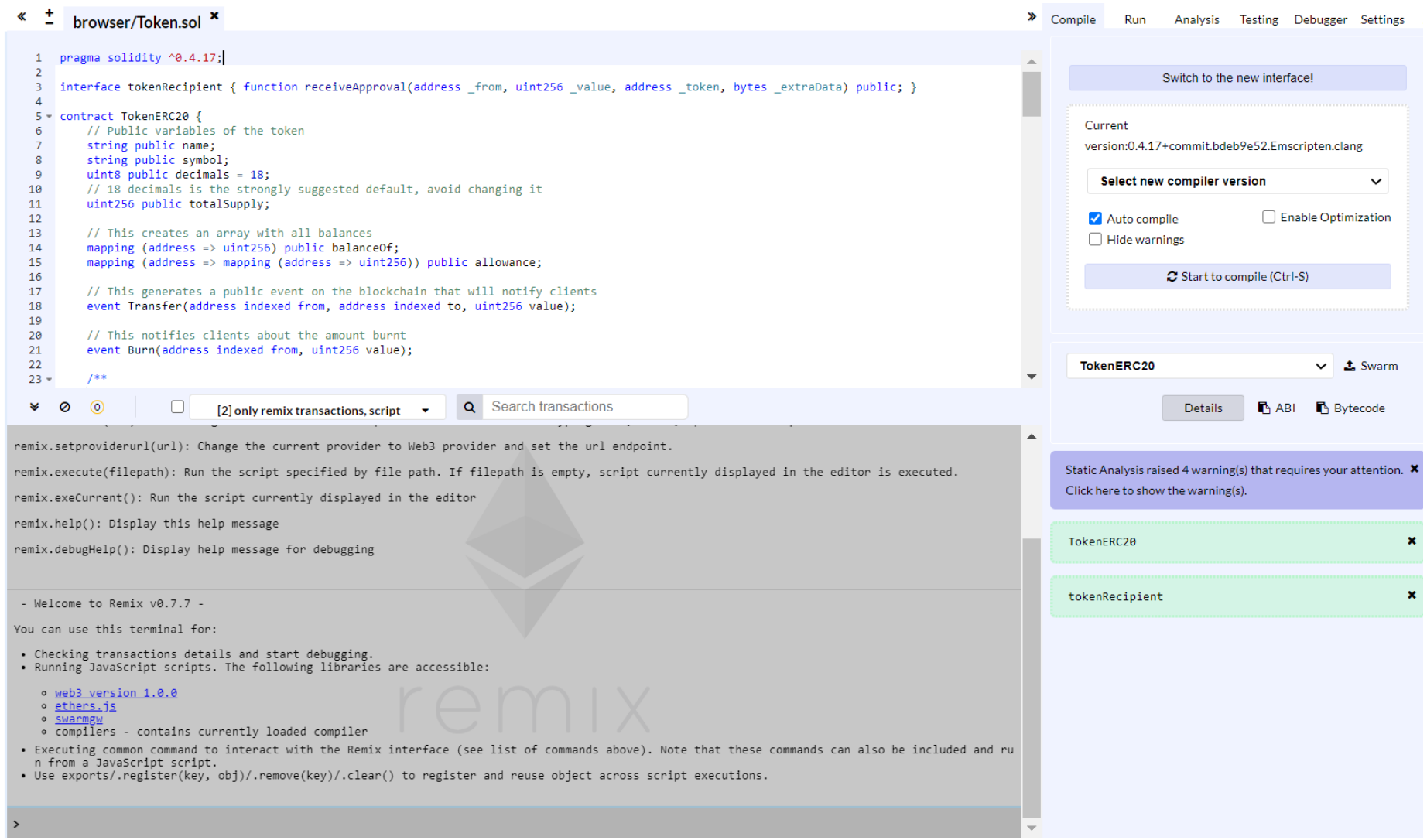
Lab 1

2020/5/31

薛嘉宜


browser/Token.sol
pragma solidity ^0.4.17;
interface tokenRecipient { function receiveApproval(address _from, uint256 _value, address _token, bytes _extraData) public; }
contract TokenERC20 {
// Public variables of the token
string public name;
string public symbol;
uint8 public decimals = 18;
// 18 decimals is the strongly suggested default, avoid changing it
uint256 public totalSupply;
// This creates an array with all balances
mapping (address => uint256) public balanceOf;
mapping (address => mapping (address => uint256)) public allowance;
// This generates a public event on the blockchain that will notify clients
event Transfer(address indexed from, address indexed to, uint256 value);
// This notifies clients about the amount burnt
event Burn(address indexed from, uint256 value);
/**
[2] only remix transactions, script
Search transactions
remix.setproviderurl(url): Change the current provider to Web3 provider and set the url endpoint.
remix.execute(filepath): Run the script specified by file path. If filepath is empty, script currently displayed in the editor is executed.
remix.exeCurrent(): Run the script currently displayed in the editor
remix.help(): Display this help message
remix.debugHelp(): Display help message for debugging
- Welcome to Remix v0.7.7 -
You can use this terminal for:
Checking transactions details and start debugging.
Running JavaScript scripts. The following libraries are accessible:
web3 version 1.0.0
ethers.js
swarmgw
compilers - contains currently loaded compiler
Executing common command to interact with the Remix interface (see list of commands above). Note that these commands can also be included and run from a JavaScript script.
Use exports/.register(key, obj)/.remove(key)/.clear() to register and reuse object across script executions.
remix
Compile
Run
Analysis
Testing
Debugger
Settings
Switch to the new interface!
Current
version:0.4.17+commit.bdeb9e52.Emscripten.clang
Select new compiler version
Auto compile
Enable Optimization
Hide warnings
Start to compile (Ctrl-S)
TokenERC20
Swarm
Details
ABI
Bytecode
Static Analysis raised 4 warning(s) that requires your attention.
Click here to show the warning(s).
TokenERC20
tokenRecipient

Compile | Run | Analysis | Testing | Debugger | Settings

Environment: Web3 Provider — Custom (5777)

Account: 0x69a...09c66 (100 ether)

Gas limit: 3000000

Value: 0 wei

TokenERC20

Deploy: uint256 initialSupply, string tokenName, string t

or

At Address: Load contract from Address

Transactions recorded: 0

Deployed Contracts

Currently you have no contract instances to interact with.

