

FIO Protocol Roadmap

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Table of Contents

Introduction.....	4
Privacy by Design.....	5
FIO Protocol functionality at Mainnet launch	5
FIO Addresses.....	5
Permitted format	5
Related API methods	6
FIO Request and FIO Data.....	6
Related API methods	7
Whitelisting	7
Send using FIO Address	8
Spam prevention	9
Related API methods	9
SDKs and integration guide.....	10
Blockchain functionality	10
FIO Protocol roadmap.....	10
FIO Blockchain	11
EOS fork	11
Major differences between EOS.IO and FIO Protocol	11
Consensus algorithm	12
Block producers.....	12
Selection process.....	12
BP responsibilities and code of conduct.....	12
Performance and state file size	12
Security.....	13
Fees	13
Example fee amounts.....	14
Fee distribution	15
Related API methods	15
FIO tokens.....	15
Related API methods	16
Token economics	16
Token distribution	16

Dapix shareholders, employees and advisors	17
Foundation for Interwallet Operability	17
FIO Member incentives	17
New user bounties	20
Block producer reserves	20
Mainnet launch	20
Foundation for Interwallet Operability	20
Foundation participation	21
Full Members	21
Affiliate Members	21
Foundation Board	21
FIO Improvement Proposal	21
Pre-Mainnet FIO Domain auction and Address pre-sale	22
Domain reserved list	22

Introduction

Dapix, Inc., a US based private company, is developing blockchain software based on the **Interwallet Operability Protocol White Paper**¹ and intends to open-source it, so that the community can have a decentralized public blockchain, called the FIO Protocol, whose primary purpose is to greatly enhance, in a homogeneous way, the usability of all other blockchains.

The Foundation for Interwallet Operability (FIO), a Cayman Islands based not-for-profit organization was established to promote the adoption and use of the FIO Protocol.

Neither Dapix nor the Foundation will manage or otherwise control the FIO Protocol. It is intended to be a decentralized public blockchain run and managed by a collection of block producers which are elected by token holders.

A growing number of wallets and exchanges² have been supporting the FIO Protocol and plan to incorporate it into their products once Mainnet is launched.

The FIO Protocol will bridge the gap between wallets (both exchange-based and self-sovereign) as well as crypto payment processing platforms providing an industry standard decentralized service layer of data, requests and confirmations that abstract away the complexities of the underlying blockchains. The FIO Protocol is not a wallet, not an exchange and not a crypto payment processor, rather, it enables them all to deliver a dramatically improved user experience. And the FIO Protocol does not compete with other blockchains nor does it send value on or integrate with other blockchains but, rather, it enables them all to be more successful. Technically speaking, all other blockchains do not even know that the FIO Protocol exists. The FIO Protocol will enable a better way to send and receive blockchain based value on any and all other blockchains that is:

- **Human-meaningful:** Allows users to initiate transactions using memorable wallet names such as **purse:alice**
- **Decentralized:** Powered by a public blockchain, it does not require a centralized solution or trusted third party.
- **Secure:** Enables transactions to be exchanged between parties in a secure way. All FIO Protocol transactions require a FIO private key, which is stored in the user's wallet.
- **Private:** Sensitive counterparty information, including public addresses and metadata is encrypted on the blockchain.
- **Interoperable:** Once integrated into a wallet, works with any blockchain and cryptocurrency without requiring each to integrate.
- **eCommerce ready:** Enables request for payment functionality (i.e. for wallet-to-wallet order cart presentation) along with robust, immutable and private metadata for every transaction and simple refund processes.

This Roadmap documented continues to evolve and it is anticipated that revisions will be published prior to Mainnet launch. We encourage the community to provide feedback on any aspect of the FIO Protocol.

¹ <https://fio.foundation/whitepaper>

² <https://fio.foundation/membership/>

Privacy by Design

The FIO Protocol has been architected following Privacy by Design³ principles. The users are always in control of what they disclose and, if they so choose, can retain the same level of privacy as allowed on the native blockchain on which they transact.

FIO Protocol functionality at Mainnet launch

Dapix anticipates it will complete the software development of the initial version of the FIO protocol in Q1 of 2020 and anticipates a community launch of Mainnet in that time frame as well. It is planned to contain the following core functionality: FIO Addresses, FIO Requests and FIO Data.

FIO Addresses

FIO Addresses will act as the human readable “wallet names” and user identifiers on the network. In addition, FIO Addresses are the gateway to all other capabilities of the FIO Protocol. Registration of a FIO Address is done in a FIO enabled wallet or exchange where a FIO Private/Public Key pair is generated. The FIO Address and all actions on the FIO blockchain are self-sovereign via the FIO Private Key. Without a FIO Address, users cannot access any of the other FIO protocol capabilities. FIO Addresses also serve as the vehicle to abstract away the complexity of requiring users to have to worry about another transaction fee on another blockchain by bundling large amounts of transactions into an inexpensive and simple annual subscription that can be paid by the user or by any third party (such as a wallet or exchange) on the user’s behalf.

