

Deep Dive into Ethereum Classic (ETC)

Smart contracts with immutability and neutrality

September 19, 2018



The creation of Ethereum Classic

- When Ethereum was released, the biggest and most important feature was the ability to create Turing-complete smart contracts. A smart contract is a piece of code stored on the blockchain that is immutable and automatically enforces the terms that are programmed into it. Smart contracts are the backbone of decentralized applications (DApps).
- The DAO, short for Decentralized Autonomous Organization, was a complex smart contract released on Ethereum with the ambitious goal of revolutionizing the ecosystem. It would operate as a decentralized venture capital fund that would approve and fund new DApps built on the Ethereum blockchain.

The creation of Ethereum Classic (continued)

- Ethereum users would have to buy DAO tokens for a certain price in ETH to indicate their participation in the DAO system. Whitelisted DApp proposals would be voted on by DAO holders, requiring a 20% approval from the community to unlock funding and begin building.
- The DAO was widely regarded as a great idea that would foster a decentralized and transparent ecosystem of DApps, and people jumped on the opportunity. Within 28 days of the DAO's formation it accrued 14% of all ETH tokens from 11,000+ investors, worth around \$150 million at the time.

The Ethereum DAO Hack

- On June 17, 2016, an anonymous attacker exploited a loophole in the DAO smart contract. This attacker was able to steal 3.6 million ETH, or roughly \$55 million from the DAO. However, the nature of the smart contract meant that these funds would be locked for 28 days. The Ethereum community was torn up about what to do next.

The New York Times

DealBook / Business & Policy

A Hacking of More Than \$50 Million Dashes Hopes in the World of Virtual Currency

By Nathaniel Popper

June 17, 2016

A hacker on Friday siphoned more than \$50 million of digital money away from an [experimental virtual currency project](#) that had been billed as the most successful crowdfunding venture ever — taking with him not just a third of the venture’s money but also the hopes and dreams of thousands of participants who wanted to prove the safety and security of digital currency.

What is Ethereum Classic?

- After the DAO hack, there were three options for the Ethereum blockchain: do nothing, implement a soft fork, or a hard fork.
- The Ethereum Foundation ending up doing a hard fork to return funds lost in the hack to an account available to the original investors of the DAO. Most of the community agreed with this.
- The decision was made to create a hard fork of the Ethereum blockchain at block #1,920,000, a block that was validated just before the DAO attack. Considering most of the community agreed with the hard fork, the new version of the chain was remained to be named **Ethereum**.
- Those opposed to the hard fork decided to remain on the old chain and coined the name **Ethereum Classic**.



What is Ethereum Classic? (continued)

- Initially launched as a platform with the goal of revolutionizing the financial industry through transparency and immutability.
- When the hard fork was proposed, many people saw it as a cop out that went against one of the very principles Ethereum was founded on.
- Those on this side of the debate were generally the ones who supported Ethereum Classic, while the Ethereum Foundation and a majority of the community switched to the new chain.

WHAT IS A BLOCKCHAIN?

Put simply, blockchains provide a way to keep track of digital assets (money, things) without the need for intermediaries, such as banks and other financial institutions.

WHAT IS ETHEREUM CLASSIC?

Ethereum Classic (ETC) is a smarter blockchain, it is a network, a community, and a cryptocurrency that takes digital assets further. In addition to allowing people to send value to each other, ETC allows for complex contracts that operate autonomously and cannot be modified or censored.

This may be best explained with an analogy, imagine Bitcoin as a landline phone—it does one thing very well. ETC is like a smartphone—it can do everything Bitcoin can and much more.

MORE THAN JUST A BLOCKCHAIN

If the Internet was simply a bunch of interconnected computers, and didn't have any users or creators making websites, it would be largely useless. In much the same way a blockchain needs users and creators. ETC has both and we're working on solving real world problems of interconnecting people and their devices.



Open and welcoming community



Long history of reliable operation



Your ETC is yours forever

Key features

- **Ethereum Virtual Machine (EVM):** A Turing-complete virtual machine that can execute scripts using a global network of public nodes.
- **Smart contracts:** Can be deployed on the Ethereum Classic blockchain that act as immutable contractual agreements for payments and other events.
- **DApps:** Supports the development of dApps that are powered by smart contracts and have no possibility of downtime, censorship, or fraud.
- **Code is law:** The Ethereum Classic network has built itself around the principle that code is law – meaning there is no way for a centralized group to alter the path of the network. As a result, Ethereum Classic features true transactional immutability.
- **Fixed token supply:** ETC tokens have a hard cap on their supply, no more than ~210 million will ever be issued.

Key milestones

2015-2016

Jul 2015: Ethereum's initial release date.

Jun 2016: The DAO is hacked for \$55M worth of ETH.

Oct 2016: Gas price hard fork implemented – first hard fork since the split of Ethereum Classic. Repriced operation to prevent DoS attacks.



2017

Jan 2017: Die Hard fork implemented – delated the difficulty bomb intended to force the network to move from proof of work to proof of stake.

