# 256NEWS #7
# The Bigger They Are, The Harder They Fall

By: The 256 Foundation
*A monthly newsletter*

supported by proto

*opinions expressed do not necessarily reflect those of Proto Global, LLC*

July 2025

## INTRODUCTION:

Welcome to the seventh newsletter produced by The 256 Foundation and supported by Proto! June was an eventful month for the Bitcoin mining industry with events ranging from Bitcoin surpassing block height 900,000 to difficulty dropping ~7.5%. There are several interesting things developing in and around the Bitcoin mining industry so dive in and catch up on the latest news, developments, grant progress updates, Actionable Advice, and the current state of the Bitcoin network. You'll gain a better understanding of how the closed systems built to block access to freedom enhancing technologies are proving to be the proprietary mining empire's greatest point of weakness.


[IMG-001] Achilles meme from Solo Satoshi

## DEFINITIONS:

BRCA = Blockchain Regulatory Certainty Act
FinCEN = Financial Crimes Enforcement Network
SDNY = Southern District of New York
UI = User Interface

## FREEDOM TECH NEWS:

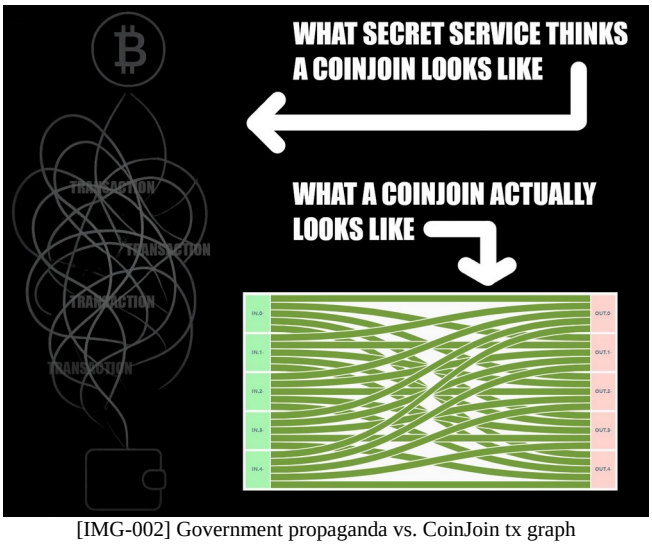
**June 3**, in an effort driven by Matt Corallo and the Save Our Wallets organization, industry participants are seeking to codify the Blockchain Regulatory Certainty Act. At a high level, the BRCA would ensure that developers and service providers are exempt from money transmitting business licensing requirements if they do not control customer funds, only provide software or computing services, and do not act as a financial intermediary. The call to action comes after developers like Samourai Wallet and Tornado Cash were targeted under Biden-era directives that sought to hold developers responsible for end-user conduct. While there are no laws against developing CoinJoin software for example, recent actions from the federal government seek to put developers behind bars by entangling them with allegations of crimes committed by the end-users. Essentially, punishing developers of neutral technology through law-fare, not because the developers actually committed any crimes but because the software gives anyone access to technology that enables freedoms beyond the control of the legacy financial panopticon.

On June 8, news broke that the language of the BRCA was included as part of the CLARITY Act under Section 110. The CLARITY Act already had much more support and was further along in the legislative process than the BRCA, having the BRCA rolled into the CLARITY Act gave the objectives a much better chance at succeeding. The CLARITY Act aims to establish rules for digital assets while establishing which agencies have regulatory oversight. From the link provided on the Save Our Wallets website, you can read that Section 110 text here. When you take into account the proposed modification in the CLARITY Act Section 110 and the existing text of the referenced US code, Section 5312(c)(1)(A) of title 31, it would appear that developers are only implicitly exempt from the definition of "financial institutions" required to comply with Bank Secrecy Act regulations, like obtaining a money transmitters license, because they are not explicitly listed among the entities that are required to comply.

Call me skeptical but I don't see how this changes anything for developers like Samourai Wallet or Tornado Cash who are currently facing charges, despite their cases being cited as reasons for the call to action to get this legislation passed. Just because developers are not explicitly identified as "financial institutions" doesn't mean federal prosecutors are going to drop the charges. In fact, there is already guidance widely accepted among a relevant community of industry peers, like the 2019 FinCEN Guidance, which does in fact explicitly identify developers as not being among those who are required to obtain a money transmitters license and federal prosecutors have argued that FinCEN's opinion doesn't matter. Furthermore, in both cases prosecutors have already removed the allegations related to the developers not registering as money transmitting businesses which

stemmed from 18 U.S.C. § 1960(b)(1)(B). For all intents and purposes, the CLARITY Act will do absolutely nothing for Samourai Wallet or Tornado Cash, although sad that it even needed to be said, it is good to see software developers are not being identified as financial institutions.

**June 4**, US Secret Service joins in on the anti-privacy campaign, conflating mixers with CoinJoins and posting a ridiculous transaction graph representing CoinJoins that demonstrates the agency's lack of understanding around the technology.

