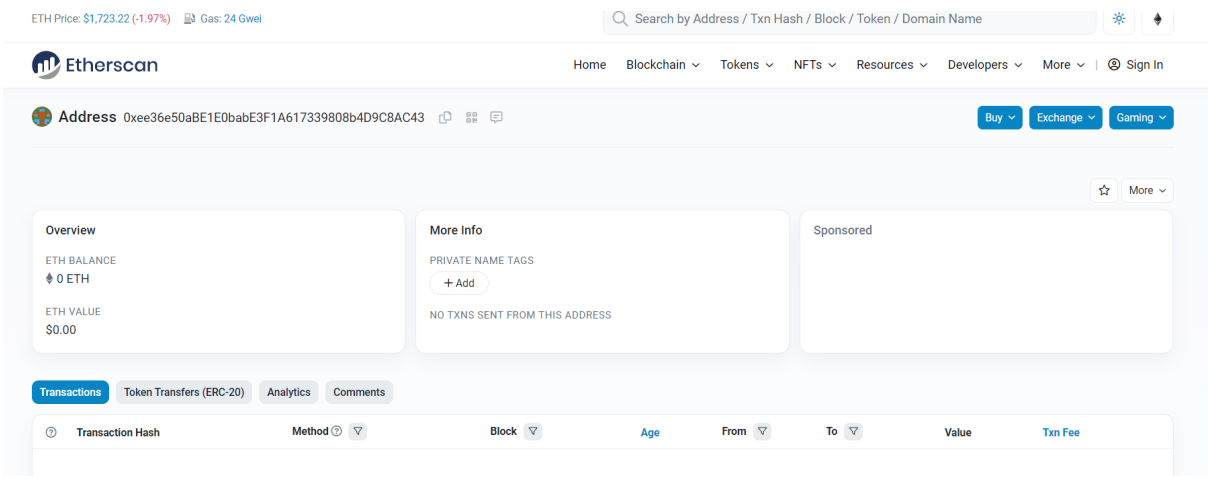
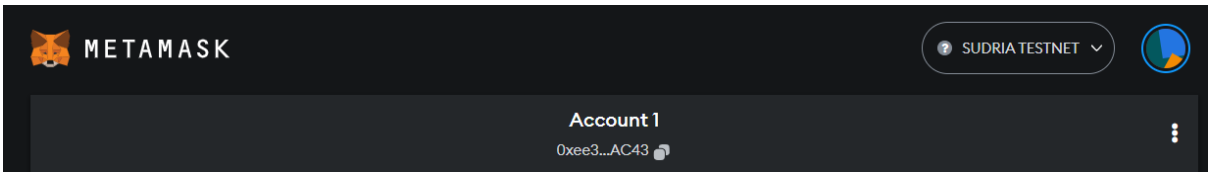
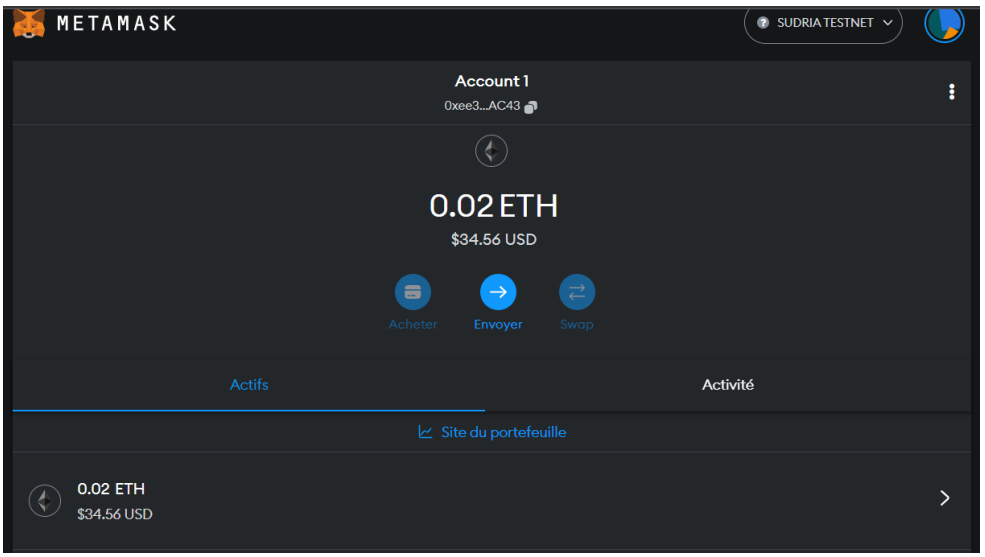
TRAVAUX PRATIQUE : Développer, Déployer et Interagir avec un contrat intelligent sur Ethereum

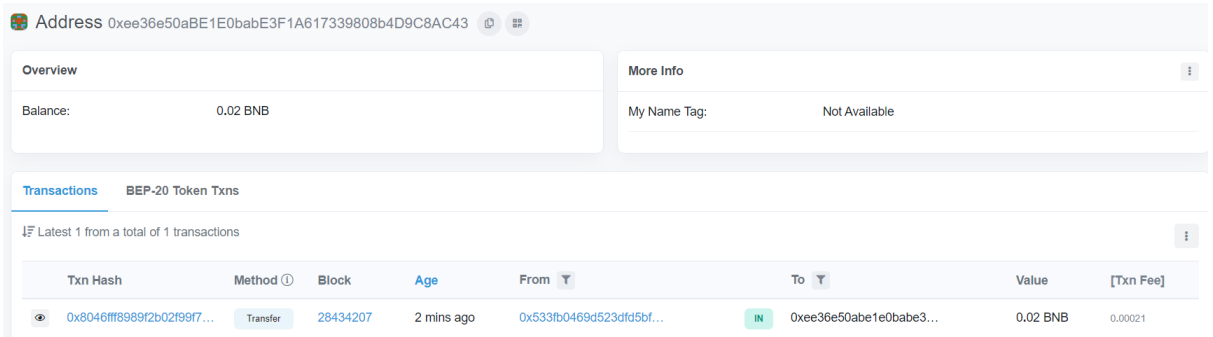
1. Prise en main des outils Remix et Metamask

