

Getting Started in Ham Radio and the Amateur Radio Club of the WBCCI



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COVER: Photos of Steve Padgett (K4NM) taken at the Delta County Amateur Radio Club station, which was on the fairgrounds of the Upper Peninsula (UP) State Fairgrounds, Escanaba, Michigan, and Ernie Bauer (N1AEW) working his HF rig inside his Airstream trailer. Some photographs in this document are by Mike Mack, KG5SZN.

Revision 1.04, 2018

Introduction

If you ask ten amateur radio operators to describe Ham radio, you will get ten very different answers. The reason for this diversity of opinions points to the many aspects of the hobby. For example, some hams love:

- Contests
- Working the RV Service Net and other nets
- Digital Communication Modes
- DX (working stations that are many miles away from you)
- Awards, such as Worked All States and the DX Century Club
- Public Service and Emergency Communications
- Experimenting with antennas and radios
- Meeting and talking with Hams from around the world
- Hamfests (convention type events for Hams)
- CW (This is how Hams refer to Morse Code. As a reminder, knowledge of Morse Code is no longer required for any class of amateur radio license.)

Of course, this is the start of what turns out to be a very long list of things that amateur radio operators love about the hobby.

Not all Hams enjoy the same activities either. Some Hams love using CW (Morse Code) to work other amateur radio operators while others have never attempted to use this communication mode. Chances are good that you will discover your favorite niches in amateur radio as you explore the hobby.

This document is a companion to the “Getting Started in Amateur Radio” workshop at the WBCCI International Rally, but is not intended to be the definitive and end-all discussion about getting started in amateur radio. It assumes that readers either have their first amateur radio licenses or that they passed the exam and are waiting for their call signs. (Photo shown below is of Ernie Bauer, N1AEW, conducting the “Getting Started in Ham Radio” workshop in Escanaba at the 2017 WBCCI IR. Photo by Mike Mack, KG5SZN)



How Do I Learn About My New Call Sign?

This is one of the first questions many new Hams ask. The other question is how long will it take for my new license and call sign to be issued?

In an effort to save money, the FCC stopped mailing out licenses. That makes it a little more difficult to discover your call sign when you earn your initial amateur radio license. It also means that you must be diligent in checking the FCC's database every day to find your new FCC assigned call sign. We will discuss how to check the FCC's database in a few moments.

The question about how long it takes to get your first license varies with many factors. Old-timers love to share horror stories about how the FCC would take three or more months to issue a license. Sadly, many of those stories were true. Fortunately, stories about excessive wait times are no longer accurate today.

The Hams involved with the Volunteer Examiner system currently administering the amateur radio exams have worked hard to improve the turn-around times. Instead of months, licenses are typically issued after a few weeks.

The Volunteer Examiners (VEs) from the Amateur Radio Club of the WBCCI are accredited through the American Radio Relay League (ARRL), a national association for amateur radio operators. After an exam session, the WBCCI VEs double check their paperwork, then mail everything back to the ARRL in Connecticut. When the packet arrives at the ARRL, the exam results are checked again by the League's staff. If everything is OK, the ARRL uploads the results to the FCC's database and your new license should be issued within 24 hours from that point.

The slowest part of this process is how long it takes the mail to move from the International Rally (IR) site to the ARRL. If you took your amateur radio license exam at the IR, you should expect to wait one or two weeks before your new license is issued by the FCC. If a month goes by and you don't have your amateur radio license, you need to contact the VE Coordinator of the Amateur Radio Club of the WBCCI. You can use the CONTACT US button on the ARC/WBCCI Web page (<http://rvnet.wbcci.net>) to contact the Club's VE Team.

There are a couple of online databases you can use to find your new call sign. One source is:

<http://qrz.com>

You can search QRZ's database by call sign, name or location.

You will need to create a free account on QRZ to access many of their services. (QRZ offers several "premium" membership packages. As you explore the world of amateur radio, you may elect to participate in one of QRZ's membership levels, but you can wait on that.)



QRZ is one way to discover your new call sign, but a better source is the FCC's database.

You can access the FCC's official online database by going to:

<http://wireless.fcc.gov/uls>

You will need to click on the "LICENSES" button in the SEARCH box.

The FCC allows you to search by NAME, CALL SIGN or FRN (FCC Registration Number). You should choose either NAME or FRN to search the FCC's database.

Once you see your call sign in the FCC's database, you are officially licensed and may start using your radio on the frequencies and in the modes you are now authorized to use. You can also print a copy of your license from the FCC's database.

How Are Call Signs Issued?

The FCC assigns new call signs in sequential order. That means if the last call assigned in zone 4 was KN4AZZ, the next call issued will be KN4BAA.

