**Mining & Cryptocurrency Working Group**

***GBA Token White Paper***

Date:

Version

Status:

This paper is a product of the Government Blockchain Association (GBA) Mining & Cryptocurrency Working Group (WG). It is intended to be used as a means of capturing ideas and suggestions. It does not contain any official position, intent, or commitment by any individual or group associated with the GBA. It is purely informative and not declarative in any manner. Any declarative statements do not contain the authority or approval of any member or contributor.

Any questions or inquiries about this whitepaper should be directed to the

[GBA Mining & Cryptocurrency Working Group](https://gbaglobal.org/groups/mining-cryptocurrency-working-group/).

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# Executive Summary

The Government Blockchain Association (GBA) is a global non-profit organization comprised of thousands of government and private sector professionals dedicated to the improvement of government operations using blockchain technology.

The organization is planning to launch a token that will be awarded to GBA members, contributors and leaders for the benefits they bring to the community.  Tokens will be awarded for leading chapters, publishing articles, delivering presentations and other activities that bring value to the GBA Ecosystem. Later, when future individuals and organizations want to join GBA as members, or participate in working groups, work on special projects, participate in proposal response teams, or become members of public-private partnerships, they may pay for those GBA benefits and services with GBA Tokens.  The purpose of this token is to reward the people who built the GBA by people who benefit from the GBA community and resources.

Blockchain and related technology may also support new management and economic frameworks. GBA can be a thought-leader in developing and implementing ground-breaking innovations. Consequently, the GBA itself is the test subject of an exciting experiment to explore how any group of people, including corporations and government agencies, could use collective intelligence to operate more effectively and inexpensively by consensus than hierarchically. How can and should we use distributed ledger technology to become a [Decentralized Autonomous Organization (DAO)](https://en.wikipedia.org/wiki/Decentralized_autonomous_organization) that is:

* Rules-based on a consensus mechanism?
* Transparent enough to eliminate fraud?
* Fair so that those who made the most contributions, received the most reward?
* Sustainable through immutable records and P2P transactions?

To accomplish these goals, incentives need to be created. These incentives need to be inextricably tied to the organization in order to retain value in the network that accrues to those members in the GBA network. As different individuals require different incentives, the organization needs to ensure that they are mutually interchangeable. Thus, the fungible form of these incentives is the GBA token.

## Document Purpose & Scope

This document describes the GBA Token purpose, function, architecture, and administration. This document is used as a basis for all other planning, implementation and governance of the GBA Token. No changes can be made to the GBA Token technology or processes that are inconsistent with this document. Any inconsistencies must be resolved in this document first, and then may be flowed down to any other technical or procedural work products.

## Government Blockchain Association (GBA)

### Mission

The GBA is a global non-profit organization that is committed to helping government and private sector professionals & organizations around the world understand, implement and benefit from blockchain related technologies and capabilities.

### History & Background

In August of 2016, Gerard Dache started a meetup called the Government Blockchain Professionals to bring people together to talk about how blockchain technology would impact government. After weeks of marketing and promotions, only two people attended the first event. By January of 2017 approximately 40 people were attending events. In March, they became a legal entity known as the Government Blockchain Association (GBA) and in the summer of 2017 launched a website. Today there are over fifteen thousand people affiliated with approximately a hundred chapters all over the globe.

However, Mr. Dache could not provide the content for so many chapters. So, Working Groups were formed to develop contents for the chapters. Today there are over 50 groups covering Acquisition Management; Architecture, Engineering, and Construction; Artificial Intelligence; Asset Management; Banking; Big Data; Budgeting, Appropriations & Tracking Working Group; Cannabis; Contract Management; Crypto Asset Management; Cybersecurity; Digital Identification; Economic Analysis; Economic Development; Education & Training; Energy; Financial Regulatory & Compliance; Government Ontology; Health Care; Higher & Continuing Education; Identity Management; Information Technology; Insurance; Intellectual Property; Land Titling; Legislative & Legal; Mining & Cryptocurrency; Public Accountability; Records Management; Simulation; Smart City; Supply Chain; Taxes; and Voting.

Today the GBA is an organization of volunteers and professionals that develop solutions globally and deploy them locally.

### Projections

There are potentially hundreds of millions of people that have a fundamental interest in the impact that blockchain and cryptocurrencies will have on and be impacted by governments around the world. Imagine how many civil servants there are in the world in counties, cities, states, regions, and provinces. Since any civil servant can join GBA for free and since many of them will care about this topic, many will want to join the organization. Many more government contractors will also want to have access to those government employees. The number of people that may become part of this community is staggering.

Tokens deployed into this community, well managed and with proper utility, have the potential to become a major, global resource. What will this mean for GBA members? Those members that receive tokens early, will have many people who will want to purchase those tokens later for GBA products, services and opportunities. If GBA Tokens are awarded to people who build the community and create value, others will be willing to pay for that value. So, future GBA members may need to purchase tokens to access GBA resources. They will need to purchase those tokens from GBA members that earned them and built the community. In this way, the token serves as a mechanism to encourage early GBA members to build value that will be paid for by future members. This supports the recruitment, retention goals of the GBA by providing individuals with an economic incentive to join the GBA, contribute to it and stay in the association.

