

# Quick Start

Let's use mev-inspect to find the same arbitrage as [MEV Alpha Leak](#)

## Install

mev-inspect-py is built to run on kubernetes locally and in production

### Install dependencies

First, setup a local kubernetes deployment - we use [Docker](#) and [kind](#)

If using kind, create a new cluster with:

kind create cluster Next, install the kubernetes CL [kubecti](#)

Then, install [helm](#) - helm is a package manager for kubernetes

Lastly, setup [Tilt](#) which manages running and updating kubernetes resources locally

### Start up

Set an environment variable `RPC_URL` to an RPC for fetching blocks Example:

`export RPC_URL="http://111.111.111.111:8546"` note mev-inspect-py currently requires an RPC with support for OpenEthereum / Erigon traces (not geth 😊) Next, start all services with:

`tilt up` Press "space" to see a browser of the services starting up

On first startup, you'll need to apply database migrations. Apply with:

`./mev exec alembic upgrade head`

### Tear down

First stop the running tilt window with `Ctrl+C`

Then run

`tilt down`

## Inspect a block

Using the [linked etherscan transaction](#) , we can see the block number is 12914944.

To inspect this block, run

`./mev inspect 12914944`

## Connect to Postgres

We'll connect to the Postgres database to see the data inspect found in that block

Let's start up a client container connected to the DB:

`./mev db` When you see the prompt

`mev_inspect=#` You're ready to query!

To make the data display nice, switch into "Expanded display" mode by running

`\x`

## Query for arbitrage data

Let's find that arbitrage by querying the `arbitrages` table:

`SELECT`

```
* FROM arbitrages WHERE block_number =
```

```
12914944
```

```
AND transaction_hash =
```

```
'0xfcf4558f6432689ea57737fe63124a5ec39fd6ba6aaf198df13a825dd599bffc' You should see output like this:
```

```
id | ff2deb13-c2c1-4ef5-a6ff-0ca813a07d6b created_at | 2021-09-27 15:26:58.193263 account_address |  
0x0000fee6275dab194ab538a01dd8b18b02b20000 profit_token_address |  
0xc02aaa39b223fe8d0a0e5c4f27ead9083c756cc2 block_number | 12914944 transaction_hash |  
0xfcf4558f6432689ea57737fe63124a5ec39fd6ba6aaf198df13a825dd599bffc start_amount | 70287643212620210176  
end_amount | 123848351154563483804 profit_amount | 53560707941943273628 We can see this matches the original  
tweet description!
```

The profit\_token\_address is the address for WETH, our start\_amount is 70 WETH (assuming 18 decimals), and our end\_amount is 123 WETH

## Query for arbitrage swaps

We can learn about the swaps involved in this arbitrage by joining against the arbitrage\_swaps and swaps tables

Note: You'll need to switch in the id you got in the first query for arbitrage\_id.   
SELECT s . \* FROM swaps s JOIN arbitrage\_swaps arb\_swaps ON s . transaction\_hash = arb\_swaps . swap\_transaction\_hash AND s . trace\_address = arb\_swaps . swap\_trace\_address WHERE arb\_swaps . arbitrage\_id =

```
'ff2deb13-c2c1-4ef5-a6ff-0ca813a07d6b' ; You should see output like this:
```

```
-[ RECORD 1 ]-----+----- created_at | 2021-09-27 15:26:58.180131 abi_name |  
UniswapV3Pool transaction_hash | 0xfcf4558f6432689ea57737fe63124a5ec39fd6ba6aaf198df13a825dd599bffc  
block_number | 12914944 protocol | pool_address | 0x88e6a0c2ddd26feeb64f039a2c41296fcb3f5640 from_address |  
0x7ec0b75a98997c927ace6d87958147a105147ea0 to_address | 0x0000fee6275dab194ab538a01dd8b18b02b20000  
token_in_address | 0xa0b86991c6218b36c1d19d4a2e9eb0ce3606eb48 token_in_amount | 283588902010  
token_out_address | 0xc02aaa39b223fe8d0a0e5c4f27ead9083c756cc2 token_out_amount | 123848351154563483804  
trace_address | {0,0} error | -[ RECORD 2 ]-----+----- ...
```

## Query for miner payment

Lastly, we can see how much was paid to the miner for this transaction by querying by the transaction hash:

```
SELECT
```

```
* FROM miner_payments WHERE transaction_hash =
```

```
'0xfcf4558f6432689ea57737fe63124a5ec39fd6ba6aaf198df13a825dd599bffc' ; You should see results like this:
```

```
created_at | 2021-09-27 15:26:58.245444 block_number | 12914944 transaction_hash |  
0xfcf4558f6432689ea57737fe63124a5ec39fd6ba6aaf198df13a825dd599bffc transaction_index | 1 miner_address |  
0x5A0b54D5dc17e0AadC383d2db43B0a0D3E029c4c coinbase_transfer | 48204637147748941824 base_fee_per_gas | 0  
gas_price | 0 gas_price_with_coinbase_transfer | 200463421638605 gas_used | 240466 transaction_to_address |  
0x00000000454a11ca3a574738c0aab442b62d5d45 transaction_from_address |  
0xd80276cd0348e9b3c5d017e1f7529f0a785fec3a gas_price is the gas price paid directly as gas (it includes the EIP-1559  
base fee)
```

coinbase\_transfer is the amount of ETH paid directly as a transfer to the validator's address

gas\_price\_with\_coinbase\_transfer is the gas price including both original gas and coinbase transfers

So in total, this searcher paid 48.2 ETH to make 53.5 ETH for a net profit of 5.3 ETH

## Next steps

To see what other data is available for querying, check out the [data](#) section

To learn about inspecting blocks in bulk or listening for new blocks as they come in, check out the [inspecting](#) section [Edit this page](#) Last updated on Jan 30, 2024 [Previous Overview](#) [Next Inspecting](#)