

ETHEREUM

Solidity for Dummies

Hudson Jameson and Piper Merriam

Reddit: Souptacular and pipermerriam

Solidity

High level language
for Ethereum
contracts.



solidity

It looks like Javascript (with types).

```
contract Math {  
    function multiply13(uint v) returns (uint) {  
        return v * 13;  
    }  
}
```

Contracts are like classes.

Code is compiled to the
Ethereum Virtual Machine (EVM).

EVM


Once deployed to the EVM, code is completely
isolated and cannot reach outside of the EVM.

Easy to write contracts

```
contract Wallet {  
    function withdraw(uint amount) public {  
        // Check they have a sufficient balance  
        if (balances[msg.sender] >= amount) {  
            // Send them the funds.  
            msg.sender.send(amount);  
            // Deduct the funds from their account  
            balances[msg.sender] -= amount;  
        }  
    }  
}
```

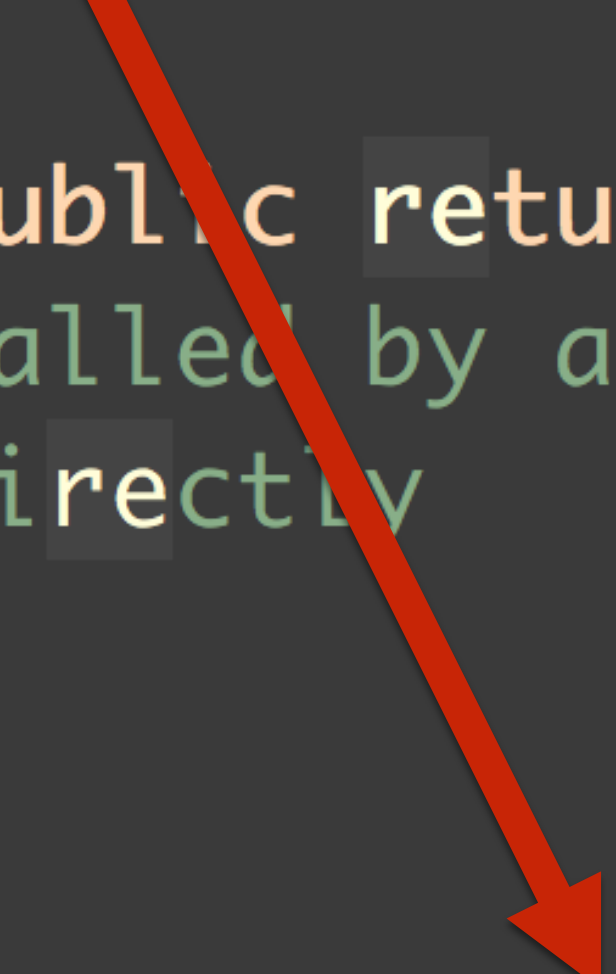
Hard to make sure they are secure

Public functions are callable by anybody



```
contract Wallet {  
    function balance() public returns (uint) {  
        // This can be called by any other  
        // contract or directly  
        ...  
    }  
  
    function transferBalance() internal {  
        // This can only be called from within  
        // the other functions of this contract  
        ...  
    }  
}
```

Internally functions are only callable from inside the contract



```
contract Wallet {  
    function balance() public returns (uint) {  
        // This can be called by any other  
        // contract or directly  
        ...  
    }  
  
    function transferBalance() internal {  
        // This can only be called from within  
        // the other functions of this contract  
        ...  
    }  
}
```

Public Functions

=

Exposed API



solidity

Contracts standards
are beginning to
emerge!





solidity

ERC20

```
function totalSupply()
function balanceOf(address owner)
function transfer(address to, uint256 value)
function approve(address spender, uint256 value)
function allowance(address owner, address spender)
function transferFrom(address from, address to, uint256 value)
```


Etherscan Token Explorer




LOGIN 

Search by Address / Txhash / BlockNo

GO

LANGUAGE 

HOMEBLOCKCHAINACCOUNTTOKENSTATSMISC

MKR

Home / TokenTracker / MKR

Summary

Total Supply:

1,000,000 MKR

Token Holders:

