

NTP Server

Here are some useful commands when running a GPS-disciplined NTP server.

See this page for the local NTP server (192.168.1.12): [Local GPS NTP Time Server](#)

NTPQ

When running a query of an ntp server, you would use: `ntpq -p`.

What you see is this:

`ntpq -pn`

```
pi@raspberrypi:~ $ ntpq -p
remote                refid                st t when poll reach  delay  offset  jitter
=====
0.debian.pool.n      .POOL.                16 p   - 1024    0    0.000   0.000   0.002
1.debian.pool.n      .POOL.                16 p   - 1024    0    0.000   0.000   0.002
*SHM(2)              .PPS.                  0 l    3   64   377    0.000   0.067   0.010
SHM(0)               .SHM.                  15 l   16   16   377    0.000  47.408  61.358
192.168.1.11         .STEP.                 16 u   -   32    0    0.000   0.000   0.000
-time.cloudflare     10.114.8.4             3 u  243 1024  377    8.763   0.664   0.163
+207.192.69.118     17.253.2.251          2 u    5 1024  377   14.304   0.428   0.136
+time.cloudflare     10.96.8.58             3 u  255 1024  377    8.807   0.412   0.257
-edge.txryan.com     59.61.64.227          2 u  675 1024  377   26.440   0.681   0.219
-216.31.16.12 (n    172.18.56.13          2 u  952 1024  377   24.845   0.457   0.234
-static.190.111.     207.197.87.124        4 u  471 1024  377   26.433   0.613   0.361
pi@raspberrypi:~ $
```

Here's an explanation:

REMOTE = The servers and peers specified in the configuration file, from which your host will take time synchronization

Character that may prefix the remote hostname/IP address:

- indicates the current synchronization source.

indicates that the host is selected for synchronization, but distance from the host to the server exceeds the maximum value.

o indicates that the host is selected for synchronization and the PPS signal is in use.

+ indicates the host is included in the final synchronization selection set.

x indicates that the host is the designated false ticker by the intersection algorithm.

. indicates that the host is selected from the end of the candidate list.

- indicates a host discarded by the clustering algorithm.

blank indicates a host is discarded due to high stratum and/or failed sanity checks.

REFID = the current source of synchronization for the remote host

ST = the stratum level of the remote host

T = types available:

l local (such as a GPS clock)

u unicast (this is the common type)

m multicast

b broadcast

- netaddr (usually 0)

WHEN = number of seconds passed since the remote host response

POLL = polling interval to the remote host, defined with the "minpoll" value in ntp.conf file

REACH = indicates how successful attempts to reach the server are. This is an 8-bit shift register with the most recent probe in the 2^0 position. The value 001 indicates the most recent probe was answered, while 357 indicates one probe was not answered. The value 377 indicates that all the recent probes have been answered.

DELAY = (round trip time) indicates the time (in milliseconds) taken by the reply packet to return in response, to a query sent by the server.

OFFSET = indicates the time difference (in milliseconds) between the server's clock and the client's clock. When this number exceeds 128, and the message synchronization lost appears in the log file

JITTER = indicates the difference in the offset measurement between two samples. This is an error-bound estimate. Jitter is a primary measure of the network service quality.

NTPTIME

This command will give you the current time as:

