Experiment No. 6

Aim:

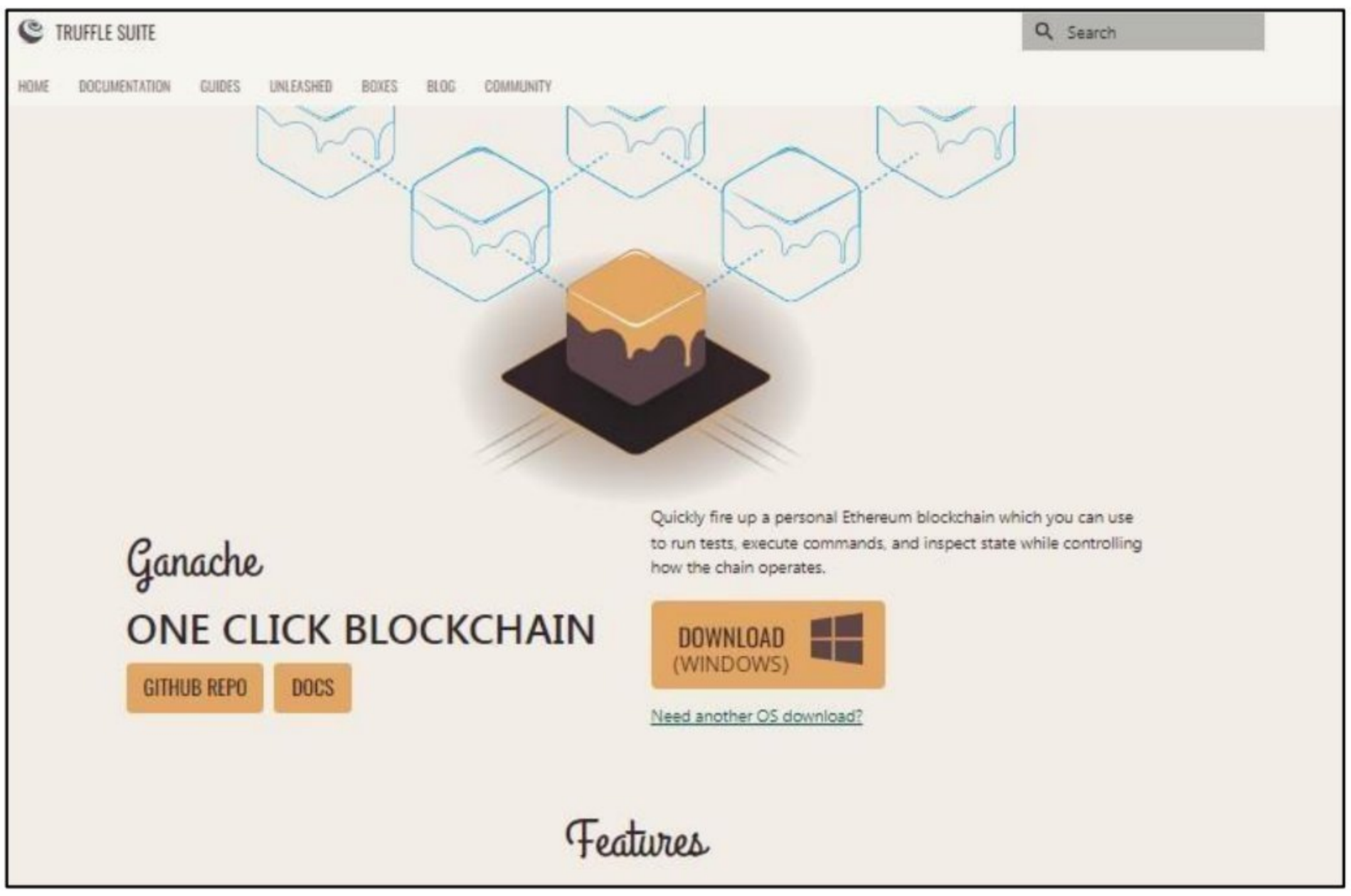
To execute a solidity contract on Ganache

Theory:

Ganache is used for setting up a personal Ethereum Blockchain for testing your Solidity contracts. It provides more features when compared to Remix. Before you begin using Ganache, you must first download and install the Blockchain on your local machine.

Installing and setup Ganache
You may download Ganache from the following URL –

https://trufflframework.com/ganache



Locate the "Ganache-2.0.0.dmg" in your Downloads folder and double-click on it to install Ganache.Now locate **Ganache** in your Application folder and double- click on its icon to start Ganache.

