

**Oro Valley Amateur Radio Club**

A 401c3 club.

The Oro Valley Amateur Radio Club is an Arizona Non-Profit Corporation.

Newsletter editor: Ron Herring W7HD



**Monthly club meeting location:  
Ascension Lutheran Church  
1220 W Magee Rd  
Tucson, AZ 85704 (east of LaCanada on Magee)**

**Meetings are held the third Friday of each month at 7:00 pm MST except in December (annual Christmas dinner)**



**2016 OFFICERS AND BOARD MEMBERS**

Steven Wood W1SR	President	<a href="mailto:president@tucsonhamradio.org">president@tucsonhamradio.org</a>
Bob Molzcan KA7VPR	Vice-President	<a href="mailto:vicepresident@tucsonhamradio.org">vicepresident@tucsonhamradio.org</a>
Hanna Eckert KG7TPD	Treasurer	<a href="mailto:treasurer@tucsonhamradio.org">treasurer@tucsonhamradio.org</a>
Carl Foster KB7AZ	Secretary	<a href="mailto:secretary@tucsonhamradio.org">secretary@tucsonhamradio.org</a>

**ADDITIONAL BOARD MEMBERS**

Ross Eckert	Scott Boone K7ADX	Fred Bresani W2HZ
Bob Stephens AF9W		



Find us on Facebook

[https://www.facebook.com/orovalleyarc?ref=tn\\_tnmn](https://www.facebook.com/orovalleyarc?ref=tn_tnmn)

Want to buy or sell something or chat about a topic with other club members?  
Join the Tucson Ham Radio Yahoo Group.  
<https://groups.yahoo.com/neo/groups/tucsonhamradio/info>



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**Cross Reference** is a new feature to enable you to quickly get to the article in which you are interested. Entries are in alphabetical order. Simply clicking on the link name will take you to that location. The footer on each page allows you to return to here.

## Cross Reference

### **ARISS Radio Failure**

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Public Service

RASPBERRY PI NOTES

REPEATERS

SATELLITE NOTES

SATURDAY BREAKFAST

SWAP NETS

VE testing

**SATURDAY BREAKFAST**

Village Inn 6251 North Oracle Rd  
Between Rudasil and Orange Grove Rd on N Oracle Rd



Board Meetings are held at 9:00am MST on the 1st Saturday of each month at the Oro Valley PD Emergency Operations Center  
1920 E Tangerine Rd.  
Oro Valley, AZ

The VE testing follows at 10:30.

The Linux SIG meets at the same location from 0900-1200 the second Saturday of each month.



Sunday 20:00 MST Weekly Ovarc net on Ovarc repeater system

Wednesday 19:30 MST Weekly Slow CW Net 28.310 MHz

**RASPBERRY PI NOTES**

From the Elecraft reflector in a discussion on technology: To borrow from Ecclesiastes 1:4: "One ham fad passeth away, and another ham fad cometh: but CW abideth for ever."

Mike / KK5F

[With one other old-time quirk that the modern crowd doesn't share: I just can not purchase a commercial HF ham rig that lacks schematics. That violates all my ham instincts.]

If you haven't heard it before, SD cards were \*never\* designed for lots of read/write activity. A Raspberry Pi is a very slick computer "toy" but there is nothing robust about them. Regular backups are a MUST if you only use an SD card as your primary storage. There are lots of tricks to make an Rpi more reliable like make the SD card a boot only device, read/write to a USB pendrive or better yet, a USB-based SSD.

--David KI6ZHD

There is a 314GB drive that is optimized for the Pi2/3. At \$31.42 on a special promo price, it is well worth the cost. <http://wdlabs.wd.com/products/wd-pidrive-314gb/>

<https://www.raspberrypi.org/blog/meet-314gb-pidrive/>

As a free download on the WDLabs website, a special WDLabs [BerryBoot](#)\* version is available that includes additional Raspberry Pi applications specific for HDD storage usage.

Need to check your hearing? Go [here](#) for an online test that actually works well.

SB SPACE @ ARL \$ARLS008

ARLS008 Apparent ARISS Radio Failure Prompts Shift to Russian Service Module Ham Gear

ZCZC AS08

QST de W1AW

Space Bulletin 008 ARLS008

>From ARRL Headquarters

Newington, CT October 21, 2016

To all radio amateurs

SB SPACE ARL ARLS008

ARLS008 Apparent ARISS Radio Failure Prompts Shift to Russian Service Module Ham Gear

The VHF handheld transceiver that the Amateur Radio on the International Space Station (ARISS) program has used to connect students worldwide with astronauts on board the International Space Station (ISS) for more than 16 years has begun to display an error message and is unusable at this time.

While the ARISS technical team evaluates the best path to restore operation from the ISS Columbus module, ARISS contacts will be supported using the Kenwood radio in the Russian Service Module.

During this period, the packet digipeater will be unavailable. Switching to the 70 centimeter capability on board the Columbus module for some operations is being coordinated. ARISS said to expect further updates as it works to resolve the problem.

A reminder: The deadline is November 1 for formal and informal education institutions and organizations to submit proposals to host an Amateur Radio contact with an ISS crew member. ARISS anticipates that contacts will take place between July 1 and December 31, 2017. Crew scheduling and ISS orbits determine contact dates.

To maximize these radio contact opportunities, ARISS is looking for organizations that will draw large numbers of participants and integrate the ham radio contact into a well-developed education plan.

