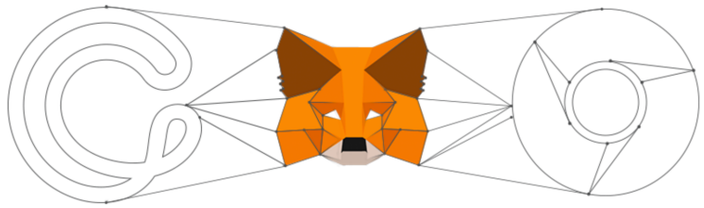
Install MetaMask

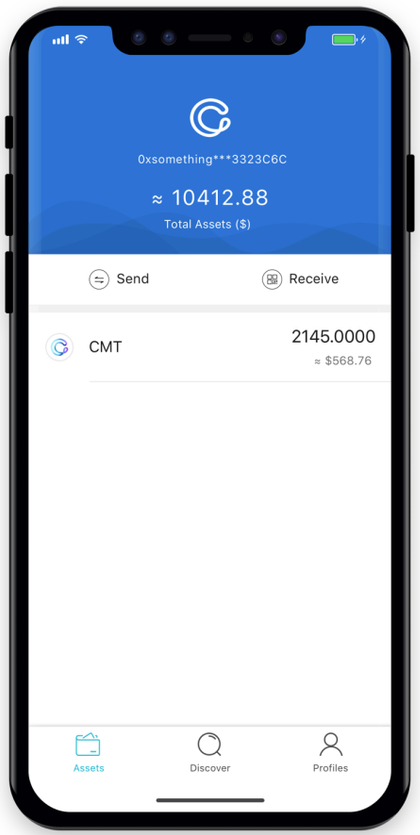
MetaMask For CMT: https://www.cybermiles.io/metamask/