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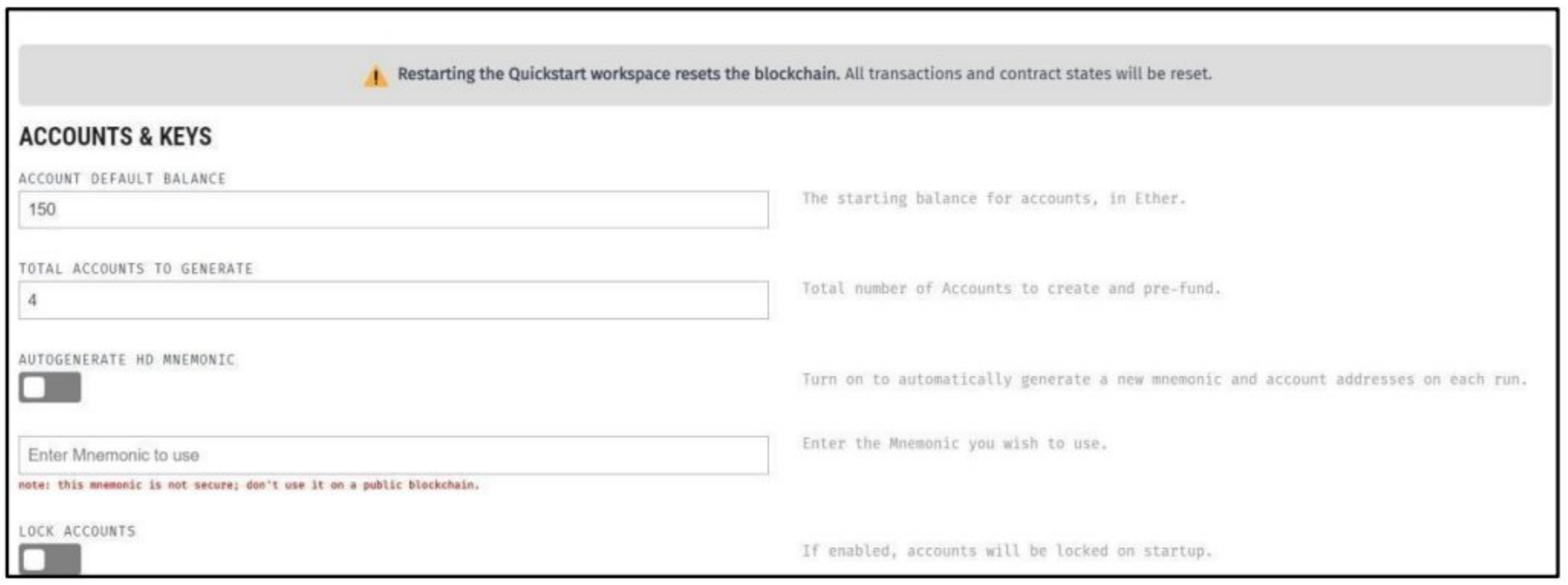
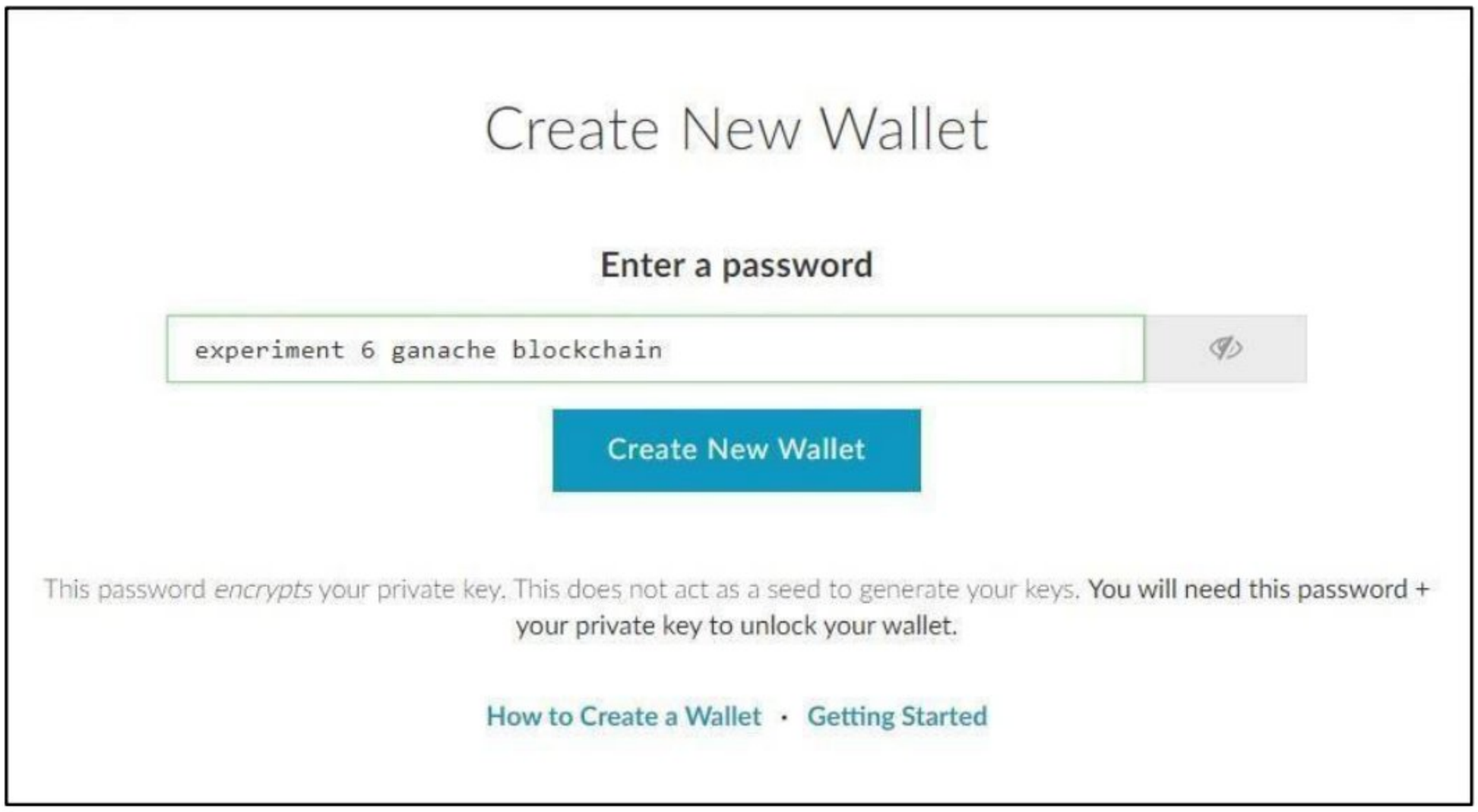
Account and Keys

When you click on the **Accounts & Keys** menu option, you will see the following screen and make the following changes the total accounts to generate to 2 and clicksave and restart button on top right.



For client applications, you will use MyEtherWallet. Download MyEtherWallet software from the following URL - https://github.com/kvhnuke/etherwallet/releases/tag/v3.21.06



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If required, unzip the downloaded file and open index.html. You will see the aboveinterface for creating a new wallet.

To create a new wallet, enter a password of your choice and then click on the "**Create New Wallet**" button. When you do so, a Wallet would be created. A digital wallet is essentially the generation of a public/private key pair that you needto store in a safe place. The wallet creation results in the following screen

Click on the "Download Keystore File (UTC / JSON)" button to save the generated keys. Now, click on the "Iunderstand. Continue" button. Your private key will appear on the screen as seen in the screenshot below -

