Jade 101

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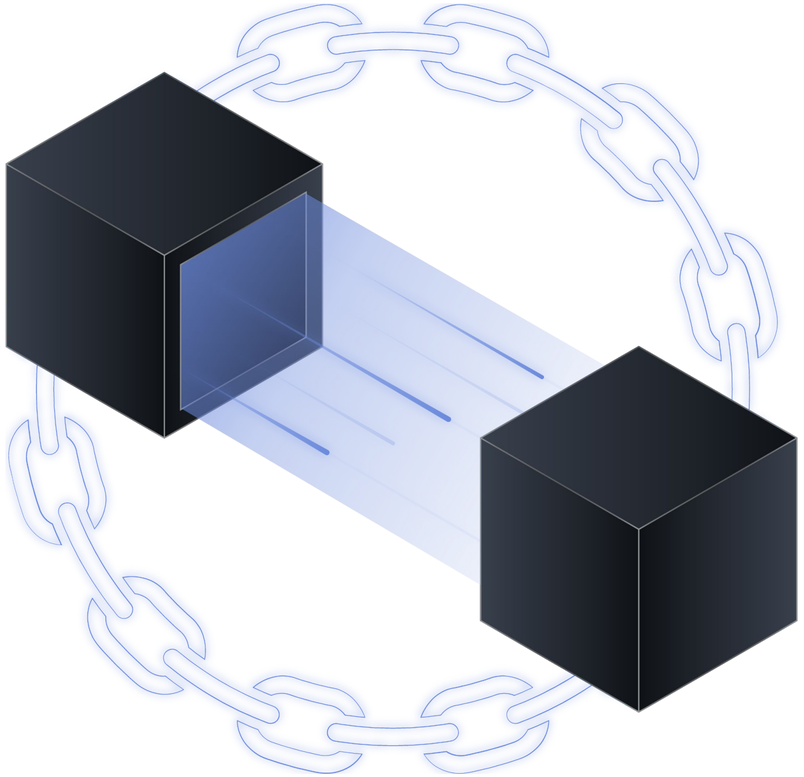
Workshop Overview

1. Introduction to self-custody and hardware wallets
2. Blockstream Jade and Jade Plus unique characteristics
3. Initializing Jade with the Blockstream app
4. Liquid Network walkthrough
5. Receiving and sending Bitcoin
6. Self-custody quiz
7. Bluetooth pairing support

What does it mean to own bitcoin?

- Bitcoin is stored on the blockchain within secure locations known as addresses.
- These addresses act like safes that require a private key to unlock, enabling the transfer of bitcoin to another address.
- Possession of the private key associated with an address effectively means ownership of the bitcoin stored there.
- By sharing an address with someone, you can receive bitcoin into your "safe," which only you can access with your private key.
- Your recovery phrase is essential, as it generates your private keys and secures your access to your bitcoin.



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Why should I take self-custody of my own Bitcoin keys?

Without holding your own keys:

Your Bitcoin is vulnerable to custodian failures.

Your Bitcoin can be lent out to third parties without a guarantee of return.

Your Bitcoin becomes a "honeypot," attracting potential hacks and attacks.

“Not Your Keys, Not Your Coin”

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What is Blockstream Jade?

Blockstream Jade is an open-source Bitcoin and Liquid Bitcoin hardware wallet.

A hardware wallet is a device that is designed to keep your private keys protected and offline.

A companion app like Blockstream is used in conjunction with hardware wallets to generate addresses and broadcast transactions.

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Jade and Jade Plus

Blockstream Jade launched in 2021 as our original open-source hardware wallet for Bitcoin self-custody.

Jade Plus is the newer model, released in 2024, with an upgraded screen, better camera, and extra connectivity options.

Both are maintained by Blockstream and fully supported. Use either for the workshop functionality is similar.

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What makes Blockstream Jade different?

PROTECTED FROM KEY EXTRACTION

A unique security model heavily encrypts the wallet stored on Jade, preventing private key extraction and brute-force attacks.

