



# User Manual

The currency of the future for the digital age.

---



## Contents

Introduction	2
Login	3
Connect the first node	4
Connect a new node to the system	5
Home	6
Non-Eligible Home	8
Transactions	9
Create a transaction	11
P2PK/P2PKS	12
MULTIP2PK	13
Transaction details	14
Success	15
Block Explorer	16
Block details	17
Other	18
Thats Everything!	19



## Introduction

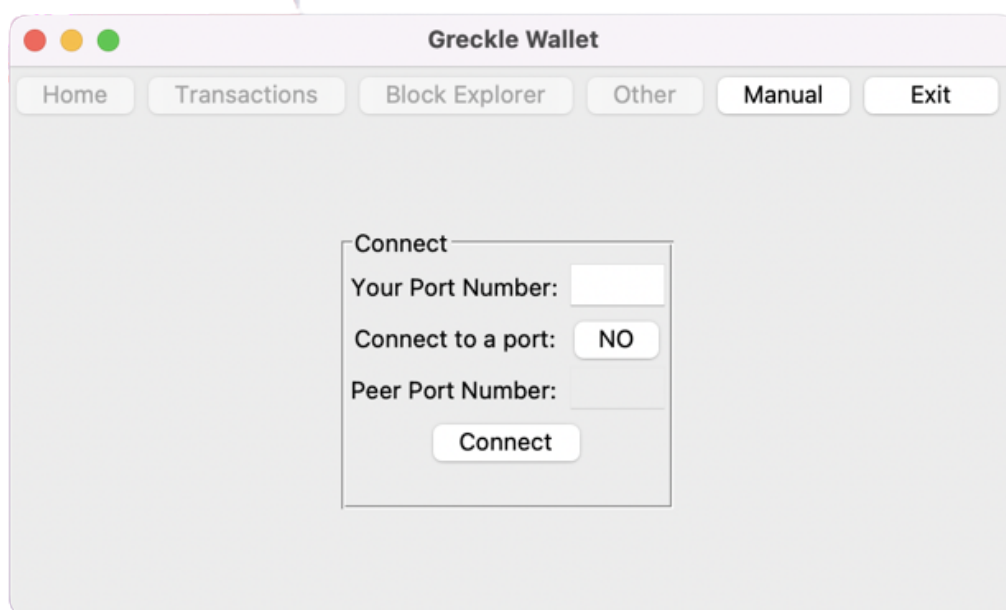
Welcome to the user manual for Greckle, a cryptocurrency wallet that provides a secure, intuitive, and user-friendly way to manage your Greckles. With Greckle, you can easily store, send, and receive Greckles, and access all your transactions in one convenient location.

Greckle's GUI is designed to simplify your digital currency transactions and explore your personal blockchain. Whether you're an experienced cryptocurrency user or new to the world of digital assets, Greckle's intuitive interface and advanced features make it easy for you to manage your funds securely and efficiently.

This user manual will guide you through the process of setting up and using your wallet, including how to connect to the network, manage your cryptocurrency holdings, and navigate the different features of the wallet. We hope this manual will provide you with all the information you need to maximise your Greckle wallet and take advantage of the many benefits of digital currency.

## Login

The login page allows you to connect to select a port and connect to a peer within the Greckle network in order to gain access to your personal wallet.



When you run the program you will be greeted with this page. At the top of the page, you see the menu bar where you navigate through the GUI:

### Manual:

Opens the manual.

### Exit:

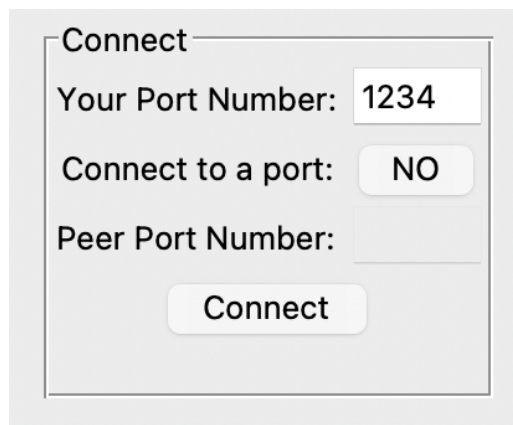
Exits the program.

## IMPORTANT:

It is important that you exit the wallet with the exit button in the menu bar rather than the red button in the top left (Mac) or top right (Windows) corner as this will close the connection to the other ports. If you close with the red cross, the connections will not be closed and errors will occur if you re-enter the system with the same port number.

## Connect the first node

If there are no nodes in the system, you will need to start the first node.

A screenshot of a 'Connect' dialog box. It has a title bar that says 'Connect'. Inside, there are three labels with corresponding input fields: 'Your Port Number:' with a text box containing '1234', 'Connect to a port:' with a button labeled 'NO', and 'Peer Port Number:' with an empty text box. At the bottom center is a button labeled 'Connect'.

### Your Port Number:

Enter a port number, usually a 4-digit number, which is what other nodes will connect to. I find that: 1234, 1235, 1236, 1237, 1238, etc. are good ports to use as they are mostly open. If the port number is already in use, an error message will pop up. If this happens try more port numbers until the login is successful or locate ports not in use through your PC's terminal.