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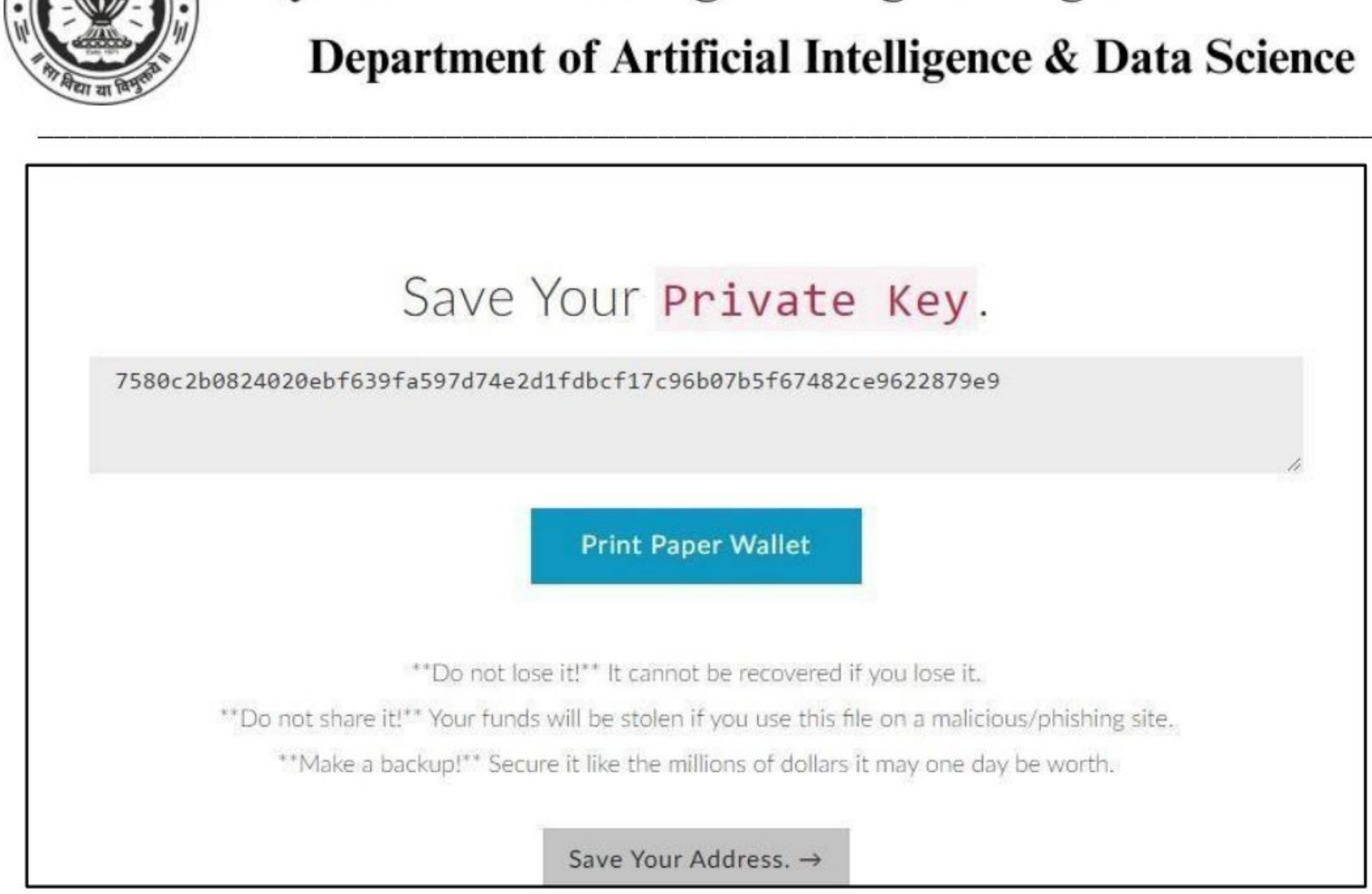
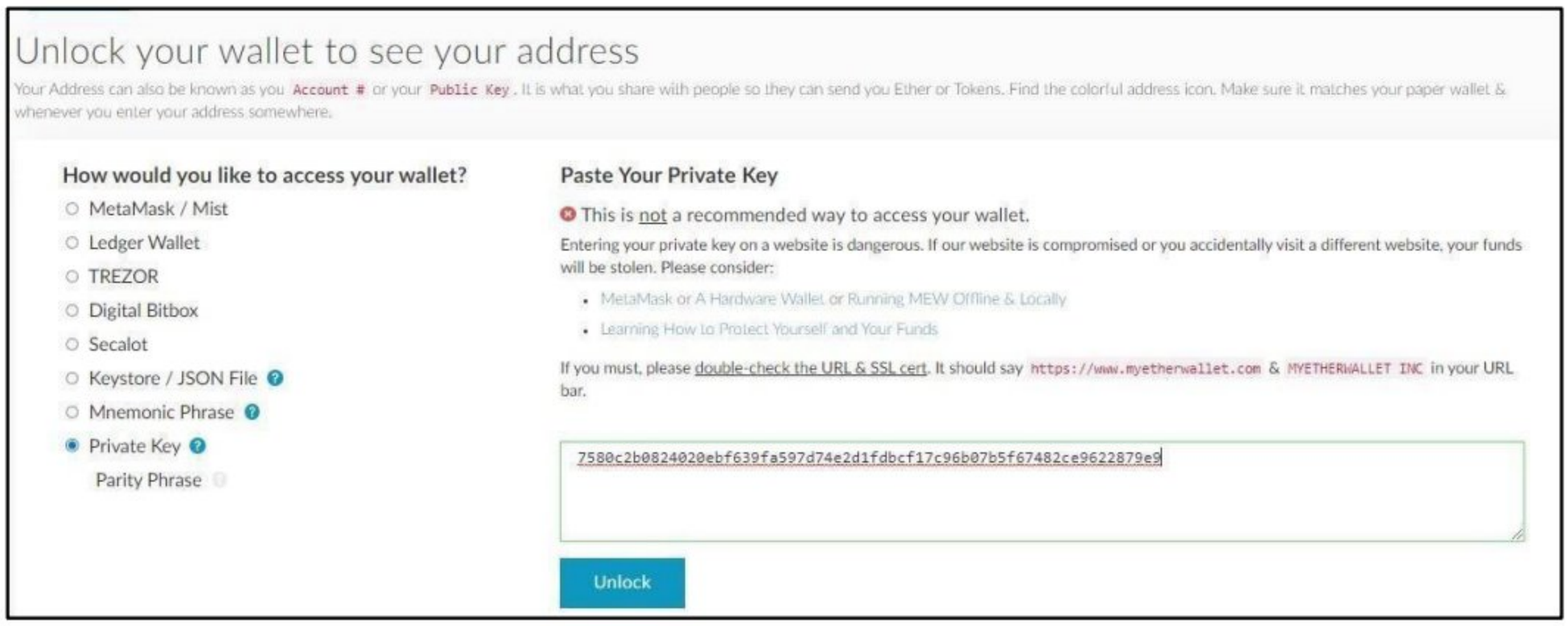


To unlock your wallet, click on the "Save Your Address" button. You will see the following screen.The wallet can be unlocked using the Private Key option as highlighted in the above screen. Cut-n-paste the private key from the previous screenshot and click the Unlock button. Your wallet will be unlocked and you will see a message appear at the bottom of the screen. As the wallet does not contain anything as of now, unlocking the wallet is not really useful to us at this point.



