合约部署报告

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智能合约的设计

基本结构体

- Joiner 结构体：主要是代表志愿者，其中有志愿者的地址，名字，公益时，以及参加的公益项目地址
- Publisher 结构体：主要代表发布者，其中有发布者的地址，名字，公益时，以及发布的公益项目
- Project 结构体：主要是项目名，项目的公益时间，项目的最多的参加人数，项目的给予公益时，项目发布者的地址，参加项目志愿者们的地址

```
struct Joiner{
        address  _joinerAddress;
        string  _joinerName;
        uint8 _allTime;
    }

    struct Publisher{
        address  _publisherAddress;
        string _publisherName;
        uint8  _allTime;
    }

    struct Project{
        address _projectAddress;
        string _projectName;
    //项目时间
        uint8  _projectTime;
    //项目所需人数
        uint8  _maxCount;
    //项目公益时
        uint8  _maxJobTime;
    //项目结束标志
        bool  _isEnd;

       address  _publisher;
       address []  _joiners;
    }
```

添加

- 添加志愿者，添加发布者很简单，将默认的参数传入就好，只是发布者创建时可以设置其拥有的公益时，志愿者默认的初始公益时为0；
- 添加项目就比较麻烦，需要首先确定项目的发布者是否拥有最多人数*最多公益时数的公益时，如果没有就不能创建，如果有就可以创建项目。同时在创建项目时默认的志愿者数为0，需设置志愿者的最大数量，志愿者参加公益的时间，获得的公益时。

参加

志愿者参加公益项目，需要满足当前项目志愿者没有达到最大志愿者限制。若当前项目志愿者的数量达到最大的数量，志愿者就不能参加该项目。

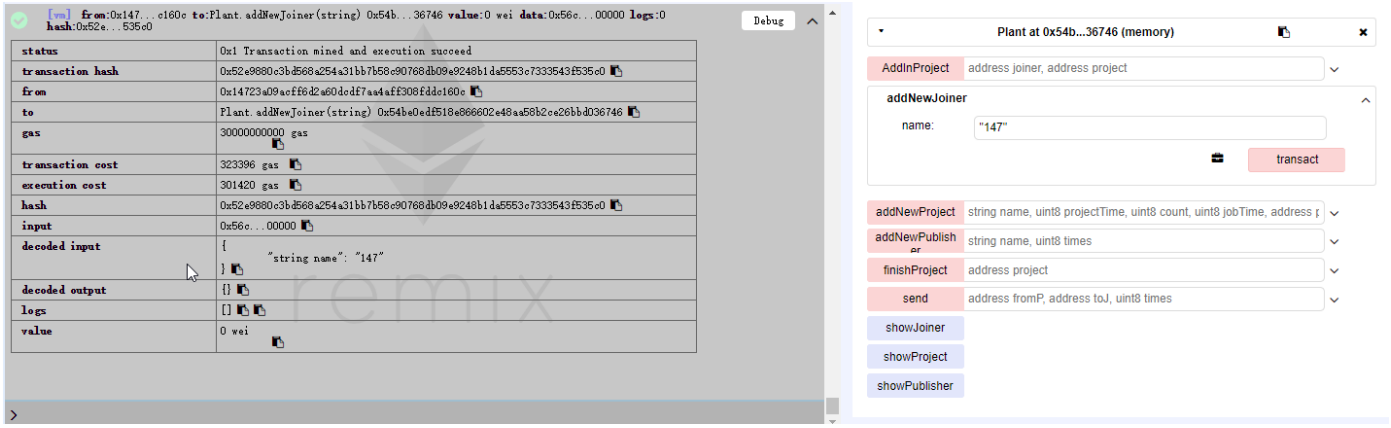
完成

公益项目完成后，由智能合约自动的从发布者的公益时向志愿者的公益时转账，默认的转移公益时数为项目设置的公益时数。

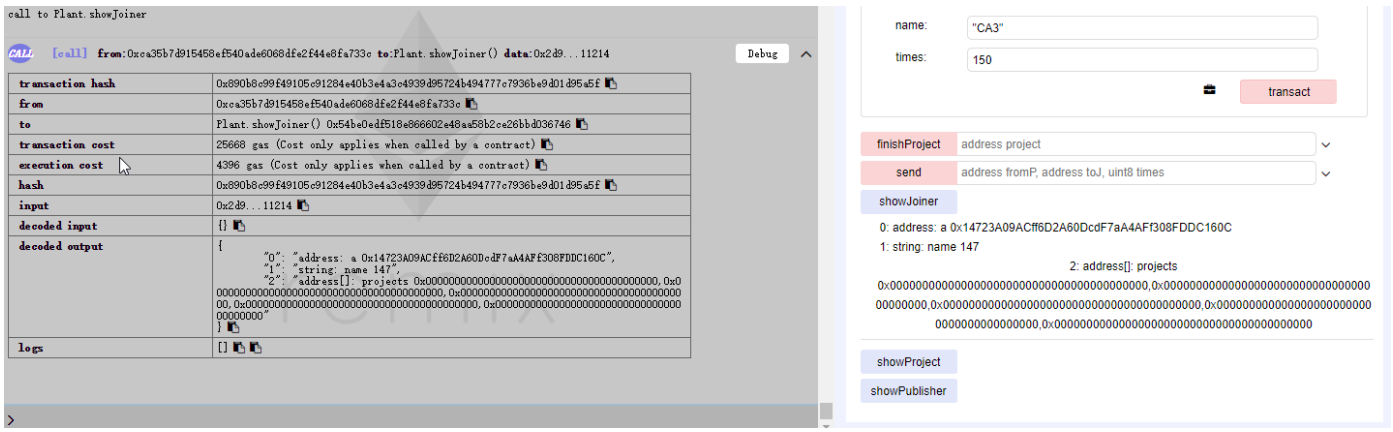
部署智能合约

使用Remix 调试部署

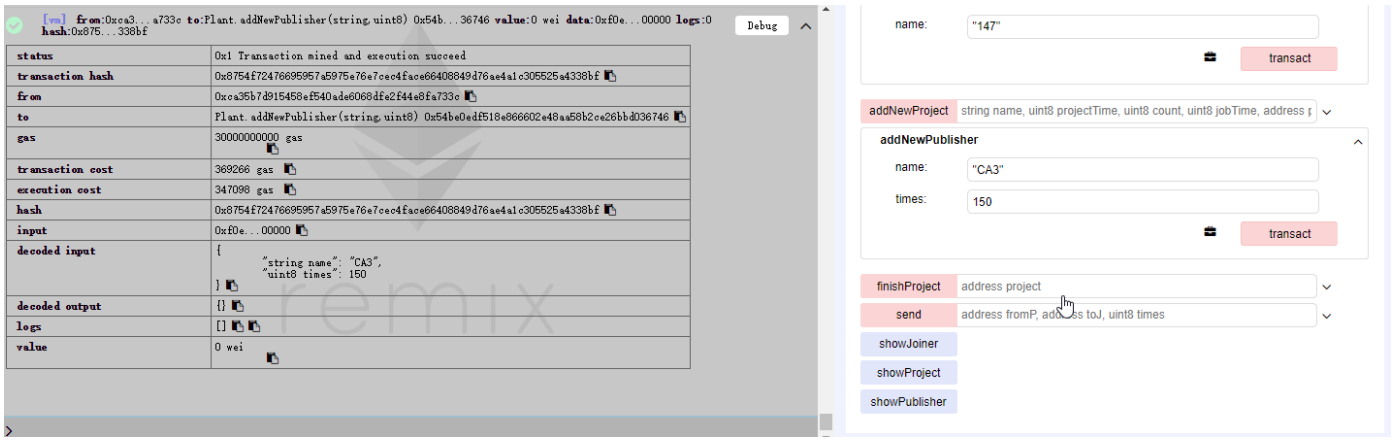
- 创建3个账户，账户3：部署合约，账户1：志愿者，账户2：发布者
- 添加志愿者：