A FIO Address consists of a username and a domain delimited by a colon:

username:domain

Permitted format

	FIO Domain	FIO Address
Minimum characters	1	3
Maximum characters	62	64 (including FIO Domain)
Characters allowed	ASCII a-z 0-9 - (dash)	ASCII a-z 0-9 - (dash) with single : (colon)

At Mainnet launch, the FIO Protocol will support the following FIO Address and FIO Domain functionality:

- **Purchase.** Ability to purchase an available FIO Address and FIO Domain **non-fungible token (NFT)**⁴ and assign any FIO public key as the owner.

³ https://en.wikipedia.org/wiki/Privacy_by_design

⁴ https://en.wikipedia.org/wiki/Non-fungible_token

- **Bundled Transactions.** Each FIO Address will come **with 500** bundled transactions which cover a variety of fees when using that FIO Address. If the fee is eligible and the user has bundled transactions remaining, the fee is waived, and the bundled transaction counter is decremented.
- **Public Domains.** Ability to set domain as public. This will allow anyone, not just the owner of the FIO Domain, to create a FIO Address on that domain directly, provided they pay the registration fee.
- **Renew.** Ability to renew FIO Address and FIO Domain. If the renewal fee is not paid before expiration date, the name/domain is locked for 90 days when only limited transactions are supported. After 90 days it is burned and can be re-registered by any user. In addition, 30 days after domain expires, all wallet names on that domain will be locked and if domain fee is not paid all wallet names on that domain will also be burned. Anyone, not just the owner, can renew a wallet name or domain by paying the required fee.

Related API methods

- **avail_check** - checks if a FIO Address or FIO Domain is available for registration or if it's valid.
- **register_fio_domain** - purchases FIO Domain NFT.
- **renew_fio_domain** - renews FIO Domain.
- **register_fio_address** - purchases FIO Address NFT.
- **renew_fio_address** - renews FIO Address and adds new bundled transactions.
- **get_fio_names** - returns FIO Addresses and FIO Domains owned by provided public key.
- **set_fio_domain_public** - toggles the public flag on a domain.

FIO Request and FIO Data

A FIO Request is a transaction in which a payee is requesting funds from payer using FIO Addresses. The payee first encrypts all sensitive metadata (e.g. currency, amount, public address of payee, memo, etc.) using Diffie-Hellman key method⁵, which derives a shared secret from the payee private key and the payer public key and places the transaction on the FIO blockchain. The payer polls the FIO blockchain, decrypts the metadata inside their wallet and uses the information to pre-populate the send transaction, which is broadcasted to the native blockchain without involving the FIO Protocol. In addition, the payer places a metadata about the native blockchain transaction (e.g. native blockchain transaction id, refund address, memo, hash of off-chain metadata, etc.) on the FIO blockchain. Just like the request, the metadata would be encrypted using Diffie-Hellman key method.

If the payer decided not to send funds in response to the FIO Request, they may reject the request by updating its status on the FIO blockchain. This way, that request will no longer show up when polling for pending requests.

The size of on-chain metadata is limited, but may optionally include URL to off-chain data and associated hash to confirm the offline data has not been tampered with.

FIO Request is a perfect mechanism for recurring payments, where a merchant can trigger a request anytime a payment is due. This request will show up in user's wallet for approval.

⁵ https://en.wikipedia.org/wiki/Diffie%E2%80%93Hellman_key_exchange

In order to enable FIO Protocol on an e-commerce site, the merchant will need to simply collect the FIO Address from the customer on the site and initiate a FIO Request to that address for the required amount of crypto-currency at checkout. The process of recognizing the payment would remain unchanged.

