

# Amateur Radio and Linux

(Presentation: at West Placer ARC meeting)



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K6AEP

10/14/2009

# Ham Radio and Linux Talk

## Agenda

- Suggest what Linux Distribution to use for Ham Radio.
- Linux Ham Radio Software Available
- Suggest some hardware interfaces
- Recommend some software to use

# What is a Linux Distribution

A linux distribution is a packaged version of Linux with numerous software applications.

<http://distrowatch.com/>

- Hundreds of Distributions are available
- By far the most popular is Ubuntu Linux
- For this talk I will use Mint 7 Linux which is a variation of Ubuntu.  
<http://www.linuxmint.com/>
- Mint 7 runs on almost any PC and very popular.



- Derived for Ubuntu 9.04.
- Boots up in Live mode, on any PC without a install.
- Install from a simple icon click in live mode
- Allows for the immediate install of about 88 Ham Radio Software Applications
- "Linux Mint's purpose is to produce an elegant, up to date and comfortable GNU/Linux desktop distribution."
- "It is compatible with and uses Ubuntu repositories. This gives Linux Mint users access to a huge collection of packages and software."
- "It comes with a lot of desktop improvements which make it easier for the user to do common things."

# K6AEP Main System

The screenshot displays a Linux desktop environment with a desktop background of a green field under a cloudy sky. The desktop is populated with numerous application icons, including:

- Computer, Family Tree Maker 2006, Krusader, Microsoft Office Excel 2007, Qtel - Echolink, Terminal Server Client
- clay's Home, Firefox Web Browser, KTorrent, Microsoft Office InfoPath 2007, Quicken Premier 2007, Text Editor
- 1000.2 GB Media, Fldigi, Link to The Mozilla Organization, Microsoft Office OneNote 2007, QuickTime Player, VMware Player
- Acrobat Reader 5.0, gFTP, Lotus Approach, Microsoft Office Picture Manager, Rhythmbox Music Player, VMware Worksta
- Adobe ImageReady 7.0, GIMP Image Editor, Lotus Notes 6.5, Microsoft Office PowerPoint 2003, RootsMagic 4, Windows Media Player
- Adobe Photoshop 7.0, gMFSK, Macromedia Dreamweaver 8, Microsoft Office PowerPoint 2007, RootsMagic To-Go, Xastir
- Adobe Reader 9, GNOME Predict, Macromedia Dreamweaver MX, Microsoft Office PowerPoint 2007, Screenlets
- CalendarPad, GtTerm, Macromedia Extension Manager, Microsoft Office Publisher 2007, Seamonkey
- Dolphin, Ham SSTV, Macromedia Fireworks MX, Microsoft Office Word 2003, Skype
- EchoLink, Internet Explorer, Macromedia Fireworks MX, Microsoft Office Word 2007, Songbird
- Eudora-LHGEN, K3B, Macromedia Flash MX, Microsoft Office Word 2007, Sound Converter
- Eudora-SCC, Kaffeine, Microsoft Office Access 2007, OpenOffice.org Word Processor, System Monitor
- Family Tree Maker, Kate, Microsoft Office Excel 2003, PulseAudio Volume Control, Terminal
- KPSK PSK-31

The web browser (SeaMonkey) is open to the San Francisco Chronicle website (http://www.sfgate.com/chronicle/). The page displays the following content:

- Market Update: Dow -20.10, Nasdaq -5.41, S&P 500 -3.43
- San Francisco: Partly Cloudy, 69°F
- San Francisco Chronicle logo and navigation links (News, Bay Area, Business, etc.)
- FRIDAY, OCTOBER 2, 2009
- News & Features: At football, even the cops were Raiders fans; Arrest in slaying outside S.J. car show-concert; GOP reps should take a cue from Snowe; 6 wounded in shooting at Calif. bar; Was Ted Williams' head hit with a wrench?; Aussie mom gets life in jail for starving daughter; DNA on bloody clothes matches missing diplomat
- Front Page Stories: 'Beach Blanket Babylon's' Diamond leaves show; Giants' Season: A brightened future; High court says state can't raid transit funds; Oldest pre-human revealed
- More News: Tensions ease as nuclear talks with Iran begin; Al-Maliki forms coalition ahead of Iraq vote; McChrystal opposes scaling back Taliban fight; Palestinians drop bid to air anti-Israeli report; Toll from Indonesian quakes grows to
- Chronicle Podcasts: Go beyond the headlines with expanded stories & original content from The Chronicle.
- Audio Slideshows: View recent Chronicle audio slideshows.
- Special Reports: Higher Calling in Africa; Deadliest Bay Area Roads; The Dread Of Spread
- S.F. Emergency Calls: An analysis of the city's 911 responses. Plus, a map and database.

The system tray at the bottom shows the date and time as Friday, Oct 2, 10:06 AM, and the temperature as 63°F.

# Ham Radio XP Emulation

- A simple method of getting started is to use your old Windows HR Applications
- Ham Radio Deluxe is a favorite application package which runs only on Windows XP etc.
- Vmware and Sun's Virtualbox allow XP to be installed on Linux <http://www.virtualbox.org/>
- You need a fast computer to run Vmware etc. <http://www.vmware.com/products/workstation/>
- Crossover allow popular Windows packages to run natively on Linux. [Linux.http://www.codeweavers.com/](http://www.codeweavers.com/)
- Echolink and Digipan are two ham apps. which run on crossover.
- Echolink in crossover is tricky to set up.
- Trial and error is the best method to see if a windows app. runs on crossover.

# Vmware XP Emulation

## Running Digital Master 780

The screenshot displays a VMware Workstation interface with a Windows XP virtual machine named "XP Corporate SP2" running. The main window shows the "Digital Master 780 - [BPSK-31]" application. The interface includes a menu bar (File, Edit, View, QSO, Browser, Logbook, SSTV, SuperBrowser, World Map, Tools, Window, Help, Donate), a toolbar with various radio control functions, and a sidebar with a "Favorites" list. The main display area is divided into several panes: a "Radio" pane with a "Closed" status, a "Tags" pane with fields for "About Me" (Callsign: K6aep, Name: Clay, Age: 73, Locators: CM98, QTH: Lincoln, CA, E-Mail: abramsc1@yahoo.com, Home Page: WPARC, Clubs: WPARC), "My Equipment" (Radio: IC-918, Antenna: Random Wire, Power: 50, Computer: Home Brew, Interface: Tigertronics), and "Other" (Temperature, Weather, Other1-4). The "Computer" section shows Mode: BPSK-31, Program: DM780 v4.1 Beta, and ProgramFull: Digital Master 780 v. The "Interface" section lists soundcard options like G4ZLP, Navigator, and Signalink. The main text area shows a log of radio activity, including a timestamp "8:42:46 PM" and the text "Main", "PTT . . . . : Ham Radio Deluxe", "Input . . . : Creative Sound Blaster PCI Line In", and "Output . . : Creative Sound Blaster PCI Wave". The "Waterfall" pane at the bottom shows a frequency spectrum from 100 to 3000 kHz, with a marker at 1500 kHz. The VMware Workstation status bar at the bottom indicates "Ready", "CPU: 3%", "Audio: 0%", and "Overload OVR | CAP | NUM | SCRL | 20:46".

To direct input to this VM, move the mouse pointer inside or press Ctrl+G.

