

# UNDERSTANDING DISTRIBUTED & BLOCKCHAIN END-TO-END ENCRYPTION (E2EE) COMMUNICATION SERVICES

...: KEVEN HENDRICKS :...

MARCH 15, 2023 - 12:00PM  
EST



## ...:WHO I AM:...:

- **Detective with a New Jersey Municipal Police Department -2007 to present**



- **Task Force Officer with the Federal Bureau of Investigation – Internet Crimes Against Children 2014 – 2018**



- **Task Force Officer with the Drug Enforcement Administration 2018 – 2021**

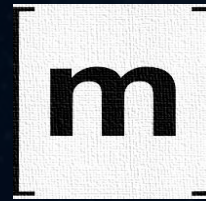
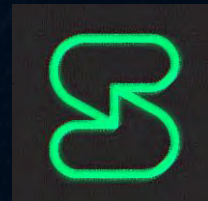
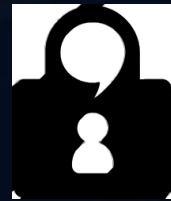
- **Certified Cybercrime Examiner (3CE) & Certified Cybercrime Investigator (3CI) through NWC3**
- **CCI (Certified Crypto Investigator) through Blockchain Intelligence Group, CDAP through Global DCA**
- **Presenter at the 2020 JCODE Conference on Android Emulation**
- **Recognized as a Subject Matter Expert by CSIAC/HDIAC**
- **Member of the HTCIA**
- **Founder of the [UbivisProject.org/StopDarkwebDrugs.com](http://UbivisProject.org/StopDarkwebDrugs.com)**



- **Member of the NYNJ USSS Cyber Fraud Task Force**

# KEY LEARNING POINTS FOR TODAY'S WEBINAR

- Understand the difference between centralized governance messaging services like "Telegram," "WhatsApp," and "Signal" and federated/distributed governance messaging services "TOX," "Session," and "Matrix"



- Understand the evolving trends and tradecraft with threat/criminal actors and their preference to utilize federated/distributed messaging platforms
- See live demonstration of "TOX" and "Session" for familiarity to software nomenclature and see usage



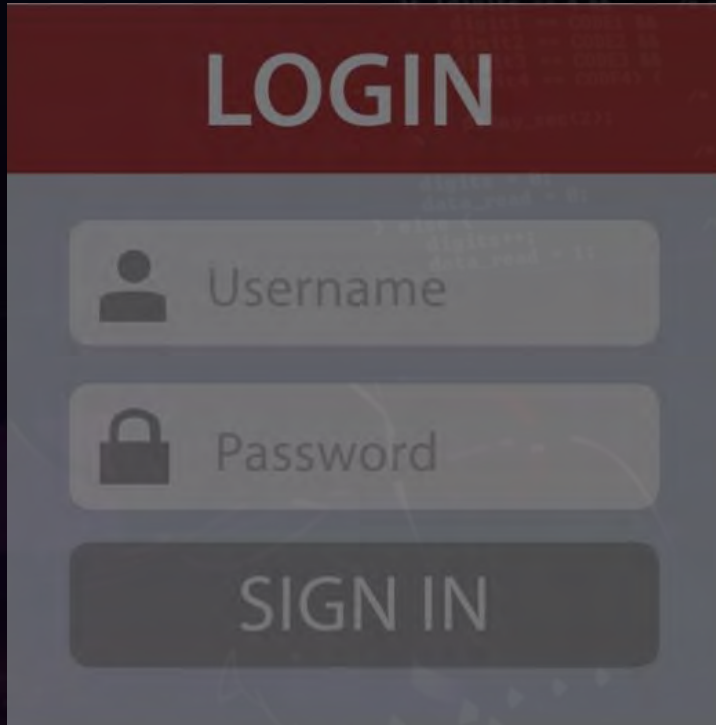


**YOU MAY KNOW WHAT END-TO-END ENCRYPTED MESSAGING IS...AND ITS POPULARITY CONTINUES TO GROW**

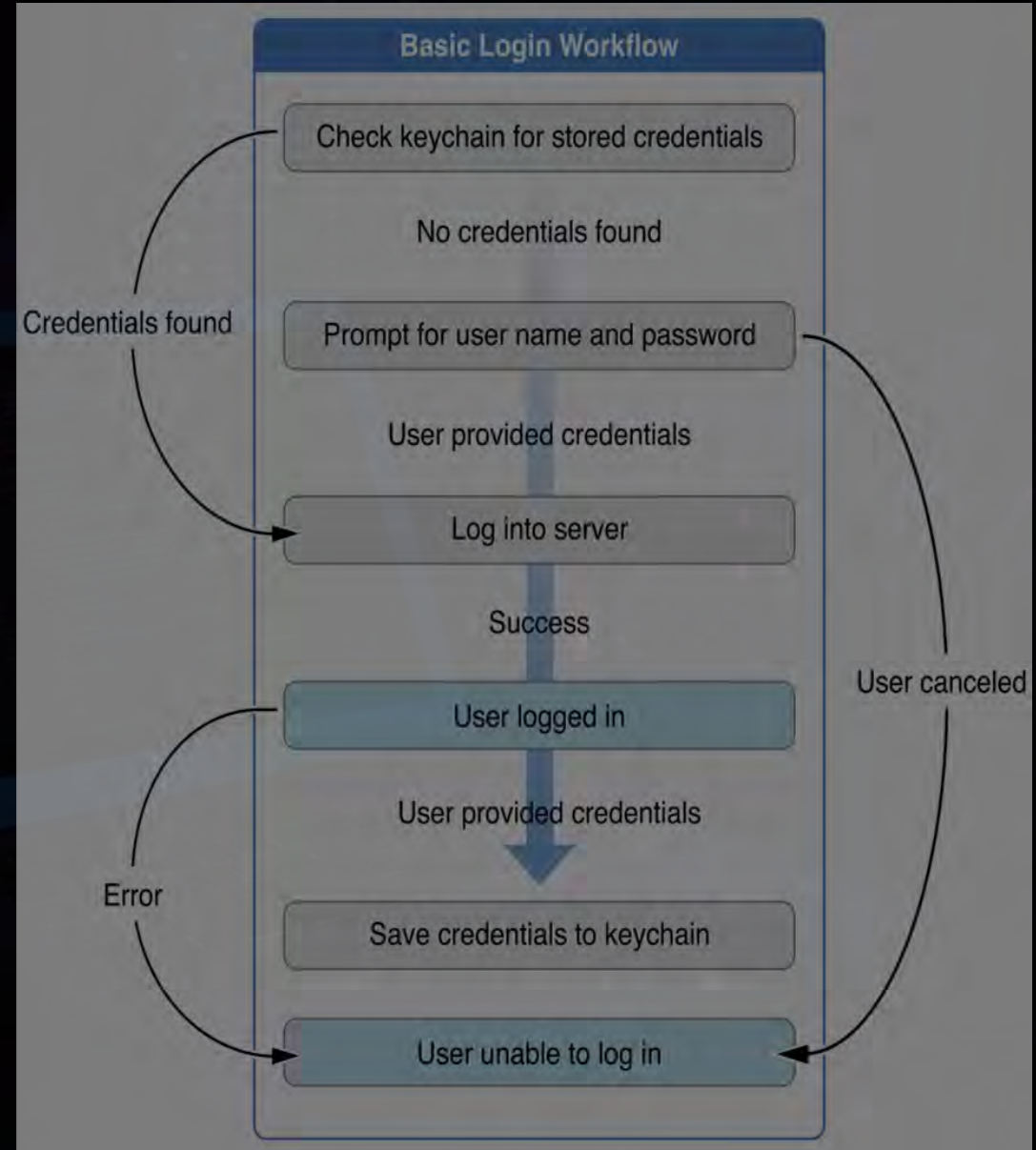


**TRADITIONAL E2EE APPS, LIKE TELEGRAM, WHATSAPP, SIGNAL HAVE A CENTRAL AUTHORITY/SERVER**

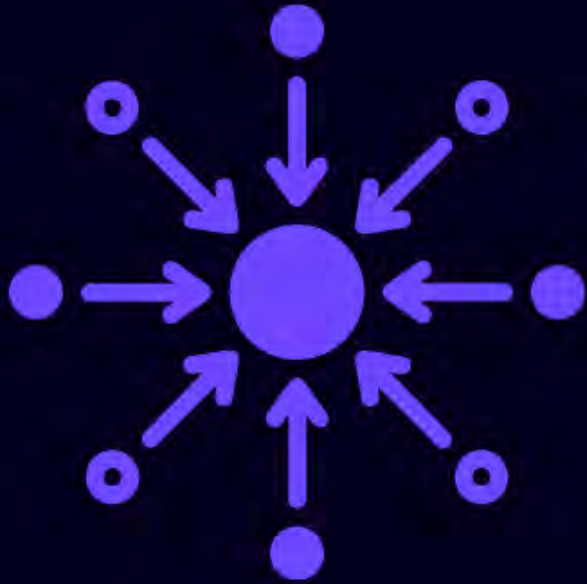
**CENTRAL GOVERNANCE REQUIRES A  
CREDENTIALED LOGIN, i.e.,  
USERNAME/PASSWORD**



