



Expanding and securing the Factom ecosystem. Together.

Factomatic™

The company

Factomatic™ is the evolution of years of collaboration between a group of friends with diverse backgrounds and skill sets, who all support and believe in the Factom Inc. («Factom») vision and the budding ecosystem emerging around it.

Formed as a limited liability company in the state of Virginia, Factomatic LLC (the «Company» or «Factomatic») strives to achieve the twin goals of advancing the security of the Factom ecosystem through the 24/7 management and operation of state-of-the-art infrastructure for Authority Nodes, while facilitating the evolution of the protocol through consulting of new and existing businesses, active development of applications running on the protocol and contributions to the Grant Pool.

We are firm supporters of a truly decentralized and democratic process of governance, and as such we will establish a digital identity that is built around collaboration with other members of the community and industry partners.

Capitalization and Price Stability Pledge

Due to the volatile stage in the evolution of the cryptocurrency market, the fragmented liquidity and the significant decline in both prices and trading volume during Q1 2018, we at Factomatic share the concern of many members of the community that the Protocol Support Budget will exert downward pressure on the price of Factoids, as Authority Node Operators start selling their rewards.

Because we are confident that the Factom protocol and ecosystem will be successful in the long run, we pledge to «hodl» at least 75% of our net income from the operation of Authority Node(s) for a period of at least one year. In the event that we identify an opportunity to trade over-the-counter (OTC), thus eliminating a direct effect on the Factoids in the open market, we may liquidate up to another 25% of our net income.

Furthermore, we have partnered with Decentriq AG -- a brokerage company incorporated in the «Crypto Valley» in Zug, Switzerland -- and, if selected for an Authority Node Operator, Factomatic will serve as a liquidity provider for Factoid transactions handled by Decentriq AG, giving us an additional OTC channel for the liquidation of tokens. For the remaining tokens, we will be using a trading bot that optimizes the liquidation based on market conditions, such as price, volume, liquidity and [slippage](#) and that does [smart order routing](#), which we believe will become increasingly important, especially as more exchanges start listing Factoids.

Additionally, the Co-Founders of the company have pledged to provide a budget of \$25,000, which will be used to sustain the normal operation of Factomatic in the event of a significant price reduction that results in a net operating loss.

Why Factomatic?

Node Reliability

Proof-of-testnet

Factomatic is one of eight participants that seeded the testnet from its origination. We have continuously run **one Authority Node** since then. Recently, we also added a **second node** to the testnet in order to experiment with the **brainswapping procedure**.

Proof-of-mainnet

We have been running **one courtesy mainnet node** for hosting the monitoring dashboard for the Factom mainnet, available with login credentials: admin/admin.

Geographic distribution, 24/7 availability

Members of the Factomatic team are based in both Europe and the United States. We have the ability to host servers in diverse geographical locations including US, Netherlands, Switzerland, Bulgaria or on any cloud hosting provider including Google Cloud, AWS, Digital Ocean, Linode, etc. Furthermore, our geographically distributed team and competence with server management in both Europe and the US, allows us to react to any emergency situation related to Authority Nodes on short notice and at any time.

Google Cloud, Security and High Availability

While keeping our capability to host servers in multiple locations, we have chosen to use Google Cloud Platform (GCP) as our initial cloud hosting provider, in case we are selected to run one or more Authority Nodes.

GCP is the product of 10+ years of experience in running and securing the infrastructure that underlies all internal and customer facing Google services. It offers unprecedented security and reliability through (amongst others):

- state-of-the-art physical protection of data centers (including biometric identification, video analytics and laser-based intrusion detection);
- custom hardware for generating root of trust for all machines and services;
- highly curated operating system with hardened BIOS, bootloader and kernels;
- Google Front End, which interfaces with the outside world and automatically protects the GCP network against DoS attacks such as SYN floods, IP fragment floods and port exhaustion;
- live migration: Google will perform maintenance on underlying resources without affecting the VMs running on those;

- global presence and continued expansion - there are currently 15 regions as well as 4 newly announced regions slated to be launched in 2018 alone; and
- every Google region consists of at least 2 availability zones to support easier failover and ensure high availability

We believe security and protection against common DoS attacks is paramount to the operation of Authority Nodes and that GCP provides a solid platform on top of which we can implement additional measures. The security and reliability of an Authority Server should never be compromised in favor of reducing costs, and we plan on using an elaborate containerized deployment with several services, including guard nodes, ensuring the safe operation and failover recovery of any Authority Node we might be awarded. This is one reason why we deem the custom instances available at GCP as very suitable candidates: they allow better resource efficiency and lower the operation costs, in turn allowing us to make larger contributions to the Grant Pool and fund in-house development.