Since call signs are issued in a sequential manner, you may end up with a call that is difficult to say or one that you simply are not happy with. The FCC has a Vanity Call program that allows you to select a new call.

A Technician may request a 2 x 3 (e.g., KD6UVY) or a 1 x 3 call (e.g., N1AEW) from the calls the FCC is authorized to assign. There are some restrictions on certain calls and anyone requesting a vanity call needs to make sure that: 1) he or she is authorized for that style of call, 2) the desired call is one that the FCC isn't restricting and 3) the call isn't currently assigned to another ham.

A good Web site to learn more about vanity calls is:

<http://www.ae7q.com>

What Call Signs are Available?

The FCC has organized Ham call signs into four groups. These are:

License Group	Available To	Call Signs
GROUP A	Extra Class Operators	1 x 2 call signs with the prefix letter K, N or W (e.g., K4NM); 2 x 1 call signs beginning with the prefix AA to AK, KA to KZ, NA to NZ and WA to WZ (e.g., WW7N). In addition, 2 x 2 calls in the range of AA to AK are reserved for Extra Class Operators (e.g., AJ4UX).
GROUP B	Extra and Advanced Class Operators	2 x 2 call signs with the prefix letters KA to KZ, NA to NA and WA to WZ. (e.g., WB8RC)

GROUP C	Extra , Advanced, General and Technician Class Oper- ators	1 x 3 call signs beginning with prefix letters K, N or W. (e.g., W9CJX)
GROUP D	Extra , Advanced, General, Technician, and Novice Class Oper- ators	2 x 3 call signs beginning with prefix letters KA - KZ or WA - WZ. (e.g., KD6UVY)

Call sign numerals are called “zones” by Hams. These zones are:

Numerals / Zones	States
1	Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island and Vermont
2	New Jersey and New York
3	District of Columbia, Delaware, Maryland and Pennsylvania
4	Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee and Virginia
5	Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas
6	California
7	Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming
8	Michigan, Ohio and West Virginia
9	Illinois, Indiana and Wisconsin
0	Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota

At one time, the FCC required Hams to have a call sign with a zone numeral that matched where that Ham lived. For example, a Ham licensed in Ohio would have an “8” in his or her call. If that Ham moved to Florida, he or she would have to change calls to one with a “4.” Hams are no longer required to change calls when moving to a different zone.

Also, there are only a few restrictions on zone numbers when a Ham applies for a vanity call. A Ham

in Texas (normally a five) can request a vanity call with a six, which usually signals that the Ham is from California.

Most of the restrictions around zones are also tied to specific prefixes. For example, the prefix KL7 is reserved only for amateur radio operators in Alaska and KH6 is restricted to Hams in Hawaii. If a Ham licensed in Alaska or Hawaii moves to another state, he or she is not required to change calls. (Hams serving in the U.S. Armed Forces and stationed in Alaska, Hawaii or another place with a unique call sign prefix frequently request a call sign for that duty station then hold on to that call. That is the reason you may hear a Ham living in Georgia with a KL7, or Alaskan, call sign. If you check that Ham's QRZ page, chances are good you will see that he is a veteran.)

Another restriction is that you cannot request a call sign with "X" as the first letter of the suffix. The list of "not allowed" call signs is interesting and worth looking at. If you are thinking about obtaining a vanity call sign, you will need to review the call sign restrictions as outlined on the ARRL's Web site.

What are the Different Classes of Ham Licenses Issued by the FCC?

The FCC currently issues three different classes of amateur radio licenses. These are the Amateur Extra, the General and the Technician.

The Extra is the highest class license issued in the USA. It also grants holders all privileges on all US amateur radio bands.

In order to earn an Extra class license, the amateur must pass both the Technician and General exams plus a 50 question exam covering advanced electrical and RF (radio frequency) theory, FCC Rules and operating practices.

The General class license requires the amateur to pass the Technician exam plus a 35 question test dealing with electronics, FCC rules and basic RF theory.

General class licensees have all the privileges of Technicians plus they may transmit voice on all HF (low bands) except for the frequencies reserved exclusively for Extra and Advanced class operators.

The "entry" class license is the Technician. Amateur radio operators earning this class of license must pass a 35 question exam over basic electronics and FCC rules.

Technicians are allowed to transmit on VHF and UHF frequencies plus they have access to small CW-only segments of the 80, 40 and 15 meter bands. Technicians may transmit voice on a small slice of the 10 meter band.

You may hear some Hams talk about Advanced, Conditional, Technician Plus and Novice licenses. The FCC stopped issuing new licenses in these classes, but Hams holding Advanced and Novice licenses may continue to renew them. Hams holding Conditionals were reassigned General licenses and Tech Plus Hams were reassigned to the Technician class.

