

# Operating on Lightning

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# Lightning at Bitrefill

- First service on mainnet
- Purchases
- Account deposits and withdrawals
- 5% of volume
- Utility services (Thor)

## Order details



Steam USD Voucher 100 USD  
1226666 satoshis

Track your order:  
[5cd9f1412f54a50004dff5ca](#)

## Payment

[Help](#) | 🕒 14:14



Copy the lightning invoice

lnbc12266660n1pwdnu2zpp5rh80jj7gpk50u...


[🔗 Open in Wallet](#)

[Need help with lightning?](#)

# Account deposits and withdrawals

## Deposit funds into your account

BTC Lightning



Send bitcoin to this lightning invoice

1nbc1pwdnu7mpp588fsq8vqa68ucmmfu0avjg...

## Withdrawal Request

BTC Lightning

Lightning withdrawal invoice

1nbc1pwdnaqjpp52zy7fkq449sse0pxcffcs0m33p...

10 satoshi withdrawal fee

Enter 2FA code

123456

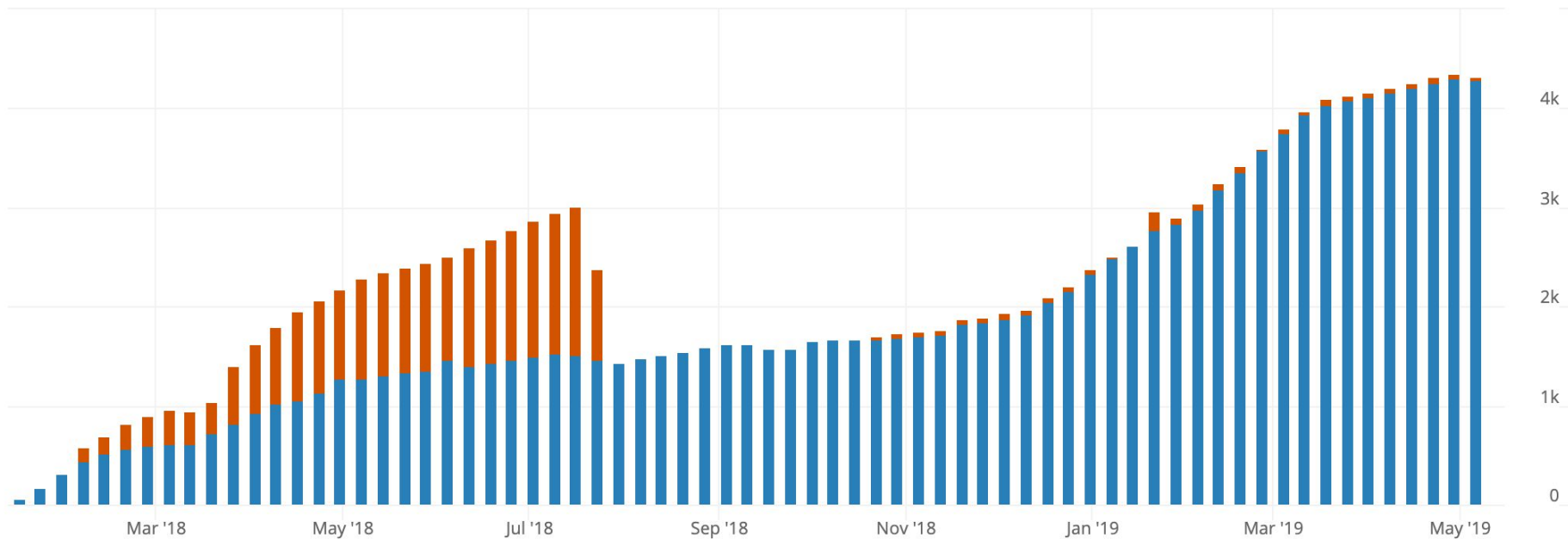
I confirm that the information above is correct

REQUEST WITHDRAWAL

# Publicly visible active nodes

1m 3m 6m YTD 1y 2y **All**

From  To



# Key metrics

- 4.000 visible nodes (vs bitcoind 80.000)
- 10.000+ downloads of Android wallets
- 20.000+ installs of BlueWallet
- 5% of Bitrefill volume

# Lightning Trust Chain



Some LN fun..

