Linux HAM-HOWTO, Amateur Radio.

Terry Dawson, VK2KTJ, terry@perf.no.itg.telecom.com.au v2.0, 30 April 1996

It is hoped that this document will assist Amateur Radio operators in finding and trying the various amateur radio software that has been written for or ported to Linux. It is also hoped that as a consequence of this information being available that more amateur radio operators will choose Linux as the platform of choice for their experimentation, and that software developers will choose Linux as the platform for their software development, further expanding the role of operating systems like Linux in the Amateur Radio field.

Contents

1 Introduction.

This list was prompted by comments that had been expressed in the various Linux newsgroups about the number of amateur radio operators that were involved with Linux. It is now clear that Linux is becoming a popular platform for Amateur Radio development work.

This list was originally called the RADIOLINUX list, but has been moved into the Linux Documentation Project HOWTO collection, so it has been renamed the HAM-HOWTO. I make no apologies for the name.

1.1 Changes from the previous version

```
Additions:
        ObjectProDSP
        LBBS - maybe.
        Mike Westfall's ttylinkd
        Craig Small's ttylinkd
        predict, uo11, dove, kepgen - thanks John!
Corrections/Updates:
        Copyright changed to GNU GPL version 2.0
        Removed the Hints/Tricks section and made it the AX25-HOWTO
        Removed the SCC, PI, PacketTwin and moved them to AX25-HOWTO
        Updated svgaftt - thanks Andrew!
        A small fixlet for TNOS on ftp.ucsd.edu
        Updated chipmunk home site - thanks John!
        Updated TNT to DPTNT
```

2 Where to obtain new versions of this document.

The Linux Documentation Project runs a Web Server and this document appears there as *The HAM-HOWTO* <http://sunsite.unc.edu/mdw/HOWTO/HAM-HOWTO.html>.

Dennis Boylan N4ZMZ <dennis@nanovx.atl.ga.us> makes it available at the following three locations:

www.com <http://www.com/linux/radio/index.html>, *www.hboc.com* <http://www.hboc.com/linux/index.html> and *www.lan.com* <http://www.lan.com/linux/index.html>.

John Gotts N8QDW <jgotts@engin.umich.edu> makes it available at: *www.engin.umich.edu* <http://www-personal.engin.umich.edu/ jgotts/linuxhamsoft.html>.

Dan Todd <dantodd@fusilli.ucdavis.edu> makes it available at the following two locations: *wheel.dcn.davis.ca* <http://wheel.dcn.davis.ca/ dantodd/Linux/HAM-HOWTO.html>, and *fusilli.ucdavis.edu* <http://fusilli.ucdavis.edu/Linux/HAM-HOWTO.html>.

Alan Hargreaves VK2KVF <alan@dap.CSIRO.AU> makes it available in Australia at: *www.dap.csiro.au* <http://www.dap.csiro.au/RadioLinux>.

The Tuebingen Radio Club has it available from their home page at: *DARC Home Page* <http://www.neckar-alb.de/darc/welcome.html>

Please let me know if you'd like to make it available somewhere too. I'd like to see it on some Web Servers that are accessible from radio.

3 Satellite Software.

The following software is for use in experimentation with Satellite communication.

3.1 MicroSat Ground Station Software

Author

John Melton, G0ORX/N6LYT, g0orx@amsat.org and Jonathan Naylor G4KLX, g4klx@amsat.org

Description

Microsat Ground Station software.

Status

BETA. Version 0.9-Xaw released.

System requirements

Alan Cox's kernel based AX.25 support ver 1.1.12 or better. X-Windows. The programs make use of the Athena Widgets and look much better with the 3D libraries.

Detail

This software allows you to use of a KISS tnc to directly communicate with the Microsat series of satellites. It provides an Athena Widgets based X-Windows interface, and allows you a comprehensive range of means of interacting with the satellite. The software should work with any window manager.

The software provides the following programs:

xpb:

broadcast monitor

xpg:

ftl0 file upload program, message upload program

xtlm:
telemetry display program

downloaded:
downloaded file list viewer

directory:
directory list viewer

message:
message preparation application

viewtext:
uncompressed ASCII text file viewer

viewlog:
display the contents of some log files

xweber:
special program for downloading webersat images

phs:
general purpose PACSAT header stripper

Where and How to obtain it.

John's software is available from: *ftp.amsat.org* `<ftp://ftp.amsat.org/amsat/software/Linux/microsat-0.9-Xaw.tar.gz>` or *ftp.funet.fi* `<ftp://ftp.funet.fi/pub/ham/satellite/pacsat/microsat-0.9-Xaw.tar.gz>`. Please check for new versions.

Licensing/Copyright

GNU Public License. Freely redistributable, No warranty.

Contributed by:

John Melton, G0ORX/N6LYT, Alan Cox, GW4PTS, Jonathon Naylor, G4KLX

3.2 SatTrack - Satellite tracking program

Name

SatTrack

Author

Manfred Bester, DL5KR, manfred@ssl.berkeley.edu, (510) 849-9922

Description

Satellite realtime tracking and orbit prediction program with X11 color graphics.

Status

Version 3.1 has been released.

System requirements

A vt100 terminal and or X11 server. A Maths Coprocessor is useful, but not essential, for good performance.

Detail

SatTrack is a satellite tracking program that has been written in 'C' language on a UNIX workstation. It provides two different live displays, for single or multiple satellites, and two different orbit prediction facilities. Cursor controls used in both live displays are compatible with the VT100 standard, which allows the program to be run basically from any terminal. An optional X Window graphics display shows the typical world map tracking chart. The orbit prediction can be run either interactively or in a batch mode. In the latter case all necessary parameters are specified on the command line. The program uses the NORAD/NASA two-line Keplerian element (TLE) sets directly.

