NOS COMMAND SET REFERENCE

by Ian Wade

G3NRW @ GB7BIL
44.131.5.2

7 Daubeney Close, Harlington,
Dunstable, Bedfordshire,
LU5 6NF, UK

ABSTRACT
This paper contains details of all of the commands to be found in the following KA9Q TCP/IP Network Operating System (NOS) packages:

KA9Q/G1EMM: KH113016 (v1.6) (Nov 1990)
KA9Q/PA0GRI: 910618 (v1.7a) (J u n 1991)

RATIONALISATION OF PARAMETERS
Because the NOS packages contain software modules originating from several different sources, the documentation which describes them inevitably contains a number of inconsistencies. For example, the words label and interface apparently describe different objects, whereas in actuality they are the same thing. On the other hand, the word address can have different meanings, depending on the command.

In this paper an attempt has been made to rationalise the meaning of these parameters, to produce a consistent command set within and across the two NOS packages.

The parameters which often cause confusion are to do with names, addresses and interfaces. These are now defined as follows:

<callsign>	an AX.25 MYCALL callsign (e.g. G3NRW-5)
<hostname>	a host name in DOMAIN.TXT (e.g. g3nrw or g3nrw. ampr. org.)
<ipaddress>	an Internet address (e.g. 44.131.5.2)
<host>	<hostname> or <ipaddress>
<username>	a user at a computer (e.g. ian)
<interface>	a device interface name (e.g. pk0)
<ioaddress>	a device I/O base address (e.g. 0x3f8)
<vector>	an IRQ level (e.g. 4)

The word hostid is not used at all, to avoid confusion with the Unix command of the same name.

KEY

■ signifies a command only in the G1EMM version
¶ signifies a command only in the PAOGRI version

Where commands have alternative parameter values, the default value is underscored; e.g. [off | on] h e r default parameters are shown in braces; e.g. {30}.

```
?       (help: list of top-level NOS commands)
!       (break out to shell)
#       (comment 1 ine)
F10     (escape to NOS command level)
```

```
abort       [<session_number>]                (FTP)
..............................................
arp

arp add     <host> ether|ax25|netromlarcnet
                   <ether_addr>|<callsign>

arp drop    <host> ether lax25|netromlarcnet

arp flush

arp publ ish <host> ether lax25 (netromlarcnet
                   <ether addr>|<callsign>
..............................................
asystat
..............................................
attach asy      <ioaddress> <vector>
                slip|ax25|nrs|ppp
                <interface> <buffers> <mtu>
                <speed> [opti onsl

                    option c: enable RTS/CTS
                           r: enable RLSD/CD
                           v: enable compression
```

```
¶ attach axip   <interface> <mtu> <remote-host>
                    [<callsign>]

■ attach drsi   <ioaddress> <vector> ax25
                    <interface> <bufsize> <mtu>
                    <chan a speed> <chan_b_speed>
                    [<i paddress a>] [<i paddress_b>]

■ attach eagle  <ioaddress> <vector> ax25
                    <interface> <buffers> <mtu>
                    <speed>
                    [<ipaddress_a>] [<ipaddress_b>]
```

■ attach hapn   `<ioaddress> <vector>` **ax25**
                 `<interface> <rx bufsize> <mtu>`
                 csma | full [`<ipaddress>`]

■ attach hs   `<ioaddress> <vector>` **ax25**
                 `<interface> <buffers> <mtu>`
                 `<txdelay> <persistence>`
                 `[<ipaddress_a>] [<ipaddress_b>]`

  attach kiss   `<asy interface> <port> <interface>`
                 `[<mtu>]`

  attach netrom

  attach packet `<vector> <interface>`
                 `<tx_queue_length> <mtu>`
                 `[<ipaddress>]`

■ attach pc100   `<ioaddress> <vector>` **ax25**
                 `<interface> <buffers> <mtu>`
                 `<speed>`
                 `[<ipaddress_a>] [<ipaddress_b>]`

  attach scc   `<devices>` **init** `<ioaddress>`
                 `<spacing> <Aoff> <Boff>`
                 `<Dataoff> <intack> <vector>`
                 `[p] <clock> [hdwe] [<param>]`

  attach scc   `<chan> slip|kiss|nrs|ax25`
                 `<interface> <mtu> <speed>`
                 `<bufsize> [<callsign>]`
. . . .
  attended   `[off|`_on_`]`
. . . .

