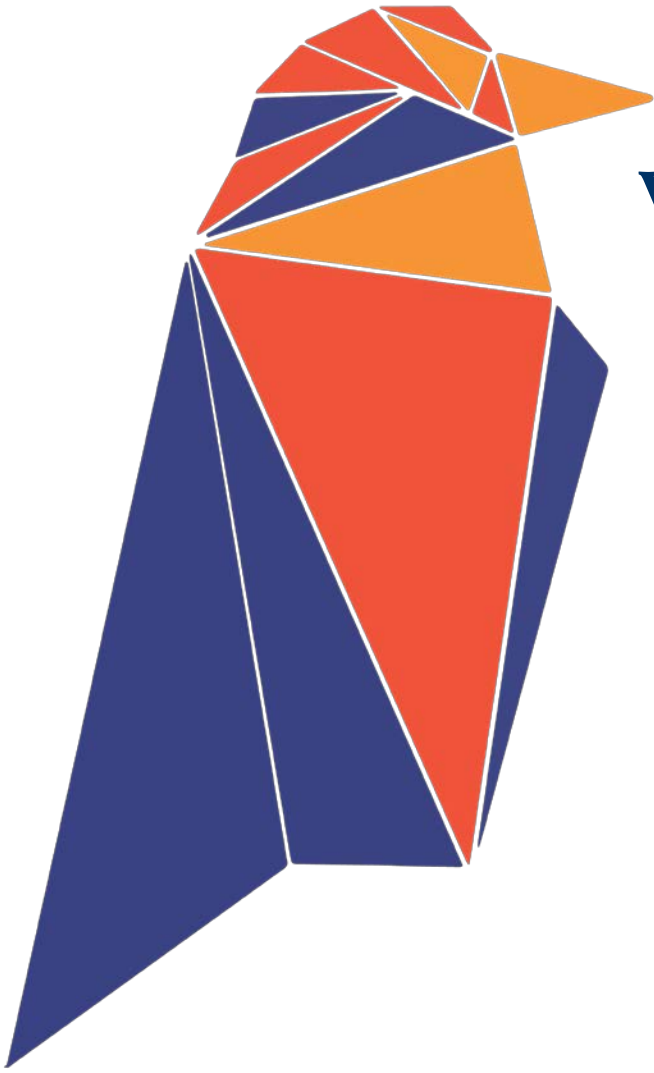


# BLOCKCHAIN ASSETS...



Working in the Intersection of  
Technology & Law on  
**RAVENCOIN**

**DOUGLAS J. PEPE**  
Ravencoin Asia - Seoul (2019)

# WHAT EXACTLY IS A BLOCKCHAIN ASSET??

# It All Starts With Satoshi's Ledger

## Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto  
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www.bitcoin.org

**Abstract.** A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

### 1. Introduction

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not really possible, since financial institutions cannot avoid mediating disputes. The cost of mediation increases transaction costs, limiting the minimum practical transaction size and cutting off the possibility for small casual transactions, and there is a broader cost in the loss of ability to make non-reversible payments for non-reversible services. With the possibility of reversal, the need for trust spreads. Merchants must be wary of their customers, hassling them for more information than they would otherwise need. A certain percentage of fraud is accepted as unavoidable. These costs and payment uncertainties can be avoided in person by using physical currency, but no mechanism exists to make payments over a communications channel without a trusted party.

What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party. Transactions that are computationally impractical to reverse would protect sellers from fraud, and routine escrow mechanisms could easily be implemented to protect buyers. In this paper, we propose a solution to the double-spending problem using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions. The system is secure as long as honest nodes collectively control more CPU power than any cooperating group of attacker nodes.

1

By now, most people know what Bitcoin is...

- Decentralized Ledger
- Trustless & Immutable
- Store & Transact Value



Credit: S. Nakamoto (2008)

# Unlimited Possibilities

- Blockchain is not limited to money & finance
- “Use cases” are as broad as the imagination...

Voting

Identity Systems

Recordkeeping

Patents

Artwork

Music Streaming

Wills/Trusts

Big Data Storage

Chain of Title

# Enter Ravencoin

## Ravencoin: A Peer to Peer Electronic System for the Creation and Transfer of Assets

Bruce Fenton  
Tron Black  
www.ravencoin.org  
3rd April 2018

*In the fictional world of Westeros, ravens are used as messengers who carry statements of truth. Ravencoin is a use-case focused blockchain designed to carry statements of truth about who owns what assets.*

Thank you to the Bitcoin founder and developers. The Ravencoin project was launched based on the hard work and continuous effort of over 430 Bitcoin developers who made over 14,000 commits by the date of the Ravencoin code fork. We are eternally grateful to you for your diligence in making a secure network and for your support of free and open source software development. The Ravencoin project is built on the foundation you built.

