



The Vox



President's Message

The October hands-on meeting (October 18, 2016) is a ***Bring Your Questions*** night. Is there a question you always wanted to ask at a meeting but never had the opportunity? Do you have a radio or antenna problem you have been wrestling with and need some fresh ideas? Are you considering buying some new radio hardware and would like to get some first hand reviews? Write those questions and problems down and bring them to the October hands-on-meeting. We have an abundance of experience within the club membership. We also have a number of Electrical/Electronic engineers in the club so you can bring any general questions about electricity. If you don't have any questions or problems, please come to the meeting anyway. We need your experience and expertise. You may have the answer or insight to another member's question or problem.

We are always looking for ideas for presentations and presenters. The Board of Governors will begin putting together next year's schedule. If there is a topic you are interested in learning more about or you would like to give a presentation on a topic, please let me or any other club officer know. Giving a presentation on a Ham related topic is a great way to expand your knowledge base. Consider giving a presentation to the club membership. Preparing and giving a presentation is a good method for providing motivation to expand your knowledge on that subject. Don't worry about not having a portable computer or projector. We can supply that hardware. Please give this some serious consideration. I will be distributing a brief presentation questionnaire at the October business meeting. You can provide feedback then or again feel free to contact any club officer. I hope to see you at the October meetings.

73!!! de John (AB3LZ)

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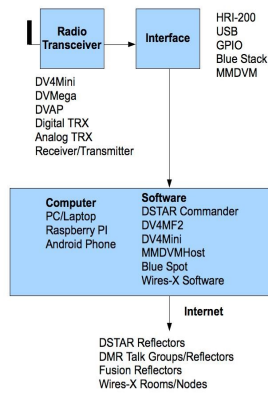
DV Access Points Anyone?

My wife and I decided to take a vacation at the shore this year, and as we thought about what we needed to take along, I decided to look up the repeaters available in the beach community. Unfortunately, I found that the only repeater available was a Fusion repeater, and it was not linked to the internet. I scratched my head for a solution, and then realized that what I needed was a DV (Digital Voice) Access Point. You see, a DV Access Point is actually an Internet Gateway which allows you to connect to DSTAR, DMR, and/or Fusion reflectors without the use of a local repeater. Figure 1 shows the basic structure of a DV Access Point.

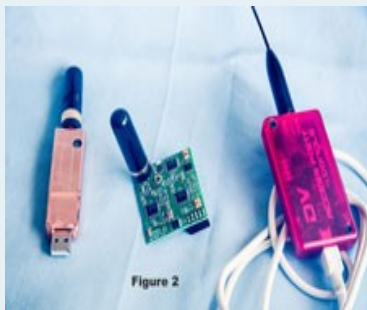
Let's look closer at these function blocks.

1. **Radio Transceiver** – This can be a DV4mini (figure 2 left), or a DVMega board (Center), or a DSTAR DVAP (figure 2 right). These radio/modem combinations usually run only milliwatts and are meant to service one Ham. It can also be any FM Radio

Digital Access Point/Hotspot



“You see, a DV Access Point is actually an Internet Gateway which allows you to connect to DSTAR, DMR, and/or Fusion reflectors without the use of a local repeater.”



which has a 9600 data port and a separate modem/interface; although, this configuration with an actual radio results in what is more correctly called a Hotspot. Each of these “Radios” have different capabilities and advantages. If primarily interested in DMR, I suggest using the DVMega Radio. Fusion is only currently available from the DV4Mini Radio. service one Ham. It can also be any FM Radio which has a 9600 data port and a separate modem/interface; although, this configuration with an actual radio results in what is more correctly called a Hotspot. Each of these “Radios” have different capacities and advantages. If primarily interested in DMR, I suggest using the DVMega Radio. Fusion is only currently available from the DV4Mini Radio.

2. **Interface** – Each of the above radios needs to be interfaced with the Computer. DV4Mini uses a USB interface. DVMega boards use a GPIO interface or a Blue Stack board with Bluetooth. There are several boards available to interface a 9600 bd radio data port to the computer – such as MMDVM Board which uses an Arduino microcomputer board. Wires-X uses a proprietary interface from Yaesu (HRI-200).
3. **Computer** - You will need some type of computer to run the Access Point. This can be a PC laptop or Pad like the PIPO X9, or a single board computer such as a Raspberry Pi. It can also be an Android Smartphone with Bluetooth.
4. **Software** – You will also need appropriate software to control the Access Point.