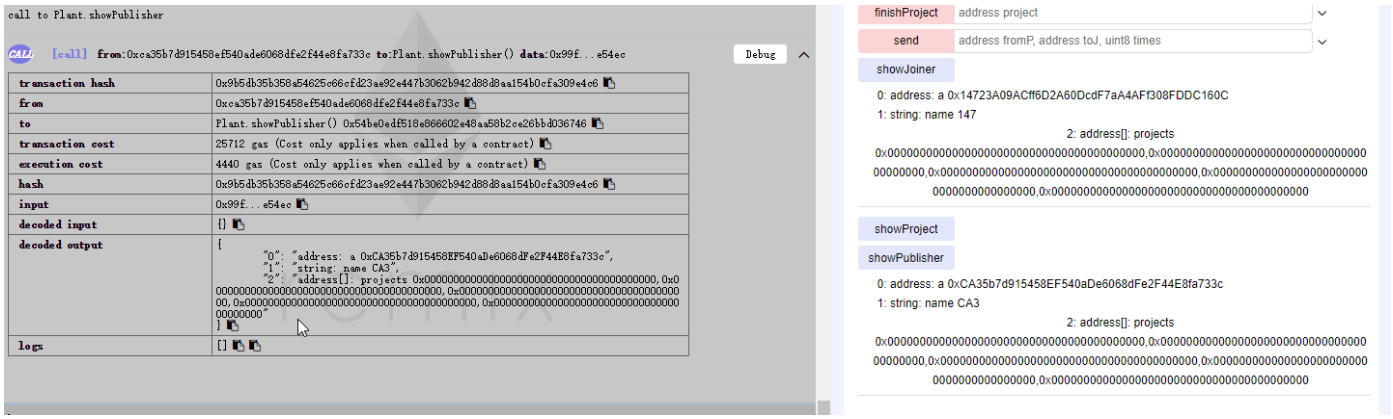
- 显示志愿者信息：



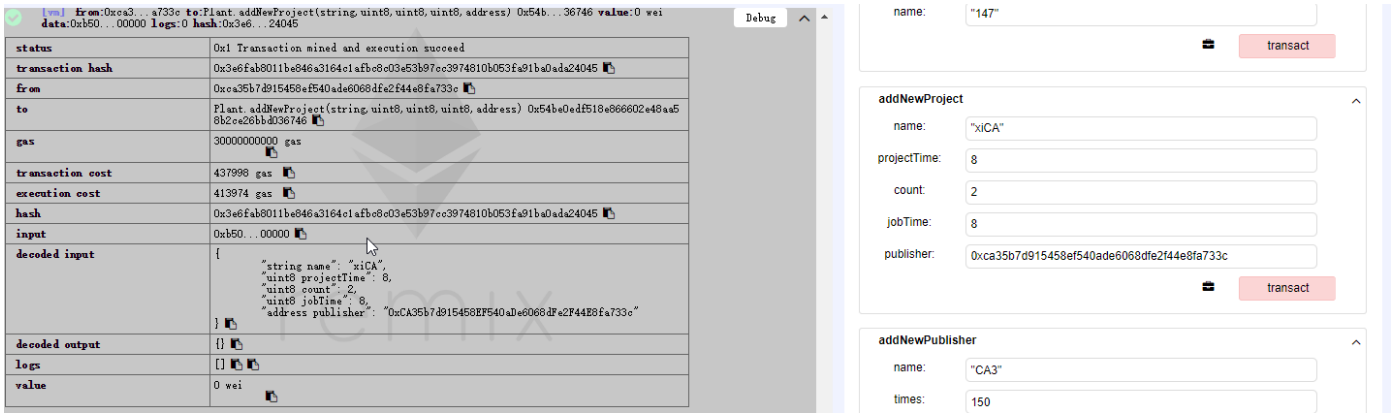
- 添加发布者



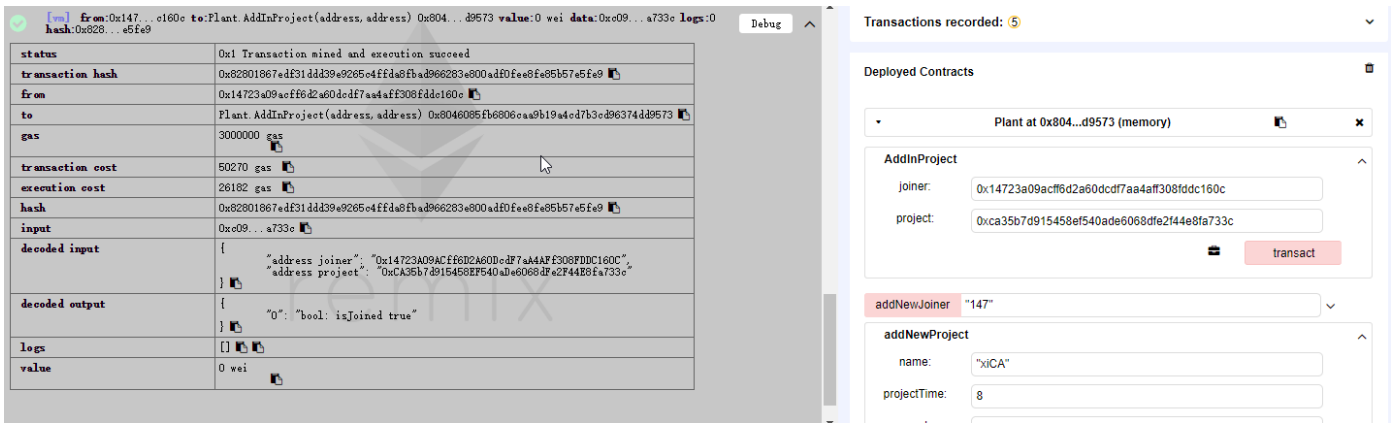
- 显示发布者信息

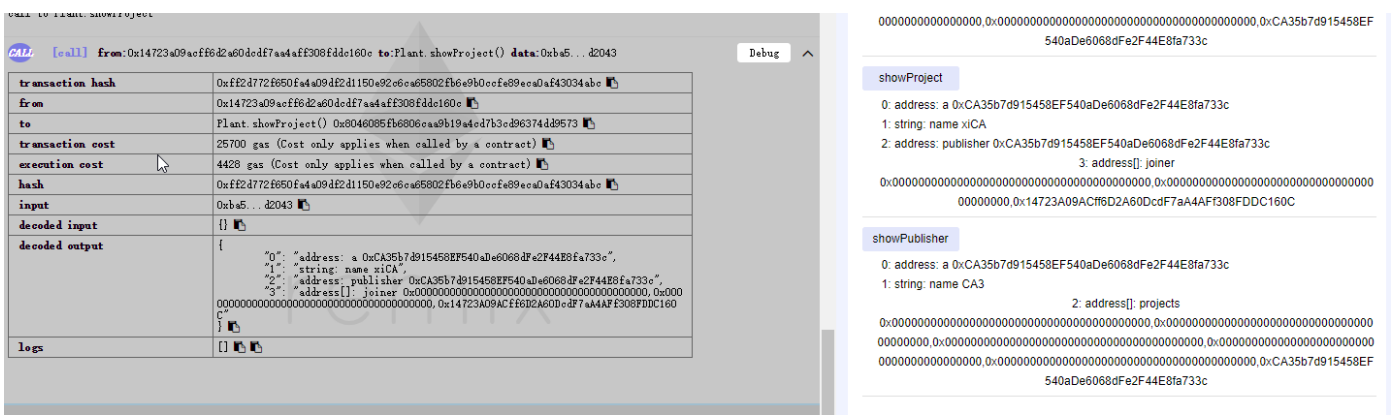


- 添加项目

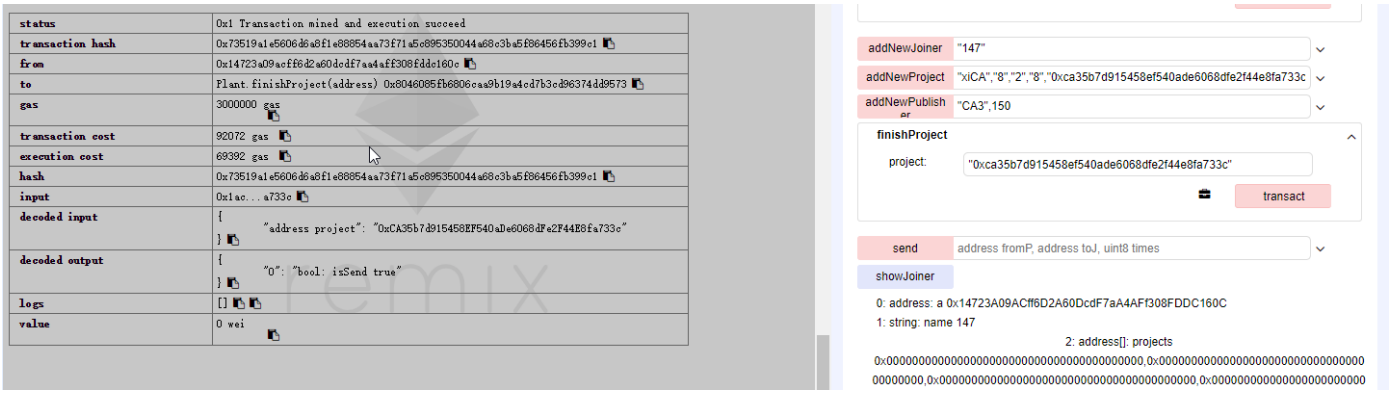


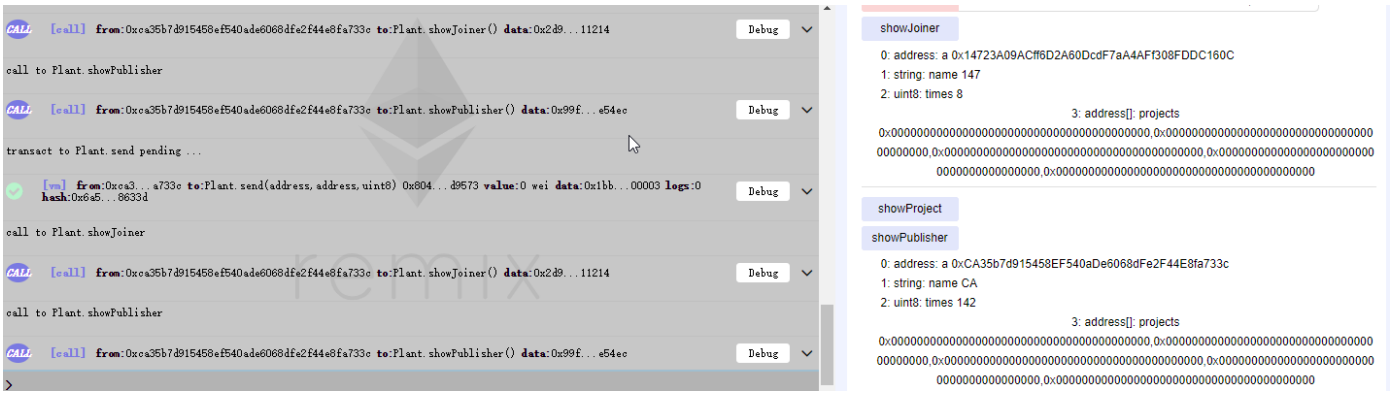
- 志愿者加入项目





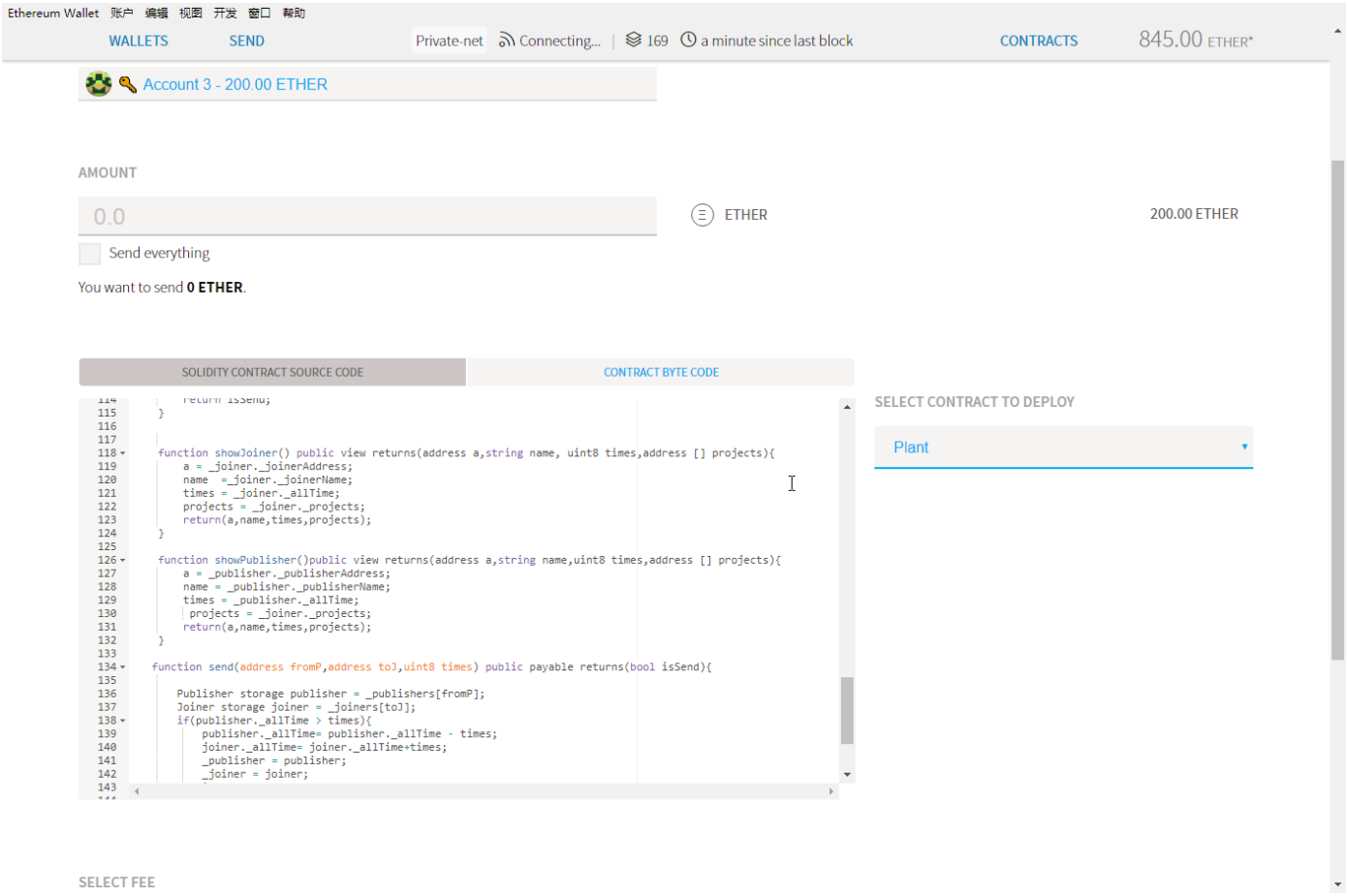
- 完成项目



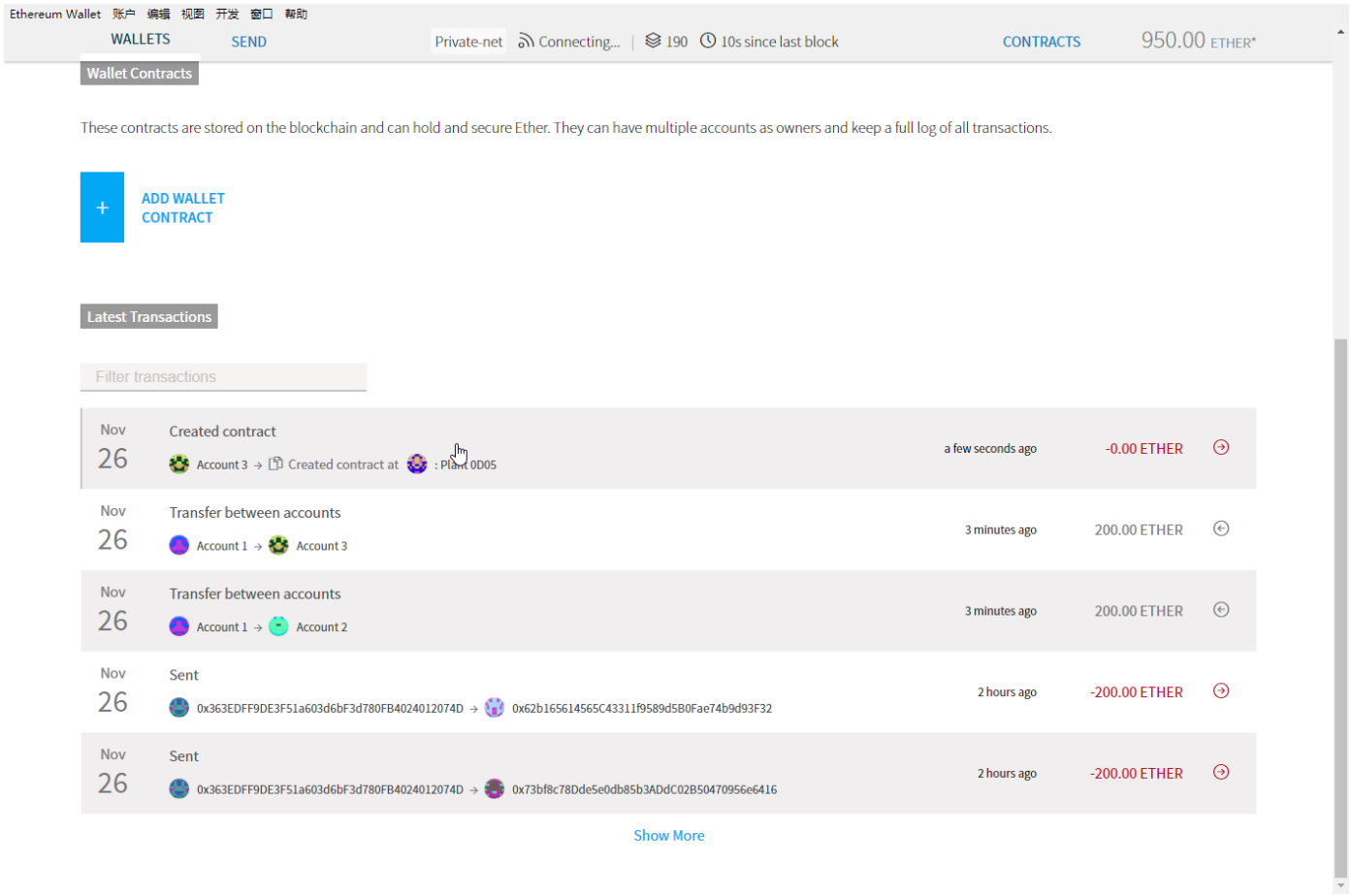


部署在私链上

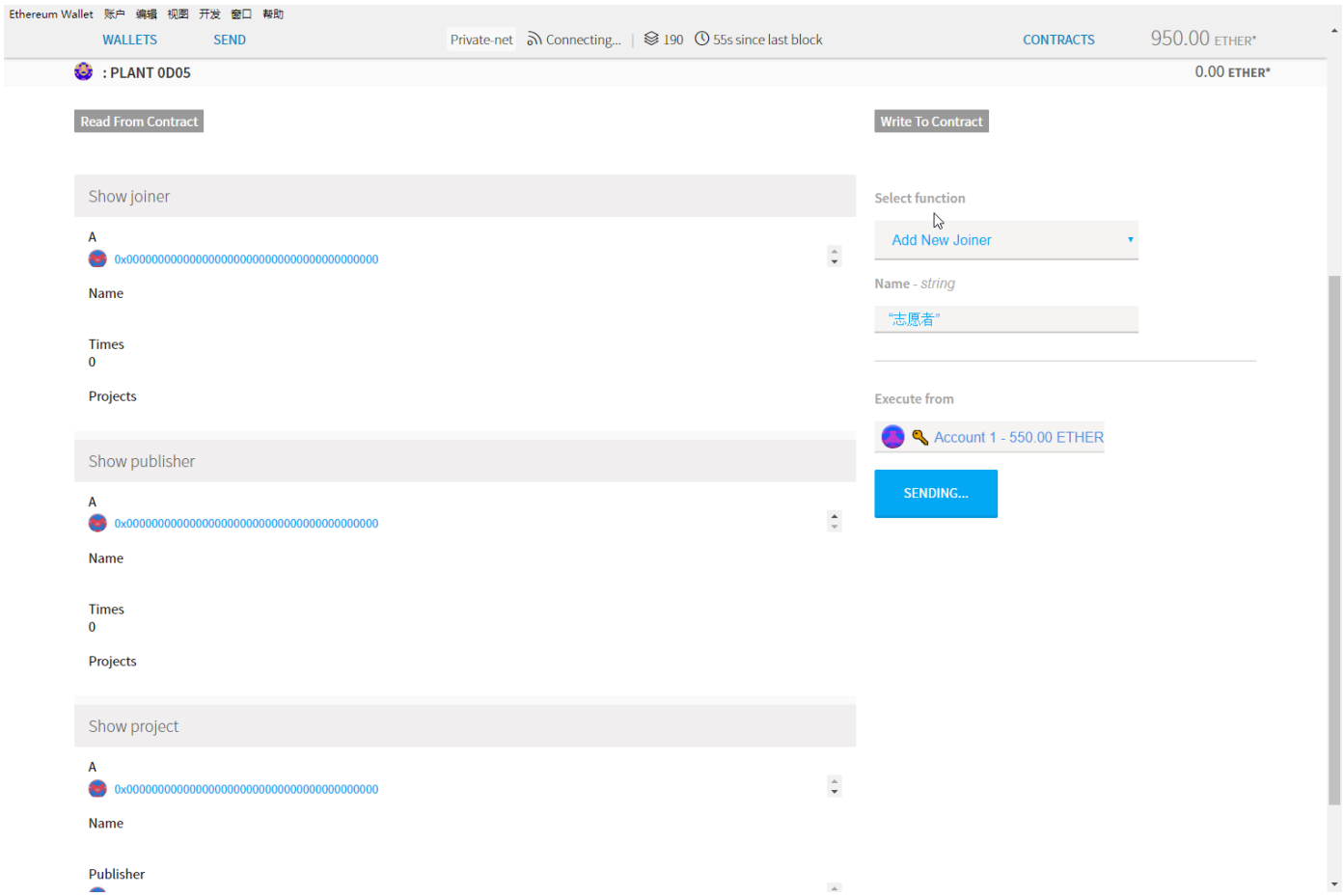
- 部署合约

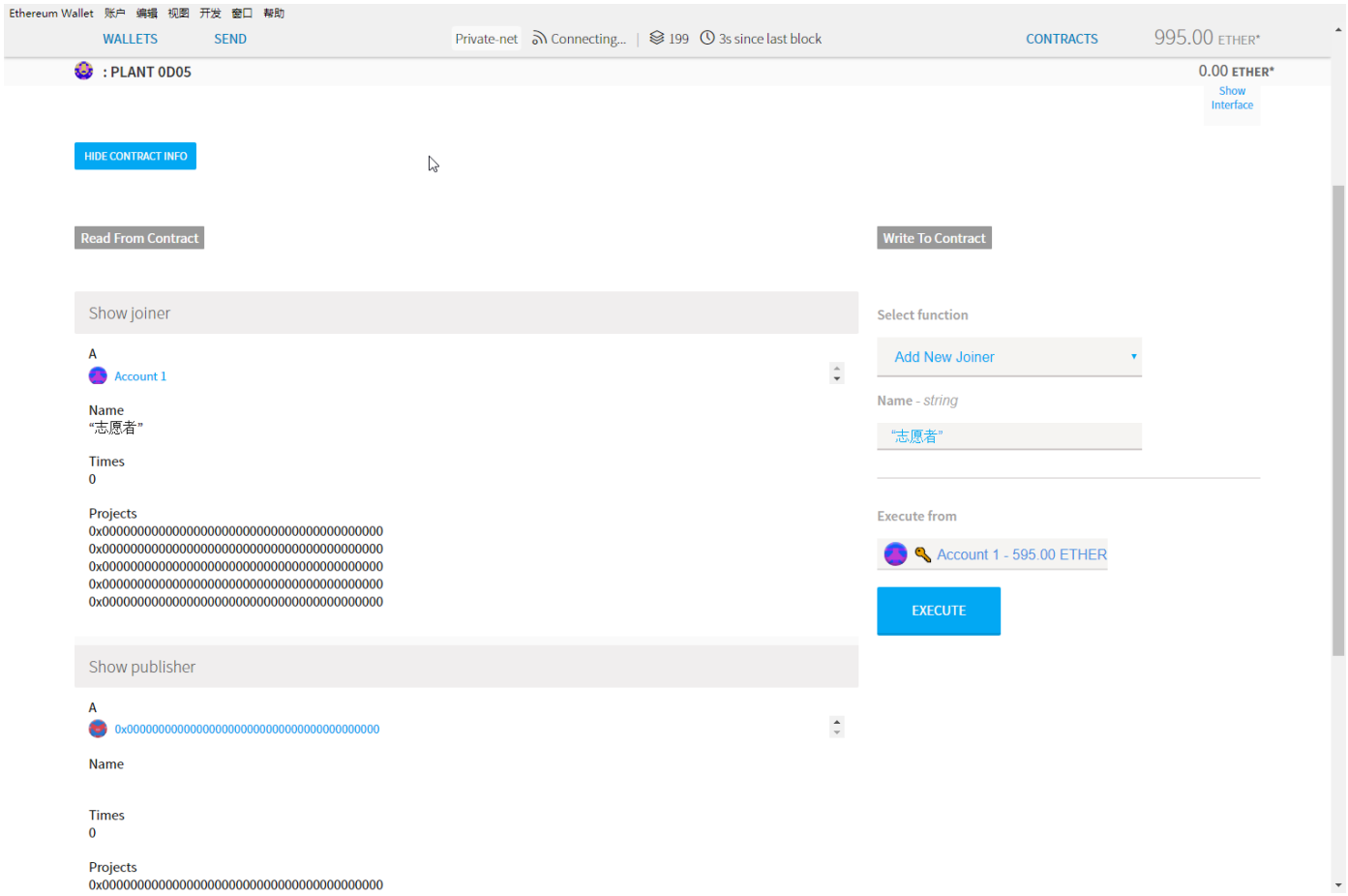



```
    }

    function showJoiner() public view returns(address a,string name, uint8 times,address [] projects){
        a = _joiner._joinerAddress;
        name  =_joiner._joinerName;
        times = _joiner._allTime;
        projects = _joiner._projects;
        return(a,name,times,projects);
    }

    function showPublisher()public view returns(address a,string name,uint8 times,address [] projects){
        a = _publisher._publisherAddress;
        name = _publisher._publisherName;
        times = _publisher._allTime;
        projects = _joiner._projects;
        return(a,name,times,projects);
    }

    function send(address fromP,address toJ,uint8 times) public payable returns(bool isSend){

        Publisher storage publisher = _publishers[fromP];
        Joiner storage joiner = _joiners[toJ];
        if(publisher._allTime > times){
            publisher._allTime= publisher._allTime - times;
            joiner._allTime= joiner._allTime+times;
            _publisher = publisher;
            _joiner = joiner;
```