**SUCH THINGS AS PUSH TOKENS, SUPER COOKIES,  
etc., ARE PART OF THIS CREDENTIAL PROCESS**



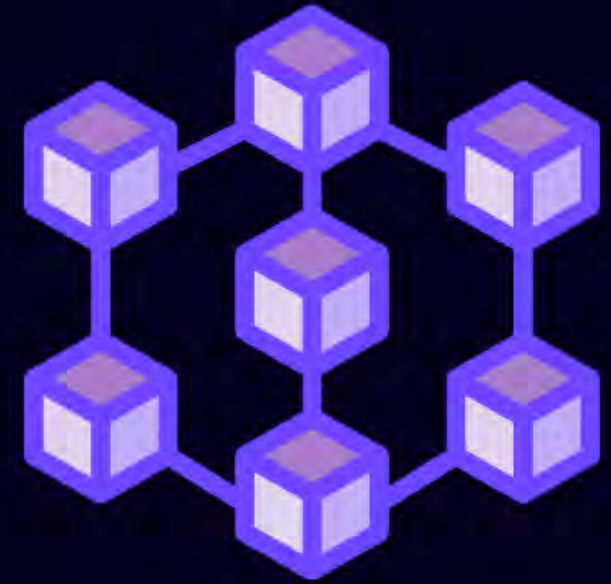
# Web 1.0



# Web 2.0



# Web 3.0



**WITH THE ADVENT OF BLOCKCHAIN TECHNOLOGY AND THE CONCEPT OF "WEB3," THE IMPLEMENTATION OF DECENTRALIZED GOVERNANCE IS THE FOUNDATION FOR DATA TRANSFERANCE**

**UTILIZING BLOCKCHAIN TECHNOLOGY, DARK  
NETS SUCH AS ZERONET (BITCOIN), LOKINET  
(OXEN), & IPFS HAVE BEEN SUCCESSFUL IN  
ACHIEVING ANONYMITY FOR SITE HOSTING  
AND THE END USER**



**LOKINET**



**IPFS**



**NEW END-TO-END ENCRYPTION & MESSAGING PLATFORMS HAVE BEEN ABLE  
TO UTILIZE THE DECENTRALIZED/DISTRIBUTED PROTOCOL TO ACHIEVE  
ANONYMITY AND PROTECTION FOR THEIR USERS**

**BLOCKCHAIN**

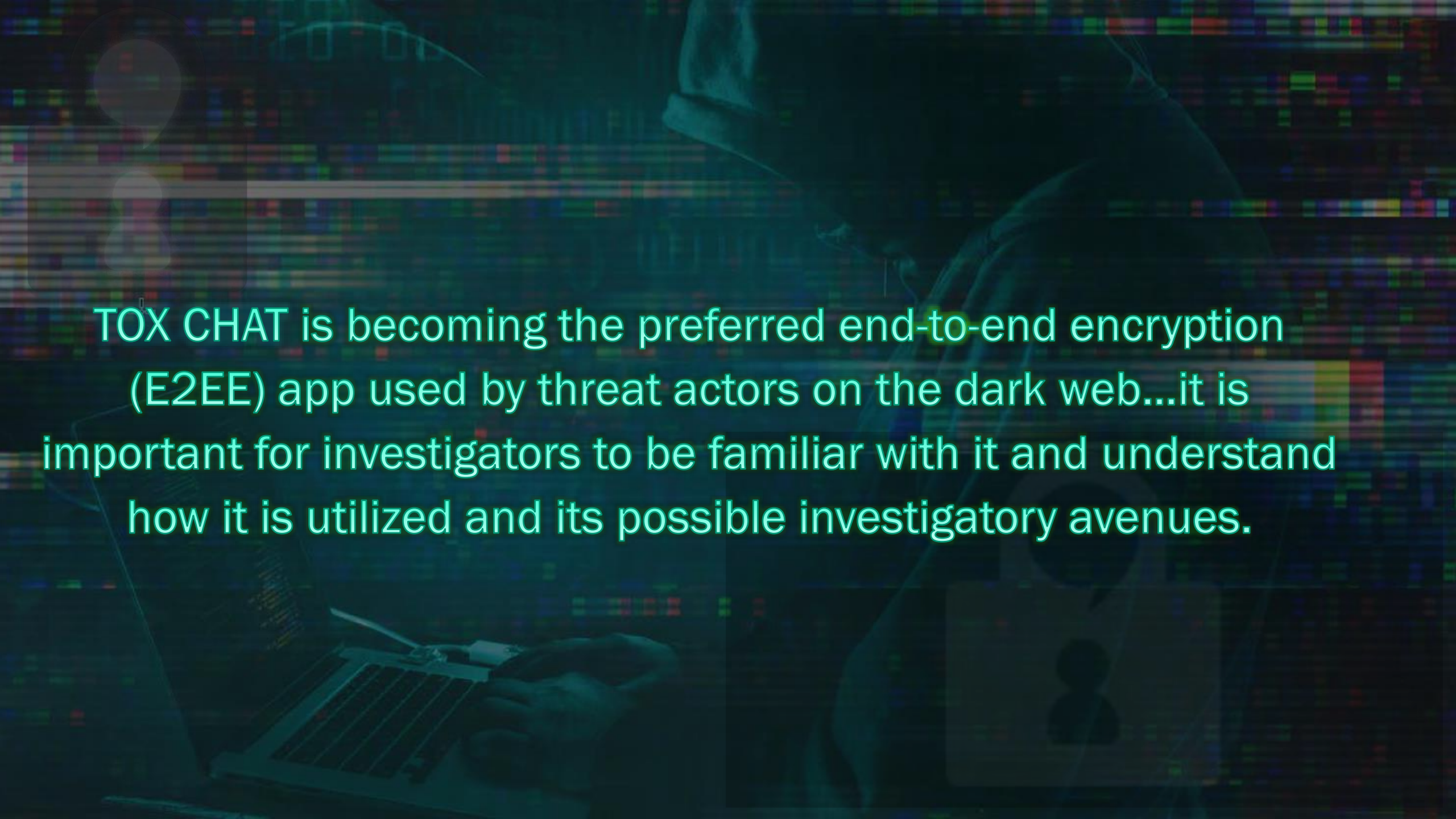
**TOX CHAT      SESSION      MATRIX**



# Understanding TOX Chat

DIFFERENT VERSIONS, USE, AND HOW TO INVESTIGATE

- more & more bad actors are using it -

The image features a person in a dark hoodie sitting at a desk with a laptop. The person's back is to the camera, and a skull icon is visible on the back of their hoodie. The scene is dimly lit, with a blue and green color palette. In the background, there are faint, glowing digital patterns and a larger, semi-transparent skull graphic. The overall atmosphere is one of cyber-security or digital investigation.

TOX CHAT is becoming the preferred end-to-end encryption (E2EE) app used by threat actors on the dark web...it is important for investigators to be familiar with it and understand how it is utilized and its possible investigatory avenues.

# wickr



WickrMe used to be the preferred method of communication with dark net market vendors & cyber threat actors

# Wickr Me

Wickr Me will be unavailable after December 31, 2023. To learn more, visit our [FAQ](#) and read our [blog](#).



