



Truffle Deployment Guide (Sepolia + Ganache)

1. Install Dependencies

Install Truffle globally

```
npm install -g truffle
```

Check version

```
truffle version
```

Initialize a new Truffle project

```
mkdir MetaCoin_Truffle && cd MetaCoin_Truffle
```

```
truffle init
```

Compile contracts

```
truffle compile
```

OR force recompile

```
truffle compile --all --reset
```

Clear build folder if needed

```
rm -rf build/
```

2. Setup for Sepolia Testnet (via Alchemy)

Install required packages

```
npm install dotenv @truffle/hdwallet-provider
```

Create .env file

```
PRIVATE_KEY=your_wallet_private_key
```

```
PROJECT_ID=your_alchemy_project_id
```

⚠ **Never commit your .env file to GitHub.**

Configure truffle-config.js

```
require('dotenv').config();
```

```

const HDWalletProvider = require('@truffle/hdwallet-provider');

module.exports = {
  networks: {
    sepolia: {
      provider: () =>
        new HDWalletProvider({
          privateKeys: [process.env.PRIVATE_KEY],
          providerOrUrl: `https://eth-sepolia.g.alchemy.com/v2/${process.env.PROJECT_ID}`
        }),
      network_id: 11155111, // Sepolia chain ID
      confirmations: 2,    // Wait for 2 confirmations
      timeoutBlocks: 500,   // Timeout for blocks
      skipDryRun: true      // Skip dry run before migrations
    }
  },

  compilers: {
    solc: {
      version: "0.8.21" // Match your contract version
    }
  }
};

```

Deploy to Sepolia



truffle migrate --network sepolia --reset


✅ Example Output:


- Contract deployed successfully
- Transaction hash: 0xe6da60b6...

- Contract address: 0x5261EDd120Dee3bF5D43767E3E61b33ec2E411fc
- Final cost: 0.0037 ETH
- block number: 9109831
- block timestamp: 1756719996
- account: 0xEeD653Df94ea5F4b884E4b335c1E61E49fb6fDcB
- balance: 0.038891111453615816
- gas used: 1478922 (0x16910a)
- gas price: 2.501805848 gwei
- value sent: 0 ETH
- total cost: 0.003699975708335856 ETH



MetaMask

Test_Truffle ▾
0xEeD65...6fDcB 

0.0389 SepoliaETH 


+\$0 (+0.00%) [Discover](#) 

TRANSACTION ACTION

 Call 0x50806040 Method by 0xEeD653Df...49fb6fDcB 

[This is a Sepolia Testnet transaction only]

Transaction Hash:

0xe6da60b685e6b07c427a9927de5c606ae99de0f5c42b402c37cd8aa9c8e99a5f 

Status:

Success

Block:


9109831

82 Block Confirmations



Timestamp:

16 mins ago (Sep-01-2025 09:46:36 AM UTC)

From:

0xEeD653Df94ea5F4b884E4b335c1E61E49fb6fDcB 

To:

[0x5261edd120dee3bf5d43767e3e61b33ec2e411fc Created]  

Value:

0 ETH

Transaction Fee:

0.003699975708335856 ETH

Gas Price:

2.501805848 Gwei (0.000000002501805848 ETH)


Gas Limit & Usage by Txn:


1,864,783 | 1,478,922 (79.31%)

Gas Fees:

Base: 0.001805848 Gwei | Max: 2.503365828 Gwei | Max Priority: 2.5 Gwei

Burnt & Txn Savings Fees:

 Burnt: 0.000002670708335856 ETH (\$0.00)

 Txn Savings: 0.00000230708874156 ETH (\$0.00)

Other Attributes:

Txn Type: 2 (EIP-1559)

Nonce: 2

Position In Block: 2

Input Data:

0x60806040523480156100f575f80fd5b506119d18061001d5f395ff3fe60806040523480156100f575f80fd5b5060043610610055575f3560e01c80631ee3d59146100595780638592ec7b146100895780638805f0f4146100a5578063ab659185146100d5578063c830458714610105575b5f80fd5b610073600480360381019061006e9190610e62565b610121565b604051610080919061104a565b60405180910390f35b6100a3600480360381019061009e919061106a565b610330565b005b6100bf60048036038101906100ba9190610e62565b610588565b6040516100cc91906111e0565b604051

View Input As ▾

3. Setup for Local Development (Ganache)

Start Ganache

- **CLI (Ganache CLI)** → default port: 8545
- **GUI (Ganache UI)** → default port: 7545

Configure in truffle-config.js

```
module.exports = {  
  networks: {  
    development: {  
      host: "127.0.0.1", // Localhost  
      port: 8545,       // Ganache CLI port (or 7545 for Ganache UI)  
      network_id: "*"   // Match any network id  
    }  
  }  
};
```


Deploy to Ganache

```
truffle migrate --network development --reset
```

4. Useful Commands

- **Check accounts**
 - `truffle console --network sepolia`
 - `truffle console --network development`
 - **Run scripts**
 - `truffle exec scripts/myScript.js --network sepolia`
 - **Test contracts**
 - `truffle test`
-

5. Summary

-  Installed Truffle & dependencies

- ☒ Setup .env for security
- ☒ Configured Sepolia (via Alchemy) with HDWalletProvider
- ☒ Configured Ganache (local dev)
- ☒ Successfully deployed contract to Sepolia testnet