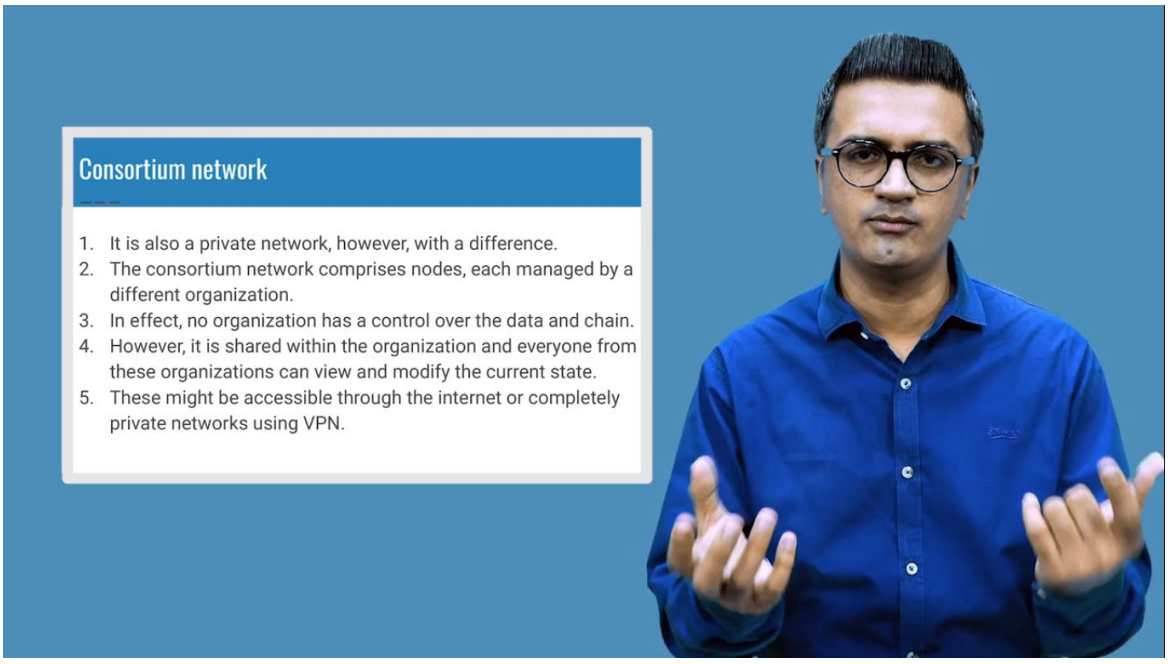
Lesson-1.1

Solidity is the programming language of Ethereum blockchain. We can write Smart Contracts for ethereum using solidity.
The main network is also called **Homestead.**
The main network is earlier called **frontier.**
Different test networks are Rinkeby,Ropsten and Kovan etc.
We can set up a Private **Network** using an Ethereum **client.**

Consortium Network:

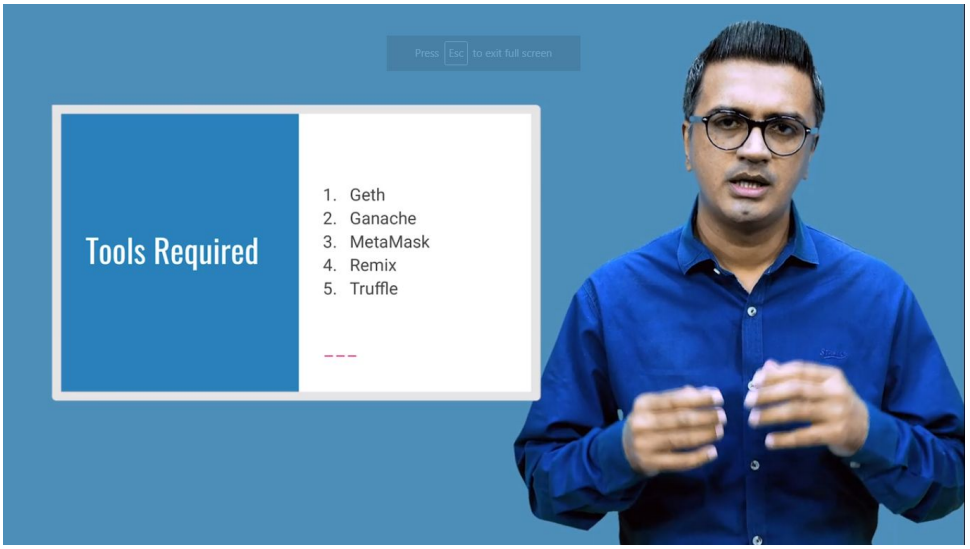


Tools Required:

To upload the smart contract or the code to the main or test network we need one of the **clients** which help us to publish the contract to the blockchain Geth and ganache are the clients.