ax25 bc	`<interface>`	
ax25 bcinterval	`[<seconds>]`	{0}
ax25 bctext	`["<broadcast_text>"]`	
ax25 btimit	`[<val>]`	{30}
ax25 digipeat	`[`_off_`|on]`	
ax25 flush		
ax25 heard		
ax25 irtt	`[<millisecs>]`	{5000}
ax25 kick	`<&AXB>`	
ax25 maxframe	`[<window_size>]`	{1}
ax25 mycall	`[<callsign>]`	
ax25 paclen	`[<bytes>]`	{256}
ax25 pthresh	`[<bytes>]`	{128}
ax25 reset	`<&AXB>`	
ax25 retry	`[<n>]`	{10}
ax25 route		
ax25 route add	`<target callsign>`	
	`[<digi_callsign> ...]`	
ax25 route drop	`<target_callsign>`	
ax25 route mode	`<target_callsign>`	
	`[vc|datagram|interface]`	
ax25 status	`[<&AXB>]`	
ax25 t3	`[<millisecs>]`	{0}
ax25 t4	`[<seconds>]`	{300}
ax25 timertype	`[original	linear|`_exponential_`]`	
ax25 version	`[1|`_2_`]`	
ax25 window	`[<bytes>]`	{2048}

bbs

Help	? (command list)	
Area	**A** `[<area_name>]`	
Bye	**B**	
Chat	**C**	
Download	**D** `<filename>`	
Escape	**E** `[<esc_char>]`	{^X}
Finger	**F** `[<username>] [@<host>]`	
Gateway	**G** `<interface> <callsign>`	
	`[<digi_callsign>...]`	
Help	**H** `[<command_letter>]`	
Info	I	
Heard	J	
Kill	**K** `<n> ...`	
List	**L** `[<n> ...]`	
Netrom	**N**	
Read	**R** `<n> ...`	
Send	**S** `<username> [%<host>] [@<host>]`	
	`[< <from addr>] [$<bulletin_id>]`	
Forward	**S F** `<username> [%<host>] [@<host>]`	
	`[< <from_addr>] [$<bulletin_id>]`	
Reply	**SR** `[<n>]`	
Telnet	**T** `<host> [well_known_port_number]`	{23}
Upload	U `<filename>`	
Verbose	V `<n> ...`	
What	**U** `[<directory>]`	
Zap	**Z** `<filename>`	
Remote	**@**	
Expert	`[<string>]`	
Next Message	**"**	
(unknown)	**#**	

---

cd	`[<directory>]`
close	`[<session_number>]`
comm	`<interface> <string>`
connect	`<interface> <callsign>`
	`[<digi_callsign> ...]`

---

delete	`<filename>`
detach	`<interface>`
¶ dialer	`<interface> [<file> [<seconds>`
	`[<pings> [<host>]]]]`
● dialer	`<interface> <seconds> <target-host>`
	`<dialer filename>`
■ dialer	`<interface> 0` (turns dialer off)

```
dir          [<directory,|<filename>]

disconnect [<session_number>]              (AX.25)
.................... ....................................
domain addserver <host> [<host> ...]

domain cache clean [off|on]
domain cache list
domain cache size [<entries>]              {20}
domain cache wait [<seconds>]              {300}

domain dropserver <host> [<host> ...]
domain list
domain maxwait    [<seconds>]              {60}
domain retry      [<n>]                     {2}
domain suffix     [<domain_suffix>]    {.ampr.org.}
domain trace      [off|on]
domain translate  [off|on]
domain verbose    [off|on]
................................................ ...............
● drsistat

dump <hex memory-address> | <.> [<decimal_range>]

        (memory address is 8 hex chars without colon)
```

```
● eaglestat

echo     [accept|refuse]              (telnet)

eol      [standard|null]              (telnet)

escape <literal-character>        (also F10 on PC)

exit
```

```
finger [<username>] @<host>
                    (no spaces between parameters)
...................................................

¶ fkey

¶ fkey   <key_number> [<value> | "<string>"] I
                              (use ^M for CR)
```