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FEATURED

EMAILS

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# Amazon's Wickr acquisition is a push to win military contracts





# CIA Funding Arm Gave Encrypted App Wickr \$1.6 Million

The funding solidifies Wickr's position as an encrypted chat platform for government agencies.



By [Joseph Cox](#)

October 12, 2021, 9:51am Share Tweet Snap



The Best Home Pizza Ovens for Impressing All Your Guests, Even...

IAN BURKE



## Thread



**Edward Snowden** ✓  
@Snowden

No, I don't use Wickr. The point is that in 2021, you can't credibly purport to provide a secure app when you

a) take money from the CIA and

b) literally give the CIA a seat on your board of directors.



11:52 PM · Oct 12, 2021 · Twitter Web App

**610** Retweets **21** Quote Tweets **4,713** Likes



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### Relevant people



**Edward Snowden** ✓  
@Snowden

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I used to work for the government. Now I work for the public. President at

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**SINCE SUMMER 2021, THERE HAVE BEEN MORE  
THREAT ACTORS ON THE DARK WEB UTILIZING THE  
SERVICE TOX CHAT**

---

XMPP AND JABBER REMAIN MORE POPULAR...BUT TOX IS SLOWLY CATCHING UP



### 1 Chat Messages



1 ARVIN(1210109644) | 3/30/2022, 5:44:55 PM

Send a message to the admin in **Tox** for advertising

**Tox:**

D6164C90642CD93D9D3F353511B4BDBD1428309C90CDE13D3D7088AA5BE3010A5  
2E485834E84



Telegram: @bay0net

**TOX ID:**

D85B413045DD694FCEC7F2FBAA4F8EC8FD4CCB0A0E6765E5DE3AE4C299888B4892404C8C0

672

# [Redacted]

[Redacted]net (2022-03-09 19:42:09)



**Image Text:** [ PARANOID SOFT ) [Redacted]  
COΦT WE ACCEPT ORDERS FOR SPECIALIZED SOFTWARE TEXHOCTÝK :: TECHNOSTEC [ C++  
WinAPI, Python, JS, PHP, RunShell, BASH



6 Krypt0n | 3/9/2022, 7:53:20 PM



piv.pivpiv.dk (<http://piv.pivpiv.dk>)



7 yourlitd | 3/10/2022, 7:20:05 AM

**TOX id:**

7498D838360F29AD3619E685C621A439302BF54B3CC43BA41D8160FE51E02B1C5  
AC5B60028C0



8 gifter1 | 3/21/2022, 10:38:55 AM





## A New Kind of Instant Messaging

Whether it's corporations or governments, digital surveillance today is widespread. Tox is easy-to-use software that connects you with friends and family without anyone else listening in. While other big-name services require you to pay for features, Tox is completely free and comes without advertising — forever.

[Download](#)[Learn more](#)

# The Tox Project

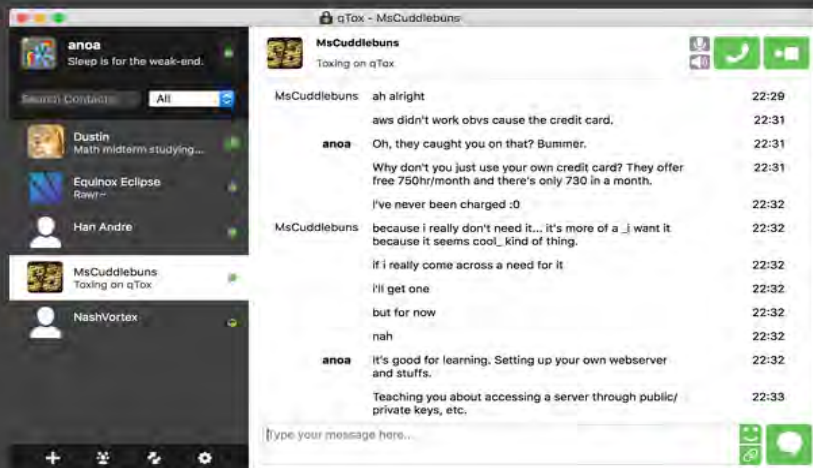
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Tox began a few years ago, in the wake of Edward Snowden's leaks regarding NSA spying activity. The idea was to create an instant messaging application that ran without requiring the use of central servers. The system would be distributed, peer-to-peer, and end-to-end encrypted, with no way to disable any of the encryption features; at the same time, the application would be easily usable by the layperson with no practical knowledge of cryptography or distributed systems. During the Summer of 2013 a small group of developers from all around the globe formed and began working on a library implementing the Tox protocol. The library provides all of the messaging and encryption facilities, and is completely decoupled from any user-interface; for an end-user to make use of Tox, they need a Tox client. Fast-forward a few years to today, and there exist several independent Tox client projects, and the original Tox core library implementation continues to improve. Tox (both core library and clients) has thousands of users, hundreds of contributors, and the project shows no sign of slowing down.

Tox is a FOSS (Free and Open Source) project. All Tox code is open source and all development occurs in the open. Tox is developed by volunteer developers who spend their free time on it, believing in the idea of the project. Tox is not a company or any other legal organization. Currently we don't accept donations as a project, but you are welcome to reach out to developers individually.

# OS support:

	Windows	GNU/ Linux	BSD	macOS	Android	iOS
qTox	Yes	Yes	Yes	Yes	No	No
uTox	Yes	Yes	Yes	Yes	No	No
Toxygen	Yes	Yes	No	No	No	No
Toxic	No	Yes	Yes	Yes	Minimal (via Termux)	No
aTox	No	No	No	No	Yes	No



## qTox

Website: <https://qtox.github.io>

Repository: <https://github.com/qTox/qTox>

Maintainers: [anthonybillinski](#), [sudden6](#)

Language: C++

Graphical Toolkit: Qt

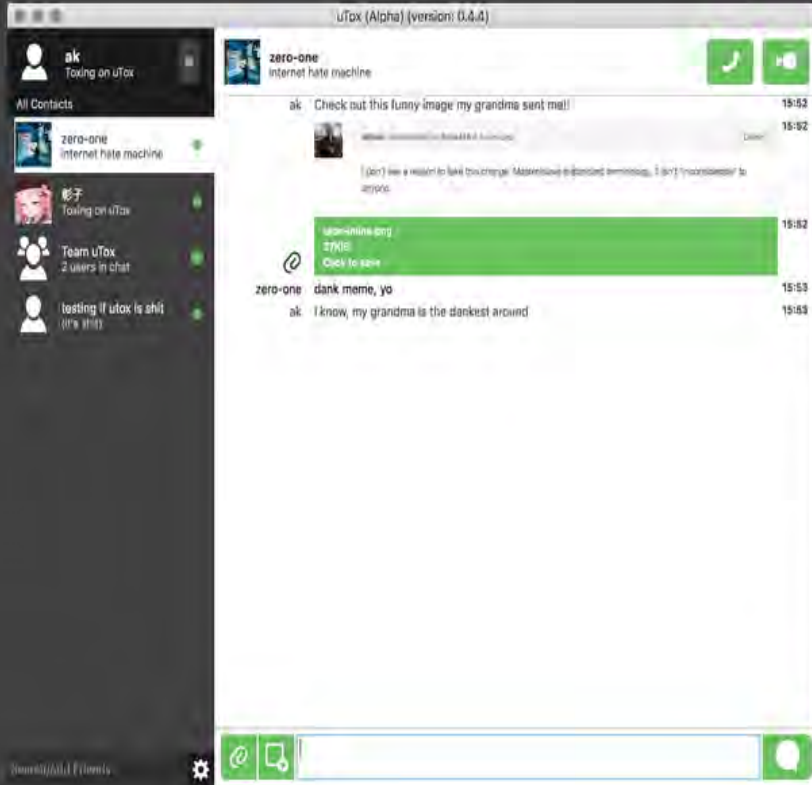
Operating Systems: Linux, Windows, macOS, BSD

qTox is a powerful client based on Qt, with an intuitive and feature rich user interface as well as a fast core written in C++. qTox runs on Windows, Linux, MacOS and FreeBSD and offers text messaging, audio and video calls, screen sharing and file transfers. Additionally it has support for text and audio group chats as well as Identicons as avatars. New features are regularly added by our active and welcoming community.