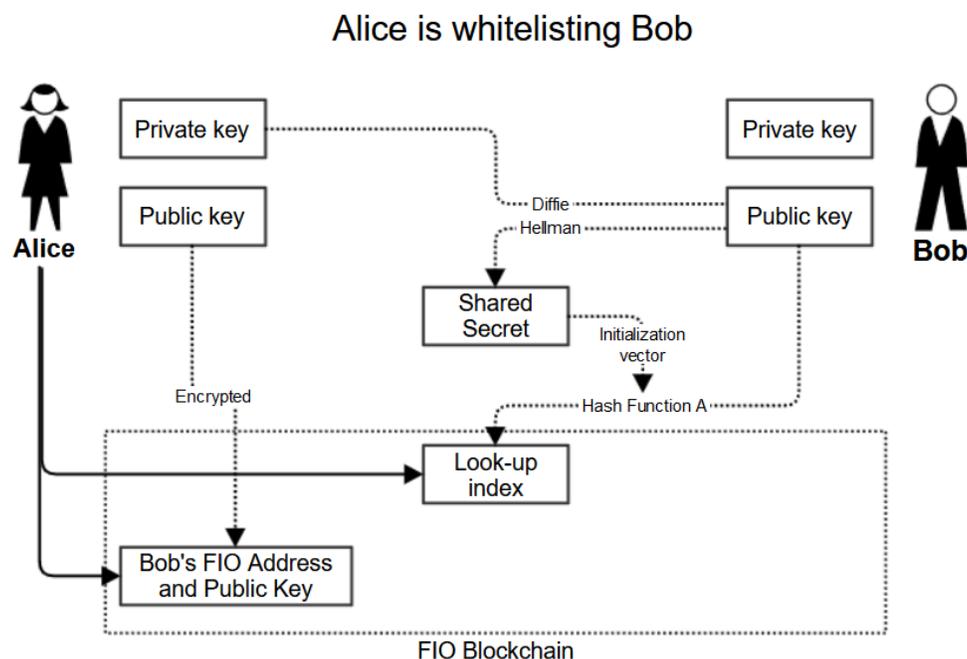
Related API methods

- **new_funds_request** – creates new FIO Request.
- **record_send_action** – records FIO Request status and/or metadata about a native blockchain transaction.
- **get_received_fio_requests** – returns any active FIO Request waiting for payer.
- **get_received_actions** - returns FIO Request status and/or metadata about a native blockchain transaction.
- **get_sent_fio_requests** – returns all FIO Requests sent by payee.

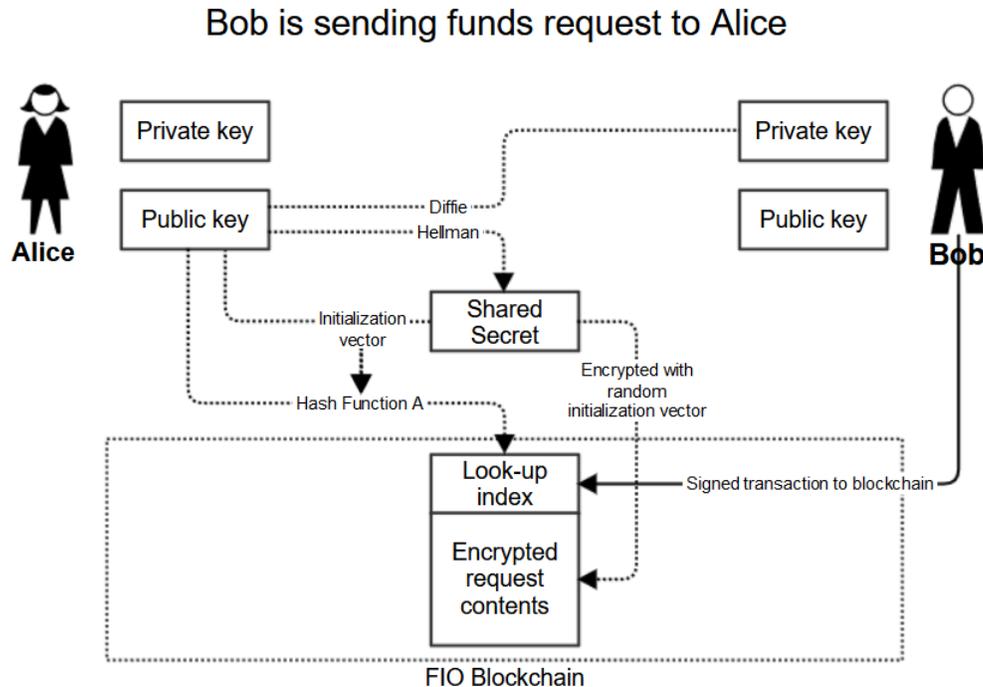
Whitelisting

It is important for FIO to obfuscate the connection between counterparties exchanging transactions on the FIO blockchain. If left unaddressed, when a payee placed a FIO Request with payer as the intended recipient, while the details of their transaction would be unreadable to third parties, it would become public that those parties were interacting with each other. To address this privacy issue, payee in FIO Request is always public, but the payer is hidden behind a specially constructed look-up index unique to each party.

To accomplish this, the payer must first add payee to a whitelist of approved parties. To accomplish this, the payer first derives a shared secret from the payer private key and the payee public key using Diffie-Hellman key method. That secret is then hashed and placed on the blockchain by the payer. Since the payee can derive the same secret, they can easily and privately check the IOP blockchain to see if they have been whitelisted.



When a payee sends a request, aside from encrypting it, they also create a unique look-up index by hashing payer's public key using a derived secret and the public key itself as an initialization vector. Payer knows to look for that unique index when querying the blockchain, because the payee is in their whitelist.



Similarly, if payer wants to “respond” to the payee (e.g. reject the request for funds), they will create a unique look-up index by hashing payee’s public key using a derived secret and the public key itself as an initialization vector.

It is also possible to allow any user to publicly state, e.g. as part of their Wallet Address setting, that they are not concerned with obfuscating the connection between counterparties, i.e. they want to be public. This way if another user, with that same setting wants to initiate a request for funds transaction, they should be able to do so without the need for whitelisting.

Send using FIO Address

Ability to send funds using FIO Address without initially receiving a FIO Request is a very important feature of the FIO Protocol. Even though it is not going to be included at Mainnet launch, Dapix plans to develop this enhancement and submit it to the community shortly thereafter.

Once developed, it will allow users to associate public addresses on other blockchains to their FIO Address in a secure and private way. When a FIO Address is initially registered, it will not be automatically mapped to any public address until the owner decides to do so. In order to send funds to a user in this mode, the sender must first request an address.

The owner of a FIO Address can selectively whitelist specific senders and let them access designated wallet public addresses, which are placed encrypted on the FIO blockchain.

