

Transactions and UTXOs

Mark	->	Me	0.1 BTC	} UTXOs
Hadelin	->	Me	0.3 BTC	
Helen	->	Me	0.6 BTC	
Susan	->	Me	0.7 BTC	

I want to Buy a bicycle for 0.5 BTC

TRANSACTION:

Input:

0.6 BTC from Helen



Output:

0.5 BTC to the bike shop,
0.1 BTC back to myself

UTXO
For the bike shop

UTXO
For me



Transactions and UTXOs



Mark	->	Me	0.1 BTC
Hadelin	->	Me	0.3 BTC
Helen	->	Me	0.6 BTC
Susan	->	Me	0.7 BTC

} UTXOs

I want to Buy a bicycle for 0.5 BTC

TRANSACTION:

Input:

0.6 BTC from Helen

}

Output:

0.5 BTC to the bike shop,
0.1 BTC back to myself

UTXO
For the bike shop

UTXO
For me

Transactions and UTXOs



Mark	->	Me	0.1 BTC
Hadelin	->	Me	0.3 BTC
Susan	->	Me	0.7 BTC
Me	->	Me	0.1 BTC

UTXOs



Transactions and UTXOs



Mark	->	Me	0.1 BTC	} UTXOs
Hadelin	>	Me	0.3 BTC	
Susan	>	Me	0.7 BTC	
Me	>	Me	0.1 BTC	

I want to Buy a 2nd bicycle for 1.1 BTC

TRANSACTION:

Input:

0.3 BTC from Hadelin,
0.7 BTC from Susan,
0.1 BTC from Me



Output:

1.1 BTC to the bike shop,

Transactions and UTXOs

Mark

->

Me

0.1 BTC



UTXOs



**Where do transaction fees
come from?**

Where do transaction fees come from?

Mark	->	Me	0.1 BTC
Sarah	->	Me	0.1 BTC
Hadelin	->	Me	0.4 BTC
Ebay	->	Me	0.3 BTC
Hadelin	->	Me	0.3 BTC

UTXOs



I want to Buy a 3rd bicycle for 0.9 BTC and an apple for 0.02 BTC

TRANSACTION:

Input:

0.4 BTC from Hadelin,
0.3 BTC from Ebay
0.3 BTC from Hadelin

Output:

0.9 BTC to the bike shop,
0.02 BTC to the fruit shop,
0.06 BTC to myself

Fees: 0.02 BTC

UTXO for the miner

UTXO for the bike shop

UTXO for the bike shop

UTXO for me

Where do transaction fees come from?

Mark	->	Me	0.1 BTC
Sarah	->	Me	0.1 BTC
Me	->	Me	0.0.6 BTC

} UTXOs



0.87155516 BTC

2018-02-28 10:51:18

0.113 BTC
0.01002188 BTC

0.12302188 BTC

2018-02-28 10:45:56

1.6096 BTC
4.83908263 BTC

6.4496263 BTC

2018-02-28 10:49:48

0.025 BTC
0.00985965 BTC

0.03485995 BTC

2018-02-28 10:45:24

0.00776428 BTC
0.1874065 BTC

0.19517078 BTC

2018-02-28 10:48:53

0b2c49f02d1db1bdd2a60c38d3ef27fe7cb2e294a96affd47138bde23bdf834

1NrE7RR6Qx15busQfhJxVRNRH9oxVLdAb6
16fbjc2e9EUUJ85YqfSW8ZLXqPRoU3STan
1BrsqwEPsowv1Fs6GyHvhMRG8MthHQ12RwQ
12wCaJqaXs8tywA54vvT81aNSxBHMyhPKs
13zZQJgAf14ksZR4cgBSPztE8vBXgCHW
14ZUX5n2cAdPJ59xNV5y4E9n5IJZTMELcu
1DfdeghHKFRKdW3XZayPerjK6cflukuxQ7B
1DnzsJawFEJmfpS3soRegQKVmYxp1Jq25



12kChcVvdrAputtYaGcjN3gYpt5KZUvS2p
1P5FGrhXKkqzqut9fDezvyz8DjJEQqehFk

0.113 BTC
0.01002188 BTC

1 Confirmations

0.12302188 BTC

Summary

Size	1257 (bytes)
Weight	5028
Received Time	2018-02-28 10:51:18
Lock Time	Block: 511309
Included in Blocks	511310 (2018-02-28 10:52:18 + 1 minutes)
Confirmations	1 Confirmations
Visualize	View Tree Chart

Inputs and Outputs

Total Input	0.13122488 BTC
Total Output	0.12302188 BTC
Fees	0.008203 BTC
Fee per byte	652.586 sat/B
Fee per weight unit	163.146 sat/WU
Estimated BTC Transacted	0.113 BTC
Scripts	Show scripts & coinbase



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PRODUCTS

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HELP CENTER
TUTORIALS
LEARNING PORTAL

