INTERNATIONAL RADIO NETWORK NEWSLETTER

AUGUST 2025

Website: https://irn.radio Email: irnhamradio@gmail.com

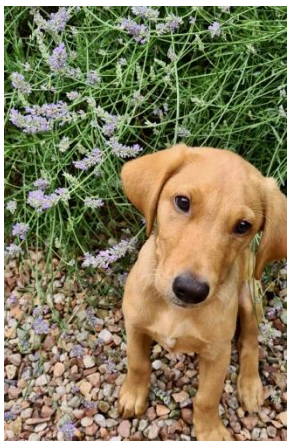
Welcome

Welcome to the 4th edition of this new monthly newsletter from the IRN. It's hard to believe that it is August already! I hope you are having a super summer, or indeed winter, depending on where in the world you are.

It has been great to see a regular stream of applications to join the IRN, with several welcome emails being sent out almost every day, to both licensed and non-licensed operators. Nevertheless, we only hear a small percentage of new members participating on our Network connections and it makes me wonder what might be holding people back from making contact with others over the Network. With that in mind, I very much welcome the article written by Doug VE3XDB, 'Energizing the IRN Network: Let's Connect and Share!' You will find the full article later in this newsletter and it contains some fantastic advice for all of us, old and new members.

Also included in this newsletter is an amazing article on DMR written by Cliff Linton VE6PLC. Whether you are new to DMR, trying to navigate around all the complications and challenges, or someone who has used DMR for years, Cliff's article/presentation provides so much useful information and many of us, myself included, can learn so much from it. It might just be the key that you need to unlock your DMR potential or inspire you to experiment further with DMR.

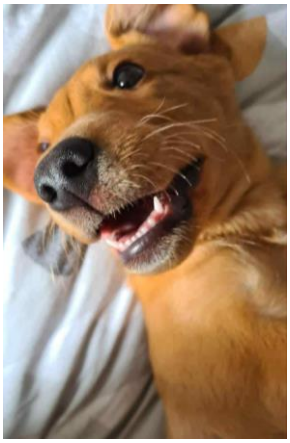
The first article this month takes a look at one of our Connected Partners, Zello Mode Radio (ZMR) and Ray N9KGC has spoken about the beginnings of ZMR and how it has grown to be the Network it is today. The IRN is proud to maintain the connections, or 'crosslinks', with ZMR for both the licensed and non-licensed members.



As always, I want to thank all the contributors to the newsletter, it is very much appreciated. We welcome contributions from all members for our future newsletters and details can be found later about how to send in your own contributions and suggestions.

Finally, an update from HQ here in Central Scotland. Myself and Helen MM7HQS introduce you all to our new Station Manager – Odin. Odin is a 3-month-old fox red Labrador, and he has an enthusiasm for life and levels of excitement that knows no bounds.

It is a lot of fun to watch Odin experience the world for the first time and experiment with everything using his tongue and teeth! Thankfully, he is a very sociable puppy and so much loves to meet people, old and young, and other dogs (although, when he came face-to-leg with a very large St Bernard, he did stop and think!)



That's it from me for now. I need to return to puppy patrol duties.

Enjoy the newsletter, I know you will, and sending best wishes to all members of the IRN.

73

Graham M Matthews GM0UUB
IRN President

Connected Partners – Zello Mode Radio

International Radio Network has enjoyed permanent connections, or 'crosslinks', with the Network named Zello Mode Radio, or ZMR, for around 7 years. ZMR was started and owned by Raymond Sult N9KGC. Ray hosts various Zello channels on his Network and you can find out more by visiting www.zmr.us to check out how to connect.

Ray has several ZMR channels, with 2 channels permanently 'crosslinked' to the IRN. ZMR 851.065 is connected to the IRN 'International radio network' Zello channel (for licensed and non-licensed members) and ZMR 851.900 Zello channel is connected to the IRN multimode system (for licensed amateur radio operators only).

We invited Ray to share some thoughts and information about ZMR, its beginnings and how it grew to where it is now.