# Crossover running Windows EchoLink Software on Linux

The screenshot displays a Windows desktop environment running the EchoLink software. The main window, titled "EchoLink - K6AEP", shows a list of stations and a connection to a conference server. The station list is as follows:

Station	Stat	Time	Location	Node
3A2MT-R	On	05:52	Monaco	405321
4F2DD-R	Busy	11:54	san carlos city panga	402604
4N1UBG-R	On	05:47	BEOGRAD	265493
4X4ARC-R	On	06:55	Tel-Aviv 438,650 R70	26350
4Z4IZ-R	On	07:00	HAIFA REPEATER R-12	169676
4Z7OFA-R	On	06:56	RESCUE TEAM EILAT aprs	242124
6K0EA-R	On	12:56	Jongsori net (8)	214446
6K5BBN-R	On	12:58	6N0KK.*ae?? %p# 144.580	300190
6K5XAS-R	Busy	12:55	*e# 144.520 D9 0 1 U	391427
6K5YLX-R	On	12:56	*ae? %E# 144.500	396068
6L0WB-R	On	12:57	Busan-Korea	134522
6N0KE-R	Busy	01:49	Å&Å144.600 D52CRX	351112
6N0KK-R	On	12:57	EchoLinkÅ&Å~Å-Å&Å N (22)	383336
6Y5RA-R	On	09:15	Jamaica 147.96 (EchoIRLP)	296962
7L2MGY-R	On	12:52	Tokyo, Japan	459981
9A0UKN-R	On	05:55	Promina, JN83CW, 438.800R	337389
9A0USI-R	On	05:57	Sibenik, JN73WR, 438.675R	363664
9A0UZG-R	On	05:58	Zagreb-Sljeme-438.750R	371397
9A1CLP-R	On	05:54	VARAZDIN - 438.850 (R)	351321
9H1BBS-R	On	05:52	VHF Repeater Malta (2)	5661
9H1IA-R	On	05:54	UHF Repeater Malta	5668
9K7ABC-R	On	14:17	kuwait	415818
9M4GIE-R	On	20:15	Malaysia Conference [6/100]	419334
9M4RAB-R	On	11:56	In Conference 9M4GIE-R	423751
9W8CHR	On	11:51	Kuching, Sarawak, M'sia	244849
9Y4TTL-R	On	23:55	Anna, Trinidad & Tob (2)	280791
A61MH-R	On	07:54	SHJ-Khorfakkan	300096
AA3RG-R	On	23:57	PineGrove, PA 146.640	149493
AA5JM-R	On	22:52	Brady TX 146.62-114.8	387274
AA5SG-R	On	22:15	Ellisville MS 145.23 136.5	1545
AA6RJ-R	On	21:15	In Conference *PARA*	40515
AA6TL-R	On	20:54	sunvalley (1)	342637
AA8CC-R	On	23:15	Buckhannon, WV	375539
AA9NV-R	On	22:56	Waupaca, Wisconsin (1)	286167
AB6VR-R	Busy	20:56	In Conference *TRIARC*	171551
AB7F-R	On	20:15	www.ab7f.com	37987
AB9SO-R	On	23:59	Decatur, IN 443.725+Rep	16145

The bottom window shows a connection to a conference server: "Connected to: \*ECHOTEST\* (Conference [7])". The connection details are: "ip-68-178-202-110.ip.secureserver.net".

On the right side of the desktop, there are several utility windows:

- Station Summary:** A table showing station statistics.
- Connection Statistics:** A window showing network performance metrics.
- System Clock:** A large analog clock showing the time as approximately 8:58 PM.
- Calendar:** A calendar showing the date as September 15, 2009, Tuesday.
- Weather:** A weather widget for Lincoln, NE, showing a temperature of 68°F.

The taskbar at the bottom shows the system tray with the date and time: "Tue Sep 15, 8:58 PM". The system clock shows the temperature as 75°F.



# Ham Radio Hardware Interfaces

- Sound card interfaces very popular
- Low cost
- Uses standard hardware in PC
- Cabling can be messy
- RF can cause problems
- Commercial products much cleaner
- Lots of choices
- Mode used reduces selection choices
- USB interfaces popular for multi mode
- VHF mostly RS-232

# My HF Interface SignalLink - USB

- Very simple to connect to hardware
- Comes with a cable for your rig
- Plugs into any USB port
- Lots of linux software support
- Eliminated a 40 mtr RF problem I had with Sound Card interface
- No external power required, USB provides power
- Small in size
- Order and receive in a week.



# SignalLink using Fldigi on 20 Mtr (RTTY Contest)

The screenshot shows the Fldigi software interface for K6AEP. The main window displays a list of received RTTY messages, including call signs and contest-related information. The frequency is set to 14085.000. The interface includes a menu bar (File, Op Mode, Configure, View, Help), a status bar (Rig Not Specified), and a control panel at the bottom with various buttons and indicators.

**fldigi - K6AEP**

File Op Mode Configure View Help RSID TUNE

Rig Not Specified

14085.000

QSO Freq	On	Off	Call	Name	In	Out	Notes
14087.101		0213					

USB #Out #In Xchg

IFV HRYOLY.:/933  
JA8DIV TU DE WD5DBV QRZ FFYWNAW  
QVOCQ TEST DE \$25DBV WD5DBV CQ UBSMRYWCQ TEST DE WD5DBV WD5DBV CQ  
CQ TEST DE WD5DQCRCDBV CQ XZHWNC S 599 4 LA LA D5DBV Z  
E  
QJI1FXS 599 4 LA LA WD5DBV ZPMOHO SI1FXS TU DE WD5DBV QRE ZXLXBCQ TEST DE WD5DBV WD5DBV CQ NBEKFNIA  
VA71 599 4 LA LA WD5DBV \$8.ALK TU DE WD5DBV QRZ VDFE0VLKI6WZZ 599 4 LA LA WD5DBV KCEYYLOF  
KI6WZZNHK DE WD5DBV QRZ L  
HGBRJA2AXB 599 4 LA LA WD5DBV KXFUKFHIJA2AXB 599 4 LA LA WD5DBV H  
IEYLSJA2AXB 599 4 LA LA WD5DBV VAYK SJWSJA2AXB 599 4 LA LA WD5DBV S  
PKPJA2AXB 599 4 LA LA WD5DBV  
JA2AXB599 4 LA LA WD5DBV MAIA2AXB TU DE WD5DBV QRZ DWRBMCQ TEST DE WD5D; WD5DBV CQ DOE JYCQ TEST  
DE WD5DBV WD5DBV CQ  
K  
YCQ TEST DE WD5DBV WD5DBV CQ P  
  
ZCQ TEST DE WD5DBV WD5D0G CQ ZEWCQ TEST DE WD5DBV WD5DBV CQ K:1 TEST DE WD5DBV WD5DBV CQ TTIRCCQ  
TEST DE WD5DBV WD5DBV CQ YZWC  
CQ TEST DE WD5DBV

CQ ANS QSO KN SK Me QTH Brag Tx Rx Test 1

14086.5 14087.0 14087.5

WF -40 72 x2 FAST 2101 QSY Store Lk Rv T/R

RTTY Shft 170 Baud 45.0 AFC SQL

# Fldigi – BPSK-31 20 meters

The screenshot displays the Fldigi software interface on a Linux desktop. The main window, titled "fldigi - K6AEP", shows a QSO log with the following entries:

QSO Freq	On	Off	Call	Name	In	Out	Notes
14070.774		2131					

The log text includes various call signs and messages, such as "i CQ <TARA> VE9DX VE9DX" and "CQ <TARA> -Een-".

The PSK Browser window shows a list of active stations with the following details:

Find:	Call	Frequency	Mode	Notes
CQ				
	14071.401			
	14071.301			
	14071.201			
	14071.063			VAR19e r
	14071.000			znGQ TARA Rumble de Kco0IE'se k em d -U e
	14070.901			
	14070.774			teeY o eaK n5ga n CQ Rumble de K5W K
	14070.701			
	14070.601			
	14070.501			
	14070.401			
	14070.301			
	14070.201			
	14070.101			
	14070.001			
	14069.901			
	14069.801			
	14069.701			
	14069.601			
	14069.501			

The Logbook window, titled "Logbook - logbook.adif", shows a table of logged contacts:

Date	On	Off	Call	Name	Freq.	Mode	In	Out

The desktop environment includes a clock showing the time as 03:03 on Saturday, October 3, 2009. The weather widget shows a temperature of 73°F and a 20% chance of rain. The taskbar at the bottom shows the system tray with the date and time as Sat Oct 3, 2009, 7:59 PM, and the system volume at 79%.