Compile | Run | Analysis | Testing | Debugger | Settings

Environment: Web3 Provider — Custom (5777)

Account: 0x69a...09c66 (99.97855406 ether)

Gas limit: 3000000

Value: 0 wei

TokenERC20

Deploy: 100,"Laurel Token","Laurel"

or

At Address: Load contract from Address

Transactions recorded: 1

Deployed Contracts

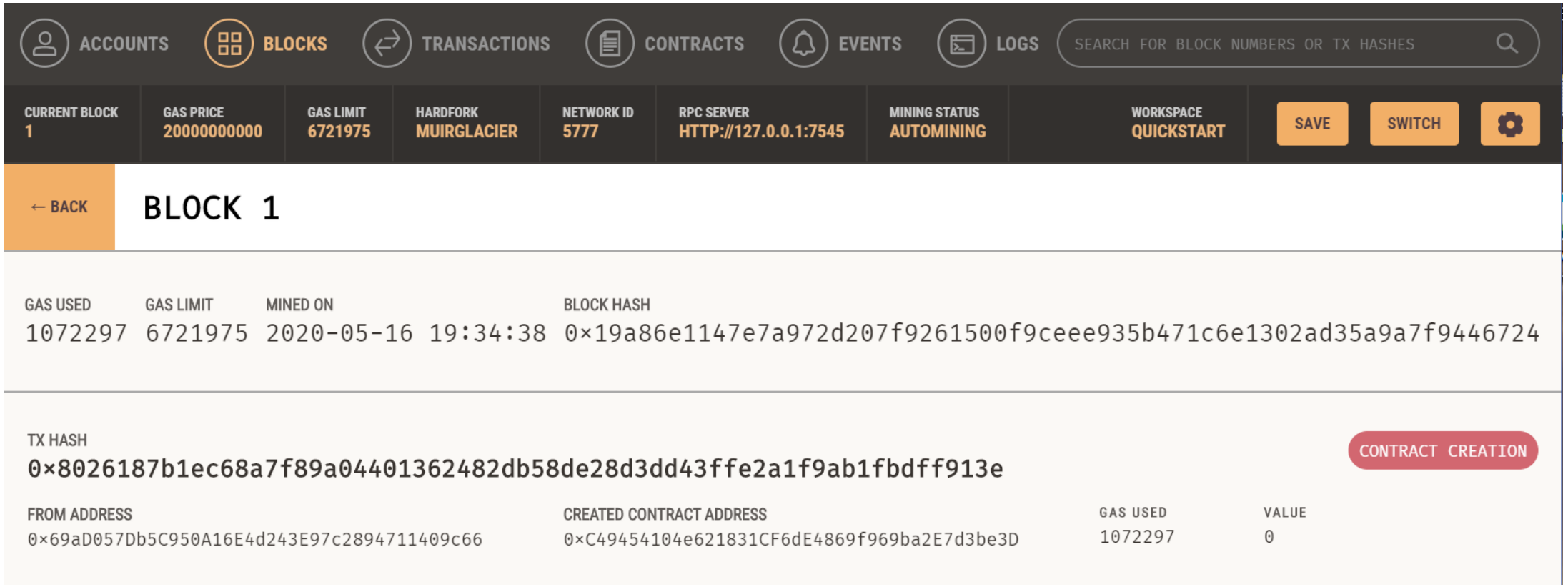
TokenERC20 at 0xc49...3be3d (blockchain)

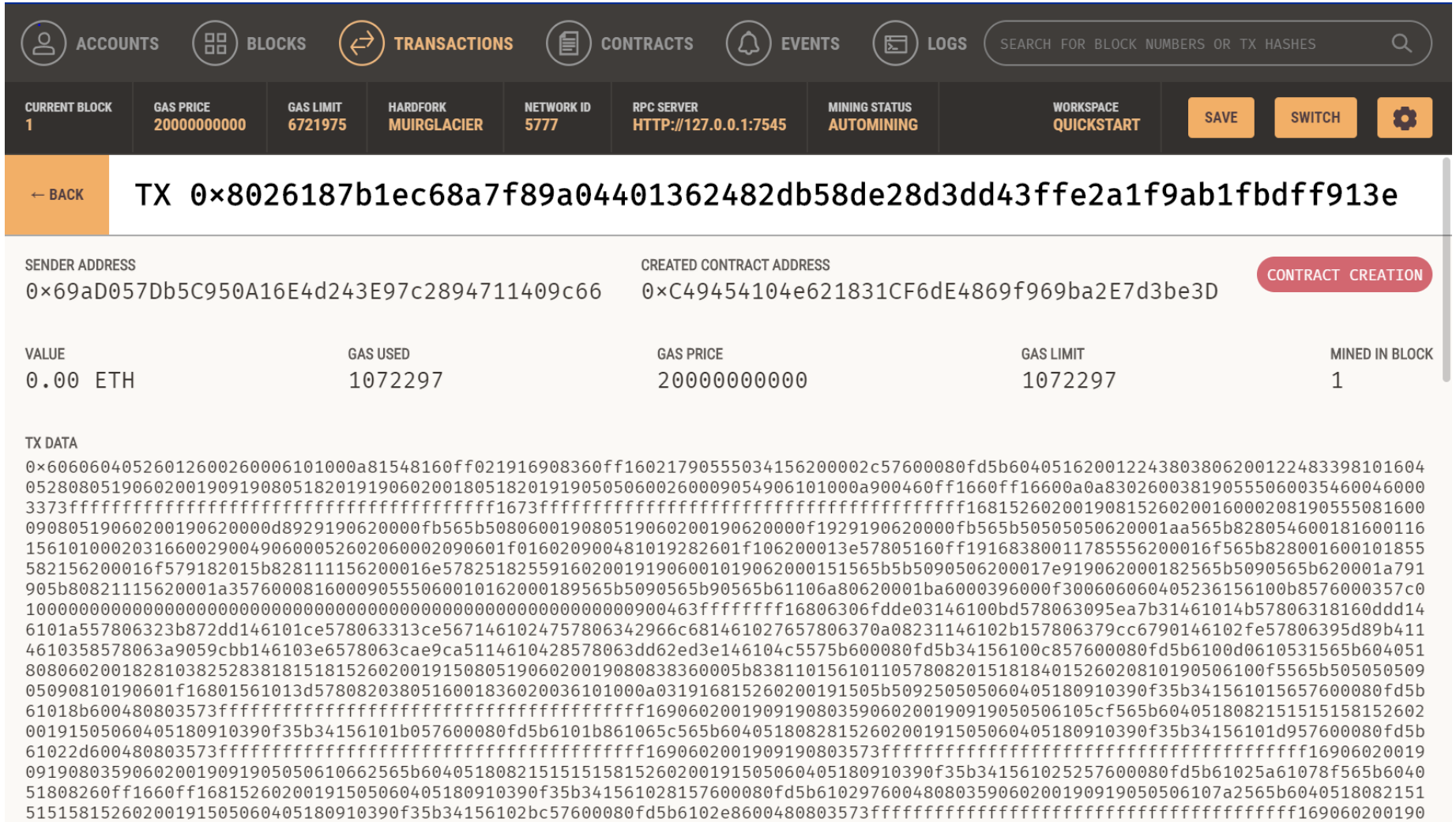
- approve: address _spender, uint256 _value
- approveAndCall: address _spender, uint256 _value, bytes _extraD
- burn: uint256 _value
- burnFrom: address _from, uint256 _value
- transfer: address _to, uint256 _value
- transferFrom: address _from, address _to, uint256 _value
- allowance: address , address
- balanceOf: address
- decimals
- name

