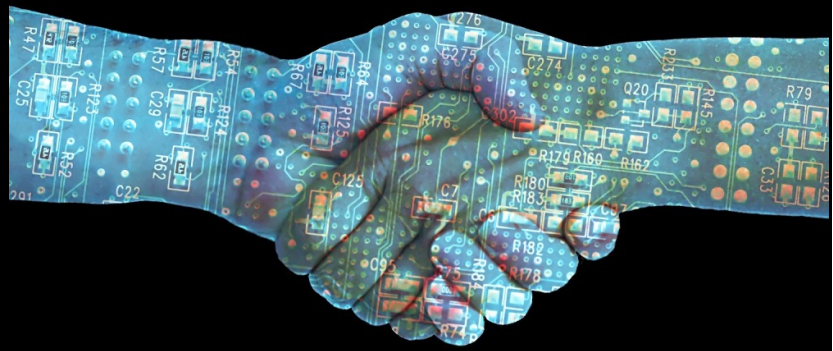
Bitcoins and Blockchains

Ronald L. Chichester

Advanced Business Law Conference
November 17, 2016
Dallas, Texas



Overview

- What are *Bitcoins*?
- Why should I care?
- What are *Blockchains*?
- Why should I care?

What are *Bitcoins*?

Bitcoins are a cryptocurrency

Bitcoins are a property that has value

$715.13 as of Tuesday

@3 PM, CST

But more importantly...

Bitcoins are

without

or

Why should I care?

Bitcoins are

without

or

Press Release

SEC Charges Bitcoin Entrepreneur With Offering Unregistered Securities

FOR IMMEDIATE RELEASE
2014-111

Washington D.C., June 3, 2014 — The Securities and Exchange Commission today charged the co-owner of two Bitcoin-related websites for publicly offering shares in the two ventures without registering them.

An SEC investigation found that Erik T. Voorhees published prospectuses on the Internet and actively solicited investors to buy shares in SatoshiDICE and FeedZeBirds. But he failed to register the offerings with the SEC as required under the federal securities laws. Investors paid for their shares using Bitcoin, a virtual currency that can be used to purchase real-world goods and services and exchanged for fiat currencies on certain online exchanges. The profits ultimately earned by Voorhees through the unregistered offerings totaled more than $15,000.

Related Materials

- SEC order
- Investor Alert: Bitcoin and Other Virtual Currency-Related Investments

This is **not** a new idea

Many Previous Examples


PLACE
TALBOTS
L.L.Bean
LANDS' END
AMERICAN EAGLE OUTFITTERS
$25
AÉROPOSTALE
the Gift of Style
TJ-maxx
BABIES R US
DISNEY GIFT CARD
FOREVER 21
sears
just for you!
Gordmans
bebe
aerie
LOVE
THE REAL YOU
EXPRESS
GIFTCARD
MAKE YOUR OWN STUFFED ANIMAL!
PETSMART
petco
rue21
dress smart.
dressbarn
HOT TOPIC
AÉROPOSTALE
New York
Marshalls
So many gifts in just one little card.
PERFECT GIFTS START HERE!
Just Sign & Give!
massage, facials, yoga & more
Spafinder
Justice
claire's
HOLLISTER
carter's
OSHKOSH
GYMBOREE
THE WORLD'S BEST GIFTS START HERE!
Bath & Body Works
SKECHERS
Zappos
maternity
buy buy BABY
A GIFT
SEPHORA
amazon
TORRID
GIVE 'EM GREAT SNEAKERS
GiftCard
PACSUN
H&M
ebay

What is different is...

Ubiquity

What are Blockchains?

Blockchains are the underlying technology for Bitcoins

Why should I care?

Because Blockchains can be used for more than just Bitcoins


CONTRACT
This Agreement contain the entire agreement
of this Agreement, All parties shall act to
and supersede all prior negotiations, agreements and
actor agrees to indemnify and hold harmless the
ason of the liability or potential liability of the contract

Entered in the Register Book

Vol. 5829 Fol. 116578

VICTORIA.

1-FEB 1933 FEE

Certificate of Title,

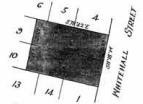
UNDER THE "TRANSFER OF LAND ACT 1928."

The Mayor Councillors and Citizens of the City of Footscray is- - - - - - - -
now the proprietor of an Estate in Fee-simple, subject to the Encumbrances --
notified hereunder in All that piece of Land, delineated and coloured --
red on the map in the margin containing Two acres One rood and Eight perches or ------
thereabouts being Crown Allotments Two and Three Section Fifteen City of Footscray-
Parish of Cut Paw Paw County of Bourke- -

Dated the Twenty-fourth day of January
thousand nine hundred and thirty-three.

J. Renard
Assistant Registrar of Titles

ENCUMBRANCES REFERRED TO



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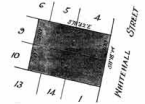


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Parish of Cut Paw Paw County of Bourke
Dated the Twenty-fourth day of January
thousand nine hundred and thirty-three.
Assistant Registrar of Titles
ENCUMBRANCES REFERRED TO


SCRAM


CONTRACT
This Agreement contain the entire agreement
of this Agreement, All parties shall act to
and supersede all prior negotiations, agreements and
contractor agrees to indemnify and hold harmless the
reason of the liability or potential liability of


MARRIAGE LICENSE
GREETING


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(b) between five and eleven other
the overall aim that there shou
background and those with pro
body of knowledge from both ar

“Smart Contracts”

“Smart Property”

Decentralized Autonomous Corporations

Decentralized Blockchain Technology and the Rise of Lex Cryptographia

Aaron Wright
Yeshiva University - Benjamin N. Cardozo School of Law

Primavera De Filippi
Université Paris II - Panthéon-Assas

March 10, 2015

Abstract:
Just as decentralization communication systems lead to the creation of the Internet, today a new technology — the blockchain — has the potential to decentralize the way we store data and manage information, potentially leading to a reduced role for one of the most important regulatory actors in our society: the middleman.

