

1. [5 points] Install the Metamask browser extension (<https://metamask.io/>) and perform the following tasks. There is no written submission required for this exercise.

- Login to Metamask and choose the Ropsten Test Net from the dropdown menu.
- Request 1 ETH to the address in your Metamask account by visiting either <https://faucet.metamask.io/> or <https://faucet.ropsten.be/>
- Send 0.1 ETH to the address `0xE1B510A4D6b0460FE0A2d4d2eF16cd56B694ed58` using Metamask. Specify your roll number in the transaction data field. *Hint: You may get errors if you specify a low value for the `startGas` field. Every byte which is stored on the blockchain costs some gas.*

Send an email to the TA including the Etherscan link to this transaction. It will look like <https://ropsten.etherscan.io/tx/0x39d85c47931c64813dafff8e34acd76be1fa4d325f53c61dd0d95d48447a7c6f>.

2. [15 points] Initial Coin Offerings (ICOs) are contracts in Ethereum which allow anyone to issue new tokens (coins) in return for ether. Tokens issued via ICOs are called ERC20 tokens where ERC abbreviates Ethereum Request for Comments. The number 20 is a consequence of the token standard being proposed in Ethereum Improvement Proposal 20 <https://github.com/ethereum/EIPs/blob/master/EIPS/eip-20.md>.

An ICO contract is instantiated on the Ethereum blockchain and the contract address is shared with prospective token buyers. Buyers can receive tokens by sending ether to the contract address. The contract specifies the amount of tokens the buyer will receive in return for each ether sent.

Perform the following tasks in Ethereum's Ropsten test network using Metamask. There is no written submission required for this exercise. Send an email with the details requested in parts (b)-(d) to the TA (email address available in Moodle).

- The gist at <https://gist.github.com/AustinMichaelColeman/4acba360a3361cb986870a2bfa2ed4ee> has a ERC20 sample contract. Load this code into the Remix IDE by entering the gist ID after clicking on <https://remix.ethereum.org/#version=soljson-v0.4.24+commit.e67f0147.js&optimize=false&gist=>. Activate the "Solidity Compiler" and the "Deploy & Run Transactions" plugins in the Remix IDE settings (click on the plug symbol on the left).
- Modify the `name` of the token in line 18 of `TokenTemplate.sol` to some other name which includes your first name. Change `symbol` in line 19 of the same file to a value consisting of the first three letters of your first name. Include the `symbol` and `name` values you chose in the email to the TA.
- Go to the "Deploy and run transactions" tab of the Remix compiler. Choose "Injected Web3" option in the dropdown titled `Environment`. Install the contract on the Ropsten blockchain by choosing it in the dropdown next to the Deploy button and clicking the Deploy button. The contract creation transaction itself needs to be sent using Metamask. Include the Etherscan link to the contract in your email to the TA. It will look like <https://ropsten.etherscan.io/tx/0xb5201fd777aa0ff3795c3f2fc15f3a2a4160c601da36fa522160f0907d3f49d7>.
- Send 0.1 ETH to the contract address. Include the Etherscan link to this transaction in your email to the TA. It will look like <https://ropsten.etherscan.io/tx/0xb9db6a072029d19fe8c743e9e7f2f7d85fad>. You will need to increase the gas limit while sending the transaction through Metamask. The default is too low and will result in a failure.

The source of the 0.1 ETH will receive your tokens. For example, the address <https://ropsten.etherscan.io/address/0xe916fe78521c68897db4c954b9d00be5054f0859> has 100 SRVNN tokens (see the dropdown with label Token).