**Abstract.** Ravencoin is a blockchain and platform optimized for transferring assets, such as tokens, from one holder to another. Based on the extensive development and testing of the UTXO model of the Bitcoin protocol, Ravencoin is built on a fork of the Bitcoin code. Key changes include a block reward time of one minute, a change in the number of coins issued, but not the weighted distribution schedule and the addition of asset creation and messaging capabilities. Ravencoin is free and open source. All Ravencoin (RVN) are fairly issued and mined publicly and transparently using Proof of Work (POW) using the x16r algorithm which was created for Ravencoin. There is no private, public, founder, or developer allocation set aside. Ravencoin is intended to prioritize security, user control, privacy, and censorship resistance. It is open to use and development in any jurisdiction, while allowing simple additional features for users based on need.

### 1. Introduction

A blockchain is a ledger showing the quantity of something controlled by a user. It enables one to transfer control of that digital representation to someone else. Of the many possible uses for blockchain technology, the reporting of who owns what is one of its core functions. This is likely why the first, and to date most successful, use case for blockchain technology has been Bitcoin, which was announced by Satoshi Nakamoto on October 31, 2008[1].

## Ravencoin allows us to use Satoshi's ledger to...

- Create and transfer interests in *real world* assets
- Trustless & Immutable
- Store & Transact Ownership

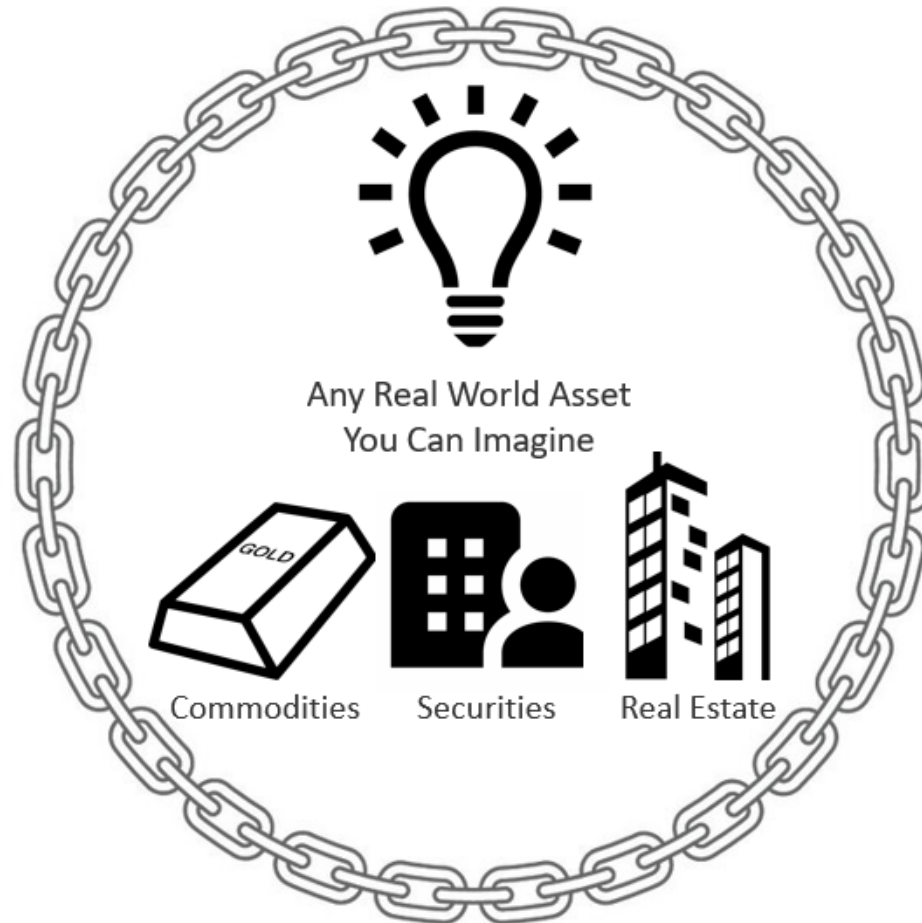
Credit: B. Fenton and T. Black (2018)

