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Self Custody - Peace by Design

Summary: This open source Multi sig Bitcoin self custody cold storage [routine](#) includes three different unknown ledger locations and pins, plus 2 factor authentication including at bank, electrum, and [Coinbase](#). It relies on an interdependence based on [Spirit-centered community](#). Send proposed changes to processorinfo1@gmail.com. Combined with Bitcoin-blockchain-proof-of-work's demonstrated 100% impenetrability, this routine seeks best practice, self custody, ultimate security. Truth, justice, security and protection bring... peace.

Start of Your Procedure

Part 1

1. Hint: When you are working on this routine, keep your desk clear, and only work on the step in front of you. Proceed step by step. When referring to the digital version of this routine, highlight the step you are working on with your mouse so you do not lose your place.
2. This is open source, plain English, trust based, documentation. Open source means users help each other to keep the documentation current by emailing changes and suggestions to jeff@Loquate.tv.
 - a. No person is responsible.
 - b. Any person is free to use or propose upgraded documentation.
 - c. You and any user of this open source documentation absolves, indemnifies and holds harmless Loquate from any matter which you may dispute.
3. What is a **wallet**? A wallet is a multi-signature address where your Bitcoin is stored. Processor 2 holds a third private key. The wallet is yours. Your wallet requires 2 of 3 private keys to access your address where your Bitcoin is stored. Since you control two Ledgers, at any time you may remove your Bitcoin from your wallet and store it in any other wallet you so choose subject to conditions of a processor agreement.

4. What is **2 Factor Authentication (2FA)**? 2FA is:
 - a. An additional layer of security to protect your account
 - b. Uses your mobile phone to log in to a service like Coinbase
 - c. 2FA is used when:
 - i. You buy bitcoin
 - ii. You sell bitcoin
 - iii. You move bitcoin to cold storage
 - iv. You move bitcoin from cold storage to Coinbase

Purchase Ledger Nano S Plus devices

5. You need to buy 2 Ledger Nano S Plus (“Ledger”) wallets, one black and one orange.
 - a. You will loan your orange one to processor 1. You still own it. You can always get it back.
 - b. You will always retain your black one in your possession.
 - c. Processor 2 owns a third Ledger.
 - d. 2 of 3 multi sig means sending Bitcoin can only be executed from your private Bitcoin address when 2 of the 3 Ledgers are present.

To Buy Your 2 Ledgers: Black and Orange

6. Open Google Chrome browser
7. Hover your mouse over this hyperlink: <https://shop.ledger.com/products/ledger-nano-s-plus>
 - a. Right-click “Open link in new tab”
8. Click the black tile to select the “Matte Black” Nano S Plus
9. Click the Add to Cart button
10. Click the orange tile to select the “BTC Orange” Nano S Plus
11. Click the Add to Cart button
12. Click the black Checkout button
13. Enter your email address and shipping address
14. Click the black Continue button
15. Click the black Continue button
 - a. Hint: there is only one Shipping option available
16. Enter your credit card information
17. Click the black Complete Order button

You have now purchased two Ledger Nano S Plus devices. You will receive emails from Ledger regarding approximate delivery.

You Open a Coinbase Account

Take a picture of your driver's license front and back. Email from smart phone to computer. Save as jpg or png on your computer. You will need them to open your coinbase account.

18. Hover your mouse over this hyperlink:
<https://www.coinbase.com/>
 - a. Right-click "Open link in new tab"
19. Click Sign up button
 - a. Individual
 - b. Get started
20. Enter the following fields:
 - a. First name
 - b. Last name
 - c. Email
21. Check the box verifying that you are 18 years of age or older and agree to the User Agreement and Privacy Policy
22. Click Continue button
23. Click Continue button on next screen
24. Open a new tab in Google Chrome browser
25. Navigate to your email account
26. Open email from Coinbase titled "Please Verify Your Email Address"
27. Click Verify Email Address button in email
 - a. Hint: click this link confirms your email address to Coinbase
28. Select your state
29. Submit
30. continue
31. Toggle back to Coinbase tab in Google Chrome
32. Enter your mobile phone number in the Phone number field
33. Click Send code button
 - a. Hint: you will receive a 7-digit code in a text message from Coinbase
34. Open the text message you just received on your smartphone
35. Enter the 7-digit code into the Coinbase field where it says "Enter authentication code"
36. Click Submit button
37. Select the country of your citizenship
 - a. Hint: if you are a citizen of multiple countries, pick only one
38. Click Submit button
39. Enter the following fields:
 - a. Date of birth
 - b. Street Address
 - c. What will you use Coinbase for? Pick "Trading on Coinbase."
 - i. Hint: you will be buying bitcoin at coinbase.
 - d. What is your source of funds? Pick "Occupation" if your primary source is your job, pick "Savings" if your primary source is your savings, etc.
 - e. Employment status
 - f. Last 4 digits of Social Security Number
40. Click Continue button
41. Select answer to question "How much crypto do you expect to trade per year?" from drop-down, for example "\$10,000 - \$99,999"
42. Select answer to question "What industry do you work in?" for example "Transportation"
43. Click Submit button
44. Complete your verification as prompted
 - a. Upload your drivers license front and back .
45. Coinbase password, enter and save in a secure location.
46. Back to Google Chrome browser, you may see a "Verifying identity" window with a spinning icon
 - a. Hint: this will complete within 5 minutes as Coinbase verifies your driver's license
 - b. Once verification is complete a new screen will pop up, click the Continue button
47. Plaid
 - a. Select your bank from the list shown.
48. Bank ID; this is your on-line sign in at your bank, chosen in the previous step.
49. Bank PW; this is your on-line password at your bank
50. Select means choose the bank account which you wish to use to fund your bitcoin purchase.
51. Plaid sends you a text
52. Enter Plaid security code.
53. Click Continue button
54. Done. You have opened your Coinbase account. You will fund it at a later time.

Set Up Ledger Nano S Plus devices

(Hint: Multisig and cold storage of bitcoin is superior protection against loss or theft. That is why you go through the trouble to establish initial set up. This is a detailed list of steps to be done step by step.)

55. Print out this write-up

- a. Enter a check on each completed step using a good black pen.
- b. Hint: gives confidence you did each step and allows you to step away and resume precisely where you left off.
- c. Hint: you will use the same pen to record “Your personal recovery seed.”