NNNN

/EX

**REPEATERS**

W7AI ANALOG - all have a PL of 156.7:

**2 METERS**

- 146.620- Keystone Peak
- 147.320+ Golder Ranch Fire District tower in Catalina, AZ

**70 CM**

- 444.100+ Oro Valley PD Main Station
- 447.525 - Marana PD Town Center

**D-STAR**

- 445.800 -5.0Mhz W7AI Naranja & La Canada in Oro Valley
- 445.1375 -5.0Mhz KG7PJV Tucson Foothills
- 440.7625 +5.0Mhz KG7RWN Camino Seco and 22<sup>nd</sup> st

ECHOLINK Node W7AI-L 99946

October Meeting Presentation by AF9W "APRS - What and Why and How"

**Handyman Corner**

Presented by Bob, AF9W

**"Getting Ready for Public Service Season"**

The FCC is looking for comments and data on the RF noise floor.

[http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2016/db0615/DA-16-676A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0615/DA-16-676A1.pdf) Thanks to George NG7A.

RST now has their 10M repeater on the air on 29.670-.100 FM PL 110.9.

The Propagation forecast is now a part of the weekly OVARC Sunday night net now beginning at 8:00 pm and is presented by Ron W7HD and is also available on the [w7hd.ddns.info](http://w7hd.ddns.info) website under Propagation Links.

The Oro Valley ARC is pleased to announce a new benefit for its members. An extension of the mentor program, the HF Radio Loaner Program is designed to help those who are new to HF by providing radios and antennas to get you on the air! The program allows members to borrow an HF radio for up to 90 days like checking a book out of the library. See <http://www.tucsonhamradio.org/new-ham-resources/274-hf-radio-loaner-program> for more details on the program.

OVARC has worked with [Hamthreads.com](http://Hamthreads.com) to provide the OVARC logo on hats, shirts, jackets, and vests. When you order any apparel from Hamthreads.com with the OVARC logo you will receive a 20% discount at checkout. See [Tucsonhamradio.org](http://Tucsonhamradio.org) for

pictures of the logos. My call would be replaced with your callsign. OVARC has no fiduciary interest in hamthreads.com. We have heard from members that they might be interested in logo'd apparel and this is a way to provide it without OVARC having to make a major investment. Bob AF9W

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Articles/Notes are needed for the December issue of Arizona Desert Aire Waves (the state-wide newsletter by ARCA). Please submit them to [newsletter@tucsonhamradio.org](mailto:newsletter@tucsonhamradio.org) no later than November 8th so I can get them to the ADAW editor.

Ron W7HD

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# Southern AZ Public Service November 2016

## Upcoming Southern AZ Public Service Events

The following events are being held in this month. If you would like to help out at any of these events send an email to the event coordinator telling them you are available. You can get more information about the events by clicking on the Event links. Specific communications requirements will be provided by the event coordinators. These listings are from [soazhamservice.net](http://soazhamservice.net).

Date	Event	Coordinator	Coordinator Email
Saturday, Nov 5	<a href="#">Tucson Cops and Rodders Car Show</a>	Jim Fisher K7ADW	<a href="mailto:K7ADW.RADO@gmail.com">K7ADW.RADO@gmail.com</a>
Saturday, Nov 12	<a href="#">Colossal-Vail 50/50</a>	Greg Peters KC5ZGG	<a href="mailto:kc5zgg@cox.net">kc5zgg@cox.net</a>
Saturday, Nov 19	<a href="#">El Tour de Tucson</a>	Cary Fishman WB2BSJ	<a href="mailto:cary@caryfish.com">cary@caryfish.com</a>

## Advanced Communication Modes

Most public service events use analog FM to exchange information between Net Control and field operators. One event coming this month will use a specialized mode to communicate information. The CV 5050 is a 50K/50mi trail run on the AZ Trail near Vail, AZ. To ensure the safety of the runners, each runner's bib number and time-in is recorded when they pass through an aid station. In the past this data was passed to Net Control using regular FM voice. This method was time consuming because it required a lot of repeats and prone to errors if something was miscopied. The organizers of the CV 5050 decided to use NBEMS – Narrow Band Emergency Messaging System to pass this data from the aid stations to Net Control.

### What is NBEMS?

NBEMS is an addition to W1HKJ's fine digital program fldigi. Fldigi is a suite of cross-platform applications for digital signals used on the amateur radio bands. It uses a computer and soundcard attached to an HF or VHF/UHF radio to pass data between stations. A special program flmsg was written to allow standard message formats to be encoded for sending using fldigi and decoded by the receiving station into a human readable message format for printing or displaying via a browser. Any operator who is set up to use fldigi for modes like PSK31 has the hardware to use NBEMS.

### Using NBEMS for public service

The usual setup for using NBEMS for local public service events is to use the mode MT63-2000L over FM VHF/UHF radios. This can be either a simplex path or via an FM repeater. This mode is very robust in less than ideal conditions. It also works well without a direct computer to radio interface using acoustic coupling, i.e. just get the radio speaker and mic close to the computer speakers and mic.



A direct connection between the radio and computer is much easier to use in the field during an event as you don't have to juggle the pieces when you switch from voice to digital.