The current version of SatTrack can track a single satellite and/or display multiple satellites for a single ground station. It also can control suitable ground station hardware, like antennas and radio equipment, and has an autotrack mode in which it switches automatically between a number of specified satellites. For calibration purposes tracking of the Sun and the Moon are also provided. Future releases will provide more options. SatTrack requires about 5 MB of disk space in the full distribution with eight different world maps (2 styles, with 4 different sizes each, to fit everyone's screen and taste) and less than 1.5 MB of memory at run time. More information can be obtained from the *SatTrack WWW Home Page* `<http://www.primenet.com/ bester/sattrack.html>`

Compiling the software under Linux is quite straightforward. Manfred has designed the Makefile to compile the software directly under your home directory, this is easy to change.

The steps I took were:

```
# cd /usr/src
# export HOME=/usr/src
# gzip -dc sattrack-3.1.1.tar.gz | tar xvf -
# cd SatTrack/src
# vi Makefile
  {Comment SUN4 compile options}
  {Uncomment the linux options}
  {Select the options you want}
# make
```

Where and How to obtain it.

SatTrack can be found at: *ftp.amsat.org* `<ftp://ftp.amsat.org/amsat/software/Linux/sattrack-3.1.1.tar.gz>` or *ftp.jvnc.net* `<ftp://ftp.jvnc.net/priv/kupiec/sattrack/sattrack-3.1.1.tar.gz>` or the *SatTrack WWW Home Page* `<http://ssl.berkeley.edu/isi_www/sattrack-3.1.1.tar.gz>`

Licensing/Copyright

The software is Copyright of Manfred Bester. It can be used without special permission for non-profit, non-commercial use. For commercial applications a license from the author is required.

Contributed by:

Manfred Bester, DL5KR

3.3 Predict

Author

John A. Magliacane, KD2BD, <kd2bd@amsat.org¿

Description

A satellite orbital prediction program that also tracks the sun's position to predict visible satellite passes.

Status

Complete and working.

System requirements

predict is a screen-oriented program that utilizes the ncurses-1.8.5 (or later) library. A color terminal is a plus, but not a necessity.

Detail

Features of predict include azimuth and elevation headings of satellite passes, orbital phase, sub-satellite point locations, slant ranges, orbit numbers, and sunlight visibility as a function of date and time. The program is simple, fast, and easy to use. Predict maintains an orbital database for 21 satellites that can be updated by the user through the keyboard or by using files containing NASA 2-line orbital element data. Since this program operates under a multiuser environment, each user on the system owns and maintains his or her own unique orbital data base.

This program has been compiled using the highest level of compiler optimization for high speed execution, and uses an a.out binary format for greatest compatibility.

To install the package use the following:

```
# cd /
# tar xvfz predict.tgz
```

Where and How to obtain it.

You can obtain predict from: *pilot.njin.net* `<ftp://pilot.njin.net/pub/SpaceNews/linux>`

Licensing/Copyright

This software is available free of charge and must be used for non-commercial purposes only.

Contributed by

John A. Magliacane, KD2BD

3.4 UO11

Author

John A. Magliacane, KD2BD, <kd2bd@amsat.org¿

Description

A simple UoSAT-OSCAR-11 satellite telemetry decoding program.

Status

Complete and working.

System requirements

A 1200 baud UoSAT-OSCAR-11 FSK demodulator (Bell-202 is suitable), a VHF-FM receiver that can tune to 145.825 MHz, a small yagi antenna, and a communications program such as Minicom that can save 1200 baud ASCII telemetry data to a text file.

Detail

uo11 decodes ASCII telemetry data that has been captured through a terminal program, error checks the received data, and applies calibration equations to the received data to produce a report that can be easily understood and analyzed. uo11 comes pre-compiled (a.out format) with a man page entry for ease of use.

To install you should use the following commands:

```
# cd /
# tar xvfz uo11.tgz
```

Where and How to obtain it.

You can obtain uo11 from: *pilot.njin.net* `<ftp://pilot.njin.net/pub/SpaceNews/linux>`.

Licensing/Copyright

This software is available free of charge and must be used for non-commercial purposes only.

Contributed by

John A. Magliacane, KD2BD

3.5 Dove

Author

John A. Magliacane, KD2BD, <kd2bd@amsat.org¿

Description

A simple DOVE-OSCAR-17 satellite telemetry decoding program.

Status

Complete and working.

System requirements

A terminal node controller (TNC), a VHF-FM receiver that can tune to 145.825 MHz, a small yagi antenna, and a communications program such as Minicom that can save 1200 baud ASCII telemetry data to a text file.

Detail

dove decodes ASCII telemetry data that has been captured through a terminal program and applies calibration equations to the received data to produce a report that can be easily understood and analyzed. dove comes pre-compiled (a.out format) with a man page entry for ease of use.

To install Dove you should use the following commands:

```
# cd /
# tar xvfz dove.tgz
```

Where and How to obtain it.

You can obtain Dove from: *pilot.njin.net* `<ftp://pilot.njin.net/pub/SpaceNews/linux>`.

Licensing/Copyright

This software is available free of charge and must be used for non-commercial purposes only.

Contributed by

John A. Magliacane, KD2BD

3.6 Kepgen

Author

John A. Magliacane, KD2BD, <kd2bd@amsat.org¿

Description

A simple, yet useful utility that generates Keplerian data files in the NASA 2-line format from data entered through the keyboard.

Status

Complete.

System requirements

kepgen is a screen-oriented program that utilizes the ncurses-1.8.5 (or later) library. A color terminal is a plus, but not a necessity.

Detail

kepgen allows the user to create checksummed Keplerian data files in the NASA 2-line format using orbital data entered via the keyboard. kepgen was created out of the need for generating 2-line orbital files from orbital data copied from WA3NAN audio transmissions during Space Shuttle missions. The files created can be read by virtually any satellite tracking or orbital prediction program. kepgen comes pre-compiled (a.out format) with a man page entry for ease of use.

To install kepgen you should use the following commands:

```
# cd /
# tar xvfz kepgen.tgz
```

Where and How to obtain it.

You can obtain kepgen from: *pilot.njin.net* <ftp://pilot.njin.net/pub/SpaceNews/linux>.

Licensing/Copyright

This software is available free of charge and must be used for non-commercial purposes only.

