TNOS Frequently Asked Questions.

Version 0.2 Started 27th March 1995. By Mike Dent.

This version dated 14th November 1995.

Introduction.
This is the Official Frequently Asked Questions document for TNOS. This document is designed to aid the TNOS user, and prospective user in setting up and maintaining a working TNOS system.

The document will take the form of common questions relating to TNOS, complete with answers. The document will cover both the Linux/Unix and DOS versions of TNOS. Where specific differences between the versions apply, they will be noted.

This document is prepared using the 'tkHTML 2.3' HTML editor for the X window system, using Linux. (Though to be honest much of it was done with good old vi & GPM selection !)

If you find any mistakes with this FAQ or have any suggestions etc, please mail me:-
mike@lurpac.lancs.ac.uk

Notes.
In this FAQ I make reference to the TNOS 'home' or TNOS 'root' directory. These directories are the same and refer to the directory from which the other TNOS directories are made from. You may also see '..tnos/' and can take this to mean the same.

Where I make reference to Linux specifics, this may also apply to other Unix like operating systems as mentioned in question 5 below:-
"What platforms/operating systems has TNOS been successfully compiled/run on?".

- ## General questions and comments.

1) What is TNOS?
2) What is the correct pronunciation of TNOS?
3) Where can I obtain TNOS?
4) Can I get help and support for TNOS?
5) What platforms/operating systems has TNOS been successfully compiled/run on?
6) When I type 'VERSion' at the mailbox prompt or at the Net> prompt, it does not display the correct version information, or any at all?
7) When a new user logs into my BBS the first thing they get is 'HOME-BBS>' without any explanations?
8) How can I get the FBB forwarding working in TNOS?
9) I keep seeing users idle in my BBS for long periods of time. Is there something I can do about this?
10) Why do my packets go out from me with the callsign 'NOCALL' ?
11) Why does my TNOS keep crashing?

12) When I telnet or ttylink into my conference bridge I do not get the `*** Please login with '/n '` bit back from the server?
13) What is the best way to run TNOS, and make sure it re-starts if it crashes?
14) Is there a command to list the total number of messages in an area (NOT just new ones)?
15) Why does some of my SMTP mail stay in the mail queue and not get delivered with TNOS?
16) How do I set the ftpusers permissions and 'security' commands in TNOS?
17) Is there a command in TNOS to stop certain mail areas being broadcast with the MAILFOR beacon? I have some message areas I do not want broadcasting over the air!
18) What are the subchannels used for in the TNOS BBS forwarding please ?
19) What does the `ctlcheck` program that comes with TNOS actually do ?
20) I think I have found a bug in TNOS, what should I do?
21) When somebody connects to my TNOS BBS, they get connected, then get nothing else from me ?
22) What about a sample autoexec.nos file for TNOS?
23) What is the purpose of the AREAS.SYS file ?
24) When I read messages in my TNOS BBS, I still see lots of R: lines ?

- **Questions and comments relating to hardware issues.**

1) Will TNOS run on a PC with a 8088 or 80286 processor. ?
2)
3)
4)

- **Questions and comments relating to software/operating system.**

1) When I try to compile TNOS under DOS all goes well until right at the end, then I get something like `'ERROR: Group DGROUP exceeds 64k limit.'` ??
2) Does TNOS compile/work with FreeBSD?
3) What advantages, if any, are to be had from running TNOS under Linux?
4) How do I go about installing TNOS?
5) How do you attach a TNC to TNOS/LINUX? and how do you tell LINUX and TNOS that you have a KISS TNC attached to COM1, COM2, COM3, and COM4?
6) How do I set Linux up to talk to TNOS on the same machine?
7) What time/date server do I need to run on Linux so local users can use the RDATE server command in TNOS/JNOS to update their clocks??
8) I am having trouble compiling TNOS with Slackware 2.3.0 any ideas ?
9) Why can I not connect to my Linux TNOS system from a computer on the same LAN ?
10) How do I apply patches to the TNOS source (Linux)?
11) How do I apply the patches to my DOS sources for TNOS ?
12) I can't make my function keys work properly with TNOS under X ?
13) Is it possible to have TNOS trace to a seperate xterm in X ?

General questions and comments.

1)

Q: What is TNOS?

A: Well I will leave this one to Brian:-
Brian, ko4ks says:-

TNOS is a multi-threaded application that contains a complete implementation of industry standard TCP/IP with drivers, applications, and support for use in an RF environment, primarily the Amateur Packet Radio environment.

There are two versions, one that runs under MS-DOS/PC-DOS/DR-DOS and any multi-taskers that support virtual DOS boxes, and the other which runs as an application under Linux and other unix systems.

TNOS serves as a good dedicated router, firewall, email exchanger, gateway, etc.

TNOS is derived from KA9Q NOS, and has many of the same roots as JNOS, another KA9Q derivitive.

Some of the TNOS differences from JNOS:

- More stable
- More effective memory management and usage
- More fully featured BBS
- Some degree of user interface
- Enhanced Conferencing application
- Information servers
- TScript scripting language
- High degree of configuration flexibility
- TCPGATE for support of remote services
- Pseudo-White Pages support
- Local rlogin server for remote administration
- Separate AX25 and IP callsigns
- Fully configurable for security concerns
- Full on-line help system
- Mailing list groups
- Remote request server
- User selectable email delegation
- Email address translation, for email gatewaying

TNOS is supported by it’s author, Brian A. Lantz/KO4KS, and several Internet mailing lists.

A lot more information on what TNOS is can be found here.

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2)

Q: What is the correct pronunciation of TNOS?

A: Tee-NOS, the 'Tee' is pronounced like a tee in golf. Or if you are British, like the tea in a cup of tea :-)

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3)

Q: Where can I obtain TNOS from?

A: The latest release of TNOS can always be ftp'd from Brian Lantz's (TNOS author) machine, ftp://ftp.lantz.com/tnos/current. It can also be found at ftp.ucsd.edu in the /hamradio/packet/tcpip/incoming directory a few days after a new version is released.
For the Linux version *only*, you can also try sunsite.unc.edu in the /Pub/Linux/Incoming directory. There is also a mirror site of ftp.lantz.com which you will probably get better performance from, Brians net link is 28.8k PPP, this is a T1 link. FTP to mwmicro.com and look in linux/tnos. You will also find all the other goodies from ftp.lantz.com mirrored here.

TNOS can also be obtained from dial up BBS's for those without 'net' access.

Here is some info from Mike Bilow regarding his BBS:-

```
Now available for FReq (1:323/107@fidonet) or download (+1 401 944 8498), at up
to 28800 bps V.34, KO4KS TNOS v2.01:


***** DOS *****

Filename       Area    Size   Date    Description
TNOS201.RDM  TCP-TNOS    2K  9-24-95* TNOS 950924v2.01: README: Instructions to
                                      assist you in chosing the proper files to
                                      download
TN201EX4.ZIP TCP-TNOS  267K  9-24-95* TNOS 950924v2.01: Same as TN201EX1, with
                                      PPP, & DIALER
TN201EX3.ZIP TCP-TNOS  260K  9-23-95* TNOS 950924v2.01: Same as TN201EX1, with
                                      SLIP, TIPMAIL, DIALER, & XMODEM
TN201EX2.ZIP TCP-TNOS  259K  9-23-95* TNOS 950924v2.01: Assorted TNOS
                                      executables with CONFERENCE BRIDGE
TN201EX1.ZIP TCP-TNOS  263K  9-23-95* TNOS 950924v2.01: Assorted TNOS
                                      executables without CONFERENCE BRIDGE
TNOS201S.ZIP TCP-TNOS 1217K  9-23-95* TNOS 950924v2.01: All TNOS release 2.01
                                      source code
TNOS201B.ZIP TCP-TNOS  228K  9-23-95* TNOS 950924v2.01: All TNOS release 2.01
                                      base files/support executables; has not
                                      changed since release 1.10
***** Linux/Unix *****

TN201DOC.TGZ TCP-UNIX   81K  9-24-95* (Tnos-2.01-doc.tgz) KO4KS TNOS for
                                      Linux/Unix 95-Sep-24, all TNOS release
                                      2.01 docs
TN201EXE.TGZ TCP-UNIX  641K  9-24-95* (Tnos-2.01.tgz) KO4KS TNOS for Linux/Unix
                                      95-Sep-24, all TNOS release 2.01
                                      executables
TN201SRC.TGZ TCP-UNIX 1048K  9-24-95* (Tnos-2.01-src.tgz) KO4KS TNOS for
                                      Linux/Unix 95-Sep-24, all TNOS release
```

TNOS and lots of other Linux/Dos packet programs etc can also be downloaded from BayBBS (more useful for those in the UK.) BayBBS is at +44 (0)1524 833222 . It is run by myself *Mike Dent- G6PHF* and also provides dial in access for licensed amateur radio operators to the WW convers and my TNOS system.
Please note, as of 22nd Oct. 1995, BayBBS is off-line at present.

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4)

Q: Can I get help and support for TNOS?

A: Most certainly yes! There is a very good mailing list for TNOS help and comments, here are the details:-

Mailing Lists at lantz.com

There are several mailing lists maintained at lantz.com. All are available as regular subscriptions or digest subscriptions. Current TNOS specific mailing lists include:

- tnos-faq@lantz.com

  A working list, striving to produce a usable Frequently Asked Questions (FAQ) document.