ENGLISH

BITCOIN

ADVANCED VIEW:
ENABLE

How Wallets Work

How Wallets Work

504

Me	->	Bike Shop	0.9 BTC	
Me	->	Fruit Shop	0.02 BTC	
Me	->	<u>Me</u>	0.06 BTC	UTXO

2

503

Sarah	->	<u>Me</u>	0.1 BTC	UTXO
Hadelin	->	<u>Me</u>	0.4 BTC	■
Ebay	->	<u>Me</u>	0.3 BTC	■
Hadelin	->	<u>Me</u>	0.3 BTC	■

2

502

Me	->	Bike Shop	1.1 BTC	
Me	->	Bike Shop	0.5 BTC	
Me	->	<u>Me</u>	0.1 BTC	■

2

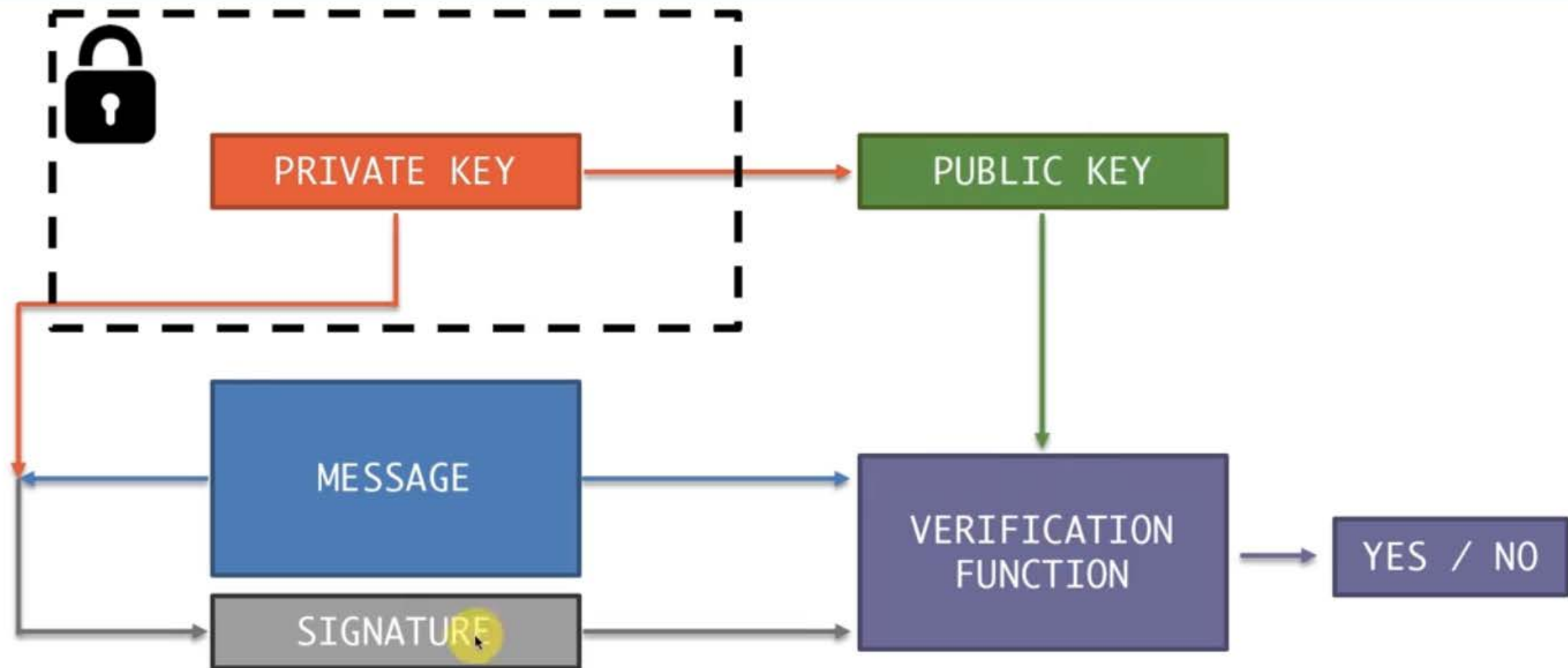
501

Mark	->	<u>Me</u>	0.1 BTC	UTXO
Hadelin	->	<u>Me</u>	0.3 BTC	■
Helen	->	<u>Me</u>	0.6 BTC	■
Susan	->	<u>Me</u>	0.7 BTC	■

