Windows Guide to Setting up a Local Solidity Environment

Local Machine Setup

Tools that will be used and why:

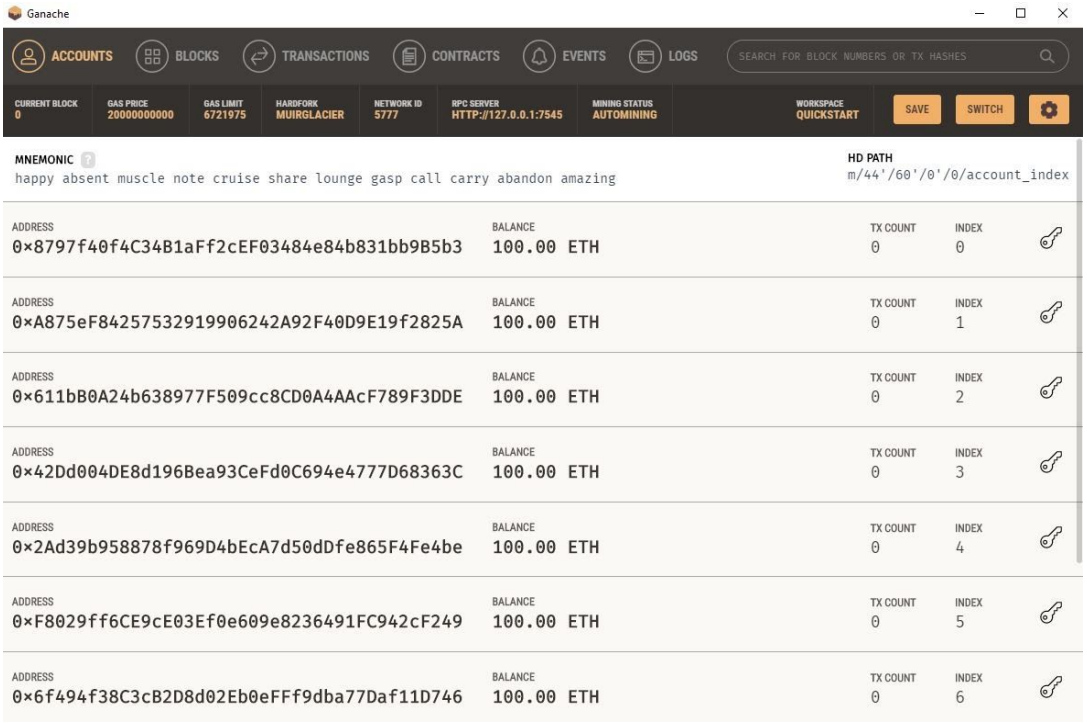
- **Geth** (GitHub): Geth is a command line tool that can be used to run an ethereum node. Geth offers users with three different interfaces: command line subcommands, Json-rpc server and interactive console.
- **Ganache** (Overview): Ganache is a personal blockchain tool that allows for ethereum and Corda application development. It allows creators to test, develop and deploy dApps in a safe environment.
- **Truffle** (Documentation): Truffle provides ethereum creators with a development environment that can be used as a test environment as well as a pipeline for blockchain development that utilizes the EVM (Ethereum Virtual Machine).
- **Atom**(Read More): Atom.io is a common text editor that is used in the blockchain development space.

Geth Installation and Setup

1. Navigate to the Geth download page (here).
2. Select Geth version(x.x.xx) for Windows on the top of the download page. This will trigger a download of the most current version of gith.
3. Agree to the setup licence, after this when the tool asks for setup options select make sure to select development tools. Then finish the rest of the download.
4. Open up the windows powershell.
5. In windows powershell run: geth version to check the version of gith that was installed.
6. Once you have confirmed geth has been properly installed you have completed this step.

Ganache Installation and Setup

1. Navigate to download Ganache. (A local block chain development tool).
2. Hit on the windows download button located on the link provided.
3. After hitting on the download button and the launcher appears simply hit install.
4. Once the download is completed, it continues and the Ganache application should look like the image provided.



5. On the top row of Ganache there are some important values to keep in mind as a solidity developer. This includes the following (current block, gas price, gas limit, hardfork, network id, rpc server and mining status. To read more about these attributes navigate to the (Ganache Overview).

Confirmation of Node JS

1. In Windows PowerShell run: `node -v` (confirm you have node installed) if not please download node. Instructions for installation and set up of node can be found (Download).
2. Next in Windows PowerShell run: `npm -v` (confirm that you have npm installed on your machine. If this is not the case please follow (npm guide).

Truffle Installation and Setup

1. In Windows PowerShell run the following command: `npm install -g truffle`
2. Next in Windows PowerShell run the following command: `truffle version`
3. Make sure step 2 displays a truffle version as well as a Solidity version. If this is not the case see (Truffle installation).

Atom Installation and Setup

1. Navigate to (atom download) and hit the download button.
2. Once the download is completed the application will ask if you would like to resigert as the default atom://url handler? Hit yes, always.
3. Navigate back to the Windows PowerShell and confirm that the atom was successfully installed by using the command: `atom -v.`
4. Once the version of atom has been confirmed in the Windows PowerShell run: `apm install language-ethereum`.(this extension adds support for the solidity platform to atom).
5. Once step 4 has been completed we are now ready to start building on the solidity platform.

Once these steps have been completed the solidity environment is now ready.

Example Smart Contract

Election application. Please see Voting Guide Solidity for more information.

Example Contract code enter into the Remix IDE

```
// SPDX-License-Identifier: GPL-3.0
pragma solidity >=0.4.16 <0.7.0;

contract VotingSystem {
    string public User_Canidate_Name;

    function Election () public {
        User_Canidate_Name = "Mike";
    }

    function Candidate (string _name) public {
        User_Canidate_Name = _name;
    }
}
```