### Connect to a port:

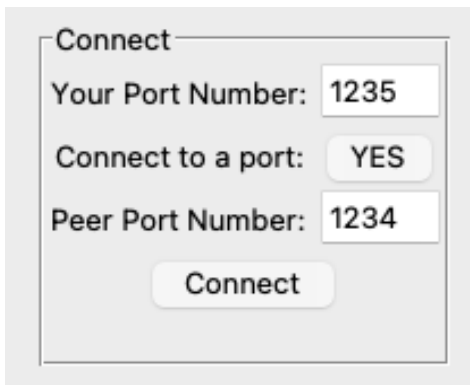
Keep this as "NO".

### Connect:

When you have entered your port and selected "NO", press connect to enter your wallet.

## Connect a new node to the system

If there already is a node up and running, connect to that node.



Connect

Your Port Number: 1235

Connect to a port: YES

Peer Port Number: 1234

Connect

### Your Port Number:

Again enter a 4-digit port number that is different to any other ports already in use.

### Connect to a port:

Press the button to change it from "NO" to "YES".

### Peer Port Number:

When you change to connect to port from "NO" to "YES", the entry for the Peer Port Number will enable allowing you to enter the port number for any node within the system. In this case, enter 1234.

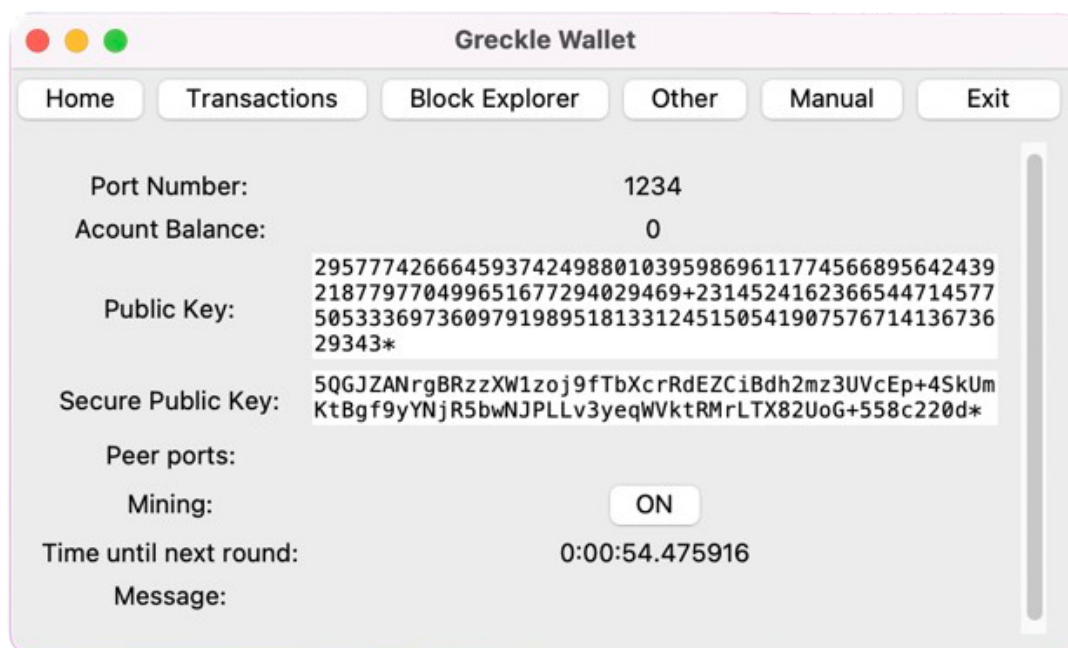
### Connect:

When you have entered your port, selected "YES" and entered the peer port number, press connect to enter your wallet.

If there are any error messages, the port you are trying to connect to may not be open anymore. Use the port number from another node running in a separate terminal.

## Home

The home screen shows your personal details and allows you to turn mining on and off



### Port Number:

The port number that other nodes can connect to.

### Account Balance:

The amount of Greckles you have, this will update automatically when you send and receive Greckles.

### Public Key:

This is your public key. Copy and paste this into “P2PK” and “MULTIP2PK” transactions.

### Secure Public Key:

This is your Secure public key. Copy and paste this into “P2PKS” transactions.

### Peer Ports:

A list of the ports you are connected to.

## Mining:

This is where you choose whether to mine or not the next block.

NOTE: This must be turned on if you are the only node in the system that is eligible to mine blocks. This will be explained more later.

When turned on, in every block round, you will compete against other mining nodes to make the next block. If you are the first to successfully mine the new block, you will receive a block reward of 50 Greckles plus the transaction fees of any transactions that have happened in the block!

## Time until next round:

This is the amount of time until the next block is mined, mining happens every minute.