Brings CyberMiles to your browser

Install CMT Wallet

CMT Wallet: https://www.cybermiles.io/cmt-wallet/



ERC20

Smart Contract 102

Zhun Shen, CyberMiles

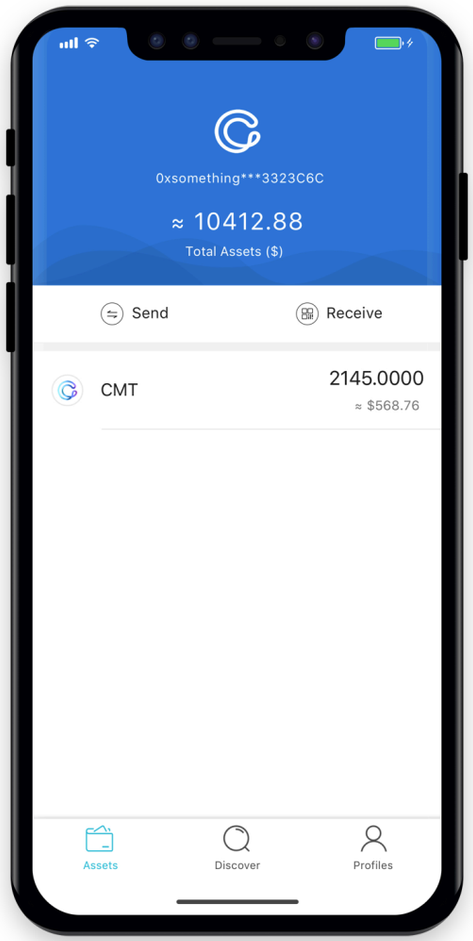
Introduction

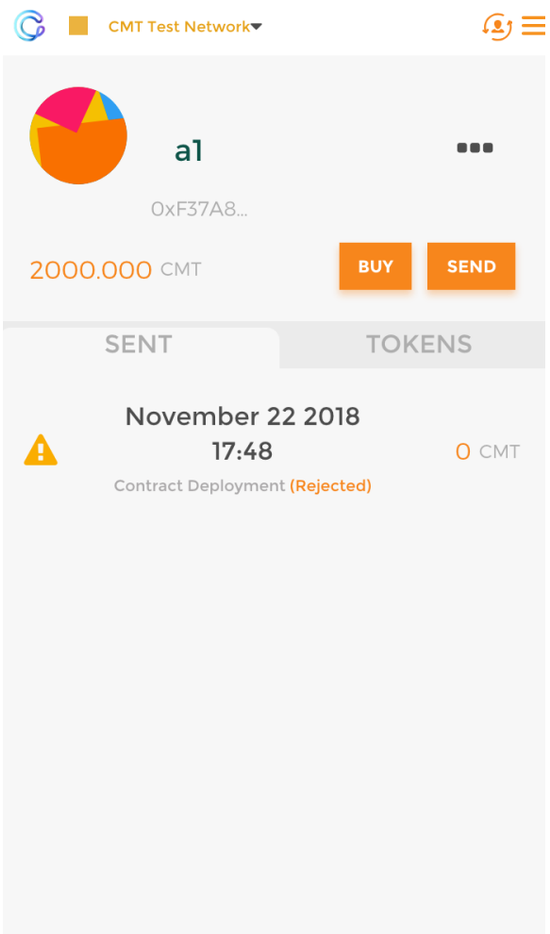
BUIDL

HODL

Wallet

- CMT Wallet
- MetaMask
- imToken
- MyEtherWallet
- …

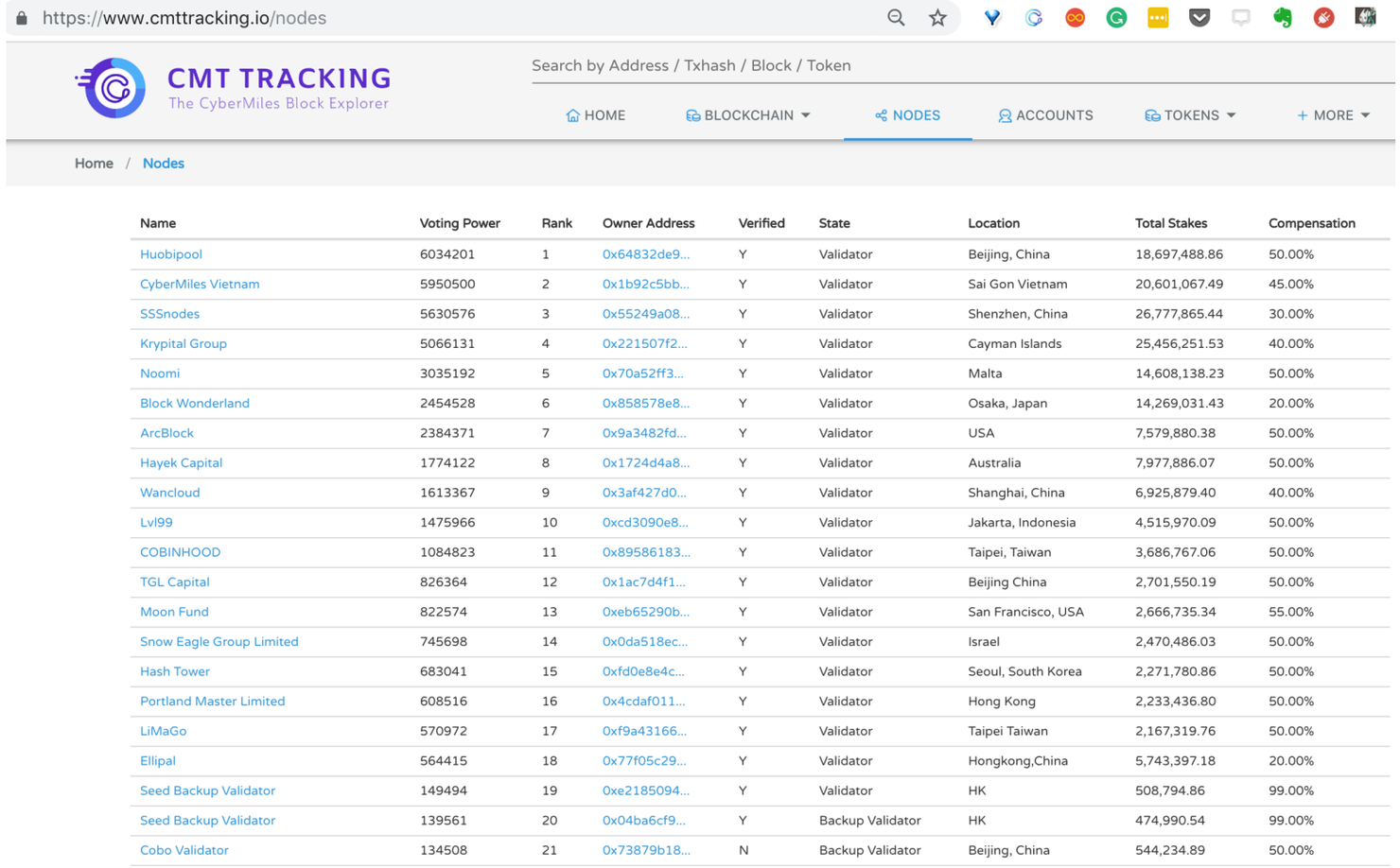




Gas

Validator Nodes

- Validator
- Delegator



Name	Voting Power	Rank	Owner Address	Verified	State	Location	Total Stakes	Compensation
Huobipool	6034201	1	0x64832de9...	Y	Validator	Beijing, China	18,697,488.86	50.00%
CyberMiles Vietnam	5950500	2	0x1b92c5bb...	Y	Validator	Sai Gon Vietnam	20,601,067.49	45.00%
SSSnodes	5630576	3	0x55249a08...	Y	Validator	Shenzhen, China	26,777,865.44	30.00%
Krypital Group	5066131	4	0x221507f2...	Y	Validator	Cayman Islands	25,456,251.53	40.00%
Noomi	3035192	5	0x70a52ff3...	Y	Validator	Malta	14,608,138.23	50.00%
Block Wonderland	2454528	6	0x858578e8...	Y	Validator	Osaka, Japan	14,269,031.43	20.00%
ArcBlock	2384371	7	0x9a3482fd...	Y	Validator	USA	7,579,880.38	50.00%
Hayek Capital	1774122	8	0x1724d4a8...	Y	Validator	Australia	7,977,886.07	50.00%
