



**A Decentralized, Free-Market Collectible Card Game**

[www.volitioncgg.com](http://www.volitioncgg.com)

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*Volition* is a collectible card game in which booster packs are mined, game asset ownership is tracked on a blockchain and the cost of all transactions is determined by a free market. *Volition* uses a print-on-demand digital-to-physical hybrid approach in which card owners can print assets directly from their collections.

This is a first of its kind: a physically playable, digitally collectible card game with decentralized distribution and true asset ownership.

## Why?

Collectability has historically been most meaningful in the context of physical products. For example, baseball cards, rare books, and vintage toys. These assets exist in the real world. They can be truly and fully owned by their holders, and transacted freely.

Digital collectibility is also compelling, but is often limited to an ecosystem controlled entirely by one party (such as a publisher) who enforces ownership rules and controls transactions. Because of this reliance on a third party, holders of these assets cannot truly “own” them. The publisher can change the transaction rules or revoke ownership at any time. And if the server infrastructure shuts down, those assets are gone forever.

The emergence of blockchain technology offers an interesting new paradigm for creating digital collectibles. Thanks to permissionless consensus protocols, holders of digital collectibles may now be said to truly own them. They may be transacted freely without depending on a single third party, and the assets will exist as long as the ledger does.

Our thesis is that once “true” ownership of an asset exists digitally, its physical manifestation can become superfluous. The real asset exists forever, immutable and impervious in a distributed ledger.

Extending this idea into collectibles game is a natural fit, and collectible card games in particular are a perfect embodiment.

From a business perspective, this has powerful implications to bringing a new collectible card game to market. Digital ownership combined with print-on-demand removes the hurdle of manufacturing physical product in quantity, selling it to

distributors and asking retailers to take on inventory risk. At the same time, true ownership and collectibility remain.

## Why not make a video game instead?

There are already some video games that use blockchain to track digital-only, in-game assets (and some general-purpose blockchain protocols meant for tracking and trading assets between games). While interesting projects, in these cases, the value of the assets is driven entirely by their use in a centrally controlled video game.

We are building a fully decentralized game, and we want the physical embodiment of assets to be first and foremost in the game experience. We also see the potential for a new ethos based on strong ownership of digital assets with temporary physical manifestations.

It is certainly possible for us (or others) to create a digital embodiment of the game down the road, but for now we think the digital-to-physical is the purest approach. If you own the assets, you can always play the game. All you need is a printer.

## Isn't controlling the game design a form of centralization?

We believe that authorship is not the same thing as centralization.

Distribution, marketing, ownership, and pricing of the game are still strongly decentralized; it is the decentralized community of miners and players who create the assets by mining them, distribute those assets and price them as they see fit.

It is true that we will keep a tight hold on the initial design of the game and that, as its authors, we are responsible for its quality. However, that doesn't preclude us from opening up the game to the community or expanding the blockchain protocol to include mechanisms for governance or from publishing crowdsourced sets or sets designed by others.

## How does the *Volition* blockchain work?

*Volition* runs on a permissionless blockchain. All transactions must be included in a block for mining.

The game is released in sets, which contain a limited run of booster packs. Miners can choose which set to mine, assuming the set hasn't been depleted. Booster packs are created when a block is mined.

Booster packs are pseudo-random numbers derived from a nonce appended to the hash of the block and signed with the miner's private key. Once generated, booster packs may be opened, traded or sold. Importantly, the contents of the booster pack cannot be guessed before the pack is opened.

Any node can look at a block and verify that the booster packs were generated correctly. In addition, generated packs will be unique to the block, unique to the miner, and unfeasibly difficult to predict ahead of time without knowing the contents of the block as well as the miner's private key.

Opening a booster pack is a multi-part transaction. To open a pack, its owner initiates a multi-step transaction that is finalized in a later block. The first step in the process is the "tear" transaction, which is recorded on the blockchain. The next step is the "open" transaction, which is performed some number of steps later by a different miner. As a contest is used to determine the miner for each new block, it is difficult if not impossible to predict who this miner will be.

