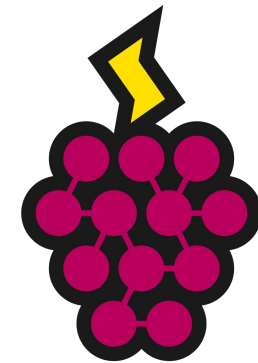


Running JoinMarket on the RaspiBlitz



RASPI ⚡ BLITZ



What is JoinMarket?

- A long standing **coinjoin** implementation with **decentralised coordination** and incentive structure.
- It makes the **Takers** able to pay others to coinjoin with them
- The **Makers** can earn bitcoin by offering funds to coinjoin with

Code: <https://github.com/JoinMarket-Org/joinmarket-clientserver>

- 26 contributors since Nov 20, 2016 (started in 2015)
- Programming language: Python3

Stack:

- Bitcoin Full node RPC
- JoinMarket CLI / JoininBox menu
- JoinMarketQT GUI showing on the desktop

CoinJoin implementation

Pool size

- Variable. Any amount can be coinjoined within the Offer Book limits (produced by the Makers)

Fees

- Maker Fees: random offers are chosen between preset limits from the Offer Book
- Miner fees: variable, paid by the taker (sat/byte randomised around the coordinator/taker setting)
There is a variable and randomised contribution to onchain fees by the makers (taken from the maker fees)

Architecture (with default settings)

- Coordination is decentralised, P2P through encrypted IRC
- Running behind Tor
- CJ participants are arbitrary or randomised between 7-9
- Wallets are separated to 5 accounts (mixdepths)
- The UTXOs only progresses between mixdepths as a result of a CJ (the unmixed change is left behind in the same mixdepth) - avoids merging unmixed change automatically
- Can only spend from one mixdepth at a time (no consolidation between accounts) - unmixed change is forced to keep separate

CURRENT WALLET: test.jmdat, total balance: 0.37591417

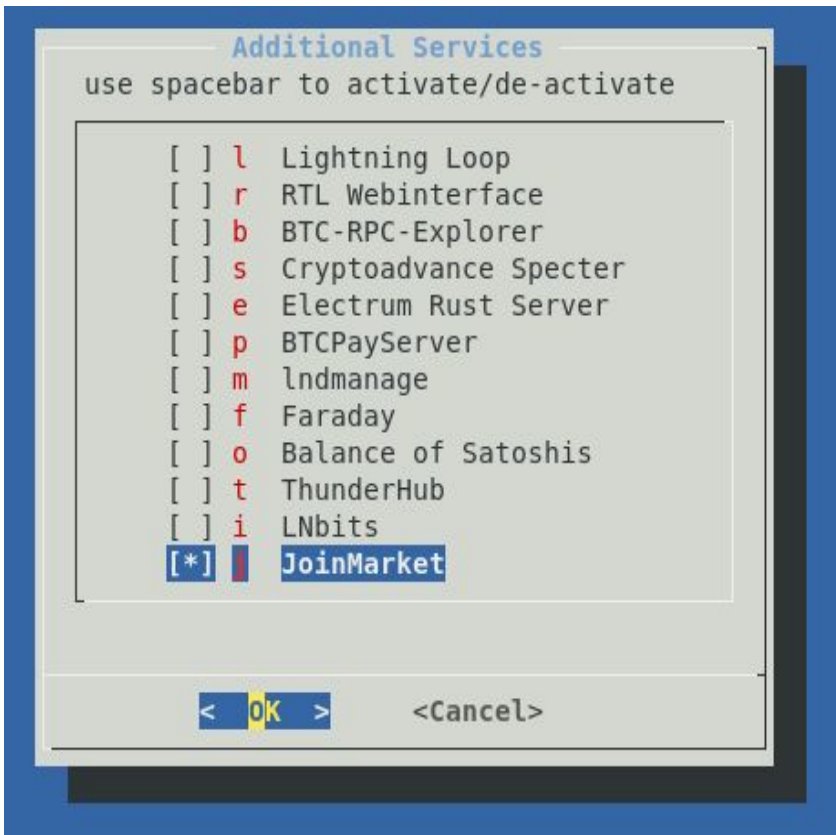
Address	Index	Balance	Used/New
▼ Mixdepth 0 , balance: 0.37591417			
▼ EXTERNAL tpubDFcuK2jSGG3Cj76V45tZ6PaVnkj14SeY3e...			
2MvKwPxbgkep4yKqGvUBivQBNH26UL5fvze	m/49'/1'/0'/0/1	0.37169778	deposit
2NA9n45Kkin5aYNQeiBQ3PzioMRqY2DmrrP	m/49'/1'/0'/0/2	0.00000000	new
2N7eJUYJSaZJjhiFRkf69czBWRNbVyMgLQE	m/49'/1'/0'/0/3	0.00000000	new
2MzohYrJNw8c7oxTBBtGfZsAt2Gqdhacqg3	m/49'/1'/0'/0/4	0.00000000	new
2MyGacN3nQaQAoCjT2UXbaZgdn9TJynxHb4	m/49'/1'/0'/0/5	0.00000000	new
2MvVTaUXKaLToh2pf8D8DmyHSSJH2MxFYhk	m/49'/1'/0'/0/6	0.00000000	new
2NEVkvUz3y4FUma6LaBY4ZVvcUJxaVhPMkQ	m/49'/1'/0'/0/7	0.00000000	new
▼ INTERNAL			
2MxTg5LAwhmriaRtGnw8XdkLuNFS6XZ2Xvq	m/49'/1'/0'/1/5	0.00421639	non-cj-change
▼ Mixdepth 1 , balance: 0.00000000			
▼ EXTERNAL tpubDF8gc9LeAn3p8BnMuoQydXihQt4KSS7N...			
2N6tbtqGpFsmB9pwdBvFQVviDfUQZkhiNry	m/49'/1'/1'/0/1	0.00000000	new
2N2n43T3YUveCSgKwW67rgFBxWGsxpQeDqz	m/49'/1'/1'/0/2	0.00000000	new
2MzycFaPKyFshrBwATrCCp5zqN7Nh7ptR82	m/49'/1'/1'/0/3	0.00000000	new
2NCZTxgEERwtRsJbxQZdd48bg1cc77xRYNm	m/49'/1'/1'/0/4	0.00000000	new
2MsoYBCzhvgcZFvJXu5CaTft6RWe1bgiirj	m/49'/1'/1'/0/5	0.00000000	new
2NB4346BNcQntXRjfe32sMHUdAwJetQQ6FE	m/49'/1'/1'/0/6	0.00000000	new
INTERNAL			
▼ Mixdepth 2 , balance: 0.00000000			
▼ EXTERNAL tpubDDvGZsSH7PPYt3oPgYjXMzTvMmkT4UT...			
2NFdjjnBJPFVTufES35mRc4aPCYTRKBACbi	m/49'/1'/2'/0/0	0.00000000	new
2N2MpciaBF7psCqwoWdXoUqEL7mDEVuVsud	m/49'/1'/2'/0/1	0.00000000	new
2N14r1N4huLV24H4f8MB8N9JvvYRghL8VaB	m/49'/1'/2'/0/2	0.00000000	new
2N8AtN74n5wxU6jGYCXoPqMF5yS8TirFdyX	m/49'/1'/2'/0/3	0.00000000	new
2NEBnJ5de1wNGCaQFwxx4W5VoUoevA1a95z	m/49'/1'/2'/0/4	0.00000000	new
2NFge6f23jz5HPNc4sYqs69GmfST16Tia6F	m/49'/1'/2'/0/5	0.00000000	new
INTERNAL			
▶ Mixdepth 3 , balance: 0.00000000			
▶ Mixdepth 4 , balance: 0.00000000			

