

Financial Crimes



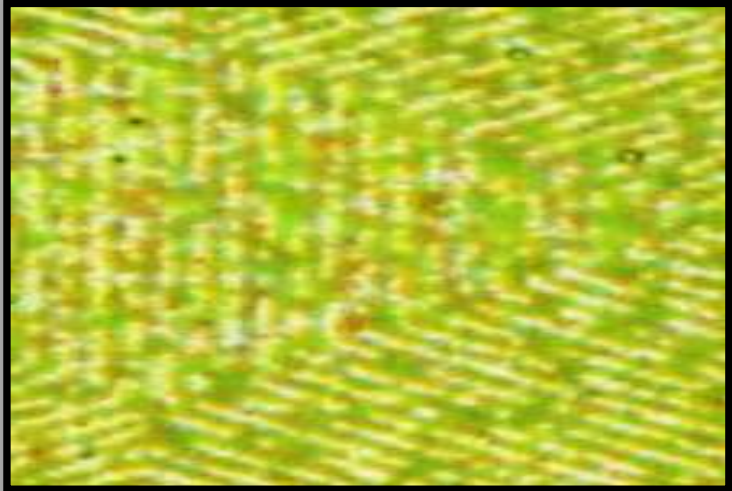
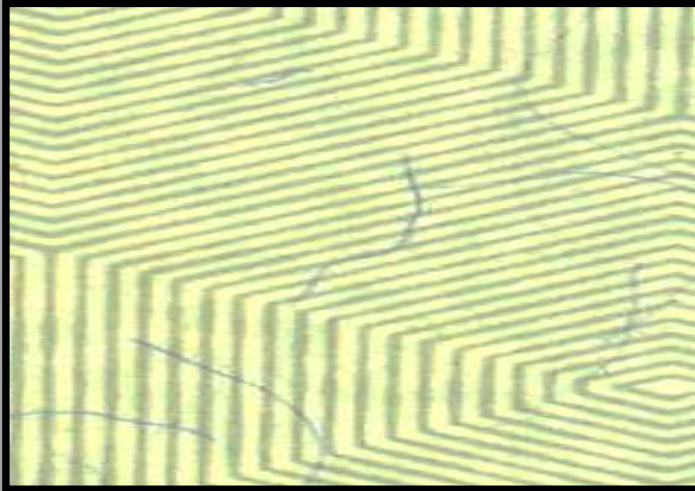
FRAUDULENT CURRENCY



SECURITY FEATURES

- Watermark
- Plastic security strip
 - Matches demonization of the bill
- Micro printing
- OVI (optical variable Ink)
- There are red and blue fibers imbedded in the notes