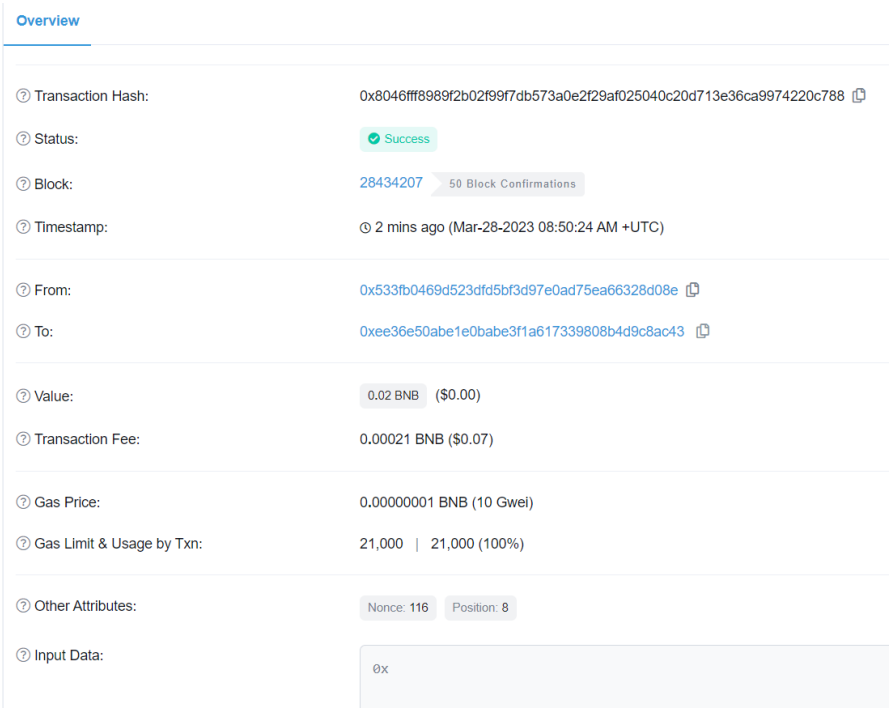




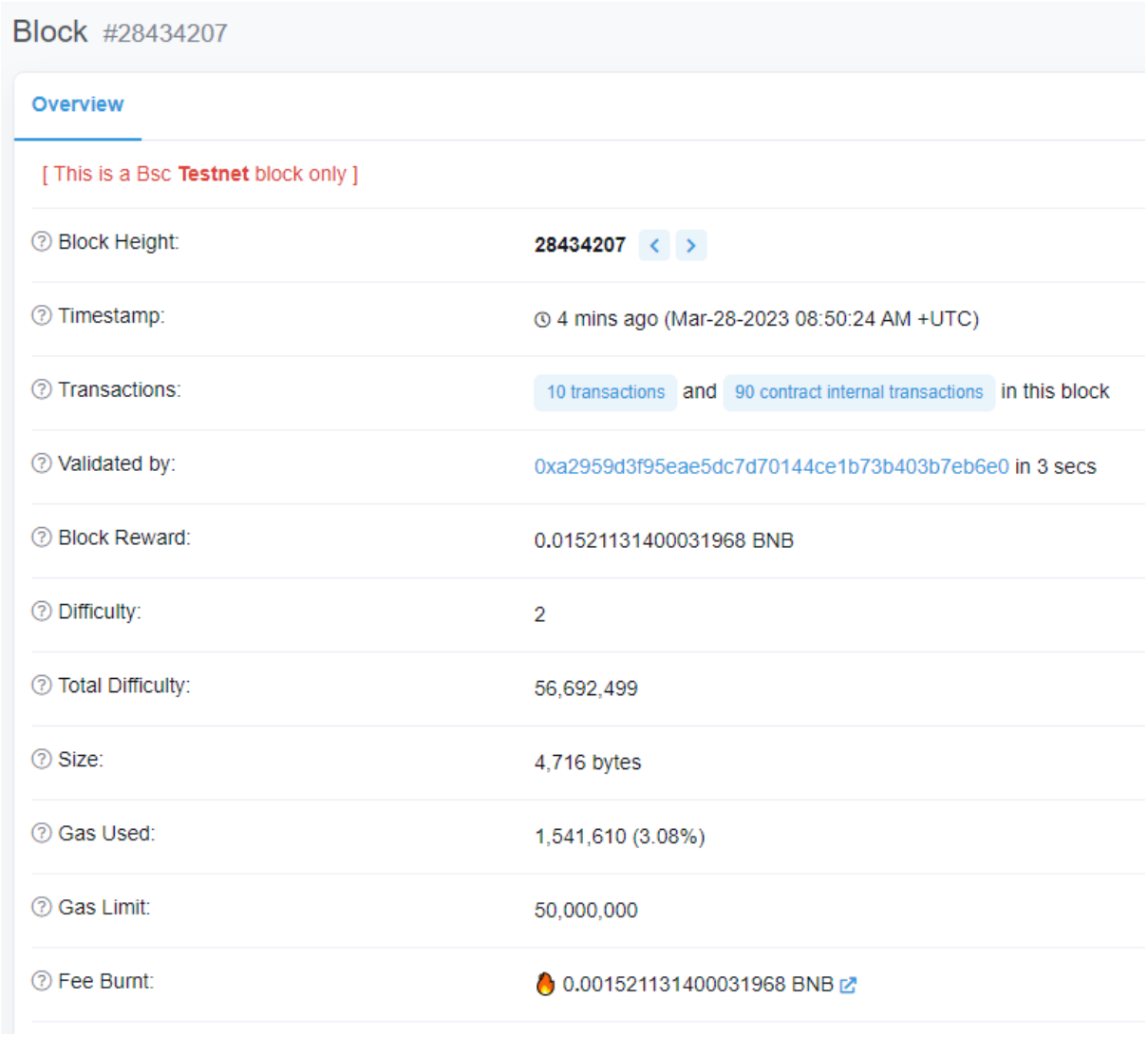


f.Détails de la transaction

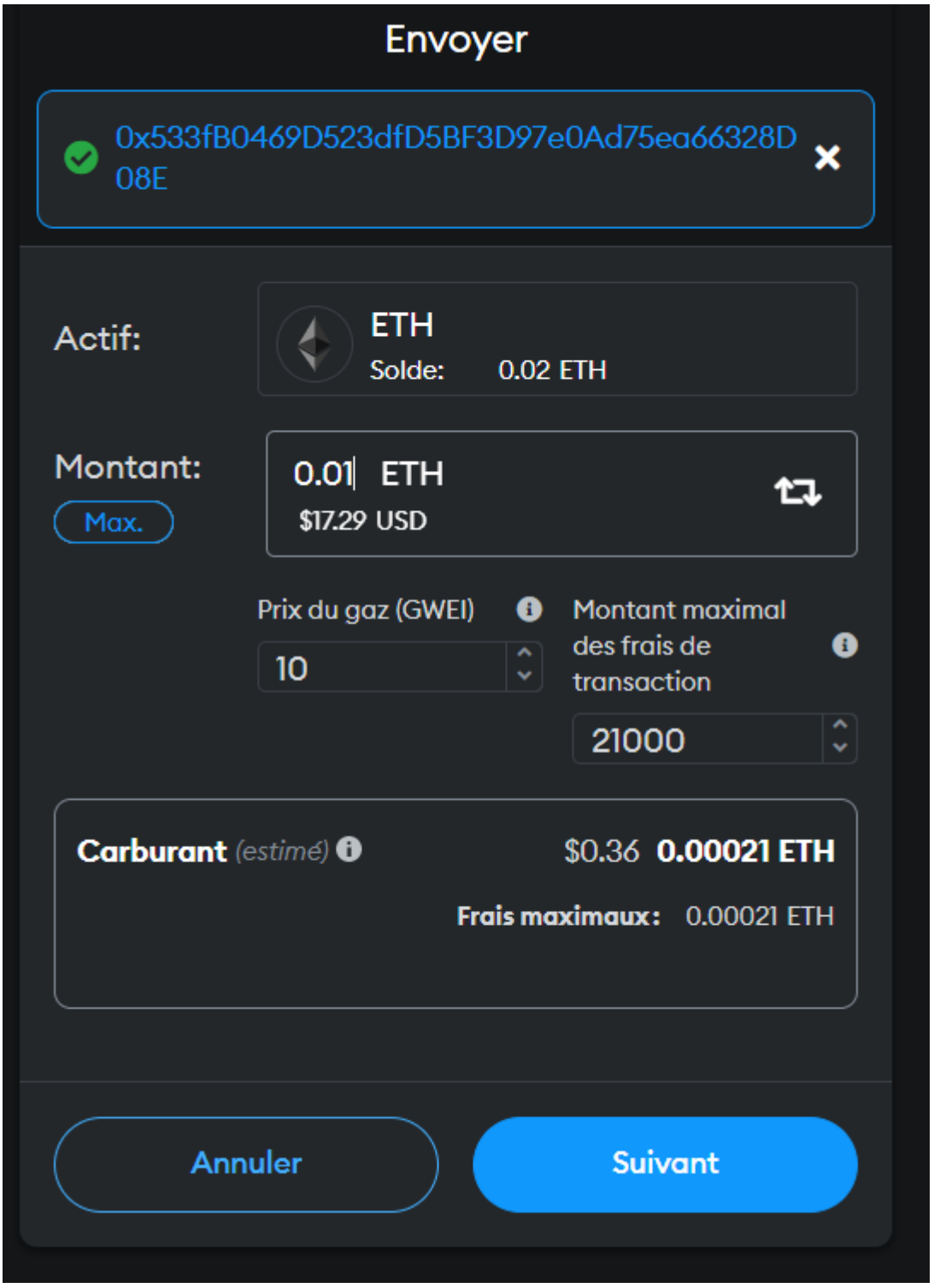


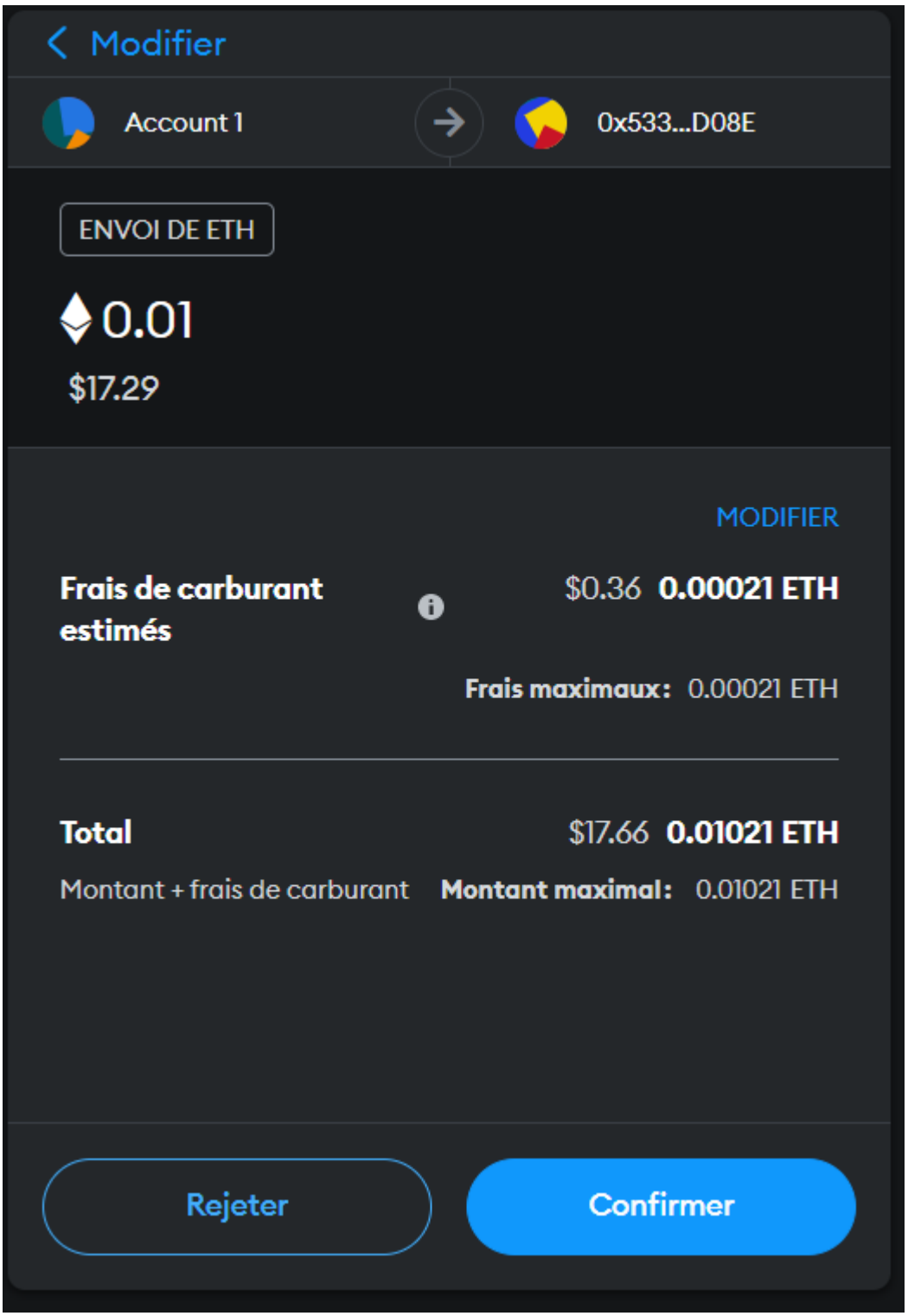


g.Numéro de Block et transaction



