Developer Tools

A guide to available tools, components, patterns, and platforms for developing applications on EVM-compatible chains.

New developers start here

- Solidity
  - The most popular smart contract language.
- Metamask
  - Browser extension wallet to interact with Dapps.
- thirdweb
  - SDKs in every language, smart contracts, tools, and infrastructure for web3 development.
- Truffle
  - Most popular smart contract development, testing, and deployment framework. Install the cli via npm and start here to write your first smart contracts.
- Truffle boxes
  - Packaged components for the Ethereum ecosystem.
- Hardhat
  - Flexible, extensible and fast Ethereum development environment.
- Cryptotux
  - A Linux image ready to be imported in VirtualBox that includes the development tools mentionned above
- OpenZeppelin Starter Kits
  - An all-in-one starter box for developers to jumpstart their smart contract backed applications. Includes Truffle, OpenZeppelin SDK, the OpenZeppelin/contracts-ethereum-package EVM package of audited smart contract, a react-app and rimble for easy styling.
- EthHub.io
  - Comprehensive crowdsourced overview of Ethereum- its history, governance, future plans and development resources.
- EthereumDev.io
  - The definitive guide for getting started with Ethereum smart contract programming.
- Brownie
  - Brownie is a Python framework for deploying, testing and interacting with Ethereum smart contracts.
- Ethereum Stack Exchange
  - Post and search questions to help your development life cycle.
- dfuse
  - Slick blockchain APIs to build world-class applications.
- Biconomy
  - Do gasless transactions in your dapp by enabling meta-transactions using simple to use SDK.
- Blocknative
- — Blockchain events before they happen. Blocknative's portfolio of developers tools make it easy to build with mempool data.
- useWeb3.xyz
- — A curated overview of the best and latest resources on Ethereum, blockchain and Web3 development.

Developing Smart Contracts

Smart Contract Languages

- Solidity
  - Ethereum smart contracting language
- Vyper

-
    - New experimental pythonic programming language

Frameworks

- thirdweb
-
    - Provides the tools needed to build custom smart contracts efficiently by offering a set of prebuilt base contracts and a set of reusable components, or extensions, that can be integrated into your own smart contracts.
- Truffle
-
    - Most popular smart contract development, testing, and deployment framework. The Truffle suite includes Truffle,Ganache
- , andDrizzle
- .Deep dive on Truffle here
- Hardhat
-
    - Flexible, extensible and fast Ethereum development environment.
- Brownie
-
    - Brownie is a Python framework for deploying, testing and interacting with Ethereum smart contracts.
- Embark
-
    - Framework for DApp development
- Waffle
-
    - Framework for advanced smart contract development and testing, small, flexible, fast (based on ethers.js)
- Dapp
-
    - Framework for DApp development, successor to DApple
- Etherlime
-
    - ethers.js based framework for Dapp deployment
- Parasol
-
    - Agile smart contract development environment with testing, INFURA deployment, automatic contract documentation and more. It features a flexible and unopinionated design with unlimited customizability
- 0xcert
-
    - JavaScript framework for building decentralized applications
- OpenZeppelin SDK
-
    - OpenZeppelin SDK: A suite of tools to help you develop, compile, upgrade, deploy and interact with smart contracts.
- sbt-ethereum
-
    - A tab-completey, text-based console for smart-contract interaction and development, including wallet and ABI management, ENS support, and advanced Scala integration.
- Cobra
-
    - A fast, flexible and simple development environment framework for Ethereum smart contract, testing and deployment on Ethereum virtual machine(EVM).
- Epirus
-
    - Java framework for building smart contracts.