f1	59	sf1	84	cf1	94	af1	104	pgup	73
f2	60	sf2	85	cf2	95	af2	105	pgdn	81
f3	61	sf3	86	cf3	96	af3	106	home	71
f4	62	sf4	87	cf4	97	af4	107	end	79
f5	63	sf5	88	cf5	98	af5	108	arup	72
f6	64	sf6	89	cf6	99	af6	109	ardn	80
f7	65	sf7	90	cf7	100	af7	110	ar l	75
f8	66	sf8	91	cf8	101	af8	111	ar r	77
f9	67	sf9	92	cf9	102	af9	112	ins	82
		sf10	93	cf10	103	af10	113	del	83

```
...................................................
```

```
ftp <host>

  ascii
  batch   [off|on]
  binary
  cd      <remote_dir>
  dele    <remote_file>

  dir     [<remote_dir> | <remote_file>
                          [<local_file>] I

  get     <remote_file> [<local_file>]
  hash

  list    [<remote_dir> | <remote file>
                          [<local_file>] I

  ls      [<remote dir> | <remote_file>
                          [<local_file>] I

  mget    <remote_file> [<remote_file> ...]
  mkdir   <remote_dir>
  mput    <local file>  [<local file> ...]

  nlst    [<remote dir> | <remote_file>
                          [<local_file>]]

  pass    <password>
  put     <local-file>  [<remote_file>]
  pwd
  quit
  rmdir   <remote_dir>
  type    [a | i | l <bytesize> I
  user    <username>
  verbose [<n>]                n=O: errors only
                               1: + summary
                               2: + progress
                               3: + hash
.............................................
  ftype   [ascii | binary]

  F10             (to escape to NOS command level)
```

```
■ hapnstat
  help            (list of top-level NOS commands)
.................................................
  hop check    <host>
  hop maxtt l [<hops>]                   {30}
  hop maxuai t [<seconds>]                {5}
  hop queries [<count>]                   {3}
  hop trace    [off|on]
.................................................
  hostname    [<mailbox name>]
■ hs
```

```
  icmp echo    [off|on]
                (must be on for one-shot ping)
  icmp status
  icmp trace [off |on]      (turn off for hop check)
```

150

```
.....................................................
ifconf ig  [<interface>]
ifconfig <interface> broadcast    &cast ipaddress>

ifconfig <interface> encapsulation
                          none|ax25|slip|netrom

ifconfig <interface> forward      <fwd interface>
ifconfig <interface> ipaddress    <ipaddress>
ifconfig <interface> linkaddress
                          <callsign|enet addr>
ifconfig <interface> mtu          <bytes>
ifconfig <interface> netmask      [Ox]<hexmask>
ifconfig <interface> rxbuf
.............................................
```

¶ info
```
.............................................
i p address [<ipaddress>|<hostname>]
ip rtimer [<seconds>]                      {30}
ip status
ip ttl     [<hops>]                        {255}
.....................a....................
isat       [off n 3
```

```
kick       [<session_number>]
```

```
log        [<log_filename>|stop]
```

mail
```
.............................................
mbox
mbox attend       [off|on]
mbox kick
mbox maxmsg       [<n>]                     {200}
mbox motd         ["<string>"]
mbox status
mbox timer        [<seconds>]              {0}
mbox t i pt imeout [<seconds>]            {180}
.............................................
```
¶ mem circular   [off|on]
mem efficient   [off|on]
mem free
mem garbage
mem ifbufsize   [<bytes>]   {2048}
mem nibufs   [<n>]   {5}
mem sizes
mem status
mem thresh   [<bytes>]   {8192}
```
.............................................
```
mkdir <di rectory>

mode   <interface> [vc|datagram]   (AX.25)

