# IBC Relayer

For IBC protocol overview, refer to

IBC Protocol

# Overview

Relayers are permissionless off-chain processes that ferry data packets from one chain to anotherRelayer(opens in a new tab) s scan chain states, build transactions based on these states, and submit the transactions to the chains involved in the network. Relayers play a crucial role in IBC because chains do not directly send messages to each other over networking infrastructure. Instead, they create and store the data to be retrieved and used by a relayer to build IBC packets.

Get an in-depth walkthrough of the IBC components and packet flow on thedeveloper documentation.(opens in a new tab)

There are several relayer implementations in different languages:

- Golangrelayer(opens in a new tab)
- Rusthermes(opens in a new tab)

# Running relayer with Sei

## Installation

We will be using hermes as example relayer. Please note, that Sei requires hermes of version1.3.0 .

To install hermes simply head to the GitHubReleases(opens in a new tab) page and download Hermes binary matching your platform:

- macOS:hermes-v1.3.0-x86_64-apple-darwin.tar.gz
- (or .zip),
- Linux:hermes-v1.3.0-x86_64-unknown-linux-gnu.tar.gz
- (or .zip).

The step-by-step instruction below should carry you through the whole process:

1. Make the directory where we'll place the binary:

mkdir -p HOME/.hermes/bin 1. Extract the binary archive:

tar -C HOME/.hermes/bin/ -vxzf ARCHIVE_NAME 1. Update your path, by adding this line in your.bashrc 2. or.zshrc 3. shell configuration file:

export PATH="HOME/.hermes/bin:PATH" TheSource code archive(opens in a new tab) also contains hermes documentation that you can follow inguide/book folder.

## Configuration

HOME/.hermes/config.toml file should look like below. Please note that this example assumes local chains, so all RPC urls have to be substituted for real chain ones.

[global] log_level =

'info'

[mode]

[mode.clients] enabled =

true refresh =

true misbehaviour =

true

[mode.connections] enabled =

true

[mode.channels] enabled =

true

[mode.packets] enabled =

true clear_interval =

100 clear_on_start =

true tx_confirmation =

true

[telemetry] enabled =

true host =

'127.0.0.1' port =

3001

[[chains]] id =

'ibc-0' rpc_addr =

'http://localhost:27030' grpc_addr =

'http://localhost:27032' rpc_timeout =

'15s' account_prefix =

'cosmos' key_name =

'wallet' store_prefix =

'ibc' gas_price = { price =

0.01 , denom =

'stake' } max_gas =

10000000 gas_multiplier =

1.5 clock_drift =

'5s' trusting_period =

'14days' trust_threshold = { numerator =

'1' , denominator =

'3' } event_source = { mode =

'push' , url =

'ws://127.0.0.1:27030/websocket' , batch_delay =

'500ms' }

[[chains]] id =

'sei-chain' rpc_addr =

'http://localhost:26657' grpc_addr =

'http://localhost:9090' rpc_timeout =

'15s' account_prefix =

'sei' key_name =

'wallet' store_prefix =

'ibc' gas_price = { price =

0.025 , denom =

'usei' } max_gas =

10000000 gas_multiplier =

2 clock_drift =

'5s' trusting_period =

'14days' trust_threshold = { numerator =

'1' , denominator =

'3' } event_source = { mode =

'push' , url =

'ws://127.0.0.1:26657/websocket' , batch_delay =

'500ms' } Next we need to add the account keys to hermes.

hermes

keys

add

--key-name

wallet

--chain

sei-chain

--mnemonic-file

~/misc/mm_file_sei hermes

keys

add

--key-name

wallet

--chain

ibc-0

--mnemonic-file

~/misc/mm_file_ibc_0 The contents of ~/misc/mm_file_* file is just a seed phrase of the chain account that will be associated with the chain.

Finally we need to create clients, connections and channel. There are separate commands for that, but there is a simpler shortcut command:

hermes

create

channel

--a-chain

sei-chain

--b-chain

ibc-0

--a-port

transfer

--b-port

transfer

--new-client-connection The output of this command should return created channel details.

Finally start relaying:

hermes

start Please note, that this tutorial is a simplified version. Running relayer in production would require different level of effort, configuration and monitoring.

For more information on hermes, please refer to the official 1.3 version documentation(opens in a new tab) that can be found in theguide/book folder of the source code archive.

Last updated onJune 4, 2024 Proposals EVM RPC Endpoints