## Messages:

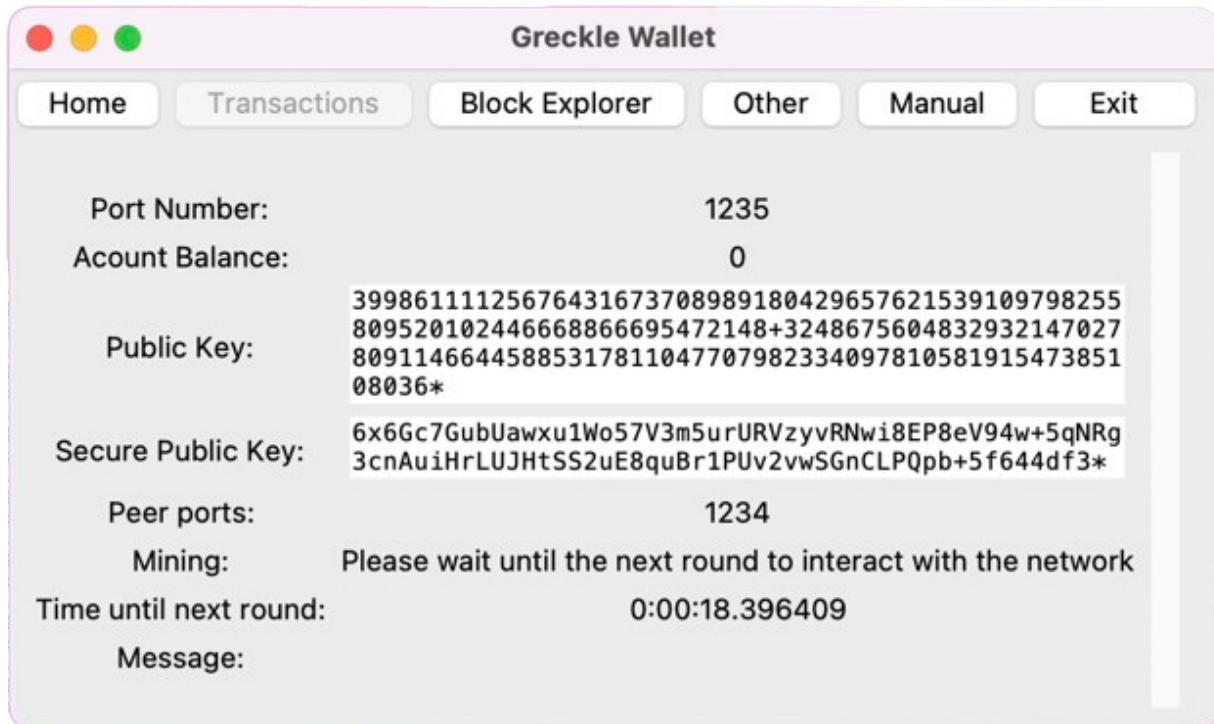
This is where messages will pop up telling you about the most recent events in the system:

- You received Greckles
- You sent Greckles
- You mined a block
- You received a block mined by someone else
- You connected to a peer
- You generated new keys
- You generated new coins



## Non-Eligible Home

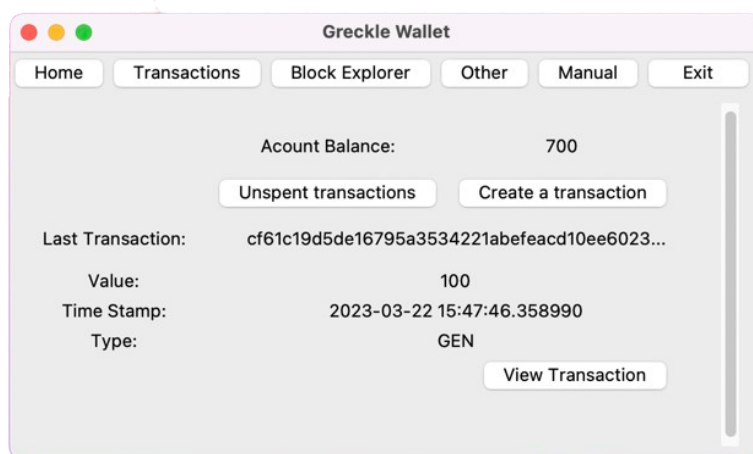
If you have just entered the system and connected to a port, you will not be able to mine a new block, create transactions or generate coins until the after the next block has been made.



Once you have received the next block, the "Transactions" tab and mining option will be enabled.

## Transactions

The transactions tab is where you can view your unspent transactions and create transactions.



### Account Balance:

The amount of Greckles you have.

### Unspent transactions:

This opens a .txt file of all your unspent transactions that you are able to use when you're creating your own transactions.

### Create a transaction:

Press this to create a transaction.

### Last Transaction:

This shows some details about the last transaction that was sent across the network.

### View Transaction:

This opens .txt file giving more information about the last transaction.

NOTE: After you have read the .txt file you must close the window of the file otherwise when you try to reopen the .txt file, it will not be updated.

```

unspent_transactions.txt

Unspent Transactions:

Transaction 1:
Transaction: b267b46077ab55c409ed9e36589614567069745bf2812ea5f704c5c4b6f33361
Value: 100
Timestamp: 2023-03-22 15:47:45.305707
Type: GEN

-----
Inputs:
1. Input Hash: GENERATED_HASH
   Script Signature: None
Output:
   Script Pub Key:
P2PK: 20605951860972190947795134867982920365563576213625770667904202682628015579820+852923541470693751
9692795924410971003626811484744668872691790289447798361344
Value: 100

Transaction 2:
Transaction: 34a91797df9b9d5f12d14121d14ace3a24b78127b4c3fd420e8e37a27248083
Value: 100
Timestamp: 2023-03-22 15:47:45.492477
Type: GEN

-----
Inputs:
1. Input Hash: GENERATED_HASH
   Script Signature: None
Output:
   Script Pub Key:
P2PK: 20605951860972190947795134867982920365563576213625770667904202682628015579820+852923541470693751
9692795924410971003626811484744668872691790289447798361344
Value: 100

Transaction 3:
Transaction: bfbfd5f5a6a8a7e451ef4589ec5965571e95d635ec171ac1689a692709f10653
Value: 100
Timestamp: 2023-03-22 15:47:45.689130
Type: GEN

-----
Inputs:
1. Input Hash: GENERATED_HASH
   Script Signature: None
Output:
   Script Pub Key:
P2PK: 20605951860972190947795134867982920365563576213625770667904202682628015579820+852923541470693751
9692795924410971003626811484744668872691790289447798361344
Value: 100

Transaction 4:
Transaction: 1401242f054c8b6f07132df00c5537b36affa0eabc994ddcfff6f463a2ad9aea1
Value: 100
Timestamp: 2023-03-22 15:47:45.855752
Type: GEN

-----
Inputs:
1. Input Hash: GENERATED_HASH
   Script Signature: None