The miner performing the "open" transaction transforms the pack identifier by hashing it with a nonce and signing the result with a private key. The result will be verifiable by any third party and will not be predictable without knowledge of the miner's private key.

The "opened" pack is a new key which may be split into components and used to assign game assets to the recipient based on a distribution table.

## Will there be a cryptocurrency?

The *Volition* blockchain can be used to transact a native cryptocurrency called VOL. This is important for securing purchase transactions within the protocol as well as providing a way for end users to offer miners a transaction fee for including their transactions in a block.

There is a fixed amount of VOL in the *Volition* ecosystem. A portion of this will be pre-mined and a portion will be mined with a diminishing reward structure similar to Bitcoin.

## How will you support a “free market” for the game?

Miners set all transaction costs. Or, more specifically, users set transaction costs by offering them to miners, who then decide which transactions to process. In other words, the cost of transactions is whatever the free market will pay for them.

## What will the game be like?

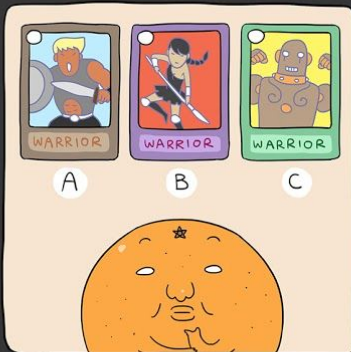
The game will be similar in play and feel to other CCGs like *Magic: The Gathering* and *The Spoils*. Like *The Spoils*, the base ruleset will be streamlined with a focus on flexible rounds and strategic play.

New cards will be released in sets, which may consist of a base set and several subsets.

Thematically, we want to keep *Volition* fresh and plan to change the theme frequently. We also encourage the community to adapt their cards to themes that inspire them through customization.

# GUIDE TO **VOLTON**™ by Prince Orange

## CHOOSE



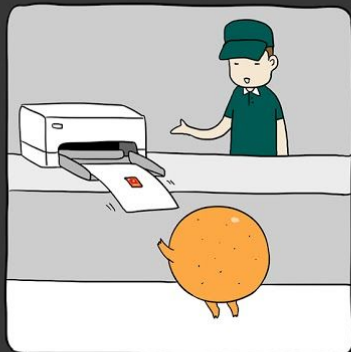
## CUSTOMIZE



## EQUIP



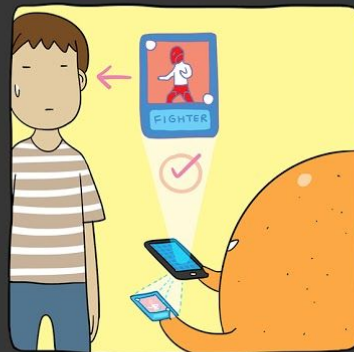
## PRINT



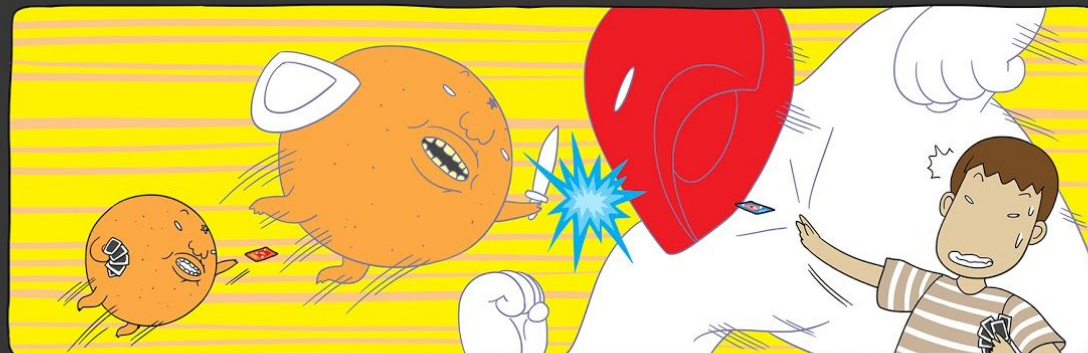
## MAKE



## VERIFY



## PLAY!



## Does the blockchain add any features to the game?

Tracking assets on a blockchain opens up a number of interesting design possibilities. We don't want players to be reliant on a device while playing the game, but when not playing the game, players may create transactions to utilize the game's special features.

