# Getting Started

1. On my MacBook, install Hyperledger BESU using homebrew. Following the tutorial on <https://besu.hyperledger.org/en/stable/private-networks/get-started/install/binary-distribution/#prerequisites>

A screenshot of a computer

Description automatically generated with medium confidence

First Hiccup: A screen shot of a computer program

Description automatically generated with low confidence

* Installation unsuccessful due to no java runtime?
* Tried running **besu –-help** also to no avail.
* Cause of Error: Suspected to be not having Java installed in the system.
* Steps taken to solve the error:
  + Using homebrew to install Java. Command: **brew install openjdk**

A picture containing screenshot

Description automatically generated

* + Creating a symlink for the system Java wrappers to find the JDK but it still fails:
    - Link for reference: <https://developer.apple.com/forums/thread/687489> (Posted by xinnyuan)

A screenshot of a computer

Description automatically generated with medium confidence

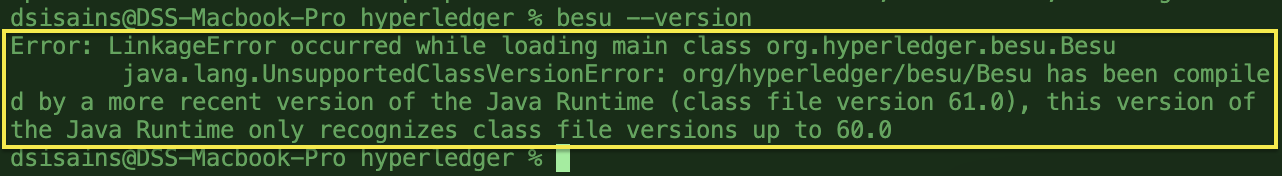
* + Trying to upgrade the Hyperledger BESU again then run besu –version but it still fails.
  + Trying another type of java installation under homebrew command: **brew install –-cask adoptopenjdk**

A green screen with white text

Description automatically generated with low confidence

* + The previous method works, java is now detected BUT it is not satisfying the requirement of BESU. BESU need java 17+

A screenshot of a computer program

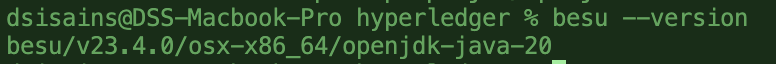
Description automatically generated with medium confidence

* + Figuring out how to get java 17+. Read the instructions from adoptopenjdk developer themselves here <https://github.com/AdoptOpenJDK/homebrew-openjdk>. Tried installing Temurin and it finally works. BESU can link to the Java as well as shown below:

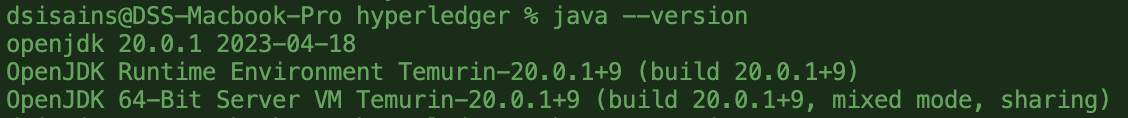
A screen shot of a computer

Description automatically generated with medium confidence

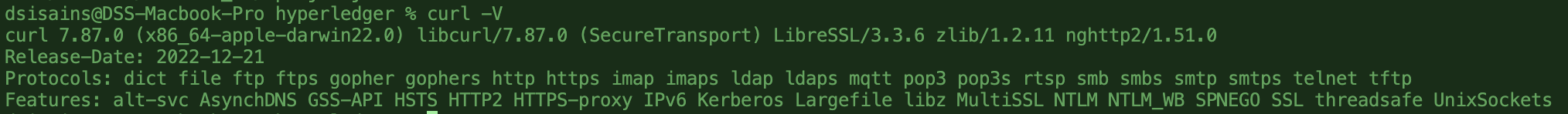
1. Check BESU version to see if installation is valid.



1. Check if CURL & Java is installed as per requirements.
   1. JAVA check:



* 1. CURL check:



# IBFT 2.0

Following steps in the tutorial.