At one time, all applicants for an amateur radio license had to pass a Morse Code test. The test consisted of five minutes of CW text, which included numbers, punctuation marks and CW pro-signs. To pass, you had to copy a minimum of one minute of perfect text from that transmission. The receiving test was followed by a sending test. The CW tests were at 20 words per minute (WPM) for the Extra, 13 WPM for Advanced and General and 5 WPM for the Technician and Novice licenses. CW tests are no longer given for any class of Amateur Radio License.

By the way, an amateur radio license is issued for a ten year term and may be renewed no earlier than 90

days before it expires. You can renew your Ham license on the FCC's Web site for free or through most VE (Volunteer Examiners) teams for a fee. ARRL VEC will process applications for renewal for free for ARRL members. NCVEC Form 605 must be submitted to the ARRL VEC directly, either via email or postal mail. It cannot be sent to the FCC directly. See <http://www.arrl.org/call-sign-renewals-or-changes> for more information.

Your First “Shack”

The physical location for a Ham Radio station in a building is called “the shack.” It doesn't matter how nice that building is, Hams will refer to it as a shack. (Photo shown below is of Garry Ritchie, W8OI, in his “shack.” Garry is a former Director of Nets for the RV Service Nets.)



Shacks can take up as much or as little space as needed. Spare bedrooms, basements and backyard sheds frequently become Ham shacks. Small corners of Airstream trailers are also shacks when Hams operate from campgrounds.

If you are using a hand-held or portable radio while outside, your operation is “portable” and not from the shack. Operating from a car or your truck is called “mobile” operation. As with portable operation, you do not call your vehicle a “shack.” (Photo shown below is of the amateur radio display at the Escanaba fairgrounds. Photo by Mike Mack, KG5SZN)



Amateur Radio “Pre-Checks”

Just as you have “pre-checks” when hooking-up your Airstream trailer, hams have pre-checks before using their radios, which are called “rigs.” While you may no longer follow the written list of items you used early in your camping days when hooking up, you continue to walk around your Airstream to make sure that all essential items were properly taken care of before pulling out. Hams do the same thing in that they check to make sure everything is OK with their radios and antennas before starting to transmit.

Power Supplies

Very few radios used by Hams come with a power plug that you simply connect to the wall outlet prior to switching the rig on. This was especially true 50 years ago when most radios contained vacuum tubes. Those old tubes required very high voltages in order to work and it was the power supply’s job to provide those voltages.

Most modern radios require some level of DC power. Handheld two meter and 70 centimeter radios normally have internal and rechargeable batteries. Recent low band radios tend to require 12 volts of DC power. An important consideration for low band radios is the current, or amperage, required by the rigs.

Typical current requirements for low band radios is in the 20-30 amp range. For a long time, hams avoided “switching type” DC power supplies because they were known to inject noise into their receivers. Modern switching power supplies have corrected that problem and are used by many hams today because they are much lighter than conventional DC power supplies.

An amateur radio power supply pre-check is simple:

- Make sure the power supply is plugged into the wall
- Make sure the power supply is switched on
- Make sure the voltage is properly set for your radio

- Make sure power wires for your radio are securely connected to the power supply's DC terminals.

Can you run your low band rig from your Airstream's batteries? Yes, but you may drain your RV's batteries faster than you anticipate and that could cause problems if you decide to boondock.

The primary pre-check for your handheld radios is to make sure your batteries are charged. Stored rechargeable batteries tend to lose their charge over time. If you haven't used your handheld for a while, you will probably need to place that radio in the charger before using it.

Antenna Connections

Another pre-check should be your antenna connections. Most hams disconnect their low band antennas at the end of the day. This is a simple precaution to help protect your rig against lightning strikes. You should get in the habit of making sure your antenna is connected to your radio before you try to transmit. (There is no need to disconnect the small "rubber-duck" antenna connected to your hand-held VHF/UHF radios.)



SWR

SWR stands for Standing Wave Ratio. SWR is a measure of the impedance match between your rig, the transmission line and the antenna. It is a measure of how much signal is being radiated by your antenna vs. how much energy is reflected back down the transmission line to the rig. Reflected power lowers your ERP or effective radiated power, which is the measure of how much signal is being radiated from an antenna. A good SWR reading is 1:1.

Many rigs today have built-in antenna tuners that can match the rig to the transmission line to insure most energy heading toward the antenna and not coming back to the rig. Usually, anything higher than a 3:1 SWR will require an outboard antenna tuner to match the higher impedances.



Most low band radios sold today have built-in SWR meters. Many hams also use an external SWR meter located close to the transmitter's output.

