# **User Guide for Minswap Cardano in Hummingbot**

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# **Connecting to Minswap Gateway**

1. Run the Command:

gateway connect minswap

- 2. **Select Blockchain**: Type cardano.
- 3. Choose Network:
  - For mainnet: mainnet
  - For pre-production: preprod
- 4. **Confirm Node URL**: Type yes to use the default node.
- 5. Enter Private Key: Provide your Cardano wallet private key (keep it secure).
- 6. **Success Message**: You'll see confirmation with your wallet address connected.

#### **Checking Balance on Minswap Gateway**

1. Run the Command:

gateway balance minswap\_cardano\_preprod

- 2. **Wait for the Update**: The gateway will fetch your wallet balance.
- 3. View Results:
  - Wallet Address: Displays the connected wallet address.
  - **Symbol**: The token (e.g., ADA).
  - Balance: Available balance in the wallet

# Adding a Token to the Gateway Balance Check

1. Add a Token:

Use the following command to add a specific token (e.g., MIN) to your balance check.

gateway connector-tokens minswap cardano preprod MIN

#### 2. Verify the Balance:

Run the balance command to view the added token balance.

gateway balance minswap cardano preprod

#### 3. Output Details:

- **ADA**: Displays ADA balance.
- MIN: Displays the balance of the added token (e.g., MIN).

# Creating a Script to Fetch Price of ADA-MIN from Minswap Liquidity Pool

#### 1. Run the Command:

Use the create command with the following structure:

```
create --script-config amm price example
```

# 2. Provide the Required Inputs:

- Connector, Chain, and Network: Enter the connector (e.g., minswap cardano preprod).
- **Trading Pair**: Specify the pair (e.g., ADA-MIN).
- Trade Side: Choose BUY or SELL (e.g., SELL).
- **Order Amount**: Enter the trade amount (e.g., 100).
- **File Name**: Provide a new file name for the configuration (e.g., conf amm price example 5.yml).

#### 3. Result:

A new configuration file will be created:

A new config file has been created: conf amm price example 5.yml

#### 4. Next Steps:

Use the generated configuration file (conf\_amm\_price\_example\_5.yml) to start the script

```
>>> create --script-config amm_price_example
Connector, chain, and network (e.g., minswap_cardano_preprod) >>> minswap_cardano_preprod
Trading pair (e.g., ADA-MIN) >>> ADA-MIN
Trade side (BUY or SELL) >>> SELL
Order amount for the trade >>> 100
Enter a new file name for your configuration >>> conf_amm_price_example_5.yml
A new config file has been created: conf_amm_price_example_5.yml
```

# Starting and Fetching Price of ADA-MIN from Minswap Liquidity Pool

# 1. Run the Script:

Use the start command to begin the script and fetch balance:

```
start --script amm_price_example.py --conf conf_amm_price_example_5.yml
```

#### 2. Execution Process:

- The script will initialize and fetch price information for the specified trading pair (ADA-MIN in this case).
- Example output:

```
Status check complete. Starting 'amm_price_example' strategy... 'amm_price_example' strategy started.
Run 'status' command to query the progress.
```

#### 3. Stop the Script:

To terminate the script, use the stop command:

stop

#### Output:

```
Winding down...
Canceling outstanding orders... All outstanding orders canceled.
```

#### 4. **Result**:

The script fetches the price and balance details for the trading pair. Example log:

```
16:12:44 - script_strategy_base - minswap_cardano_preprod is not ready. Please wait...
16:12:46 - script_strategy_base - Fetching price for ADA-MIN...
16:12:46 - rate_oracle - Network status has changed to NetworkStatus.CONNECTED. Starting networking...
16:12:47 - script_strategy_base - Price: 51641284.88, Amount: 100.00, rawAmount: 5164128488.36
```

```
>>> start --script amm_price_example.py --conf conf_amm_price_example_5.yml
Status check complete. Starting 'amm_price_example' strategy...
'amm_price_example' strategy started.
Run `status` command to query the progress.

>>> stop
Winding down...
Canceling outstanding orders...
All outstanding orders canceled.
```

```
16:12:44 - script_strategy_base - minswap_cardano_preprod is not ready. Please wait...
16:12:46 - script_strategy_base - Fetching price for ADA-MIN...
16:12:46 - rate_oracle - Network status has changed to NetworkStatus.CONNECTED. Starting ne tworking...
16:12:47 - script_strategy_base - Price: 51641284.88, Amount: 100.00, rawAmount:5164128488.
```

