



Internet Monitoring Action Project

iMAP Thailand 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 ten 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 nine countries. The project is done via Open Observatory Network Interference (OONI) detection and reporting systems, and it involves the maintenance of test lists and measurements.

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

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 Parliament and the Malaysian Government more open, transparent and accountable. More information is available at <https://sinarproject.org>.

About Thai Netizen Network

Thai Netizen Network (TNN) is a non-profit organisation in Thailand that advocates for digital rights and civil liberties. TNN started its operations in December 2008 and officially registered as the “Foundation for Internet and Civic Culture” in May 2014. TNN grew out of a group of netizens who had concerns about limited internet freedom during post-coup military governments, particularly the Computer Crime Bill. TNN’s primary activities are policy monitoring, making policy recommendations, digital security training for human rights defenders and journalists, and public awareness campaigns on personal digital security and privacy.

TNN’s activities are based on five themes: 1) access to information, 2) freedom of opinion and expression, 3) privacy, 4) participatory internet governance, and 5) rights over information resources.

How to Use This Report

Recommendations to audience:

- Supporting evidence of internet censorship
- Understanding what is the latest development of internet censorship in the country, in terms of methods of blockings and the websites affected by censorship
- Policy advocacy
- Call for action

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

- No significant developments in terms of internet censorship in Thailand in 2023. Pornography, Gambling and Provocative Attire websites had the highest rate of blocked and likely blocked.
- During the May 2023 elections, ectreport.com, which was a website that published unofficial election results, was unavailable on the night of 14 May 2023. This was also found inaccessible on OONI data, although there was no block page to confirm that it was a government or ISP mandated censorship.
- With the outcome of the May 2023 general elections, it is likely that this state of internet censorship will continue as the new government seems to be prioritizing economic policies, rather than changes in human rights. However, this may also mean that the current lèse-majesté laws are to continue and there may be future restrictions on political criticism in the online space.

Background

Population	71.7 million ¹
Internet penetration (% of population using the internet)	85% ²
Mobile subscriptions (per 100 inhabitants)	169 ³
Freedom on the Net ranking (2022)	29/100; Not free ⁴
Religion (%)	Buddhism: 93.5%, Islam: 5.4%, Christianity: 1.1%; Others: < 0.1% ⁵
ICCPR Ratification	Yes

Table 1: A summary of the demographics of Thailand

Thailand, officially known as the Kingdom of Thailand, is situated in the centre of mainland Southeast Asia and is home to more than 71 million people. It is bordered to the north by Myanmar and Laos, to the east by Laos and Cambodia, to the south by the Gulf of Thailand and Malaysia, and to the west by the Andaman Sea. The official language is Thai, and over 90% of the population uses the language daily.⁶ According to census data, 93% of the population practises Buddhism, whereas a significant 5% are Muslims, and the rest practise Christianity (1%) and other religions (<1%).⁷ Additionally, 51% of the population live in urban areas.

On 14 May 2023, the Thailand General Elections were held to elect 500 members of the House of Representatives. The left-wing populist and progressive party Move Forward won the largest number of seats with 151 seats or 36.2% of the vote in the House of Representatives. However, it was not enough for a majority. Pita, the leader of the Move Forward party formed a coalition in the Parliament to be elected as Prime Minister, but fell short of the votes during the first round of parliamentary voting on 13 July 2023. Later on 19 July, [he was suspended from being an MP](#) by the Constitutional Court as he held shares in a media company, and [his second nomination as Prime Minister was blocked](#) because of his policy to amend laws that penalise insults to the monarchy. In August 2023, the [Pheu Thai party, which came in second in the elections, formed a new coalition to include pro-junta parties](#), a move which was [widely criticised as it broke their election promise](#). The coalition

¹ World Bank (2022) <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=TH>

² World Bank (2021) <https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=TH>

³ World Bank (2021) <https://data.worldbank.org/indicator/IT.CEL.SETS.P2?locations=TH>

⁴ Freedom House (2022) <https://freedomhouse.org/country/thailand/freedom-net/2022>

⁵ National Statistical Office, Ministry of Digital Economy and Society (2018). *The 2018 Survey on Conditions of Society, Culture and Mental Health*.

http://statbbi.nso.go.th/nso/nso_center/project/table/files/S-soc-health/2561/000/00_S-soc-health_2561_000_000000_00100.xls

⁶ World Population Review. (2021). *Thailand Population 2020 (Demographics, Maps, Graphs)*. Worldpopulationreview.com. <https://worldpopulationreview.com/countries/thailand-population>

⁷ Religion in Thailand. (2022, November 11). *Wikipedia*. https://en.wikipedia.org/wiki/Religion_in_Thailand#Demographics

currently contains the most MPs. On 22 August, [the Parliament voted for a new Prime Minister](#): Srettha Thavisin from the Pheu Thai Party.

Legal Environment

Since the release of the 2022 report, which covers until the first half of the year 2022, Thailand has had several developments in the area of data protection.

