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December 24, 2024

Subject: Cutover Update and Next Steps

Stakeholders,

As of Friday, December 13<sup>th</sup>, we have completed the cutover process, except for the State Prison, which is scheduled for January. To be clear, this is just the first step in getting the system up and running. There's still a lot to do to make it better and expand coverage.

### **What's Happening Now**

As you can imagine, we have a long list of punch list items. We meet daily to review updates, reprioritize, and make assignments. It's a team effort, and we're fully committed to improving and fine fine-tuning the system for years to come.

### **Firmware Updates: A Major Issue**

One of the most substantial issues we continue to face is that many radios in the field have not been updated to the latest firmware. Some are 20 to 24 versions behind. If a radio is not on the latest firmware it can cause:

- Coverage-like issues
- Missed radio traffic
- Weak signal strength
- General performance glitches

Firmware updates are crucial because they fix bugs and improve functionality. Every radio, including the new L3H models, needs to be checked and updated to the latest firmware. We recommend that in the future radios are checked more frequently for firmware updates.

## **Owning Up to Programming Errors**

I would like to recognize that we have had programming errors and those have been issues that we have inadvertently caused and for that, I apologize. Whenever these issues come up, and we are notified, we jump on them immediately and reprogram as needed. In some cases, we've even found problems before they're reported and have reached out to agencies to fix them proactively. Your patience with us as we sort these out is greatly appreciated.

## **Tools to Help You**

We have put together a guide to help walk through some of the common issues and some of the associated fixes. This guide includes:

- Links to cables on Amazon for firmware updates
- Access to free firmware downloads
- Tips for troubleshooting

Also attached is a letter that was sent out by Motorola with their recommendation to update the firmware and consider having your radios tuned.

The third document included in this newsletter is a form that we would you to use when reporting potential coverage issues. Please know that confirming the version of firmware is one of the fields on the spreadsheet, again, this is because old versions of firmware do mimic coverage issues.

## **Expanding Coverage**

I have said many times that we have money for new sites, and we will continue to grow our coverage. We've got funding for six new sites in the FY25 budget, but we haven't decided where they'll go yet. I plan to identify the most critical areas and start the procurement process soon. We will be aggressive in getting new sites.

## **Fine-Tuning the System**

RF experts from L3H have been on-site the past two weeks, reoptimizing some of the more problematic locations. This has been very productive, and we'll continue these efforts into the new year.

### **How You Can Help**

Please take a minute to read through the attached documents. If you encounter problems, let us know right away—don't wait until you think we're less busy. The sooner we hear about an issue, the sooner we can prioritize and resolve it.