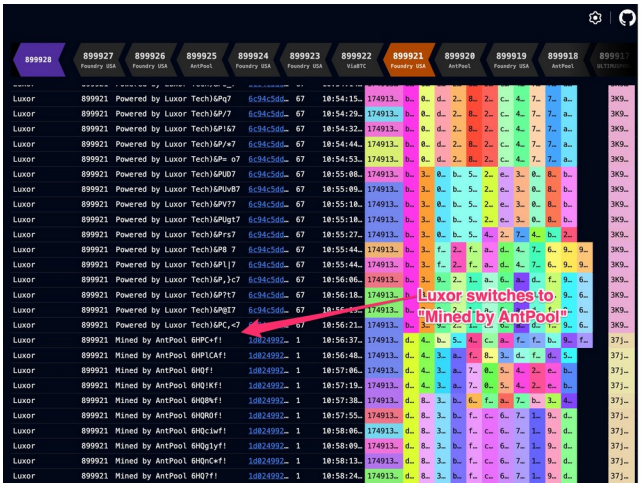


[IMG-002] Government propaganda vs. CoinJoin tx graph

The exact intentions of the Secret Service getting involved here is not quite clear, as the messaging gets lost in the inaccuracies. The Twitter post was accompanied with a link to a long-form article on the topic. For the sake of clarity here, the term "mixers" means that users send their coins to a custodian who then sends them back other coins with a different transaction history. The term "CoinJoin" means a non-custodial collaborative transaction and can be coordinated peer-to-peer, with the use of a coordinator server, or by other means but in no circumstance does a CoinJoin involve someone else taking custody of the user's coins. In the Secret Service's long-form text, they seem more concerned about dividing mixers into two categories: centralized and decentralized, rather than having any concern for the distinguishing custody factor. In one section, the Secret Service states that: "*Decentralized mixers typically facilitate transactions using a peer-to-peer or coordinated method involving customer transactions that are combined and then reallocated individually to each sender. Bitcoin enables this process using the 'CoinJoin' protocol which is performed with specific wallet software providers and removes any requirement for users to visit decentralized mixing services websites.*". In one breath the Secret Service is attempting to establish that CoinJoins are a type of decentralized mixer, yet in the next breath they state that the CoinJoin protocol removes the need to visit decentralized websites… not only conflating mixers with CoinJoin but also conflating centralized coordinators with decentralized website (whatever that means). In any case, it is clear that the US federal government across several agencies is continuing the which hunt that the Biden administration was carrying out against software developers and these agencies are working around the clock to muddy the waters and confuse terms.

The reason words matter to me so much in this context and the reason I have taken so much of your time to explain this example and bring you to this point is because innocent developers like Samourai Wallet are facing 25-years in federal prison precisely because the letter of the law is being twisted to conform to a predetermined conclusion regardless of what the facts of the matter illuminate and regardless of what the text of the laws actually state. Technology that enables individual freedoms will not be tolerated by the State, as this technology erodes the State's power. A State will stop at nothing to ensure those responsible for developing the freedom tech are severely punished; and if they can't prove it using the letter of the law then they will use corrupt judges and prosecutors, they will suppress evidence, they will hide expert testimony from jurors, and they will twist the words of the laws to conform to their will. Worst of all is that all wallet developers, node operators, and miners are next if this campaign is not derailed immediately.

**June 5**, Luxor becomes AntPool. In a post by boerst, he reveals that mining pool operator, Luxor, changed the block template they were distributing to miners from reading "Powered by Luxor Tech" to "Mined by AntPool". Boerst was able to continue hashing on this mangled template for several minutes with his shares continuing to be accepted by Luxor. In the thread, boerst takes things a couple steps further, demonstrating that the templates from both AntPool and Luxor were an exact 1:1 match and he also confirmed in his Bitaxe logs and Luxor dashboard that his shares on that template were accepted as valid.



[IMG-003] Luxor becomes AntPool

This discovery confirms without a doubt that Luxor is an AntPool proxy, which was already widely accepted as truth. But this also raises a few questions; like how can these tags be taken as true and accurate? What kind of technical malfunction had to occur for this to happen and what steps have been taken to resolve the issue? Would Luxor have been credited for the coins from that block reward if one of their miners had found a golden nonce while hashing on that template?

**June 6**, DeFi Education Fund publishes Samourai Wallet Amicus Brief after judge Berman denied the submission just three days prior on June 3, stating "… *not needed at this time. Perhaps amicus can be helpful at oral argument of motion to dismiss.*". The Amicus Brief obliterates the SDNY's legal theory that non-custodial wallet developers have conspired to operate an unlicensed money transmitter business on account that the government would need to prove Samourai Wallet "*transferr[ed] funds on behalf of the public*." 18 U.S.C. §1960(b)(2). Likely in reaction to both the public publishing of this Amicus Brief and the disclosure that FinCEN explicitly told SDNY prosecutors that Samourai Wallet was not required to obtain a money transmitters license, on June 24 prosecutors filed an updated indictment that added heavy emphasis on Samourai "transferring funds on behalf of the public", going so far as to flat out lie about the technical workings of the Whirlpool coordinator claiming that Samourai's server generated addresses on behalf of users, which is utterly false. Additionally, the superseding indictment removed the allegation that Samourai Wallet failed to obtain a money transmitters license but left in the part about transferring funds on behalf of the public they allegedly knew were criminal proceeds and the rogue SDNY prosecutors also added an allegation related to a conspiracy to possess and distribute controlled substances under the conspiracy to launder money count. In an 83-page opposition letter filed on June 26, the deranged SDNY prosecutors have their mental gymnastics on full display as they attempt to argue denying defense pre-trial motions. On July 3, defense filed a letter seeking to have an attorney present the Amicus Brief on behalf of the DeFi Education Fund, the Blockchain Association, Coin Center, the Bitcoin Policy Institute, and the Digital Chamber during the oral arguments of the motion to dismiss.

**June 7**, mononautical of the Mempool Open Source Project confirms that his sub 1-sat/vB transaction was picked up and mined by Mara after a month from when it was originally broadcast. The lower than usual fee rate offered a clever way for mononautical to bait miners who adjust their nodes to accept a -minrelaytxfee lower than 1 sat/vB, affirming that miners are indeed taking transactions from the p2p network with lower fees than the commonly accepted standard minimum fee rate. If you are looking to save on transaction fees and time is not of the essence for you, then lowering your fee rate below 1 sat/vB might be the answer. mononautical's transaction was confirmed for only 11 sats.

**June 21**, fresh Bitcoin mining heat re-use install from Softwarm LLC. Featuring 30 Antminer S21 miners, generating over 6 Ph/s, and utilizing a radiator to help manage excess heat from the immersion system this setup helps offset the cost of generating heat through Bitcoin mining. A trend that is increasing in popularity and will be more common place as the proprietary mining empire crumbles into dust and a million open-source solutions bloom.

**June 22**, 256 Foundation's own Rod Roudi presents at the BTCPay Day event in Prague. Rod has been traveling throughout Europe this summer spreading awareness of the work being done in Nashville, TN and Austin, TX at the two Bitcoin Park campuses and at the 256 Foundation to build grassroots support for freedom tech adoption.