Geth is a CLI tool which we can use for test,main or private blockchain.
Ganache produces the local blockchain(we can access the blockchain without the internet this blockchain will be running to your own machine) only.

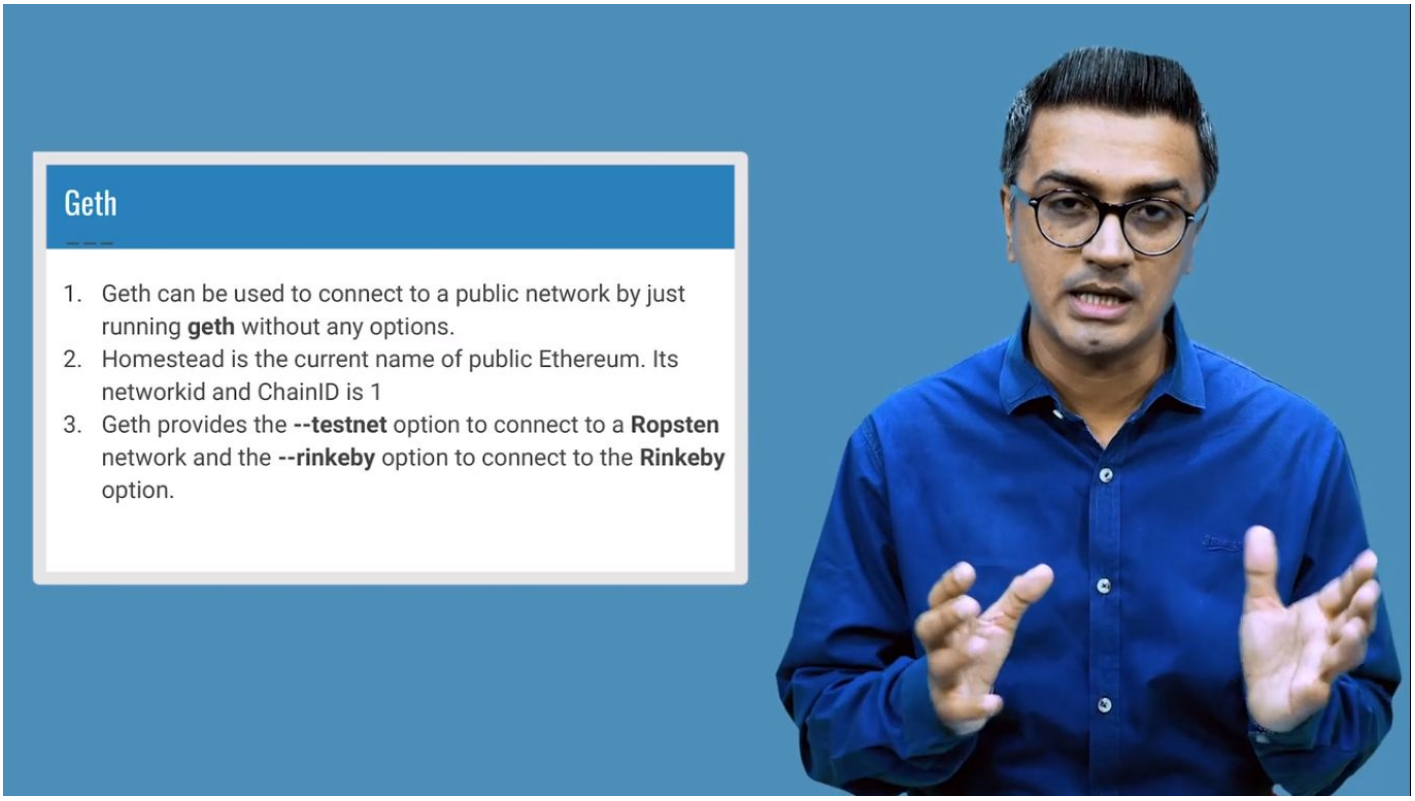
Truffle provide the whole Project Management (project structure,architecture ,folder structure and also help to upload the code)