# Gmfsk 20 meters

The screenshot shows the gMFSK software interface. At the top, there is a menu bar with 'File', 'Mode', 'Settings', and 'Help'. Below the menu bar are several control buttons: a pause button, a lightning bolt icon, a red lightning bolt icon, a green 'X' icon, and a red 'X' icon. The main interface is divided into several sections:

- Call Log Section:** Contains fields for 'Call', 'Sent RST', 'Name', 'QTH', 'Band', 'Rcvd RST', 'Locator', and 'Notes'. There are 'Log entry' and 'New entry' buttons on the right.
- Text Log Section:** A large text area containing the following text:

```
VE6CMV DE <W7XRX> nice to meet you Chris my name is ted my qth is lincoln callifornia yoursignal is 599 how copy  
BTUChris VE6CMV< DE <W7XRX> K PSE Chris  
tia 73 TKNS FOR QSO Chris 73 DE <W7XRX> SK  
WVc
```
- Function Key Section:** A row of buttons labeled 'CQ (F1)', 'Station (F2)', 'BTU (F3)', 'call de mycall (F4)', 'QRZ ? (F5)', '73 & sk (F6)', 'Test (F7)', '(F8)', '(F9)', '(F10)', '(F11)', and '(F12)'. The 'call de mycall (F4)' button is highlighted.
- Waterfall Display:** A spectrogram showing frequency from 1500 to 3500 Hz. A vertical line is visible at approximately 3313.3 Hz.
- Frequency and Mode Section:** Shows 'Freq 3313.3' with a frequency knob. Below it are checkboxes for 'AFC' (checked), 'SQL' (checked), and 'REV' (unchecked). There is also a 'REV' label.
- Status Section:** At the bottom right, there is a circular meter showing '33%' and a digital display showing '21:57:10Z'. The text 'RECEIVE' and 'BPSK31' is also visible.

# Kpsk 20 meters

Main Channel - KPSK

File Logbook Settings Clear Rx Clear Tx Help  Call Check active

Call:  Name:  QTH:  Rcvd:

Band: 20m Notes:  Send:

cq CQ

WW CQt etso

CQ Rumble de 1taWW K5WW CQT S In

CS Rumble de K5WW K5 n y CQuoatIE K0IE pse K  
0ISI) Kmpse G gee ie eo Td e Td ee lietGsn  
ta ton atot a aiur rst 599 599 fb in ny ny name is marian marian marian loc fn13dd  
fn13dd hw? de ws9m k k

00 600 1000 1400 1800 2200 2600 30

IMD: ---dB Receive Tune Off BPSK CW-ID Off AFC On NET On 1492.4Hz 03 Oct 2009 23:00z

# Gpsk31 20 Meters

The screenshot displays the Gpsk31 software interface, Version 0.5. The main window is titled "GPSK31 - Version 0.5" and contains a menu bar with "File", "Send", "Mode", "Window", and "Help".

The "RX window" displays the following received text:

```
o n n€e e e¥ cumble de N0NeS heoCoi CQ PSK Rumble de N0NM kn pse ¥¥ CQ CQ CQ
PSK Rumble Q CQ CQ PSK Rumble de N0NM kn pse ntn
skç t l i t h r rPH de eNa ett s e W, r -- Deie ertrt e i te ee t t t
o e h i eeDa [00]a [00]a g0 i[00]e e ie eTnl f e d Te
i ue[00]eto es Td K0 bk
¥ teis nice QSO
God Bless ¥u and Good°uck
Send me a Dorect Paper qsl
e¥ eDeae el
le de K0IE K0IE K0IE pse K
W3BUI W3BUI pse cpy Darin Darin W
```

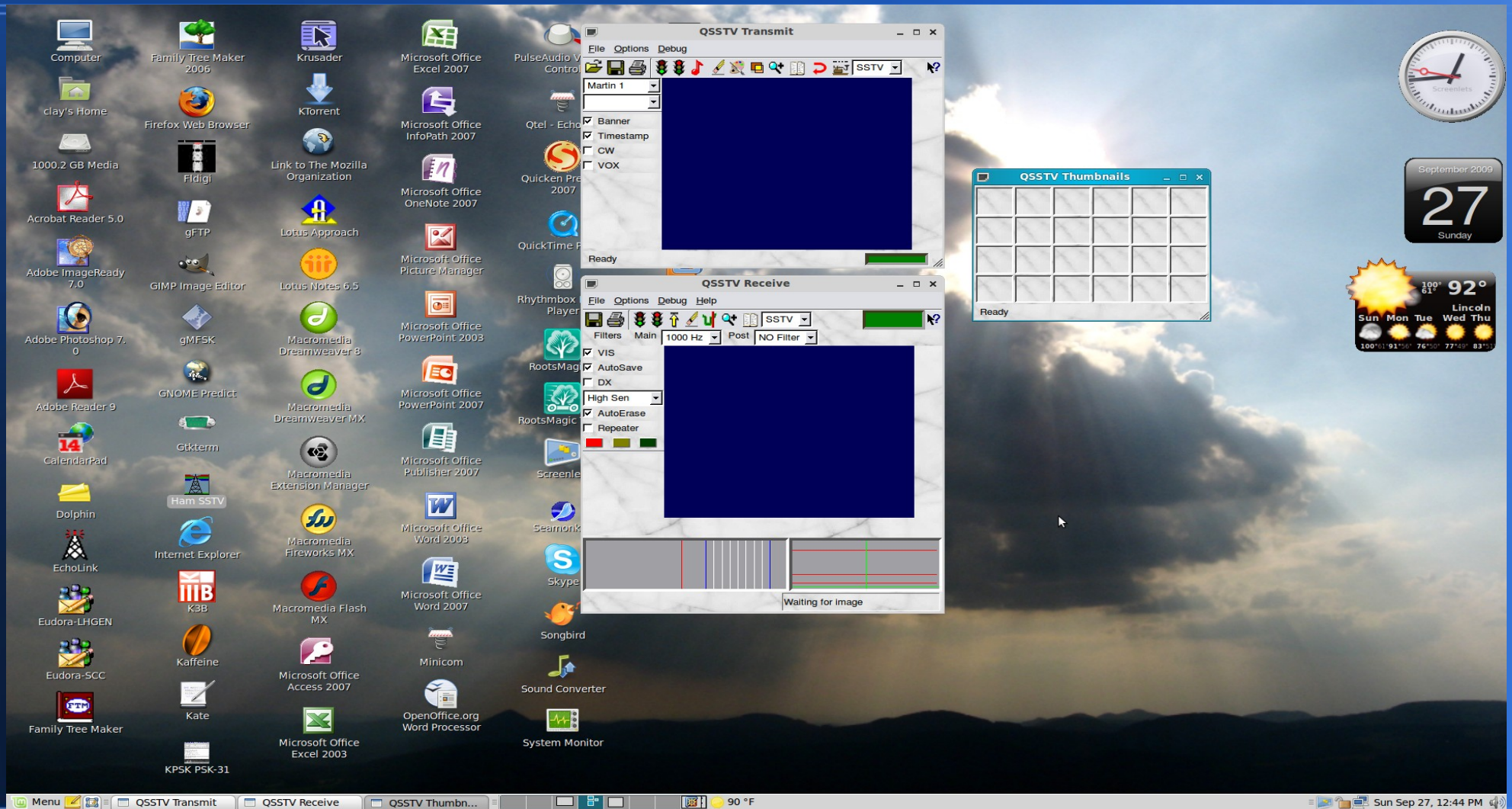
Below the RX window is a row of function keys: F1 CQ, F2, F3, F4 TX, F5 RX, F6, F7, and F8.

The "TX window" is currently empty.

The bottom control panel includes:

- A circular indicator on the left showing a vertical bar.
- A waterfall display showing signal activity.
- Mode settings:  QPSK,  CW ID,  AFC.
- RX-Freq: 1307.7
- TX-Freq: 1000.0
- Options:  Auto TX,  NET.
- Buttons: Transmit (F11), Receive (F12), Abort Transmit.
- Status bar: BPSK RX, Sat, 03 Oct 23:19:32z 2009.