**June 22**, The Space Denver begins new Bitcoin mining heat re-use install. The guys running The Space Denver are not afraid to eat their own dog food and use the techniques and technologies driving their mission to intelligently stack sats while producing necessary heat at their facility. Having in-house installations like this is a great way to show case some of the possibilities that Bitcoin mining heat re-use offers to the many guests who frequent the Space's events.


[IMG-004] Installation at The Space Denver

**June 23**, Ashigaru announces new Whirlpool coordinator in what has been some of the most exciting news I've seen in a long time. I have long advocated for CoinJoins and specifically Samourai Wallet's implementation called Whirlpool for many reasons but in particular, from a miner's perspective, Whirlpool has proven to be an excellent tool for achieving anonymity on a public ledger. As a privacy conscience miner, the primary threat vectors come from three domains: physical, network level, and on-chain. To mitigate on-chain privacy concerns, Whirlpool ensures that the mining pool operator cannot track how I

spend my rewards and likewise Whirlpool prevents those whom I spend my rewards with from being able to determine that I am mining bitcoin. In April 2024, the Samourai Wallet Whirlpool coordinator went offline during the law enforcement seizure of Samourai Wallet's vital infrastructure components. In the months after the arrests, a group of former users forked the mobile Samourai Wallet application and have made many of the same familiar tools available once again. The development continued and has now culminated in the release of Ashigaru's Whirlpool coordinator, a bold move to say the least considering the Samourai Wallet developers are still under house arrest awaiting trial at the end of 2025 and the implications of which yet to be realized. This however, is exactly what is so energizing about the Ashigaru project, it is deeply rooted in the same philosophy that forged freedom tech like PGP encryption and Bitcoin itself; that cypherpunks write code, unstoppable code that anyone can access to bolster their individual freedoms like the right to privacy in the digital age. You can learn more about the Ashigaru Whirlpool release with a couple of recently recorded podcasts: Rock Paper Bitcoin Podcast, Ungovernable Misfits Podcast #1, and Ungovernable Misfits Podcast #2.

**June 28**, Difficulty drops ~7.5% in the biggest downward adjustment since the great Chinese mining ban of the summer of 2021 when difficulty dropped by by almost 40% in a single adjustment. Speculations as to what the underlying cause was for such a large adjustment range from Iranian nuclear powered Bitcoin mining operations were interrupted during the US bombing to large-scale miners curtailing their mining operations in response to a Texas heat wave. Whatever the case, the downward adjustment proved a good opportunity for at least one home-sized miner who was awarded block #903883 on Solo CK Pool in Europe with ~2.3Ph/s.

## FREE & OPEN MINING DEVELOPMENTS:

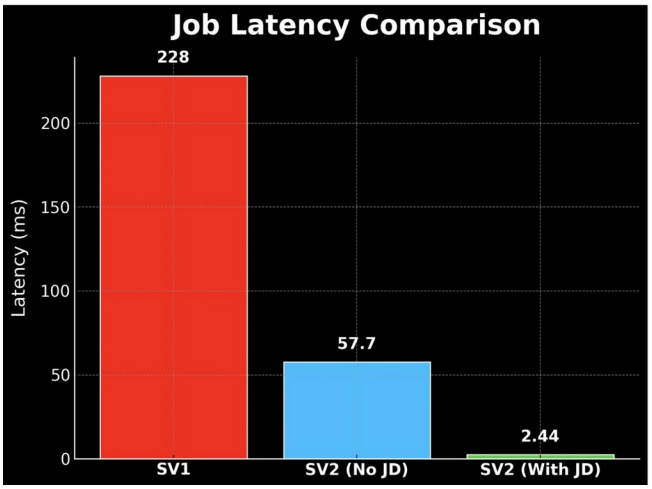
**May 31,** Ziya Sadr plugs in his Bitaxe Gamma after returning home from the HRF Oslo Freedom Forum. This post is actually from the last day in May but I didn't see it until later so I'm including it here. This is of significance because it demonstrates the reach and accessibility of freedom tech and that Bitaxe has the potential to bring Bitcoin mining to anyone in the world. Some of you may recall that Ziya Sadr was arrested in September 2022 by Iranian security forces and held without explanation for several weeks. Ziya has accomplished significant Bitcoin education contributions bringing in-depth technical knowledge and practical privacy considerations to people in Iran and surrounding areas. Ziya has been a champion of freedom technologies and has demonstrated how to use Bitcoin as a freedom tool when faced with an oppressive government in his day to day life. Seeing Ziya value his Bitaxe says a lot about the potential he sees in it as another tool used in the fight for freedom.

**June 10**, Spiral announces Senior Engineering position to work on Stratum v2, demonstrating that incremental steps are being taken to help make the tools accessible that will help decentralize Bitcoin mining. Not that Stratum v2 is a silver bullet on it's own but it does offer improvements that go in the right direction such as encrypting the connections between miners and pools instead of sending it in plain text like Stratum v1, compressing the data so that less bandwidth is needed, and enabling miners to run their own node and generate their own templates. The big caveat to that last point though is that if centralized pools are still in the mix for share accounting and dictating the coinbase payouts then the emphasis on decentralization is a little overblown to put it mildly. Take OCEAN for example, DATUM was their version of a new work protocol like Stratum v2 and if you took the OCEAN marketing at face-value (which many do unfortunately) then you would think that OCEAN has made significant strides in decentralizing Bitcoin mining. In reality, and as I explained in the last newsletter, a centralized pool will never decentralize Bitcoin mining, full stop. While it is great to see resources being used to employ developers full time on developing these tools, I urge readers to keep these developments in perspective and understand that there is a long ways to go before Bitcoin mining is decentralized. For the record, I think Spiral and the Stratum v2 team have been more straight forward in their marketing than other companies like OCEAN.