56. Start with black Ledger Nano S Plus device

- a. Hint: the orange Ledger Nano S Plus device will have an orange dot on the back of its package, so choose the box without the orange dot

57. Remove Ledger Nano S Plus device from package

58. Remove the envelope labeled “Secret Recovery Sheet” from the package

59. Open the envelope and set all three “Confidential My 24-word recovery phase” cards to the side

60. Remove the “Ledger.com/Start” envelope from the package and set aside.

61. Remove the USB cable from the package, found in the black envelope.

62. Remove plastic screen protector from Ledger.

63. Flip open the Ledger Nano S Plus to expose the USB port and connect the USB cable to desktop and close all programs.

64. Connect the other end of the USB cable to your computer

- a. Hint: the screen on the Ledger Nano S Plus will light up when connected

65. Open Google Chrome browser

66. (For Laptop

- a. Right click menu on the top far right
- b. Left click “App and Services”
- c. Click “ledger live”
- d. Hint: all the rest of the directions are for desktop. You may have to improvise if you use a laptop)

67. Hover your mouse over this hyperlink: <https://www.ledger.com/start>

- a. Right-click “Open link in new tab”

68. Click the Download button and select your computer type (Windows, Mac, or Linux)

69. Click the “ledger-live-deskto....exe” button that appears in the bottom left corner of Google Chrome

- a. Press “Save”
- b. Hint: this will install version 2.49.0 or greater of Ledger Live

70. Click on the .exe file to open.

71. Click Yes to allow this app to make changes to your computer

72. Click the Install button

- a. Hint: Ledger Live software will install itself on your computer

73. Check the box next to “Run Ledger Live”

74. Click the Finish button

- a. Hint: the Ledger Live app will appear

75. Click the Get started button

76. Set up a new Nano Plus.

77. Continue

78. Click the right chevron “>” button

- a. You will click this right chevron “>” button three more times

79. Click the Let’s do this! Button

- a. Hint: if you did not get a pen in the beginning of this routine, get one now because you will need it

80. Click the OK, I’m ready! button

81. Click the Next step > button

82. Check the box next to “I understand that I must choose my PIN code myself and keep it private”

83. Click the Set up PIN code > button

84. Pick up your Ledger Nano S Plus device

- a. Hint: there are two buttons on the device
- b. Hint: Assume that these buttons are on the top and when flipped open the silver shield is on the right and the black body with screen is on the left
- c. Hint: the button further to the right will be called “right button” and the button further to the left will be called “left button”

85. Push the right button until the screen reads “Set up as new device”

86. Push both buttons at the same time

87. The screen will now say “Choose PIN”

88. Push both buttons at the same time again

89. You will now enter a PIN of your choosing

- a. Hint: this PIN must be between 4 and 8 digits long
- b. Hint: do not use an obvious combination that an attacker could find like your

- birthday or the last four digits of your phone number
 - c. Write down the pin you propose to use on a separate piece of paper. Hint: electronically store your pin in an encrypted location.
90. Use the right button to increment the number and the left button to decrement
 91. When you have incremented / decremented to the first number you want for your PIN, push both buttons to move on to the second number
 - a. Repeat until you have entered at least four numbers
 92. Once you have at least four numbers, a check mark will appear in the number space, if you are finished with your PIN push both buttons with the check mark to signal that you have completed entering your PIN or keep incrementing / decrementing until you reach 8 digits
 93. Your Ledger Nano S Plus screen will now read “Write down your recovery phrase”,”
 94. Switch back to your computer and click the Next step > button
 95. “Get started” appears
 96. Next step
 97. Next step
 98. “Get Started”
 99. Hint: ignore computer screen as you follow on your Ledger device
 100. Click the Recovery phase > button
 101. Pick up your Ledger Nano S Plus again
 - a. Push both buttons, device will say “Your device will generate 24 words, they are your Recovery Phrase”
 102. Push the right button
 - a. Push the right button four more times as the screens describe the next step, which is writing down the 24-word recovery phrase
 103. Push both buttons
 104. Grab all three “My 24-word recovery phrase” cards from the envelope included in the Ledger Nano S Plus package as you will fill them all out in the next step
 105. The Ledger Nano S Plus screen is now displaying the first word of your 24-word recovery phrase
 106. Write this word down carefully and clearly on each of your three “My 24-word recovery phrase” cards
 - a. Prove that you wrote the word down with the correct spelling and in the correct # space for each card
 107. Once you have proven that the word is correctly ordered and correctly spelled, push the right button to receive the next word
 108. Repeat this process for each of the 24 words
 109. Once you have written down all 24 words in order on each of the three cards, use the left and right buttons to cycle through all 24 words again one last time for each card
 - a. Hint: this 24-word recovery phrase is the only way to recover your Bitcoin in case you lose your Ledger Nano S Plus, so this extra diligence and care is worth the time
 110. Push the right button until your screen says “Confirm your Recovery phrase”
 111. Push both buttons
 112. Confirm your 24-word recovery phrase one last time by using card you just filled out:
 - a. Push both buttons on top of ledger
 - b. The Ledger Nano S Plus screen will prompt you to select the first word
 - c. Read the first word from your card
 - d. Push the right / left buttons until you find that first word
 - e. When you find the first word, push both buttons
 - f. Repeat for each of the 24 words in order
 113. Your recovery phrase is set.
 114. Push the right button and read the prompts on your Ledger Nano S Plus
 - a. Push the right button 3 times
 115. When the Ledger Nano S Plus screen reads “Press both buttons to continue”, push both buttons
 116. Switch back to your computer
 117. Click the Next step > button
 118. Click the Next step > button again
 119. “Check my nano”
 120. Allow Ledger manager
 121. Press both buttons
 122. “All Good”
 123. Continue.
 124. Terms of use
 125. Continue
 126. Click the Continue > button
 127. Click the Add account button
 128. Choose Bitcoin from the drop-down menu
 129. Continue

130. Pick up your Ledger Nano S Plus and enter your PIN
131. Switch back to your computer and click the Continue button
132. The Ledger Live app will update your Ledger Nano S Plus
133. Pick up your Ledger Nano S Plus and verify that the screen reads “Open app Bitcoin”
134. Push both buttons on your Ledger Nano S Plus
135. Your Ledger Nano S Plus screen should read “Bitcoin is ready”
136. Switch back to your computer
137. The Ledger Live app will synchronize for approximately one minute
138. Click the Add account button
139. Click the Done button
140. Your Ledger Nano S Plus device is now ready for use with Bitcoin
141. Repeat this routine for your second Nano Ledger S Plus device (the orange one that you will loan to processor 1)
 - a. Hint: installing the Bitcoin app on your Ledger Nano S Plus is slightly different the second time
 - b. Eject the black Ledger Nano S Plus
 - c. Plug in your Orange Ledger Nano S Plus
 - d. With your orange Ledger Nano S Plus device connected to your computer, in the Ledger Live app
 - e. Click My Ledger, receive message “Your device is not ready to use yet”
 - f. Click Setup Device button
 - g. Choose Ledger Nano S Plus
 - h. Setup a New Nano S Plus
 - i. Continue through all steps as above until the step where you enter your PIN (step 87 above), then continue below
 - j. Click My Ledger
 - k. Click the Install button next to Bitcoin
 - l. The Ledger Live app on your computer will display Bitcoin
142. Eject the Orange Ledger Nano S Plus
 - a. Safely eject
143. Close out of Ledger Live app on your computer
144. Mail your orange Ledger to processor 1
145. Hide 3 recovery sheets in places that only you and a person you trust know where to find them.

End of Your Procedure Part 1.

Your Black Ledger Subroutine – results in a master public key for the black Ledger.

(Hint: The master public key is used to ensure you are the owner of an address that can receive funds. The public key is also mathematically derived from your private key. Your private key is for you alone to know. Source: <https://www.dummies.com>.)

(Hint: The master public key can be recreated. If an error occurs, do Ledger Subroutine again.)