Privacy

Personal Data Protection Act B.E. 2562 (PDPA 2019) [became fully enforceable on 1 June 2022](#). The Act is substantially based on European Union's General Data Protection Regulation (GDPR) and is considered of having a potential, at least from its text, to be one of the strongest data privacy laws in Asia⁸. However, Article 4 Paragraph 2 gives the power to the Personal Data Protection Committee (PDPC) to made exemptions to specific activities or organisations, which they have made it by a Royal Decree on 15 August 2023⁹. The Decree, which will come into force on 13 January 2024, focuses on state agencies and activities, including exemptions for anti-corruption purpose, tax purpose, and activities under the power of the Monarch. There is also an exception for small and medium enterprises¹⁰ to not have to make a record of processing activities (ROPA). These exemptions and exceptions weaken the protection of PDPA from what it was anticipated.

National Broadcasting and Telecommunications Commission (NBTC) also updated its announcement on the privacy protection for telecommunication consumers, on 4 September 2023, to make the announcement inline with the protections provided by PDPA and make it

⁸ Greenleaf, Graham and Suriyawongkul, Arthit, Thailand – Asia's Strong New Data Protection Law (September 24, 2019). 160 Privacy Laws and Business International Report 1, 3-6, 2019, Available at SSRN: <https://ssrn.com/abstract=3502671> or <http://dx.doi.org/10.2139/ssrn.3502671>

⁹ พระราชกฤษฎีกากำหนดลักษณะ กิจการ หรือหน่วยงาน ที่ได้รับการยกเว้นไม่ให้นำพระราชบัญญัติคุ้มครองข้อมูลส่วนบุคคล พ.ศ. 2562 บางส่วนมาใช้บังคับ พ.ศ. 2566 <https://www.mdes.go.th/uploads/tinymce/source/%E0%B8%9E%E0%B8%A3%E0%B8%8E-%E0%B8%81%E0%B8%B3%E0%B8%AB%E0%B8%99%E0%B8%94%E0%B8%A5%E0%B8%B1%E0%B8%81%E0%B8%A9%E0%B8%93%E0%B8%B0%E0%B8%81%E0%B8%B4%E0%B8%88%E0%B8%81%E0%B8%B2%E0%B8%A3%20%E0%B8%A2%E0%B8%81%E0%B9%80%E0%B8%A7%E0%B9%89%E0%B8%99%20PDPA%20%E0%B8%A1%E0%B8%B2%E0%B8%9A%E0%B8%B1%E0%B8%87%E0%B8%84%E0%B8%B1%E0%B8%9A.pdf>

¹⁰ From the legal definition, for enterprises in the manufacturing sector, has under 200 workers or has income under 500 million baht; for service sector, has under 100 workers or has income under 300 million baht. See ประกาศคณะกรรมการคุ้มครองข้อมูลส่วนบุคคล เรื่อง การยกเว้นการบันทึกการรายการของผู้ควบคุมข้อมูลส่วนบุคคลซึ่งเป็นกิจการขนาดเล็ก พ.ศ. 2565

<https://www.mdes.go.th/uploads/tinymce/source/%E0%B8%AA%E0%B8%84%E0%B8%AA/%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%81%E0%B8%B2%E0%B8%A8%E0%B8%AF%20%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%A2%E0%B8%81%E0%B9%80%E0%B8%A7%E0%B9%89%E0%B8%99%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%9A%E0%B8%B1%E0%B8%99%E0%B8%97%E0%B8%B6%E0%B8%81%E0%B8%A3%E0%B8%B2%E0%B8%A2%E0%B8%81%E0%B9%89%E0%B8%84%E0%B8%A7%E0%B8%9A%E0%B8%84%E0%B8%B8%E0%B8%A1%20%E0%B8%8B%E0%B8%B6%E0%B9%88%E0%B8%87%E0%B9%80%E0%B8%9B%E0%B9%87%E0%B8%99%E0%B8%81%E0%B8%B4%E0%B8%88%E0%B8%81%E0%B8%B2%E0%B8%A3%E0%B8%82%E0%B8%99%E0%B8%B2%E0%B8%94%E0%B9%80%E0%B8%A5%E0%B9%87%E0%B8%81%202565.pdf>

a requirement for the telecom service provider to publish their privacy policy in Thai language and every other languages that they made an offer on the market.¹¹

Reported Cases of Internet Censorship

There was no newly reported case of internet censorship during the period in the media.

However, during the May 2023 elections, [iLawClub shared on X](#) (formerly known as Twitter) that a website that published unofficial elections results (ectreport.com) was inaccessible on the night of Election Day.

Network Landscape

Thailand obtained internet access in 1996 and was the third country in Southeast Asia to do so. At present, 5G internet is available in the country.¹² Thailand is also one of the top 10 countries with the fastest broadband internet speeds in 2021.¹³

In terms of internet access,¹⁴ 85% of households have access at home, and 98% of the population is covered by at least a 4G mobile network. There is little gap in internet access between urban and rural areas, with 89% of urban households and 82% of rural households having access.

The National Telecommunications Council grants licences for internet service providers to operate in Thailand. There is a mix of state-owned companies and private operators, where the state-owned companies are CAT Telecom and TOT and the three major mobile carriers are Advance Info Service (AIS), Total Access Communication (DTAC), and TrueMove.