Unlike a regular card game, cards may be levelled up or customized. This is accomplished by allowing players to combine cards to create new ones and to attach gear to their cards. Some cards may level up in a predictable fashion; others may have an element of randomness. The mechanics for customizing or levelling cards are defined by the cards themselves and this may change from set to set.

We encourage cosmetic customizations. Players can create transactions to add a comment or signature to a card they own. These additions follow the card. Future owners of the card may extend it with their own comments, or create a transaction to scrape the comments off.

Cosmetic customizations include art. To be valid, every card must have art. Players may attach custom art to any card they own by providing a url where the art is hosted. When the art is attached to the card, the image will be hashed. The result can be used to determine if the art is later changed.

## How do I print my cards?

We will provide a reference implementation of a card layout generator that can look at the ledger and create a .pdf suitable for printing. Reference art and card templates will be provided for each set in black and white, grayscale, and color, as well as CMYK process color with additional layers for foil.

To print cards, players can configure the layout generator to create a custom document that will print all or a portion of the cards they own on a variety of media sizes. They can print their cards using whatever printer and media they have access to.

Once printed and cut, players should insert their cards into sleeves with a piece of cardstock (or a card from some other game) to provide backing.

## Can artists sell original art for *Volition*?

Additional assets, such as custom art, may be published on the blockchain along with licensing terms. The licensing terms govern how the assets may be obtained and how they may be attached to cards. Artists will be able to scope the use of their images from any cards down to specific cards. Artists can also create limited edition artworks of which only a certain number will be available. Licensing terms can also specify the initial price of artworks, whether the artworks may be resold and, if so, whether a royalty must be paid.

License violations may be identified in a number of ways, including by use of machine vision, but in all cases, for a card image to be authentic (and thus valuable), it must have been authenticated by its creator.

## How will you deal with inappropriate user content?

Any blockchain project allowing its users to express themselves through media will face the issue of handling inappropriate content. Since our intent is for *Volition* to be a family-friendly CCG, there are several strategies we can use to curtail inappropriate content.

The approach most suitable for mainstream consumption is to simply ensure that customizations are either assembled from a pre-approved pool of content (à la LEGO or *Minecraft*) or to require customizations to be obtained only from a trusted pool of content creators and/or be explicitly reviewed by a team of trusted moderators prior to publication.

For example, if a major license is introduced to the game, cosmetic customizations might be limited to those offered by a team of artists who are authenticated and agree to specific content guideline terms. Alternatively, the licensor might want to give players free-reign to create their own customizations but require a moderated review process.

In a more free-wheeling “crypto-libertarian” scenario, we can still rely on a terms of use that outlines what we consider inappropriate content and a side service for reporting



such content. The protocol itself may also have a self-governing feature that allows users to flag content. In this latter case, filtering of flagged content may be configured by browsers and limited accounts may be created with parental controls. If a large enough group of players agrees that certain content is inappropriate, a user would then have to opt-in to see that content.

In all of these scenarios, it's important to remember that there is a real cost to players to customize their cards. They will at least have to pay transaction fees to record their customization, and if customizations are weighted significantly against other transaction types, those fees could be high.

While some users will try to find ways to create inappropriate content, their card collections are tied in a real way to their accounts and, in the case of organized play, their unique, real-world identity. Given the cost of customizing a card, we expect most users to be unwilling to risk the penalty for creating inappropriate content.

It is also worth noting that content does not have to be recorded in the ledger itself. It is acceptable to record the content's URL and its hash. In this way, miners and blockchain clients will not be required to download and store arbitrary user-generated media; the media may be fetched and verified on demand.