IDEs

- Remix
-
    - Web IDE with built in static analysis, test blockchain VM.
- Ethereum Studio
-
    - Web IDE. Built in browser blockchain VM, Metamask integration (one click deployments to Testnet/Mainnet), transaction logger and live code your WebApp among many other features.
- Atom
-
    - Atom editor withAtom Solidity Linter

- ,Etheratom
- ,autocomplete-solidity
- , andlanguage-solidity
- packages
- Vim solidity
-
    - Vim syntax file for solidity
- Visual Studio Code
-
    - Visual Studio Code extension that adds support for Solidity
- Ethcode
-
    - Visual Studio Code extension to compile, execute & debug Solidity & Vyper programs
- Intellij Solidity Plugin
-
    - Open-source plug-in forJetBrains IntelliJ Idea IDE
- (free/commercial) with syntax highlighting, formatting, code completion etc.
- YAKINDU Solidity Tools
-
    - Eclipse based IDE. Features context sensitive code completion and help, code navigation, syntax coloring, build in compiler, quick fixes and templates.
- Eth Fiddle
-
    - IDE developed byThe Loom Network
- that allows you to write, compile and debug your smart contract. Easy to share and find code snippets.

Other tools

- Atra Blockchain Services
-
    - Atra provides web services to help you build, deploy, and maintain decentralized applications on the Ethereum blockchain.
- Azure Blockchain Dev Kit for Ethereum for VSCode
-
    - VSCode extension that allows for creating smart contracts and deploying them inside of Visual Studio Code

Test Blockchain Networks

- ethnode
-
    - Run an Ethereum node (Geth or Parity) for development, as easy asnpm i -g ethnode && ethnode
- .
- Ganache
-
    - App for test Ethereum blockchain with visual UI and logs
- Kaleido
-
    - Use Kaleido for spinning up a consortium blockchain network. Great for PoCs and testing
- Besu Private Network
-
    - Run a private network of Besu nodes in a Docker container
- **Orion
-
    - Component for performing private transactions by PegaSys
- **Artemis
-
    - Java implementation of the Ethereum 2.0 Beacon Chain by PegaSys
- Cliquebait
-
    - Simplifies integration and accepting testing of smart contract applications with docker instances that closely resembles a real blockchain network
- Local Raiden
-
    - Run a local Raiden network in docker containers for demo and testing purposes
- Private networks deployment scripts
-
    - Out-of-the-box deployment scripts for private PoA networks

- Local Ethereum Network
  - Out-of-the-box deployment scripts for private PoW networks
- Ethereum on Azure
  - Deployment and governance of consortium Ethereum PoA networks
- Ethereum on Google Cloud
  - Build Ethereum network based on Proof of Work
- Infura
  - Ethereum API access to Ethereum networks (Mainnet, Ropsten, Rinkeby, Goerli, Kovan)
- CloudFlare Distributed Web Gateway
  - Provides access to the Ethereum network through the Cloudflare instead of running your own node
- Chainstack
  - Shared and dedicated Ethereum nodes as a service (Mainnet, Ropsten)
- Alchemy
  - Blockchain Developer Platform, Ethereum API, and Node Service (Mainnet, Ropsten, Rinkeby, Goerli, Kovan)
- ZMOK
  - JSON-RPC Ethereum API (Mainnet, Rinkeby, Front-running Mainnet)
- Watchdata
  - Provide simple and reliable API access to Ethereum blockchain

Alternative Celo Faucet

- LearnWeb3 Faucet

Test Ether Faucets

- Rinkeby faucet
- Kovan faucet
- Ropsten faucet (MetaMask)
- Ropsten faucet (rpanic)
- Goerli faucet
- Universal faucet
- Nethereum.Faucet
  - A C#/.NET faucet

Communicating with Ethereum

Frontend Ethereum APIs

- thirdweb
  - Build web3 applications that can interact with your smart contracts using our powerful SDKs.
- Web3.js
  - Javascript Web3
- Eth.js
  - Javascript Web3 alternative
- Ethers.js
  - Javascript Web3 alternative, useful utilities and wallet features
- useDApp
  - React based framework for rapid DApp development on Ethereum
- light.js
- A high-level reactive JS library optimized for light clients.
- Web3Wrapper
  - Typescript Web3 alternative

