EarthSaver

COLLABORATION EARTH

Project-2

(User Manual)

Griffith UNIVERSITY

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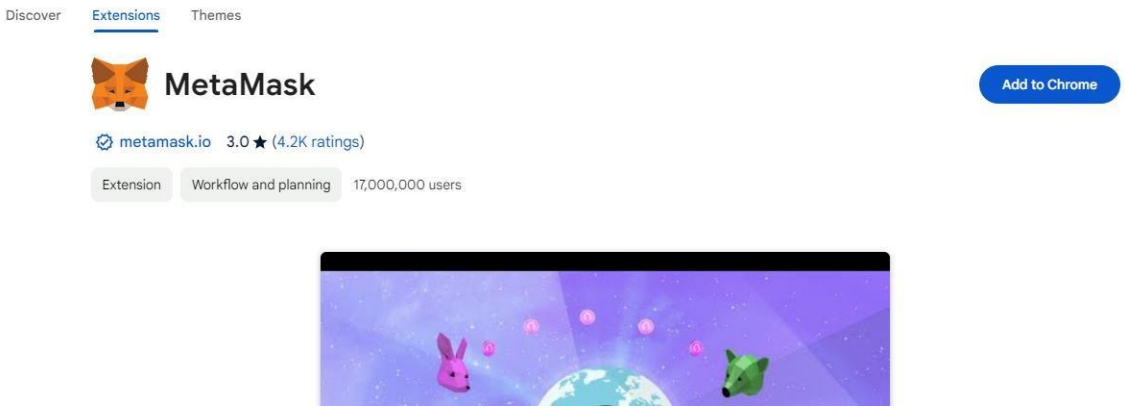
Development Environment Instructions

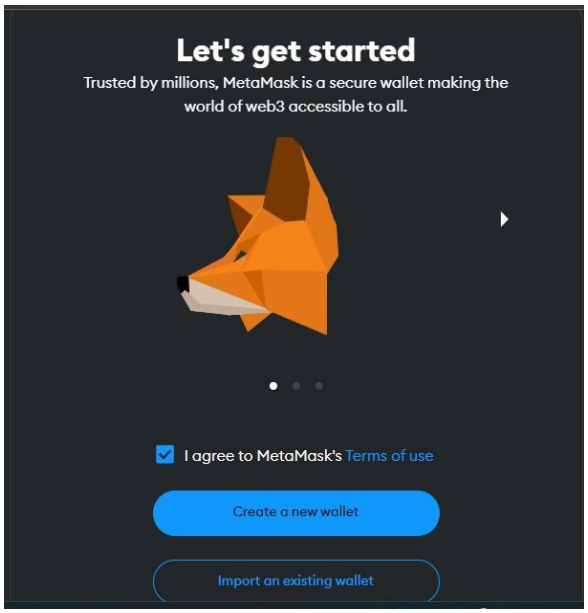
To establish our development environment, the initial step entails installing MetaMask as a Chrome extension. MetaMask is a software tool facilitating the effortless creation of a digital wallet. Within MetaMask, users can configure test networks like Sepolianetwork, enabling us to deploy our test token for evaluation purposes.

Installing Meta-Mask

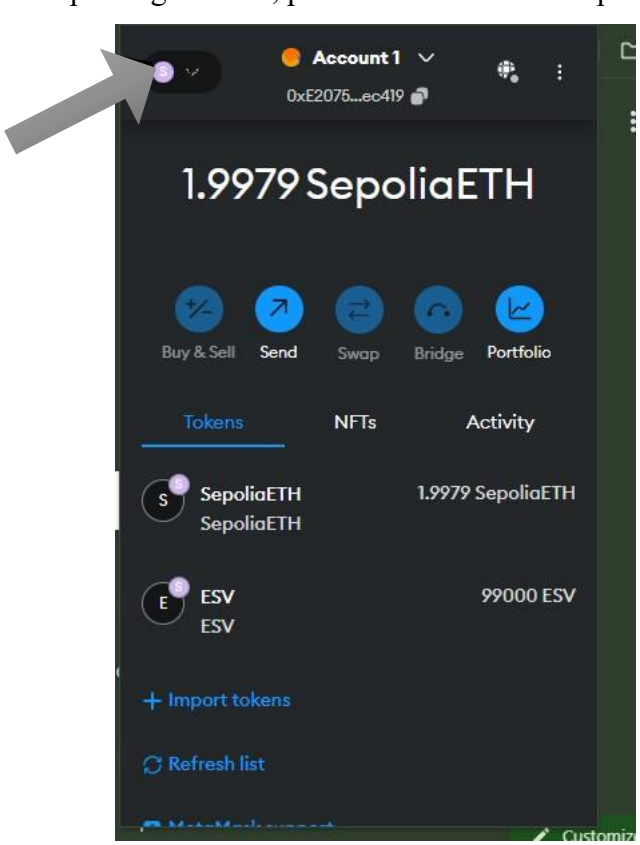
To begin, please access the official website of MetaMask by navigating to https://metamask.io/. Upon arrival, select the appropriate download option and proceed with the installation process to set it up as a browser extension.

