

Unicast Modes

Time Servers:

`server <ip/hostname> [options]`

Symmetric Active Peers:

`peer <ip/hostname> [options]`

[options] can be one or more of the following flags:

<code>iburst</code>	initial burst, speed up initial synchronization
<code>minpoll x</code>	change minimum or maximum polling interval to 2^x seconds: 4=16s, 5=32s, 6=64s, 7=128s, 8=256s, 9=512s, 10=1024s, 11=2048s, 12=4096s, 13=8192s, 14=16384s, 15=32768s, 16=65536s, 17=131072s
<code>maxpoll x</code>	
<code>prefer</code>	preferred source
<code>key n</code>	use symmetric key number n
<code>autokey</code>	use autokey with this source
<code>noselect</code>	only monitor, never use as sync source
<code>true</code>	always consider this source being a truechimer

Broadcast / Multicast Modes

IANA assigned NTP multicast address:
224.0.1.1 (IPv4) / ff05::101 (IPv6)

Send out broadcast/multicast packets:
`broadcast <bcast/mcast ip> [options]`

[options] can be

`autokey, key n` (see left)
`ttl` Time To Live, number of max.router hops the packets should be forwarded (default=127)

Listen to NTP broadcast packets:
`broadcastclient [novolley]`

`novolley` do not measure network delay (uni-directional mode)

Listen to NTP multicast packets
`multicastclient <mcast ip>`

Useful Weblinks

<http://www.ntp.org> - Official NTP Website
<http://support.ntp.org/> - Support Web
<http://www.meinberg.de> - Meinberg Website
<http://www.time-server-monitor.com> - free NTP Monitor Utility

Generate Statistics

Enable Statistics Collection:

`enable stats`

Select statistics files to be generated:

`stats [space separated list of stats]`

List of available stats:

`clockstats` clock statistics
`cryptostats` crypto public key stats
`loopstats` loop filter statistics
`peerstats` peer statistics
`rawstats` raw timestamps info
`sysstats` ntpd statistics

Select where to create statistics files:

`statsdir <directory path>`

Filename management:

`filegen <name> [file fname] [type ftype] [link | nolink] [enable | disable]`

`name` is the name of the stats type (e.g. clockstats)
`fname` fixed part of filename
`ftype` can be either
 none=single plain file
 pid=process id in the filename
 day/week/month/year=one file per day/week/...
 age=new file every 24hrs
 create hardlink to current file

`link`

ntpd

Command Line Options

- a require crypto auth for bcast, mcast and peers
- A do not require auth (!)
- b enable broadcastclient
- c cfgfile use cfgfile as config file
- d debugging mode
- D level debugging level
- f driftfile specify drift file name
- g allow big initial timestep
- i jaildir chroot to jaildir
- k keyfile specify key file name
- l logfile specify log file name
- L do not listen to virtual IPs (default: listen)
- n do not fork process (stay in foreground)
- p pidfile specify process ID file
- q exit after first sync
- r bdelay specify broadcast delay
- s statsdir specify statsdir
- t key specify a trusted key
- U ifupd specify interface update interval
- x step threshold = 600s (instead of 128ms)

ntpq

Command Line Options

ntpq [options] <hostname>

If no <hostname> is specified, localhost will be used.

- c „x y“ run ntpq command x with parameter(s) y (multiple -c's are ok!)
- n do not resolve hostnames
- p show status billboard

Command Reference

command (short form) [pars]:

- peers show status billboard
- associations (as) show list of associations with id and their status
- readvars (rv) [assoc] show peer vars for association assoc (or the ntpd instance sysvars if empty)
- clockvars (cv) [assoc] show clock vars for association assoc
- keyid n use key n for queries
- passwd ask for key (password)
- timeout x set timeout for replies to x milliseconds

Key File Format

/etc/ntp.keys:

<n> M <passphrase>

n key id
passphrase key passphrase

Statistics Files Format

/var/log/peerstats:

mjd sec.frac paddr status offs delay disp rmsjitter

/var/log/clockstats:

mjd sec.frac caddr timecode

/var/log/loopstats:

mjd sec.frac offs freq rmsjitter alandev clkdconst

/var/log/sysstats:

mjd sec.frac uptime pr pp cver pver bver acden badlen badauth rexc

mjd	Mod. Julian Date
sec.frac	seconds/fractions since midnight
paddr/caddr	peer / clock address
status	peer status in hex
offs,delay,disp	offset, delay, dispersion in s
rmsjitter	RMS jitter in s
timecode	last received timecode from clock
freq	frequency offset (PPM)
alandev	Alan Deviation (PPM)
clkdconst	Clock Discipline Time Constant
uptime	time in hours since last restart
# of packets received:	
pr, pp	received/processed
cver,pver,bver	current, prev or bad version
acden	denied access
badlen	bad length/format
badauth	bad authentication
rexec	rate exceeded