FULLY OPEN-SOURCE

Security concerns are mitigated using open-source software instead of secure elements, maintaining maximum transparency and DIY-capability.

HIGHLY MODULAR AND FEATURE RICH

Offers functionality for all experience levels, with easy connectivity to mobile apps for beginners and customizable security models for advanced users.

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Recovery Phrase Backup

What is a Recovery Phrase?

- A list of 12 or 24 words that can mathematically derive all of your bitcoin private keys and addresses
- Interoperable with most popular software and hardware wallets
- Anyone with your recovery phrase can spend your funds, keep it offline and protected!

Example 12 Word Recovery Phrase:

arrow garment kite truth yellow pelican roast latin discover jewel describe merry

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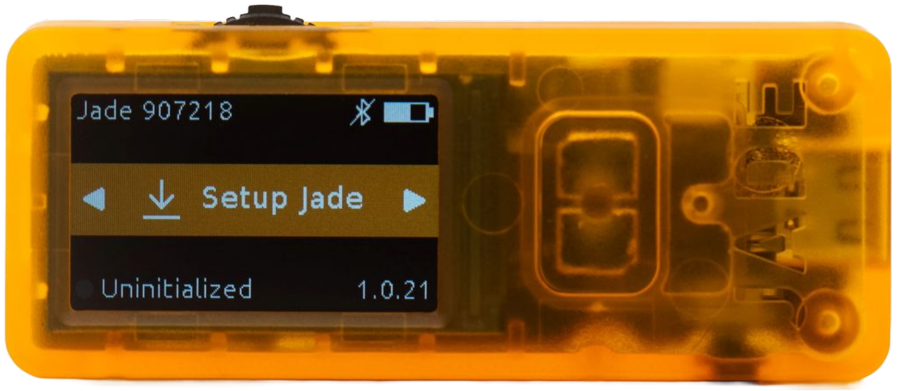
Jade Initialization and Setup



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Initialize Jade

1. Turn on Jade by holding the power button
2. Begin setup
3. Create new wallet
4. Write down and protect your recovery phrase never take a picture or store it online
5. Verify and confirm your recovery phrase backup on Jade
6. To finish Jade setup, you will need to connect to the Blockstream app via Bluetooth

Your recovery phrase will not be saved to Jade until you complete the PIN setup process on the Blockstream app.

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Download the Blockstream App

Search “Blockstream” in relevant app store

iOS

Android

Blockstream

Connect Jade to Blockstream

1. Open Blockstream, select Set up a new wallet, then choose Connect Jade
2. Blockstream searches for your Jade and shows your device
3. Select your Jade (Bluetooth pairing help is at the end of this deck)
4. Follow the prompts to create a 6-digit PIN on Jade. You will use it to unlock Jade each session. Enter it wrong 3 times and you will need to restore from your recovery phrase
5. Once the PIN is set, setup is complete

Things to Remember

- Your Jade is now ready to generate receive addresses for Bitcoin cold storage and sign transactions with your private key
- Access to your bitcoin requires your Jade along with its PIN or your recovery phrase
- Never input your recovery phrase into any device connected to the internet to ensure security
- The Blockstream app facilitates the creation of receive addresses and broadcasting of transactions but does not store your private keys or wallet information