Previously in the 2017 report, it was highlighted that the Thai government held expansive control over the internet, facilitated by its relationships with the internet providers and telecommunication companies. Former politicians, military officers, or members of their families also hold key positions in these companies.

In July 2022, it was reported that AIS, Thailand's biggest mobile phone operator, [would acquire 99.87% of shares in internet provider 3BB](#). This was done ahead of a huge merger planned by their rivals True Corp. and DTAC. However, as of August 2023, [the AIS acquisition was still being scrutinised by the National Broadcasting and Telecommunications Commission \(NBTC\)](#). In addition, the [merger between True Corp and DTAC, which were Thailand's second and third biggest internet providers, was completed in March 2023](#), thus creating the largest telco in Southeast Asia by combined enterprise value.

¹¹ <https://ratchakitcha.soc.go.th/documents/140D215S0000000002700.pdf>

¹² *Internet in Thailand*. (2022, August 23). Wikipedia. https://en.wikipedia.org/wiki/Internet_in_Thailand

¹³ *Internet Speeds by Country 2022*. (n.d.). <https://worldpopulationreview.com/country-rankings/internet-speeds-by-country>

¹⁴ *Digital Development*. (n.d.). ITU. <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>

Findings of Internet Censorship in Thailand

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

Blocking of Websites

Throughout the one-year period, 4.7 million measurements from 2,514 websites were tested. As of 30 June 2023, the test list contained 1,629 websites in the Global Test List and 1,000 websites in the Thailand 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 Measurement, which are measurements from websites automatically confirmed to be blocked (e.g., a block page was served).
- **Likely Blocked:** Refers to “Anomaly” and “Failure” in OONI Measurement. Anomalies are measurements that show signs of potential blocking; however, [false positives](#) can occur. Failures refer to failed experiments in OONI testing, although they can sometimes be [symptomatic of censorship](#).

	Jul-Sep 2022	Oct-Dec 2022	Jan-Mar 2023	Apr-Jun 2023	Total
Measured	1,007,093	963,500	1,408,072	1,288,881	4,667,547
Blocked	3,065	3,341	4,388	4,443	15,217
Block rate	0.30%	0.35%	0.31%	0.34%	0.33%
Input	2,204	2,138	2,216	2,230	2,514
ASNs	28	25	27	26	41

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

These measurements were analysed using the heuristics stated in Annex IV. It was found that there were 93 confirmed blocked websites, of which 66 were confirmed by OONI and 27 were confirmed by heuristics. Although this was a decrease from the previous report that had 148 total confirmed blockings, the two reports are not directly comparable due to differences in the unit of measurement.

The full list of confirmed blocked websites are mentioned in Annex I.

By category, websites related to Pornography, Gambling, and Provocative Attire were the most blocked during the period of study.

Category	Category description	OONI Probe Measurements	Number of blocked and likely blocked measurements	Percentage of blocked and likely blocked measurements
ALDR	Alcohol & Drugs	57,193	1,083	1.9%
ANON	Anonymization and circumvention tools	286,421	23,053	8.0%
COMM	E-commerce	64,197	5,461	8.5%
COMT	Communication Tools	292,411	5,302	1.8%
CTRL	Control content	34,275	694	2.0%
CULTR	Culture	159,292	9,007	5.7%
DATE	Online Dating	37,983	4,192	11.0%
ECON	Economics	53,159	2,480	4.7%
ENV	Environment	104,510	1,802	1.7%
FILE	File-sharing	106,205	6,642	6.3%
GAME	Gaming	41,667	255	0.6%
GMB	Gambling	82,834	20,481	24.7%
GOVT	Government	141,527	23,287	16.5%
GRP	Social Networking	396,534	11,490	2.9%
HACK	Hacking Tools	62,144	3,968	6.4%
HATE	Hate Speech	13,348	294	2.2%
HOST	Hosting and Blogging Platforms	280,475	13,577	4.8%
HUMR	Human Rights Issues	576,958	28,799	5.0%
IGO	Intergovernmental Organization	17,290	2,022	11.7%
LGBT	LGBT	290,145	17,576	6.1%
MILX	Terrorism and Militants	6,499	165	2.5%
MISC	Miscellaneous content	5,070	20	0.4%
MMED	Media sharing	190,819	6,454	3.4%
NEWS	News Media	598,565	24,557	4.1%
POLR	Political Criticism	240,803	26,128	10.9%
PORN	Pornography	54,615	19,556	35.8%
PROV	Provocative Attire	25,868	3,952	15.3%
PUBH	Public Health	163,914	6,424	3.9%
REL	Religion	126,514	5,905	4.7%
SRCH	Search Engines	89,685	3,421	3.8%
XED	Sex Education	67,115	2,596	3.9%

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

Note: Blocked and likely blocked measurements include Confirmed Blocked, Anomaly and Failures on OONI measurements.