## Hardware Requirements

The minimum hardware requirements for using NBEMS in the field is a VHF/UHF radio and computer. The radio can be either an HT or a VHF/UHF mobile. As with voice communication, the mobile radio is preferred due to its higher power output. The computer can run either Windows, Linux, or MAC OS as fldigi has installation files for all of these operating systems. The preferred computer/radio interface is one that does not require using the mic jack for connection to the computer as the event operating frequency may be used for both voice and digital. The minimal interface would be holding the radio mic to the computer speaker for sending digital. One disadvantage using the mic approach is keeping the audio levels consistent. Two recommended interfaces are the Tigertronics Signalink or Easy-Digi. The Signalink includes a mono soundcard and the Easy-Digi has a transformer isolated speaker/mic connection plus a PTT line. Easy-Digi uses your Both are available with cables for your radio. The advantage of using an external soundcard for digital modes is that you can easily prevent system sounds from being transmitted. If you use the internal computer soundcard you will have to adjust your operating system settings to prevent operating system beeps from being transmitted over the radio.

## Prepping for NBEMS in the field

Before you take your new digital interface to the field make sure you have tested it at home in the shack. You will want to get your audio levels set correctly and make sure you know how to use NBEMS. If you need help send an email to [info@tucsonhamradio.org](mailto:info@tucsonhamradio.org) and someone will help you get started. For the CV 5050 event you will also need MS Excel, LibreOffice Calc, or OpenOffice Calc as runner numbers and times will be recorded in one of those apps, saved as a .csv file, and transmitted to Net Control.

I hope this introduction to NBEMS will interest you in preparing to use this mode for public service and emergency communications. Next month I'll talk more about setting up your radio go kit.

Bob AF9W

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## **WE NEED MORE HAM RADIO ITEMS FOR THE OVARC TABLE FOR THE HAMFEST.**

Please bring any donations to the Saturday morning breakfast. One of the club officers will take your donations. If it is too large or heavy, just bring it to the hamfest on November 12th, but do let one of the officers know what you will be bringing so they can plan for the table space.

### **ORO VALLEY ARC**

An ARRL Sanctioned Event Presented  
by the Oro Valley Amateur Radio  
Club



## **HAMFEST**

**Great Fun!**

**Food Truck** serving  
breakfast and lunch!

**Great Raffle Prizes!**

**Interesting Seminars!**

- Stealth Antennas
- Grounding
- Lightning Protection

**VE Session!**

**ARRL Booth with Card  
Checking**

**November 12, 2016**

**Marana Middle School  
11285 West Grier Road  
Marana Arizona 85653**

**Gates open at 7:00 AM  
(5:00am for sellers) and  
close at 1:00 PM**

**Admission: \$5.00** includes a  
bottle of water. Children under  
12 admitted free when  
accompanied by a paid adult.

**Seller: \$10 per  
space** includes seller

Students with valid AZ school ID are  
admitted free

# Contest Calendar for November

by Tom Kravec W8TK

Contest season kicks into high gear during November. Band conditions are generally better and atmospheric noise less than during the hot summer.

ARRL Sweepstakes comes in two flavors: CW (November 5-6) and SSB (November 19-20). This is a domestic contest with only USA and Canada stations eligible to participate. As a result, 100 watts to a dipole is an effective station, and you can earn that Worked All States certificate for your shack wall in one weekend. The exchange is not the usual 59/AZ but resembles the preamble of an ARRL radiogram. The "check" in the exchange is the year you were first licensed, and it's interesting to see the ages of those participating. Another quirk: you may work stations only once during the contest, not once per band, so activity diminishes on Sunday afternoon and the hard core testers will be desperate for fresh meat. Put out a CQ and expect a pileup!

Details: <http://www.arrl.org/sweepstakes>

Straight Key Century Club Weekend Sprintathon is a monthly event sponsored by SKCC whose focus is preservation of Morse operation using straight keys. As a result, CW speeds are not fast and the contest provides opportunity to improve your Morse abilities. It's a low-pressure event and a good one to allow you to dip your toe into the CW contesting waters. Many operators are using antique vacuum tube rigs, fondly known as "boat anchors." This month's contest is November 12-13.

Details: [http://www.skccgroup.com/operating\\_activities/weekend\\_sprintathon/](http://www.skccgroup.com/operating_activities/weekend_sprintathon/)

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## ON-AIR SWAP NETS

7.240 Every Sat. and Sun. Starts around 12:30PM Controls are various. Covers West Coast.

3.915 On Sunday mornings at 10:00AM Pacific Time. Net control is Gary K7PG. Mostly northwest states

3.908 "WARFA" swap net. Wed. nights at 8:00 PST. This net is on the West Coast, but many check ins from the midwest.

3.922 Mid-West Swap Net On Sunday evenings from 5:30PM to 7:30PM PST

7.235 Chaverim Rag Chew/Swap Net Every morning at 11:30AM PST. Monday -Friday Western US. Net control WA6USL

3.908 "Northstar Traders net" - 8:30AM Central. (originates from Minnesota/Wisconsin area) Host W5MAZ

## Links to more swap net listings

<http://www.af4k.com/mega/swapnets.htm>

<http://swap.qth.com/>

<http://www.na6r.com/wa6usl-swap-list/>

<http://ac6v.com/nets.htm#SWAP>

<http://www.radioing.com/radiotrader/links.html> - has many links to trader sites