- tnos-topics@lantz.com

  Varied discussions on TNOS and related topics.

Other mailing lists may be created later if need develops.

Joining a Mailing List

To join one of these mailing lists, send a mail message to **listserv@lantz.com** and in the data of the message include a single line *"SUBSCRIBE emailaddress group"*, where "group" is the name of one of the above groups (minus the '@lantz.com'), and "emailaddress" is an optional name of a complete email address that you wish the subscription sent. The "emailaddress" is only necessary if you wish the subscription to go to an address other than the one you are sending the email from.

```
Example:

SUBSCRIBE tnos-stuff@ko4ks.ampr.org tnos-topics
```

Leaving a Mailing List

To leave one of these mailing lists, you use the same method of sending a mail message to **listserv@lantz.com**, but use *"UNSUBSCRIBE emailaddress group"*.

```
Example:

UNSUBSCRIBE tnos-stuff@ko4ks.ampr.org tnos-topics
```

Sending to the Mailing List

To send mail to the mailing list, use the full address of the list (i.e. tnos-topics@lantz.com). When replying to email from the mailing list, make sure that you CC: a copy back to the group, to make the information exchange complete.

Help with the Listserver

For help on the listserver, use a data line of *"HELP"*.

Differences with Digests

The names of the digest lists are the same as the regular list name, with "-digest" added to it (i.e. 'tnos-topics' becomes 'tnos-topics-digest'). All mail submissions are sent to the NON-digest address, though. Digests are formed at approximately midnight each day for the mailing lists that have had activity that day.

Archives of the Mailing Lists

Archives of the mailing list digests are available via anonymous FTP at lantz.com in the directory '/digests'.

SPECIAL NOTE:

PLEASE!!! Do NOT subscribe from an ampr.org address UNLESS that address is either available on the Internet, or that address has a defined Mail Exchanger that is available on the Internet. If the mail fails due to an unknown route, you will be MANUALLY removed from the list. Nothing personal ;-)

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5)

Q: What platforms/operating systems has TNOS been sucessfully compiled/run on?

A: At the date of this FAQ (see top), TNOS has been compiled or run on, most DOS systems, e.g. Microsoft, DR and PC. It works well under OS/2 and recent versions of Linux. TNOS will also run/compile with Free/BSD and with BSD/OS (BSDI).
It may also compile for SunOS 4.1.x.(not confirmed, anybody??)
To compile for BSD/OS, you should add the following `make.inc` to your source directory and compile.

```
#
# Included makefile for BSD/OS by Dave VK2KFU
#
USEELF =
```

```
INSTALL= install -c -g dialer -m 2755
CC = gcc
PATCHES = -DIS_LITTLE_ENDIAN -DUSE_SETSTACK -DBSD_RANDOM -DDUMP_CORE
SETSTACK= setsp.o
ICURSES = -I/usr/local/include/ncurses
OPTIONAL = "-DOPTIONAL="
DEBUG =  -g
LOCKDIR = /var/spool/uucp
#
```

Thanks to Dave Horsfell, *vk2kfu@amsat.org* for BSD/OS information.

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6)

Q: When I type 'VERSion' at the mailbox/BBS prompt or at the 'Net>' prompt, it does not display the correct version information, or any at all??

A: If you have just compiled a new version of TNOS, you must make sure you have run the program 'mkvers' in the ..tnos/src/ directory. This will then build a new version.hlp file and place it in your ..tnos/spool/help/ directory.
Recent versions of TNOS seem to do this after the TNOS binary is made
If you are using an existing installation or pre-compiled version, then check you have the file ..tnos/spool/help/version.hlp, as this is the file which is displayed when 'VERSion' is typed.

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7)

Q: When a new user logs into my BBS the first thing they get is 'HOME-BBS>'

A: You must edit the file `..tnos/spool/askhome.dat`. This file will then be shown to the user before the **HOME-BBS>** prompt. Here is a sample `askhome.dat` file.

```
Sorry to have to ask, but this system does not know your HOME BBS!
This information is needed in order to properly send any mail to you from
users of this system.

Your HOME BBS is like your Postal Address. If you have already defined your
HOME BBS on another system, the name of that system is needed.

NOTE: only use a BBS hierarchial address, not a TCP/IP address.
```

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8)

Q: How can I get the FBB forwarding working in TNOS?

A: To take advantage of the FBB forwarding in TNOS, you need to be running Version 2.0 or later. To set your forwarding sessions to use FBB style forwarding, you should set `forward fbb-style on`. If you also want the FBB compressed forwarding then use `forward fbb-compression on` . You should also note that the syntax of the `forward.bbs` file has changed completely. You can use the *cnvfwd* program distributed with TNOS 2.0+ releases to convert your old pre-2.0 forward.bbs file to the new format.

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9)

Q: I keep seeing users idle in my BBS for long periods of time. Is there something I can do about this?

A: Yes, use the ’mbox tdisc’ setting. It is in seconds, and will disconnect a user if they have been idle for greater than that time. E.g. `mbox tdisc 1800` will disconnect a BBS user if they have been idle for more than 30 minutes. Also make sure you are using version 1.12 or newer of TNOS, there was a bug with the tdisc timer in earlier versions.

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10)

Q: Why do my packets go out from me with the callsign ’NOCALL’ ?

A: Well chances are you are running 1.13 TNOS or later. A feature was added in 1.13 to assign the callsign ’NOCALL’ to `ax25 mycall` and `ax25 user`. Make sure these are set to your callsign, or at least the callsign you want.
It should also be noted that with TNOS 1.13 you should only need to do an `ax25 user` *if* you want it different from the ’ax25 mycall’. That bug is fixed in 1.14 and later.

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11)

Q: Why does my TNOS keep crashing?

A: It has been noted that starting your servers right at the end of your autoexec.nos file i.e. your ’start’ lines, can lead to a more stable system.
You should also make sure you are running a fairly recent version of TNOS. At the time of writing this I am running 2.0pl2 for Linux, and it seems to be proving very stable. If you must run an earlier version than 2.0 for Linux, then make sure you do not have the status line turned on, also the tcpgate facility is buggy in earlier versions.
Check you are not using `trace iface 0211` if using 1.13 or older, there is a bug in the trace code when it is used in this way.*This trace bug is fixed in 1.14 and later.*

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12)

Q: When I telnet or ttylink into my conference bridge I do not get the `*** Please login with '/n '` bit back from the server?

A: You will not see this message unless you press return *or* set `convers header` to on.

---

13)
Q: What is the best way to run TNOS, and make sure it re-starts if it crashes?

A: Well this depends on what operating system you are running TNOS under. First I will describe one way of doing it under Linux, and then a way of doing it under DOS. *Please note. There is another example later in this FAQ from Brian, ko4ks, that details a slightly different way of doing this. Mix 'n' Match :-) Caveat.*

Linux.

This is by no means the only way to run TNOS from Linux, it is however the way I do it and it works well for me!
First you will need to make sure that TNOS is started when your machine boots. To do this I call a small script `../tnos/startnos` from the `/etc/inittab` file. The way I do it is to start it in place of one of the VT's (virtual terminals), I choose the one under function key F7.
Note, this will depend on which style of init your system uses!
If you have a line in your `/etc/inittab` file to start a 'getty' process on this key, then you must comment it out, just put a '#' sign at the start of the line, for example:-

```
#c7:45:respawn:/sbin/agetty 38400 tty7
```

Now we must add a line to execute the startnos script, this looks like this:-

```
c7:3456:respawn:/tnos/startnos /dev/tty7
```

Remember to replace '/tnos' with the root directory of your TNOS installation.
Here is a sample of the 'startnos' script incase you did not get it with your TNOS files (please note, this is a slightly different startnos script to the one currently distributed in the TNOS releases):-

```
###########################################################################
# Sample 'startos' script to keep TNOS running if it should crash. Place
# this script in your TNOS root directory.
###########################################################################
#!/bin/bash
ps -aux | grep " ./tnos" | while read user pid rest
do
  kill -STOP ${pid} 2>/dev/null
  sleep 2
  kill -KILL ${pid} 2>/dev/null
done
```

```
/bin/rm /home/g6phf/bin/tnos/spool/mqueue/*.lck 2>/dev/null
/bin/rm -f /home/g6phf/bin/tnos/spool/mail/*.lck 2>/dev/null
cd /home/g6phf/bin/tnos
export TZ=GMT0
export TERM=console
sleep 1
exec ./tnos < $1 > $1 2>&1
###########################################################################
# In this script you must make sure to replace the root directory of your
# TNOS installation. Mine is set to /home/g6phf/bin/tnos.
# This script also does a check to make sure there is not already a TNOS
# running, if so it kills it before it restarts.
# Thanks to Mat, dl1bjl@db0fho.ampr.org.
#
###########################################################################
```

Ok, once you are satisfied you have the script correct, and have made the changes to `/etc/inittab` then you can go ahead and re-read the file in. To do this type:-

```
telinit q
```

After a moment you can change to vt7 (press ALT F7) and TNOS should be running! If you type 'exit' at the 'Net>' prompt it should exit and restart again.