You have now created a wallet; this wallet is a client interface to the Blockchain. We will attach the wallet to the Ganache Blockchain that you have started in the earlier lesson. To do so, click on the Network dropdown box as shown in the screenshot below

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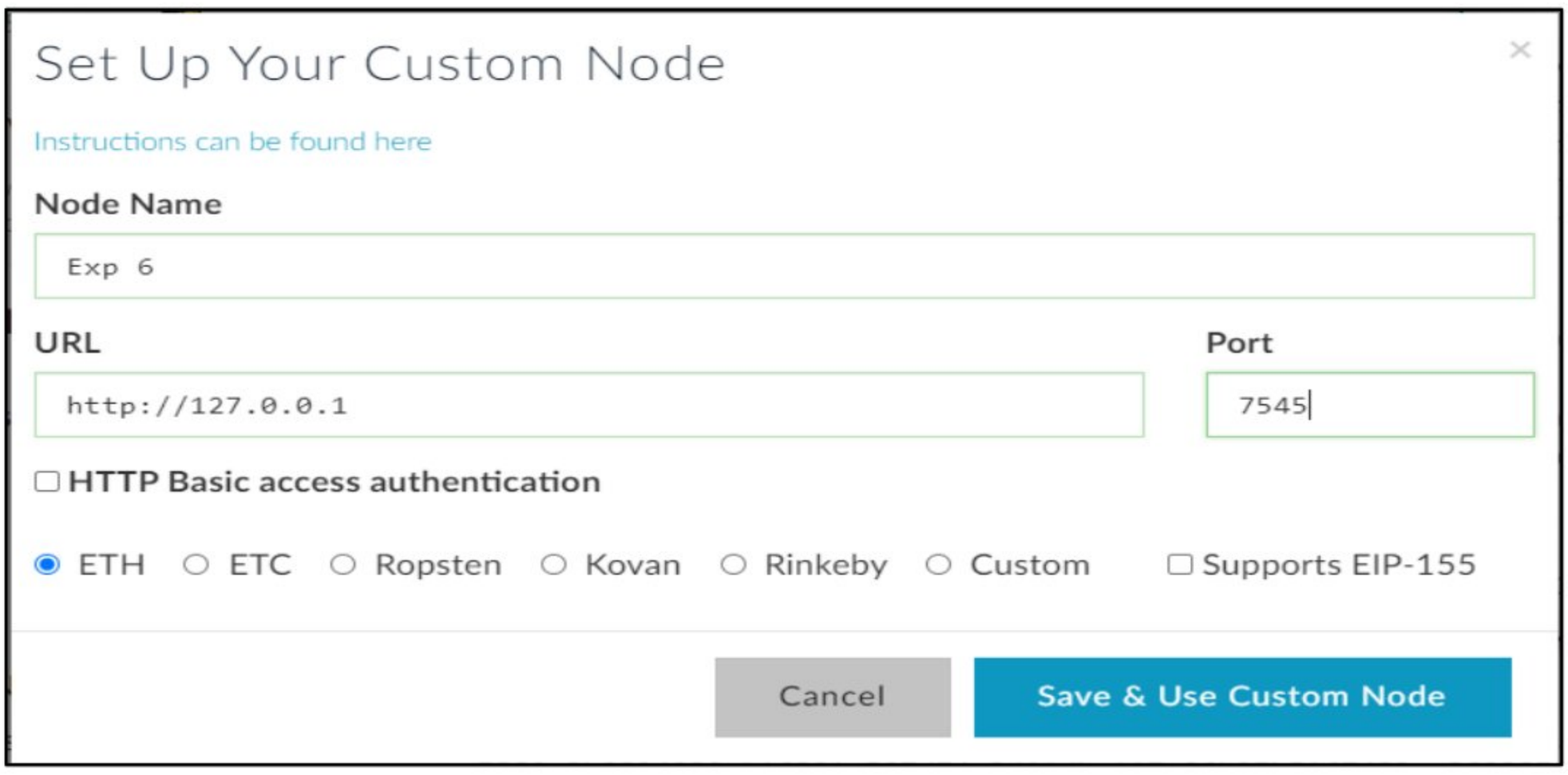
Go to the bottom of the list. You will see an option for "Add Custom Network / Node". Select this item. Now, a screen will appear asking for the Ganache server address and the port to which it is listening.



Type your Ganache server details – http://127.0.0.1 and Port: 7545. These would be the values set by you in the Ganache server setup. Give a name of your choiceto this node. Click on the "Save & Use Custom Node" button. You will see the connected message at the bottom of the screen. At this point, your wallet is successfully connected to the Ganache Blockchain.You are now ready to deploy the contract on this connected Blockchain.

Execute the below code on remix ide.
https://remix-project.org/

```
pragma solidity ^0.5.16;
contract MyContract{
```

