Ethereum Accounts

1. Externally Owned Account (EOA)

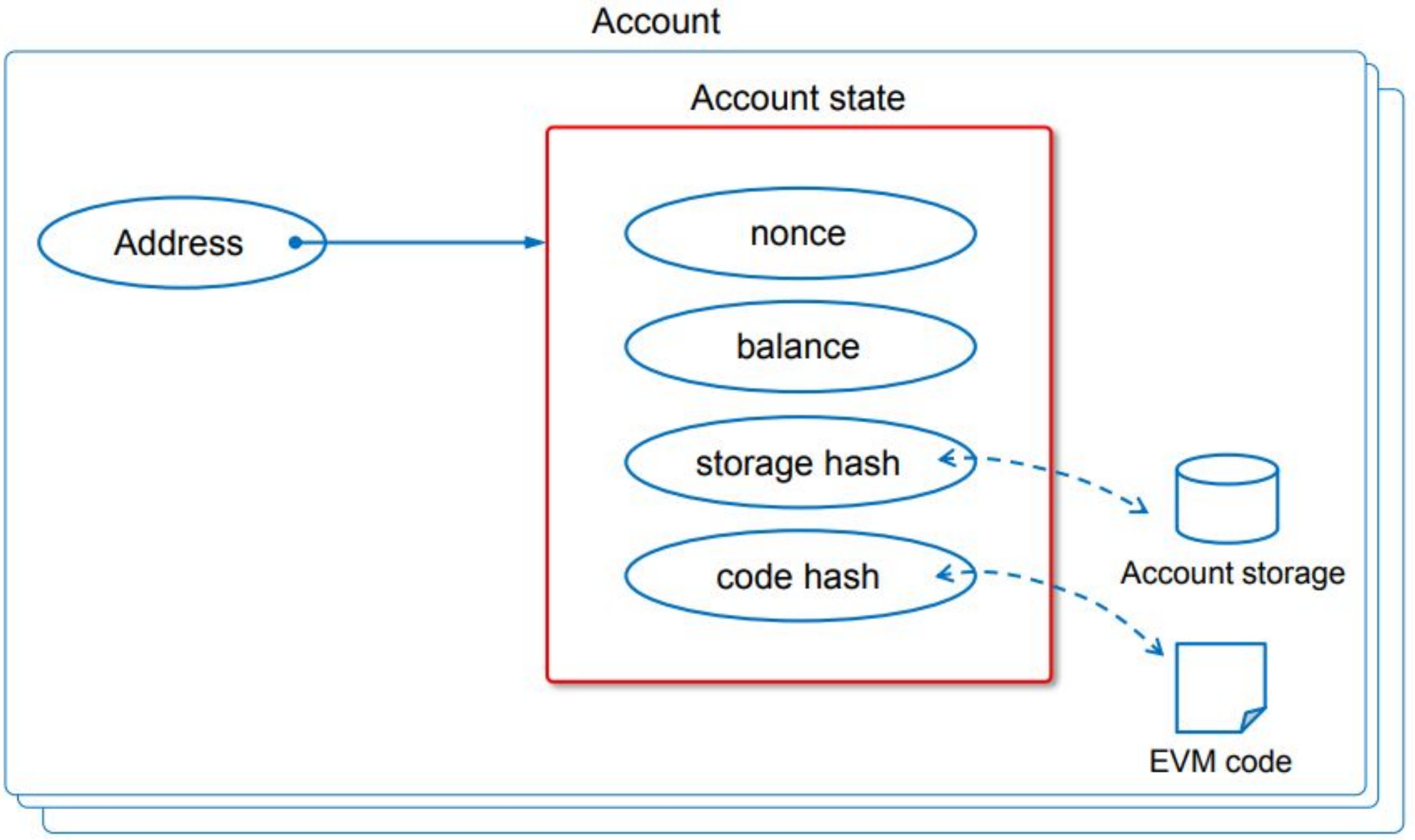
- **Controlled by a private key** and identified by an unique address;
- It holds an ETH balance and has no associated code;
- Used for holding, sending and receiving ETH and for interacting with smart contracts (deployment, calling functions etc);

2. Contract Account (CA)

- **Controlled by the contract code;**
- Has a unique address but doesn’t have a public or a private key;
- It’s an autonomous agent and it’s code execution is triggered by receiving a transaction or a message (call) from another contract of an EOA;
- It holds an ETH balance like an EOA;

Ethereum Account Components

1. **Nonce** -> counter that indicates the number of transactions sent from the account (it ensure that the same transaction isn't submitted twice)
2. **Balance** (in wei)
3. **Account Address**
4. **Account Private & Public Key** (only for EOA)
5. **Code** (only for the contract account). This is the immutable EVM bytecode.
6. **Storage** (only for the contract account, empty by default)


Account
Account state
Address
nonce
balance
storage hash
code hash
Account storage
EVM code

Ethereum Address

- **An EOA Address is derived from the last 20 bytes (160 bits) of the public key** that are Keccak-256 hashed. It's represented in a hexadecimal format, which is often indicated explicitly by appending 0x to the address

  Example: 0xCC713690827C96b8b0b5456F34B23dCC7D03aEd2
- The address for an Ethereum Contract is deterministically computed from the address of its creator (sender) and how many transactions the creator has sent (nonce).
- There is a **lower-case** address version and **partial upper-case** version that also contains a **checksum**.
  - 0x0d8775f648430679a709e98d2b0cb6250d2887ef
  - 0x0D8775F648430679A709E98d2b0Cb6250d2887EF