Part 2

Create a Multisignature (“Multisig”) 2 of 3 Wallet with Electrum – Ledgers separate

Hint: virtual meeting of you, processor 1, and processor 2 occurs up to one hour

Hint: these steps must be completed while you, processor 1, and processor 2 are working at computers

Download and Install Electrum Wallet Software (free, open-source software)

146. Toggle to Google Chrome browser
147. Hover your cursor over this hyperlink: <https://electrum.org/#download>
 - a. Right click “Open link in new tab”
148. Click the link associated with your computer
 - a. For Windows, click the “Windows Installer” link
 - b. For mac, click the “Executable for OS X” link
 - c. Hint: you will be installing version 4.3.2 or later of Electrum
149. When the file finishes downloading, click “electrum...” in the bottom left corner of Google Chrome
150. Click the Install button
 - a. Hint: installation will begin after you click “Yes”
 - b. On “Choose Install Location” screen, leave everything as-is and click “Install”
 - c. Click “Close” when the text “Completed” appears above the green bar

Start Ledger Subroutine

Hint: the following step 105 and onward can be done remotely

151. Open Electrum
 - a. On Windows: Start > Electrum
 - b. On Mac: upper-right Spotlight, search “Electrum”, click Electrum icon
152. Click the Next button
 - a. Hint: leave “default_wallet”, you are not going to create a wallet in this subroutine
153. Click the button next to “Multi-signature wallet” then click the Next button
154. Slide the “From X cosigners” up from 2 to 3
155. Slide the “Require Y signatures” down from 3 to 2
156. Click Next
157. Click the button next to “Use a hardware device” then click the Next button
158. Plug your black Ledger Nano S Plus into your computer
159. Enter the black Nano PIN into the black Ledger Nano S Plus
160. Push the right button until the Bitcoin screen appears
161. There are two buttons on the black Ledger Nano S Plus, push both buttons to open the Bitcoin app
162. “Bitcoin is ready”
 - a. Hint: screen says “Bitcoin is ready” when the Bitcoin app is running
163. Switch back to computer
164. Click “Electrum – Install” button
165. Click the Next button
166. Click the button next to “[Ledger Nano S Plus, initialized, hid]”
 - a. Click the Next button
167. “native segwit multisig (p2wsh)”
 - a. Click the Next button
 - b. Hint: do not make any changes to the derivation path
168. Click the Next button
169. If Electrum says “Your Ledger is locked, please unlock it”, then:
 - a. Press both buttons on the black Ledger Nano S Plus
 - b. Enter the black Nano PIN into the black Ledger Nano S Plus
 - c. Hint: black Nano Ledger screen should read “Bitcoin is ready”

170. Master public key: highlight the text in the box
171. Right-click and select “Copy”
172. Open email
173. Compose new message
174. Paste text into body
175. Subject: the first 3 letters of your last name followed the first 2 letters of your first name, followed by the first letter of your middle name, for example:
 - a. “wagdaj” if your name is Daniel John Wagner
176. Send email to processor 1
 - a. Hint: This master public key will allow processor 1 and processor 2 to create a 2 of 3 multisignature (“multisig”) wallet using your black Ledger
 - b. Hint: even if an evil person were to gain access to a master public key, he cannot steal the bitcoin without also successfully stealing 2 of 3 Ledgers undetected, statistically highly unlikely.
177. Click Cancel
178. Exit Electrum

End Ledger Subroutine

Part 2 End

Processor 1 orange Ledger Subroutine – results in a master public key for the orange Ledger.

179. Processor 1 repeats Ledger subroutine as above, mentally replacing Ledger color as orange
180. Processor 1 sends email to processor 2

Processor 2 creates 2 of 3 multisig wallet using master public keys one from each Ledger. Neither processor 1 nor processor 2 will ever know the private key of your Black Ledger.

Hint: each Ledger has its own independent master public key.

Processor 2 steps:

181. Open Electrum
 - a. On Windows: Start > Electrum
 - b. On Mac: upper-right Spotlight, search “Electrum”, click Electrum icon
182. Enter a name for your wallet, for example “wagdaj02” where “wag” are the first three

letters of your last name, “da” are the first two letters of your first name, “j” is the first letter of your middle name, and “02” is which number wallet you are creating

- a. Hint: processor 2 check Hub for scheme to pick number, should be next available BOC Code
183. Click the Next button
 184. Click the button next to “Multi-signature wallet” then click the Next button
 185. Slide the “From X cosigners” up from 2 to 3
 186. Slide the “Require Y signatures” down from 3 to 2
 187. Click Next
 188. Select “Use a master key” then click Next
 189. Copy the black Ledger master key into box then click Next
 190. Click Next
 191. Select “Enter cosigner key” then click Next
 192. Copy processor 1’s orange Ledger master key into box then click Next
 193. Select “Cosign with hardware device”
 194. Plug your blue Ledger Nano S Plus into your computer
 195. Enter the blue Nano PIN into the blue Ledger Nano S
 196. Push the right button until the Bitcoin screen appears
 197. There are two buttons on the blue Ledger Nano S Plus, push both buttons to open the Bitcoin app
 - a. Hint: screen will read “Bitcoin is ready” when the Bitcoin app is running
 198. Switch back to Electrum on computer
 199. Click the Next button
 200. Click the button next to “[Ledger Nano S Plus, initialized, hid]” then click the Next button
 201. Click the button next to “native segwit multisig (p2wsh)”
 - a. Hint: do not make any changes to the derivation path
 202. Click the Next button
 203. Ask client if he or she would like to add a password to the Electrum wallet
 - a. Hint: adding a password to Electrum wallet is optional since an evil person cannot steal bitcoin without successfully stealing 2 of 3 Ledgers and Ledger PIN numbers
 - b. If customer wants a password, enter the requested password in the “Password:” and “Confirm Password:” fields

- c. Store customer password in an encrypted file
204. Click Next
 205. Click No two times when prompted for other hardware devices
 206. Click File > Save backup
 - a. Select directory
 - b. Click “OK”
 - c. Hint: wallet backup is saved
 207. Open email
 208. Compose new message
 209. Subject: “Electrum backup”
 210. Add customer’s email address in “To:” field
 211. Attach wallet file, for example wagdaj02.backup
 212. Send

End Processor 2 steps

Import Electrum Wallet Backup on Your Computer

Start Your Steps (no longer Processor 2)

213. Google Chrome
214. Open Email account
215. Open email with subject “Electrum backup” from danwagnerco@gmail.com
216. Hover mouse over attached file, for example “wagdaj03.backup”
217. Click the arrow
 - a. Hint: file will download
218. Click the upwards chevron next to the file name in the bottom left corner of Chrome then click “Show in folder”
219. Move the downloaded file to a folder where you keep important files, for example C:\Users\dan\Documents
220. Start > Electrum
221. Click Choose
222. Navigate to the folder containing the file you just moved, for example C:\Users\dan\Documents\ and click the file, for example “wagdaj03.backup”
223. Enter your password into the Password field
224. Click Next

You are now seeing transactions in your 2 of 3 multi-sig wallet via Electrum.