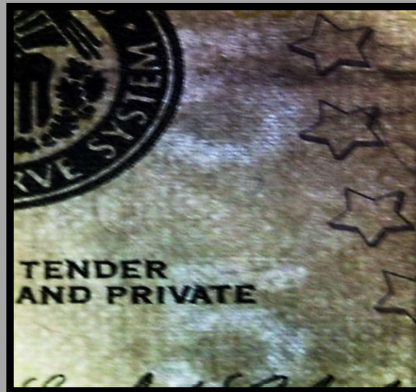
SECURITY FEATURES



WATERMARK



WATERMARK



SECURITY THREAD



ULTRAVIOLET GLOW

5 DOLLAR GLOWS BLUE

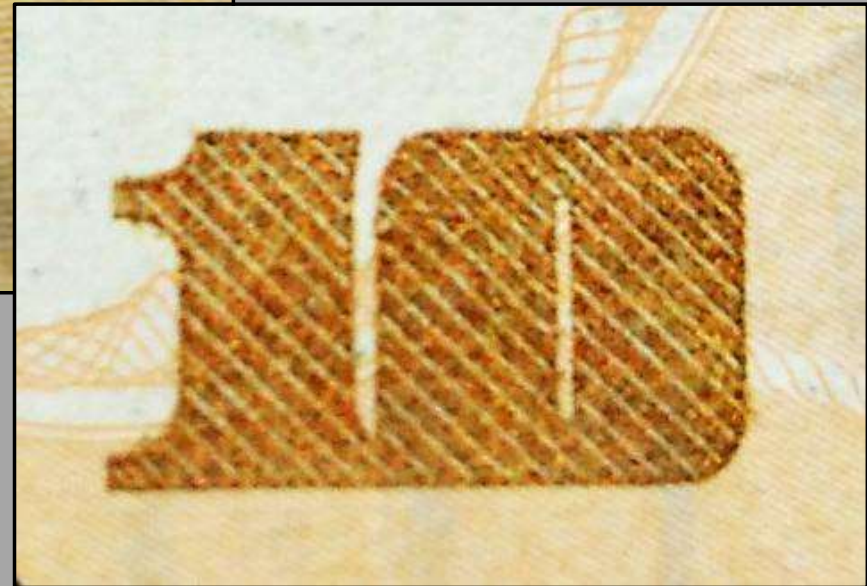
10 DOLLAR GLOWS ORANGE

20 DOLLAR GLOWS GREEN

50 DOLLAR GLOWS YELLOW

100 DOLLAR GLOWS RED

OVI (Optical Variable Ink)



MICRO PRINTING



FINE LINE PRINTING



SERIAL NUMBERS





Raised print

Color-shifting

Portrait Watermark



“FEEL OF MONEY”

- It is made from cotton
- Thinner than normal paper
- Has recognizable feel

SECRET SERVICE

- Is the primary agency that investigates counterfeit currency
- Federal offense

Cryptocurrency



As of 2/2020 there is 5,109 Cryptocurrencies in existence

What is it?

Decentralized currency

- No single authority
- No consumer protection
- Peer to peer network
- Based on Mathematical algorithm
- Semi anonymous (which criminals like)
- Traded anywhere & for anything

WHY

- Eliminate the need for trusted 3rd parties
- Avoid governments, borders and extra transaction fees
- Higher security (if done right)
- Avoid forgeries
- Avoid double spending
- Faster transactions

How does it work

First you need to obtain a Bitcoin wallet.

- The wallet will hold your addresses.
- One wallet will hold multiple addresses.



How does it work

Bitcoin wallets

- Your Public address is between 26-36 random characters long or QR code and will start with “1” OR “3”
- Your Private Key will start with “5” and 64 characters long
- The Public address and Private Key represents the user
- Pathway for the sender and receiver
- Neither one will have a capital O - L - I

Addresses break down

Public address (email address)

Private Key (password)



Compare

Bank	Bitcoin
Bank account number: 0123456789	Bitcoin address: 1n8gehsyPK295783onfgwMM3Sd
Password/PIN: 1234	Private Key: 5fhrU389576js7wjh4nbsuiBDHFD234Wsr39haegtT
Bank ledger: Centralized	Blockchain: Decentralized
Bank ledger: Private	Blockchain: Public
Bank statements: Monthly	Blocks: Average every 10 mins
Currency is minted by a Centralized Bank	Currency is created with each block of transactions
Fed Reserve determines total cash	Total bitcoin is set at 21 million

Two types of wallet

Cold Wallet

No internet access

No recovery without*

No remote access

No host

Physical Device



Hot Wallet

Internet access

Recovery options

Remote access

Mobile hosted wallet

Server



Cold wallet

Recovery SEED words

- Private key seed recovery words act as a backup to your private key.
- If an individual loses their private key storage device and/or paper private key, they can enter the recovery seed to access their wallet.
- The recovery seed is anywhere between 12-24 randomized words.
- The recovery seed is automatically generated by the private key.
- The order of the words is Imperative to the recovery.