creation of TokenERC20 pending...

[block:1 txIndex:0] **from:**0x69a...09c66 **to:**TokenERC20.(constructor) **value:**0 wei **data:**0x606...00000 **logs:**0 **hash:**0x802...f913e Debug

status	0x1 Transaction mined and execution succeed
transaction hash	0x8026187b1ec68a7f89a04401362482db58de28d3dd43ffe2a1f9ab1fbdff913e
from	0x69ad057db5c950a16e4d243e97c2894711409c66
to	TokenERC20.(constructor)
gas	1072297 gas
transaction cost	1072297 gas
hash	0x8026187b1ec68a7f89a04401362482db58de28d3dd43ffe2a1f9ab1fbdff913e
input	0x606...00000
decoded input	{ "uint256 initialSupply": "100", "string tokenName": "Laurel Token", "string tokenSymbol": "Laurel" }
decoded output	-
logs	[]
value	0 wei


ACCOUNTS
BLOCKS
TRANSACTIONS
CONTRACTS
EVENTS
LOGS
SEARCH FOR BLOCK NUMBERS OR TX HASHES
CURRENT BLOCK
1
GAS PRICE
20000000000
GAS LIMIT
6721975
HARDFORK
MUIRGLACIER
NETWORK ID
5777
RPC SERVER
HTTP://127.0.0.1:7545
MINING STATUS
AUTOMINING
WORKSPACE
QUICKSTART
SAVE
SWITCH
← BACK
BLOCK 1
GAS USED
1072297
GAS LIMIT
6721975
MINED ON
2020-05-16 19:34:38
BLOCK HASH
0×19a86e1147e7a972d207f9261500f9ceee935b471c6e1302ad35a9a7f9446724
TX HASH
0×8026187b1ec68a7f89a04401362482db58de28d3dd43ffe2a1f9ab1fbdff913e
CONTRACT CREATION
FROM ADDRESS
0×69aD057Db5C950A16E4d243E97c2894711409c66
CREATED CONTRACT ADDRESS
0×C49454104e621831CF6dE4869f969ba2E7d3be3D
GAS USED
1072297
VALUE
0



ACCOUNTS | BLOCKS | TRANSACTIONS | CONTRACTS | EVENTS | LOGS | SEARCH FOR BLOCK NUMBERS OR TX HASHES

CURRENT BLOCK	GAS PRICE	GAS LIMIT	HARDFORK	NETWORK ID	RPC SERVER	MINING STATUS	WORKSPACE	SAVE	SWITCH
1	20000000000	6721975	MUIRGLACIER	5777	HTTP://127.0.0.1:7545	AUTOMINING	QUICKSTART		