**June 11**, Digital Shovel jumps on the Bitaxe bandwagon with the BluAx. This represents a calculated move toward democratizing Bitcoin mining as the market demand for Bitaxe-style devices has been clear and present. Priced at $99, this compact solo miner consumes a mere 18 watts, rendering it viable for individual use without the need for industrial infrastructure, concerns over the produced heat, or considerations for the noise like larger mining rigs. Built upon the open-source Bitaxe framework, it challenges the centralizing grip of large-scale mining operations, time will tell if Digital Shovel abides by the open-source Bitaxe license and they contribute back their modifications to the open-source community. Digital Shovel's pivot from supporting mega-miners to enabling individual participation underscores a deliberate effort to reinforce Bitcoin's foundational ethos. The BluAx is a precise instrument for those seeking to engage directly with Bitcoin mining, unencumbered by external gatekeepers.

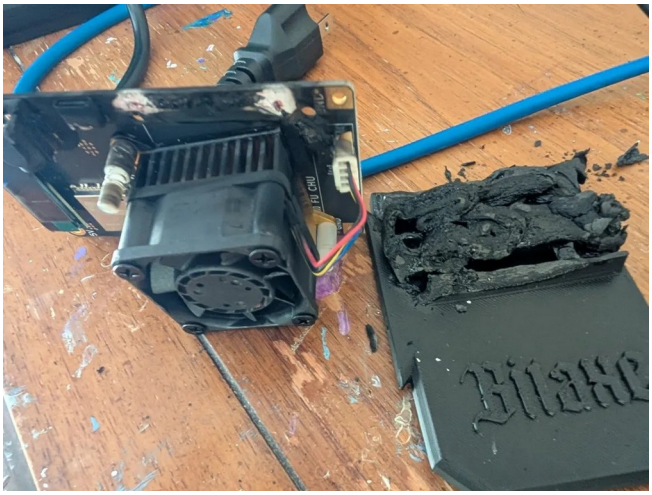
**June 12**, the Stratum v2 reference implementation team publishes a new case study on how SV2 increases mining profits over SV1 by at least 7.4%. This study was a collaborative effort involving multiple contributors from the mining community, including Hashlabs, DMND Pool, and SRI. The ability for the Stratum v2 miner-to-pool connection to be encrypted is protection against hashrate hijacking and can be a significant boost to net profits for miners that fall victim to such schemes. Braiins estimates

that 1% to 2% of hashrate is being stolen. The article goes on to explain several other areas of improvements for miners like increased block propagation with speeds reduced from 96.3ms to 3.44ms and reduced job latency when used with the Job Declaration component from 228ms to 2.44ms or without the Job Declaration component the speed is still four times faster than in Stratum v1. The article is rich in detail and charts, I would recommend reading the whole thing here.



[IMG-005] Stratum v2 w/Job Declaration latency reduction

**June 16**, miner posing as a Bitaxe explodes! This is why Chinese knock-offs can't be trusted, they take open-source designs and modify the bill of materials, often choosing cheaper and untested components, or they completely change the circuitry and then the end-user winds up with a product that they think is the tried and true open-source version but it isn't and it doesn't have a known source so they can't verify it. The next thing you know, boom, house fire, much death.


[IMG-006] Bitaxe knock off almost kills owner

Perhaps it's best not to cast stones in a glass house though because in the event that a legitimate Bitaxe causes damage to the owner and a lawsuit is filed, whose ass will be on the line? Probably the distributor and/or manufacturer of that specific Bitaxe. One likely and painful outcome in that situation would be that distributors only want to sell the real open-source Bitaxe design if it undergoes testing, qualification, and validation for UL Standards or CPSC Regulations adherence, which I think would be burdensome and costly, roping the Bitaxe project into a never-ending loop of jumping through bureaucratic hoops. This would put pressure on the manufacturers to ensure the products they produce meet these burdens. Down the road, if there are really going to be millions of these small mining devices deployed in homes around the world, then the manufacturing facilities are going to need to be sized accordingly and any rational business manager is going to want that operation insured. Insurance companies may not grant product liability insurance to manufacturers unless they can demonstrate that their produced goods adhere to the standards and regulations in the country they are sold. A PITA to say the least but one that I anticipate will need to be dealt with sooner than later.

**June 20**, Bitaxe workshop pops up in El Salvador where students learn how to setup a small Bitcoin miner. This is a great way to get introduced to Bitcoin mining as the students don't need to worry about evacuating the excessive heat of a larger miner or worry about mitigating the noise either. Plus the students still learn all the basics about Bitcoin mining like how to configure their preferred pool, monitoring hashrate, and more.

**June 23**, IxTech expands production capabilities to continue supplying their sales catalog of Bitaxe and NerdMiner devices. From the provided pictures you can see multiple pick and place machines, a manual solder pasting station, lots of inventory, a reflow oven, and more. If there are going to be millions of home mining devices deployed then there are going to need to be many more manufacturers like this popping up. You can see all their products online here.

**June 25**, Bitaxe production hits Kenya with the introduction of the Bitshoka from Gridless. When I attended the Africa Bitcoin Conference in December 2024, Bitaxe was a big hit. Walking around the conference center with Skot was like hanging out with a rock star, everybody wanted to meet him and learn more about the project; one consistent theme I noticed was that people wanted to start making Bitaxes in Africa. I'm thrilled to see that Gridless was keen to that signal and that they have taken steps to team up with a local Kenyan PCB manufacturer to get things started.

## GRANT PROJECT UPDATES:

The 256 Foundation team has been crushing each project, getting closer to completing the first open-source complete mining stack. By the end of August, the first few Ember One 00 v4 hashboards should be out in the field being tested

by a small group of developers and testers. Then by the end of September, the first official release of the Libre Board should be out along with the first official release of Hydra Pool. Around this time, there may also be a beta version of Mujina firmware released for the developers and testers working with the newly manufactured Ember One hashboards; the first official release of Mujina firmware is not due until the end of December. By all accounts, we are making great progress and we are excited to share the updates with you.