# What *is* a Blockchain Asset?

**Blockchain Assets can be almost anything...**

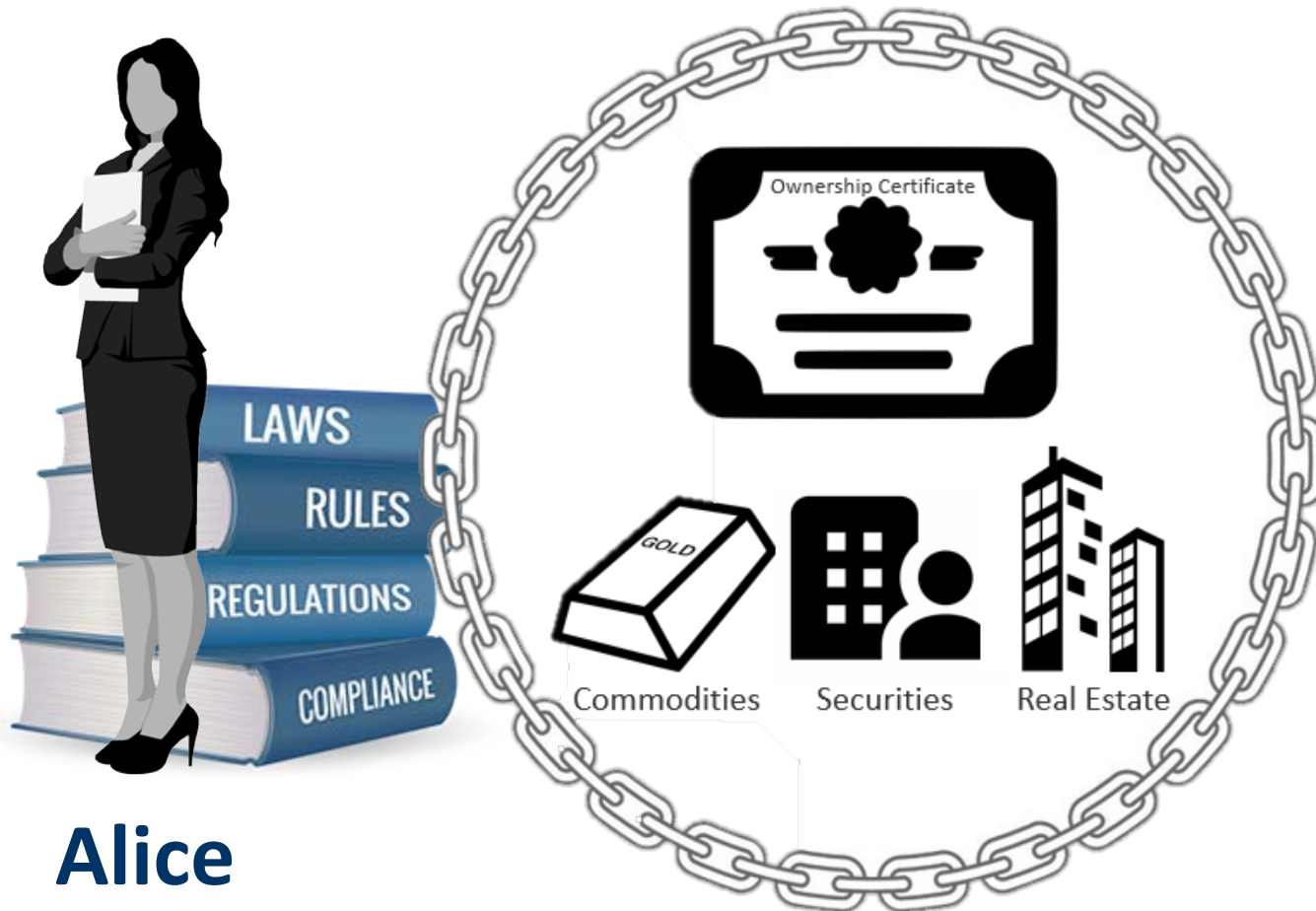


**Alice**



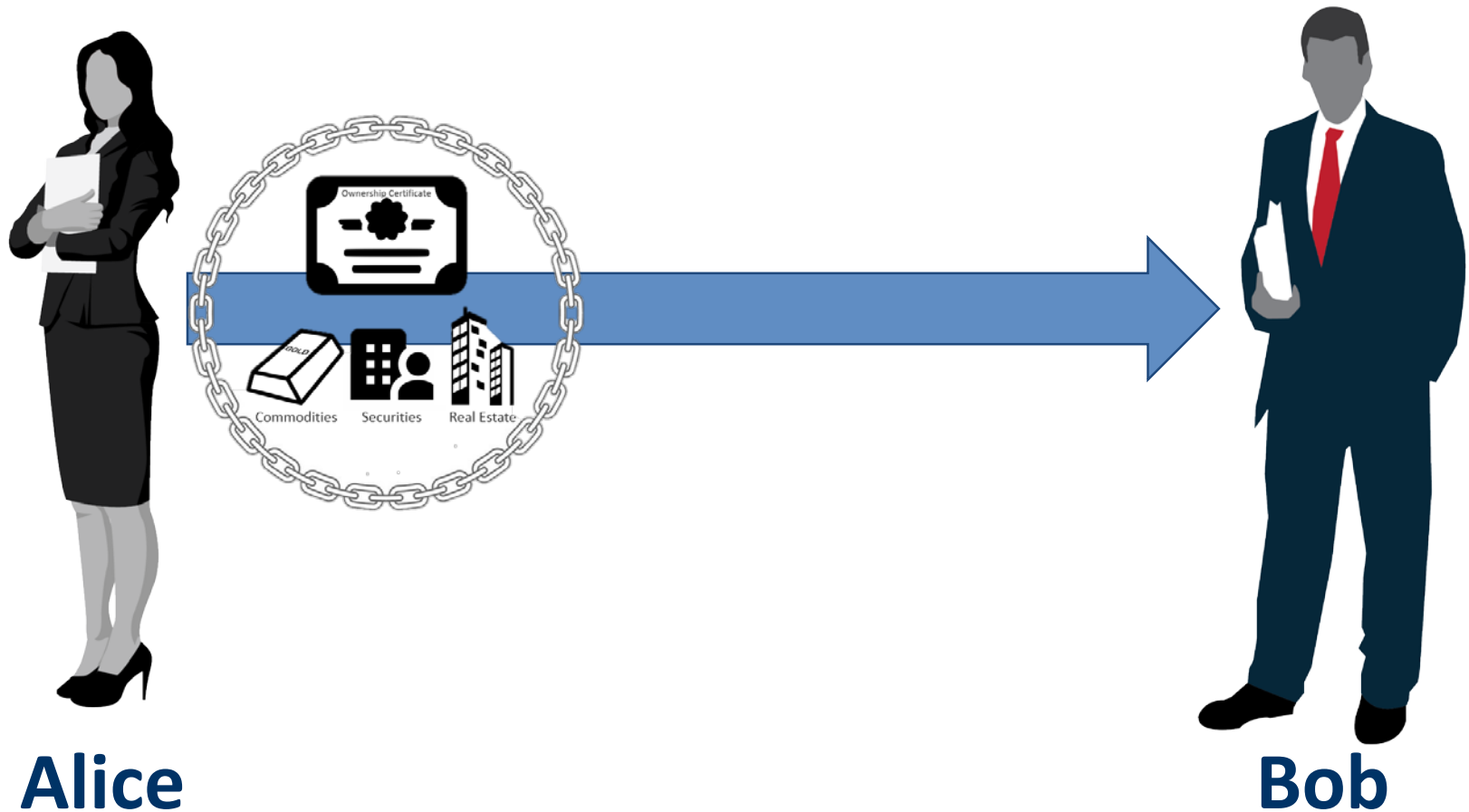
# What *is* a Blockchain Asset?

Ravencoin allows you to bind legal ownership of a *real* asset with the *blockchain* asset in your jurisdiction