Buy Bitcoin on Coinbase

Hint: you will need your Coinbase login email and password to complete these steps

225. Hint: highlight each step on your digital copy of this routine so you do not lose your place

226. Place cursor over this hyperlink:

<https://www.coinbase.com/dashboard>

- a. Right-click “Open link in new tab”
- b. On Coinbase page
 - i. Enter your email then click “Continue”
 - ii. Enter your password then click “Continue”
- c. Check your phone for a text message from Coinbase
 - i. Enter the 6 digit number you received from Coinbase into the screen
 - ii. Click “Login”
- d. Close any pop-ups, for example “Refer Friends”

227. Click Buy / Sell button

- a. “Buy” set to Bitcoin
- b. “Pay With” set to your bank account
- c. Enter the amount of USD you would like to purchase Bitcoin with, for example \$500
- d. Click Preview Buy button
 - i. Hint: you will be charged a “taker” fee based on the size of your order, the amount and ranges can be found here: <https://help.coinbase.com/en/exchange/trading-and-funding/exchange-fees>
- e. Click Buy Now button
- f. If you receive error message “Your purchase was declined due to a suspicious activity warning”
 - i. Call Coinbase Customer Service at 1-888-908-7930 and they will walk you through the steps
- g. If you receive error message “This account was recently unlinked”
 - i. Click “Relink now”
 - ii. Click Continue
 - iii. Where would you like Plaid to send your security code, select “text”

- iv. Click Continue
- v. Enter the code you received by text message
- vi. Click OK
 1. Success: your account has been successfully reconnected
- vii. Click Continue
- viii. Click “Relink”

228. The bitcoin purchase is complete and can now be sent to cold storage wallet

- a. (Technically, you will have sent bitcoin from the Coinbase address on the blockchain to the cold storage address on the blockchain)

Processor 2 collects all the data on the Coinbase transaction.

Find Your Coinbase Transactions

Hint: you can use your Coinbase transactions to keep track of your Bitcoin cost basis

229. Hover your mouse over this hyperlink:

<https://www.coinbase.com/dashboard>

- a. Right-click “Open link in new tab”

230. Click “Bitcoin”

231. Click “Wallet”

232. This screen shows you the date and amount purchased for all transactions

You tell processor 1 you want to sell your bitcoin.

Caution: you want to execute your transactions as fast as possible to avoid hacking.

Send Bitcoin from Coinbase to Electrum

Hint: you will not need your Ledger to complete this subroutine.

Hint: the first time you send Bitcoin from Coinbase to Electrum, you will use a very small amount to make sure that nothing goes wrong, then the second send will be the full remaining Bitcoin balance.

Hint: follow the instructions in this subroutine using the web hosted version from Chrome so you do not need to type in links and can click on them instead.

Hint: Coinbase and Electrum are very intuitive. In this subroutine your task is to send your Bitcoin from

Coinbase to Electrum, and though the prompts may change slightly, keeping this task in mind will ensure success in navigating this subroutine.

233. Open Electrum

234. Enter your wallet password

235. Click “X” out of “Insert your Ledger” windows

236. Check the bottom left corner of Electrum to see the units listed for Bitcoin

- a. Hint: it may say “1 BTC = \$X” or “1 mBTC = \$Y” where X and Y are the current price of Bitcoin or a millibitcoin

237. If and only if the units for Bitcoin is anything besides “BTC”:

- a. Click Tools > Preferences in Electrum
- b. Select “BTC” from the dropdown menu labeled “Base unit:”
 - i. Hint: BTC means full Bitcoin, compared to mBTC (1 / 1,000 of a Bitcoin) or sats (1 / 100,000,000 of a Bitcoin)
 - ii. Hint: this routine assumes full Bitcoin

c. Click Close

- d. Hint: You should only need to complete this once as Electrum will remember your preference

238. Click the “Receive” tab in the Electrum

- a. Optional: add a description, for example “Bitcoin on 3/15/2022 from Coinbase”, but this is not required
- b. Optional: enter the amount of Bitcoin you will be receiving into the “Requested amount” field, for example “0.001”, but this is not required

239. Click “Create Request”

240. Click the “B Address” button

241. In the text screen that opens, click the blue icon in the bottom right corner with two pieces of paper on it to copy the address

- a. Hint: the address is a long string of letters and numbers

242. Hover your mouse over this hyperlink: <https://www.coinbase.com/>

- a. Right-click “Open link in new tab”

243. If and only if you are not already signed in, click “Sign in” link

- a. Enter your email and click “Continue”
- b. Enter your password and click “Continue” password

- c. Check your smartphone for a text message from Coinbase

d. Enter the code from the text message into the Coinbase field

- e. Click the Login button

244. Click the Send & Receive button

245. Click the “Pay with” field and select Bitcoin

246. Enter a small amount, for example \$20

247. If you get a message that says “You can only withdraw \$X today” where \$X is a small amount like \$0

- a. You will need to wait a few days to send your Bitcoin from Coinbase to Electrum

- i. Hint: it may take a few days for the transfer of funds from your bank to arrive at Coinbase even though you received a confirmation email about your purchase, this means you will need to delay the sending of your Bitcoin from Coinbase to Electrum

b. Close the Coinbase tab in Google Chrome

c. Toggle back to Electrum

d. Right click the row in the “Receive queue” section with the description you added earlier in this subroutine and select “Delete”

e. Click “Clear”

f. Exit Electrum by clicking the X in the upper right corner

g. Return to this subroutine in 3 business days

248. Place cursor in “To” field (text says “Mobile, email, or address”)

249. Right-click select Paste

250. Caution: Toggle back to Electrum to confirm that the text pasted into the Coinbase screen matches what appears in Electrum

251. Click Continue button

- a. Hint: a network fee in Bitcoin will be charged to complete this transaction, and the fee is set by the Bitcoin network. Coinbase does not take any of this fee, it is paid to Bitcoin miners who are enabling the transaction

252. Click Send now button

- a. Coinbase may require additional authentication and may send you a text message to your mobile phone

- b. If you required additional authentication, then enter the text message you received on your mobile phone into the Coinbase prompt in Google Chrome
253. Click “Confirm” button
- a. Hint: it may take up to a half hour to appear in Electrum while the Bitcoin network processes the transaction, but this transaction took less than two minutes during the writing of this routine. The Electrum app will warn you with a notification on your computer that a transaction has taken place then highlighting the bottom left corner “Balance” red in Electrum
254. If you see a blue “Verify ID to send now” button, your transaction has been delayed for security reasons
- a. Hint: Coinbase is suspicious of activity that sends Bitcoin from your Coinbase wallet to your Electrum multisig wallet. In order to confirm this transaction, you will need to take a picture of your Driver’s License or State Issued ID like you did when you set up your Coinbase account
255. If and only if the transaction was delayed, click the “Verify ID to send now button”
- a. From the “Select ID type” window, click “Drivers License” or “State Issued ID”, whichever you have
 - b. Select “Webcam” or “Upload File”, choose “Webcam” if your computer has a webcam
 - c. If you selected “Webcam”, follow the prompts to take pictures of the front and back of your ID as well as a picture of yourself
 - d. If you selected “Upload File”, use your phone’s camera to a picture of the front of your ID, the back of your ID, and a picture of your face, then email those pictures to yourself to be uploaded
 - e. After completing the prompts, Coinbase will show you a “Verifying...” screen while they verify your identify
 - f. After your identity is successfully verified, the transaction will be completed

