

[Masthead](#)

[Next Meeting](#)

[Next Board Meeting](#)

[APRS QSY](#)

[Nominations](#)

[License Examinations](#)

[From the Editor](#)

[TiCK-2B](#)

[Upcoming Public Service Events](#)

[Feb. Board Meeting Minutes](#)

[March Meeting Minutes](#)

[Linux: Amateur Unix for Amateur Radio](#)

[Morse Day](#)

[Southern District Net](#)

[Latest Call Signs](#)



## THE WECAGRAM



Newsletter of the

Westchester Emergency Communications Association, Inc.

Post Office Box 831

Sleepy Hollow, New York 10591-0831

WECA Information Hotline: 914-741-6606

Web site: <http://www.weca.org>

*Serving the Public through Amateur Radio and serving Amateurs since 1972*

**Volume 22, Issue 4 April 1998**



### Next Meeting

The next WECA meeting will be held on Monday, April 13, 1998 at the Westchester County Center in White Plains, beginning at 7:30 p.m. with a social half-hour followed by the main program at 8 p.m.

This month's guest speaker is Sam Daskam, K1POK. The title of his presentation will be "Countermeasures and Eavesdropping."



### Next Board Meeting

The next WECA board meeting will be on Monday, April 27, at 8 p.m. at the EOC (148 Martine Avenue) in White Plains, NY. Meetings are open to all WECA members.



### APRS QSY

by Alan Crosswell, N2YGK, EC Westchester County

Westchester County APRS users will QSY to 144.39 MHz during the weekend of April 4/5. The N2SF digipeater at the Westchester County EOC will QSY the afternoon of Friday April 3rd.



## Nominations

by Anthony Licata, N2NWZ

Nominations for the upcoming WECA elections are still open to anybody who would like to run for a club office. We currently do not have anybody nominated for the offices of President, Newsletter Editor, Public Relations Director, and Membership Services Director.

This is a chance for the membership to be more active in the running of the organization. If anybody is interested in running for these offices, or if you have any questions about any of the duties of the officers and directors, please contact me at [n2nwz@weca.org](mailto:n2nwz@weca.org), all my phone number listed in the roster, or contact Gene, AA9LA, or Mal, N2MEF.



## License Examinations

The next WECA sponsored ARRL VE session will be on Thursday, April 9, 1998 at 7 p.m. at the EOC (Emergency Operations Center) in the County Office Building, sub-basement EOC/ODES office (Office of Disaster and Emergency Services), 148 Martine Avenue, in White Plains, NY (across from The Galleria). For information contact Sandy Fried, N2SF, during regular business hours at 914-285-3029.

## From the Editor

I hope you all had a good time at WECAFEST despite the surprise snow storm.

Spring public service season starts with two events this month. Please contact Robert, N2TSE, to volunteer to participate in the events (see below).

Anthony, N2NWZ, reports several openings in the slate of candidates in the upcoming elections. I urge you to consider running for the positions.

73,

## TiCK-2B

by Stan Rothman, WA2NRV

On Super Bowl Sunday, twenty WECA members met at the Westchester County Office Building EOC to construct the latest club project. The construction of the TiCK-2Bs (Tiny CMOS Keyer 2B), a small memory CW keyer, went well. We began with coffee and bagels at 10:00 a.m. and finished cleaning up by 12:30, leaving plenty of time to get home before the Super Bowl kickoff.

This CW keyer is on a small 1" square PC board which we filled with capacitors, resistors, diodes, chips etc. It has a memory capability and can be used as a beacon in addition to its

use as a standard keyer. (See the article in the October issue of QST.) All involved in the construction project worked together helping each other, resulting in completed working units for all. You can tune around the HF bands and hear them on the air.

We want to thank Robert, N2TSE, for bringing some extra tools and helping with the project.

If you have an idea for our next club project please contact me. The WECA Board has agreed to purchase some extra tools to aid in future projects. This should make it easier to work with many members simultaneously.

Thanks to all who participated in this club project.

## Upcoming Public Service Events

by Robert Kantor, N2TSE

Mark your calendars for the following spring and summer events:

Sunday, April 19: Multiple Sclerosis Walkathon at Rye Playland.

Sunday, April 26: March of Dimes Walkathon in Mt. Kisco.

Sunday, June 14: American Diabetes Association Tour de Cure in Purchase.

Thursday, July 23: New York Philharmonic at Westchester Community College, Valhalla.

## Feb. Board Meeting Minutes

by Kenneth Gross, N2OBY

The meeting was called to order by Joe Brown, KB2NBN at 8:10 p.m. on February 23, 1998.

