What is Fuel?

Fuel is an operating system purpose built for Ethereum Rollups. Fuel allows rollups to solve for PSI (parallelization, state minimized execution, interoperability) without making any sacrifices.

Here is how we do it:

FuelVM

The FuelVM learns from the Ethereum ecosystem. It implements improvements suggested to the Ethereum VM (EVM) for many years that couldn't be implemented due to the need to maintain backward compatibility, including parallel transaction execution and multiple native assets.

Fuel delivers unmatched processing capacity through its ability to execute transactions in parallel by using strict state access lists in the form of a UTXO model. With the FuelVM, Fuel full nodes identify the accounts a transaction touches, mapping out dependencies before execution. This enables Fuel to use far more threads and cores of your CPU that are typically idle in single-threaded blockchains. As a result, Fuel can deliver far more compute, state accesses, and transactional throughput than its single-threaded counterparts.

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Sway Language

Fuel provides a powerful and sleek developer experience with our own domain-specific language (DSL) called Sway. Sway is based on Rust and includes syntax to leverage a blockchain VM without needlessly verbose boilerplate. Sway was created alongside the FuelVM and designed for the high-compute Fuel environment.

Rust + Solidity = Sway

Sway prioritizes compile-time analysis and safety, similar to Rust's borrow checker and safety-first semantics. Additionally, it has the syntax of Rust. From Solidity, Sway took the notion of a smart-contract-paradigm language with built-in top-level contract storage and blockchain mechanisms for ergonomic and safe contract programming.

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