



et Factom in tenebris lucet

Candidate to host Factom M3 Federated Servers

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Organization

LUCIAP is the association of two people who discovered Factom in 2017 and that the enthusiasm towards the technology has led to more involvement in the community over the last six months. At this point we want to go one step further and we are applying for hosting M3 Federated servers.

LUCIAP will be originally run as a Canadian Partnership business (for-profit) with initial sole purposes to run and maintain over time one or several stable Factom Federated servers, propose innovative projects around Factom protocol, participate in the implementation of those projects and take part in the Factom community in a broad sense. All members are permanent residents of Canada.

Within 3 months if LUCIAP were still to be operating a server in the authority set we'll seek incorporation in the province of British Columbia, Canada, to allow our safe growth. This 3-month period is a safety buffer period to give us time to confirm the viability of our projects and that we maintain the support of the community.

We chose the motto "*et Factom in tenebris lucet*" as a nod to the Latin origin of the Factom name. It means "Factom shines in the darkness". It's a reference to the transparency and honesty Factom can bring to the world.

Our direction to further Factom

We made the general assessment that the Factom developer ecosystem is still in its infancy even though the protocol has been around since 2014. Most of the documentation, blog posts or tools come directly from Factom Inc. Third-party libraries currently existing are thin/basic which can be a blocker for developers to start working on a project involving Factom. Both members of LUCIAP have high technical skills together with ideas to fill the gaps with the hope to spur developers' adoption.

Paul Bernier (@luap) has gained valuable knowledge over the recent months by implementing factom.js and regularly questioning Factom protocol designers (thanks Steven, Brian and Paul!). We wish to put that knowledge at work by providing tools and resources to help technical people get started faster (remove any doubts or barrier of entry) and help them make the best design decisions (mistakes in the blockchain space can be very costly).

We want to focus on the tech side, because that's where we are at our best, but we have a general interest in seeing Factom succeed on all aspects. We will not limit ourselves and are willing to help in any other possible ways if we find opportunities.

Finance

We have an initial capital of 40,000 CAD immediately available to support our operations. This money would allow us to operate for the initial 5 months without having to sell any FTC or allow us to continue to operate even in the case of a crash of the market. Our intention is too keep a maximum of the awarded tokens as we are betting on a medium-term rise (we but are hedging this bet with the initial capital mentioned above). We are initially planning to sell for the following purposes:

- to cover 50% of our monthly operational cost (see the attached Excel sheet for an estimate of just our technical cost).
- quarterly to pay our income tax to Canada Revenue Agency.

For tax purpose we'll be tracking our reward with a CoinTracking premium account: we intend to integrate with their API to automatically record the value of the coinbase in our account. We have a fully verified account on Bittrex to sell FCT, and also a fully verified account on QuadrigaCX and Coinsquare as options to convert BTC to CAD.

We believe we are cost efficient because we are able to do most of the work ourselves, both sysadmin and development. That said it also means we are virtually 24/7 on call all the time and we believe it's fair to expect to be compensated for this (but much less than contracting tech person to be oncall for us).

We will use some of the initial reward to seek legal/accounting guidance specific to Canada. It turns out that Vancouver is hosting quite a lot of crypto companies (Cryptokitties is based here for instance, and also the biggest Canadian exchanges) so we wish to reach out to the crypto community around. We are also getting in touch with [Blockchain Association Canada](#) and [Blockchain Canada](#).

As you can see in our *projects* section we intend to be more than simple node operators. We have a lot of ideas of projects and tools we wish to develop. We prefer to receive a compensation for this development work though our M3 servers rather than going through the grant process. Some reasons are: in the short term the grant pool system is not yet ready (legal issues), we can start being compensated for our work immediately rather than waiting for the grant process to hapen, it allows us more flexibility in the sense that we are freer to pick our projects. Of course, if the community were to disagree with the direction of our projects, we would revise our position.

Taking into account all the elements above we feel comfortable to commit to defer 50% of our reward to the grant pool for the first 3 months, as we have calculated we are guaranteed to survive this time period. We don't commit for a longer period of time because we don't think that makes sense provided the extremely high volatility of the market. We prefer to remain conservative rather than breaking our commitment.