### Committee and Directors' Reports

*WECAFEST* --Tom Raffaelli, WB2NHC, reported on the continuing preparations for the hamfest.

*County Liaison* --Sandy Fried, N2SF, reported that the following drills are scheduled:

April 20-22 (Mon-Wed): "Response '98"-- Federal Hurricane Drill. Will concentrate on Command Post Operations and simulate large-scale damage.

May 13 (Wed): Indian Point Drill--Will need operators for Joint News Center and EOC.

June 10 (Wed): Indian Point Drill--Will need operators for Joint News Center and EOC.

June 24 (Wed): Indian Point Drill--FEMA evaluated.

Possible Memorial Day call-up for fireworks display.

*Public Relations* --Bill Hertwig, N2QZB, reported on the presentation of awards from Greenburgh Town Supervisor Paul Feiner to WECA members. Feiner extended his appreciation to the members for their community service.

*Membership* --Peter Johnson, N2TFC, reported on membership statistics since the beginning of the year. (See [March WECAGRAM.](#))

*Public Service* --Robert Kantor, N2TSE, announced upcoming public service events (see [page 2](#)).

*Engineering* --Bob Wilson, N2DVQ, reported that he is finishing the design of the new repeater system, and discussed some related issues.

A motion was made and passed to re-designate the Test Equipment Fund the General Equipment Fund.

*Digital Modes* --Rich Benda, WB2QJA, reported that he has replaced the TNC on the high-speed NJ-WECA-Long Island link.

*WECA-WEAR* --Tom, WB2NHC, reported that a new line of official club clothing will be available for ordering by the March General Membership meeting. (See [March WECAGRAM.](#))

### **Other Business**

Dwight Smith, N2FMC, mentioned the instances of QRM which have occurred prior to recent sessions of the Southern District Net.

Joe Brown, KB2NBN, presented two certificates to Adam Epstein, N2DHH.

Anthony Licata, N2NWZ, Chairman of the Nominating Committee, reported on the positions up for re-election this year.

Stan Rothman, WA2NRV, reported that the guest speaker for April will be Sam Daskam, K1POK. The topic will be "Countermeasures and Eavesdropping." He also reported sending a letter and photograph to *QST* magazine about the recent "TiCK-2B" club project.

Tom, WB2NHC, brought up the question of holding another "Now You're Operating" course this summer, or possibly on a regular basis. The question was tabled until the next Executive Board meeting.

Joe Bruno, WB2VVS, mentioned an article in a recent edition of the *Reporter Dispatch* newspaper which mistakenly gave information about WECA in an article about the QSY club.

On motion by Joe, KB2NBN, seconded by Sandy, N2SF, the meeting was adjourned at 9:35 p.m.

## **March Meeting Minutes**

**by Kenneth Gross, N2OBY**

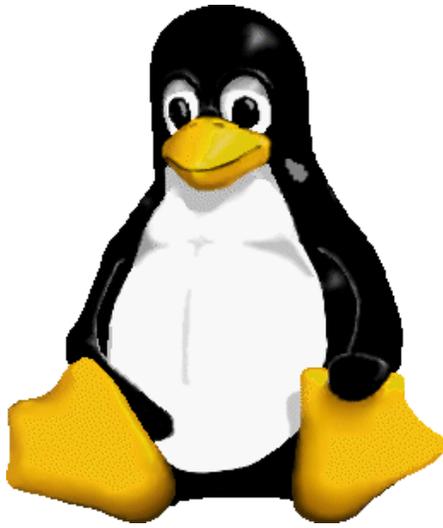
The meeting was called to order at 8:07 p.m. on March 9, 1998 by Joe Brown, KB2NBN.

Dave Weiss, N2OGK, introduced the evening's guest speaker: Rob Leiden, KR2L (ENY Section Manager). The topic of his presentation was "Connecting Radios to PCs"

Before beginning his presentation, Mr. Leiden presented WECA with the "Best in Show" award for the club display at the 1997 ENY convention. Anthony Licata, N2NWZ, described the club display which earned the award. The display celebrated WECA's 25th anniversary, and featured many of the awards WECA has earned over the years. The Comm. Van was on display, with operations being conducted on 2-meter FM, APRS and ATV. There was also a "WECA Highlight Video" running continuously.

After the presentation, Mr. Leiden was questioned about the status of recovery efforts in upstate New York in areas affected by the recent ice storms.

