**ETHEREUM FOR DEVELOPERS**

**2 Day program - $1,495**

We present Eris for Developers – a two-day workshop on the fundamentals of the Eris technology stack. Workshop attendees will develop an enterprise-grade permissioned, smart contract mortgage-backed-security system in just two days. The Eris technology stack has been used by leading financial consortia and institutions to build blockchain applications.

Target group:

Developers with hands-on experience in some high-level language (JavaScript, Python, C#, …). This course starts on the fundamentals and does not have any prerequisites in blockchain-exposure but it increases in pace to walk through more advanced smart contract examples.

This two-day course, geared for developers, equips participants with fundamental knowledge and practical know-how to build an MVP on the Eris technology stack. Related technologies such as IPFS that complement the Eris stack shall also be briefly covered. A hands-on development project will have participants build smart mortgage-backed-securities.

Course requirements:

Please ensure that you bring your laptop and power supply. It is also required that you have a working Chrome browser installed and your laptop has a working WiFi interface.

The workshop contains several breaks, beverages are included.

**WORKSHOP AGENDA**

Day 1

**Introduction to blockchains and smart contracts**

* What are blockchains and smart contracts?
* Speciality of blockchains and smart contracts
* Dual Integration Smart Contracts

**Ecosystem applications: The motivation behind the Eris tech stack**

* Process Management Tooling architectures
* Introduction of workshop example: mortgage-backed securities
* Blockchain tech: Core capabilities and business needs

**Introduction to IDE and setting up Eris**

* Browser-based Ether.Camp IDE
* Install Docker & Eris
* Start/make keys/chains
* General tour of the CLI

**Core components of blockchain technology**

* Consensus algorithms
* Inherent validity
* Hash functions
* Public key cryptography

**Introduction to Solidity**

* Simple elements: contract, constructor, address, msg.sender, msg.value, address.balance, mappings
* Start building simple example.

**The Eris technology stack**

* Functionality available in Eris
* Future development directions

**Specific example in Solidity**

* Exercise: participants finalize example
* Discussion of results
* Presentation of first working example

Day 2

**Deploying contracts, handling accounts, genesis.json**

* SFTP contract from IDE to Eris machine (all in browser)
* Deploy contract
* Investigate genesis.json

**Interfacing contract via Nods.JS**

* Investigate compiler output (abi and address)
* Build minimal app.js (Node.JS) to expose smart contract
* Use webserver (express)
* Interface contract (via abi and address)
* Simple read/writes to contract
* Events

**Advanced example - I**

* Advanced elements: modifiers, inheritance, suicide, internal, hash functions, time
* Start developing an advanced example of smart mortgage-backed securities.

**Advanced example - II**

* Exercise: participants finalize smart mortgage – backed securities.
* Discussion of results
* Presentation of working example

**Setting up multi-validator network**

* Participants send addresses to each other
* Generate joint genesis.json
* Setup of consortium blockchain amongst participants
* Play token contract / MBS example on that network.

**Best practices of smart contract programming**

* Uniqueness of smart contract programming
* Known anti-patterns in smart contract programming
* Case study: GovernMental Ponzi and ‘The DAO’
* Building fault tolerant smart contracts
* Best practices of smart contract programming

**Open discussion round**

* Questions
* Applications of interest for participants
* Detailed discussion on technical approaches for participant applications

Duration: 2 days 17 hours   
Hosted at:   
Address:

Max: 20 participants

Requirements: Every participant will need a laptop with WiFi, his charger and a working Chrome browser