"BALANCE"
0.26 BTC

Signatures: Private & Public Keys

Signatures: Private & Public Keys



Signatures Copyright Notice

Sign

Verify

Message

Hadelin -> Kirill 0.2 BTC

Private Key

24303141212340250822778389673499783015726664773150441419519528052135905773118

Sign

Message Signature

ea5312342456378467543534ees

Signatures Copyright Notice

Sign Verify

Message

Hadelin -> Kirill 0.2 BTC

Public Key

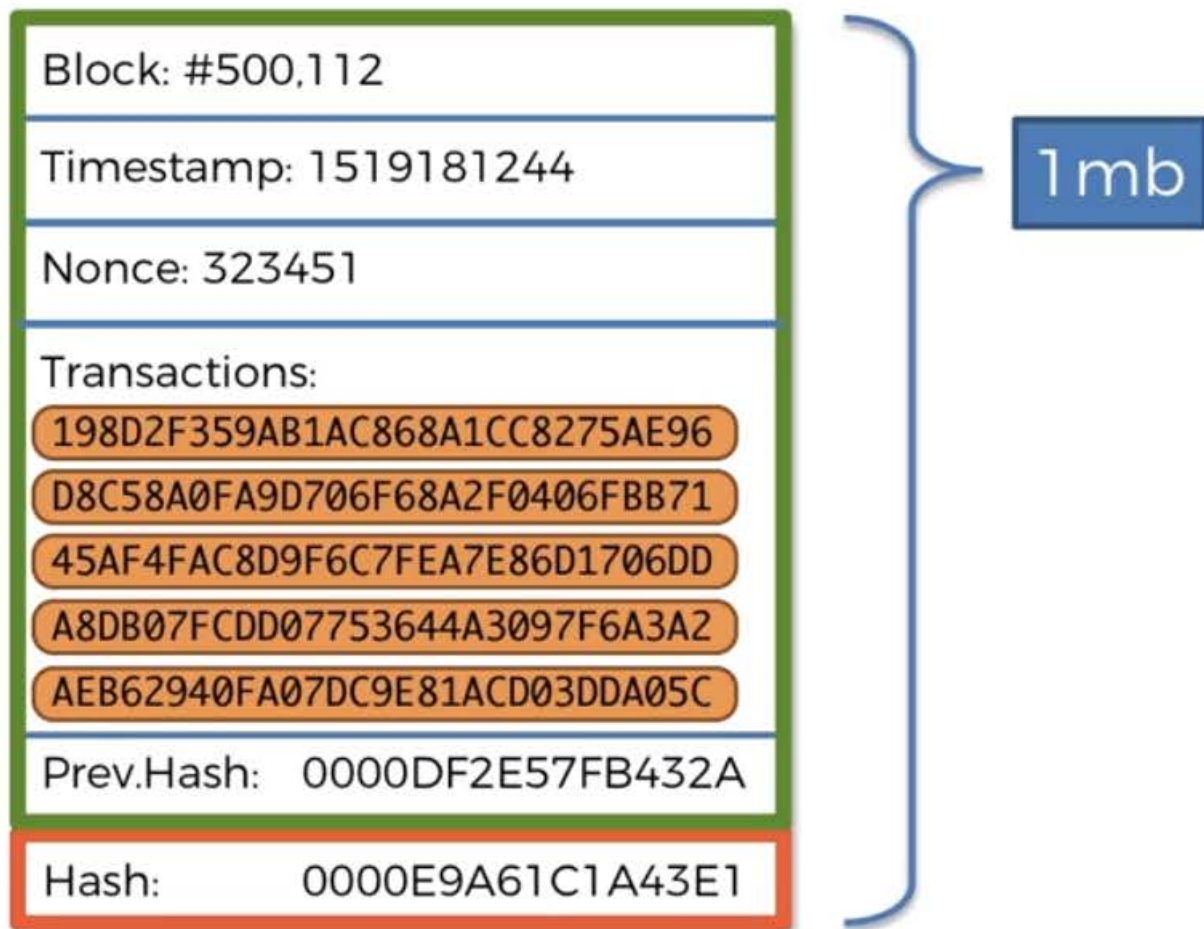
04fc357a7269ec65b7fa4f7e481bcbdef76884861a8f32b934830cacc9dfe733f826c8b8fa58784c8ce1ea79275fb0f2b62f78f1ee2f0d2402f7b00e6bd614b541