## How will you catch cheaters?

It's up to players and groups of players to decide how much they care about people who print and use cards they do not own. Just as a free market sets the price of booster packs, players are free to value (or not value) asset ownership as they see fit.

All individual cards will have a unique, scannable code (or other machine-readable feature) that will allow anyone who cares to scan them to identify ownership and validity.

Another interesting feature of the blockchain is that if you know a player's identity, you can digitally verify that they own a card. This can be done online using a browser application, or in-game using a device.

Checking and enforcement may be done sporadically. It may not take repeated checking to discourage cheating. The risk of being caught and embarrassed even once may be enough.

Organized play can also be a deterrent to cheaters. To play in a sanctioned tournament or to win a prize, players will need to prove that they own the cards they are playing. Again, while easy to enforce completely, even partial enforcement may suffice.

## How will organized play work?

In the spirit of decentralization and allowing others to build on our platform, the protocol's identity system to allow users to create their own sanctioning bodies and organizations. Any user may create a player organization and authorize judges. Players may then opt-in to those organizations and allow themselves to be ranked at sanctioned events. The blockchain will then retain an immutable and secure record of every match held at the event and its outcome.

In addition to organized play, there is also the possibility to create interesting prize structures that miners and players can opt-in to. For example, a special series of sets may be released that are optimized for tournament play. These sets may have a unique fee structure in which a portion of booster pack sales is set aside for a prize pool.

## How will booster drafts work?

Booster drafts may be facilitated by a trusted organizer. While players might print booster packs, hold a draft and then agree to trade the drafted cards at the end of the game, it is also possible to print a "transfer code" for each card in the pack using a special layout meant just for booster drafts. The transfer codes, optionally appended to the bottom of the card and folded under, may be used by anyone who scans them to claim the card. During the draft, it will be obvious if anyone is trying to steal cards, but once the draft is over, players may easily claim the cards they hold.

## How does the publisher of *Volition* make money?

As part of the protocol, a percent of each transaction fee is sent to us. While players could do an end-run around us for some kinds of transactions (by selling their packs or cards on eBay, for example) we expect the convenience and security of transacting through the protocol to make that fee worthwhile. Also, in-game effects (such as powering-up cards) can only happen through the protocol.

## How can retail shops and play spaces make money?

Retailers and play spaces are an important part of the hobby game ecosystem. We will explore a retail affiliate program in which inventory and special in-game assets are made available to our partners.

Most directly, retail shops can sell booster packs or cards for VOL from a scannable code on a poster at the store. Shops may also sell cards using a scratch ticket or may pre-print cards or packs along with their transfer codes. Some shops may want to invest in leasing or buying a print-on-demand kiosk. It is up to each shop to determine the format best suited to their needs.

Retail shops and play spaces can also run booster drafts and tournaments.

## Will you allow third-party apps and services?

We welcome an ecosystem around the *Volition* blockchain. We invite anyone to build applications and services on top of our protocol. Developers may want to build their own wallets, exchanges, card customization tools, card printing tools, card validation scanners, tournament management apps, directory browsers and even electronic or online versions of the game.

We also encourage any commercial POD provider to integrate with the blockchain and offer high-quality, professionally printed versions of the cards to anyone who wants to buy them directly.

## Why are you the right team for this project?

We're a passionate founding team with deep experience in designing and publishing CCGs as well as video games, software development and crypto. We been involved in numerous ventures, both as founders and as founding employees. We're excited by the possibilities for a hobby game blockchain and have the entrepreneurial, technical and creative experience to pull it off.

## Founders

**Ken Pilcher** shares an Origin Award with Josh Lytle for *The Spoils*. After Arcane Tinmen's acquisition of *The Spoils*, Ken ran all aspects of the game's design, development, manufacturing and distribution for five years. In addition to being a CCG design expert, Ken is a cryptocurrency enthusiast and evangelist.