Contributed by

John A. Magliacane, KD2BD

4 Shack Automation Software.

Software for simplifying tasks in the shack. Examples might include software for controlling the newer breed of radios, logging programs, QSL database, or antenna rotation.

4.1 FT-890 remote control

Author

Emarit Ranu, drranu@holly.ColoState.EDU, KG0CQ.

Description

A simple program to control a Yaesu FT-890 transciever via its CAT port from linux.

Status

Working

System requirements

Yaesu FT-890, Yaesu FIF-232C interface converter or homebuilt equivalent (Feb 1993 "QST", page 37). Linux, serial cable.

Detail

The program is started with one parameter specifying the com port to use. Once started the program is menu driven. Future versions will support an X-Windows interface.

Where and How to obtain it.

The software is currently only available from the author by email.

Licensing/Copyright

You may copy this program millions of times, the only restrictions are:

- You may not charge ANYONE for the program itself.
- You may not distribute modified versions of the program.
- If you distribute the program, it MUST be the ORIGINAL tar file as received by the author. The README file has to be included.

Contributed by:

Emarit Ranu, drranu@holly.ColoState.EDU

5 Packet Radio

Software for use in conjunction with, or for facilitating packet radio.

5.1 JNOS

Author

Brandon Allbery, KF8NH, bsa@kf8nh.wariat.org

Description

Brandon ported JNOS to Linux. His port is currently of the 1.09 (aka 1.08df) release of JNOS. Future versions will probably be based on Doug Crompton's evolution of 1.08df. Brandon suggests that JNOS for Linux is primarily of interest to people with existing DOS-based NOS configurations (especially server/switch configurations) who wish to switch to Linux or to escape the 640K barrier.

Status

Brandons code was rolled back into the main jnos distribution, so development on the two runs in parallel.

System Requirements.

Any version of Linux along with *ncurses* 1.8.1 or 1.8.5 (the latter is preferred). Optionally you will require Linux networking (at least loopback and slip).

Detail

If you include the Linux networking code in addition to JNOS, you can link the two by a slip link running over a pty, so that Linux can provide services to your radio users. In this way you can easily add servers without having to build them into JNOS itself.

Where and How to obtain it.

You can obtain JNOS for Linux ALPHA.4 at: *ftp.ucsd.edu* `<ftp://ftp.ucsd.edu/hamradio/packet/tcpip/jnos/jnos110i.zip>` *ncurses* is available on most Linux ftp sites.

Licensing/Copyright

Brandon's modifications to JNOS are public domain. Most of the pre-existing NOS code is copyrighted and restricted to non-commercial use by the various contributors from Phil Karn on.

Contributed by:

Brandon Allbery, KF8NH

5.2 TNOS

Author

Brian A. Lantz, brian@lantz.com

Description

TNOS is a NOS derivative that is being actively supported and which is available for both DOS and Linux. It features enhancements not found in other NOS versions.

Status

The current version is 2.0 and is stable.

System Requirements

Kernel networking slip support if you want to link the normal Linux network facilities with TNOS. A kiss tnc.

Detail

Brian maintains a World Wide Web server which contains up to date information on TNOS, you can find it at *www.lantz.com* `<http://www.lantz.com/tnos/tnos.html>`.

Where and how to obtain it

The current version of TNOS is always available from: *ftp.lantz.com* `<ftp://ftp.lantz.com/tnos/current/linux/>`, *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/ham/>`, or *ftp.ucsd.edu* `<ftp://ftp.ucsd.edu/hamradio/packet/tcpip/tnos/>`.

Licensing/Copyright etc.

Free for use by amateur radio operators and educational oraganisations

5.3 N0ARY Packet BBS for UN*X

Author

Bob Arasmith, N0ARY, ported to Linux (and others) by Bob Proulx, KF0UW, rwp@fc.hp.com

Description

A packet bbs implemented under UN*X.

Status

ALPHA. Bob is running version ARY-0.9 on both Linux and HP-UX. The next version from N0ARY which is called 4.0 is in alpha test/development release. Bob has not been able to bring this online yet and is still running 0.9+kf0uw mods. Bob has about half it working with Alan Cox's AX.25 kernel which would be the desirable combination.

System Requirements.

Linux installation, C Compiler, plus HAM radio TNC hardware.

Detail

This bbs has an excellent packet user interface. It has a compatible set of commands with the RLI bbs so users will be familiar with it immediately. It then extends the command set to be a very nice natural language style interface (e.g "list at allus about KPC-3"). Many csh style bang commands are supported. Also included is a mail interface to provide a packet to internet gateway.

Currently you need to customize the source code for your installation so you need some C programming proficiency.

Where and How to obtain it.

For a Linux version or for Linux information send mail to `rwp@fc.hp.com`. For a SunOS version contact `bob@arasmith.com`. This code is not packaged for distribution yet since it is not past the alpha stage of development.

Licensing/Copyright

Copyright by Bob Arasmith, N0ARY, but freely redistributable.

Contributed by:

Bob Proulx, kf0uw, rwp@fc.hp.com

5.4 LBBS - Linux BBS message gateway

Author

Daryl L Miles, G7LED, dlm@frink.demon.co.uk

Description

A BBS package designed to operate with either the native AX.25 kernel code or with the Wampes package.

Status

In development, working.

System requirements

Kernel AX.25 support or the Wampes package. sendmail, CNEWS.

Detail

Daryl's aim was to build a platform on which amateurs could build a Packet BBS to smtp gateway for Linux. I'm not sure what the current status is as the last version I could find was dated 30 Jun 1995. The latest binary version supports:

- MBL, FBB batching, FBB compressed, FBB type 1 compressed forwarding with restart facility implemented, deferring, and rejection.
- various Linux transport mechanisms including TCP kernel, AX.25 kernel, Wampes NetROM, AX25 or TCP.
- Simple dialer, to allow connections through AX.25 or NetROM nodes.
- White Pages
- Transient handling of type A (ACK messages).

- SMTP/NNTP<¿BBS gatewaying implemented heavily to the extent that the user front end will be accessing the NetNews spool to retrieve articles.
- Message filter mechanism
- Field swapping (like SWAPP.SYS in FBB).
- Multiuser/connect.