256. Repeat this subroutine for the remainder of your Bitcoin balance, clicking “Send All” instead of sending a small amount like you did the first time

Appendix for Transactions:

Hold Bitcoin in Cold Storage

257. Do nothing, your Electrum wallet

Sell Bitcoin for US Dollars

Send Bitcoin from Electrum to Coinbase – all Ledgers are in different locations

Processor 1 creates and partially signs transaction

258. Open Google Chrome
259. Hover your mouse over this hyperlink:
<https://www.coinbase.com/signin>
- a. Right-click “Open link in new tab”
260. Enter your email address and password
261. Check your smartphone for a text message from Coinbase
262. Enter the code from the text message into the field on Coinbase then click the Verify button
263. Click the Send / Receive button
264. Click the Receive tab
265. Click the “Asset” text and select Bitcoin
266. Click the small dark grey boxes to copy the address
267. If Electrum is open, close it
268. Connect your orange Ledger to the computer
269. Enter the orange Nano PIN into the orange Ledger
270. Push the right button until you arrive at the Bitcoin app
271. There are two buttons on the orange Ledger, push both buttons to open the Bitcoin app
- a. Hint: screen will read “Bitcoin is ready” when the Bitcoin app is running
272. Re-open Electrum
- a. Hint: Must close and re-open wallet to clear cache of previously-used devices
273. Enter Password then click Next
274. Click “No” two times

First buy complete. Electrum is a cold storage wallet.

- a. Hint: these prompts are for the other two Ledgers associated with this wallet, clicking “No” does not harm this process
 275. Click the “Send” tab
 276. Paste the address from Coinbase into the “Pay to” field
 277. Enter a description of the transaction, for example “Send 1 bitcoin to Coinbase for sale per request on 2022-0606”
 278. Enter the amount of bitcoin to be sent to Coinbase in the “Amount” field
 279. Click “Pay...”
 280. Prove
 - a. Confirm the amount of bitcoin to be sent matches what you expect
 281. Click “Send”
 282. Pick up orange Ledger
 283. Push the right button three times on the orange Ledger to see “Approve”
 - a. Hint: Ledger device is warning that this transaction is unusual, but nothing is wrong
 284. Push both buttons on the orange Ledger to approve
 285. Push right button once on orange Ledger
 286. Prove: confirm that the amount of Bitcoin displayed on the Ledger screen matches what you typed into the Electrum screen
 - a. After proven, push right button once on orange Ledger
 287. Prove: confirm the address displayed on the screen matches what is shown on Coinbase site
 - a. After proven, push right button twice on orange Ledger
 288. Push both buttons on orange Ledger to accept
 289. Push right button five times on orange Ledger
 - a. Hint: this screen displays the full Extended Public Key, shortened “XPub”, for this transaction
 290. Push both buttons on orange Ledger to accept
 291. Push right button two times on orange Ledger
 - a. Hint: this screen shows the fees in Bitcoin associated with this transaction
 292. Push both buttons on orange Ledger to “Accept and send”
 293. Toggle back to Electrum on your computer
 294. Click “No” twice
 - a. Hint: Electrum expects one of the other Ledgers to sign this transaction, but we need the Processor to complete this from the Processor’s computer
 295. Click the “Export” button in the bottom left corner
 296. Select “For hardware device; include xpubs” > “Export to file”
 297. Save the file with the exact name created by Electrum to your desktop
 - a. Hint: should be wallet-ID, for example wagdaj02-1234abcd.psb
 298. Click “OK”
 299. Open email
 300. Compose new message
 301. Attach the saved file, for example wagdaj02-1234abcd.psb
 302. Attach the wallet file associated with this transaction, for example wagdaj02
 - a. Hint: wallet files can be found at C:\Users\\AppData\Roaming\Electrum\wallets\wagdaj02
 303. Subject: Transaction
 304. Send email to Processor
- Processor 2 second signature on transaction**
305. Processor 2 receives email and downloads files to desktop
 - a. Hint: two files, wagdaj02-1234abcd.psb (the transaction) and wagdaj02 (the wallet, has no file extension)
 306. If Electrum is open, close it
 307. Connect your blue Ledger to the computer
 308. Enter the blue Nano PIN into the blue Ledger
 309. Push the right button until you arrive at the Bitcoin app
 310. There are two buttons on the blue Ledger, push both buttons to open the Bitcoin app
 - a. Hint: screen will read “Bitcoin is ready” when the Bitcoin app is running
 311. Re-open Electrum
 - a. Hint: Must close and re-open Electrum to clear cache of previously used devices
 312. Click “Choose...” button
 313. Select the downloaded file, for example wagdaj02, then click OK
 314. Call processor 1 for password, before hanging up get the amount of bitcoin to be sent for proof
 315. Enter Password then click Next
 316. Click “No” twice
 - a. Hint: Electrum expects the other Ledgers to be connected but you will only need the blue Ledger
 317. Tools > Load Transaction > From File

318. Select downloaded file, for example wagdaj02-1234abcd.psbt, then click OK
319. Click “Sign”
320. Pick up blue Ledger
321. Push the right button three times on the blue Ledger to see “Approve”
 - a. Hint: Ledger device is warning that this transaction is unusual, but nothing is wrong
322. Push both buttons on the blue Ledger to approve
323. Push right button once on blue Ledger
324. Prove: confirm that the amount of Bitcoin displayed on the screen matches what Processor 1 told you
 - a. After proven, push right button once on orange Ledger
325. Prove: confirm the address displayed on the screen matches what is shown on Coinbase site
 - a. After proven, push right button twice on orange Ledger
326. Push both buttons on blue Ledger to accept
327. Push right button five times on blue Ledger
 - a. Hint: this screen displays the full Extended Public Key, shortened “XPub”, for this transaction
328. Push both buttons on blue Ledger to accept
329. Push right button two times on blue Ledger
 - a. Hint: this screen shows the fees in Bitcoin associated with this transaction
330. Push both buttons on blue Ledger to “Accept and send”
331. Toggle back to Electrum on your computer
332. Click “Broadcast”
333. Click “OK” on screen that says “Payment Sent”
334. The Bitcoin has been sent to your Coinbase account.
 - a. Hint: it may take up to a half hour to appear in Coinbase while the Bitcoin network processes the transaction
 - b. Hint: this transaction took less than five minutes during the writing of this routine

Appendix B

You lose black Ledger

Your Ledger = black
 Your Ledger = orange on loan to processor 1
 Processor 2 Ledger = blue owned by processor 2

Warning: assume an evil person has access to the black Ledger

Warning: assume this evil person also has the PIN code to the black Ledger

Hint: Bitcoin is still safe since evil person does not have access to 2 of 3 multisig wallet in Electrum

Hint: Even if evil person were to gain access to 2 of 3 multisig wallet in Electrum, Bitcoin is still safe because evil person must have 2 Ledgers to send bitcoin.