# **Trading on Minswap Liquidity Pool**

# Create a Trade Script

To set up a trade on the Minswap liquidity pool:

```
create --script-config amm_trade_example
```

- Connector, chain, and network: minswap cardano preprod
- Trading pair: ADA-MIN
- Trade side:
  - BUY: Buy ADA using MIN.
  - SELL: Sell MIN to receive ADA.
- Order amount: Example: 10
- Configuration file: Example: conf amm trade example 6.yml

# Output:

A new config file has been created: conf amm trade example 6.yml

```
>>> create --script-config amm_trade_example
Connector, chain, and network (e.g., minswap_cardano_preprod) >>> minswap_cardano_preprod
Trading pair (e.g., ADA-MIN) >>> ADA-MIN
Trade side (BUY or SELL) >>> BUY
Order amount for the trade >>> 10
Enter a new file name for your configuration >>> conf_amm_trade_example_6.yml
A new config file has been created: conf_amm_trade_example_6.yml
```

# **Start the Trade Script**

Start the script to execute the trade:

```
start --script amm_trade_example.py --conf conf_amm_trade_example_6.yml
```

- The script fetches the price, adjusts it with slippage, and executes the trade.
- Example output:

```
Status check complete. Starting 'amm_trade_example' strategy...
```

'amm\_trade\_example' strategy started.
Run 'status' command to query the progress.

>>> start --script amm\_trade\_example.py --conf conf\_amm\_trade\_example\_6.yml

Status check complete. Starting 'amm\_trade\_example' strategy...

'amm\_trade\_example' strategy started.

Run `status` command to query the progress.

#### **Result of the Trade**

# 1. Fetching Price and Adjustments:

• Current price: 51641284.88

• Adjusted price (with slippage): 52157697.728800006

#### 2. Balances Before Trade:

ADA: 10168.22826 MIN: 4990285607

#### 3. Executing Trade:

#### Transaction ID:

524276816558701e2ca48db7bab0dcead59515c6602d43ca139daf61b12d2b6d

• Status: Confirmed

• Block:

14df4442a1c4ae1cdd1c799683fc3b424bfcfef4198b27fc4fc1d95d7 0980019

• Block height: 3062051

• Fees: 186973

#### 4. Balances After Trade:

ADA: 10176.541287 MIN: 4472134049

# Trading on Minswap Liquidity Pool with User Specified price

#### Create a Trade Script with user specified price

To set up a trade on the Minswap liquidity pool:

create --script-config amm trade

- Connector, chain, and network: minswap\_cardano\_preprod
- Trading pair(e.g, ADA\_MIN): ADA-MIN
- Trade side:
  - BUY: Buy ADA using MIN.
  - SELL: Sell MIN to receive ADA.
- Order amount: Example: 100

- Slippage buffer (e.g., 0.01 for 1%): 0.01
- Price of ADA-MIN in which you want to buy: 40000498.35
- **Configuration file**: conf\_amm\_trade\_1.yml

## Output:

A new config file has been created: conf\_amm\_trade\_1.yml

```
>>> create --script-config amm_trade
Connector, chain, and network (e.g., minswap_cardano_preprod) >>> minswap_cardano_preprod
Trading pair (e.g., ADA-MIN) >>> ADA-MIN
Trade side (BUY or SELL) >>> BUY
Order amount for the trade >>> 100
Slippage buffer (e.g., 0.01 for 1%) >>> 0.01
Price of ADA-MIN in which you want to buy. >>> 40000498.35
Enter a new file name for your configuration >>> conf_amm_trade_1.yml
A new config file has been created: conf_amm_trade_1.yml
>>>
```

# **Start the Trade Script**

Start the script to execute the trade:

start --script amm\_trade.py --conf conf\_amm\_trade\_1.yml

- The script fetches the price, adjusts it with slippage, and executes the trade.
- Example output:

Status check complete. Starting 'amm\_trade' strategy... 'amm\_trade' strategy started.
Run 'status' command to query the progress.