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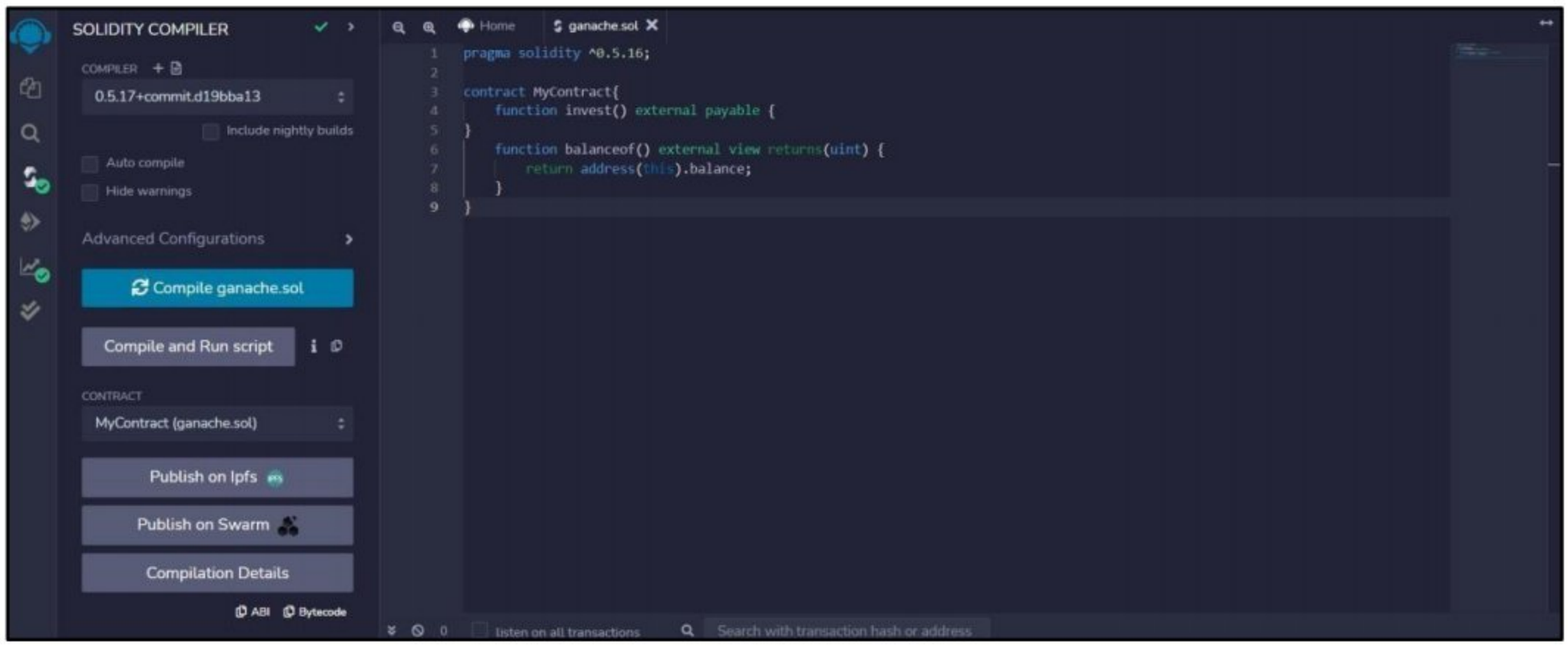
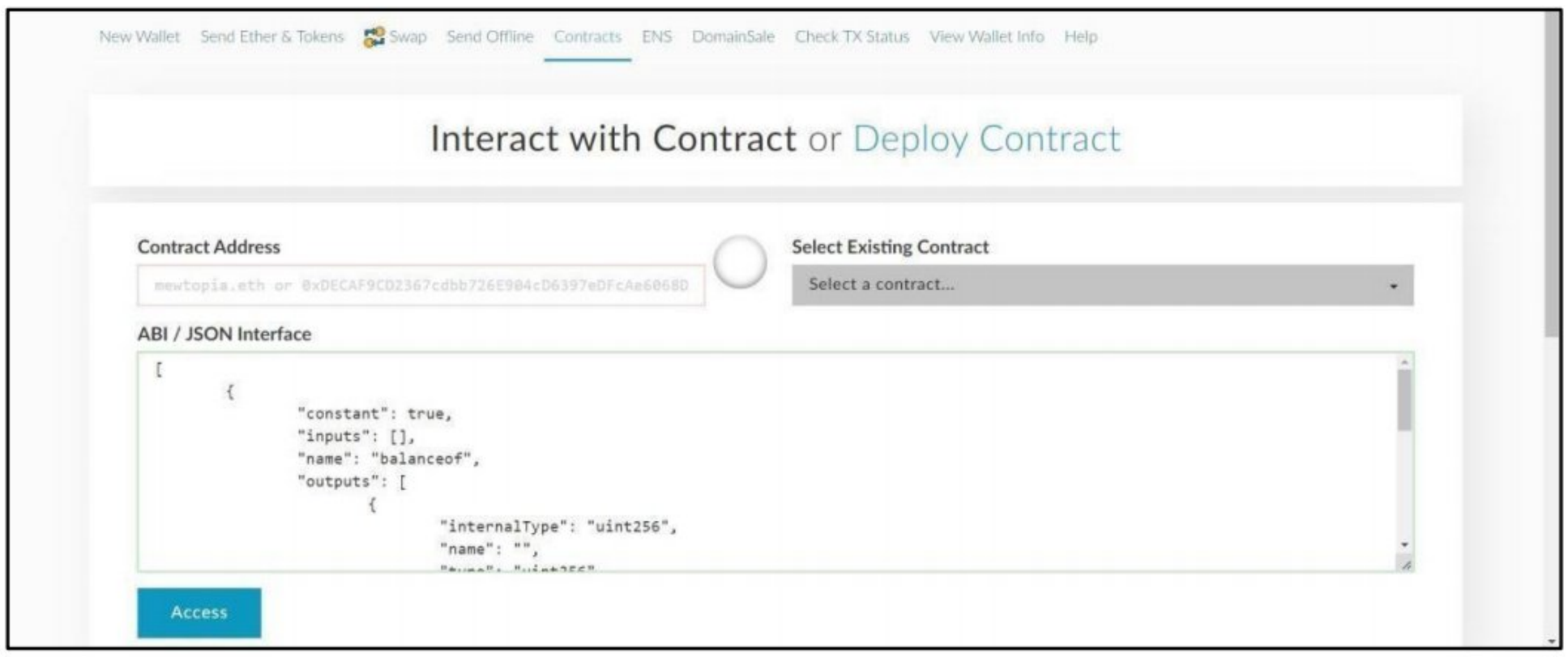
```
        function invest() external payable {
}
        function balanceof() external view returns(uint) {return
                address(this).balance;
        }
}
```



And click on the ABI button and paste the copied text into the contract section ofMyether wallet



