

private user key is a pair (a, b) of two different private ec-keys;

tracking key is a pair (a, B) of private and public ec-key (where $B = bG$ and $a \neq b$);

public user key is a pair (A, B) of two public ec-keys derived from (a, b) ;

standard address is a representation of a public user key given into human friendly string with error correction;

truncated address is a representation of the second half (point B) of a public user key given into human friendly string with error correction.

The transaction structure remains similar to the structure in Bitcoin: every user can choose several independent incoming payments (transactions outputs), sign them with the corresponding private keys and send them to different destinations.

Contrary to Bitcoin’s model, where a user possesses unique private and public key, in the proposed model a sender generates a one-time public key based on the recipient’s address and some random data. In this sense, an incoming transaction for the same recipient is sent to a one-time public key (not directly to a unique address) and only the recipient can recover the corresponding private part to redeem his funds (using his unique private key). The recipient can spend the funds using a ring signature, keeping his ownership and actual spending anonymous. The details of the protocol are explained in the next subsections.

4.3 Unlinkable payments

Classic Bitcoin addresses, once being published, become unambiguous identifier for incoming payments, linking them together and tying to the recipient’s pseudonyms. If someone wants to receive an “untied” transaction, he should convey his address to the sender by a private channel. If he wants to receive different transactions which cannot be proven to belong to the same owner he should generate all the different addresses and never publish them in his own pseudonym.

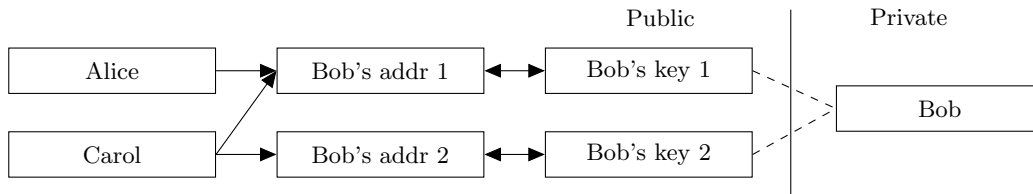


Fig. 2. Traditional Bitcoin keys/transactions model.

We propose a solution allowing a user to publish a **single address** and receive unconditional unlinkable payments. The destination of each CryptoNote output (by default) is a public key, derived from recipient’s address and sender’s random data. The main advantage against Bitcoin is that every destination key is unique by default (unless the sender uses the same data for each of his transactions to the same recipient). Hence, there is no such issue as “address reuse” by design and no observer can determine if any transactions were sent to a specific address or link two addresses together.