Clusters and Public RPC Endpoints

The Solana blockchain has several different groups of validators, known asClusters . Each serving different purposes within the overall ecosystem and containing dedicated api nodes to fulfillJSON-RPC requests for their respective Cluster.

The individual nodes within a Cluster are owned and operated by third parties, with a public endpoint available for each.

Solana public RPC endpoints#

The Solana Labs organization operates a public RPC endpoint for each Cluster. Each of these public endpoints are subject to rate limits, but are available for users and developers to interact with the Solana blockchain.

Note: Public endpoint rate limits are subject to change. The specific rate limits listed on this document are not guaranteed to be the most up-to-date.

Using explorers with different Clusters#

Many of the popular Solana blockchain explorers support selecting any of the Clusters, often allowing advanced users to add a custom/private RPC endpoint as well.

An example of some of these Solana blockchain explorers include:

- http://explorer.solana.com/
- .
- http://solana.fm/
- .
- http://solscan.io/
- .
- http://solanabeach.io/
- .
- http://validators.app/
- .

Devnet#

Devnet serves as a playground for anyone who wants to take Solana for a test drive, as a user, token holder, app developer, or validator.

- Application developers should target Devnet.
- Potential validators should first target Devnet.
- Key differences between Devnet and Mainnet Beta:* Devnet tokens arenot real
-
    - Devnet includes a token faucet for airdrops for application testing
-
    - Devnet may be subject to ledger resets
-
    - Devnet typically runs the same software release branch version as Mainnet
-
    - Beta, but may run a newer minor release version than Mainnet Beta.
- Gossip entrypoint for Devnet:entrypoint.devnet.solana.com:8001

Devnet endpoint#

- https://api.devnet.solana.com
-
    - single Solana Labs hosted api node;
- rate-limited

Example solana command-line configuration#

To connect to thedevnet Cluster using the Solana CLI:

solana config set --url https://api.devnet.solana.com

Devnet rate limits#

- Maximum number of requests per 10 seconds per IP: 100

- Maximum number of requests per 10 seconds per IP for a single RPC: 40
- Maximum concurrent connections per IP: 40
- Maximum connection rate per 10 seconds per IP: 40
- Maximum amount of data per 30 second: 100 MB

Testnet#

Testnet is where the Solana core contributors stress test recent release features on a live cluster, particularly focused on network performance, stability and validator behavior.

- Testnet tokens arenot real
- Testnet may be subject to ledger resets.
- Testnet includes a token faucet for airdrops for application testing
- Testnet typically runs a newer software release branch than both Devnet and
- Mainnet Beta
- Gossip entrypoint for Testnet:entrypoint.testnet.solana.com:8001

Testnet endpoint#

- https://api.testnet.solana.com
-
    - single Solana Labs api node; rate-limited

Example solana command-line configuration#

To connect to thetestnet Cluster using the Solana CLI:

solana config set --url https://api.testnet.solana.com

Testnet rate limits#

- Maximum number of requests per 10 seconds per IP: 100
- Maximum number of requests per 10 seconds per IP for a single RPC: 40
- Maximum concurrent connections per IP: 40
- Maximum connection rate per 10 seconds per IP: 40
- Maximum amount of data per 30 second: 100 MB

Mainnet beta#

A permissionless, persistent cluster for Solana users, builders, validators and token holders.

- Tokens that are issued on Mainnet Beta arereal
- SOL
- Gossip entrypoint for Mainnet Beta:entrypoint.mainnet-beta.solana.com:8001

Mainnet beta endpoint#

- https://api.mainnet-beta.solana.com
-
    - Solana Labs hosted api node cluster,
- backed by a load balancer; rate-limited

Example solana command-line configuration#

To connect to themainnet-beta Cluster using the Solana CLI:

solana config set --url https://api.mainnet-beta.solana.com

Mainnet beta rate limits#

- Maximum number of requests per 10 seconds per IP: 100
- Maximum number of requests per 10 seconds per IP for a single RPC: 40
- Maximum concurrent connections per IP: 40
- Maximum connection rate per 10 seconds per IP: 40
- Maximum amount of data per 30 second: 100 MB

The public RPC endpoints are not intended for production applications. Please use dedicated/private RPC servers when you

launch your application, drop NFTs, etc. The public services are subject to abuse and rate limits may change without prior notice. Likewise, high-traffic websites may be blocked without prior notice.

Common HTTP Error Codes#

- 403 -- Your IP address or website has been blocked. It is time to run your own
- RPC server(s) or find a private service.
- 429 -- Your IP address is exceeding the rate limits. Slow down! Use the Retry-After
- HTTP response header to determine how long to wait before making another
- request.