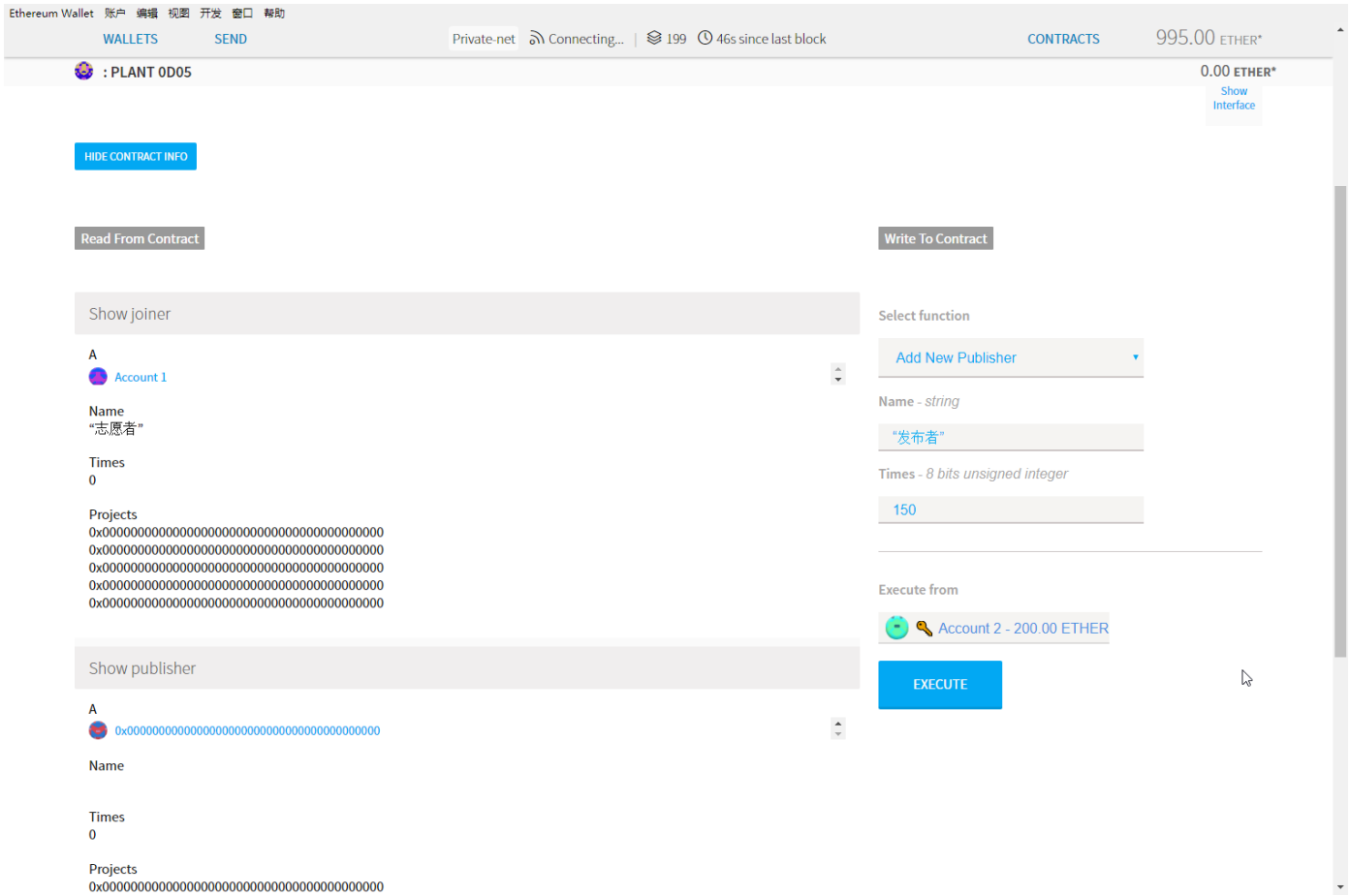

Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
Connecting...
190
10s since last block
CONTRACTS
950.00 ETHER*
Wallet Contracts
These contracts are stored on the blockchain and can hold and secure Ether. They can have multiple accounts as owners and keep a full log of all transactions.
ADD WALLET CONTRACT
Latest Transactions
Filter transactions
Nov 26 Created contract
Account 3 → Created contract at : Plant 0D05
a few seconds ago
-0.00 ETHER
Nov 26 Transfer between accounts
Account 1 → Account 3
3 minutes ago
200.00 ETHER
Nov 26 Transfer between accounts
Account 1 → Account 2
3 minutes ago
200.00 ETHER
Nov 26 Sent
0x363EDFF9DE3F51a603d6bF3d780FB4024012074D → 0x62b165614565C43311f9589d5B0Fae74b9d93F32
2 hours ago
-200.00 ETHER
Nov 26 Sent
0x363EDFF9DE3F51a603d6bF3d780FB4024012074D → 0x73bf8c78Dde5e0db85b3ADdC02B50470956e6416
2 hours ago
-200.00 ETHER
Show More

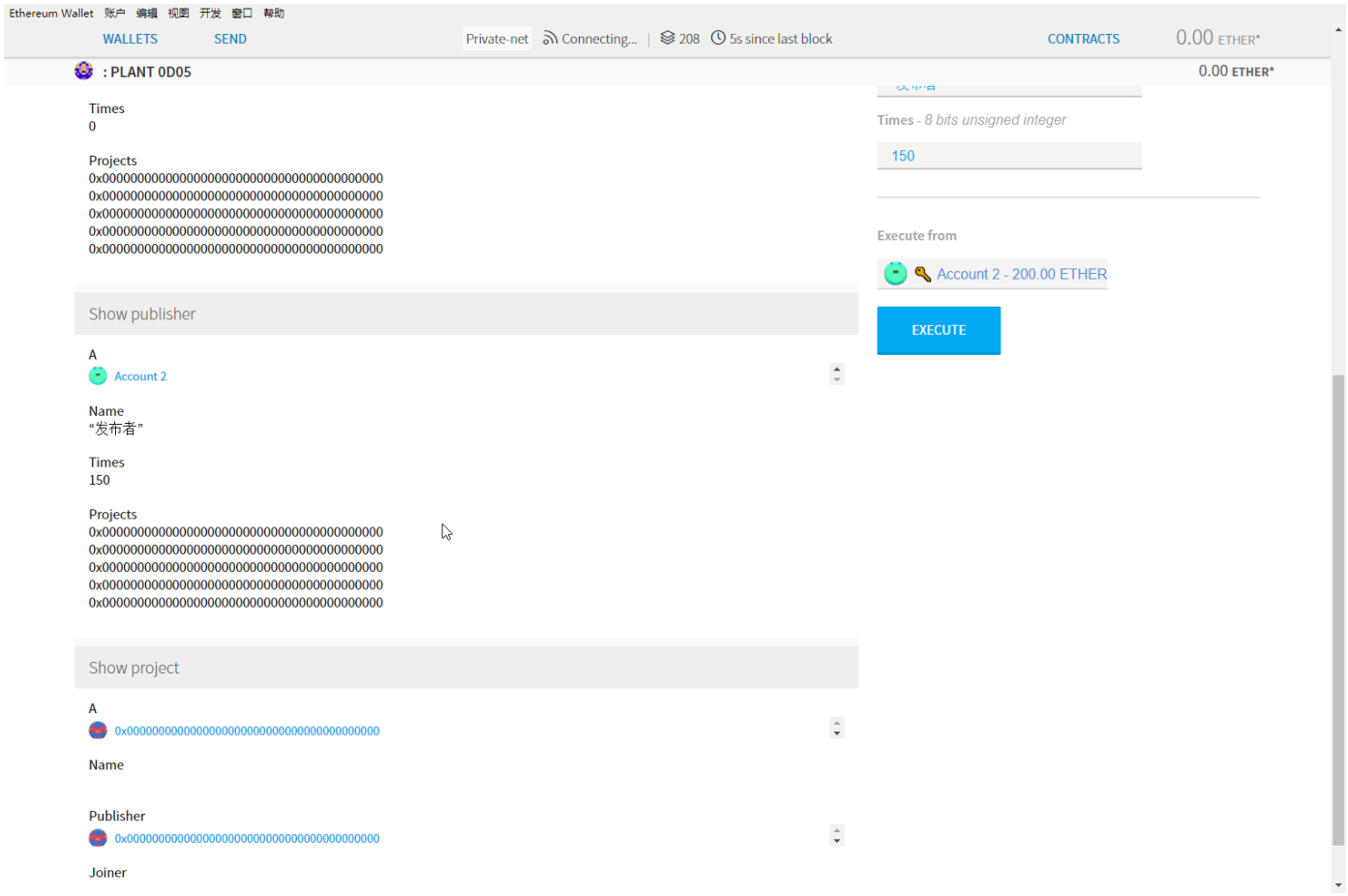
- 添加志愿者


Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
Connecting...
190
55s since last block
CONTRACTS
950.00 ETHER*
: PLANT 0D05
0.00 ETHER*
Read From Contract
Show joiner
A
0x0000000000000000000000000000000000000000
Name
Times
0
Projects
Show publisher
A
0x0000000000000000000000000000000000000000
Name
Times
0
Projects
Show project
A
0x0000000000000000000000000000000000000000
Name
Publisher
Write To Contract
Select function
Add New Joiner
Name - string
"志愿者"
Execute from
Account 1 - 550.00 ETHER
SENDING...