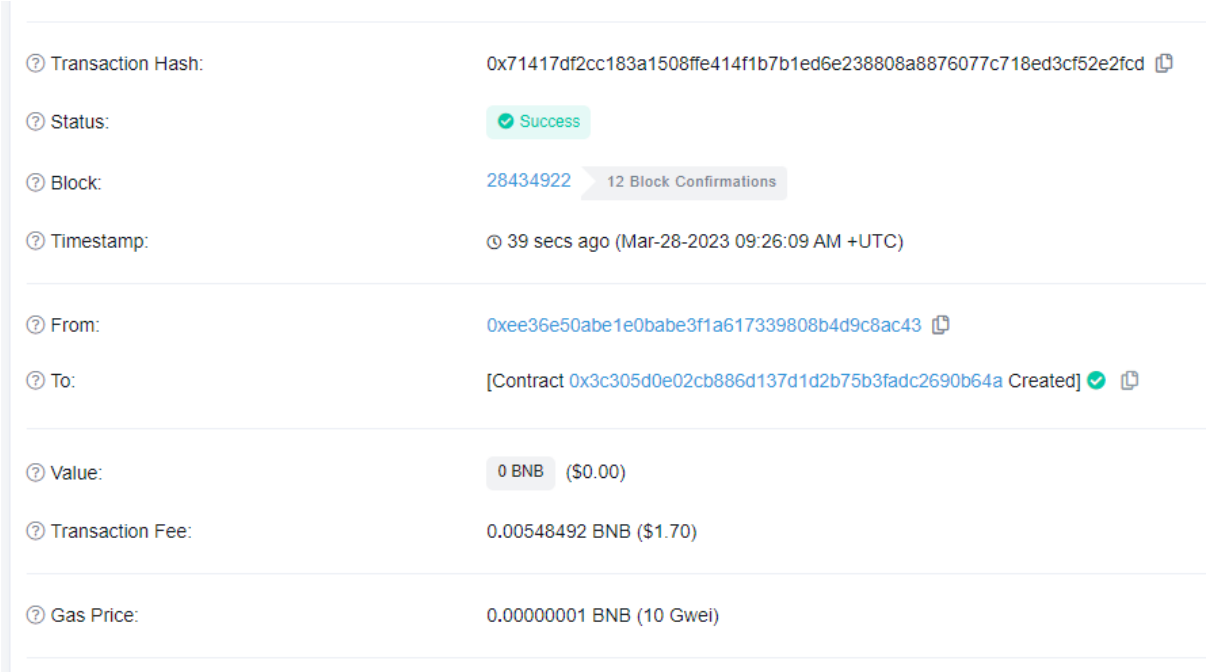
h.Génération de notre première transaction Ethereum



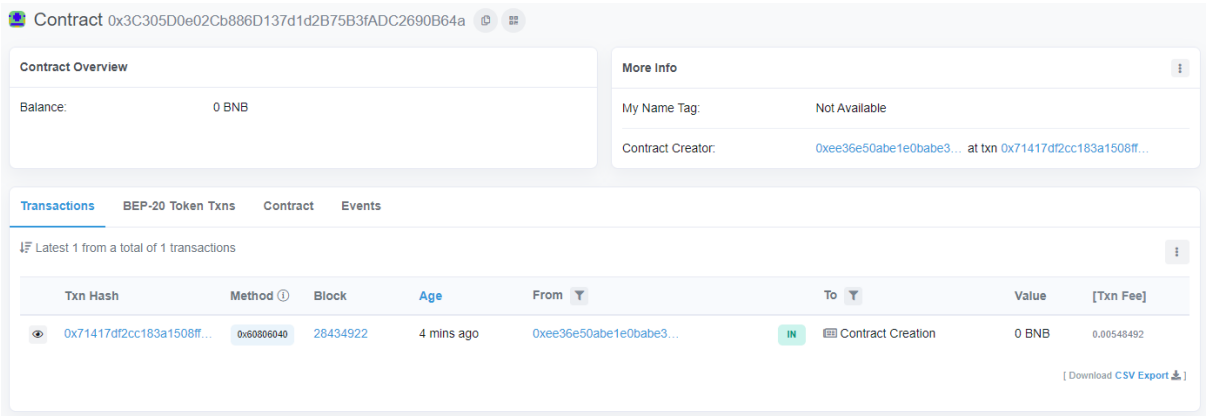

Modifier
Account 1
0x533...D08E
ENVOI DE ETH
0.01
$17.29
MODIFIER
Frais de carburant estimés
$0.36 0.00021 ETH
Frais maximaux: 0.00021 ETH
Total
$17.66 0.01021 ETH
Montant + frais de carburant
Montant maximal: 0.01021 ETH
Rejeter
Confirmer

I. ABI et Byte code du contrat: cf voir les fichiers

M.Déploiement du smart contract “Election.sol”