The owner of a FIO Address can also pre-approve all senders for designated wallet public addresses, which effectively makes them public.

It will be up to the participating wallets to decide on what is the best balance of granularity of control and usability and therefore which privacy options to expose to the end-user. For example, some wallets may choose to forego “approved sender” functionality and only expose an option to be totally private or totally public.

In order to offer the most flexibility to users and to reduce the amount of content stored on IOP blockchain, each public address is encrypted symmetrically three separate times using different secret key each time:

- Address level secret key – only used to encrypt one public address.
- Blockchain level secret key– used to encrypt all public addresses for a particular blockchain (i.e. Bitcoin).
- Wallet level secret key – used to encrypt all public addresses in that wallet.

Address level secret key can decrypt just one public address. Blockchain level secret key can decrypt current public addresses for specific blockchain and all future addresses for that blockchain published by the owner. Wallet level secret key can decrypt all addresses published by that wallet. The FIO Address owner can then decide which of those decrypt keys to make available to which user by placing it on the FIO blockchain encrypted asymmetrically with the approved user’s public key. It is assumed that FIO Address owners will add approved users using their FIO Addresses or as part of the request flow. Users less concerned about the privacy issues may also make any of their secret keys public by placing them unencrypted on FIO blockchain.

To prevent man-in-the-middle attack while looking up a public address, FIO Protocol will require look-up calls to be processed by an API node run by an active block producer and signed by that BP’s private key. In addition, wallets will be required to query multiple API nodes in order to reduce the risk of any one BP node being controlled by an attacker. The wallets will be allowed to decide on the number of API nodes to query, with a minimum of 5 and $2/3 + 1$, or 15 guaranteeing consensus.

As a middle ground between having to pre-approve individual users and making the secret keys public, IOP will support stealth wallet addresses. The owner can place any of the decryption keys on the FIO blockchain encrypting them using human-meaningful secret. That secret can be prepended to their FIO Address: secret:purse:alice. The sender’s wallets will know to use the prepended value as a secret to decrypt the keys obtained from the FIO blockchain using the second part of the FIO Address.

Spam prevention

The FIO Protocol’s use of whitelisting eliminates the possibility of ongoing spam transactions (e.g. spammer sending random requests in hopes of getting users to send them funds). Even if a user inadvertently whitelisted a spammer, they can just as easily remove them.

Related API methods

- **add_to_whitelist** - adds user to whitelist
- **remove_from_whitelist** - removes users from whitelist
- **get_whitelist** - returns encrypted whitelist
- **check_whitelist** - checks if payer is on the recipient whitelist

SDKs and integration guide

The following SDKs are planned to be released as open source prior to Mainnet launch:

- Swift
- Kotlin
- JavaScript/TypeScript
- Java 7

In addition, a Wallet Integration Guide will be made available outlining recommended integration options.

Blockchain functionality

- [New user bounties](#)
- [Block producer reserves](#)
- [Initial accounts limits](#)

FIO Protocol roadmap

It is anticipated that the [Foundation for Interwallet Operability](#) will fund the development of the following functionality within a year after Mainnet launch:

- Pricing oracle that block producers can use to obtain FIO token price from exchanges to use in fee setting logic.
- Transfer FIO Domain and FIO Address including escrow functionality.
- Burn FIO Domain and FIO Address.
- Enabling domain owners to burn addresses on their domain.
- Enabling FIO Domain in another wallet.
- Block explorer.

Potential future functionality could include many things as the list continues to grow. Current ideas include:

- **Verified user program.** Methodology whereby domain owners opt-in to have their identity verified such that the FIO protocol can display a verified FIO Address to a counterparty.
- **Aliases.** Ability to associate FIO Addresses with other character constructs such as an email address thereby enabling the concept of sending/receiving blockchain transactions using that alias.
- **Multi-sig routing.** Functionality for multi-signature exists on a number of blockchains. Secure decentralized routing of multi-signature requests does not.
- **Referral functionality.** Adoption of the FIO Protocol will be core to its success. Adding capability to reward users that bring other users into the FIO Protocol universe will help achieve that.
- **Browser plug-in.** A browser plug-in could provide websites and distributed applications the user's FIO Address thereby enabling the user to interact with them without having to physically type it in.
- **FIO Domain/Address management tool.** Users (especially companies) will eventually desire a tool to see and manage their FIO Domains and Addresses in one place.
- **Pre-approving requests.** In order to improve frequent interactions with DAPPs (e.g, playing a game), the integrating wallets may implement the ability to pre-approve requests based on sender,

amount, and frequency. When enabled, the wallet will automatically approve a request from an approved sender if it is below a designated amount threshold or frequency.

FIO Blockchain

We contemplated running the FIO Protocol atop an existing blockchain, but ultimately decided we will need a dedicated blockchain for the following reasons:

- Wallets and exchanges are the primary participants in the FIO Protocol and need to have both substantial economic incentives as well as a large voice in governance of the protocol. Neither would be made easy if the FIO Protocol was not running on its own chain.
- We need to deliver a specific set of functionalities, which would be nearly impossible to deliver on top of existing blockchain without having access to modify core code.
- We feared that as a protocol which works seamlessly across multiple blockchains, it would not be eagerly adopted if it gave preference to a specific blockchain.

