Restarting a Solana Cluster

Step 1. Identify the latest optimistically confirmed slot for the cluster

In Solana 1.14 or greater, run the following command to output the latest optimistically confirmed slot your validator observed:

solana-ledger-tool -l ledger latest-optimistic-slots In Solana 1.13 or less, the latest optimistically confirmed can be found by looking for the more recent occurrence ofthis metrics datapoint.

Call this slotSLOT_X

Note that it's possible that some validators observed an optimistically confirmed slot that's greater than others before the outage. Survey the other validators on the cluster to ensure that a greater optimistically confirmed slot does not exist before proceeding. If a greater slot value is found use it instead.

Step 2. Stop the validator(s)

Step 3. Optionally install the new solana version

Step 4. Create a new snapshot for slotSLOT_X

with a hard fork at slotSLOT_X

solana-ledger-tool -l < LEDGER_PATH

--snapshot-archive-path < SNAPSHOTS_PATH

--incremental-snapshot-archive-path < INCREMENTAL_SNAPSHOTS_PATH

create-snapshot SLOT_X < SNAPSHOTS_PATH

--hard-fork SLOT_X The snapshots directory should now contain the new snapshot.solana-ledger-tool create-snapshot will also output the new shred version, and bank hash value, call this NEW_SHRED_VERSION and NEW_BANK_HASH respectively.

Adjust your validator's arguments:

--wait-for-supermajority SLOT_X --expected-bank-hash NEW_BANK_HASH Then restart the validator.

Confirm with the log that the validator booted and is now in a holding pattern atSLOT_X , waiting for a super majority.

Once NEW_SHRED_VERSION is determined, nudge foundation entrypoint operators to update entrypoints.

Step 5. Announce the restart on Discord:

Post something like the following to #announcements (adjusting the text as appropriate):

Hi @Validators,

We've released v1.1.12 and are ready to get testnet back up again.

Steps:

1. Install the v1.1.12 release:https://github.com/solana-labs/solana/releases/tag/v1.1.12
2. a. Preferred method, start from your local ledger with:

solana-validator --wait-for-supermajority SLOT_X

<-- NEW! IMPORTANT! REMOVE AFTER THIS RESTART

--expected-bank-hash NEW_BANK_HASH

<-- NEW! IMPORTANT! REMOVE AFTER THIS RESTART

--hard-fork SLOT_X

<-- NEW! IMPORTANT! REMOVE AFTER THIS RESTART

--no-snapshot-fetch

<-- NEW! IMPORTANT! REMOVE AFTER THIS RESTART

--entrypoint entrypoint.testnet.solana.com:8001 --known-validator 5D1fNXzvv5NjV1ysLjirC4WY92RNsVH18vjmcszZd8on --expected-genesis-hash 4uhcVJyU9pJkvQyS88uRDiswHXSCkY3zQawwpjk2NsNY --only-known-rpc --limit-ledger-size .. .

<-- your other --identity/--vote-account/etc arguments

b. If your validator doesn't have ledger up to slot SLOT_X or if you have deleted your ledger, have it instead download a snapshot with:

solana-validator --wait-for-supermajority SLOT_X

<-- NEW! IMPORTANT! REMOVE AFTER THIS RESTART

--expected-bank-hash NEW_BANK_HASH

<-- NEW! IMPORTANT! REMOVE AFTER THIS RESTART

--entrypoint entrypoint.testnet.solana.com:8001 --known-validator 5D1fNXzvv5NjV1ysLjirC4WY92RNsVH18vjmcszZd8on --expected-genesis-hash 4uhcVJyU9pJkvQyS88uRDiswHXSCkY3zQawwpjk2NsNY --only-known-rpc --limit-ledger-size .. .

<-- your other --identity/--vote-account/etc arguments

You can check for which slots your ledger has with:solana-ledger-tool -l path/to/ledger bounds 1. Wait until 80% of the stake comes online

To confirm your restarted validator is correctly waiting for the 80%: a. Look forN% of active stake visible in gossip log messages b. Ask it over RPC what slot it's on:solana --url http://127.0.0.1:8899 slot . It should returnSLOT_X until we get to 80% stake

Thanks!

Step 7. Wait and listen

Monitor the validators as they restart. Answer questions, help folks,

Troubleshooting

80% of the stake didn't participate in the restart, now what?

If less than 80% of the stake join the restart after a reasonable amount of time, it will be necessary to retry the restart attempt with the stake from the non-responsive validators removed.

The community should identify and come to social consensus on the set of non-responsive validators. Then all participating validators return to Step 4 and create a new snapshot with additional--destake-vote-account arguments for each of the non-responsive validator's vote account address

solana-ledger-tool -l ledger create-snapshot SLOT_X ledger --hard-fork SLOT_X \ --destake-vote-account < VOTE_ACCOUNT_ 1

\ --destake-vote-account < VOTE_ACCOUNT_ 2

\ . . --destake-vote-account < VOTE_ACCOUNT_N

\ This will cause all stake associated with the non-responsive validators to be immediately deactivated. All their stakers will need to re-delegate their stake once the cluster restart is successful. Previous Validator Guides: Node Failover