Receiving and Sending BTC

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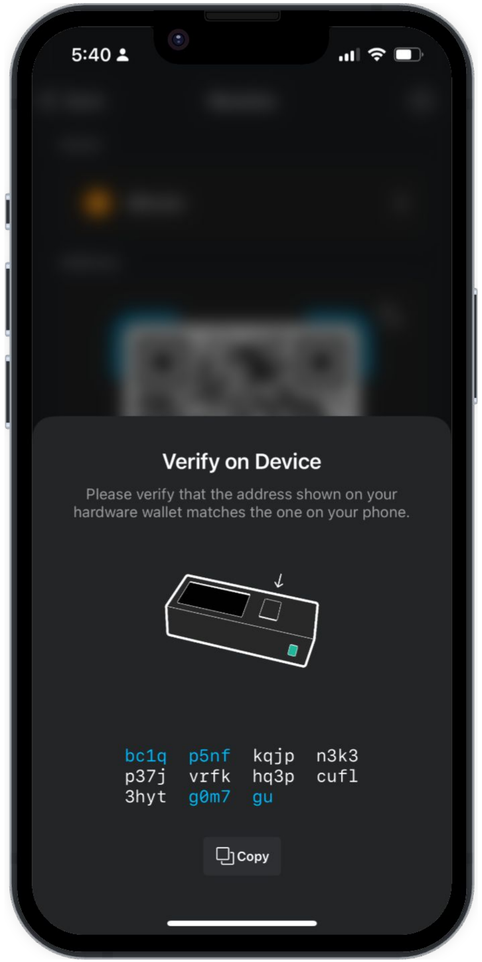
Receive BTC

1. Select Receive in the Transact tab in the Blockstream app
2. Tap Asset shown at the top of the screen and select Bitcoin
3. Select Verify on Device to confirm the address on Jade
4. Confirm the address on Jade and the Blockstream app match
5. Share your address with the sender and wait for them to broadcast the transaction.



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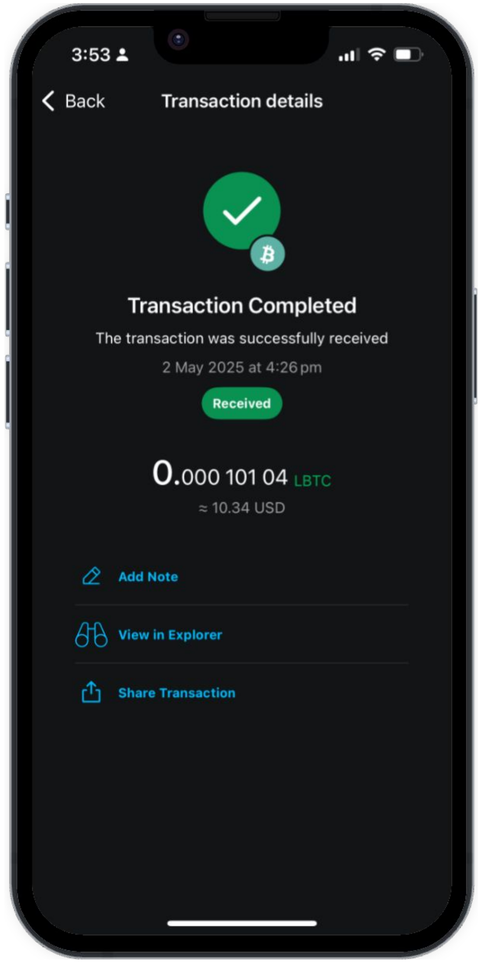
BTC Received

- You now have BTC locked in an address you control
- The private keys needed to unlock, or spend, your bitcoin are stored on your Blockstream Jade
- Your Blockstream companion app can display your balance information, but cannot send your bitcoin without Jade connected



** Wait for 6 confirmations before truly considering the BTC transaction to be final*

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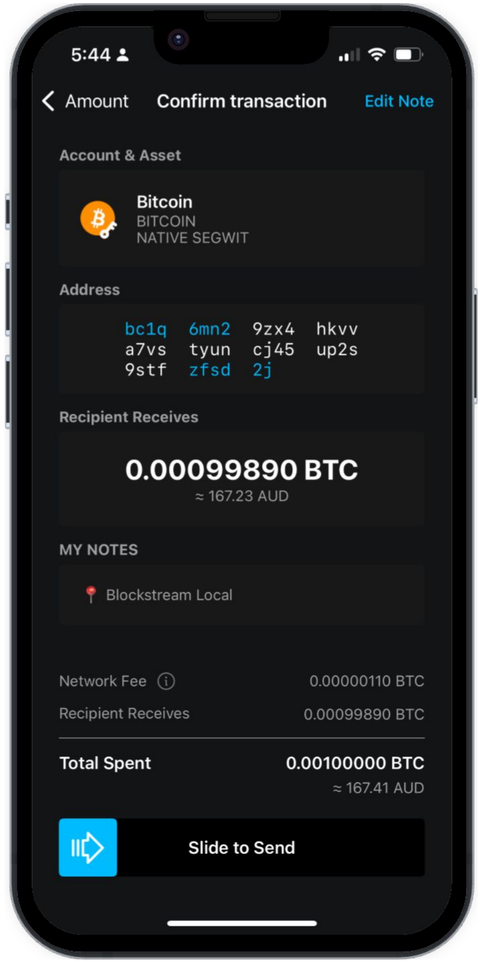
Sending BTC