- Ethereumjs
  - A collection of utility functions for Ethereum like ethereumjs-util
- and ethereumjs-tx
- Alchemy-web3.js
  - Javascript Web3 wrapper with automatic retries, access to Alchemy's enhanced APIs
- , and robust websocket connections.
- flex-contract
- and flex-ether
  - Modern, zero-configuration, high-level libraries for interacting with smart contracts and making transactions.
- ez-ens
  - Simple, zero-configuration Ethereum Name Service address resolver.
- web3x
  - A TypeScript port of web3.js. Benefits includes tiny builds and full type safety, including when interacting with contracts.
- Nethereum
  - Cross-platform Ethereum development framework
- dfuse
  - A TypeScript library to use dfuse Ethereum API
- Drizzle
  - Redux library to connect a frontend to a blockchain
- Tasit SDK
  - A JavaScript SDK for making native mobile Ethereum dapps using React Native
- useMetamask
  - a custom React Hook to manage Metamask in Ethereum ĐApp projects
- WalletConnect
  - Open protocol for connecting Wallets to Dapps
- Subproviders
  - Several useful subproviders to use in conjunction with Web3-provider-engine
- (including a LedgerSubprovider for adding Ledger hardware wallet support to your dApp)
- Strictly Typed - Javascript alternatives* elm-ethereum
  - purescript-web3
- ChainAbstractionLayer
  - Communicate with different blockchains (including Ethereum) using a single interface.
- Delphereum
  - a Delphi interface to the Ethereum blockchain that allows for development of native dApps for Windows, macOS, iOS, and Android.
- Torus
  - Open-sourced SDK to build dapps with a seamless onboarding UX
- Fortmatic
  - A simple to use SDK to build web3 dApps without extensions or downloads.
- Portis
  - A non-custodial wallet with an SDK that enables easy interaction with DApps without installing anything.
- create-eth-app
  - Create Ethereum-powered front-end apps with one command.
- Scaffold-ETH
  - Beginner friendly forkable github for getting started building smart contracts.
- Notify.js

    - Deliver real-time notifications to your users. With built-in support for Speed-Ups and Cancels, Blocknative Notify.js helps users transact with confidence. Notify.js is easy to integrate and quick to customize.

Backend Ethereum APIs

- thirdweb
    - Build web3 applications that can interact with your smart contracts using our powerful SDKs.
- Web3.py
    - Python Web3
- Web3.php
    - PHP Web3
- Ethereum-php
    - PHP Web3
- Web3j
    - Java Web3
- Nethereum
    - .Net Web3
- Ethereum.rb
    - Ruby Web3
- rust-web3
    - Rust Web3
- Web3.hs
    - Haskell Web3
- KEthereum
    - Kotlin Web3
- Eventeum
    - A bridge between Ethereum smart contract events and backend microservices, written in Java by Kauri
- Ethereumex
    - Elixir JSON-RPC client for the Ethereum blockchain
- Ethereum-jsonrpc-gateway
    - A gateway that allows you to run multiple Ethereum nodes for redundancy and load-balancing purposes. Can be ran as an alternative to (or on top of) Infura. Written in Golang.
- EthContract
    - A set of helper methods to help query ETH smart contracts in Elixir
- Ethereum Contract Service
    - A MESG Service to interact with any Ethereum contract based on its address and ABI.
- Ethereum Service
    - A MESG Service to interact with events from Ethereum and interact with it.
- Marmo
    - Python, JS, and Java SDK for simplifying interactions with Ethereum. Uses relayers to offload transaction costs to relayers.
- Ethereum Logging Framework
    - provides advanced logging capabilities for Ethereum applications and networks including a query language, query processor, and logging code generation
- Watchdata
    - Provide simple and reliable API access to Ethereum blockchain

