

Project Create and Transact on Ethereum Private Blockchain

1. **Création Ethereum comptes** : besoin d'au moins deux comptes pour jouer à la blockchain et faire de transactions entre les deux

Script started. Head over to <http://localhost:8080> on your browser

1. Create Ethereum accounts

In this first step, we need to create two new accounts for two of the Ethereum nodes. These 2 accounts will serve as the base accounts on their respective nodes. For creating your accounts, you'll need a password that you will use to lock or unlock your account when initiating a transaction. Please enter your password below for two accounts and click create accounts to get started.

ubuntu

ubuntu

Create Accounts

Generated Account address in Node_1

Your Account Addresss for Node_1

Generated Account address in Node_2

Your Account Address for Node_2

Generated Account address in Node_1

86cafb6f618b002a899172b1266d97e4ddf771b

Generated Account address in Node_2

5bccf6be29e8b6c5c90889745c752bdc025e3c5a

Le système va calculer les adresses et les **afficher automatiquement** dans ces cases grisées.

2. **Création du genesis files** est le block zéro définit la règle du jeu (qui a de monnaie, quel est la difficulté du minage, qui a l'argent)

2. Create the Genesis files

Enter the contents for the custom Genesis file in the box below. The content here will be used to initialize both of your Ethereum nodes in the next step.

Contents of the Genesis file

```
{
  "config": {
    "chainId": 13,
    "homesteadBlock": 0,
    "eip155Block": 0,
    "eip158Block": 0
  },
  "difficulty": "0x20000",
  "timestamp": "0x00000000"
```

Create files

Genesis File Status

Created the Genesis Files with the name customGenesis.json in both node

- 3. Initialiser le genesis block :** initialiser le block pour que les nœud savent qu'ils appartiennent sur la blockchain spécifique

3. Initialize a new Genesis Block for both the Nodes

In this step, we will initialize the Ethereum nodes using the custom Genesis file that you created in the previous step. If you did not create a file, please complete step 2 before performing step 3.

Initialize Genesis Blocks

Genesis Block Status

Initialized both Ethereum nodes. You may start them now.

- 4. Démarrer les ethereum nodes**

4. Start the Ethereum Nodes

Finally, we will start the Ethereum nodes to be able to join the Blockchain and transact on it. To do so, simply click the button below and then wait for the status to change. Then, move to the next step.

Start Ethereum nodes

Ethereum Node Status

Ethereum started successfully. Move to Step 2 now.

- 5. Connecter les peers** pour que les deux nodes puissent discuter ensemble

Please Wait...

Waiting 0m 1s for the action to complete before resuming operations.

Add Peer

We will connect the two nodes that you created to each other. To do so, we will add the enode of one of the nodes to the other and they both will be connected. Use the button below to connect them.

Connect Peers

Connected Peer Status

Enode added. You can check the connectivity using peer count or peers.

Verif :

Check Peer Count

If you want to check the count of connected peers, press the button below to query and return the result.

Node_1

Check Peer Count

Connected Peer Count

1

Node_2

Check Peer Count

Connected Peer Count

1

6. Peers Details :

Check Peer Details

If you want to check the connected peers, press the button below to query and return the result.

Node_1

Check Peer Details

Connected Peers

```
[
  {
    "id":
    "8ae6714510e393beb3b8e96
d2953874fd9f34d6ebe56ce00
f764791da906d5abacfcf6396
71e0f92fa21c377a8776870cd
c0f3d538776d7f338b8c438b
"
```

Node_2

Check Peer Details

Connected Peers

```
[
  {
    "id":
    "9913996642552c7561f165a
cdbc5da101d7a9751b21e0b0
fd98a6f465fa5da4041d1019f
5d7b66f681d912246bf79b92
5733b366c25568-033cf600-
```

7. Create new account :

Create New Accounts

Let us create a few more accounts (4) for every node. Enter the password for the coinbase account so we can use the same password for the other accounts as well.

We are using the same password so it makes it easy to remember the password. In reality, make sure you use different passwords

Node_1

ubuntu

Create 4 accounts

Account Creation Status

Accounts created successfully!

Node_2

ubuntu

Create 4 accounts

Account Creation Status

Accounts created successfully!

8. Lister les account

List Accounts and Check Balance

If you want to check your balance, press the button below to query and return the result for all the accounts.

Node_1

Check Balance

Account and balances fetched.

Account Address	Balance (in Weis)	Balance (in Ethers)
0x86cafba6f618b0	0	0
0xe489f8c3944204	0	0
0x8448aa6fedfbf6f	0	0
0x947ed9a33eb84e	0	0
0x1bbd227a31f2f7	0	0

Node_2

Check Balance

Account and balances fetched.

Account Address	Balance (in Weis)	Balance (in Ethers)
0x5bccf6be29e8b6	0	0
0x397e2253bddd4f	0	0
0xe9177a9240c2d0	0	0
0x9494ac898db40e	0	0
0x812d1fb742b27c	0	0

9. **Check balance** : au début le solde des deux comptes est vide =0 wei /ethr

Le Wei est la plus petite unité, éther est l'unité principale 1ethr=10¹⁸

10. Start Miner

Le DAG génération est considéré comme préparation du terrain (construction des fichiers)

Create New Account

List Accounts

Miner

If you want to start your miner, press the button below to start the miner.

Before you start your miner, make sure you check the account balances. Then start the miner and wait for the timer. Then check your balance again.

Start Miner

Stop Miner

Miner Response

Miner Started

Waiting for DAG to be generated...