Signature

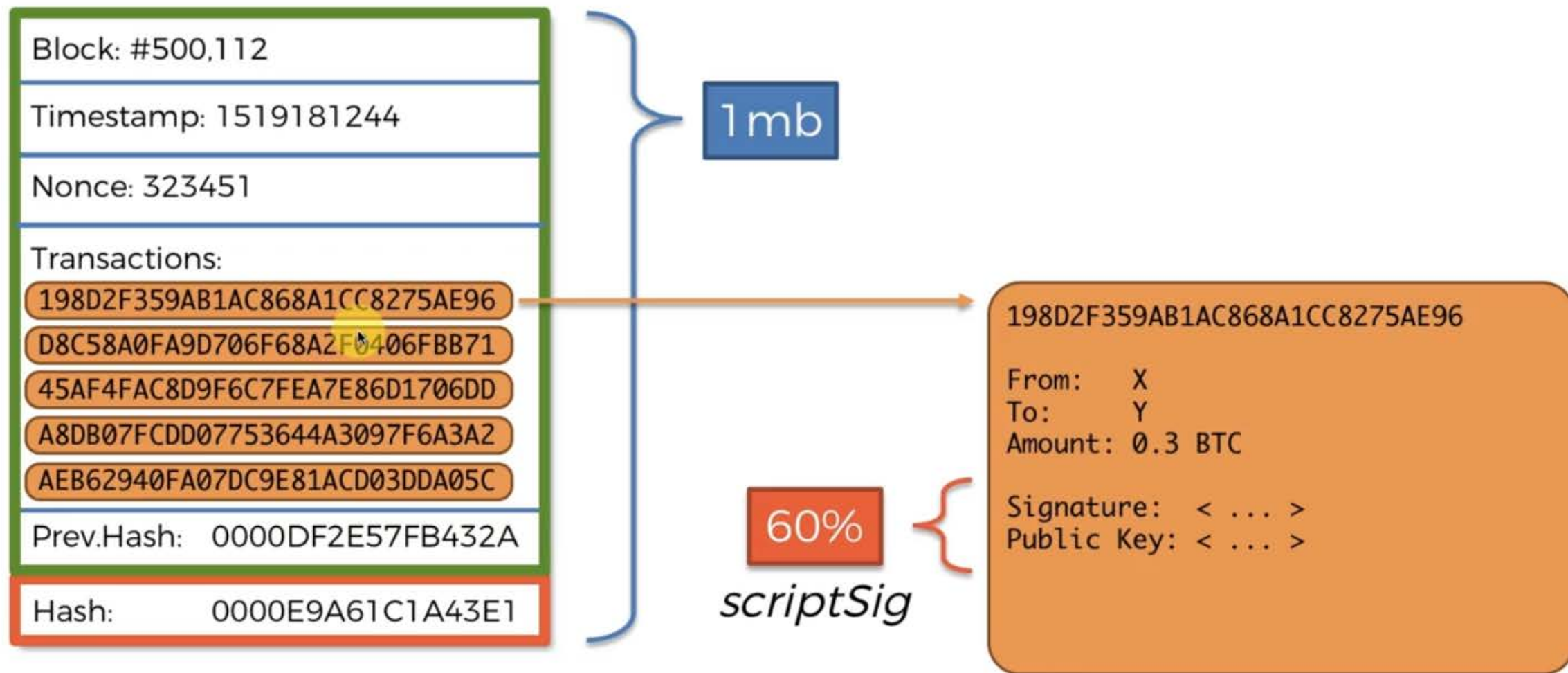
304402205b3f3aed2855935436c5502b26fad456b89b99dfce9edfd42e571db2f182de3002205f082f40671555bf050a62a0e727f2da3c2123b385028b709e92ae3a2baac3f8

Verify

What is Segregated Witness? (SegWit)