A reminder about the upcoming elections--the Nominating Committee consists of: Anthony, N2NWZ, (Chairman), Mal, N2MEF, and Gene, AA9LA. The nominating period ends at the conclusion of May meeting. At the April meeting, Joe, KB2NBN, will form the Election Committee.



Linux logo designed by Larry Ewing

## Linux: Amateur Unix for Amateur Radio

by Alan Crosswell, N2YGK

Linux, a "flavor" of the Unix computer operating system, is high-quality free software for the technically inclined. Linux has piqued the interest of many hams and has received at least passing, if not always complimentary, mention. See, for example "An Internet Ham Radio Receiver" and "Supercomputers in your shack" in February 1998 QST. Despite NTOZ's exhortation to not buck the trend, you might want to consider doing just that by running Linux on your PC. Perhaps this article will help you decide to take the plunge, or at least a test drive. The price is right and it could be a new challenge for you or be just the component you are looking for to complete your TCP/IP network or add to your shack automation, design or test equipment. You can squirrel it away in an unused corner of that 9 GB disk you just bought. Linux and the ham software that runs on it has a wide variety of Amateur applications. It can be used as an "appliance" in your shack or amateur network, or, since complete program source code is provided, as a means to learn how it's done the best way: by reading the code. In fact, this latter aspect of Linux is what primarily distinguishes it from most commercial software these days. You won't find DOS, Windows, or MacOS operating system source code to figure out how it's done inside the black (or off-white) box.

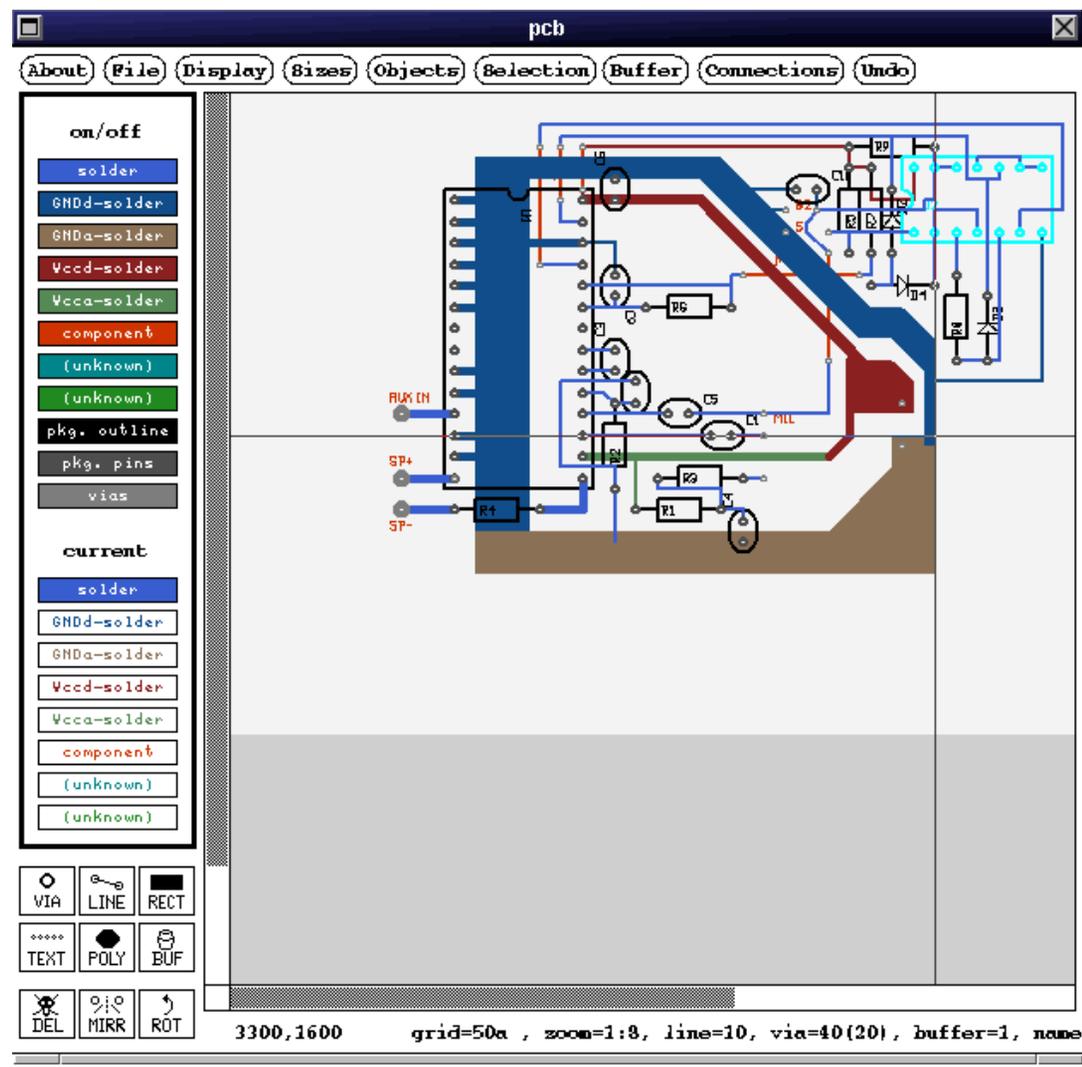
### Hams and Linux: Birds of a Feather.