Checking if DAG has been generated or not. If it has not been generated, please wait a maximum of **9m 54s** for them to be generated. If it is completed before that, this screen will disappear and you can continue ahead.

11. Stop Miner

Node 1 admet un solde 145 ethers

Node2 admet un solde 0 ethers

List Accounts and Check Balance

If you want to check your balance, press the button below to query and return the result for all the accounts.

Node_1			Node_2		
<input type="button" value="Check Balance"/>			<input type="button" value="Check Balance"/>		
Account and balances fetched.			Account and balances fetched.		
Account Address	Balance (in Weis)	Balance (in Ethers)	Account Address	Balance (in Weis)	Balance (in Ethers)
0x86cafba6f618b002a899172b126f	14500000000	145	0x5bccf6be29e8b6c5c90889745c7!	0	0
0xe489f8c3944204d2b0befe6f75c8	0	0	0x397e2253bdd40596a26faa729e	0	0
0x8448aa6fedfbf6b224ab9169341c	0	0	0xe9177a9240c2d0fa3dc6878e808	0	0
0x947ed9a33eb84a76e883e834e12	0	0	0x9494ac898db40c76c1f90c4aafbc	0	0
0x1bbd227a31f2f7dddcbf0d5a8fb	0	0	0x812d1fb742b27df322429aed286	0	0

12. Unlock account pour meilleur sécurité des transactions

Unlock Account

If you want to unlock your account, please enter the account address and the password you used to create the account and submit the form.

You can get the account addresses from the list accounts and balance section above.

Node_1		Node_2	
<input type="text" value="0x86cafba6f618b002a899172b126f"/>	<input type="text" value="ubuntu"/>	<input type="text" value="0x5bccf6be29e8b6c5c90889745c7!"/>	<input type="text" value="ubuntu"/>
<input type="button" value="Unlock Account"/>		<input type="button" value="Unlock Account"/>	
Unlock Status		Unlock Status	
Account Unlocked		Account Unlocked	

13. Send transaction

Comme la node2 n'admet pas de solde, toute opération de transaction à effectuer échouera

Send Transaction

If you want to initiate a transaction, enter the sender's account address, the receiver's account address and the amount you want to send in ethers. Please make sure you unlock the sender account at the respective node and you have sufficient funds.

You can get the account addresses from the list accounts and balance section above.

Node_1		Node_2	
<input type="text" value="Enter sender's account address here"/>	<input type="text" value="Enter receiver's account address here"/>	<input type="text" value="0x5bccf6be29e8b6c5c90889745c7!"/>	<input type="text" value="0x5bccf6be29e8b6c5c90889745c7!"/>
<input type="text" value="Enter the amount (in Ethers)"/>	<input type="button" value="Send Transaction"/>	<input type="text" value="10"/>	<input type="button" value="Send Transaction"/>
Transaction Status		Transaction Status	
Transaction Status		Your account has insufficient funds for gas * price + amount that you want to send	

Node1 fait une transaction de 45 ethers

The Sender : @ node1

The receiver : @ node2

Send Transaction

If you want to initiate a transaction, enter the sender's account address, the receiver's account address and the amount you want to send in ethers. Please make sure you unlock the sender account at the respective node and you have sufficient funds.

You can get the account addresses from the list accounts and balance section above.

Node_1

Transaction Status

Transaction successfully submitted.

Node_2

Transaction Status

Your account has insufficient funds for gas * price + amount that you want to send

14. Status transaction pending est une transaction qui est en état d'attente n'est pas encore validé

Check Transaction Status

If you want to check the status of transactions, press the button below to query the blockchain and return the result.

For your blockchain, since the difficulty is not too high, every transaction is mined pretty quickly. You should stop the miner and then submit a transaction. After that, if you check you will find that there is a pending transaction. Start the miner to send the transaction through.

Check Transaction Status

Pending Transactions

1

Queued Transactions

0

Se valide si seulement le mineur créer un nouveau block

Miner

If you want to Start or Stop a miner, use the buttons below to do so for either of the two nodes.

Before you start your miner, make sure you check the account balances. Then start the miner and wait for the timer. Then check your balance again.

Miner Response

Miner Started

Node2 reçoit le virement de 45 ethers

List Accounts and Check Balance

If you want to check your balance, press the button below to query and return the result for all the accounts.

Node_1

Check Balance

Account and balances fetched.

Account Address	Balance (in Weis)	Balance (in Ethers)
0x86cafba6f618b002a899172b126f	13000000000	130
0xe489f8c3944204d2b0befe6f75c8	0	0
0x8448aa6fedfb6b224ab9169341c	0	0
0x947ed9a33eb84a76e883e834e12	0	0
0x1bbd227a31f2f7dddcfb0d5a8fb	0	0

Node_2

Check Balance

Account and balances fetched.

Account Address	Balance (in Weis)	Balance (in Ethers)
0x5bccf6be29e8b6c5c90889745c7f	45000000000	45
0x397e2253bdd40596a26faa729e	0	0
0xe9177a9240c2d0fa3dc6878e808f	0	0
0x9494ac898db40c76c1f90c4aafbc	0	0
0x812d1fb742b27df322429aed286	0	0

Il n'y a plus de pending transactions

Check Transaction Status

If you want to check the status of transactions, press the button below to query the blockchain and return the result.

For your blockchain, since the difficulty is not too high, every transaction is mined pretty quickly. You should stop the miner and then submit a transaction. After that, if you check you will find that there is a pending transaction. Start the miner to send the transaction through.

Check Transaction Status

Pending Transactions

0

Queued Transactions

0