Dec 2017: Monetary policy changed – ETC went from unlimited supply to a fixed cap system with a hard cap around 210 million ETC.



2018

May 2018: Hard fork to diffuse the difficult bomb was successful.

Jun 2018: Emerald Wallet v1.0.0 released

Jul 2018: Geth v5.5.0 released, Emerald-Js v0.1.6 released

Aug 2018: Emerald-Js-UI v0.0.3 released, Emerald Icon Library released for sketch app

Future development

- There is no single governing body for Ethereum Classic; the largest organization of developers is called ETCDEV and they update a general roadmap.
- Short-term goals: building scalability through sidechains, IoT and Machine-to-Machine protocols, and helping third party developers build apps on top of ETC.
- Long-term goals: better security and encryption, interoperability with other blockchains, and decentralized web.

ETCDEV TEAM PLANS FOR 2018-2020

General Roadmap

Please be advised, the following plan is subject to change. This plan is preliminary and only reflects major steps. During the year, we can face unexpected challenges or do a pivot to a more optimal direction. Minor releases, maintenance, experimental and secret projects are not reflected below

Goals

Short term	Long term
Scalability through sidechains IoT and Machine-to-Machine protocol Help 3rd party developers to build apps on top of ETC	Better security and encryption Interoperability with other blockchains Decentralized Web

ETCDEV roadmap

2018

Removing the difficulty bomb, releasing a DApp SDK, sidechains, new opcodes from ETH, IPFS integration, SputnikVM optimizations, JIT, compilation, and a new improved statedb layer.



2019

Improve scalability and sharding towards 1000+ transactions per second, light client for IoT and mobile, interoperability with other blockchains, and improving cryptography on EVM.



2020

Hybrid consensus research and mesh networks

Token economics

- ETC is the native token of the Ethereum Classic blockchain – it is used as gas that incentivizes the network miners through fees from transactions and smart contracts.
- Up until block 1,920,000, ETH and ETC were the same currency, meaning all transactions before that block are shared between each network. The hard fork diverted ETH tokens into a new blockchain and the ETC ticker was created for the separate blockchain.
 - As of September 6, 2018, the circulating supply of ETC is 104,354,157. The average block time is 14.1 seconds and the current block reward is 3.88 ETC, meaning 3.88 ETC enter the circulating supply roughly every 14.1 seconds.
- Unlike Ethereum, ETC switched to a fixed token supply system in late 2017, with a hard cap around 210 million ETC to ever be created.

Team and advisors



Igor Artamonov
Founder & CTO

Igor has been a professional software developer since 2001, working as a Java developer at Luxoft, HFLabs and iSofttek. He also was the founder of TipTop.io and Infinitape before founding ETCDEV.



Constantine Kryvomaz
Rust & GO Developer

Constantine has worked as a QA engineer at WorldAPP, server-side software engineer for Wargaming.net, and as a Python software engineer. He works on server-side development for ETCDEV mainly using Rust & Go.



Darcy Reno
Program Manager

Darcy has extensive management experience in the technology industry, working as a development director for EA, head of technology at MPC, CTO of Bardel Entertainment, CEO of SpaceList, CEO of Kloud Ktrl Technology.



Donald McIntyre
Business Development

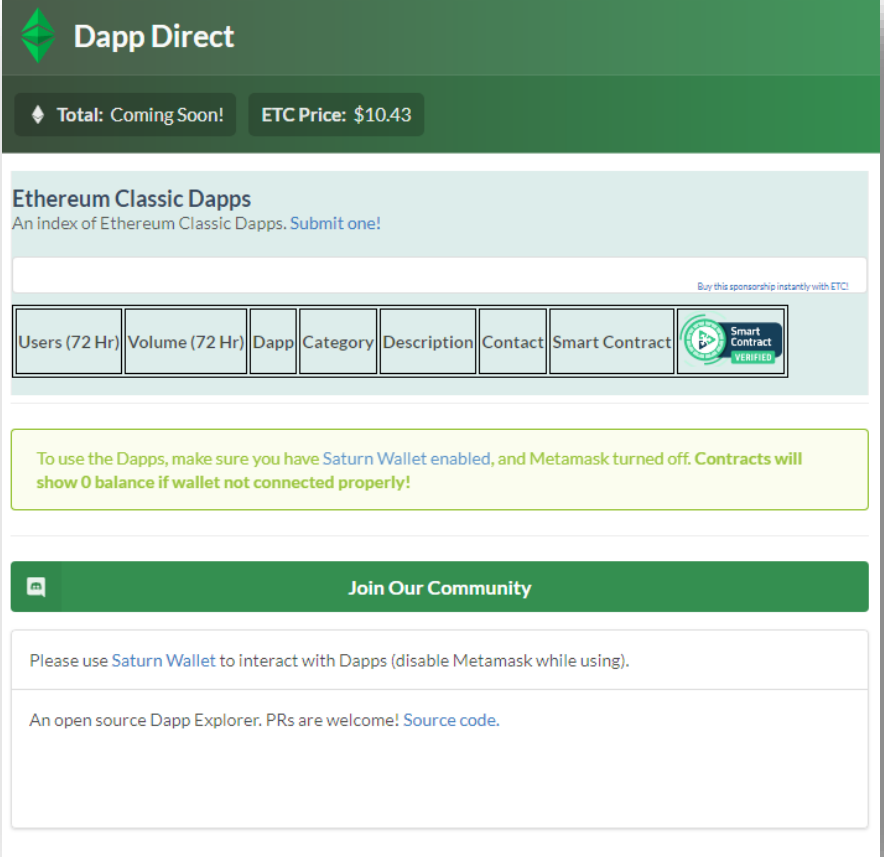
David's previous work experience includes VP at UBS Securities, Senior VP at Morgan Stanley, and founding companies such as Dineronet, McIntyre S.A., Naation, Global Financial Access, Inc., and Etherplan.