What about checking the SWR on handheld radios? This is much more difficult to do. Since the radio and attached antenna were designed by the manufacturer, you end up having to trust the company's engineers to have designed a system that has an acceptable SWR reading.

Ham Lingo

In normal face-to-face conversations, a significant amount of information is conveyed visually. You can often pick-up if someone is "pulling your leg" by his or her facial expressions. The visual element of communication isn't relayed when you are talking over the radio and hams rely on procedural words and Ham lingo to help transfer information. These words tell Ham Radio operators what you are doing and how they should proceed.

Here are some words and Ham Lingo that new amateur radio operators should know:

TERM	MEANING
OVER	I am stopping my transmission and I expect a reply from the station I am talking to. For example, K4NM this is N1AEW OVER - In this exchange, N1AEW is saying that he is stopping his current transmission and is expecting K4NM to reply to him.
NAME HERE IS ____ or MY NAME IS ____	You do not want to use "Personal" when giving your name on the air. The use of "Handle" as in "the handle here is Ernie" is OK on the Ham bands.
THIS IS	I am about to give my FCC assigned call sign. On the Ham bands, you always give the call sign of the station you are talking to first, followed by "this is" then your call sign is given last. For example, K4NM this is N1AEW - in this exchange, N1AEW is transmitting to K4NM and K4NM is listening.
BRASS POUNDER	This refers to someone who sends CW using a straight key.
BREAK	This is a word that Hams tend to use with caution on the bands. Some nets interpret "BREAK" to mean "I have an emergency and must immediately have this frequency." In the past, it simply meant that you wanted to add something to the conversation.
CONTACT	This is what most Hams use today instead of saying BREAK when they want to be recognized so they can add something to the conversation.
CW	Using Morse Code to communicate.

CQ	This is a general “I am willing to talk to anyone” type call. You will hear someone on the low bands calling CQ, but rarely on frequencies above 50 MHz. You will usually hear someone give his or her call and add “Listening” on the VHF and higher bands.
LISTENING	Instead of calling CQ, hams on VHF and higher frequencies will give their call sign then add “listening” to start a conversation. For example, K4NM Listening . . .
DX	This means a distant station. On the low bands, DX is a foreign Ham on the bands. On VHF and above, DX may mean someone in another state.
EYEBALL	Two Hams meeting face-to-face.
HARMONIC	While this has a known technical definition, harmonic is often used during on-air conversations to refer to children.
IS THE FREQUENCY IN USE? or QRZ THE FREQUENCY?	The great majority of Hams try to be polite and listen before starting to talk on a frequency. You may not hear anyone using a frequency and think it is OK to call CQ. Before trying to start a QSO there, you should always ask “IS THE FREQUENCY IN USE” or say ‘QRZ THE FREQUENCY, IS THIS FREQUENCY IN USE” You may not hear other stations on the frequency due to the skip, but someone may come back and say that a QSO is in progress. When that happens, you simply move to another frequency where you will first listen to see if it is clear then ask if the frequency is in use.
LID	This is not a positive term. A lid is a Ham with poor operating practices and bad on-air manners.
SKIP	Radio waves normally travel in straight lines-of-sight. Skip refers to how radio signals can be reflected back to earth off the ionosphere. HF frequencies tend to be affected by skip more than UHF and above. Skip isn’t always present on the Ham bands, but it is responsible for some great DX contacts.
READING THE MAIL	Listening to a QSO without participating.
ROGER	This means yes or affirmative on the Ham bands.
RELAY	This is a term frequently heard on the RV Service Nets and it also involves the skip. Sometimes the skip is such that the net control operator cannot hear a station wanting to check in. A relay station can hear both stations and passes along information for the two stations wanting to talk but unable to hear each other.
REPEATER	Repeaters are common on VHF and higher bands. Since radio signals in these frequency ranges are mostly line-of-sight, communication range can be very limited. Repeaters are usually located in high locations (tall towers, water towers, mountains, etc.) and greatly extend the communication range of Ham stations using them.

