







#### Private Test Blockchain

- Automining enabled by default (not realistic)
  - Can be turned off
- Other test blockchains are more realistic



## Popular Public Test Blockchains

- Ropsten
  - PoW (proof of work) consensus algorithm
  - Miners earn small amount of ETH
  - New blocks added every ~30 seconds
  - Supported by Geth and Parity
  - Good for observing the effect of mining on smart contracts



### Popular Public Test Blockchains

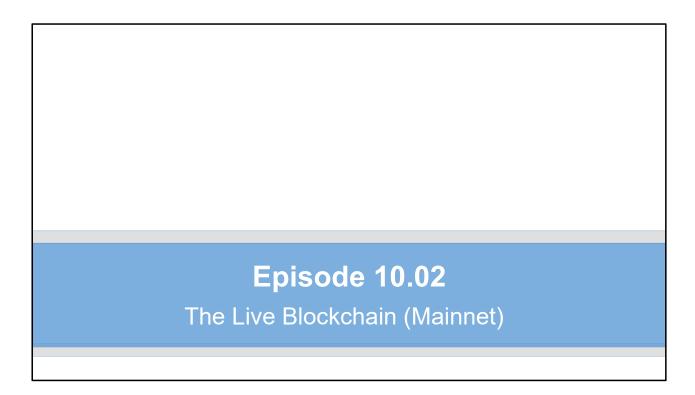
- Rinkeby
  - PoA (proof of authority) consensus algorithm
    - Existence proved before ETH can be earned
  - New blocks added every ~15 seconds
  - ETH is pre-mined
    - Just withdraw from a faucet
  - Supported by Geth (not Parity)



# Popular Public Test Blockchains

- Kovan
  - PoA consensus algorithm
  - New blocks added every ~4 seconds
  - Supported by Parity (not Geth)







#### Live Blockchain (Mainnet)

- Uses real money
  - You must fund your accounts for live networks
- More miners and nodes
- Unexpected delays
- Unexpected transaction orders
  - Miners may favor higher paying transactions
- Must have an account with real ETH before deploying dApp
- All changes to the blockchain are immutable







#### Connecting to Public Test Blockchains

- Tell Truffle what network to connect to
  - Using credentials (address) for that network
- Each blockchain/network has its own account address
- An address is valid for only 1 specific blockchain



### Accounts and Keys

- When you create an Ethereum account:
  - Generates key pair
    - Private and public key
    - Ethereum address is part of your public key



## Connecting to Multiple Blockchains

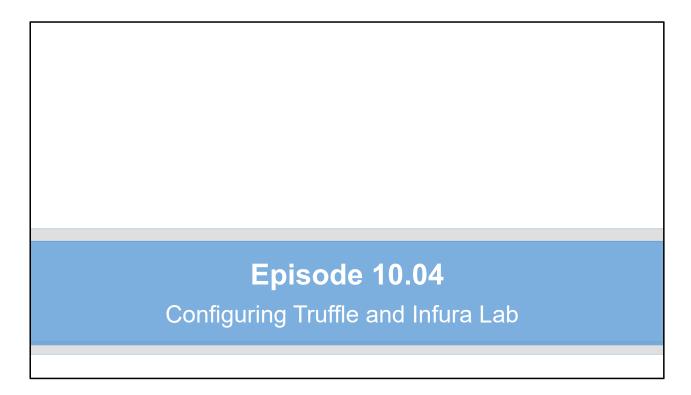
- Create separate EVM for each network
- Connect to another infrastructure
  - Infura



# Infura Account Set Up (Demo)

• https://infura.io







- www.trufflesuite.com/tutorials/using-infura-customprovider
- Configuring Truffle for New Networks (Demo)



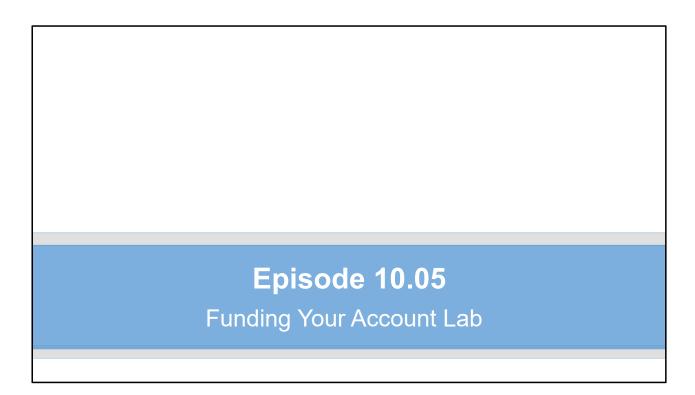
```
const HDWalletProvider = require("@truffle/hdwallet-provider");
var mnemonic = "YOUR MNEMONIC FROM YOUR WALLET (MetaMask)";

module.exports = {
    networks: {
    development: {
        host: "127.0.0.1",
        port: 7545,
        network_id: "*"
    },
    ropsten: {
        provider: function() {
            return new HDWalletProvider(mnemonic, "https://ropsten.infura.io/v3/db7278945d1741a4963fdcaa6a0c47e6");
    },
        network_id: 3,
        gas: 4500000,
        gasPrice: 100000000000,
    },
    ive: {
        provider: function() {
            return new HDWalletProvider(mnemonic, "https://mainnet.infura.io/v3/db7278945d1741a4963fdcaa6a0c47e6");
    },
        network_id: 1,
        gas: 7500000,
        gasPrice: 100000000000,
    }
}
```



- truffle-config.js Code
  - The truffle-config.js document can be copied from the previous slides or found in the accompanying files, sourceCode > supplyChainApp > truffleconfig.js







- <a href="https://faucet.ropsten.be">https://faucet.ropsten.be</a>
- Funding Your Account (Demo)







Deploying to the Live Blockchain (Demo)