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## MISCELLANEOUS LINKS

<a href="http://w7hd.ddns.info/sats/building-a-twinlead-lindenblad.pdf">http://w7hd.ddns.info/sats/building-a-twinlead-lindenblad.pdf</a>	Detailed instructions for building a 70cm or 2-meter Lindenblad using 300-ohm twinlead and PVC pipes.
<a href="http://groups.yahoo.com/neo/groups/mixw/info">http://groups.yahoo.com/neo/groups/mixw/info</a>	For MixW support
<a href="http://groups.yahoo.com/neo/groups/dopplergram/info">http://groups.yahoo.com/neo/groups/dopplergram/info</a>	For Dopplergram information
<a href="http://qthlocator.free.fr/">http://qthlocator.free.fr/</a>	<b>Find your maidenhead grid square on a map</b>
<a href="http://w7hd.ddns.info/freq-experimental.htm">http://w7hd.ddns.info/freq-experimental.htm</a>	Frequencies where those oddball modes like FSQ are found
<a href="http://linuxconfig.org/">http://linuxconfig.org/</a>	Good Linux tutorials, commands, etc.
<a href="http://sourceforge.net/projects/fldigi/files/">http://sourceforge.net/projects/fldigi/files/</a>	Where to download FLDigi files
<a href="https://groups.yahoo.com/neo/groups/azNBEMS/files">https://groups.yahoo.com/neo/groups/azNBEMS/files</a>	Information on NBEMS interfaces and installation
<a href="http://www.dj5hg.de/digitalmodes/digitalmodes.html">http://www.dj5hg.de/digitalmodes/digitalmodes.html</a>	MSRX is a receiver for meteor scatter for use parallel to WSJT. Requires Matlab Compiler Runtime to be installed.
<a href="http://stores.tgelectronics.org/the-new-n8xjk-boost-regulator/">http://stores.tgelectronics.org/the-new-n8xjk-boost-regulator/</a>	Battery boost regulator for constant DC output up to 15v
<a href="http://www.distrowatch.com/">http://www.distrowatch.com/</a>	Latest Linux releases with download links
<a href="https://fedorahosted.org/fldigi/wiki/Documentation/HOWTO/Windows_USBSerial">https://fedorahosted.org/fldigi/wiki/Documentation/HOWTO/Windows_USBSerial</a>	Taming the Wild Comport in Windows XP, Vista, and 7
<a href="http://www.nk7z.net/">http://www.nk7z.net/</a>	For equipment, software setups and reviews
<a href="http://www.quartzfest.org/">http://www.quartzfest.org/</a>	Quartzsite annual hamfest - nice webpage
<a href="http://www.tenforums.com/tutorials/3234-environment-variables-windows-10-a.html">http://www.tenforums.com/tutorials/3234-environment-variables-windows-10-a.html</a>	A list of all the environment variables in Windows 10
<a href="https://archive.org/details/73-magazine">https://archive.org/details/73-magazine</a>	Online archive for 73 Magazine EPUB, PDF, more formats
<a href="http://www.arrl.org/doctor">http://www.arrl.org/doctor</a>	"The Doctor Is In" podcast from ARRL
<a href="http://www.coilgun.info/hamradio/ic7100-fldigi.htm">http://www.coilgun.info/hamradio/ic7100-fldigi.htm</a>	uses FLRIG with FLDIGI to gain rig control.
<a href="https://www.george-smart.co.uk/wiki/FLdigi">https://www.george-smart.co.uk/wiki/FLdigi</a>	uses rigcat and the ic7100.xml file to control and gain PPT via CAT commands in r
<a href="http://www.ebay.com/usr/elecdesign2015?rt=nc">http://www.ebay.com/usr/elecdesign2015?rt=nc</a>	Chinese mfgr huge selection RF units
<a href="http://www.artscipub.com/repeaters/">http://www.artscipub.com/repeaters/</a>	Online repeater lookup by state
<a href="http://www.n2yo.com/">http://www.n2yo.com/</a>	Satellite track predictions and more. Also provides catalog number, frequencies, a map of the orbit, and much more!
<a href="http://heavens-above.com/">http://heavens-above.com/</a>	More satellite predicting
<a href="http://www.amsat.org/amsat-new/tools/predict/index.php">http://www.amsat.org/amsat-new/tools/predict/index.php</a>	AMSAT satellite orbit predictions
<a href="https://en.wikipedia.org/wiki/Comparison_of_remote_desktop_software">https://en.wikipedia.org/wiki/Comparison_of_remote_desktop_software</a>	Remote desktop software comparison. Yes, some support audio and video.
<a href="http://www.techrepublic.com/article/how-to-permanently-mount-a-windows-share-on-linux/">http://www.techrepublic.com/article/how-to-permanently-mount-a-windows-share-on-linux/</a>	Now you can keep your Linux and Windows machines sharing files.
<a href="https://myactivity.google.com/myactivity">https://myactivity.google.com/myactivity</a>	Control what Google collects about you
<a href="https://www.neverware.com/#introtex-3">https://www.neverware.com/#introtex-3</a>	Chromebook software for free - thanks to Scott K7ADX

<a href="http://www.linux-usb.org/">http://www.linux-usb.org/</a>	was created to serve as a central point of information for USB support under Linux.
<a href="http://www.ftdichip.com/">http://www.ftdichip.com/</a>	Has a wealth of information about FTDI chips and utilities such as USBVIEW for Linux and Windows.
<a href="https://www.dxengineering.com/parts/dxe-pl259">https://www.dxengineering.com/parts/dxe-pl259</a>	\$2.75 ea PL-259 Silver plated PTFE insulation
<a href="http://www.66pacific.com/calculators/small_tx_loop_calc.aspx">http://www.66pacific.com/calculators/small_tx_loop_calc.aspx</a>	Magnetic loop calculator - very useful

◇ Scott, K7ADX says:

Bioenno Power offers batteries geared towards radio communications equipment and serve as replacements for traditional lead acid and NiMh batteries. Our batteries, at less than half the weight but with greatly enhanced performance characteristics, are highly attractive as enhanced power options for such applications and offer markedly improved functionality that greatly enhances radio communications equipment from a power-and-consumption aspect.