```

Unspent transactions

```

transaction_file.txt

Transaction: cf61c19d5de16795a3534221abefaccd10ee6023618bc7732b71916cb6aed5a
Value: 100
Timestamp: 2023-03-22 15:47:46.358990
Type: GEN

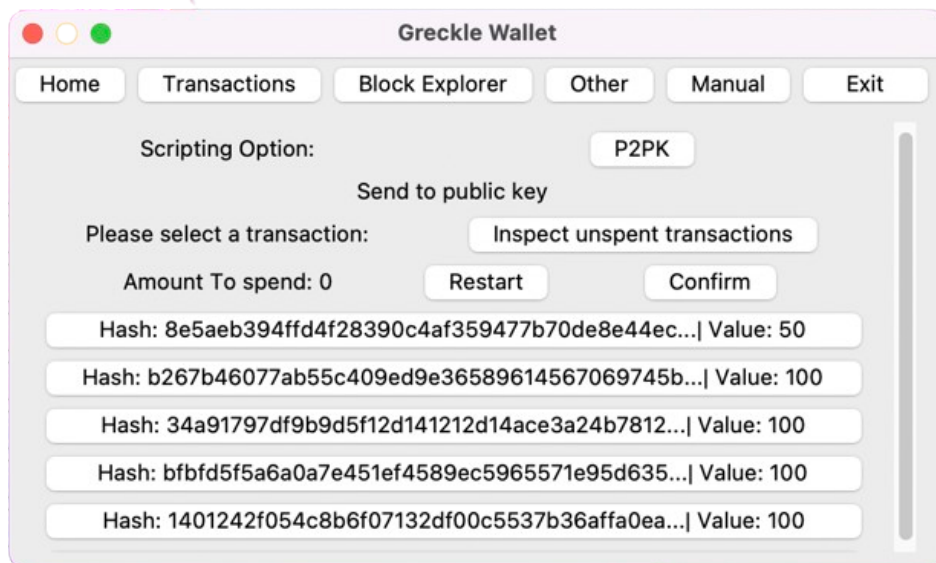
-----
Inputs:
1. Input Hash: GENERATED_HASH
   Script Signature: None
Output:
   Script Pub Key:
P2PK: 20605951860972190947795134867982920365563576213625770667904202682628015579820+852923541470693751
9692795924410971003626811484744668872691790289447798361344
Value: 100

```

Last transaction

## Create a transaction

This is where you create your transactions.



### Scripting Option:

This button toggles through 3 options of the script to send your transaction with:

- P2PK
- P2PKS
- MULTIP2PK

### Inspect unspent transactions:

This opens a .txt file of all your unspent transactions.

### Amount to spend:

The sum of the selected transactions values or the value of the selected sum.

### Restart:

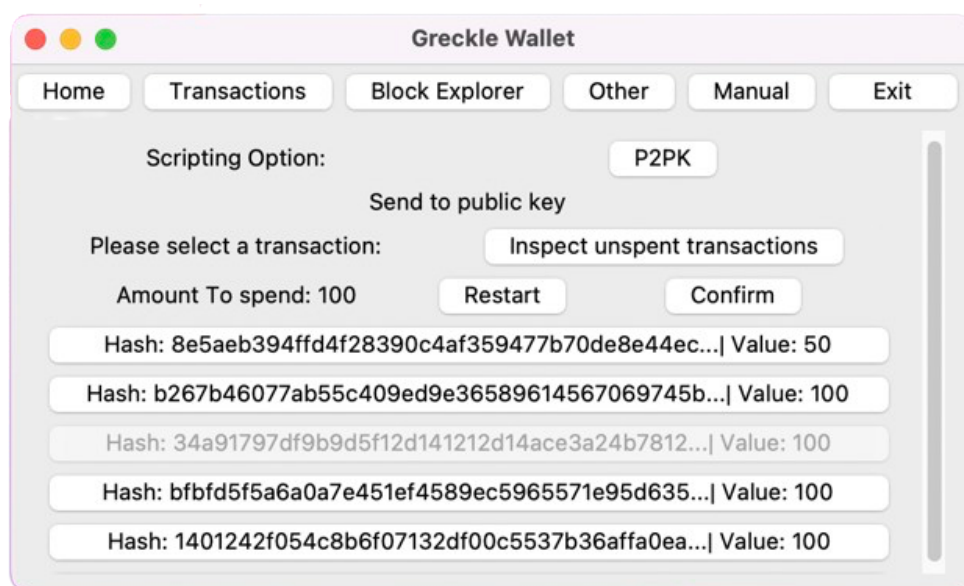
Restarts the transaction selection process.

### Confirm:

Confirms script choice and selections.