**Ember One**

A few changes have gone into the Ember One 00 v4 design after the initial release of the v3 design. In June, there were 10 commits made on GitHub in the v4 branch updating things from adding the reverse polarity protection circuit to moving a few components around. Currently, a few prototypes have been built and are in the process of being validated with the v4 upgrades. Once the validation is complete, we will be placing a small initial batch order specifically for testers and developers to start trying out. Anyone receiving an Ember One from this initial batch is also going to need a heat sink, a cooling fan, a power supply, a control board, and firmware at a minimum. There are plans in the works currently for a purpose-built heat sink, the control board is currently under development with the Libre Board project, and the firmware is also currently under development with the Mujina project. There will be information available for reference power supply units and cooling fans. Currently we are anticipating that the initial batch of units will be ready to start shipping out in mid-August. More details to follow. You can learn more at emberone.org.

**Libre Board**

Last month we presented the list of ports that will be available on the Libre board, now those have all been mapped out and placed and we are currently checking all the traces to ensure the PCB layers are correct before the initial test batch is manufactured. Users will be able to connect up to four Ember One hashboards to each Libre Board controller. Additionally, the NVME port allows users to install an SSD card if they want to run a fully validating Bitcoin node on their Libre Board. The standardized two 100-pin connectors for the compute module gives users the flexibility to choose any Raspberry Pi or other x86 or even RISC-V compute module with various CPU and RAM specifications. There are a number of other features and the form factor of the Libre Board has been designed to match the standardized Ember One form factor so that the control board and hashboards can all fit inside the same enclosure. You can learn more at libreboard.org.

**Mujina Firmware**

Development on the mining firmware continues to be crafted with as many end-user quality of life features as we can think of. Mujina firmware has the ability to handle hot-swappable hashboard replacement without a system reboot, or any system interruption at all. As the hashboards communicate via USB-C, they are discoverable like any other USB device and can be detected instantly upon connection. The Ember One road map includes future versions with a range of ASIC chips and Mujina handles this with the ability to easily port in drivers for the various types of hashboards. For example, a user will be able to unplug and swap out a hashboard while the system is running and Mujina will detect the new hashboard, determine the necessary driver for it based on the ASICs it is fashioned with, and start communicating with the new hashboard immediately without interruption to the other hashboards. We believe that over time this capability will be a significant mitigating factor against maintenance and repair down time. Other features include the development of a terminal interface in addition to the web UI, for an example of what is possible in the terminal interface check out some of the themes here. Currently, the firmware is handling communications to and from the ASIC chip as well as peripheral board components. In the weeks ahead, testing and development will graduate from the Bitaxe Raw interface to running Mujina on one of the Ember One 00 v4 prototypes. You can learn more at mujina.org.

**Hydra Pool**

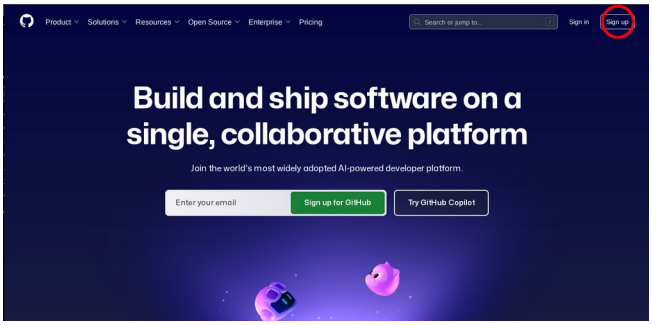
As mentioned in the last newsletter, the decision was made not to use an existing code base for the Stratum server component of Hydra Pool but instead to build one from the ground up in Rust. The second Telehash fundraiser carried out in the beginning of May was done with the initial version of Hydra Pool forked from CK Pool. We took the lessons from that experience, reviewed the code closely, also reviewed other existing options like Stratum v2 and DATUM but ultimately we decided the best way to move forward was to start from scratch. So far, bench marking our Stratum server against CK Pool has been comparable and currently we are starting to test the software with various miners. Hydra Pool will be a one-click deployable pool made to work on Mujina which eventually will become its own Linux distribution. There will be two payout methods available in the first release of Hydra Pool, selectable by the user, solo mining mode and Pay Per Last N Shares (“PPLNS”) mode. With the ability to run a Bitcoin node on the Libre Board, the complete Ember One mining system will be a versatile open-source solution that gives the user the full mining stack in a fully customization package. You can learn more about Hydra Pool here.

## ACTIONABLE ADVICE:

The more people who get involved with open-source development, the better. Many people experience hesitation in getting involved because they are not developers themselves. Despite the common misconception that only developers wielding some special skills should be the ones touching a project’s code, anyone can open an issue or

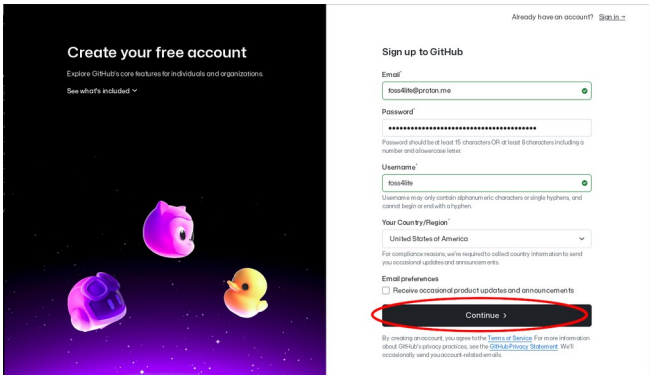
create a pull request and it is a lot easier than you might think. In this month's Actionable Advice column I'm going to show you exactly how to get involved with your favorite open-source projects on GitHub so that the next time you have a feature request, or encounter an issue you want reported, or see something that you think could be improved then you can go straight to the source and do it yourself. This will be much appreciated by other developers working on the project and it will save everyone from having to use other communication channels to chat about the topic and rely on one of the active developers to take what has been discussed and translate it into a GitHub issue or pull request themselves.

**Step 1:** You need a GitHub account. Navigate to github.com and in the upper right-hand corner you should see the option to Sign up, click on that to create your new account. If you already have a GitHub account, then use the option to Sign in and skip the next step.