OUT or GOING QRT	OUT is a term you hear more on VHF and higher frequencies and GOING QRT is heard more on the low bands. Both mean that you are going to stop transmitting and listening to the radio. In other words, you are going to switch the radio off and do something else.
RST	This is a set of numbers used to describe the Readability (on a scale of 1-5), Strength (on a scale of 1-9) and Tone (on a scale of 1-9) of a signal. Tone is used when to describe a CW signal. You will frequently hear a Ham describe a signal as five by nine, the same as R-5 and S-9. That means the readability is five, or it is easy to hear what is being said, and the signal is very strong. If working CW, the absolute best RST is 599. If you are talking to someone using voice communications, a report of 5 by 9 is a great report. You may hear someone say that your signal is 20 dB over nine. That report means the ham thinks your signal strength is stronger than a nine. You generally hear RST reports on AM, CW and SSB signals but not on FM.
FULL QUIETING	(only on FM) - Instead of RST reports on FM signals, you hear someone say that the signal is FULL QUIETING. This means that the signal is stronger than any noise on that band.
PICKET FENC- ING	This refers to a problem heard on FM signals transmitted on VHF and higher frequencies. This is a rapid fluttering sound that can make it hard to understand what is being transmitted.
OLD MAN	All males on the Ham bands are "Old Man" without regard to one's age.
YL	All females on the Ham bands are Young Ladies or YLs.
XYL	A married female may be referred to as XYL.
SILENT KEY	Hams who have passed away are referred to as Silent Keys. You may see this abbreviated as SK, which can be confusing because SK has another meaning in CW QSOs. When sent at the end of a CW QSO, SK (the CW letters run together with no space between the S and K) means you sent your final transmission and that you are either going to look for another station to talk to or that you are about to turn your radio off.
ZULU	Zulu is used to refer to Universal Coordinated Time (UTC), which is the same as Greenwich Mean Time (GMT)
73	This is normally exchanged at the end of a QSO and it a Ham's way of saying "Best Regards."
88	You may hear a female Ham use 88 in a QSO. This means "love and kisses" and some female Hams (YLs or XYLs) tend to use 88s instead of 73s.

Here are some “Q” codes that you may hear on the Ham bands.

Q-CODE	MEANING
QRM	<p>This refers to interference from another amateur radio station. QRM can either be a question or a statement. QRM? - Are you being interfered with? QRM - I am being interfered with.</p>
QRN	<p>This refers to atmospheric static. QRN may be either a question or a statement. QRN? - Are you hearing static? QRN - I am hearing static</p>
QRP	<p>This refers to low power operation. On the low bands, QRP is generally using less than 5 watts and QRPers often talk about “miles per watt” when bragging about their contacts.</p>
QRT	<p>This means that someone is going to stop transmitting and listening. In other words, a station going QRT is about to turn the radio off. QRT may either be a question or a statement. QRT? - Are you going to stop transmitting and listening? QRT - I am going to stop transmitting and listening on this frequency.</p>
QRZ	<p>This is always a question. QRZ asks, “who is calling me?” Hams tend to pronounce this as Q-R-Zedd.</p>
QSB	<p>This refers to signals fading and it may be either a question or a statement. QSB? - Is my signal fading? QSB - Your signal is fading.</p>
QSO	<p>This is the Q-Code meaning a contact or an on-air conversation. Hams tend to pronounce this as Cue-So.</p>
QSL	<p>This has two meanings in Ham radio conversations. It refers to acknowledging reception of a signal. This can be a verbal confirmation over the air meaning “I understood what you said” or it can be a postcard sent to another station. Today, this can be a digital QSL sent via the ARRL’s LoTW (Log Book of the World) or eQSL (another on-line digital QSL service) to confirm contact with another station. QSL may be either a question or a statement. QSL? - Do you acknowledge receipt of and understand my signal? QSL - I acknowledge receipt of and understand your signal or, depending on context, it may mean I am sending you a QSL card either through the mail or by a digital service..</p>

QSY	This refers to changing frequencies. QSY may be either a question or a statement. QSY? - Can you change transmit frequency to _____? (For example, QSY 7.191 MHz? asks if you can move to 7.191 MHz.) QSY - I am changing transmit frequency to _____.
QTH	This refers to your location. QTH may be either a question or a statement. QTH? - What is your location? QTH - My location is _____.

CW operators invented many text shortcuts and some of these abbreviations show up in amateur radio voice conversations. A few examples are:

CW SHORTCUT	MEANING
BCNU	Be Seeing You
B4	Before
CPY	Copy
CUL	See You Later
DE	From (Often used when giving call signs in CW. For example, N1AEW de K4NM means that K4NM is transmitting to N1AEW. This is the CW equivalent of saying, "N1AEW this is K4NM.")
ES	And (A common sign-off message on CW is 73 es GL.)
FB	Fine Business (Ham lingo for very good)
FIST	The unique characteristics of how someone sends CW
GL	Good Luck
HI	Laughter on CW (You will hear Hams using voice say Hi-Hi instead of laughing)
K	Over
KN	Over only to the station I am talking to
OM	Old Man
PWR	Power

R	Roger
RX	Receiver
SWL	Short Wave Listener
TU	Thank You
TNX	Thanks
WX	Weather
XCVR	Transceiver
XMTR	Transmitter
XYL	Wife
YL	Young Lady

Phonetic Alphabet

Some letters in call signs are difficult to understand. Depending on the speaker's ability to articulate, a Z may sound similar to a B, D, E, G, P or V. If there is any QRM, QRN or QSB on the band, you may have a difficult time understanding another station's call sign. This is an example of when using phonetics can be helpful.