Blockchain technology enables the creation of decentralized currencies, self-executing digital contracts (smart contracts) and intelligent assets that can be controlled over the Internet (smart property). The blockchain also enables the development of new governance systems with more democratic or participatory decision-making, and decentralized (autonomous) organizations that can operate over a network of computers without any human intervention. These applications have lead many to compare the blockchain to the Internet, with accompanying predictions that this technology will shift the balance of power away from centralized authorities in the field of communications, business, and even politics or law.

In this Article, we explore the benefits and drawbacks of this emerging decentralized technology and argue that its widespread deployment will lead to expansion of a new subset of law, which we term Lex Cryptographia: rules administered through self-executing smart contracts and decentralized (autonomous) organizations. As blockchain technology becomes widely adopted, centralized authorities, such as governmental agencies and large multinational corporations, could lose the ability to control and shape the activities of disparate people through existing means. As a result, there will be an increasing need to focus on how to regulate blockchain technology and how to shape the creation and deployment of these emerging decentralized organizations in ways that have yet to be explored under current legal theory.

Number of Pages in PDF File: 58

Keywords: Bitcoin, Blockchain, Cyberlaw, Cryptocurrencies, Decentralization, Decentralized Autonomous Organizations, Internet, Information Law, Internet of Things, Smart contracts, Smart property

Just Remember...

Essentially...

Two or more Parties

Record something

pertaining to an Agreement

Put another way...

Fundamentally...

Verification + Automation

With **NO** *Intermediaries*

So...

What is a Blockchain?

A blockchain …
is a *shared* registry
that is made available
on a *shared* network

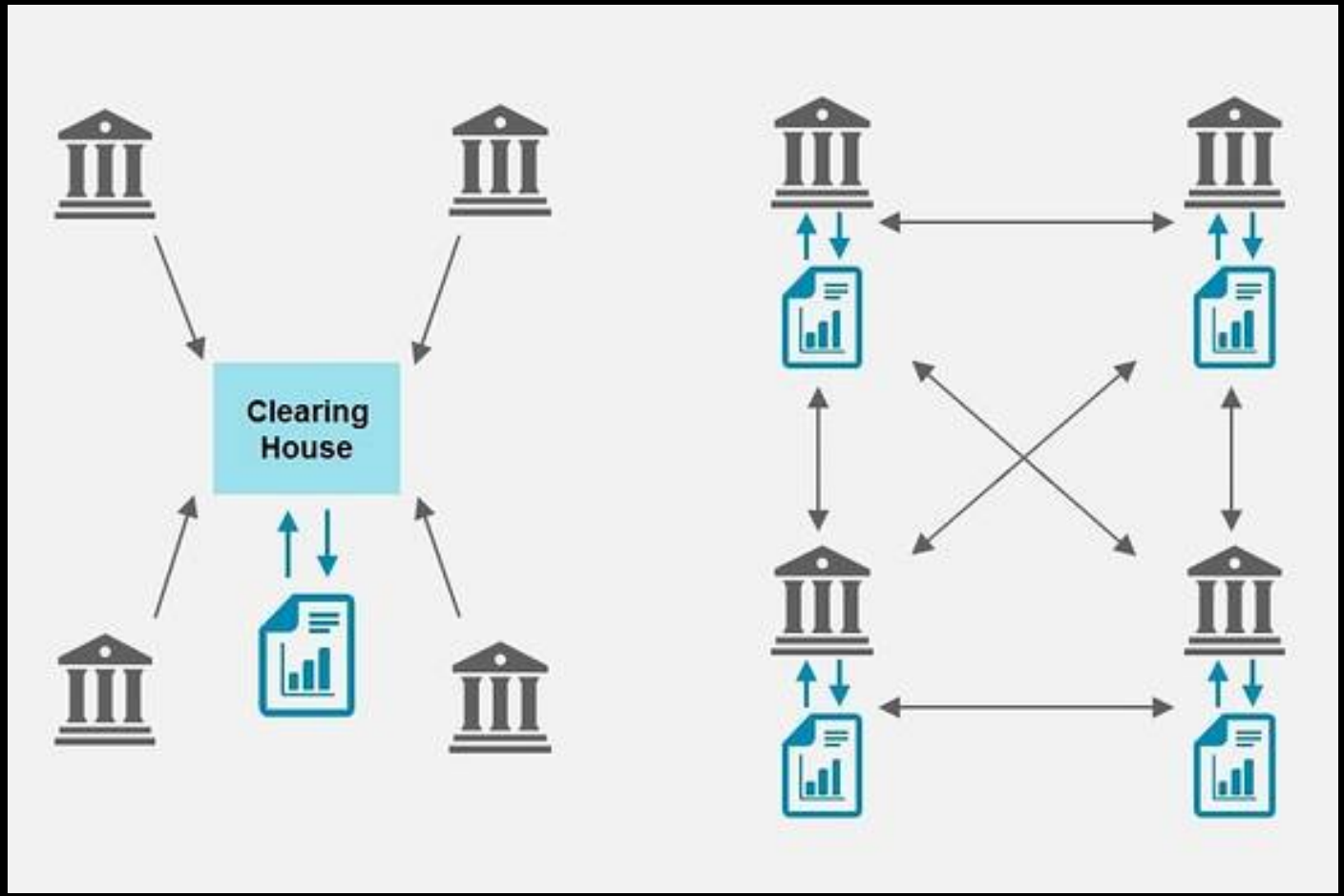


Image from the Wall Street Journal

Is the blockchain software expensive?