The Linux and Amateur Radio communities have a similar culture: The norm is sharing ideas and helping each other learn how it's done; Competition, if any, is friendly and there are few "pecuniary interests" to protect by not telling how it's done. To draw a hardware parallel to the ideal of free source code, consider that many of the best (or, at least, most fun) circuit designs in amateur radio are described by a schematic, parts lists, board layout, "how to build it" and "how it works" articles, allowing you to build the circuit yourself from scratch, troubleshoot it and sometimes even modify and (hopefully) improve it. And, of course, pre-etched PCBs and complete kits -- even fully assembled and tested -- are often available if you want to build something not quite from scratch or if you are a confirmed "appliance operator." Linux is similarly available as a collection of various pieces of software which you put together to make a complete working computer system, from operating system kernel to system utilities and applications such as PCB design, satellite trackers, loggers, Morse code trainers, packet software, rig control, DSP, software oscilloscopes, etc. Excellent free user support is available from the international Linux user community on the Internet, including an active Linux Hams group.

### Some Linux Programs for Hams.

To give you a feel for Linux, I would like to give you a brief tour of some of the ham-oriented software I use on my two personal Linux systems. Both are Intel architecture machines that also run Windows 95: My desktop PC is a six-year old 66 MHz 486 DX/2 (slightly beefed up with a Pentium Overdrive processor that I got for free---they're not worth the asking price). It has 20 MB RAM and a 4 GB SCSI disk. My laptop is a Pentium 100 with 48 MB RAM, 1 GB disk and 800x600 active color display. Both have CDROMs and sound cards.

I can't possibly list here all the free Linux software that's out there for hams and I don't need to: Terry Davidson, VK2KTJ, has already done it! Terry is the author of the Linux HAM-HOWTO document which is usually found as part of the Linux Documentation Project area of your Linux distribution CDROM. The most recent version of this document and hundreds of other "how to" documents for Linux---including Terry's companion AX25-HOWTO---can be found on the Internet at <http://sunsite.unc.edu/mdw/HOWTO>. Armed with Terry's documentation, and by subscribing to the Linux-hams mailing list for help (HAM-HOWTO tells you how to subscribe), I started downloading those packages that are not included in the mainstream Linux distributions. All the information about where to find them, along with small reviews of those packages that Terry has personally looked at are provided in the HOWTO.



Thomas Nau's pcb.

### Printed Circuit Board Layout.

I invested a significant amount of time learning one of the free, limited size hobbyist versions of a commercial DOS PCB layout program, PADS. About ninety percent through my layout of a fairly simple design (that I was copying from a magazine article) I hit the size limit! I also briefly looked at one or two other DOS packages that I found on the Internet at the [ucsd.edu](http://ucsd.edu) ham radio software archive.

Then, I found Thomas Nau's pcb for Unix in the HOWTO. Like any PCB layout program, I had to spend a lot of time learning how to use it, including how to supplement the

standard parts library (which contains templates for standard parts from 1/4 watt resistors to various ICs). I had done this with PADS as well. So far, I've been very happy with pcb. It doesn't do auto-routing, but then for the kind of small hobbyist circuits I am capable of doing, I don't need it.