EOS fork

The FIO Protocol software is a fork of EOS.IO⁶. After in-depth analysis of over 20 open-source blockchains conducted in July 2018, EOS.IO has scored the highest on a weighted scale assessing speed, maturity, security, ease of development and requirements match. Many key modifications to EOS.IO have been made to better achieve the objectives of the FIO Protocol.

Major differences between EOS.IO and FIO Protocol

	EOS.IO	FIO Protocol
Active block producers	21	21
Paid stand-by block producers	Making 100 EOS per day	Up to 21
Fees	Via inflation	Collected from users
BP reserves	No	Yes
Staking required to access resources	Yes	No
Open DAPP platform	Yes	No
Account required	Yes	Yes, but automatically created and unnecessary for the end user to know

⁶ <https://github.com/eosio>

Vote decay	Yes	No
Default proxy	No	Yes

Consensus algorithm

The FIO Protocol utilizes Delegated Proof of Stake (DPoS)⁷ in which those holding tokens choose the block producers. Blocks are produced exactly every 0.5 seconds by a specific block producer designated to produce a block at that time. Blocks are produced in rounds of 126 (6 blocks each times 21 producers).

Block producers

Selection process

Anybody can be a block producer (BP) if they receive enough votes. The top 21 active BPs and up to 21 stand-by BPs will be paid. The pool of 42 BPs is determined by the number of votes. At the start of each round (every 126 blocks), 21 top block producers with the highest number of votes are selected to produce blocks in the next round. The selected producers are scheduled in order of geographic location to ensure high performance.

BP responsibilities and code of conduct

- Secure the FIO Protocol network
- Ensure the network has enough capacity and processing power to service user requests
 - Every active BP shall run an API node capable of handling at least 100 simultaneous connections
 - BPs will publish real-time performance metrics of the block producing nodes
- Run the latest code base approved by BPs via a vote
 - BPs will self-report version number of software running
- Set fees and number of bundled transactions included with each FIO Address
- BPs will not share fees in exchange for votes. However, BPs may outsource the technical operation of running the node. Vote incentivization has the potential to degrade Delegated Proof of Stake systems⁸. The block reward should incentivize value creation over value transfer and no single entity should have a controlling stake in more than one block producing node, otherwise the decentralized intent of DPoS will be compromised.

Performance and state file size

Performance is a major consideration for the FIO Protocol, which should never slow down the user's interactions with the native blockchain. FIO has been built on a very scalable platform which will be able to handle a large number of transactions at Mainnet launch and will continue to embrace the latest blockchain performance advancements.

⁷ <https://steemit.com/dpos/@dantheman/dpos-consensus-algorithm-this-missing-white-paper>

⁸ <https://steemit.com/dpos/@anyx/how-vote-incentivization-degrades-delegated-proof-of-stake>

In addition, many of the transactions which will be run against the FIO blockchain are look-up only transactions, which do not modify the blockchain and be processed very fast using multiple read-only API endpoints and efficient proxies.

Another major consideration is the blockchain state file. As the state file continues to grow, the performance may degrade and cost to run a node may increase. The state file is actively being modeled and data to be stored in state is carefully considered and will be finalized prior to Mainnet launch.

Lastly, prior to Mainnet launch the FIO Protocol will undergo rigorous performance testing to ensure it can handle the projected volume of transactions. The data will also be used to recommend specific hosting specification as a guideline for block producer candidates.

Security

Due to the system properties of cryptography, using a verifiable data structure, and using a Byzantine Fault Tolerant consensus mechanism, FIO is highly secure to attacks that would attempt to falsify data or alter history.

Even in the case of a large number of malicious actors – even those responsible for consensus – it remains disruptive to the network to launch any attack, with the likely result being system unavailability rather than inconsistent state. Entities like wallets and exchanges can protect themselves by operating their own validation node, and ensuring to wait for consensus to achieve finality before interpreting order.

In the case of full collusion, validating observers are alerted to attacks and can identify the malicious behavior along with the responsible actors.

In FIO, block producers can modify system smart contracts with $\frac{2}{3} + 1$ (15 BPs) supermajority. In the unlikely event that this supermajority colludes and decides to modify system contracts in malicious way, the FIO users are still protected by whitelist. Since whitelist stores public keys, which are secured in user's wallets, if a FIO Address was maliciously reassigned to new a public key controlled by an attacker, it would not be able to interact with users who have whitelisted the FIO Address before the attack.

A comprehensive security plan including all anticipated attack vectors and mitigation strategies is covered in a separate FIO Protocol security document. An external security audit will be conducted prior to Mainnet launch.

Fees

All blockchain altering transactions are subject to a fee. Some transactions may be eligible to be covered by bundled transactions, which come with every FIO Address.