1. Select Send in the Transact tab
2. Find someone to send BTC to - Have them display a receive address and scan it using the QR button in the send flow
3. Choose how many Sats you want to share and add a “📍Blockstream Local” note
4. Click Next to review the details, then slide to send



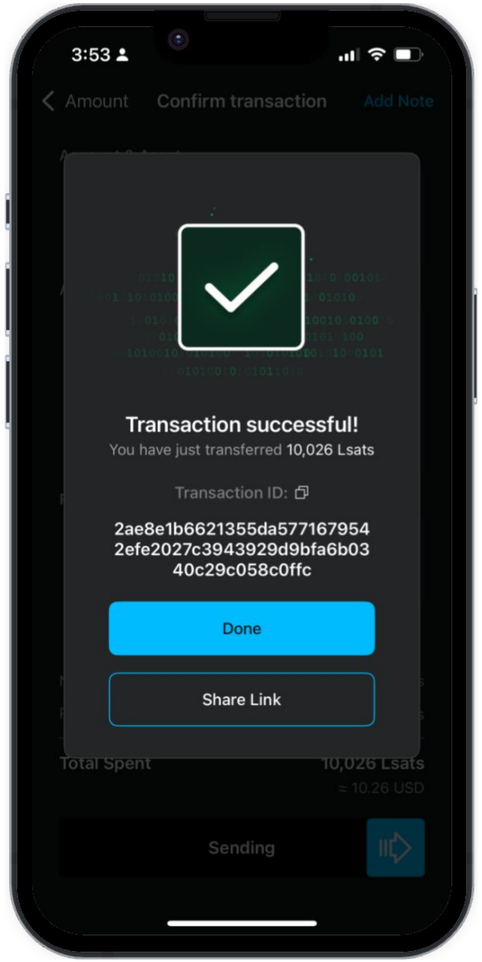
Blockstream

Signing the Transaction

- The Blockstream app will send your proposed transaction to Jade with your chosen recipient and amount.
- If you confirm the transaction details, Jade will use its private keys to sign the transaction - which will unlock BTC from your address and lock it in the recipient's address.
- In order to broadcast this transaction over the internet, Jade will send the signed transaction back to the Blockstream app.
- Jade only sends the valid transaction, while your private keys stay on your hardware wallet.

BTC Sent

- Your address was “unlocked” using the keys stored on Jade - and the BTC sent to the recipient’s address.
- The recipient now has BTC locked in an address that they have the corresponding private key to, which they can use to move the bitcoin again.



Recap: Receiving and Sending BTC

- Address: A safe that your bitcoin is “locked” inside
- Key: “Unlocks” your address to move, or send, your bitcoin to another address
- Receiving bitcoin: Providing a sender with an address that you control the key to
- Sending bitcoin: Unlocking an address using the corresponding key and locking it to the recipient’s address

Quiz

Question 1

Where is your bitcoin stored?

a. On your companion app

b. In your hardware wallet

c. On the bitcoin blockchain

d. In your mobile device

Answer 1

Where is your bitcoin stored?

a. On your companion app

b. In your hardware wallet

c. On the bitcoin blockchain ✅

d. In your mobile device

Question 2

Where are your private keys stored?

a. On your companion app

b. In your hardware wallet

c. On the bitcoin blockchain

d. In your mobile device

Answer 2

Where are your private keys stored?