Continued on page 3

DV Access Points Anyone?

Continued from page 2

There are many different software systems in use for Access Points. Software can be supplied as single files or as drive images to be written to a micro SD card for the Raspberry Pi.

5. **Internet** – You will certainly need some type of Internet connectivity. That can be WIFI or a cable connection. It may be WIFI from a hotel, or perhaps a WIFI Access Point which connects onto the cell phone network. This latter method allows the Access Point to be used while you are mobile or in hotels with no WIFI! I used a Straight Talk IP Access Point which costs about \$40 and a bi-monthly charge of \$40 for 5 GB of data.

WIRES-X - So, let's see how this works out for my Wires-X simplex node which I described last month. [Figure 3](#) shows the Wires-x node structure. Please see my article last month for more information about the equipment used. If you are thinking of taking the Wires-X node (Access Point) on the road, you need to know that it requires

“If DMR needs some special treatment to work properly. The frequency in the DV4Mini software needs to be fine-tuned to work well in DMR.”

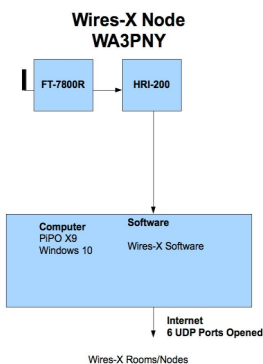


Figure 3

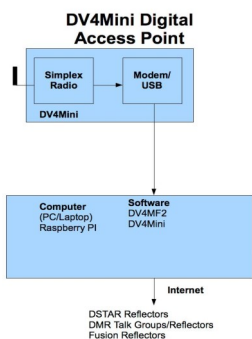


Figure 4

6 UDP ports to be open on the Internet Access Point. Cell providers can charge hundreds of dollars to open these ports. I know of a couple of long distance truck drivers who have accomplished this, but it is difficult. Hotels and vacation rentals would not even entertain this. If you must do this, look into a VPN connection which may have all incoming and outgoing ports open but still rejects unsolicited connections.

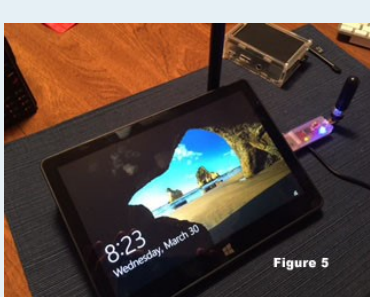
DV4MINI - This month, I'd like to show you two DV Access Points that I built around a DV4Mini stick. The DV4Mini has been described as the "Swiss Army Knife" of Access Points. It is capable of interfacing with DSTAR, DMR, and Fusion. You still need a "hand-held radio" for each of these modes to make the system work, but the DV4Mini will connect you to the digital network as an IP Gateway. There are many ways to put the Access Point together:

1. Plug the DV4Mini into a Windows/Linux laptop USB connection, load the dv4mini software,
2. Plug it into a PIPO computer (in Windows mode), and run the dv4mini software, or
3. Plug it into a Raspberry Pi and load an image with the dv4mini software.

The general block diagram for this Access Point is shown in [figure 4](#). I have used the DV4Mini in each of the three configurations above, and it works well in each of the modes. DMR needs some special treatment to work properly. The frequency in the DV4Mini software needs to be fine-tuned to work well in DMR.

Continued on page 4

DV Access Points Anyone?



Continued from page 3

Figure 5 shows the DV4Mini and the PIPO X9 windows computer.

Figure 6 shows the DV4Mini with the Raspberry Pi setup that I built.