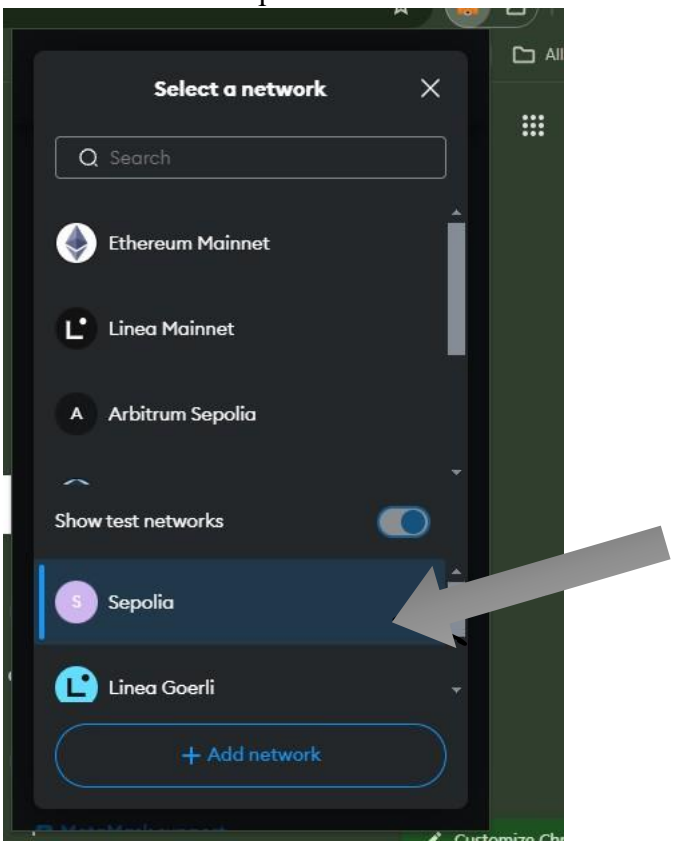
Upon successful completion of the download and extension setup, proceed to register an account with MetaMask.





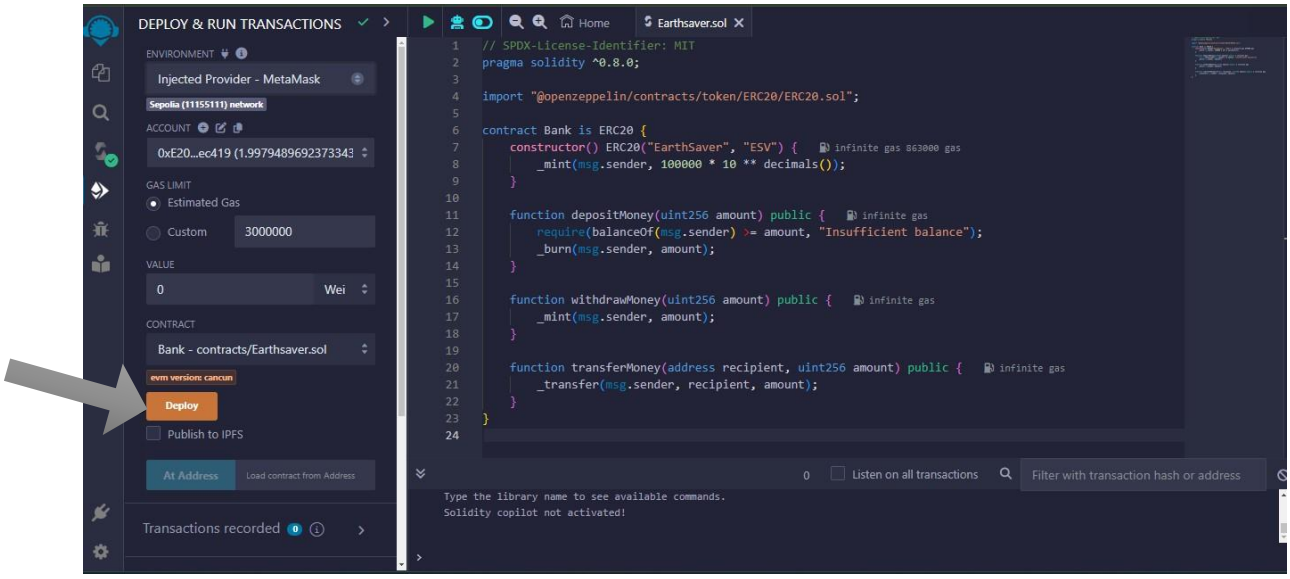
Upon registration, please follow these two processes to activate the Sepolia-network.