#### **Result of the Trade**

- 1. Fetching Price and Adjustments:
  - Initial Attempt (14:15:55):
    - Current Price: 40014498.35
    - Adjusted Price (with Slippage): 40414643.333500006
    - User Specified Price: 40000498.35
    - **Trade Status:** Conditions not met. Trade skipped.
  - Subsequent Attempt (14:29:38):
    - Current Price: 39765640.1
    - Adjusted Price (with Slippage): 40163296.501000006
    - User Specified Price: 40000498.35
    - Trade Status: Conditions met. Executing trade...

#### 2. Balances Before Trade:

• **ADA:** 7618.723737

• MIN: 65069675048

#### 3. Executing Trade:

• Transaction ID:

7f4e6ae23d215305f971d985ba2ce568a4903e0fa8949991bf39fd9047821f2c

• Status: Confirmed

• Block: Not Specified

• Block Height: Not Specified

• Fees: Not Specified

# 4. Balances After Trade:

• **ADA:** 7717.033684

• **MIN:** 61068665841

```
14:15:52 - rate_oracle - Network status has changed to NetworkStatus.CONNECTED. Starting ne
tworking...
14:15:53 - script_strategy_base - Fetching balances for addr_test1vznd34ydghfh2aw8cnn5lgw90
vpvlg82ngj30wzue0rw5jgct5m7d...
14:15:54 - script_strategy_base - Updated Balances: {'ADA': '7618.723737', 'MIN': '65069675
048'}
14:15:54 - script_strategy_base - Fetching price for ADA-MIN...
14:15:55 - script_strategy_base - Current Price: 40014498.35
14:15:55 - script_strategy_base - Adjusted Price with Slippage: 40414643.333500001505017280
14:15:55 - script_strategy_base - User Specified Price: 40000498.35
14:15:55 - script_strategy_base - Trade conditions not met. Skipping execution.
14:15:55 - script strategy base - Waiting for 1 minutes before next fetch...
14:29:36 - script_strategy_base - Fetching balances for addr_test1vznd34ydghfh2aw8cnn5lgw90
vpvlg82ngj30wzue0rw5jgct5m7d...
14:29:37 - script_strategy_base - Updated Balances: {'ADA': '7618.723737', 'MIN': '65069675
048'}
14:29:37 - script_strategy_base - Fetching price for ADA-MIN...
14:29:38 - script_strategy_base - Current Price: 39765640.1
14:29:38 - script_strategy_base - Adjusted Price with Slippage: 40163296.501000001505017280
14:29:38 - script_strategy_base - User Specified Price: 40000498.35
14:29:38 - script_strategy_base - Executing trade...
14:29:42 - script_strategy_base - Polling transaction status for 7f4e6ae23d215305f971d985ba
2ce568a4903e0fa8949991bf39fd9047821f2c...
14:29:42 - script_strategy_base - Fetching transaction, please wait...
14:29:47 - script_strategy_base - Fetching transaction, please wait...
14:31:12 - script_strategy_base - Fetching transaction, please wait...
14:31:12 - script_strategy_base - Transaction 7f4e6ae23d215305f971d985ba2ce568a4903e0fa8949
991bf39fd9047821f2c confirmed successfully.
14:31:12 - script strategy base - Fetching balances for addr test1vznd34ydghfh2aw8cnn5lgw90
vpvlg82ngj30wzue0rw5jgct5m7d...
14:31:14 - script_strategy_base - Updated Balances: {'ADA': '7615.033684', 'MIN': '61068665
841'}
14:31:14 - script_strategy_base - Trade executed successfully. No further trades will be ma
de.
```

#### **Add Liquidity on Minswap**

# Create a Add Liquidity Script with user specified amount

create --script-config liquidity\_bot

- Connector, chain, and network: minswap cardano preprod
- Trading pair(e.g, ADA\_MIN): ADA-MIN
- Side (ADD/REMOVE) Liquidity:
  - ADD: Add liquidity to minswap liquidity pool
  - REMOVE: Remove liquidity from minswap liquidity pool
- Token to Add or remove from liquidity pool (e.g., ADA): ADA
- Token to Add or remove from liquidity pool (e.g., MIN): MIN
- Amount to Add or remove from liquidity pool (e.g., 100): 100
- Configuration file: conf\_liquidity\_bot\_Add.yml