Features

- **Coin-control** in both CLI or the GUI
- **Autolabeling** to:
 - **new / deposit**
 - **change-out** (unmixed from the last CJ),
 - **non-cj-change** (change of a non-CJ txn),
 - **reused** (more than one UTXO/txn on the same address)
 - **cj-out**
- **Pay with a coinjoin**: can be any arbitrary amount within the Offer Book limits
- **Tumbler**: multiple coinjoins to multiple addresses (including sweep transactions without change)
- **Payjoin** (aka P2EP)
 - between Joinmarket wallets
 - cross implementation (BIP 78) support compatible with BTCPayServer and WasabiWallet

Installation on the RaspiBlitz (since v1.5)

- one click option from the SERVICE menu or [\\$ config/scripts/bonus.joinmarket.sh](#)
- building from the source code
- separated to a dedicated user: **joinmarket**



```
admin@raspberrypi:~ $ sudo config/scripts/bonus.joinmarket.sh on
*** INSTALL JOINMARKET ***
OK, running behind Tor.
Multiwallet is active and wallet.dat is used.
The bitcoin core wallet is already on
*** Cleaning before install ***
*** Add the 'joinmarket' user ***
Adding user `joinmarket' ...
Adding new group `joinmarket' (1005) ...
Adding new user `joinmarket' (1005) with group `joinmarket' ...
Creating home directory `/home/joinmarket' ...
Copying files from `/etc/skel' ...
*** setting PASSWORD_B as the password for the 'joinmarket' user ***
Adding user `joinmarket' to group `sudo' ...
Adding user joinmarket to group sudo
Done.
joinmarket ALL=(ALL) NOPASSWD:ALL
Specified to use wallet.dat in the recovered joinmarket.cfg
Reading package lists... Done
Building dependency tree
Reading state information... Done
libjpeg-dev is already the newest version (1:1.5.2-2).
```

Installation on the RaspiBlitz - details

- Settings and wallets are preserved on the disk between updates in **/mnt/hdd/app-data/.joinmarket**
- installs ARM specific dependencies which allows opening the Joinmarket-Qt GUI on the desktop from the RaspiBlitz
- info menu with link to a [usage guide](#)

Webinterface: <http://192.168.3.161:3000>

Choose one of the following options:

RTL	RTL Web Node Manager
BTCPAY	BTCPay Server Info
ELECTRS	Electrum Rust Server
EXPLORE	BTC RPC Explorer
LNBITS	LNbits Server
LNDMANAGE	LND Manage Script
LOOP	Loop In/Out Service
SPECTER	Cryptoadvance Specter
MARKET	JoinMarket
FARADAY	Faraday Channel Management

↓ (+)

27%

< OK >

<Cancel>

JoinMarket info

Usage:

<https://github.com/openoms/bitcoin-tutorials/blob/master/joinmarket/README.md>

Start to use by logging in to the 'joinmarket' user with:
`sudo su joinmarket`

Can log in directly with the 'joinmarket' user via ssh.
The user password is the PASSWORD_B.

