

# Ethereum: Clients

[return to the Ethereum Standards](#)

Source: [What exactly is an Ethereum Client](#)

*An 'Ethereum client' is a term referring to any node able to parse and verify the blockchain, its smart contracts and everything related. It also allows you/provides interfaces to create transactions and mine blocks which is the key for any blockchain interaction.*

## Official reference implementations (CLI)

There are currently three reference Command Line Interfaces (CLI) implementations available, as you already highlighted:

- eth - C++ client of the webthree project. It was formerly known as cpp-ethereum: <https://github.com/ethereum/webthree-umbrella>
- geth - Golang client of the go-ethereum project: <https://github.com/ethereum/go-ethereum>
- pyethapp - Python client of the pyethereum project: <https://github.com/ethereum/pyethapp>

All clients should work the same, from the user's perspective. They provide the same interfaces and so on. For example, if you launch a DApp or the Ethereum Wallet or a DApp browser instance, it should not note any difference in communicating with the client.

## Official reference implementations (GUI)

Graphical clients available to the Ethereum core developers are:

- mist which works on top of geth or eth and aims to be a DApp browser and currently implements the ethereum-wallet-dapp. <https://github.com/ethereum/mist>
- alethzero is internally called the hardcore client but it's being deprecated. <https://github.com/ethereum/alethzero>

## Third party implementations (CLI)

Non-official clients implementing the yellow paper specification are:

- parity - Rust client by ethcore: <https://github.com/paritytech/parity>
- ethereumj - Java client by the ether.camp team: <https://github.com/ethereum/ethereumj>
- ethereumjs-vm - Ethereum Virtual Machine in Javascript: <https://github.com/ethereumjs/ethereumjs-vm>
- ethereumH - Haskell client from consensys, but it's not developed anymore: <https://github.com/jamshidh/ethereum-client-haskell>
- ruby-ethereum - Ruby client: <https://github.com/janx/ruby-ethereum>

- [node-blockchain-server - simple Javascript server:](#)  
<https://github.com/ethereumjs/node-blockchain-server>
- [Ethereum: cpp Project](#)
- [Ethereum: Ethereumh Project](#)
- [Ethereum: Ethereumjs-lib Project](#)
- [Ethereum: Ethereum\\_j Project](#)
- [Ethereum: Go-ethereum Project](#)
- [Ethereum: Parity Project](#)
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