Ok occasionaly you will see TNOS 'lock' all together, at least I do with version 1.12, it does not happen often, but you can bet it will happen just after you leave on holiday, or for the weekend :-). Here is a short script that can be run from one of you startup files, I put the command:-

```
echo "Starting TNOS watchdog."
/home/g6phf/bin/tnos/nosreset &
```

to start it at the end of my `/etc/rc.d/rc.local` file, this will depend on your installation of Linux I guess and of course you will have to alter the path to your nosreset script above.

Below is the nosreset file itself.

```
#############################################################################
# Nosreset script.
#############################################################################
#!/bin/bash
# This is the nosreset script that checks that TNOS is still running, and
# if not will kill the process and restart it. NOTE!! this script assumes
# that you have the Linux kernel IP talking to TNOS over a pseudo slip link.
# It also assumes you are running TNOS with the 'startnos' script.
# See another section of this FAQ to connect Linux IP to TNOS.
# Every 5 minutes several pings are sent to your TNOS IP address from your
# Linux IP address. If 0 packets are received it assumes your TNOS has
# locked and will then find the process, stop it and kill it. Then the
# startnos script will restart TNOS.
# A message is then mailed to you to let you know when it was restarted.
#
```

```
while test -f /home/g6phf/bin/tnos/nosreset
do
  if
    ping -q -c 3 g6phf | grep "0 packets received" > /dev/null
  then
    ps -aux | grep " ./tnos" | while read user pid rest
    do
      kill -STOP ${pid} 2> /dev/null
      sleep 2
      kill -KILL ${pid} 2> /dev/null
    done
    sleep 20
    echo "TNOS was restarted by nosreset" | mailx -s "TNOS reset" g6phf
  fi
  sleep 300
done
###########################################################################
# Thanks again to Mat, dl1bjl@db0fho.ampr.org.
#
###########################################################################
```

Of course that may not be the only way to do it, but it works for me :-).

With the above two scripts I am able to make sure my TNOS system is up and running all the time without having to keep looking to see if it has crashed or locked.

DOS.

As I do not run DOS on my packet PC's here I asked for the information from a local DOS/NOS user. With DOS it is a case of adding a loop around TNOS, to make sure that if TNOS crashes and exits it will be restarted again. However if TNOS locks when it crashes this way of restarting TNOS will be of no use!

```
# These lines can be put in a batch file maybe called startnos.bat, and
# called from the last line in your autoexec.bat file.
# The sleep program is just a little utility to give you chance to stop
# the loop if you want to come out of TNOS.
#
:loop
n:
cd\
@echo "Control C to abort TNOS load !"
n:\sleep 6
del n:\spool\mqueue\*.lck
del n:\spool\mail\*.lck
n:\tnos\tnos
@echo " Control C to abort TNOS load !"
n:\sleep 6
goto :loop
#
# EOF
```

As I do not use TNOS with DOS, I cannot really add much to this.

14)

Q:Is there a command to list the total number of messages in an area (NOT just new ones).?

A: Yes the ’AS’ command, lists all areas in the appropriate areas file (’areas’ for users, and ’areas.sys’ for sysops) in addition to the users personal area.
Sysops can also use the ’AS ALL’ command, which gives the above *and* all USER areas, too.....

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15)

Q: Why does some of my SMTP mail stay in the mail queue and not get delivered with TNOS?

A: This is probably due the the fact you have the *smtp hopper* code compiled into your TNOS. The smtp hopper defaults to ON, at least in 1.14 TNOS.
If the site you are mailing is down stream of a TheNet X1J type node/router, (or indeed any other router that does not handle SMTP connects) and you have a IP route set via one of these nodes, then the smtp hopper code will be trying to deliver your mail to this node!
If this is the case simply turn off the smtp hopper, *smtp hopper off*.

---

16)

Q: How do I set the ftpusers permissions and ’security’ commands in TNOS?

A: The ftp security levels are very much different to those of JNOS, beware if you are converting from JNOS to TNOS! Here is a full listing:-

```
# TNOS FTPUSERS permissions as of Version 2.01
#
#LABEL         DECIMAL      HEX        DESCRIPTION
#ftp_read            1   0x00000001    (Read files)
#ftp_create          2   0x00000002    (Create new files)
#ftp_write           4   0x00000004    (Overwrite or delete existing files)
#ax25_cmd            8   0x00000008    (AX.25 gateway operation allowed)
#telnet_cmd         16   0x00000010    (Non-ampr Telnet gateway operation allowe
#netrom_cmd         32   0x00000020    (NET/ROM gateway operation allowed)
#sysop_cmd          64   0x00000040    (Remote sysop access allowed)
#excluded_cmd      128   0x00000080    (This user is banned from the BBS)
#                  256   0x00000100    (Used in PPP)
#                  512   0x00000200    (Used in PPP)
#no_sendcmd       1024   0x00000400    (Disallow send command)
#no_readcmd       2048   0x00000800    (Disallow read command)
#no_3party        4096   0x00001000    (Disallow third-party mail)
#is_bbs           8192   0x00002000    (This user is a bbs)
#is_expert       16384   0x00004000    (This user is an expert)
#no_convers      32768   0x00008000    (Disallow convers command)
#no_escape       65536   0x00010000    (Default is no escape)
#ampr_telnet    131072   0x00020000    (Ampr Telnet gateway operation allowed)
#no_slip       1048576   0x00100000    (Disallow tipmail exit to IP)
```

```
#no_pbbs_mail 2097152   0x00200000    (Disallow PBBS mail addresses)
#no_inet_mail 4194304   0x00400000    (Disallow non-ampr mail addresses)
#no_ampr_mail 8388608   0x00800000    (Disallow ampr mail addresses)
#hold_mail   16777216   0x01000000    (Any mail entered held for sysop review)
#no_linkedto   262144   0x00040000    (No '*** LINKED TO' allowed)
```

You can further configure the security of your TNOS system by using the `security` commands.

(The following four commands allow you to tailor your users security level according to their connection method to your BBS)

security amprperms value
This defaults to 0, disabled. When a user logs in anonymously via telnet, i.e. they do not have a specific entry in the *ftpusers* file, then they first get assigned the value of 'univperm' (assuming it is set), then their permission will be set to whatever value you have this set to, as long as it is non-zero.
NOTE:- ampr/nonampr is determined by a 44.xx.xx.xx address, NOT by a .ampr.org hostname.

security ax25perms value
This defaults to 0, disabled. When a user logs in anonymously via AX25, i.e. they do not have a specific entry in the *ftpusers* file, then they first get assigned the value of 'univperm' (assuming it is set), then their permission will be set to whatever value you have this set to, as long as it is non-zero.

security nonamprperms value
This defaults to 0, disabled. When a user logs in anonymously via a non ampr IP address, i.e. they do not have a specific entry in the *ftpusers* file, then they first get assigned the value of 'univperm' (assuming it is set), then their permission will be set to whatever value you have this set to, as long as it is non-zero.
NOTE:- ampr/nonampr is determined by a 44.xx.xx.xx address, NOT by a .ampr.org hostname.

security tipperms value
This defaults to 0, disabled. When a user logs in anonymously via a TIP connection, i.e. they do not have a specific entry in the *ftpusers* file, then they first get assigned the value of 'univperm' (assuming it is set), then their permission will be set to whatever value you have this set to, as long as it is non-zero.

security ampronly [on|off]
When set to *on* and assumiung you do not allow non amprnet telnets (see ftpusers permissions above), then when a user attempt to telnet to a non 44 address, they will see the following message:-

Sorry, but only Amateur Radio IP stations can be reached from here!

Note. A message is NOT sent to sysop notifying you of the users action

With this set to *off* they will get a 'Permission denied' message. **Or**, if you use the following script, and place it in `spool/cmds` it will give them some further information:-

Permission denied.

Sorry, g9xxx, but access is denied :-(

Only telnets to ampr.org stations are permitted, and those are denied to non-ampr telnet sessions.

To check out your security level permissions use the ’SEC’ command.

Here is the script:-

```
~ Denied access

Sorry, ~c, but access is denied :-(

~p 1 0 7 20
~a 2 converse
~c 1 2
~n test2
The Conference Bridge is not available to non-ampr telnet sessions.
~g common


~l test2
~a 2 telnet
~c 1 2
~n test3
Only telnets to ampr.org stations are permitted, and those are denied to
non-ampr telnet sessions.
~g common


~l test3
~a 2 ax25
~c 1 2
~n test4
AX25 connects are not allowed from non-ampr telnet sessions.
~g common


~l test4
~a 2 netrom
~c 1 2
~n test5
NETROM connects are not allowed from non-ampr telnet sessions.
~g common


~l test5
The BBS is secured against any RF access from all anonymous users.
~g common


~l common

To check out your security level perimissions use the ’SEC’ command.
```

The script also does other things! **Note. A message is sent to ’sysop’ to notify you of the users**

actions.

security nonsecureampr < addr >
Here is what Brian has to say about this one:-

```
 I discovered one remaining security hole that I had, so we have a new
  subcommand of the security command, 'security nonsecureampr '. This
  sets up a single ampr.org address (44.xx.xx.xx) as being NON-SECURE for
  anonymous ampr/ax25/netrom access.

  The problem on my end was that the Linux side of my machine has an ampr
  address on its side of the SLIP connection. All connections coming from
  the Linux side of the machine come with that AMPR address. I allow logins
  to lantz.com to come into the gateway, which made them unsecured and set
  as a trusted ampr site. Now any coming this way are treated as non-ampr
  for that one address only.
```

security encode
This simply encodes the passwords in your `ftpusers` file so that they cannot be determined if somebody was to get hold of or view your ftpusers file. Please note that if you make an alteration to the ftpusers file whilst TNOS is running, then you must do a 'security encode' to make the changes take effect. 'security encode' is also done at TNOS boot time.
MD5 is the encoding method used, for those interested.

security mbsecure [on|off]
This secures your radio ports so that **any** anonymous user cannot gateway out on them via AX25 or netrom, this overrides any permissions set for anonymous users in the 'ftpusers' file. Please note it also overrides any *'security [ampr | non | ax25p | tip]* values which are set.

security level [levelname pathstring permissions]
Allows you to set up a name for a security level, that can be used as a shortcut in the ftpusers files. The levelname can be anything descriptive. The pathstring is the same format as the third field of the ftpusers files . The permissions field is the same format as the fourth field of the ftpusers files.

