

Configuration Manual

MSc Research Project
MSc Cloud Computing

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Configuration Manual

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1 Introduction

This configuration manual gives a comprehensive guide for setting up and running the Web Application, the application required a combination of tools for running such as **Angular**, **Remix IDE**, **AWS S3**, and **MetaMask Wallet**.

2 Software Requirements

Table 1 list of software and Library dependencies that are required.

Software/Tool	Version/Details	Use Case
Node.js	18 or above	Provides Backend runtime for JavaScript, required for running the Angular application.
Angular CLI	15 or above	CLI (Command Line Interface) required for creating and running Angular applications.
Remix IDE	Online Version	IDE for writing Solidity code and deploying smart contracts.
MetaMask Wallet	Chrome Extension	Wallet for interacting with ETH Sapolia.
AWS S3	Storage Bucket	Cloud storage service.
Web3.js	1.x or above	Library for interacting with blockchain.
Bootstrap	5.x or above	CSS framework for UI development.
CryptoJS	Latest Version	Library for performing hashing and encryption.

Table 1: Software and Tools Required

3 Step 1 : Install MetaMask blockchain wallet.

Download and install the MetaMask browser extension Inc. (2024) and configure MetaMask wallet for Sepolia test network.

Steps:

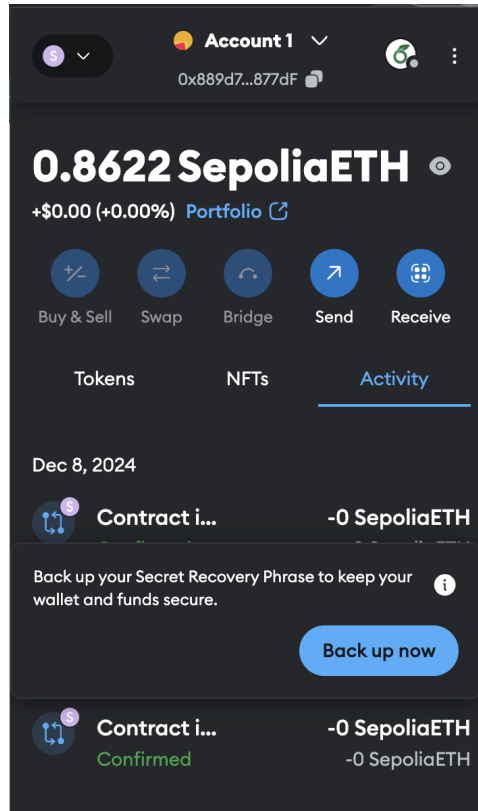


Figure 1: Setup Metamask Wallet.

- Install MetaMask wallet extension from official website <https://metamask.io/>.
- Make a new wallet or you can use your existing account.
- Enable sapolia testnetwork by clicking dropdown from top left corner.
- Fund the wallet with ETH Sepolia test coin using a ETH faucet from Google ETH Sapolia Faucet

4 Step 2 : Set Up Remix IDE

Access The Remix IDE using their website <https://remix.ethereum.org/> Foundation (2024). Remix is required for the compilation and deployment of ethereum based smart contract required for handling key functionality of application `blocksecure.sol`.

Fllo the following steps to deploy the smart contract:

- Navigate to the Remix IDE website .
- Create a new file named `blocksecure.sol`.
- Paste the smart contract code into the file location in root directory with a folder name smart-contract.
- First compile the smart contract.