315 addresses

Transactions:


2014 txns

Misc

Contract Address:

[0xc66ea802717bfb9833400264dd12c2bceaa34a6d](#)

Official Site:

<http://makerdao.com> 


Filter By Address:

Apply

Token Transfer Transactions

Token Holders


Comments

 Largest 200 token holders (from a total of 315 holders)

Filter	Rank	Address	Quantity (MKR)	Percentage
1	0xe02640be68df835aa3327ea6473c02c8f6c3815a	738,453	73.84530%	
2	0x73e2defb56bf59eb2ad8f91f0d8e90b1604b5985	24,663.42468429	2.46634%	
3	0x98ef473a053a593c80f41d7bd813c8b4585982e5	16,422.09	1.64221%	
4	0xccf7f1345891a5b1eb781d086ca29822220b759	15,000	1.50000%	
5	0xb2cf7d325353619b2ebe451a5034a4d5ef5899dd	11,454.49	1.14545%	
6	0x6fb3c434649e4c20ae9db0bf2dae7dd059dff872	10,593.314	1.05933%	
7	0x35d68fb24df0e54d44e6cc32f75f1cc891f57811	10,526.71858243	1.05267%	
8	0xd8a0e13e8d0a20d48e300dd13a36b6a4bd516af1	10,000	1.00000%	

 ETHEREUM

EtherEx



Trades

Markets

BTC

Wallet

Tools

Help

NETWORK

Host

localhost:8545

Peers

0

Blocks

2,945

Miner

off

Ether

3.867 Kether

Gas price

-

Block time

9 s / 61 s

Network lag

3 s

Last price: 0.45580000 ETX/ETH

Balance: 0 ETX / 3.867 Kether

NEW TRADE

Buy

Amount

0.00001

ETX

Price

0.4558

ETX/ETH

Total

1.00000000

ETH

BUY

Sell

Amount

0.00001

ETX

Price

0.4558

ETX/ETH

Total

1.00000000

ETH

SELL

ASKS

Amount	Market	Price	Total	Buy
150.00000	ETX	0.25000000	37.5 ETH	
250.00000	ETX	0.25000000	62.5 ETH	
350.00000	ETX	0.26000000	91 ETH	
450.00000	ETX	0.27000000	121.5 ETH	

BIDS

Amount	Market	Price	Total	Sell
50.00000	ETX	0.24000000	12 ETH	
50.00000	ETX	0.23000000	11.5 ETH	
50.00000	ETX	0.22000000	11 ETH	
50.00000	ETX	0.21000000	10.5 ETH	

No middle man
Instant settlement
Assets always in
your control



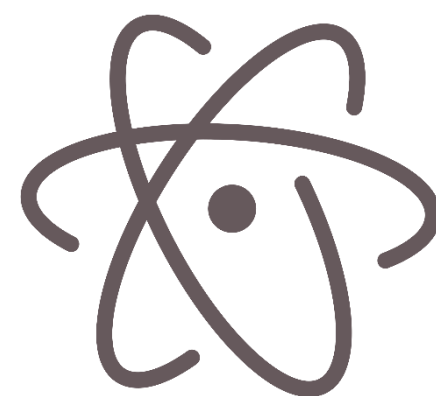
IDEs & Integrations



Browser
Solidity

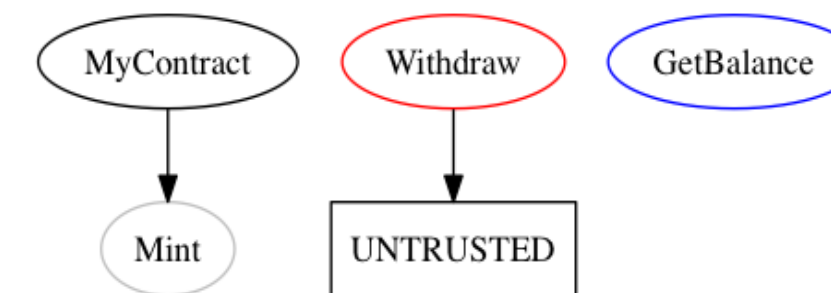


Remix (coming soon)
(IDE + web tools)