Ray stated, 'ZMR was first founded in 2016. It was just a private group for myself and two friends of mine that had an interest in amateur radio. And before they got on any of the other Zello groups they were more willing to just get on a channel with me. I guess because they knew me they felt more comfortable. The very first ZMR channel back in 2016 was just named "ZMR". There was only myself, my friend Cliff (CB187) and my neighbour Ron. We were the only 3 people on the channel. After almost about 1 year, they lost interest in it. Cliff failed his amateur license exam and never went back to take it again. I deleted that original channel sometime in 2017.

'I was also a member of the IRN around that same time and a couple of other radio related Zello channels. Network Radios was one of the ones I was a part of. Out of respect for the IRN and Network Radios I never promoted or talked about ZMR. I did not want to give the impression I was competing with these other established groups.'

Ray went on to say that he contacted Bob (Uncle Bob KB1UPZ, IRN owner, now silent key since March this year) and Karl Hobson G1YPQ (Network Radios owner) about an idea he had for Zello Mode Radio. Ray said, 'I explained to both of them that I wanted a group that would help promote all other groups. Up until that point I had seen so many groups come and go and channels come and go and usually they did not last because they had the strict policy in place of not allowing members to talk about other Zello channels. Some of them were very strict about it and I always disagreed with that concept. Even though Karl's group Network Radios in the UK had adopted that policy, he did see my point of view and understood what I wanted to do.

'So once Karl and Bob were both on board with what I wanted I started really promoting my channels and my group to the public. I started the Facebook group with just myself and two other people. We now have around 3,000 members on the Facebook group, and I think we have 5,000 subscribers to the Zello channels.

'Bob (from IRN) and Karl (from Network Radios) were both very receptive to my ideas back at the beginning. But Bob from the IRN was much more receptive and very willing to do something together. Karl thought it was all a good idea and said he would do whatever he could to help promote it but he didn't have any real ideas in mind like Bob did and it was late 2018 that the IRN and ZMR had our first Crosslinked Zello channel.'

Ray continued, 'I've always admired what the IRN stood for and helped to do for the amateur radio community and I wanted to be a part of that in some way. More than just a member. And that's why the collaboration between the two groups fit together so well.

'I guess some of the highlights are that Bob and the IRN really helped make ZMR what it is today.'

Thanks to Ray for sharing the story of ZMR, Zello Mode Radio, with us. It is very much appreciated, and we hope the collaboration will continue to strengthen further as we move forward. As a reminder, to find out more about Zello Mode Radio, please visit www.zmr.us