Strengths

- One of the more decentralized blockchain, with multiple development teams working on the protocol (ETCDEV, IOHK, and Ethereum Commonwealth), software for running a node, block explorers, wallets, etc.
- Benefits from inheriting the Ethereum codebase – the Ethereum Virtual Machine enables developers to create and test smart contracts that power decentralized applications.
- Immutability – Ethereum Classic has shown that it values the “code is law” rule, meaning there is true immutability on the network and no transactions will ever be reversed.
- Not bound to a governing entity like the Ethereum Foundation, and there is not one person with much influence over the protocol. This is good from a decentralization standpoint.
 - For Ethereum, the foundation plays a huge part in the future of the network, and people like Vitalik Buterin are viewed as critical to its success.

Weaknesses

- Ethereum Classic has a relatively small community vs. Ethereum and other smart contract platforms with less active development activity.
- Judging from the relative hash power compared to Ethereum, Ethereum Classic has a relatively low number of nodes and miners vs. Ethereum and is more susceptible to 51% and other attack vectors.
- There are very few dApps running on Ethereum Classic. According to DApp Direct, there are only 7 dApps on the ETC blockchain. The dApp with the most daily user was Bitcoin Classic Token, which had 23 users in the past 24 hours.



The screenshot shows the Dapp Direct website interface. At the top, there is a green header with the Dapp Direct logo and navigation arrows. Below the header, a dark green bar displays 'Total: Coming Soon!' and 'ETC Price: \$10.43'. The main content area is titled 'Ethereum Classic Dapps' and includes a sub-header 'An index of Ethereum Classic Dapps. Submit one!'. A table with columns for 'Users (72 Hr)', 'Volume (72 Hr)', 'Dapp', 'Category', 'Description', 'Contact', 'Smart Contract', and a 'Smart Contract VERIFIED' badge is visible. A yellow warning box states: 'To use the Dapps, make sure you have Saturn Wallet enabled, and Metamask turned off. Contracts will show 0 balance if wallet not connected properly!'. At the bottom, there is a green 'Join Our Community' button and a text box with instructions: 'Please use Saturn Wallet to interact with Dapps (disable Metamask while using). An open source Dapp Explorer. PRs are welcome! Source code.'

Weaknesses (continued)

- The Ethereum Classic network is slow and faces the same scalability issue that Ethereum is facing. In the roadmap, the team will explore sharding and sidechain as a scaling option. However, no concrete work has been done as far as we know.
- Immutability – as mentioned above, “code is law” is the prevailing rule on the Ethereum Classic network. The immutability is both good and bad; transaction will never be reversed but bad actors like the DAO hacker get to keep their stolen funds.

Conclusion

Overall Rating: C

- Since the split of Ethereum and Ethereum Classic, the vast majority of developers stayed with Ethereum. There is a strong network effect for developer community, so we believe it is extremely difficult for Ethereum Classic to become the leading smart contract platform, especially when its code base is so similar to that of Ethereum.
- Ethereum Classic faces the same scaling issues as Ethereum. It is much more difficult to implement scaling solutions while the blockchain is running on a mainnet with live smart contracts outstanding.
 - Charles Hoskinson, CEO of IOHK, one of companies developing ETC, mentioned that ETC probably won't adopt Plasma or Casper to scale the chain, so they would need to come up with different solutions and we believe this effort is still at a very early stage as no clear proposal is put forward.

Conclusion

Overall Rating: C

- The recent Coinbase listing is a big catalyst for ETC but Coinbase will soon be listing a lot more coins, diminishing ETC's advantage. Going forward, we believe new Coinbase listings will have less impact on prices.
- Significant competition:
 - As a **smart contract platform**, Ethereum Classic is a legacy chain with older tech and little usage in terms of number of dApps and smart contract transactions.
 - As a **store of value**, Ethereum Classic pales in comparison to Bitcoin or Litecoin in terms of brand recognition.
 - As a **medium of exchange**, there are many other competitors and merchant adoption of ETC is behind Bitcoin, Ethereum, Litecoin, Bitcoin Cash, and Monero. It also has more attack vectors because of the Turing completeness nature of the EVM, making it less safe as a standalone currency that is used for transactions.

CrushCrypto