<Ok>

Interacting with JoinMarket - JoininBox (since v1.6)

- one line to start: `admin@raspberrypi:~ $ sudo su joinmarket`
- opens the JoininBox menu automatically: <https://github.com/openoms/joininbox>
- built to work as an interactive guide - no need to look up commands for the command line

```
JoininBox
Choose from the options:
INFO      Show the address list and balances
TGUI      Show how to open the JoinMarketQT GUI
WALLET    Wallet management options
MAKER     Yield Generator options
SEND      Pay to an address with/without a coinjoin
FREEZE    Exercise coin control within a mixdepth
PAYJOIN   Send/Receive between JoinMarket wallets
OFFERS    Watch the offer book locally
CONFIG    Edit the joinmarket.cfg
UPDATE    Update the JoininBox scripts and menu
X         Exit to the Command Line
< OK >   <Cancel>
```

```
JoininBox
Wallet management options:
GEN       Generate a new wallet
HISTORY   Show all past transactions
IMPORT    Copy wallet(s) from a remote node
RECOVER   Restore a wallet from the seed
< OK >
```

```
JoininBox
Yield Generator options:
MAKER     Run the Yield Generator
YGCONF    Configure the Yield Generator
YGLIST    List the past YG activity
YICKNAME  Show the last used counterparty name
SERVICE  Monitor the YG service (INFO)
LOGS      View the last YG logfile (DEBUG)
STOP      Stop the YG service
< OK >   <Cancel>
```


Interacting with JoinMarket: opening the QT GUI on the desktop

JoininBox

Choose from the options:

- INFO** Show the address list and balance
- QTGUI** Show how to open the JoinMarket QT GUI
- WALLET** Wallet management options
- MAKER** Yield Generator options
- SEND** Pay to an address with/without a coinjoin
- FREEZE** Exercise coin control within a coinjoin
- PAYJOIN** Send/Receive between JoinMarket nodes
- OFFERS** Watch the offer book locally
- CONFIG** Edit the joinmarket.cfg
- UPDATE** Update the JoininBox scripts and dependencies
- X** Exit to the Command Line

< OK >

< Cancel >

```
*****
Instructions to open the JoinMarket-QT GUI on the desktop
*****
```

Use the following line in a new desktop terminal to connect:

```
ssh -X joinmarket@192.168.3.161 joinmarket-clientserver/jmvenv/bin/python joinmarket
-clientserver/scripts/joinmarket-qt.py
```

Use the PASSWORD_B (rpcpassword in the bitcoin.conf) to open the JoinMarket-QT GUI

Use

the

PASS

WORD

_B

(

rpc

password

in

the

bitcoin

.conf)

to

open

the

Join

Market

-QT

GUI

Press ENTER when done with the instructions to exit to the menu

s@X1: ~

File Edit View Search Terminal Help

```
s@X1:~$ ssh -X joinmarket@192.168.3.204 joinmarket-clientserver/jmvenv/bin/python
joinmarket-clientserver/scripts/joinmarket-qt.py
joinmarket@192.168.3.204's password:
libEGL v
libEGL v
qt.qpa.
374, ma
2020-08
t.
2020-08
```

JoinMarketQt - Testnet

Wallet About

JM Wallet Settings Coinjoins Tx History Coins

CURRENT WALLET: test.jmdat, total balance: 0.37591417

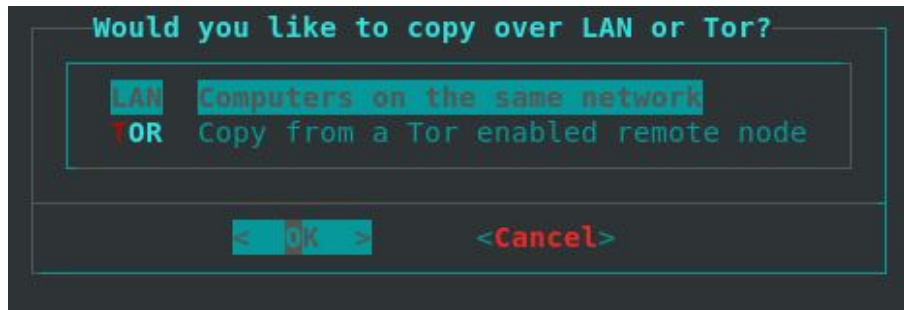
Address	Index	Balance	Used/New
▼ Mixdepth 0 , balance: 0.37591417			
▼ EXTERNAL tpubDFcuK2jSGG3Cj76V45tZ6PaVnkj14SeY3e...			
2MvKwPxbgkep4yKqGvUBivQBNH26UL5fvze	m/49'/1'/0'/0/1	0.37169778	deposit
2NA9n45Kkin5aYNQeiBQ3PzioMRqY2DmrrP	m/49'/1'/0'/0/2	0.00000000	new
2N7eJUYJSaZJjhiFRkf69czBWRNbVyMgLQE	m/49'/1'/0'/0/3	0.00000000	new
2MzohYrJNw8c7oxTBBtGfZsAt2Gqdhacqg3	m/49'/1'/0'/0/4	0.00000000	new
2MyGacN3nQaQAoCjT2UXbaZgdn9TJynxHb4	m/49'/1'/0'/0/5	0.00000000	new
2MvVTaUXKaLToh2pf8D8DmyHSSJH2MxFYhk	m/49'/1'/0'/0/6	0.00000000	new
2NEVkvUz3y4FUma6LaBY4ZVvcUJxaVhPMkQ	m/49'/1'/0'/0/7	0.00000000	new
▼ INTERNAL			
2MxTg5LAwhmriaRtGnw8XdkLuNFS6XZ2Xvq	m/49'/1'/0'/1/5	0.00421639	non-cj-change
▼ Mixdepth 1 , balance: 0.00000000			
▼ EXTERNAL tpubDF8gc9LeAn3p8BnMuoQydXihQt4KSS7N...			
2N6tbtqGpFsmB9pwdBvFQVviDFUQZkhiNry	m/49'/1'/1'/0/1	0.00000000	new
2N2n43T3YUveCSgKwW67rgFBxwGsxpQeDqz	m/49'/1'/1'/0/2	0.00000000	new
2MzycFaPKyFshrBwATrCCp5zqN7Nh7ptR82	m/49'/1'/1'/0/3	0.00000000	new
2NCZTxgEERwtRsJbxQZdd48bg1cc77xRYNm	m/49'/1'/1'/0/4	0.00000000	new
2MsoYBCzhvgcZFvJXu5CaTft6RWe1bgiirj	m/49'/1'/1'/0/5	0.00000000	new
2NB4346BNcQntXRjfe32sMHUdAwJetQQ6FE	m/49'/1'/1'/0/6	0.00000000	new
INTERNAL			
▶ Mixdepth 2 , balance: 0.00000000			
▶ Mixdepth 3 , balance: 0.00000000			
▶ Mixdepth 4 , balance: 0.00000000			

Wallet synced successfully.

