Installation and Configuration Manual of *BSIEM*

Installation and Configuration

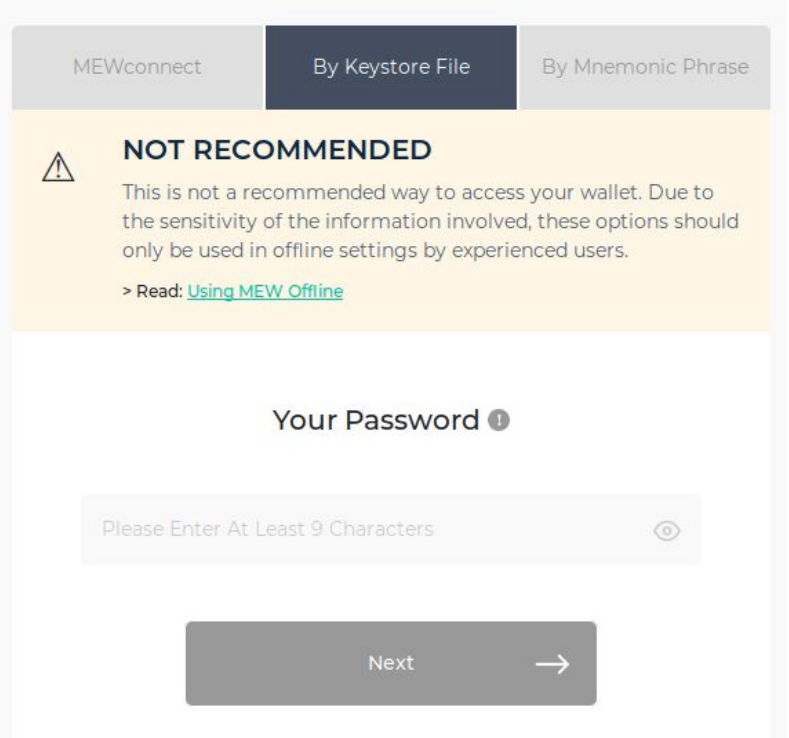
First you need to install and configure the different nodes in your blockchain network, considering that *BSIEM* use two types of nodes, miner nodes running on desktop or laptop machines and sentinel nodes running on raspberries

How to install and configure a node of ethereum:

To install a node on Ubuntu follow the steps bellow:

To create a node you need to install Ethereum protocol, in this case we are going to install Geth an Ethereum client based in Go.

- Write the following commands in the console
  - sudo apt-get install software-properties-common
  - sudo add-apt-repository -y ppa:ethereum/ethereum
  - sudo apt-get update
  - sudo apt-get install ethereum
- Now create a Wallet in https://www.myetherwallet.com/ use the method by keystore file, put a password and download the UTC file.



- Create a new folder and here create a genesis JSON file, set the values of chainId, difficulty, gasLimit and alloc

{

```
"config": {
  "chainId": 1994,
  "homesteadBlock": 0,
  "eip155Block": 0,
  "eip158Block": 0,
  "byzantiumBlock": 0
},
"difficulty": "400",
"gasLimit": "2000000",
"alloc": {
  put the address of the wallet : {
     "balance": "10000000000000000000000"
  }
}
}
```

- Initialize the data directory with the following command
    - geth --datadir ./myDataDir init ./genesis.json
- Copy the UTC file in the keystore directory
- Run your node, enable the RCP connection and WebSocket connection
    - geth --datadir [path to data directory] --syncmode 'full' --port [entry port] --rpc --rpcaddr [ip address of node] --rpcport [rcp port] --rpccorsdomain "*" --ws --wsaddr [ip address of node --wsport [web socket port] --wsorigins "*" --networkid [network id] console --unlock [address of wallet]
- In case of run the sentinel node use the following command
    - geth --datadir [path to data directory] --syncmode 'full' --port [entry port] --rpc --rpcaddr [ip address of node] --rpcport [rcp port] --rpccorsdomain "*" --networkid [network id] console --unlock [address of wallet]
- In http://remix.ethereum.org/ put the smart contract found in https://github.com/pardo6162/BSIEM/tree/master/src/smartContracts , connect remix with your node and deploy the smart contract with a define initial threshold of quantity of storage events.
    - Note that you need miners to deploy a smart contract, in the console of the miner node write
        - miner.start()

How to Install and configure *BSIEM* clients

- First clone the repo https://github.com/pardo6162/BSIEM
- Install dependencies
    - npm install
- Configure the ip address in the instantiation of web3 in each one of clients.

```
web3 = new Web3(new Web3.providers.WebsocketProvider('ws://192.168.0.11:4002'));

web3 = new Web3(new Web3.providers.HttpProvider('http://192.168.0.25:4000'));
```

- In the variables directory you will find a file with the smart contract information, update it, put the smart contract address and the respective ABI

```
exports.EC={
        "address":"0xe3503B4b876F70Ec2584e9d50945Cd2AF2Fc4232",
        "abi":[
                {
```