PACKAGE INDEX
Browse packages
Package submission
List trove classifiers
RSS (latest 40 updates)
RSS (newest 40 packages)
PyPI Tutorial
PyPI Security
PyPI Support
PyPI Bug Reports
PyPI Discussion
PyPI Developer Info
ABOUT
NEWS
DOCUMENTATION
DOWNLOAD
COMMUNITY
FOUNDATION
CORE DEVELOPMENT

blockchain 1.3.3

Blockchain API library (v1)

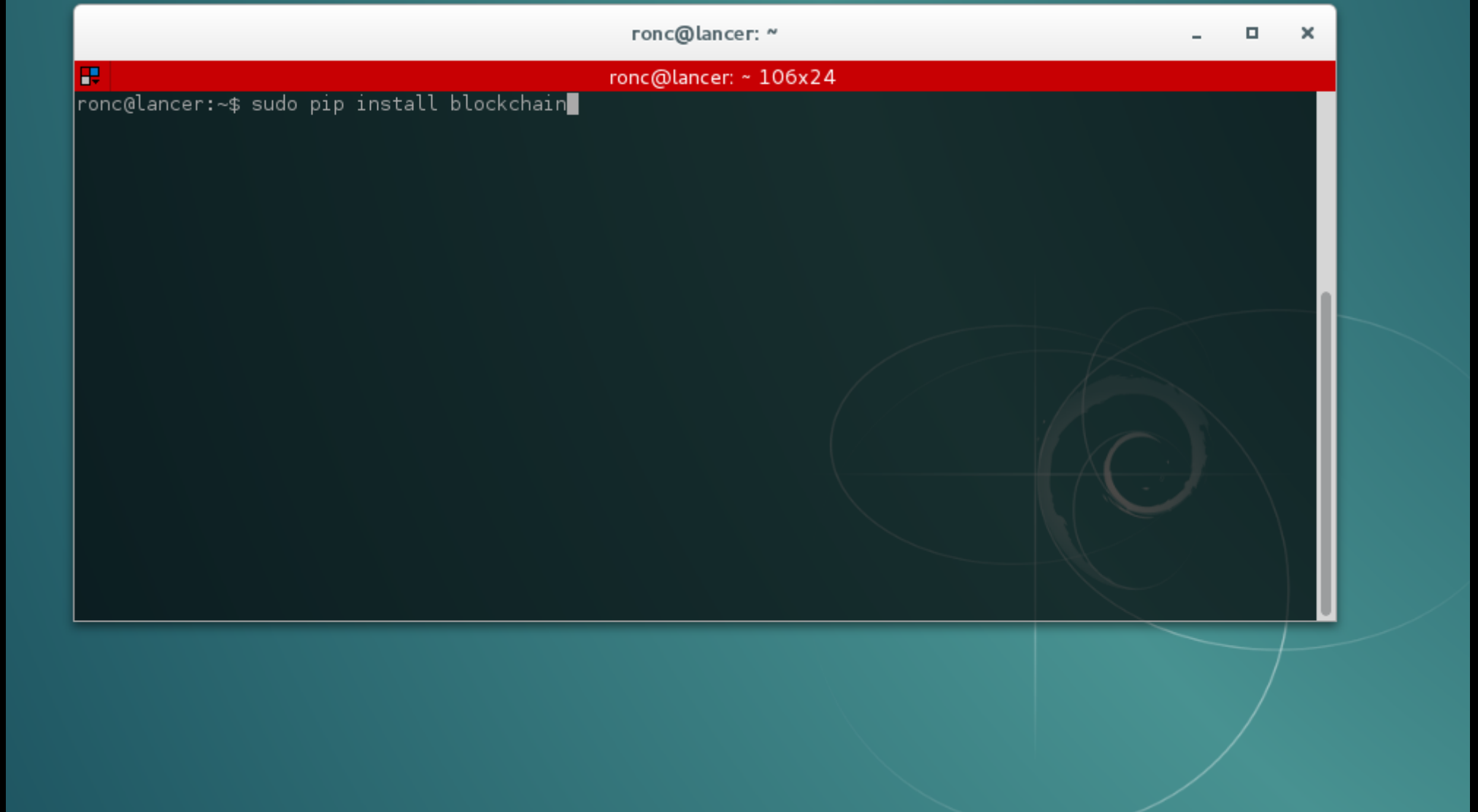
Download
blockchain-1.3.3.tar.gz

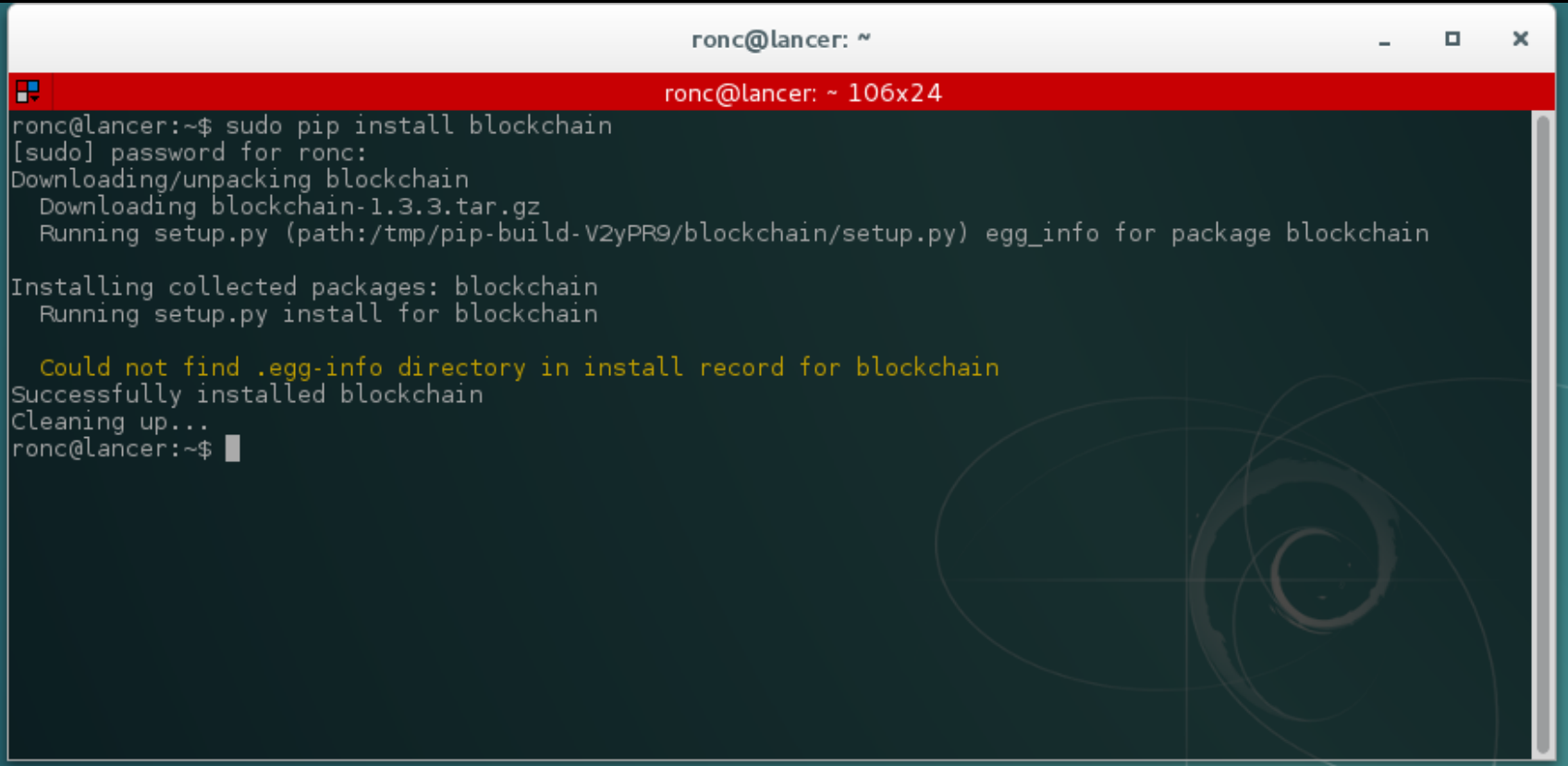
File	Type	Py Version	Uploaded on
blockchain-1.3.3.tar.gz (md5)	Source		2016-05-26

Author: Blockchain.info
Home Page: https://github.com/blockchain/api-v1-client-python
Keywords: blockchain.info api blockchain
License: MIT
Categories

- Development Status :: 5 - Production/Stable
- Intended Audience :: Developers
- Intended Audience :: Financial and Insurance Industry
- License :: OSI Approved :: MIT License
- Programming Language :: Python
- Programming Language :: Python :: 2.7
- Programming Language :: Python :: 3

Is the software hard to install?