335. You purchase new black Ledger

336. You receive new black Ledger

337. Follow the steps in “Buy a New Black Ledger and Recreate the Old Black Ledger” for the new black Ledger

338. You, processor 1, and processor 2 meet with Ledgers

- a. Hint: processor 1 still has the original orange Ledger and processor still has the original blue Ledger

339. Create a new 2 of 3 multisig wallet in Electrum following the steps in “Create a Multisignature (“Multisig”) 2 of 3 Wallet with Electrum – Ledgers separate”

- a. Hint: use your new black Ledger, processor 1 original orange Ledger, and processor 2 original blue Ledger to create a new 2 of 3 multisig Electrum wallet

340. Follow the steps in “Send Bitcoin from Your Multisig Wallet to Coinbase through Electrum”, using an address from the new 2 of 3 multisig wallet in Electrum instead of the Coinbase address, to send all bitcoin from the old 2 of 3 multisig wallet to the new 2 of 3 multisig wallet

- a. Hint: 2 of 3 multisig wallet in Electrum allows processor 1’s original orange Ledger and processor 2’s original blue Ledger to be used together to send bitcoin

Processor 1 loses orange Ledger

Your Ledger = black

Your Ledger = orange on loan to processor 1

Processor 2 Ledger = blue owned by processor 2

Warning: assume an evil person has access to the orange Ledger

Warning: assume this evil person also has the PIN code to the orange Ledger

Hint: Bitcoin is still safe since evil person does not have access to 2 of 3 multisig wallet in Electrum

Hint: Even if evil person were to gain access to 2 of 3 multisig wallet in Electrum, Bitcoin is still safe because evil person must have 2 Ledgers to send bitcoin.

341. Processor 1 purchases new orange Ledger
342. Processor 1 receives new orange Ledger
343. Follow the steps in “Buy a New Orange Ledger and Recreate the Old Orange Ledger” for the new orange Ledger
344. You, processor 1, and processor 2 meet with Ledgers
 - a. Hint: you still have original black Ledger and processor 1 still has original blue Ledger of yours on loan to the processor.
345. Create a new 2 of 3 multisig wallet in Electrum following the steps in “Create a Multisignature (“Multisig”) 2 of 3 Wallet with Electrum – Ledgers separate”
 - a. Hint: use your original black Ledger, processor 1’s new orange Ledger, and processor 2’s original blue Ledger to create a new 2 of 3 multisig Electrum wallet
346. Follow the steps in “Send Bitcoin from Your Multisig Wallet to Coinbase through Electrum”, using an address from the new Electrum wallet instead of the Coinbase address, to send all bitcoin from the old Electrum wallet to the new Electrum wallet
 - a. Hint: 2 of 3 multisig wallet in Electrum allows original your black Ledger and processor 1’s original blue Ledger to be used together to send bitcoin

Recovery – Processor 2 loses blue Ledger

Your Ledger = black

Your Ledger = orange on loan to processor 1

Processor 2 Ledger = blue owned by processor 2

Warning: assume an evil person has access to the blue Ledger

Warning: assume this evil person also has the PIN code to the blue Ledger

Hint: Bitcoin is still safe since evil person does not have access to 2 of 3 multisig wallet in Electrum

Hint: Even if evil person were to gain access to 2 of 3 multisig wallet in Electrum, Bitcoin is still safe

because evil person must have 2 Ledgers to send bitcoin.

347. Processor 2 purchases blue Ledger
348. Processor 2 receives new blue Ledger
349. Follow the steps in “Set Up Ledger Nano S Plus devices” for the new blue Ledger

Warning: the processor 2’s original blue Ledger was used to create every Electrum wallet, so the following steps must be taken for every Electrum wallet managed by processor 2.

350. You, processor 1, and processor 2 meet with Ledgers
 - a. Hint: you still have original black Ledger and processor 1 still has original orange Ledger
351. Create a new 2 of 3 multisig wallet in Electrum following the steps in “Create a Multisignature (“Multisig”) 2 of 3 Wallet with Electrum – Ledgers separate”
 - a. Hint: use your original black Ledger, processor 1’s original orange Ledger, and processor 2’s new blue Ledger to create a new 2 of 3 multisig wallet in Electrum
352. Follow the steps in “Send Bitcoin from Your Multisig Wallet to Coinbase through Electrum”, using an address from the new Electrum wallet instead of the Coinbase address, to send all bitcoin from the old Electrum wallet to the new Electrum wallet
 - a. Hint: 2 of 3 multisig wallet in Electrum allows your original black Ledger and processor 1’s original orange Ledger to be used together to send bitcoin
353. Repeat these steps for every Electrum wallet created with the old blue Ledger
354. After all Electrum wallets are recreated, processor destroys all “My 24-word recovery phrase” cards for old blue Ledger
 - a. Hint: this is an extra safety precaution

Recovery – You lose black Ledger and Processor 1 loses orange Ledger

Your Ledger = black

Your Ledger = orange on loan to processor 1

Processor 2 Ledger = blue owned by processor 2

Warning: assume an evil person has access to both the black Ledger and the orange Ledger

Warning: assume this evil person also has the PIN codes to both the black Ledger and the orange Ledger

Hint: Bitcoin is still safe since evil person does not have access to Electrum

355. Processor 1 purchases orange Ledger and you purchase black Ledger

356. Processor 1 receives new orange Ledger and you receive new black Ledger

357. You follow the steps in “Set Up Ledger Nano S Plus devices” for the new black Ledger

358. Processor 1 recreates old orange Ledger with new orange Ledger by following the “Recreate old (lost) Ledger” steps

359. Create a new Electrum wallet following the steps in “Create a Multisignature (“Multisig”) 2 of 3 Wallet with Electrum – Ledgers separate”

- a. Hint: use your new black Ledger, processor 1’s recreated orange Ledger, and processor 2’s original blue Ledger to create a new 2 of 3 multisig wallet in Electrum

360. Follow the steps in “Send Bitcoin from Your Multisig Wallet to Coinbase through Electrum”, using an address from the new Electrum wallet instead of the Coinbase address, to send all bitcoin from the old Electrum wallet to the new Electrum wallet

- a. Hint: 2 of 3 multisig wallet in Electrum allows processor 1’s recreated original orange Ledger and processor’s original blue Ledger to be used together to send bitcoin

361. You destroy all “My 24-word recovery phrase” cards for old black Ledger

- a. Hint: this is an extra safety precaution

Recovery – You lose black Ledger and Processor 2 loses blue Ledger

Your Ledger = black

Your Ledger = orange on loan to processor 1

Processor 2 Ledger = blue owned by processor 2

Warning: assume an evil person has access to both the black Ledger and the blue Ledger

Warning: assume this evil person also has the PIN codes to both the black Ledger and the blue Ledger

Hint: Bitcoin is still safe since evil person does not have access to Electrum

362. Processor 2 purchases two blue Ledgers and you purchase one black Ledger

363. Processor 2 receives two new blue Ledgers and you receive one new black Ledger

364. You follow the steps in “Set Up Ledger Nano S Plus devices” for the new black Ledger

365. Processor 2 recreates old blue Ledger with new blue Ledger by following the “Recreate old (lost) Ledger” steps

366. Processor 2 follows the steps in “Set Up Ledger Nano S Plus devices” for the second new blue Ledger

- a. Hint: will use recreated blue Ledger to access old 2 of 3 multisig wallets and new blue Ledger to create new 2 of 3 multisig wallets

Warning: processor 2’s original blue Ledger was used to create every Electrum wallet, so the following steps must be taken for every Electrum wallet managed by processor 2.