**[NOTE: These are Deep-Cycle Batteries for extended continuous use, not to be confused with High-Rate Batteries which are for starter applications only and not for extended continuous use.]**

See them here:

<https://www.bioennopower.com/collections/lifepo4-batteries-for-communication-equipment-ham-radio>

Here is something that might be of interest to everyone trying to deal with the less than stellar HF band conditions this summer. Here is a link to a bunch of Software Defined Radios on the internet:

<http://www.websdr.org/>

There are receiver sites located all over the globe to choose from-Todd AB5TH



*Reprinted from the Baton Rouge ARC newsletter*

## FOR SALE LISTINGS

The rules for entries are:

- [1] An entry will only run for one issue
- [2] Sellers name, call and a contact number and/or email address must be included.
- [3] A selling price (can be negotiable, such as \$100 OBO) must be included.
- [4] Pictures are desirable.
- [5] If this is a limited time offer, that time must be stated.
- [6] Entries must be submitted no later than the Monday following the club meeting, since the newsletter is normally published on the Tuesday following the club meeting.

## ITEMS AVAILABLE

**Gentlemen, I have a bunch of 2" copper tubing available to anyone for free wanting to build a screwdriver antenna.** Please email me at this address if interested. Will cut to length. Jim, W7ZNS  
[jbeaman352@gmail.com](mailto:jbeaman352@gmail.com)

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<http://soazhamservice.net/>

A club independent website has been created by myself (Bob AF9W) and Steve Lane, KY7K, to list upcoming public service events including who to contact if you want to participate. The website is <http://soazhamservice.net/>. Anyone who has information on other events can send them to me at [af9w@arrl.net](mailto:af9w@arrl.net).

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**Radio Amateurs involved in outdoor activities, such as Summits on the Air,** might find an Orienteering class useful. Courses for all levels will be held at Catalina State Park on Sunday, November 20, 2016 for a nominal fee. Registration begins at 8:30 AM. For details contact John Pascal, KA0LCD, either at OVARC's Saturday morning ham and eggs breakfast or by email [pascaljl@q.com](mailto:pascaljl@q.com).

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## LOCAL WEATHER REPORTS IN HTML

Linux bash shell script to gather data from a list of local weather stations and format it into an html page. The list file looks like this:

```
KCGZ Casa_Grande_Muni_Airport
KRYN Tucson/Ryan_Field
KTUS Tucson_Intl_Airport
KDMA Tucson/Davis-Monthan-AFB
KOLS Nogales-Intl_Airport
KFHU Fort-Huachuca
KSAD Safford
KGBN Gila-Bend
```

The Linux script area.sh is typically called from a cron job like this:

```
# m h dom mon dow  command  ← format of a cron entry
*/15 * * * * /home/ronh/wx/area/area.sh >/dev/null
```

The \*/15 means run the script every fifteen minutes.

You can now create a launcher on your desktop to allow for quick access.

If you are creating a launcher location in Linux Mint Mate, only the URL is used and you use the "location" dropdown for creating the launcher on the desktop. This is one of the differences between Mate and Cinnamon desktops. The icon is one I captured off a web page.

Here is how I did my launcher in Linux Mint Cinnamon using the Qupzilla browser:



Script contents:

```
# area.sh
# Ron Herring
# 08-Aug-2016
#
# cd to the directory where area.lst resides
cd /home/ronh/wx/area
DT=`date +"%a %F %H:%M"`
echo "$DT"
# File names to be used in the local directory
LIST="area.lst"
OUTP="area.txt"
HTM="area.htm"
TMP="area.tmp"
```



```

LOG="area.log"
# Append the date to the log file
echo "$DT">>$LOG
# Tell the user what we're doing now
echo "Gathering weather data - please wait"
echo "Reading $LIST - creating $HTM"
# Create the HTML output file
echo "<html><head>">>$HTM
echo "</head>">>$HTM
echo "<body>">>$HTM
echo "<table border=2 width=450>">>$HTM
echo "<caption>">>$HTM
echo "<b>$DT <br>Local weather stations near Tucson</b>">>$HTM
echo "</caption>">>$HTM
# Now process the list of stations
cat $LIST | while read icao location dummy
do
    echo "$icao $location"
    rm $icao.TXT
    wget -np http://tgftp.nws.noaa.gov/data/observations/metar/decoded/$icao.TXT
2>$TMP
    echo "<tr><td><b>$icao</b><br> $location</td>">>$HTM
    echo "<td><pre>">>$HTM
    cat $icao.TXT>>$HTM
    echo "</pre></td></tr>">>$HTM
    sleep 3
done
echo "</table>">>$HTM
# Close the table output
# Tell the user in the html output how to find more entries for the table.
echo "To get a list of weather stations please use this URL:<br>">>$HTM
echo "<b>http://weather.rap.ucar.edu/surface/stations.txt</b><h1>">>$HTM
echo "</body></html>">>$HTM
# HTM file closed at this point.
echo "Gathering complete - thank you"
echo "To get a list of weather stations please use this URL:"
echo "http://weather.rap.ucar.edu/surface/stations.txt"
echo "$HTM written"
exit

```

The HTML output will look like this with one row per station.