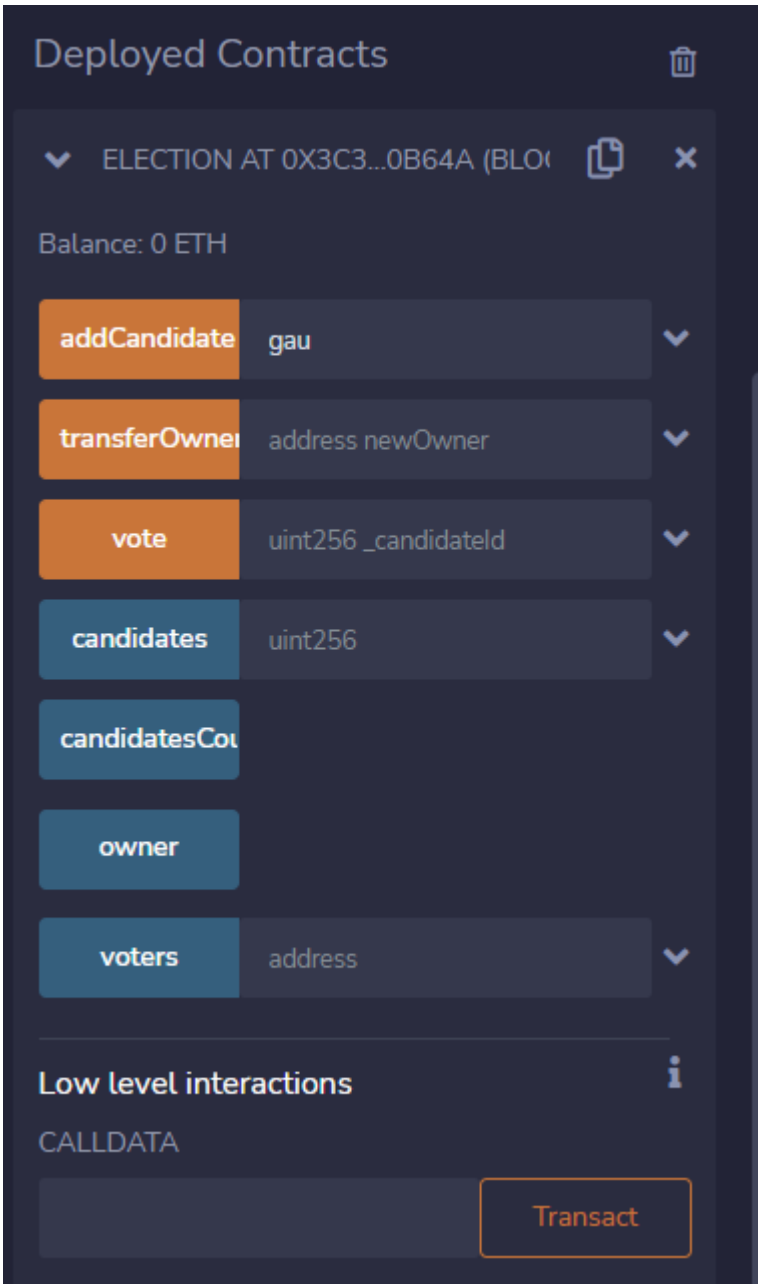


Adresse publique du smart contract : 0x3C305D0e02Cb886D137d1d2B75B3fADC2690B64a

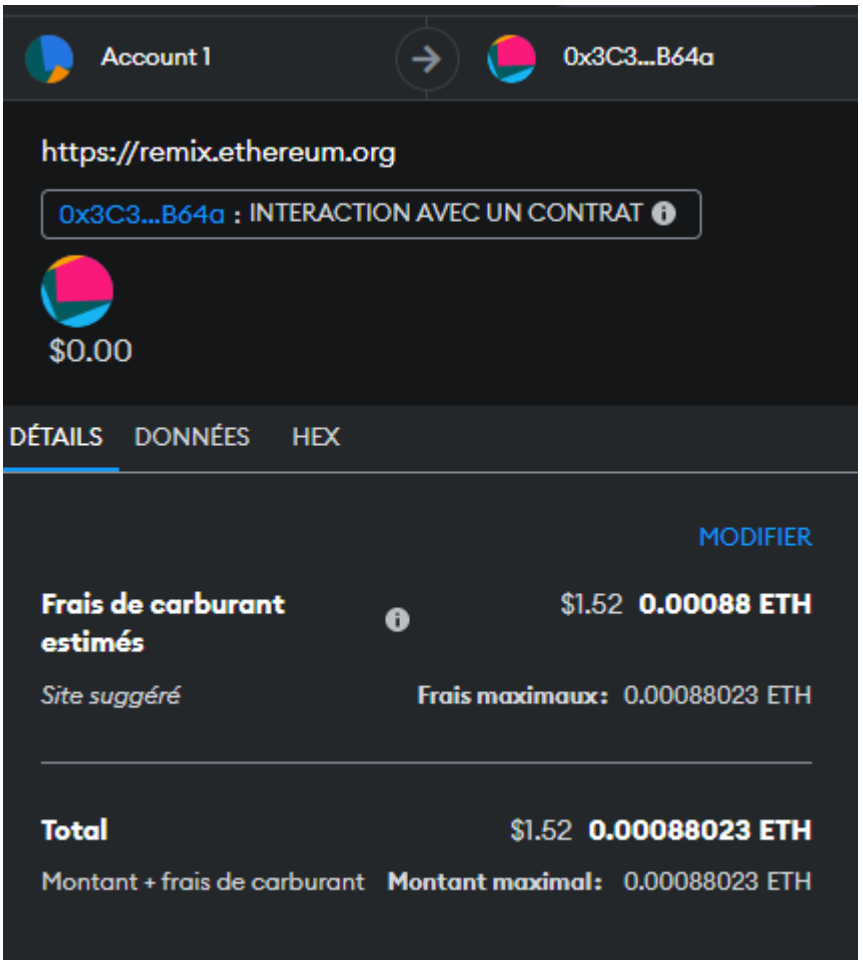


Justification des frais: La puissance de calcul demandée n'est pas la même, donc les frais de transaction sont différents.

N. Ajout du premier candidat



O.Génération de la transaction



Transaction Hash: 0x2f1d7df791fae47ea27891927b03679989171a7ce2873cf640478c25c34a524a

Status: Success

Block: 28435108 116 Block Confirmations

Timestamp: 5 mins ago (Mar-28-2023 09:35:27 AM +UTC)

From: 0xee36e50abe1e0babe3f1a617339808b4d9c8ac43

To: Contract 0x3c305d0e02cb886d137d1d2b75b3fadc2690b64a

Value: 0 BNB ($0.00)

Transaction Fee: 0.0008654 BNB ($0.27)

Gas Price: 0.00000001 BNB (10 Gwei)

Gas Limit & Usage by Txn: 88,023 | 86,540 (98.32%)

Other Attributes: Nonce: 2 Position: 2

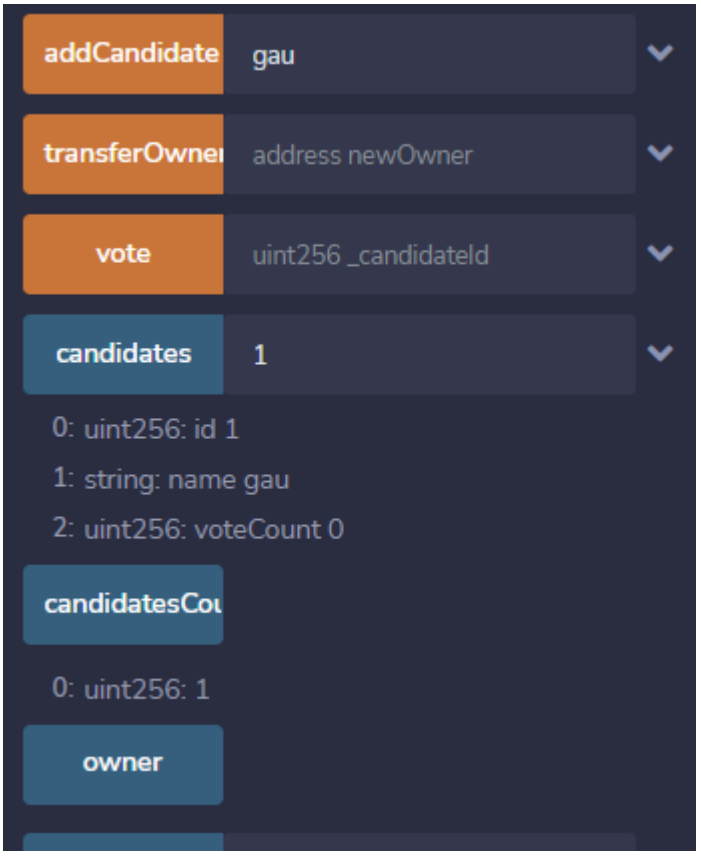
Input Data:

```
Function: addCandidate(string newCandidate) ***

MethodID: 0x462e91ec
[0]:  0000000000000000000000000000000000000000000000000000000000000020
[1]:  0000000000000000000000000000000000000000000000000000000000000003
[2]:  6761750000000000000000000000000000000000000000000000000000000000
```

View Input As | Decode Input Data

p.Consultation du “CandidateID”