Another example is when you are having a QSO with a DX station, especially if the DX Ham's first language is not English. Phonetics can be very helpful to make sure you correctly log the DX station's call sign.

Hams use the International Standard Phonetics Table when communicating unless you are talking to someone you know and frequently talk to on the bands.

If you served in the U.S. Armed Forces, you probably know the International Standard Phonetics:

A - Alfa	N - November
B - Bravo	O - Oscar
C - Charlie	P - Papa
D - Delta	Q - Quebec
E - Echo	R - Romeo
F - Foxtrot	S - Sierra
G - Golf	T - Tango
H - Hotel	U - Uniform
I - India	V - Victor
J - Juliet	W - Whiskey

K - Kilo (not Kilowatt as this could be confused with K and W)	X - X-ray
L - Lima	Y - Yankee
M - Mike	Z - Zulu

Using this phonetic alphabet, N1AEW becomes November One Alpha Echo Whiskey and K4NM is Kilo Four November Mike.

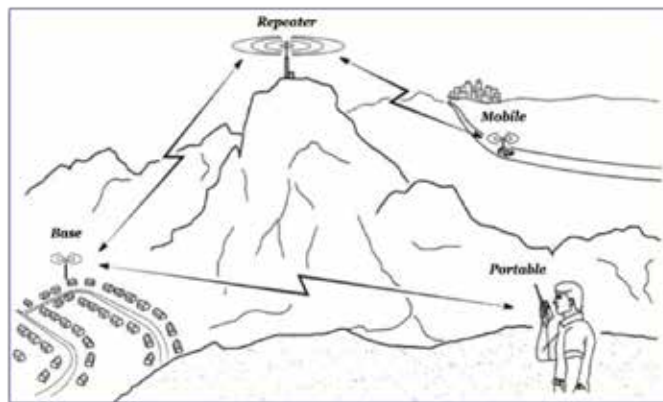
If band conditions are good and everyone in the QSO knows each other, K4NM could slip in Kay Four No Money as his phonetics. This phonetic set should not be used on a net or in a normal QSO situation with a Ham you just met or if there is QSB or QRM.

Simplex and Repeaters

There is a “Band Plan” for every band used by Amateur Radio operators. Part of the band plan is dictated by the Federal Communications Commission. It specifies which frequencies and modes may be used by each license class. As expected, Amateur Extra Class operators are allowed to use more frequencies than all other classes of licenses. Novices have the least amount of privileges.

Band plans for VHF and higher frequencies also set aside some frequencies for simplex operation and others for repeaters.

Contacts on VHF or higher frequencies using FM and made directly between two amateur radio operators are called simplex.



Repeaters listen on one frequency and retransmit any signal received on another frequency. A repeater may extend the useful range of an FM station from a few to many miles.

In general, Hams know that the national simplex frequency on two meters is 146.52 MHz. While this isn't the only two meter simplex frequency, it is the one that many hams monitor while traveling away from home.

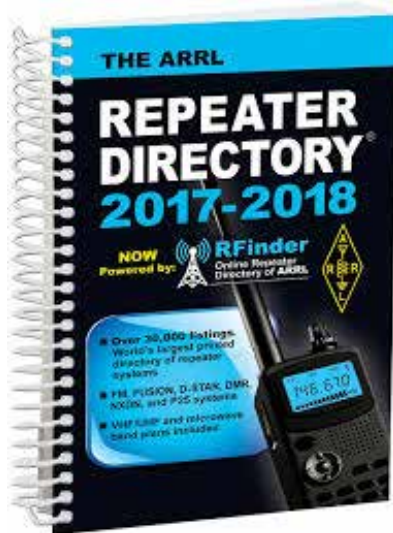
Another important simplex frequency to the WBCCI Amateur Radio Club is 146.43 MHz. This is the frequency used by Hams at WBCCI rallies.

You will want to check with local Hams from your home area to learn about the repeaters near your QTH. Most two meter repeaters have a 600 KHz offset between the receive and transmit frequencies. Plus, there is a growing trend to require tone access to cut down on interference. The hams in your community will be able to help you setup your radio to talk on the local repeaters.

Repeater Directories

How do you learn about repeaters as you travel or camp away from home? The easiest way is to use a Repeater Directory.

