elixir-lang
moscow

Mana

Ethereum client in Elixir

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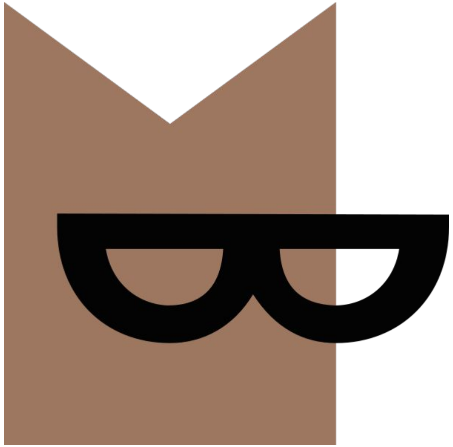
Acknowledgements



About me

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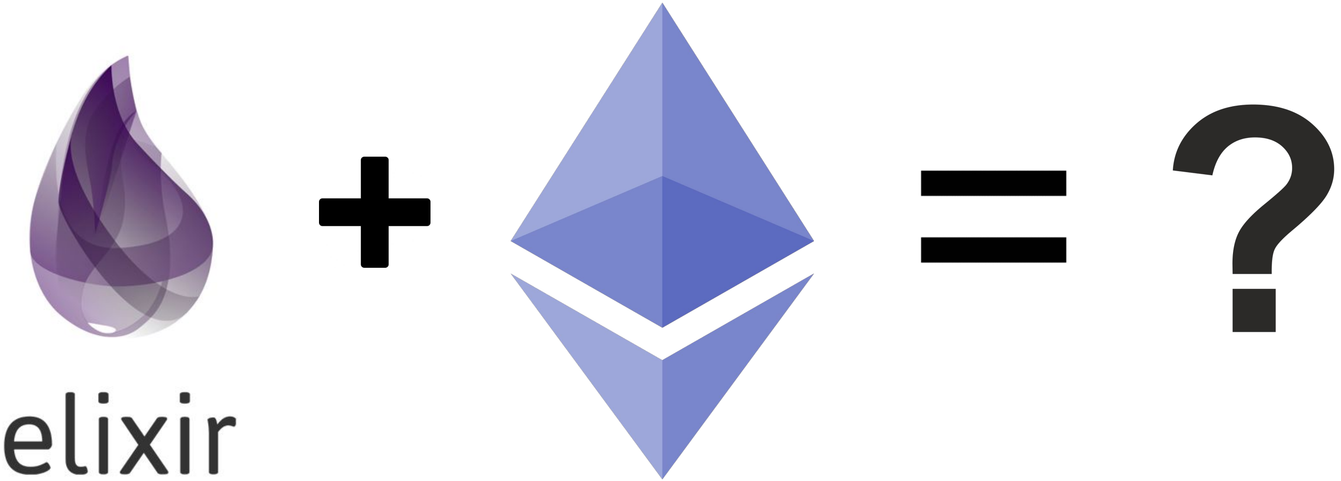
Ethereum

Ethereum clients

- Parity (Rust)
- Geth (Go)
- Pyethereum (Python)

...

Is Elixir suitable for Ethereum?



Consensus algorithms

- Proof of Work
- Proof of Stake
- Proof of Authority

Proof of Work

- a lot of computational power
- a significant amount of energy
- computational power goes up over time
- large costs required for expensive computing equipment

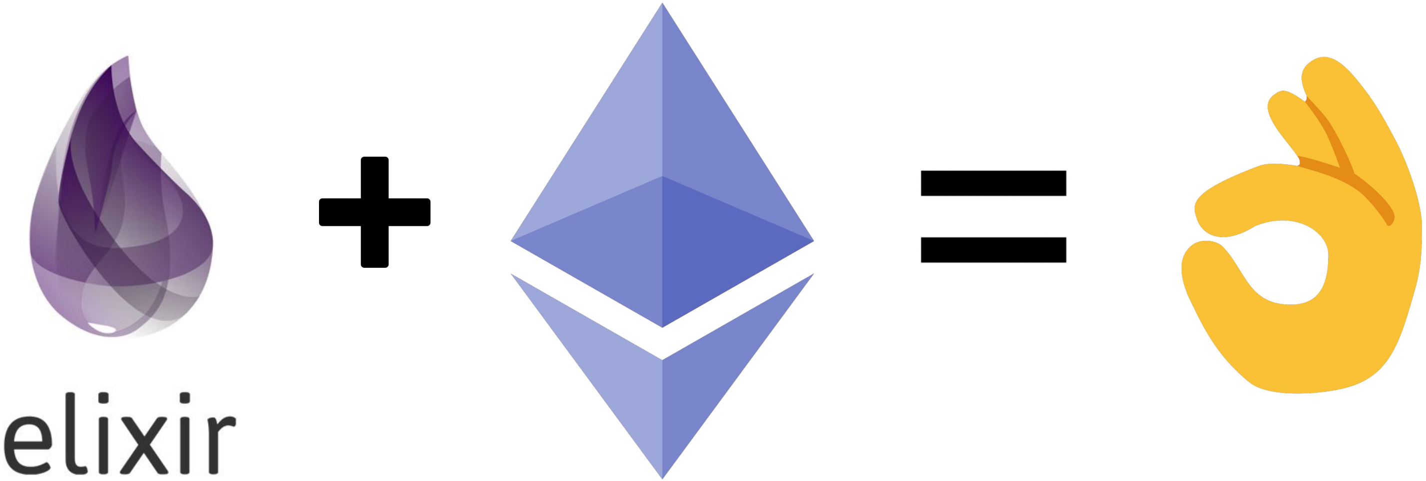
Proof of Stake

- poor stay poor, rich get richer
- small numbers of people own the majority of stakes

Proof of Authority

- modification of Proof of Stake
- identity as a stake
- verified personal identities

Is Elixir suitable for Ethereum?



Mana

Project structure

- ExRLP
- MerklePatriciaTree
- EVM
- Blockchain
- ExWire

ExRLP

- Ethereum’s homebrew binary encoding
- simplicity of implementation
- guaranteed absolute byte-perfect consistency

ExRLP

```
defprotocol ExRLP.Encode do
  def encode(value, options \\ [])
end

defimpl ExRLP.Encode, for: BitString do
...
end

defimpl ExRLP.Encode, for: Integer do
...
end

defimpl ExRLP.Encode, for: List do
...
end
```

Merkle Patricia Tree (Trie)

EVM

Blockchain

ExWire

Current state