**Ethereum** is a [decentralized](https://en.wikipedia.org/wiki/Decentralization#Blockchain_technology) [blockchain](https://en.wikipedia.org/wiki/Blockchain) with [smart contract](https://en.wikipedia.org/wiki/Smart_contract) functionality. **Ether** ([Abbreviation](https://en.wikipedia.org/wiki/ISO_4217#Cryptocurrencies): **ETH**;[[a]](https://en.wikipedia.org/wiki/Ethereum#cite_note-2) [sign](https://en.wikipedia.org/wiki/Currency_symbol): **Ξ**) is the native [cryptocurrency](https://en.wikipedia.org/wiki/Cryptocurrency) of the platform. Among cryptocurrencies, ether is second only to [bitcoin](https://en.wikipedia.org/wiki/Bitcoin) in [market capitalization](https://en.wikipedia.org/wiki/Market_capitalization).[[2]](https://en.wikipedia.org/wiki/Ethereum#cite_note-ft20210528-3)[[3]](https://en.wikipedia.org/wiki/Ethereum#cite_note-wsj20210603-4) It is [open-source software](https://en.wikipedia.org/wiki/Open-source_software).

Ethereum was conceived in 2013 by [programmer](https://en.wikipedia.org/wiki/Computer_programming) [Vitalik Buterin](https://en.wikipedia.org/wiki/Vitalik_Buterin).[[4]](https://en.wikipedia.org/wiki/Ethereum#cite_note-FOOTNOTETapscottTapscott201687-5) Additional founders of Ethereum included [Gavin Wood](https://en.wikipedia.org/wiki/Gavin_Wood), [Charles Hoskinson](https://en.wikipedia.org/wiki/Charles_Hoskinson), [Anthony Di Iorio](https://en.wikipedia.org/wiki/Anthony_Di_Iorio) and [Joseph Lubin](https://en.wikipedia.org/wiki/Joseph_Lubin_(entrepreneur)).[[5]](https://en.wikipedia.org/wiki/Ethereum#cite_note-paumgarten-6) In 2014, [development](https://en.wikipedia.org/wiki/Software_development) work began and was [crowdfunded](https://en.wikipedia.org/wiki/Crowdfunding), and the network went live on 30 July 2015.[[6]](https://en.wikipedia.org/wiki/Ethereum#cite_note-7) Ethereum allows anyone to deploy permanent and immutable [decentralized applications](https://en.wikipedia.org/wiki/Decentralized_application) onto it, with which users can interact.[[7]](https://en.wikipedia.org/wiki/Ethereum#cite_note-8) [Decentralized finance](https://en.wikipedia.org/wiki/Decentralized_finance) (DeFi) applications provide [financial instruments](https://en.wikipedia.org/wiki/Financial_instrument) which do not directly rely on [financial intermediaries](https://en.wikipedia.org/wiki/Financial_intermediary) like [brokerages](https://en.wikipedia.org/wiki/Brokerage), [exchanges](https://en.wikipedia.org/wiki/Exchange_(organized_market)), or [banks](https://en.wikipedia.org/wiki/Bank). This facilitates borrowing against cryptocurrency holdings or lending them out for [interest](https://en.wikipedia.org/wiki/Interest).[[8]](https://en.wikipedia.org/wiki/Ethereum#cite_note-9)[[9]](https://en.wikipedia.org/wiki/Ethereum#cite_note-fortune20210506-10) Ethereum also allows users to create and exchange [non-fungible tokens](https://en.wikipedia.org/wiki/Non-fungible_token) (NFTs), which are tokens that can be tied to unique digital assets, such as images. Additionally, many other cryptocurrencies utilize the ERC-20 token standard on top of the Ethereum blockchain and have utilized the platform for [initial coin offerings](https://en.wikipedia.org/wiki/Initial_coin_offering).

On 15 September 2022, Ethereum transitioned its [consensus mechanism](https://en.wikipedia.org/wiki/Consensus_(computer_science)) from [proof-of-work](https://en.wikipedia.org/wiki/Proof_of_work) (PoW) to [proof-of-stake](https://en.wikipedia.org/wiki/Proof_of_stake) (PoS) in an upgrade process known as "the Merge". This has cut Ethereum's energy usage by 99%.[[10]](https://en.wikipedia.org/wiki/Ethereum#cite_note-EnergyRevamp-11)

History

**Founding (2013–2014)**

[](https://en.wikipedia.org/wiki/File:Vitalik_Buterin_TechCrunch_London_2015_(cropped).jpg)Ethereum co-founder [Vitalik Buterin](https://en.wikipedia.org/wiki/Vitalik_Buterin) in 2015