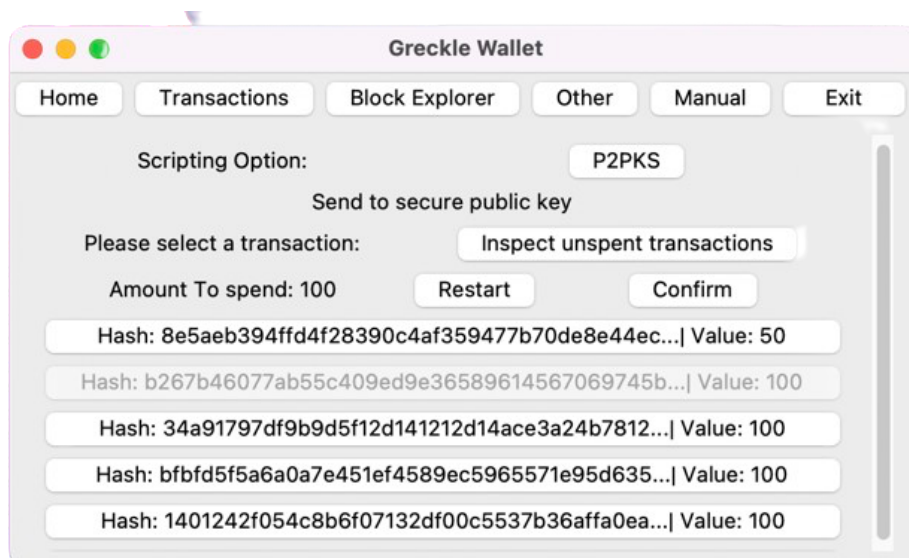
## P2PK

This option allows you to use one transaction to send to someone's public key. You select the transaction to send and press confirm.



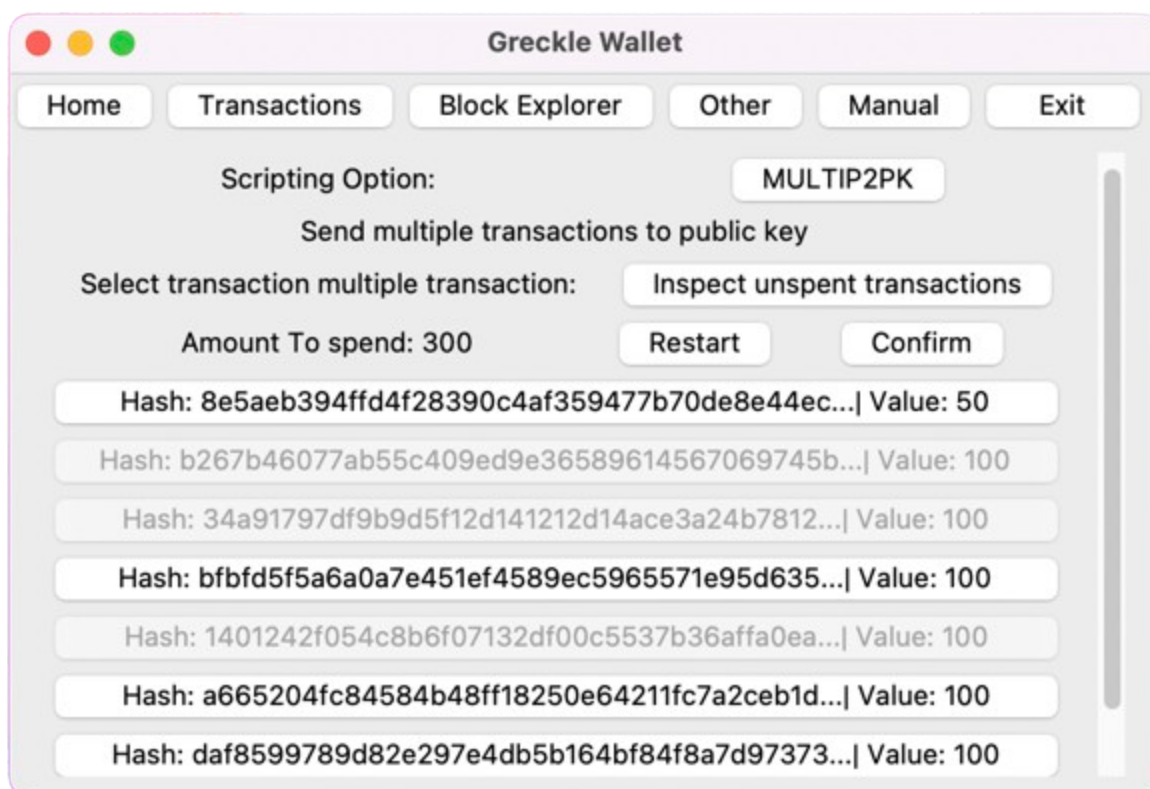
## P2PKS

This option allows you to use one transaction to send to someone's secure public key. You select the transaction to send and press confirm.



## MULTIP2PK

This option allows you to use multiple transaction to send to someone's public key. You select the transactions you want to spend and press confirm.