FIO believes that fees charged to participants within the ecosystem should be based on market forces and benchmarked against costs of running block producing infrastructure. It is therefore likely that the amount of FIO Tokens required for different fees will change based on the market value of the FIO Token and cost of running a node such that the human perceived cost of a FIO Address or transaction of the FIO blockchain will likely remain more constant even though the human perceived value of the FIO token likely will change over time. To accommodate this, fee amounts will be set based on bids from block producers in the following way:

- Each of the 42 BPs submits their desired fee amount of FIO Tokens for each blockchain interaction and amount of bundled transactions to be included with every FIO Address.
- Amounts submitted by active block producers are analyzed, and the fee is set at median of all submitted amounts.

Example fee amounts

Here's an example of fee amounts we envision assuming 1 FIO = 1 USD.

Type	API method	Example fee amount
FIO Address	register_fio_domain	40 FIO*
	renew_fio_domain	40 FIO*
	register_fio_address	5 FIO*
	renew_fio_address	5 FIO*
	set_fio_domain_public	0.01 FIO
	add_to_whitelist	0.01 FIO
	remove_from_whitelist	0.01 FIO
FIO Token	transfer_tokens_pub_key	0.1 FIO*
FIO Request FIO Data	new_funds_request	0.01 FIO
	record_send_action	0.01 FIO
Governance	register_producer	100 FIO*
	unregister_producer	0.01 FIO
	vote_producer	0.01 FIO
	register_proxy	0.01 FIO
	unregister_proxy	0.01 FIO
	proxy_vote	0.01 FIO

* Cannot be covered with bundled transaction.

Fee distribution

Fees collected will be distributed as follows:

Share	Recipient
88%	Block producers
10%	Entity facilitating transaction or, if not provided, block producers.
2%	Foundation for Interwallet Operability

Block producer share is distributed as follows:

Share	Recipient
60%	Top 42 block producers scheduled when fees distributed, based on their share of votes.
40%	Active block producers scheduled when fees distributed, divided equally.

Although most fees are distributed within the same day, the block producer share of FIO Domain and FIO Address registration/renewal fees are paid out over 365 days to properly incentivize block producers which will be processing bundled transactions over the full validity period.

Related API methods

- **get_fee** – computes and returns fee amount for specific action for a specific user. Considers bundled transactions.

FIO tokens

The FIO Protocol will be powered by a utility token called FIO. It will be used to pay for transactions processed through the FIO blockchain. To hold a token or a FIO Address or Domain, a user only needs a private/public key pair, no account needs to be explicitly created. Transfers can be achieved using FIO public key. This allows for wallets to easily support FIO Tokens without any special functionality.

FIO Tokens will support the SLIP-44⁹ (FIO index at position 235) standard. When a user chooses to restore seed phrases from one wallet to another, the FIO Tokens as well as FIO Addresses and Domains will be restored.

Each FIO token will be divisible into 1,000,000,000 units.

⁹ <https://github.com/satoshilabs/slips/blob/master/slip-0044.md>

Related API methods

- **get_fio_balance** – returns balance of FIO tokens for provided FIO public key.
- **transfer_tokens_pub_key** – allows for transferring of FIO tokens from one account to another using FIO public key.

Token economics

The FIO Protocol will have a fixed maximum supply of tokens and there will be no inflation built into the protocol.

Demand for FIO Tokens will arise from:

- Users needing tokens for utility of the FIO Protocol (e.g. registering FIO Addresses/Domains as well as other transaction fees described);
- Individuals and entities desiring tokens for the purposes of voting towards block production;
- Future enhancements to the FIO Protocol that are envisioned to create additional utility fees to be paid in FIO tokens.

As adoption of the FIO Protocol increases, demand for FIO Tokens will increase and in the confines of long-term fixed supply. The market-based fees element of the FIO Protocol will ensure that the actual token charges to users continually adjust based on roughly the current human perceived value of a FIO Token. So, for example, as the FIO Token value goes up, the charge for a specific utility like registering a FIO Address will go down in absolute number of FIO Tokens being charged.

Token distribution

The maximum number of tokens to ever be minted will be 1,000,000,000 (one billion). In the genesis block, tokens will be minted and distributed as follows:

Purpose	Number of tokens	Share of total supply	Restricted Voting
Dapix shareholders, employees and advisors	350,000,000	35%	Yes
FIO Member incentives	150,000,000	15%	No
Foundation for Interwallet Operability	50,000,000	5%	Yes
Pre-Mainnet token release	100,000,000	10%	No
Total	650,000,000	65%	

The remaining tokens will be minted automatically over time as follows:

Purpose	Number of tokens	Share of total supply	Restricted Voting
New user bounties	200,000,000	20%	No
Foundation for Interwallet Operability reserves	100,000,000	10%	Yes
Block producer reserves	50,000,000	5%	No
Total	350,000,000	35%	

Dapix shareholders, employees and advisors

Dapix will apply the following restrictions to its tokens:

- Cannot vote, proxy, register block producer or register proxy until transferred out.
- Transfer of these tokens will be restricted, and such restriction will unwind over time. The exact schedule for the unlocking of this restriction is being finalized and will be made public prior to Mainnet launch.

Foundation for Interwallet Operability

The Foundation will be allocated 50,000,000 tokens at Mainnet launch. It is anticipated that the Foundation will use its allocated funds as follows:

- One or more token releases to enable the FIO token to enter the market.
- Funding of Foundation operation.
- Funding of FIO Improvement Proposals.
- FIO Member incentives for members joining after Mainnet launch.