Some examples:-

```
# Security level examples for inclusion in autoexec.nos file.
#
# set a security level called 'low' and allow the user(s) with this level
# access only to '/pub/restricted' directory with ftp read permission only.
#
security level low /pub/restricted  1
#
# set a security level called 'medium' and allow user(s) with this level
# of access to the directory '/pub' with ftp read and write permission.
#
security level medium /pub 3
#
# set a security level called 'top' and allow user(s) with this level of
# access to the '/' (root) directory with read/write and overwrite permission!.
#
security level top / 7
```

And in your *ftpusers* file.

```
##################
# Assign a lowly security level to guest users!
guest * #low
#
# and a slightly higher level to univperm.
univperm * #medium
#
# and a level for our registered/trusted users perhaps?
g0vgs sEcret_PwoRD  #top
#
###################
```

From the above examples you can see it is easy to assign an easy to remember name to a specific security level. Above I have only shown examples which are useful for 'ftp' type connections, it is however possible to set up any type of security level and assign it a name, e.g. *sysop*, *sub-sysop*, *guest* etc. NOTE, you ,must put the hash '#' before the security level. The "security level" command (without the rest of the parameters) displays the currently defined security levels.

I should also point out that there is an addition to the `ftpusers` file which allows you to branch out to another file with further users/permissions in it. To do this use the line:-

```
#include filename
```

in the `ftpusers` file.
Where 'filename' above is the name of your 'sub' ftpusers file. Maybe called *ftpusers-2* or something.
After this additional file has been scanned, and the user lookup was unsuccessful, control returns to the original 'ftpusers' file. You can have as many included files as you wish, but you cannot include a file from **within** an included file.

---

17)

Q: Is there a command in TNOS to stop certain mail areas being broadcast with the MAILFOR beacon? I have some message areas I do not want broadcasting over the air!

A: You need to use the command *mbox mailfor exclude area1 area2 area3*, where area1, area2, area3 etc are the mail areas you would like excluding from the mailfor beacon text. You can check what areas you have excluded by using the command *mbox mailfor exclude*.

This also works for the the output of the BBS 'ms' command too. **But** be warned, if you have had mail in the areas you have excluded above, and they still show up on the *Mail for:* line, you will have to do a `mbox mailfor now` to 'flush' these out.

---

18)

Q: What are the subchannels used for in the TNOS BBS forwarding please ?

A: Here is what Brian had to say about this:-

If I had the time (or volunteers) to document this stuff, you'd already have the docs ;-)
An example, you should be able to fill in the blanks........

My setup has ONE port out, to ONE TNC, that forwards to many BBSs. MOST of them go out on ONE RF port.

In order to pace the traffic and better use the bandwidth, I place all those that must travel the same RF path into a subchannel together. Ones that travel ANOTHER RF path, go into another subchannel.

Then the 'forward subchannel' command allows me to restrict HOW MANY of these will be active at one time (outgoing), and how many I will reverse forward to (incoming). When a BBS has been deferred due to a maximum being reached on a subchannel, a flag is set, and when a forwarding session completes (making a slot available), the forwarding cycle is 'kicked' again (even if the 'forward timer' hasn't expired), to allow the subchannel to be 'filled' again.

BUT, no **one** BBS will get a second turn, until all have had their shot at it.

On mine, I set a maximum of 1 per subchannel, and this makes them all go in turn, rather than all at once.

If I had several ports with a single BBS on each, I would probably not define these BBSs as being on a subchannel; so they would not have any pacing used.

NOTE: The FBB forwarding (inbound) needs a little attention here, since it doesn't yet account for subchannels. TNOS Version 2.01 when released will fix this.

---

19)

Q: What does the `ctlcheck` program that comes with TNOS actually do ?

A: `ctlcheck` is a diagnostic tool used to display the raw values of a *.ctl file. It is not normally needed other than for diagnosing problems when altering code that manipulates *.ctl files.

---

20)

Q: I think I have found a bug in TNOS, what should I do?

A: Here are some points from Brian Lantz that should be read and digested before you send your 'bug' report to the Tnos-Topics mailing list :-)

1) DO take your time and explain the situation. DON'T assume that the reader(s) have your

knowledge.

2) DO give as detailed a description as possible, indicating what actions/commands you used, the order used, the given output (if any), and the expected results.

3) DON'T send along a copy of your config files unless asked.

4) DO your own investigation.

5) DO use the trace function for the feature you are having a problem/question with, if there is one available.

6) DO double-check your config files.

7) DON'T present bug reports/questions with an attitude or when angry.

8) DON'T even bother with a report if all you can say is "it don't work!". If you follow the rest of this list, you will have FAR more to say about the situation than this.

9) DO indicate the Operating System being used, and the release version number. These can be found in the first line of output from the Command Session command 'status'.

10) DO realize that the author of TNOS CANNOT fully test/debug all portions of a program as vast as TNOS, and that some conditions MAY slip through the cracks.

11) DO be wise enough to know that everything you can do to help pin down the circumstances of failure will make it that much easier to fix the problem.

12) DON'T be afraid to ask questions.

13) DON'T expect that there are answers to all questions.

14) DON'T send bug reports/questions to the author directly, unless he has asked you to. DO send bug reports/questions to the TNOS-TOPICS mailing list.

15) DON'T send the same question/bug repeatedly.

16) DON'T *even* expect immediate resolution of problems. This support is free and you get what you pay for, sometimes ;^D

17) DON'T get discouraged if you run into problems. TNOS is very complex, with scores of complete subsystems. It is easy to enter areas where you can get lost.

18) DO provide GDB output (if you can) if you are running Unix. A 'backtrace' command's COMPLETE output can make a massive problem disappear in seconds.
(GDB is the GNU debugger, used to get better information from a TNOS crash. You have to have the de-bugging code compiled into TNOS to use this. Read the GDB man page.- ED)

19) DO read the docs before posting. Yep, SOME of the FAQs are there in the body of the new2tnx.xx files. DO take the time to see if the answer has already been given to you, before asking for it to be given again.

20) DON'T go out into the rain without your raincoat (I ran out of ones that pertained to the subject, and thought an even 20 would be nice) ;-)

---

21)

Q:When somebody connects to my TNOS BBS, they get connected, then get nothing else from me ?

A: This is most likely due to the fact that your LINKADDRESS and IPCALL are set the same on the port the user is connecting in on.
To overcome this you must set your `ifconfig <port> ipcall` and your `ifconfig <port> linkaddress` to different callsigns or more usually different SSID's.

Example:-

```
ifconfig 2m linkaddress gb7mbb
ifconfig 2m ipcall gb7mbb-5
```

Here, users connecting in via ax25 would connect to **gb7mbb**. and all IP packets/frames would use **gb7mbb-5** as the hardware address.

---

22)

Q:What about a sample autoexec.nos file for TNOS? ?