← BACK

TX 0×8026187b1ec68a7f89a04401362482db58de28d3dd43ffe2a1f9ab1fbdff913e

SENDER ADDRESS
0×69aD057Db5C950A16E4d243E97c2894711409c66

CREATED CONTRACT ADDRESS
0×C49454104e621831CF6dE4869f969ba2E7d3be3D

CONTRACT CREATION

VALUE	GAS USED	GAS PRICE	GAS LIMIT	MINED IN BLOCK
0.00 ETH	1072297	20000000000	1072297	1

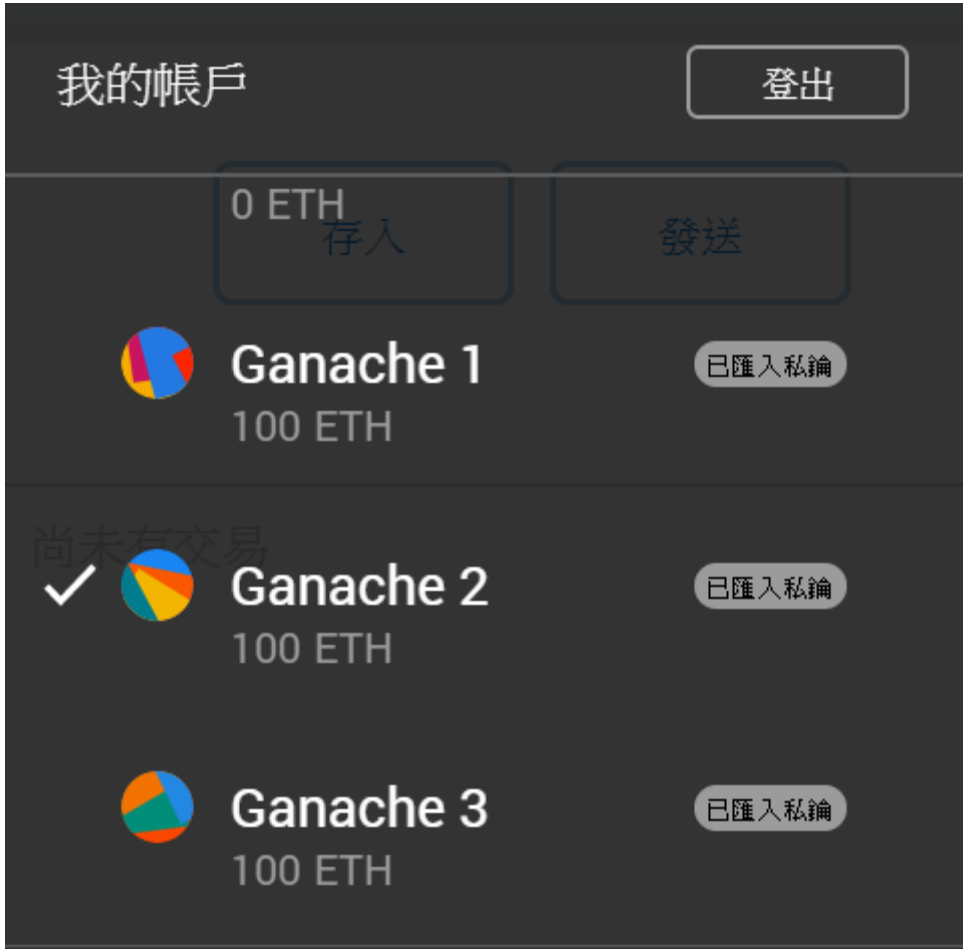
TX DATA

0×60606040526012600260006101000a81548160ff021916908360ff16021790555034156200002c57600080fd5b604051620012243803806200122483398101604
052808051906020019091908051820191906020018051820191905050600260009054906101000a900460ff1660ff16600a0a830260038190555060035460046000
3373ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffffff1681526020019081526020016000208190555081600
09080519060200190620000d8929190620000fb565b508060019080519060200190620000f1929190620000fb565b50505050620001aa565b828054600181600116
156101000203166002900490600052602060002090601f016020900481019282601f106200013e57805160ff19168380011785556200016f565b828001600101855
582156200016f579182015b828111156200016e57825182559160200191906001019062000151565b5b5090506200017e919062000182565b5090565b620001a791
905b80821115620001a357600081600090555060010162000189565b5090565b90565b61106a80620001ba6000396000f300606060405236156100b8576000357c0
100000000000000000000000000000000000000000000000000000000900463ffffffff16806306fdde03146100bd578063095ea7b31461014b57806318160ddd14
6101a557806323b872dd146101ce578063313ce5671461024757806342966c681461027657806370a08231146102b157806379cc6790146102fe57806395d89b411
4610358578063a9059cbb146103e6578063cae9ca5114610428578063dd62ed3e146104c5575b600080fd5b34156100c857600080fd5b6100d0610531565b604051
8080602001828103825283818151815260200191508051906020019080838360005b838110156101105780820151818401526020810190506100f5565b505050509
05090810190601f16801561013d5780820380516001836020036101000a031916815260200191505b509250505060405180910390f35b341561015657600080fd5b
61018b600480803573ffffffffffffffffffffffffffffffffffffffff169060200190919080359060200190919050506105cf565b6040518082151515158152602
00191505060405180910390f35b34156101b057600080fd5b6101b861065c565b6040518082815260200191505060405180910390f35b34156101d957600080fd5b
61022d600480803573ffffffffffffffffffffffffffffffffffffffff1690602001909190803573ffffffffffffffffffffffffffffffffffffffff16906020019
091908035906020019091905050610662565b604051808215151515815260200191505060405180910390f35b341561025257600080fd5b61025a61078f565b6040
51808260ff1660ff16815260200191505060405180910390f35b341561028157600080fd5b61029760048080359060200190919050506107a2565b6040518082151
51515815260200191505060405180910390f35b34156102bc57600080fd5b6102e8600480803573ffffffffffffffffffffffffffffffffffffffff169060200190

觀察和發現

- 在操作ganache的過程中，我發現可以在設定裡的accounts&keys中更改每個account初始擁有的ether數量，也可以調整要產生多少個account，在chain選項裡則是可以調整和gas相關的一些設定。而我在上層顯示欄中看到了一個新名詞：「Hard Fork—Muir Glacier」，去查了之後發現是指今年初以太坊完成的「繆爾冰川」硬分叉，用以推遲以太坊主網中逐漸顯現的難度炸彈。而難度炸彈指的是在算法中，使用以太幣在區塊鏈上對礦工進行獎勵的難度越來越大。以太幣越來越難挖，在區塊鏈上塊的生產之間會有相當長的時間差。因此以Hard Fork—Muir Glacier來向後推遲難度炸彈。

Lab 2


我的帳戶
登出
0 ETH
存入
發送
Ganache 1
已匯入私鑰
100 ETH
尚未有交易
Ganache 2
已匯入私鑰
100 ETH
Ganache 3
已匯入私鑰
100 ETH

Compile | Run | Analysis | Testing | Debugger | Settings

Environment: Web3 Provider Custom (1589952802657)

Account: 0x00d...2f7e0 (100 ether)

Gas limit: 3000000

Value: 0 wei

TokenERC20

Deploy: 29,"Laurel Token","Laurel"

or

At Address: Load contract from Address

Transactions recorded: 0

Deployed Contracts

Currently you have no contract instances to interact with.

Compile | Run | Analysis | Testing | Debugger | Settings

Environment: Web3 Provider Custom (1589952802657)

Account: 0x00d...2f7e0 (99.97855406 ether)

Gas limit: 3000000

Value: 0 wei

TokenERC20

Deploy: 29,"Laurel Token","Laurel"

or

At Address: Load contract from Address

Transactions recorded: 1

Deployed Contracts

TokenERC20 at 0xbfb...d72e7 (blockchain)

- approve: address _spender, uint256 _value
- approveAndCall: address _spender, uint256 _value, bytes _extraD
- burn: uint256 _value
- burnFrom: address _from, uint256 _value
- transfer: address _to, uint256 _value
- transferFrom: address _from, address _to, uint256 _value
- allowance: address , address
- balanceOf: address
- decimals
- name
- symbol