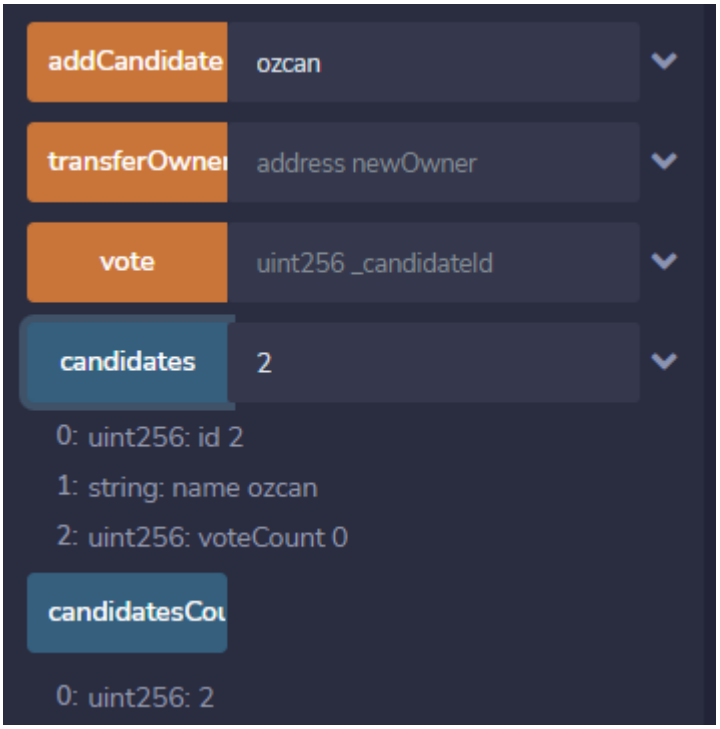


q.Ajout du second candidat

Transaction Hash:	0xe77ed77ebe16e20c920ff742941ddf10f8f87778b589a56d0a4f9d8c8da2f2f7
Status:	Success
Block:	28435436 13 Block Confirmations
Timestamp:	39 secs ago (Mar-28-2023 09:51:51 AM +UTC)
From:	0xee36e50abe1e0babe3f1a617339808b4d9c8ac43
To:	Contract 0x3c305d0e02cb886d137d1d2b75b3fadc2690b64a
Value:	0 BNB ($0.00)
Transaction Fee:	0.00071564 BNB ($0.22)
Gas Price:	0.00000001 BNB (10 Gwei)
Gas Limit & Usage by Txn:	73,047 | 71,564 (97.97%)
Other Attributes:	Nonce: 3 Position: 7
Input Data:	Function: addCandidate(string newCandidate) *** MethodID: 0x462e91ec [0]: 0000000000000000000000000000000000000000000000000000000000000020 [1]: 0000000000000000000000000000000000000000000000000000000000000005 [2]: 6f7a63616e0000000000000000000000000000000000000000000000000000000000000000

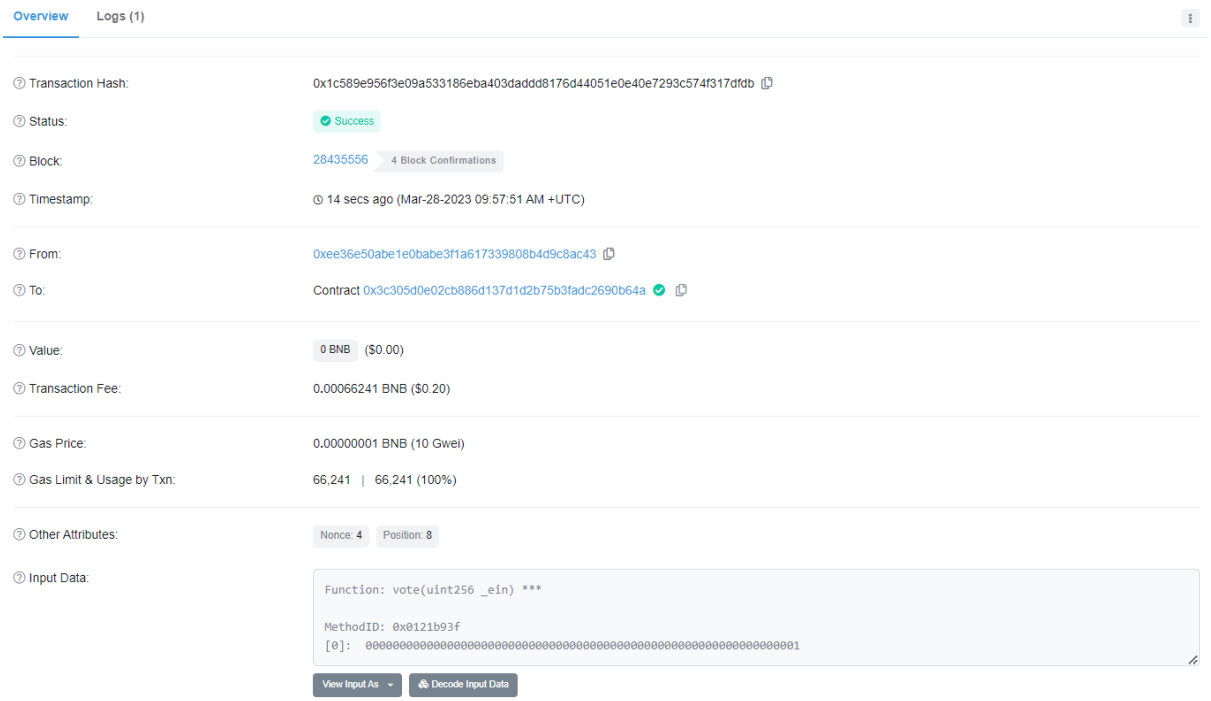
View Input As | Decode Input Data

r.Consultation de la valeur du second CandidateID

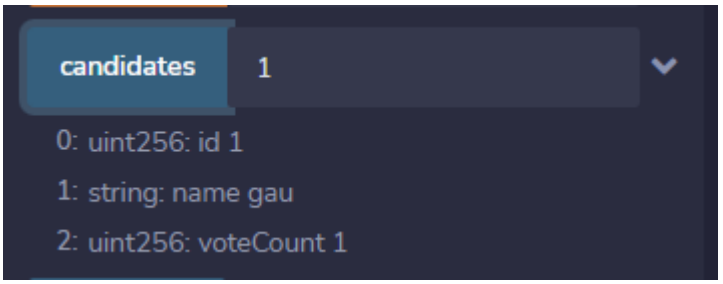


s.L'adresse du propriétaire du contract: 0xee36e50abe1e0babe3f1a617339808b4d9c8ac43