Bootstrap/Out-of-Box tools

- Truffle boxes
  - Packaged components for the Ethereum ecosystem
- Create Eth App
  - Create Ethereum-powered frontend apps with one command
- Besu Private Network
  - Run a private network of Besu nodes in a Docker container
- Testchains
  - Pre-configured .NET devchains for fast response (PoA)
- **Blazor/Blockchain Explorer
  - Wasm blockchain explorer (functional sample)
- Local Raiden
  - Run a local Raiden network in docker containers for demo and testing purposes
- Private networks deployment scripts
  - Out-of-the-box deployment scripts for private PoA networks
- Parity Demo-PoA Tutorial
  - Step-by-Step tutorial for building a PoA test chain with 2 nodes with Parity authority round consensus
- Local Ethereum Network
  - Out-of-the-box deployment scripts for private PoW networks
- Kaleido
  - Use Kaleido for spinning up a consortium blockchain network. Great for PoCs and testing
- Cheshire
  - A local sandbox implementation of the CryptoKitties API and smart contracts, available as a Truffle Box
- aragonCLI
  - aragonCLI is used to create and develop Aragon apps and organizations.
- ColonyJS
  - JavaScript client that provides an API for interacting with the Colony Network smart contracts.
- ArcJS
  - Library that facilitates javascript application access to the DAOstack Arc ethereum smart contracts.
- Arkane Connect
  - JavaScript client that provides an API for interacting with Arkane Network, a wallet provider for building user-friendly dapps.
- Onboard.js
  - Blocknative Onboard is the quick and easy way to add multi-wallet support to your project. With built-in modules for more than 20 unique hardware and software wallets, Onboard saves you time and headaches.
- web3-react
  - React framework for building single-page Ethereum dApps

Ethereum ABI (Application Binary Interface) tools

- Online ABI encoder
  - Free ABI encoder online service that allows you to encode your Solidity contract’s functions and constructor arguments.
- ABI decoder
  - library for decoding data params and events from Ethereum transactions
- ABI-gen
  - Generate Typescript contract wrappers from contract ABI's.
- Ethereum ABI UI

    - Auto-generate UI form field definitions and associated validators from an Ethereum contract ABI
- headlong
    - type-safe Contract ABI and Recursive Length Prefix library in Java
- EasyDapper
    - Generate dapps from Truffle artifacts, deploy contracts on public/private networks, offers live customizable public page to interact with contracts.
- One Click dApp
    - Instantly create a dApp at a unique URL using the ABI.
- Truffle Pig
    - a development tool that provides a simple HTTP API to find and read from Truffle-generated contract files, for use during local development. Serves fresh contract ABIs over http.
- Ethereum Contract Service
    - A MESG Service to interact with any Ethereum contract based on its address and ABI.
- Nethereum-CodeGenerator
    - A web based generator which creates a Nethereum based C# Interface and Service based on Solidity Smart Contracts.
- EVMConnector
    - Create shareable contract dashboards and interact with arbitrary EVM-based blockchain functions, with or without an ABI.

Patterns & Best Practices

Patterns for Smart Contract Development

- Dappsys: Safe, simple, and flexible Ethereum contract building blocks
    - has solutions for common problems in Ethereum/Solidity, eg.*Whitelisting
        - Upgradable ERC20-Token
        - ERC20-Token-Vault
        - Authentication (RBAC)
        - ...several more...
    - provides building blocks for theMakerDAO
    - orThe TAO
    - should be consulted before creating own, untested, solutions
    - usage is described inDapp-a-day 1-10
    - andDapp-a-day 11-25
- OpenZeppelin Contracts: An open framework of reusable and secure smart contracts in the Solidity language.
    - Likely the most widely-used libraries and smart contracts
    - Similar to Dappsys, more integrated into Truffle framework
    - Blog about Best Practices with Security Audits
- Advanced Workshop with Assembly
- Simpler Ethereum Multisig
    - especially sectionBenefits
- CryptoFin Solidity Auditing Checklist