We will also be leveraging Google's Kubernetes Engine service, as we plan to orchestrate any potential deployments using Kubernetes to ensure high availability and fault tolerance of each individual container.

Support of Protocol

Contributions to the testnet

Factomatic has been represented in the community testnet by Valentin (@sanchopansa), who is the author of the proposed [on-chain voting protocol](#) and the Monitoring WG co-chairman. He is also the author of the initial WPS monitoring tool, available as open-source [here](#).

Irrespective of our campaign outcome, we pledge to continue the operation of at least one testnet node, as we believe the testnet will be integral for application development and onboarding of customers to the Factom blockchain. If we are selected as an Authority Node Operator, we will be running at least two testnet nodes.

App development

We are strong believers in the positive feedback loop enabled by a decentralized governance model built on top of the Factom protocol. Prominent usage of the protocol would drive the price of Factoids up, resulting in more funds allocated to the Grant Pool by Authority Nodes, which would in turn enable the development of more applications on top of the protocol further increasing its usage.

Therefore, prosperity of the ecosystem is directly linked to distributing the development effort and having a growing pool of talented developers working on the protocol and the surrounding ecosystem.

To enable this vision, regardless of the campaign outcome, at Factomatic we plan to apply for grants for the development of several open-source applications:



Factom Explorer

Having multiple explorers is important for the operation of any blockchain because of the added benefits of redundancy and decentralization. We are working on an explorer, which is an enhanced version of the existing [one](#), provided by Factom Inc. Leveraging our data analytics experience, in addition to the standard features of any explorer, we will provide historic plots and real-time metrics, including:

- Factoid/EC rich list
- Biggest Factoid burners/EC spenders
- Chain statistics (total # of chains, longest chains, distribution of # of entries per chain, etc.)
- Entries statistics (average size of entry, max/min size of entry)
- Number of committed/revealed entries per block
- Factoids transferred per block
- ECs spent per block
- Cumulative fees paid per block



Voting App

We aim to turn the [voting protocol](#) into an open-source web application, which can be utilized for votes not only on the testnet, but within any organization. Following our philosophy of collaboration with other members of the community, we have had provisional talks with The Factoid Authority and Blockchain Innovation Foundation and believe we can leverage their protocol knowledge for the development of the app as well as for its integration with MyFactomWallet and the Factom Ledger.



Decentralized Identity App

The emergence of distributed ledger technology (DLT) provides the opportunity for fully decentralized identity management. In contrast with existing systems, in a decentralized identity system, entities are free to use any shared root of trust. Globally distributed ledgers (or a decentralized P2P network that provides similar capabilities) provide a means for managing a root of trust with neither centralized authority nor a single point of failure. In combination, DLTs and decentralized identity systems enable any entity to create and manage their own identifiers on any number of distributed, independent roots of trust. [<https://w3c-ccg.github.io/did-spec/>]

At Factomatic, we believe that the Factom protocol is ideally suited for the implementation of a decentralized identity app.

The identities in the app will be represented by the model used internally in the Factom protocol: a hierarchy of four keys to mitigate risks of identity theft or loss. Each participant in the Factom protocol

would be able to self-issue an identity through the app and store it on a special IdentityChain. The identity will be compliant with the [Decentralized Identifiers \(DIDs\)](#), suggested by the [W3C Credentials Community Group](#). As such, the app would allow create, read/verify, update and delete/revoke operations on all identities.

Each identity will be able to issue claims about itself, which are stored in its IdentityChain as JSON Web Tokens to facilitate interoperability. Entities can also post claims about each other by writing to another entity's IdentityChain. This can be used for endoresements, e.g. and may or may not require a subsequent approval from the owner of the IdentityChain.

Following the [Factom Ledger by Consensus](#) paper, the app will support the creation of private and public authorized lists of identities, facilitating authentication amongst many other applications. We expect that the voting and decentralized identity apps will work in unison and serve as an example for developing other Factom applications, requiring authentication, authorization or claim attestation.

We are preparing a more detailed proposal for the app together with Canonical Ledgers. Factomatic intends to apply for a grant or to internally sponsor its development, if we are selected as an Authority Node Operator.

Consultancy

Factomatic is offering consultancy services to startups and existing businesses in the US and Europe with the aim of educating them about the possibilities enabled by the Factom protocol and assisting them in adopting it in their processes.

We currently are consulting one startup and will onboard them once they finish the development of their offering (planned for Q4 2018).

