

## 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 a hardware 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.

DERIVATION\_PATH is used to navigate to Solana keys within your hardware wallet. The path has the form  $[n]$ , where each `ACCOUNT` and `CHANGE` 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 the [BIP44 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](#)