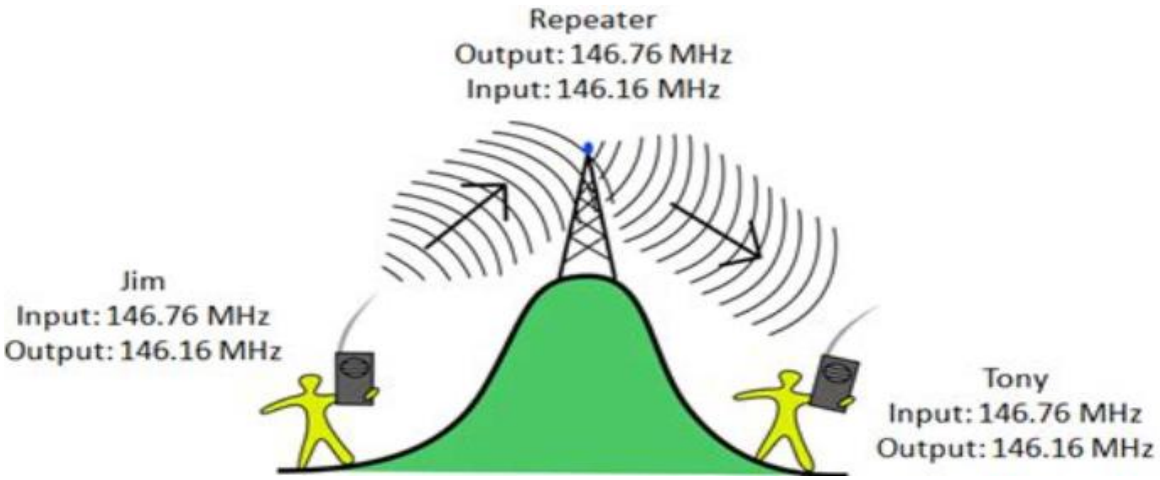
DMR Digital Amateur Radio

By Cliff Linton VE6PLC

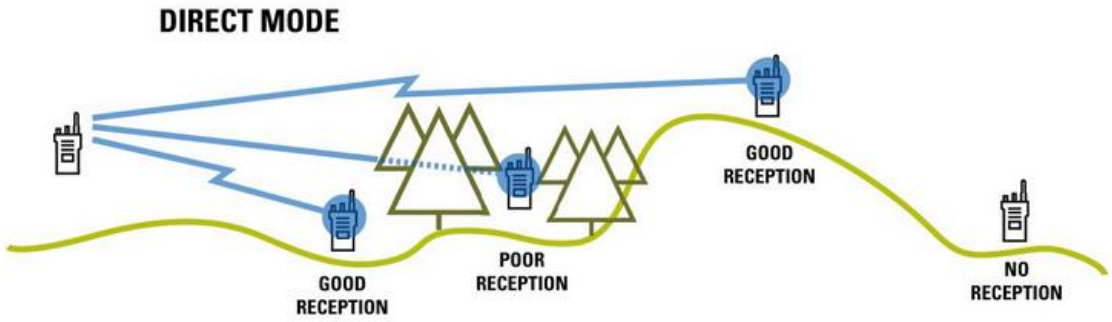
The power of DMR digital radios comes from interconnecting the local base repeaters and hotspots via internet to other repeaters and hotspots. Users select a channel with a specific talkgroup on their radios to be connected to a group of repeaters and hotspots also connected to that same talkgroup. DMR Talkgroups (TG's) are usually based on a geographic region (for example Alberta or North America), a shared interest (blind hams, radio science, antenna building) or a special feature (bridging between DMR and analog repeaters for example).

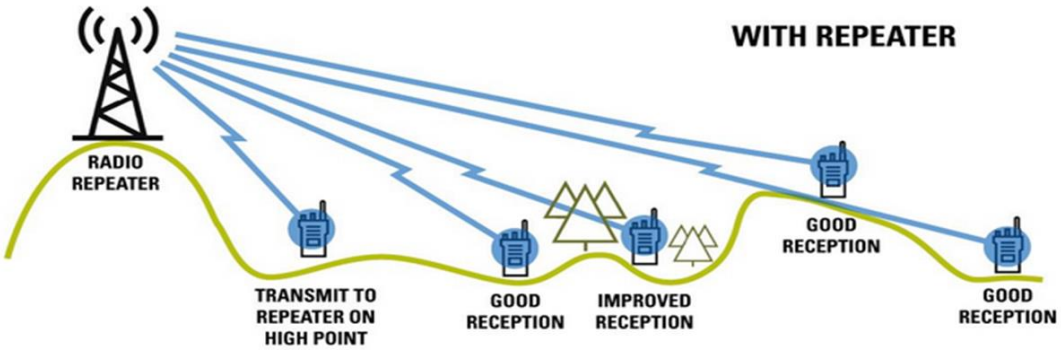
There are multiple DMR networks to choose from. Some are more strictly regulated as to the allowed types of connections and some are more open to experimentation. Many networks have some common TG's that are interconnected to each other. Depending on the DMR network that you are connected to, your local repeater or hotspot may have "static" Talkgroups, "last used" Talkgroups, "user activated" Talkgroups, or a combination of types. Static talkgroups are always active on the repeater, while user activated (UA) ones are active only when a user presses PTT after selecting the desired TG, and remain active for a set period of time, often 10 to 15 minutes. The TGIF DMR network uses the "last used" type where the Talkgroup last selected by a user stays active until a different TG is selected.