- I send 100k sats with [tippin.me](https://tippin.me) to the first person I choose to trust that replies to this.
- That person adds 10k sats and sends 110k to someone (Either from reply to a new tweet, or this thread)

.. and so on

How many sats before it breaks?

309 9:14 PM - Jan 19, 2019

107 people are talking about this

@bitrefill | @ziggamon



jack @jack · 14h

Cool example of #BitcoinTwitter experimenting on the Lightning Network.

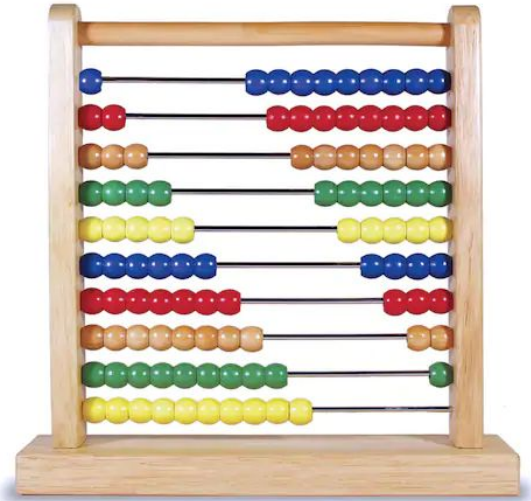


Torch received, now passing along to @starkness! #LNtrustchain



# Lightning 101 - Payment channels

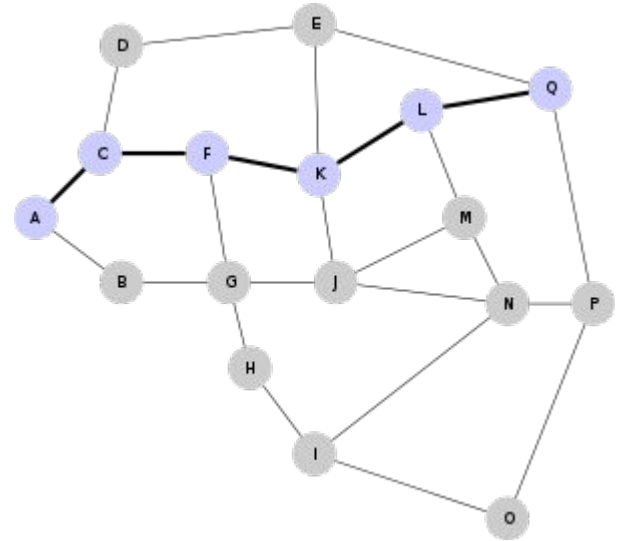
- 2-of-2 multisig coin
- Maintains a spending transaction
- Timelock => Bitcoin opcode to prevent theft





# Lightning 101 - The Network

- HTLC = Smart contract that prevents theft
- Atomic transactions
- Onion routing



Why ⚡

**Instant is infinitely faster**

### Lightning

Para recibir en Lightning, debes obtener un código de depósito que se envía por correo y luego escanearlo.

mqj2pewr8j6w42r3j0c307u1799v40z0b4pmmw7dqr930c

Este código de depósito de Bitcoin (BTC) de 26 caracteres se genera al momento de crear tu cuenta y se envía por correo electrónico a tu dirección de correo electrónico registrada. Este código de depósito debe ser escaneado y usado en 2 meses.