May 2023 elections

The general elections were held on 14 May 2023. During this month, a total of eight websites related to the elections were monitored for internet censorship using OONI. The results of the monitoring are as follows:

Input	OONI Probe Measurements	Number of blocked and likely blocked measurements	Percentage of blocked and likely blocked measurements
https://ectreport.com/	193	14	7.25%
https://boraservices.bora.dopa.go.th/election/engelection/	256	0	0.00%
https://report.vote62.com/	269	1	0.37%
https://volunteer.vote62.com/	318	0	0.00%
https://vote62.com/	14	0	0.00%
https://www.electionwatchth.org/	302	0	0.00%
https://wewatchthailand.org/	226	0	0.00%
https://www.electionwatchth.org/	302	0	0.00%

Table 3: Websites monitored for internet censorship during the Thailand general elections

It was found that www.ectreport.com, a website that publishes unofficial election results, was unavailable on the night of 14 May 2023. This was also confirmed by a [posting by iLawClub on X](#), who also reported that [there was a delay in the reporting of results during the 2019 elections until the end of the year](#).¹⁵

¹⁵ The previous general elections were held on 24 March 2019.

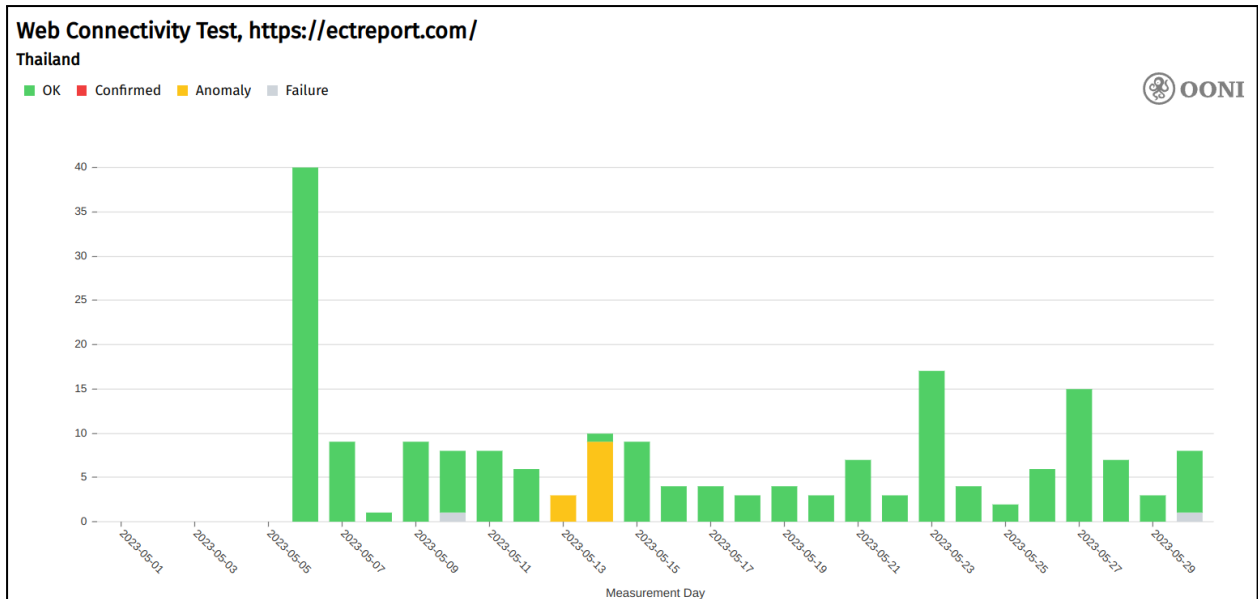


Figure 1: OONI measurements of <https://ectreport.com/> during May 2023

However, based on OONI data, no block page was found, unlike other blocked websites in Thailand. Therefore, it is difficult to confirm whether this was a government- or ISP-mandated censorship.

Analysing selected websites

In the 2022 report, the blockings of No112.org and Change.org were highlighted. No112.org is a campaign calling for the abolition of the law that criminalises the act of offending the Thai monarchy, whereas Change.org is a general petition website, [which has been blocked since 2020 when there was a petition against the King](#).

During the current period of study, these two websites continued to be blocked until July 2023 on certain networks, although they are accessible on some other networks. In particular, change.org seems to be blocked only corporation networks and accessible on mobile networks, whereas no112.org continues to be blocked on most major networks.

Domain	Networks where the websites were found blocked
no112.org	<ul style="list-style-type: none"> ● CAT Telecom Public Company Limited (AS131090) ● TOT (AS23969) ● DTAC (AS24378) ● True Corp (AS16552, AS7470, AS45806) ● True Move Company Limited (AS132061, AS132618) ● United Information Highway Co.,Ltd. (AS38794)
change.org	<ul style="list-style-type: none"> ● Dragonhispeed (AS63940) ● CS Loxinfo Public Company Limited (AS4750) ● Symphony Communication Public Company Limited (AS132280) ● United Information Highway Co.,Ltd. (AS38794)

Table 4: Networks blocking no112.org and change.org during the current period of study