A: Well, ok then :-) Here is a annotated version of my autoexec.nos file that I use with TNOS under Linux.

```
################################################################################
# Startup file for Linux based TNOS, as used at gb7mbb.ampr.org.
# Virtually everything in this file applies to both DOS and Unix
# TNOS installations.
# This file was annotated in somewhat of a rush to help out users who
# often request an example autoexec.nos file for TNOS. It is likely
# that you will have to heavily modify this sample file to make it
# useful for your system. You have been warned!.
# Mike Dent. g6phf. October 1995.
################################################################################
ip address 44.131.1.158
hostname gb7mbb.ampr.org
################################################################################
# Setup ax25 params before attaches. To modify on per/port basis, use
# ifconfig port ax25 param, after attaches.
################################################################################
```

```
ax25 user gb7mbb     # callsign to use on outgoing ax25 connects from console.
ax25 mycall gb7mbb-5 # callsign for incoming ax25 connects.
ax25 retry 15        # ax25 connection retries before giving up.
ax25 blimit 6        # backoff this many times then no more. default 30.
ax25 t4 100000       # this is the link redundancy timer for ax25.
ax25 hsize 30        # number of stations in (J)heard listing.
ax25 version 2       # hmm, lets use AX25 version 2.
ax25 maxframe 2      # no. of outstanding frames allowed without an ACK. max 7.
ax25 paclen 256      # length of ax25 packets.
ax25 window 2048     # window size allowed on ax25 frames.
ax25 maxwait 30000   # maximum timeout in msecs of the ax25 retry timer.
ax25 timer linear    # timer is either linear or exponential.
################################################################################
# Next our tcp/ip params. global.
################################################################################
tcp window 1024      # tcp window size in bytes.
tcp mss 432          # maximum segment size of datagrams.
tcp irtt 6000        # initial round trip timer in milliseconds.
tcp retries 100      # no. of tcp retries before giving up.
tcp maxwait 30000    # maximum timeout in msecs of the tcp retry timer.
tcp blimit 20        # backoff this many times then no more.
tcp timer linear     # timer is either linear or exponential.
ip hsize 22          # max no. of entries in mbox (IH)eard listing.
ip ttl 150           # time to live.
################################################################################
# Attach interfaces next.
#################################################################################
# attach asy < port > - < mode > < iface > < buffsize > < mtu > < speed >
# attach < h/ware > < address > < - > slip|ax25|nrs < label > < buffers > < mtu > <
attach asy ttyS0 - ax25 2m 512 256 9600
attach asy ttyS1 - ax25 4m 512 256 9600
attach asy ttyS2 - ax25 70cm 512 512 19200
attach asy ttypf - slip sl0 2048 1024 38400
################################################################################
# Ifconfigs. These override global parameters above.
################################################################################
#
# ipcall sets the callsign/hwaddr to use on IP packets.
ifconfig 2m ipcall gb7mbb
ifconfig 4m ipcall gb7mbb
#
# set the mtu/window/blimit different for port '70cm'
ifconfig 70cm mtu 555
ifconfig 70cm tcp window 2048
ifconfig 70cm tcp blimit 4
#
# description below is displayed on mbox (PO)rts listing.
ifconfig 2m description "144.625 local access, tcp/ip channel. 1200bd.\nsl0    :  38
ifconfig 4m description "70.3375 access to WC and CRV nodes. 1200bd."
ifconfig 70cm description "9k6 WW Amprnet link at 70cms."
#
# rx queue and tx queue. (refer to other documentation.)
asyconfig 70cm rxq 5
asyconfig 70cm txq 5
#
################################################################################
# Netrom params
################################################################################
#
attach netrom           # kind of like 'start netrom' :-)
netrom interface 4m 192 # quality to use for our netrom port. '4m' in this case.
```

```
netrom call GB7MBB      # set this to your netrom callsign.
netrom alias MBBBBS     # and this to  your netrom alias.
netrom retries 5        # no. of netrom retries before giving up.
netrom timer linear     # timer is either linear or exponential.
netrom promiscuous on   #
#
# load in netrom routing table from disk, file netrom.sav. This file is
# created with 'netrom save' command.
netrom load
#
################################################################################
# Domain params.
################################################################################
domain suffix ampr.org.         # gets added to all host names etc.
domain dns on                   # set on if we want to process domain queries.
domain addserver sys2.g0uje     # set this to your domain server.
domain cache size 40            # no. of entries to hold in memory.
domain maxwait 30               # time to wait on a domain query of your server
################################################################################
# Convers commands.
################################################################################
convers host BayBBS     # what we call our convers server.
conv entry 131          # default channel users go to from the bbs conf alias.
#
# if set 'on' the user will see "*** Please login with '/n '" when they
# first enter the conference bridge. If set to 'off' they dont get this.
conv head on            # show login info when user first enters conf.
#
# message a user gets when he has logged in with /n  . you can
# use '\n' to add more lines to your login message.
conv motd "Please avoid channel 0. The default entry channel is 131.\nInternational
#
conv time on            # shows time when users come on/off convers.
#
# this is the maximum amount of data (bytes) that is allowed to backup in the
# queue for a user logged into the conference bridge before the connection
# is assumed to be in trouble and disconnected.
conv umaxq 12000
#
# this is the maximum amount of data (bytes) that is allowed to backup in the
# queue for a host that is linked to your conference bridge before the
# connection is assumed to be in trouble and disconnected.
conv hmaxq 12000
#
# unixphf.ampr.org is the convers host I link to, and BayCONV is the name of it.
conv link unixphf.ampr.org BayCONV
#
# sysinfo is displayed when a convers user requests '/sysinfo baybbs'.
conv sysinfo "g6phf@gb7mbb.ampr.org or mike@lurpac.lancs.ac.uk"
#
# when we type 'conf' from our console, this is the user we will be logged in as.
conv console g6phf
#
# this sets the type of filter mode. When set to accept, it will then only allow
# hosts to link in to your convers that you specifically allow.
conv filter mode accept
#
# allow *only* following hosts to link with our convers.
conv filter unixphf
conv filter g0vgs
conv filter unix.g0vgs
```

```
conv filter ppc.g6crv
conv filter g6crv
############################################################################
# SMTP commands.
############################################################################
#
# set the smtp timer for 20 mins between processing of the smtp mail queue.
smtp timer 1200 # Time in seconds
smtp quiet yes # Do not ring bell when "New mail arrives".
#
# Do not batch up mail when sending. Can cause problems with some *nix MTA’s.
smtp batch off
#
# our mail gateway.
smtp gateway gb7mbb
#
# If you have ’smtp hopper’ in your compile, this may cause problems if you
# route to hosts you send mail to via IP only routers, e.g. TheNet nodes.
# I set it to off to avoid this as I route mail via a TheNet X1J node.
#smtp hopper off        # not compiled in so #’d out anyway!
#
# set the smtp delivery timeout for mail which cannot be delivered.
# return to sender after 4 days.
smtp dtimeout 96        # time in hours.
# Fast compression mode.
lzw mode fast
##############################################################################
# Some commands for the running of my BBS, gb7mbb.
##############################################################################
# set expire timer to 12 hours. Expires mail areas depending on settings in
# spool/expire.dat and also will delete mail marked for deletion.
expire 12
# set the string users get when the BBS is performing maintenance.
mbox maintstr "Sorry, automatic BBS maintenance is in progress. Logins are disabled.
#
# Bump users off when expire process kicks, and send them maintstr above.
mbox maintclear on
#
# we act as a white pages client and server.
wpages client on
wpages server on
wpages dest gb7ulv # where to send our WP updates.
#
# this checks our outbound mails R: lines to see if they contain the callsign(s)
# of any BBS’s that are in our forward.bbs file. If so they do not get forwarded
# out.
bulletin check on
#
# hold locally entered bulletins for review by sysop before forwarding.
bulletin hold on
#
# check R: lines for user return address etc.
bulletin return on
##############################################################################
# Mailbox commands.
###############################################################################
#
# users get this text when they attempt a chat/tty with you.
motd "If I dont answer shortly, leave a message @gb7mbb.ampr.org, Mike"
#
# message displayed just before the ’login:’ prompt.
```

```
mbox tmsg "Please login with your callsign, and use your name for the password."
#
# motd displayed just before the 'A,B,C..Z>' prompt.
mbox motd "For help on using this system type 'TUTOR'. For news about this \nsystem
#
# set to 1 to always display  the file 'spool/motd' at logins. Comes just
# after the [TNOS-2.01-BFHIMT$] banner.
mbox motdalways 1
#
# users idle this long (secs) are bumped off the BBS.
mbox tdisc 1800
#
# this sets the 'Send this message (N=no)?' query on or off after users have
# finished entering a message.
mbox sendq off
#
# log mailbox logins to spool/mbox.log in this form:-
# MBOX from g6phf (Mike) on Sun, 12 Mar 95 18:02:55 UTC
mbox log on
#
# message users see when they (B)ye from BBS. '\n' inserts carriage return & LF
mbox mexit "\n73, Call again\nMike!"
#
# maximum session time (secs) for users of the BBS.
mbox maxtimer 13600
#
# these define our custom commands.
mbox cmd MUD "t unixphf 7777"
mbox cmd MUD2 "t unixphf 4000"
mbox cmd CONV "t unixphf 3600"
mbox cmd CALLUS "t 44.98.24.25 7373"
#
# this defines what we want our BBS prompt to look like. You must also include
# the commands above if you want users to see them.
mbox prompt "?,A,B,C,CALL,CALLUS,CONF,D,E,F,G,H,I,J,K,L,M,MUD,MUD2,N,O,P,Q,R,S,T,U,V
#
# set the mailfor beacon to 'on'
mbox mailfor on
#
# how often (secs) to broadcast a mailfor beacon.
mbox mailfor 3600
#
# this adds the area prompt to the BBS for new users. Toggled with 'SET A'
# in the BBS.
mbox newuser area on
#
# this suppresses the 'beep/bell' when listing messages that some people insist
# on inserting in subject lines.
mbox nosubjbell on
#
# this defines wether we want the 'mbox tdisc' idle timer to affect users
# defined as sysop or not. Set to 'off' sysops are not affected by tdisc,
# but will be bumped off if 'mbox maxtimer' is defined.
mbox tdiscsysop off
#
#####################################################
# NO AX25 access on 144.625Mhz. As from 1st Dec 94
#####################################################
# I dont allow any ax25 connects on the UK tcp/ip channel.
mbox noax25 2m on
###############################################################################
```

```
# NTS mail forwarding commands
##############################################################################
#
# this allows me to use a 2 letter continent designator. 'EU'.
forward tapr off
#
# sets my hierarchical BBS address. Note, no callsign needed.
forward haddress #16.GBR.EU
#
# with 'fwdinfo' , 'rcall' and 'qth' below, my R: line looks like this:-
# R:951015/2157z @:GB7MBB.#16.GBR.EU [Morecambe] TNOS/U $:7388_GB7MBB
forward fwdinfo "Morecambe"
forward qth "TNOS/U"
forward rcall GB7MBB    # defines callsign in R: line.
#
# strip off smtp headers on outbound NTS mail.
forward smtptoo off
#
# use FBB type batched forwarding.
forward fbb-style on
#
# use FBB compression for forwarding too.
forward fbb-compression on
#
# define the callsign used for outgoing mail forwarding.
forward mycall GB7MBB
#
# set to 'on' to keep original BID in R: lines.
forward bid on
#
# set to 'on' to add a local MID to R: lines.
forward mid off
#
# set a forwarding session off each hour.
forward timer 3600      # time in seconds.
#
##########################################################################
# Set TNC paramaters
##########################################################################
# set our KISS parameters for our TNC's. I use Tiny-2's.
#
param 70cm 1 25         # TXdelay
param 70cm 2 64         # PPersist
param 70cm 3 5          # Slottime
param 70cm 4 5          # Tailtime
param 2m 1 30
param 2m 2 50
param 2m 3 5
param 2m 4 5
param 4m 1 25
param 4m 2 50
param 4m 3 5
param 4m 4 5
#
# use device driver-level queuing, only good for *nix TNOS's I think.
param 70cm min 255
param 2m min 255
param 4m min 255
###########################################################################
# FTP commands.
###########################################################################
```

```
#
ftpmax 3        # maximum number of incoming FTP sessions allowed.
ftype image     # set default transfer type. image or ascii.
ftptdisc 900    # FTP idle disconnect timer in seconds.
#
##############################################################################
# TCP and IP access stuff.
###############################################################################
# Allow 44 stuff of course.
tcp acc permit 44/8 1 8888
# Allow some other stuff.
tcp acc permit 148.88/16 1 8888
tcp acc permit 194.80.36/24 1 8888
tcp acc permit 127.0.0.1 1 8888
# anything else is ignored.
# load in our ip access rules from file 'ipaccess'.
source ipaccess
#
###############################################################################
# Misc commands.
###############################################################################
#
ip hport sl0 on         # show ip hosts heard on slip port, 'sl0'.
#
# set the console prompt to display the directory we are in. My console prompt
# looks like this:- '/home/g6phf/bin/tnos> '
prompt dir
#
# this sends our tracing output to the screen 'under' Fkey 9.
strace on
#
# this sets the permission that users connecting via netrom/ax25 get. See
# security section of FAQ.
security ax25 1441835
#
# when a user attempts to telnet to a non ampr host, i.e. non 44.x.y.z. With
# 'security ampr on' set, a message will be sent telling them :-
# 'Sorry, but only Amateur Radio IP stations can be reached from here!'
# see security section of FAQ for more explanations.
#
security ampr on
#
# this uses the 'callbook' at pi8esk for 'CALL' look ups.
callserver pi8esk
#
statline on quiet       # I like the status line, but don't like the bell!
history 30              # keep 30 entries in command buffer. Up/Down arrows.
# 'gone' refuses incoming ttylink (port 87) and BBS 'o' chats.
gone
#
source routes   # this reads in my routes file 'routes' off disk.
#
# log to 'net.log' file.
log net.log
###############################################################################
# Some 'at' commands.
###############################################################################
#
# 'here' and 'gone' are for incoming tty sessions and BBS 'o'.
# 'gone' sets 'attend off' and 'mbox attend off'. 'here' does the reverse.
at 1730 "here+"         # at 17:30  I'm here.
```

```
at 2115 "gone+"          # at 21:15 now I'm gone!
#
# do a tcp clean to reset any tcp  sockets in FIN WAIT 2 state every 3hrs.
at now+0300 "tcp clean+"
#
# This is a special for my log renaming program run from crontab.
at 0000 "log net.log+"
#
# at 04:00 do a wpages update at 0400, sorting the wpages files.
at 0400 "wpage kick+"
#
# at 05:00 kick out wpages updates to BBS(s) specified in 'wpages destination'
at 0500 "wpages update now+"
#
# at 05:30 expire mail areas depending on settings in
# spool/expire.dat and also delete mail marked for deletion.
at 0530 "expire now+"
#
###############################################################################
# START servers at end of file!
###############################################################################
start ax25
start telnet
start ftp
start netrom
start smtp
start remote
start finger
start tutor
start info
start convers
start news
start time
start pop3
start ttylink
#
# Thats all folks!
###############################################################################
```