367. Create a new 2 of 3 multisig wallet in Electrum following the steps in “Create a Multisignature (“Multisig”) 2 of 3 Wallet with Electrum – Ledgers separate”

- a. Hint: use your new black Ledger, processor 1’s original orange Ledger, and processor 2’s new blue Ledger to create a new 2 of 3 multisig wallet in Electrum

368. Follow the steps in “Send Bitcoin from Your Multisig Wallet to Coinbase through Electrum”, using an address from the new 2 of 3 multisig wallet instead of the Coinbase address, to send all bitcoin from the old 2 of 3 multisig wallet to the new 2 of 3 multisig wallet

- a. Hint: 2 of 3 multisig wallet in Electrum allows processor 1’s original orange Ledger and processor 2’s recreated blue Ledger to be used together to send bitcoin

Recovery – Processor 1 loses orange Ledger and Processor 2 loses blue Ledger

Your Ledger = black

Your Ledger = orange on loan to processor 1

Processor 2 Ledger = blue owned by processor 2

Warning: assume an evil person has access to both the blue Ledger and the orange Ledger

Warning: assume this evil person also has the PIN codes to both the blue Ledger and the orange Ledger

Hint: Bitcoin is still safe since evil person does not have access to Electrum

369. Processor 2 purchases two blue Ledgers and processor 1 purchases one orange Ledger

370. Processor 2 receives two new blue Ledgers and processor 1 receives one new orange Ledger

371. Processor 1 follows the steps in “Set Up Ledger Nano S Plus devices” for the new orange Ledger

372. Processor 2 recreates old blue Ledger with new blue Ledger by following the “Recreate old (lost) Ledger” steps

373. Processor 2 follows the steps in “Set Up Ledger Nano S Plus devices” for the second new blue Ledger

- a. Hint: will use recreated blue Ledger to access old 2 of 3 multisig wallets and new blue Ledger to create new 2 of 3 multisig wallets

Warning: Processor 2’s original blue Ledger was used to create every 2 of 3 multisig wallet in Electrum, so the following steps must be taken for every 2 of 3 multisig wallet managed by processor 2.

374. You, processor 1, and processor 2 meet with Ledgers

- a. Hint: processor 2 has recreated old blue Ledger
- b. Hint: processor 2 has new blue Ledger
- c. Hint: processor 1 has new orange Ledger
- d. Hint: you have original black Ledger

375. Create a new Electrum wallet following the steps in “Create a Multisignature (“Multisig”) 2 of 3 Wallet with Electrum – Ledgers separate”

- a. Hint: use your original black Ledger, processor 1’s recreated orange Ledger, and processor 2’s new blue Ledger to create a new 2 of 3 multisig Electrum wallet

376. Follow the steps in “Send Bitcoin from Your Multisig Wallet to Coinbase through Electrum”, using an address from the new Electrum wallet instead of the Coinbase address, to send all bitcoin from the old Electrum wallet to the new Electrum wallet

- a. Hint: 2 of 3 multisig wallet in Electrum allows your original black Ledger and processor 2’s recreated blue Ledger to be used together to send bitcoin

Recovery – Processor 1 loses orange Ledger, Processor 2 loses blue Ledger, and you lose black ledger

Your Ledger = black

Your Ledger = orange on loan to processor 1

Processor 2 Ledger = blue owned by processor 2

377. Processor 1 purchases one orange Ledger, processor 2 purchases two blue Ledgers, and you purchase one black Ledger

378. Processor 1 receives one new orange Ledgers, processor 2 receives two new orange Ledgers, and you receive one new black Ledger

379. You follow the steps in “Set Up Ledger Nano S Plus devices” for the new black Ledger

380. Processor 2 recreates original blue Ledger with new blue Ledger by following the “Recreate old (lost) Ledger” steps

381. Processor 1 recreates original orange Ledger with new orange Ledger by following the “Recreate old (lost) Ledger” steps

382. Processor 2 follows the steps in “Set Up Ledger Nano S Plus devices” for the second new blue Ledger

- a. Hint: will use recreated blue Ledger to access old Electrum wallets and new blue Ledger to create new Electrum wallets

Warning: the processor 2’s old blue Ledger was used to create every Electrum wallet, so the following steps must be taken for every Electrum wallet managed by processor 1.

383. Create a new Electrum wallet following the steps in “Create a Multisignature (“Multisig”) Wallet with Electrum”

- a. Hint: use your new black Ledger, processor 1’s recreated orange Ledger, and processor 2’s new blue Ledger to create a new 2 of 3 multisig wallet in Electrum

384. Follow the steps in “Send Bitcoin from Your Multisig Wallet to Coinbase through Electrum”, using an address from the new Electrum wallet

instead of the Coinbase address, to send all bitcoin from the old Electrum wallet to the new Electrum wallet

- a. Hint: 2 of 3 multisig wallet in Electrum allows processor 1's recreated orange Ledger and processor 2's recreated blue Ledger to be used together to send bitcoin

Buy a New Black Ledger and Recreate the Old Black Ledger

Hint: requires the "My 24-word recovery phrase" card from the original Ledger

Hint: following these steps on a new Ledger will recover the private key associated

385. Hover your mouse over this hyperlink: <https://shop.ledger.com/products/ledger-nano-s-plus>

- a. Right-click "Open link in new tab"

386. Click the black tile to select the "Matte Black" Nano S Plus

387. Click the Add to Cart button

388. Click the black Checkout button

389. Enter your email address and shipping address

390. Click the black Continue button

391. Click the black Continue button

- a. Hint: there is only one Shipping option available

392. Enter your credit card information

393. Click the black Complete Order button

Hint: you have now ordered a new black Ledger Nano S, you will use your 24-word recovery phrase from the old black Ledger to recreate the old black Ledger using this newly-purchased black Ledger when it arrives.

Resume this subroutine when you receive the black Ledger Nano S Plus device in the mail.

394. Remove black Ledger Nano S Plus device from package

395. Remove the envelope labeled "Hello" from the package

396. Open the envelope and set all three "Confidential My 24-word recovery phase" cards to the side

- a. Hint: you will not need these new cards and they can be thrown out since you already have your old cards containing the 24-word recovery phrase

397. Remove the USB cable from the package

398. Flip open the black Ledger Nano S Plus to expose the USB port and connect the USB cable

399. Connect the other end of the USB cable to your computer

- a. Hint: the screen on the black Ledger Nano S Plus will light up when connected

400. Press the right button 5 times until "Restore from recovery phrase" is on the screen

401. Push both buttons at the same time

402. The screen will now say "Choose PIN"

403. Push both button at the same time again

404. You will now enter a PIN of your choosing

- a. Hint: this PIN must be between 4 and 8 digits long

- b. Hint: do not use an obvious combination that an attacker could find like your birthday or the last four digits of your phone number

405. Use the right button to increment the number and the left button to decrement the

406. When you have incremented / decremented to the first number you want for your PIN, push both buttons to move on to the second number