Using the JoinMarket-Qt GUI

- Generate and open wallets
- Coin-control - freeze any UTXO
- Send payments with or without a CoinJoin
- Tumbler: run multiple coinjoins to multiple external addresses
- Running the Yield Generator (Maker) is not yet available
- Detailed documentation on GitHub:
<https://github.com/JoinMarket-Org/joinmarket-clientserver/blob/master/docs/JOINMARKET-Qt-GUIDE.md>
- Video demonstration by Adam Gibson (waxwing):
<https://youtu.be/hwmvZVQ4C4M>

JoininBox - wallet management



Copying over LAN

```
*****
Instructions to COPY wallets from another computer
*****
```

You can use the wallets from another JoinMarket instance

Both computers (the RaspiBlitz and the source computer with the wallet(s)) need to be connected to the same local network.

Open a terminal connected to the source computer and change into the directory containing the wallets.

By default the path is: '~/.joinmarket/wallets' or in older versions: '~/.joinmarket-clientserver/scripts/wallets'

You should see files called '.jmdat'

COPY, PASTE & EXECUTE the following command in the terminal of the source computer:

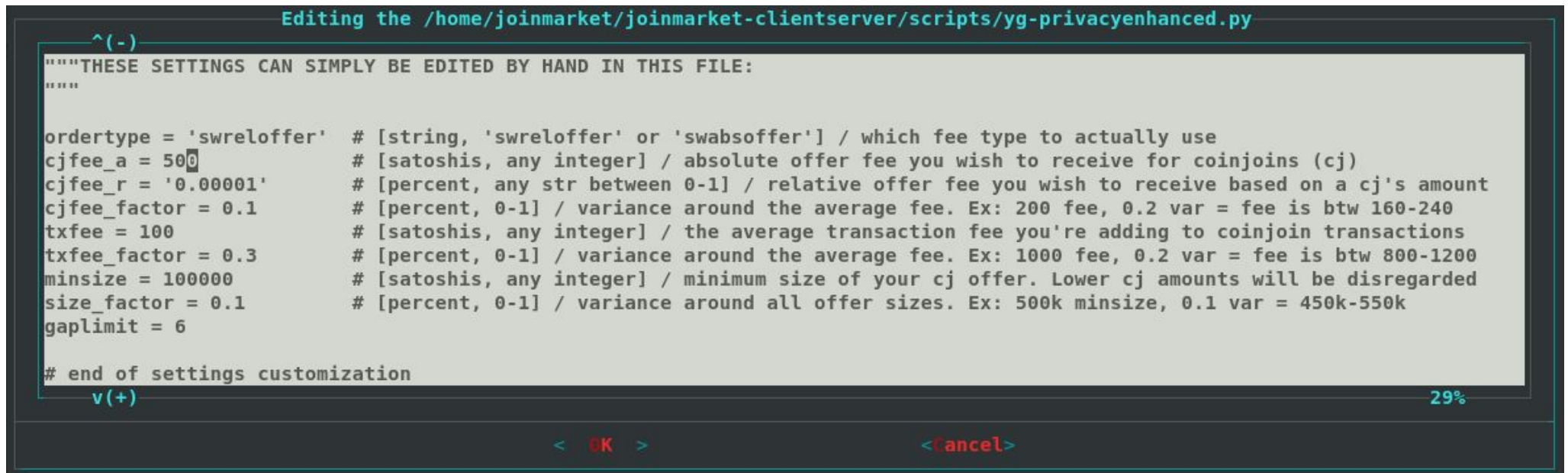
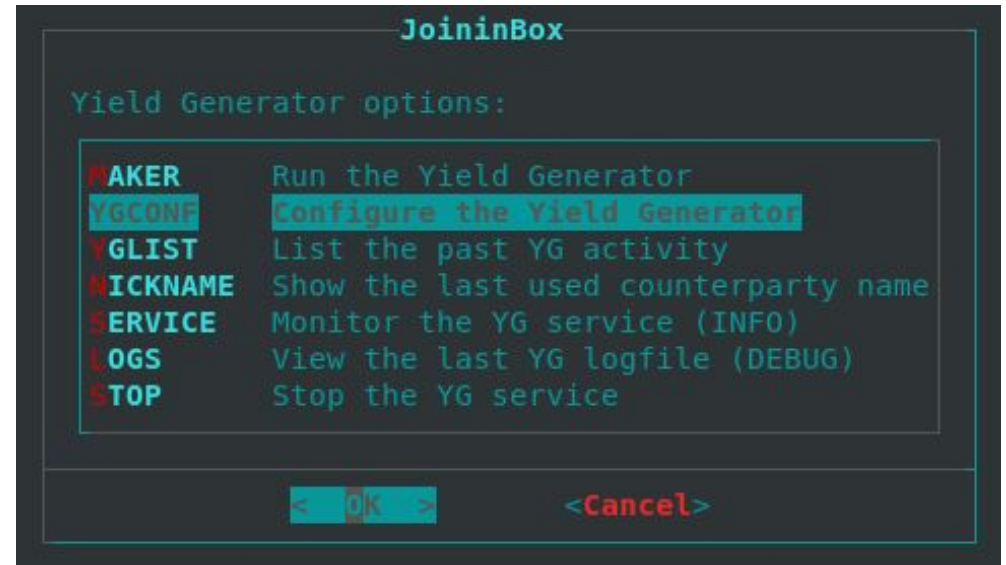
```
scp *.*.jmdat joinmarket@192.168.3.3:~/.joinmarket/wallets
```