---

23)

Q: What is the purpose of the AREAS.SYS file ?

A: I'll leave this one to Brian...
The AREA file defines which public areas are available to the non-SYSOP users. The AREAS.SYS file defines ALL of the public areas, even those that are NOT available to the normal users. Such areas would be areas that you place outgoing PBBS mail that is to be forwarded, etc.

Since the AREA.SYS is THE file that defines which are public areas, it MUST (at least) have all of the areas listed in the AREAS file.

---

24)

Q: When I read messages in my TNOS BBS, I still see lots of R: lines ?

A: This is probably due to the fact you do not have *bulletin return on* in your autoexec.nos file.

Questions and comments relating to hardware issues.

1)

Q: Will TNOS run on a PC with a 8088 or 80286 processor. ?

A: Well I will leave this one to Brian:
Brian says:-

"It will run, but only if you use a stripped down version (less features compiled in), and have almost NO drivers, etc loaded into memory. TNOS must exist in conventional memory, and on processors earlier than a 386, you had no support in the CPU for altering memory maps to maximize the conventional memory. I ran TNOS on a 286 for several years, I just needed a good "shoehorn" to get in what features I needed."

So there you go. Of course the above *only* applies to the DOS version of TNOS, as Linux needs at least a 80386 or greater processor.

Questions and comments relating to software/operating system.

1)

Q: When I try to compile TNOS under DOS, all goes well until right at the end, then I get something like `'ERROR: Group DGROUP exceeds 64k limit.'` ??

A: You have tried to compile too many features into your version of TNOS. Edit your config.h file and remove some features.

---

2)

Q: Does TNOS compile/work with FreeBSD?

A: Yes, 1.13 will compile if you make the trivial change below. Later versions should compile without change.

At about line 447 (function asy_speed()) in file unixasy.c change the #if 1 to #if 0. See the examples below.

```
-----unixasy.c before mod for FreeBSD--------

 #if 1         /* This is obsolete stuff! */
     termios.c_cflag &= ~CBAUD;
     termios.c_cflag |= speed_table[sp].flags;
 #endif
-----------------------------------------------
```

```
-----unixasy.c after mod for FreeBSD-----------

 #if 0         /* This is obsolete stuff! */
     termios.c_cflag &= ~CBAUD;
     termios.c_cflag |= speed_table[sp].flags;
 #endif
------------------------------------------------
```

After this mod TNOS 1.13 should work ok with FreeBSD.

---

3)

Q: What advantages, if any, are to be had from running TNOS under Linux ?

A: Well there are several advantages that I know of, but there are probably a few more too!

1) TNOS for Linux will be more stable and run for longer periods than its Dos counterpart.
2) I have noticed that Linux TNOS when compared to Dos TNOS, on the same specification hardware will perform faster.
3) Running TNOS under Linux will allow yourself and your users to take advantage of several Linux/unix services, such as ftp, smtp, telnet, httpd, online muti-user games etc.
4) Using TNOS under Linux you will not run into any memory restictions such as you would with the Dos version. You have no need to worry about what options you compile into your version of TNOS i.e. how large it is.

---

4)

Q: How do I go about installing TNOS?

A: Rather than re-invent the wheel I will leave this to Brian!
Brian says:-

Installation of TNOS

There are two releases of TNOS, so choose the proper set of instructions.

- MS-DOS (Windows/OS2)
- Linux/FreeBSD

MS-DOS Installation

Installation under MS-DOS is very simple, but does require

- **a version of *pkunzip***
- **about 4 Meg of disk space**
- **a copy of the current base file and support files (tnos1xxb.zip)**
- **a copy of ONE of the distribution executable zip files (tn1xxex?.zip)**

To install TNOS/Dos:

1. Pick a 'root' directory for TNOS to exist in (\nos, etc.)
2. Create the 'root' directory with 'md'
3. Copy the tnos1xxb.zip file into the 'root' directory
4. Unzip the support files with 'pkunzip -d tnos1xxb.zip'
5. Unzip the executable file with 'pkunzip -d tn1xxex?.zip'
6. Modify the 'autoexec.nos' file for your needs, or convert one from another variant of xNOS
7. Test it out, by typing 'tnos'

See these instructions on compiling your own copy of TNOS...

Linux/FreeBSD Installation

Installation under Unix is very simple, but does require

- **a version of *tar***
- **a version of *gunzip***
- **about 4 Meg of disk space**
- **a copy of the current executables and support files (Tnos-1.xx.tgz)**

To install TNOS/Linux:

1. Pick a 'root' directory for TNOS to exist in (/nos, /usr/local/nos, etc.)
2. Create the 'root' directory with 'mkdir'
3. Copy the Tnos-1.xx.tgz file into the 'root' directory
4. Unzip the distribution file with 'gunzip Tnos-1.xx.tgz'
5. Untar the distribution file with 'tar xvpf Tnos-1.xx.tgz'
6. Modify the 'autoexec.nos' file for your needs, or convert one from TNOS/Dos or another variant of xNOS
7. Test it out, by typing 'tnos'

Before connecting TNOS/Linux to a TNC:

You should look in the /etc/rc.d directory and see if you have an rc.serial file. If you do, examine it, as it MAY need to have some changes made to it before the serial ports will be ready for use.

