

Diode Free Webinar Event 6/30 Tuesday

STARTING SOON...

Website: <https://diode.io/> Github: <https://github.com/diodechain>



Diode Network and Video Streaming Using Raspberry Pi Zero W

Peter Lai | Blockchain Engineer at Diode (<https://diode.io/>)

Tuesday June 30th, 2020

9:00 PM Taiwan (GMT+8) | 8:00 AM Minneapolis, MN, USA | 3:00 PM Berlin, Germany

Diode's YouTube Channel

Agenda

- Introduction
- Demo
- Q&A

About

- Blockchain engineer at Diode
- Editor of Taipei Ethereum Meetup
- Open source contributor
- Love to learn new technology
- Programming languages: JS, GO, PHP, C, PYTHON
- Twitter: [@alk03073135](#) | Github: [@sc0vu](#)

Demo

- View video stream
- <https://betahaus-berlin.diode.link>
- <https://pi-taipei.diode.link>
- <https://dev-sc0vu.diode.link>



How to stream video using Pi

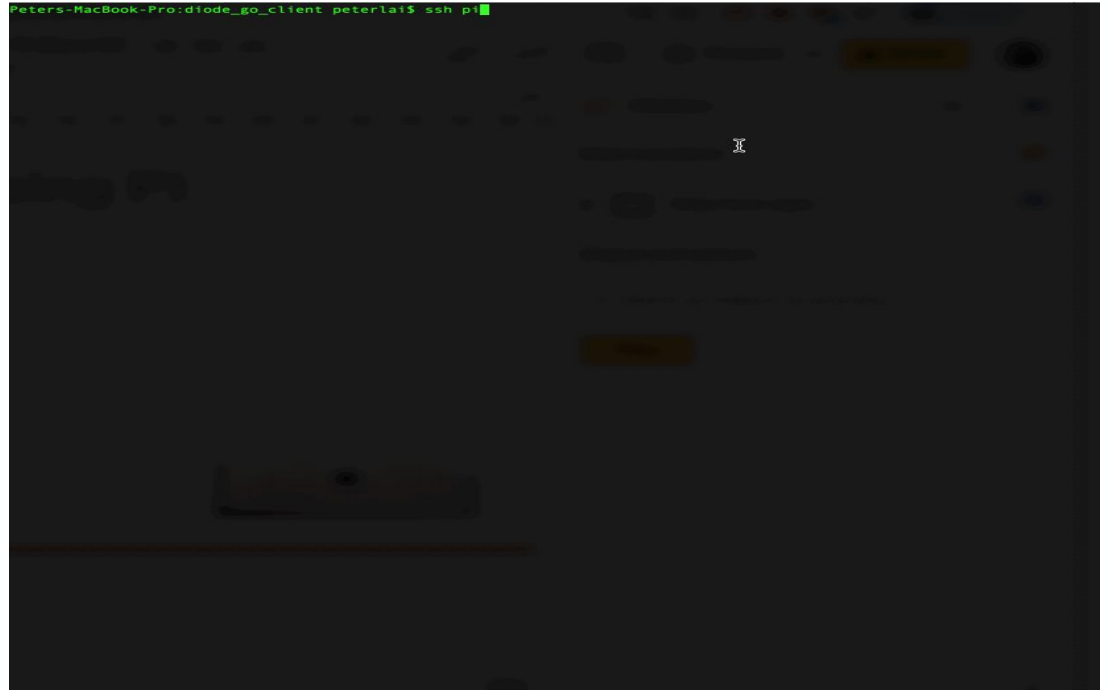
- Pi camera module
 - enable camera raspi-config
 - raspivid
 - h.264 video stream



How to stream video using Pi

Enable camera, open a terminal and type:

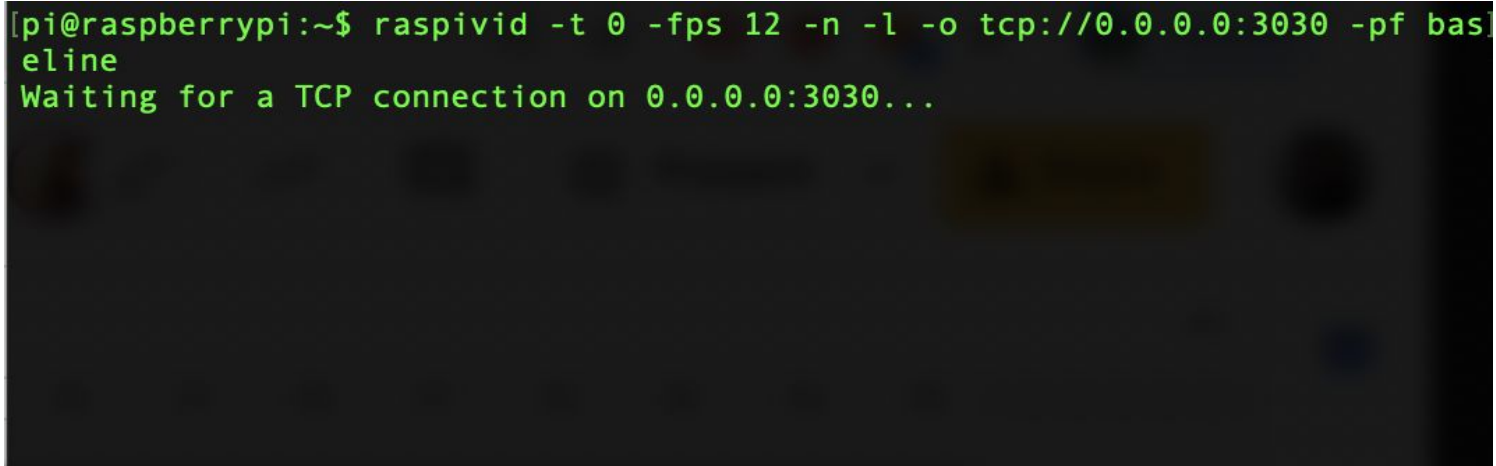
```
$ sudo raspi-config
```



How to stream video using Pi

Streaming video with raspivid, open a terminal and type:

```
$ raspivid -t 0 -fps 12 -n -l -o tcp://0.0.0.0:3030 -pf baseline
```

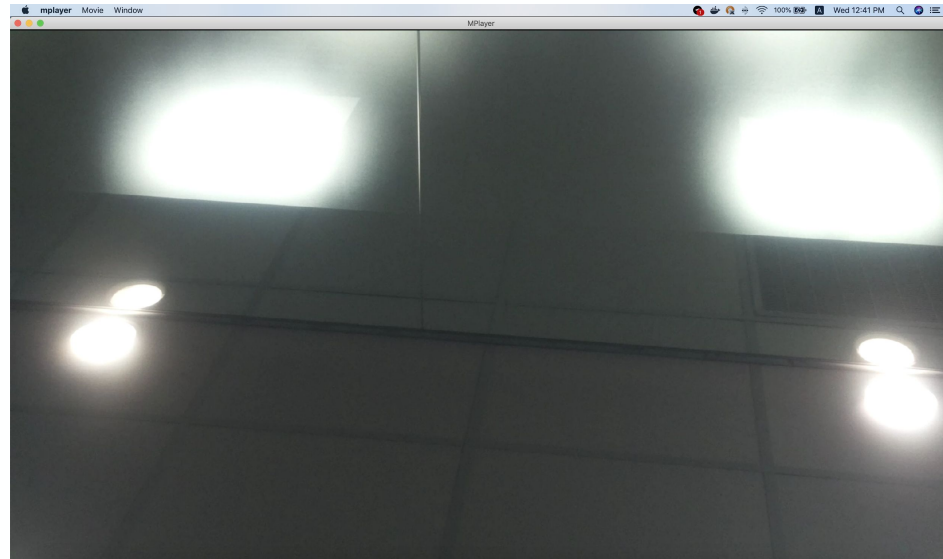
A terminal window screenshot with a black background and green text. The prompt is [pi@raspberrypi:~\$. The command entered is raspivid -t 0 -fps 12 -n -l -o tcp://0.0.0.0:3030 -pf baseline. The output shows the command being split across two lines: 'eline' on the first line and 'Waiting for a TCP connection on 0.0.0.0:3030...' on the second line.

```
[pi@raspberrypi:~$ raspivid -t 0 -fps 12 -n -l -o tcp://0.0.0.0:3030 -pf bas  
eline  
Waiting for a TCP connection on 0.0.0.0:3030...
```


How to stream video using Pi

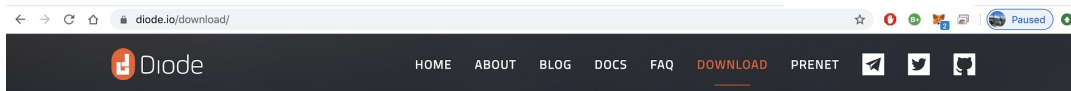
Read video stream on computer, open a terminal and type:

```
$ nc [pi's ip] 3030 | mplayer -fps 12 -demuxer h264es -cache  
1024 -
```



Publish resource through diode

Download Diode client: <https://diode.io/download>



Download

Get started with DiodeSM in just few seconds!