Team

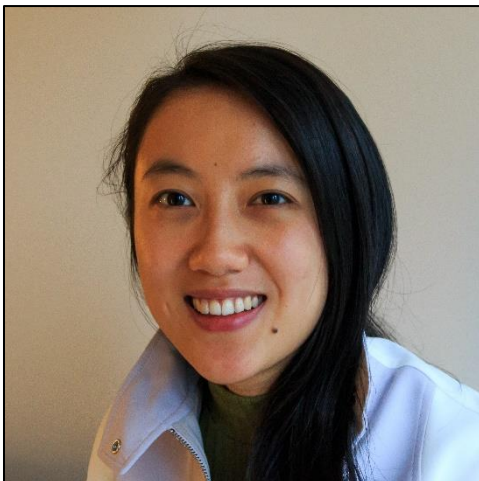
You may know Paul (@luap) for his involvement in various technical discussions on Slack/Discord and for the work put into the testnet. He's teaming up with Lucia, another talented developer with complementarity skills.



Paul Bernier (@luap on Discord)

- Software developer engineer II at Amazon
- Awarded title of ESSI (Security Expert in Information systems) by ANSSI (National Cybersecurity Agency of France) in 2013
- Recipient of two masters: Electrical and Computer Engineering from Georgia Tech (US), Computer Science from Telecom SudParis (France)
- <https://github.com/PaulBernier>
- <http://www.paulbernier.fr>

Paul has been working as a software developer in the exigent environment of Amazon for over 3 years and gained in depth knowledge of many AWS services. He's on track to get certified AWS Solution Architect Associate. This makes us confident that we'll be able to run professionally our servers on AWS EC2. He's also used to regular 24/7 on call and to jump in to mitigate potential million-dollar issues (dealing with worldwide truck fleet management system).



Xiya Lu (@Lucia on Discord)

- Senior front-end developer at Clio (React/Angular)
- Likes to share her knowledge: technical [conference speaker](#) and [blog writer](#)
- <http://luxiyalu.com/about>

Lucia has a complimentary skillset from Paul as she specializes in front-end development. Some of our projects will have user facing UIs and thanks to her we'll be able to develop those in-house. In addition of that Lucia has a taste for sharing her technical knowledge and helping peers which will be valuable as educational content is a point we want to focus on.

What we have done and wish to continue

We want to highlight in this section that we have already dedicated our time and resources to contribute to Factom. We have laid out the foundations of some tangible projects, all of this only on our spare time.

Testnet

We have run one server that has always been in Audit or Leader roles since the pre-alpha. Paul (@Luap, not the other Paul...) helped out on a daily basis by engaging conversation and helping out with other members of the community. He has been appointed as a chairman of the “monitoring” work group and has developed a tool providing comprehensive metrics of the testnet that is visible here: <http://monitoring.factom-testnet.com> (source code open sourced [here](#))

If elected LUCIAP will remain active in the testnet as we believe a healthy testnet perfectly align with our mission to give developers the means to develop. That’s why we want to:

- Pledge at least one server dedicated to the testnet.
- Continue the work on the monitoring working group.
- Continue being involved in the other working groups and generally in the governance of the testnet.

Developer ecosystem

As stated in the “direction” section, one of our core goal is to grow the developer ecosystem to allow them to onboard their applications on Factom quickly and easily. Better than words we started to do what we are preaching and making contributions at our scale:

- Open source contributions to the MyFactomWallet project (we are not contracted or affiliated with them). See [factomdjs](#) and [factom-walletdjs](#)
- Sharing on potential factomd issues (see [here](#) and [there](#))
- Minor testnet contributions (see [here](#) and [there](#))
- Cleaning up Factom doc (see [here](#) and [there](#))
- Paul worked with Steven Masley (Factom Inc.) on this year April Fools’ blockchain adventure 😊 More seriously we have also been discussing the design of an on-chain public human readable identity system.

In addition to those we also have started 2 independent projects of our own (factom.js and factom-storage) that are further described in the next section of this document.

Projects

This section contains projects we have started working on our spare time and want to continue developing together with projects we wish to take on in the medium-term. This list is subject to changes depending on the evolution of priorities and needs.

Factom.js

“Enterprise grade JavaScript library to interact easily with Factom blockchain.”

<https://github.com/PaulBernier/factomjs>

We have started to develop a JavaScript library that we wish to become the reference for JavaScript developers when building applications on top of the Factom protocol. The library is designed to be easy to start with and abstract some of the complexity of interacting with Factom protocol. It implements many parts of the official Go library in pure JS. We have started working on it back in February 2018 and have been continuously contributing to it since then.

