

Ham Radio Quick Start Guide



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What is Amateur Radio?

- www.arrl.org/what-is-ham-radio
- rsgb.org/main/get-started-in-amateur-radio/getting-started-introduction
- <https://voicenation.com/resources/all-about-ham-radios>
- www.youtube.com/watch?v=8x6x_6mDVlQ
- www.youtube.com/watch?v=ysOq6ywTSzU
- www.youtube.com/watch?v=Ow1hxClR5J8&t=19s
- Anthony Luscre, K8ZT's Website- www.k8zt.com has lots of resources, mostly free, on all aspects of Amateur (Ham) Radio.

Are you interested in getting your Amateur Radio License?

The real learning really begins after you pass the test and start operating, but first, you must get the license, so...

The operation of an amateur station requires an amateur operator license grant from the FCC. Here is a good quick video on *whether I need a license and how I get it?*- [TinHatRanch- link](#).

There are three classes of license for individuals entering the amateur service or upgrading their license operator class, each authorizing privileges corresponding to the qualifications required. The classes of license, from lowest to the highest, are:

- **Technician**- Entry-Level License, privileges include
 - VHF & UHF (2 Meters & 440 MHz- Local Communications)
 - 6 Meters Local and National)
 - HF (10 Meter Voice & Morse Code on 80 M, 40 M, 15 M & 10M) potential for national and international communication.
- **General**- privileges include:
 - all Technician
 - plus Voice, Data & Morse Code on all bands (limited segments of each) for national and international communication
- **Extra**- privileges include:
 - All Technician & General
 - All modes on all frequency bands

What's on the license test?

- Multiple Choice Questions
- Content Areas
 - FCC Rules
 - Operating Frequency Allocation List
 - Basic Electronics
 - Basic Radio Theory
 - Best Practices
- A few fundamental math problems

What's not on the license test?

- Knowledge of the Morse Code is no longer required to get any license class.
- No drawing of diagrams.
- No essay questions
- Surprise Questions- all questions and answers are published and available for anyone studying for the exams.

License Examinations

- You will take your license exam at a [VEC](#) (Volunteer Exam Coordinator) Session.
- They are not the FCC but volunteers trained to provide exams on behalf of the FCC.
- Volunteer Examiners
 - Hams (just like you will become)
 - Provide local sites
 - Use standardized tests
- There are different VEC Groups, and each has slightly different procedures and fees that you must follow.
- Here is a list of the most common VECs (for a complete list, visit [FCC-VEC](#)):
 - [American Radio Relay League \(ARRL\)](#)
 - [Laurel Amateur Radio Club, Inc.](#) (Free, no fee!)
 - [W5YI-VEC](#)
- The fee varies from free to \$15.00 depending on the organization's testing.
- Find a Local Test Near You
 - Find a **Laurel** Amateur Radio License Exam in Your Area (FREE)- [link](#)
 - Find an **ARRL** Amateur Radio License Exam in Your Area- [link](#)
 - Find a **W5IY** Amateur Radio License Exam in Your Area - [link](#)
 - Find a Remote Amateur Radio License Exam via HamStudy.org - [link](#)
- **Important Notice** – You must obtain an FCC FRN (online) before taking the exam for all future exams. To get an FRN, please [click here for instructions](#).
- What do I need to have with me?
 - Photo ID such as driver's license
 - When no photo ID is available, the candidate must present any two of the following:
 - Non-photo ID/driver's license (some states still have them);
 - Social Security Card;



- Birth certificate (must have the appropriate seal);
 - Minor's work permit, school report card, school ID card, or library card;
 - Utility bill, bank statement, or other business correspondence that specifically names the person; or
 - Postmarked envelope addressed to the person at their current mailing address as it appears on Form 605.
- US Security Number (SSN) or Taxpayer Identification Number (TIN)
- Exact fee if required
- Only if Upgrading from a previous license
 - Proof of licensing (if examiners have Internet access, they can look this up at the site)
 - FRN (FCC Registration Number)
- Retests
 - If you fail to pass your first exam, policies vary by location and VEC organization concerning retakes.
 - After you pass an exam, most VECs give you the option to take the next higher license class exam at the same session at no additional cost. If you are at all prepared, give it a try, you have nothing to lose.
- Results
 - If you pass, they will let you know when and how you will receive notice from the FCC of your new license.
 - Suppose you already have a Technician or higher license and pass a higher-level license. In that case, you can start using your new privileges immediately by adding /AG (for General) or AE (for Extra) to your existing call sign.