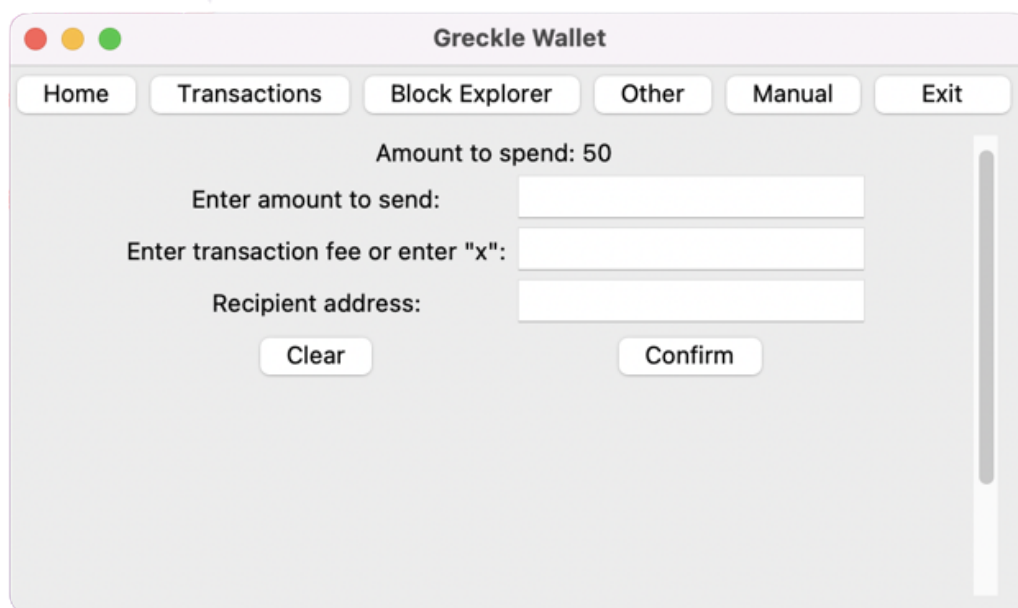


NOTE: If you have more unspent transactions than there are on the screen, hover over the bottom border of the GUI and enlarge the window slightly. This will enable the scroll bar on the left of the screen allowing you to scroll down and see all your unspent transactions.

This may happen on other pages so to activate the scroll bar, slightly enlarge the window.

## Transaction details

Once you have selected the transaction you will input the value you would like to send, the transaction fee and the address/key of the recipient.



The screenshot shows the 'Greckle Wallet' application window with the 'Transactions' tab selected. The window has a title bar with standard macOS window controls (red, yellow, green buttons). Below the title bar is a navigation bar with buttons for 'Home', 'Transactions', 'Block Explorer', 'Other', 'Manual', and 'Exit'. The main content area displays 'Amount to spend: 50'. Below this are three input fields: 'Enter amount to send:', 'Enter transaction fee or enter "x":', and 'Recipient address:'. At the bottom of the input fields are two buttons: 'Clear' and 'Confirm'. A vertical scrollbar is visible on the right side of the main content area.

### Enter amount to send:

Type the amount of Greckles you want to send.

### Enter the fee or enter "x":

Type the amount of Greckles you want to send as a transaction fee. This is will be sent to the person who makes the next block. Enter a value or enter "x" to not send a transaction fee.

NOTE: These two values must be integers bigger than 0 and the sum of the values should be less than or equal to the "Amount to spend" value.

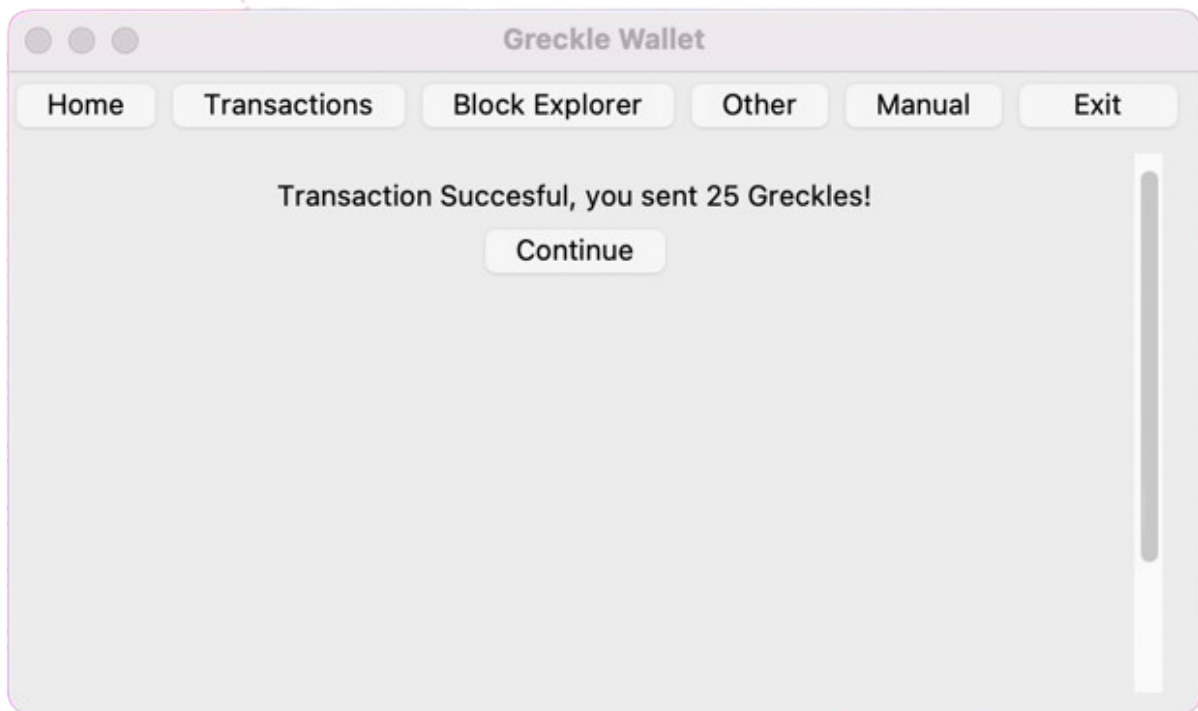
### Recipient address:

Copy and paste the recipients public key for "P2PK" and "MULTIP2PK" transactions or secure public key for "P2PKS" transactions.