### Deposit funds into your account

Deposit into your account in Bitcoin (BTC) with Lightning

BTC  Lightning

Account to credit

1 Bitcoin

Copy the lightning invoice below

mqj2pewr8j6w42r3j0c307u1799v40z0b4pmmw7dqr930c



Make invoice

Done with it

# Reduce hotwallets

# Coins can overnight off exchange

# Cheap

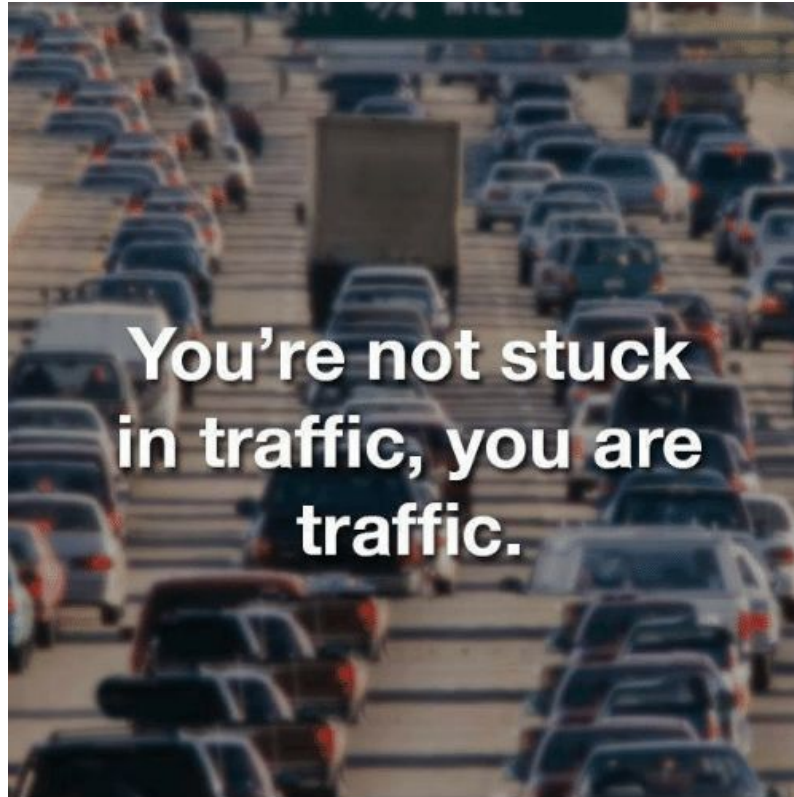
# Reduces payment errors



**Enables new activity on the network**

# No need to consolidate outputs

# Alleviates the fee situation



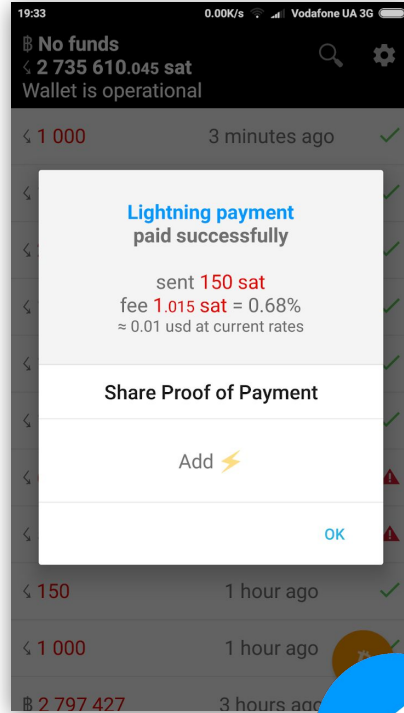
What our ⚡ customers look like today

# Command line

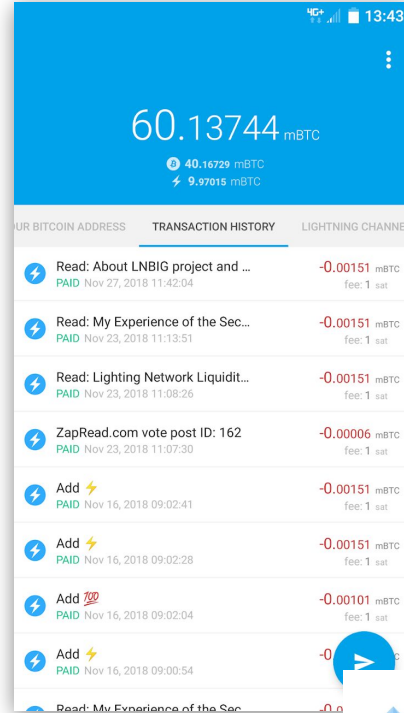
```
1. ubuntu@ip-172-31-24-72: ~ (ssh)
julw69kfdlrsr5zxylvqqwegqqqqqqlgqqqqqqq9qrzjq2ymzath978j697a4qaq3jap30clqjzqr88440081f56ewd9yef0wzy9myqqz6sqayqa