Getting Ready for the Test

- Options
 - Self Study with books and/or online practice tests
 - Study with a friend or family member
 - Study with an *Elmer* (Elmer is the generic term used to describe a ham radio mentor)
 - Local Classes (often sponsored by local Amateur Radio Clubs)
 - Online Classes
 - Special One-Day or Weekend Classes
 - Combination of above

Training Resources

- Books
 - [KB6NU-The No-Nonsense Technician-Class License Study Guide \(free pdf version available\)](#)
 - [Gordon West Technician Class Manual](#)
 - [ARRL Ham Radio License Manual](#)
 - [Ham Radio Study Guide!](#)
- Online
 - [The Ham Whisperer's Technician Class License Course \(also available as videos on YouTube\)](#)
 - [Ham Test Prep - Android Apps on Google Play](#)
 - [HamTestOnline](#)
 - [KB9OKB Introduction to Ham Radio and Technician Training Class Youtube](#)
 - ["Kid Friendly" Technician License Exam \(2018-2022\) Self-Study Program](#)

- [Ham College](#)
- Variety of Youtube “classes” (these are some excellent samples, but beware there is also a lot of “junk” out there)
 - Dave Casler- [link](#)
 - Ham? Radio Crash Course- [link](#)
 - Ham Radio 2.0- [link](#)
 - KB9OKB- [link](#)
- Practice Exams Online (*a great place to start to give you an idea of what you need to know*)
 - [Practice Tests - Free Amateur Radio Test Preparation - The Fastest](#)
 - [HamExam.org Amateur Radio Practice Exams](#)
 - [eHam.net Ham Radio Practice Exams](#)
 - [Practice Amateur Radio Exams by QRZ Ham Radio](#)
 - Ham Study.org - [link](#)
- Mobile Apps (great for practicing test questions on the go)
 - [Ham Radio Exam](#) - Three levels, Tech, General, and Extra
 - [Ham Test Prep](#)
- Finding a Class in Your Area
 - ARRL can help you find an Amateur Radio license preparation class in your community- [link](#)
 - W5YI Instructor Program- [link](#)
 - My club, [Cuyahoga Falls Amateur Radio Club](#) (CFARC), regularly holds Technician and General classes.

After You Pass the Exam...

- [Find and join one or more local clubs](#) for support (also one of the best places to find a mentor). This is so important that hams have a memorable name for those who mentor new hams-- “Elmers.”
- Download a free [Band Chart of Frequency Allocations](#)
- Get on the Air and make your first contacts
 - Use a club station with a member’s assistance
 - Use your Elmer’s Station
 - Put together your own station
- Find an *Mentor* to help you:
 - Get on the Air
 - Put together a station
 - Install everything
 - Learn Best Practices
- Print an Official or Unofficial Copy of Your Amateur Radio License- [link](#)
- [Join the ARRL](#) (or your national organization if outside the USA)
- Subscribe to Amateur Radio Magazines
 - CQ- [free issue for new hams](#)
 - QST (comes with ARRL membership)
- Sign up for Amateur Radio related [email lists, blogs, and other social media groups](#)



- Study to take next level exam to upgrade to the next license level
 - Get on the Air and make more contacts! Check out [Contesting](#) for on-air activities
 - [Give Your Elmer an Award](http://www.arrl.org/elmer-award) - www.arrl.org/elmer-award
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Putting Together Your Station