Use the PASSWORD_B to authorize the file transfer (same as the rpcpassword in the /mnt/hdd/bitcoin/bitcoin.conf).

```
*****
PRESS ENTER if the transfer is done OR if you want to choose another option.
```


JoininBox

Configure the Yield Generator



JoininBox

Yield Generator options:

MAKER	Run the Yield Generator
YGCONF	Configure the Yield Generator
YGLIST	List the past YG activity
WICKNAME	Show the last used counterparty name
SERVICE	Monitor the YG service (INFO)
LOGS	View the last YG logfile (DEBUG)
STOP	Stop the YG service

< OK >

<Cancel>

Choose a wallet by typing the full name of the file

Directories

Files

<pre>█ ..</pre>	<pre>.gitignore jm1.jmdat jm2.jmdat jm3.jmdat jm4.jmdat jm5.jmdat</pre>
---------------------	---

/home/joinmarket/.joinmarket/wallets/jm4.jmdat

< OK >

<Cancel>

Enter password

Type or paste the wallet decryption password

█

< OK >

<Canc

Monitoring the Yield Generator

Shows the service status with INFO logs using:

```
sudo systemctl status yg-privacyenhanced
```

Press CTRL+C to exit to the command line.

Use: 'menu' for the JoininBox options.

< OK >

Monitoring the Yield Generator

Will tail the latest YG logfile from:

```
/home/joinmarket/.joinmarket/logs/
```

Press CTRL+C to exit and return to the menu.

< OK >

Choose a mixdepth to send from

Enter a number between 0 to 4 to choose the mixdepth



Choose the makercount

Enter the number of makers to coinjoin with (min 4)
Leave empty for the default 5-7 (randomized)
Enter 0 to send without a coinjoin.



Choose the amount

Enter the amount to send in satoshis
Use 0 to sweep the mixdepth without a change output



Choose the address

Paste the destination address



Confirm the details

Send: 10500 sats

From the wallet:
test.jmdat
mixdepth: 1

to the address:
2NA9n45Kkin5aYNQeiBQ3PzioMRqY2DmrrP

coinjoined with 9 makers.

< Yes >

< No >

Choose a wallet by typing the full name of the file

Directories

Files

..
testwallets

.gitignore
test.jmdat

./joinmarket/wallets/test.jmdat

JoininBox

Choose from the options:

INFO Show the address list and balances
QTGUI Show how to open the JoinMarketQT GUI

WALLET Wallet management options
MAKER Yield Generator options

SEND Pay to an address with/without a coinjoin
FREEZE Exercise coin control within a mixdepth
PAYJOIN Send/Receive between JoinMarket wallets

OFFERS Watch the Offer Book locally

CONFIG Edit the joinmarket.cfg
UPDATE Update the JoininBox scripts and menu

X Exit to the Command Line

< OK >

<Cancel>

Running the command:

```
python sendpayment.py -m 1 -N 9 test.jmdat 10500 2NA9n45Kkin5aYNQeiBQ3PzioMRqY2DmrrP
```

User data location: `/home/joinmarket/.joinmarket/`

2020-08-18 16:13:44,416 [INFO] Using tx fee: 1000 sat/vkB (1.0 sat/vB)

Joinmarket will choose market makers randomly as long as their fees are below a certain maximum value, or fraction. The suggested maximums are:

X = 0.001

Y = 5090 satoshis

Those values were chosen randomly for you (unless you already set one of them in your `joinmarket.cfg` or via a CLI option).

Since you are using N counterparties, if you agree to these values, your **maximum** coinjoin fee will be either N*Y satoshis or N*X percent of your coinjoin amount, depending on which is larger. The actual fee is likely to be significantly less; perhaps half that amount, depending on which counterparties are selected.

If you want to keep this relative limit, enter 'y'; otherwise choose your own fraction (between 1 and 0): █

Running the command:

```
python sendpayment.py -m 1 -N 9 test.jmdat 10500 2NA9n45Kkin5aYNQeiBQ3PzioMRqY2DmrrP
```

User data location: /home/joinmarket/.joinmarket/

2020-08-18 16:13:44,416 [INFO] Using tx fee: 1000 sat/vkB (1.0 sat/vB)

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If you want to keep this relative limit, enter 'y';
otherwise choose your own fraction (between 1 and 0): 0.001
Success! Using relative fee limit of 0.100000%

If you want to keep this absolute limit, enter 'y';
otherwise choose your own limit in satoshi: █

Running the command:

```
python sendpayment.py -m 1 -N 9 test.jmdat 10500 2NA9n45Kkin5aYNQeiBQ3PzioMRqY2DmrrP
```

User data location: /home/joinmarket/.joinmarket/

2020-08-18 16:13:44,416 [INFO] Using tx fee: 1000 sat/vkB (1.0 sat/vB)

Joinmarket will choose market makers randomly as long as their fees are below a certain maximum value, or fraction. The suggested maximums are:

X = 0.001

Y = 5090 satoshis

Those values were chosen randomly for you (unless you already set one of them in your joinmarket.cfg or via a CLI option).

Since you are using N counterparties, if you agree to these values, your **maximum** coinjoin fee will be either N*Y satoshis or N*X percent of your coinjoin amount, depending on which is larger. The actual fee is likely to be significantly less; perhaps half that amount, depending on which counterparties are selected.