Deploying Tokens

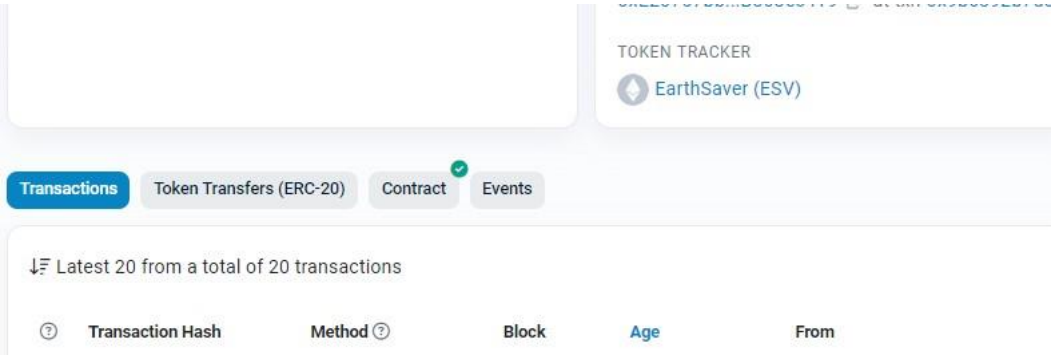
Remix serves as the Ethereum Integrated Development Environment (IDE), facilitating the deployment of tokens by the public. This deployment process is validated by the Ethereum network chain.



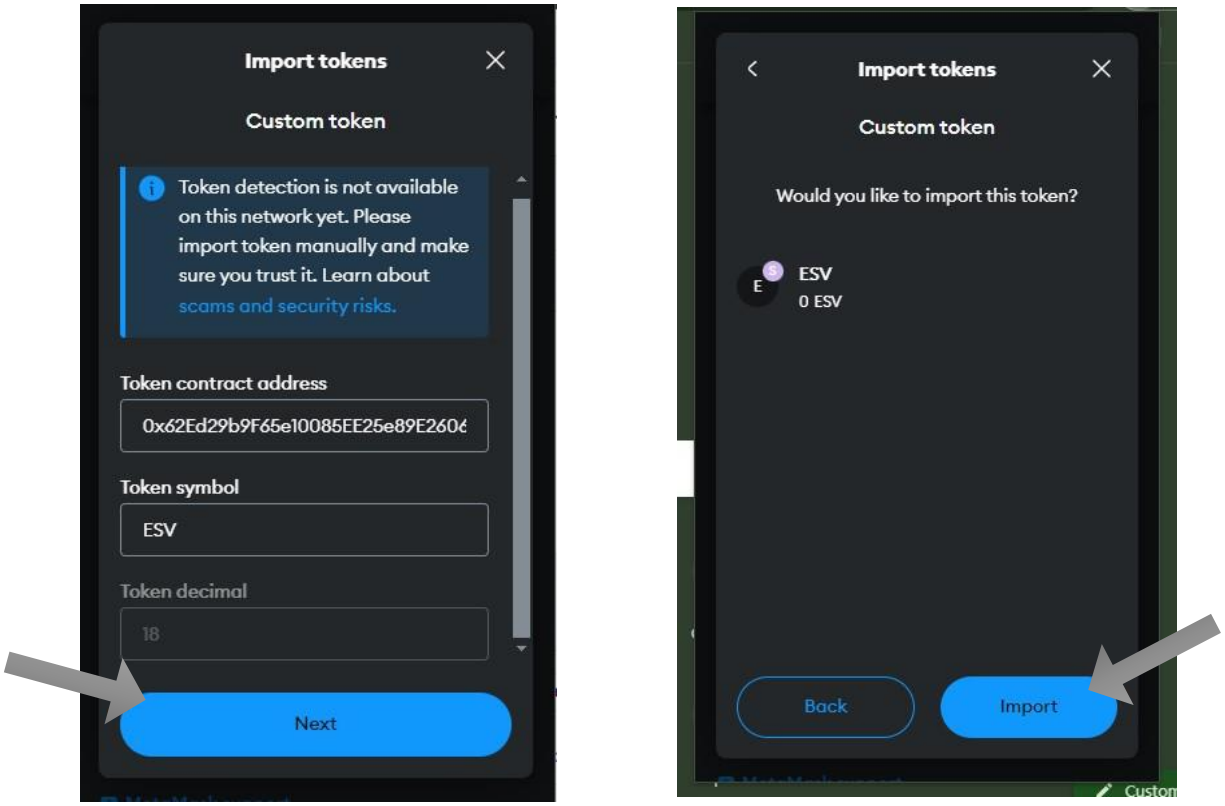
To deploy tokens, users can create a smart contract using Remix and subsequently deploy it to generate the desired tokens. Utilizing the "Injected Provider – MetaMask" option, users can

select the relevant account for token deployment. Upon selection, the deployment process can be initiated, resulting in the generation of a contract address.