Graphical Toolkit:  
 Operating Systems: Linux, Windows, macOS, BSD

text and audio group chats as well as Identicons as avatars. New features are regularly added by our active and welcoming community.



## uTox

Repository: <https://github.com/uTox/uTox>

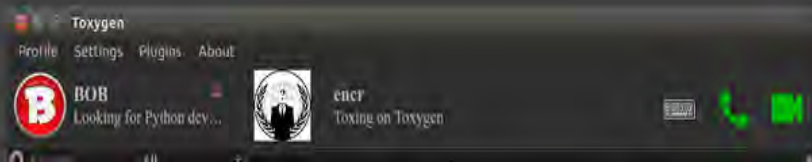
Maintainers: Unmaintained

Language: C

Graphical Toolkit: None (Xlib)

Operating Systems: Linux, Windows, macOS, BSD

$\mu$ Tox is the lightweight client with minimal dependencies; it not only looks pretty, it runs fast!  $\mu$ Tox is available for Windows, OS X, and Linux, with full support for chat, file transfers, audio/video calling, and desktop sharing (both as video and inline screenshots). It also supports text group chats with audio groups pending the next Toxcore update.



## Toxygen

<https://tox.chat/clients.html>

Graphical Toolkit: ncurses  
Operating Systems: Linux, Windows

```
Terminal
[Online] Nick - Toxing on Toxic v.0.5.1

  TOXIC
  _____
Welcome to Toxic, a free, open source Tox-based instant messaging client.
Type "/help" for assistance. Further help may be found via the man page.

DHT connected
[GroupBot] * GroupBot: has come online

TOXIC 0.5.1_r1301 | [home] [contacts]
```

## Toxic

Repository: <https://github.com/jfreegman/toxic>

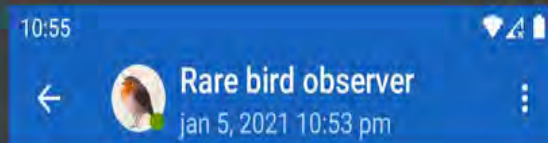
Maintainers: [jfreegman](#), [mannol](#)

Language: C

Graphical Toolkit: ncurses

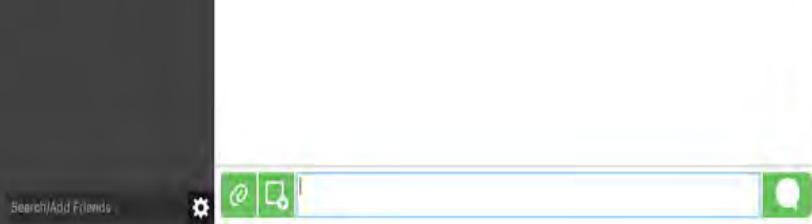
Operating Systems: Linux, macOS, BSD, Android (via Termux)

Toxic is a client with an ncurses interface, written entirely in C. It has support for all basic features, as well as 1-on-1 audio/video chats, and is capable of working on bare-bones systems that lack graphical interfaces. Development is lead by jfreegman.



## aTox

<https://tox.chat/clients.html>



Operating Systems: Linux, Windows, macOS, BSD

Inline screenshots). It also supports text group chats with audio groups pending the next Toxcore update.



## Toxygen

Repository: <https://github.com/toxygen-project/toxygen>

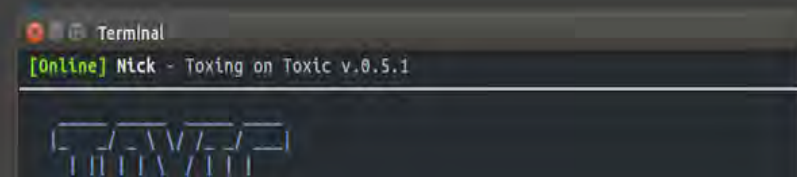
Maintainers: [Ingvar](#)

Language: Python3

Graphical Toolkit: PySide

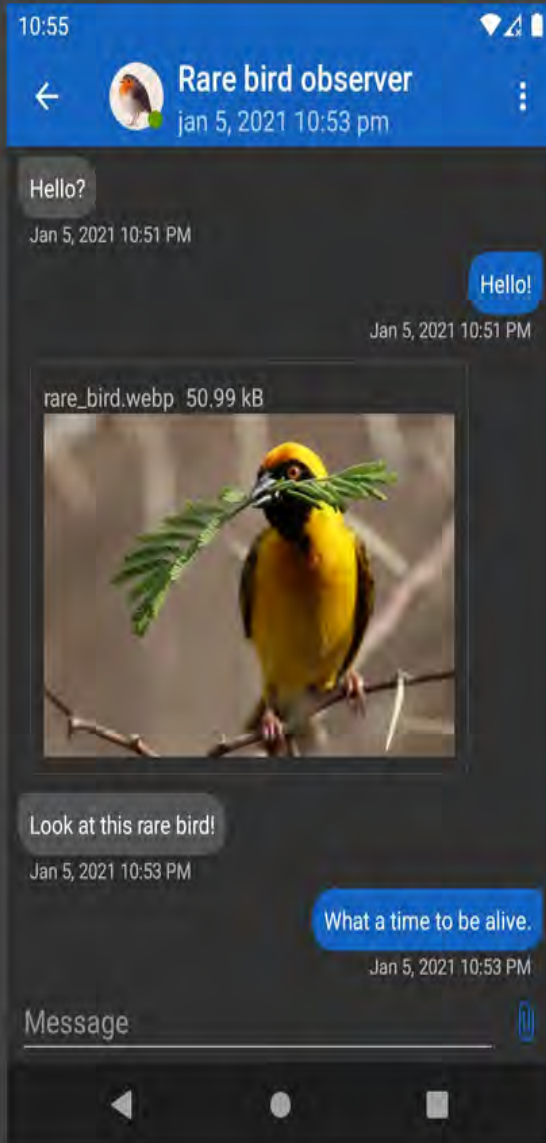
Operating Systems: Linux, Windows

Toxygen is cross-platform Tox client written in pure Python3 with a lot of unique features such as plugins and faux offline file transfers. Development is led by Ingvar.



## Toxic

<https://tox.chat/clients.html>



## aTox

Repository: <https://github.com/evilcorpltd/aTox>

Maintainers: [robinlinden](#)

Language: Kotlin

Graphical N/A

Toolkit:

Operating Android

Systems:

The reasonable Tox client for Android.

**ATOX IS AVAILABLE FOR DOWNLOAD ON GOOGLEPLAY.**

**IT IS VERY STABLE, SUPPORTED BY THE  
PLAY PROJECT.**



- My apps
- Shop
- Games
- Kids
- Editors' Choice

- Account
- Payment methods
- Play Points New
- My subscriptions
- Redeem
- Buy gift card
- My wishlist
- My Play activity
- Parent Guide



# aTox

evilcorp.ltd Communication

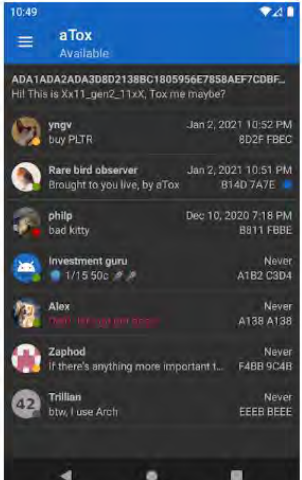
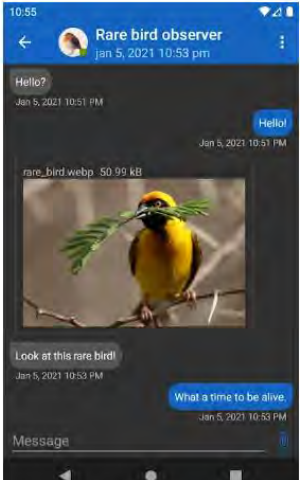
★★★★☆ 120

Everyone

You don't have any devices

Add to Wishlist

Install





# Project Tox

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r/projecttox

[Hot](#) [New](#) [Top](#) ...



Posted by [u/Anthony\\_Bilinski](#) 26 days ago

10

## qTox v1.17.6 release, with local security fix for Windows users



[qtox.github.io/blog/2...](http://qtox.github.io/blog/2...)



