Chapter 4 : Blockchain wallets

Types of Wallet, Desktop Wallet, App based Wallet, Browser based wallet, Metamask, Creating an account in Metamask, Use of faucet to fund wallet, transfer of cryptocurrency in metamask.

All about Metamask and Creating an account in Metamask

1. Step By Step Guide on Creating Blockchain Account on Metamask
2. Wanna read more? A detailed guide on Metamask

Practical Hands On Use of faucet to fund wallet (DIY)

1. To begin testing or interacting with a blockchain network, you'll need some tokens in your wallet. These tokens don't have real-world value when working on testnets, and you can obtain them for free using a **faucet**. A faucet is a service that distributes small amounts of testnet tokens to developers or users for testing purposes.
2. For example, if you're planning to work with the **Filecoin Testnet**, you can use the **Filecoin Calibration Faucet** to get test FIL tokens. Simply paste your wallet address into the faucet and request funds.
3. Keep in mind that **each blockchain network typically has its own dedicated testnet and corresponding faucet**. So depending on the network you're working with like Ethereum (Sepolia or Goerli), Polygon (Mumbai), or others, you'll need to use the relevant faucet for that specific ecosystem.

Transfer of Cryptocurrency in MetaMask

MetaMask allows users to **send and receive cryptocurrency** easily across Ethereum and other EVM-compatible networks. Below is a step-by-step guide to transferring tokens using MetaMask.

A. Sending Cryptocurrency from MetaMask

Sending tokens means you are transferring cryptocurrency from your wallet to another wallet address.

Steps:

1. **Open MetaMask**:
    - Launch the MetaMask extension in your browser or open the mobile app.
2. **Select the Token and Network**:
    - Ensure you're on the correct **network** (e.g., Ethereum Mainnet, Sepolia Testnet, Polygon, etc.).
    - Select the **token** you want to send (e.g., ETH, USDC, MATIC).
3. **Click “Send”**:
    - You will be prompted to enter the **recipient’s wallet address**.
    - Double-check the address. Crypto transactions are irreversible.
4. **Enter the Amount**:
    - Specify how much of the token you want to send.
    - You can switch between entering the amount in crypto or its fiat value (e.g., USD).
5. **Adjust Gas Fees (Optional)**:
    - MetaMask automatically sets an estimated **gas fee** (transaction fee paid to miners/validators).
    - Advanced users can click “Edit” to manually adjust **gas limit**, **priority fee**, etc.
6. **Review and Confirm**:

- Review the transaction details (amount, destination, gas fee).
- Click **“Confirm”** to initiate the transaction.

7. **Wait for Confirmation**:
    - MetaMask will show a pending status while the transaction is being processed.
    - Once confirmed, you can view the transaction on a **block explorer** like:
        - Etherscan.io (Ethereum)
        - Polygonscan.com (Polygon)
    - Note that the block explorer for testnet would be different.

B. Receiving Cryptocurrency in MetaMask

To receive tokens from another wallet:

Steps:

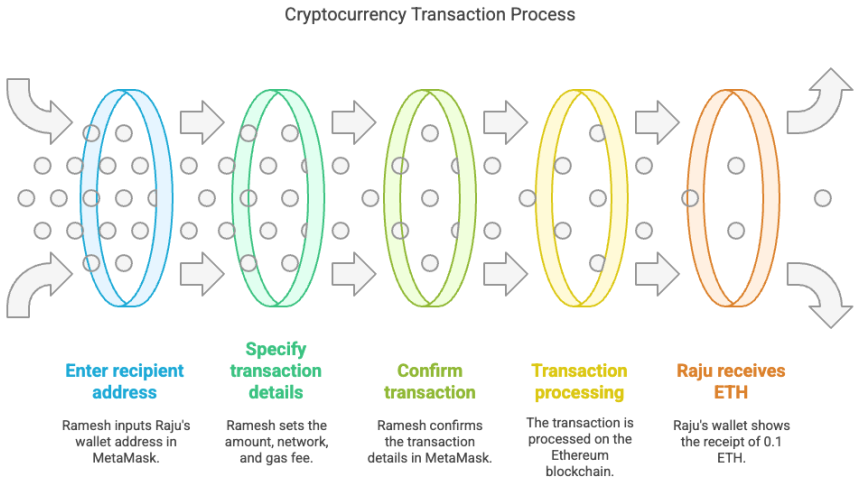
1. **Open MetaMask** and log in.
2. **Copy Your Wallet Address**:
    - Click on the account name at the top (e.g., Account 1).
    - This copies your Ethereum address to clipboard (starts with 0x...).
3. **Share Your Address**:
    - Provide this address to the sender.
4. **Wait for the Transfer**:

- Once the sender completes the transaction, the tokens will show up in your MetaMask wallet after confirmation.

5. **Add Custom Token (if needed)**:
    - If a token doesn’t automatically appear:
        - Click “Import Tokens”
        - Enter the token’s contract address (from a reliable source like CoinGecko or Etherscan)
        - Add the token to view it in your wallet

C. Important Tips

- **Always double-check addresses** before sending. A mistake can lead to permanent loss.
- **Gas fees vary** depending on the network congestion.
- Make sure you're connected to the **correct network** before initiating any transaction.
- **Transactions are public**, and you can always track their status via block explorers using the transaction hash (TX Hash).



Custodial Wallets vs Non-Custodial Wallets

Custodial Wallet	Non-Custodial Wallet
Custodian or Third party has control over funds	Users have control of their funds
Not very secure as keys are with a third party	Extremely secure as users have their private keys
Accounts can be restored in case of lost keys	Funds cannot be recovered in case of lost keys
Transaction fees are comparatively lesser	Users bear the complete transaction fees
Slower withdrawals due to KYC/AML checks	Withdrawals are comparatively faster

Hot Wallet

- Connected to the Internet
- Easy access to cryptos anywhere and anytime: with a phone or browser
- Most wallets are free to use
- Vulnerable to cyberattacks
- Best suited for regular trading and quick payments

Cold Wallet

- Not connected to the Internet
- Can be accessed only in a specific way: for example, plugged into a computer
- The price starts at $50
- Less vulnerable to cyberattacks
- Best suited for storaging large amounts of cryptos without regular trading