Once the contract address is generated, users can right-click and select "flattened" to create smart contracts on https://sepolia.etherscan.io/. The presence of a green checkmark on the contract verifies that the token is operational on the server.



Upon completion of token generation and contract establishment, users should copy the contract address and add it to their MetaMask wallet. It is imperative to verify the token symbol and ensure it adheres to the 18 decimal standard. Finally, users can import the token into their MetaMask account to complete the process.



Starting Vscode terminal

Please navigate to the designated folder path using the command: "cd /path/to/Your/Folder". Once completed, proceed with the following steps:

Step 1:

"Install init -y" quickly installs software without user prompts. Useful for automated setups or when you want quick installations.

```
PS C:\Users\HP\Downloads\Wallet-1> npm install

up to date, audited 66 packages in 2s

21 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

Step 2:

"npm install" downloads and installs Node.js packages and dependencies for a project. It simplifies managing dependencies and ensures consistent development environments, enhancing productivity and code reliability.

```
PS C:\Users\HP\Downloads\Wallet-1> npm init -y
Wrote to C:\Users\HP\Downloads\Wallet-1\package.json:

{
  "dependencies": {
    "web3": "^4.9.0"
  },
  "name": "wallet-1",
  "version": "1.0.0",
  "main": "index.js",
  "devDependencies": {},
  "scripts": {
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "description": ""
}
```

Step 3:

"npm install web3" installs the Web3.js library, enabling interaction with Ethereum blockchain. Useful for building decentralized applications (DApps), smart contracts, or integrating blockchain functionality into web projects, facilitating secure and efficient blockchain interactions with Ethereum network.

```
PS C:\Users\HP\Downloads\Wallet-1> npm install web3

up to date, audited 66 packages in 5s

21 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

Step 4:

"npm install ethers" installs the ethers.js library, offering a lightweight and powerful interface for interacting with the Ethereum blockchain. It simplifies Ethereum development, providing robust tools for smart contract interaction, wallet management, and blockchain exploration, enhancing efficiency and reliability in Ethereum projects.

```
PS C:\Users\HP\Downloads\Wallet-1> npm install web3 ethers

added 7 packages, and audited 73 packages in 12s

24 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

Step 5:

"npm install -g http-server" installs a simple, zero-configuration HTTP server for serving static files. Useful for quick local development, testing, or sharing projects. It provides a lightweight solution for serving web content without the need for complex server setups, enhancing workflow efficiency.

```
PS C:\Users\HP\Downloads\Wallet-1> npm install -g http-server
>>

added 46 packages in 12s

15 packages are looking for funding
  run `npm fund` for details
```

Step 6:

"npx http-server -p 8000" launches a temporary HTTP server on port 8000 for local file serving. Useful for quick sharing, testing, or hosting static content during development. It offers a hassle-free way to serve web files without installation or configuration, enhancing productivity in web development tasks.

```
PS C:\Users\HP\Downloads\Wallet-1> npx http-server -p 8000
Starting up http-server, serving ./

http-server version: 14.1.1

http-server settings:
CORS: disabled
Cache: 3600 seconds
Connection Timeout: 120 seconds
Directory Listings: visible
AutoIndex: visible
Serve GZIP Files: false
Serve Brotli Files: false
Default File Extension: none

Available on:
  http://192.168.1.231:8000
  http://127.0.0.1:8000
Hit CTRL-C to stop the server
```

If encountering difficulties accessing the server, follow these steps to troubleshoot and resolve the issue:

Step 1:

"npm install -g npm" updates or installs the latest version of npm globally. Useful for ensuring you have the newest features, bug fixes, and performance improvements for managing JavaScript packages. It enhances package management capabilities, ensuring compatibility and reliability across projects.