# Linux QSSTV Software Uses SignalLink USB





# Linux Ham Software Install from Mint 7


Synaptic Package Manager

File Edit Package Settings Help

Reload Mark All Upgrades Apply Properties Quick search Search

S	Package	Installed Version	Latest Version	Description
<input type="checkbox"/>	ccr		2.0.2-2	CRT cluster client with various color support
<input type="checkbox"/>	cw		2.3-11	Command-line frontend to unixcw
<input type="checkbox"/>	cwcp		2.3-11	Ncurses frontend to unixcw
<input type="checkbox"/>	cwdaemon		0.9.4-6	morse daemon for the parallel or serial port
<input type="checkbox"/>	cwirc		2.0.0-2	X-Chat morse plugin
<input type="checkbox"/>	fbb		7.04j-8	Packet radio mailbox and utilities
<input type="checkbox"/>	fldigi		3.03-2	digital modem program for hamradio operators
<input type="checkbox"/>	gcb		1:1.07-2	Utility to calculate long and short path to a location
<input type="checkbox"/>	glfer		0.4.1-2	program for reception and transmission of QRSS/DFCW signals
<input checked="" type="checkbox"/>	gmfsk	0.6+0.7pre1-2.1	0.6+0.7pre1-2.1	MFSK, RTTY and other digital mode terminal for HF/amateur radio
<input type="checkbox"/>	gpredict		0.9.0-0ubuntu1	Satellite tracking program for GNOME
<input checked="" type="checkbox"/>	gpsk31	0.5-1	0.5-1	A gtk based psk31
<input type="checkbox"/>	grig		0.7.2-2	graphical user interface to the Ham Radio Control Libraries

**MFSK, RTTY and other digital mode terminal for HF/amateur radio**



gmfsk is a terminal program for amateur radio digital communication modes for GNOME. It supports MFSK, RTTY, THROB, PSK31, MT63 and Hellschreiber modulations. It is used for keyboard-to-keyboard chatting and not reliable packet communication.

Canonical does not provide updates for gmfsk. Some updates may be provided by the Ubuntu community.

Sections  
Status  
Origin  
Custom Filters  
Search Results

88 packages listed, 2397 installed, 0 broken, 0 to install/upgrade, 0 to remove

# Linux Ham Software

KF8GR Linux Ham Home Page - SeaMonkey

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop http://www.qsl.net/kf8gr/index.html

Home Bookmarks The Mozilla Organization Latest Builds Abrams Family Of Lon...

<p><b>INDEX</b></p> <p><a href="#">Main</a></p> <p><a href="#">Become a Ham</a></p> <p><a href="#">Emergency Communication</a></p> <p><a href="#">Frequencies</a></p> <p><a href="#">KF8GR Award</a></p> <p><a href="#">KF8GR's Real Job</a></p> <p><a href="#">KF8GR's Shack</a></p> <p><a href="#">KF8GR Survival Stoves</a></p> <p><a href="#">Linux</a></p> <p><a href="#">Linux AX23</a></p> <p><a href="#">Linux Hams</a></p> <p><a href="#">Linux Hardware</a></p> <p><a href="#">Linux Laptops</a></p> <p><a href="#">Linux Software</a></p> <p><a href="#">Morse Code</a></p> <p><a href="#">ORP</a></p> <p><a href="#">Satellites</a></p> <p><a href="#">Soundcard Interface</a></p> <p><a href="#">Survival</a></p> <p><a href="#">Weather</a></p> <p><b>Ham Links</b></p> <p><b>Agencies etc.</b></p> <p><a href="#">ARRL</a></p> <p><a href="#">FCC</a></p> <p><a href="#">FEMA</a></p> <p><a href="#">NOAA</a></p> <p><a href="#">NWS</a></p> <p><a href="#">RACES</a></p> <p><a href="#">SATERN</a></p> <p><b>DX</b></p> <p><a href="#">dx.qsl.net</a></p> <p><a href="#">DX Summit</a></p> <p><a href="#">IRLP Live Feed</a></p> <p><a href="#">Propagation</a></p> <p><b>Local</b></p> <p><a href="#">OCEC</a></p> <p><a href="#">HARC</a></p> <p><a href="#">NOARC</a></p> <p><a href="#">District 6 coordinator</a></p>	Rig Control Software	<p><a href="#">FT100</a> rig control for the FT-100</p> <p><a href="#">Gnome Rig</a> Groundstation Suite rig control program also known as grig.</p> <p><a href="#">hamlib</a> ham radio control libraries</p> <p><a href="#">LinRadio</a> Linux rig control program for Winradio</p> <p><a href="#">Marote</a> rig control program for the Elecraft K-2.</p> <p><a href="#">Parnass.com</a> rig control for several radios</p> <p><a href="#">QIPCR</a> rig control for PCR-1000</p> <p><a href="#">ts2k-interface</a> rig control for the Kenwood TS-2000 (defunct???)</p>
	Repeater VoIP Software	<p><a href="#">CQINet</a> A repeater system similar to Echolink.</p>
	Satellite Communications	<p><a href="#">microsat</a> Work those pacstats.</p> <p><a href="#">PacsatTools</a> Well, what do you think they're for?</p> <p><a href="#">pbpg</a> pb and pg for Linux.</p>
	Satellite Telemetry Software	<p><a href="#">AO40TLMVIEW</a> AO-40 telemetry decoder.</p> <p><a href="#">KTelemetryDemod</a> Here's what happens when an engineer designs something simple.</p> <p><a href="#">p3dtelem</a> p3d code for Linux.</p>
	Satellite Tracking Software	<p><a href="#">gPREDICT</a> A nice graphic sat tracker for GTK/Gnome.</p> <p><a href="#">ktrack</a> A sat tracker for QT/KDE3. Nice!</p> <p><a href="#">mtrack</a> An older but useful graphical sat tracker.</p> <p><a href="#">predict</a> A tracker for console with server for gui trackers. GREAT!</p> <p><a href="#">Synop</a> One of the graphical trackers for Predict.</p> <p><a href="#">TRK</a> A tracker with promise, but I think it may be abandoned.</p>
	Soundcard ACARS Software	<p><a href="#">acarsd</a> acarsd is the server program and can decode acars with a soundcard.</p> <p><a href="#">acarsdclient</a> acarsdclient is the client, and will connect to servers on the internet, etc.</p>
	Soundcard Analyzer Software	<p><a href="#">Baudline</a> A commercial grade analyzer.</p> <p><a href="#">Xoscope</a> O'scope using soundcard or Fox probe.</p> <p><a href="#">Xspectrum</a> A dated but still useful program</p>
	Soundcard CW Software	<p><a href="#">glfer</a> Extremely slow speed cw for setting distance records.</p> <p><a href="#">RSCW</a> A cw program that is useful for RS-12/13 beacons.</p>
	Soundcard Facimile Software	<p><a href="#">ACfax</a> A dated but still functional fax reception program.</p> <p><a href="#">Hamfax</a> Send and Receive facimile pictures.</p> <p><a href="#">WXtoimg</a> A commercial quality fax reception program, even direct from satellite!</p>
	Soundcard FSK 441 Software	<p><a href="#">LinWSJT</a> FSK441 high speed digital for aurora, meteor scatter, etc.</p>
	Soundcard Hell Software	<p><a href="#">gmfsk</a> Receive Feldhell programs. Fuzzy modes for Linux!</p>
	Soundcard JT44 Software	<p><a href="#">LinWSJT</a> JT44 high speed digital for aurora, meteor scatter, etc.</p>
	Soundcard MFSK Software	<p><a href="#">gMFSK</a> MFSK 8 and 16. Sensitive and Selective.</p>
	Soundcard MT63 Software	<p><a href="#">MT63</a> A console mode MT63 program.</p> <p><a href="#">gmfsk</a> Nice X application to do MT63.</p>
	Soundcard Multimode Software	<p><a href="#">gmfsk</a> Does MFSK8&amp;16, RTTY, MT63, Feldhell, PSK31.</p> <p><a href="#">linpsk</a> Nice psk program based on WinPSK. Also does rtty.</p>
	Soundcard Packet Software	<p><a href="#">multimon</a> A dated but still useful program for packet, pocsag, etc.</p> <p><a href="#">soundmodem</a> Tom Sailer's great soundmodem program.</p>
	Soundcard PSK31 Software	<p><a href="#">gmfsk</a> GTK toolkit based PSK31 program.</p> <p><a href="#">gpsk31</a> Older GTK program, but still works great. (Thanks Bert Pe1BLX)</p> <p><a href="#">kpsk</a> QT based PSK31 program with logging. Nice.</p> <p><a href="#">linpsk</a> Nice psk program based on WinPSK. Also does rtty.</p> <p><a href="#">Phaseshift</a> An earlier QT based psk program. Simple, but good.</p> <p><a href="#">TWpsk</a> Hansai's original psk console mode program, got it all started in Linux.</p> <p><a href="#">TWpsk2</a> Ted's gui update for Hansai's TWpsk program.</p>
	Soundcard RTTY Software	<p><a href="#">gmfsk</a> Yup, it does RTTY too.</p> <p><a href="#">linpsk</a> Linpsk does good RTTY, don't let the name fool you.</p> <p><a href="#">rtty</a> A simple program, use it if nothing else works.</p> <p><a href="#">rtty out</a> A program that lets RTTY above transmit.</p>
	Soundcard SSV Software	<p><a href="#">hdsstv</a> An sstv program that sends a heartier brand of picture.</p> <p><a href="#">QSSIV</a> The grand-daddy of all Linux soundcard apps.</p> <p><a href="#">ssiv tx</a> A console mode way to send sstv, but no rx!</p>