## GBA Project Team

|  |  |
| --- | --- |
| Board of Directors | The Board of Directors’ review and approved the Token Whitepaper and any changes that may have an economic or legal impact on the GBA organization or their members. |
| Executive Director | The Executive Director reviews and approves any formal decisions submitted to the Board of Directors. |
| GBA Leadership Team  COO, CMO, CTO | Reviews and approves any technical architecture changes and algorithmic changes to the GBA Token that may impact GBA members. |
| CTO | The CTO is responsible for the design, development, implementation and maintenance of the GBA Token suite of technologies. This includes managing the change control process to ensure that all changes are adequately reviewed and approved by the appropriate levels of oversight. |
| Working Groups | The Working Groups form an advisory function. However, all comments from the Working Groups will be recorded and addressed. All recorded comments and responses will be presented to the GBA Leadership Team (Executive Director, COO, CMO and CTO) for review and approval prior to any change that may impact GBA members.  All Working Group leads will be informed of any changes to the GBA Whitepaper. |
| GBA Node Managers | Individuals responsible for managing GBA Nodes and reviewing, approving, and complying with the GBA Token Requirements Specification. These individuals are identified in the GBA Token Requirements Document. |

## GBA Token

### Description

In order to comply with SEC regulations, GBA tokens will be released by the GBA only as rewards and never sold by the GBA. Initially, the tokens will be released manually on a monthly basis. It is currently intended that eventually they will be released by a smart contract on a more frequent basis; however, no promises are expressed, or implied and token distribution may cease, or the details be altered at any time.

The GBA Tokens may be used to pay for GBA renewals, training, conferences, participation on special projects or individual members may use them in exchange for products and services within the GBA Ecosystem. Other GBA Working Groups may also use the GBA Tokens as a utility function in future systems or applications built by GBA members.

### Motivation

The token is being created to fuel an incentivized internal reward ecosystem for the community. Specific goals of tokens are to:

* Create a self-sufficient incentive-based economy within the government blockchain community that promotes positive contributions to the community.
* Prove the use-case of blockchain technology enabling organizations with large communities to benefit using a similar incentive driven-ecosystem.
* Create the infrastructure to transform the government blockchain community into a Distributed Autonomous Organization.
* Prove as a testing ground for the ultimate long-range vision of using a token to fuel inter- and intra-government transactions. This may be part of a government financial eco-system that would give citizens visibility and confidence in the financial stewardship of their respective governments.

### Token Utility & Benefit

#### To GBA

The token offers utility to GBA, a non-profit organization, because it:

* Allows the creation of an incentive-based economy to fuel the advancement of their program that still allows users to gain monetary rewards.
* Rewards early members who grow the community the most while encouraging member retention.
* Improves member acquisition by closing parts of the ecosystem to those who don’t have access to tokens.

#### To GBA Members

GBA members will benefit in several ways including:

* + - * Membership now comes with free trial of the services (GBA wallet download) the member cares most about and gives them automatic exposure to cryptocurrency, while simultaneously creating an economic ecosystem of goods (aka tokens) and services within the Government Blockchain Association.
      * Members are now automatically granted a stake in the organization. The growth and success of the company is in the best interest of the members.
      * Members are "incentivized" to continuously contributing to GBA’s knowledge base.
      * Tokens will drive membership growth for GBA and consequently, increase the value of GBA membership to the individual member.

#### Technical Details

|  |  |  |
| --- | --- | --- |
| Symbol: | Supply: | Divisible up to: |
| GBA | 1,000,000,000 total supply | 8 Decimal places (0.00000001) |

### GBA Tokenomics

#### Distribution

GBA tokens are distributed each month from the GBA cold storage reserve. The monthly distribution of tokens will be equal to 20% of the previous months GBA total revenue. For example, if the GBA received US $10,000 in one month, the next month the GBA would distribute 2,000 GBA Tokens (20% of $10,000). The tokens would then be distributed based on the allocation algorithm (described below).

GBA Tokens may also be distributed from cold storage to GBA members based on a rewards program that is reviewed, approved, and published by the GBA Leadership Team.

#### Allocation by the GBA Token DAO

Tokens are distributed to the GBA Token Decentralized Autonomous Organization (DAO). The GBA Token DAO is comprised of all GBA Token owners that stake their GBA Tokens in the DAO. All token allocation decisions are made via a voting process. Votes are weighted based on the percent of GBA Tokens staked in the DAO.