- Essential Components of a “Station”
 - Radio
 - Antenna
 - Power Supply
 - Accessories
- A VHF/UHF FM Only Station (2 Meters, 440 MHz, etc.)
 - A simple one-band or dual-band handheld (HT) is a self-contained station with radio, antenna, and battery power.
 - A single-band or multi-band mobile
 - Installed in a vehicle (uses vehicle-mounted antenna and vehicle’s battery power)
 - Installed as a “Base” station in your home (uses an outside mounted antenna and AC to 12 volt DC power supply)
 - Two types of
 - Traditional Analog
 - New Digital (DMR) - many DMRs are backward compatible with Analog
 - Range from a few miles up to 100 miles, dependent on antennas and whether the contact is direct radio-to-radio or via a Repeater. DMR Repeaters are often linked via the Internet to unlimited contact distance.
- An HF Station (160 Meters through 10 Meters, 1.8 MHz through 28 MHz)
 - HF Radio (single-band or multi-band), typically multi-mode (Voice, Morse Code and Digital)
 - AC to 12-volt DC power supply
 - Antenna(s), typically mounted outside, varieties include wires, aluminum beams, and verticals.
 - Accessories
 - Microphone
 - Morse Code Key or Keyer
 - Digital Mode Interface
 - Computer & Software
 - Antenna feed cables and Antenna Tuner
 - Headphones
 - Range from local, regional, state, and even worldwide dependent on antennas, bands being used, mode (voice, CW, Digital), and atmospheric conditions (propagation and time of day)
- How do I pick what I need, and how much does it cost?
 - The cost depends on what type of station you want and whether you buy new or used. A simple analog handheld VHF radio can start at under \$25, or for the latest HT with all the bells and whistles can reach \$300. A used HF Radio can be found for under \$500, but you will need antennas, a power supply, and other accessories. An HF station can be put together for less than the cost of a new iPhone (<\$1000).
 - “Buying an AR Rig” Slideshow-tiny.cc/buyar & Spreadsheet-tiny.cc/buyar-ss

Learn Best Practices

- **The importance of having an Elmer or belonging to a club with knowledgeable members to help you with this process cannot be overestimated! - Give Your Elmer an Award**
- Listen to the radio and learn how others operate.
- Read and follow the advice in **“IARU Ethics and Operating Procedures for the Radio Amateur”**
- Read Presentation- TOP SECRET TECHNIQUES TO WORK 50 STATES & 100 COUNTIES - tiny.cc/ham50
- IARU- *Ethics & Operating Procedures for Amateur Radio- 68-page pdf guide*
- **K8ZT Presentations-** tiny.cc/k8zt-p
- Books
 - *ARRL Operating Manual*
 - *Your First Amateur Radio HF Station-Getting Your First HF Station Started!*
 - *ARRL Handbook* (you can buy a used copy as this comes out yearly, choose one less than five years old)
 - *The Complete DX'er by Bob Locher* (3rd Ed)
 - *Ham Radio for Dummies (3rd Edition)-* Ward Silver
- Web Pages
 - **K8ZT**
 - Antennas
 - Calendars
 - Contesting
 - DX & DX News
 - Digital Modes
 - Emergency & Public Service
 - Logging & QSLS
 - Maps & Charts
 - Morse Code / CW
 - News
 - Propagation & Spotting
 - Propagation & Spotting
 - QRP & Low Power Operation Space & Satellites
 - Rules & Organization
 - Tips for New Hams
 - VHF, UHF, FM & Repeaters
- Operate as often as possible
- *Ham Radio News, Calendars, Announced DX Op, Propagation, DX Spots, QSLing, Blogs, Podcasts & YouTube*
- Callsign Lookup-
 - QRZ- www.qrz.com
 - HamQTH- www.hamqth.com