0 Comments



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[u/WeCrashedAppleTV](#) · Promoted

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The love story at the center of one of the world's most valuable startups, WeCrashed explores how a single co-working space grows into a \$47 billion brand, before it plummets. Starring Jared Leto and Anne Hathaway on Apple TV+.

### About Community

Discussion about the Tox project

2.9k

Members

0

Online

2,905 Members



Created Jul 14, 2013



r/projecttox topics

Technology

### Moderators

Moderator list hidden. [Learn More](#)



6



Tox Future?



Close



yorizuka · 27 days ago

Tox has been the only thing that iv ended up finding actually usable and that meets my anti-cloud stance for IM, im not interested in federation, its p2p or bust for me.

I have tried out matrix and I ended up running my own home server for about a year and it sucked. Anything that requires you to basically host your own publicly accessible website is a non starter. it turns into a small infrastructure project. You have to buy a domain, you need a static IP.

In my case self hosting is a nightmare, I did not want my data on the cloud, but I also am behind a CGNAT and have no real static ip (my ISP sucks), so I basically setup a reverse proxy on a VPS to my home network. The amount of time it took to figure this all out and all the configuration sucks I ended up using a ssh reverse tunnel via boringproxy after failing to figure out wireguard & iptables. Every time a room had a lot of activity the ssh connection would slow down a lot.

I don't mind having a small computer (server) on 24/7 to make things work better, what I do mind is quagmire of flaky annoying and expensive infrastructure.



2



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Termux is an **Android terminal emulator and Linux environment app** that works directly with no rooting or setup required. A minimal base system is installed automatically - additional packages are available using the APT package manager.



Running **TOXIC** on Android via *Termux*

[Read the wiki to learn more](#)

**Secure.** Access remote servers using the ssh client from OpenSSH. Termux combines standard packages with accurate terminal emulation in a beautiful open source solution.

**Feature packed.** Take your pick between Bash, fish or Zsh and nano, Emacs or Vim. Grep through your SMS inbox. Access API endpoints with curl and use rsync to store backups of your contact list on a remote server.



Get it on the Google Play Store or F-Droid. APT



**IT IS NOT UNCOMMON FOR SOMEBODY TO BE  
ADVERTISING MULTIPLE TOX IDs FOR DIFFERENT  
OS VERSIONS**



FOR ENHANCED **SECURITY**, USERS CAN LOCK  
ENCRYPT THEIR TOX CLIENT WITH A PASSWORD

 Not Connected

Profile Password

**YOU WILL NOT BE ABLE TO BYPASS  
THIS LOCKOUT IF USER HAS SET  
PASSWORD**



## How does Tox protect my privacy?

Tox protects your privacy by:

- Removing the need to rely on central authorities to provide messenger services
- Enforcing end-to-end encryption with [perfect forward secrecy](#) as the default and only mode of operation for all messages
- Making your identity impossible to forge without the possession of your personal private key, which never leaves your computer

**YOU CANNOT SEARCH FOR TOX USERS, ONLY WOULD BE ABLE TO COMMUNICATE KNOWING THEIR TOX ID**

## How do I add someone to my contacts list?

Look in the profile or settings panel of your client to get your Tox ID which should look something like:

```
56A1ADE4B65B86BCD51CC73E2CD4E542179F47959FE3E0E21B4B0ACDADE51855D34D34D37CB5
```

Give yours to your friend and get your friend to add it. That's it.

## What happens when I remove someone from my contacts list?

If you remove someone from your contacts list, they will see you go offline, as if you closed your client normally. They can't communicate with you any longer until you add them to your contacts list again.



---

Does Tox rely on central servers?

No. That said, in some situations a client will choose to use [publicly listed bootstrap nodes](#) to find their way into the DHT.

---

Which encryption algorithms does Toxcore employ?

Tox uses the cryptographic primitives present in the [NaCl crypto library](#), via [libsodium](#). Specifically, Tox employs [curve25519](#) for its key exchanges, [xsalsa20](#) for symmetric encryption, and [poly1305](#) for MACs.

Where can I find a public DHT node to bootstrap with?

Check out our [public nodes list](#) for an updated list, including [machine-readable JSON output](#).

---

What codecs does Toxcore use for audio and video?

[Opus](#) for audio, and [VP8](#) for video.

Tox does not make use of SIP.

A person wearing a dark hoodie is shown from the side, working on a laptop. The background is a dark, teal-toned digital space with various data visualizations, including a large question mark icon in the lower right, a plus sign icon on the left, and several circular data points or nodes. The overall aesthetic is that of a digital investigation or cybersecurity theme.

# HOW TO INVESTIGATE A SUSPECT USING TOX?

	A	B	C	D	E	F	G	H	
1	#Msisdn	IMSI	IMEI	Time (UTC)	Apn	Domain	app_nature	app_nature_detail	servic
2	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:35:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com	Streaming	Hp Vroom	30
3	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:35:00 2022	nxtgenphone.mnc410.mcc310.gprs	att.net	Web	HTTPS	3
4	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:35:00 2022	nxtgenphone.mnc410.mcc310.gprs	att.net	Web	HTTPS	3
5	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:35:00 2022	nxtgenphone.mnc410.mcc310.gprs	fc00:a:a::300	Unknown	TCP	6
6	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:35:00 2022	nxtgenphone.mnc410.mcc310.gprs	fc00:a:a::300	MISC	DNS	2
7	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:35:00 2022	nxtgenphone.mnc410.mcc310.gprs	android.com	MISC	Info	2
8	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	81.169.136.229	Unknown	TCP	6
9	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com	Web	HTTPS	3
10	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com	Web	Quic	3
11	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com	Web	HTTPS	3
12	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	googleadservices.com	Web	HTTPS	3
13	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com	Web	HTTPS	3
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15	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	81.169.136.229	Unknown	TCP	6
16	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	209.59.144.175	Unknown	TCP	6
17	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	appboy.com	Web	HTTPS	3
18	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	172.103.164.206	Unknown	TCP	6
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20	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com	Web	HTTPS	3
21	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	fc00:a:a::300	Unknown	TCP	6
22	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	2001:41d0:8:7a96::1	Unknown	TCP	6
23	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com	Web	HTTPS	3
24	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	208.38.228.104	Unknown	TCP	6



**GPRS (General Packet Radio Service)/Mobile IP Sessions from a suspects' cellular service provider (AT&T "FlowLogic")**





Filtered

All Records

Frequency



**NOTICE:** If you're a node maintainer, please subscribe to the [Bootstrap node announcement mailing list](#) to be notified of required updates.

IPv4	IPv6	Port	Public Key	Maintainer	Status
 95.79.50.56	-	33445	8E7D0B859922EF569298B4D261A8CCB5FEA14FB91ED412A7603A585A25698832	ray65536	ONLINE
 85.143.221.42	2a04:ac00:1:9f00:5054:ff:fe01:becd	33445	DA4E4ED4B697F2E9B000EEFE3A34B554ACD3F45F5C96EAEA2516DD7FF9AF7B43	MAH69K	ONLINE
 tox.verdict.gg	-	33445	1C5293AEF2114717547B39DA8EA6F1E331E5E358B35F9B6B5F19317911C5F976	Deliran	ONLINE
 tox.initramfs.io	tox.initramfs.io	33445	3F0A45A268367C1BEA652F258C85F4A66DA76BCAA667A49E770BCC4917AB6A25	initramfs	ONLINE
 144.217.167.73	-	33445	7E5668E0EE09E19F320AD47902419331FFEE147BB3606769CFBE921A2A2FD34C	velusip	ONLINE
 tox.abilinski.com	-	33445	10C00EB250C3233E343E2AEBA07115A5C28920E9C8D29492F6D00B29049EDC7E	AnthonyBilinski	ONLINE
 mk.tox.dcntrlzd.network	-	33445	5E815C25A4E58910A7350EC64ECB32BC9E1919F86844DC97125735C2C30FBE6E	cryptogospod	ONLINE
 tox.novg.net	-	33445	D527E5847F8330D628DAB1814F0A422F6DC9D0A300E6C357634EE2DA88C35463	blind_oracle	ONLINE
 198.199.98.108	2604:a880:1:20::32f:1001	33445	BEF0CFB37AF874BD17B9A8F9FE64C75521DB95A37D33C5BDB00E9CF58659C04F	Cody	ONLINE
 tox.kurnevsky.net	tox.kurnevsky.net	33445	82EF82BA33445A1F91A7DB27189ECFC0C013E06E3DA71F588ED692BED625EC23	kurnevsky	ONLINE
 81.169.136.229	2a01:238:4254:2a00:7aca:fe8c:68e0:27ec	33445	E0DB78116AC6500398DDBA2AEFF3220BB116384CAB714C5D1FCD61EA2B69D75E	9ofSpades	ONLINE
 205.185.115.131	-	53	3091C6BEB2A993F1C6300C16549FABA67098FF3D62C6D253828B531470B53D68	GDR!	ONLINE
 bg.tox.dcntrlzd.network	bg.tox.dcntrlzd.network	33445	20AD2A54D70E827302CDF5F11D7C43FA0EC987042C36628E64B2B721A1426E36	cryptogospod	ONLINE