Initial token allocation is made based on the following model:

* All active GBA members that have posted events or content on the GBA site since the site was launched receives one token[[1]](#footnote-1)
* One token per closed helpdesk ticket completed by GBA staff member[[2]](#footnote-2)
* Each active GBA member that has completed a GBA certified course receives one token for each course completed from the [GBA Certified Consultant Page](https://www.gbaglobal.org/certifications/).
* Each GBA Node Owner receives one token per dollar spent to host or support the GBA blockchain.
* Any active GBA member that completes a challenge from the GBA Challenge page receives one token per challenge

Once the initial tokens are distributed, tokens may be staked in the GBA Token DAO and changes to the token distribution model may be proposed and voted on by members of the DAO to implement changes to the Token Allocation Model.

#### Wallet and Marketplace

The GBA Token Wallet is an open source application that may be downloaded by any individual. However, to activate the wallet, the user must adhere to the GBA Identity Requirements described in Appendix A. The wallet allows individuals to:

* + - * Send/receive GBA Tokens to another wallet
      * List GBA buy/sell requests
      * Send messages to other GBA wallet holders

#### Redemption

Anyone may use GBA Tokens to redeem membership, training, conference attendance or other products/services offered by GBA. 1 GBA Token equals $1 USD.

### Token Value

Tokens may be exchanged for GBA memberships, renewals, training, conferences and other GBA products and services.

#### Token Exchange

The GBA will not list the Token on an exchange until the regulatory environment is defined to the point that GBA leadership has confidence that it can be done in full compliance with relevant legal, regulatory and statutory requirements.

#### GBA Wallets

GBA members can download wallet software that will allow them to trade GBA tokens with any other GBA wallet holder. The wallets will also allow for atomic swaps between GBA tokens maintained on various blockchains and different cryptocurrencies.

#### GBA Marketplace

GBA will maintain an internal marketplace within its ecosphere where people can list assets like the GBA Token for sale/trade.

# Token Architectural Overview

The GBBP is a multi-blockchain platform. Master nodes are established based on a set of rules established and maintained by the GBA. The master nodes all maintain copies of the following items:

* Code that calculates and verifies the distribution & allocation of assets on the blockchain
* Shared ledger of the on-chain wallets, assets and balances on each linked blockchain platform.

Each master node is linked with an existing blockchain platform. Each master node contains an interface that facilitates the transfer of assets on and off the linked blockchain platform.

The Master Nodes allow for assets to be moved between Master Nodes and wallets. Wallets are also link to major cryptocurrency blockchains. This allows wallet holders to be able to send and receive cryptocurrencies as a payment to buy or sell assets.

The diagram below describes the interactions between the GBA, the master nodes and the GBA wallets.

A close up of a map

Description automatically generated

# Token Roadmap

The table below describes the tasks and activities, in sequence and timeframes needed to continue progress on the developing and maturing of the GBA Token

| **WBS** | **Description** | **POC** | **Status** | **Due Date** |
| --- | --- | --- | --- | --- |
|  | Review/approve version 2.h of the GBA Token Whitepaper | Gerard Dache |  | 4/11/2020 |
|  | Build GBA Leader Board | Mark Waser |  | 4/18/2020 |
|  | Distribute GBA Tokens | Mark Waser |  | 4/25/2020 |
|  | Deploy GBA DAO Interface | Max Gravit |  | 5/2/2020 |
|  | Build GBA Token Payment Portal | Mark Waser |  | 7/9/2020 |
|  | Press Release | Gerard Dache |  | 5/15/2020 |

**Appendix A: GBA Blockchain Specifications**

The GBA blockchain shall consist of a core write-permissioned blockchain owned and operated by the GBA and other blockchains (eventually including Ardor, Ethereum, EOS, NEO, OpenLaw, Steem, Stellar and any other blockchain for which client blockchain tokens and software are created) linked via a GBA gateway. GBA tokens may freely pass between blockchains as specified in Appendix C. below.

The core GBA Blockchain shall be an Ethereum Proof-of-Authority Consortium. Gas prices shall be zero and simple token transactions on the core blockchain shall have no fees. Any gas prices and/or any transaction or other fees on linked blockchains shall be transferred from the member’s wallet to a GBA storage account, converted to the attached blockchain’s native currency and paid by the GBA.

Core blockchain nodes may utilize either a fully maintained system or a software as a service (SaaS) platform like Microsoft’s Azure Blockchain Service. Gateway nodes may utilize either a fully maintained system or a software as a service platform like Azure Web Service. Node/Gateway owners are responsible for the costs of maintaining their nodes/gateways. Machine node/gateway owners are responsible for keeping the software on their nodes (including operating system, fire wall and anti-virus) up to date (software as a service (SaaS) platforms will provide this automatically as part of the service).

Read-only node connections must be white listed by the GBA and approval may be removed at any time.

Consensus participants (nodes that can write to the blockchain) and gateways must be approved by the GBA and may be removed at any time. Consensus participants and gateways shall not serve non-GBA functions nor connect to non-consortium machines except for standard Internet functionality, gateway-linked blockchains and GBA-approved oracles. Consensus participants and gateways shall not accept connections from any non-participant except for GBA wallets, gateway-linked blockchains, GBA-approved oracles and GBA-approved read-only nodes.