Copy & paste below line into a terminal to install the Diode client for your current user on macOS, Linux, Raspberry Pi (or Windows if you have curl).

```
$ curl -Ssf https://diode.io/install.sh | sh
```

Or manually install in a location of your choice:

1

Download Diode CLI

Download the binary for your operating system

MACOS X

Raspberry Pi (ARM)

MacOS X

MacOS Package

Windows (64-bit)

Linux (64-bit)

2

Unzip and Install

Unzip the terminal tool. On Windows you can double click it.

```
$ unzip Downloads/diode_darwin_amd64
```

We recommend moving it into a \$PATH directory such as /home/[user]/.local/bin

3

Publish Ports

To publish e.g. your local http ports to the Diode Network call:

```
$ diode publish -public 80:80
```

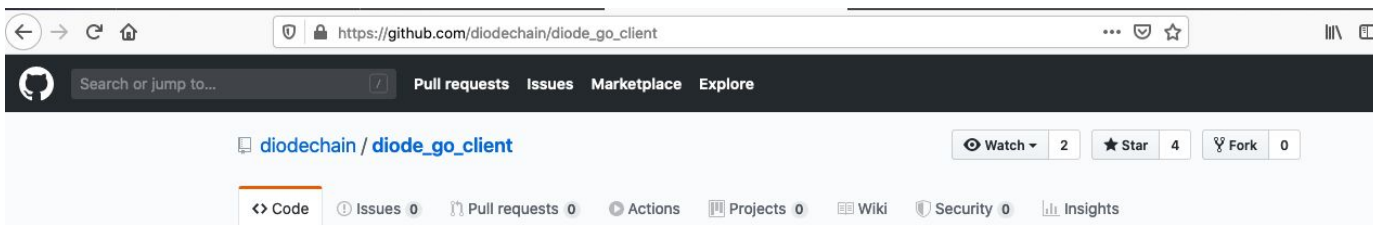
Publish resource through diode

Or open a terminal window and type:

```
$ curl -Ssf https://diode.io/install.sh | sh
```

Publish resource through diode

Or, build from source: https://github.com/diodechain/diode_go_client



Diode client written in GO that runs the Blockquick™ algorithm and a socks server to transmit data through diodechain.

268 commits

2 branches

0 packages

13 releases

2 contributors

View license

Branch: master

New pull request

Create new file

Upload files

Find file

Clone or download

sc0Vu

Fix #23 returns 404 when client cannot getobject from node

Latest commit b31cab6 3 days ago

.github/workflows

[WIP] Darwin package workflow (#21)

17 days ago

blockquick

Added workflow

28 days ago

cmd

Changed setting path to os.UserConfigDir()/diode

20 days ago

config

Changed setting path to os.UserConfigDir()/diode

20 days ago

contract

Added UDP

last month

crypto

Added workflow

28 days ago

darwin

[WIP] Darwin package workflow (#21)

17 days ago

Publish resource through diode

Publish your local port to the Diode Network

In your terminal window, type:

```
$ diode publish -public 3030:3030
```

This binds your local port to a Diode port. We are publishing as “public” so anyone can view it (can also use “protected” or “private”)

Publish resource through diode

Bonus Download and host https://github.com/diodechain/diode_poc_website

The screenshot shows the GitHub repository page for `diodechain / diode_poc_website`. The repository is in the `master` branch. It contains 13 commits, 3 branches, and 0 tags. The repository was last committed by `dominicletz` 4 days ago. The repository description is: "Diode proof of concept website to stream video from raspberry pi raw h264 video through diode network." The repository includes a README, a .gitignore, and a .postcssrc.js file. The repository also has a Contributors section with 2 contributors: `sc0Vu` and `dominicletz`. The Languages section shows the following distribution: JavaScript 73.3%, Vue 25.7%, and Other 1.0%.

diodechain / diode_poc_website

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Branch: master

Go to file Clone

dominicletz committed 0a1701b 4 days ago 13 commits 3 branches 0 tags

build	Initial commit	6 months ago
config	Initial commit	6 months ago
src	Fixed build warnings	4 days ago
static	betahaus-pi deployed files	5 months ago
test	Initial commit	6 months ago
.babelrc	Initial commit	6 months ago
.editorconfig	Initial commit	6 months ago
.eslintignore	Initial commit	6 months ago
.eslintrc.js	Initial commit	6 months ago
.gitignore	Initial commit	6 months ago
.postcssrc.js	Initial commit	6 months ago
README.md	Updated name validation & setup defaults	6 months ago
index.html	Add control-panel in Rpi.vue	9 days ago

About

Diode proof of concept website to stream video from raspberry pi raw h264 video through diode network.