I would like to concentrate on this configuration for the balance of this month's article. I came across this Raspberry Pi equipment design in an email from Terry, a friend from Massachusetts – KA8SCP. This Access Point includes a 3.5-inch LCD touch screen and a WIFI adapter. All the parts (except the DV4Mini) are available from Amazon – Here is what you will need to build one:

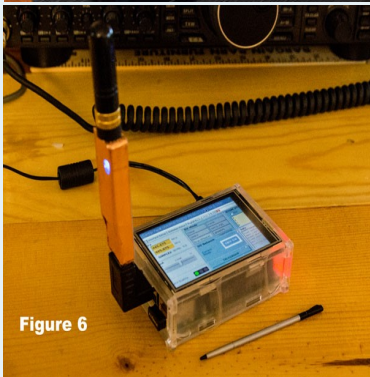
Raspberry Pi 2 Model B Project Board - 1GB (~\$47), 16GB micro SD (\$8),

OSOYOO 3.5 Inches LCD Touch Screen Kit with Case for Raspberry Pi 2 3 Model B (\$19.50)

Canakit 5V 2.5A Raspberry Pi 3 Power Supply (\$10),

Edimax EW-7811Un 150Mbps 11n Wi-Fi USB Adapter (\$10)

and the DV4Mini (UHF) from Wireless Holdings, Fla. (~\$129 plus antenna).



“The software was a challenge. The problem was in the display driver for the 3.5 inch display. None of the drivers I tried worked for the 3.5 inch display. I finally found the correct file.”

Note: These Access Points can also be used with a DSTAR DVAP if the proper software is included on the image/computer. Also – my DV4Mini has been wrapped in copper foil to shield it from extraneous RF.

Software: The software was a challenge. The problem was in the display driver for the 3.5 inch display. None of the drivers I tried worked for the 3.5 inch display. I finally found the correct file. I started with a DV4Mini image for a Raspberry Pi, and added the more advanced DV4MF2 software which includes Brandmeister talk group access. After installing the correct driver for the display, the box came to life. I have made both a HDMI display enabled system image and a 3.5 LCD enabled system image available at:

RP Image – with LCD Driver http://www.wa3pny.wb1gof.net/lcd_project/LCD_041316.zip

RP Image – with HDMI Driver http://www.wa3pny.wb1gof.net/lcd_project/HDMI_041316.zip

Note: These images MUST be unzipped with 7Zip (which is free)

If everything is ready to go, just write the LCD image onto the SDRAM, and boot and go. If you need to work with the system, I suggest the HDMI image for a more comfortable working environment, then just load the LCD driver (instructions in the directory below), and it will boot into LCD mode. I have not been able to go back to the HDMI mode once the LCD driver is loaded.

The supporting files are contained in this directory: http://www.wa3pny.wb1gof.net/lcd_project

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DV Access Points Anyone?

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The software for the DV4Mini is available at Wireless Holdings <http://wirelesshold.com/manuals.aspx> or at <http://www.g0hwc.com/dv4mini.html>

The DV4Mini software requires that you supply a CCS7 ID for your callsign which can be obtained from DMR-MARC at <http://www.dmr-marc.net/cgi-bin/trbo-database/userreg.cgi>

Conclusion: The DV4Mini is a very versatile device. The software only needs Internet connectivity with no special ports opened. It will work at Mc Donalds free WIFI! It allows me to communicate with three digital voice modes:

- With my ID51A DSTAR radio, I can connect with DSTAR REF/DCS & XRF Reflectors.
- With my MD-380 DMR radio, I can communicate on all the Brandmeister talk groups and reflectors. New software also allows for interconnection to the DMR-MARC network on a limited basis.
- With my FT-2D Fusion radio, I can communicate with the FCS001, FCS002, and FCS003 reflectors (but not Wires-X).

The DV4Mini software doesn't work very well as a "headless" application; a display and pointing device are needed for operation. That's why both the Access Points shown have touch screens. The DV4Mini works great for DSTAR and Fusion; however, it is not my first choice for DMR because of the need to fine tune the frequency and some instability problems. Hopefully new firmware will fix this. If I could have only one "low" cost device for all three modes, right now it would probably be a DV4Mini.

Next month we will look at homebrew DVMega shield Access Points along with some commercially available Access Points.

"The DV4Mini works great for DSTAR and Fusion; however, it is not my first choice for DMR because of the need to fine tune the frequency and some instability problems."

Your Story Goes Here



Your VOX input is needed!

Send any VOX submissions to:

John, WB3DX at johnahilderbrand@gmail.com

The VOX is your newsletter. Feel free to submit articles and pictures for inclusion of the VOX.

Review of the VIA Marathon

On Sunday September 11, 2016, the Lehigh Valley again hosted the VIA marathon. As you know, a marathon is a huge event where participants run 26.2 miles. This event is a qualifying event for the NYC marathon. It also benefits VIA of the Lehigh Valley, a facility which provides services for disabled LV adults. In addition to the 26 plus miles, this event covers two counties, Lehigh and Northampton.