Ethereum was initially described in late 2013 in a [white paper](https://en.wikipedia.org/wiki/White_paper) by [Vitalik Buterin](https://en.wikipedia.org/wiki/Vitalik_Buterin),[[4]](https://en.wikipedia.org/wiki/Ethereum#cite_note-FOOTNOTETapscottTapscott201687-5)[[11]](https://en.wikipedia.org/wiki/Ethereum#cite_note-12) a programmer and co-founder of [*Bitcoin Magazine*](https://en.wikipedia.org/wiki/Bitcoin_Magazine), that described a way to build [decentralized](https://en.wikipedia.org/wiki/Decentralized) applications.[[12]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Finley-27-Jan-2014-13)[[13]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Schneider-2014-04-07-14) Buterin argued to the [Bitcoin Core](https://en.wikipedia.org/wiki/Bitcoin_Core) developers that Bitcoin and blockchain technology could benefit from other applications besides money and that it needed a more robust language for application development[[14]](https://en.wikipedia.org/wiki/Ethereum#cite_note-tapscott2016-15): 88 that could lead to attaching[[*clarification needed*](https://en.wikipedia.org/wiki/Wikipedia:Please_clarify)] real-world assets, such as stocks and property, to the blockchain.[[15]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Russo2020-16) In 2013, Buterin briefly worked with [eToro](https://en.wikipedia.org/wiki/EToro" \o "EToro) CEO Yoni Assia on the [Colored Coins](https://en.wikipedia.org/wiki/Colored_Coins) project and drafted its white paper outlining additional use cases for blockchain technology.[[16]](https://en.wikipedia.org/wiki/Ethereum#cite_note-FOOTNOTERusso202044-17) However, after failing to gain agreement on how the project should proceed, he proposed the development of a new platform with a more robust scripting language—a [Turing-complete](https://en.wikipedia.org/wiki/Turing-complete) programming language[[17]](https://en.wikipedia.org/wiki/Ethereum#cite_note-FOOTNOTETapscottTapscott2016278-18)—that would eventually become Ethereum.[[14]](https://en.wikipedia.org/wiki/Ethereum#cite_note-tapscott2016-15)

Ethereum was announced at the North American Bitcoin Conference in Miami, in January 2014.[[18]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Paumgarten-19) During the conference, [Gavin Wood](https://en.wikipedia.org/wiki/Gavin_Wood), [Charles Hoskinson](https://en.wikipedia.org/wiki/Charles_Hoskinson), and [Anthony Di Iorio](https://en.wikipedia.org/wiki/Anthony_Di_Iorio) (who financed the project) rented a house in Miami with Buterin at which they could develop a fuller sense of what Ethereum might become.[[18]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Paumgarten-19) Di Iorio invited friend [Joseph Lubin](https://en.wikipedia.org/wiki/Joseph_Lubin_(entrepreneur)), who invited reporter Morgen Peck, to bear witness.[[18]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Paumgarten-19) Peck subsequently wrote about the experience in [*Wired*](https://en.wikipedia.org/wiki/Wired_(magazine)).[[19]](https://en.wikipedia.org/wiki/Ethereum#cite_note-20) Six months later the founders met again in [Zug](https://en.wikipedia.org/wiki/Zug), Switzerland, where Buterin told the founders that the project would proceed as a non-profit. Hoskinson left the project at that time and soon after founded IOHK, a blockchain company responsible for [Cardano](https://en.wikipedia.org/wiki/Cardano_(blockchain_platform)).[[18]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Paumgarten-19)

Ethereum has an unusually long list of founders.[[20]](https://en.wikipedia.org/wiki/Ethereum#cite_note-entrepreneur20210817-21) Anthony Di Iorio wrote: "Ethereum was founded by Vitalik Buterin, Myself, Charles Hoskinson, Mihai Alisie & Amir Chetrit (the initial 5) in December 2013. Joseph Lubin, Gavin Wood, & Jeffrey Wilcke were added in early 2014 as founders." Buterin chose the name Ethereum after browsing a list of elements from science fiction on [Wikipedia](https://en.wikipedia.org/wiki/Wikipedia). He stated, "I immediately realized that I liked it better than all of the other alternatives that I had seen; I suppose it was that [it] sounded nice and it had the word '[ether](https://en.wikipedia.org/wiki/Luminiferous_aether)', referring to the hypothetical invisible medium that permeates the universe and allows light to travel."[[18]](https://en.wikipedia.org/wiki/Ethereum#cite_note-Paumgarten-19) Buterin wanted his platform to be the underlying and imperceptible medium for the applications running on top of it.[[21]](https://en.wikipedia.org/wiki/Ethereum#cite_note-FOOTNOTERusso202056-22)