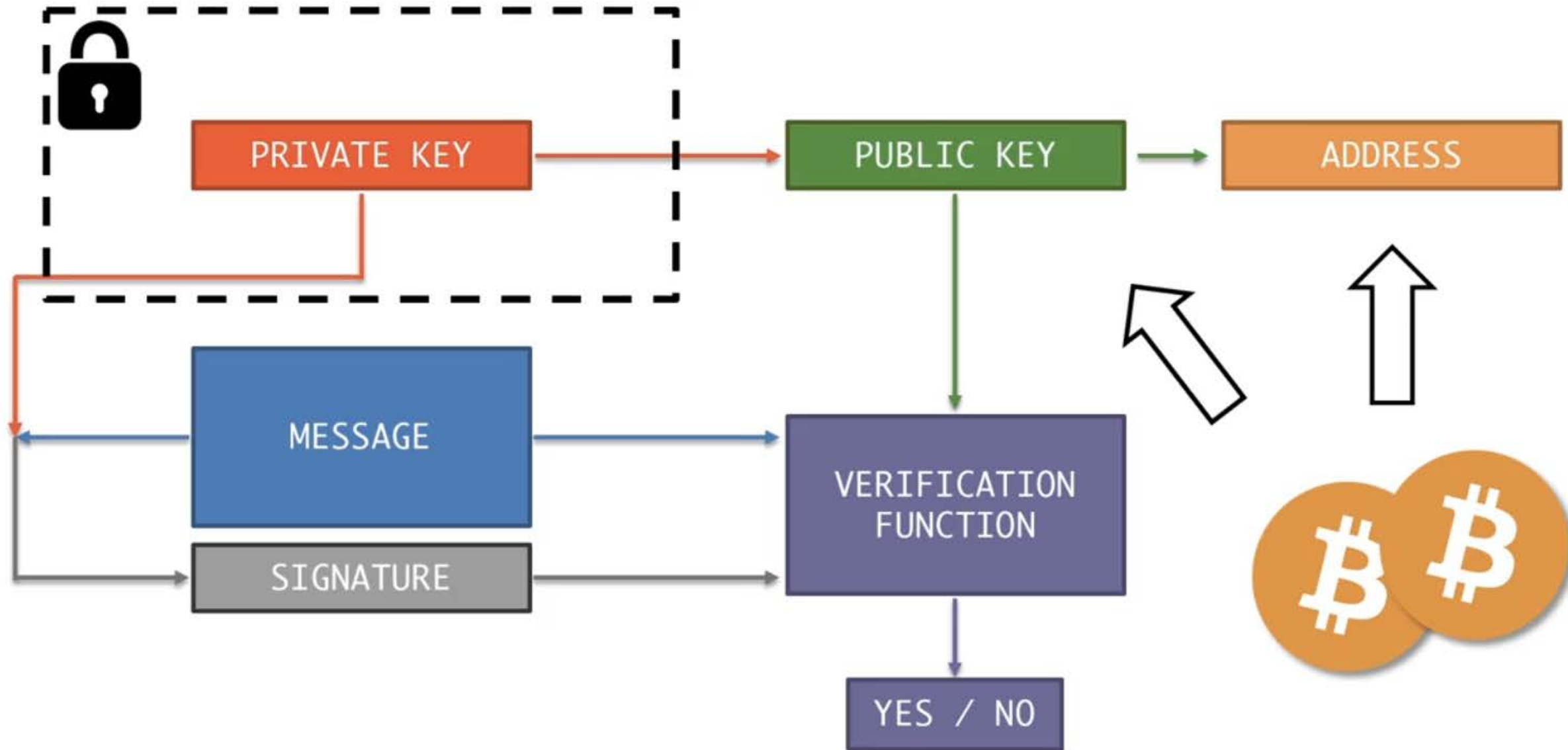


What is Segregated Witness? (SegWit)