If you want to keep this relative limit, enter 'y';
otherwise choose your own fraction (between 1 and 0): 0.001
Success! Using relative fee limit of 0.100000%

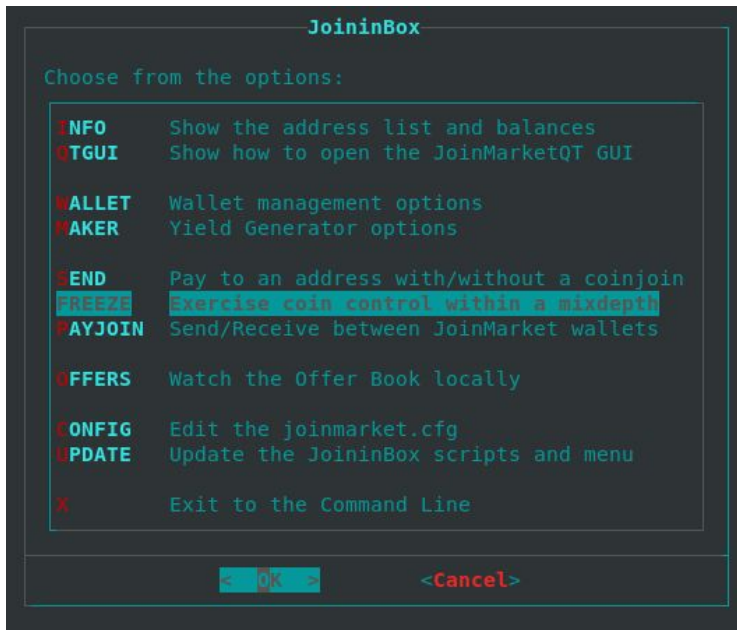
If you want to keep this absolute limit, enter 'y';
otherwise choose your own limit in satoshi: 1000
Success! Using absolute fee limit of 1000

If you don't want to see this message again, make an entry like this in the POLICY section of joinmarket.cfg:

```
max_cj_fee_abs = 1000  
max_cj_fee_rel = 0.001
```

2020-08-18 16:15:27,408 [INFO] Using maximum coinjoin fee limits per maker of 0.1000%, 0.00001000 BTC (1000 sat)

Enter wallet decryption passphrase: █



```

Running the command:
python wallet-tool.py -m0 test.jmdat freeze

User data location: /home/joinmarket/.joinmarket/
Enter wallet decryption passphrase:
List of UTXOs:
  0: 495fa37b55d654b1e9aed04fc90e4668a00e9506f339ccfba6311279bc433934:1 (2MxTg5LAwhmriaRtGnw8XdKLuNFS6XZ2Xvq): 0.00421639 BTC (421639 sat) -- NOT FROZEN
  1: bc435baf19c1a51e9d13dd67fd9c2542798153f89663ee94a202b5dcfa2adde0:1 (2MvKwPxbgkep4yKqGvUBivQBnH26UL5fvze): 0.37169778 BTC (37169778 sat) -- NOT FROZEN
Choose an index 0 .. 1 to freeze/unfreeze or -1 to just quit.
1
Utxo: bc435baf19c1a51e9d13dd67fd9c2542798153f89663ee94a202b5dcfa2adde0:1 is now frozen and unavailable for spending.
List of UTXOs:
  0: bc435baf19c1a51e9d13dd67fd9c2542798153f89663ee94a202b5dcfa2adde0:1 (2MvKwPxbgkep4yKqGvUBivQBnH26UL5fvze): 0.37169778 BTC (37169778 sat) -- FROZEN
  1: 495fa37b55d654b1e9aed04fc90e4668a00e9506f339ccfba6311279bc433934:1 (2MxTg5LAwhmriaRtGnw8XdKLuNFS6XZ2Xvq): 0.00421639 BTC (421639 sat) -- NOT FROZEN
Choose an index 0 .. 1 to freeze/unfreeze or -1 to just quit.
-1
Done

```

JoininBox

Choose from the options:

- I**INFO Show the address list and balances
- G**TGUI Show how to open the JoinMarketQT GUI

- W**ALLET Wallet management options
- Y**AKER Yield Generator options

- S**END Pay to an address with/without a coinjoin
- F**REEZE Exercise coin control within a mixdepth
- P**AYJOIN Send/Receive between JoinMarket wallets

- O**FFERS Watch the Offer Book locally

- C**ONFIG Edit the joinmarket.cfg
- U**PDATE Update the JoininBox scripts and menu

- X** Exit to the Command Line

< OK >

<Cancel>

JoininBox

PayJoin options:

- S**END Send a payment with PayJoin
- R**ECEIVE Receive a payment with PayJoin

< OK >

<Cancel>

Choose a wallet by typing the full name of the file

Directories

Files

..
..
testwallets

.gitignore
test.jmdat

/home/joinmarket/.joinmarket/wallets/test.jmdat

< OK >

<Cancel>

Choose a mixdepth to receive to

Enter a number between 0 to 4 to choose the mixdepth
(make sure there is at least one UTXO there already)

0



Choose the amount

Enter the amount to receive in satoshis

10500



Confirm the details

Receive: 10500 sats

To the wallet:
test.jmdat

mixdepth: 0

< Yes >

< No >

Running the command:

```
python receive-payjoin.py -m0 test.jmdat 10500
```

Communicate the payer the Receive URI

in the format:

```
bitcoin:RECEIVING_ADDRESS?amount=AMOUNT_IN_BTC&jmnick=EPHEMERAL_NICKNAME
```

and press y to wait for the transaction.