Wancloud	1613367	9	0x3af427d0...	Y	Validator	Shanghai, China	6,925,879.40	40.00%
Lvl99	1475966	10	0xcd3090e8...	Y	Validator	Jakarta, Indonesia	4,515,970.09	50.00%
COBINHOOD	1084823	11	0x89586183...	Y	Validator	Taipei, Taiwan	3,686,767.06	50.00%
TGL Capital	826364	12	0x1ac7d4f1...	Y	Validator	Beijing China	2,701,550.19	50.00%
Moon Fund	822574	13	0xeb65290b...	Y	Validator	San Francisco, USA	2,666,735.34	55.00%
Snow Eagle Group Limited	745698	14	0x0da518ec...	Y	Validator	Israel	2,470,486.03	50.00%
Hash Tower	683041	15	0xfd0e8e4c...	Y	Validator	Seoul, South Korea	2,271,780.86	50.00%
Portland Master Limited	608516	16	0x4cdaf011...	Y	Validator	Hong Kong	2,233,436.80	50.00%
LiMaGo	570972	17	0xf9a43166...	Y	Validator	Taipei Taiwan	2,167,319.76	50.00%
Ellipal	564415	18	0x77f05c29...	Y	Validator	Hongkong,China	5,743,397.18	20.00%
Seed Backup Validator	149494	19	0xe2185094...	Y	Validator	HK	508,794.86	99.00%
Seed Backup Validator	139561	20	0x04ba6cf9...	Y	Backup Validator	HK	474,990.54	99.00%
Cobo Validator	134508	21	0x73879b18...	N	Backup Validator	Beijing, China	544,234.89	50.00%

https://www.cmttracking.io/

DApp

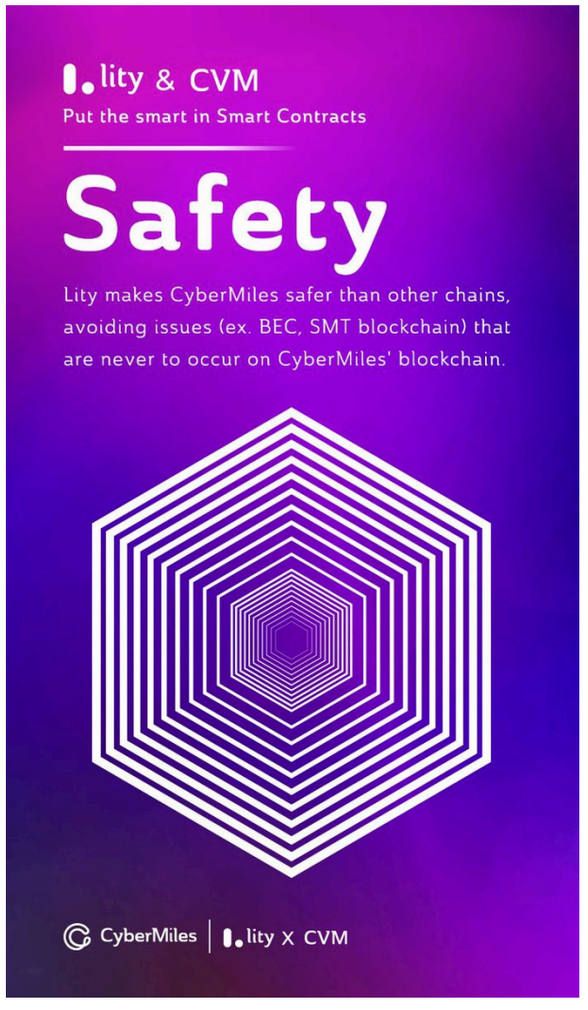
ARAGON

What is CryptoKitties?