**Appendix B: GBA Core Blockchain Consensus Node Set-Up Instructions**

The options for creating a node range from simple for the average adult to fairly complex for someone with strong technical skills.

***Option 1. Microsoft Azure Blockchain Service (Software as a Service)***

This is the simplest option – no development or tech support skills required, just fill out the forms and it will happen automatically.

1. Create a free Azure account at <https://azure.microsoft.com/en-us/free/> (the blockchain service will ***not*** be free but you will get $200 credit for the first month which will cover all possible experimentation)
2. Your main dashboard will be at [https://portal.azure.com](https://portal.azure.com/)
3. Select **+ Create a Resource** and then select **Blockchain**
4. Select **Ethereum Proof of Authority Consortium** and select **Join Existing**
5. Fill out the forms with the settings that we will provide
6. The node will then connect with the GBA main blockchain, receive all necessary Solidity code automatically as part of the synching process and start operating as soon as the synch process is complete.
7. Set up a BlockScout blockchain explorer using the instructions at <https://github.com/Azure-Samples/blockchain/tree/master/ledger/template/ethereum-on-azure/technology-samples/blockscout>

***Option 2. Fully Maintained System***

***Option 2a. Java Installation***

This is the most complicated option. You must be skilled at installations from GitHub and prepared to compile Java. We do not yet have complete instructions and would appreciate someone writing them. This process can be tested on one of the public Ethereum test networks (Rinkeby, Ropsten, and Görli).

1. Start with a fully patched, antivirus-protected, internet-connected machine of any type.
2. The Hyperledger Foundation’s Besu page at <https://www.hyperledger.org/projects/besu> has links to the GitHub repo, the documentation, a wiki, a chat group and an extremely helpful blog post.
3. Compile the code and test on one of the public Ethereum test networks.
4. Set up a BlockScout blockchain explorer using the instructions at <https://docs.blockscout.com/for-developers/manual-deployment>
5. Please write a step-by-step guide for others to follow.

***Option 2b. Geth Installation***

This is slightly simpler than the Java installation but, at this point, still requires some GitHub skills (until someone finds the necessary parameters for connecting to an Ethereum test network).

1. Start with a fully patched, antivirus-protected, internet-connected machine of any type.
2. Follow the instructions at <https://hackernoon.com/setup-your-own-private-proof-of-authority-ethereum-network-with-geth-9a0a3750cda8>.
3. Test on one of the public Ethereum test networks.
4. Set up a BlockScout blockchain explorer using the instructions at <https://docs.blockscout.com/for-developers/manual-deployment>
5. Please write up any additions to the instructions that would have made your life easier.

***Option 3. Amazon Web Services (AWS)***

***Option 3a. Build it yourself***

This is basically the same as ***Option 2b. Geth Installation*** – except you are starting with an EC2 Amazon Machine Image (AMI) rather than a physical machine.

1. Follow the instructions for ***How to setup a Ethereum POA (private-proof-of-authority-ethereum-network) network on Amazon AWS*** at <https://medium.com/echttech/how-to-setup-a-ethereum-poa-private-proof-of-authority-ethereum-network-network-on-amazon-aws-5fdf56d2ad93>
2. Compile the code and test on one of the public Ethereum test networks.
3. Set up a BlockScout blockchain explorer using the instructions at <https://docs.blockscout.com/for-developers/ansible-deployment>
4. Please save the machine image and make it available to other GBA members along with written instructions of how to set it up (similar to the Azure instructions above, starting with where to sign up for an Amazon account).

***Option 3b. Use a previously created Amazon Machine Image***

This is the second easiest option but requires that someone has already completed ***Option 3a. Build it yourself*** and created an Amazon Machine Image, made it available and written up instructions. Once this is done, no development or tech support skills should be required – just fill out the forms and it will happen automatically.

**Appendix C: GBA Blockchain Gateway Specifications**

Gateways are a custom linking executor (preferably written in NodeJS) that monitors both blockchains, core GBA blockchain Solidity contracts and any necessary smart contracts or interfaces on the connected blockchain to control account/wallet creation/linking, the flow of tokens, reporting and other operations between the core GBA Blockchain and gateway-connected blockchains. All gateway Solidity contracts will be made mutable by using a router which keeps the address of the current version of the contract as data which can be changed when new versions of any contract are created.

All non-reporting Gateway operations must be initiated by a GBA wallet interacting solely with the core GBA Blockchain. The only GBA token operations that can be performed without a GBA wallet are those performed on the same gateway-connected blockchain – although these operations may also be performed with a GBA wallet. These same-client operations shall always be recorded on the core GBA Blockchain via call to the core GBA Blockchain contracts from the client custom executor.

