

Contract

- Address: KT1TZTkhnZFPL7cdNaif9B3r5oQswM1pnCXB
- [Link to contract](#)
- The contract only has the operations described next, so it is easy to check them all

Some clarifications

Test cases 4, 5, 10 and 11 can not be done because you can only swap within the range the price is currently at. The swap only goes to other ranges if the current range runs out of either Y token or X token.

Test Cases		
ID	Expected result	Test Case
1	Liquity is added (just token X is added)	Add Liquity in the range 1TKX > 5 TKY <-> 10 TKY
2	Liquity is added (just token Y is added)	Add Liquity in the range 1TKX > 1 TKY <-> 5 TKY
3	Liquity is added (both tokens are added)	Add Liquity in the current exchange range
4	Swap works	Swap in the range 5 TKY <-> 10 TKY
5	Swap works	Swap in the range 1 TKY <-> 5 TKY
6	Swap works	Swap at the current exchange rate
7	Liquity is withdrawn	Remove liquity provided in test case 1
8	Liquity is withdrawn	Remove liquity provided in test case 2
9	Liquity is withdrawn	Remove liquity provided in test case 3
10	Should not be possible anymore	Swap in the range 5 TKY <-> 10 TKY
11	Should not be possible anymore	Swap in the range 1 TKY <-> 5 TKY
12	Should not be possible anymore	Swap at the current exchange rate

The title of each test will have its ID.

Origination with initial value of $P=Y/X=5$

- Operation hash: oo3YisFTGrhgP9vBD1p3Eafgv2SiQduxwhiP1A5kn8on3qrzs1j
- [Link to operation](#)

```
▼ constants: 7 items
  ctez_burn_fee_bps: 5
  fee_bps: 10
  tick_spacing: 1
  x_token_address: KT1AR4CSxb15uFKacgKDGmPDSSvBLZ5m1Fz7
  x_token_id: 0
  y_token_address: KT1V6MLV1xN5yMhaF3jywm87Y4Vqi5fiPpxA
  y_token_id: 0
▼ cumulatives_buffer: 4 items
  first: 0
  last: 0
  map: [BIG MAP 229437]
  reserved_length: 1
  cur_tick_index: 16,095
  cur_tick_witness: -1,048,575
▼ fee_growth: 2 items
  x: 0
  y: 0
  ladder: [BIG MAP 229438]
  liquidity: 0
  metadata: [BIG MAP 229439]
  new_position_id: 0
  operators: [BIG MAP 229440]
  positions: [BIG MAP 229441]
  sqrt_price: 2,703,324,232,521,071,249,517,405
  ticks: [BIG MAP 229442]
```

⇒ $P=1.0001^{\text{cur_tick}}=5$

ID 1) Set position in a range above the current price range

- Operation hash: ooCoVPMHErZBxvfwmlKJm7tBY44GnzLXRzs29yLY22XwGd8Q5oA
- [Link to operation](#)
- We chose the range to be between $P=5.1$ and $P=10$
- Only x tokens should be sent to the contract

The screenshot shows the 'Account 1' interface for a Tezos wallet on the Ghostnet Testnet. The balance is 12,086.7929 TEZ. Below the balance are buttons for 'Receive', 'Buy', 'Withdraw', 'Swap', and 'Send'. The 'Activity' tab is selected, showing a list of transactions. A yellow box highlights the operation hash 'ooCoVPMHEr...Gd8Q5oA'. A red box highlights the transaction details: '↑ Transfer to KT1AR4C...1Fz7' and 'Interaction with KT1TZTk...nCXB', with a value of '-1.000039 TX'. The status is 'Applied' and 'less than a minute ago'.

Account 1

Ghostnet Testnet

Support

Tezos Balance

tz1eLA1...RZSW

12,086.7929 TEZ

Receive Buy Withdraw Swap Send

Tokens Collectibles Activity

ooCoVPMHEr...Gd8Q5oA

↑ Transfer to KT1AR4C...1Fz7 -1.000039 TX

Interaction with KT1TZTk...nCXB

Applied less than a minute ago

oogk2cjXFQ...6EkJVRE

↑ Transfer to KT1V6ML...PpXA -4.999488 TY

↑ Transfer to KT1AR4C...1Fz7 -0.980134 TX

> more

Applied

ID 2) Set position in a range bellow the current price range

- Operation hash: opQzcLaUvM2HfLHc51yCX49jCJtH5fsJRFD4TL9QVLGG69yHzog
- [Link to operation](#)
- We chose the range to be between P=4.9 and P=1
- Only y tokens should be sent to the contract