NOTE: You may get a message saying "Adress is not valid". This means you have copied and pasted incorrectly. If you send to a public key that doesnt exist, these coins will be lost.

## Success

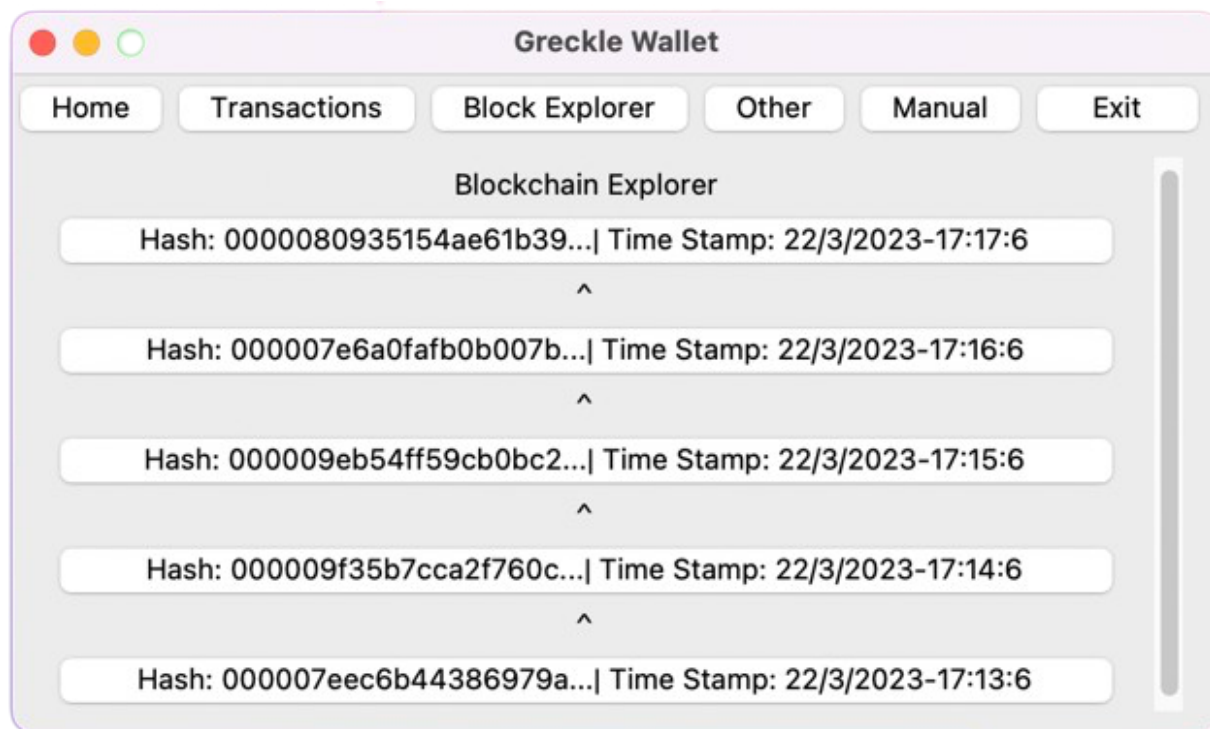
Once you have successfully sent the Greckles you will receive a succes message.





## Block Explorer

The block explorer allows you to see your blockchain and inspect the blocks in it.

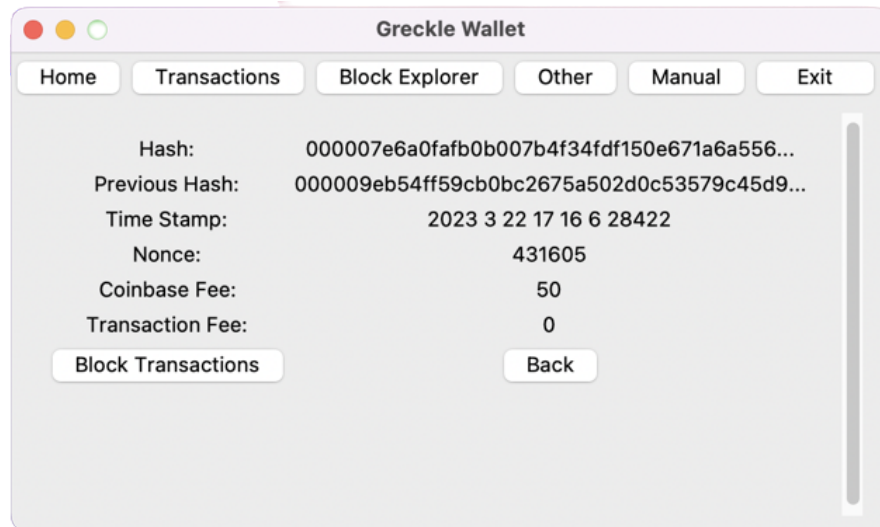


This is a list of all the blocks in the blockchain with the most recent block at the top.

NOTE: If the Genesis block is not at the bottom of the screen, hover over the bottom border of the GUI and enlarge the window slightly. This will enable the scroll bar on the left of the screen allowing you to scroll down and see all the blocks in the blockchain.

