MetaMask
Pre-Assignment

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February 2021
Setup

• Metamask is a cryptocurrency wallet that is used to interface with the Ethereum-based Apps

• We will be setting up this Wallet on your mobile device (iOS or Android only)
  – If you are unable to use a mobile device, the end of this deck has a web browser tutorial (Page 19)
  – If you already have MetaMask on your browser, the end of this deck has a tutorial to link your Web Account to the Mobile App (Page 25)
Setup

• Download the Metamask app from the App Store or Google Play Store
• Click Get Started
• Click Create a new wallet
• Create a new account by typing in a password of your choosing and pressing “Create”
• Go through the prompts to secure your wallet
• Store Secret Backup Phrase in a secure location, ideally paper or a password manager – not on your phone or computer.
• Type in secret backup phrase
Using MetaMask

1. Network

- This determines which Ethereum Network you are using. Click on this to see all network options in a dropdown. For this class we will only discuss or use the Main Ethereum Network and the Ropsten Test Network.
Using MetaMask

1. Network

- The *Ethereum Mainnet* is where live ether (ETH) with real value exists and is used for payment and applications. I will refer to this as the “main network” or the “mainnet”
Using MetaMask

1. Network

- The *Ropsten Test Network* is a fully functioning copy of the main network. The ETH on any Test Network has no economic value and can be obtained for free from a “faucet.” We will get some Ropsten Test ETH in your MetaMask the section on Test ETH below. I will refer to this as the “test network” or “testnet”
Using MetaMask

2. Account

• This is your unique account number used for transferring ETH. It is the same for every network. If you ever need to copy the address exactly to the clipboard, simply click on this portion of MetaMask.
Using MetaMask

3. Balance and Transfer

- This tells you your ETH balance and USD value based on the current exchange rate. It is different for the main and test networks unless you had identical ETH balances on each. The testnet ETH will show you a balance of more than $0 if you have any test ETH but don’t be fooled, this ETH is not redeemable for USD in the same way mainnet ETH is.
Using MetaMask

3. Balance and Transfer

• Click “0 ETH” on the main screen
Using MetaMask

3. Balance and Transfer [Supplementary – only if you want to deposit some real ETH]

- To deposit ETH, simply copy your account number (recommend directly to the clipboard to avoid typing mistakes) and input this into the corresponding “send” ETH of wherever you are depositing from (i.e., Coinbase). Clicking the “Receive” button will direct you to one of:
  - a QR scanner you can use as an alternative to copying the address
  - a location to buy ETH (on the mainnet)

- To send ETH, simply click the send button and input the counterparty’s Ethereum account and a transaction fee.
Using MetaMask

4. Transaction History

• Here you can view pending and completed transactions. We will use this to check the status of the attendance logger transactions.
Using MetaMask

4. Transactions with MetaMask

• All MetaMask transactions look like this: whether you send ETH when you interact with an Ethereum application (like the attendance logger).

• You should always check the following before pressing “Confirm” otherwise “Reject” the transaction:
  1. The Network is appropriate for what we are doing in class)
  2. The “To” account matches where you want to send it
  3. The ETH amount is what you intended
Getting Test ETH

Getting Ropsten Test ETH

1. Open MetaMask
2. Switch to “Ropsten Test Network”
3. Click on the amount of ETH you have (displayed at 0 ETH)
Getting Test ETH

Getting Ropsten Test ETH

4. Click Receive
5. Copy your public address
Getting Ropsten Test ETH

6. Visit faucet.ropsten.be. Paste your address and press “Send me test Ether”. DO NOT repeatedly request - you will be blocked for 24 hours

7. Once completed, click on the transaction hash at the bottom of the page to send you to EtherScan
Getting Test ETH

Getting Ropsten Test ETH

8. The transaction status will likely be “Pending” but will eventually turn to “Success”
   • Notice the “To” and “From”. If you click “To” you will see your account details.

9. Go back to MetaMask and your balance should be updated
MetaMask FAQ

Troubleshooting MetaMask:

Q: I downloaded the Chrome Extension but it is not showing up in the top right of my browser

A: You likely have more extensions than can be displayed or it is hidden. Click the icon the top right and MetaMask should be in the top of the pop-up menu.

Q: I forgot my password

A: Click “Import using account seed phrase” at the bottom. Type in the seed words you saved when you created the account separated by spaces.
MetaMask FAQ

Troubleshooting MetaMask:

Q: *I forgot my password and lost my seed phrase*
A: There is no recovery here. Make a new account and get new Test ETH. Hopefully you didn’t have any real ETH on your account. This is the importance of securing your seed phrase.

Q: *Can I use both the Mobile App and Browser Extension?*
A: You can link your mobile app to the browser extension, but not vice versa. In other words, create a MetaMask web account and then open the mobile app to link the account. You cannot create a mobile account first and then sync it with the browser extension.
Setup (Web)

• Go to https://metamask.io/

• Download extension for either Chrome, Firefox, or Opera
  • Alternatively, download Brave Browser and use Chrome extension
  • If you already have the extension, ensure it is updated to the latest version

• Icon should appear in the top right corner of your browser. Click on it

• Click Get Started

• Click Create a Wallet and either opt-in or opt-out of the data usage

• Create a new account by typing in a password of your choosing and pressing “Create”

• Click next
Setup (Web)

• Store Secret Backup Phrase in a secure location, ideally paper or a password manager – not on your computer or phone.
• Type in secret backup phrase
• Skip depositing Ether unless you want to deposit some Ether that you already own. (Skip the next slide unless you want to setup a Mobile account)
Getting Test ETH (Web)

Getting Ropsten Test ETH (Web)
1. Open MetaMask
2. Switch to “Ropsten Test Network”
3. Click “Buy”
Getting Test ETH (Web)

Getting Ropsten Test ETH (Web)

4. Scroll down to “Test faucet” (ignore the “Direct Deposit) at the bottom and click “Get Ether”
Getting Test ETH (Web)

5. A new window should open, simply click “Request 1 ether from faucet” at the top in the green button. DO NOT repeatedly request – you will be blocked for 24 hours

– The address is the public address of the “faucet” and balance is the number of test Ether in the account
– User represents your account (I am ff65f35... and notice I have 1.90 ether)
Getting Test ETH (Web)

6. A new window will open up. Allow Test Faucet to “connect” to your account.

7. You will see a new item show up “Transactions”. Click on the new item to take you to Etherscan.
Setup (Linking Browser Account to Mobile App)

• Note: You must have already set up an account on the Web MetaMask to link with your mobile app, you cannot set up an account via mobile and link to the browser account
• Download the MetaMask app from the App Store or Google Play Store
• Click “Sync With MetaMask extension” on your mobile device
• Open the browser extension
• Click the account icon in the top right
Setup (Linking Browser Account to Mobile App)

- Click “Settings”
- Click “Advanced”
- Click “Sync with Mobile”
- Enter your password to verify your account
- A QR code will pop up
- On your mobile device, click “Scan”
- Scan the QR code and your Browser Account will be linked