

NAME
networkQuality - Network quality testing tool

SYNOPSIS
networkQuality [-cdhksuv] [-C configuration URL] [-f protocol selection]
[-I interface] [-r host] [-S port]

DESCRIPTION
networkQuality allows for measuring the different aspects of Network Quality, including:

- Maximal capacity (often described as speed)
- The responsiveness of the connection. Responsiveness measures the quality of your network by the number of roundtrips completed per minute (RPM) under working conditions. See <https://support.apple.com/kb/HT212313>
- Other aspects of the connection that affect the quality of experience.

NOTE: This tool will connect to the Internet to perform its tests. This will use data on your Internet service plan.

For more details about the RPM score and the methodology around the testing, see <https://datatracker.ietf.org/doc/draft-cpaasch-ippm-responsiveness/>

The following options are available:

- C configuration URL/path
Use custom configuration URL or path (with scheme file://). See <https://github.com/network-quality/server> for server implementation details.
- f ,...]>
Force usage of a specific protocol selection:
h1: To enforce HTTP/1.1
h2: To enforce HTTP/2
h3: To enforce HTTP/3 (QUIC)
L4S: To force-enable L4S
noL4S: To force-disable L4S
- I interface
Bind test to interface (e.g., en0, pdp_ip0,...)

If not specified, the default interface will be used.
- r host Connect to host or IP, overriding DNS for initial config request
- S port Create a networkQuality server-instance running locally on the specified port. It will display the URL of the config-file that can be passed on to a client-instance with option -C. Note that the certificate is self-signed and thus option -k needs to be used on the client-instance.
- c Produce computer-readable output.
- d Do not run a download test (implies -s)
- h Show help
- k Disable verification of the server identity via TLS.
- p Use iCloud Private Relay.
- s Run tests sequentially instead of parallel upload/download.
- u Do not run an upload test (implies -s)
- v Verbose output.

COMPUTER OUTPUT FIELD DESCRIPTION

The -c option will produce JSON output with the following fields:

base_rt	The calculated idle latency of the test run (in milliseconds).
dl_flows	Number of download flows initiated.
dl_responsiveness	The downlink responsiveness score (in RPM) (only available when -s is specified).
dl_throughput	The measured downlink throughput (in bytes per second).
end_date	Time when test run was completed (in local time).
il_h2_req_resp	The idle-latency Request/Response times for HTTP/2 (in milliseconds).
il_tcp_handshake_443	The idle-latency TCP-handshake times (in milliseconds).
il_tls_handshake	The idle-latency TLS-handshake times (in milliseconds).
interface_name	Interface name in which the test ran against.
lud_foreign_dl_h2_req_resp	Download latency-under-load request/response times for HTTP/2 (in milliseconds). (only available when -s is specified).
lud_foreign_dl_tcp_handshake_443	Download latency-under-load for for TCP-handshake times (in milliseconds). (only available when -s is specified).
lud_foreign_dl_tls_handshake	Download latency-under-load for for TLS-handshake times (in milliseconds). (only available when -s is specified).
lud_foreign_h2_req_resp	Combined upload/download latency-under-load request/response times for HTTP/2 (in milliseconds). (only available when -s is not specified).
lud_foreign_tcp_handshake_443	Combined upload/download latency-under-load for for TCP-handshake times (in milliseconds). (only available when -s is not specified).
lud_foreign_tls_handshake	Combined foreign upload/download latency-under-load for for TLS-handshake times (in milliseconds). (only available when -s is not specified).
lud_foreign_ul_h2_req_resp	Foreign upload latency-under-load request/response times for HTTP/2 (in milliseconds). (only available when -s is specified).
lud_foreign_ul_tcp_handshake_443	Foreign upload latency-under-load for for TCP-handshake times (in milliseconds). (only available when -s is specified).
lud_foreign_ul_tls_handshake	Upload latency-under-load for for TLS-handshake times (in milliseconds). (only available when -s is specified).
lud_self_dl_h2_req_resp	Self download latency-under-load request/response times for HTTP/2 (in milliseconds). (only available when -s is specified).
lud_self_h2_req_resp	Combined self upload/download latency-under-load request/response times for HTTP/2 (in milliseconds). (only available when -s is not specified).
lud_self_ul_h2_req_resp	Self upload latency-under-load request/response times for HTTP/2 (in milliseconds). (only available when -s is specified).
os_version	The version of the OS the test was run on.
responsiveness	The responsiveness score (in RPM) (the combined value if -c is not specified).
start_date	Time when test run was started (in local time).
ul_flows	Number of upload flows created.
ul_responsiveness	The uplink responsiveness score (in RPM) (only available when -s is specified).
ul_throughput	The measured uplink throughput (in bytes per second).

SEE ALSO

ping(8), traceroute(8)