t.Réalisation du premier vote

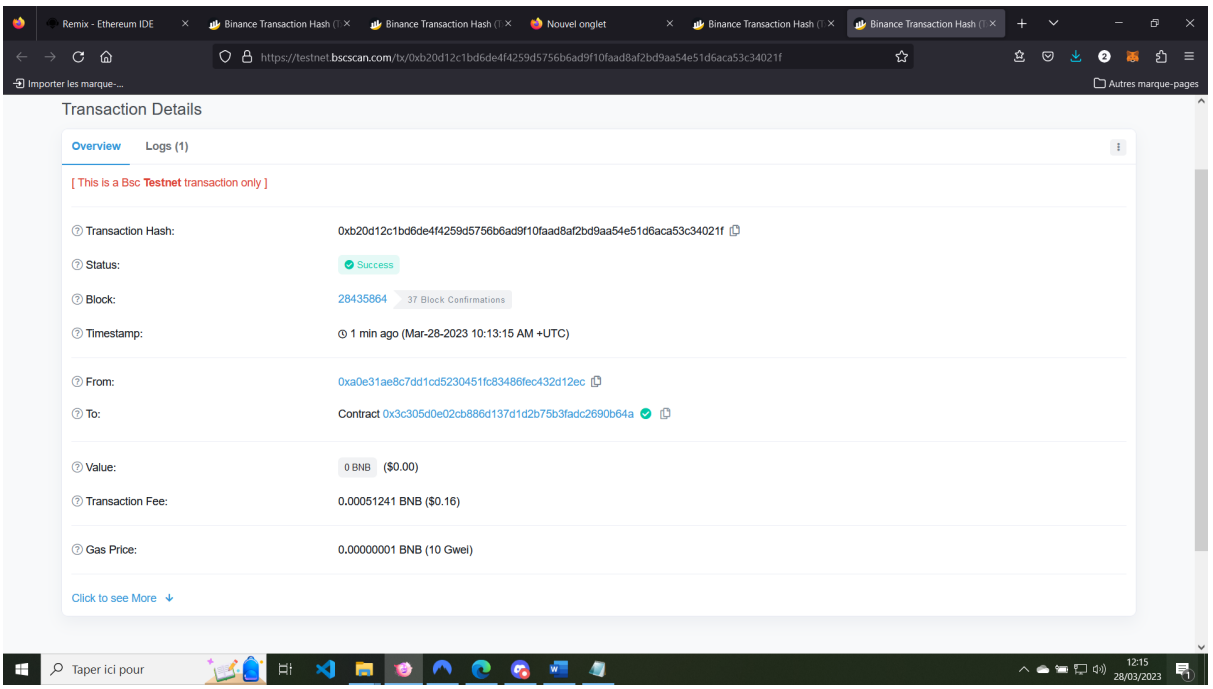


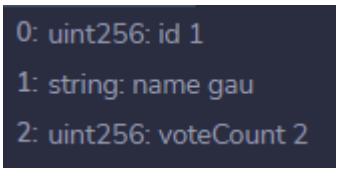
u.Vérification du vote



v.

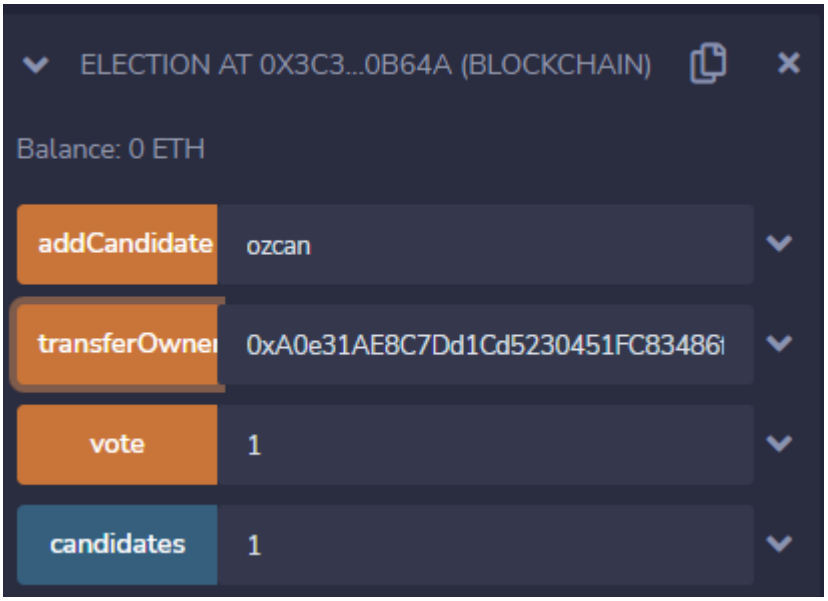
Mon contrat: 0x3C305D0e02Cb886D137d1d2B75B3fADC2690B64a





w.Réalisation du transfert

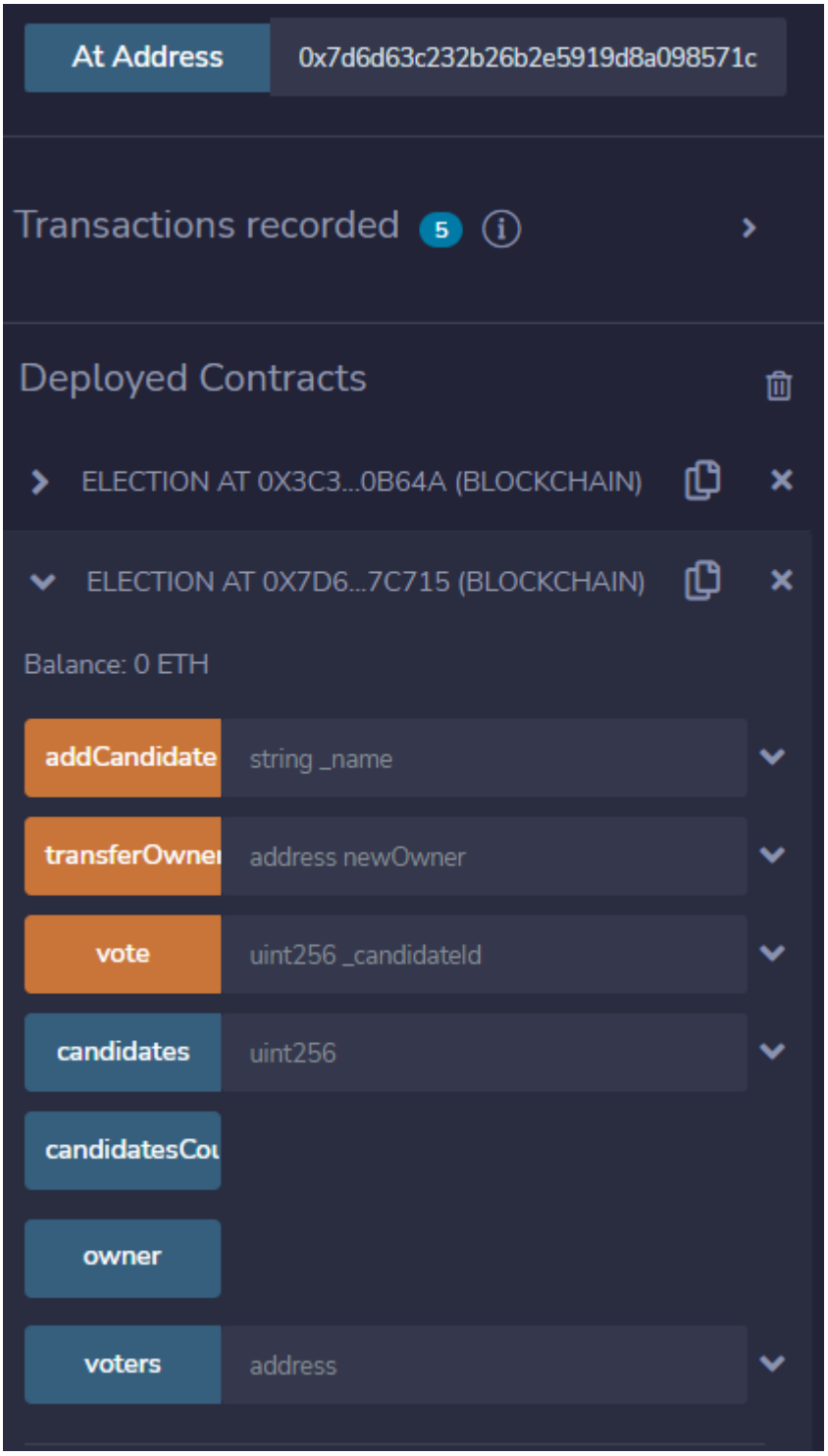
Contrat Antoine Lelong: 0x7D6D63C232b26b2E5919D8A098571C1e88b7C715