[IMG-007] GitHub home page

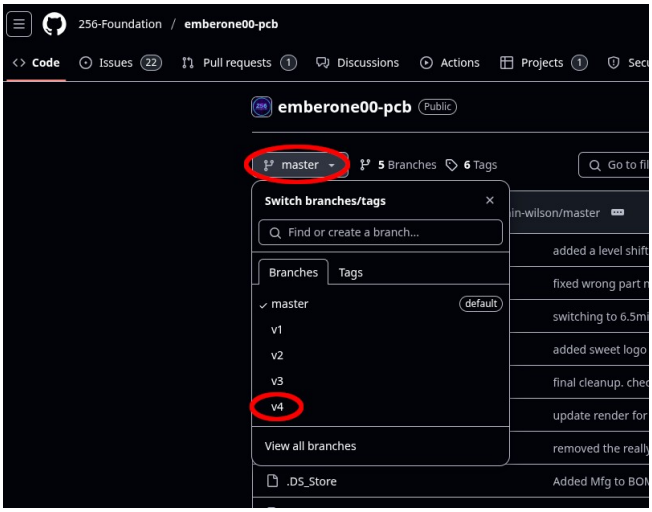
**Step 2:** Fill in the empty fields with a valid email address, a high entropy and unique password, a desirable username, and "your country". Then Continue.



[IMG-008] GitHub Sign up page

Keep in mind that the veracity of the country you select is up to you and also know that in the past, GitHub has blocked access to certain countries like Iran and Syria because "muh CoMpLiAnCe!". Tor or a VPN can be helpful here if need be.

**Step 3:** Once you have your GitHub account, navigate to the repository ("repo") for the project you are interested in. In this example, I'm using the Ember One project. There is already an active release of the Ember One and it is v3. So when looking at the Master branch of the repo, which is the default branch you will see when visiting the project, it is reflecting the changes up until v3. Development has continued since v3 was released, which has been carried out in a new branch called v4. Once the v4 updates have all been validated then the v4 branch will get pushed to master and bring all those updates with it. I want to make a change in the v4 branch so I'm going to click on where it says "Master" on the left-hand side above the list of code files, then I will click on v4 to view that branch.



[IMG-009] GitHub branch selection

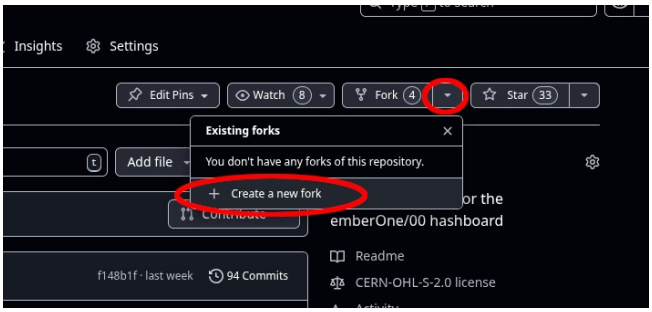
You may notice a message at the top of the repo that says the branch you're viewing is several commits ahead of the master branch, each of those commits is an update that the developers have incorporated into the new branch. Once the new branch gets pushed to master, those commits are all the changes that will go along with it.

I noticed while looking through the Bill of Materials ("BOM") in the Manufacturing Files folder that one of the items did not have an assigned DigiKey part number and I want that part number included on the BOM. So the example I'm going to show you will demonstrate how to make a pull request to have this update included. Then that gives everyone else involved in the project the opportunity to view the proposed changes and decide if they agree that this should be updated and if they agree then the project maintainer can merge my pull request and those changes I proposed will be included in the v4 branch, which will subsequently get merged into the master branch once the v4 branch gets released. These concepts will work for any change you want to make in a repo like modifying an HTML file or updating an image etc, so follow along and then use these instructions to make your own pull requests.

| | | | | |
|---|---|---|---|---|
| GT-TC029B-H025-L1N | CS1213AGF260 | 2449-CS1213AGF260CT-ND | | |
| LM25119PSQ/NOPB | LM25119PSQ/NOPB | 296-43567-1-ND | | |
| DS4432U+ | DS4432U+ | DS4432U+-ND | | |
| INA260 | INA260AIPW | 296-45218-5-ND | | |
| SN74AVC4T774 | SN74AVC4T774PWR | 296-24739-1-ND | | |
| 25MHz | SX3M25.000E20F30THN | | C5137262 | |
| TMP1075 | TMP1075DGKR | 296-TMP1075DGKRCT-ND | | |
| AP74700Q | AP74700QW6-7 | 31-AP74700QW6-7CT-ND | | |
| W25Q16JVUXIQ TR | W25Q16JVUXIQ TR | 256-W25Q16JVUXIQTRCT-ND | C2843335 | |
| SK6812 | | | C2890037 | |
| TLV1117LV33DCYR | TLV1117LV33DCYR | 296-28778-1-ND | | |
| TPD1E05U06DYA | TPD1E05U06DYAR | 296-TPD1E05U06DYARCT-ND | | |
| TMP451HQDQWRQ1 | TMP451HQDQWRQ1 | 296-TMP451HQDQWRQ1CT-ND | | |
| RP2040 | SC0914(13) | 2648-SC0914(13)CT-ND | C2040 | |
| MCP1824T-1202E/OT | MCP1824T-1202E/OT | MCP1824T-1202E/OTCT-ND | | LDK120M12R |

[IMG-010] Missing DigiKey part number

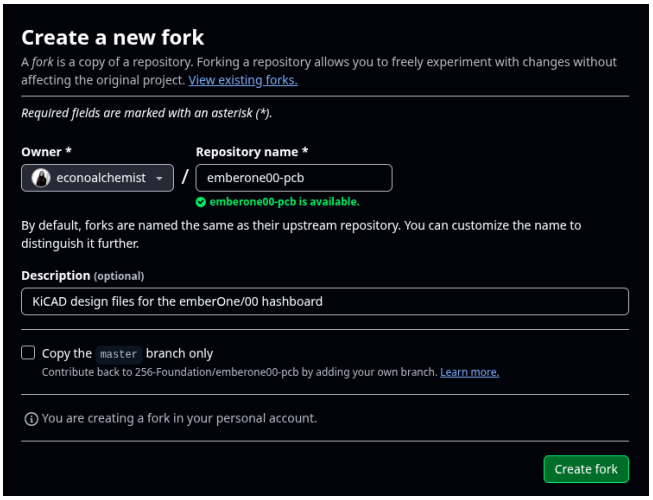
**Step 4:** Fork the repo. I'm going to create a carbon copy of the entire Ember One repo, this is called a fork. The new fork will be available under my user, econoalchemist, unlike the original repo which is available under the 256 Foundation organization. This way I can make all the changes I want in my copy of the repo and it won't effect anything in the original repo. To create a fork of a project, click on the drop-down menu where it says "fork" along the top of the repo. Then click on "Create fork".