CryptoKitties is a game centered around breedable, collectible, and oh-so-adorable creatures we call CryptoKitties! Each cat is one-of-a-kind and 100% owned by you; it cannot be replicated, taken away, or destroyed.

Language & Compiler

- Lity (powerful)
- Solidity
- …



https://www.litylang.org/

Consensus Mechanism

- Proof of Work (POW)
- Delegated Proof of Stake (DPOS)
- …

Warm-up

Hello World

```
pragma lity ^1.2.4;

contract HelloWorld {

    string helloMessage;
    address owner;

    modifier onlyOwner() {
        assert(msg.sender == owner);
        _;
    }

    constructor () public {
        helloMessage = "Hello world";
        owner = msg.sender;
    }

    function updateMessage (string _new_msg) public {
        helloMessage = _new_msg;
    }

    function sayHello() public view returns (string) {
        return helloMessage;
    }

    function terminate() external onlyOwner {
        selfdestruct(owner);
    }
}
```

ERC-20

Coin vs Token

- Bitcoin operates and functions on the Bitcoin blockchain

- Ether operates and functions on the Ethereum blockchain

- CMT operates and functions on the CyberMiles blockchain

- …

What’s ERC20?

ERC: Token standard · Issue #20 · ethereum/EIPs

ERC: 20 Title: Token standard Status: Draft Type: Informational Created: 19–11.2015 Resolution: https://github.com...

github.com

https://github.com/ethereum/EIPs/issues/20

Methods and Events

The ERC20 Token Standard Interface

Following is an interface contract declaring the required functions and events to meet the ERC20 standard:

```
// ----------------------------------------------------------------------------
// ERC Token Standard #20 Interface
// https://github.com/ethereum/EIPs/blob/master/EIPS/eip-20-token-standard.md
// ----------------------------------------------------------------------------
contract ERC20Interface {
    function totalSupply() public constant returns (uint);
    function balanceOf(address tokenOwner) public constant returns (uint balance);
    function allowance(address tokenOwner, address spender) public constant returns (uint remaining);
    function transfer(address to, uint tokens) public returns (bool success);
    function approve(address spender, uint tokens) public returns (bool success);
    function transferFrom(address from, address to, uint tokens) public returns (bool success);

    event Transfer(address indexed from, address indexed to, uint tokens);
    event Approval(address indexed tokenOwner, address indexed spender, uint tokens);
}
```

Functions

Events

Most of the major tokens on the Ethereum blockchain are ERC20-compliant. The GNT Golem Network Token is only partially-ERC20-compliant as it does not implement the `approve(...)`, `allowance(..)` and `transferFrom(...)` functions, and the `Approval(...)` event.

Some of the tokens include further information describing the token contract:

```
    string public constant name = "Token Name";
    string public constant symbol = "SYM";
    uint8 public constant decimals = 18;  // 18 is the most common number of decimal places
```

Optional

Example(1)

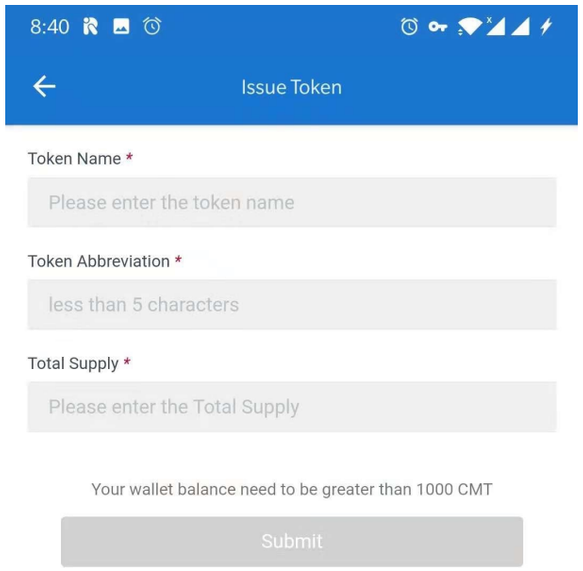
Holder address	Balance
0x0000...0000	0
0x1f59...3492	100
0x2299...3ab7	100
0x4ba5...ae22	100
0x4919...413d	100
0x93f1...1b09	100
0xd8f0...c028	100
0xe20b...93b6	100
Total supply	700

Example(2)

Holder address	Balance
0x0000...0000	0
0x1f59...3492	110
0x2299...3ab7	90
0x4ba5...ae22	100
0x4919...413d	100
0x93f1...1b09	100
0xd8f0...c028	100
0xe20b...93b6	100
Total supply	700

Let’s create your own token

CMT Wallet Dapp



Don’t have 1000 CMT?