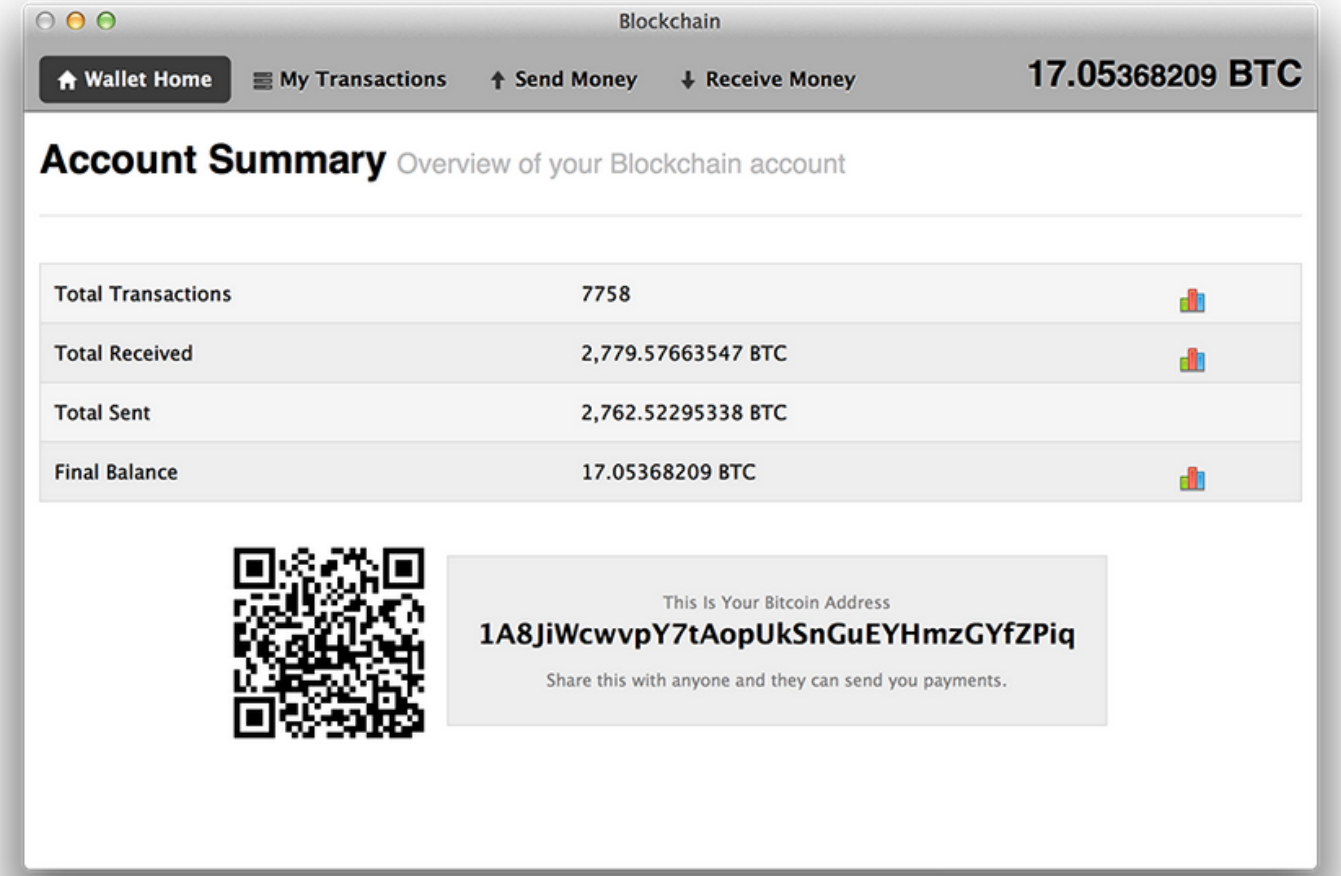

ronc@lancer: ~
ronc@lancer: ~ 106x24
ronc@lancer:~$ sudo pip install blockchain


ronc@lancer: ~
ronc@lancer: ~ 106x24
ronc@lancer:~$ sudo pip install blockchain
[sudo] password for ronc:
Downloading/unpacking blockchain
Downloading blockchain-1.3.3.tar.gz
Running setup.py (path:/tmp/pip-build-V2yPR9/blockchain/setup.py) egg_info for package blockchain
Installing collected packages: blockchain
Running setup.py install for blockchain
Could not find .egg-info directory in install record for blockchain
Successfully installed blockchain
Cleaning up...
ronc@lancer:~$

Blockchain for Mac

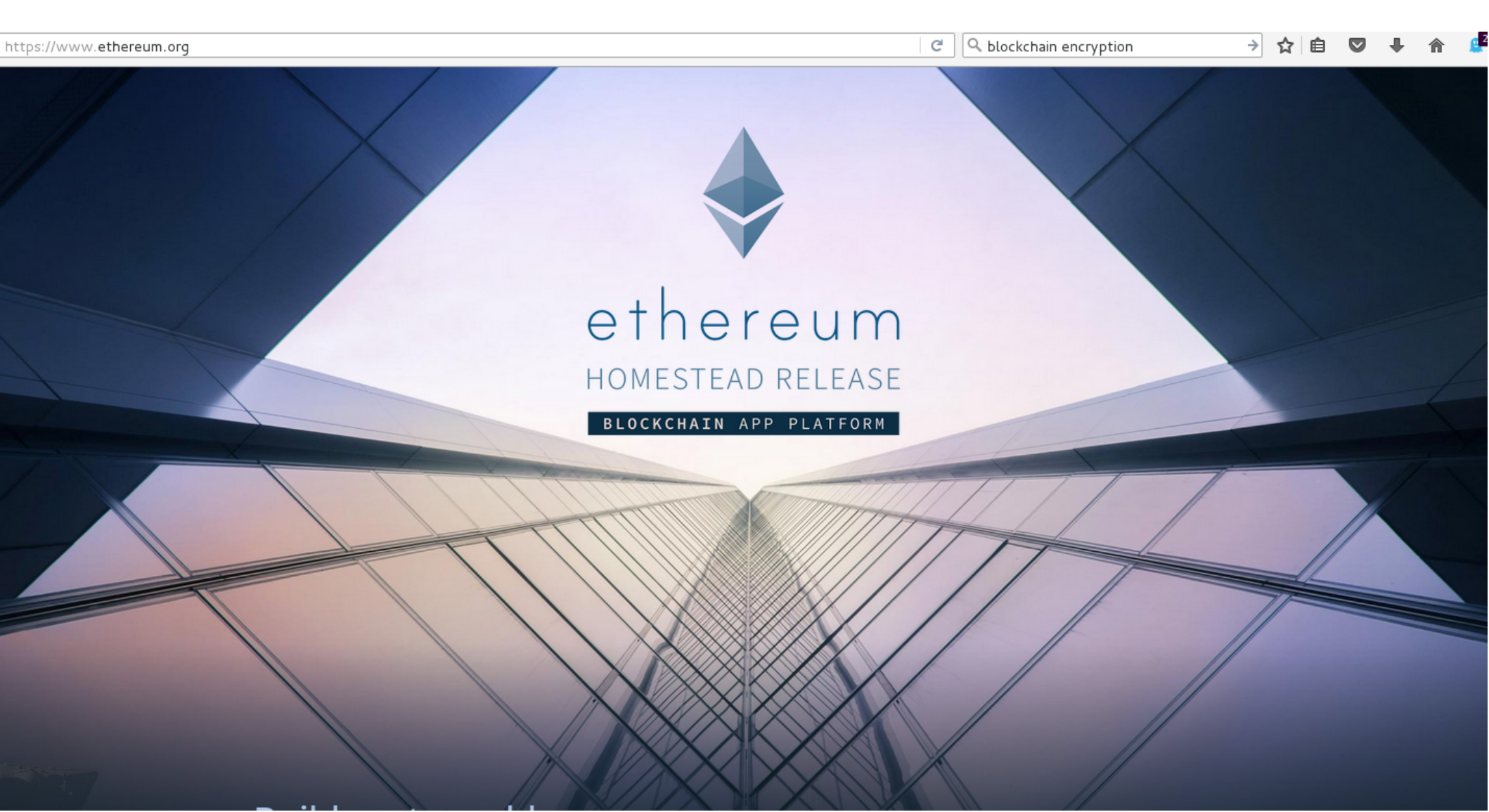
About the blockchain bitcoin client for Mac OSX.