[IMG-011] Forking a repo

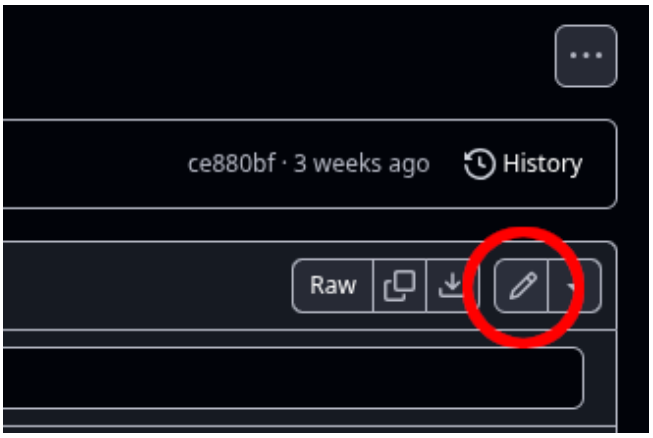
GitHub will ask me to confirm the details of this fork I'm creating. I could change the name of the repo here if I wanted but I'll be leaving it as the default. I have also unchecked the box where it says "Copy the master branch only" because I want to copy all the branches since the change I am interested in making is in the v4 branch. Once you are satisfied with the details, click on "Create fork" at the bottom of the page.

Alternatively, if you have push access to a repo then you could create your own branch and make your modifications there. See this documentation to learn more on that option.




[IMG-012] Confirm fork details

**Step 5:** Edit your new fork. Now you should be looking at your fork of the project. This is a copy of the original project that you can modify any way that you want to. Then once you have made some changes that you think should be included in the main project, you can make a pull request for those changes to be included. In this example, I want to update that BOM, so I'm going to navigate to the manufacturing files folder in the v4 branch of my forked repo and there I will open the "emberone BOM.csv" file and click on the pencil icon in the upper right-hand corner to open the file editor.



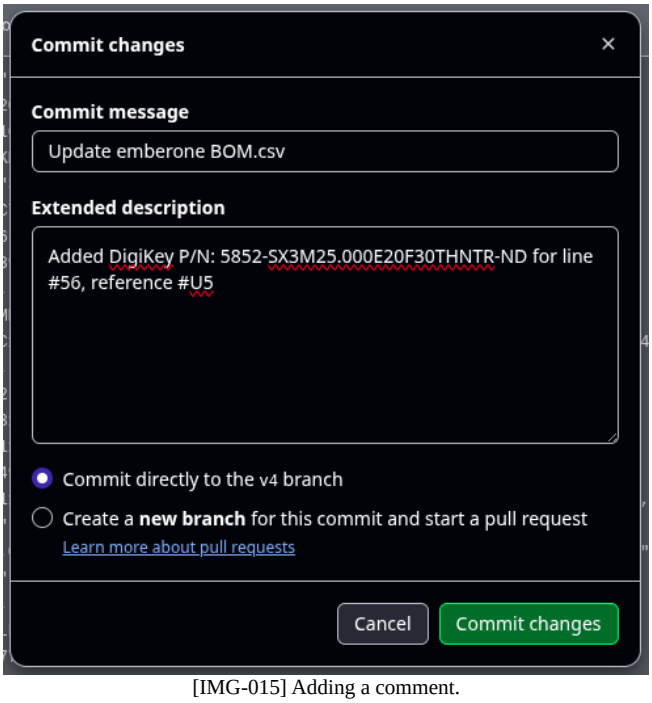

[IMG-013] Edit file

Then I'll scroll down to the line I want to edit, add the DigiKey Part Number, and click on commit changes in the upper right-hand corner of the editor.

```
"2","R61,R70","49.9","RC0402FR-0749R9L","311-49.9LRCT-ND","",""
"2","SW1,SW2","GT-TC029B-H025-L1N","CS1213AGF260","2449-CS1213AGF260CT-ND","",""
"1","U1","LM25119PSQ/NOPB","LM25119PSQ/NOPB","296-43567-1-ND","",""
"1","U2","DS4432U+","DS4432U+","DS4432U+-ND","",""
"1","U3","INA260","INA260AIPW","296-45218-5-ND","",""
"1","U4","SN74AVC4T774","SN74AVC4T774PWR","296-24739-1-ND","",""
"1","U5","25MHz","SX3M25.000E20F30THN","5852-SX3M25.000E20F30THNTR-ND","C5137262",""
"1","U6","TMP1075","TMP1075DGKR","296-TMP1075DGKRCT-ND","",""
"1","U7","AP74700Q","AP74700QW6-7","31-AP74700QW6-7CT-ND","",""
"1","U8","W25Q16JVUXIQ TR","W25Q16JVUXIQ TR","256-W25Q16JVUXIQTRCT-ND","C2843335",""
```

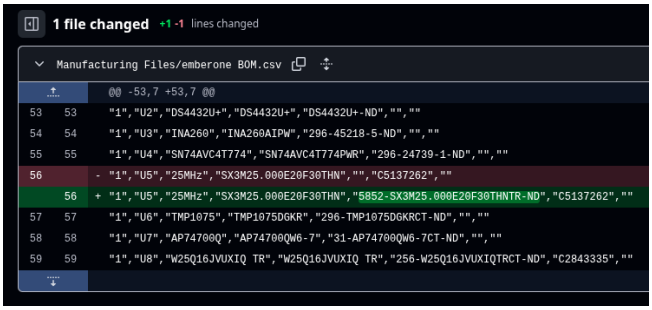
[IMG-014] Added text

I will also add a brief note explaining the change I made in the pop-up window before finalizing the commit. I have selected to commit directly to the v4 branch and this gets finalized by clicking on the “commit changes” green button in the lower right-hand corner.