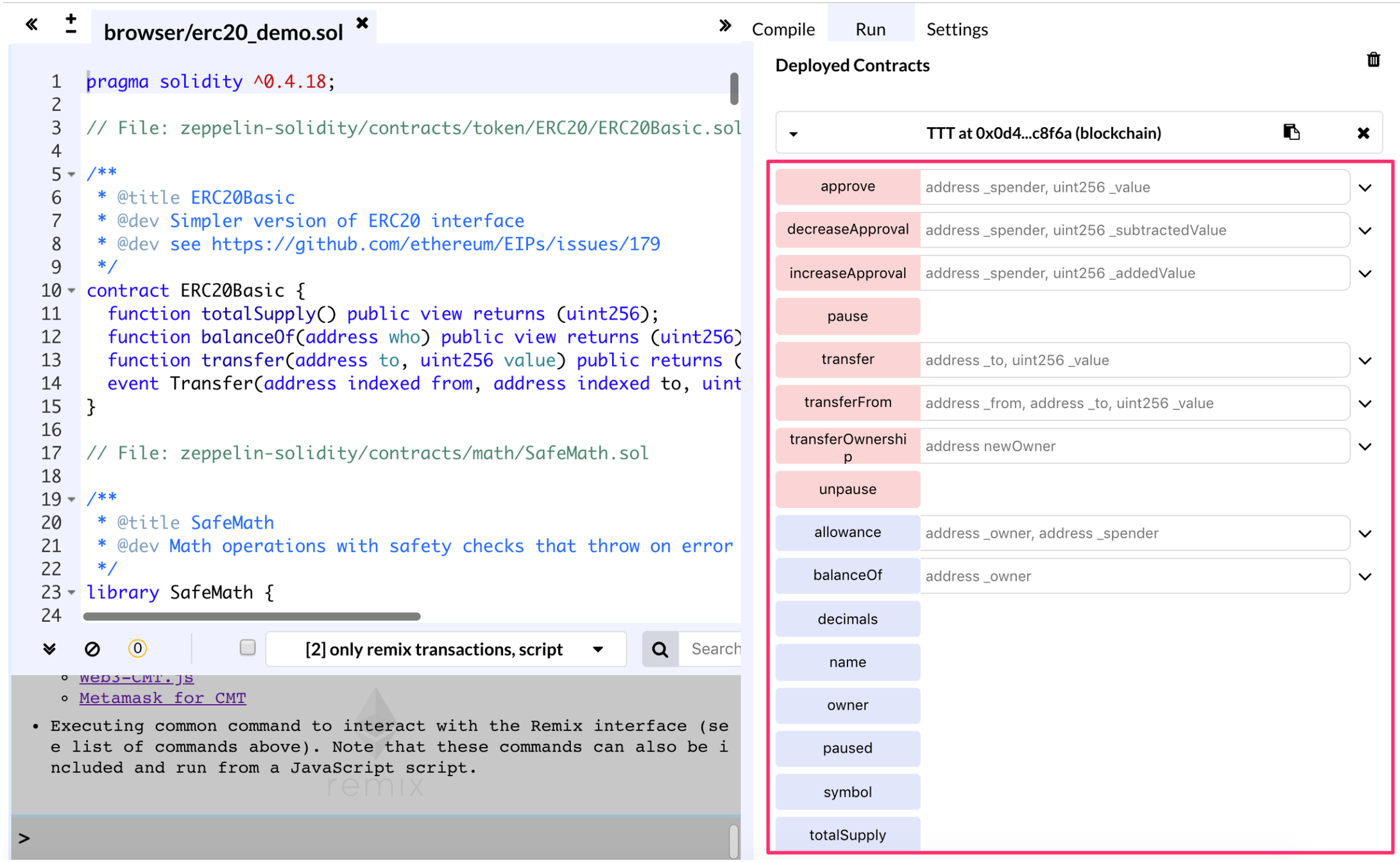
http://remix.cybermiles.io/#version=builtin

Types of Addresses

- Regular Address (you own private key)
- Smart Contract Address (you don’t)
- …

Do not send ETH/CMT directly to an Ethereum/CyberMiles contract

Play with methods



Use Cases

- credits
- coupon
- money/time
- …

Q&A