The Solidity contracts API shall be as follows:

* CreateAccount (GBAUser, Blockchain) - called by GBA wallet, generates call to connected blockchain with AccountCreated as a callback
* AccountCreated(GBAUser, Blockchain, WalletID, PrivateKey) - callback from connected blockchain for CreateAccount, generates call to GBA wallet
* LinkAccount (GBAUser, Blockchain, WalletID, Signature) - called by GBA wallet, adds connected WalletID to GBA profile, Signature is signed with connected WalletID’s private key for security
* SendToken (GBAUser, SBlockchain, SWalletID, RBlockchain, RWalletID, Amount) - called by GBA wallet, generates a Transfer call to connected blockchain with TokenSent as a callback
* TokenSent(GBATxId, TxHash, Error) - callback from connected blockchain for SendToken
* TokenSent2(Blockchain, SWalletID, RWalletID, Amount, TxHash) - called from connected blockchain to notify the core GBA blockchain of a same blockchain transaction initiated on that blockchain

**Appendix D: GBA Gateway-Connected Blockchain Requirements**

If a sponsor desires, any blockchain capable of creating GBA tokens may be connected to the GBA blockchain. The sponsor/gateway owner shall be responsible for providing and open sourcing the custom linking executor and necessary connected blockchain smart contracts or APIs for the connected blockchain. In addition to being responsible for costs for maintaining the gateway, the gateway owner must maintain enough GBA tokens and native currency in the cold storage account to perform all requested operations. The gateway owner should charge for any unavoidable transaction fees and may charge to cover maintenance costs.

All gateway-connected blockchains shall create a unique GBA token and a GBA account as follows:

* A secure GBA token shall be created on the client blockchain (e.g. known faulty tokens like ERC 20 tokens shall not be allowed).
* A GBA “cold storage” account shall be created on the client blockchain which shall hold all GBA tokens not currently owned by individuals on the client blockchain.
* The cold storage account shall also hold enough of the native currency to handle any fees. The GBA shall be responsible for ensuring that this account’s native currency balance does not drop too low. Note that any fees that are required by the client blockchain shall be converted to GBA tokens and added to the cost of any operation so that GBA members don’t have to deal with native currencies.

All gateway-connected blockchains shall expose an API either on the custom executor or to the connected blockchain’s smart contracts, if available and capable (or both). This API shall support the following calls:

* CreateAccount (GBAUser, Callback(GBAUser, Blockchain, WalletID, PrivateKey, Error)
* Transfer (TxID, Sender, Recipient, Amount, Callback(TxID, TxHash, Error))

The following Block Explorer API functions must be available for the client blockchain (used only for periodic verification and debugging:

* GetGbaAcct (AcctNo, NumDays) – shows a single account’s GBA token balance and transactions from the last NumDays days (default=30); shall include both Transfers & DEX Trades
* GetGbaTotals () – shows GBA token amounts for cold storage and the sum of all other accounts
* GetGbaAccts () – shows all accounts/wallets that have GBA tokens and their GBA token balance (equivalent to Etherscan’s Holders report)
* GetXfers (NumDays) – shows recent GBA Transfer Transactions
* GetDexTrades (NumDays) – shows recent GBA Dex Trade Transactions
* GetTxByHash (TxHash) – preferably limited to GBA token transactions
* GetBlock (BlockNo) - preferably showing only GBA token transactions within the block

**Appendix E: Token Transfer Specifications**

The process of transferring tokens from on blockchain to another shall be done as follows:

* When tokens are transferred to the client blockchain, they shall be moved from the transferring party’s wallet on the core GBA blockchain to the cold storage wallet on the core GBA blockchain and then an identical number is moved from the client blockchain cold storage account to the recipient’s wallet. Once the client’s transaction is immutable, the transaction is completed by writing the client blockchain’s transaction ID to the GBA core blockchain.
* When tokens are transferred back to the core GBA blockchain, they shall be moved from the transferring party’s wallet on the client blockchain to the cold storage wallet on the client blockchain. Once the client’s transaction is immutable, an identical number of tokens is moved from the core GBA cold storage account to the recipient’s wallet with the client blockchain’s transaction ID written to the GBA core blockchain.
* When tokens are transferred from one client blockchain to a different child blockchain, they shall be moved from the transferring party’s wallet on the client blockchain to the cold storage wallet on the client blockchain. Once the first client’s transaction is immutable, an identical number of tokens is moved from the second client’s cold storage account to the recipient’s wallet. Once the second client’s transaction is immutable, the transaction is completed by writing the both clients’ transaction IDs to the GBA core blockchain.

**Appendix F: GBA Wallet Specifications**

GBA wallets shall include a Single Sign In (SSI) capability that follows the OpenID (<https://openid.net/>) specification for authentication. GBA wallets shall communicate solely with the core GBA blockchain and will be given information from connected blockchains by the core GBA blockchain. The GBA wallet shall show the owner’s token balances on all blockchain’s and shall show recent transactions for each blockchain as requested. The GBA wallet shall allow the owner to create accounts/wallets on all connected blockchains and/or link existing accounts/wallets. The GBA wallet will allow token transfers across the main GBA blockchain and all connected blockchains.