aqlgqqqqqqqjqrzjq2x7l4h7qtvjv0j7sz3kms05mdnfwge4y0ds2vyzc9calvu608kgzz7jqqrqgqqayqqqlgqqqqqqqjqrzjq2t89k3g80xz6
f3h9r78xkn2afw7p7gfdunys0panrcx60yepn90wqyz7vqq2xqqqqqqqqqqqqqqqqqqqqjqrzjqvtadv7s9efry42keg3wvjv35vh9veux574mgkug3
x8dyl3p3g27vzyz7yqqq2qqqqqqqqqqqqqqqqqqqqjqrzjq0ecs2dfhyf3uws9s19zrlgy9uks00tlz50llm7v852ctujvrvl8uzrumvqqd9qqayqqq
7qqqqq86qqjq0rpuvwn5r1fgpm29jtttrvfcfn38cg9u2y7jv5sx4ewjzsgmg20zmpu0u07vxf05fqngf1dzz3pt8xjdfdx56llz34phc2t4rgje
cagklfm8
Description:
Amount (in satoshis): 100
Destination: 030c3f19d742ca294a55c00376b3b355c3c90d61c6b6b39554dbc7ac19b141c14f
Confirm payment (yes/no): yes
```

```
[0] 0:tail 1:tail 2:htop- 3:lncli* 4:bash 5:bash 6:bash "ip-172-31-24-72" 17:50 11-May-19
```

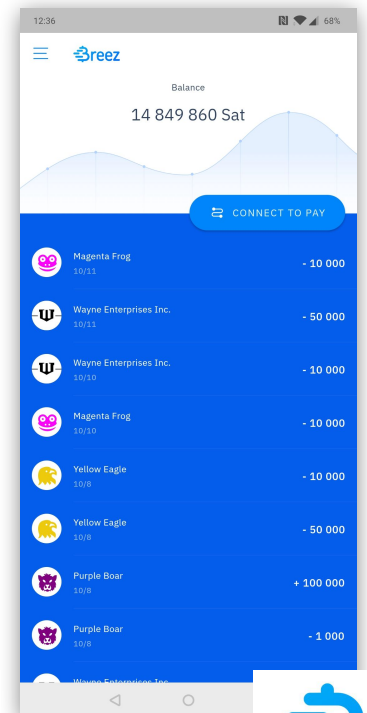
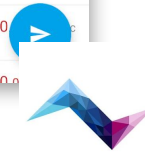
# Android wallets