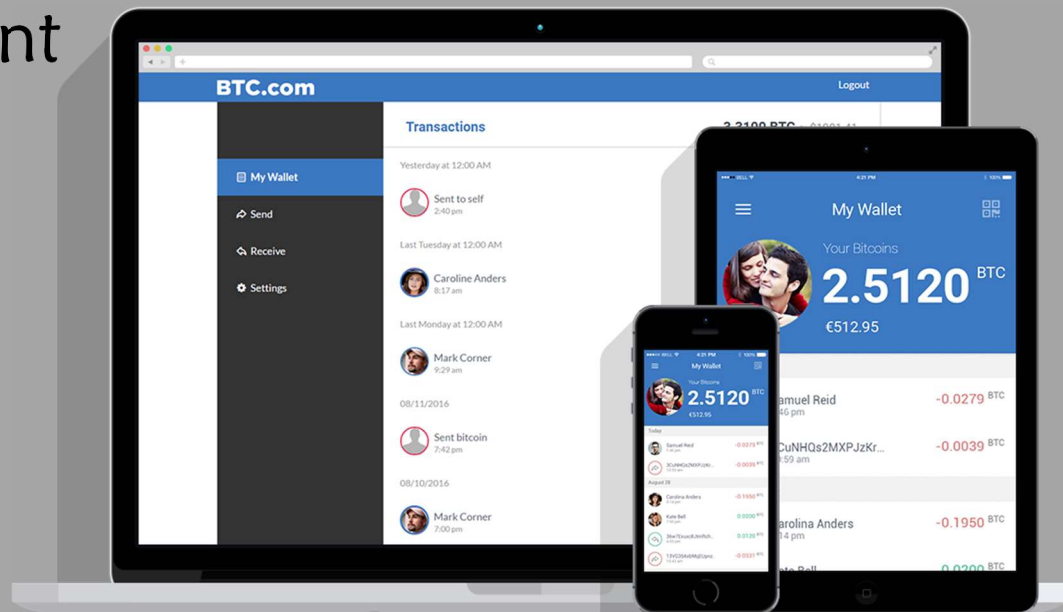
Hot wallet

Multi factor authentication

Relies on a 3rd party

Highly convenient

Least secure



The Network

In order to complete a transaction a user must be connected to a network.

This network or connection of users is often called a NODE.

Any user on the network can download the full ledger/ blockchain to track transactions.

The Network

The user connects to the network by downloading a wallet.

Most wallets will automatically connect to an established or embedded network or node.

Users also have the option to select their own node.

The Network

GLOBAL BITCOIN NODES DISTRIBUTION

Reachable nodes as of Tue Feb 11 2020
21:49:58 GMT-0800 (Pacific Standard Time).

