Using Hardware Wallets in the Solana CLI

Signing a transaction requires a private key, but storing a private key on your personal computer or phone leaves it subject to theft. Adding a password to your key adds security, but many people prefer to take it a step further and move their private keys to a separate physical device called ahardware wallet . A hardware wallet is a small handheld device that stores private keys and provides some interface for signing transactions.

The Solana CLI has first class support for hardware wallets. Anywhere you use a keypair filepath (denoted asin usage docs), you can pass akeypair URL that uniquely identifies a keypair in a hardware wallet.

Supported Hardware Wallets

The Solana CLI supports the following hardware wallets:

- Ledger Nano S and Ledger Nano X

Specify a Keypair URL

Solana defines a keypair URL format to uniquely locate any Solana keypair on a hardware wallet connected to your computer.

The keypair URL has the following form, where square brackets denote optional fields:

usb://[/][?key=] WALLET_ID is a globally unique key used to disambiguate multiple devices.

DERVIATION_PATH is used to navigate to Solana keys within your hardware wallet. The path has the form[/] , where eachACCOUNT andCHANGE are nonnegative integers.

For example, a fully qualified URL for a Ledger device might be:

usb://ledger/BsNsvfXqQTtJnagwFWdBS7FBXgnsK8VZ5CmuznN85swK?key=0/0 All derivation paths implicitly include the prefix44'/501' , which indicates the path follows theBIP44 specifications and that any derived keys are Solana keys (Coin type 501). The single quote indicates a "hardened" derivation. Because Solana uses Ed25519 keypairs, all derivations are hardened and therefore adding the quote is optional and unnecessary. Previous File System Wallets using the CLINext Hardware Wallets in the Solana CLI: Ledger Nano