Why do hams use repeaters? Whether digital, like DMR, or analog FM, using a repeater offers several advantages. Repeaters are usually situated at a point of higher elevation, often on top of a tall building, at the top of a hill, or even high up on a mountain. The higher elevation increases the "line of sight" distance between the repeater and any radio that is accessing the repeater. In situations where two radios are beyond the line of sight distance from each other and cannot communicate directly, but are both within the line of sight distance of a repeater, working through the repeater will allow them to communicate with each other.



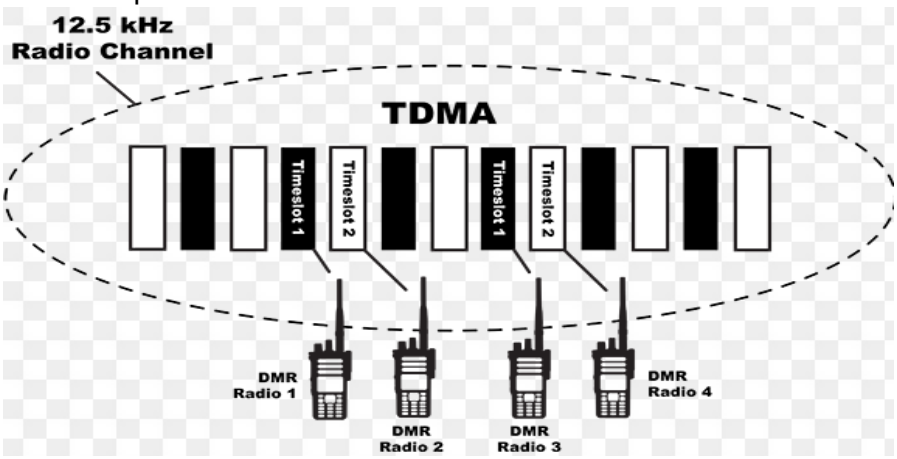
In the above example, Jim and Tony cannot talk directly to each other because the hill blocks the signals between their radios. The repeater at the top of the hill overcomes that limitation. Obstacles within the normal line of sight distance can also interfere with communication as shown below.



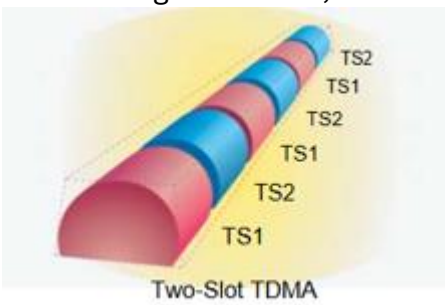


In the upper picture, not every radio gets good reception because of differences in the terrain. Trees absorb some of the signal and a hill blocks all reception. In the lower picture, the radio in the trees has an improved signal and the radio that had no signal before now has a good signal.

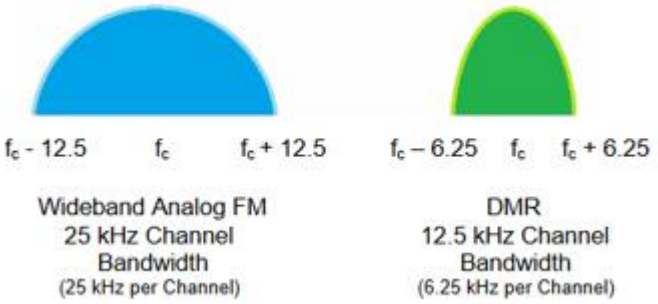
Back to DMR specifics. Another feature of the DMR system is that all radios and repeaters have 2 “timeslots”, 1 and 2. Timeslot 1 is typically used for “wide area” connections while timeslot 2 is used for local and regional talkgroups. For example, one group of users can be having a local conversation on timeslot 2 at the same time as another group of users are talking on the Canada wide talkgroup on timeslot 1. In the example below, Radio 1 is having a conversation with radio 3 on Timeslot 1 while radio 2 is having a conversation with radio 4 on Timeslot 2. The radios on TS 1 do not hear any of the conversation on TS 2 and vice-versa, even though all 4 radios are using the same repeater and the same frequencies!



DMR transmissions have a 30ms window for each time slot. That window is further divided into a 27.5ms frame followed by a 2.5ms gap. For each 60ms, the radio is only transmitting for 27.5ms, which results in extended battery life and less heat.