Methods of blocking of websites

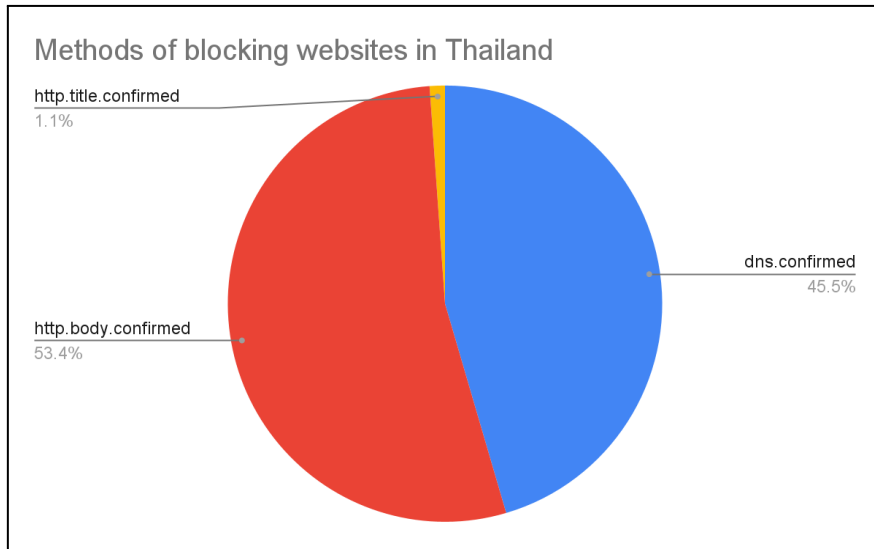


Figure 2: Methods of blocking of websites

Based on the confirmed blockings, more than half of the websites were blocked using HTTP tampering, and the rest were blocked through DNS tampering. It was also found that many of the blocked websites have “http” instead of “https”. This most likely means that a lot of the blockings were done a long time ago, as most websites now are using HTTPS protocol. This indicates that the test list needs to be updated so as to monitor the latest state of internet censorship in the country.

Blocking of Instant Messaging Apps

There is no censorship found in instant messaging apps in Thailand, although it should be noted that [the most popular instant messaging app in Thailand is LINE](#), which is not tested on OONI. However, based on web connectivity tests, there does not seem to be any censorship on this app.

	Facebook Messenger	Signal	Telegram	Whatsapp
Total Measurements	41,483	27,629	47,779	46,681
Percentage of blocked and likely blocked	0.5%	0.4%	1.1%	0.3%

Table 5: OONI measurements on instant messaging apps for Thailand from 1 July 2022 to 30 June 2023

Note:

1. Failed measurements are discarded from this table.
2. As the updates on these apps are beyond OONI’s control, the OONI probe may experience issues in testing due to changes that happen from time to time. Hence, failed measurements or anomalies that were identified as false positives were

discarded from the table. In particular, these include failed measurements, Signal measurements from 4-30 May 2023, and Facebook Messenger measurements since 20 May 2023.

Blocking of Circumvention Tools

There is no censorship found on circumvention tools in Thailand. However, a large number of anomalies were found in the measurements for Tor and Tor Snowflake, which may be false positives as they were also noticed in a few other countries on OONI Explorer.

	Psiphon	Tor	Tor Snowflake	Vanilla Tor
Total Measurements	47,920	47,221	23,870	23,758
Percentage of blocked and likely blocked	0.7%	7.4%	11.5%	0.0%

Table 6: OONI measurements on circumvention tools for Thailand from 1 July 2022 to 30 June 2023

Note: Failed measurements are discarded from this table.

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 30 vantage points in Thailand, testing using 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 an 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 to 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, these may not reflect the state of censorship of apps more commonly used in these countries.

Conclusion

Regarding the state of internet censorship in Thailand, there were no significant developments as compared to the 2022 report. The categories of blocked websites were generally the same, with Pornography, Gambling, and Provocative Attire websites having the highest rate of being blocked or likely blocked.

With the outcome of the May 2023 general elections, it is likely that this will continue: the new government seems to be prioritising economic policies rather than changes in human rights. However, this may also mean that the current lèse-majesté laws are to continue and there may be future restrictions on political criticism in the online space.

This study has also found that many of the blocked websites are outdated, and so there needs to be a thorough review of the country test list.

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 would like to thank local partners, activists, academicians, researchers, and anonymous users in Thailand for their assistance in running the OONI Probe.

Annex I: List of confirmed blockings

There were 66 confirmed blockings based on OONI data:

Blocked Websites	Categories	ASN	Details
https://dooball66.com/	Culture	17552, 24378, 132618	Link
https://www.gofundme.com/	Economics	23969	Link
http://bet365.com/	Gambling	132061, 17552, 45629, 131090, 132618, 7470, 24378, 45430, 45758, 23969	Link
http://ibcbet.com/	Gambling	17552, 45629, 55423, 131090, 24378, 45430, 45758	Link
http://www.888casino.com/	Gambling	23969, 24378, 45758	Link
http://www.sportingbet.com/	Gambling	45758, 45629, 131090, 24378, 55423	Link
https://lucabet168.com/	Gambling	17552, 132618, 24378, 45758, 23969	Link
https://www.10bet.com/	Gambling	38794, 131090, 24378, 45758, 23969	Link
https://www.888casino.com/	Gambling	24378	Link
https://www.huayvips.com/	Gambling	23969, 24378	Link
http://change.org/	Human Rights Issues	63940, 4750, 132280, 38794	Link
http://no112.org/	Human Rights Issues	132061, 17552, 38794, 131090, 132618, 7470, 24378, 45806, 23969	Link
http://www.change.org/	Human Rights Issues	38794	Link
http://www.enlightened-jurists.com/	Human Rights Issues	132061, 17552, 133481, 136538, 4750, 4762, 132618, 131445, 45458, 7470, 45430, 45758, 23969	Link
http://www.no112.org/	Human Rights Issues	63940, 132061, 17552, 133481, 38794, 136538, 45629, 55423, 131090, 132618, 131445, 45458, 7470, 24378, 45430, 45758, 23969	Link
https://change.org/	Human Rights Issues	63940, 4750, 132280, 38794	Link
https://no112.org	Human Rights Issues	23969	Link
https://no112.org/	Human Rights Issues	132061, 17552, 38794, 131090, 132618, 7470, 24378, 45806, 23969	Link
https://www.change.org/	Human Rights Issues	38794	Link
https://www.no112.org/	Human Rights Issues	63940, 132061, 17552, 133481,	Link

Blocked Websites	Categories	ASN	Details
	Issues	38794, 136538, 45629, 55423, 131090, 132618, 131445, 45458, 7470, 24378, 45430, 45758, 23969	
http://www.gboysiam.com/	LGBT	17552, 45629, 4762, 55423, 24378, 45430, 45758	Link
http://www.gthai.net/	LGBT	17552, 45629, 4762, 132618, 7470, 45758	Link
http://upload.prachataalk.com/	Media sharing	133481, 17552, 38794, 4762, 132618, 131445, 45458, 7470, 24378, 45430, 45758, 23969, 4618	Link
https://www.mediafire.com/	Media sharing	55423	Link
http://th.wikipedia.org/wiki/%E0%B8%9E%E0%B8%A3%E0%B8%B0%E0%B8%9A%E0%B8%B2%E0%B8%97%E0%B8%AA%E0%B8%A1%E0%B9%80%E0%B8%94%E0%B9%87%E0%B8%88%E0%B8%9E%E0%B8%A3%E0%B8%B0%E0%B8%9B%E0%B8%A3%E0%B8%A1%E0%B8%B4%E0%B8%99%E0%B8%97%E0%B8%A3%E0%B8%A1%E0%B8%AB%E0%B8%B2%E0%B8%A0%E0%B8%B9%E0%B8%A1%E0%B8%B4%E0%B8%9E%E0%B8%A5%E0%B8%AD%E0%B8%94%E0%B8%B8%E0%B8%A5%E0%B8%A2%E0%B9%80%E0%B8%94%E0%B8%8A	News Media	17552, 45629, 4762, 55423, 24378, 45430, 45758	Link
http://th.wikipedia.org/wiki/%E0%B8%AA%E0%B8%A1%E0%B9%80%E0%B8%94%E0%B9%87%E0%B8%88%E0%B8%9E%E0%B8%A3%E0%B8%B0%E0%B8%9A%E0%B8%A3%E0%B8%A1%E0%B9%82%E0%B8%AD%E0%B8%A3%E0%B8%AA%E0%B8%B2%E0%B8%98%E0%B8%B4%E0%B8%A3%E0%B8%B2%E0%B8%8A_%E0%B9%80%E0%B8%88%E0%B9%89%E0%B8%B2%E0%B8%9F%E0%B9%89%E0%B8%B2%E0%B8%A1%E0%B8%AB%E0%B8%B2%E0%B8%A7%E0%B8%8A%E0%B8%B4%E0%B8%A3%E0%B8%B2%E0%B8%A5%E0%B8%87%E0%B8%81%E0%B8%A3%E0%B8%93_%E0%B8%AA%E0%B8%A2%E0%B8%B2%E0%B8%A1%E0%B8%A1%E0%B8	News Media	17552, 4762, 132618, 7470, 24378, 45758	Link