alan.dialup.cloud9.net

SatTrack V3.1 GROUP AM MULTISAT TRACKING DISPLAY N2YGK

Ground Station: FN31CD Tracking: OFF Date: Fri 23Jan98 EDT: 23 01:00:40

Satellite	Countdown	Next AOS/LDS	Duration	MEL	Visib	Azi	Ele	Range	M	Ground Track Location
WO-18	0/00:08:10	23/01:08:50	0:09:40	13	NNN N	247 11	/	2286	G	46 km SSE Shreveport, LA, USA
RS-12/13	0/00:04:39	23/01:05:19	0:06:09	38	NNN N	5 23	\	1924	G	393 km SW Fort Chimo, NF, Canada
DO-17	0/00:04:00	23/01:04:40	0:05:30	14	NNN N	298 12	\	2260	G	68 km SSW Grand Forks, ND, USA
RS-10/11	0/00:07:44	23/01:08:24	0:03:30	1	NNN N	257 -10	/	4997	G	876 km WNW Isla Socorro, Mexico
RS-15	0/00:10:35	23/01:11:15	0:09:42	2	NNV N	143 -13	/	7121	G	551 km S Alcantara (ALC), Brazil
LO-19	0/00:25:05	23/01:25:45	0:09:40	7	NNN D	178 -51	/	10868	G	496 km WSW South Shetland Islands (UK)
FO-20	0/00:32:19	23/01:32:59	0:21:42	82*	VNN D	355 -63	/	13055	G	481 km SE Saigon, Vietnam
Mir	0/00:47:33	23/01:48:13	0:09:06	14	NNN D	98 -82	/	13010	G	765 km ESE Saint-Paul Island (France)
KO-23	0/01:12:14	23/02:12:54	0:16:16	11	NNV D	92 -55	/	11969	G	442 km E Harare, Zimbabwe
AO-21	0/06:15:38	23/07:16:18	0:07:24	3	VVV N	244 -26	\	7481	G	1445 km NE Hiva Oa, Marquesas Islands (France)

SatTrack V3.1 Graphic Tracking Display

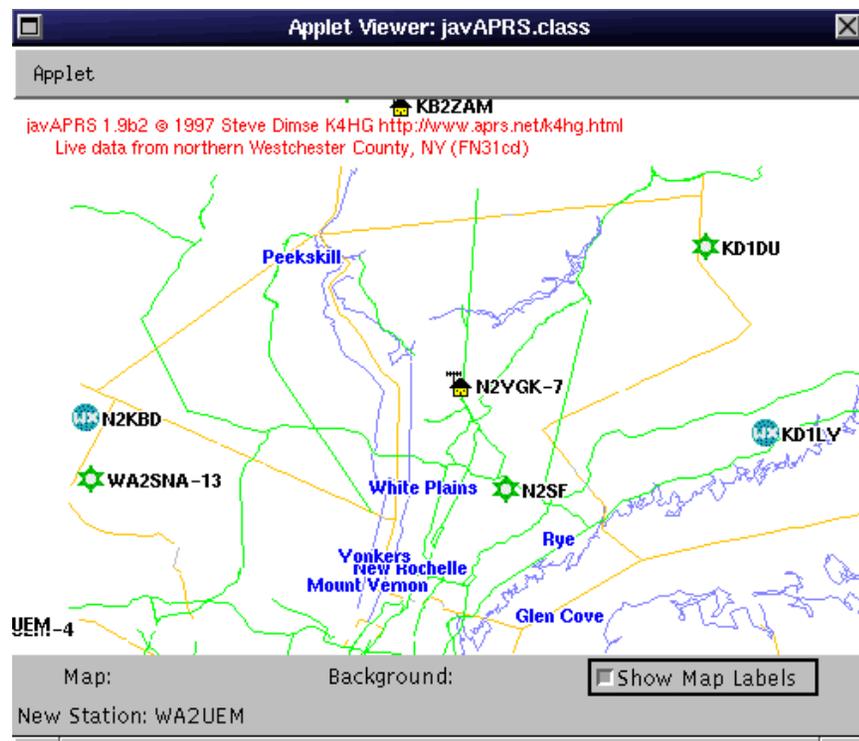
Mir Orbit: 68139 Azi: 98.0 Ele: -82.0 Lat: 41.5 S Lng: 85.6 E 23Jan98 01:00:40 EDT

Ground Track: NE28TM 764.8 km ESE of Saint-Paul Island (France) MET: 1045/22:49:40

Manfred Bester's SatTrack.

**Satellite Tracking.**

SatTrack, by Manfred Bester, DL5KR, is an excellent satellite tracking system. The package includes a program that automatically gets the latest Keps from the Internet. (If you are a died-in-the-wool RF-type, you can get the Keps via the various AMTOR and packet bulletins). SatTrack has a very nice realtime world map display showing satellite tracks and footprints, and your station's ``skyprint" along with a data display showing pass prediction data with indicators of maximum elevation to help you gauge the likelihood of making contact. Finally, SatTrack also includes Trackbox and rig control features, to track the birds, select bands and modes, and adjust for doppler shift automatically. SatTrack's latest release ``went commercial" but the last free release is great. It's hard to imagine what more a ham could want from the program.