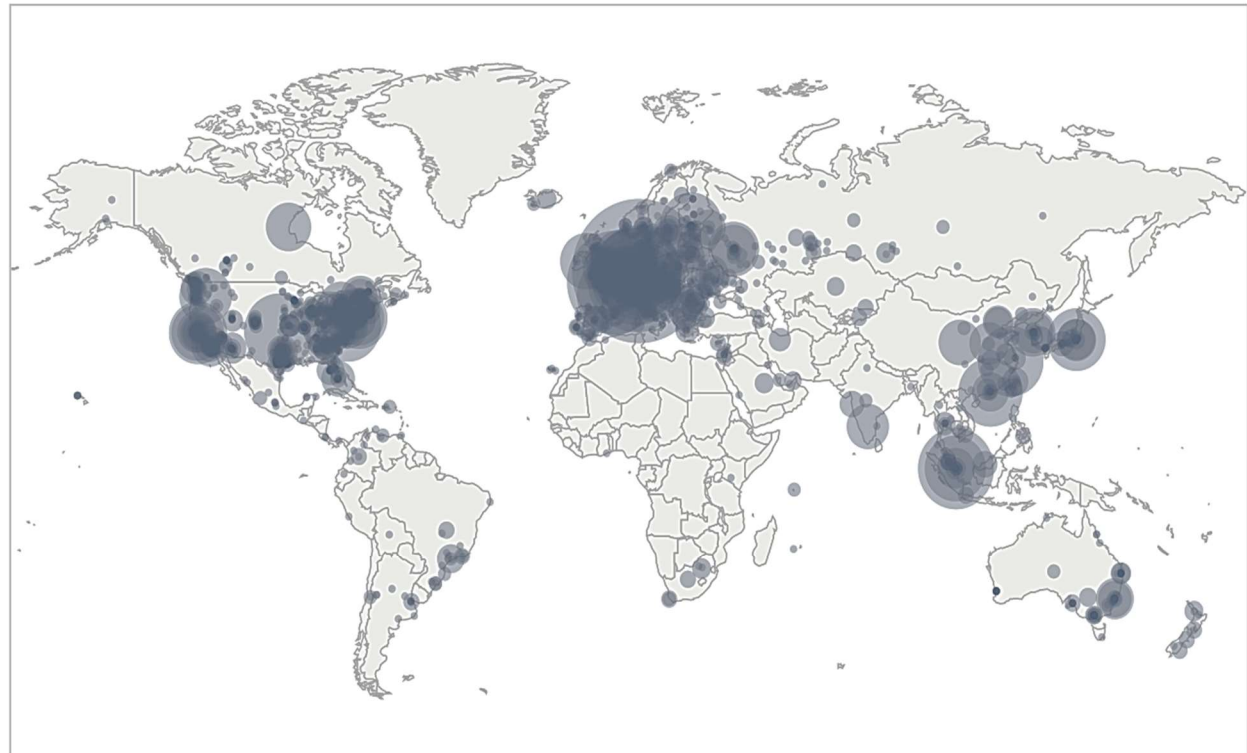
10863 NODES

24-hour charts »

Top 10 countries with their respective number of
reachable nodes are as follow.

RANK	COUNTRY	NODES
1	United States	2274 (20.93%)
2	n/a	1877 (17.28%)
3	Germany	1871 (17.22%)
4	France	603 (5.55%)
5	Netherlands	501 (4.61%)
6	Canada	346 (3.19%)
7	United Kingdom	322 (2.96%)
8	Singapore	320 (2.95%)
9	China	251 (2.31%)
10	Russian Federation	224 (2.06%)

More (97) »



<https://bitnodes.earn.com/nodes/live-map/>

Miners

Due to the decentralization of Bitcoin, there is no one user tracking everything.

The miner verifies the transaction and records it on a ledger forming a block on the Blockchain.



Miners

It takes a massive amount of computing power and energy to be a Miner.

The incentive is every time a Miner verifies/records a transaction, they are placed in a lottery to receive NEW Bitcoins as payment.

Currently Miners that win the lottery will receive about 12.5 new Bitcoins.

The lottery prize amount received cuts in half about every 4 years until all 21 million Bitcoin are given out.

(the next cut should be in 2020)

Miners Server Farm



The Blockchain

By having the blocks chained together, it is near impossible for a user to change a block or make a fraudulent record.

The user would not only have to change one block, but every single block underneath it and every copy of the blockchain around the world.

Currently, there are over 617,000 blocks on the Blockchain, therefore there is no amount of time and/or computing power that could undertake this task.