# What *is* a Blockchain Asset?

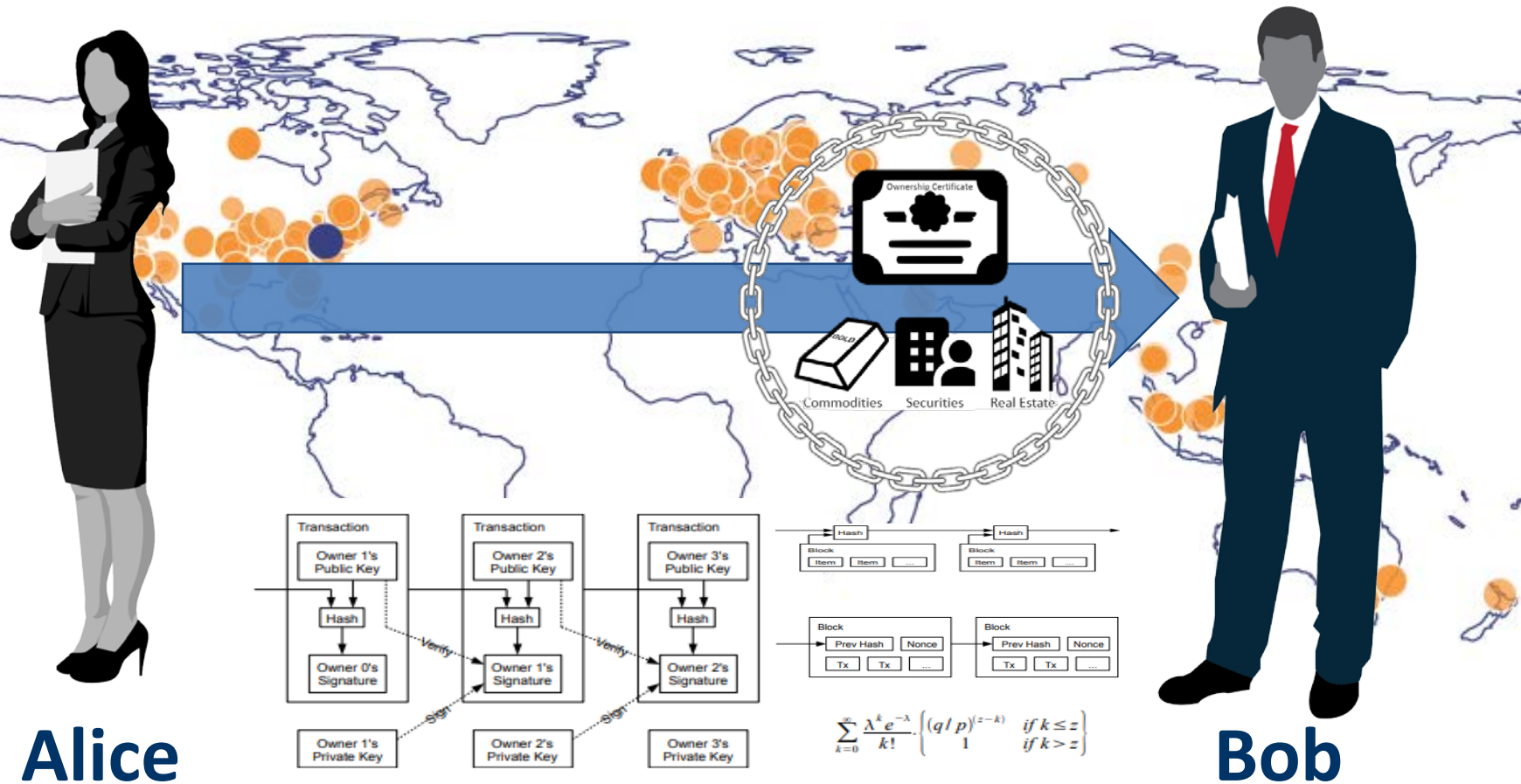
Alice can use the Ravencoin ledger to transact in real world assets on *trustless basis* (no 3d party)





# What is a Blockchain Asset?

Her transaction is cryptographically secured on the blockchain through a decentralized network



**WHAT DOES MANGO FARM  
HAVE TO DO WITH THIS?**

# What is Mango Farm?

**Mango Farm exists to make blockchain assets easy**

[Mango Wallet](#) [Asset Builder](#) [Asset Viewer](#)




# MANGO FARM

Blockchain Assets ... Made Easy

# Three Tools for Ravencoin Assets

## *Asset Builder*



The screenshot shows the 'Asset Builder' interface of the Mango Farm application. The top navigation bar includes 'Mango Farm', 'MainNet', 'TestNet', 'Mango Wallet', 'Asset Builder', and 'Asset Viewer'. The 'Blockchain Data (required):' section contains fields for 'Asset Symbol', 'Qty' (set to 1), 'Subunits' (set to 0), and a 'Redeemable' checkbox. The 'Metadata (optional):' section includes fields for 'Full Asset Name', 'Issuer', 'Description', 'Website', 'Type', 'Keywords', 'Contact Name', 'Street, City, State, ZIP', 'Restrictions', 'Sale Price' (set to RVN), and 'Contact Email'. The 'Attachments (optional):' section features three icons: 'Upload File', 'Create Document', and 'Add URL'. A 'Preview Asset' button is located at the bottom.