The ARRL publishes an annual repeater directory. This may be purchased through the ARRL's Web site (<http://arrl.org>). This is a pocket-sized book that will easily fit in your car or tow vehicle.



The ARRL's Repeater Directory is also available as an app on iPhones and Androids. This app is called RFinder and is sold by Apple's iTunes Store or Google's Play Store.

D-Star, Echolink and other Digital Modes

A growing number of hams are using digital communication modes. Good examples of digital modes are D-Star and Echolink.

Both D-Star and Echolink combine over-the-air transmissions with repeaters connected via the Internet. D-Star converts your voice to a digital signal while Echolink continues to use analog voice signals.

Before using either D-Star or Echolink, you must have your license verified by someone within the service. There are instructions on how to do this on Web sites associated with each service.

Both D-Star and Echolink allow you to talk on repeaters located all across the USA and in other countries.

You can purchase radios equipped with D-Star for use on repeaters supporting the D-Star system. You can also buy a USB Flash Drive type device that will allow you to connect your computer to a D-Star "reflector" and talk to someone. For example there is a group of hams who talk to each other most days on D-Star Reflector 59A about 30 minutes after the Eastern/Central 40 meter RV Service Net concludes.



There is an app for iPhones and Google Android smart phones for Echolinks. That means you can use your phone to talk to hams on repeaters connected to Echolink.



You can learn more about digital communication modes on the Internet or by talking to hams in your community.

Logs

At one time, Hams were required by the FCC to meticulously log every transmission made. The rules are no longer that strict and some Hams keep their logs “in their heads.”

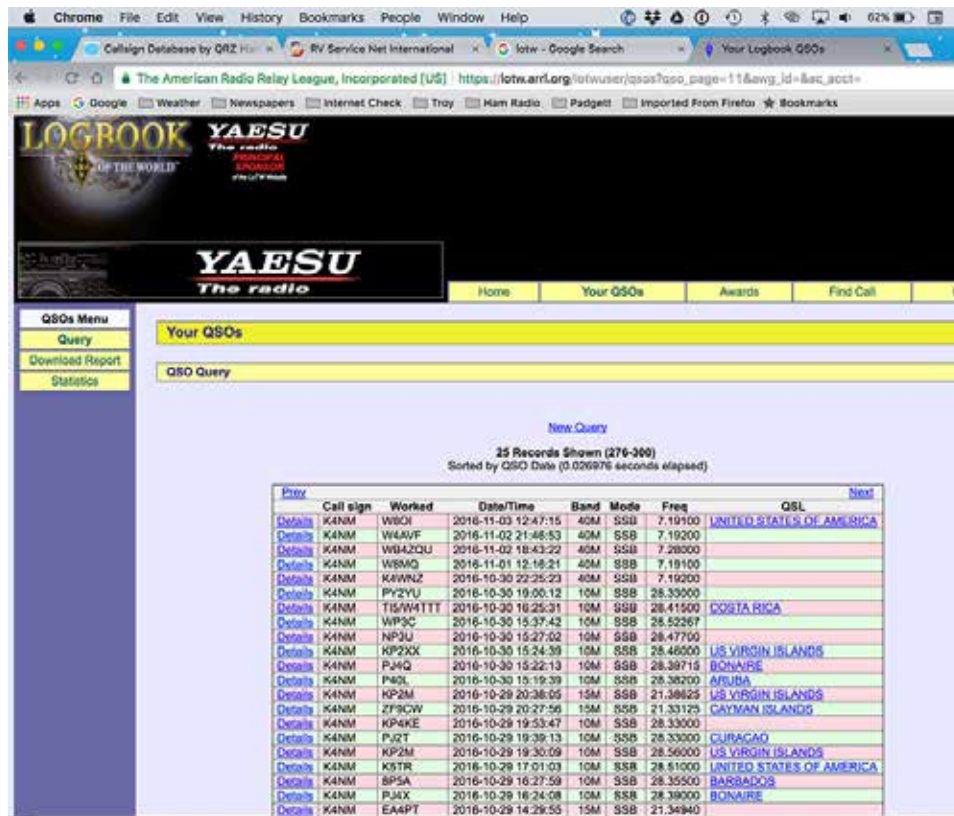
Many hams keep logs because it is a growing history of their contacts. You will occasionally hear a Ham say that he last talked to you on 40 meters at a specific time and date. When that happens, you know you are talking to someone who logs all contacts.

Both paper and electronic logs are used by Hams. Anyone licensed more than 30 years can probably show you their old log books. A growing number of Hams today use some form of computerized logs.

One of the features of most computerized logging programs is that the software will look up license data, such as name, address and license class, when you enter a call sign. Some programs will also read your operating frequency, power output and mode directly from your radio and that makes it easier to log contacts.