Grant contribution

The main goal of Factomatic is to establish itself as a long term-term leader and a recognizable quality brand in the Factom ecosystem. To that end, we will strive to build a sustainable business as a software development and consultancy company and, potentially, as an Authority Node Operator. Therefore, we will manage our operations by constantly evaluating and maintaining a balance between direct and active development of the protocol and reasonable contributions to the Grant Pool.

If we are selected, with the onset of M3, we pledge to defer 20% of the Factoids we earn to the Grant Pool. We estimate that this would result in a low operational risk, while at the same time allowing us to make a substantial contribution to community driven efforts.

After the first year of operation, we would be looking to revise this number up to 50%, subject to the price of Factoids and our operational expenses. We are determined to maintain our collaborative edge through a well thought out and flexible balance of active inhouse development and reasonable contribution to the grant pool.

Team

Valentin Ganev (@sanchopansa in Discord) – Co-founder, Software Engineer & Product Development

Valentin has over 12 years of experience in tech startups, creating novel products from idea to launch. Over the years, he has acted as an architect and a core developer of state-of-the-art solutions in cloud computing, big data analytics and distributed ledger technology. He has extensive knowledge of Linux and software engineering and is proficient in Python, Scala and the Spark data analytics stack. Valentin has been involved in projects ranging from web interfaces and real-time monitoring tools for cloud computing platforms in the US, through government-funded smart cities capabilities development in Singapore to real-time traffic jam detection on Swiss highways using telco data. In the last year, Valentin has worked as a consultant for several startups in the DLT space. He holds a BSc in Computer Science from the University of Manchester, UK and a MSc in Robotics from ETH Zurich.

Nikola Nikolov, Esq. (@Nikola in Discord) – Co-founder, Legal & Business Development

Nikola is currently working as a senior investigator in the market intelligence group of the largest financial markets Self-Regulated Organization in the USA. He has a background in securities regulation, business formation, and dispute resolution. In his day-to-day work, Nikola utilizes different data systems and investigative techniques to identify past timely and suspicious insider trading activity ahead of material public news announcements. He is also the Chair of the Board of Trustees of the Bulgarian Cultural and Educational Center «St. Kliment Ohridski» in Washington, D.C. where he is responsible for various business, legal and political issues surrounding the management of an institution that educates approximately 110 students. Prior to that, Nikola was leading a private practice, where he advised and represented clients in issues related to company formation and contract disputes.

Ivan Angelov (@iangelov in Discord) – Network Engineer & System Administrator

Ivan is a DevOps engineer, with 10+ years of experience in the Telecom, IoT, medtech and SaaS industries. He has managed diverse systems ranging from IBM AIX running on IBM POWERVM servers to FreeBSD servers in a PCI environment and Linux servers deployed to both AWS and GCP. His working philosophy centers around finding the right tools for the job, with emphasis on automation, reliability and security. This is underlined by his rich experience in a wide array of technologies including Mesos, Marathon, Kubernetes, Docker, Akka, ZooKeeper and Consul.

Mihail Robev - Network Engineer & System Administrator

Mihail is a highly experienced IT professional with a Master's Degree in Computer Engineering and over 7 years of experience in system administration including: virtualization, high availability, failover clustering and scripting for tasks automation. As a System Administrator in a cloud hosting provider, he is responsible for operations and availability of a 24/7 production data center environment to ensure maximum availability for customers. Some of his day-to-day activities include monitoring of system resources, system logs and continuity of operations, as well as managing operating systems and storage management.

Tito Valchev - Cyber Security & Penetration Testing

Tito specializes in network espionage and information security. He has extensive experience working with local government agencies, private companies, and not-for-profit organizations providing systems security engineering and monitoring, and intrusion detection and prevention.

Mike Mitov - Branding & Identity Designer, <https://chobedesign.us>

Mike is a visual, branding & identity designer. He expresses his ideas through shapes and colors and his style of work is contemporary, but some define it as minimalistic. Mike has over 10 years of experience in graphic, visual, brand and digital design. He specializes in branding & identity, and strives to create simple, yet impactful designs.

Antoniya Puleva - Project Manager, Branding Specialist and Creative, <https://chobedesign.us>

Antoniya has a background in interior design and programming with three years of experience developing brand strategies for U.S. and international startup companies. She is a highly organized and motivated out-of-the-box thinker who is ready to take on any challenge.

Conclusion

Factomatic is bringing together the skill and operational expertise of multiple individuals who are all extremely excited about Factom's future. We are looking forward to growing together, hand in hand with the community and the ecosystem around the Factom protocol. For this purpose, we will actively contribute to the protocol through in-house development, consultancy, collaboration with Authority Node Operators, and contributions to the Grant Pool.

Through hard work and clear vision, we are looking forward to facilitating the onboarding of existing and new businesses on the Factom blockchain.