Steve Dimse's JavAPRS.

#### AX.25 (packet).

The Linux kernel incorporates a full-blown Amateur X.25 (AX.25) implementation developed by several programmers including Alan Cox, GW4PTS, Jonathon Naylor, G4KLX, Joerg Reuter, DL1BKE, Thomas Sailer, HB9JNX and Terry Dawson, VK2KTJ. The kernel AX.25 and utility programs implement conventional AX.25 packet, NetRom, ROSE, and TCP/IP and include a bunch of client and server programs including a Node, PMS, Ethernet-to-packet network router, and so on. The possibilities are endless. Personally, I mostly use Linux ax.25 to watch what's happening on APRS(tm) by running a simple program I wrote, aprsmon, in conjunction with the javAPRS applet written by Steve Dimse, K4HG. I've also prototyped an APRS digipeater that understands the special compressed data format used by the TAPR APRS Mic-Encoder(tm). And, I've been playing around with Thomas Sailer's soundcard modem to turn my laptop into a packet station without needing a TNC---I just plug it in to my HT!



DOS Emulator running X1J4 PATCH.EXE.

### DOS and Windows Compatibility.

No doubt you are wondering if Linux can run your favorite DOS or Windows application. The answer is: probably not--but you can dual boot. Linux is a very different operating system and does not run Windows or DOS directly. Linux does support popular DOS file packaging formats like ZIP, can read and write DOS and Windows-95 floppies, CDROMs, and disk partitions, and can run some DOS applications under a DOS emulator, DOSEMU. For example, I run the TheNet X1J4 PATCH.EXE under xdos to generate EPROM images. But don't expect to be able run a Windows 95 application.

I recommend setting up a dual-boot system with both Windows and Linux disk partitions. When you really need to play Tomb Raider, use WordPefect, or browse the ARRL Handbook CD, shutdown Linux and boot Windows. It's easy with LILO, the Linux LOader.

### Servers.

Unix systems outdo all others in the number of network servers they run. Linux systems run a greater variety of servers than most. On my laptop, I run the Apache web server along with PostgreSQL to maintain my ARES/RACES group's roster and facilities databases. At work, we use Linux servers running Samba and netatalk to provide network file and print service for Windows 95 and Macintosh systems. I haven't had the time yet to experiment with the various pms, node, and other ham-oriented servers that are available, but others have, and you can find them on the Linux-hams mailing list. And, unlike a DOS system running a dedicated NOS, a Linux system can run all these servers simultaneously while still being a perfectly functional client workstation.

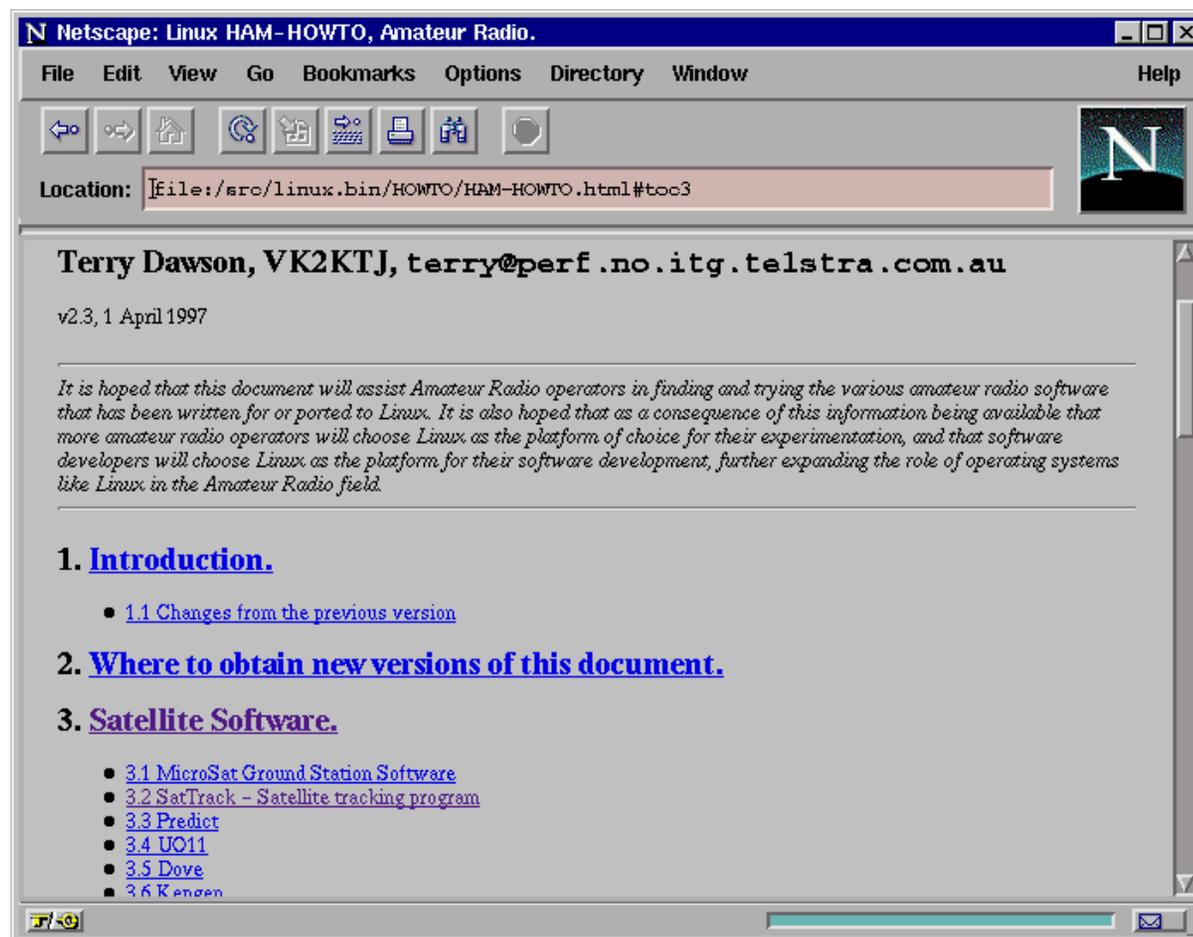
### What's Missing.