The Blockchain

Height	Hash	Mined	Miner	Size
617040	0..526713f9be3c247d6caef84c1e9e3441bfd054702baaf	20 minutes	Unknown	1,293,106 bytes
617039	0..eb99f6cea99886596d80a3af754d794dc6c0aa7873f30	41 minutes	SlushPool	1,357,641 bytes
617038	0..6b78430fbd0d5ed45b85d5c64c4bad439691fbfed1a7	59 minutes	Unknown	1,370,215 bytes
617037	0..10d4478564a16ae848797514fb3d4fc6a10a368a08e38	1 hour	F2Pool	1,362,970 bytes
617036	0..f23130b303390eb87d08b74b3c980a05c90b979bc32d0	2 hours	F2Pool	672,057 bytes
617035	0..b56a2caa977c264c06b69ad5cd5e69a5b78c6d4e231f8	2 hours	F2Pool	1,267,804 bytes
617034	0..de9d940f9d96a8c7969003f9361bd292d4c65c0ee87da	2 hours	F2Pool	1,186,197 bytes
617033	0..b2ffc177eabb365b5c13f078fb4b06c756efe7ad0f40	2 hours	Poolin	1,303,663 bytes
617032	0..76fd1228a030ed4796a047c92346c5ace87da7cc06d81	3 hours	ViaBTC	1,167,090 bytes
617031	0..9910104eb29ac19ed7d699c95f5135d59eafcaad4ee83	3 hours	Unknown	404,428 bytes
617030	0..338e1bf20d7f309d182a5a8f0d52f55246469f6acb024	3 hours	Unknown	658,654 bytes
617029	0..57f8284a861216b832331093e5ff62207b18922befc5e	3 hours	Unknown	451,932 bytes
617028	0..5af99c17e93fb6c7046dfa71357c386820e39c4332b69	3 hours	Unknown	258,062 bytes
617027	0..43000cb1415a182daac27393b16baffb04bac39eb4652	3 hours	F2Pool	1,283,187 bytes
617026	0..6a570747405c95b4d4274e7c53128f26ba8f7b2ae3be4	3 hours	AntPool	542,986 bytes
617025	0..661f027c0867b75556ce76a1c13290a58d217725db3a4	3 hours	Unknown	1,073,190 bytes

The Blockchain

Hash	a8a23ca7a3880fadf9cfc4b8393fd69ce0d07df855e05...	2020-02-11 22:09
	1GC3q7JYPuQPTSBfJbmTViaVDv... 52.72547062 BTC 	→ 1GC3q7JYPuQPTSBfJbmTViaVDv... 52.57497062 BTC  12MgLUbHt9QWYw2GVSSXL2QzJ... 0.15000000 BTC 
Fee	0.00050000 BTC (222.222 sat/B - 55.556 sat/WU - 225 bytes)	52.72497062 BTC 2 Confirmations
Hash	86e64d8e93439cad6a3f957494732e75192bb1d0528...	2020-02-11 22:09
	1PVPXNLPyje8FNzexfT5MWtyigsh... 2.15435766 BTC 	→ 14Zi7jntUVWUnY1aDBzUmHxE1kE... 0.05981128 BTC  1PVPXNLPyje8FNzexfT5MWtyigs... 2.09404638 BTC 
Fee	0.00050000 BTC (221.239 sat/B - 55.310 sat/WU - 226 bytes)	2.15385766 BTC 2 Confirmations
Hash	212304f0bb913457859bf59fa6c140c456486c6ab42d...	2020-02-11 21:54
	1PVPXNLPyje8FNzexfT5MWtyigsh... 6.63081952 BTC 	→ 1JsHb4C4DbrMeph6gSn5gpv7cfK... 0.24153868 BTC  1PVPXNLPyje8FNzexfT5MWtyigs... 6.38878084 BTC 
Fee	0.00050000 BTC (221.239 sat/B - 55.310 sat/WU - 226 bytes)	6.63031952 BTC 2 Confirmations

Transactions

Have an established Bitcoin wallet.

Most wallets will automatically connect to an established or embedded node.