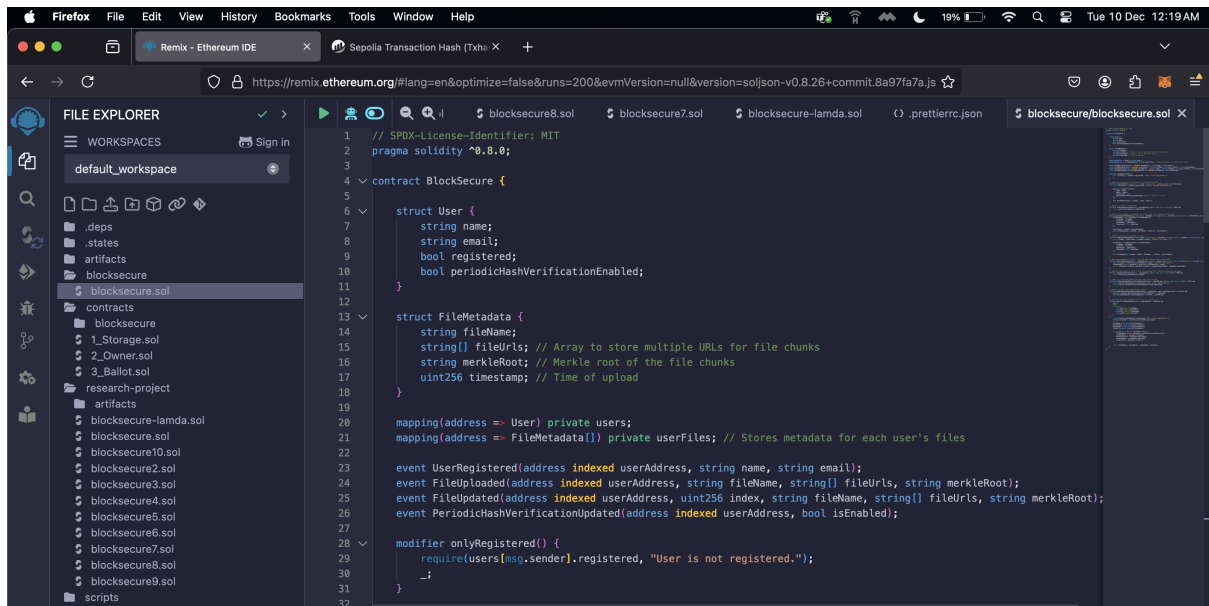


Figure 2: Page to view uploaded file integrity.

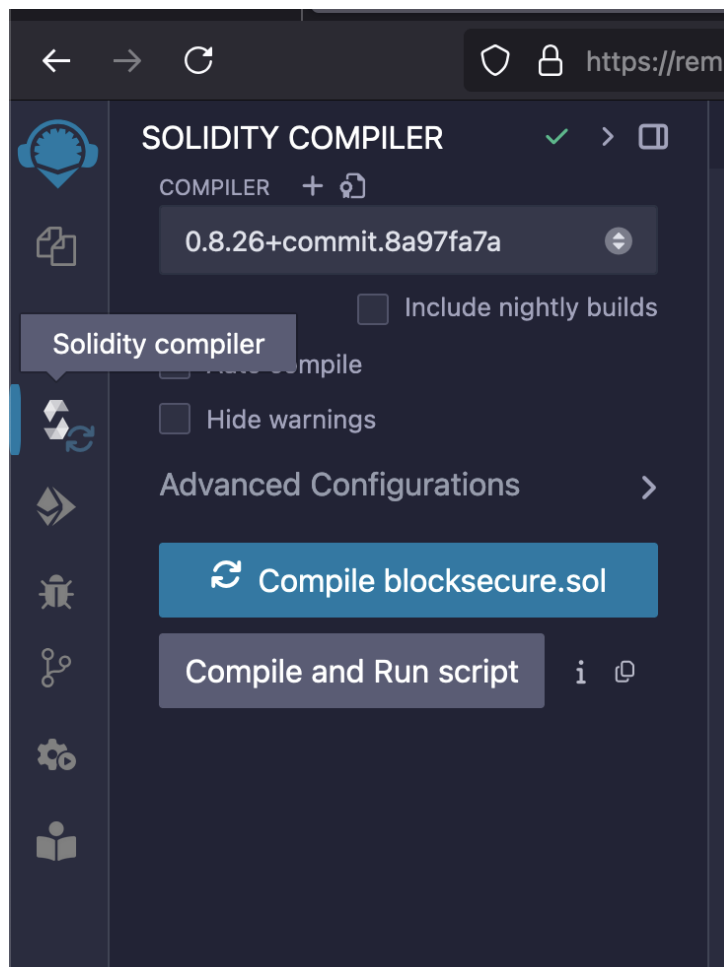


Figure 3: compile the smart contract by clicking on compile blocksecure.sol

- Deploy the contract on the Ethereum Sepolia test network by selecting metamask as

injected provider and clicking on deploy under 'deploy and run transaction' section.

- Once deployed update the new smart contract address in web application environment file.