To install, I did the following:

```
# cd /usr/src
# mkdir LBBS
# tar xvfz LBBS-0.1.6A.tar.gz
# cd LBBS
# ./Install.sh
```

This created a `/usr/lbbs` directory. The `README.Setup` file suggest an order in which to configure the BBS.

Where and How to obtain it.

You can obtain LBBS from: *G7PIT's ftp site* `<ftp://rsl_pc3.ion.le.ac.uk/pub/LBBS>`, or *ftp.ucsd.edu* `<ftp://ftp.ucsd.edu/hamradio/packet/tcpip/linux/>`.

Licensing/Copyright

Freely distributable for any non-commercial Amateur Radio use only. No warranty. Will be changed to GPL when software is stable.

5.5 MBL/RLI message to NNTP and email converter.

Author

SM0OHI, pme@it.kth.se

Description

Software that will convert incoming MBL/RLI messages into either NNTP or RFC-822 formatted mail messages.

Status

Development, not yet released.

System requirements

Unknown.

Detail

This software would be ideally suited to those who want to establish a mail and news gateway between conventional tcp/ip networks and the amateur radio mail network.

Where and How to obtain it.

Not yet availale.

Licensing/Copyright

Unknown.

Contributed by:

SM0OHI

5.6 Packet Cluster Node software

Author

Franta Bendl, DJ0ZY, and Bernhard ("Ben") Buettner, DL6RAI, root@dl6rai.muc.de

Description

A PacketCluster like system running on Linux.

Status

Released in October 1995.

System Requirements

Linux Kernel version 1.2.0 or greater with Alan Cox's AX.25 version 025 driver, TCP/IP networking, SysV IPC. Also needs Perl and KISS TNC hardware on serial device.

Detail

PacketCluster nodes have been available for about six years. The original software was written by Dick Newell, AK1A, and is running under DOS. *clx* is a system which clones a PacketCluster node. To the outside user commands and features are mostly identical, remote PacketCluster nodes, which can be networked, don't see the difference between a generic PacketCluster node and *clx*. So it fits well into an established network of PacketCluster nodes.

clx is not a user application, it is network node software. As such it is not of much use for the individual amateur. SysOPs of PacketCluster nodes with some experience on both PacketCluster and Linux will find this application interesting.

Here are some of the features of CLX:

- It is fully compatible with the internal PCxx protocol and from a users' point of view. It allows multitasking and different priorities for different things.
- The software detects looping DX spots without generating endless messages. *clx* filters out such duplicate information. We have implemented a concept which allows us to connect the network at multiple points, which would formerly have been called a "Cluster Loop". *clx* knows of so-called "active" and "passive" links. The outcome is that more DX information is seen by clx.
- An interface to call your external programs (even dialog programs).
- *clx* uses modern programming concepts like shared memory for common data, lex & yacc to implement command language, shared libraries to keep binaries small (this is still on our wish list), remote procedure calls for inter process communication. It is strictly modularized with its own dedicated process for every major task.

- Comprises the following modules:

  con_ctl
  : interfaces AX.25 kernel code and provides a socket for local users.

  rcv_ctl
  : manages receive spooling.

  snd_ctl
  : manages transmit spooling.

  rm_disp
  : receive message dispatcher, forwards messages to other processes.

  usr_req
  : user database requests, forks a process for every database task to make it run in the background. The background process later sends the results directly to send_ctl.

  mb_ctl
  : mailbox control. The mailbox keeps messages in a file system, header information is stored in the database.

  usr_ctl
  : user administration (logins, logouts, logbook).

  usc_mng
  : manages external user commands and command extensions.

  iu_com
  : inter user communication (talk, conference).

  send_ctl
  : transmit spooling, handling priorities.

  icl_com
  : inter node communication (processing and generating PCxx messages).

  clx_ctl
  : system administration, installing shared memory pages.

  int_com
  : manages internal program communications.

- The following is the only application program which can be run on the console:

  loc_usr
  : allows console operator(s) to log in like a normal user.

Future enhance planned are:

- A console monitor to watch ongoing activities
- Speed optimization
- An internal clx protocol
- An additional command shell for experienced users

Where and How to obtain it:

ftp.funet.fi `<ftp://ftp.funet.fi/pub/ham/unix/Linux/cluster>`

There are five files that make up the package:

- 00Index
- clx_200.tgz
- install.clx
- README

Licensing/Copyright

clx (c) by Franta Bendl (DJ0ZY) and is available for non-commercial use, but the authors want to keep track of who is using their product, so before you can actually use the software you have to ask for an encrypted callsign string to be placed in the configuration file. You must send mail to <clx_us@dl6rai.muc.de> to organise this.

Contributed by:

Bernhard ("Ben") Buettner, DL6RAI

5.7 Single floppy disk AX.25 router.

Author

Alan Cox, GW4PTS, iialan@iifeak.swan.ac.uk

Description

A single floppy disk version of linux with enough software to allow a PC to act as an AX.25/IP router.

Status

Development, not yet released.

System requirements.

As for any Linux system a 386SX class PC or better.

Detail

No detail yet.

Where and How to obtain it.

Not yet available.

Licensing/Copyright

Unknown/Undecided.

5.8 DPTNT Terminal and BBS package.

Author

Mark Wahl, DL4YBG, DL4YBG@DB0BLO.#.DEU.EU, wahlm@zelator.de

Description

A suite of programs that provide BBS and Terminal programs for Linux.

Status

Stable and working.

System requirements

TNC supporting WA8DED hostmode or KISS protocols.

Detail

TNT is a full featured hostmode terminal program. Compiling it on Linux is as difficult as untarring the source and typing 'make'. It provides both a 'dumb' terminal and X11 version. It comes with some comprehensive documentation which describes its features in some detail. Its main features are:

Multiple sessions:

TNT supports multiple packet radio connections on virtual screens that you can switch between. Each session window provides split screen (seperate transmit and receive text) operation with a status line. Commands can be entered in either a command session, or in any terminal session using a command key. Each of the virtual screens can be larger than the physical screen and can be scrolled around.