Foundation will not vote, proxy, register block producer or proxy. The addresses of the Foundation accounts will be made public at Mainnet.

Foundation for Interwallet Operability reserves

In addition, after Mainnet launch or until reserves are exhausted, the following applies:

If the amount of FIO Tokens distributed to Foundation account in any 24-hour period is less than 50,000 FIO tokens, new tokens will be minted to increase the amount to equal 50,000 FIO tokens.

FIO Member incentives

Incentives for [Full FIO Members](#) are awarded based on the sequence in which they have joined FIO. These tokens will be initially held by the Foundation and will be awarded once the FIO Member has completed

integration of the FIO Protocol into their products. The Foundation may proxy these tokens to the FIO Member ahead of the award to allow them to vote on block producers.

Sign-up sequence	Tokens	% of total pool
Founding member 1	10,000,000	1.00%
Founding member 2	10,000,000	1.00%
Founding member 3	10,000,000	1.00%
Founding member 4	10,000,000	1.00%
Founding member 5	10,000,000	1.00%
6th	8,500,000	0.85%
7th	7,000,000	0.70%
8th	5,500,000	0.55%
9th	4,000,000	0.40%
10th	3,000,000	0.30%
11th	2,500,000	0.25%
12th	2,000,000	0.20%
13th	1,750,000	0.18%
14th	1,500,000	0.15%
15th	1,250,000	0.13%
16th	1,000,000	0.10%
17th	900,000	0.09%
18th	800,000	0.08%
19th	700,000	0.07%

20th	600,000	0.06%
21st	500,000	0.05%
22nd	500,000	0.05%
23rd	500,000	0.05%
24th	500,000	0.05%
25th	500,000	0.05%
26th	500,000	0.05%
27th	500,000	0.05%
28th	500,000	0.05%
29th	500,000	0.05%
30th	500,000	0.05%
31st	500,000	0.05%
32nd	500,000	0.05%
33rd	500,000	0.05%
34th	500,000	0.05%
35th	500,000	0.05%
Total	99,000,000	9.90%

An additional 1,000,000 tokens (0.10% of total pool) will be awarded to [Affiliate Members](#) (members who do not qualify for full member status) irrespective of sequence at 10,000 FIO tokens each.

The remaining 50,000,000 tokens will be allocated on a discretionary basis to FIO Members that have exceptional industry scale and the ability to enable the success of the FIO Protocol and/or those FIO Members that contribute funding to development of the FIO Protocol. Some of these will be allocated prior to Mainnet launch and any remainder will be allocated at the discretion of the Foundation. Restrictions on these tokens will vary.

New user bounties

New user bounties are paid to the entity facilitating new FIO Domain or FIO Address registration. This bounty is paid automatically and in addition to normal fee distribution and is available to any entity that integrates the FIO Protocol and creates new user engagement.

The new user bounties will be initially set to 75% of the new registration fee collected by the facilitating entity and will be paid until 200 million tokens have been minted for that purpose.

Block producer reserves

After Mainnet launch or until block producer reserves are exhausted, the following applies:

If the amount of FIO Tokens distributed as block producer rewards in any 24-hour period is less than 50,000 FIO tokens, new tokens will be minted to increase the BP reward pool to equal 50,000 FIO tokens.

Mainnet launch

Mainnet launch is currently planned for Q1 2020. Once launched, FIO Protocol will operate with limited functionality until at least 10% of all circulating FIO token supply (irrespective if that supply is in accounts that can vote or not) has voted on block producers.

It is estimated that the following tokens will be able to vote at Mainnet launch:

Purpose	Number of tokens	Share of total supply	Share of circulating supply
Dapix shareholders, employees and advisors' tokens (4% of total allocation available for voting at Mainnet launch)	14,000,000	1.4%	2.15%
FIO Members	100,000,000	10%	15.38%
Pre-mainnet token release	100,000,000	10%	15.38%
Total	214,000,000	21.4%	32.91%

Foundation for Interwallet Operability

The Foundation for Interwallet Operability has been formed to facilitate the growth and adoption of the FIO Protocol, but not to manage or otherwise control the protocol. The charter of the Foundation is as follows:

- Manage Foundation treasury.
- Promote awareness and education of the FIO Protocol.
- Provide support to [Full FIO Members](#) in integrating the FIO Protocol.

- Develop tools enabling easier integration (i.e. SDKs).
- Manage the structure and submission process as well as provide an impact statement on FIO Improvements Proposals (FIPs).
- Create original code enhancements for the FIO Protocol and submit them as FIPs.
- Fund other projects and bug bounties benefiting the ecosystem.

The Foundation will be managed as a Decentralized Autonomous Organization (DAO)¹⁰ with voting and governance running atop the FIO blockchain.

Foundation participation

The Foundation is open to all new members who would reasonable integrate the FIO Protocol into their products or who are interested in promoting and/or enhancing the FIO Protocol. There are 2 membership levels:

Full Members

Established wallets, exchanges, crypto payment processors and other entities that will integrate the open source FIO Protocol into their offerings can become FIO Members. “Established” is determined based on a combination of length of time the product has been live in the market, amount of prior funding and current active user base.