The GBA Wallet shall support the following functionality:

* Login
* Create Account on a connected blockchain
* Link Account previously created on a connected blockchain
* View Account (NumDays) – shows GBA token balance & transactions from the last NumDays
* Get GBA Totals – shows GBA token amounts for cold storage and the sum of all other accounts
* Get GBA Accounts – shows all accounts/wallets that have GBA tokens & their GBA balance
* Get Transfers (NumDays) – shows recent GBA Transfer Transactions
* Get Dex Trades (NumDays) – shows recent GBA Dex Trade Transactions
* Get Transaction by Hash (TxHash) – shows GBA token transactions
* Get Block (BlockNo) - shows GBA token transactions within a core block
* Transfer GBA Token (Blockchain, Account, Blockchain, Recipient, Amount)
* Transfer Connected Blockchain Currency (Blockchain, Sender, Blockchain, Recipient, Amount) \*
* Pay GBA for Purchase in GBA (Blockchain, Account, Purchase) \*
* Pay GBA for Purchase in Connected Blockchain Currency (Blockchain, Account, Purchase) \*

\* May or may not be in the initial version

**Appendix G: Self-Sovereign Identity Requirements**

If a sponsor desires, any self-sovereign identity solution may be made available through the GBA wallet. The sponsor shall be responsible for providing the necessary API programming for the solution. The sponsor shall assist the GBA team in testing the solution as necessary. The solution must meet the following technical criteria:

1. The solution must use a public, decentralized ledger.  Permissioned ledgers are acceptable.  Private ledgers are not EXCEPT in the case of the GBA blockchain itself.
2. The solution must adhere to the W3C Decentralized Identifiers (DID) specification (<https://w3c.github.io/did-core/>) for self-sovereign identity (SSI).
3. While a solution may contain ***optional*** proprietary modules (i.e. biometrics), the core solution must be open-sourced.
4. The solution shall be provided at zero ***initial*** cost to the GBA. The solution may have a per use charge that will be passed on to the wallets which use the solution.

The solution API shall support the following calls:

1. Read
2. Write

**Appendix H: Acknowledgements**

The GBA would like to express our appreciation to the following individuals for their contribution to the development of the concepts and this white paper:

* Bill Elder (Communications)
* [Denise Ferguson](https://www.gbaglobal.org/members/dferguson/) (Documentation)
* [Gerard Dache](http://www.gbaglobal.org/members/gdache/profile) (GBA Liaison)
* [Joe Walton](https://www.gbaglobal.org/members/waltonjb/profile/) (Technical)
* [Mark Waser](https://www.gbaglobal.org/members/mark-wasergmail-com/profile/) (CTO)
* [Max Gravit](https://www.gbaglobal.org/members/digital-scarcity/profile/) (DAO)
* [Miles Vaughn](https://www.gbaglobal.org/members/mvaughncogentlaw-co/profile/) (Compliance)