Data capture, file transfer and logging:

A number of options are available for logging received text to files. You can log transmit, receive or both to a log file. You can overwrite or append received data to existing files. You can use the 'autobin' protocol to transmit or receive binary files.

Remote Shell operation:

You can provide a shell to remote users so that they can access other programs on your computer. You can also run a program and direct its input/output to a channel so that users can use it.

Redirection of devices to a channel:

TNT allows you to redirect input/output from a channel to a device, a modem for example.

Umlaut conversion:

TNT provides umlaut conversion if necessary.

Remote mode:

Remote users can issue command themselves if allowed to do so.

Socket mode:

You can configure tnt so that it opens a socket for users to telnet to that allows them operation just as you have from the console. This is useful where your linux machine is on an ethernet and you want other terminal on the net to have use of your radio.

DPBOX is a full featured BBS supporting the following features:

- F6FBB, W0RLI, TheBox style forwarding protocols.
- 8-bit transparent handling of messages using AutoBIN protocol.
- BBS data compressed to save space on disk, forwarding and downloading.
- "Live message capture" off BBS frequency, saves network traffic.
- PACSAT style bulletin broadcast transmitter and receiver.

- up to 200 simultaneous users.

Where and How to obtain it.

TNT by itself is available by anonymous ftp from: *ftp.funet.fi* `<ftp://ftp.funet.fi/pub/ham/unix/packet/tntsrc09.tgz>`. The DPTNT package may be found at: *ftp.funet.fi* `<ftp://ftp.funet.fi/pub/ham/unix/packet/dptnt/>`, or *ftp.tapr.org* `<ftp://ftp.tapr.org/pub/tapr/software_lib/Linux/>`, or *ftp.ucsd.edu* `<ftp://ftp.ucsd.edu/hamradio/packet/tcpip/incoming/>`.

The Home Pages of the developers are at: *DL4YBG* `<http://www.snafu.de/ wahlm/>` and *DL8HBS* `<http://hppool0.rz.hu-berlin.de/ h0187akk/>`

Licensing/Copyright

The TNT and DPBOXT programs are covered by the GNU Public License. The TFKISS program is covered by ALAS (a german license for Amateur Radio use), and the DPBOX program is freely distributable for Amateur Radio use.

5.9 IPIP encapsulation daemon.

Name

Mike Westerhof's IPIP encapsulation daemon.

Author

Mike Westerhof KA9WSB (original code), then Bdale Garbee N3EUA (port to BSD), then Ron Atkinson N8FOW and John Paul Morrison (port to Linux), then Bdale rolled it all back together again.

Description

A daemon that will allow you to use your linux machine as an IPIP encapsulating gateway.

Status

Ron is running this code himself, and the other version have been run quite successfully.

System requirements

KISS TNC, any version of Linux supporting RAW sockets.

Detail

If you've ever used an internet gateway from your amateur packet radio you have probably been connected by an encapsulation gateway of some descpription. Most run KA9Q's NOS and DOS, but others run Unix and this daemon. It allows you to encapsulate IP within IP, so that you can 'tunnel' IP connections over the Internet. The software allows you to connect a KISS TNC to your linux machine and to have all datagrams received on it carried across the Internet to a similar gateway. Bdale has installation instructions in the package.

Where and How to obtain it.

This software is available from the *col.hp.com* `<ftp:///col.hp.com/hamradio/packet/etc/ipip/ipip.tar.gz>` ftp site.

Licensing/Copyright etc.

Freely distributable, though Bdale asks that if you use the code and like it you might send him a QSL card or a postcard.

Contributed by:

Ron Atkinson, N8FOW, and Bdale Garbee, N3EUA

5.10 AXIP encapsulation daemon.

Name

Mike Westerhof's AXIP encapsulation daemon.

Author

Mike Westerhof KA9WSB, ported to Linux by Ron Atkinson N8FOW.

Description

A daemon that will allow you to use your linux machine as an AXIP encapsul ating gateway.

Status

Not properly tested, but assumed to work ok.

System requirements

KISS TNC, any version of Linux supporting RAW sockets.

Detail

This daemon is the partner to the IPIP encapsulation daemon. It allows you to encapsulate AX.25 frames in IP to carry them across the Internet. This is useful for linking AX.25 networks in remote areas. Ron has supplied a `Makefile` for linux, and with it the software compiled without errors on my system running a recent version kernel. Ron has also written some `README` files which give you the detail necessary to compile the system and the original documentation describes how to configure it.

Where and How to obtain it.

This software is available in the *sunsite.unc.edu ham apps directory* `<ftp://sunsite.unc.edu/pub/Linux/apps/ham/ax25ip.tar.gz>`.

Licensing/Copyright etc.

Freely distributable so long as the original copyright notice is not removed.

Contributed by:

Ron Atkinson, N8FOW

5.11 Ping-Pong Convers Server

Name

Fred Baumgartens Convers Server for Linux.

Author

Fred Baumgarten, DC6IQ, <dc6iq@insu1.etec.uni-karlsruhe.de¿

Description

This is a version of the convers server that allows multiple users to simultaneously chat with each other in a round-table style conversation. It is compatible with the NOS convers servers, but provides extra facilities such as saving/restoring of Personal Text and Chanel Topics.

Status

In use of a number of popular convers servers, appears very stable.

System requirements.

Linux, GNU make, C compiler.

Detail.

Complete installation instructions are included in the `INSTALL` file that is included in the distribution.

Where and How to obtain it.

A distribution of this software is available at *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/ham/convers/>`. The home of the software is at *insu1.etec.uni-karlsruhe.de ftp server* `<ftp://insu1.etec.uni-karlsruhe.de/pub/hamradio/convers/convers>`

Licensing/Copyright etc.

Presumably copyright Fred Baumgarten (not specifically stated), but some portions appear to be free for non-commercial use and copying provided the copyright notices stay intact.