Computerized logs make it easier to use electronic QSL services such as the ARRL’s LoTW (Logbook of the World) and eQSL. If you enjoy working contests or you are working towards earning an award such as “Worked

All States,” electronic QSLs will make it easier to verify that you qualify for that award. (Photo shown below is a screenshot of K4NM’s LoTW datafile.)



Clubs

There are national and local amateur radio clubs. Many Hams who are also Airstreamers join the Amateur Radio Club of the WBCCI. This is an official intra-club of the WBCCI. The ARC/WBCCI holds its annual business meeting at the International Rally. You can find more information about the Club during IR’s registration or on 146.43 MHz simplex at the rally.

The ARC/WBCCI’s Web page is found at:

<http://rvnet.wbcci.net>



Another national amateur radio organization is the American Radio Relay League. The ARRL was founded in 1914 and has its headquarters in Newington, Connecticut. The ARRL publishes QST Magazine every month and many Hams say that QST is one of the best ways to keep up with amateur radio.

As you start transmitting on your local repeaters, you will make new friends and learn about your local clubs. If possible, you should join and attend your local amateur radio club meetings and social events, such as breakfasts and lunches. (Photo shown below is of WBCCI 2017-2018 International President Jim Cocke, N5RTG, winning the grand prize at the WBCCI Amateur Radio Club's Annual Business Meeting. By the way, Jim donated his prize, a VHF/UHF transceiver, to a new ham who passed his license exam at the test session in Escanaba. Photo by Mike Mack, KG5SZN.)



What am I Going to Talk About On-The-Air?

New hams always have some level of fear about what they will talk about on the air. Instead of offering a laundry list of tried and true topics for the Ham bands, here are some ideas to help you make your first dozen or so QSOs.

You want to invest some time in listening to the bands before pressing the “transmit” key on your rig. You will quickly recognize that hams talk about many topics and that they enjoy rag-chewing, Ham lingo for talking.

You should get in the habit of writing down call signs, names and QTHs. Your notes should include other significant information being exchanged in the QSOs.

Pay attention to the type of QSO you are listening to on the band. You may be listening to a Net, similar to the RV Service Net, a round-table among several hams or a QSO between two hams. After listening on the bands for a while, you will be able to figure out if the hams you are listening to frequently talk to each other or if this is their first QSO.

After listening to the bands, and taking notes about what people are talking about, you are probably ready to try out your new call sign. Chances are good that you will be very nervous the first time you attempt to transmit.

Some common problems that new hams experience include:

- Talking too fast - You want to speak at a normal conversational rate when on the air.
- Clipping your transmission - New hams tend to start talking at the exact same moment they press the “transmit” button on their rigs. It may take a moment or two for some radios to start transmitting and that means the first syllable or two of your transmission would be lost. You need to build a habit of turning on the transmitter, pausing for a second then talking. The same thing is true at the end of your transmission. You need to finish what you are saying then continue holding the transmit switch for a half-second longer to make sure your words are not clipped.
- Make sure you are about to transmit on a frequency that you are licensed to use. You don’t want your first QSO to be outside your allowed bands.
- You may want to try one of your local repeaters for your first QSO. Some repeaters are OPEN, meaning they welcome all licensed amateur radio operators, and others are CLOSED. As the title implies, only a select group of hams are welcome on a closed repeater.
- You may not want to bring it up, but you need to mention that you are new to the hobby. Chances are good that the Ham you are talking to will be happy to help you through your first QSO. You should ask your first contact if he or she has QSL cards and if so, to send you one to commemorate your first on-air contact.

It will not take long before you are talking about your rig, the weather, band conditions and what happened to you today with your new friends on the bands.

73s es GL. N1AEW de K4NM SK

By now you should recognize that the statement shown above is from a CW QSO and that this exchange takes place at the end of a QSO. K4NM is telling N1AEW best regards and good luck. The SK at the end of the transmission means that the QSO is over, just as the workshop guide is concluding here.

The officers and members of the Amateur Radio Club of the WBCCI welcome you to the great hobby of Amateur Radio and we look forward to talking to you on the bands real soon.

Please feel free to contact the Club’s officers if you have any ideas on how to improve this workshop or manual.

Photo below is of the 2017-2018 Amateur Radio Club of the WBCCI officers. Left to right: Immediate Past President Bruce Fried (K5YXN), First Vice President Jeff Dalrymple (N5YEI), Second Vice President Don Williams (KD6UVY), President Steve Padgett (K4NM), Third Vice President Ernie Bauer (N1AEW), Treasurer Doug Hart (N1JBG) and Recording Secretary John Green (W9CJX). Photo by Mike Mack (KG5SZN).

