Transferring assets over IBC

It is possible to make ibc transfers using the Namada cli with the commandnamadac ibc-transfer . The assumed pre-requisites are that a channel has been created and Hermes is running with the proper config on two nodes.

In order to conduct an IBC transfer using Namada'sibc-transfer command, we will need to know thebase-dir andnode of each instance (and other transfer parameters).base-dir is the base directory of each node, seebase-dir for more information.node is therpc_addr of the relayer. You can run

grep

"rpc_addr" {HERMES_CONFIG} to find the address.

ð¡ For the local node ONLY

To find your ledger address for Chain A, you can run the following command

export BASE_DIR_A = "{HERMES}/data/namada-a/.namada" export LEDGER_ADDRESS_A = "(grep "rpc_address" {BASE_DIR_A} / {CHAIN_A_ID} /setup/validator-0/.namada/ {CHAIN_A_ID} /config.toml)" Thechannel ID for this chain will depend on the order in which one created the channel. Since we have only opened one channel, thechannel-id ischannel-0 , but as more are created, these increase by index incremented by 1. The channel-id should be communicated by the relayer.

Assuming that the open channel ischannel-0 , you can save it in an environment variable by running

export CHANNEL_ID = "channel-0" The inter-blockchain transfers from Chain A can be achieved by

namadac

--base-dir {BASE_DIR_A} ibc-transfer \ --amount {AMOUNT} \ --source {SOURCE_ALIAS} \ --receiver {RECEIVER_RAW_ADDRESS} \ --token {TOKEN_ALIAS} \ --channel-id {CHANNEL_ID} \ --node {LEDGER_ADDRESS_A} Where the above variables in{VARIABLE} must be substituted with appropriate values. The raw address of the receiver can be found bynamadaw --base-dir {BASE_DIR_B} address find --alias {RECEIVER} .

E.g.

namadac

--base-dir {BASE_DIR_A} ibc-transfer \ --amount

100 \ --source

albert \ --receiver

atest1d9khqw36g56nqwpkgezrvvejg3p5xv2z8y6nydehxprygvp5g4znj3phxfpyv3pcgcunws2x0wwa76 \ --token

nam \ --channel-id

channel-0 \ --node

http://127.0.0.1:27657 Once the transaction has been submitted, a relayer will need to relay the packet to the other chain. This is done automatically by the relayer running Hermes. If the packet is never successfully relayed, the funds are returned to the sender after a timeout. See more information in thespecs(opens in a new tab) .

Transferring assets back from Cosmos-SDK based chains

When a transfer has been made to a Cosmos-SDK based chain, the ibc transfer is conducted as above. However, when transferring back from the cosmos-based chain, clearly thenamadac ibc-transfer command will not work. Instead, you want to usegaiad (opens in a new tab) .

gaiad

tx

ibc-transfer

transfer

transfer {CHANNEL_ID} {RECEIVER_RAW_ADDRESS} {AMOUNT}{IBC_TOKEN_ADDRESS} --from {COSMOS_ALIAS} --node {COSMOS_RPC_ENDPOINT} --fees

5000 uatom for example:

gaiad

tx

ibc-transfer

transfer

transfer

channel-0

atest1d9khqw368qcyx3jxxu6njs2yxs6y2sjyxdzy2d338pp5yd35g9zrv334gceng3z9gvmryv2pfdddt4

10 ibc/281545A262215A2D7041CE1B518DD4754EC7097A1C937BE9D9AB6F1F11B452DD

--from

my-cosmos-address

--node

https://rpc.sentry-01.theta-testnet.polypore.xyz:443

--fees

5000 uatom

Shielding transfer

Beforenamadac ibc-transfer , you need to generate a proof of the following IBC transfer for the shielding transfer to the destination Namada. The commandnamadac ibc-gen-shielded generates the proof and outputs a file including required data. In this case, Chain B is the destination chain.

namadac

--base-dir {BASE_DIR_B} ibc-gen-shielded \ --output-folder-path {OUTPUT_PATH} \ --target {payment_addr_b} \ --token

apfel \ --amount

100 \ --port-id

transfer \ --channel-id

channel-0 \ --node {LEDGER_ADDRESS_B} Then, you can send the token from the source chain by setting the proof in the ICS-20 packet's memo field. The following example is to send tokens from the source Namada (Chain A). The{memo_path} should be the file path created bynamadac ibc-gen-shielded on the destination chain.

namadac

--base-dir {BASE_DIR_A} ibc-transfer \ --source {spending_key_a} \ --receiver {payment_addr_b} \ --token

apfel \ --amount

100 \ --channel-id

channel-0 \ --memo-path {memo_path} \ --node {LEDGER_ADDRESS_A} When the source chain is a Cosmos-SDK based chain, the memo should be set as string with--memo option.

memo

(cat {memo_path}) gaiad

tx

ibc-transfer

transfer \ {CHANNEL_ID} \ {RECEIVER_PAYMENT_ADDRESS} \ {AMOUNT}{IBC_TOKEN_ADDRESS} \ --from {COSMOS_ALIAS} \ --memo {memo} \ --node {COSMOS_RPC_ENDPOINT} \ --fees

5000 uatom You can do unshielding transfers over IBC without generating a proof.

namadac

--base-dir {BASE_DIR_A} ibc-transfer \ --source {spending_key_a} \ --receiver {RECEIVER_RAW_ADDRESS} \ --token

nam \ --amount

100 \ --channel-id

channel-0 \ --node {LEDGER_ADDRESS_A}

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