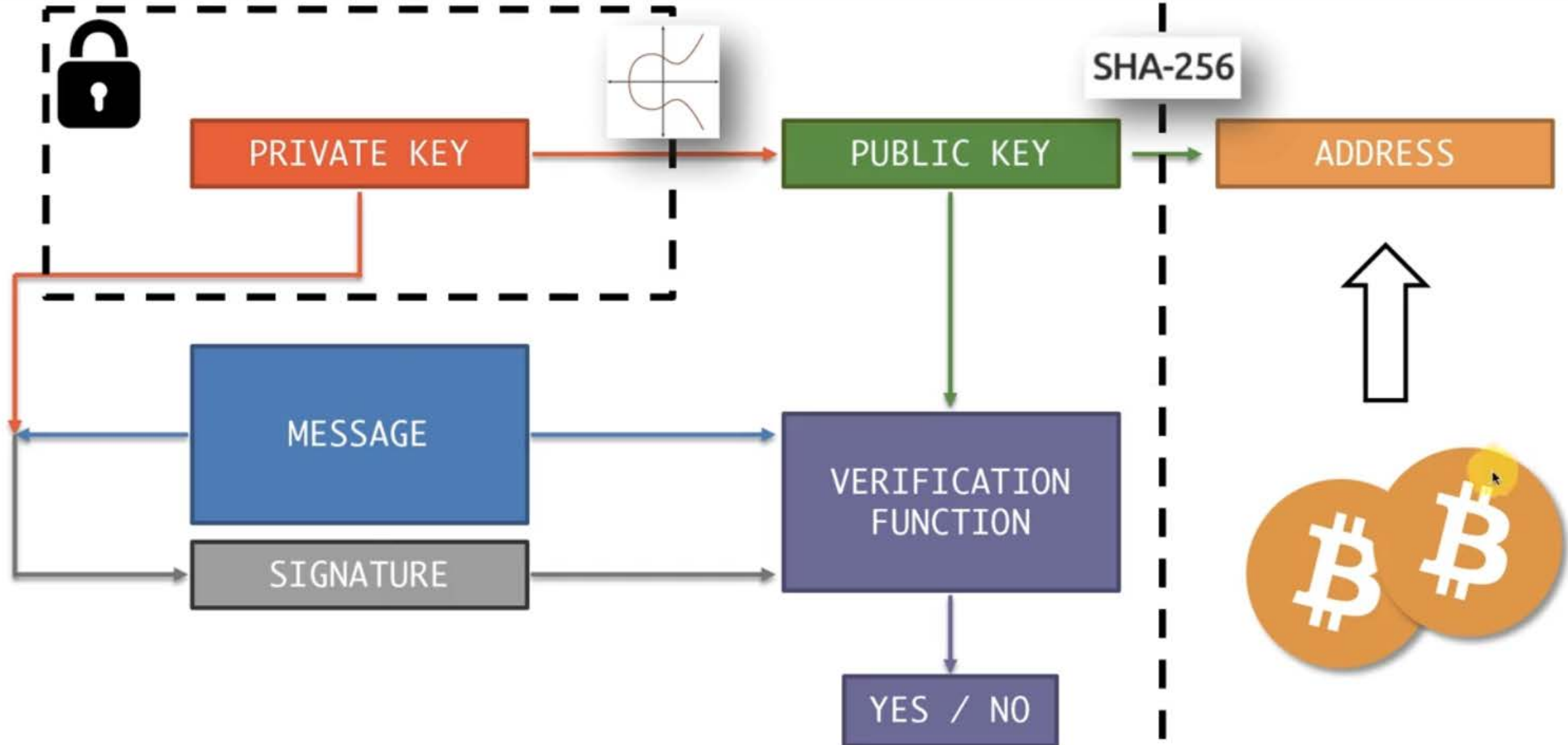


Public Key vs Bitcoin Address

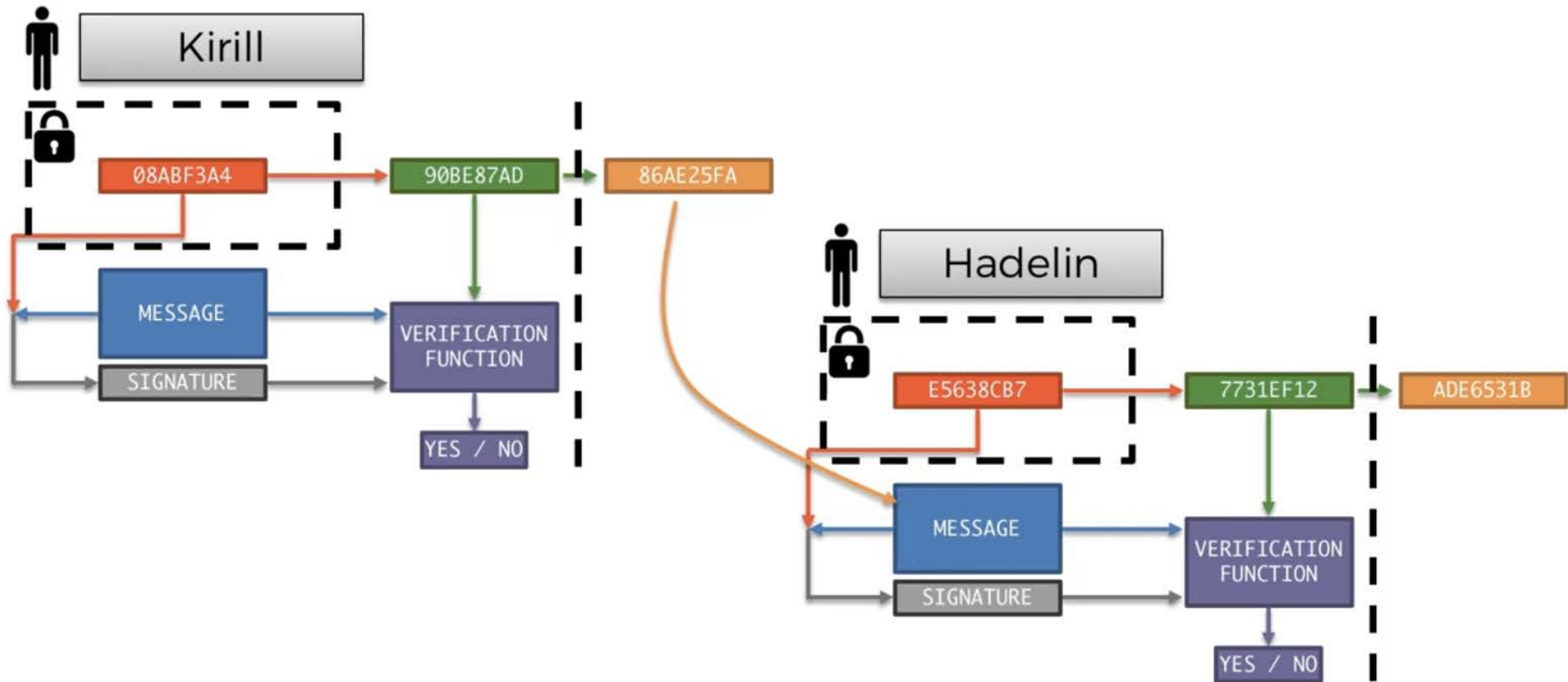
Public Key vs Bitcoin Address



Public Key vs Bitcoin Address



Public Key vs Bitcoin Address



GET http://127.0.0.1:50...