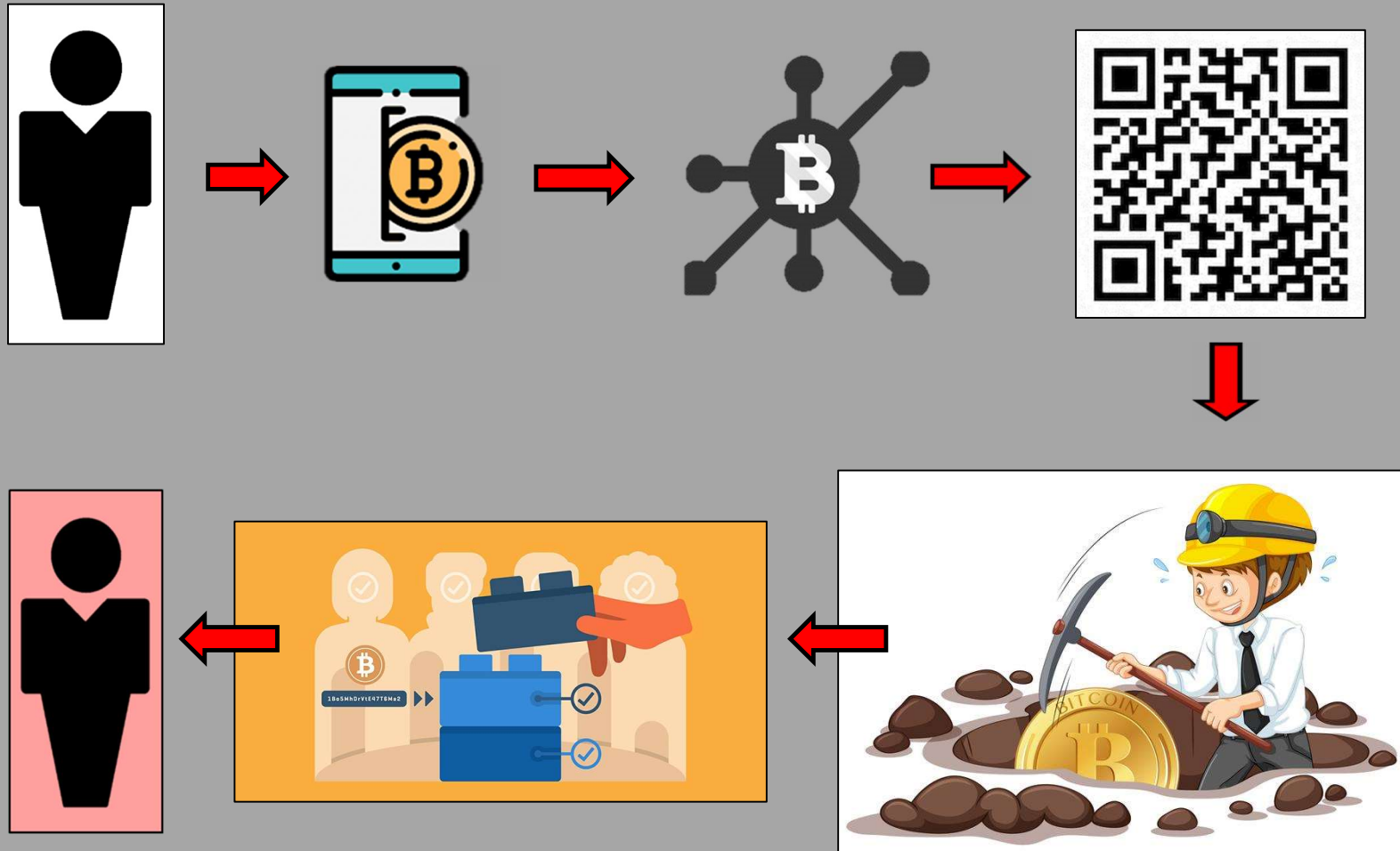
Then enter or scan the sellers public address and enters the amount to send.

When the transaction is sent your wallet will send your private key as a signature.

The Miners will then verify the transaction and record it on the Blockchain.

The seller then receives their Bitcoin.

Transactions



Transactions



Bitcoin ATM



Limits and verification

\$5-900 SMS & Name entry

\$900-3,000 ID registration

\$3,000-8,000 SSN & a Enhanced verification (a phone call)

Criminal use

Purchase and Sales

- Dark web

Money Laundering

- The ease of placement, layering & integration

Ransomware/Extortion

- Anonymous transactions

Unlicensed Money Service Businesses

- Not licensed or fail to report

Tumblers or Mixers

Criminals are aware that mixing services breaks the chain of transactions, making the investigation very difficult.

They typically dislike registration and verification and limit number of exchanges used.

Las Vegas Metropolitan Police Department



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