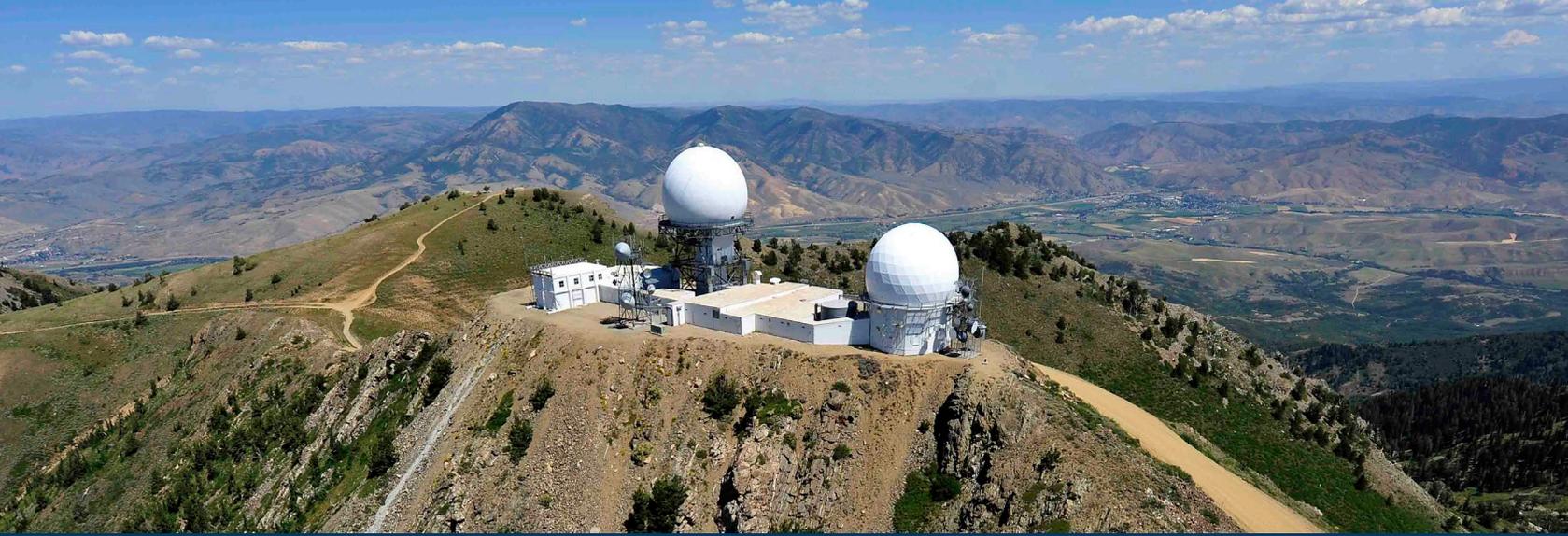
### **We're Here for You**

If you've already reached out, I hope you've seen how committed we are to providing excellent support. If you haven't, please don't hesitate to get in touch. Your feedback is invaluable as we work to make this system the best it can be.

Thank you for your patience and understanding as we take on this huge task.

Sincerely,

Tina Mathieu



# UTAH COMMUNICATIONS AUTHORITY

## KEEPING PUBLIC SAFETY CONNECTED

UCA Chat - Radio Troubleshooting Tips 12-19-2024



# Radio Troubleshooting Tips

**\*IMPORTANT\*** Many of the issues that have been reported post cutover have been directly related to outdated radio firmware. Please update radio firmware before attempting the troubleshooting steps below.

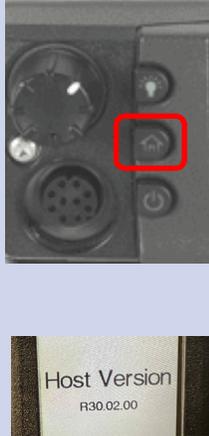
Slide 3 contains instructions on how to determine your radio's firmware version

Slides 4-5 contains instructions on how to update your radio's firmware version

Symptom(s)	Troubleshooting Steps
1. Radio will not transmit or receive in a location that you expect it should and where there is good signal strength.	<ol style="list-style-type: none"> <li>1. Verify that the signal level where you are located is sufficient to transmit. See slide 6 on how to determine whether that is the case.</li> <li>2. Switch to a statewide channel like OQ_CALL, SW_CALL and see if the problem still occurs.               <ol style="list-style-type: none"> <li>A. If the radio works <b>consistently</b> after switching channels, the channel you were first attempting to talk on is likely not allowed on the radio sites in the area where you are trying to operate.</li> <li>B. If you believe this is in error, contact UCA at (801)840-4216 and report the issue as a "Coverage Class Issue" Please be prepared to answer the following questions: Reporting agency, POC, Talk Group, GPS Location/Street Address/Mile Marker, In building/Out building, Site that the radio is attached to, Receive Signal Strength, Make/Model of radio, Firmware version, Description of issue</li> </ol> </li> </ol>
1. Radio will not transmit or receive, and the signal strength is poor.	<ol style="list-style-type: none"> <li>1. If you believe there should be p25 coverage where you are located, contact UCA at (801)840-4216 and report the issue as a "Missing Coverage" issue . Please be prepared to answer the following questions: Reporting agency, POC, Talk Group, GPS Location/Street Address/Mile Marker, In building/Out building, Site that the radio is attached to, Receive Signal Strength, Make/Model of radio, Firmware version, Description of issue</li> </ol>
<ol style="list-style-type: none"> <li>1. Radio randomly misses the front part of a long transmission from dispatch or misses a short transmission from dispatch altogether.</li> <li>2. You have two radios in the same location. One radio receives transmission from dispatch while another randomly does not (applies to mobiles or portables)</li> </ol>	<ol style="list-style-type: none"> <li>1. Disable channel scanning and test again           <ol style="list-style-type: none"> <li>A. If disabling channel scanning fixes the issue, then report the issue to UCA or the agency that programs your radios as a "scan hang timer programming issue"</li> </ol> </li> <li>2. Update your radio firmware to the latest version and test again.           <ol style="list-style-type: none"> <li>A. If the problem is still occurring, it is possible that dispatch is Keying but not waiting for the system to start transmitting and therefore cutting off their transmission.</li> <li>B. If the problem is still occurring please report the issue to UCA at (801)840-4216.</li> </ol> </li> </ol>