Tools

solgraph



solidity repl

```
raine[~]$ solr
Welcome to the Solidity REPL!
> uint a = 10
> uint b = 20
> a + b
30
>
```



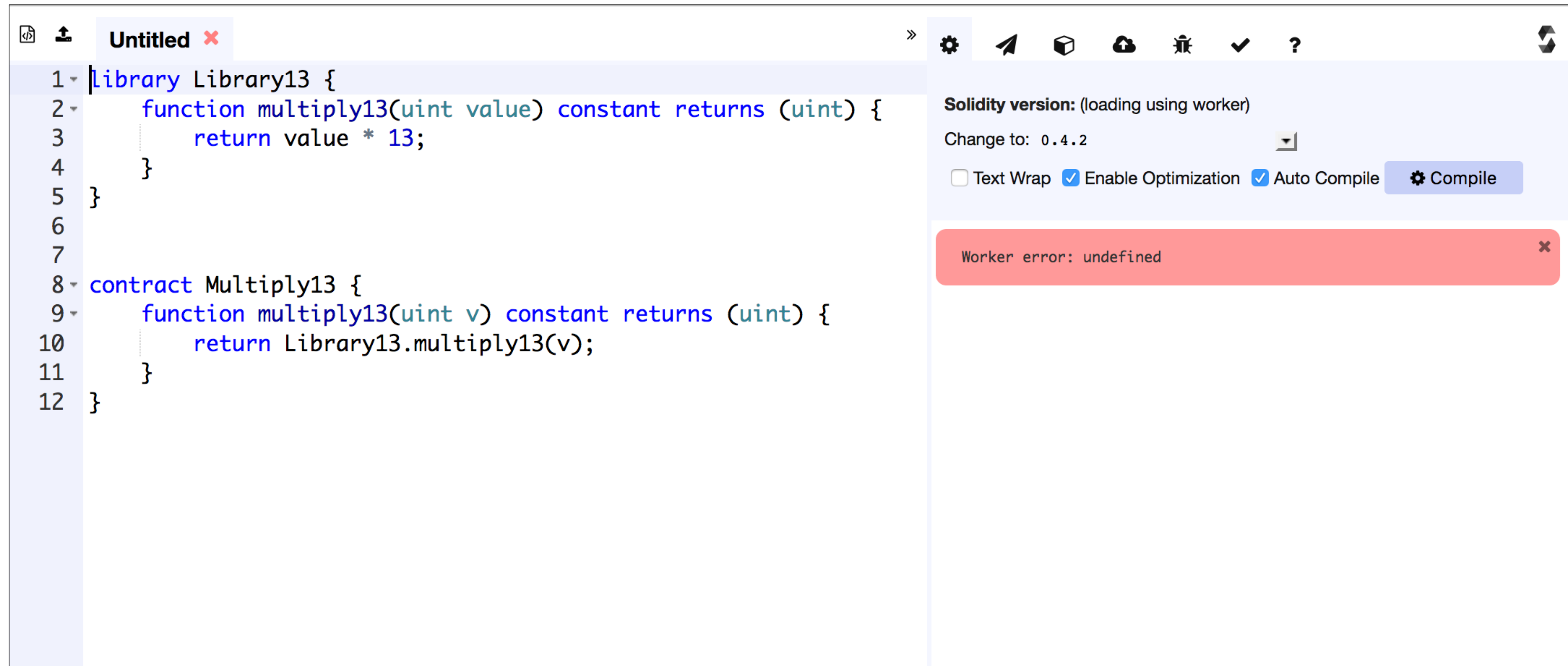
evmdis
(EVM Disassembler)



Populus
(Dapp framework)



Get Started Today!



```
1 library Library13 {
2     function multiply13(uint value) constant returns (uint) {
3         return value * 13;
4     }
5 }
6
7
8 contract Multiply13 {
9     function multiply13(uint v) constant returns (uint) {
10         return Library13.multiply13(v);
11     }
12 }
```

Solidity version: (loading using worker)
Change to: 0.4.2

☐ Text Wrap ☒ Enable Optimization ☒ Auto Compile Compile

Worker error: undefined

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