#### Output:

A new config file has been created: conf\_liquidity\_bot\_Add.yml

```
>>> create --script-config liquidity_bot
Connector, chain, and network (e.g., minswap_cardano_preprod) >>> minswap_cardano_preprod
Trading pair (e.g., ADA-MIN) >>> ADA-MIN
Side (ADD/REMOVE) Liquidity >>> ADD
Token to Add or remove from liquidity pool (e.g., ADA) >>> ADA
Token to Add or remove from liquidity pool (e.g., MIN) >>> MIN
Amount to Add or remove from liquidity pool (e.g., 500) >>> 100
Enter a new file name for your configuration >>> conf_liquidity_bot_Add.yml
A new config file has been created: conf_liquidity_bot_Add.yml
```

# **Start the Liquidity Script**

Start the script to Add liquidity:

start --script liquidity\_bot.py --conf conf\_liquidity\_bot\_Add.yml

- The script calculates the amount1 required for trade, and fetch the wallet balance and if the wallet has sufficient balance then it executes the trade.
- Example output:
  - Status check complete. Starting 'liquidity\_bot' strategy...
  - 'liquidity\_bot' strategy started.
  - Run `status` command to query the progress.

```
>>> start --script liquidity_bot.py --conf conf_liquidity_bot_Add.yml
Status check complete. Starting 'liquidity_bot' strategy...
'liquidity_bot' strategy started.
Run `status` command to query the progress.
```

# Result of the Add Liquidity Action

- 1. Fetching Price and Calculations:
  - Network Status: Connected.
  - Price MIN/ADA: 2.499047341801E-8.
  - Price ADA/MIN: 40,015,248.34176563113959021864.
  - Calculated Amount1 (MIN): 4,001,524,834.
- 2. Balances Before Liquidity Addition:
  - ADA: 7,717.033684MIN: 61,068,665,841
- 3. Executing Add Liquidity Action:
  - Liquidity Transaction Submitted Successfully:
    - Transaction ID: e81430c082f6cdb1ee07bb12d4590c0583d8d6b9179482360be6 63f62eba0995.
- 4. Balances After Liquidity Addition:
  - ADA: 7,615.3426MIN: 57,067,141,007
  - **Liquidity Pool Tokens (LP):** 1,142,683,909

```
14:34:23 - script_strategy_base - minswap_cardano_preprod is not ready. Please wait...
14:34:25 - script_strategy_base - Calculating amount1 based on price...
14:34:25 - rate_oracle - Network status has changed to NetworkStatus.CONNECTED. Starting ne
tworking...
14:34:26 - script_strategy_base - Calculated amount1: 4001524834
14:34:26 - script_strategy_base - Fetching balances for addr_test1vznd34ydghfh2aw8cnn5lgw90
vpvlg82ngj30wzue0rw5jgct5m7d...
14:34:28 - script strategy base - Updated Balances: {'ADA': '7717.033684', 'MIN': '61068665
841'}
14:34:28 - script_strategy_base - Fetching price from liquidity pool ADA-MIN...
14:34:28 - script_strategy_base - Price MIN/ADA: 2.499047341801E-8, ADA/MIN: 40015248.34176
563113959021864
14:34:28 - script_strategy_base - Executing ADD liquidity action...
14:34:31 - script_strategy_base - Liquidity transaction submitted with txHash: e81430c082f6
cdb1ee07bb12d4590c0583d8d6b9179482360be663f62eba0995
14:35:11 - script_strategy_base - Transaction e81430c082f6cdb1ee07bb12d4590c0583d8d6b917948
2360be663f62eba0995 confirmed successfully.
14:35:11 - script_strategy_base - Fetching balances for addr_test1vznd34ydghfh2aw8cnn5lgw90
vpvlg82ngj30wzue0rw5jgct5m7d...
14:35:13 - script_strategy_base - Updated Balances: {'ADA': '7613.342619', 'MIN': '57067141
007'}
14:35:13 - script_strategy_base - Liquidity flow executed successfully.
```

```
gateway connector-tokens minswap_cardano_preprod LP
The 'gateway balance' command will now report token balances LP for 'minswap_cardano_prep
rod'.
>>> gateway balance minswap_cardano_preprod
Updating gateway balances, please wait...
Connector: minswap_cardano_preprod
Wallet_Address: addr_test1vznd34ydghfh2aw8cnn5lgw90vpvlg82ngj30wzue0rw5jgct5m7d
    Symbol Balance Allowance
ADA 7615.3426 0.0000
                7615.3426
                              0.0000
       LP 1142683909.0000 0.0000
>>> status
  Balances:
                   Exchange Asset Total Balance Available Balance
    minswap_cardano_preprod ADA 7615.342619
minswap_cardano_preprod MIN 57067141007
                                                          7615.342619
                                                          57067141007
  No active maker orders.
```