The channel bandwidth of DMR transmissions is half the size of standard analog FM transmissions (12.5kHz verses 25kHz) making it possible to accommodate more DMR channels in the same amount of spectrum space as standard analog FM channels.

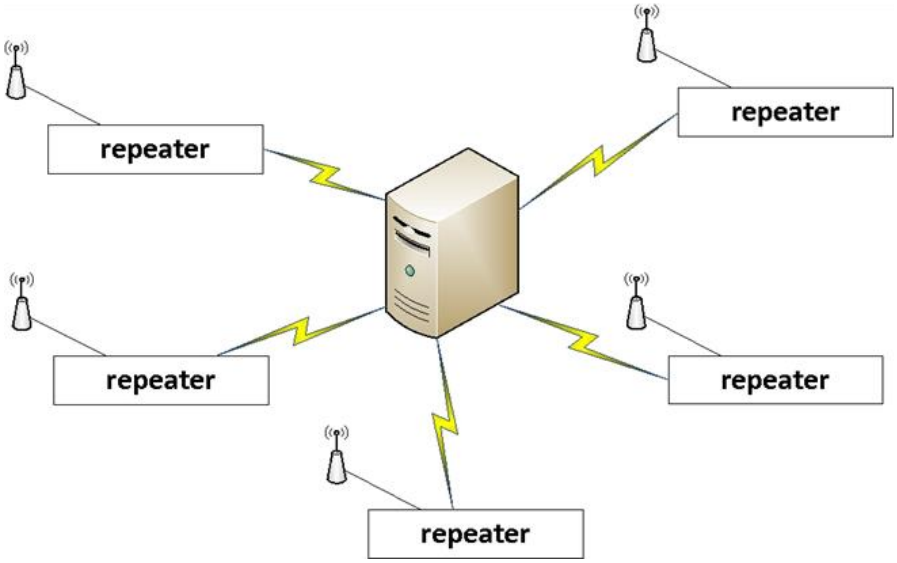


DMR uses Colour Codes (CC) to aid in reducing interference. The colour code programmed in your radio must match the CC programmed in the repeater or hotspot you are connected to, otherwise your signal will be ignored. The same holds true for transmissions coming from the repeater to your radio. Most of the time, in amateur radio, CC 1 is used.

A Code Plug is the configuration file for a radio. All the settings needed to make the radio work properly are configured by the code plug. Analog parameters include transmit (Tx) and receive (Rx) frequencies, bandwidth, and tone access codes (CTCSS or DCS). Digital parameters include Tx and Rx frequencies, Color Code, Timeslot, Contact (Tx talkgroup), and Receive Group (Rx talkgroup). Other parameters include your DMR ID, Zones, and radio button definitions.

So far, we have been talking primarily about DMR Radio to DMR Repeater situations. Hotspots provide access to DMR networks without the need of a repeater. Where a repeater is usually connected to only one DMR network, a hotspot can be connected to various DMR networks. A hotspot can also connect your DMR radio to the Fusion network. The Openspot 4 hotspot will also connect your DMR radio to D-star networks. Using a hotspot really opens up the DMR world. Hotspot friendly DMR networks include DMR Plus, Brandmeister, Quadnet, AmComm, Freestar, FreeDMR, Phoenix, Ham United, and TGIF. Unlike with a repeater, the hotspot end user has complete control over what TG and what network they connect to.

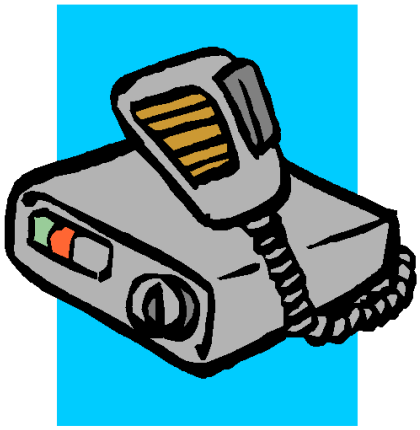
Repeaters and hotspots connect to a server. The server looks at the incoming data and forwards the packets to the appropriate destinations based on the TG. Unlike when you connect to a web site from your computer or phone, which is a one to one connection, when you connect your DMR radio to a talkgroup, you have a one-to-many connection. When you transmit, every repeater, hotspot, and radio that is connected to that TG will receive your transmission. That can be a province or state, a region, a country, a continent, or world wide!