**Step 1 & 2**: basic setting up directories and config files for ibft

**Step 3**:

A picture containing text, screenshot, font

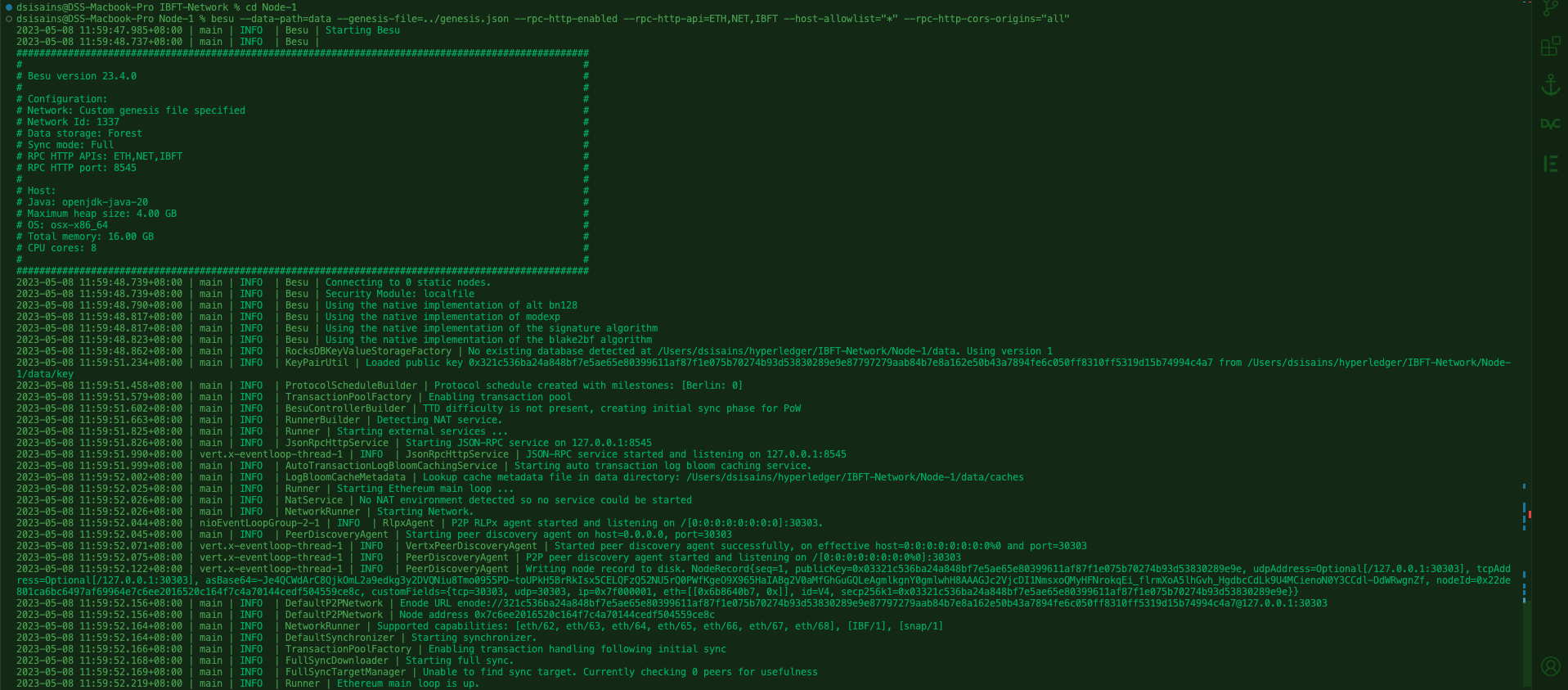
Description automatically generated

Giving the output where a networkFiles folder is generated.