Blocked Websites	Categories	ASN	Details
%81%E0%B8%B8%E0%B8%8E%E0%B8%A3%E0%B8%B2%E0%B8%8A%E0%B8%81%E0%B8%B8%E0%B8%A1%E0%B8%B2%E0%B8%A3			
http://thaienews.blogspot.com/	News Media	133481, 17552, 136538, 132280, 4750, 4762, 131445, 45458, 24378, 45430, 45758	Link
http://www.bbc.com/news/world-asia-38126928/	News Media	132061, 17552, 4762, 132618, 7470, 24378	Link
http://www.bbc.com/thai/thailand-38173269/	News Media	24378	Link
http://www.dailymail.co.uk/	News Media	133481, 17552, 136538, 132280, 4750, 131445, 45458, 24378, 45430, 45758	Link
http://www.dailymail.co.uk/news/article-2638352/how-future-queen-thailand-wearing-tiny-g-string-let-poodle-foo-foo-eat-cake-as-coup-rocks-bangkok-video-reveals-royal-couples-decadent-lifestyle.html	News Media	133481, 136538, 132280, 4750, 131445, 45458, 24378, 45430	Link
http://www.isranews.org/investigative/investigate-asset/person/item/35454-report01_35454.html/	News Media	133481, 17552, 24378, 45758, 23969	Link
http://www.midnightuniv.org/	News Media	132061, 17552, 133481, 136538, 4750, 4762, 132618, 131445, 45458, 7470, 24378, 45430, 45758, 23969	Link
http://www.theguardian.com/world/2014/jun/09/standing-up-thai-military-coup	News Media	132061, 17552, 133481, 136538, 4750, 4762, 132618, 131445, 45458, 7470, 24378, 45430, 23969	Link
https://nypost.com/	News Media	132280	Link
https://www.dw.com/	News Media	132280	Link
http://althainews.blogspot.com/	Political Criticism	131090	Link
http://change.org/peoplesconstitution/	Political Criticism	63940, 4750, 132280, 38794	Link
http://fb.watch/3aiaDnGJTj	Political Criticism	24378	Link
http://progressivemovement.in.th/article/3258	Political Criticism	24378	Link
http://www.facebook.com/somsakjeam/videos/1283095981743678/	Political Criticism	24378	Link
https://alliance4democracy.blogspot	Political	131090	Link

Blocked Websites	Categories	ASN	Details
.com/	Criticism		
https://downmerng.blogspot.com/	Political Criticism	131090	Link
https://freedomforthai.carrd.co/	Political Criticism	132280	Link
https://landdestroyer.blogspot.com/	Political Criticism	131090	Link
https://landdestroyer.blogspot.com/search/label/Thailand/	Political Criticism	131090	Link
https://occupystreams.org/	Political Criticism	133481, 17552, 4750, 4762, 131445, 45458, 23969	Link
https://www.newmandala.org/	Political Criticism	23969	Link
http://pornhub.com	Pornography	131445	Link
http://www.89.com/	Pornography	17552, 132618, 45758	Link
http://www.fuckingfreemovies.com/	Pornography	17552, 132618, 45758	Link
http://www.gotgayporn.com/	Pornography	17552, 132618, 45758	Link
http://www.pornhub.com	Pornography	136538, 45758	Link
http://www.pornhub.com/	Pornography	132061, 17552, 133481, 38794, 136538, 45629, 55423, 131090, 132618, 131445, 45458, 24378, 45430, 45758, 23969	Link
http://www.thaichix.com/	Pornography	17552, 132618	Link
http://www.thaigirls100.net/	Pornography	45629, 17552, 132618, 45758	Link
http://www.xvideos.com/	Pornography	24378, 38794	Link
http://www.youporn.com/	Pornography	23969, 24378, 38794	Link
https://beeg.com/	Pornography	23969, 24378, 38794, 45758	Link
https://pornhub.com/	Pornography	132061, 17552, 133481, 38794, 136538, 132618, 131445, 45458, 24378, 45430, 45758, 23969	Link
https://www.av-th.net/	Pornography	23969, 38794	Link
https://www.pornhub.com/	Pornography	132061, 17552, 133481, 38794, 136538, 55423, 132618, 131445, 45458, 24378, 45430, 45758, 23969	Link
http://weareallhuman2.info/	Social Networking	132061, 17552, 45629, 17479, 132618, 7470, 45758	Link
http://www.prachataalk.com/	Social Networking	9931, 17552, 132061, 136538, 7470, 23969, 133481, 133848, 132280, 9335, 4750, 131445, 38794, 131090, 24378, 135419, 4762, 132618, 45458, 45430, 45758, 4618	Link

Blocked Websites	Categories	ASN	Details
http://xat.com/uddtoday/	Social Networking	17552, 132618	Link
https://vk.com/	Social Networking	17552	Link

27 confirmed blockings, based on heuristics:

Blocked Websites	Categories	Details
http://anonymouse.org/	Anonymization and circumvention tools	Link
http://proxy.org/	Anonymization and circumvention tools	Link
http://www.anonymizer.ru/	Anonymization and circumvention tools	Link
http://www.anonymsurfen.com/	Anonymization and circumvention tools	Link
http://www.betfair.com/	Gambling	Link
http://www.casinotropez.com/	Gambling	Link
http://www.europacasino.com/	Gambling	Link
http://www.freedominfo.org/	Human Rights Issues	Link
http://www.gay.com/	LGBT	Link
http://www.gayegypt.com/	LGBT	Link
https://kaleidoscopetrust.com/	LGBT	Link
https://www.doofootball.com	Media sharing	Link
http://en.wikipedia.org/wiki/Bhumibol_Adulyadej	News Media	Link
http://midnightuniv.org/	News Media	Link
http://yalepress.yale.edu/yupbooks/book.asp?isbn=0300106823/	Political Criticism	Link
http://youtu.be/Oq7KPO5TBc8	Political Criticism	Link
http://hentaithai.com/	Pornography	Link
http://javmost.com/	Pornography	Link
http://nhentai.net/	Pornography	Link
http://pornhub.com/	Pornography	Link
http://pornhub.org/	Pornography	Link
http://www5.javmost.com/	Pornography	Link
http://xnxx.com	Pornography	Link
http://xnxx.com/	Pornography	Link
http://xvideos.com	Pornography	Link
https://999flix.com	Pornography	Link
https://taknai.com/	Pornography	Link