If all you want to use your computer for is wordprocessing and spreadsheets using the mainstream Windows programs, Linux is not for you. There are analagous programs, some of which can handle mainstream file formats, but they do not have the same look and feel. In fact, a different style of word processing that harkens back to Unix' roots as a minicomputer system connected to by ASCII terminals is prevalent among most Linux users. Text editors such as Emacs and vi along with powerful document formatting languages like TeX and SGML are the norm. Of course, these tools are supplemented by powerful X Windows painting, drawing, and image manipulation programs.

## Getting Started with Linux.

Most people start with a kit, or in Linux terms, a distribution. Linux distributions have names like Slackware, RedHat, and Debian. These distributions are frequently available on CDROM (or even floppies) for a modest fee, and usually include a nice printed user manual. They are also available on the Internet for free, if you have a means of transferring 500 or more megabytes---a dialup Internet connection would take a while! Since the software is legally free, you can share a CD distribution with friends and save a few bucks. (Note that some of the distributions do occasionally include one or two licensed commercial applications that you don't really need, so be sure to check the README files.)

You can buy Linux on CD or a Linux book that includes the CD in most software and book stores or by mail order. When buying, be careful to get the latest version, as Linux is under very active development and there's a new distribution out every few months. Some stores may have stale stock on their shelves. To find out the latest, or if you have the time and patience to FTP the distribution, connect to one of the popular Internet software sites. My favorite is the University of North Carolina's at <http://sunsite.unc.edu/pub/Linux>. I've personally used and been happy with the Slackware and RedHat distributions and currently use RedHat. I've also heard good things about Debian on the Linux-hams list.



Terry Dawson's HAM-HOWTO.

## Adding On the Ham Software.

As you will see when you read the HAM-HOWTO, a "Linux for Hams" CD is in the offing. However, as of this writing, such a CD does not exist, so you'll have to do some file transfers. Start by getting an up to date version of the HAM-HOWTO since the one on the CD is likely to be a few months old. Then browse the HOWTO for software that interests you and get it. For example, I learned that the free version of SatTrack may be found at <ftp.amsat.org>.

If you want to use your Linux system for packet, you will definitely want to read the AX25-HOWTO as well. While you're at it, you can find a HOWTO on just about every other aspect of installing and operating Linux.

### **What's a Linux?**

If you've stayed with me this long, you may be asking, "Just what is Linux?" Linux is a version of the Unix kernel, the guts of a minicomputer operating system developed in the early 1970's at AT&T Bell Labs. Unix is a fairly compact, well-structured system that consists of an operating system kernel which manages all the hardware (CPU, memory, disks, network interfaces, serial ports, display devices, etc.) and a rich set of standard utility commands such as a shell, text editors, programming language compilers, and so on that use the now-familiar (thanks to DOS' homage to it) standard input and output pipeline style of stringing commands together. For example:

```
$ grep Extra club-roster.txt | wc -l 47 $
```

shows me that there are 47 Extra class operators in the club's roster.