http://www.qsl.net/kf8gr/shack.html

# HF Setup

## Icom 718 and SignalLink



# Donner SoundCard Interface

## Icom 718 (13 pin Din)

<http://home.att.net/~n8st/DDI-index.html>



# VHF Digital Ham Radio (Packet and APRS)

- TNC required.
- Two possibilities:
  - Hardware
  - Soundcard
- Soundcard least expensive.
- Hard to set up
- Soundmodem TNC can be installed by Mint Linux
- I decided to use Kantronics KPC-3+ TNC
- Configuration Easy and very widely used
- Interfacing Radio and Computer easy
- Minicom and GTKterm can be installed

# VHF interface

## Kantronics KPC-3+

- I have been using Kantronics KPC since 1980's, my old one recently died.
- One of the most popular TNC's for Packet and APRS
- Simple to connect to rig and computer.
- Uses RS-232 serial interface
- Low power demand
- All Linux software supports it directly



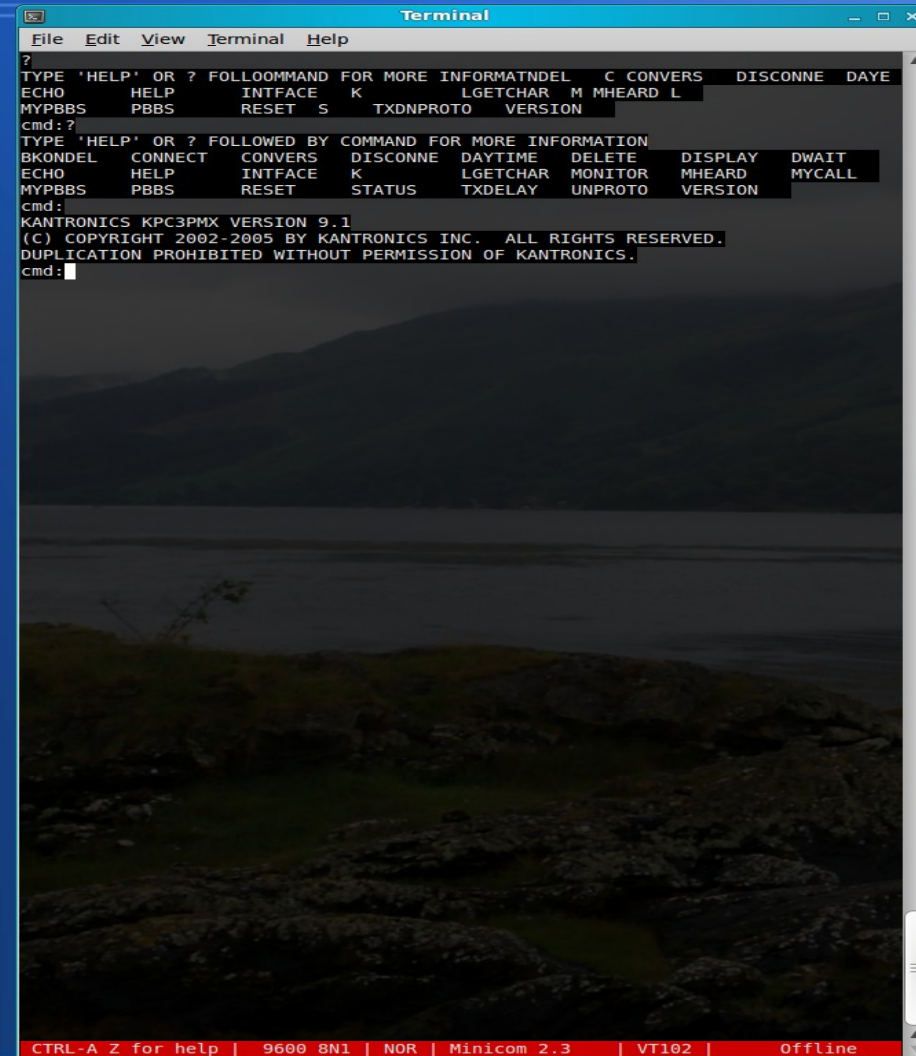
# VHF Ham Setup

## Kenwood TM-G707, KPC-3



# Minicom Communications Setup

- Minicom feature of Gnome desktop terminal.
- Open a Linux terminal, issue (minicom -c -m on)
- First configure Port and speed (/dev/ttyS0, 9600 8N1)
- Serial port now connected to COM1 port on Linux system.
- To bring up terminal in future issue (minicom -c on) in terminal session.



```
Terminal
File Edit View Terminal Help
?
TYPE 'HELP' OR ? FOLLOWED BY COMMAND FOR MORE INFORMATION
ECHO      HELP      INTFACE  K      LGETCHAR  M MHEARD L
MYPBBS    PBBS      RESET    S      TXDNPROTO VERSION
cmd: ?
TYPE 'HELP' OR ? FOLLOWED BY COMMAND FOR MORE INFORMATION
BKONDEL   CONNECT  CONVERS  DISCONN  DAYTIME  DELETE  DISPLAY  DWAIT
ECHO      HELP      INTFACE  K      LGETCHAR  MONITOR  MHEARD  MYCALL
MYPBBS    PBBS      RESET    STATUS  TXDELAY  UNPROTO  VERSION
cmd:
KANTRONICS KPC3PMX VERSION 9.1
(C) COPYRIGHT 2002-2005 BY KANTRONICS INC. ALL RIGHTS RESERVED.
DUPLICATION PROHIBITED WITHOUT PERMISSION OF KANTRONICS.
cmd:
CTRL-A Z for help | 9600 8N1 | NOR | Minicom 2.3 | VT102 | Offline
```