Symptom(s)	Troubleshooting Steps
<ol style="list-style-type: none"> <li>Radio will not allow you to key up (transmit) and issues a deny tone (Long Medium Tone, boooooonk) sometimes and other times will work properly. Radio is often able to transmit properly on one channel but not another.</li> </ol>	<ol style="list-style-type: none"> <li>Someone else could be talking on the channel you are trying to talk on, wait for them to finish and try again.</li> <li>Verify that the signal level where you are located is sufficient to transmit. See slide 7 on how to determine whether that is the case.</li> <li><b>*IMPORTANT*</b>Please update your radio firmware to the latest version and test thoroughly. For instructions on how to view/update versions firmware see slide 3 <ol style="list-style-type: none"> <li>If updating radio firmware does not solve the problem, then report the issue to UCA or the agency that programs your radios as a "TDMA control channel programming issue". Please be prepared to answer the following questions: Reporting agency, POC, Talk Group, GPS Location/Street Address/Mile Marker, In building/Out building, Site that the radio is attached to, Receive Signal Strength, Make/Model of radio, Firmware version, Description of issue</li> </ol> </li> </ol>
<ol style="list-style-type: none"> <li>Radio says invalid ID on the screen and will not associate with the system, the radio will not transmit/receive</li> </ol>	<ol style="list-style-type: none"> <li>The radio in question likely missed the 2<sup>nd</sup> final cutover programming. Report the issue to UCA or the agency that programs your radios as a "radio not programmed at final cutover" issue. Please be prepared to answer the following questions: Number of radios that need programming</li> </ol>
<ol style="list-style-type: none"> <li>Radio generally has significantly less coverage than before cutover</li> <li>Radio generally has low signal level and doesn't transmit consistently</li> </ol>	<ol style="list-style-type: none"> <li>Determine signal on another similar ( brand x portable for brand x portable, brand y mobile for brand y mobile) in the same location using the steps on slide 6.</li> <li>If signal levels are vastly different on the two radios being compared, there is potential that the antenna attached to your radio is designed for the 800MHz public safety band and not the 700MHz public safety band. The UCA p25 system operates in the 769-775/799-805MHz band and requires an antenna that is tuned for those frequencies. You can lookup the make and model of your antenna to determine if it's designed for the p25 system frequencies.</li> </ol>
<ol style="list-style-type: none"> <li>Radio doesn't work in a building where it previously did</li> </ol>	<ol style="list-style-type: none"> <li>Likely the Bi-directional Amplifier or Distributed Antenna System in the building will need to be updated to support the 700MHz Public Safety Band (769-775/799-805MHz). The FCC requires that anyone operating a BDA/DAS system register the unit with UCA.</li> <li>For questions related to BDA/DAS systems, please contact Dan Dialogue at <a href="mailto:ddialogue@uca911.org">ddialogue@uca911.org</a></li> </ol>

# Finding radio firmware version

Motorola Portable		L3H Portable	
<ol style="list-style-type: none"> <li>1. Power on radio</li> <li>2. Within 3 seconds of powering the radio on, press the two dot button under the ptt button on the right side of the radio 5 times within the first 10 seconds of powering the radio on.</li> <li>3. Record the "Host Version" number, this is the firmware version</li> <li>4. Current version is 34.00, <b>older versions have proven to have issues communicating with the p25 radio system</b></li> </ol>		<ol style="list-style-type: none"> <li>1. Power on radio</li> <li>2. Press the center key pad button</li> <li>3. Arrow Right to Cog Icon</li> <li>4. Arrow down to maintenance, press center keypad button</li> <li>5. Arrow down to Radio Info, press center button</li> <li>6. Record the number next to "Software:", this is the firmware version</li> <li>7. Current version is R17C05.0103, <b>older versions have proven to have software bugs that may affect a feature you use.</b></li> </ol>	
<ol style="list-style-type: none"> <li>1. Power on radio</li> <li>2. Within 3 seconds of powering the radio on, press the home button on the radio 5 times within the first 10 seconds of powering the radio on.</li> <li>3. Record the "Host Version" number, this is the firmware version</li> <li>4. Current version is 34.00, <b>older versions have proven to have issues communicating with the p25 radio system</b></li> </ol>		<ol style="list-style-type: none"> <li>1. Power on radio</li> <li>2. Press the center menu button</li> <li>3. Arrow Right to Cog Icon</li> <li>4. Arrow down to maintenance, press center button</li> <li>5. Arrow down to Radio Info, press center button</li> <li>6. Record the number next to "Software:", this is the firmware version</li> <li>7. Current version is R19C01.0312, <b>older versions have proven to have software bugs that may affect a feature you use.</b></li> </ol>	