Overview | Logs (1)

[This is a Bsc **Testnet** transaction only]

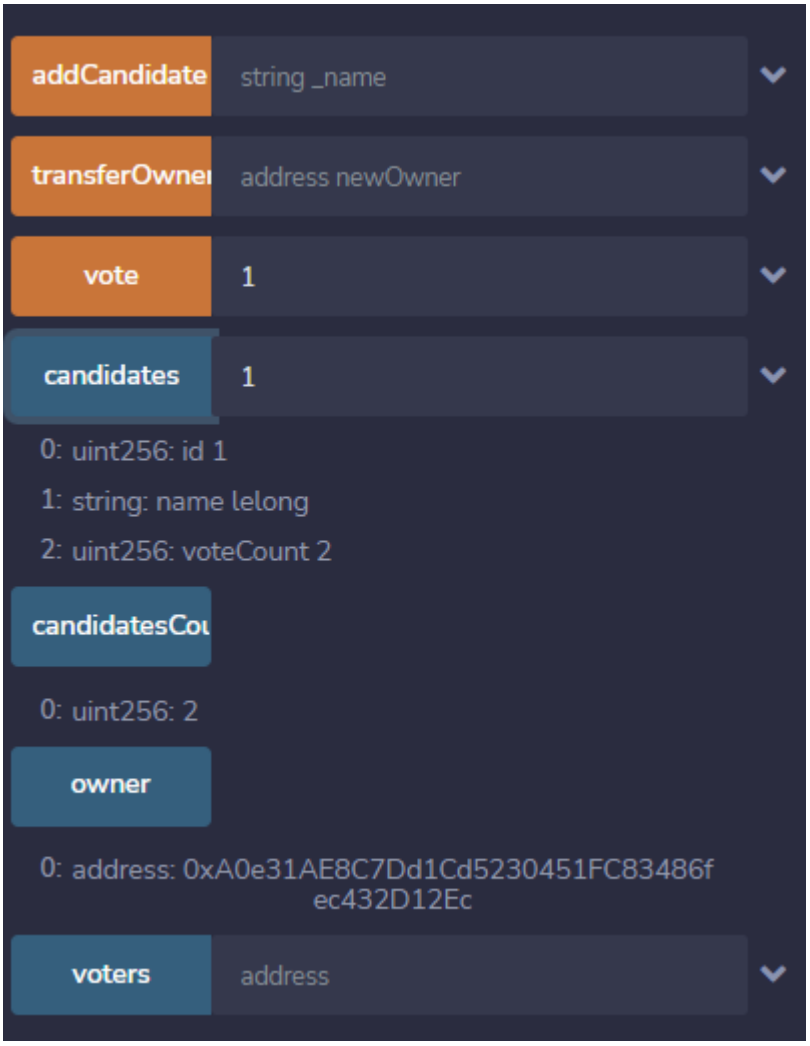
Transaction Hash:	0x5f6c4eea347cdfb972355915179551faa2c62dac0db4462f0d4e7641dfe5f293
Status:	Success
Block:	28436050 6 Block Confirmations
Timestamp:	20 secs ago (Mar-28-2023 10:22:33 AM +UTC)
From:	0xee36e50abe1e0babe3f1a617339808b4d9c8ac43
To:	Contract 0x3c305d0e02cb886d137d1d2b75b3fadc2690b64a
Value:	0 BNB ($0.00)
Transaction Fee:	0.00030929 BNB ($0.10)
Gas Price:	0.00000001 BNB (10 Gwei)
Gas Limit & Usage by Txn:	30,929 | 30,929 (100%)
Other Attributes:	Nonce: 6 Position: 1
Input Data:	Function: transferOwnership(address newOwner) *** MethodID: 0xf2fde38b [0]: 000000000000000000000000a0e31ae8c7dd1cd5230451fc83486fec432d12ec


At Address
0x7d6d63c232b26b2e5919d8a098571c
Transactions recorded 5
Deployed Contracts
ELECTION AT 0X3C3...0B64A (BLOCKCHAIN)
ELECTION AT 0X7D6...7C715 (BLOCKCHAIN)
Balance: 0 ETH
addCandidate
string _name
transferOwner
address newOwner
vote
uint256 _candidateId
candidates
uint256
candidatesCou
owner
voters
address

Overview Logs (1)

[This is a Bsc **Testnet** transaction only]

Transaction Hash:	0x8e42473f70774e765a7c9db640a0ae5cb290ebab5c665406df671fdc593771bf
Status:	Success
Block:	28435813 3 Block Confirmations
Timestamp:	12 secs ago (Mar-28-2023 10:10:42 AM +UTC)
From:	0xee36e50abe1e0babe3f1a617339808b4d9c8ac43
To:	Contract 0x7d6d63c232b26b2e5919d8a098571c1e88b7c715
Value:	0 BNB ($0.00)
Transaction Fee:	0.00051241 BNB ($0.16)
Gas Price:	0.00000001 BNB (10 Gwei)
Gas Limit & Usage by Txn:	51,241 | 51,241 (100%)
Other Attributes:	Nonce: 5 Position: 9
Input Data:	Function: vote(uint256 _ein) *** MethodID: 0x0121b93f [0]: 0000000000000000000000000000000000000000000000000000000000000001



x. On peut faire en sorte que l'utilisation soit uniquement réservée au owner du contrat.
y.

```
    /**
     * @dev Throws if called by any account other than the owner.
     */
    modifier onlyOwner() {
        require(msg.sender == owner, "Not authorized operation");
        _;
    }
```

```
    function addCandidate (string memory _name) public onlyOwner{
        candidatesCount ++;
        candidates[candidatesCount] = Candidate(candidatesCount, _name,
0);
    }
```