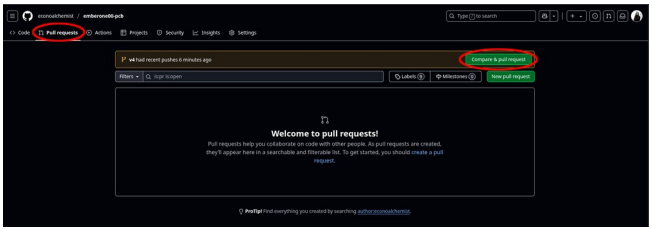
[IMG-015] Adding a comment.

Then you can click on the commit to expand the details and see the difference from the old version of the file and the new.



[IMG-016] GitHub commit differential

**Step 6:** Create the pull request. From your forked repository main page, click on the “pull requests” tab at the top. Then click on “compare & pull request”:



[IMG-017] Creating pull request

Next, you will be presented with all the details of your pull request. Ensure that the base repo is the main project and that the correct branch is selected and also that the head repo is your forked version and branch. Double check the title of your pull request and the description. At the bottom, you can quickly view the differences. If everything looks good then click on the green button in the lower right-hand corner that says “create pull request”.

[IMG-018] Finalize pull request

Now your pull request will be visible to the project maintainers and reviewers and they can decide if they want to merge your pull request or maybe they have some questions and/or comments and then they can start a conversation right there in the repo to clarify things.

The steps and concepts out-lined here have been meant to demonstrate the most basic way to create a pull request. There are more elaborate methods that involve installing the GitHub application on your desktop and cloning your forked repo locally, making the edits in your local copy, confirming everything looks and works how you want it, then pushing the changes back up to your forked repo, and then creating the pull request to the main project. Alternatively, if you have something in mind that doesn’t constitute a pull request, just open a new issue instead. You can navigate to the project you are interested in, click on the “issues” tab at the top of the page, and create a new issue describing what’s on your mind. This will give other project participants the opportunity to consider your issue and determine a course of action. Hopefully, this simple guide has given you enough food for thought to get started and get involved. You can learn more about GitHub pull requests here.

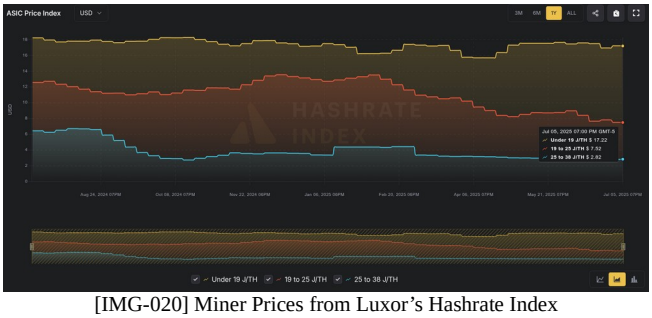
## STATE OF THE NETWORK:

Hashrate on the 14-day MA according to mempool.space decreased from ~915 Eh/s on the first day of June to 840 Eh/s by the end of the month, marking roughly -8.1% decrease for the month and bringing the year to date difference to +6.8%. Hashrate was quick to rebound after the beginning of July and is on track to surpass the previous all time high soon.


[IMG-019] 2025 hashrate/difficulty chart from mempool.space

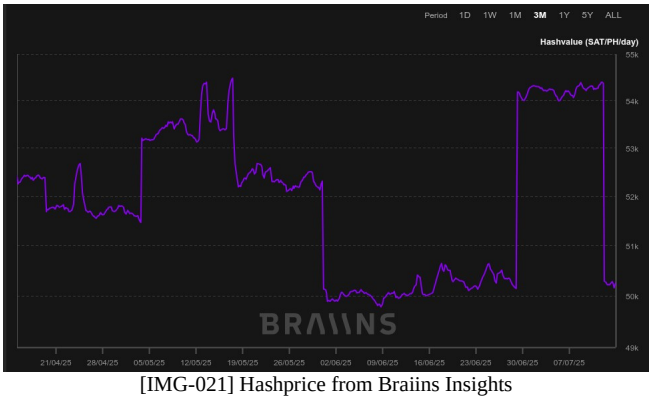
Difficulty was 126.98T at it's highest in June and 116.96T at it's lowest in the last couple days of the month, which marks a ~7.8% decrease for the month. All together for 2025 up to Epoch #448, difficulty has gone up ~6.5%.

According to the Hashrate Index, ASIC prices have decreased ever so slightly over the last month. The more efficient miners like the <19 J/Th models are now fetching $17.22 per terahash, models between 19J/Th – 25J/Th are selling for $7.52 per terahash, and models >25J/Th are selling for $2.82 per terahash.




[IMG-020] Miner Prices from Luxor's Hashrate Index

Hashvalue over the month of June jumped from roughly 50k sats/Ph/day to finish the month out at 55k sats/Ph/day, according to the Braiins Insights dashboard.




[IMG-021] Hashprice from Braiins Insights

The next halving will occur at block height 1,050,000 which should be in roughly 1,000 days or in other words ~146,440 blocks from the last day in June.

## CONCLUSION:

Thank you for reading the seventh 256 Foundation newsletter. Keep an eye out for more newsletters on a monthly basis in your email inbox by subscribing at 256foundation.org. Or you can download .pdf versions of the newsletters from there as well. You can also find these newsletters published in article form on Nostr.


[IMG-022] FREE SAMOURAI

If you want to continue seeing developers build free and open solutions be sure to support the Samourai Wallet developers by making a tax-deductible contribution to their legal defense fund here. The first step in ensuring a future of free and open Bitcoin development starts with freeing these developers.


Live Free or Die,
-econoalchemist