

Solana Test Validator

During early stage development, it is often convenient to target a cluster with fewer restrictions and more configuration options than the public offerings provide. This is easily achieved with thesolana-test-validator binary, which starts a full-featured, single-node cluster on the developer's workstation.

Advantages

- No RPC rate-limits
- No airdrop limits
- Direct [on-chain program](#) deployment
- (--bpf-program ...)
- Clone accounts from a public cluster, including programs (--clone ...)
-)
- Load accounts from files
- Configurable transaction history retention (--limit-ledger-size ...)
-)
- Configurable epoch length (--slots-per-epoch ...)
-)
- Jump to an arbitrary slot (--warp-slot ...)
-)

Installation

The solana-test-validator binary ships with the Solana CLI Tool Suite [Install](#) before continuing.

Running

First take a look at the configuration options

```
solana-test-validator --help
```

 Next start the test validator

solana-test-validator By default, basic status information is printed while the process is running. See [Appendix I](#) for details

```
Ledger location: test-ledger Log: test-ledger/validator.log Identity: EPhgPANA5Rh2wa4V2jxt7YbtWa3Uyw4sTeZ13cQjDDB8
Genesis Hash: 4754oPEMhAKy14CZc8GzQUP93CB4ouELyaTs4P8ittYn Version: 1.6.7 Shred Version: 13286 Gossip
Address: 127.0.0.1:1024 TPU Address: 127.0.0.1:1027 JSON RPC URL: http://127.0.0.1:8899 * 00:36:02 | Processed Slot:
5142 | Confirmed Slot: 5142 | Finalized Slot: 5110 | Snapshot Slot: 5100 | Transactions: 5142 | @499.974295000
Leavesolana-test-validator running in its own terminal. When it is no longer needed, it can be stopped with ctrl-c.
```

Interacting

Open a new terminal to interact with [aunning](#) solana-test-validator instance using other binaries from the Solana CLI Tool Suite or your own client software.

Configure the CLI Tool Suite to target a local cluster by default

```
solana config set --url http://127.0.0.1:8899
```

Verify the CLI Tool Suite configuration

```
solana genesis-hash * NOTE: * The result should match theGenesis Hash: * field in thesolana-test-validator * status output
```

Check the wallet balance

```
solana balance * NOTE: * Error: No such file or directory (os error 2) * means that the default * wallet does not yet exist.
Create it withsolana-keygen new * . * NOTE: * If the wallet has a zero SOL balance, airdrop some localnet SOL withsolana
airdrop 10
```

Perform a basic transfer transaction

```
solana transfer EPhgPANA5Rh2wa4V2jxt7YbtWa3Uyw4sTeZ13cQjDDB8 1
```

Monitormsg!()

output from on-chain programs

solana logs * NOTE: * This command needs to be running when the target transaction is * executed. Run it in its own terminal

Appendix I: Status Output

Ledger location: test-ledger * File path of the ledger storage directory. This directory can get large. Store * less transaction history with--limit-ledger-size ... * or relocate it with--ledger ...

Log: test-ledger/validator.log * File path of the validator text log file. The log can also be streamed by * passing--log *. Status output is suppressed in this case.

Identity: EPhgPANa5Rh2wa4V2jxt7YbtWa3Uyw4sTeZ13cQjDDB8 * The validator's identity in the[gossip network](#)

Version: 1.6.7 * The software version

Gossip Address: 127.0.0.1:1024 TPU Address: 127.0.0.1:1027 JSON RPC URL: http://127.0.0.1:8899 * The network address of the[Gossip](#) *, [Transaction Processing Unit](#) * and [JSON RPC](#) * service, respectively

* 00:36:02 | Processed Slot: 5142 | Confirmed Slot: 5142 | Finalized Slot: 5110 | Snapshot Slot: 5100 | Transactions: 5142 |
©499.974295000 * Session running time, current slot of the three block[commitment levels](#) *, * slot height of the last snapshot, transaction count,[voting authority](#) * balance

Appendix II: Runtime Features

By default, the test validator runs with all[runtime features](#) activated.

You can verify this using the[Solana command-line tools](#) :

solana feature status -ul Since this may not always be desired, especially when testing programs meant for deployment to mainnet, the CLI provides an option to deactivate specific features:

solana-test-validator --deactivate-feature < FEATURE_PUBKEY_1

--deactivate-feature < FEATURE_PUBKEY_2

[Previous Solana CLI: Off-Chain Message Signing](#) [Next Solana CLI: Send and Receive Tokens](#)