**Step 4**: Just copy genesis.json to main dir from networkFiles folder

**Step 5**: copy private keys into the node dirs

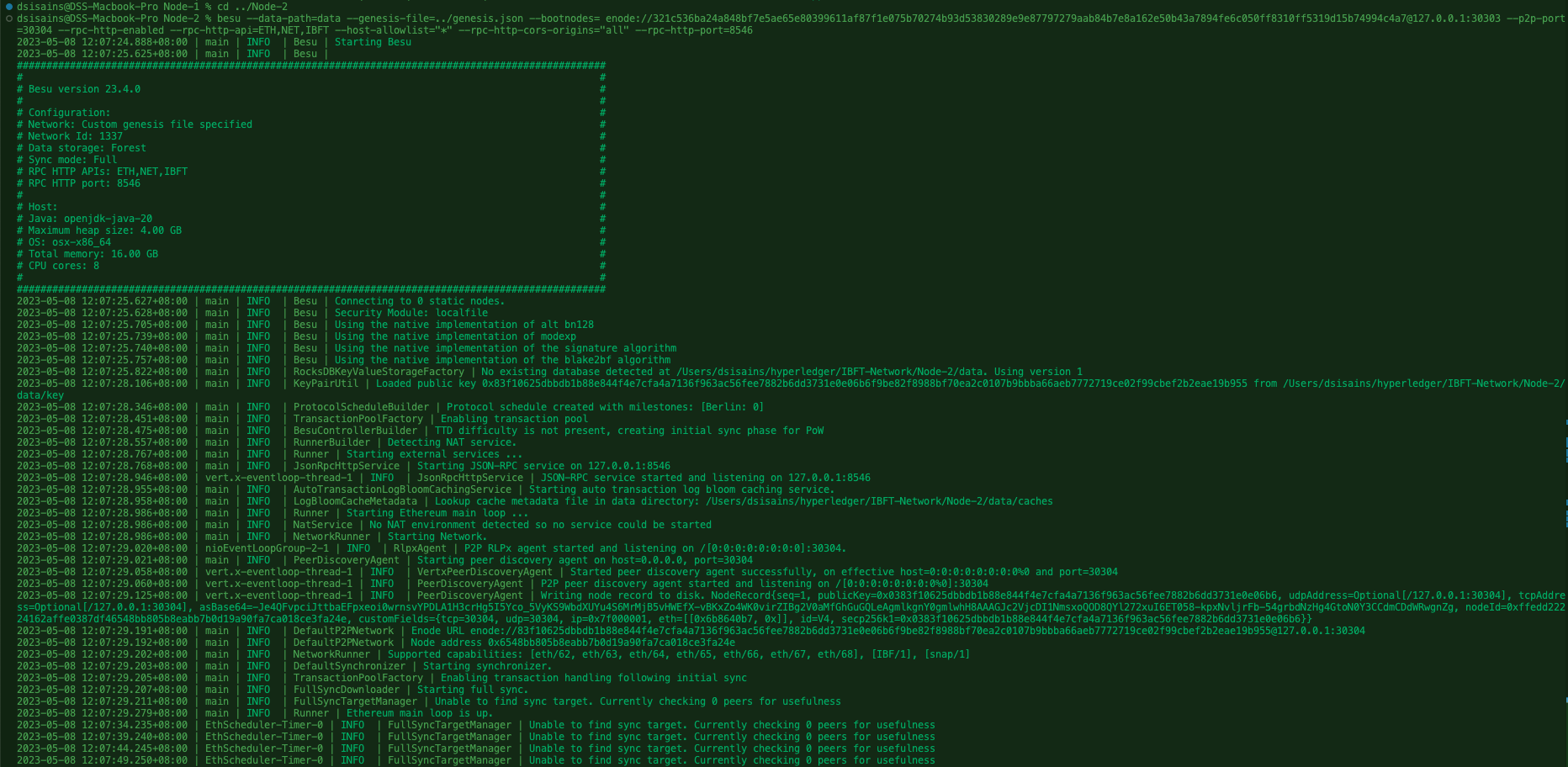
**Step 6**: Copy the enode url generated.



**Enode URL NODE 1:** enode://321c536ba24a848bf7e5ae65e80399611af87f1e075b70274b93d53830289e9e87797279aab84b7e8a162e50b43a7894fe6c050ff8310ff5319d15b74994c4a7@127.0.0.1:30303

**Step 7**: Paste Enode URL from Node 1 into the command.

besu --data-path=data --genesis-file=../genesis.json --bootnodes= enode://321c536ba24a848bf7e5ae65e80399611af87f1e075b70274b93d53830289e9e87797279aab84b7e8a162e50b43a7894fe6c050ff8310ff5319d15b74994c4a7@127.0.0.1:30303 --p2p-port=30304 --rpc-http-enabled --rpc-http-api=ETH,NET,IBFT --host-allowlist="\*" --rpc-http-cors-origins="all" --rpc-http-port=8546



**Step 8**: Start Node-3

besu --data-path=data --genesis-file=../genesis.json --bootnodes= enode://321c536ba24a848bf7e5ae65e80399611af87f1e075b70274b93d53830289e9e87797279aab84b7e8a162e50b43a7894fe6c050ff8310ff5319d15b74994c4a7@127.0.0.1:30303 --p2p-port=30305 --rpc-http-enabled --rpc-http-api=ETH,NET,IBFT --host-allowlist="\*" --rpc-http-cors-origins="all" --rpc-http-port=8547

**Step 9**: Start Node 4

besu --data-path=data --genesis-file=../genesis.json --bootnodes= enode://321c536ba24a848bf7e5ae65e80399611af87f1e075b70274b93d53830289e9e87797279aab84b7e8a162e50b43a7894fe6c050ff8310ff5319d15b74994c4a7@127.0.0.1:30303 --p2p-port=30306 --rpc-http-enabled --rpc-http-api=ETH,NET,IBFT --host-allowlist="\*" --rpc-http-cors-origins="all" --rpc-http-port=8548

Starting to realize that there is a problem.

**Step 10**: no logs shown for the curl command I was hitting.

Steps taken to find solution:

1. Try run all nodes 1 to 4 in unison then hit curl again – this works.

In conclusion,

1. Create all necessary folders.
2. Write down configuration files in ibftConfigFile.json that will specify all the gas limits, content size etc
3. Specify how many nodes u want in that configuration files. This is under ‘blockchain’ object. Node count for this tutorial is 4.
4. Then run command to generate node keys and its genesis files.
5. Basically we only use ibftConfigFile.json one time and then from then on, use genesis.json that is generated from the command in Step 4 which we then paste to main directory as the default config.
6. Run all nodes from terminal and use curl to get data.
7. Check the logs if it is all connected.