more <filename> [<filename> . ..]
```
                             (q: quit)
                             (space: next page)
                             (CR: next line)
```

```
motd       ["<string>"]
rnultitask [off |on]
```
_____

```
netrom acktime     [<millisecs>]              {3000}
netrom bcnodes     <interface>
netrom connect     <node_callsign>|<node_alias>
netrom choketime   [<millisecs>]           {1 80000)
netrom derate      [off |on]
netrom interface   <interface> <alias> <quality>
netrom irtt        [<millisecs>]           {15000}
netrom kick        <&CB>
```
¶ netrom load   <filename>
```
netrom minqual i ty [<n>]                     {10}

netrom nodefilter
netrom nodef i lter add  <neighbour_callsign>
                               <interface>
netrom nodefilter drop  <neighbour_callsign>
                               <interface>
netrom nodefilter mode [none|accept|reject]

netrom nodetimer  [<seconds>]                 {0}
netrom obsotimer  [<seconds>]                 {0}
net rom promiscuous  [off | on3
netrom ql imi t    [<bytes>]                {2048}
netrom reset       <&CB>
netrom retries     [<n>]                      {10}

netrom route
netrom route add   <alias> <destination> <interface>
                        <quality> <neighbour>
netrom route drop  <destination> <neighbour>
                               <interface>
netrom route info <destination>
```
¶ netrom save   <filename>
```
netrom status
netrom timertype  [l i near|exponent: i a 1]
netrom ttl         [<hops>]                   {10}
netrom user        [<username>]
netrom verbose     [off |on]
net rom window     [<frames>]                 {4}
.............................................
nntp addserver     <nntpserver host:>
                   [<interval_in_seconds>]
                   [<time_range>]
                   [<group> [<group> ...] 1

nntp directory     [spool | cont rol ● :directory>]
nntp dropserver    <nntpserver>
nntp groups        [<newsgroup_name> . . . ]
nntp kick          <nntpserver>
nntp listservers
nntp trace   [<n>]           n=O: no trace
                             1: serious errors
                             2: transient errors
                             3: session progress
                             4: received articles
                             5: errors
.............................................
```

nrstat

¶ parsm **<interface>**
 param **<interface> <param> [<param> . ..]**

 parsm **<KISS_interface> 0 <data frame>**
 param **<KISS-interface> 1 <TX_delay>**   (10mS units)
 param **<KISS-interface> 2 <persistence>**   (O-255)
 param **<KISS interface> 3** <slot_time>   (10mS units)
 param **<KISS_interface> 4 <TX_tail>**   (10mS units)
 param **<KISS-interface> 5 <n>**   (n=0: HDX)
                                                (n>0: FDX)

 param **<KISS_interface> 255**   (exit KISS)
 ....
 ping   **<host> [<len> [<seconds> [<incf lag>]]]**
 ....
 pop mailbox **<mbox>**
 Pop mai lhost **[<host>]**
 pop **kick**
 pop quiet   [off |on]
 pop timer   **[<seconds>]**   {0}
 pop userdata **[<username> <password>]**
 ....***

 ps
 pwd   **[<directory>]**

¶ **rarp**
¶ rarp query   **<interface> <ether_addr> | <callsign>**
                    [<ether_addr> | <callsign>]

 record   **[<filename>|off]**

 remote   **[-p <port>] [-k <key>]**
                    [-a <kickaddr>] <host>
                    exit|reset|kick
 remote   **-s <key>**

 rename   **<old filename> <new_filename>**

 reset   **[<session number>]**
 ....
 rip **accept**   **<incoming gateway-host>**

 rip add   **<destination-host> <secs> [<f lags>]**
                    (1: include route to self)
                    (2: split horizon)
                    (4: triggered update)

 rip drop   **<destination-host>**
 rip merge   f off |on]
 rip refuse   **<incoming_gateway-host>**
 rip request   **<incoming_gateway_host>**
 rip status
 rip trace   **[<n>]**   n=0: no trace
                                         1: changes only
                                         2: full trace
 ....