LVARC members stepped up and nineteen volunteers provided communications support for this event. After the incident at the NYC marathon years ago, Net Control is held in a remote location. Along with amateur radio communications, NC shares space with Lehigh and Northampton county EMS, VIA staff, Lehigh Valley Hospital and local police departments.



This year's communications were very busy. A total of 81 pieces of

traffic were handled by LVARC amateurs ranging from welfare to emergency. Our operators went above their responsibility of just communications as many helped pass out water and a few accompanied EMS as they walked off their site to look for downed runners.



"This event is a qualifying event for the NYC marathon. It also benefits VIA of the Lehigh Valley, a facility which provides services for disabled LV adults."



Although a directed net was initiated at 0706 and closed at 1337 all operators were at their assigned positions no later than 0630.

The following amateur radio operators are to be commended for their talent and service. Thanks to **Mike** (KC3GBG), **Don** (N0VGA), **Kenny** (KB3BLE), **Paul** (KA3MTY), **Stephen** (W3TNT), **Gary** (W3GRD), **Phil** (KB3HMK), **Ryan** (KB3HMK), **John** (AB3LZ), **Mike** (KC3BLF), **Nick** (KC3EKC), **Rob** (AB3RC), **Roy** (W0ROY), **Andy** (KC3EKA), **Bob** (WB3JSZ), **Joe** (W3JMM), **Chris** (N3RPV) and **Jeff** (N3MFT).

THANKS to all our professional amateur radio operators!

Mark
AK3M



RACES and ARES Information



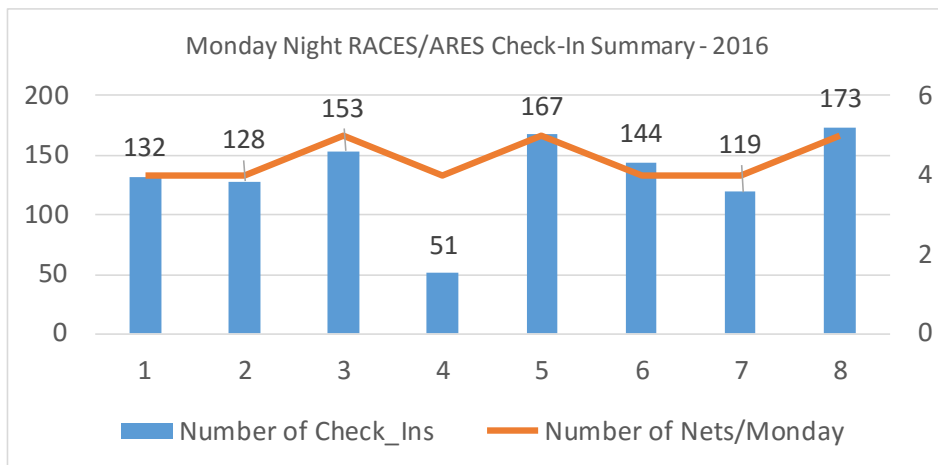
| LVARC ARES Events—2016 | |
|------------------------------|-----------------------|
| Event | Date |
| Women's 5K Classic | Saturday, October 1st |
| Hanover Township "Fall 5K" | Sunday, November 6th |
| D&L Rail Trail Half Marathon | Sunday, November 6th |

"The LVARC provides communication support for many spring, summer and fall community events (ARES) during the Spring, Summer and Fall. If you are interested in participating contact Mark, AK3M at AK3M@rcn.com. Participation in these activities earns you "incentive tickets" to be included in the December prize drawings. Your help is greatly needed and appreciated!"