**Appendix I: Initial Distribution Data**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Total** | **Type** | **Status** |
| Aaron Stanley | 1 | events | expired |
| Ajay Chandhok | 3 | posts | active |
| Alex Shkor | 1 | posts | unknown |
| Amelia Powers Gardner | 1 | events | unknown |
| Amy Berliner | 2 | events | expired |
| Andrew Bloom | 6 | events | active |
| Andrew Bloom | 34 | posts | active |
| Andrew Facciolo | 1 | events | unknown |
| Andrew Gillick | 5 | posts | active |
| Andrew J. Parrish | 1 | events | active |
| Andrew J. Parrish | 1 | posts | active |
| Andrew Koh | 1 | posts | unknown |
| Angel CarriÃ³n Orlandi | 1 | posts | expired |
| Anjon Roy | 1 | events | unknown |
| Antoine Tyler | 5 | events | active |
| Aqeel Ahmed | 2 | events | free |
| ARGYRIS S. ARGITAKOS | 1 | events | active |
| Ari Brojde | 1 | events | active |
| Arnab Paul | 1 | events | expired |
| Arnab Paul | 2 | posts | expired |
| Art Nicewick | 1 | events | expired |
| Ashley Baker | 1 | posts | active |
| Benjamin M. Brown | 1 | posts | expired |
| Bernard Henry | 1 | posts | unknown |
| Bernie Doyle | 2 | events | active |
| Bert Kastel | 4 | events | active |
| BhushanKulkarni | 1 | events | active |
| Bill Elder | 1 | posts | expired |
| Blockchain Nigeria User Group | 1 | events | active |
| Brian Sawich | 1 | posts | active |
| Brooke Casselberry | 1 | events | expired |
| Brooke Casselberry | 1 | posts | expired |
| Bryant Neilson | 39 | tickets | active |
| Bryant Nielson | 9 | events | free |
| Carlos Toriello HerrerÃ­as | 2 | posts | unknown |
| Celine Pozzo | 2 | events | expired |
| Chirag Kapadia | 3 | events | active |
| Chris Groshong | 1 | events | unknown |
| Christine Caccamise | 1 | events | expired |
| Christopher Peoples | 7 | events | active |
| Christopher Peoples | 2 | posts | active |
| Dan Callahan | 5 | events | expired |
| Dan Callahan | 1 | events | free |
| Dan Callahan | 10 | posts | active |
| Dan Callahan | 5 | posts | free |
| Daniel Yim | 8 | events | active |
| Daniel Yim | 1 | posts | active |
| David Freuden | 2 | posts | unknown |
| David Whiting | 13 | events | active |
| davidsoto | 2 | events | active |
| DECENT | 1 | events | active |
| DECENT | 2 | posts | active |
| Denis ONeil | 3 | posts | active |
| Dennis Porto | 1 | events | active |
| Dennis Porto | 1 | posts | active |
| developer | 5 | events | expired |
| Dr Vasiliu Feltes | 3 | events | active |
| Dr Vasiliu Feltes | 4 | posts | active |
| Dr. Ann Ingraham | 2 | posts | active |
| Dr. Anthony Stefanidis | 1 | posts | unknown |
| Dr. Moe. Levin | 1 | events | unknown |
| DR. SINDHU BHASKAR | 1 | posts | unknown |
| Dr.Pavani | 1 | events | active |
| Dylan Nunn | 1 | events | active |
| Dylan Nunn | 1 | posts | active |
| Eduardo Burgos | 1 | posts | expired |
| Elisa Cafferata | 4 | events | expired |
| Emil Sterndorff | 1 | events | unknown |
| Emil Sterndorff | 1 | posts | unknown |
| Eric Guthrie | 40 | tickets | active |
| Eric Guthrie, Esq. | 1 | posts | free |
| Eric Ubias | 1 | posts | expired |
| Evan Harris | 2 | posts | unknown |
| Ferenc Vagujhelyi | 1 | posts | free |
| GBA Boston | 1 | events | unknown |
| Gerard Dache | 118 | events | active |
| Gerard Dache | 109 | posts | active |
| Gerard Dache | 515 | tickets | active |
| Gokul Alex | 2 | posts | active |
| Gustavo A. Calderon | 1 | posts | active |
| Hans Timmer | 1 | posts | unknown |
| Heather Parks | 1 | events | pending |
| Inman Porter | 1 | posts | active |
| inQ Blockchain | 2 | events | unknown |
| Ismael Arribas | 9 | events | expired |
| Jack Anderson | 1 | posts | unknown |
| Jacques Bikoundou | 1 | events | active |
| Jacques Bikoundou | 1 | posts | active |
| James Kana | 10 | events | free |
| James Kana | 208 | tickets | active |
| James McDowell | 1 | posts | active |
| Jamiel Sheikh | 1 | events | active |
| Jason Buster | 1 | posts | free |
| Jean-Christophe FINIDORI | 1 | events | free |
| Jeoung Han | 1 | events | unknown |
| Jericho Guzman | 1 | events | free |
| JesÃºs Medel Guadarrama | 2 | events | unknown |
| Joel Binn | 1 | posts | free |
| Joerg Molt | 1 | events | unknown |
| John Carpenter | 11 | events | active |
| John Dean Markunas | 3 | events | active |
| John Dean Markunas | 22 | posts | active |
| Johnny Nobles | 1 | events | active |
| Jonathan Keim | 2 | events | unknown |
| Jonathan Lehman | 12 | events | active |
| Jonathan Lehman | 2 | posts | active |
| Jordan | 1 | posts | active |
| Jordan Dache | 13 | events | active |
| Jordan Dache | 418 | tickets | active |
| Joseph B. Walton, ABD, CISSP | 1 | posts | active |
| Josue Soto Soto | 1 | posts | expired |
| Juan Pablo Mejia | 8 | events | expired |
| Justin Kersey | 1 | events | active |
| Katerina | 1 | events | free |
| Kathy Dache | 5 | tickets | active |