5.12 RSPF Daemon

Name

RSPF - Radio Shortest Path First routing daemon for Linux

Author

Craig Small vk2xlz <csmall@triode.apana.org.au¿

Description

An implementation of the Radio Shortest path First routing protocol for linux. The daemon supports version 2.2 of the protocol which corrects a lot of bugs and problems that were present in version 2.1.

Status

Alpha - running, needs testing and bug reports. Current version is 0.05

System requirements.

Requires Alan Cox's kernel based AX.25 code.

Detail

This program will allow Linux to become an RSPF router. It addresses some of the quirks of RSPF v2.1, the version in NOS which means that it is incompatible with the NOS version. It will also allows remote/local queries via a tcp session for debugging and diagnostic purposes.

Where and How to obtain it.

Current versions are always available from *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/ham/>` or *ftp.ucsd.edu* `<ftp://ftp.ucsd.edu/hamradio/packet/tcpip/incoming>` or from the author.

Licensing/Copyright

GNU Public License vers 2.0

Contributed by:

Craig Small vk2xlz <csmall@triode.apana.org.au¿

5.13 Michael Westfall's TTYLINK Daemon

Name

ttylinkd - a ttylink daemon for Linux.

Author

Michael Westfall, N6KUY, <mwestfal@.csci.csusb.edu¿

Description

A split screen terminal program that listens on the ttylink port and accepts incoming connection requests.

Status

Seems to work fine.

System requirements

none special.

Detail

This is a standalone program that does require you to change the configuration of your system at all. If you have root access on your machine then you run the program in a VT or in an XTerm and it will clear the screen and wait for an incoming connection on port 87 (ttylink). When a connection is received it will provide you with a split screen display with which to communicate with the calling person.

Where and How to obtain it.

You can obtain ttylinkd from: *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/ham/ttylinkd.tgz>` or *ftp.ucsd.edu* `<ftp://ftp.ucsd.edu/hamradio/packet/tcpip/incoming/ttylinkd.tgz>`.

Licensing/Copyright

Unknown, presumed freely distributable.

5.14 Craig Small's TTYLINK Daemon

Name

ttylinkd - a ttylink daemon for Linux.

Author

Craig Small, VK2XLZ, <csmall@triode.apana.org.au¿

Description

A daemon to accept a ttylink (port 87) tcp/ip connection and convert it into a talk request for a user on the host machine. This may also be configured for use with the *ax25d* program so that AX.25 users may also make use of it to connect to you.

Status

Alpha, but working.

System requirements.

Kernel networking support with AX.25 support if desired.

Detail

Because the `talk` protocol is a non-standard, that is it isn't actually defined anywhere (except the source), the `ttylink` protocol from NOS has become the defacto standard, at least for amateurs, to provide keyboard to keyboard communication over tcp/ip. This daemon fills the need for something to answer ttylink requests to linux machines.

To build and install the software, I did:

```
# cd /usr/src
# tar xvfz ttylinkd-0.02.tar.gz
# cd ttylinkd-0.02
<edited the Makefile to change the SYSOP_USER>
# make
# cp ttylink /usr/sbin
<edited /etc/service, /etc/inetd.conf as instructed in README>
# killall -1 inetd
```

Where and How to obtain it.

You can obtain the latest version of ttylinkd from: *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/ham/>` or *ftp.ucsd.edu* `<ftp://ftp.ucsd.edu/hamradio/packet/tcpip/incoming>`.

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6 Morse Code

Software for use in conjunction with, or for facilitating Morse communication.

6.1 GW4PTS Morse trainer.

Author

Alan Cox, GW4PTS, iialan@iifeak.swan.ac.uk

Description

A Morse Code trainer that uses the PC internal speaker

Status

stable, works quite well, unfinished.

System requirements

Linux, any version

Detail

Alan wrote this small program in only an hour. It is quite neat, and allows you to play morse at a range of speeds and frequencies through the PC internal speaker. You can specify the text to be played either from the command line, from a file, or the program is capable of generating random character groups. As it stands you must invoke the program from a Linux Virtual Console, as it relies on certain kernel calls to produce the sound, and these don't work as easily from an XTerm. As it sounds each character it lists the character in verbal form (Di, Dit, Dah etc.) to the screen. Alan is hoping that someone will take the code and enhance it with the features he has listed in the comments at the head of the source file.

Where and How to obtain it.

I've had a large number of responses from people seeking this code, so I've obtained Alan's permission to make it available. You can obtain it from *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/ham/GW4PTS.morse.tar.gz>`.

Copyright/Licensing

GNU Public License 2, freely redistributable, no warranty.

6.2 morse (aka superiormorse)

Author

Joe Dellinger, Hawaii Institute of Geophysics, University of Hawaii at Manoa, joe@sep.stanford.edu, jdellinger@trc.amoco.com, joe@soest.hawaii.edu

Description

A morse-code practice program for UNIX workstations.

Status

Quite stable

System Requirements

Currently supports X11, Sun4, HP, Indigo, and Linux

Detail

Lots of features and options. Includes a utility for generating random content QSOs, similar to those used in the FCC exams.

Where and How to obtain it:

morse can be obtained from: *sepftp.standford.edu* `<ftp://sepftp.stanford.edu/pub/UNIX_utils/morse/morse.tar.gz>`.

Licensing/Copyright

Freely Redistributable

Contributed by:

Brian Suggs, AC6GV, and John Gotts, jgotts@engin.umich.edu

7 AMTOR Software.

Software for use in conjunction with, or for facilitating AMTOR.

8 PACTOR Software.

Software for use in conjunction with, or for facilitating PACTOR.

9 Slow Scan Television Software.

Software for use in conjunction with, or for facilitating Slow Scan Television.

10 Facsimile Software.

Software for use in conjunction with, or for facilitating Facsimile.

11 Design and Construction Software.

Software to assist in the design and construction of amateur radio related things. Antenna, Circuit Board, Filter, and QSL card design packages are all good candidates for this section.

11.1 Software Oscilloscope

Author

Jeff Tranter, Jeff_Tranter@Mitel.COM

Description

Scope is a simple software emulation of an oscilloscope. It graphically displays voltage as a function of time.