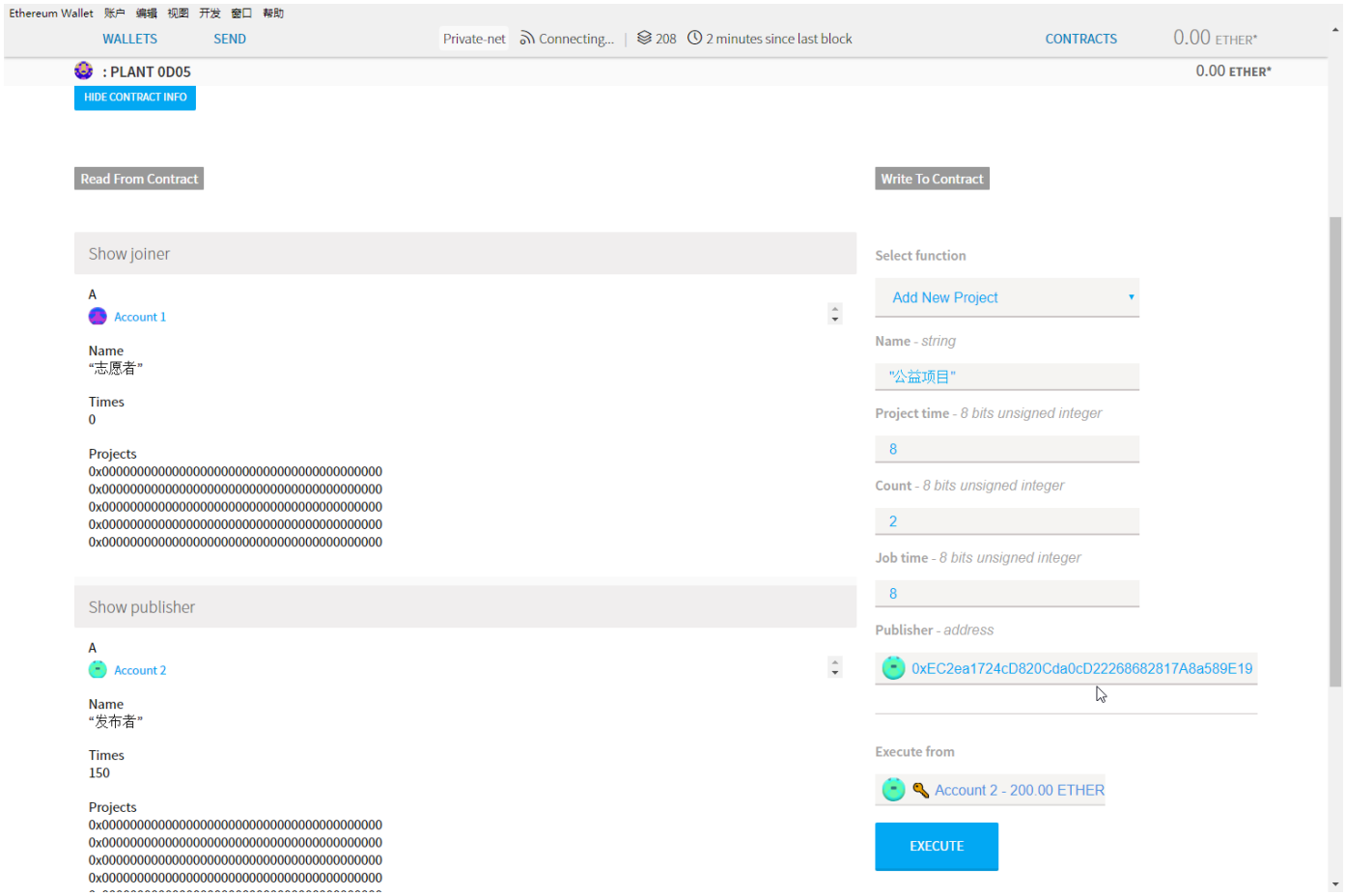

Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
Connecting...
199
3s since last block
CONTRACTS
995.00 ETHER*
: PLANT 0D05
0.00 ETHER*
Show Interface
HIDE CONTRACT INFO
Read From Contract
Write To Contract
Show joiner
A
Account 1
Name
“志愿者”
Times
0
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
Select function
Add New Joiner
Name - string
“志愿者”
Execute from
Account 1 - 595.00 ETHER
EXECUTE
Show publisher
A
0x0000000000000000000000000000000000000000
Name
Times
0
Projects
0x0000000000000000000000000000000000000000

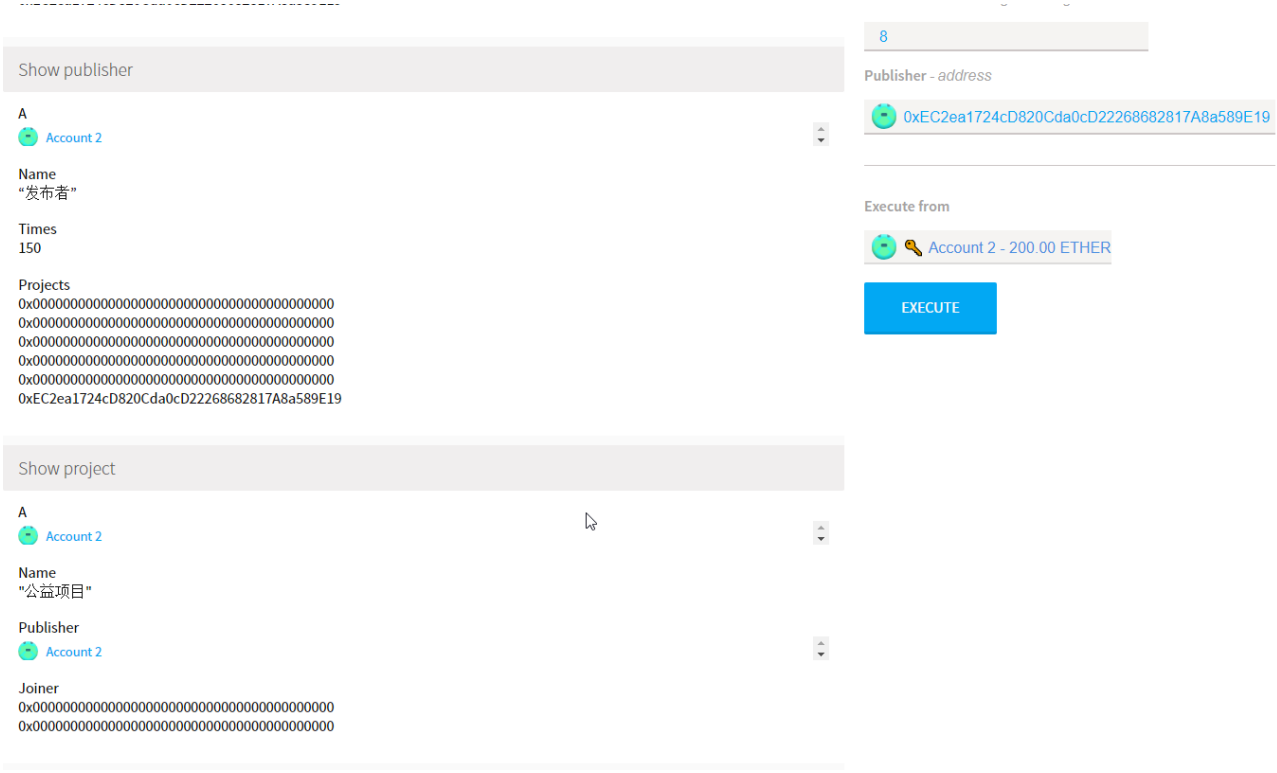
- 添加发布者


Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
Connecting...
199
46s since last block
CONTRACTS
995.00 ETHER*
: PLANT 0D05
0.00 ETHER*
Show Interface
HIDE CONTRACT INFO
Read From Contract
Write To Contract
Show joiner
A
Account 1
Name
“志愿者”
Times
0
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
Select function
Add New Publisher
Name - string
“发布者”
Times - 8 bits unsigned integer
150
Execute from
Account 2 - 200.00 ETHER
EXECUTE
Show publisher
A
0x0000000000000000000000000000000000000000
Name
Times
0
Projects
0x0000000000000000000000000000000000000000