The screenshot displays a Tezos wallet interface for 'Account 1' on the 'Ghostnet Testnet'. The Tezos balance is 12,086.7254 TEZ. Below the balance are buttons for 'Receive', 'Buy', 'Withdraw', 'Swap', and 'Send'. The 'Activity' tab is selected, showing a list of transactions. The first transaction is highlighted with a red box and contains the following details:

- Operation hash: [opQzcLaUvM...69yHzog](#)
- ↑ Transfer to KT1V6ML...PpxA -5.000295 TY
- ☐ Interaction with KT1TZTk...nCXB
- Applied half a minute ago



The second transaction is also visible:

- Operation hash: [ooCoVPMHEr...Gd8Q5oA](#)
- ↑ Transfer to KT1AR4C...1Fz7 -1.000039 TX
- ☐ Interaction with KT1TZTk...nCXB
- Applied 3 minutes ago

ID 3) Set position in the current price range






- Operation hash: oogk2cjXFQb2iVhH8L8FDdev55VxD47zgSsh6W4huTBV6EkJVRE
- [Link to operation](#)
- We chose the range to be between $P=5.1$ and $P=4.9$ (it could be any range that includes the current price)
- Both x and y tokens should be sent to the contract

The screenshot shows a Tezos wallet interface. At the top, there is a 'Support' button with a lightning bolt icon and a notification bell icon. Below this, the 'Tezos Balance' is displayed as '12,086.8625 TEZ' next to the address 'tz1eLA1...RZSW'. A row of five icons represents wallet functions: 'Receive' (down arrow), 'Buy' (shopping cart), 'Withdraw' (document with arrow), 'Swap' (double arrows), and 'Send' (up arrow). Below these icons are three tabs: 'Tokens', 'Collectibles', and 'Activity', with 'Activity' being the active tab. The 'Activity' section shows a list of transactions. The first transaction is highlighted with a yellow box and contains a red-bordered box around its details. The transaction is 'oogk2cjXFQ...6EkJVRE' with a link icon. It lists two transfers: '↑ Transfer to KT1V6ML...PpxA' with a value of '-4.999488 TY' and '↑ Transfer to KT1AR4C...1Fz7' with a value of '-0.980134 TX'. Below these is a '> more' link, the status 'Applied', and the time '2 minutes ago'. The second transaction is 'ooV49d1Zzm...7iePShY' with a link icon, followed by 'Interaction with KT1V6ML...PpxA', the status 'Applied', and the time '2 minutes ago'.

Support  


Tezos Balance tz1eLA1...RZSW

12,086.8625 TEZ


    


Receive Buy Withdraw Swap Send

Tokens Collectibles **Activity**

oogk2cjXFQ...6EkJVRE 

↑ Transfer to KT1V6ML...PpxA -4.999488 TY
↑ Transfer to KT1AR4C...1Fz7 -0.980134 TX
> more
Applied
2 minutes ago

ooV49d1Zzm...7iePShY 

 Interaction with KT1V6ML...PpxA
Applied
2 minutes ago

ID 6) X to Y swap

- Operation hash: ooEebpZWbv5bvJTw1VArSp22FBK9CYDucUMWqaTx3azuvnbMC2
- [Link to operation](#)
- We gave 0.001 X tokens to the pool, and expect to get close to $P \times 0.001 = 5 \times 0.001 = 0.005$ y tokens
- We chose this amounts and not 1 x token, in order to not change the price too much and stay in the current price range (while showing that the exchange rate is correct). This allows to easealy do the opposite swap (as we will see next)

The screenshot shows a Tezos wallet interface for 'Account 1' on the 'Ghostnet Testnet'. The Tezos Balance is 12,086.7192 TEZ. Below the balance are buttons for Receive, Buy, Withdraw, Swap, and Send. The 'Activity' tab is selected, showing a transaction history. A yellow box highlights the operation hash 'ooEebpZWbv...uvnbMC2'. A red box highlights a transaction with two entries: 'Transfer to KT1AR4C...1Fz7' (+ 0.004995 TY) and 'Interaction with KT1TZTk...nCXB' (-0.001 TX). The transaction is marked as 'Applied' and occurred '1 minute ago'. Another operation hash 'opQzcLaUvM...69yHzog' is visible below.