Status

ALPHA. First release.

System requirements

Sound card with input capability supported by the kernel sound driver. SVGALIB is used to do the display work.

Detail

Scope uses the `/dev/dsp` device to take audio in from the soundcard and displays it on the screen in a manner similar to an oscilloscope. Jeff claims Scope was written more for amusement value than for any serious purpose.

Where and How to obtain it.

You can obtain source, makefile and man page for Scope from: *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/circuits/scope-0.1.tar.gz>`

Licensing/Copyright

GNU Public License, Freely redistributable, No warranty.

11.2 Printed Circuit Board design tool.

Author

Thomas Nau, <Thomas.Nau@rz.uni-ulm.de¿

Description

An X11 based interactive printed circuit board design tool.

Status

Vers 1.3, stable.

System requirements

X11 Windowing system and a recent flex program.

Detail

The pcb package comes with good instructions on how to compile and install the software. I compiled it without error under X11R6. It comes with package layouts for a range of popular components and the example layout nicely demonstrates the capabilities of the package.

Where and How to obtain it.

You can obtain the pcb package from: *sunsite.unc.edu* <ftp://sunsite.unc.edu/pub/Linux/apps/circuits/pcb-1.3.tar.gz> or from: *ftp.medizin.uni-ulm.de* <ftp://ftp.medizin.uni-ulm.de/pub/pcb-1.3/pcb-1.3.tar.gz>

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GNU Public License

11.3 Chipmunk circuit design and simulation tool

Author

Dave Gillespie <daveg@synaptics.com¿ and John Lazzaro <lazzaro@cs.berkeley.edu¿

Description

Schematic Entry and Digital or Analog Simulation.

Status

vers 5.10, stable.

System requirements

X11 windowing system and older (XFree86-2.x) libs, 8 bpp (256 color) only

Detail

I haven't tried this one out yet.

Where and How to obtain it.

You can obtain the Chipmunk package from its home site at *www.pcmp.caltech.edu* <http://www.pcmp.caltech.edu/chipmunk/>.

Licensing/Copyright

Modified GNU Public License, Caltech specifically disclaimed from liability.

11.4 irsim

Author

Dmitry Teytelman, dim@leland.stanford.edu

Description

An event-driven logic-level simulator for MOS circuits

Status

Version 9.2, production.

System Requirements

X-Windows.

Detail

irsim is an X11 based simulator for MOS circuits. It has two simulation modes, either *switch* where each transistor is modelled as a voltage controlled switch, or *linear* where each transistor is modelled as a resistor in series with a voltage controlled switch, and each node has a capacitance.

Where and How to obtain it.

You can obtain irsim from: *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/circuits/irsim-9.2.linux.1.tar.gz>`.

Licensing/Copyright

Freely Redistributable

11.5 Spice vers. 3f4

Author

University of California, Berkeley, port by Jeff@RyeHam.EE.Ryerson.Ca

Description

Spice is an analog circuit emulator.

Status

Stable release.

System requirements

Unknown.

Detail

Spice allows you to design and test circuits in a computer modelled environment to see how they will behave without having to touch a soldering iron, or solder. A `readme` file comes with the package. To install I did the following:

```
# cd /usr/src
# gzip -dc spice3f4.tar.gz | tar xvf -
# cd spice3f4
# ./utils/build linux
# ./utils/build linux install
```

Where and How to obtain it.

You can obtain version 3f4 of Spice from: *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/circuits/spice3f4.tar.gz>`

Licensing/Copyright

Copyright held by University California, Berkeley. Freely redistributable provided you are not unfriendly to the U.S.

11.6 svgafft - Spectrum analyser

Author

Andrew Veliath, veliaa@rpi.edu

Description

svgafft is a spectrum analyser for Linux.

Status

Alpha, but usable.

System requirements

F77, Linux supported sound card, svgalib, a 486DX33 or better.

Detail

svgafft uses the `/dev/dsp` device and currently supports 16-bit and 8-bit sample resolution on supported Linux soundcards. It's display is something akin to a high-end spectrum analyzer with falling peaks. Andrew is working on an X-Motif version to be released soon.

Where and How to obtain it:

You can find the software at *tsx-11.mit.edu* `<ftp://tsx-11.mit.edu/pub/linux/ALPHA/svgafft/svgafft-0.2h.tar.gz>` and *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/sound/freqs/svgafft-0.2h.tar.gz>`.

Licensing/Copyright

GNU Public License.

Contributed by:

Andrew Veliath, veliaa@rpi.edu

11.7 Audio Spectrum Analyser

Author

Philip VanBaren, phillipv@eecs.umich.edu

Description

An audio spectrum analyser for Linux SVGALIB or X-Windows.

Status

Alpha but usable

System requirements

Linux supported sound card, svgalib or X-Windows.

Detail

freq5a1 uses the `/dev/dsp` device, samples the incoming audio, performs a fast fourier transform on the data and displays the output in either 640x480 VGA or an X-Window.

Where and How to obtain it:

You can obtain freq5a1.tar.gz from: *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/apps/sound/freq5a1.tar.gz>` or by mail from the author.

Licensing/Copyright

GNU Public License vers 2.0.

11.8 ObjectProDSP

Author

Paul Budnik, Mountain Math Software, support@mtnmath.com

Description

ObjectProDSP is an object oriented tool for design, development and implementation of Digital Signal Processing. It allows you to design your DSP network, runs simulations with oscilloscope style plots and listings at any point in the network.

Status

alpha.

System requirements

XFree86 3.1.1 or better, g++ from gcc 2.6.3 or better, 32Mb of total memory (real+swap) recommended, 6Mb of disk space for minimum configuration, 40Mb disk for full installation.

Detail

There are a number of files that comprise the package. There is a binary only package for Linux which I recommend you start with. There is comprehensive documentation included from which you can obtain installation and operation instructions.

Where and How to obtain it.