To connect TNOS/Linux to the Linux kernel:

1. Add an attach line to the 'autoexec.nos' file for an interface to talk to the kernel, like:

   ```
   attach asy ttypf - slip linux 1024 1024 38400
   ```

   This adds an interface named 'linux' to TNOS, which it 'thinks' is a SLIP connection at 38400, but is actually a 'pseudo-terminal' link into the Linux kernel
2. Now add the kernel side. The easiest way is to add this as a part of the Linux boot process. Since there are at least two different *init* programs in use on Linux, this can be done by either:
   - Adding an 'rc.tnos' file to your /etc/rc.d/rc.misc directory (if it exists) and doing a 'chmod 755' to it.
   - Adding these commands to the /etc/rc.local file, instead

   Either way, you need something like the following example to connect the TNOS process to the Linux kernel, allowing a non-ampr and an ampr address for both sides of the link. Of course, you MUST supply your own addresses ;-)

   ```
   #
   # Setup for TNOS/Linux gateway
   #
   # 44.98.24.1  is the TNOS ampr IP address (ko4ks.ampr.org)
   # 163.125.16.254 is the TNOS internet IP address (gw.lantz.com)
   # 44.98.24.25 is the linux box's AMPR IP address (linux.ko4ks.ampr.org)
   # 163.125.16.1 is the linux box's internet IP address (lantz.com)

   echo ""         # blank line
   echo "Initiating SLIP connection to TNOS/Linux..."
   /usr/net/bin/slattach -s 38400 -p slip /dev/ptypf &
   sleep 1         # allow time for slattach to catch up
   /usr/net/bin/ifconfig sl0 broadcast 44.255.255.255 pointopoint 44.98.24.1 \
         mtu 576 44.98.24.25
   /usr/net/bin/route add 44.98.24.1 sl0
   /usr/net/bin/route add 163.125.16.254 sl0
   /usr/net/bin/route add -net 44.0.0.0 netmask 255.0.0.0 gw 44.98.24.1
   ```

   NOTE: while other values probably CAN be used for MTU in the ifconfig line here and the 'attach' line in the autoexec.nos file, these are KNOWN to work.
3. Then, execute the rc.tnos script from your favorite shell, and restart TNOS. To test, you should be able to ping TNOS from the kernel, and the kernel from TNOS. If you have difficulties at this point, check your interface netmasks and routing statements

NOTE: You must also have IP_FORWARDING enabled in your Linux kernel. This is set in the *make config* part of building a kernel.

Setting TNOS/Linux to come up automatically in it's own virtual console:

This example will use the 7th virtual console (tty7), that is selected with the key combination. To use another console, you will need to change this example.

1. Check to make sure that the tty7 console device exists, with a:

```
ls -la /dev/tty7
```

You should see something like the following:

```
crw-rw-rw-   1 root     system     4,   7 May 13 20:43 /dev/tty7
```

If you do, skip the next step....

2. Create the tty7 device with 'mknod /dev/tty7 c 4 7', then verify as described in the previous step.
3. Verify that the 'startnos' file in your TNOS 'root' directory is set to use the proper 'root' directory. The 'cd' line may need to be modified.
4. Add an entry to your /etc/inittab file. Since there are two different possible formats for this file, use the example below that resembles the existing lines in your inittab file:
   - tn:234:respawn:/nos/startnos /dev/tty7
   - tty7:con80x25:/nos/startnos /dev/tty7

   Also, note that you will need to change the pathlist for the startnos file, if you do not have '/nos' as your TNOS 'root' directory. If you have the first style of entry, look at the other entries at the '234' field. Some use '2345' or other combinations here. Look at the 'getty' line for tty2, and use the same value as in that entry, to be safe.
5. Restart your init process (usually with 'init Q'), then to get to it

Installing the source tree for TNOS/Linux also requires:

- **about 19 Meg more additional disk space**
- **a copy of the current source tree (Tnos-1.xx-src.tgz**

Compiling your own TNOS

Building the source tree for TNOS in either DOS or Linux is nearly identical.

1. Set up for proper makefile...
   - **DOS:**

     ```
     copy makefile.dos makefile
     touch depend
     ```

   - **Linux:**

     ```
     ln -s makefile.lnx Makefile
     ```

2. Edit the config.h file for the features desired...
3. Make it....

```
make doeverything
```

Can't make it any easier! ;-)

---

5)

Q:1) How do you attach a TNC to TNOS/LINUX? and how do you tell LINUX and TNOS that you have a KISS TNC attached to COM1, COM2, COM3, and COM4?

A: You have to use the correct syntax for the attach line in your `autoexec.nos` file. An example:-

```
attach asy ttyS0 - ax25 iface 1024 256 9600
```

You must use the linux device name of the serial port you are attaching. In the above case ’ttyS0’, is your first serial port, COM1 in DOS terms, or 0x3f8. Just put a ’-’ hyphen after the port, this field is not used. Next comes the protocol to use, ’ax25’. Then put your interface name, ’iface’ in the above example. Next ’1024’ is the buffer size, then ’256’ is the MTU, and lastly ’9600’ is the TNC to serial port speed.
If you where using COM2 you would use ttyS1, COM3 is ttyS2 and COM4 is ttyS3.

---

6)

Q: How do I set Linux up to talk to TNOS on the same machine?

A: To do this you must add certain lines to your Linux startup files to add a pseudo slip port to talk to TNOS. First I shall give details of the necessary lines that must be added to your startup files, and then the lines which will need to be added to your TNOS startup file (autoexec.nos).
NOTE: You must also have IP_FORWARDING enabled in your Linux kernel. This is set in the *make config* part of building a kernel.
Please note. Brian, ko4ks, shows another similar way of doing this above.

```
########################################################################
# Usually these lines can be put in one of the rc.* files found in     #
# the /etc/rc.d directory, at least that is the case for the Slackware #
# Linux distriution. I recommend the file /etc/rc.d/rc.inet1, though   #
# rc.local is an alternative.                                          #
# Add these lines to the bottom of the file.                           #
########################################################################
#
# First we must set up a pseudo slip port at the Linux kernel side to
# talk to linux. If this is your only slip port on your Linux machine
# it will become ’sl0’. If you already have a slip port configured on
# your machine, say to talk to a modem or another pc, then this port
# will become ’sl1’. Your will need to know this for later. We will assume
# that it is your only slip port, ’sl0’.
#
/sbin/slattach -v -s 38400 -p slip ptypf &
#
# OK, that is the port attached, now we must wait a while for it to get a
# hold before we can configure it.
#
/bin/sleep 1
#
# Right that should have done it. We now have a slip port ’sl0’ attached
# to the kernel. The -v indicates verbose, so we can see everything is
```

```
# ok, the -s is the speed 38400, the -p is the port, ptypf in this case
# and the ampersand is to put the command in the background.
#
# Next we shall configure it and assign it an IP address. You must
# have seperate IP addresses for TNOS and Linux. Make sure you have
# these entries in /etc/hosts also.
#
/sbin/ifconfig sl0 linux.g6phf.ampr.org up
#
# Ok we have now assigned the Linux kernel IP stack with its own
# IP address and set it in an 'up' or working state.
# Next we must add a route to TNOS down the pseudo slip link, 'sl0',
# so the kernel IP knows how to reach it.
#
/sbin/route add g6phf.ampr.org sl0
#
# Right now the kernel IP knows how to reach TNOS, we should tell
# the kernel how to reach the other 44.x.y.z addreses.
#
/sbin/route add 44.0.0.0 gw g6phf.ampr.org sl0
#
# That should do it. We have added a route to all 44 addresses via the
# gateway 'gw' of g6phf.ampr.org (TNOS) down sl0.
# If you wanted to add any other routes to non 44 addresses, you would
# do it in the same way, e.g.
# /sbin/route add 148.88.0.0 gw g6phf.ampr.org sl0
#
# NOTES: If you paste the above file into one of your rc.* files
# remember to change g6phf.ampr.org to your TNOS hostname and
# linux.g6phf.ampr.org to your Linux hostname. These hostnames will
# also need to be in your /etc/hosts file, and your ../tnos/domain.txt.
########################################################################
```