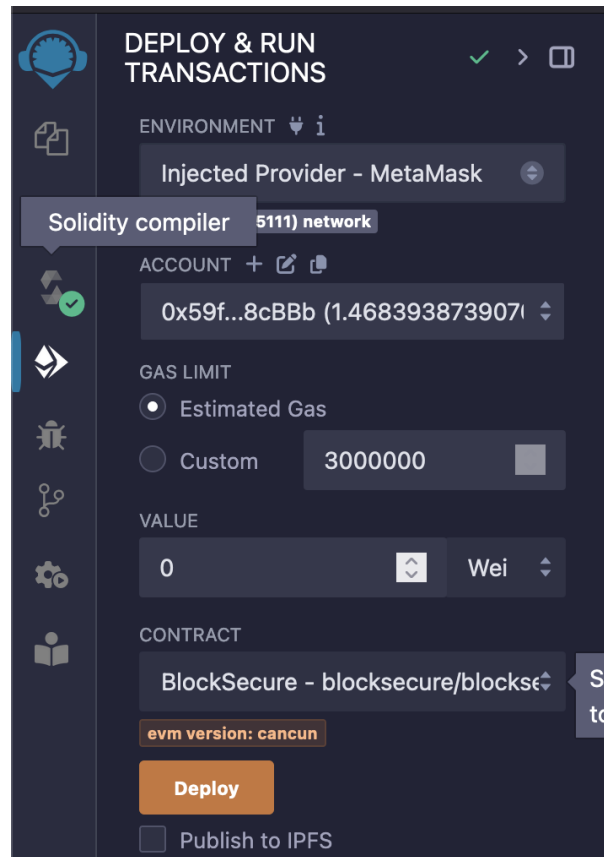


Figure 4: Deploy the smart contract

5 Step 3: AWS S3 Bucket Setup

Go to AWS Management console and configure an S3 bucket on AWS Amazon Web Services (2024) to store file chunks securely.

Steps:

- Log in to the AWS Console.
- Navitage to S3 service.
- Click on create an S3 bucket.
- Note the bucket name for use in the project.

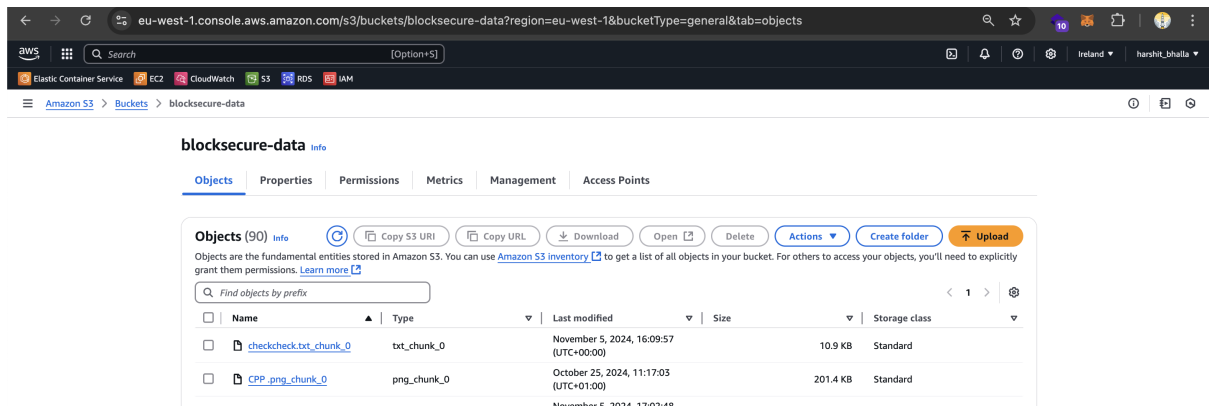


Figure 5: AWS S3 DashBaord

6 Step 4 : Web Application Setup Instructions

6.1 Install Required Tools and Software

1. Install Node.js:

- Visit the official website of Node.js : [Link](#).
- Download installer and install node.js version 18 or above specific to your operating system.

2. Install Angular CLI:

- To install Angular CLI run the following command in your terminal:

```
npm install -g @angular/cli.
```

6.2 Project Setup

Clone the project repository and install project dependencies required to run the angular application.