```
PS C:\Users\HP\Downloads\Wallet-1> npm install -g npm
>>

added 1 package in 12s

24 packages are looking for funding
  run `npm fund` for details
```

Step 2:

"npm cache clean --force" forcefully clears npm's cache, reclaiming disk space and resolving potential caching issues. Useful for troubleshooting package installation problems, ensuring

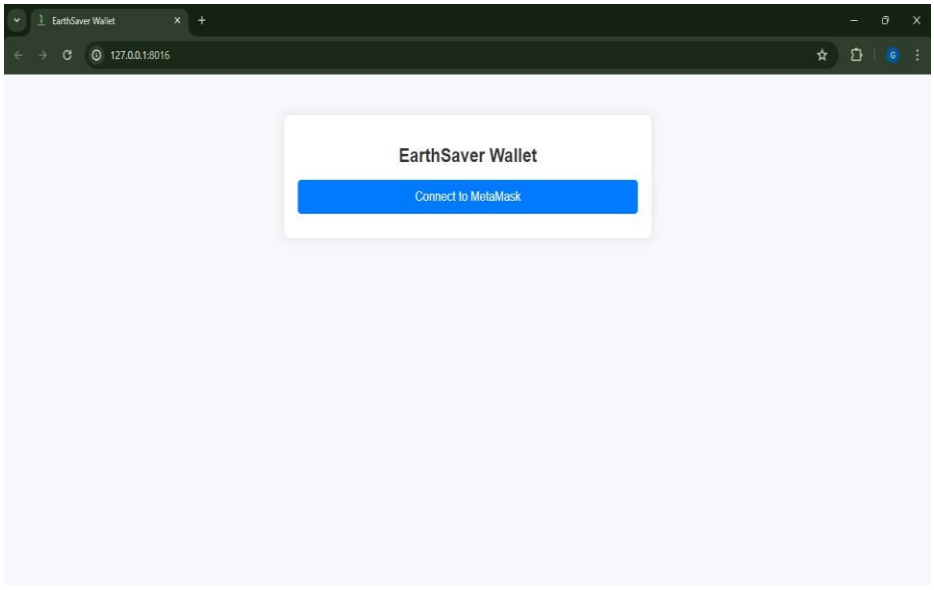
clean dependency installs, and maintaining a healthy npm environment. It helps prevent unexpected errors and ensures smooth package management operations.

```
PS C:\Users\HP\Downloads\Wallet-1> npm cache clean --force
>>
npm warn using --force Recommended protections disabled.
```

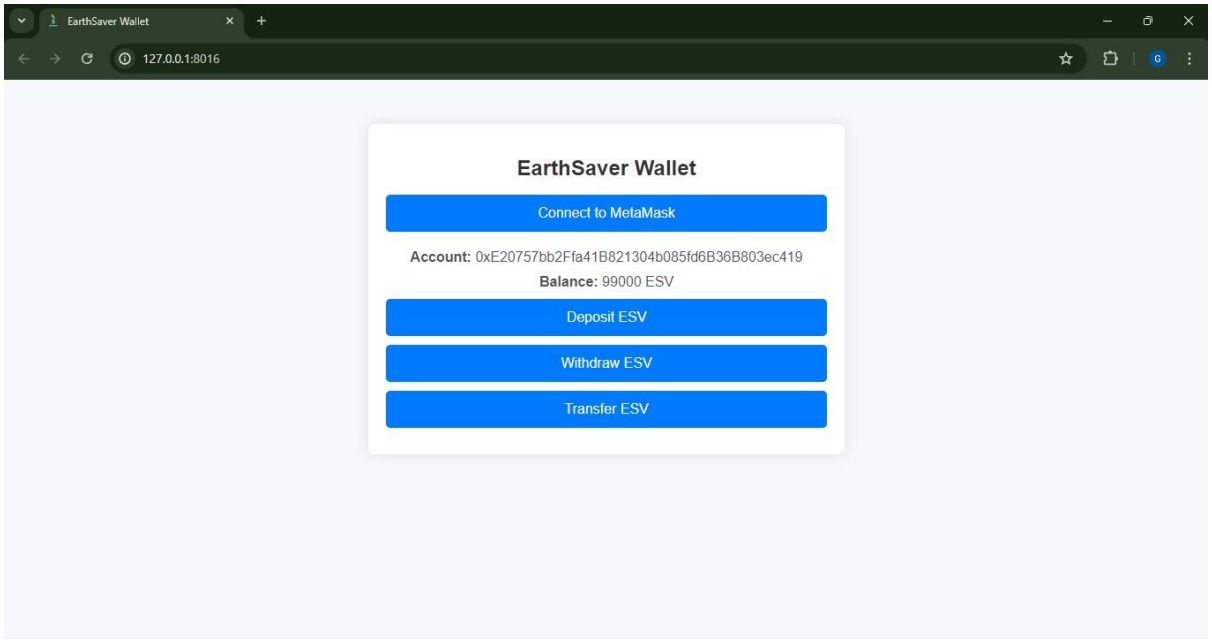
Starting Development

Once you Deployed your project on port 8016. There is three Ip first two is http and the third is secure https.