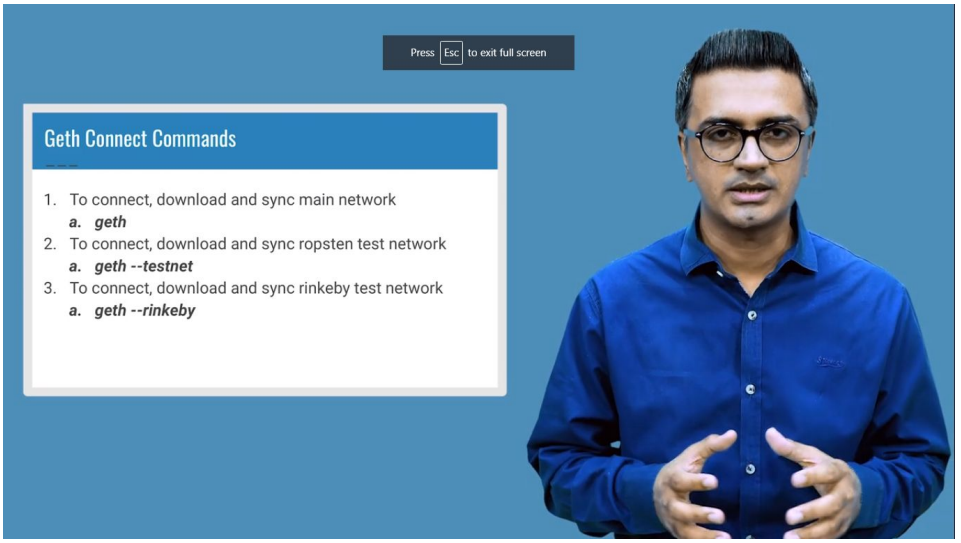


Ganache provides the facility that you create your own blockchain network without the internet.

Meta Mask directly injects the web3 into your browser so the code or smart contract can directly upload to the test network.

GETH:

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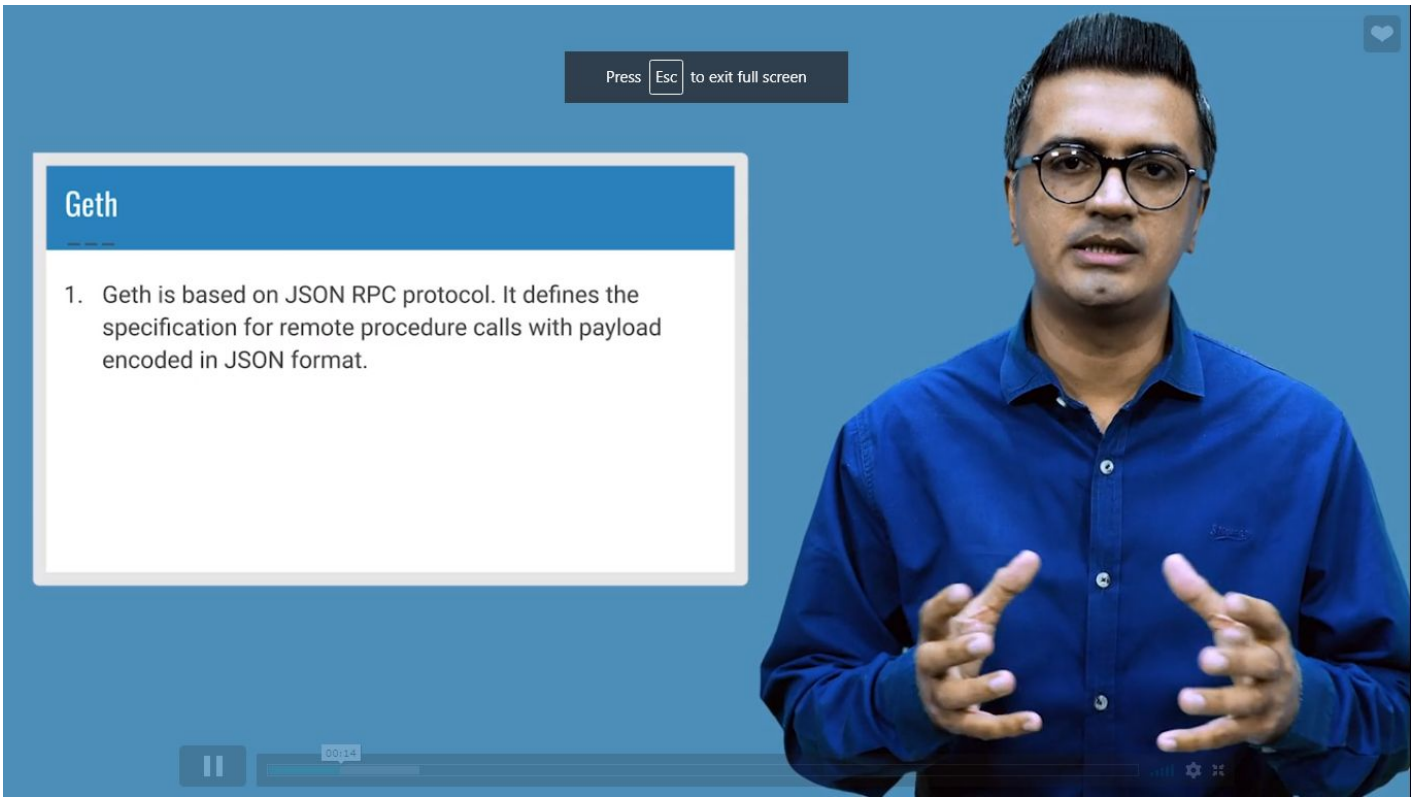
Geth Connect Commands
1. To connect, download and sync main network
a. geth
2. To connect, download and sync ropsten test network
a. geth --testnet
3. To connect, download and sync rinkeby test network
a. geth --rinkeby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Geth
1. Geth is based on JSON RPC protocol. It defines the specification for remote procedure calls with payload encoded in JSON format.
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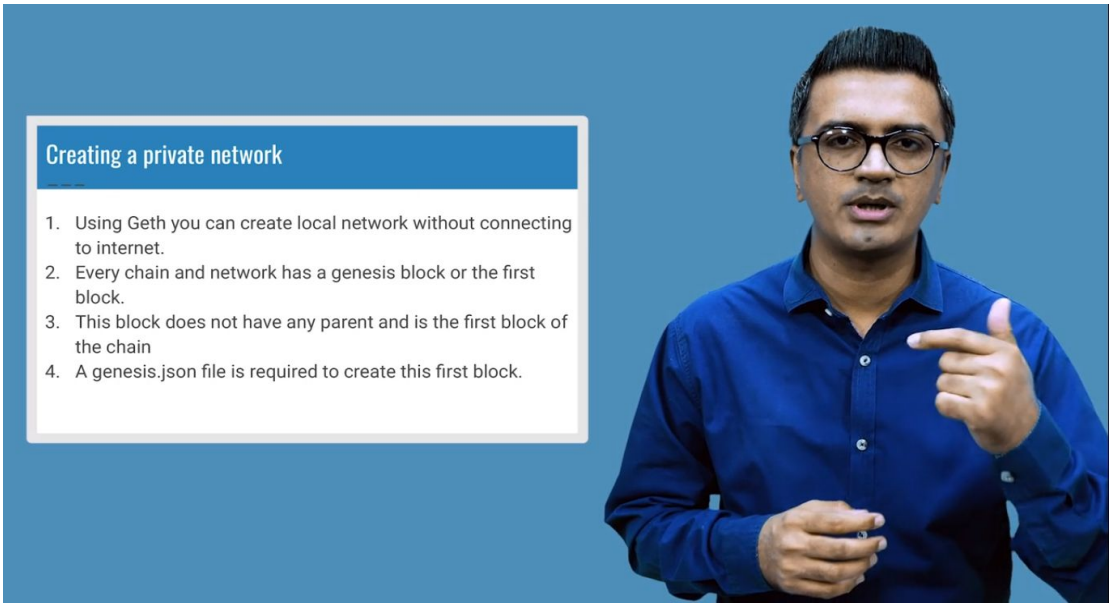
Geth