User data location: /home/joinmarket/.joinmarket/

Enter wallet decryption passphrase:

```
2020-08-18 16:59:13,846 [INFO] offerlist=[{'oid': 0, 'ordertype': 'swabsoffer', 'minsize': 7781276, 'maxsize': 354246052, 'txfee': 982, 'cjfee': 7779}]
```

```
2020-08-18 16:59:13,858 [INFO] starting receive-payjoin
```

```
2020-08-18 16:59:13+0100 [-] Log opened.
```

```
2020-08-18 16:59:14+0100 [-] P2EPDaemonServerProtocolFactory starting on 27183
```

```
2020-08-18 16:59:14+0100 [-] Starting factory <jmdaemon.daemon_protocol.P2EPDaemonServerProtocolFactory object at 0xb53a76d0>
```

```
2020-08-18 16:59:14,082 [INFO] Listening on port 27183
```

```
2020-08-18 16:59:14+0100 [-] Starting factory <jmclient.client_protocol.JMClientProtocolFactory object at 0xb53a74f0>
```

```
2020-08-18 16:59:14,084 [INFO] Starting transaction monitor in walletservice
```

```
2020-08-18 16:59:14+0100 [jmdaemon.daemon_protocol.P2EPDaemonServerProtocolFactory] P2EPDaemonServerProtocol connection established (HOST:IPv4Address(type='TCP', host='127.0.0.1', port=27183) PEER:IPv4Address(type='TCP', host='127.0.0.1', port=53992))
```

```
2020-08-18 16:59:14+0100 [Uninitialized] JMMakerClientProtocol connection established (HOST:IPv4Address(type='TCP', host='127.0.0.1', port=53992) PEER:IPv4Address(type='TCP', host='127.0.0.1', port=27183))
```

```
2020-08-18 16:59:14,153 [INFO] Your receiving address is: 2N6tbqGpFsmB9pwdBvFQVvIdFUQZkhiNry
```

```
2020-08-18 16:59:14,157 [INFO] You will receive amount: 10500 satoshis.
```

```
2020-08-18 16:59:14,157 [INFO] The sender also needs to know your ephemeral nickname: J581P6KTKcrP4sCy
```

```
2020-08-18 16:59:14,158 [INFO] Receive URI: bitcoin:2N6tbqGpFsmB9pwdBvFQVvIdFUQZkhiNry?amount=0.00010500&jmnick=J581P6KTKcrP4sCy
```

```
2020-08-18 16:59:14,159 [INFO] This information has also been stored in a file payjoin.txt; send it to your counterparty when you are ready.
```

JoininBox

PayJoin options:

SEND Send a payment with PayJoin
RECEIVE Receive a payment with PayJoin



Choose a mixdepth to send from

Enter a number between 0 to 4 to choose the mixdepth

1



Receive URI

Paste the Receive URI to send to

DfUQZkhiNry?amount=0.00010500&jmnick=J581P6KTKcrP4sCy



Confirm the details

Send to:
bitcoin:2N6tbtqGpFsmB9pwdBvFQVviDfUQZkhiNry?amount=
0.00010500&jmnick=J581P6KTKcrP4sCy

from the wallet:
test.jmdat

mixdepth: 1

< Yes >

< No >

Running the command:

```
python sendpayment.py -m1 test.jmdat bitcoin:2N6tbtqGpFsmB9pwdBvFQVviDfUQZkhiNry?amount=0.00010500&jmnick=J581P6KTKcrP4sCy
```

User data location: /home/joinmarket/.joinmarket/

2020-08-18 17:02:52,442 [INFO] Using tx fee: 1000 sat/vkB (1.0 sat/vB)

Enter wallet decryption passphrase:

WARNING: Expected bitcoin network miner fees for this coinjoin amount are roughly 24.6%

You might want to modify your tx_fee settings in joinmarket.cfg. Still continue? (y/n):y

2020-08-18 17:03:03+0100 [-] Log opened.

2020-08-18 17:03:03,577 [WARNING] Cannot listen on port 27183, trying next port

2020-08-18 17:03:03+0100 [-] P2EPDaemonServerProtocolFactory starting on 27184

2020-08-18 17:03:03+0100 [-] Starting factory <jmdaemon.daemon_protocol.P2EPDaemonServerProtocolFactory object at 0xb53f8c50

>

2020-08-18 17:03:03,580 [INFO] Listening on port 27184

2020-08-18 17:03:03+0100 [-] Starting factory <jmclient.client_protocol.JMClientProtocolFactory object at 0xb53f8910>

2020-08-18 17:03:03,583 [INFO] Starting transaction monitor in walletservice

2020-08-18 17:03:03+0100 [jmdaemon.daemon_protocol.P2EPDaemonServerProtocolFactory] P2EPDaemonServerProtocol connection established (HOST:IPv4Address(type='TCP', host='127.0.0.1', port=27184) PEER:IPv4Address(type='TCP', host='127.0.0.1', port=33604))

2020-08-18 17:03:03+0100 [Uninitialized] JMTakerClientProtocol connection established (HOST:IPv4Address(type='TCP', host='127.0.0.1', port=33604) PEER:IPv4Address(type='TCP', host='127.0.0.1', port=27184))

2020-08-18 17:03:03+0100 [-] Starting factory <txtorcon.socks._TorSocksFactory object at 0xb2e29610>

2020-08-18 17:03:03+0100 [-] Starting factory <txtorcon.socks._TorSocksFactory object at 0xb2e29a90>

2020-08-18 17:03:11,361 [INFO] joined: #joinmarket-pit-test guybrush.hackint.org

2020-08-18 17:03:11,363 [INFO] Could not connect to *ALL* servers yet, waiting up to 60 more seconds.

2020-08-18 17:03:11,512 [INFO] joined: #joinmarket-pit-test irc-eu-2.darkscience.net

2020-08-18 17:03:11,514 [INFO] All IRC servers connected, starting execution.