```
PS C:\Users\rishi\OneDrive\Desktop\Wallet-1> npx http-server -p 8016
Starting up http-server, serving ./

http-server version: 14.1.1

http-server settings:
CORS: disabled
Cache: 3600 seconds
Connection Timeout: 120 seconds
Directory Listings: visible
AutoIndex: visible
Serve GZIP Files: false
Serve Brotli Files: false
Default File Extension: none

Available on:
  http://192.168.56.1:8016
  http://192.168.1.154:8016
  http://127.0.0.1:8016
Hit CTRL-C to stop the server
```

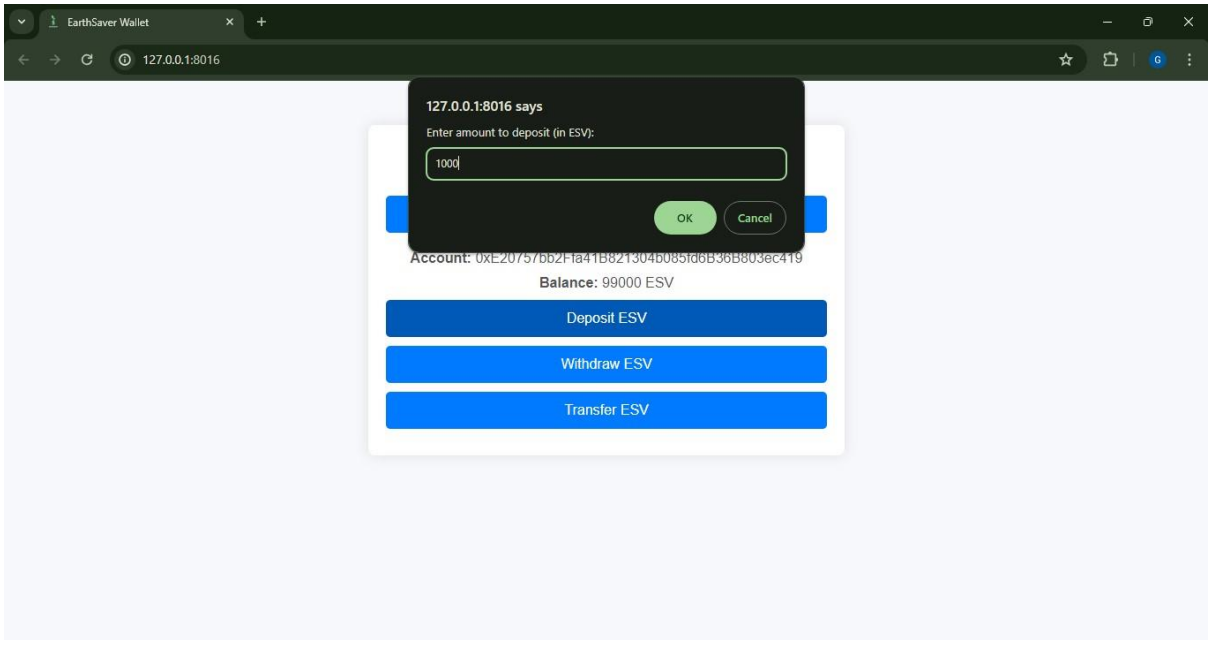


After after to the Meta-mask the actual balance and account private key you can see on the page:

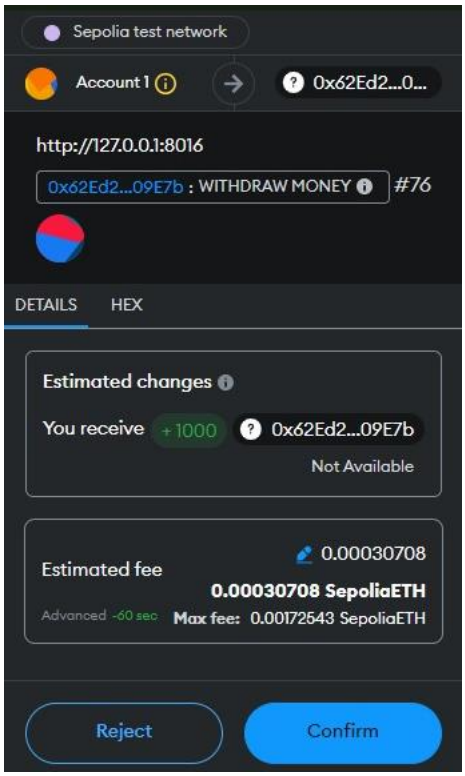


Deposit Function:

This function facilitates deposits whereby clients can add funds to their accounts. However, it is subject to a security measure known as "Max_LIMIT," which restricts the generated token amount to 100,000 units, ensuring that clients do not exceed this limit.

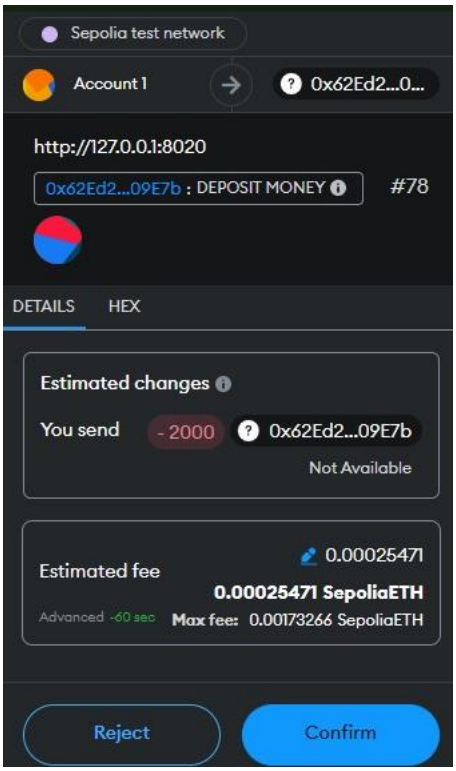


The user interface for depositing tokens on MetaMask.



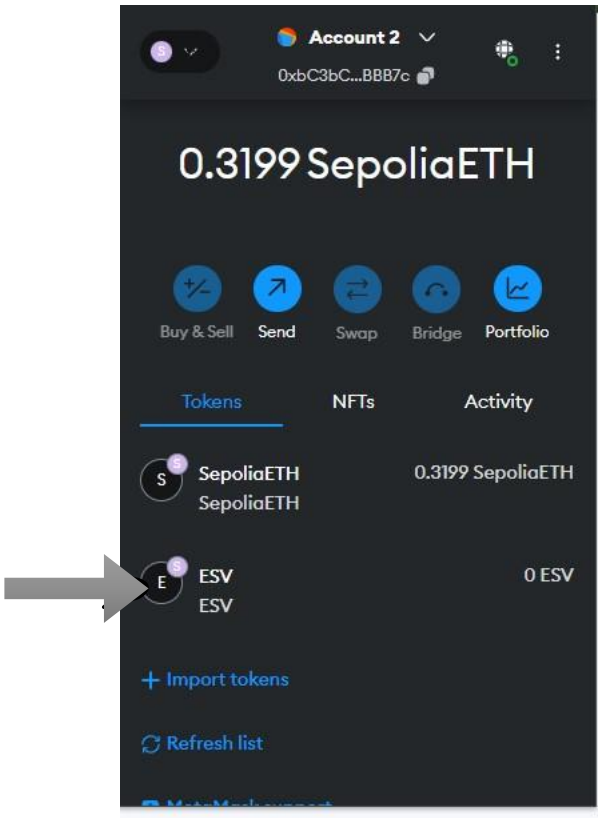
Withdraw:

Gas fees are required upon withdrawal.

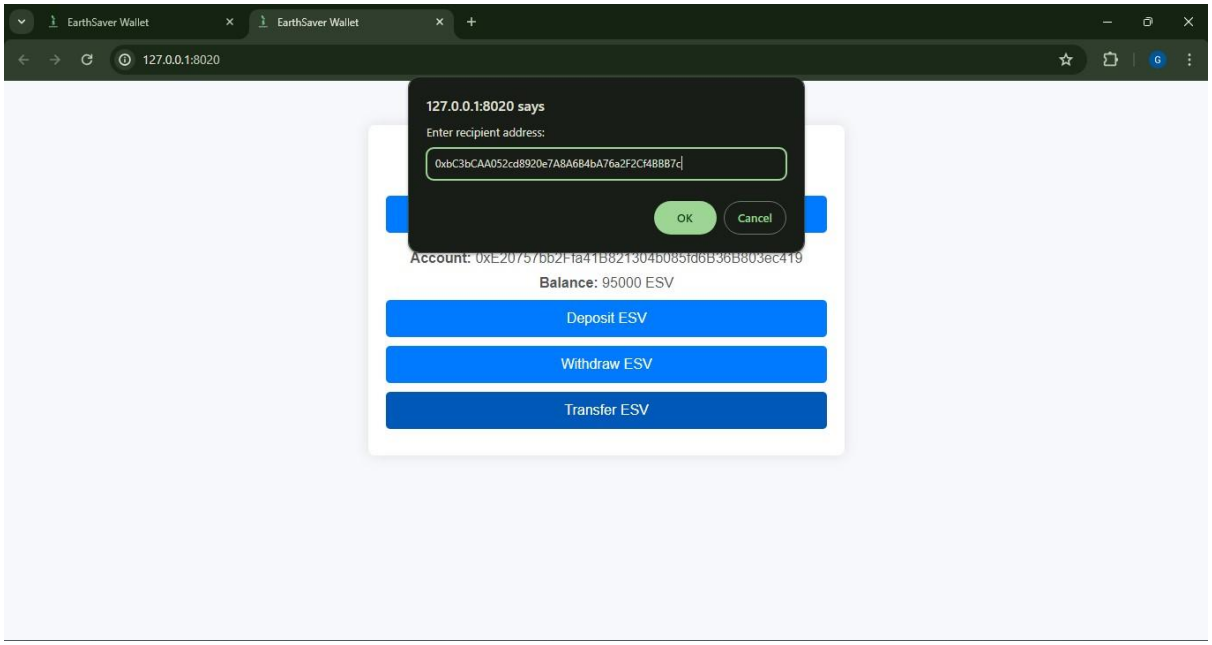


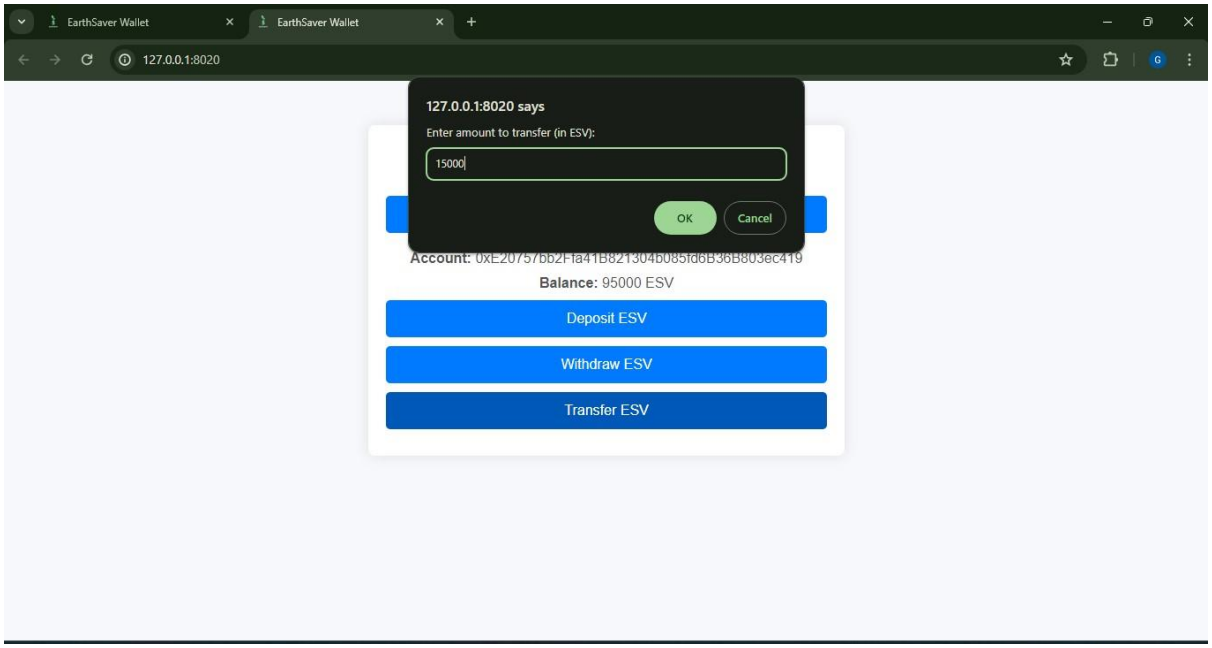
Transfer:

This image depicts the "Before Transfer Dashboard" indicating an ESV reading of zero.



This represents the current interface for the transfer process. Within this interface, it is necessary to input the recipient's private address, followed by specifying the amount of tokens to be transferred.


EarthSaver Wallet
EarthSaver Wallet
127.0.0.1:8020
127.0.0.1:8020 says
Enter recipient address:
0xbC3bCAA052cd8920e7A8A6B4bA76a2F2Cf4B8B7c
OK
Cancel
Account: 0xE20757bb2Fa41B821304b085fd6B36B803ec419
Balance: 95000 ESV
Deposit ESV
Withdraw ESV
Transfer ESV


EarthSaver Wallet
EarthSaver Wallet
127.0.0.1:8020
127.0.0.1:8020 says
Enter amount to transfer (in ESV):
15000
OK
Cancel
Account: 0xE20757bb2Fa41B821304b085fd6B36B803ec419
Balance: 95000 ESV
Deposit ESV
Withdraw ESV
Transfer ESV

Please find enclosed the gas fees that require payment. The token transferred from Account 1 to Account 2 amounts to 15,000 ESV.