-
    - A checklist of common findings, and issues to watch out for when auditing a contract for a mainnet launch.
- aragonOS: A smart contract framework for building DAOs, Dapps and protocols
-
    - Upgradeability: Smart contracts can be upgraded to a newer version
-
    - Permission control: By using theauth
-
    - andauthP
-
    - modifiers, you can protect functionality so only other apps or entities can access it
-
    - Forwarders: aragonOS apps can send their intent to perform an action to other apps, so that intent is forwarded if a set of requirements are met
- EIP-2535 Diamond Standard
-
    - Organize contracts so they share the same contract storage and Ethereum address.
-
    - Solves the 24KB max contract size limit.
-
    - Upgrade diamonds by adding/replacing/removing any number of functions in a single transaction.
-
    - Upgrades are transparent by recording them with a standard event.
-
    - Get information about a diamond with events and/or four standard functions.
- Clean Contracts - A guide to writing clean code

Upgradeability

- Blog von Elena Dimitrova, Dev at colony.io
-
    - https://blog.colony.io/writing-more-robust-smart-contracts-99ad0a11e948
-
    - https://blog.colony.io/writing-upgradeable-contracts-in-solidity-6743f0eecc88
- Aragon research blog
-
    - Library driven development
-
    - Advanced Solidity code deployment techniques
- OpenZeppelin on Proxy Libraries

Infrastructure

Ethereum Clients

- Besu
-
    - an open-source Ethereum client developed under the Apache 2.0 license and written in Java. The project is hosted by Hyperledger.
- Geth
-
    - Go client
- OpenEthereum
-
    - Rust client, formerly called Parity
- Aleth
-
    - C++ client
- Nethermind
-
    - .NET Core client
- Infura
-
    - A managed service providing Ethereum client standards-compliant APIs
- Trinity
-
    - Python client usingpy-evm
- Ethereumjs

- JS client usingethereumjs-vm
- Seth
- Seth is an Ethereum client tool—like a "MetaMask for the command line"
- Mustekala
- Ethereum Light Client project of Metamask
- Exthereum
- Elixir client
- EWF Parity
- Energy Web Foundation client for the Tobalaba test network
- Quorum
- A permissioned implementation of Ethereum supporting data privacy byJP Morgan
- Mana
- Ethereum full node implementation written in Elixir.
- Chainstack
- A managed service providing shared and dedicated Geth nodes
- QuickNode
- Blockchain developer cloud with API access and node-as-a-service.
- Watchdata
- Provide simple and reliable API access to Ethereum blockchain

Storage

- IPFS
- Decentralised storage and file referencing* Mahuta
- IPFS Storage service with added search capability, formerly IPFS-Store
- OrbitDB
- Decentralised database on top of IPFS
- JS IPFS API
- A client library for the IPFS HTTP API, implemented in JavaScript
- TEMPORAL
- Easy to use API into IPFS and other distributed/decentralised storage protocols
- PINATA
- The Easiest Way to Use IPFS
- Swarm
- Distributed storage platform and content distribution service, a native base layer service of the Ethereum web3 stack
- Infura
- A managed IPFS API Gateway and pinning service
- 3Box Storage
- An api for user controlled, distrubuted storage. Built on top of IPFS and Orbitdb.

- Aleph.im
  - an offchain incentivized peer-to-peer cloud project (database, file storage, computing and DID) compatible with Ethereum and IPFS.

Messaging

- Whisper
  - Communication protocol for DApps to communicate with each other, a native base layer service of the Ethereum web3 stack
- DEVp2p Wire Protocol
  - Peer-to-peer communications between nodes running Ethereum/Whisper
- Pydevp2p
  - Python implementation of the RLPx network layer
- 3Box Threads
  - API to allow developers to implement IPFS persisted, or in memory peer to peer messaging.

Testing Tools

- Truffle Teams
  - Zero-Config continuous integration for truffle projects
- Solidity code coverage
  - Solidity code coverage tool
- Solidity coverage
  - Alternative code coverage for Solidity smart-contracts
- Solidity function profiler
  - Solidity contract function profiler
- Sol-profiler
  - Alternative and updated Solidity smart contract profiler
- Espresso
  - Speedy, parallelised, hot-reloading solidity test framework
- Eth tester
  - Tool suite for testing Ethereum applications
- Cliquebait
  - Simplifies integration and accepting testing of smart contract applications with docker instances that closely resembles a real blockchain network
- Hevm
  - The hevm project is an implementation of the Ethereum virtual machine (EVM) made specifically for unit testing and debugging smart contracts
- Ethereum graph debugger
  - Solidity graphical debugger
- Tenderly CLI
  - Speed up your development with human readable stack traces
- Solhint
  - Solidity linter that provides security, style guide and best practice rules for smart contract validation
- Ethlint
  - Linter to identify and fix style & security issues in Solidity, formerly Solium
- Decode
  - npm package which parses tx's submitted to a local testrpc node to make them more readable and easier to understand