Sun 2016-09-25 21:00  
Local weather stations near Tucson

<b>KCGZ</b> Casa_Grande_Muni_Airport	Casa Grande, Casa Grande Municipal Airport, AZ, United States (KCGZ) 32-57N 111-46W Sep 25, 2016 - 11:55 PM EDT / 2016.09.26 0355 UTC Wind: from the NNW (340 degrees) at 7 MPH (6 KT):0 Visibility: 10 mile(s):0 Sky conditions: clear Temperature: 80 F (27 C) Dew Point: 32 F (0 C) Relative Humidity: 17% Pressure (altimeter): 29.97 in. Hg (1014 hPa) ob: KCGZ 260355Z AUTO 34006KT 10SM CLR 27/00 A2997 RMK AO1 cycle: 4
	Station name not available Sep 25, 2016 - 10:48 PM EDT / 2016.09.26 0248 UTC

If you haven't heard of the audio podcast 100 Watts and a Wire it's now up to Episode 65.

On this week's show Mike Collis, WA6SVT, is interviewed concerning Amateur Television.

<http://100wattsandawire.com/100-watts-and-a-wire/>

If you don't want to listen to the whole show his interview starts around 38:10 in and goes most of the way to the end of the show.

Good work, Mike!

Bil Munsil  
K1ATV HAM TV  
Mesa AZ

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Carl Luetzelschwab K9LA has a website that covers a lot of different propagation-affecting phenomena. Here are some of the articles available there:

[http://k9la.us/Oct16\\_Bonus\\_-\\_Earthquakes\\_and\\_the\\_Ionosphere.pdf](http://k9la.us/Oct16_Bonus_-_Earthquakes_and_the_Ionosphere.pdf)

[http://k9la.us/Sept16\\_Bonus\\_-\\_Tracking\\_Solar\\_Eruptions\\_to\\_Their\\_Impact\\_on\\_Earth.pdf](http://k9la.us/Sept16_Bonus_-_Tracking_Solar_Eruptions_to_Their_Impact_on_Earth.pdf)

[http://k9la.us/Dec15\\_Circular\\_Polarization\\_-\\_Is\\_It\\_Worth\\_the\\_Effort.pdf](http://k9la.us/Dec15_Circular_Polarization_-_Is_It_Worth_the_Effort.pdf)[http://k9la.us/Apr16\\_NEW\\_Sunspot\\_Numbers.pdf](http://k9la.us/Apr16_NEW_Sunspot_Numbers.pdf)

[http://k9la.us/Apr15\\_Bonus\\_-\\_Worldwide\\_Thunderstorm\\_Occurrences.pdf](http://k9la.us/Apr15_Bonus_-_Worldwide_Thunderstorm_Occurrences.pdf)

[http://k9la.us/Propagation\\_101\\_23Sep07.pdf](http://k9la.us/Propagation_101_23Sep07.pdf)

[http://k9la.us/NM7M\\_The\\_Little\\_Pistol\\_s\\_Guide\\_to\\_HF\\_Propagation.pdf](http://k9la.us/NM7M_The_Little_Pistol_s_Guide_to_HF_Propagation.pdf)

and these are just a few of what is available on his web site <http://k9la.us>

If you want to learn about propagation from the master, this is where you want to go. He does both the esoteric advanced stuff as well as simple explanations oriented toward the regular amateur radio user. Thanks to Parky KB8UUZ of PCARS for pointing me there! Their monthly newsletter is fantastic.

---

Can you identify what is shown in this picture?

Cat's whisker. By Holger.Ellgaard [CC BY-SA 3.0], via Wikimedia Commons



At almost the same time that Frederick Guthrie was discovering thermionic emission with his electroscope, in 1874, Karl Ferdinand Braun was investigating conductivity of metal salts in solution. He realized that some of the salts, such as galena (aka lead-sulfide), conducted when not dissolved. He subsequently discovered that its resistance varied depending on the magnitude and polarity of the voltage and that this effect worked best if the electrode was a pointed wire. And thus he invented the galena (aka lead-sulfide) point-contact rectifier. Galena is a semiconductor and so this was a semiconductor diode. This is what became known as the cat's whisker detector and was used in 1894 for experiments with microwaves. In 1906, G.W. Pickard patented a silicon detector while Henry Harrison Chase Dunwoody patented the carborundum detector. And so began the widespread use of the cat's whisker in crystal radios which were made in the millions.

Extracted from the full article in the PCARS Radiogram Oct 2016

You can view all of their newsletters back to day 1 here:

[http://www.portcars.org/wp/?page\\_id=190](http://www.portcars.org/wp/?page_id=190)

---

We had been publishing the FCC's request to investigate noise floors. I found a VERY good article about it in the October 2016 PCARS newsletter. It is reprinted here.

Police Baffled? Send for the Radio Amateurs !