Readme

Contributors 2

sc0Vu sc0Vu

dominicletz dominicletz

Languages

JavaScript 73.3% Vue 25.7% Other 1.0%

Publish resource through diode

Bonus Configure a domain name

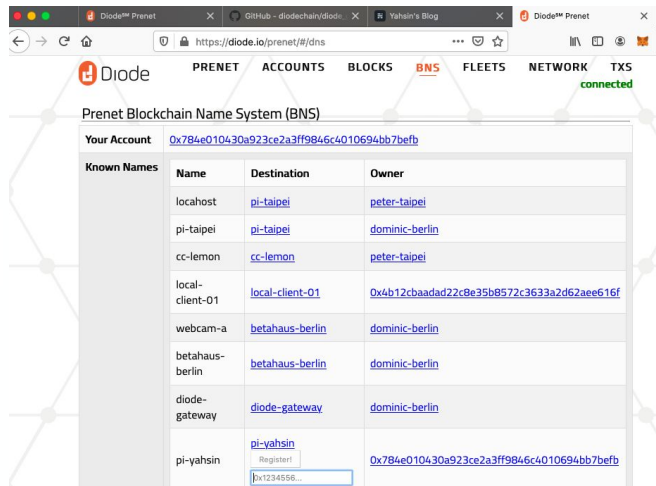
Your website address can use a human readable name.

Register your Blockchain Name System (BNS) custom domain*:

<https://diode.io/prenet/#/dns>

I chose “dev-sc0vu” for my domain

* Requires Metamask (metamask.io)



Publish resource through diode

Bonus Configure a domain name

Use this command to register your Blockchain Name System (BNS) custom domain:

```
$ diode bns -register [name]=[address]
```

I typed

```
diode bns -register dev-sc0vu=0x13ac4c74416ed3f59bd9d7dfca79326819631093
```


Questions?

We'd be happy to answer questions!

Hans Rempel, Dominic Letz, Peter Lai, Yahsin Huang

Q: How to compile binary files on a Raspberry Pi in a more efficient way?

Dominic: Cross-Compiling is a common way to compile binaries on your machine and copy them to the Pi. There are tutorials for different languages:

C/C++: <https://blog.kitware.com/cross-compiling-for-raspberry-pi/>

Go:

<https://www.thepolyglotdeveloper.com/2017/04/cross-compiling-golang-applications-raspberry-pi/>

Rust: https://dev.to/h_ajsf/cross-compiling-rust-for-raspberry-pi-4iai

Q: Is the video streaming content stored on Diode's blockchain network?

Dominic: No, the Diode network is a p2p relay network which transmits the streaming content. In the Pi video example, we were using a shared port to **broadcast** the video data live to all participants. The blockchain miners help duplicating the content and sending it to as many receivers as needed. So the Raspberry Pi only needs to stream to one client, but the video can be sent to thousands of viewers at the same time.

Q: One common way to do Raspberry Pi's video streaming via TCP is to use the "raspivid" command. How is Diode different from this commonly used command?

Dominic: Diode adds to the "raspivid" command three superpowers:

- 1) Global reachability under any `http://<name>.diode.link` domain
- 2) Broadcast to hundreds or thousands of video watchers
- 3) Access control using Ethereum ids (public, protected or private stream)

Q: I'm a podcast host. Is it possible to publish my podcast to Diode?

Dominic: Yes, you can certainly publish your podcast with Diode. A major difference between Spotify and Diode is that when uploading content to Spotify, the Spotify company owns your content; therefore, they can easily sell ads, and get profits out of your content. But if you do it with Diode, you still have the ownership of your content. Diode doesn't own your content, hence can't make money from your content. However, in order to publish your podcast with Diode, you have to first put the podcast on a Diode-enabled host (see our [post](#) on Ghost). In order to make that easier in the future, we would like to invite application developers to create applications like this that leverage Diode's decentralized publisher-first network!

What is more interesting is if you do a live program, for instance, a live broadcast episode with Diode, I would recommend: 1) Live broadcast your podcast via Diode; 2) After broadcast, upload it to Spotify / etc. for people to listen to it later

Q: For Raspberry Pi users, why would you want to use Diode network when you can easily use “ssh” over a local network?

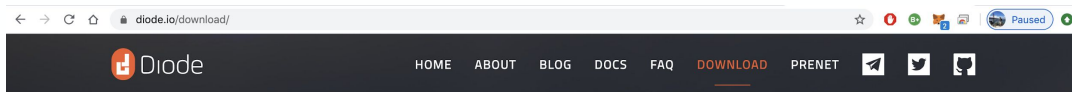
Dominic: With Diode, the user can “ssh” to the Raspberry Pi from anywhere in the world. I’m doing this now regularly to debug our Raspberry Pis in Taipei, Berlin and at home. By using Diode, I can easily login to any of our Pis from anywhere on the planet.

Diode's upcoming meetup events

- 7/29 Wednesday Diode CTO Dominic Letz will be speaking at Thailand's Bangkok Blockchain Enterprise Meetup
- Web3 meetup in mid August (an event co-organized with a few blockchain companies in the US and in Japan)

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Join the Web3 movement



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https://t.me/diode_chain



https://twitter.com/diode_chain



<https://www.linkedin.com/company/diode-chain>