2020-08-18 17:03:11,521 [INFO] JM daemon setup complete

2020-08-18 17:04:11+0100 [P2EPDaemonServerProtocol,0,127.0.0.1] About to send orderbook of size: 2

2020-08-18 17:04:11,527 [INFO] INFO:Received offers from joinmarket pit

2020-08-18 17:04:11,574 [INFO] Using tx fee: 1000 sat/vkB (1.0 sat/vB)

2020-08-18 17:04:11,576 [INFO] total estimated amount spent = 0.00010849 BTC (10849 sat)

```
2020-07-13 12:58:12,368 [DEBUG] rpc: sendrawtransaction ['0200000000001022a7d6dee2a3a712c10d96906f87d1e53
7b743970e10e6f541e38ce5f0940f92a0000000000feffffff315186295bfea4464f954063de9426582e752ef6f4a02442ce249ed
27a59303f0100000000feffffff02394635000000000016001488871205f36e29bec61ab293465ef35f14eb7fe71c760300000000
001600147fa5d29d32cf0b51c46c052e6d50c2ca78aafcc1024830450221009684dc33bc1172a6136e042a94005e39dfa8e2e2d1f
6d4a81b02ef1de294167102200362a3c04732adfd4a715bbb51912d505511be1313e81854b849834c9a1955a301210399518824bc
dcc055f91e45b1581e74818379eed529b5bd13c74cf894ab1588dd02473044022066f4793980d0e1f278923664948a1a3446d1ff1
cf3b61b93f57c98c813375b68022029570407289a5a39f32d6c89640322949aa5924ceea2ba3d823f795a9c5e680c0121032eb545
e2e89eafdd686cb06dfce34506b64d674e378439c36bb671f9687cb932752b1b00']
2020-07-13 12:58:12,380 [INFO] Payjoin transaction broadcast successfully.
done
```

Just bought a virtual Green Tea from @MrKukks on demo.payjoin.kukks.org/apps/eFtHvBGQA... with a #PayJoin from a bech32 @joinmarket wallet on the #Bitcoin ₿ Testnet. It is beautiful seeing these different implementations working together. blockstream.info/testnet/tx/d57...

<https://twitter.com/openoms/status/1282649026958106624>

JoininBox

Choose from the options:

I INFO	Show the address list and balances
O TGUI	Show how to open the JoinMarketQT GUI
W ALLET	Wallet management options
M AKER	Yield Generator options
S END	Pay to an address with/without a coinjoin
F REEZE	Exercise coin control within a mixdepth
P AYJOIN	Send/Receive between JoinMarket wallets
O FFERS	Watch the Offer Book locally
C ONFIG	Edit the joinmarket.cfg
U PDATE	Update the JoininBox scripts and menu
X	Exit to the Command Line

< OK >

<Cancel>

JoininBox

Offer Book options:

S TART	Start watching locally
S HOW	Show the local Offer Book address
S TOP	Stop the background process

< OK >

<Cancel>

Started the ob-watcher service

Visit the address in the Tor Browser:
3dnuu6zvxna4txdroq5xiue3a466btsi6gux7b7hnknt54b6y5zmu3ad.onion

<Ok>

JoinMarket Orderbook

146 orders found by 144 counterparties

Toggle non-segwit

Check for timed-out counterparties

BTC

%

Type	Counterparty	Order ID	Fee	Miner Fee Contribution / BTC	Minimum Size / BTC	Maximum Size / BTC
SW Relative Fee	J55UNmRjCtf39MA	0	9.999999999999999e-05%	0.00000000	0.00107457	5.30960058
SW Relative Fee	J5EAnJ8Gf68MXzYV	0	9.999999999999999e-05%	0.00000000	0.33000000	0.55096230
SW Relative Fee	J5CECCt7xvvnWATc	0	9.999999999999999e-05%	0.00000000	0.22000000	0.25990096
SW Relative Fee	J52utT1Nz47c8nQ1	0	9.999999999999999e-05%	0.00000000	0.06500000	0.07591832
SW Relative Fee	J57tdE1XVYLRr9dD	0	9.999999999999999e-05%	0.00000000	0.25000000	0.29683216
SW Relative Fee	J5FN4mXr3EnHNiYT	0	9.999999999999999e-05%	0.00000000	0.01700000	0.02773668
SW Relative Fee	J5AMKhrMnKNCbRz	0	0.0001999999999999998%	0.00000000	0.00100000	0.17166572
SW Relative Fee	J5ED8vGM4bhncXDT	0	0.0003000000000000003%	0.00000000	0.30000000	0.34039585
SW Relative Fee	J5EGUKWsVYNKgoHr	0	0.00035%	0.00000000	0.00002730	4.29871235
SW Relative Fee	J5A5PSmD2WEsmQ8N	0	0.0004300000000000004%	0.00000022	0.07674418	447.00498924
SW Relative Fee	J55YrwNomDN178rk	0	0.00049%	0.00000023	0.07040816	218.48857487
SW Relative Fee	J59kyq5eZaJVSxbZ	0	0.0005%	0.00000000	0.00053731	0.76764108
SW Relative Fee	J53gZxT59YkISLyC	0	0.0005%	0.00000000	1.00000000	19.03291024
SW Relative Fee	J56oKbwn6KSsPkXR	0	0.0005%	0.00000003	0.00908890	0.38858757



```
*****  
* JoinMarket command line *  
*****  
Notes on usage:  
https://github.com/openoms/bitcoin-tutorials/blob/master/joinmarket/README.md  
  
To open JoininBox menu use: menu  
To exit to the Raspiblitz menu use: exit  
  
(jmvENV) joinmarket@raspberrypi:~ $ █
```

Good coinjoin practice - recommendations

- Sweep individual UTXOs and mixdepths occasionally
- use the Tumbler script (first and last txns are sweeping - no unmixed change)
- Alternate being a Taker (tumbler, sendpayment) and Maker (yield gen)
- Break down large amounts between multiple wallets (watch the offerbook)
- Use PayJoin with merchants