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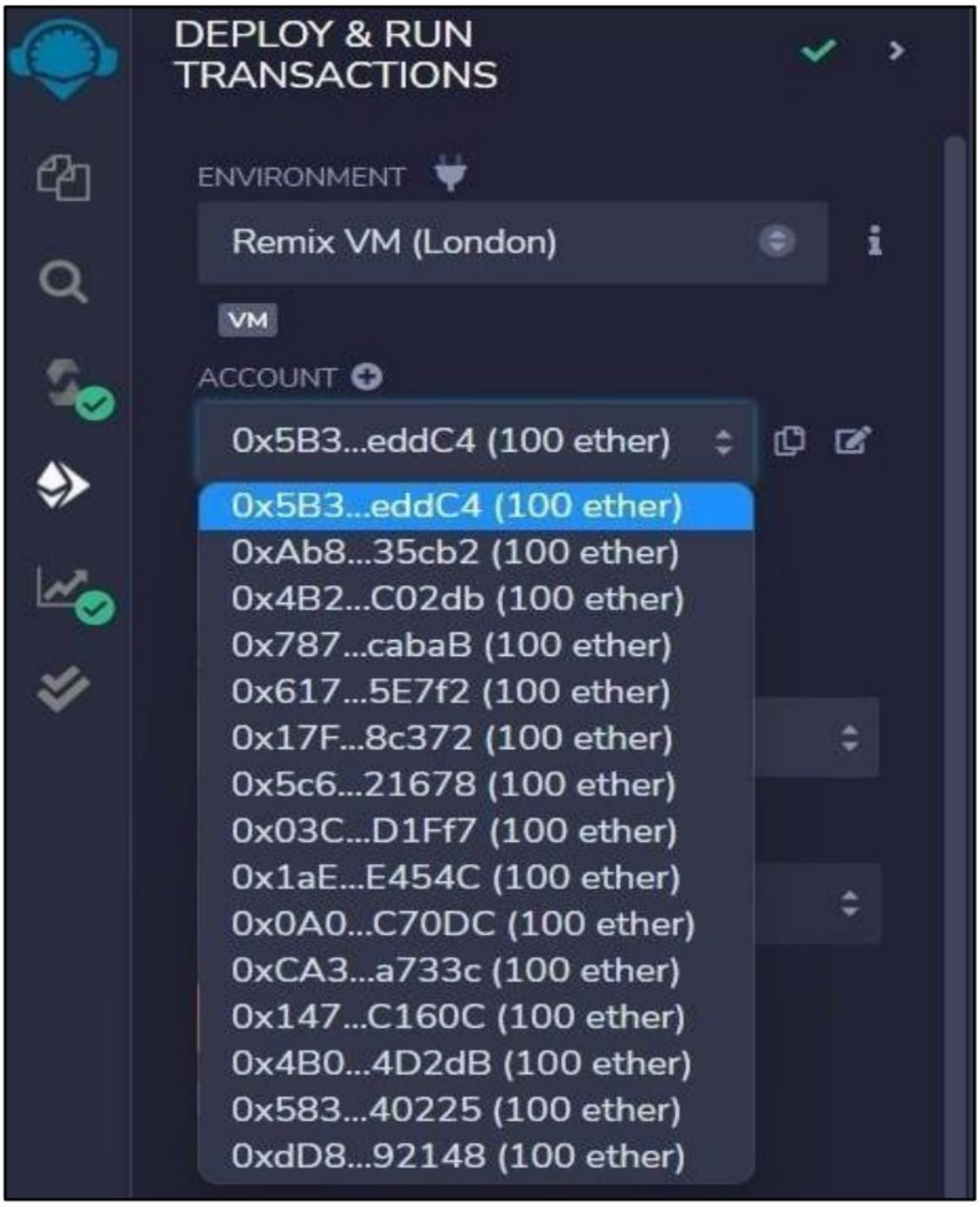
For Contract Address copy it from the remix ide



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