When people talk about Linux, or more generically Unix, they usually think of the kernel and all the utilities that go along with it. In fact, the only part of Linux that truly has that name is the kernel, written by Linus Torvalds to run on his 386 PC when he became frustrated with MINIX, a "toy" Unix that accompanies a computer science textbook. MINIX was written by the author of the textbook to demonstrate operating system concepts. Linus wanted something more. Linux and the rest of the system consists of free software contributed by the community of programmers on the Internet who subscribe to the ideals of the Free Software Foundation's GNU project which basically says it's good to get paid to write, distribute and provide technical support for software, but you should make no limits on who may use the program. Furthermore, source code must be made easily available to others.

As one of the first freely-available high-quality Unix implementations out there for the 386 and later PCs, and due largely to the way it was disseminated, promoted, and further developed on the Internet, Linux has become hugely popular. Intel x86 architecture machines run Linux best as it is still the predominant hardware platform, but there are also Linux ports for DEC Alpha, SUN Sparc, PowerPC Macintosh and other platforms. As a testament to this high quality free software, many proprietary, commercial software vendors now sell Linux versions of their programs.

Unlike typical PC operating systems like DOS, Windows (including NT), and MacOS, Unix is a complete multiuser system with individual user IDs, and permission to read, write, and execute those individuals' files mediated by the kernel. Several (hundreds) of interactive users can be on a single Unix machine without trashing each other. To use some software marketing buzzwords, a Unix system can be both a client (workstation) and server. It can do this simultaneously even on a moderately-sized desktop or laptop machine. Unlike NT systems which permit limited "batch" access to users other than the one logged in at the main display, Unix makes no such distinction.

The graphical user interface on computers running Linux (and most commercial Unix workstations) is the X Window System, combined with one of a choice of command line shells that run in a terminal emulation window. This identical user interface is equally available from a remote X Window client anywhere else on the Internet, assuming you have a user ID and password that were set up by the Unix system administrator. Other than the display bandwidth differences, the user interface is the same. X applications are not as seamlessly integrated as one will find on a Mac or Windows system as there are many desktop and user interface styles, reflecting the tastes of different programmers who don't all work for one megacorporation in Washington State. In this respect, Unix still shows its roots as a computer hacker's playground.

## **Morse Day**

**by Don Stein, W2PTF**

Attention all you CW buffs and lovers of history. For the 19th time the Poughkeepsie Amateur Radio Club (PARC) will operate from the Samuel F. B. Morse home. The location is opposite the junction of Route 9 and Beechwood Avenue, or said another way it is on the west side of Route 9 north of the Merrill Lynch building and south of Poughkeepsie Rural Cemetery.

On May 2 starting at 9:00 a.m. local time a crew will be putting up wire antennas.

On May 16 and 17 from 8:00 a.m. to 4:00 p.m. local time we will be on 3.680, 7.105, 10.105, and 14.050 MHz.

Your QSO and SASE will be answered with a QSL/certificate via Don Stein, W2PTF, at 3 Little Road, Wappingers Falls, NY 12590. There will also be radio related demonstrations

of interest to everyone. No fee, just enter the house via the door (half cellar level) at the rear of the house.



## Southern District Net

Darlana Mayo, N2DB, net manager of the Southern District Net, reports February SDN stats as follows:

Sessions	28
Total checkins	331
Traffic brought to the net	124
Traffic passed on the net	96
Percent passed	77
Total time	456 minutes

## Latest Call Signs

As of March 18, 1998, the following call signs have been allocated in the "2" call district:

Group A (Extra)	AB2FA
Group B (Advanced)	KG2NV
Group C	(none left)
Group D (General/Tech/Novice)	KC2DEZ

## April 1998

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	31	1	2	3  PQ	4
5 YARC VE Session DST Begins Palm Sunday	6	7	8	9 WECA VE Session	10 Good Friday	11  FM QRP ARCI 1st Day of Passover
12 QRP ARCI Easter Sunday	13  WEC A Meeting ARRL VHF/UHF	14	15	16	17 MI QSO	18 MI QSO
19  LQ  MS Walk MI QSO	20	21	22	23	24	25 FL, NE, ON QSO (84/26) National Exam Day
26  NM  MD Walk National Exam Day	27  WEC A Board Meeting	28	29	30	1	2