a. On your companion app

b. In your hardware wallet ✅

c. On the bitcoin blockchain

d. In your mobile device

Question 3

What does it mean to own bitcoin?

a. Having a wallet address funded with bitcoin

b. Seeing your bitcoin balance on Coinbase

c. Seeing your bitcoin balance on a companion app

d. Holding the private keys to your bitcoin

Answer 3

What does it mean to own bitcoin?

a. Having a wallet address funded with bitcoin

b. Seeing your bitcoin balance on Coinbase

c. Seeing your bitcoin balance on a companion app

d. Holding the private keys to your bitcoin ✅

Question 4

What is needed for you (or an attacker) to spend your bitcoin?

a. Your 12 word recovery phrase

b. Physical access to your Blockstream Jade

c. Your Blockstream Jade and the PIN

d. Physical access to your companion app

Answer 4

What is needed for you (or an attacker) to spend your bitcoin?

a. Your 12 word recovery phrase ✅

b. Physical access to your Blockstream Jade

c. Your Blockstream Jade and the PIN ✅

d. Physical access to your companion app

Question 5

What should you do if you lose your Blockstream Jade?

a. Open a support ticket on bitcoin.org and ask for your bitcoin back

b. Nothing, your bitcoin is lost forever

c. Open your companion app and send the remaining balance to a new wallet

d. Get another hardware wallet and restore the recovery phrase

Answer 5

What should you do if you lose your Blockstream Jade?

a. Open a support ticket on bitcoin.org and ask for your bitcoin back

b. Nothing, your bitcoin is lost forever

c. Open your companion app and send the remaining balance to a new wallet

d. Get another hardware wallet and restore the recovery phrase ✅

Question 6

Why should you use a hardware wallet to store your private keys? (Select all that apply)

a. They are designed to perform limited operations

b. They are not directly connected to the internet

c. They have a smaller attack surface than mobile phones/laptops

d. They provide a safe method for you to hold your own private keys

Answer 6

Why should you use a hardware wallet to store your private keys?

a. They are designed to perform limited operations ✅

b. They are not directly connected to the internet ✅

c. They have a smaller attack surface than mobile phones/laptops ✅

d. They provide a safe method for you to hold your own private keys ✅

Questions?

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Resolve Bluetooth Pairing Issues

1. Open your mobile phone's system settings and delete or forget Jade from your Bluetooth device list, then reboot Jade and try to re-pair/connect within the Blockstream app. If this does not work after several attempts, proceed to the steps below.
2. Navigate to your Bluetooth settings on Jade and select Reset Pairings. When using an uninitialized Jade, this will be found under Advanced on the start screen. If your Jade is initialized, you will need to access a session via USB or QR then choose Options, Device, Bluetooth.
3. Select App Settings on Blockstream and disable Tor or any non-default network options, then force close the Blockstream app.
4. Attempt the pairing again. When the pairing codes appear on both Jade and the Blockstream app, it may help to confirm the code on Jade before confirming it on Blockstream.

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Jade Not Recognized

1. Ensure that Bluetooth is enabled on Jade by navigating to the Bluetooth menu found in the Advanced menu for an uninitialized Jade.
2. If your Jade is initialized, you will need to access a session via USB or QR then choose Options, Device, Bluetooth.
3. Upgrade Jade to a radio-enabled firmware option in case you previously flashed a no-radio variant (which renders the Bluetooth hardware inaccessible).
4. Open your mobile phone's system settings and find the preferences specific to the Blockstream app. Enable Bluetooth permissions for Blockstream if this setting is disabled. Do Not Disturb functionality may prevent the Bluetooth permissions popup from appearing, so it is important to check this preference as well.
5. If you're on Android 11 or earlier, ensure location services are enabled for Blockstream. Note that the Blockstream app never uses your location information, Android 11 and earlier just required location services to be enabled for any app that wanted to scan for Bluetooth devices.

Other Apps Jade is Compatible with

- Sparrow
- Nunchuk
- Specter
- SideSwap
- BlueWallet
- Electrum
- Keeper
- Wasabi