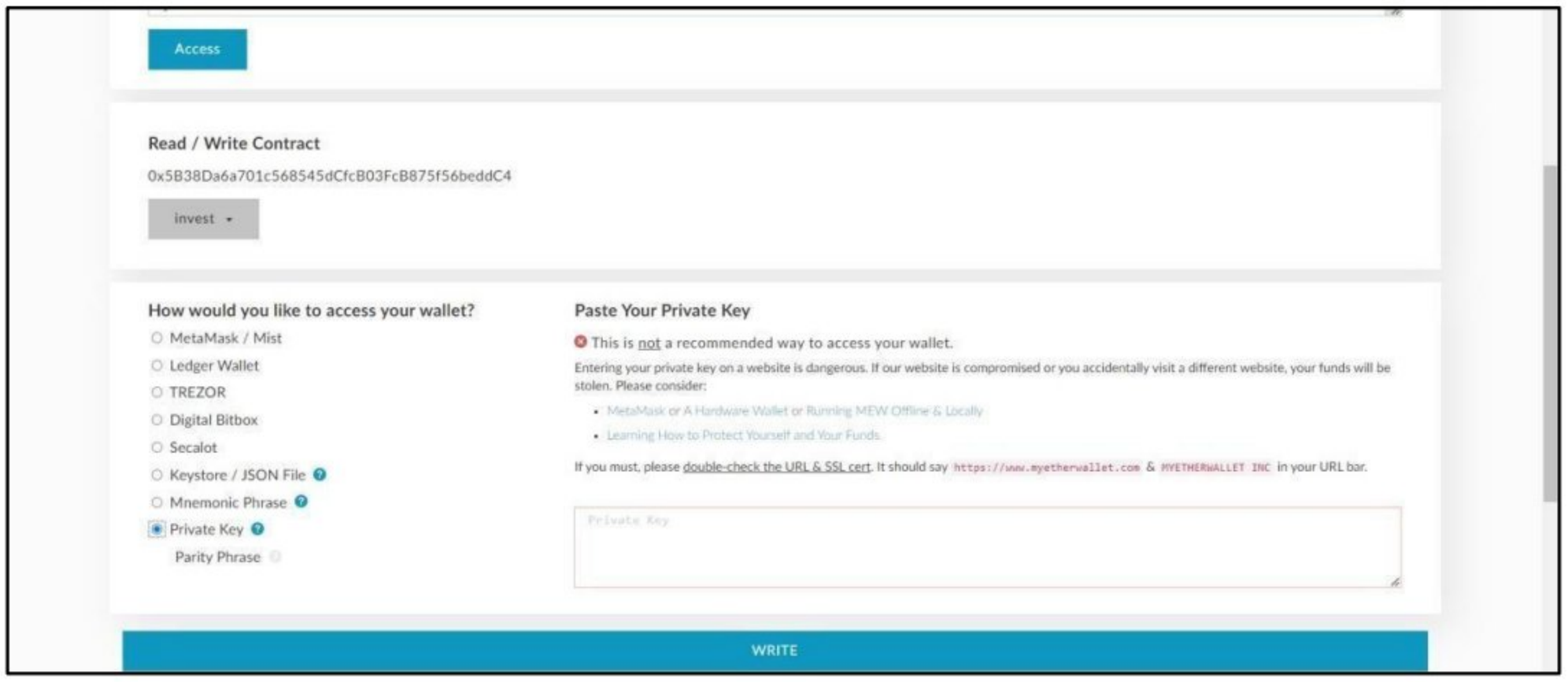
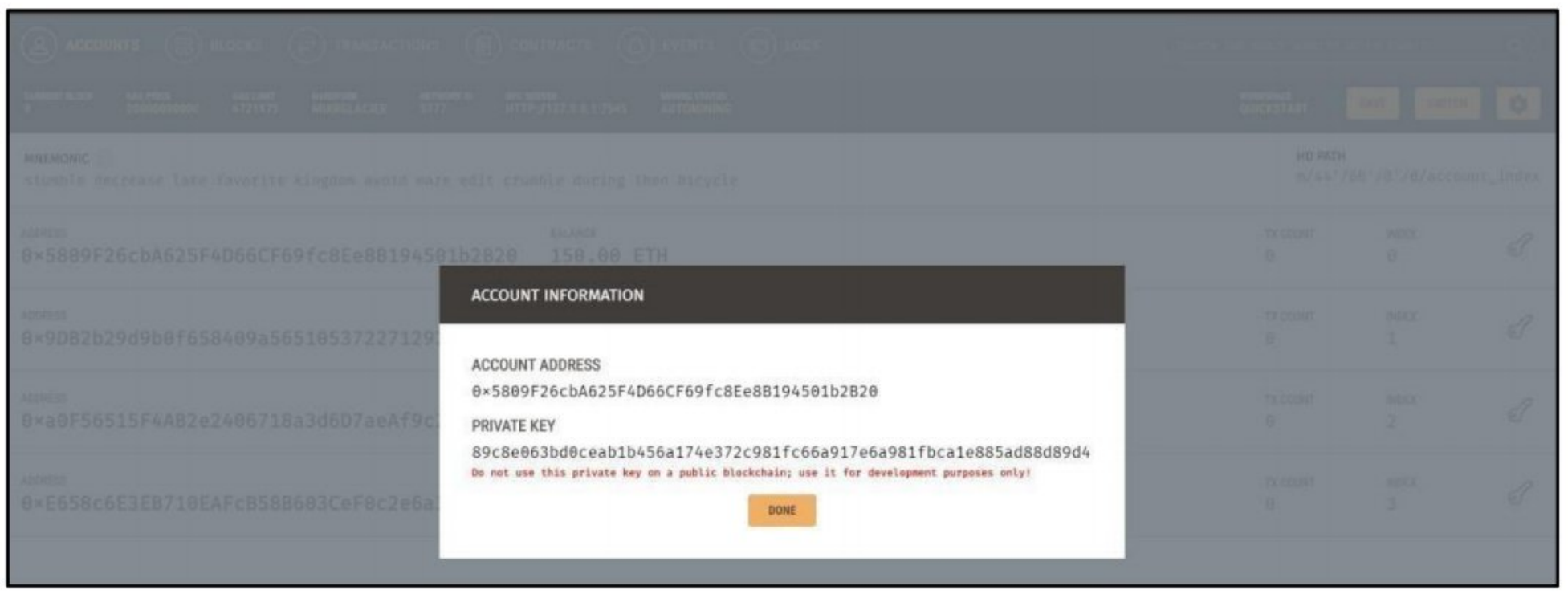
Click on access button and select function "invest" and click on Private key