One Wallet. Any Device



What kind of software is available?

Software for things like
“Smart Contracts”
that can be used for making
Decentralized Autonomous Corporations
using
“Smart Property”


https://www.ethereum.org
blockchain encryption
ethereum
HOMESTEAD RELEASE
BLOCKCHAIN APP PLATFORM

Build unstoppable applications

Ethereum is a **decentralized platform that runs smart contracts:** applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third party interference.

These apps run on a custom built **blockchain, an enormously powerful shared global infrastructure that can move value around and represent the ownership of property.** This enables developers to create markets, store registries of debts or promises, move funds in accordance with instructions given long in the past (like a will or a futures contract) and many other things that have not been invented yet, all without a middle man or counterparty risk.

The project was bootstraped via an ether pre-sale during August 2014 by fans all around the world. It is developed by the Ethereum Foundation, a Swiss nonprofit, with contributions from great minds across the globe.

On traditional server architectures, every application has to set up its own servers that run their own code in isolated silos, making sharing of data hard.

If a single app is compromised or goes offline, many users and other apps are affected.

On a blockchain, anyone can set up a node that replicates the necessary data for all nodes to reach an agreement and be compensated by users and app developers.

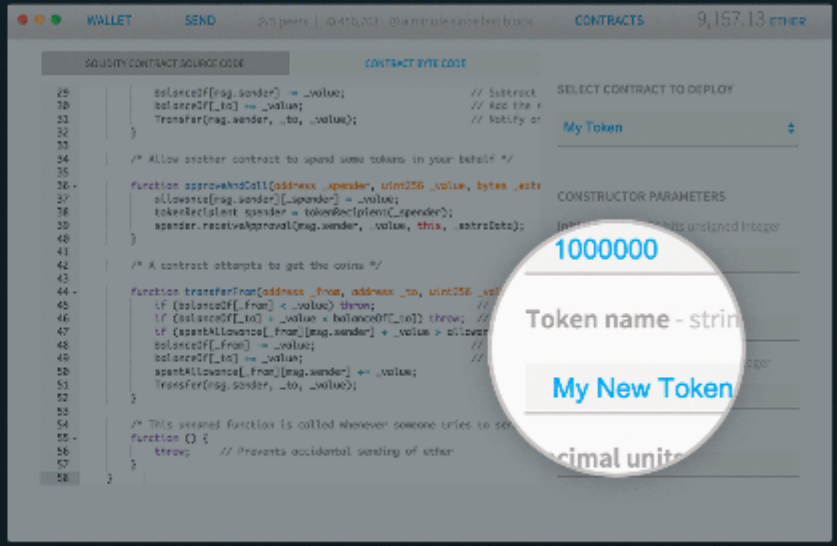
This allows user data to remain private and apps to be decentralized like the Internet was supposed to work.

Smart money, smart wallet

The **Ethereum Wallet** is a gateway to decentralized applications on the Ethereum blockchain. It allows you to hold and secure ether and other crypto-assets built on Ethereum, as well as write, deploy and use smart contracts.

DOWNLOAD
Ethereum Wallet for Linux

See all versions



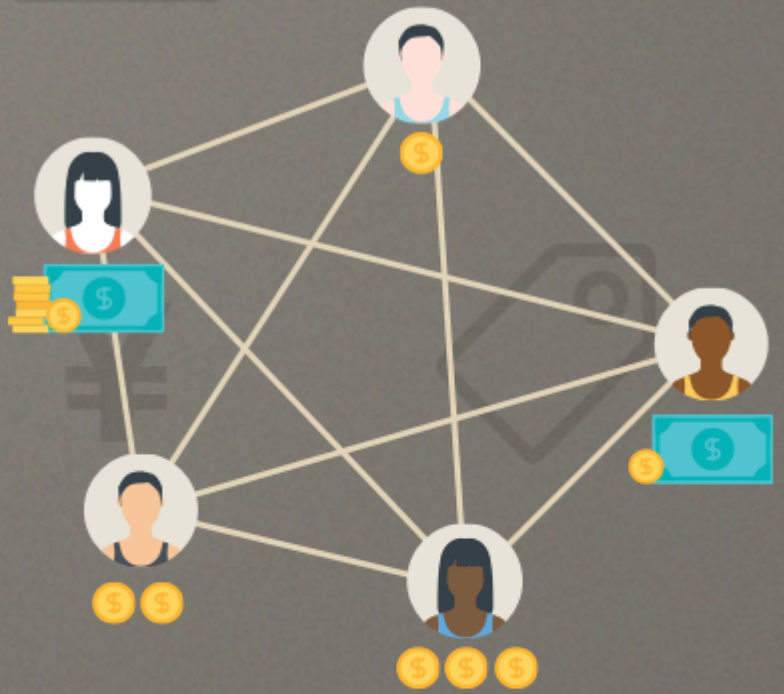
Easy template-based contract creation

DESIGN AND ISSUE YOUR OWN CRYPTOCURRENCY

Create a tradeable digital token that can be used as a currency, a representation of an asset, a virtual share, a proof of membership or anything at all. These tokens use a standard coin API, so your contract will be automatically compatible with any wallet, other contract or exchange also using this standard.