Jenny List

The police force in Evanston, Illinois had a problem on their hands. A mystery transmitter was blocking legal use of radio devices, car key fobs, cellphones, and other transmitters in an area of their city, and since it was also blocking 911 calls they decided to investigate it. Their first call for help went to the FCC who weren't much use, telling them to talk to the manufacturers of the devices affected.



Eventually they approached the ARRL, the USA's national amateur radio organization, who sent along [Kermit Carlson, W9XA] to investigate. He fairly quickly identified the frequencies with the strongest interference and the likely spot from which it originated, and after some investigation it was traced to a recently replaced neon sign power supply. Surprisingly the supply was not replaced with a fault-free unit, its owner merely agreeing to turn it off should any further interference be reported. The ARRL are highlighting this otherwise fairly unremarkable case to draw attention to the problem of devices appearing on the market with little or no pretence of electromagnetic compatibility compliance. In particular they are critical of the FCC's lacklustre enforcement response in cases like this one. It's a significant problem worldwide as huge numbers of very cheap switch-mode mains power supplies have replaced transformers in mains power applications, and in any center of population its effects can be readily seen with an HF radio in the form of a significantly raised RF noise floor. Though we have reported before on the FCC's investigation of the noise floor problem we'd be inclined to agree with the ARRL that it is effective enforcement of EMC regulations that is key to the solution.

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Reprinted with permission of Jenny List.  
<http://hackaday.com/author/jennylist/>

Jenny List trained as an electronic engineer but spent twenty years in the publishing industry working on everything from computer games to dictionaries before breaking out and returning to her roots. She grew up around her parents' small farm and blacksmith business in rural

England, so making (and breaking) things is in her blood. Countless projects have crossed her bench over the years, though these days you'll find her working with electronics and in particular radio, textiles for clothing and costume, decrepit classic cars, and real cider from first principles. When she's not writing for Hackaday she works on language corpus analysis software, designs and sells amateur radio kits, sits on the board of Oxford Hackspace, and is a freelance electronic design engineer and programmer.

---

## FLMSG NOTES

From the win-fldigi Yahoo groups email on 02-Oct-2016:

Hi Bart,

In Fldigi click, Configure, Misc, NBEMS. Then uncheck Transfer direct to executing flmsg.

73, Ron NY3J

On 10/02/2016 08:37 PM, [bart.aronoff@gmail.com](mailto:bart.aronoff@gmail.com) [win-fldigi] wrote:

With the newer versions of flmsg, when a message form is accurately received a popup dialog will open which gives the operator the option of immediately loading and viewing that new message file.

I would like to have all message forms popup immediately in the browser, without the need to use the popup dialog.

Is this possible?

Thank you, Bart/KH7C

---

## PYTHON PROGRAM FOR RASPBERRY PI RELAY CONTROL

```
#KT7AZ 100616
```

```
from time import sleep
```

```
from gpiozero import *
```

```
from tkinter import * # Frame, Tk, BOTH,
import tkinter as tk

from tkinter import Tk, Frame, Checkbutton

from tkinter import BooleanVar, BOTH

from tkinter import ttk, font

#

led1 = LED(26)

led1.on()

led2 = LED(20)

led2.on()

led3 = LED(21)

led3.on()

def relay():

    print()

    #rString = input ("Input RELAY to control: 1, 2, or 3 -> ")

    #if r == 1: led = led1

    #elif r == 2: led = led2

    #elif r == 3: led = led3

    #else:

    #    print()

    #    print(" No such relay")

# Create instance

win = tk.Tk()
```

```

# Add a title
win.title("Antenna control")

# Modify adding a Label
aLabel = ttk.Label(win, text="Choose A Relay")
aLabel.grid(column=0, row=0, padx=5, pady=3)

#Modified Button Click Function
def Relay1():
    global led
    led = led1
    switch1()
    action1.configure(text='Relay 1 Switched ' ,command=statusall())# +
name.get())

#Modified Button Click Function
def Relay2():
    global led
    led = led2
    switch1()
    action2.configure(text='Relay 2 Switched ' ,command=statusall())#())

#Modified Button Click Function
def Relay3():
    global led
    led = led3

```

```
switch1()
```

```
action3.configure(text='Relay 3 Switched ' ,command=statusall())#()
```

```
#Modified Button Click Function
```

```
def Alloff():
```

```
    #global led
```

```
    #led = led3
```

```
    relaysoff()
```

```
    action4.configure(text='Relays Off ' ,command=statusall())#()
```

```
# Adding a Button
```

```
action1 = ttk.Button(win, text="Relay 1 toggle", command=Relay1)
```

```
action1.grid(column=0, row=1, padx=5, pady=3, sticky=tk.W)
```

```
#action.configure(state='disabled')    # Disable the Button Widget
```

```
# Adding a Button
```

```
action2 = ttk.Button(win, text="Relay 2 toggle", command=Relay2)
```

```
action2.grid(column=1, row=1, padx=5, pady=3, sticky=tk.W)
```

```
#action.configure(state='disabled')    # Disable the Button Widget
```

```
# Adding a Button
```

```
action3 = ttk.Button(win, text="Relay 3 toggle", command=Relay3)
```

```
action3.grid(column=2, row=1, padx=5, pady=3, sticky=tk.W)
```

```
#action.configure(state='disabled')    # Disable the Button Widget
```



```

# Adding a Button

action4 = ttk.Button(win, text="All Relays OFF", command=Alloff)

action4.grid(column=2, row=7, padx=5, pady=5)

#action.configure(state='disabled')    # Disable the Button Widget

def status1():

    a=led.is_lit

    sleep (.2)

    print()

    print("Checking current Selected Relay Status:\n")

    if r == 1: print ("  Controlling RELAY: 1")
    if r == 2: print ("  Controlling RELAY: 2")
    if r == 3: print ("  Controlling RELAY: 3")
    if a == 1: print ("  The relay is: OFF")
    elif a == 0: print ("  The relay is: ON")

def statusall():

    h=led1.is_lit

    sleep (.25)

    i=led2.is_lit

    sleep (.25)

    j=led3.is_lit

    sleep (.25)

    #temp states

    #h=0

    #i=0