# **Remove Liquidity on Minswap**

#### Create a Remove Liquidity Script with user specified percentage

create --script-config liquidity\_bot

- Connector, chain, and network: minswap cardano preprod
- Trading pair(e.g, ADA\_MIN): ADA-MIN
- Side (ADD/REMOVE) Liquidity:
  - ADD: Add liquidity to minswap liquidity pool
  - REMOVE: Remove liquidity from minswap liquidity pool
- Decrease percentage for REMOVE liquidity (e.g., 50 for 50%): 100
- Enter a new file name for your configuration: conf\_liquidity\_bot\_Remove.yml

# Output:

A new config file has been created: conf\_liquidity\_bot\_Remove.yml

```
>>> create --script-config liquidity_bot
Connector, chain, and network (e.g., minswap_cardano_preprod) >>> minswap_cardano_preprod
Trading pair (e.g., ADA-MIN) >>> ADA-MIN
Side (ADD/REMOVE) Liquidity >>> REMOVE
Decrease percentage for REMOVE liquidity (e.g., 50 for 50%) >>> 100
Enter a new file name for your configuration >>> conf_liquidity_bot_Remove.yml
A new config file has been created: conf_liquidity_bot_Remove.yml
```

# **Start the Liquidity Script**

Start the script to Remove liquidity:

start --script liquidity\_bot.py --conf conf\_liquidity\_bot\_Remove.yml

- The script takes the L.P token from user wallet and calculates how much ADA and MIN user will get and executes the trade.
- Example output:
  - Status check complete. Starting 'liquidity\_bot' strategy...
  - 'liquidity\_bot' strategy started.
  - Run `status` command to query the progress.

## Result of the Liquidity Removal Trade

- 1. Fetching Price and Adjustments:
  - Current Price (ADA-MIN): 40015248.34176
  - Adjusted Price (with slippage): 40015248.34176
- 2. Balances Before Trade:

ADA: 7615.342619MIN: 57067141007

#### 3. Executing Liquidity Removal:

• Transaction ID: e2afa987ebf569178695c2e5ab8f7c2993cd49d307089cda8409002a016b3e3b

• Status: Confirmed

• Transaction Hash: e2afa987ebf569178695c2e5ab8f7c2993cd49d307089cda8409002a016b3e3b

#### 4. Balances After Trade:

ADA: 7813.340493MIN: 65057690701

```
14:38:44 - script_strategy_base - Fetching balances for addr_test1vznd34ydghfh2aw8cnn5lgw90 vpvlg82ngj30wzue0rw5jgct5m7d...

14:38:45 - script_strategy_base - Updated Balances: {'ADA': '7615.342619', 'MIN': '57067141 007'}

14:38:45 - script_strategy_base - Fetching price from liquidity pool ADA-MIN...

14:38:45 - script_strategy_base - Price MIN/ADA: 2.499047341801E-8, ADA/MIN: 40015248.34176 012393293111848

14:38:45 - script_strategy_base - Executing REMOVE liquidity action...

14:38:48 - script_strategy_base - Liquidity transaction submitted with txHash: e2afa987ebf5 69178695c2e5ab8f7c2993cd49d307089cda8409002a016b3e3b

14:38:48 - script_strategy_base - Polling transaction status for e2afa987ebf569178695c2e5ab 8f7c2993cd49d307089cda8409002a016b3e3b...

14:38:48 - script_strategy_base - Fetching transaction, please wait...

14:40:29 - script_strategy_base - Transaction e2afa987ebf569178695c2e5ab8f7c2993cd49d307089 cda8409002a016b3e3b confirmed successfully.
```

#### >>> status

#### Balances:

Exchange Asset Total Balance Available Balance minswap\_cardano\_preprod ADA 7813.340493 7813.340493 minswap\_cardano\_preprod MIN 65057690701 65057690701

No active maker orders.

# >>> gateway balance minswap\_cardano\_preprod Updating gateway balances, please wait...

Connector: minswap\_cardano\_preprod

Wallet\_Address: addr\_test1vznd34ydghfh2aw8cnn5lgw90vpvlg82ngj30wzue0rw5jgct5m7d

Symbol Balance Allowance ADA 7813.3405 0.0000 LP 0.0000 0.0000