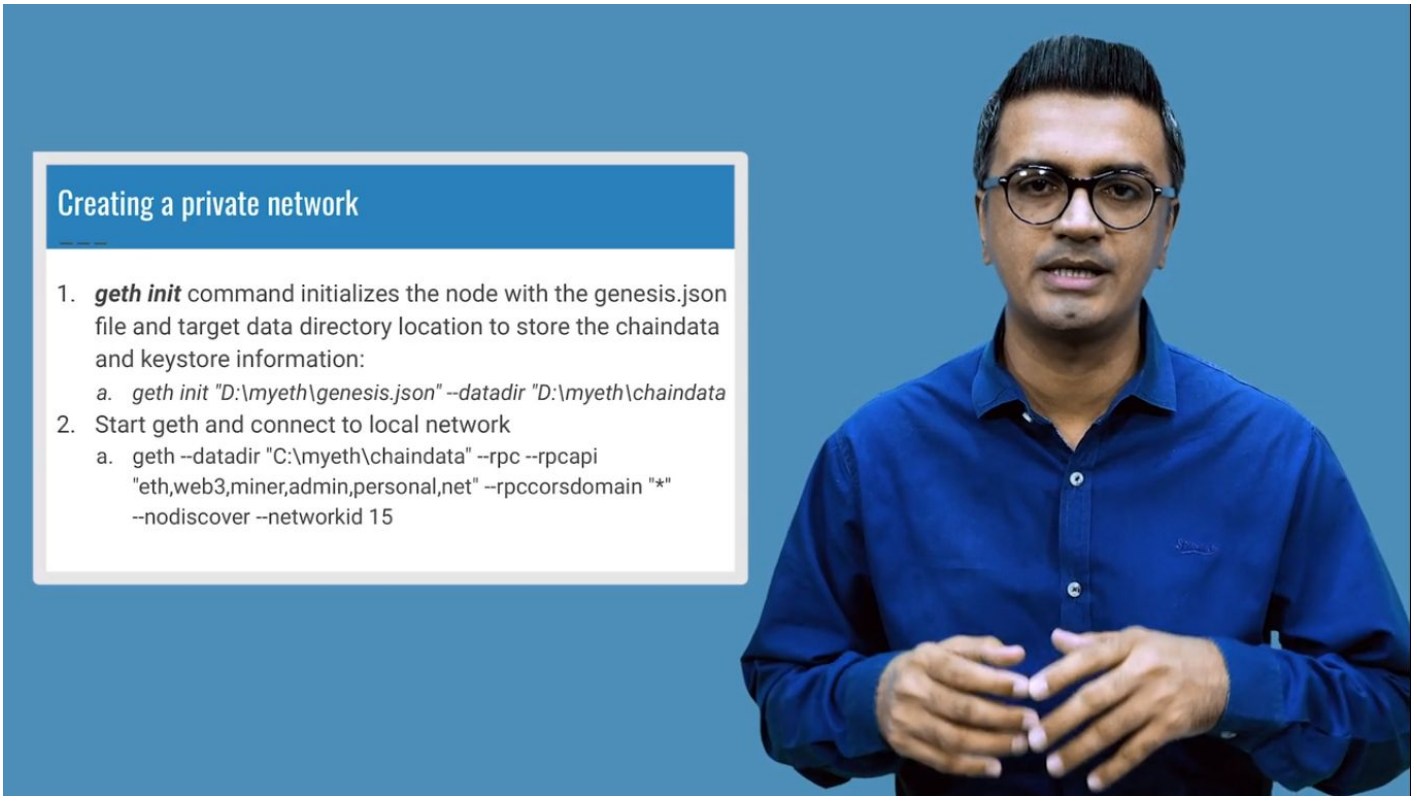
1. Geth allows connectivity to JSON RPC using the following three different protocols:
   a. **Inter Process Communication (IPC):** This protocol is used for inter process communication generally used within the same computer.
   b. **Remote Procedure Calls (RPC):** This protocol is used for inter process communication across computers. This is generally based on TCP and HTTP protocol.
   c. **Web Sockets (WS):** This protocol is used to connect to Geth using sockets.