- truffle-assertions
  - An npm package with additional assertions and utilities used in testing Solidity smart contracts with truffle. Most importantly, it adds the ability to assert whether specific events have (not) been emitted.
- Psol
  - Solidity lexical preprocessor with mustache.js-style syntax, macros, conditional compilation and automatic remote dependency inclusion.
- solpp
  - Solidity preprocessor and flattener with a comprehensive directive and expression language, high precision math, and many useful helper functions.
- Decode and Publish
- – Decode and publish raw ethereum tx. Similar tohttps://live.blockcypher.com/btc-testnet/decodetx/
- Doppelgänger
  - a library for mocking smart contract dependencies during unit testing.
- rocketh
  - A simple lib to test ethereum smart contract that allow to use whatever web3 lib and test runner you choose.
- pytest-cobra
  - PyTest plugin for testing smart contracts for Ethereum blockchain.

Security Tools

- MythX
  - Security verification platform and tools ecosystem for Ethereum developers
- Mythril
  - Open-source EVM bytecode security analysis tool
- Oyente
  - Alternative static smart contract security analysis
- Securify
  - Security scanner for Ethereum smart contracts
- SmartCheck
  - Static smart contract security analyzer
- Ethersplay
  - EVM disassembler
- Evmdis
  - Alternative EVM disassembler
- Hydra
  - Framework for cryptoeconomic contract security, decentralised security bounties
- Solgraph
  - Visualise Solidity control flow for smart contract security analysis
- Manticore
  - Symbolic execution tool on Smart Contracts and Binaries
- Slither
  - A Solidity static analysis framework
- Adelaide
  - The SECBIT static analysis extension to Solidity compiler
- solc-verify
  - A modular verifier for Solidity smart contracts
- Solidity security blog
  - Comprehensive list of known attack vectors and common anti-patterns

- Awesome Buggy ERC20 Tokens
  - A Collection of Vulnerabilities in ERC20 Smart Contracts With Tokens Affected
- Free Smart Contract Security Audit
  - Free smart contract security audits from Callisto Network
- Piet
  - A visual Solidity architecture analyzer

Monitoring

- Alethio
  - An advanced Ethereum analytics platform that provides live monitoring, insights and anomaly detection, token metrics, smart contract audits, graph visualization and blockchain search. Real-time market information and trading activities across Ethereum's decentralized exchanges can also be explored.
- amberdata.io
  - Provides live monitoring, insights and anomaly detection, token metrics, smart contract audits, graph visualization and blockchain search.
- Neufund - Smart Contract Watch
  - A tool to monitor a number of smart contracts and transactions
- Scout
  - A live data feed of the activities and event logs of your smart contracts on Ethereum
- Tenderly
  - A platform that gives users reliable smart contract monitoring and alerting in the form of a web dashboard without requiring users to host or maintain infrastructure
- Chainlyt
  - Explore smart contracts with decoded transaction data, see how the contract is used and search transactions with specific function calls
- BlockScout
  - A tool for inspecting and analyzing EVM based blockchains. The only full featured blockchain explorer for Ethereum networks.
- Terminal
  - A control panel for monitoring dapps. Terminal can be used to monitor your users, dapp, blockchain infrastructure, transactions and more.
- Ethereum-watcher
  - An extensible framework written in Golang for listening to on-chain events and doing something in response.
- Alchemy Notify
  - Notifications for mined and dropped transactions, gas price changes, and address activity for desired addresses.
- Blocknatve Mempool Explorer
- — Monitor any contract or wallet address and get streaming mempool events for every lifecycle stage — including drops, confirms, speedups, cancels, and more. Automatically decode confirmed internal transactions. And filter exactly how you want. Recieve events in our visual, no-code, interface or associate them with your API key to get events via a webhook. Mempool Explorer helps exchanges, protocols, wallets, and traders monitor and act on transactions in real-time.
- Ethernal
  - Ethereum block explorer for private chain. Browse transactions, decode function calls, event data or contract variables values on your locally running chain.