Create an asset with

- Full Metadata
- Attachments (files, videos and URLs)
- *Legal Documents*

New Release:  
Encryption

# Encryption: Private Info on a Public Blockchain

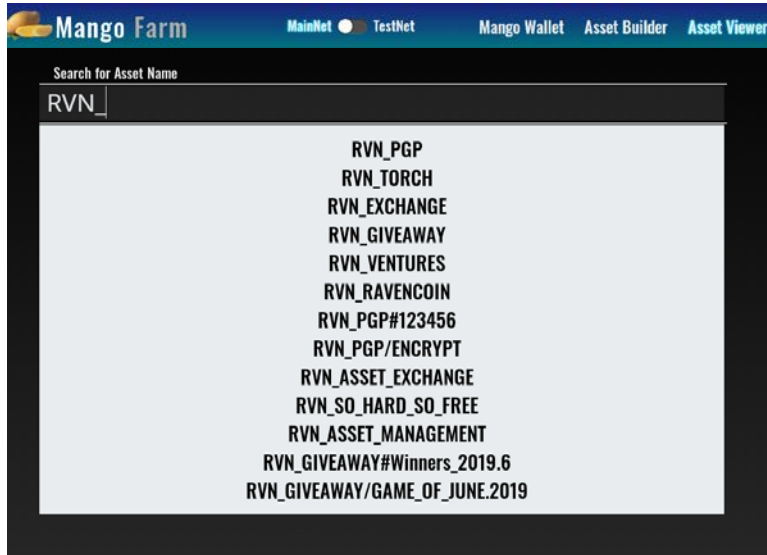


**“I very much wanted to find some way to include a short message, but the problem is, the whole world would be able to see the message”**  
**– Satoshi Nakamoto (2010)**

**Satoshi Didn't Have Mango Farm!**

# Three Tools for Ravencoin Assets

## Asset Viewer

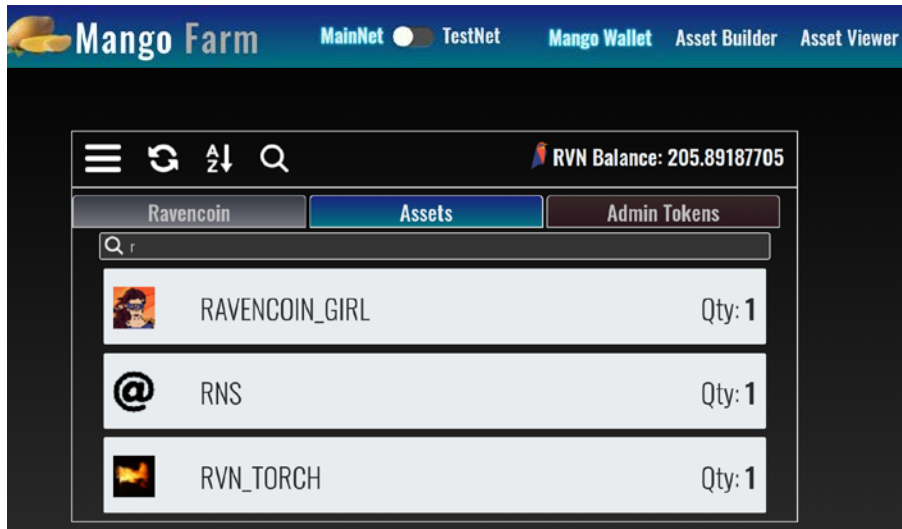


- Locate any RVN asset with a simple search feature
- View & send asset information by email/social media
- Transfer the asset (if you own it)



# Three Tools for Ravencoin Assets

## *Mango Wallet*



- Store, send and receive RVN, Assets and Admin Tokens
- Search and sort assets in your wallet
- Click any asset to view its metadata and attachments



# New Innovations and Features

**At Mango Farm, we are constantly working to bring you new features and innovations:**

- 1st asset-aware web wallet, which we built from the ground up for desktop & mobile**
- Trezor hardware wallet support**
- Designed and implemented a new encrypted metadata system, allowing you to put private information on the public RVN blockchain**

**Stay tuned, there is much more coming...**



# Blockchain Assets ... Made *Easy*

Our goal at Mango Farm is to *make blockchain assets easy*



So YOU can *tokenize the world one asset at a time*

# THANK YOU FOR THE PRIVILEGE TO SPEAK WITH YOU TODAY

Douglas J. Pepe

Mango Farm

<https://www.mangofarmassets.com>

Twitter: @MangoFarmAssets

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