81.169.136.229

2a01:238:4254:2a00:7aca:fe8c:68e0:27ec

33445

7	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:35:00 2022	nxtgenphone.mnc410.mcc310.gprs	android.com		MISC	Info	2
8	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	81.169.136.229		Unknown	TCP	6
9	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com		Web	HTTPS	3
10	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com		Web	Quic	3
11	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com		Web	HTTPS	3
12	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	googleadservices.com		Web	HTTPS	3
13	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	google.com		Web	HTTPS	3
14	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	att.net		Web	HTTPS	3
15	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	81.169.136.229		Unknown	TCP	6
16	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	209.59.144.175		Unknown	TCP	6
17	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	appboy.com		Web	HTTPS	3
18	16099065260	310280022769030	8609990513120104	Sun Mar 27 16:40:00 2022	nxtgenphone.mnc410.mcc310.gprs	172.103.164.206		Unknown	TCP	6

# Understanding SESSION

DIFFERENT VERSIONS, USES, AND HOW TO INVESTIGATE

- blockchain future of e2ee communication -

# Welcome to privacy.



Server Time: February 19, 2023 at 4:13:44 PM UTC | [Transaction Pool](#) | [Autorefresh is OFF](#) | [Connect via Lokinet](#) | [Go to testnet explorer \(via Lokinet\)](#) | [Go to devnet explorer \(via Lokinet\)](#)

Height: 1260726 | Hard fork: v19.0 | Next Pulse: in 36 seconds | Staking requirement: 15000 OXEN | Base fee: 0.005 OXEN/output + 0.000122 OXEN/kB | Blink fee: 0.015 OXEN/output + 0.000366 OXEN/kB | Block size limit: 300kB/600kB | Blockchain size: 17.1GB

Circulating Supply\*: 61972674.386241488 OXEN | (Coinbase: 62701584.611618154 OXEN | Fees: 80811.972545764 OXEN | Burned: 728910.225376662 OXEN | Batched: 24768.432376937 OXEN).

\* — The circulating supply may exclude any currently publicised locked OXEN; otherwise it is equal to the coinbase minus the number of burned coins. Fees include paid transaction fees minus any portion that was burned.

TX Type Legend: Service Node Registration | Contribution | Recommission | Decommission | Deregistration | IP Change Penalty | Stake Unlock | Oxen Name System Purchase | ONS Update

## Transaction Pool

0 transactions, 0B

Age [h:m:s]	Type	Transaction Hash	Fee/Per kB	In/Out	TX Size
-------------	------	------------------	------------	--------	---------

## Transactions in the Last 20 Blocks

(Min. / Median / Average / Max. size of these blocks: 113B / 113B / 125B / 155B)

Prev

Current Page: [0/63036](#)

Next

Showing 20 blocks/page

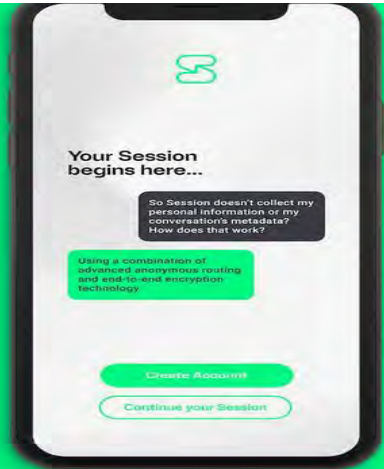
Height	Age [h:m:s]	Size	Type	Transaction Hash	Fee	Rewards	In/Out	TX Size
--------	-------------	------	------	------------------	-----	---------	--------	---------

1260726 0:01:01 113



# Send Messages, Not Metadata.

[Download](#)



-  **Android**
-  **APK**
-  **F-Droid**
-  **iPhone**



-  **Mac**
-  **Windows**
-  **Linux**

# Conversations



Search conversations and contacts

**Lokinet** 1128 A DAY AGO  
Or is it the dev-next?

**Session** 9304 2 DAYS AGO  
My idea is just track when sa...

**Javelin** 4 DAYS AGO  
Call with Javelin

**HP** Hackcon Puppy 5 DAYS AGO  
<https://www.youtube.com/@Q...>

**HD** hd954321 5 DAYS AGO

**PI** Pissoff 5 DAYS AGO

**MR** MrNobody 5 DAYS AGO

**IS** Iskaffe 5 DAYS AGO

SESSION IDs are alphanumeric strings that begin with a 0

Profile

MAINWAY

Your Session ID

057a727e7672907fdc63deadb1f9e8a68  
14e930d2ae2f1f7c3e142845b814ddf7b

Copy

SESSION

Session

5 New Messages

Most recent: its probs got to do with the ons

SESSION utilizes a routing pattern similar to the TOR (The Onion Router) circuit to provide anonymity for its users.



### Path

Session hides your IP by bouncing your messages through several Service Nodes in Session's decentralized network. These are the countries your connection is currently being bounced through:

- Device
- 159.69.19.182
- undefined
- Russia
- Destination

[Learn more](#)



### Path

Session hides your IP by bouncing your messages through several Service Nodes in Session's decentralized network. These are the countries your connection is currently being bounced through:

- Device
- Germany
- 65.108.99.226
- Russia
- Destination

[Learn more](#)




### Path


Session hides your IP by bouncing your messages through several Service Nodes in Session's decentralized network. These are the countries your connection is currently being bounced through:

- Device
- Germany
- undefined
- 45.89.55.82
- Destination


[Learn more](#)

Request	159.69.19.182
IP Address Lookup :	
IP Address	159.69.19.182
Hostname	static.182.19.69.159.clients.your-server.de
IP Address Location :	
Country	 Germany (DE)
State/Region	Bavaria
City	Nuremberg
ISP	Hetzner Online GmbH
Organization	Hetzner
Network	<a href="#">AS24940</a> Hetzner Online GmbH
Connection Type	Corporate
Timezone	Central European Time (CET)
Local Time	Sun, 19 Feb 2023 17:25:18 +0100
Coordinates	49.4521,11.0767

Tor Relay Details :	
Relays	This IP is not identified to be a Tor Relay

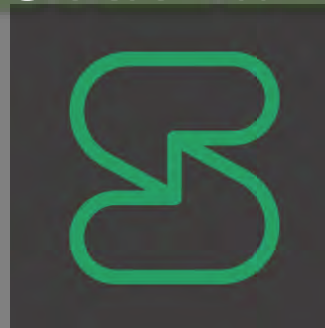
Request	65.108.99.226
IP Address Lookup :	
IP Address	65.108.99.226
Hostname	static.226.99.108.65.clients.your-server.de
IP Address Location :	
Country	 Finland (FI)
State/Region	Uusimaa
City	Tuusula
ISP	Hetzner Online GmbH
Organization	Hetzner Online GmbH
Network	<a href="#">AS24940</a> Hetzner Online GmbH
Connection Type	Corporate
Timezone	Eastern European Time (EET)
Local Time	Sun, 19 Feb 2023 18:26:14 +0200
Coordinates	60.4032,25.0321