- Clone the repository
- Navigate to the project directory :

```
cd blocksecure
```

- Install all dependencies given in the package.json file by running the command:

```
npm install
```

6.3 Running the Project

To Start the Angular application run the following command:

```
ng serve
```

7 Step 5: Interacting with the Web Application

Use the following steps to interact with the Web Applciation:

- UseUpload files using the web application.

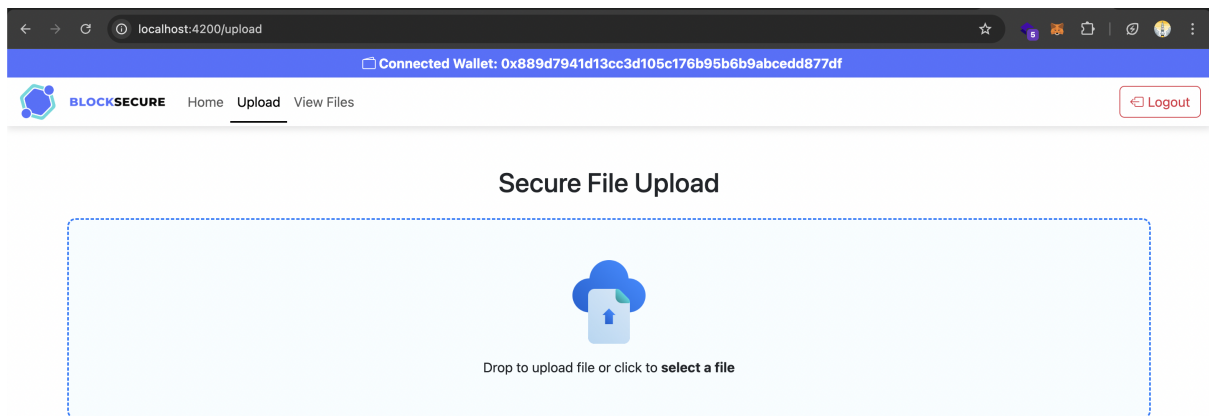


Figure 6: Web Applicaition page to upload file

- Verify data integrity using blockchain and the MetaMask wallet.

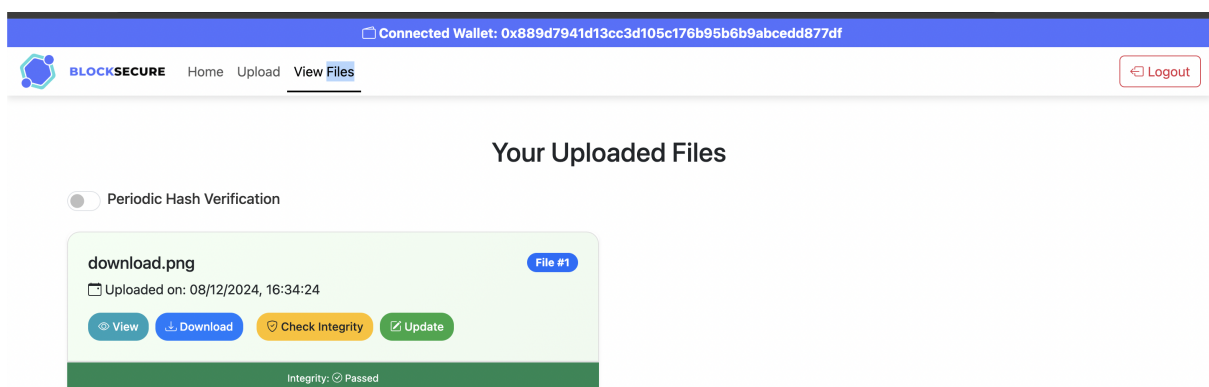


Figure 7: View uploaded files to mange file and verify data integrity.

- View the uploaded files from view section in web application.

References

Amazon Web Services, I. (2024). Aws s3 - scalable cloud storage, <https://aws.amazon.com/s3/>. Accessed: 2024-12-06.

Foundation, E. (2024). Remix - ethereum ide, <https://remix.ethereum.org/>. Accessed: 2024-12-06.

Inc., C. (2024). Metamask - a crypto wallet & gateway to blockchain apps, <https://metamask.io/>. Accessed: 2024-12-06.