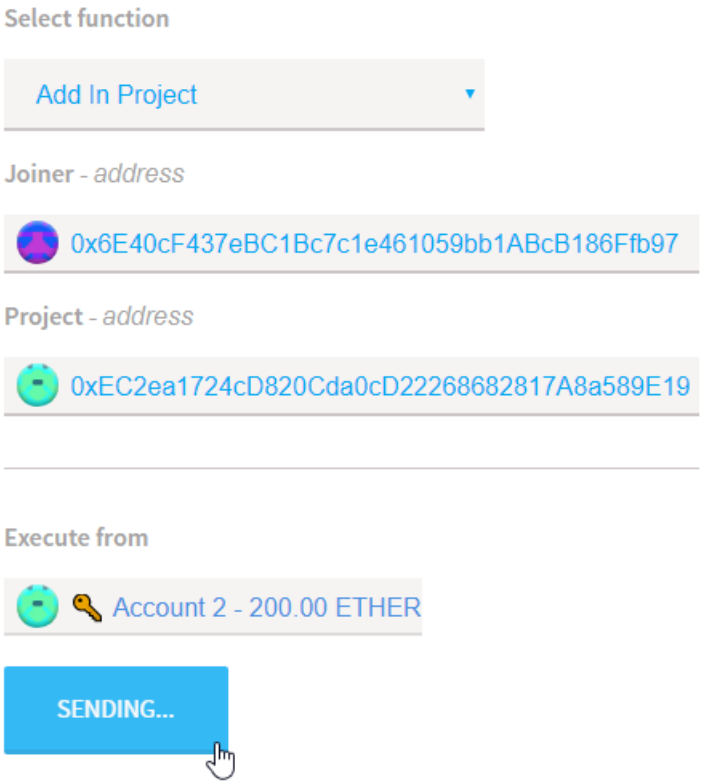

Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
Connecting...
208
5s since last block
CONTRACTS
0.00 ETHER*
: PLANT 0D05
0.00 ETHER*
Times
0
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
Times - 8 bits unsigned integer
150
Execute from
Account 2 - 200.00 ETHER
EXECUTE
Show publisher
A
Account 2
Name
“发布者”
Times
150
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
Show project
A
0x0000000000000000000000000000000000000000
Name
Publisher
0x0000000000000000000000000000000000000000
Joiner

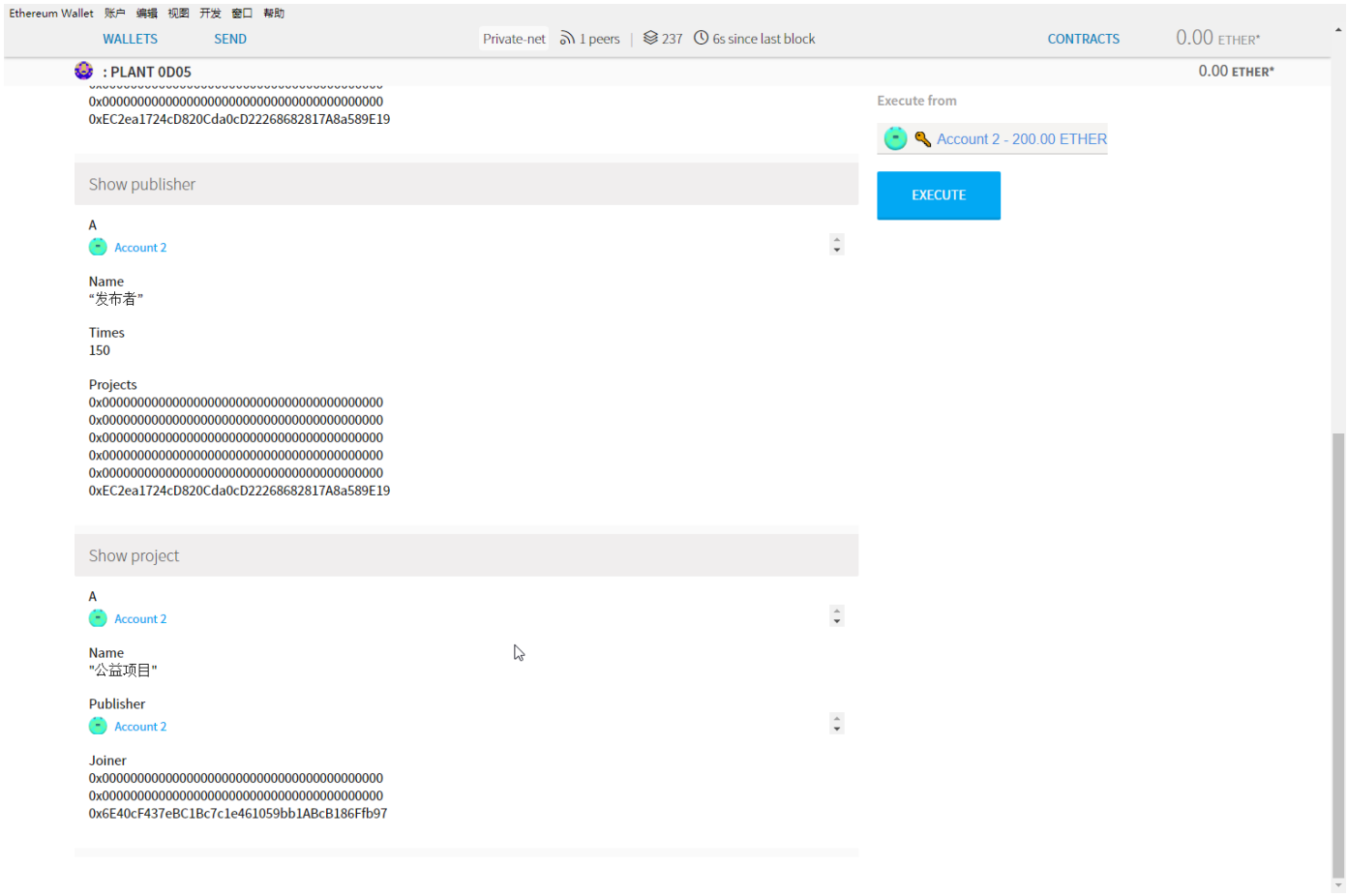
- 添加项目


Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
Connecting...
208
2 minutes since last block
CONTRACTS
0.00 ETHER*
: PLANT 0D05
0.00 ETHER*
HIDE CONTRACT INFO
Read From Contract
Write To Contract
Show joiner
A
Account 1
Name
“志愿者”
Times
0
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
Select function
Add New Project
Name - string
"公益项目"
Project time - 8 bits unsigned integer
8
Count - 8 bits unsigned integer
2
Job time - 8 bits unsigned integer
8
Publisher - address
0xEC2ea1724cD820Cda0cD2226868217A8a589E19
Execute from
Account 2 - 200.00 ETHER
EXECUTE
Show publisher
A
Account 2
Name
“发布者”
Times
150
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000