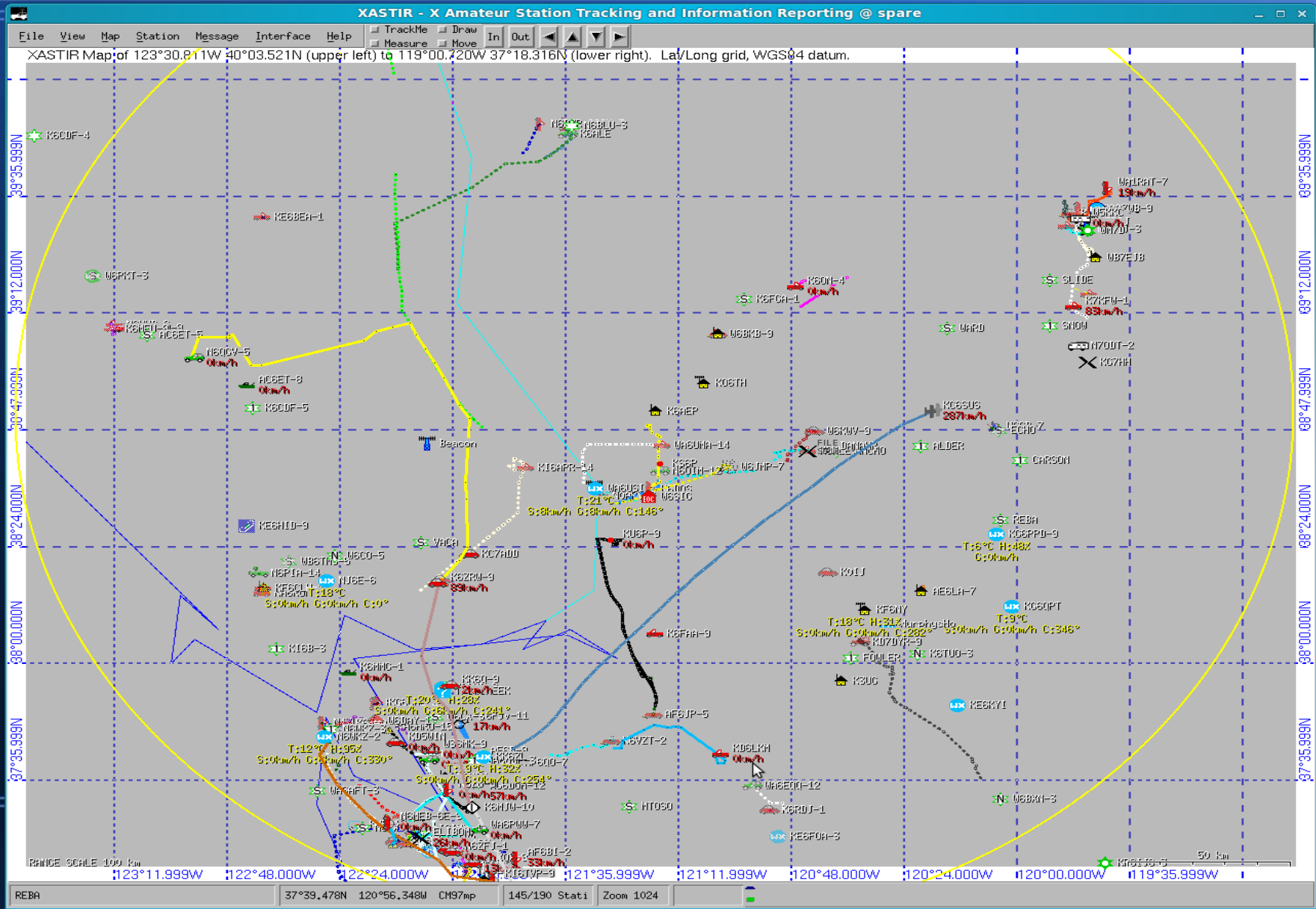


# Packet Radio Connection

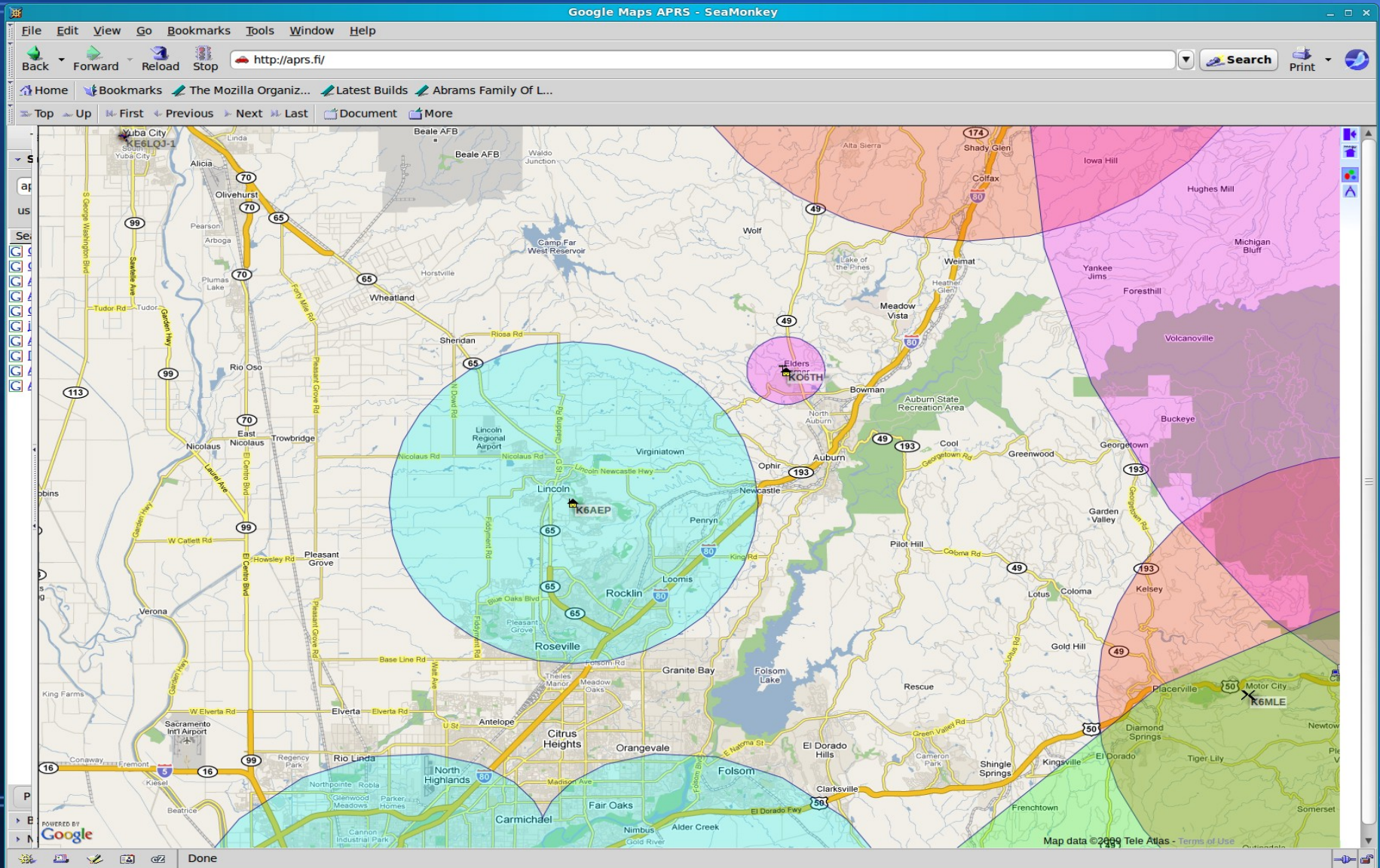
- Connected to Berry
- Freq 145.05
- Beryessa Peak, 3000 Ft
- Serving the Sacramento Valley, CA

```
Terminal
File Edit View Terminal Help
K6TUO-5 09/30/09 20:31:22
WR6C-5 09/30/09 20:31:45
KG6BAJ-2 09/30/09 20:35:31
N10ES-4 09/30/09 20:36:08
KF6DQU-9 09/30/09 20:36:09
N10ES-1 09/30/09 20:36:19
N6ZX 09/30/09 20:36:30
K6AEP 09/30/09 20:37:29
nodes
BERRY:K6JAC-4} Nodes:
ALM:K6LRC-2 ARDX:K8DLV-5 BANNER:KF6DQU-9 BBGATE:AA6HF-4
BBSBBS:K9BBS BPQBBS:K9BBS-12 CAHTO:K7WWA-8 CAM05:WG6D-8
CAM91:WG6D-6 CERES:W2WRX-5 CORN:W6JEX-5 CSN:KV7J-4
CSNRMS:KV7J-10 CTW:W6TYB-6 DLVBBS:K8DLV-1 DLVCHT:K8DLV-8
ELDOR:W6PJD-3 ESCL:KG6KPR-5 FOT:KF6SYK-2 GVBBS:KG6BAJ-1
GVCHAT:KG6BAJ-5 GVCITY:KG6BAJ-2 GVRMS:KG6BAJ-10 HANEY:WB6YZF-1
INARML:W9BBS INCHAT:K9BBS-14 INDXC:K9BBS-5 INRMS:K9BBS-10
INTEL:K8DLV-7 KSI0:WH6I0-7 KVBBS:KV7J-5 KVCJCHT:KV7J-2
LASSEN:K6LRC-1 LIVER:KF6FPU-5 MOD0C:K6JKC-5 NBBERK:KI6GUKZ-5
OS0:WA6QPU-8 PAC:WA6TOW-1 PLACE:N6QDY-7 PLUMAS:KG6W00-5
PONDER:KI6NCU-5 RDG:WA6YNG-1 RNO:W7TA-4 ROUGH:KF6DQU-4
SCLH:K6AEP-5 SKUNK:K7WWA-6 STCK:KD6NIG-5 SUGAR:WR6C-5
TUO:K6TUO-5 WBAY:N6ZX-5 WOLF:N10ES-4 WVLBBS:KI4NCW-2
WVNODE:KI4NCW-1 YRGTN:N7LPT-1
routes
BERRY:K6JAC-4} Routes:
1 WR6C-5 192 5!
1 WA6YNG-1 193 8!
1 KF6DQU-4 192 13!
1 KG6KPR-5 192 1!
1 KG6W00-5 192 4!
1 KD6NIG-5 192 2!
1 K6TUO-5 193 8!
1 WD6EZC-5 192 0!
1 N10ES-4 120 0!
1 KG6BAJ-2 180 30!
1 W6JEX-5 192 9!
1 N6ZX-5 192 5!
1 K7WWA-8 190 4!
1 K7WWA-6 190 2!
1 N7LPT-1 160 1!
1 WG6D-8 192 2!
1 W7TA-4 121 0!
1 W6PJD-3 0 0!
1 KI6NCU-5 180 0!
1 W6HMT-7 192 0!
1 WA6QPU-8 193 8!
1 KF6FPU-5 192 1!
1 K6LRC-2 0 0!
1 WA6TOW-1 160 1!
1 KF6DQU-9 192 10!
1 N6QDY-7 120 1
1 KE7CSD-2 0 0!
1 W6TYB-6 120 1
1 K6AEP-5 120 1
help
BERRY:K6JAC-4} TYPE 'HELP' OR ? FOLLOWED BY COMMAND FOR MORE INFORMATION
BYE BBS CONNECT CQ HELP INFO LINKS MHEARD
NODES PORTS ROUTES STATS USERS SYSOP
info
BERRY:K6JAC-4}
On 3000' Beryessa Peak serving the Sacramento Valley 145.05 MHz
CTRL-A Z for help | 9600 8N1 | NOR | Minicom 2.3 | VT102 | Online 00:02
```