# Updating Radio Firmware: Motorola



## Prep steps:

(<https://youtu.be/C7Htu5nZXxs?si=tCzawMBU8So0bWQI>)

1. Go to [www.motorolasolutions.com](http://www.motorolasolutions.com)
2. Login with your current account or create a new account
3. Upgrade your account to a business account.
4. Go to the resource center  
<http://myview.motorolasolutions.com>
5. Download the latest version of Motorola APX CPS (current is R34.00)
6. Download the latest Mega radio firmware bundle (current is current is R34.00)
7. Purchase a programming cable compatible with your radio.
  1. UCA has seen these low lead time cables work for cutover  
Portable: <https://a.co/d/aAkIfd2>  
Mobile: <https://a.co/d/8YIEZwU>
8. Charge radio battery and/or ensure stable power source.

## Update steps:

(<https://youtu.be/fAYFwxUFHko?si=e7RQgewLEFKdETEd&t=89>)

1. Power on Radio
2. Connect Programming Cable
3. Listen for windows to detect the USB connection to the radio
4. Open Motorola APX CPS
5. Click on refresh radio on the left
6. Click Browse and select the firmware mega file you downloaded earlier.
7. Click Refresh Radio.
8. Do not unplug radio until CPS tells you to do so and **do not** power cycle radio until the process has fully completed on the radio.

# Updating Radio Firmware: L3H



## Prep steps:

1. Contact L3H at 800-528-7711 Opt. 3 to request the latest firmware file and RPM2 software for your radio
2. Purchase the appropriate cable and security dongle that work with your radio.
  - Deb Burton (L3H Sales Rep)
  - Deb.Burton@L3Harris.com
  - 385-556-5356
  - The security dongle must be shipped to UCA for verification steps prior to shipping to your location.
3. Charge radio battery and/or ensure stable power source.

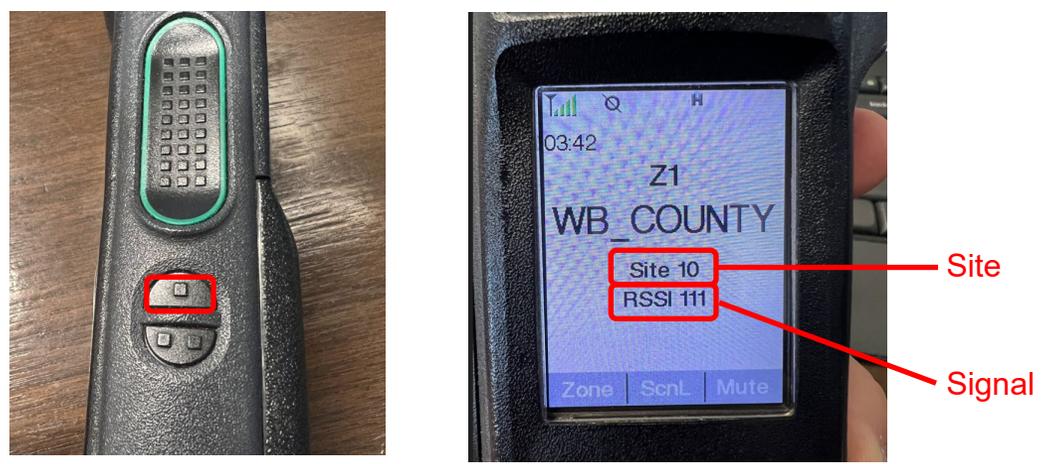
## Update steps:

1. Power-up the PC if not already on and start RPM2.
2. Ensure the radio is powered off.
3. Plug in the appropriate programming cable.
4. Turn radio on
5. If prompted with a **Found New Hardware** wizard, accept all prompts to allow the installation of the USB driver software.
6. In RPM2, display the **Load Code** tab.
7. Select **Radio Firmware** from the Radio Code dropdown.
8. Browse to the file and click **Add**.
9. Do not unplug radio until RPM2 tells you to do so and **do not** power cycle radio until the process has fully completed on the radio.

# Signal Strength and Site Number

## Motorola Portable

Press up Button Site Number and Signal Strength (RSSI) will appear temporarily



## L3H Portable

1. Press the center menu button
2. Arrow Right to once to "S" Icon
3. Arrow down to "site alias", press center button
4. The site shown with the > symbol is the site your radio is attached to. The site number is formatted XX-XX
5. The signal level will be to the right of the site number