Other Miscellaneous Tools

- aragonPM
  - a decentralized package manager powered by aragonOS and Ethereum. aragonPM enables decentralized governance over package upgrades, removing centralized points of failure.
- Truffle boxes

-
    - Packaged components for building DApps fast.*Cheshire
-
    -
        - A local sandbox implementation of the CryptoKitties API and smart contracts, available as a Truffle Box
- Solc
-
    - Solidity compiler
- Sol-compiler
-
    - Project-level Solidity compiler
- Solidity cli
-
    - Compile solidity-code faster, easier and more reliable
- Solidity flattener
-
    - Combine solidity project to flat file utility. Useful for visualizing imported contracts or for verifying your contract on Etherscan
- Sol-merger
-
    - Alternative, merges all imports into single file for solidity contracts
- RLP
-
    - Recursive Length Prefix Encoding in JavaScript
- eth-cli
-
    - A collection of CLI tools to help with ethereum learning and development
- Ethereal
-
    - Ethereal is a command line tool for managing common tasks in Ethereum
- Eth crypto
-
    - Cryptographic javascript-functions for Ethereum and tutorials to use them with web3js and solidity
- Parity Signer
-
    - mobile app allows signing transactions
- py-eth
-
    - Collection of Python tools for the Ethereum ecosystem
- truffle-flattener
-
    - Concats solidity files developed under Truffle with all of their dependencies
- Decode
-
    - npm package which parses tx's submitted to a local testrpc node to make them more readable and easier to understand
- TypeChain
-
    - Typescript bindings for Ethereum smartcontracts
- EthSum
-
    - A Simple Ethereum Address Checksum Tool
- PHP based Blockchain indexer
-
    - allows indexing blocks or listening to Events in PHP
- Purser
-
    - JavaScript universal wallet tool for Ethereum-based wallets. Supports software, hardware, and Metamask -- brings all wallets into a consistent and predictable interface for dApp development.
- Node-Metamask
-
    - Connect to MetaMask from node.js
- Solidity-docgen
-
    - Documentation generator for Solidity projects
- Ethereum ETL
-
    - Export Ethereum blockchain data to CSV or JSON files

- prettier-plugin-solidity
  - Prettier plugin for formatting Solidity code
- Unity3dSimpleSample
  - Ethereum and Unity integration demo
- Flappy
  - Ethereum and Unity integration demo/sample
- Wonka
  - Nethereum business rules engine demo/sample
- Resolver-Engine
  - A set of tools to standarize Solidity import and artifact resolution in frameworks.
- eth-reveal
  - A node and browser tool to inspect transactions - decoding where possible the method, event logs and any revert reasons using ABIs found online.
- Ethereum-tx-sender
  - A useful library written in Golang to reliably send a transaction — abstracting away some of the tricky low level details such as gas optimization, nonce calculations, synchronization, and retries.
- truffle-plugin-verify
  - Seamlessly verify contract source code on Etherscan from the Truffle command line.
- Blocknative Gas Platform
- — Gas estimation for builders, by builders. Gas Platform harnesses Blocknative's real-time mempool data infrastructure to accurately and consistently estimate Ethereum transaction fees. This provides builders and traders with an up-to-the-moment gas fee API.
- ETH Gas.watch
  - A gas price watcher with email notifications on price change