Hotspots can go mobile quite easily by using the internet sharing ability of most smart cell phones. The data stream between the hotspot and the cell phone is relatively small, especially when compared to streaming video. If your hotspot has WiFi capability, it can be linked to your smartphone so that when you leave home with your DMR radio, your hotspot, and your smartphone, your favourite hotspot talkgroups can go with you.

The Raspberry Pi Zero with WiFi and the smaller MMDVM board is very popular and makes for a good mobile/portable hotspot. It is available under many names from multiple sources.

Energizing the IRN Network: Let's Connect and Share!



We have an intelligent, interesting and broad based community in the IRN, and it continues to grow with many new members, every week! As with many amateur radio activities, participation makes the experience even more rewarding. As we continue to foster a vibrant community within the IRN network, it's essential to explore creative ways to energize our network. Here are some exciting ideas to help you engage with fellow members, share experiences, and strengthen our connections.

🎧 *Listen and Learn*

Listening is the first step in building a strong network.
Tune in to various nets and observe the conversations happening around you. This not only helps you understand the dynamics of our community but also allows you to identify topics of interest and potential collaboration opportunities.

🔍 *Identify and Connect*

There are at least two ways to identify and connect.

- Just call out on the system to identify you are there! "This is IRN9999, is there anyone listening who might have a moment to chat?" You may be surprised at the result.
- While listening to nets or general qso's, take a moment to identify members you haven't interacted with yet. When the time is right, reach out to them! A simple hello can lead to meaningful conversations and new friendships. Remember, the IRN network is open to all, and everyone is welcome to join in the discussions.

📞 *Respond to Calls*

When you hear a call for participation or assistance, don't hesitate to respond. Whether it's a request for help or an invitation to join a discussion, your involvement can make a significant difference. Engaging with others not only enriches your experience but also strengthens the network as a whole.

👥 *Schedule Time with Friends*

Why not schedule a chat with your friends? The network is a fantastic space for socializing, and inviting friends to join in can enhance the experience for everyone. Whether it's a casual conversation or a more structured discussion, the more, the merrier! The networks are open to all registered members for general conversation, subject to licensing requirements. We ask that you respect any scheduled nets, and comply with amateur radio practice and protocol. Beyond these simple requirements, feel free to use the system!

📣 *Publicize Your Chat Time*

Once you've set a time and location for your chat, make sure to publicize it on our Facebook page. This not only informs others about your gathering but also encourages more members to join in. Sharing your plans can spark interest and lead to lively discussions.

📣 *Put Out a Call*

Don’t be shy about putting out a call for topics or discussions you’d like to explore. Whether you’re looking for input on a specific subject or want to gather opinions, reaching out to the network can yield valuable insights and foster collaboration. Do it on Facebook, or even better, publicize a time on Facebook to have a discussion on the network. Need to learn how to adjust the audio on your Allstarlink node? Want to discuss setting up your station? How about cooking? Or pets? Remember, everything doesn’t need to happen on a formal net! Put out a call, and see what happens.

🔄 *Utilize Both Sides of the Network*

If you are a licensed operator, remember to engage with both licensed and unlicensed operators within the network. Each group brings unique perspectives and experiences that can enrich our conversations. Embracing this diversity will help us grow stronger as a community.

☕ *"Ragchews" and Regular Nets*

"Ragchews" are unstructured conversations that allow for free-flowing discussions on various topics. These informal chats are perfect opportunities to connect with others, share stories, and enjoy the camaraderie of fellow members. Our regular nets, which are friendly and open for general discussion, are structured under the watch of a net controller. Participating in both types of activities will enhance your experience within the network. The regular nets provide a framework for discussions, while a ragchew offers a relaxed environment to explore ideas and connect on a personal level.