Bitcoin Lightning Wallet



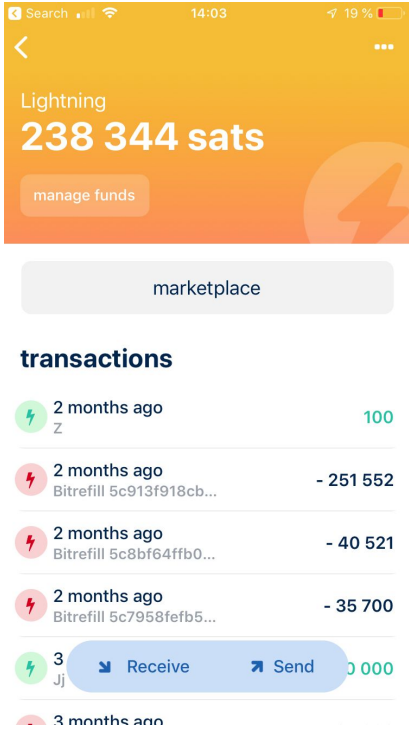
Eclair



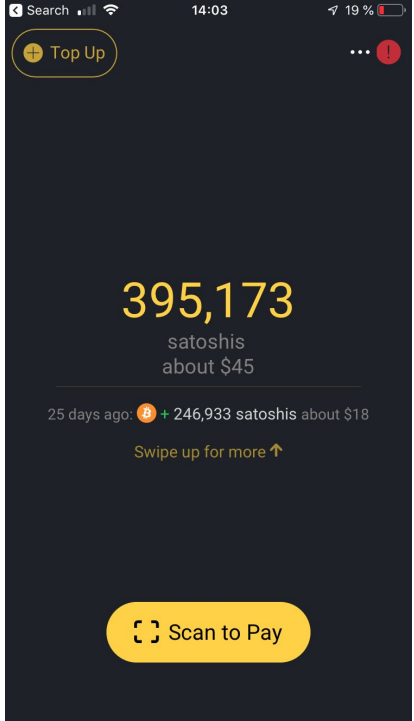
Breez



# Hosted wallets

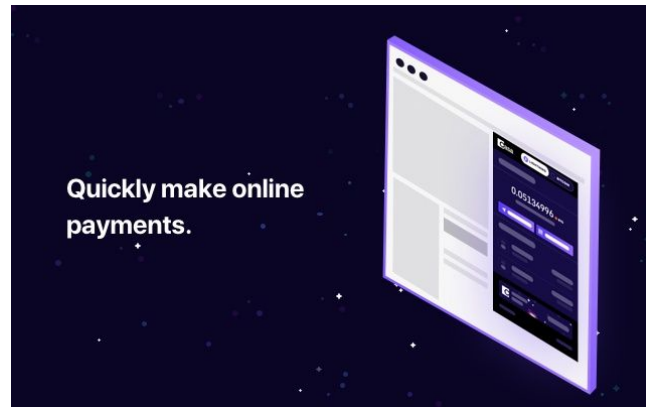
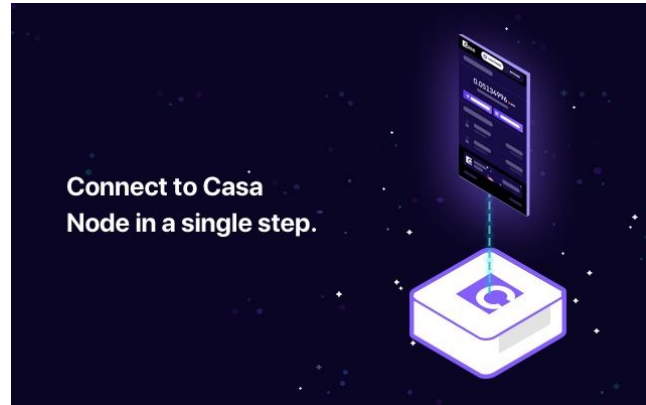