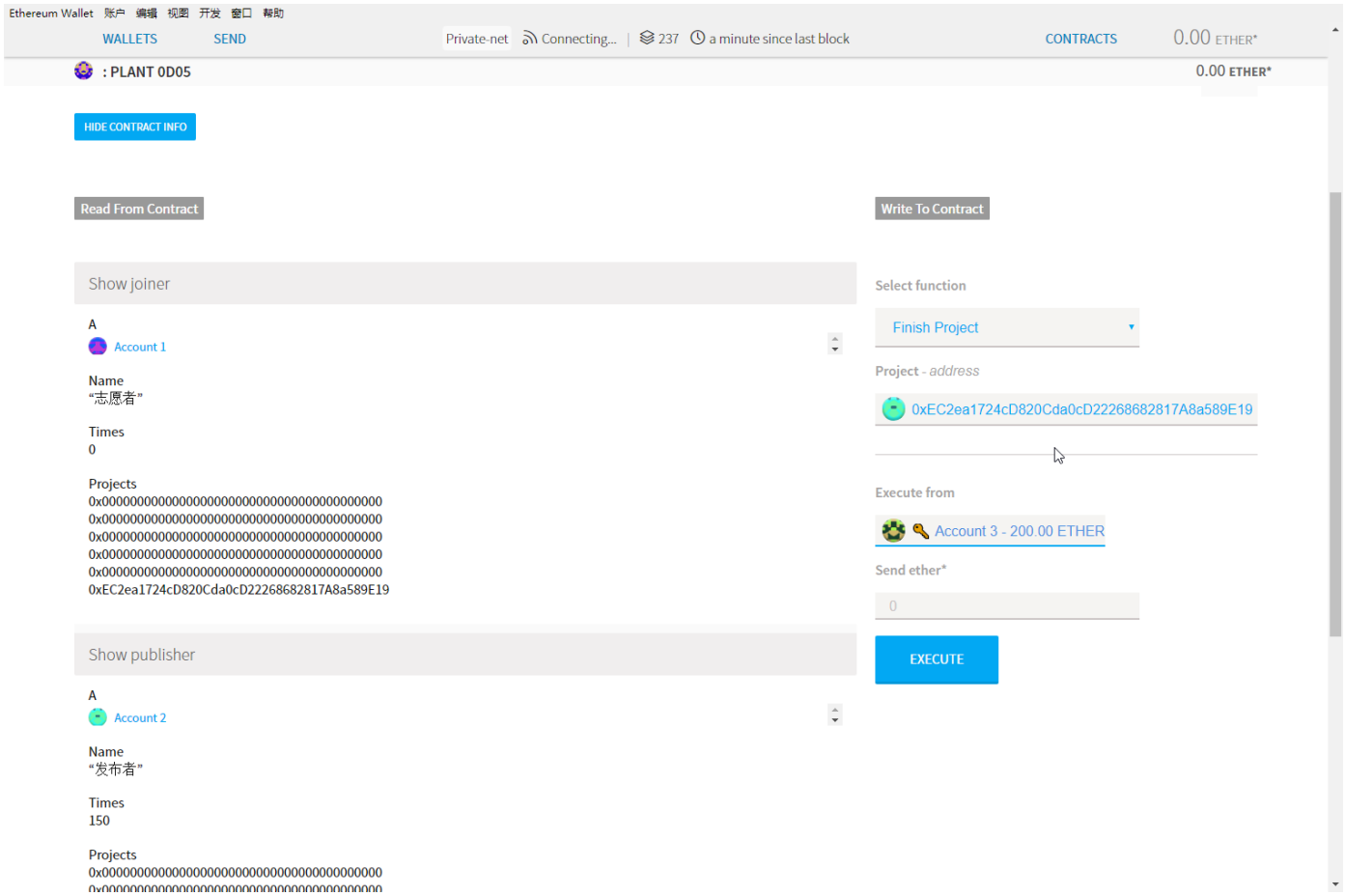

8
Publisher - address
0xEC2ea1724cD820Cda0cD22268682817A8a589E19
Execute from
Account 2 - 200.00 ETHER
EXECUTE
Show publisher
A
Account 2
Name
“发布者”
Times
150
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0xEC2ea1724cD820Cda0cD22268682817A8a589E19
Show project
A
Account 2
Name
"公益项目"
Publisher
Account 2
Joiner
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000

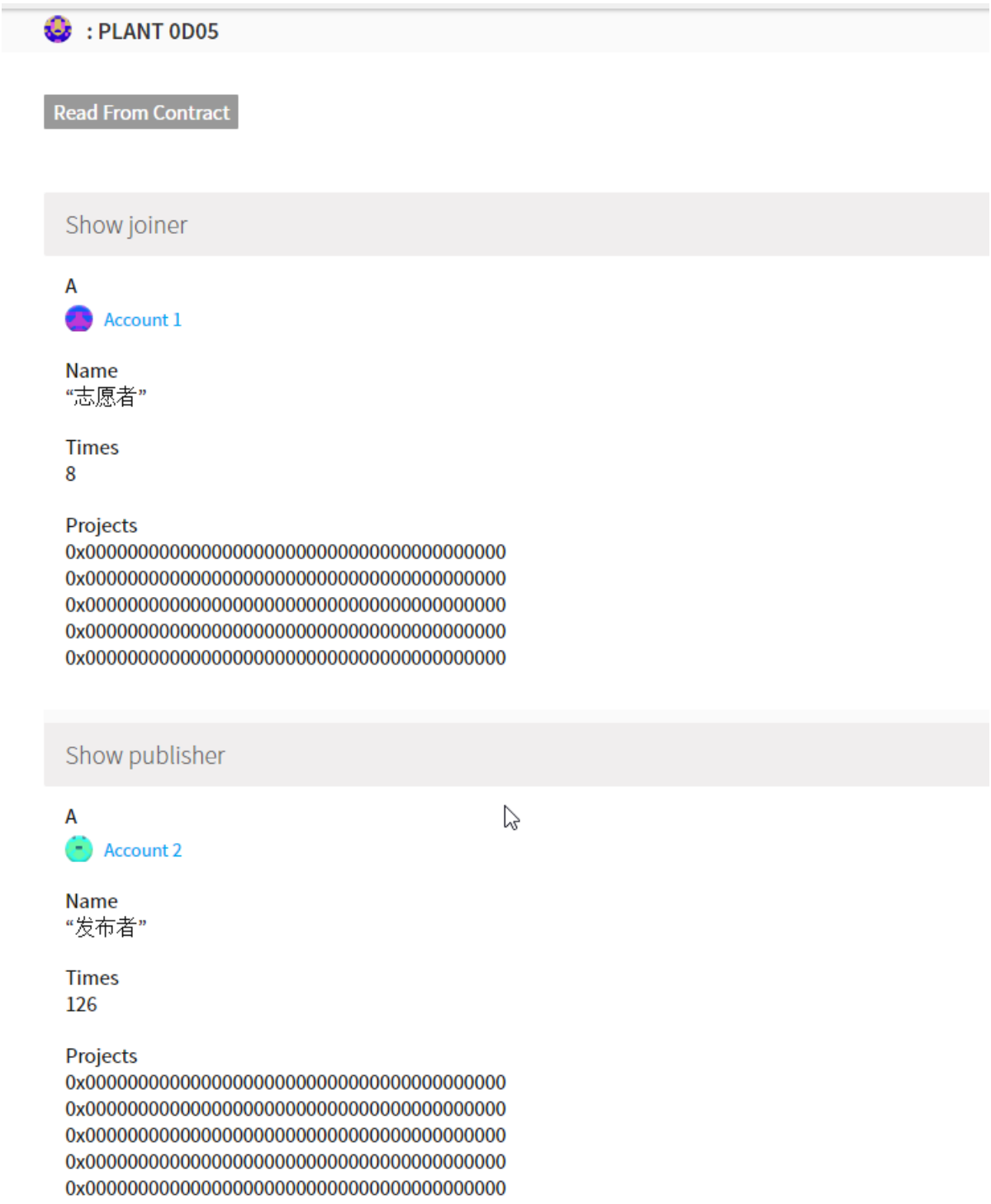
- 加入项目


Select function
Add In Project
Joiner - address
0x6E40cF437eBC1Bc7c1e461059bb1ABcB186Ffb97
Project - address
0xEC2ea1724cD820Cda0cD22268682817A8a589E19
Execute from
Account 2 - 200.00 ETHER
SENDING...


Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
1 peers
237
6s since last block
CONTRACTS
0.00 ETHER*
: PLANT 0D05
0.00 ETHER*
0x0000000000000000000000000000000000000000
0xEC2ea1724cD820Cda0cD22268682817A8a589E19
Execute from
Account 2 - 200.00 ETHER
EXECUTE
Show publisher
A
Account 2
Name
“发布者”
Times
150
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0xEC2ea1724cD820Cda0cD22268682817A8a589E19
Show project
A
Account 2
Name
"公益项目"
Publisher
Account 2
Joiner
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x6E40cF437eBC1Bc7c1e461059bb1ABcB186Ffb97

- 完成项目


Ethereum Wallet 账户 编辑 视图 开发 窗口 帮助
WALLETS
SEND
Private-net
Connecting...
237
a minute since last block
CONTRACTS
0.00 ETHER*
: PLANT 0D05
0.00 ETHER*
HIDE CONTRACT INFO
Read From Contract
Write To Contract
Show joiner
A
Account 1
Name
“志愿者”
Times
0
Projects
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0x0000000000000000000000000000000000000000
0xEC2ea1724cD820Cda0cD22268682817A8a589E19
Select function
Finish Project
Project - address
0xEC2ea1724cD820Cda0cD22268682817A8a589E19
Execute from
Account 3 - 200.00 ETHER
Send ether*
0
EXECUTE
Show publisher
A
Account 2
Name
“发布者”
Times
150
Projects
0x0000000000000000000000000000000000000000



遇到的困难和解决方法

一开始同时设计了4个合约，分别为志愿者合约，发布者合约，项目合约，平台合约。在remix上调试也成功了，但是部署到私链上时就会出现错误，一直以为是合约有问题，在翻看了控制台的日志文件后，发现是gas 限制量有点小，使用合约里的函数时需要的gas超过了限制。就重新设置了gaslimit 为0xfffffffff000。但是还是有问题，调用的函数需要的gas 接近200以太币，gas太多，所以换为使用一个合约，将志愿者，发布者，项目 写成结构体，就减少了gas。可以正常部署了