JavaScript and Node.js have become increasingly popular over the last years and the community of developers has been growing as well. The ecosystem of NPM packages is very rich and we believe having a solid Factom package could attract a lot of gifted developers. We're glad to say that people from the MyFactomWallet project and also a crypto currency exchange have already started looking into using it in their respective projects. It's also used in our own projects factom-storage and the testnet monitoring tool and finally by a handful of people from the Discord community (@drkatz).

We would like to highlight that we worked hand in hand with @bunfield from the MyFactomWallet project to make the library meet his needs, demonstrating our capability to successfully collaborate with other parties to further Factom.

The library already has most expected features and is usable as is. But it's not finished and more efforts are required to achieve the “enterprise grade” standard we are targeting (testing, polishing of interfaces, error handling, documentation...).

Developer educational content

While you can find plethora of documentation, libraries or blog posts of enthusiastic 3rd party developers for Bitcoin and Ethereum, the vast majority of technical content for Factom comes from Factom Inc. We believe we can bring a different perspective. We wish to start providing technical resources and educational content based on our own experience with Factom to help developers ramp up rapidly and avoid dramatic

design mistakes. We are thinking of using a website/blog and possibly short YouTube videos as media for our content. We have gathered notes and ideas of topics over time that we would now need to put in form. All content produced will be made public and free and will remain as is independently of us operating or not a Federated server.

Here are the first 4 foundational topics that we have been accumulating notes about and would want to write/record about:

- The transactions in details (structures, two-token system, RCD...)
- Chains and entries in details
- The fundamental Blocks in details (Directory, Admin, Factoid, Entry Credit, Entry blocks)
- Designing application on Factom (good practices, design of reference, hash and signatures...)

We also having been working on a video as a test/pilot. The title is “Factomizing automatically your documents stored on AWS S3”. Leveraging AWS features (mainly S3 events and lambda) it shows how to set up a system that transparently factomize all the documents of a S3 bucket (very popular file storage of AWS).

Factom-storage

“Storing whole files in Factom blockchain” <https://github.com/PaulBernier/factom-storage>

Factom-storage is another tool we are developing. As of now it’s a command line tool allowing users to store whole files in Factom following its own [documented standard](#). It’s a proof of concept that was originally created to debunk the myth that “Factom is only to store hashes”. We have multiple ideas to go beyond the state of experimental tool:

- Folder structure: allow to group multiple files in a virtual folder (all files in the folder would be signed by the same key)
- Web interface: website to retrieve easily files stored with factom-storage. Some common file types (text, images) could be directly displayed nicely in the UI allowing people to easily share files stored in a blockchain!
- Monetize storing: make it accessible to anyone to pay with fiat currency to store their files in Factom without having to deal with FCT or EC.

We also think factom-storage is relatively simple while still having an interesting use case and could serve as a support for our educational content mentioned previously.

Entrycredit.com

Entrycredit.com would be an ambitious and innovative Entry Credit marketplace that would principally allow the Authority Set to seamlessly unload their Factoids. We don't wish to reveal more details as of now because it's too early and if we were not selected for running a M3 server it is a project we would like to suggest for a grant.

Advanced load generator for the testnet

We were thinking of a customizable load generator for the testnet. A proper load generator generally allows you to specify distribution and patterns of loads. For instance, you could specify: generate 10 TPS, 20% of which are Factoid transactions, 10% are buying EC transactions, 40% are entry/chain commits and 30% are entry/chain reveals. This way it becomes possible to simulate specific scenarios, and in particular it could reproduce mainnet traffic patterns.

To go further we could make the load generator distributed to avoid the load coming from limited locations. Testnet participants could opt-in to deploy a load generator daemon that would be controlled by a master node coordinating the load generation across the network. That way the load generation is even more flexible and it broadens the possibilities of scenarios.

Conclusion

It has been a great pleasure to be part of the community over the past months. It has also been exciting and instructive on so many aspects. We recognize that the main weakness of our application is that we are not a big business, nor have we a lot of business experience either. But we hope we have proven that we are sincerely involved and that we deliver results. Being part of the Authority Set would be the chance for us to demonstrate concretely that we can achieve big goals and help Factom protocol be at its full potential.

Whatever the outcome of the campaign is, we want to thank all the individuals of the community we had a chance to chat or work with.