Smart Contract Standards & Libraries

ERCs

- The Ethereum Request for Comment repository
- Tokens* ERC-20
  - Original token contract for fungible assets
  - ERC-721
    - Token standard for non-fungible assets
  - ERC-777
    - An improved token standard for fungible assets
  - ERC-918
    - Mineable Token Standard
- ERC-165
  - Creates a standard method to publish and detect what interfaces a smart contract implements.
- ERC-725
  - Proxy contract for key management and execution, to establish a Blockchain identity.
- ERC-173

- A standard interface for ownership of contracts

Popular Smart Contract Libraries

- Zeppelin
  - Contains tested reusable smart contracts like SafeMath and OpenZeppelin SDK library for smart contract upgradeability
- cryptofin-solidity
  - A collection of Solidity libraries for building secure and gas-efficient smart contracts on Ethereum.
- Modular Libraries
  - A group of packages built for use on blockchains utilising the Ethereum Virtual Machine
- DateTime Library
  - A gas-efficient Solidity date and time library
- Aragon
  - DAO protocol. Contains aragonOS smart contract framework with focus on upgradeability and governance
- ARC
  - an operating system for DAOs and the base layer of the DAO stack.
- 0x
  - DEX protocol
- Token Libraries with Proofs
  - Contains correctness proofs of token contracts wrt. given specifications and high-level properties
- Provable API
  - Provides contracts for using the Provable service, allowing for off-chain actions, data-fetching, and computation
- ABDK Libraries for Solidity
  - Fixed-point (64.64 bit) and IEEE-754 compliant quad precision (128 bit) floating-point math libraries for Solidity

Developer Guides for 2nd Layer Infrastructure

Scalability

Payment/State Channels

- Ethereum Payment Channel
  - Ethereum Payment Channel in 50 lines of code
- µRaiden Documentation
  - Guides and Samples for µRaiden Sender/Receiver Use Cases

Plasma

- Learn Plasma
  - Website as Node application that was started at the 2018 IC3-Ethereum Crypto Boot Camp at Cornell University, covering all Plasma variants (MVP/Cash/Debit)
- Plasma MVP
  - OmiseGO's research implementation of Minimal Viable Plasma
- Plasma MVP Golang
  - Golang implementation and extension of the Minimum Viable Plasma specification
- Plasma Guard
  - Automatically watch and challenge or exit from Omisego Plasma Network when needed.
- Plasma OmiseGo Watcher

- Interact with Plasma OmiseGo network and notifies for any byzantine events.

Side-Chains

- POA Network
- - POA Bridge
- - POA Bridge UI
- - POA Bridge Contracts
- Loom Network
- Matic Network

Privacy / Confidentiality

ZK-SNARKs

- ZoKrates
- - A toolbox for zkSNARKS on Ethereum
- The AZTEC Protocol
- - Confidential transactions on the Ethereum network, implementation is live on the Ethereum main-net
- Nightfall
- - Make any ERC-20 / ERC-721 token private - open source tools & microservices
- Proxy Re-encryption (PRE)
- **NuCypher Network
- - A proxy re-encryption network to empower data privacy in decentralized systems
- **pyUmbral
- - Threshold proxy re-encryption cryptographic library
- Fully Homomorphic Encryption (FHE)
- **NuFHE
- - GPU accelerated FHE library

Scalability + Privacy

ZK-STARKs

- StarkWare
- andStarkWare Resources
- - StarkEx scalability engine storing state transitions on-chain

Prebuilt UI Components

- aragonUI
- - A React library including Dapp components
- components.bounties.network
- - A React library including Dapp components
- ui.decentraland.org
- - A React library including Dapp components
- dapparatus
- - Reusable React Dapp components
- Metamask ui
- - Metamask React Components
- DappHybrid
- - A cross-platform hybrid hosting mechanism for web based decentralised applications

- Nethereum.UI.Desktop
  - Cross-platform desktop wallet sample
- eth-button
  - Minimalist donation button
- Rimble Design System
  - Adaptable components and design standards for decentralized applications.
- 3Box Plugins
  - Drop in react components for social functionality. Including comments, profiles and messaging.

info Inspired by:https://github.com/ConsenSys/ethereum-developer-tools-list Edit this page Previous Launch Checklist