

# **drif-protocol**

A breakthrough in self-hosted, sovereign solo mining.

Authored by: JEX

Handle: @onchain\_soul

## Introduction

This guide documents the Umbrel edition of drif-protocol—enabling sovereign solo Bitcoin mining on your Umbrel Home device.

No third-party pools, complete control of rewards, minimal overhead.

## System Requirements

Umbrel Home (Raspberry Pi or equivalent) with Umbrel OS and Bitcoin app installed.

SSH access to Umbrel (via Terminal or PowerShell).

USB SHA-256 miner (e.g., Bitaxe Gamma, GekkoScience).

A non-custodial Bitcoin address to receive mining rewards.

## Step 1: SSH into Umbrel

Open Terminal (macOS/Linux) or PowerShell (Windows) and run:

```
ssh umbrel@
```

Enter your Umbrel password to connect.

## Step 2: Enable Docker Compose

Install the plugin:

```
sudo apt install docker-compose-plugin
```

Symlink for compatibility:

```
sudo ln -sf /usr/libexec/docker/cli-plugins/docker-compose /usr/bin/docker-compose
```

Verify: docker compose version

## Step 3: Configure Bitcoin Core

Edit Umbrel Bitcoin config:

```
cd ~/umbrel/app-data/bitcoin/data/bitcoin
```

```
sudo nano umbrel-bitcoin.conf
```

Ensure it includes or add:

```
- rpcuser=YOUR_RPC_USER
```

```
- rpcpassword=YOUR_RPC_PASSWORD
```

```
- rpcallowip=10.21.0.0/16
```

```
- rpcbind=0.0.0.0
```

```
- server=1
```

```
- txindex=1
```

```
- zmqpubrawblock=tcp://0.0.0.0:28332
```

Save & exit: CTRL+O, Enter, CTRL+X.

## Step 4: Restart Bitcoin Node

Restart the Bitcoin app:

```
sudo docker restart bitcoin_bitcoind_1
```

Monitor logs to confirm config load:

```
sudo docker logs -f bitcoin_bitcoind_1
```

## Step 5: Clone & Build CKPool

Clone the official Docker CKPool repo:

```
cd ~
```

```
git clone https://github.com/golden-guy/docker-ckpool.git ckpool
```

```
cd ckpool
```

Build the Docker image:

```
sudo ./build_image.sh
```

## Step 6: Configure ckpool.conf

Open the config:

```
nano conf/ckpool.conf
```

Replace with the JSON below (update placeholders):

### Configuration JSON

```
{
  "btcd": [{
    "url": "127.0.0.1:8332",
    "user": "YOUR_RPC_USER",
    "pass": "YOUR_RPC_PASSWORD",
    "notify": true
  }],
  "btcaddress": "YOUR_NON_CUSTODIAL_BTC_ADDRESS",
  "btcsig": "/mined by drifora/",
  "serverurl": ["0.0.0.0:3333"],
  "startdiff": 64,
  "maxdiff": 524288,
  "zmqblock": "tcp://127.0.0.1:28332",
  "logdir": "logs"
}
```

## Step 6 Continued: Save & Exit

Save and exit nano: CTRL+O, Enter, CTRL+X.

## Step 7: Launch CKPool

Start the pool:

```
sudo docker-compose up -d
```

Follow logs:

```
sudo docker-compose logs -f
```

Expect:

- Connected to bitcoind: 127.0.0.1:8332
- Mining solo to any incoming valid BTC address username

## Step 8: Configure Your Miner

In your miner's dashboard:

- **Pool URL**: stratum+tcp://INPUT\_UMBREL\_HOST\_IP:3333
- **User**: YOUR\_NON\_CUSTODIAL\_BTC\_ADDRESS
- **Worker**: axel or custom tag
- **Password**: x

## Step 9: Verify Operation

Check for accepted shares and connection logs.

Monitor your miner's hashrate (may take a minute).

## Uncontrollables & Caveats

Bitcoin RPC settings must include txindex and ZMQ.

Port 3333 conflicts require updating `serverurl` and restarting CKPool.

Firewall/AV may block Docker or port 3333.

Umbrel performance varies by hardware; monitor CPU and storage.

Network must be stable for consistent mining.

drif-protocol — A sovereign solo mining method by JEX (@onchain\_soul), distributed via Solosatoshi.