# KPC-3+ APRS Running Xastr



# Internet Display (APRS) <http://aprs.fi/>



# APRS and PSK 31

The screenshot displays a desktop environment with several windows open. The primary window is **XASTIR - X Amateur Station Tracking and Information Reporting @ spare**, which shows a map of the local area with various amateur radio stations plotted. Each station is represented by a call sign and a signal strength indicator (e.g., 122mW, 102mW). The map includes a grid and a scale bar.

Below the map, the status bar shows coordinates: **39°22.478N 121°09.141W**, a magnetic declination of **CH99ki**, and a zoom level of **1024**.

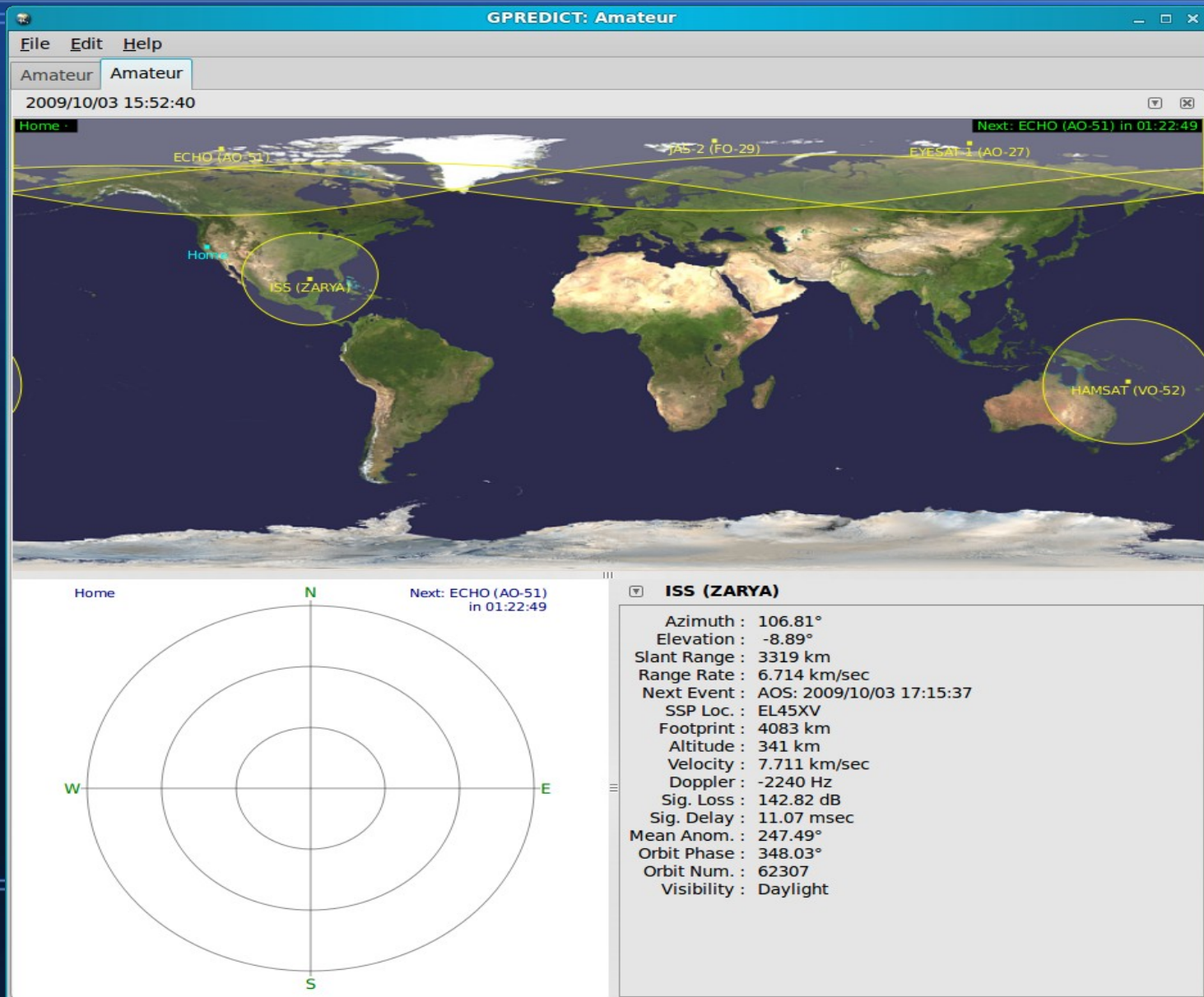
On the left side, a window titled **fidigi - K6AEP** is open. It features a frequency display of **14070.000** and a list of stations. The list includes call signs such as **14070.001**, **14071.901**, **14071.807**, **14071.701**, **14071.601**, **14071.501**, **14071.401**, **14071.301**, **14071.201**, **14071.101**, **14071.001**, **14070.901**, **14070.801**, **14070.707**, **14070.601**, **14070.501**, and **14070.501**. A text area at the top of this window contains the following text:

```
ewoveeei
ox:o[ooooe igtaC e]
eeii 'NPrm t³. roez H e.rel eo ar e oi MaeTe e e eiii
ea² e i-Peat
%ea dP foonou iHATS WHWE .pl E DOW
HsRE Hb reAK04GA oe t

twAe E t Êaxte j RppIieIiv iK..te [hn.s....-E N9-gtaE LU7UI
****d^=ee
Te LUieeLrldHTLU7HoVt IO
EOsCQ CEEH K00EH
CQ CQ CQ de K00EH K00EH K00EH pse k
```

At the bottom of the screen, the Windows taskbar is visible, showing the system clock as **Thu Oct 1, 4:33 PM** and the temperature as **81 °F**.