Tor Relay Details :	
Relays	This IP is not identified to be a Tor Relay

Request	45.89.55.82
IP Address Lookup :	
IP Address	45.89.55.82
Hostname	vm720207.stark-industries.solutions
IP Address Location :	
Country	 Serbia (RS)
State/Region	Central Serbia
City	Belgrade
ISP	Maxim Azarov trading as Obrada podataka i hosting eServer K
Organization	Stark Industries Solutions LTD
Network	<a href="#">AS205007</a> Maxim Azarov trading as Obrada podataka i hosting
Connection Type	Corporate
Timezone	Central European Time (CET)
Local Time	Sun, 19 Feb 2023 17:26:46 +0100
Coordinates	44.8125,20.4612

Tor Relay Details :	
Relays	This IP is not identified to be a Tor Relay

**NONE OF THE IP ADDRESSES ARE INDICITIVE OF SESSION USAGE.**



# 1. There are nodes in 39 different countries

With servers in 39 different countries and every continent except Antarctica – Session is truly global. This means that Session is not especially vulnerable to changing laws and regulations in any one country – making sure your data is always safe from the prying eyes of surveillance. Session servers are popping up in new countries all the time, who knows, maybe you could be the first person to set up a node in Antarctica 😊




 [Introduction to Oxen](#) [Downloads](#) [Support](#)

#### ABOUT THE OXEN BLOCKCHAIN

 [Overview](#) [Token economics](#) > [Oxen Service Nodes](#) [Pulse: PoS on Oxen](#) > [Blink: Instant transactions](#)

#### USING THE OXEN BLOCKCHAIN

 Powered By [GitBook](#)

# Service Node guides

A directory of guides for setting up and maintaining your Oxen Service Node.

Guide	Outline
<a href="#">Setting up an Oxen Service Node</a>	How to configure a server as an Oxen Service Node.
<a href="#">GUI Wallet Staking Guide</a>	How to stake to an Oxen Service Node using the Oxen GUI Wallet.
<a href="#">Mobile Wallet Staking Guide</a>	How to stake to an Oxen Service Node using the Oxen Mobile Wallet
<a href="#">Service node deregistration</a>	Explanation of the conditions under which a service node may be deregistered (removed from the network), and some tips on how to

Server Time: February 19, 2023 at 4:36:55 PM UTC | [Transaction Pool](#) | [Autorefresh is OFF](#) | [Go to testnet explorer](#)

Height: **1260738** | Hard fork: **v19.0** | Next Pulse: **in 85 seconds** | Staking requirement: **15000 OXEN** | Base fee: **0.005 OXEN/output + 0.000122 OXEN/kB**  
| Blink fee: **0.015 OXEN/output + 0.000366 OXEN/kB** | Block size limit: **300kB/600kB** | Blockchain size: **17.2GB**

Circulating Supply\*:: **61972680.972189523 OXEN** | (Coinbase: **62701591.197566189 OXEN** | Fees: **80811.972545764 OXEN** | Burned: **728910.225376662 OXEN**  
| Batched: **24981.846428907 OXEN**).

\* — The circulating supply may exclude any currently publicised locked OXEN; otherwise it is equal to the coinbase minus the number of burned coins. Fees include paid transaction fees minus any portion that was burned.

TX Type Legend: Service Node Registration | Contribution | Recommission | Decommission | Deregistration | IP Change Penalty | Stake Unlock  
| Oxen Name System Purchase | ONS Update

## Transaction Pool

0 transactions, 0B

Age [h:m:s]	Type	Transaction Hash	Fee/Per kB	In/Out	TX Size
-------------	------	------------------	------------	--------	---------

## Transactions in the Last 20 Blocks

(Min. / Median / Average / Max. size of these blocks: 113B / 113B / 123B / 155B)

Prev

Current Page: [0/63036](#)

Next

Showing **20** blocks/page

Height	Age [h:m:s]	Size	Type	Transaction Hash	Fee	Rewards	In/Out	TX Size
<a href="#">1260737</a>	0:00:32	113						

## — Are calls private?

Calls in Session are end-to-end encrypted and offer a good level of privacy. Unlike messages (which use onion-routed networking), the current implementation of calls uses peer-to-peer networking. This means your IP will be shared with your call partner as well as an **OPTF** operated STUN/TURN server. Although this is acceptable for most people, you should always make sure to assess your own personal situation to determine whether the risk of exposing your IP is worth it. If you're in an extremely high-risk situation, we **do not** recommend enabling peer-to-peer calls — onion-routed calls are on the way.

In order to prevent spam and protect privacy, you can only send and receive calls with people in your contacts list — not unknown Session IDs or people in your message requests.

**TRUE IP ADDRESSES CAN BE REVEALED IN THE CURRENT CALL  
FEATURE...**

**...CURRENTLY, THIS WOULD BE THE ONLY INVESTIGATORY  
TECHNIQUE !!!**



A person wearing a dark hoodie is sitting at a desk, working on a laptop. The background is dark and filled with digital data, including binary code and a glowing blue arc. A small white crosshair icon is visible in the upper right corner.

**UNLIKE TOX CHAT, SESSION ALLOWS PUBLIC GROUPS  
THAT ARE AVAILABLE FOR ANY USER TO JOIN**

---

THIS ALLOWS MONITORING OR “*LURKING*” IN PUBLIC ROOMS

# 🔗 Session Messenger Open Groups:

---

## Unofficial Open Groups run by the community:

---

### Session & Oxen

- Oxen Service Node Operators → [http://sog.caliban.org/snops?public\\_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821](http://sog.caliban.org/snops?public_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821)
- Session Open Group Server Operators → [http://sog.caliban.org/sogops?public\\_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821](http://sog.caliban.org/sogops?public_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821)
- Session Hacking & Development → [https://sog.zcyph.cc/sessiondev?public\\_key=e56fa54f9da6df91928f97023e8651e2df10fb6cf743a1ec96d0543acb8f2e7a](https://sog.zcyph.cc/sessiondev?public_key=e56fa54f9da6df91928f97023e8651e2df10fb6cf743a1ec96d0543acb8f2e7a)

### 🇬🇧 Languages & Countries

- Bangladesh 🇬🇧 → [https://3399981.xyz/bangladesh?public\\_key=13f6560efbeee1d0046f8883c60b4c165103c114adbc02d4b5ba68816e8a6731](https://3399981.xyz/bangladesh?public_key=13f6560efbeee1d0046f8883c60b4c165103c114adbc02d4b5ba68816e8a6731)
- Brazil 🇬🇧 (see also Portuguese) → [http://sog.caliban.org/brasil?public\\_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821](http://sog.caliban.org/brasil?public_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821)
- Chinese 🇬🇧 → Just another Chinese group → [http://45.77.102.159/origin?public\\_key=132d7cf93a6a72eabbf9357a3a29d0644b27b1166e12d36704a0785f7ccb0f74](http://45.77.102.159/origin?public_key=132d7cf93a6a72eabbf9357a3a29d0644b27b1166e12d36704a0785f7ccb0f74)
- Czech, Slovak 🇬🇧 🇬🇧 → [https://3399981.xyz/czsk?public\\_key=13f6560efbeee1d0046f8883c60b4c165103c114adbc02d4b5ba68816e8a6731](https://3399981.xyz/czsk?public_key=13f6560efbeee1d0046f8883c60b4c165103c114adbc02d4b5ba68816e8a6731)
- Dutch/Netherlands 🇬🇧 → [http://sog.caliban.org/nl?public\\_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821](http://sog.caliban.org/nl?public_key=118df8c6c471ac0468c7c77e1cdc12f24a139ee8a07c6e3bf4e7855640dad821)
- Finnish 🇬🇧 → [http://173.249.51.184/fi?public\\_key=2812244a5577d56a5b1220706e25cdc230363ce33d770a7cab39656baf79145f](http://173.249.51.184/fi?public_key=2812244a5577d56a5b1220706e25cdc230363ce33d770a7cab39656baf79145f)
- Finnish 🇬🇧 (another) → [http://95.217.236.112/SuomenTori?public\\_key=8e2e52e086e10eb45c7d55895d4b9fc89a60fed8aea8c811d6c1270e4532726e](http://95.217.236.112/SuomenTori?public_key=8e2e52e086e10eb45c7d55895d4b9fc89a60fed8aea8c811d6c1270e4532726e)