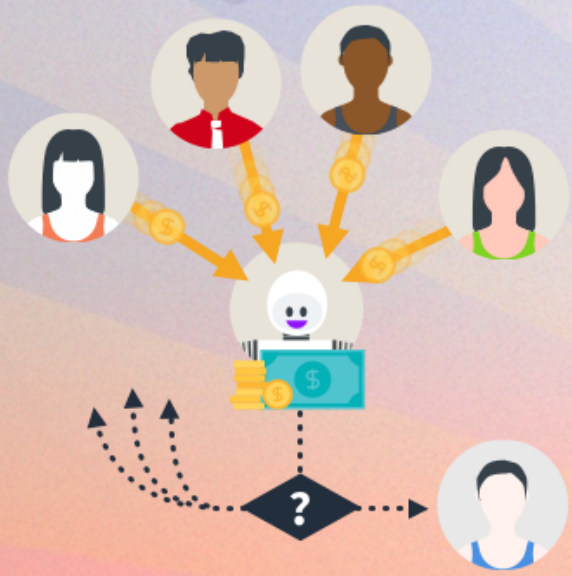
The total amount of tokens in circulation can be set to a simple fixed amount or fluctuate based on any programmed ruleset.

Issue your token



YOU CAN BUILD:

A tradeable token with a fixed supply
A central bank that can issue money
A puzzle-based cryptocurrency



KICKSTART A PROJECT WITH A TRUSTLESS CROWDSALE

Do you already have ideas that you want to develop on Ethereum? Maybe you need help and some funds to bring them to life, but who would lend money to someone they don't trust?

Using Ethereum, you can create a contract that will hold a contributor's money until any given date or goal is reached. Depending on the outcome, the funds will either be released to the project owners or safely returned back to the contributors. All of this is possible without requiring a centralized arbitrator, clearing house or having to trust anyone.

You can even use the token you created earlier to keep track of the distribution of rewards.

Kickstart your project

YOU CAN BUILD:

A crowdfund to pre-sell a product
A crowdsale to sell virtual shares in a blockchain organization
An auction of a limited number of items

CREATE A DEMOCRATIC AUTONOMOUS ORGANIZATION

Now that you have developed your idea and secured funds, what's next? You have to hire managers, find a trustworthy CFO to handle the accounts, run board meetings and do a bunch of paperwork.

Or you can simply leave all that to an Ethereum contract. It will collect proposals from your backers and submit them through a completely transparent voting process.

One of the many advantages of having a robot run your organization is that it is immune to any outside influence as it's guaranteed to execute only what it was programmed to. And because the Ethereum network is decentralized, you'll be able to provide services with a 100% uptime guarantee.

Start your organization

YOU CAN BUILD:

A virtual organization where members vote on issues

A transparent association based on shareholder voting

Build a new kind of decentralized application

Now it's your turn: start building what you dream of creating in Ethereum! Could your business be enhanced by operating on a cryptographically secure, decentralized, tamper-proof network?

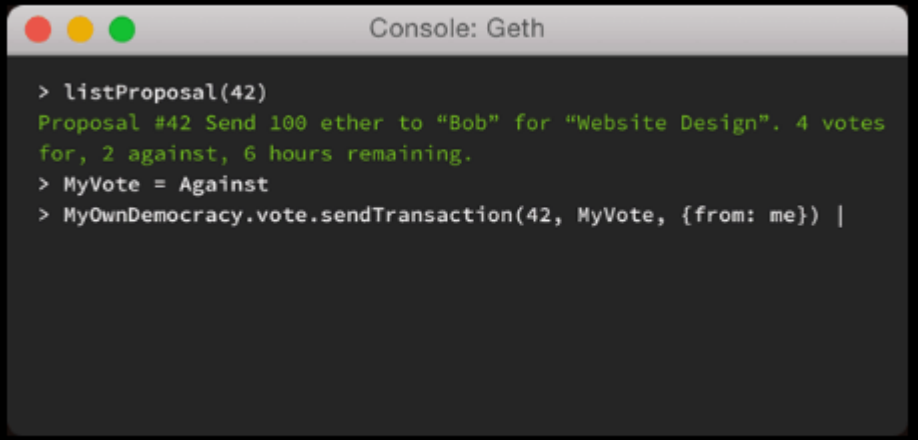
Check out the many great projects* already being built on Ethereum. And since you'll be among the first developers in the world that are able to program decentralized applications, some of them might need your help.

The above list is maintained by an independent party and the Foundation does not endorse its content or any particular project on that list

Get our command line tools

If you feel more comfortable around a terminal, you can download our command line tools. We have different client implementations built in Go, C++, Python, Java and others.

Install the Command line tools



Developer Resources

- What is Ether? Read our FAQ
- Source code on GitHub
- Read the Homestead Documentation
- Learn the Solidity Language
- Learn more on the Ethereum documentation and Ethereum Go Wiki
- See latest data on Network Stats
- Download our Logo assets
- Want to write about us? Press inquiries

Ethereum Foundation

Ethereum is developed by a worldwide team of passionate developers for the Ethereum Foundation, a Swiss nonprofit organization.

Donate to support development

(and you can get a unicorn!)

Community

 Blog

 Twitter

 Youtube

 Reddit

 Gitter

 Stack Exchange

 Facebook

Tweets

Tweets by @ethereumproject

Introduction to Smart Contracts
Installing Solidity
Solidity by Example
Solidity in Depth
Security Considerations
Style Guide
Common Patterns
Contributing
Frequently Asked Questions

Solidity

Solidity is a contract-oriented, high-level language whose syntax is similar to that of JavaScript and it is designed to target the Ethereum Virtual Machine.

Solidity is statically typed, supports inheritance, libraries and complex user-defined types among other features.

As you will see, it is possible to create contracts for voting, crowdfunding, blind auctions, multi-signature wallets and more.