¶ **rlogin**   **<host>**
 rmdir   **directory,**
 ....
 route
 route add   **<dest_host> [/<bi ts>] | default**
                        <interface>
                        [gateway-host [<metric>]]

 route addprivate **<dest_host> [/<bi ts>] |** default
                        <interface>
                        [gateway-host [<metric>]]

 route drop   **<dest host> [/<bi ts>]**
 route flush
 route lookup   **<dest_host>**
 ....
 rspf interface   **[<name> <quality> <horizon>]**
 rspf message   **[@message_string">]**
 rspf maxpi ng   **[<n>]**   {5}
 rspf mode   **[vc|datagram|none]**
 rspf rrht imer   **[<seconds>]**   {0}
 rspf routes
 rspf status
 rspf suspectt imer [<seconds>]
 rspf timer   **[<seconds>]**   {0}

---

 sccstat
 session [<session_number>]
 shel1
 ....
 smtp batch   **[off|on]**
 smtp gateway   **[<host>]**
 smtp mode   **[queue|route]**
 smtp kick
 smtp kill   <job **number>**
 smtp list
 smtp maxc 1 **i** ents **[<n>]**   {10}
 smtp quiet   [on]
 smtp timer   **[<seconds>]**   {0}
 smtp trace   **[<n>]**   n=O: trace off
                                        1: trace **on**
 smtp usemx   **[off|on]**
 ....
 socket   **[<socket_number>]**

 source   **<script_filename>**

 start   **ax25|discard|echo|finger|ftp|netrom|pop|**
                remote|rip|smtp|telnet|ttylink

 start **tip <sync_interface>**

 status

 stop   **ax25|discard|echo|finger|ftp|netrom|pop|**
                remote|rip|smtp|telnet|ttylink

 stop tip <sync interface,

```
tail    <filename>
```

```
...........................................................
tcp irtt        [<millisecs>]                    {5000}
tcp kick        <&TCB>
tcp mss         [<bytes>]                        {512}
tcp reset       <&TCB>
tcp rtt         <&TCB> <millisecs>
tcp status      [<&TCB>]
tcp syndata     [|on]
tcp timertype   [linear|exponential]
tcp trace       [|on]
tcp window      [<bytes>]                        {2048}
...........................................................
```

```
telnet <host>   [<well_known_port_number>]    {23}
telnet <host> 87                     (CHAT/TTYLINK)
```

¶ test

```
third-party     [off|on]
```

```
tip         <async interface>
```

¶ ttylink   <host> [<well known port_number>]   {87}

```
...........................................................
```

¶ trace
trace   <interface> [<BTIO flags>
                              [<trace-filename>]]]

```
BTIO_flags:

   B=0    Broadcast filter off (trace all packets)
   B=1    Broadcast filter on (ignore broadcasts)

   T=0    Display protocol headers only
   T=1    Display headers + ASCII text
   T=2    Display headers + ASCII text + hex

   I=0    Ignore input packets
   I=1    Trace input packets

   O=0    Ignore output packets
   O=1    Trace output packets
```

```
udp         status
```

¶ upload
upload   <filename>

```
watch      [off|on]
watchdog   [off| on]
```

NOS STARTUP OPTIONS

```
nos [-b]                              (console BIOS)
    [-d <root  directory1
    [-m <heap_memory_in_KB>]
    [-s <socket_array_size>]

    [ <nos autoexec-filename> ]
```

FTPUSERS PERMISSIONS

ftp and telnet

1	**read**	file
2	**create new**	file
4	write/delete	file

telnet only

8	**AX.25** Gateway **access**
16	Telnet Gateway access
32	NET/ROM Access
64	Remote control
128	Disallow access

WELL-KNOWN PORT NUMBERS

0	reserved	23	TELNET	79	FINGER
1-4	**unassigned**	25	SMTP	87	TTYLINK
5	RJE	37	TIME	95	SUPDUP
7	ECHO	39	RLP	101	HOSTNAME
9	DISCARD	42	NAMESERVER	102	ISO-TSAP
11	USERS	43	NICNAME	109	POP-2
13	DAYTIME	53	DOMAIN	113	AUTH
15	NETSTAT	67	BOOTPS	117	UUCP-PATH
17	QUOTE	68	BOOTPC	119	NNTP
19	CHARGEN	69	TFTP	513	RLOGIN
20	FTP-data	75	private dialout		
21	FTP	77	private rje		

17 July 1991