni/blocking-fingerprints. These fingerprints are based on either DNS or HTTP blocking. The fingerprints recorded as confirmed blockings are either those implemented nationally or by ISPs.

Hence, the heuristics below were run on raw measurements for all countries under iMAP to further confirm blockings.

Firstly, IP addresses with more than 10 domains were identified. Then, each IP address was checked for the following:

| Does the IP in question point to a government blockpage? | | | |
|---|---|---|---|
| Yes | No, page timed out or shows Content Delivery Network (CDN) page. | | |
| ⬇ | ⬇ | | |
| **Confirmed blocking** | What information can we get about the IP by doing a whois lookup? | | |
| | Government or Local ISP* | CDN / Private IP | |
| | ⬇ | ⬇ | |
| | **Confirmed blocking** | Do we get a valid TLS certificate for one of the domains in question when doing a TLS handshake and specifying the SNI? | |
| | | Yes | No, there were blocking fingerprints found. | No, timed out. |
| | | ⬇ | ⬇ | ⬇ |
| | | **False positive** | **Confirmed blocking** | Sampled measurement is analysed on OONI Explorer. |

*Note: In the case of India, there was evidence of popular websites hosting their site on the ISPs network for quicker loading times as the ISPs sometimes offer such edge networking services. Hence, websites redirected to local websites are only marked as 'Potentially Blocked'.

When blocking is determined, any domain redirected to these IP addresses will be marked as "dns.confirmed".

Secondly, HTTP titles and bodies were analysed to determine blockpages. This example shows that the HTTP returns the text "The URL has been blocked as per the instructions of the DoT in compliance to the orders of Court of Law". Any domain redirected to these HTTP titles and bodies would be marked as "http.confirmed". As a result, false positives are eliminated and more confirmed blockings are obtained.

In the 2022 report, only confirmed blockings based on OONI or new fingerprints were reported. For this round of reporting in 2023, we further identified confirmed blockings by verifying blockings shown in news reports with OONI measurements. This is because there were blockings that could not be identified using the DNS or HTTP fingerprints. Typically, these websites were redirected to an unknown or bogon IP address, or they had other unknown errors that were ambiguous as to whether they were true or false positives of censorship. Hence, based on the news reports where the blocked websites were cited, confirmed blockings were further found by comparing the available measurements on OONI. For this study in particular, we marked them as confirmed blockings if there were more than 30 measurements and an anomaly rate of more than 1% throughout the one-year period of study. In addition, we manually checked the OONI measurements by cross-checking across networks, countries, and time periods.