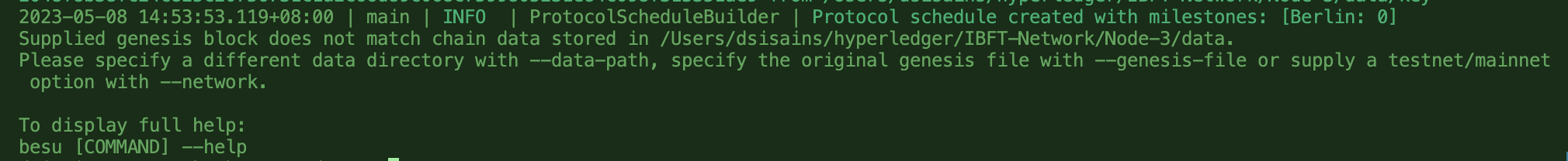
* THE END FOR PART 1 –

# Configuring Free Gas Networks

Following this tutorial: <https://besu.hyperledger.org/en/stable/private-networks/how-to/configure/free-gas/#1-set-the-block-size>

**Roadblocks**:

* The editing on genesis,json file caused it to not be able to run anymore.



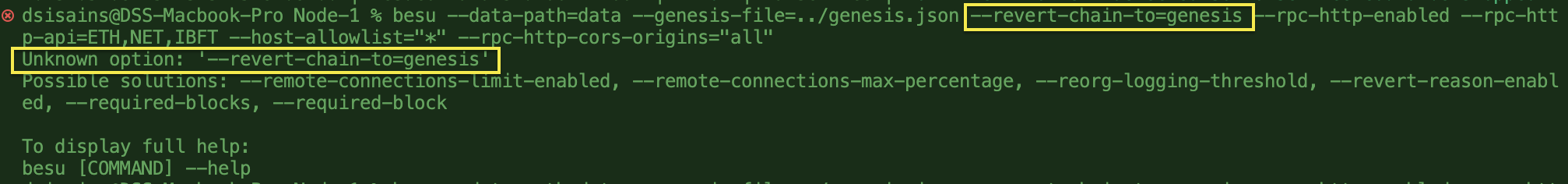
* Need to recreate genesis and their respective node keys? NO

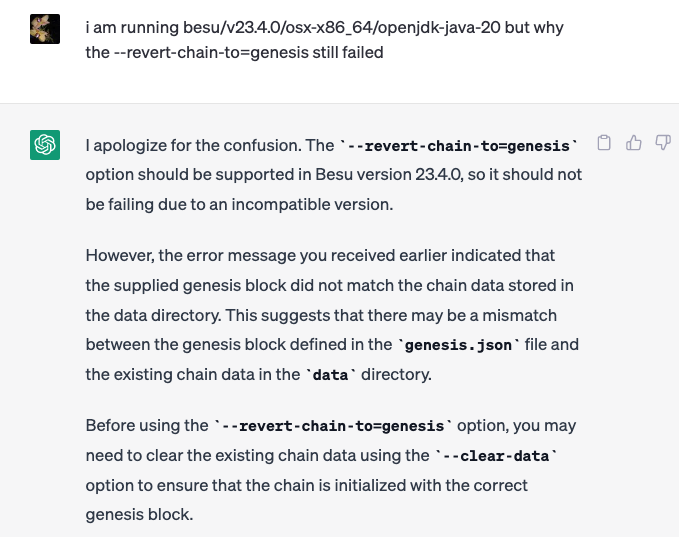
Steps to solve:

* Ask chatGPT how to edit genesis.json without recreating node keys

A screenshot of a computer

Description automatically generated with medium confidence

* Add the **--revert-chain-to=genesis** tag into each of the startup commands for all the nodes.
* Firstly, add in Node 1:
* besu --data-path=data --genesis-file=../genesis.json --revert-chain-to=genesis --rpc-http-enabled --rpc-http-api=ETH,NET,IBFT --host-allowlist="\*" --rpc-http-cors-origins="all"
* Whoops, it failed.  
  
* Asked chatGPT again but solution given which is to add ‘—clear-data’ flag before revert chain flag but it is still not working too:



* Finally, I just surrender and manually delete the ‘data’ directory to clear the chain data and re-initialize the chain with the genesis block by using normal linux command ‘rm -rf data’.
* Restart the nodes with the initial command without extra tags.
* Too annoyed with the constant manual work whenever I need to edit genesis.json so I created a shell script to automate the deletion of data files in node folders
* Able to run 4 nodes parallelly.

- THE END FOR PART 2 –

# Configuring Tessera