Ok, now we have configured and setup the Linux IP stack to talk to TNOS via a pseudo (internal) slip link. We used the device `/dev/ptypf` for the port 'sl0', we shall now use the other end of this slip link `/dev/ttypf` for our interface within TNOS.
Below are the necessary lines for your ../tnos/autoexec.nos file.

```
#####################################################################
# Lines needed in autoexec.nos file for Linux TNOS this allows TNOS #
# to talk to the Linux IP stack and visa-versa.                     #
#####################################################################
#
# First we must attach the port. Put this attach line with your other
# attach statements.
#
attach asy ttypf - slip kernel 1024 512 38400
#
# As you can see the format is very similar to your other attach
# statement(s). /dev/ttypf is the other end of the pseudo
# slip port from /dev/ptypf, the Linux kernel end. 'slip'
# is of course the protocol used, 'kernel' is the name of the interface
# I have chosen, you can of course call this 'sl0' or whatever you like.
# 1024 is the buffer size, 512 the MTU of the port and 38400 the speed.
#
# Now we must add a route to the Linux IP stack down out port 'kernel'.
#
route add linux.g6phf.ampr.org kernel
#
# Make sure your hostname and IP address are in your ../tnos/domain.txt
```

```
# file. If we want other people to be able to access your Linux IP, be
# it for smtp, ftp or whatever, then it is best if your TNOS will answer
# ARP queries for it. So we need to advertise that fact. We use 'proxy'
# arp to do that.
#
arp publish linux.g6phf.ampr.org ax25 g6phf 2m
#
# In the statement above replace linux.g6phf.ampr.org with the hostname
# or IP address of your Linux kernel, replace g6phf with your ax25
# callsign, and replace '2m' with the interface name of your radio port.
# If you have several radio ports you may need to arp publish your
# Linux address on each port. I have 2 more entries like this:-
# arp publish linux.g6phf.ampr.org ax25 g6phf 4m
# arp publish linux.g6phf.ampr.org ax25 g6phf 70cm
#
########################################################################
```

Ok that should do it, you should now be able to sucessfully communicate between TNOS and your Linux kernel. Test it by trying a ping or better still telnet between the two. If it fails make sure you have a kernel with SLIP compiled in, (check /var/adm/messages or watch your system bootup messages) also make sure TNOS has SLIP in it and that you have the speeds set correctly at each end.
NOTE. You will have to reboot your machine for the changes in rc.local to take effect. I recommend typing them in by hand (logged in as root) at the Linux prompt first to check you have everything correct.

---

7)

Q:What time/date server do I need to run on Linux so local users can use the RDATE server command in TNOS/JNOS to update their clocks??

A: You can use the time server built into TNOS, (assuming it is in your compile.) just type `start time`.

---

8)

Q: I am having trouble compiling TNOS with Slackware 2.3.0 any ideas ?

A: If the compile fails very near to the start and assuming you have done the symlink as outlined in the 'readme' with the source `ln -s makefile.lnx Makefile`, you must make a small change to `Makefile`. About 2 screens down the file:-

```
#######################
#  Compiler Variables #
#######################

#
# Define whether or not you are using GCC 2.6.x which support ELF and a.out
#
USEELF = 1
# Use this for GCC 2.5.x or for 2.6.x a.out-only compiler setup
```

```
#USEELF =
```

You need to un-hash the #USEELF = and hash out the USEELF = 1 line. So it should look like this:-

```
########################
#  Compiler Variables #
########################

#
# Define whether or not you are using GCC 2.6.x which support ELF and a.out
#
#USEELF = 1
# Use this for GCC 2.5.x or for 2.6.x a.out-only compiler setup
USEELF =
```

Now, with TNOS 2.01 (and possibly later versions, you must look further down the `Makefile`, about line 162 and you will see:-

```
 # if you are using GCC 2.7.0, you need this line.....
 OPTIONAL = "-DOPTIONAL=__attribute__ ((unused))"
 # otherwise, use this one....
 # OPTIONAL = "-DOPTIONAL="
```

This should be changed for:-

```
 # if you are using GCC 2.7.0, you need this line.....
 #OPTIONAL = "-DOPTIONAL=__attribute__ ((unused))"
 # otherwise, use this one....
 OPTIONAL = "-DOPTIONAL="
```

This is of course assuming you are using GCC 2.6.3 as comes with Slackware 2.3.0.

However if it fails on the `curses.c` file, then you will need to remove your ncurses package, 1.8.6. , use *pkgtool* to do this. Then you will need to get the ncurses package from an earlier Slackware release and install this. To do this put the package `ncurses.tgz` in your root directory and use the *installpkg* program. At present (as of TNOS 2.0pl2) you will need ncurses 1.8.5 to compile TNOS. You can ftp the ncurses Slackware 1.8.5 package from ftp://lurpac.lancs.ac.uk/tnos, the package is ’ncurses.tgz’.

---

9)

Q: Why can I not connect to my Linux TNOS system from a computer on the same LAN ?

A: This is probably due to the fact that you are not publishing your TNOS IP address via the Linux kernel IP, thus TNOS will never receive ARP broadcasts for its own address. This is easily fixed by adding a line in your `rc.local` or `rc.inet1` file (or wherever you choose to put it depending on your Linux/unix installation.
It is usual to assign a non 44 IP address to TNOS too, when working with a network/internet

connection. This is assigned to the TNOS end of the pseudo slip link to the kernel. You should refer to Brian’s setup details in **Software section, Q-4** for more details of this type of setup. Assuming you have TNOS talking ok to the kernel, but cannot access TNOS from other machines on the ethernet/network, then you need to add the following line:-

```
# Line to add to your /etc/rc.d/rc.local or rc.inet1 file.
#
echo "Publishing TNOS IP address"
/sbin/arp -s 192.129.16.99 00:00:c0:99:1a:1c pub
#
# Needless to say you *must* replace the IP address and hw address of the
# network card above.
```

You must also have IP_FORWARDING enabled in your Linux kernel. This is set in the *make config* part of building a kernel.

---

10)

Q: How do I apply patches to the TNOS source (Linux) ?

A: First make sure you have the patch utility. Assuming you have this then the easiest way is to ’cd’ to your source directory and do the following:-

```
patch -p1 -s < xxxxx
```

where xxxxx above is your patch file to be applied.
For more information on patch see the patch man page.

---

11)

Q: How do I apply the patches to my DOS sources for TNOS ?

A: The patch utility for DOS can be found on ftp.lantz.com in /tnos/misc or the mirror site of mwmicro.com in /pub/linux/tnos/misc.

---

12)

Q: I can’t make my function keys work properly with TNOS under X ?

A: Ok, here is some info from John Ackermann on how he solved it.

John says:-
The function key problem with TNOS under X has to do with the fact that the terminfo entry for xterm is seriously broken in many distributions (I know it is in Slackware through at least 1.2.0).

Following is an "xterm.tic" souce file for my hacked version that restores fkey functionality. Run it through tic to generate the new database file, and the problem should be solved in xterms (or rxvts) opened thereafter.

BTW -- this problem drove me nuts for almost a month. It was only sheer luck that led to me finding it; the way the config files and docs for X are scattered around makes it great fun to track down problems like this.

John

-- John Ackermann AG9V Internet: jra@ag9v.ampr.org Packet: AG9V@N8ACV.#DAY.OH.USA

xterm.tic (from /usr/lib/terminfo, run 'tic xterm.tic' to compile and install):

```
xterm|vs100|xterm terminal emulator (X Window System),
        am, km, mir, msgr, xenl, xon,
        cols#80, lines#25,
        bel=^G, bold=\E[1m, clear=\E[H\E[2J, cr=\r,
        csr=\E[%i%p1%d;%p2%dr, cub1=\b, cud=\E[%p1%dB,
        cud1=\n, cuf1=\E[C, cup=\E[%i%p1%d;%p2%dH,
        cuu=\E[%p1%dA, cuu1=\E[A, dch=\E[%p1%dP, dch1=\E[P,
        dl=\E[%p1%dM, dl1=\E[M, ed=\E[J, el=\E[K, home=\E[H,
        ht=\t, ich=\E[%p1%d@, il=\E[%p1%dL, il1=\E[L, ind=\n,
        is2=\E[r\E[m\E[2J\E[H\E[?7h\E[?1;3;4;6l\E[4l, kbs=\b,
        kcub1=\EOD, kcud1=\EOB, kcuf1=\EOC, kcuu1=\EOA,
        rc=\E8,
        rev=\E[7m, ri=\EM, rmcup=\E[2J\E[?47l\E8, rmir=\E[4l,
        rmkx=\E[?1l\E>, rmso=\E[m, rmul=\E[m,
        rs2=\E[r\E[m\E[2J\E[H\E[?7h\E[?1;3;4;6l\E[4l\E<,
        sc=\E7, sgr0=\E[m, smcup=\E7\E[?47h, smir=\E[4h,
        smkx=\E[?1h\E=, smso=\E[7m, smul=\E[4m, tbc=\E[3k,
        kf1=\E[11~,kf2=\E[12~,kf3=\E[13~,kf4=\E[14~,kf5=\E[15~,
        kf6=\E[17~,kf7=\E[18~,kf8=\E[19~,kf9=\E[20~,kf10=\E[21~,
```

13)

Q: Is it possible to have TNOS trace to a seperate xterm in X ?

A: This can be done, thought it may seem a little messy.
You must first make sure you have the trace server running in TNOS
`start trace`

Then, from your xterm you wish to trace to, you must telnet to your TNOS host/ip on port 1236.
One the session is established you can issue the command:-
`trace <iface> <mode> !`
The '!' tells it to attach the output to the current session.
e.g.:-
`trace 2m 111 !`
This would trace your '2m' port with input and output (ASCII dump) to your current session or xterm.

TNOS 2.02 will have support for X builtin. I hope to make this a part of the next FAQ!

Mike Dent. mike@lurpac.lancs.ac.uk. v0.2 14th November 1995.