Affiliate Members

Members of the blockchain ecosystem that want to support the FIO Protocol and provide input and guidance on its development, but whose offerings are either earlier in their development or are of the type that would never integrate the FIO Protocol.

Prospective members are encouraged to contact the Foundation at getinfo@fio.foundation

Participation in the Foundation is not required to use the FIO Protocol or become a block producer.

Foundation Board

The Foundation Board will consist of nine members. The initial members will be appointed from the pool of early industry participants in the FIO Protocol and will serve until one year after Mainnet launch. After the initial term, the Foundation Board will conduct an ongoing poll among token holders for board member candidates and appoint new members from the pool of top candidates by number of votes received. The specifics of the Board member voting will be announced prior to Mainnet launch.

The Foundation Board, via 6 out of 9 multi-sig, will have control over the treasury.

FIO Improvement Proposal

The FIO Improvement Proposal (FIP) is a structured document that specifies a recommended change to the FIO Protocol. In most cases, this is accompanied by a pull request against one of FIO's git repositories.

¹⁰ https://en.wikipedia.org/wiki/Decentralized_autonomous_organization

The Foundation recommends the structure of the document and the required workflow to get a FIP adopted. Anyone can submit a FIP or comment on a FIP.

There are 4 types of FIPs:

- **Emergency** – this is intended to patch known vulnerabilities or other critical issues. Active BPs will coordinate such updates using private channels and may publish the FIP after the code has already been deployed.
- **Smart contract changes** – this FIP updates the smart contract logic and is automatically deployed once $\frac{2}{3} + 1$ active BPs vote for it.
- **Functionality altering code change** – this FIP will modify functionality and therefore is important that all BPs adopt it around the same time.
- **Service code change** – this FIP will not modify functionality and its adoption is voluntary by the BPs.

Once the Foundation determines the FIP meets standards for a vote, it will administer a vote among then active block producers. Alternatively, any active BP can submit a FIP to a vote. FIP is adopted once $\frac{2}{3} + 1$ (15) active BPs vote for it.

Once a functionality altering FIP is adopted, all BPs vote on a date by which it will go live (Launch Date) and date when all BPs are required to have this version deployed (Final Date). The FIP stays open until Launch Date or until BP support for that FIP is withdrawn. BPs should upgrade their code no later than Final Date.

Pre-Mainnet FIO Domain auction and Address pre-sale

Before the Mainnet launch, the Foundation will conduct an auction of FIO Domains and the sale of FIO Addresses. The funds collected will fund the development of the protocol and will be shared with participating [Full FIO Members](#).

Users will be able to instantly purchase FIO Addresses on participating wallet's domains for 2 USDC each. Domains will be available for auction starting at 20 USDC. Anyone bidding on the domain will be required to pay a 1% deposit. If the user is outbid, the deposit can be used in a re-bid, other auctions or to reserve a FIO Address on a participating wallet's domain but will not be refundable. At the user's discretion, any user balances remaining at the end of the auction will be able to be donated to a variety of blockchain charities or utilized on a partner ecommerce site via an electronic coupon.

All domains and addresses secured before Mainnet launch will be assigned to FIO blockchain public keys provided by users in the genesis block and will be valid for a period of 1 year after Mainnet launch.

Domain reserved list

Certain domains will be reserved and not available for auction.

- **Reserved by FIO Members for their use.** Full FIO Members can reserve up to 3 names associated with their business name and Affiliate Members can reserve 1 name at no cost for first year use.

- **Top 100 internet TLDs.** To avoid confusion with DNS, FIO Domains that match top 100 TLDs based on number of domains¹¹ will be blocked. At Mainnet launch those domains will be assigned to the Foundation account with 5-year validity period.
- **Top 100 crypto-currency symbols.** To protect the integrity of the FIO Protocol and the blockchain community, FIO Domains that match the token symbol (e.g., BTC, ETH) of the top 100 protocols¹² will be blocked. These domains will be assigned to the Foundation for Interwallet Operability and will remain reserved and unavailable after FIO mainnet launch until such time that the Foundation for Interwallet Operability decides if and how they should be made available for use by the respective protocol communities.
- **Reserved for potential FIO Members.** Beyond the existing FIO Member companies there are many other companies that ultimately will have the need to integrate the FIO Protocol and which generally fall into the categories of wallets, exchanges or crypto payment processors. In order to preserve the ability of those companies to participate in the FIO Protocol with a FIO Domain consistent with their company branding, a FIO Domain reserve list associated with these companies has been created. The root web domain (without the top-level domain extension, e.g. “.com”) of these companies have been placed on a FIO Domain reserve list. Companies that own the corresponding web domain may claim that FIO Domain for their own use but must do so at least 14 days in advance of the end of the pre-sale. FIO Domains that are not claimed by the deadline will be released to auction. Those not purchased in auction will be available for registration on a first come, first served basis after Mainnet launch.

¹¹ Based on <http://research.domaintools.com/statistics/tld-counts/> as of 5 July, 2019

¹² Based on <https://coinmarketcap.com/> as of 5 July, 2019