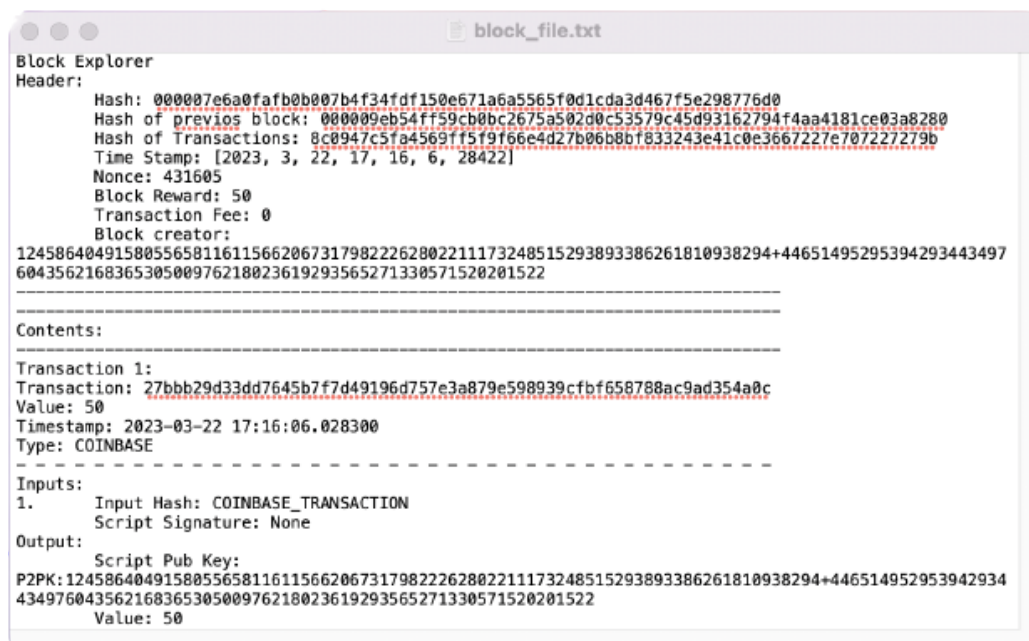
## Block details

Once you've clicked on one of the blocks, you will be given some information about the block.



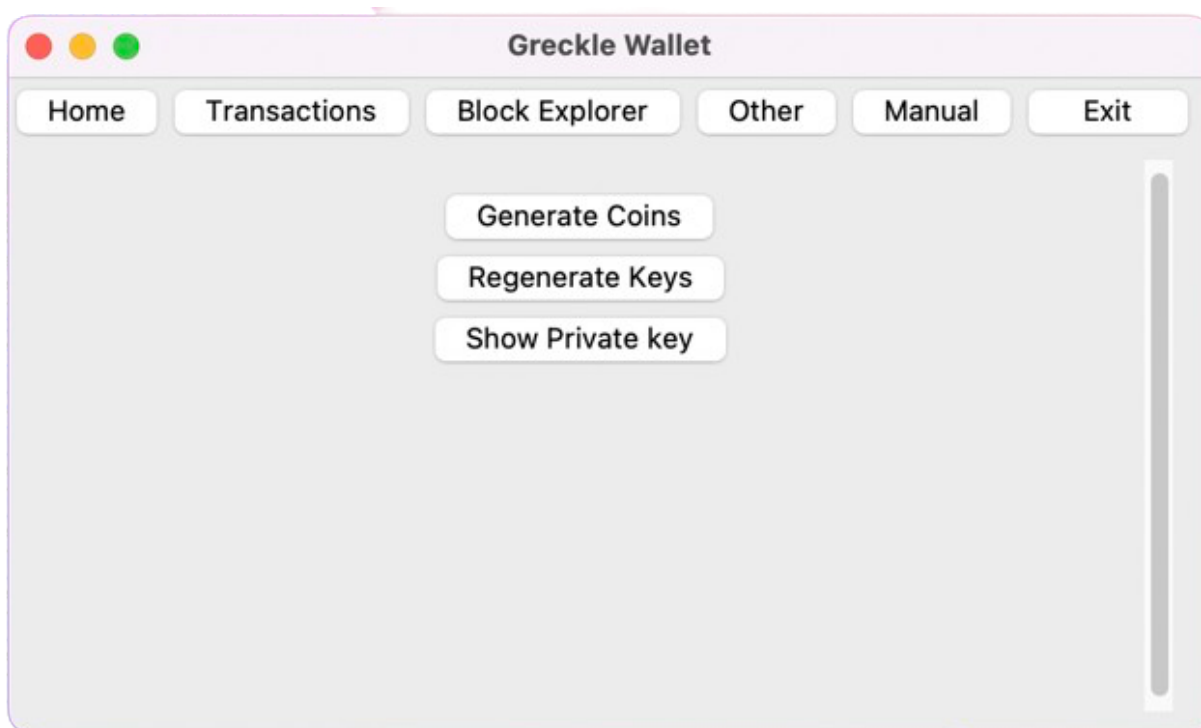
## Block Transactions:

This will open a .txt file of the block where you can explore the blocks header and transactions. Remember to close the .txt file once you've read it.



## Other

Here are some more options for you to play around with the system



### Generate Coins:

This will generate 100 Greckles for you to spend.

### Regenerate Keys:

This will regenerate your private key, public key and secure public key. Your Greckles will be sent to your new public key.

### Show Private Key:

This will show your private key.

## Thats Everything!

Thank you for reading the manual and I hope you enjoy using the Greckle wallet.

If you need support or have any questions about using the wallet, please email:

[george.lorimer@student.manchester.ac.uk](mailto:george.lorimer@student.manchester.ac.uk)