

Lab Session: Wallet Setup and First Transaction

BSc Blockchain, Crypto Economy & NFTs

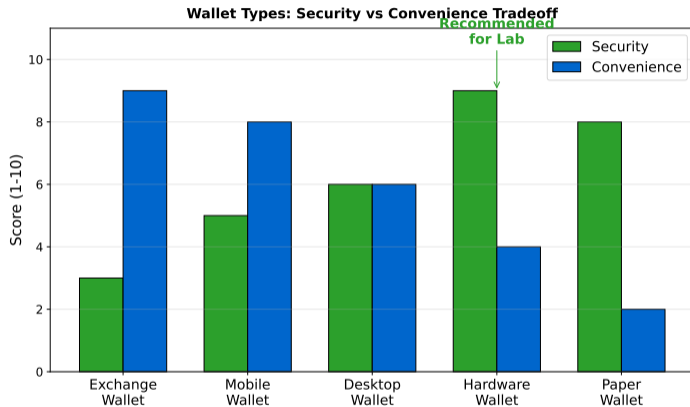
Course Instructor

Module A: Blockchain Foundations

By the end of this lab session, you will be able to:

- Install and configure MetaMask wallet extension
- Understand seed phrase importance and backup procedures
- Connect to Ethereum testnets (Sepolia)
- Obtain testnet ETH from faucets
- Send and receive testnet transactions
- Apply security best practices for wallet protection

Wallet Types: Security vs Convenience



Hardware wallets offer best security; MetaMask provides good balance for learning

What is MetaMask?

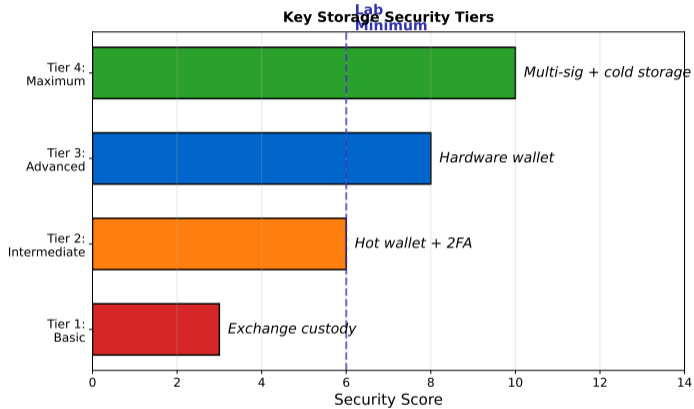
Overview:

- Browser extension and mobile app cryptocurrency wallet
- Supports Ethereum and EVM-compatible blockchains
- Non-custodial: you control private keys
- Most popular Ethereum wallet (30 million users)

Key Features:

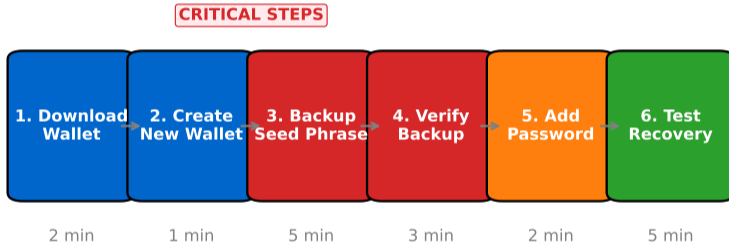
- Send and receive ETH and ERC-20 tokens
- Interact with decentralized applications (dApps)
- Multiple account management
- Network switching (Mainnet, testnets, custom networks)

Security Levels for Key Storage



For this lab, Tier 2 (hot wallet + 2FA) is the minimum acceptable level

Wallet Setup Workflow (18 minutes total)



Seed phrase backup (steps 3-4) is the most critical part of wallet setup

Exercise 1: Installing MetaMask

Installation Steps:

- 1 Visit official website: <https://metamask.io>
- 2 Click “Download” and select your browser
- 3 Install extension from official browser store
- 4 Pin extension to browser toolbar
- 5 Click MetaMask icon to launch setup wizard

Security Warning:

- Only install from official sources
- Beware of phishing sites (check URL carefully)
- Fake extensions exist in browser stores

Exercise 2: Creating Your Wallet

Setup Wizard Steps:

- 1 Click "Create a new wallet"
- 2 Set a strong password (8+ characters)
- 3 Reveal and record your 12-word seed phrase
- 4 Confirm seed phrase by selecting words in correct order

Critical: Seed Phrase vs. Password

- Seed phrase = master backup (recovers wallet on any device)
- Password = local device protection (cannot recover wallet)
- **Lose seed phrase -> lose wallet permanently**

Exercise 3: Adding Sepolia Testnet

Why Use Testnets?

- Practice without risking real money
- Free testnet ETH available from faucets
- Identical functionality to mainnet

Adding Sepolia Network:

- 1 Click network selector (top-right dropdown)
- 2 Settings -> Advanced -> Show test networks (enable)
- 3 Select "Sepolia test network"

Sepolia Faucets:

- Alchemy: <https://sepoliafaucet.com>
- Infura: <https://www.infura.io/faucet/sepolia>

Exercise 4: Sending Your First Transaction

Transaction Steps:

- 1 Ensure you have Sepolia ETH (from faucet)
- 2 Click “Send” button in MetaMask
- 3 Enter recipient address (create second account or use classmate’s)
- 4 Enter amount (e.g., 0.1 Sepolia ETH)
- 5 Review transaction details (gas fee, total)
- 6 Click “Confirm”
- 7 View in Activity tab

Understanding Gas Fees:

- $\text{Fee} = \text{gas units} \times \text{gas price (in gwei)}$
- Sepolia: fees are negligible (testnet)

Critical Security Rules:

- 1 **Seed Phrase:** Never share, never store digitally
- 2 **Phishing Protection:** Verify URLs, bookmark trusted sites
- 3 **Network Verification:** Confirm correct network before transacting
- 4 **Transaction Approval:** Review recipient and amounts carefully

Common Threats:

- Phishing websites requesting seed phrase
- Malicious dApps with unlimited token approvals
- Clipboard malware replacing copied addresses
- Fake support scams via DM

Submit the following:

1 Screenshot Collection:

- MetaMask wallet showing Sepolia network
- Transaction details from Activity tab
- Etherscan transaction page (confirmed)

2 Lab Report (1-2 pages):

- Your Sepolia address
- Transaction hash of sent transaction
- Reflection on seed phrase security

Submission Deadline: One week from lab session

- MetaMask is a non-custodial wallet (you control private keys)
- Seed phrase is the master backup for all accounts
- Testnets provide safe environment for learning
- Gas fees vary by network congestion
- Blockchain transactions are irreversible
- Security requires vigilance against phishing and scams