Copy the private key of the first address from ganache and paste it into Myetherwallet



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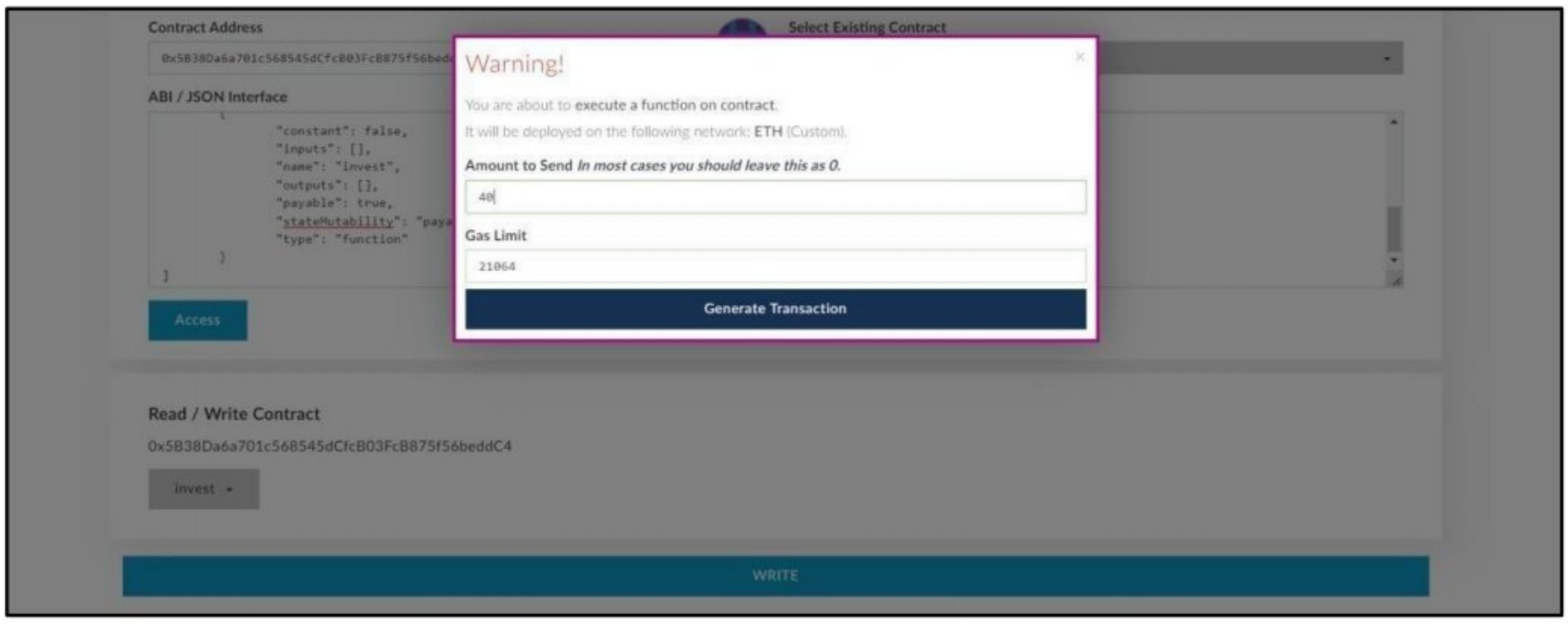
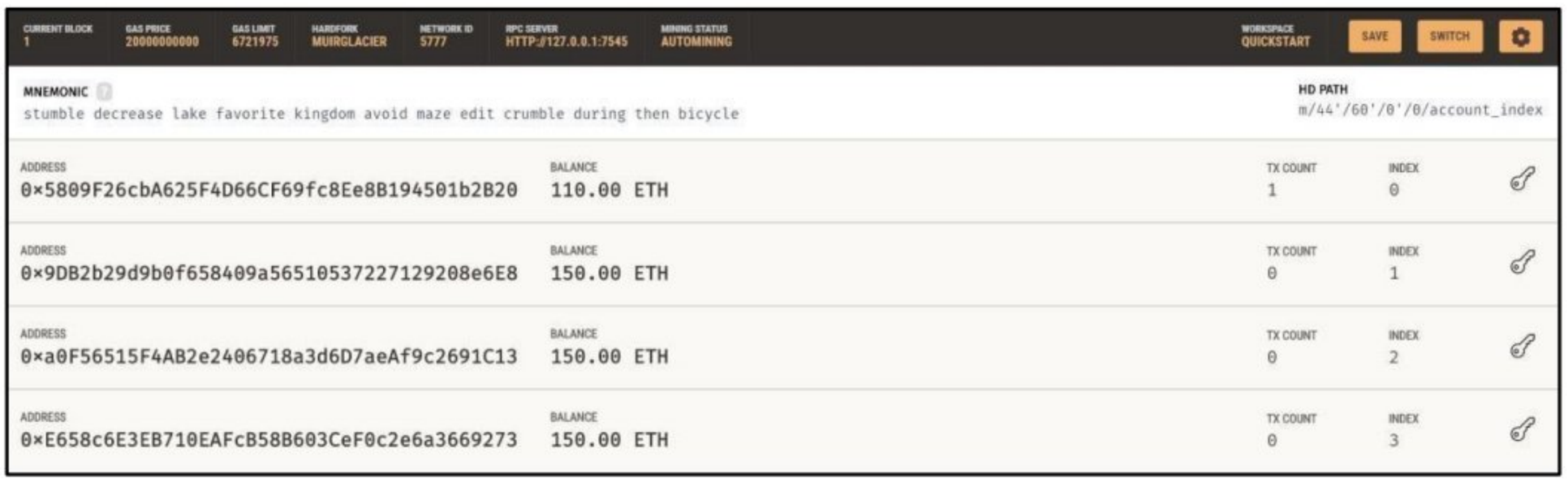
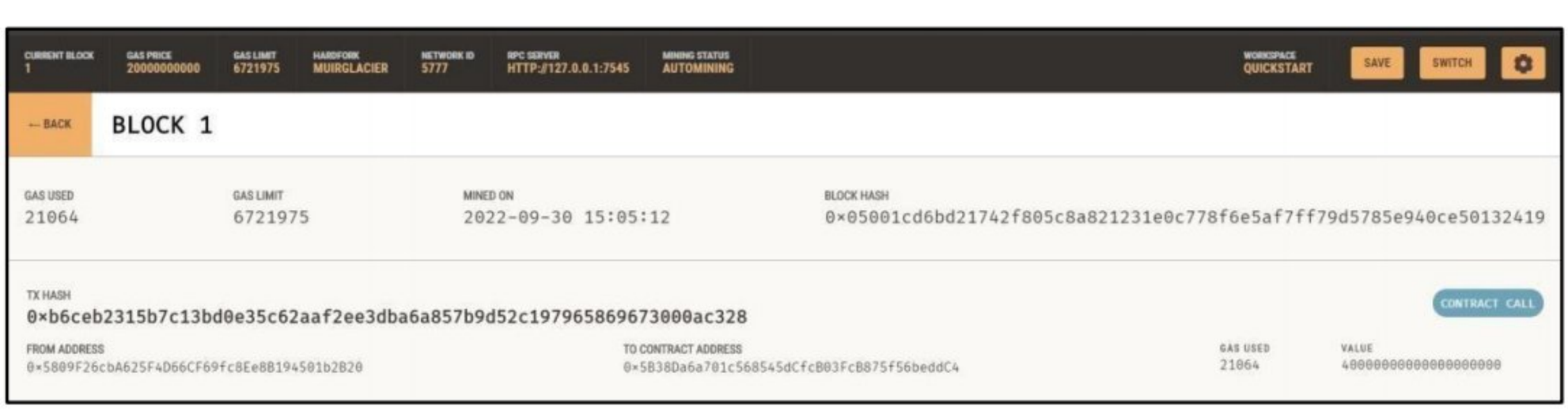
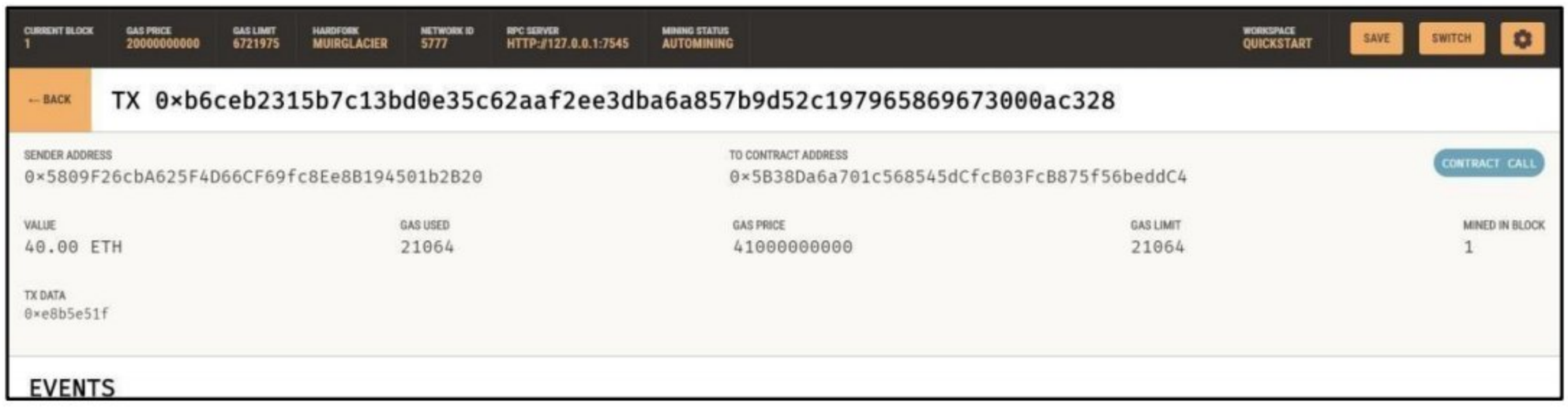
Click Unlock and GenerateTransaction



Changes would be reflected in Ganache







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Initially balance for first address was 150.00 ETH after the transaction it is reduced to 110.00 ETH.

Conclusion:

Q. How do you execute a Solidity contract on Ganache, and what are the key steps involved in deploying and interacting with the contract?

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