```

```

#j=0

print()

print("All RELAY States:\n")

if h == 1: print (" Relay 1 is OFF")
if h == 0: print (" Relay 1 is ON")
if i == 1: print (" Relay 2 is OFF")
if i == 0: print (" Relay 2 is ON")
if j == 1: print (" Relay 3 is OFF")
if j == 0: print (" Relay 3 is ON")

# Modify adding a Label

if h == 1: aLabel = ttk.Label(win, text="OFF")
if h == 1: aLabel.grid(column=0, row=3, pady=5, )
if h == 0: aLabel = ttk.Label(win, text=" ON")
if h == 0: aLabel.grid(column=0, row=3)
if i == 1: aLabel = ttk.Label(win, text="OFF")
if i == 1: aLabel.grid(column=1, row=3)
if i == 0: aLabel = ttk.Label(win, text=" ON")
if i == 0: aLabel.grid(column=1, row=3)
if j == 1: aLabel = ttk.Label(win, text="OFF")
if j == 1: aLabel.grid(column=2, row=3)
if j == 0: aLabel = ttk.Label(win, text=" ON")
if j == 0: aLabel.grid(column=2, row=3)

def switch1():

    #led = led1

    a=led.is_lit

```

```
sleep(.2)
if a == 1: led.off()
elif a == 0: led.on()
print(" A Relay State Switched !!")
sleep(.2)
#statusall()
```

```
def relaysoff():
    led1.on()
    sleep(.2)
    led2.on()
    sleep(.2)
    led3.on()
    sleep(.2)
    print(" All Relays Switching Off !!")
```

```
statusall()
```

```
win.mainloop()
```

**Thanks to Gary KT7AZ**

---

**I am working on a detailed instruction manual for building 2-meter and 70cm Lindenblad antennas using 300-ohm twin-lead, PVC pipe, and RG-6 coax. You can take a look at my latest iteration here:**

**<http://w7hd.ddns.info/sats/building-a-twinlead-lindenblad.pdf>**

It has pictures, instructions, descriptions – it's all in there. This antenna works very well for satellite communications and is shown here being used by the FAA on an Airport Control Tower in Merced, CA .

This is a part of the Lindenblad seminar I will be giving at the Hamfest on Nov 12<sup>th</sup>.

Ron W7HD



## LINUX TIPS AND TRICKS

WiFi drivers are sometimes not built into your distribution. Mint and many others provide Linux drivers if they are available. However, some of my older Dell laptops circa 2007 are not directly supported with their Broadcom chip sets.

Broadcom does provide Linux drivers at <http://www.broadcom.com/support/802.11>

And many 802.11 drivers are reverse engineered by Wireless.kernel.org and available for download at:

<https://wireless.wiki.kernel.org/en/users/drivers>

Thanks to Ernie D. in Federal Way, WA AA1AD on the Elecraft reflector.s

---

### **How to utilize your multimedia keyboard under Linux**

[https://www.howtoforge.com/linux\\_multimedia\\_keyboard](https://www.howtoforge.com/linux_multimedia_keyboard) Xbindkeys is a program that allows you to launch shell commands with your keyboard or your mouse under X Window. It links commands to keys or mouse buttons, using its configuration file. It does not depend on the window manager and can capture all keyboard keys.

---

## SATELLITE NOTES

Q: How much difference does it make for two locations for a satellite pass?

A: Not a lot if the distance is less than 30 miles.

For example, FO-29 would be at

peak altitude 81.55° at azimuth 81.60° at 11:31:04 at the W7HD QTH.

peak altitude 82.70° at azimuth 82.82° at 11:30:59 at the Pima Air and Space Museum.

About 5 seconds difference, according to Gnome Predict (runs on Linux and Windows).

<http://gpredict.oz9aec.net/> is where you can download it for Windows or Mac OS X. Linux versions can install from the package manager within Linux itself on most Debian and Ubuntu and Fedora versions.

---

FROM THE EDITOR

I need the following information/articles:

- Dstar group activities
- Upcoming speakers
- Local nets and times

Deadlines for 2016 submissions:

Oct 24, Nov 21

No newsletter is planned for December since there won't be a club meeting.

Ron Herring W7HD Editor, Oro Valley Amateur Radio Club Newsletter

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**Feel free to email me at [newsletter@tucsonhamradio.org](mailto:newsletter@tucsonhamradio.org)**

Please note that all articles submitted may be edited for spelling mistakes. My document program does automatic spell checking (LibreOffice Writer). PLEASE DO NOT USE DOCX FORMAT - it really hoses my import function. DOC, RTF, PDF, ODT, TXT are all acceptable.



**Ron Herring W7HD**

**Newsletter Editor**

**Serving Pima County and Southeast Arizona**