| Kathy Dache' | 6 | posts | active |
| Kayode Babarinde | 2 | events | active |
| Keith Preciados | 1 | events | expired |
| kelly-anne philp | 1 | events | unknown |
| Kevin Gottlieb | 2 | posts | active |
| Kevin Gottlieb | 6 | tickets | active |
| Kirsten Pomales Langenbrunner | 2 | events | unknown |
| Kohei Kurihara | 10 | events | active |
| Kumar Anirudha | 1 | events | active |
| Kwame Rugunda | 1 | events | active |
| Kyle Mctague | 30 | events | active |
| Kyle McTague | 769 | tickets | active |
| Lance Morginn | 1 | posts | active |
| Linda Burks | 1 | events | free |
| Liora Chartouni | 1 | events | active |
| Lisa Ellis | 1 | events | active |
| Lisa Turner | 7 | events | free |
| LluÃ¯sa Marsal | 2 | events | free |
| Lora J Jerdine | 1 | events | active |
| Lorenzo Delzoppo | 5 | events | expired |
| Lorenzo Delzoppo | 1 | posts | expired |
| Mari Greenberger | 7 | events | active |
| Mark Rozell | 1 | posts | unknown |
| Mark Waser | 1 | events | active |
| Mark Waser | 2 | posts | active |
| Mark Waser | 1 | tickets | active |
| Marquis Allen | 3 | posts | unknown |
| Matt Fok | 2 | posts | unknown |
| Matt Zand | 10 | events | active |
| Matt Zand | 3 | posts | active |
| Max Gravitt | 2 | posts | unknown |
| Meaghan Grant | 1 | events | expired |
| Michael Henson | 1 | posts | active |
| Michael Novak | 1 | events | expired |
| Michael Novak | 1 | posts | expired |
| Michael Richardson | 1 | events | active |
| Michael Richardson | 1 | posts | active |
| Michael Sahmel | 1 | posts | active |
| Michael Talbot | 2 | events | free |
| Michael Talbot | 3 | posts | free |
| Michael Wade | 1 | events | active |
| Miguel Babilonia | 1 | posts | active |
| Mike Bombace | 1 | posts | active |
| Mirko De MaldÃ¨ | 1 | events | active |
| Mirko De MaldÃ¨ | 3 | posts | active |
| Mohd | 2 | events | unknown |
| Nabeel Malik | 15 | events | active |
| Nabeel Malik | 17 | posts | active |
| Nadav Zeimer | 1 | posts | free |
| Natalie Gottlieb | 2 | events | active |
| Natalie Gottlieb | 1 | posts | active |
| Natalie Gottlieb | 2 | tickets | active |
| Ngueti Armand Gaetan | 3 | events | active |
| Ngueti Armand Gaetan | 4 | posts | active |
| Nicholas Liberato-Randall | 1 | events | active |
| Nick Besedin | 1 | events | unknown |
| Nick Palermo | 3 | events | active |
| Nicole Krug | 4 | events | unknown |
| Nikhil Shenoy | 1 | posts | active |
| Nina Nichols | 4 | events | active |
| Ofer A. Lidsky | 1 | posts | active |
| Paul Carey CFA | 2 | posts | expired |
| Paul F. Dowding | 1 | posts | unknown |
| Peter Joukov | 1 | events | expired |
| Peter McAliney | 1 | posts | free |
| Peyton Cumminskey | 1 | tickets | active |
| Pravash Dey | 1 | events | free |
| Premal Bhatt | 1 | posts | active |
| Priyank Jani | 2 | events | unknown |
| Priyank Jani | 1 | posts | unknown |
| Randall Lee Pires | 16 | events | active |
| Randall Lee Pires | 1 | posts | active |
| Rob Perry | 4 | tickets | active |
| Robert Perry | 1 | posts | active |
| Romil Jain | 1 | events | expired |
| Ron Clement | 1 | posts | active |
| Royce Leon D'Souza | 1 | posts | active |
| Ruta | 1 | events | free |
| Sarah Dolezal | 1 | events | active |
| Sarah Dolezal | 3 | posts | active |
| Sean Smith | 2 | events | unknown |
| Sergio Ovalle | 1 | posts | unknown |
| Shannon Greaney | 18 | posts | unknown |
| Sharat Chandra | 7 | events | active |
| Sharat Chandra | 2 | posts | active |
| Sheba Karamat | 1 | posts | active |
| Sheila Willison | 1 | events | free |
| Shekhar Gupta | 1 | events | expired |
| Shiv Aggarwal | 4 | events | active |
| Shiv Aggarwal | 4 | posts | active |
| Sierra Lewis | 1 | events | unknown |
| Silvio Frank Pupo-Casco | 1 | events | free |
| Simmone Mago | 1 | posts | free |
| Skyler Dache | 9 | events | expired |
| Skyler Dache | 7 | tickets | active |
| Socrates Minas | 1 | events | unknown |
| STANISLAV TAKTAEV | 6 | events | active |
| Stephanie Goertz | 1 | events | free |
| Steve Winword | 1 | events | free |
| Steven A. Olson | 2 | events | active |
| Steven A. Olson | 3 | posts | active |
| Stewart Severino | 1 | events | free |
| Surya Saha | 1 | events | active |
| Surya Saha | 1 | posts | active |
| Susan Eustis | 1 | posts | active |
| Thomas Cox | 1 | posts | unknown |
| Thomas Goldstein | 1 | events | unknown |
| Tom Burke - MS, CBAP, CSPO | 1 | events | active |
| Tom Burke - MS, CBAP, CSPO | 1 | posts | active |
| Tory Cenaj | 2 | events | active |
| Tory Cenaj | 3 | posts | active |
| Trekk | 1 | posts | expired |
| Vincent Mayers | 1 | events | free |
| Vivek Acharya | 3 | posts | unknown |
| Wassim Merheby | 2 | events | active |
| Will Button | 1 | posts | active |
| William Michael Cunningham | 1 | posts | expired |
| Wyatt Hoover | 1 | events | active |

1. See Appendix I [↑](#footnote-ref-1)
2. See Appendix I [↑](#footnote-ref-2)