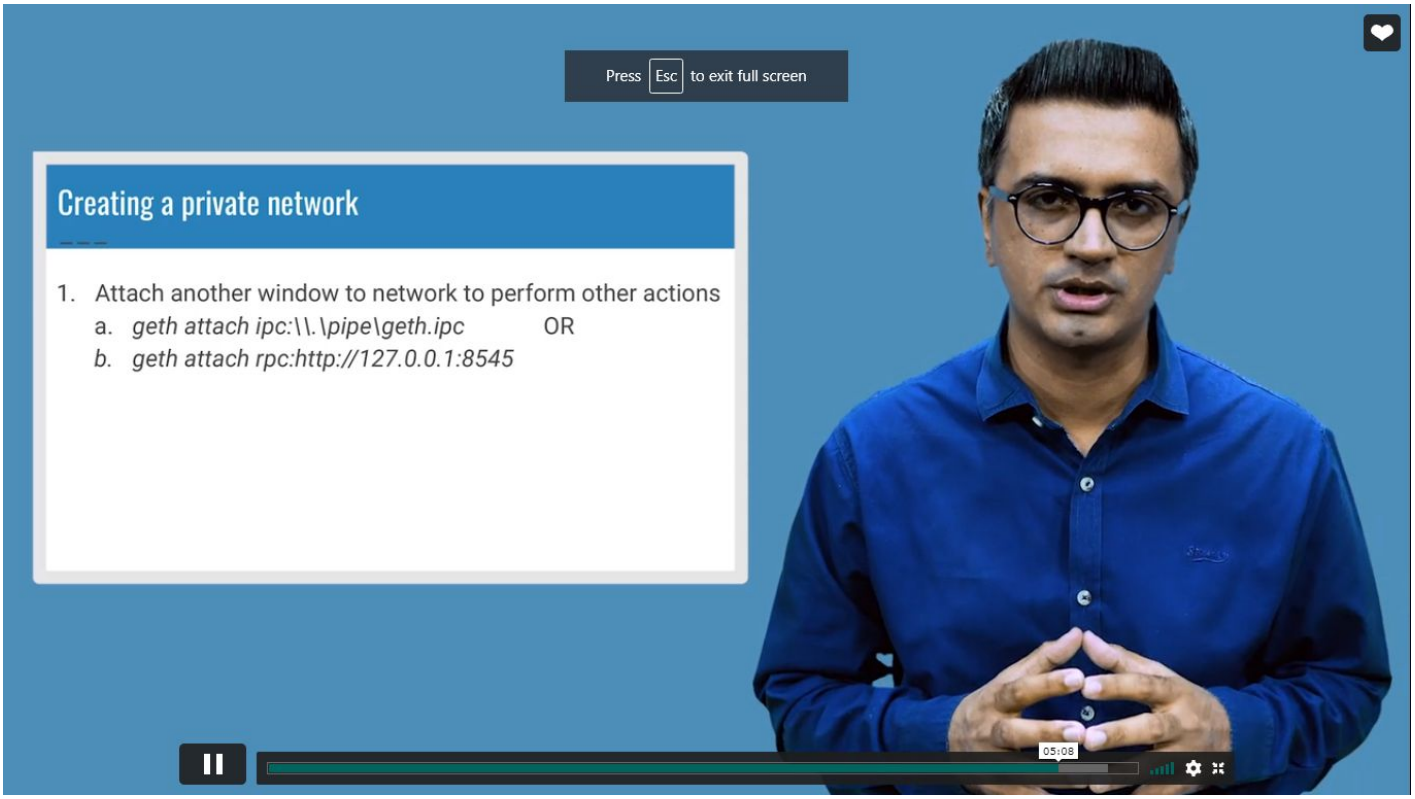
Geth

1. Following are the network IDs used for connecting to the following different networks:
   a. The **chain ID 1** represents a Homestead public network
   b. The **chain ID 2** represents Morden (not used anymore)
   c. The **chain ID 3** represents Ropsten
   d. The **chain ID 4** represents Rinkeby
   e. The **chain ID above 4** represents a private network

Creating a Private Network:



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Creating a private network
1. Attach another window to network to perform other actions
a. geth attach ipc:\\.\pipe\geth.ipc OR
b. geth attach rpc:http://127.0.0.1:8545
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