乙太坊 主網路

連線請求

Remix - Ethereum IDE
remix.ethereum.org

Ganache 1

Remix - Ethereum IDE 請求訪問帳戶權限

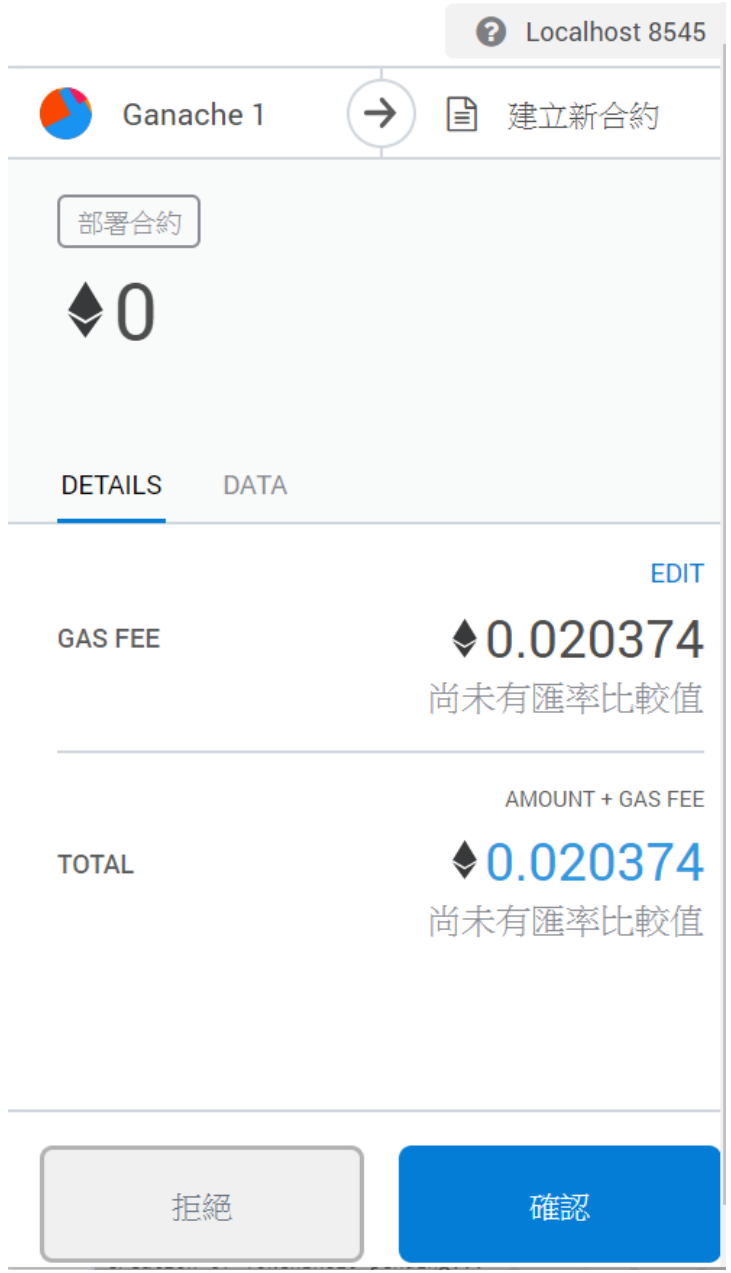
此網站希望能讀取您的帳戶資訊。請務必確認您信任這個網站、並了解後續可能的交易行為。
了解更多.