Account 1
Ghostnet Testnet

Support

Tezos Balance
12,086.7192 TEZ

tz1eLA1...RZSW

Receive Buy Withdraw Swap Send

Tokens Collectibles Activity

ooEebpZWbv...uvnbMC2


↑ Transfer to KT1AR4C...1Fz7 + 0.004995 TY
Interaction with KT1TZTk...nCXB -0.001 TX

Applied
1 minute ago

opQzcLaUvM...69yHzog


ID 6) Y to X swap

- Operation hash: ooDcgaM9K8qWb8ZqyXitfhL1gMGSYt5ac9324iFwbXwQzVu7bgD
- [Link to operation](#)
- We gave 0.005 Y tokens to the pool, and expect to get close to $0.005/P=0.005/5=0.001$ x tokens




Account 1

● Ghostnet Testnet




Support




Tezos Balance

tz1eLA1...RZSW


12,086.7130 TEZ




Receive




Buy



Withdraw



Swap



Send

Tokens

Collectibles

Activity

ooDcgaM9K8...zVu7bgD

↑ Transfer to KT1V6ML...PpxA

+ 0.000998 TX

Interaction with KT1TZTk...nCXB

-0.005 TY

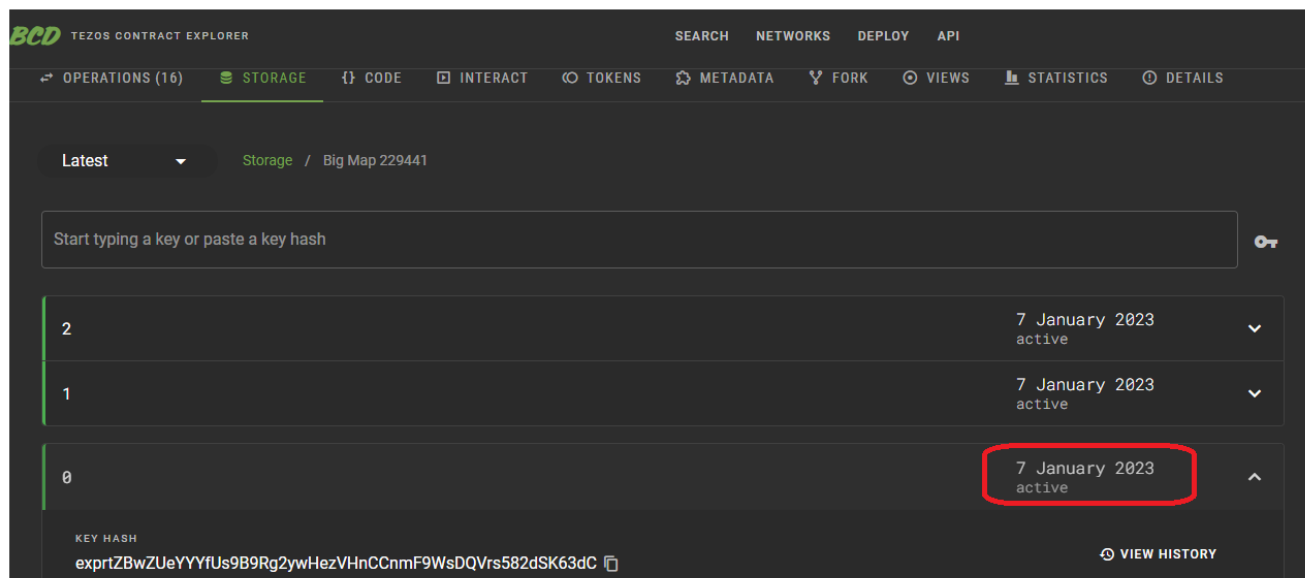
Applied

less than a minute ago

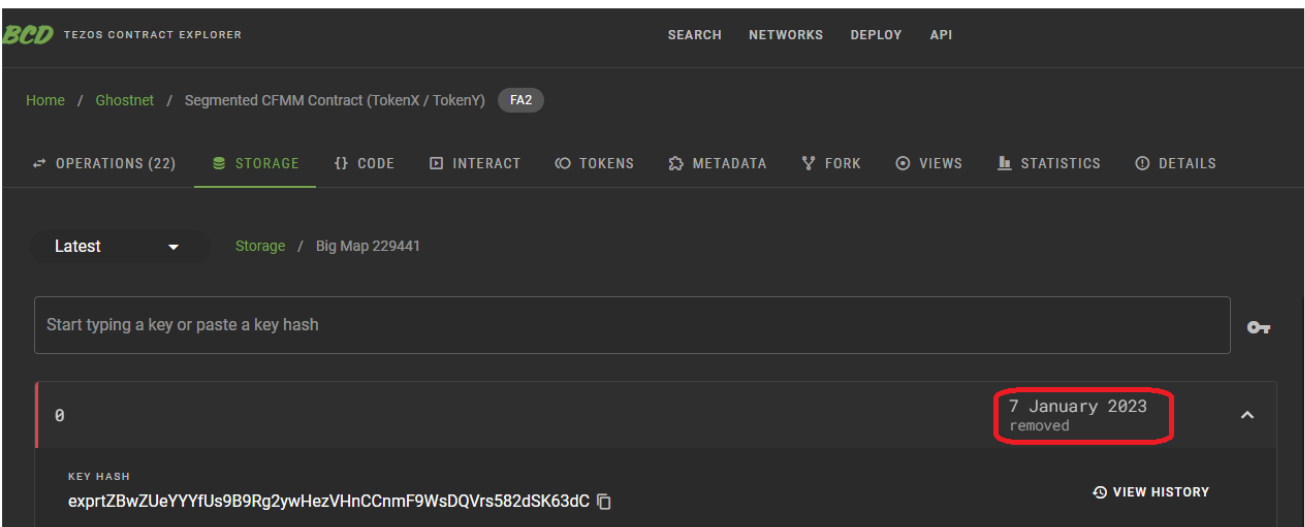
ID 9) Remove position

- Operation hash: ooQEtcBZM5K7uJN25tJV2x4nFoqCusG4CwLnmT4SRqq7xknvvam
- [Link to operation](#)
- We removed the initial position (the one where the current price is)
- Received our tokens back plus some fees from the swaps that occurred

Before TX




After TX





Being the tx:


TX



Account 1




Support 




Tezos Balance

tz1eLA1...RZSW


12,086.7113 TEZ




Receive




Buy



Withdraw



Swap





Send

Tokens

Collectibles

Activity

ooQEtcBZM5...xknvvam 


 Interaction with KT1TZTk...nCXB

+ 4.999493 TY

Applied

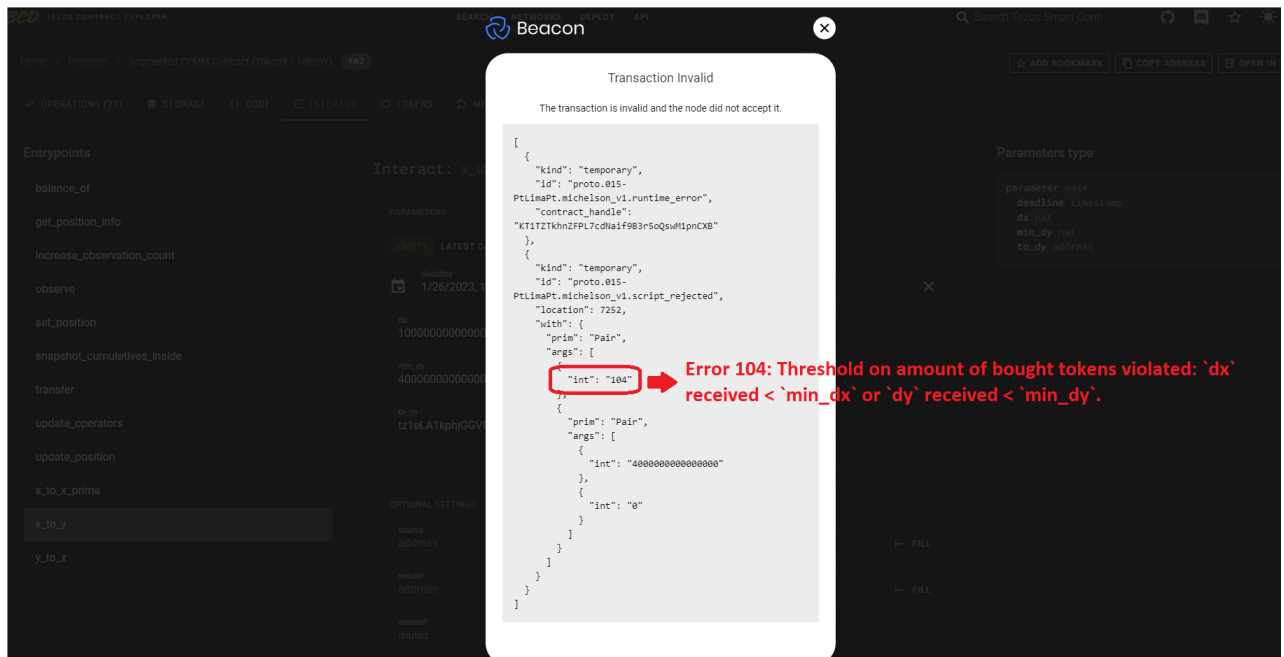
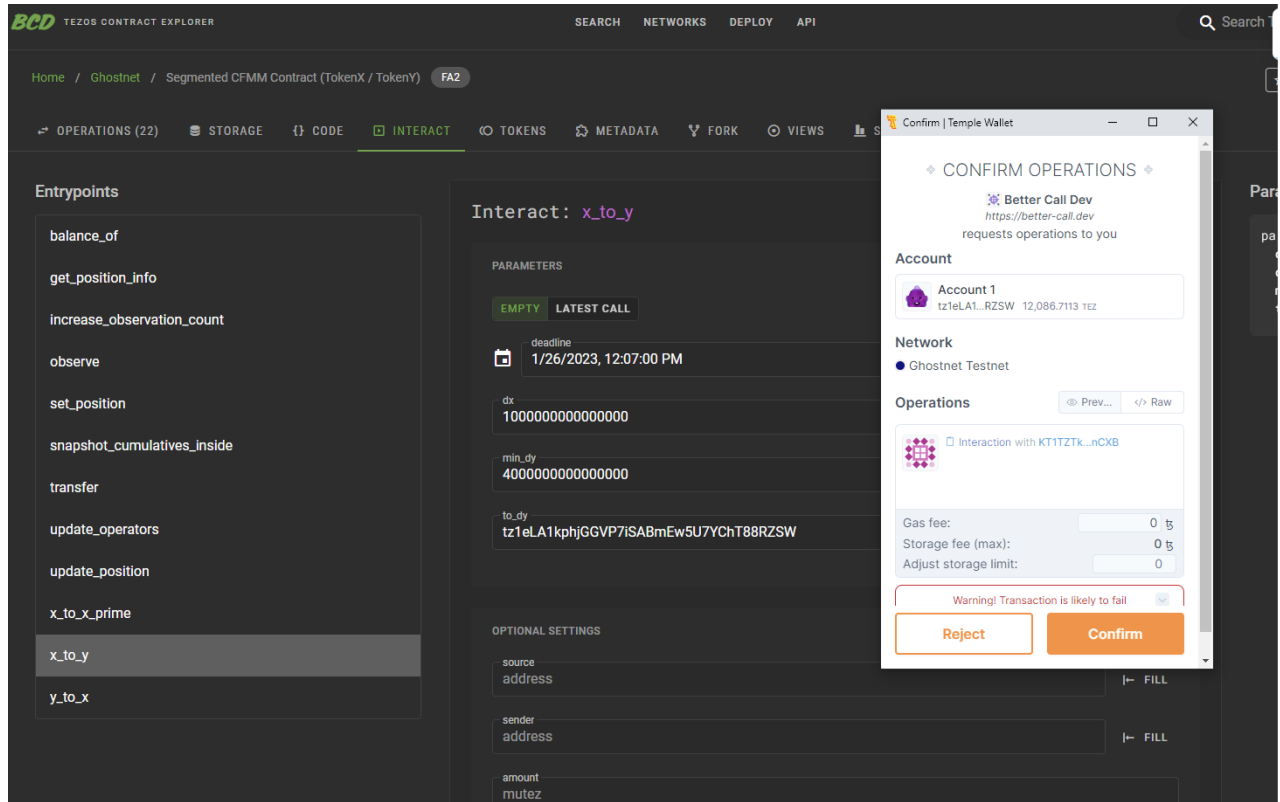
+ 0.980135 TX

less than a minute ago

ooDcgaM9K8...zVu7bgD 

ID 12) Attempt to swap

- Since we removed our initial position (the only one which included the current price), there is no more liquidity at the current price, so we can't perform a swap anymore



Question: Does yield farming already works? If i swap in a range will the provider receive a share?

Yes, and yes. We can see that the token amounts we get from closing our position is higher than what we inputed.

Set_pos

Support

Tezos Balance

tz1eLA1...RZSW

12,086.8625 TEZ

Receive

Buy

Withdraw

Swap

Send

Tokens

Collectibles

Activity

oogk2cjXfQ...6EkJVRE

↑ Transfer to KTTV6ML...PpxA -4.999488 TY

↑ Transfer to KT1AR4C...1Fz7 -0.980134 TX

more

Applied

3 minutes ago

Remove_pos

Support

Tezos Balance

tz1eLA1...RZSW

12,086.7113 TEZ

Receive

Buy

Withdraw

Swap

Send

Tokens

Collectibles

Activity

ooQEiCBZMS...xknvram

Interaction with KT1T2Tk...nCXB + 4.999493 TY

Applied + 0.980135 TX

105s than a minute ago

Fees collected:

Ytoken: $4.999493 - 4.999488 = 0.000005$

Xtoken: $0.980135 - 0.980134 = 0.000001$