💥 *Don’t Be Shy, Give It a Try!*

Finally, we encourage everyone to step out of their comfort zones. Don’t be shy, give it a try! Engaging with the network can lead to new friendships, learning experiences, and a deeper sense of community. Your participation is what makes the IRN network thrive!

Let’s work together to make the IRN network even more dynamic! We look forward to hearing you on the network. Happy connecting!

Doug Behl VE3XDB
IRN Administrator

Mission

The International Radio Network's mission is to promote the amateur radio hobby to those interested in radio communications. We welcome licensed and non-licensed operators, giving those with an interest the opportunity to gain experience in radio communications, theory, technology and fellowship.

The International Radio Network has been in existence for many years and has a considerable number of licensed amateur radio operators from all around the world. We also welcome unlicensed radio enthusiasts and short wave listeners to our membership, many of which go on to achieve their own amateur radio license.

Membership and Getting Connected

If you are not already a member of the IRN, it is free and easy to do so. Just visit our website www.irn.radio and click on 'Register'. Follow the instructions and we will be delighted to include your Amateur Radio Callsign on our database, and if you are not licensed, we will provide you with an IRN Callsign/Number. Licensed members have full access to all our connections, and non-licensed members have access to the connections that have no RF links.

Importantly, to be 'trusted' on our Zello channels, or to be given 'talk permissions' on the Teamspeak platform, you must register using the above link on the website.

Purpose, Aims and Objectives

To provide a reliable radio Network for the use by licensed radio amateurs, offering a range of methods and modes of communication, including analogue and digital modes

To build partnerships and connections with other amateur radio Groups and Networks

To provide regular nets, special events and other activities that promote the use of the Network and for the benefit and enjoyment of its members and users

To welcome unlicensed members and provide them with support to learn about the amateur radio hobby, ham radio etiquette and encourage them to apply for their own amateur radio license

To provide unlicensed members with a reliable platform on which to communicate and experience ham radio practice, with NO RF connection

To ensure that the Network is a safe and family-friendly place at all times, and take quick action where that is threatened in any way

To experiment with new technologies and modes of amateur radio operating.

IRN Nets

Several of our nets are open to all operators, and may be heard on 'International Radio Network Channel' and 'ZMR 851.065' on Zello and the 'IRN QSO and Nets Channel' on TeamSpeak 3. They are:

IRN Sunday net – first and last Sunday of every month, 8:00pm Eastern, 1:00am Monday UK time, hosted by Barry 8WAR717. Watch Facebook for updates to the schedule.

Friendship net - every Monday, 5:00pm Eastern, 10:00pm UK time with regular Net Controller VE6DCV Dave.

Coffee net - every Wednesday, 5:00pm Eastern, 10:00pm UK time with regular Net Controller 11IRN610 Shorn.

The following net is accessible only to licensed operators, as it is a multimode net that connects to licensed only platforms and RF. We have a permanent connection with the Extended Freedom Network so you can also use any of their links to connect with the IRN

KB1 Multimode net - every Friday, 4:00pm Eastern, 9:00pm UK time with regular Net Controllers MM7HQS Helen, GM0UUB Graham and GW8SZL Dave.

For full details of the Nets and connections, please visit https://www.irn.radio/nets

IRN Administration Team

Graham M Matthews GM0UUB - President, Ralph Streb K8TCP, Doug Behl VE3XDB, Helen Matthews MM7HQS, Bruce Lenton M0UKB, Gareth Steele G0WUR, Dave Phillips GW8SZL, Gareth Jackson M6IGJ. Contact members of the admin team at https://irn.radio/contact or by email at irnhamradio@gmail.com.

Invitation for Contributions and Contact Information

We invite all members to add content to the Newsletters, to share personal stories, technical information, equipment reviews, radio-related jokes or fun-facts, other hobbies and interests, and anything else that would be of interest to our members. For example, personal stories about what got you into the radio hobby are always interesting. You can also email us with any questions, comments or ideas.

Contact us at https://irn.radio/contact or by email at irnhamradio@gmail.com.