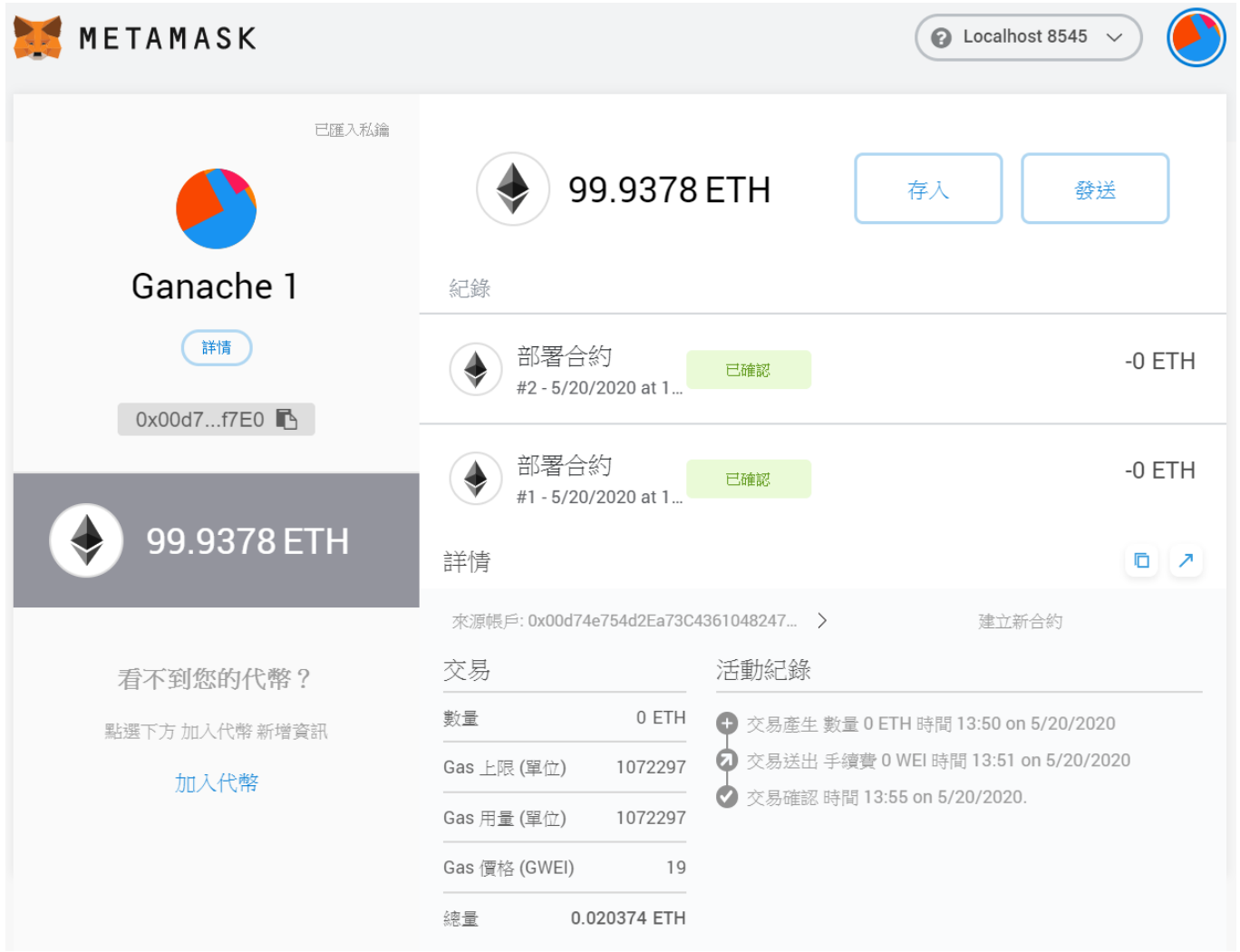
MetaMask Secure

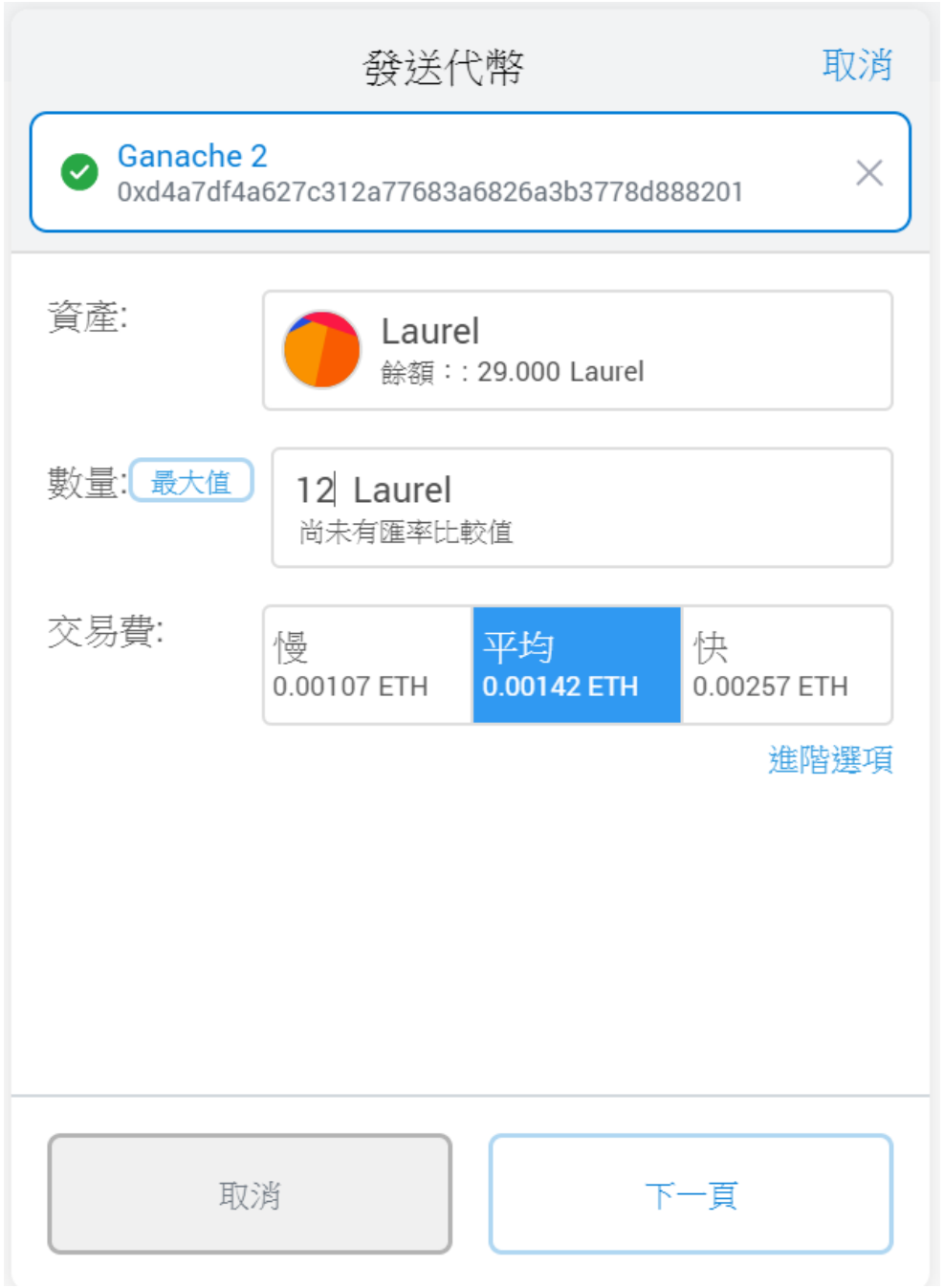
取消

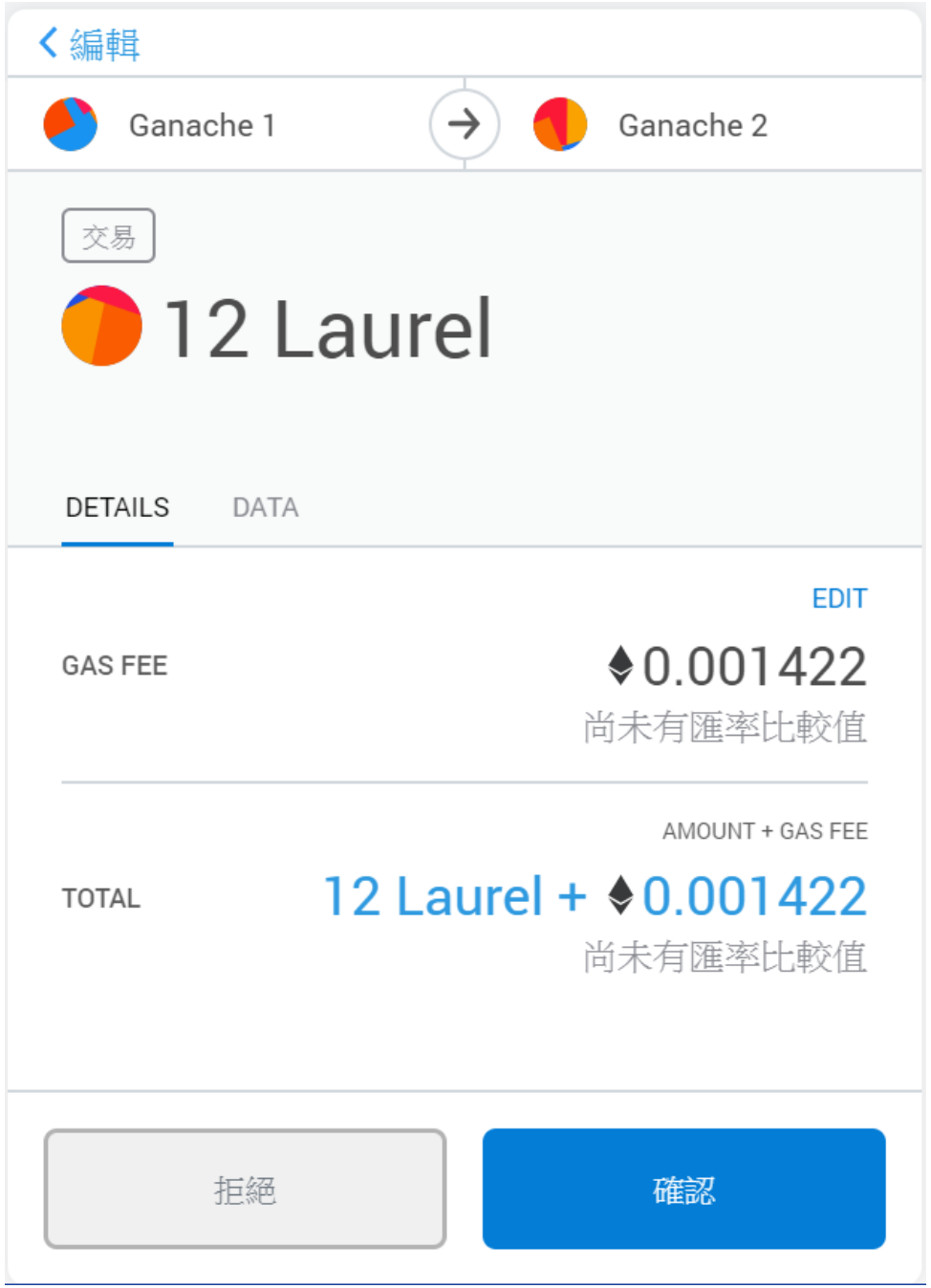
連線

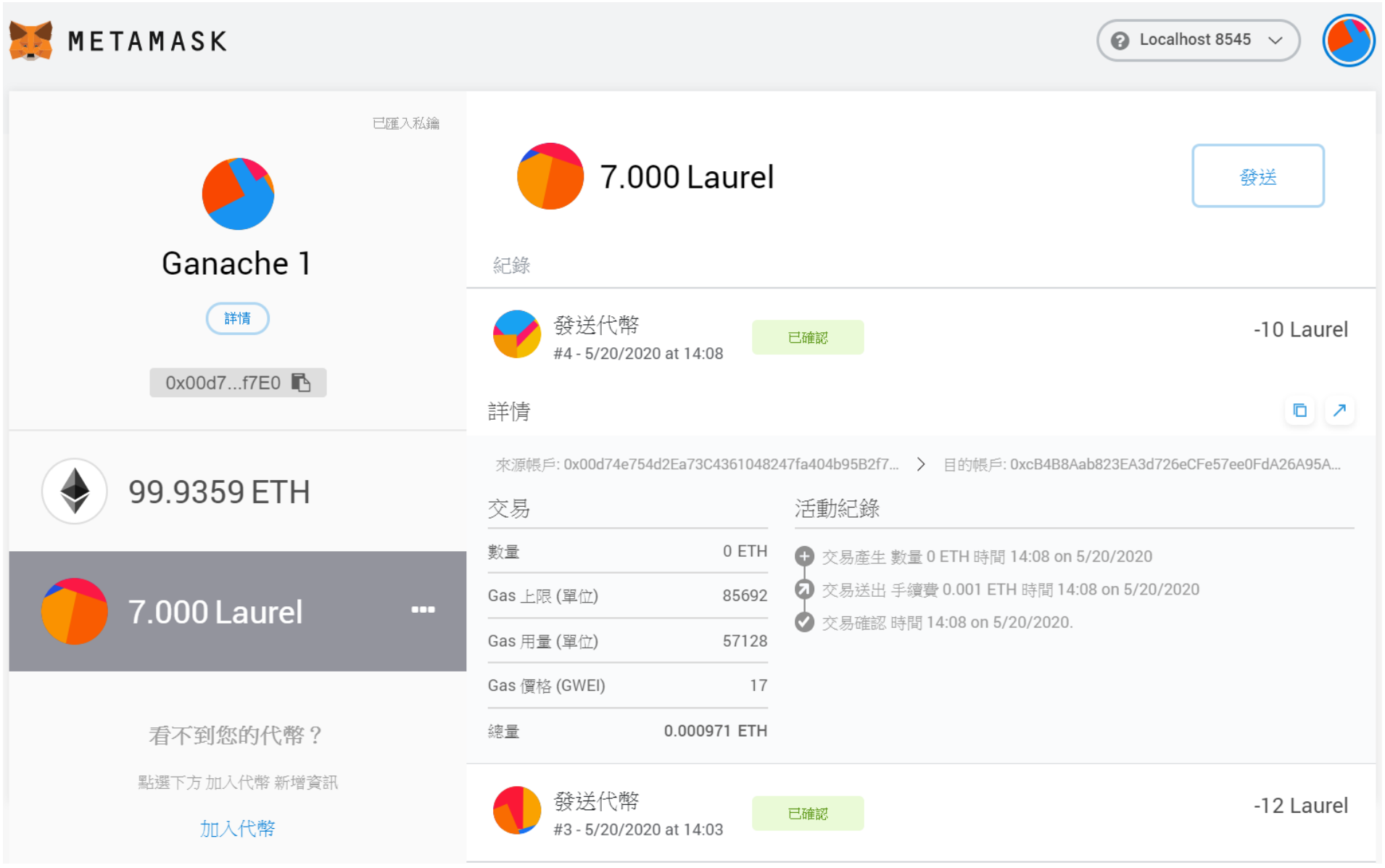
```
eth_blockNumber
net_version
eth_accounts
eth_estimateGas
eth_blockNumber
net_version
eth_sendTransaction

  Transaction: 0xd25859d0277ee56a5b5c358b8df6f0fb5bf5211a37f2b27202cca9b67a2254cd
  Contract created: 0xbfbe9564b2f034753af712264b894e31d09d72e7
  Gas usage: 1072297
  Block Number: 1
  Block Time: Wed May 20 2020 13:43:43 GMT+0800 (GMT+08:00)

net_version
eth_getTransactionReceipt
eth_getTransactionByHash
eth_getTransactionByHash
eth_getBalance
eth_getBalance
eth_getBalance
```