Blue Wallet



Wallet of Satoshi

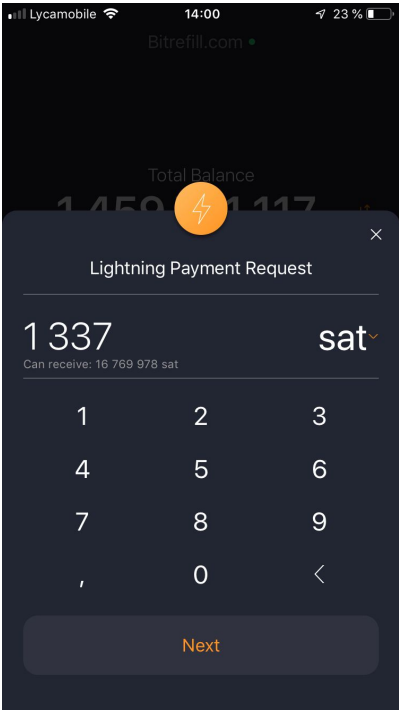
# Cypherpunk boxes



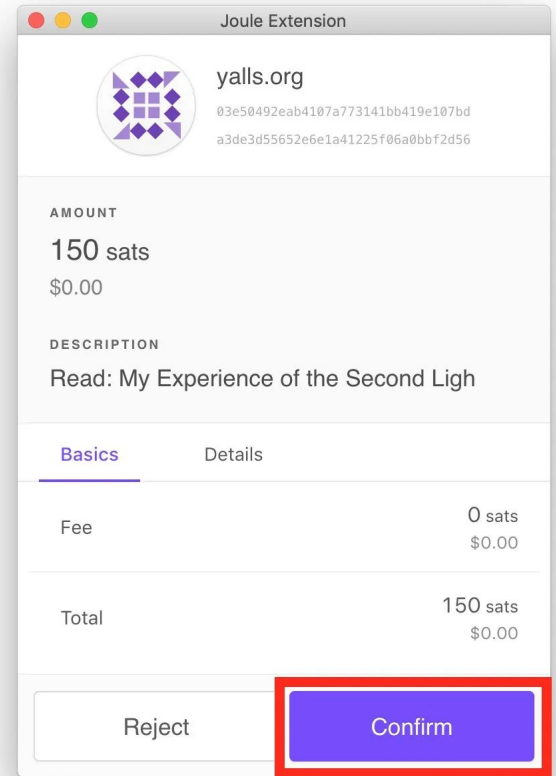


What our ⚡ customers look like tomorrow

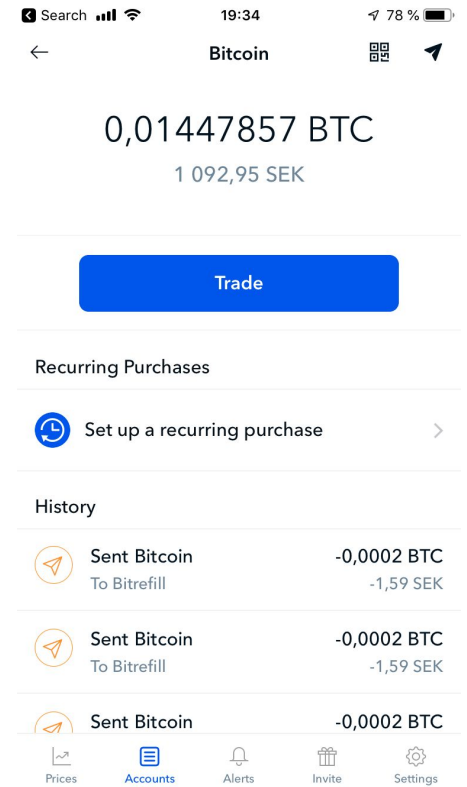
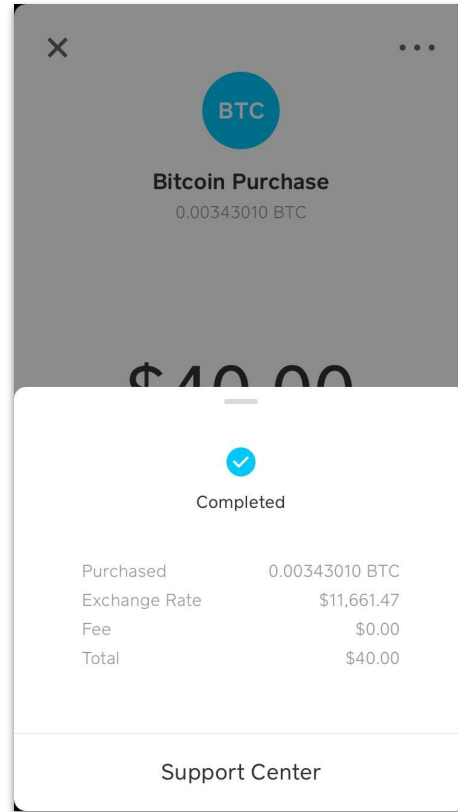
# iPhone wallet



# The browser is the wallet



# Custodial onramps



**BITFINEX** 

 **Kraken**

## Exchanges

 **BitMEX**

  
**BINANCE**

**Companies are first class citizens already**

# Custodial Lightning works - today

# Thor - The Lightning Service Provider



**BTCMANAGER**



# Thor - ISP model for non-custodial Lightning

Opens channel to user

Incoming capacity lets user receive

Giftable

Maintains the channel



API coming in June

@bitrefill | @ziggamon

# Thor Turbo

Turbo channels - Loaded with funds

Immediately spendable

No confirmations

API coming in June



**Coming ⚡ tech**

# Reusable addresses

# Splice in / out

# Larger channels

# Demo



# Q & A

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