NATS CLI Extended

Login options

Login with username and password

```
nats --user <user> --password <pwd> sub foo
```

Login with token

```
nats --token <token> sub foo
```

Login with nkey file - must not contain line breaks

```
nats --nkey <file> sub foo
```

Login with creds file - operator mode - generated with nsc or Synadia Control Plane

```
nats --creds <file> sub foo
```

Storing options in local context

Save connection options to context

```
nats context add LOCAL --server nats://127.0.0.1:4222 --user <user> --password <pwd>
```

Select context

```
nats context select LOCAL
```

Quick validate all contexts (connect servers)

```
nats context validate
```

Server Configuration

Obtain current server configuration and statistics (SYS)

```
nats server request variables
```

Reload server config file (SYS) - server id can be obtained with the command above

```
nats server config reload <server id>
```

Server and Stream Events

Connect/Disconnect and authentication errors

```
nats events
```

Including all Jetstream advisories and events

```
nats events --all
```

Graphs - ASCII Dashboard

A number of commands have a `graph` subcommand or `--graph` option.

```
nats server graph
nats stream graph <stream>
nats consumer graph <stream> <consumer>
```

Graph subject traffic. E.g. Jetstream consumer management.

```
nats sub '$JS.API.CONSUMER.CREATE.>' '$JS.API.CONSUMER.INFO.>' '$JS.API.CONSUMER.DELETE.>' --graph
```

Extended Health Check

Health probe (SYS) - used by Kubernetes et. al.

```
nats server report health
```

- Ensure you see all servers and all report 200
- Repeat multiple times if needed

Check clusters and routes (SYS)

```
nats server ls <server count>
```

- Ensure all servers respond quickly. This means all expected servers replied.
- Ensure there are 0 slow consumers
- Ensure routes/GW are consistent
- Look for consistent versions
- Look for consistent CPU usage
- Look for consistent uptime
- Look for consistent memory usage. Is one server using RAM excessivly?
- Check the number of connections.

Message traffic (SYS) - Run as system user for extended info

```
nats traffic
```

- **Raft:** Ensure votes are all to 0 (non zero may indicate instability)
- **Raft:** Ensure append is half of reply
- **General:** Ensure there are less than 1000 JS API Requests per second

Jetstream health - Note that not all servers may have Jetstream enabled (SYS)

```
nats server report jetstream <JS server count>
```

- Ensure all servers respond quickly. This means all expected servers are there.
- Ensure the number of consumers is as expected
- Make sure there is a stable meta leader
- Compare the number of servers in the RAFT Meta Group with Jetstream summary. Ensure all server are current and show in the Jetstream summary.

Gather and analyze information for auditing

```
nats audit gather
```

- Keep audit data for post mortem.

And do a quick analysis

```
nats audit analyze
```

- This is not an exhaustive report. Details may change over time. See `nats audit checks` for a list of current checks.

Exhaustive Stream and consumer status (SYS) WARNING - These reports can be large and impact server performance

```
nats server stream-check
nats server consumer-check
```

- Check for out of sync streams and consumers. Use `--unsynced` to filter.
- Check for expected replicas count, stream size, message count and offline peers

The output of `nats audit gather` can be fed into `stream-check` and `consumer-check` for offline analysis

```
cat ./clusters/*/*/jetstream_info/* | jq -c '.' > jsz.json
nats server stream-check --stdin --unsynced < jsz.json
```

Jetstream queueing/bottlenecks

Detecting bottlenecks in Jetstream replications and request routing

Reports RAFT cluster wide when used in system account. (SYS)

```
nats server request ipqueue
```

- Check **Routed JS API Requests** for pending API requests.
- Check RAFT groups for pending operations. Reports account, streams and consumer.

Monitoring with the CLI

nats server check provide simple warning rules, suitable to log file based monitoring. For proper monitoring the **NATS Prometheus exporter** or the **NATS Surveyor** should be used in conjunction with Graphana or similar tools.

List server check options and available warning rules. Checks one server at a time.

```
nats server check
nats server check server --help
```

Simple alerts on server CPU and memory usage (SYS)

```
nats server check server --name <server> --cpu-warn=50 --cpu-critical=80 --mem-warn=100000000 --mem-critical=200000000
```

Alert on connection count being out of range. The check can be inverted by setting **critical** < **warn** (SYS)

```
nats server check server --name <server> --conn-warn=1000 --conn-critical=2000
nats server check server --name <server> --conn-warn=400 --conn-critical=300
```

Report in prometheus format (or nagios, json, text)

```
nats server check server --name <server> --cpu-warn=50 --cpu-critical=80 --format=prometheus
```

NATS CLI Extended

Watch servers (SYS) and jetstream

```
nats server watch servers
nats server watch jetstream
```

Account management

Current account information, connections overview and statistics

```
nats account info
nats account report connections
nats account report statistics
```

Backup and restore all streams in an account.

```
nats account backup <directory>
nats account restore <directory>
```

Purge/Delete all streams in an account. (SYS)

```
nats server account purge <account>
```

Advanced Jetstream management

Change the cluster leader of a stream or consumer. Useful when stream or consumer are unresponsive

```
nats stream cluster step-down <stream>
nats consumer cluster step-down <stream> <consumer>
```

Change to a preferred leader

```
nats stream cluster step-down <stream> --preferred <server>
```

Rebalance **all** stream leaders in the account - **Use with caution**

```
nats stream cluster balance
```

Scaling a stream down and up

```
nats stream edit <stream> replicas=3
```

Catching a stream create config json with --json or --trace

```
nats stream add <stream> --defaults --subject 'foo.>' --json
nats stream add <stream> --defaults --subject 'foo.>' --trace
```

Creating a stream from json config

```
nats stream add --config <config file>
```

Advanced cluster management

Rebalance client connections between servers (SYS) - **Use with caution** and check the extended options with --help

```
nats server cluster balance
```

Change meta raft leader (SYS) for repairing a cluster

```
nats server cluster step-down
```

Removing a node from a cluster after a cluster scale down (SYS). NATS cluster will wait for nodes to come back. Streams will not repair their replicas until nodes are removed - **Use with caution**

```
nats server cluster peer-remove <server>
```

If the server name is unknown find and use the server id (SYS)

```
nats server report jetstream
nats server cluster peer-remove <server id>
```

Quick Server status reports

Note: some reports are accessible from the SYS account only or show diffrent details in SYS and app account

The server helth probe as exposed by the HTTP interface and used by K8S et.al. to report server readiness.

```
nats server report health
```

Jetstream status, including meta raft group status.

```
nats server report jetstream
```

Quick memory and cpu usage report

```
nats server report cpu
nats server report mem
```

Detailed server status, profiling and connection kick

Most information is also availabe on the **http debug (port 8222)** interface. Most of this information is auto collected by `nats audit gather`. Except for **connections** all commands require a system account.

List all connections.

```
nats server request connections
```

List connections and all subscriptions

```
nats server request connections --subscriptions
```

Kick a connection. (SYS)

```
nats server request kick <conn id> <server id>
```

Current server configuration. (SYS)

```
nats server request variables
```

Detailed status report per server of all streams and replicas. (SYS)

```
nats server request jetstream
```

All subscriptions system wide (SYS)

```
nats server request subscriptions --detail
```

.. other reports are **acounts**, **gateways**, **leafnodes**, **routes** and **raft**

Various GoLang runtime profiles. (SYS) - Supports: allocs, heap, goroutine, mutex, threadcreate, block, cpu

```
nats server request profile <profile>
```