GET Untitled Request

GET Untitled Request



No Environment



http://127.0.0.1:5001/get_chain



Save



GET



http://127.0.0.1:5001/get_chain

Send



Params Authorization Headers (6) Body Pre-request Script Tests Settings

Cookies

Query Params

	KEY	VALUE	DESCRIPTION	...	Bulk Edit
	Key	Value	Description		

Body Cookies Headers (4) Test Results



Status: 200 OK Time: 430 ms Size: 270 B

Save Response



Pretty

Raw

Preview

Visualize

JSON



```
1  {
2    "chain": [
3      {
4        "index": 1,
5        "previous_hash": "0",
6        "proof": 1,
7        "timestamp": "2022-04-26 22:55:08.253843",
8        "transactions": []
9      }
10   ],
```


http://127.0.0.1:5002/get_chain

Save

Send

GET http://127.0.0.1:5002/get_chain

- Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

Query Params

KEY	VALUE	DESCRIPTION	Bulk Edit
Key	Value	Description	

Body Cookies Headers (4) Test Results

Status: 200 OK Time: 53 ms Size: 270 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "chain": [
3     {
4       "index": 1,
5       "previous_hash": "0",
6       "proof": 1,
7       "timestamp": "2022-04-26 22:56:02.044881",
8       "transactions": []
9     }
10  ],
```

GET http://127.0.0.1:50...

GET http://127.0.0.1:50...

GET http://127.0.0.1:50...

+ ...

No Environment

http://127.0.0.1:5003/get_chain

Save

GET

http://127.0.0.1:5003/get_chain

Send

Params

Authorization

Headers (6)

Body

Pre-request Script

Tests

Settings

Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Key	Value	Description		

Body

Cookies

Headers (4)

Test Results

Status: 200 OK

Time: 44 ms

Size: 270 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

```
1 {
2   "chain": [
3     {
4       "index": 1,
5       "previous_hash": "0",
6       "proof": 1,
7       "timestamp": "2022-04-26 22:56:28.025183",
8       "transactions": []
9     }
10  ],
```

Runner

Trash

http://127.0.0.1:5001/connect_node

Save



POST

http://127.0.0.1:5001/connect_node

Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings

Cookies

none form-data x-www-form-urlencoded raw binary GraphQL JSON

Beautify

```
1 {
2   "nodes": ["http://127.0.0.1:5002",
3             "http://127.0.0.1:5003"]
4 }
```

Body Cookies Headers (4) Test Results

Status: 201 CREATED Time: 74 ms Size: 314 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "message": "All the nodes are now connected. The Dataencrypt coin Blockchain now contains the following nodes,",
3   "total_nodes": [
4     "127.0.0.1:5003",
5     "127.0.0.1:5002"
6   ]
7 }
```

POST http://127.0.0.1:5...

POST http://127.0.0.1:5...

GET http://127.0.0.1:50...

+ ...

No Environment

http://127.0.0.1:5002/connect_node

Save



POST

http://127.0.0.1:5002/connect_node

Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings

Cookies

none form-data x-www-form-urlencoded raw binary GraphQL JSON

Beautify

```
1 {
2   "nodes": ["http://127.0.0.1:5001",
3             "http://127.0.0.1:5003"]
4 }
```

Body Cookies Headers (4) Test Results

Status: 201 CREATED Time: 200 ms Size: 314 B

Save Response

Pretty

Raw

Preview

Visualize

JSON



```
1 {
2   "message": "All the nodes are now connected. The Dataencrypt coin Blockchain now contains the following nodes,",
3   "total_nodes": [
4     "127.0.0.1:5003",
5     "127.0.0.1:5001"
6   ]
7 }
```

POST http://127.0.0.1:5...

POST http://127.0.0.1:5...

POST http://127.0.0.1:5...

+

...

No Environment

http://127.0.0.1:5003/connect_node

Save

POST

http://127.0.0.1:5003/connect_node

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

Beautify

1{

2... "nodes": ["http://127.0.0.1:5001",

3......"http://127.0.0.1:5002"]

4}

Body

Cookies

Headers (4)

Test Results

Status: 201 CREATED

Time: 116 ms

Size: 314 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

1{

2 "message": "All the nodes are now connected. The Dataencrypt coin Blockchain now contains the following nodes,"

3 "total_nodes": [

4 "127.0.0.1:5001",

5 "127.0.0.1:5002"

6]

7}

http://127.0.0.1:5001/mine_block

Save Send

GET http://127.0.0.1:5001/mine_block

Send

- Params
- Authorization
- Headers (8)
- Body
- Pre-request Script
- Tests
- Settings

Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Key	Value	Description		

- Body
- Cookies
- Headers (4)
- Test Results

Status: 200 OK Time: 270 ms Size: 445 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "index": 2,
3   "message": "Congratulations, you just mined a block!",
4   "previous_hash": "1a101f0c3dc29848249f0cde7bd4eb94f2f100397a64a954332b88933186ffee",
5   "proof": 533,
6   "timestamp": "2022-04-27 00:52:27.661797",
7   "transactions": [
8     {
9       "amount": 1,
10      "receiver": "Pulkit",
```

GET http://127.0.0.1:50...

GET http://127.0.0.1:50...

POST http://127.0.0.1:5...

+

...

No Environment

http://127.0.0.1:5002/mine_block

Save

</>

GET

http://127.0.0.1:5002/mine_block

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Key	Value	Description		

Body

Cookies

Headers (4)

Test Results

Status: 200 OK

Time: 378 ms

Size: 445 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

1

2

3

4

5

6

7

8

9

10

{

"index": 2,

"message": "Congratulations, you just mined a block!",

"previous_hash": "16103a23f6b6d0d2c7a6a7d8428669346e756fefb1e0490821052d2e1eb085d1",

"proof": 533,

"timestamp": "2022-04-27 00:54:16.735203",

"transactions": [

{

"amount": 1,

"receiver": "Kirill",

Runner

Trash

GET http://127.0.0.1:50...

GET http://127.0.0.1:50...



GET http://127.0.0.1:50...

+ ...

No Environment

http://127.0.0.1:5003/mine_block

Save



GET

http://127.0.0.1:5003/mine_block

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

1 {

2 ... "nodes": ["http://127.0.0.1:5001",

3 ... "http://127.0.0.1:5002"]

4 }

Body

Cookies

Headers (4)

Test Results

Status: 200 OK

Time: 270 ms

Size: 442 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

1 {

2 "index": 2,

3 "message": "Congratulations, you just mined a block!",

4 "previous_hash": "b90beaa265c334f593b29ef8d4ae5c7bceb275ef7687f750263bc9099201a424",

5 "proof": 533,

6 "timestamp": "2022-04-27 00:54:39.706789",

7 "transactions": [

8 {

9 "amount": 1,

10 "receiver": "You",

No Environment

POST

http://127.0.0.1:5001/add_transaction

Params

Send

Authorization

Headers (1)

Body

Pre-request Script

Tests

Cook

☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary JSON (application/json)

```
1- {  
2-   "sender": "Hadelin",  
3-   "receiver": "Kirill",  
4-   "amount": 10000  
5- }
```

Body

Cookies

Headers (4)

Test Results

Status: 201 CREATED

Time: 22 ms

Size

Pretty

Raw

Preview

JSON



```
1- {  
2-   "message": "This transaction will be added to Block 3"  
3- }
```

http://127.0.0.1:5001/ http://127.0.0.1:5002/ http://127.0.0.1:5003/ + ...

No Environment

GET

http://127.0.0.1:5001/mine_block

Params

Send

Save

Authorization

Headers (1)

Body

Pre-request Script

Tests

Cookies Code

TYPE

Inherit auth from parent

The authorization header will be automatically generated when you send the request. [Learn more about authorization](#)

This request is not inheriting any authorization helper at the moment. Save it in a collection to use the parent's authorization helper.

Body

Cookies

Headers (4)

Test Results

Status: 200 OK Time: 102 ms Size: 607 B

Pretty

Raw

Preview

JSON



```
1 {
2   "index": 3,
3   "message": "Congratulations, you just mined a block!",
4   "previous_hash": "0435b381ab0924b95f0b066a9fba6e93560b1e9bcab897153c05dbeddbf52f6",
5   "proof": 45293,
6   "timestamp": "2018-02-09 17:31:44.736074",
7   "transactions": [
8     {
9       "amount": 10000,
10      "receiver": "Kirill",
11      "sender": "Hadelin"
12    },
13    {
14      "amount": 1,
15      "receiver": "Hadelin",
16      "sender": "094a722bd6d04ade8af036b2187def23"
17    }
18  ]
19 }
```


GET

http://127.0.0.1:5001/get_chain

Params

Send

Save

TYPE

Inherit auth from parent

The authorization header will be automatically generated when you send the request. [Learn more about authorization](#)

This request is not inheriting any authorization helper at the moment. Save it in a collection to use the parent's authorization helper.

Body Cookies Headers (4) Test Results

Status: 200 OK Time: 19 ms Size: 1.15 KB

Pretty

Raw

Preview

JSON



```
1 {
2   "chain": [
3     {
4       "index": 1,
5       "previous_hash": "0",
6       "proof": 1,
7       "timestamp": "2018-02-09 17:11:16.955167",
8       "transactions": []
9     },
10    {
11      "index": 2,
12      "previous_hash": "1aadb5cba2678073e95cb2c1793a184fd20aa95740751804327bbdf637b3a99",
13      "proof": 533,
14      "timestamp": "2018-02-09 17:23:38.497868",
15      "transactions": [
16        {
17          "amount": 1,
18          "receiver": "Hadelin",
19          "sender": "094a722bd6d04ade8af036b2187def23"
20        }
21      ]
22    },
23    {
24      "index": 3,
25      "previous_hash": "0435b381ab0924b95f0b066a9fba6e93560b1e9bcab897153c05dbeddeb52f6",
26      "proof": 45293,
27      "timestamp": "2018-02-09 17:31:44.736074",
28      "transactions": [
29        {
30          "amount": 10000,
31          "receiver": "Kirill",
32          "sender": "Hadelin"
33        },
34        {
35          "amount": 1,
36          "receiver": "Hadelin",
37          "sender": "094a722bd6d04ade8af036b2187def23"
38        }
39      ]
40    }
41  ],
42  "length": 3
43 }
```