**Patrick Meehan** is a software developer who directed the *Magi Nation* video game before founding Tenacious Games, where he developed the art and creative content of *The Spoils*. Patrick continued his career as a developer, and is the architect and lead contributor to Moai SDK, an open source game development framework that was used to create a number of noteworthy indie titles including *Crimson: Steam Pirates* and *Strikefleet Omega* from Harebrained Schemes; *Broken Age* from Double Fine, and *Freedom Fall* from Stirfire Games.

**Scott Teal** has over a decade of experience in digital marketing and sales in the tech industry at startups and enterprise companies. He helped launch the Microsoft Store Online, and after taking a hiatus to read for his PhD in English from the University of Oxford, he returned to the tech world to help companies like Microsoft Xbox, Disney, and Levi's build their digital analytics programs.

## Advisors

**David Hoppe** is a 20+ year veteran of the games business having held senior management positions with Wizards of the Coast (Hasbro) and The Upper Deck Company, publishers of *Magic: The Gathering*, *Pokémon* and *Yu-Gi-Oh!* trading card games. In addition to founding a cross-platform game development company and consulting for multiple game startups, David spent five years at Microsoft leading business development for MSN Games and Xbox LIVE subscriptions. For three years he was General Manager at RealNetwork's GameHouse division where he was responsible for all global publishing of F2P mobile, PC and web games. This unit was spun out of RealNetworks and became Blastworks, Inc., a 60-person Seattle and Victoria, BC based mobile game studio, where David served as VP of marketing and data engineering. David is currently president of Gen Con LLC, owner and operator of Gen Con, the largest tabletop gaming convention in the U.S. which each year attracts more than 60,000 gaming enthusiasts to Indianapolis for "The Best Four Days in Gaming™."

**Timothy Shields** is marketing consultant a premier event organizer for the trading card game industry with over a 25 year track record. As the owner of Cascade Games LLC, he has managed and promoted over five thousand trading card game tournaments. His team broke the world's record for the largest TCG event with over 9,000 unique players playing in the same event at one time as well as over 30,000 player entries over the weekend of Grand Prix Las Vegas. His client list includes virtually all major trading card games including *Magic: The Gathering*, *Pokémon*, and *Yu Gi Oh!*. As a marketer, Tim has been part of the team that has designed and implemented launch and player acquisition strategies for *Magic: The Gathering* Premier Organized Play, Upper Deck, Ultra Pro and many other publishers.

**Josh Lytle** is the Origin Award-winning game system designer behind *Magi Nation* (Interactive Imagination) and *The Spoils* (Tenacious Games/Arcane Tinmen). Josh also ran set design for *The Spoils* from its open beta until its fourth set. Josh continued his career after Tenacious Games as a successful mobile app developer.

**Donald Farmer** is globally recognized as a visionary Product Leader, sought after speaker, patent holder and author who has built and executed BI and AI strategy for industry leaders Microsoft and Qlik, and numerous startups and mid-stage companies.

## In summary, what are the core ideas?

### Why crypto?

- Strong ownership of assets.
- Mineable booster packs.
- Anyone can set up a node and mine packs.
- Unique, customizable assets.
- A free market sets the price of all assets and transactions.
- *Mad gainz.*
- *To the moon.*
- *Much wow!*

### Why a physical CCG?

- We like tangible games.
- We want to demonstrate a novel way to publish a hobby game.
- Digital-to-physical assets are new and interesting.
- If our publishing model works, more games will follow.
- Digital games can still be created based on our blockchain—by anyone.

### Why print-on-demand?

- Cuts out the supply chain.
- It's all cardboard and ink anyway.
- Absence of middlemen lowers prices.
- Printing cards can be a hobby in its own right.
- Allows for strong customization.
- The game is low risk to adopt.

### What kind of game will it be?

- It will be a CCG in the vein of *Magic*, *Hearthstone*, and *The Spoils*.
- We're going to change up the theme every set.
- We'll provide reference art suitable for any kind of printing.
- You can customize cards with your own art.
- You can sell art, including limited editions and one-offs.