# Gpredict Satellite Tracking



# Klog – logging Program & IBP – Ham Beacons

The screenshot displays a Linux desktop with a blue background. The desktop contains several application icons, including Computer, Family Tree Maker 2006, Krusader, Microsoft Office Excel 2007, Qtel - Echolink, and Terminal Server Client. The taskbar at the bottom shows the following applications: Menu, Terminal, ibp, [Terminal], and Klog. The system tray on the right includes a clock showing 4:33 PM on Saturday, October 3, 2009, and a weather widget for Lincoln, NE, showing a temperature of 74°F and a 20% chance of rain.

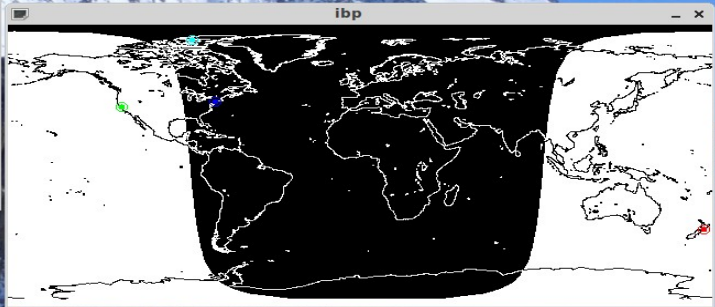
The Klog application window is open, showing the following settings:

- Mode: PSK31, Band: 20M
- Date/Time: 03/10/2009 16:33:39
- RST(tx): 5 9 0
- RST(rx): 5 9 0
- Name: [Empty]
- QTH/Locator: [Empty]
- Buttons: QSO, QSL, Remarks, Others, My Data
- Log Table Headers: Numb, Date, UTC, QRZ, RST(tx), RST(rx), Band, Mode, Power

The Terminal window displays the IBP v0.21 program output, showing a list of beacon frequencies and locations:

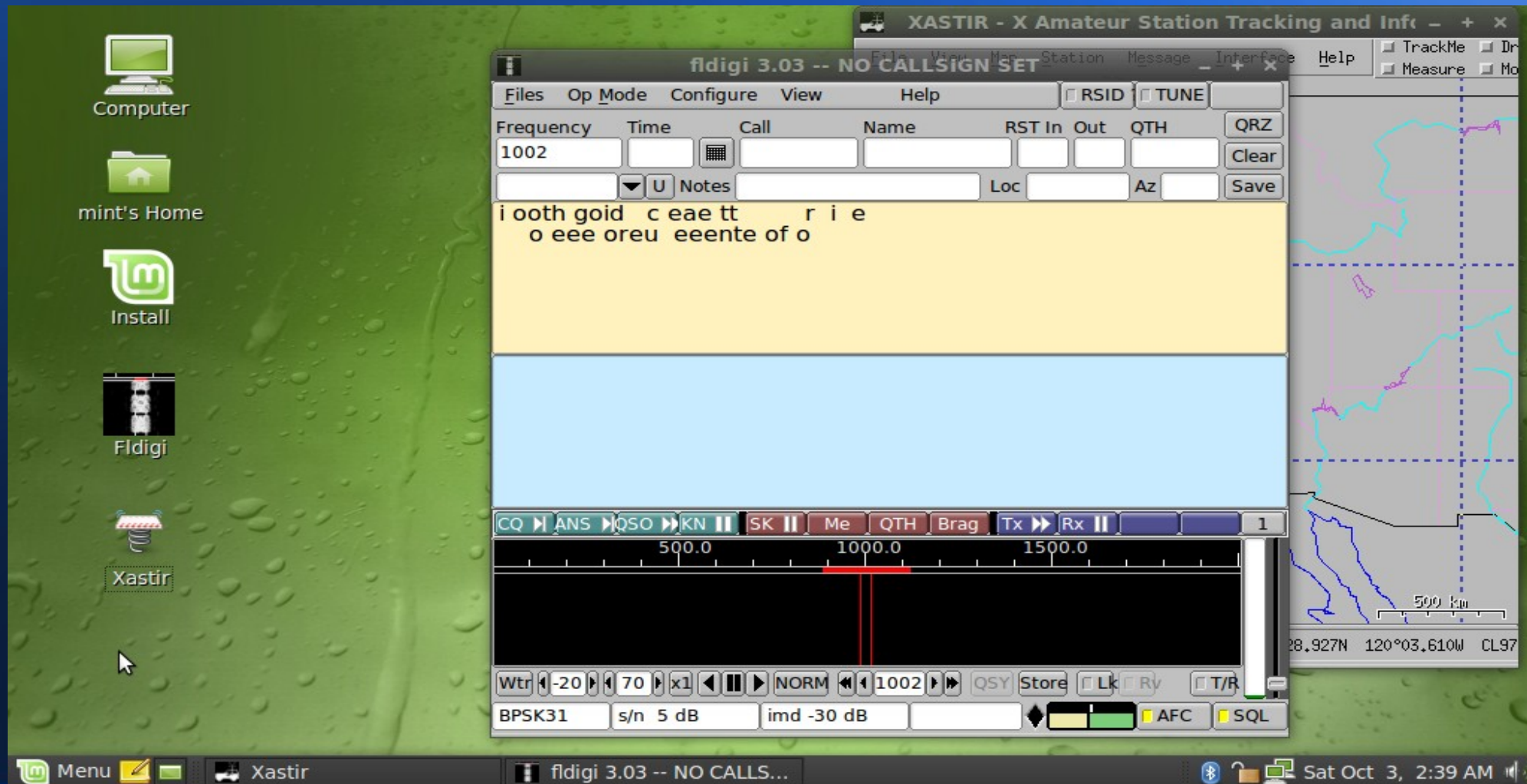
Frequency (MHz)	Call Sign	Country	City
28.200	4U1UN	United Nations	New York City
24.930	VE8AT	Canada	Eureka, Nunavut
21.150	W6W7	United States	Mt. Umunhum
14.100	KH6W0	Hawaii	Laie
	ZL689	New Zealand	Masterston
	VK6RBP	Australia	Rolystone
	JA2IGY	Japan	Mt. Asama
	RR90	Russia	Novosibirsk
	VR2B	Hong Kong	Hong Kong
	4S7B	Sri Lanka	Colombo
	ZS6DN	South Africa	Pretoria
	5Z4B	Kenya	Kilifi
	4X6TU	Israel	Tel Aviv
	OH2B	Finland	Espoo
	CS3B	Madeira	Santo da Serra
	LU4AA	Argentina	Buenos Aires
	0A4B	Peru	Lima
	YV5B	Venezuela	Caracas

The ibp window shows a world map with a blue dot indicating the current location in the Pacific Ocean region.



# Running Mint from Live CD

Xastir and Fdigi installed and running on EEEpc 1000He Laptop.  
Sound interface was detected all that is need is Rig Audio.



# Conclusion

- Linux makes a great OS platform for Ham Radio.
- Linux can run Ham Applications without a hard disk install from a CD in live mode.
- Mint 7 Linux is ideal because it is:
  - User Friendly
  - Very Stable
  - Easy to use and configure
- Give it a try, you will love it!
- Any Questions?