Note

The best way to try out Solidity right now is using the Browser-Based Compiler (it can take a while to load, please be patient).

```
pragma solidity ^0.4.0;

contract Purchase {
    uint public value;
    address public seller;
    address public buyer;
    enum State { Created, Locked, Inactive }
    State public state;

    function Purchase() payable {
        seller = msg.sender;
        value = msg.value / 2;
        if (2 * value != msg.value) throw;
    }

    modifier require(bool _condition) {
        if (!_condition) throw;
        _;
    }

    modifier onlyBuyer() {
        if (msg.sender != buyer) throw;
        _;
    }

    modifier onlySeller() {
        if (msg.sender != seller) throw;
        _;
    }

    modifier inState(State _state) {
        if (state != _state) throw;
        _;
    }
```

technical

Pyethereum and Serpent Programming Guide

Posted by Vitalik Buterin on April 10th, 2014.

The content of this tutorial is intended to apply to PoC5. Most of the instructions given below will not work in the older PoC4 implementations of AlethZero (C++) and Ethereal (Go)

Over the last few weeks, we have made a large number of changes to the Ethereum protocol. POC4, introducing a large body of changes made by Gavin Wood and myself, was announced as an informal description two weeks ago, and has been formally specified in Gavin Wood's "yellow paper" at http://gavwood.com/Paper.pdf. The protocol spec did change substantially, but at the same time

Can I put Ethereum on the Cloud?

prashantsingh

Subscribe Share

How to host Ethereum on Digital OCean?

0

August 12, 2016 430 APPLICATIONS DIGITALOCEAN UBUNTU 16.04

I don't know whether I am asking right question in right way. I am quite new to cloud infracture. I am concerned about Does Digital Ocean provides installation of GUI apps on linux or it provides only shell(means can I install and work on GUI's of different applications or I have to work from command line only). I basically want to know how to host Ehtereum on Digital Ocean? Being more specific, I need to install Ethereum Wallet(Mist) to deploy a cryptocurreny. Mist provides GUI to carry out transactions from accounts. So can I install it on linux configuration provided by Digital Ocean, if yes How?

Log In to Comment

1 Answer

Sounds great!

But . . .

Can other people see what is on the ledger?

YES!

WIKIPEDIA
The Free Encyclopedia

Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia
Wikipedia store

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact page

Tools
What links here
Related changes
Upload file
Special pages
Permanent link
Page information
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Cite this page

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Languages
Add links

Augur (software)

From Wikipedia, the free encyclopedia

Augur is a fully open-source and decentralized prediction market platform built on Ethereum, a blockchain technology that allows for the execution of smart contracts. JavaScript is also used for a browser-based GUI supplementing the command line. Notable supporters of the project include Intrade co-founder Ron Bernstein, the Thiel Foundation[1] and Vitalik Buterin.

Early development of the software began in autumn 2014, and an alpha version was released in June 2015. From August to October 2015, a global crowdfunding campaign raised US $5.2 million in cryptocurrency to support future development.[2] A beta version was released in March 2016.[3] Live release is currently expected in Q4 2016.

Contents [hide]

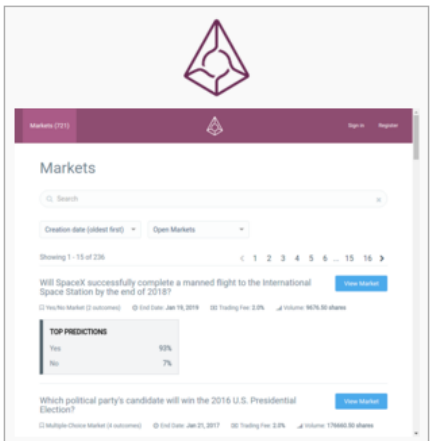
1 Purpose and background
2 Operation
2.1 Use of Ethereum
3 History
4 Academic and business affiliations
5 References
6 External links

Purpose and background [edit]

The Augur project seeks to leverage the open, global, peer-to-peer ledger functionality that blockchain technology provides, as well as game theory and financial incentives, to better explore the concept of the wisdom of crowds (also known as collective intelligence) and try to get more accurate predictions about future events.[4] The specific technologies used would theoretically allow for more participation and volume compared to traditional betting platforms, therefore augmenting the quantity of markets available and their accuracy.

On Augur, anyone, anywhere in the world can instantly create a market on his topic of choice (e.g. *Who will be the winner of the 2016 US Presidential Elections*), with no need for centralized approval, can freely participate in all markets, and will lose a minimal amount of money to fees. Another important advantage is the reduced possibility of fraud: monetary exchanges on the platform are strictly regulated by smart contracts and a distributed

Augur



Developer(s)	Forecast Foundation
Preview release	Beta / 14 March 2016; 7 months ago
Development status	Active
Written in	Serpent and JavaScript
Platform	Ethereum
Type	Prediction market platform
License	Free software (GPL)

Oh oh...

Is confidentiality possible?

YES!

Encryption

Encryption

Hash Proxy

or… Do-It-Yourself


a
world
of
possibilities

Questions?

Ronald Chichester, P.C.

A Texas-Based Law Firm Specializing in Technology-Related Legal Issues

Cybersecurity

Matters involving computer/network security such as security breach and notification requirements, incident response, information technology system audits, corporate espionage, data privacy and computer crimes.

Electronic Discovery

Litigation matters involving electronically stored information, spoliation sanctions, computer forensics, data metrics and data analysis and consulting on the scope and content of requests for production.

Intellectual Property

Patents, trademarks, copyrights, trade secrets, technology licensing, cloud contracts, software audits, SaaS agreements, terms of use agreements and terms of service agreements.

Ronald L. Chichester

www.TexasComputerLaw.com

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