Annex II: List of ISPs

ASN	Internet Service Provider	Measurement Count
45430	ADVANCED WIRELESS NETWORK COMPANY LIMITED	67,394
45458	ADVANCED WIRELESS NETWORK COMPANY LIMITED	17,553
131445	ADVANCED WIRELESS NETWORK COMPANY LIMITED	225,002
133481	ADVANCED WIRELESS NETWORK COMPANY LIMITED	1,277,900
133848	ADVANCED WIRELESS NETWORK COMPANY LIMITED	300
136538	ADVANCED WIRELESS NETWORK COMPANY LIMITED	16,634
135419	Cableconnect Co.,Ltd	1,511
138494	Campana TARO Co., Ltd.	6,209
9335	CAT Telecom Public Company Limited	2,576
9931	CAT Telecom Public Company Limited	4,348
131090	CAT Telecom Public Company Limited	9,973
4750	CS Loxinfo Public Company Limited	7,349
212238	Datacamp Limited	6
63940	dragonhispeed	3,200
4618	Internet Thailand Company Ltd.	28,057
probe_asn	isp	measurement_count
45629	JasTel Network	455,964
55423	JasTel Network	6,884
9486	King Mongkut's Institute of Technology Ladkrabang	20
24187	KIRZ Company Limited	100
9009	M247 Europe SRL	20
4762	Mahidol University, Thailand	128,847
38888	Milcom Systems Co.,Ltd.	4,151
17479	Office of Info.Tech. Admin. for Educational Development	100
56277	Office of Info.Tech. Admin. for Educational Development	524
147312	Office of Info.Tech. Admin. for Educational Development	46
9464	Prince of Songkla University	142

ASN	Internet Service Provider	Measurement Count
206092	Security Firewall Ltd	8,260
209372	SIA "Singularity Telecom"	3
132280	Symphony Communication Public Company Limited	1,049
56120	TOT Mobile Co LTD	377
23969	TOT Public Company Limited	693,397
131293	TOT Public Company Limited	69
24378	Total Access Communication PLC.	99,296
45758	Triple T Broadband Public Company Limited	629,580
7470	TRUE INTERNET CORPORATION CO. LTD.	27,216
17552	TRUE INTERNET CORPORATION CO. LTD.	804,675
45806	TRUE INTERNET CORPORATION CO. LTD.	3,065
132061	True Move Company Limited	21,828
132618	True Move Company Limited	59,458
38794	United Information Highway Co.,Ltd.	54,397
138691	United Information Highway Co.,Ltd.	67

Annex III: Glossary

DNS	<p>DNS stands for “Domain Name System” and it maps domain names to IP addresses.</p> <p>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.</p> <p>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.</p> <p>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.</p>
HTTP	<p>The Hypertext Transfer Protocol (HTTP) is the underlying protocol used by the World Wide Web to transfer or exchange data across the internet.</p> <p>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.</p> <p>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).</p> <p>The transmission of data over the HTTP protocol is unencrypted.</p>
Heuristics	<p>Heuristics obtain further confirmed blockings other than that which are detected based on OONI blocking fingerprints. More detailed explanation is found here.</p>
ISP	<p>An Internet Service Provider (ISP) is an organisation that provides services for accessing and using the internet.</p> <p>ISPs can be state-owned, commercial, community-owned, non-profit, or otherwise privately owned.</p> <p>Vodafone, AT&T, Airtel, and MTN are examples of ISPs.</p>
Middle boxes	<p>A middlebox is a computer networking device that transforms, inspects, filters, or otherwise manipulates traffic for purposes other than packet forwarding.</p>

	<p>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.</p> <p>Middleboxes are sometimes used to implement internet censorship and/or surveillance.</p> <p>The OONI Probe app includes two tests designed to measure networks with the aim of identifying the presence of middleboxes.</p>
TCP	<p>The Transmission Control Protocol (TCP) is one of the main protocols on the internet.</p> <p>To connect to a website, your computer needs to establish a TCP connection to the address of that website.</p> <p>TCP works on top of the Internet Protocol (IP), which defines how to address computers on the internet.</p> <p>When speaking to a machine over the TCP protocol you use an IP and port pair, which looks something like this: 10.20.1.1:8080.</p> <p>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.</p>
TLS	<p>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.</p> <p>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.</p>

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 measurement 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 an effect on 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 (China), India, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Timor-Leste and Vietnam.

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 GeolIP 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.
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.

No.	Category Description	Code	Description
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.
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.

No.	Category Description	Code	Description
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.
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 [OOONI Explorer](#) or through [OOONI'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 measurements 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.

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 analyzed 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 available measurements on OONI. For this study, 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.