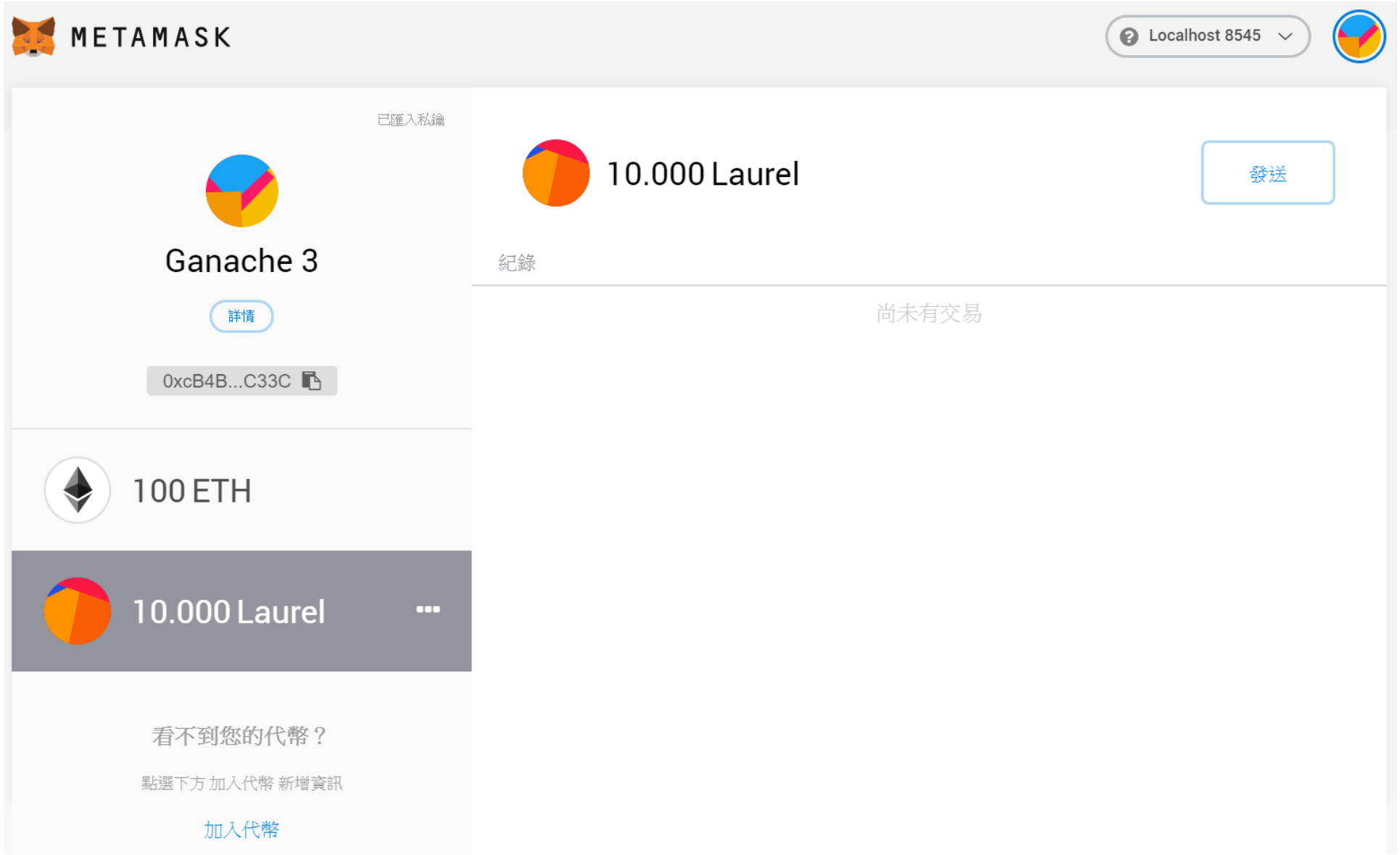

Localhost 8545
Ganache 1
建立新合約
部署合約
0
DETAILS
DATA
EDIT
GAS FEE
0.020374
尚未有匯率比較值
AMOUNT + GAS FEE
TOTAL
0.020374
尚未有匯率比較值
拒絕
確認


METAMASK
Localhost 8545
已匯入私鑰
Ganache 1
詳情
0x00d7...f7E0
99.9378 ETH
看不到您的代幣？
點選下方 加入代幣 新增資訊
加入代幣
99.9378 ETH
存入
發送
紀錄
部署合約
#2 - 5/20/2020 at 1...
已確認
-0 ETH
部署合約
#1 - 5/20/2020 at 1...
已確認
-0 ETH
詳情
來源帳戶: 0x00d74e754d2Ea73C4361048247...
建立新合約
交易
數量 0 ETH
Gas 上限 (單位) 1072297
Gas 用量 (單位) 1072297
Gas 價格 (GWEI) 19
總量 0.020374 ETH
活動紀錄
交易產生 數量 0 ETH 時間 13:50 on 5/20/2020
交易送出 手續費 0 WEI 時間 13:51 on 5/20/2020
交易確認 時間 13:55 on 5/20/2020.


發送代幣
取消
Ganache 2
0xd4a7df4a627c312a77683a6826a3b3778d888201
資產:
Laurel
餘額：: 29.000 Laurel
數量:
最大值
12 Laurel
尚未有匯率比較值
交易費:
慢
0.00107 ETH
平均
0.00142 ETH
快
0.00257 ETH
進階選項
取消
下一頁


編輯
Ganache 1
Ganache 2
交易
12 Laurel
DETAILS
DATA
EDIT
GAS FEE
0.001422
尚未有匯率比較值
AMOUNT + GAS FEE
TOTAL
12 Laurel + 0.001422
尚未有匯率比較值
拒絕
確認


METAMASK
Localhost 8545
已匯入私鑰
Ganache 1
詳情
0x00d7...f7E0
99.9359 ETH
7.000 Laurel
看不到您的代幣？
點選下方 加入代幣 新增資訊
加入代幣
7.000 Laurel
發送
紀錄
發送代幣
#4 - 5/20/2020 at 14:08
已確認
-10 Laurel
詳情
來源帳戶: 0x00d74e754d2Ea73C4361048247fa404b95B2f7...
目的帳戶: 0xcB4B8Aab823EA3d726eCFe57ee0FdA26A95A...
交易
數量 0 ETH
Gas 上限 (單位) 85692
Gas 用量 (單位) 57128
Gas 價格 (GWEI) 17
總量 0.000971 ETH
活動紀錄
交易產生 數量 0 ETH 時間 14:08 on 5/20/2020
交易送出 手續費 0.001 ETH 時間 14:08 on 5/20/2020
交易確認 時間 14:08 on 5/20/2020.
發送代幣
#3 - 5/20/2020 at 14:03
已確認
-12 Laurel


METAMASK
Localhost 8545
已匯入私鑰
Ganache 3
詳情
0xcB4B...C33C
100 ETH
10.000 Laurel
看不到您的代幣？
點選下方 加入代幣 新增資訊
加入代幣
10.000 Laurel
發送
紀錄
尚未有交易