## Operators:

- 116.203.217.101 → BPerson  (05f7c71c89e010453466b12bc1e2bd7412e49133b9c099ac5b7a94dfd0be913f52)
- sog.caliban.org → Ian Macdonald  (05cef6ca45f42b94cf41f56789c396c23158a6b566df755674df46757f5e569213) (ONS: ianmacd)
- 2hu-ch.org → nanachi a.k.a. workaholic  (05c5f3363fb2a5548765e1e0a4a2e32a2a54dadad6fc5acd3cbbcf35baa06cb633)
- 173.249.51.184 → Marky  (05bb29ca4e83a8c7028f64b65e81e6a096ba4e7e12f614daa28bcf0fce8875b26a)
- 23.88.56.89 → Drake  (056a5df840beaeb87753e8a06397051664b6222e1a1da65924eafca3eb3106ca18)
- opensessionitalia.eu.org → MassiveBox  (054b9a9be3b156d7e2598806c4de970187b15e216d36610300693874ce16a6020f) (ONS: massivebox)
- 73.55.197.99 → ThatCatholicGuy  (05e14781801fb420a2b3ac573f48b68bc719330832eeb3111141d27e54fa9c371d)
- remote.noff.co → Warlock  (05a357eb98e45e07322472a2decc3cfd221953f75480e90e6996322a5fee2cf81a)
- sogs.horse.xx → Acbn  (05f48c77100c7379bca13139b85792bea6e4edc2550da3abf7348b9e715f52fd24)

## What are Session Open Groups?

Open groups are Session Group chat servers that can host many thousands of chat participants.

## How to join an existing Session Open Group?

# Understanding MATRIX

[matrix]

THE REAL INVESTIGATIVE MONKEY WRENCH

m

- the decentralized *mastodon* and *discord* -

[matrix]

**An open network for secure, decentralized  
communication**

Learn More



## Welcome to Element!

Decentralised, encrypted chat & collaboration powered by **matrix**



Sign In



Create Account



Explore rooms

English (US)



UNLIKE TOX & SESSION,  
MATRIX HAS A THIRD  
PARTY CREDENTIALING  
PARTY – ELEMENT  
(app.element.io)



## Sign in

Homeserver



[matrix.org](https://matrix.org)

Edit

Join millions for free on the largest public server

Sign in with

Username



Username

Password

[Forgot password?](#)

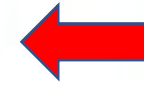
Sign in



English (US)

Now? [Create account](#)

ELEMENT CAN LINK OTHER SERVICES (Google, MetaMask, Facebook, Apple) TO LOGIN TO MATRIX via ELEMENT (app.element.io)



BreachForums Shoutbox

BreachForums Shoutbox Connected Users: 204 [Join Telegram](#) [Join Matrix](#) [Join Discord](#)

In reply to sdfdf's message: anyone can give me a iphone?

#BF @ [xxx](#): probably

#BF @ [Dre4m3r](#): whatt

#BF @ [xxx](#): if you want an iphone 4

In reply to sdfdf's message: anyone can give me a iphone?

#BF @ [Denji](#): kys

In reply to sdfdf's message: anyone can give me a iphone?

#BF @ [ggsystem32](#): I can, but i wont.

#BF @ [RestInPeace](#): D-DO THE TT-HTH-THUG SHAKER

In reply to sdfdf's message: anyone can give me a iphone?

#BF @ [sin](#): if you

#BF @ [sdfdf](#): okay

In reply to sdfdf's message: anyone can give me a iphone?

MORE & MORE NEFARIOUS PLATFORMS/USERS ARE INCORPORATING THEIR OWN MATRIX CHANNELS



adrastea

byte



Paid registration

16 posts

Joined

07/30/22 (ID: 134118)

Activity

безопасность / security

Posted August 5, 2022

Report post

MBDA claims that we do not have confidential data.....ok, so....

Currently, the volume of downloaded data is approximately over 84 GB. The downloaded data contains a confidential information about the employees of companies, which took part in the development of closed military projects of MBDA (PLANCTON, CRONOS, CA SIRIUS, EMADS, MCDS, B1NT etc.) and about the commercial activities in the interests of the Ministry of Defense of the European Union (design documentation of the air defense, missile systems and systems of coastal protection, drawings, presentation , video and photo (3D) materials, contract agreements and correspondence with other companies Rampini Carlo, Netcomgroup, Rafael, Thales, ST Electronics etc.).

P.S. ... discussion of the price in private messages...

XMPP: adrastea@thesecure.biz

MATRIX: @adrastea:matrix.org



# Settings

## General

- Appearance
- Notifications
- Preferences
- Keyboard
- Sidebar
- Voice & Video
- Security & Privacy
- Labs
- Help & About

## General

### Profile

Display Name  
thinned\_thread

@thinned\_thread:matrix.org

Cancel

Save



Remove

### Account

Set a new account password...

Current password

Search  Ctrl K

Home

People

Rooms

Matrix HQ

ipfs

ipfs Join the IPFS Space at [#ipfs-space:ipfs.io](https://discord.gg/Z4H6tdECb9) | This room is bridged to <https://discord.gg/Z4H6tdECb9> and <https://filecoin.io/slack> #ipfs

📞 📺 🔍 🗨️ 🔔 ⓘ

11:17 If

divestOS ?  
Which Year was designed to increase performance?  
I have 32GB Rom and 3GB Ram.  
In Me Device.

👤 reso and 2 others joined, antares500 left



sn  
L Lukas  
In Me Device.

you need a pixel. also this is IPFS CHAT. you need to go somewhere that is.. not here, and ask questions. Like:

[#grapheneos:grapheneos.org](https://grapheneos.org)  
[#CalyxOS:matrix.org](https://calyxos.org)

sn removed their display name (sn)

13:16 mpiraz left the room

⬆️  
ⓧ  
L  
expand

H  
MS  
MD

Send a message...

😊 📎 ⋮

G Search Ctrl K

Home +

+ People +

Rooms +

Historical

B BreachForums General •

**YOU CAN JOIN CHANNELS AS A GUEST, OR CREATE YOUR OWN ACCOUNT [DIRECT MESSAGING]**

B BreachForums General v



today

expand

N NullBCN joined and left and joined

N NullBCN

hello

I need to set up an account for myself on riseup or [redacted] - can anyone help with an invitation?  
(edited)

C @chckm8:matrix.org left the room



g

N NullBCN

I need to set up an account for myself on riseup or [redacted] - can anyone help with an invitation?

Riseup invites are all over Reddit

H hermestrimegis joined the room



cat

In reply to N NullBCN

g

Riseup invites are all over Reddit



Join the conversation with an account

Sign In

Sign Up



## Introduction

Introduction

How can I get involved?

Moderation in Matrix

Application Services

Made for Matrix Badge

Guidelines

The Matrix Jobs Room

Running online events with  
Open Source communication  
tools

## Server Setup

Installing Synapse

Self-hosting a map tile server  
for location sharing

Free Matrix Server using

## How does it work?

Each user connects to a single server, this is their *homeserver*. Users are able to participate in *rooms* that were created on any Matrix server since each server *federates* with other Matrix servers. This means you can talk to anyone on any server. It also means you can host your own server, giving you control over all of your data. Self hosting also gives you the ability to customize your server to fit your needs including giving you the ability to bridge to other chat networks (such as IRC, XMPP, Discord, Telegram, etc) or to host bots.

Each message that is sent in a room is synchronized to all of the other servers that participate in that room. If one server goes offline, everyone else in the room can continue talking. Once that server comes back online it will be sent all of the messages that it missed while it was down.

Did we mention it is secure? Your private conversations can be secured by end to end encryption so the server has no idea what you are talking about.

For a more detailed introduction to this topic see <https://hacks.mozilla.org/2018/10/dweb-decentralised-real-time-interoperable-communication-with-matrix/>

## How can I try it out?

To start chatting on Matrix you'll need to sign up for a user account

THESE TYPES OF PLATFORMS ARE THE FUTURE...



FEDERATED AND AUTONOMOUS



**LIVE**  
**DEMONSTRATION**  
**TOX & Session**

# THANK YOU!

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## REFEERENCES

<https://zeronet.io/>

<https://loki.net.org/>

<https://ipfs.tech/>

<https://tox.chat/>

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