Wallets: The wallet software is used to store private or public keys and bitcoin address. It performs various functions, such as receiving and sending bitcoins. Nowadays, software usually offers both functionalities: bitcoin client and wallet. On the disk, the bitcoin core client wallets are stored as the Berkeley DB file:

```
:~/.bitcoin$ file wallet.dat
```

wallet.dat: Berkeley DB (Btree, version 9, native byte-order) Private keys can be generated in different ways and are used by different types of wallets.

Wallets do not store any coins, and there is no concept of wallets storing balance or coins for a user. In fact, in the bitcoin network, coins do not exist; instead, only transaction information is stored on the blockchain (more precisely, UTXO unspent outputs), which are then used to calculate the amount of bitcoins.

WALLET TYPES In bitcoin, there are different types of wallets that can be used to store private keys. As a software program, they also provide some functions to the users to manage and carry out transactions on the bitcoin network.

Non-deterministic wallets :

These wallets contain randomly generated private keys and are also called Just a Bunch of Key wallets. The bitcoin core client generates some keys when first started and generates keys as and when required. Managing a large number of keys is very difficult and an error-prone process can lead to theft and loss of coins. Moreover, there is a need to create regular backups of the keys and protect them appropriately in order to prevent theft or loss.

Deterministic wallets:

In this type of wallet, keys are derived out of a seed value via hash functions. This seed number is generated randomly and is commonly represented by humanreadable mnemonic code words. Mnemonic code words are defined in BIP39. This phrase can be used to recover all keys and makes private key management comparatively easier.

Hierarchical deterministic wallets :

Defined in BIP32 and BIP44, HD wallets store keys in a tree structure derived from a seed. The seed generates the parent key (master key), which is used to generate child keys and, subsequently, grandchild keys. Key generation in HD wallets does not generate keys directly; instead, it produces some information (private key generation information) that can be used to generate a sequence of private keys. The complete hierarchy of private keys in an HD wallet is easily recoverable if the master private key is known. It is because of this property that HD wallets are very easy to maintain and are highly portable.

Brain wallets:

The master private key can also be derived from the hash of passwords that are memorized. The key idea is that this passphrase is used to derive the private key and if used in HD wallets, this can result in a full HD wallet that is derived from a single memorized password. This is known as brain wallet. This method is prone to password guessing and brute force attacks but techniques such as key stretching can be used to slow down the progress made by the attacker. Paper wallets As the name implies, this is a paper-based wallet with the required key material printed on it. It requires physical security to be stored. Paper wallets can be generated online from various service providers, such as https://bitcoinpaperwallet.com/ or https://www.bitaddress.org/.

Hardware wallets:

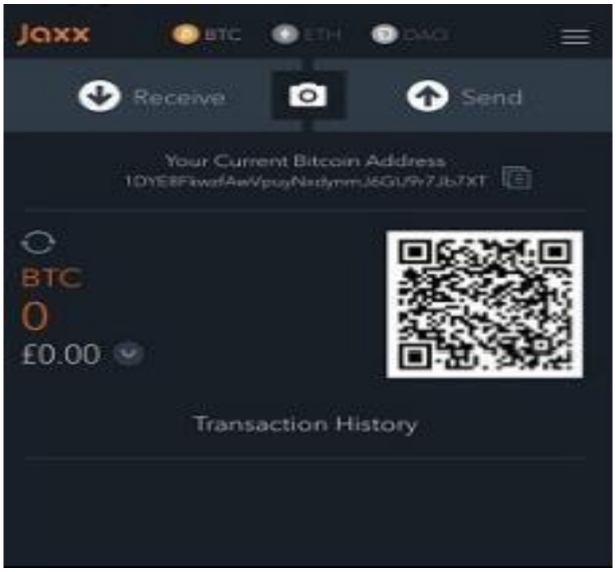
Another method is to use a tamper-resistant device to store keys. This tamper-resistant device can be custombuilt or with the advent of NFC-enabled phones, this can also be a secure element (SE) in NFC phones. Trezor and Ledger wallets (various types) are the most commonly used bitcoin hardware wallets.

Online wallets :

Online wallets, as the name implies, are stored entirely online and are provided as a service usually via cloud. They provide a web interface to the users to manage their wallets and perform various functions such as making and receiving payments. They are easy to use but imply that the user trust the online wallet service provider.

Mobile wallets :

Mobile wallets, as the name suggests, are installed on mobile devices. They can provide various methods to make payments, most notably the ability to use smart phone cameras to scan QR codes quickly and make payments. Mobile wallets are available for the Android platform and iOS, for example, breadwallet, copay, and Jaxx.



Your Current Bitcoin Address
1DYE8FiwafAwVpuyNxdymmJ6GU9r7Jb7XT

BTC
0
£0.00

Jaxx Mobile wallet