LVARC / RACES / ARES Net

Monday Night
Check-In Summary
2016

| Month | Count | Days |
|-----------|-------|------|
| January | 132 | 4 |
| February | 128 | 4 |
| March | 153 | 5 |
| April | 51 | 4 |
| May | 167 | 5 |
| June | 144 | 4 |
| July | 119 | 4 |
| August | 173 | 5 |
| September | | |
| October | | |
| November | | |
| December | | |



Check-Ins Every Monday Night
LC/LVARC/RACES Net on 146.94 (PL 71.9)
Alternate frequency on 147.735/147.135 (DCS 315)
The Net begins at 7:30 pm local time (ET)

LVARC Repeaters
146.34 / 146.94 (PL 71.9)
147.735/147.135 (DCS - 315)
Club Simplex Frequency - 147.420

LVARC Activities and Events



ARES Report

ARES Report
Mark, AK3M

LVARC Activities and Events - 2016

| Event | Date |
|--|-----------------------|
| Women's 5K Classic | Saturday, October 1st |
| LC RACES/ARES Net - 7:30 pm (146.94) | Monday, October 3rd |
| LVARC Meeting (7:30 - Tri Clover FC) | Tuesday, October 4th |
| LC RACES/ARES Net - 7:30 pm (146.94) | Monday, October 10th |
| LC RACES/ARES Net - 7:30 pm (146.94) | Monday, October 17th |
| LVARC Activity Night (7:30 pm - Tri Clover FC) | Tuesday, October 18th |
| LC RACES/ARES Net - 7:30 pm (146.94) | Monday, October 24th |
| LC RACES/ARES Net - 7:30 pm (146.94) | Monday, October 31st |

The VIA Marathon was on Sunday September 11 2016. All positions were filled. The next ARES event is the Women's 5K Classic on October 1. Volunteers are needed for that event.

"The next ARES event is the Women's 5K Classic on October 1. Volunteers are needed for that event."

LVARC VE Report



LVARC VE Report
Mark, AK3M

Volunteer Examiners

The next VE test session will be on September 16 2016
at Hanover Elementary School at 6:30 pm.
To register, contact Mark (AK3M) at AK3M@rcn.com.

Important Test Information

The current Extra class test question pool expired at the
end of June, 2016.

When studying for the Extra test, be sure you are reading
the CURRENT extra question pool.

LVARC Minutes September 2016

Tri-Clover Fire Company, Orefield, PA

9/6/2016

Opening:

The regular meeting of the Lehigh Valley Amateur Radio Club was called to order at 7:30PM on Sept. 6 by President Bartos.

There were a total of 18 members in attendance, and the club was joined by no guests.

Guests: None

The following Board Members were present at the meeting: John Bartos, Chuck Ballard, Brian Snyder, Mike Mandell, Paul Ryan, Mark Miller, Scott Leichssenring

Approval of Minutes

The minutes of the previous meeting were unanimously approved as distributed.

Moved: Chuck, W3CDY

Second: Dave, KC3BFO

Treasurer's Report (Brian-KB3QHA)

Treasurer's report was read and discussed.

Motion to approve: Chuck, W3CDY

Second: Don, N0VGA

Motion carried

Committee Reports

Repeater:

John, AB3LZ reported the Dstar repeaters are going back to Icom in about a week. Lehigh County processed a P.O. for this. The voter for the 94 machine should be installed in Easton by tomorrow. The Emmaus voter needs some antenna work, and the one in Slatington needs a T1 line. The 135 machine seems fine. It was brought up that the 94 machine still has a time out issue which Motorola is supposed to look into.

Program:

Tonight's program is by Chuck, W3CDY with HF station setup. John, AB3LZ will do a JT65/9 update for hands-on night. Next month we will have a guest speaker from Eastern PA EMS Council.

Volunteer Examiners:

The next VE test session will be on September 16 2016 at Hanover Elementary School at 6:30 pm. To register, contact Mark (AK3M) at AK3M@rcn.com. There are 4 signed up already.

ARES:

The VIA Marathon is Sunday September 11 2016. All positions have been filled. The next ARES event is the Women's 5K Classic on October 1. Volunteers are needed for that event. November 6 we will have 2 events on the same day, a Hanover 5K and the D&L Half Marathon.

Communications:

We may have a survey to see how the members like the new Vox format.

Club Station:

We still have some work to do to make some adjustments to the HF wire antenna. We will have another work party to install the HF vertical later on. .

Old Business:

Scott, KB3YOT, mentioned the Gertrude Hawk chocolate sale. John, AB3LZ, brought up equipment insurance which will probably not be effective until 2017. We have to generate a list of equipment that we feel is equivalent to the obsolete equipment we own and will get insurance based on what the replacement item costs.

New Business:

There is not going to be an Emergency Preparedness Day this year. There will still be a Whitehall Township emergency event this Saturday Sept 10.

John suggested we vote on cancelling our non-functional telephone.

Chuck, W3CDY moved we request the repeater committee decide whether we need the phone line and notify the treasurer to cancel it. The repeater committee is also look into the regulations for out of band control of repeaters and propose a method to meet those requirements with our present setup.

Seconded by Scott, KB3YOT.

Motion carried.

Good of the Order:

John announced the Kutztown antique radio show is coming up and he has information on it. Dave, KC3BFO asked when the club was founded. Paul, NOKIA said we originated as the Allentown Radio Club in 1928. Our history prior to incorporation in the 50's is a little sketchy but ARRL supposedly has records of the Allentown Radio Club.

Sick Report:

Nothing new.

New Member Applicants:

Brian Luscombe, KD2LQP

Motion to accept: Chuck, W3CDY

Second: Andy, KC3EKZ

Carried

Adjournment:

Meeting was adjourned at 8:25PM

Moved: Chuck, W3CDY

Seconded: Dave, KC3BFO

Carried

Minutes submitted by: Mike, KC3BLF



october 2016

| sunday | monday | tuesday | wednesday | thursday | friday | saturday |
|--|---|--|---|----------|---|----------------------------|
| | | | | | | 1 Women's 5K Classic |
| 2 | 3 LARES/RACES Net 7:30 pm | 4 LVARC Mtg 7:30 pm | 5 District 2 RACES Net 7:30 pm 147.255 | 6 | 7 | 8 |
| 9 | 10 ARES/RACES Net 7:30 pm Columbus Day | 11 | 12 District 2 RACES Net 7:30 pm 147.255 | 13 | 14 | 15 |
| 16 Deadline to Schedule VE Test | 17 ARES/RACES Net 7:30 pm | 18 Hands On Night Tri-Clover 7:30 pm | 19 District 2 RACES Net 7:30 pm 147.255 | 20 | 21 VE Test Session Hanover Elem. School 6:30 pm | 22 |
| 23 | 24 ARES/RACES Net 7:30 pm | 25 | 26 District 2 RACES Net 7:30 pm 147.255 | 27 | 28 | 29 |
| 30 | 31 ARES/RACES Net 7:30 pm Halloween | | | | | |

notes

The next ARES event is the Women's 5K Classic on October 1. Volunteers are needed for that event.

LVARC Club Announcements



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General Interest



Dear ARRL member,

I am writing to you today because we are at a crossroad in our efforts to obtain passage of *The Amateur Radio Parity Act*.

Our legislative efforts scored a major victory in our campaign when *The Amateur Radio Parity Act*, H.R. 1301, passed in the House of Representatives yesterday, September 12th. The legislation now moves to the Senate, where we need every Senator to approve the bill.

You are one of over 730,000 licensed Amateur Radio Operators living in the United States. Many of you already live in deed-restricted communities, and that number grows daily.

NOW IS THE TIME FOR ALL HAMS TO GET INVOLVED IN THE PROCESS!

- If you want to have effective outdoor antennas but are not currently allowed to do so by your Home Owner's Association, SEND THESE EMAILS TODAY!!
- If you already have outdoor antennas, but want to support your fellow hams, SEND THESE EMAILS TODAY!!
- If you want to preserve your ability to install effective outdoor antennas on property that you own, SEND THESE EMAILS TODAY!!

We need you to reach out to your Senators TODAY! **Right away.**

Help us in the effort. Please go to this linked website and follow the prompts:

<https://arrrl.rallycongress.net/ctas/urge-senate-to-support-amateur-radio-parity-act>

Thank you.

73, Rick
Rick Roderick, K5UR
President

ARRL, the national association for Amateur Radio®

LVARC Club Photos



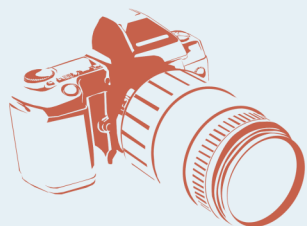
I ❤️ PHOTOGRAPHY

Lehigh Valley Heath Network VIA Marathon



Photos courtesy of Don, N0VGA and Bob, WB3JSZ

LVARC Club Photos



Lehigh County EMA Emergency Preparedness Expo



Photos courtesy of Don, N0VGA and Rod, N3XG