You can obtain ObjectProDSP from: *sunsite.unc.edu* `<ftp://sunsite.unc.edu/pub/Linux/devel/opd>`, *tsx-11.mit.edu* `<ftp://tsx-11.mit.edu/pub/linux/packages/dsp>`, or *ftp.funet.fi* `<ftp://ftp.funet.fi/pub/OS/Linux/util/electronics/opd>`. There are a number of files that comprise the package, some of the quite large so be prepared.

Licensing/Copyright

GNU Public License vers 2.0., Commercial licensing available.

12 Training/Educational Software.

Software to assist in education or training for amateur radio. Morse Code tutorials, technical examination database, Computer Based Training software, and the like are listed here.

13 Miscellaneous Software.

Software that didn't neatly fit into any other category.

13.1 Linux for HAMS CD-ROM

Author

Bruce Perens, bruce@pixar.com

Description

A complete linux distribution on CDROM specifically designed for Amateur Radio operators.

Status

Not yet available.

System requirements.

Linux compatible hardware, some software will obviously require specialised hardware to operate. No additional software should be required.

Detail

A complete Linux distribution specifically catering for Amateur Radio operators. It will include a fully featured Linux installationplus a range of amateur radio specific software such as those listed in this document. Bruce has detail and updated status report available at the *LinuxForHams WWW page* `<http://www.rahul.net/perens/LinuxForHams>`.

Where and how to obtain it:

It isn't yet available, details will be made available when it is released.

Licensing/Copyright

GNU Public License.

Contributed by:

Bruce Perens, bruce@pixar.com

13.2 SunClock

Author

John Mackin, john@cs.su.oz.AU

Description

A clock that will show you instantly what parts of the globe are exposed by sunlight and what parts aren't.

Status

Released.

System requirements.

X-Windows.

Detail

sunclock is another of those desktop gadgets that most people think look nice but really don't have a lot of use for. I use sunclock to obtain an at-a-glance indication of the time anywhere in the world. In its iconic form it sits in a small Mercator projection. When maximised it produces the same image but obviously larger with slightly more detail. It also displays the date, local time and UTC. sunclock actually calculates mathematically what parts of globe are sunlit and which aren't, it seems quite accurate, so long as you assume the earth has no atmosphere.

Where and How to obtain it.

I haven't seen any precompiled sunclock binaries for Linux about, so check your nearest *archie* server. sunclock compiled straight out of the box for me.

Licensing/Copyright

Public Domain and may be freely copied as long as the notices at the top of sunclock.c remain intact.

13.3 Xearth

Author

Kirk Johnson, <tuna@cag.lcs.mit.edu¿

Description

A rotating earth for X-windows root window. It has real life shading, and options for geostatic view, and non geostatic view. A prettier and more modern version of *sunclock* but requires a bit more processing power.

Status

Version 1.0.

System requirements.

X-Windows.

Detail

xearth is a sophisticated program which draws a colour picture of the earth onto your X Windows display. It offers either an orthographic view as you would see from space or the map like mercator projection. You have a number of options in determining the behaviour of the view. The details are available from the *xearth Home Page* `<http://cag-www.lcs.mit.edu/ tuna/xearth/>` and in the documentation which is supplied with the package.

Where and How to obtain it.

The source can be obtained from its home site at *cag.lcs.mit.edu* `<ftp://cag.lcs.mit.edu/pub/tuna/>` or just about any X11/contrib directory.

Licensing/Copyright

Copyright (C) 1989, 1990, 1993 by Kirk Lauritz Johnson. The copyright notice included states that *xearth* is freely redistributable so long as the copyright notice is left intact, and be included in documentation.

Contributed by:

Kirk Johnson" <tuna@kanchenjunga.lcs.mit.edu¿

14 How to contribute or update an entry.

I'd like for this list to be as complete and up-to-date as possible. So I'm keen to hear about any developments or products that I don't already know about, or that the entry is obselete or outdated for.

What I'd like as a minimum set of requirement would be something like the following:

Name

The name of the software in question.

Author

Who wrote, or ported the software. An email address, or some other means of contacting them is also essential.

Description

A single line description of what the software does.

Status

An indication of the software's status. Is it still in testing? Is it a production release? Is it still in the design stage?

System requirements

What does the software require to run? Does it require X-Windows? Does it need a soundcard? Does it need a certain version of kernel? Does it need other software to support it?

Detail

I'm not keen on including a large amount of detail on each piece of software as this would consume a lot of time reading and trying to keep up to date. So instead what I'd like to list is what makes this software unique, anything special about it. Perhaps its most outstanding features, that sort of thing.

Where and How to obtain it.

If the software is freely distributable then ftp details would be great. If it is commercial software then the name of the company distributing the software, and an address or telephone number. If it is available only by some other means, say mail order, then details on where and how to obtain it.

Licensing/Copyright

Is the software Copyleft? Copyright? Shareware? Public Domain? Restricted in use in any way?

Don't worry if you don't know all of these details, just send me what you do know and I'll list what I can. I'd rather have an incomplete listing than no listing at all.

Please mail any contributions to:

<`terry@perf.no.itg.telecom.com.au`>

I'd list a packet radio address too but I'm still not properly operational again yet after moving house.

15 Discussion relating to Amateur Radio and Linux.

There are various places that discussion relating to Amateur Radio and Linux take place. They take place in the `comp.os.linux.*` newsgroups, they also take place on the `HAMS` list on `vger.rutgers.edu`. Other places where they are held include the `tcp-group` mailing list at `ucsd.edu` (the home of amateur radio tcp/ip discussions), and you might also try the `#linpeople` channel on the `undernet` irc network.

To join the Linux **linux-hams** channel on the mail list server, send mail to:

```
Majordomo@vger.rutgers.edu
```

with the line:

```
subscribe linux-hams
```

in the message body. The subject line is ignored.

To join the `tcp-group` send mail to:

```
listserver@ucsd.edu
```

with the line:

```
subscribe tcp-group
```

in the body of the text.

Note: Please remember that the `tcp-group` is primarily for discussion of the use of advanced protocols, of which tcp/ip is one, in Amateur Radio. *Linux specific questions should not ordinarily go there.*

16 Copyright.