- a. Repeat until you have entered at least four numbers

407. Once you have at least four numbers, a check mark will appear in the number space, if you are finished with your PIN push both buttons with the check mark to signal that you have completed entering your PIN or keep incrementing / decrementing until you reach 8 digits

408. Re-enter the PIN to confirm

409. Push both buttons at the same time on the screen that says "Enter your recovery phrase"

410. Push both buttons at the same time on "24 words"

411. Use the left – right buttons to enter in the first word letter-by-letter, pushing both buttons at the same time to confirm a letter and move on to the next

- a. Hint: Ledger screen will eventually suggest a word, if the suggested word matches your word then press both buttons to select it

412. Push both buttons to confirm the word

413. Repeat for the next 23 words

414. Once the final word is entered, screen will read “Your device is ready”
415. The private key of the old black Ledger has been restored and this new black Ledger can now be used to access your Electrum wallet

Buy a New Orange Ledger and Recreate the Old Orange Ledger

Hint: requires the “My 24-word recovery phrase” card from the original Ledger

Hint: following these steps on a new Ledger will recover the private key associated

416. Hover your mouse over this hyperlink: <https://shop.ledger.com/products/ledger-nano-s-plus>
- Right-click “Open link in new tab”
417. Click the black tile to select the “BTC Orange” Nano S Plus
418. Click the Add to Cart button
419. Click the black Checkout button
420. Enter your email address and shipping address
421. Click the black Continue button
422. Click the black Continue button
- Hint: there is only one Shipping option available
423. Enter your credit card information
424. Click the black Complete Order button

Hint: you have now ordered a new orange Ledger Nano S, you will use your 24-word recovery phrase from the old black Ledger to recreate the old orange Ledger using this newly-purchased blue Ledger when it arrives.

Resume this subroutine when you receive the orange Ledger Nano S Plus device in the mail.

425. Remove orange Ledger Nano S Plus device from package
426. Remove the envelope labeled “Hello” from the package
427. Open the envelope and set all three “Confidential My 24-word recovery phase” cards to the side
- Hint: you will not need these new cards and they can be thrown out since you already have your old cards containing the 24-word recovery phrase

428. Remove the USB cable from the package
429. Flip open the orange Ledger Nano S Plus to expose the USB port and connect the USB cable
430. Connect the other end of the USB cable to your computer
- Hint: the screen on the orange Ledger Nano S Plus will light up when connected
431. Press the right button 5 times until “Restore from recovery phrase” is on the screen
432. Push both buttons at the same time
433. The screen will now say “Choose PIN”
434. Push both button at the same time again
435. You will now enter a PIN of your choosing
- Hint: this PIN must be between 4 and 8 digits long
 - Hint: do not use an obvious combination that an attacker could find like your birthday or the last four digits of your phone number
436. Use the right button to increment the number and the left button to decrement the
437. When you have incremented / decremented to the first number you want for your PIN, push both buttons to move on to the second number
- Repeat until you have entered at least four numbers
438. Once you have at least four numbers, a check mark will appear in the number space, if you are finished with your PIN push both buttons with the check mark to signal that you have completed entering your PIN or keep incrementing / decrementing until you reach 8 digits
439. Re-enter the PIN to confirm
440. Push both buttons at the same time on the screen that says “Enter your recovery phrase”
441. Push both buttons at the same time on “24 words”
442. Use the left – right buttons to enter in the first word letter-by-letter, pushing both buttons at the same time to confirm a letter and move on to the next
- Hint: Ledger screen will eventually suggest a word, if the suggested word matches your word then press both buttons to select it
443. Push both buttons to confirm the word
444. Repeat for the next 23 words
445. Once the final word is entered, screen will read “Your device is ready”

446. The private key of the old orange Ledger has been restored and this new orange Ledger can now be used to access your Electrum wallet

Buy a New Blue Ledger and Recreate the Old Blue Ledger

Hint: requires the “My 24-word recovery phrase” card from the original Ledger

Hint: following these steps on a new Ledger will recover the private key associated

447. Hover your mouse over this hyperlink:
<https://shop.ledger.com/products/ledger-nano-s-plus>

a. Right-click “Open link in new tab”

448. Click the black tile to select the “Deepsea Blue” Nano S Plus

449. Click the Add to Cart button

450. Click the black Checkout button

451. Enter your email address and shipping address

452. Click the black Continue button

453. Click the black Continue button

a. Hint: there is only one Shipping option available

454. Enter your credit card information

455. Click the black Complete Order button

Hint: you have now ordered a new blue Ledger Nano S, you will use your 24-word recovery phrase from the old black Ledger to recreate the old blue Ledger using this newly-purchased blue Ledger when it arrives.

Resume this subroutine when you receive the blue Ledger Nano S Plus device in the mail.

456. Remove blue Ledger Nano S Plus device from package

457. Remove the envelope labeled “Hello” from the package

458. Open the envelope and set all three “Confidential My 24-word recovery phase” cards to the side

a. Hint: you will not need these new cards and they can be thrown out since you already have your old cards containing the 24-word recovery phrase

459. Remove the USB cable from the package

460. Flip open the blue Ledger Nano S Plus to expose the USB port and connect the USB cable

461. Connect the other end of the USB cable to your computer

a. Hint: the screen on the blue Ledger Nano S Plus will light up when connected

462. Press the right button 5 times until “Restore from recovery phrase” is on the screen

463. Push both buttons at the same time

464. The screen will now say “Choose PIN”

465. Push both button at the same time again

466. You will now enter a PIN of your choosing

a. Hint: this PIN must be between 4 and 8 digits long

b. Hint: do not use an obvious combination that an attacker could find like your birthday or the last four digits of your phone number

467. Use the right button to increment the number and the left button to decrement the

468. When you have incremented / decremented to the first number you want for your PIN, push both buttons to move on to the second number

a. Repeat until you have entered at least four numbers

469. Once you have at least four numbers, a check mark will appear in the number space, if you are finished with your PIN push both buttons with the check mark to signal that you have completed entering your PIN or keep incrementing / decrementing until you reach 8 digits

470. Re-enter the PIN to confirm

471. Push both buttons at the same time on the screen that says “Enter your recovery phrase”

472. Push both buttons at the same time on “24 words”

473. Use the left – right buttons to enter in the first word letter-by-letter, pushing both buttons at the same time to confirm a letter and move on to the next

a. Hint: Ledger screen will eventually suggest a word, if the suggested word matches your word then press both buttons to select it

474. Push both buttons to confirm the word

475. Repeat for the next 23 words

476. Once the final word is entered, screen will read “Your device is ready”

477. The private key of the old blue Ledger has been restored and this new blue Ledger can now be used to access your Electrum wallet.

Appendix C

Transfer large (>\$2000) cash to Coinbase

488. google: coinbase procedure for cash transfers to and from bank account.

489. Follow Coinbase instructions. Coinbase instructions to rule.

a. Hint: Depositing via Fedwire

To verify your bank account, we recommend you make an initial deposit of at least \$50 to your Exchange USD wallet.

b. Hint: confirm with your bank president or branch manager that they have no size limits for example from a dedicated savings acct for Depositing via Fedwire.

c. Hint: since it is your money in your account, you should be able to do anything you want with your money.

End