- Repeater Lists
 - [Ohio Repeaters](#)
 - [By State & City with Maps](#)
- DX Spotting & Announcements
 - DX Summit- www.dxsummit.fi
 - Announced DX Operations- www.ng3k.com
- Free Groups & Other Things to Sign Up for
 - QRZ- <https://ssl.qrz.com/reg?op=newacct> this will allow you to get more detail when you look up callsigns, plus give you the ability to customize your call sign's page. There are paid subscriptions also, they provide many good features, but you do not need to start with these. Just sign up for a free account to get started.
 - eQSL- www.eqsl.cc/qslcard/RegisterValidated.cfm Similar to LOTW (Of The World)- There are paid subscriptions also, but you do not need these to start. Just sign up for a free account to get started.
 - HamQTH www.hamqth.com
 - ClubLog- <https://secure.clublog.org/signup.php>
- Amateur Radio News/Blogs/Podcasts/Videos/YouTube
 - ARRL Ohio Section Journal Newsletter (you do not need to be an ARRL member, yet to sign up)- www.arrl-ohio.org/forwarder/forwarding.html
 - Southgate Amateur Radio News- www.southgatearc.org/newsletter/index.htm
 - Amateur Radio.com- www.amateurradio.com
 - *The Doctor Is In!* bi-weekly ARRL Podcast
 - Online Video/Audio Podcasts/Youtube
 - HamNation - Weekly Online Show- <https://twit.tv/shows/ham-nation>
 - SolderSmoke Daily News- <http://soldersmoke.blogspot.com>
 - Amateur Radio **Youtube** Channels-
 - [K7AGE Welcome to my Ham Radio](#)
 - [Steve WGØAT \(SOTA\)](#)
 - [W2AEW](#)
 - [RadioHamGuy](#)
 - [HamAndShortwaveRadio](#)
 - [VK3YE](#)
 - [The Radio Hobbyist](#)
 - [AmateurLogic.TV](#)
 - [Mr. Carlson's Lab](#)
- Mailing Lists
 - [Groups.io](#)
 - [Amateur and Ham Radio - Yahoo Groups](#)
 - MailMan.QTH.net Mailing lists (over 600 amateur radio mailing lists)- <http://mailman.qth.net>

Expand Your Radio Activity

- Add Additional Modes to Your Operating Repertoire
 - Digital Modes- www.k8zt.com/digital & tiny.cc/ft8ft4
 - FT8 - *Hinson tips for HF DXers on operating FT8*
 - RTTY
 - PSK and more
 - CW (Morse Code)- tiny.cc/fwm
 - Many hams do not realize they also get on HF privileges with just a Technician License if they use CW in designated frequencies on 80, 40, 15 & 10 Meters.
 - Don't have your frequency privileges band map? [Download here.](#)
- Emergency Communications & Public Service ARES, RACES, EMCOMM, etc
- Portable Operations- www.k8zt.com/go-kits
- Contesting- www.k8zt.com/contesting
- DX- www.k8zt.com/dx
- Amateur Satellites- www.k8zt.com/space
- Fox Hunting
- DMR
- Building, Homebrewing & Kits
- Antennas
- Awards, Paper Chasing
- Remote Operation
- VHF/UHF- Weak Signal, MS, Contesting, etc.

ADDENDUM (by no means is this a complete listing)

Presentations:

- I have an extensive list of presentations, including slideshows and recorded videos for a complete list visit- tiny.cc/k8zt-p
- Some highlights for newer hams
 - Buying Amateur Radio Transceiver- tiny.cc/buyar
 - Setting Your VHF Station- tiny.cc/suvhf
 - Technicians, Life Beyond Repeaters- tiny.cc/btech
 - Top Secret Techniques to WAS & DXCC- tiny.cc/ham50

Topics	tiny.cc/k8zt-p	Slideshow	Video	Site
I am willing to present any of my slideshows live online (via Zoom, Google Meet, etc.) for your local club. Please email me if interested.				
Website	K8ZT Website			www.k8zt.com
Beginners	Ham Radio Quick Start Guide	tiny.cc/new-ham		
Buying	Buying an Amateur Radio Transceiver plus Spreadsheet of Radio Models & Vendors	tiny.cc/buyar		tiny.cc/buyar
	3 Stations for 100+ Mile Contacts With a Tech License for <\$100	tiny.cc/100tech		
Call Signs	Choosing Your Ideal Callsign	tiny.cc/idealcall	https://youtu.be/Bmi9LGGt6aY	tiny.cc/idealcall
	Choosing Your Ideal Callsign- QSO Today Expo 2021	tiny.cc/qte-call	www.qsotodayhamexpo.com	tiny.cc/qte-call
Contesting	Intro to AR Contesting- ARRL Classes	https://www.pathhms.com/arrl/courses/15065 (ARRL Member required)		
	Intro to AR Contesting- ARRL Webinar	tiny.cc/ar-contest	www.gotostage.com/channel/15065	
	Contest Logging Software- RATPAC	tiny.cc/logsoft	vimeo.com/522581517	
	N1MM Contesting Software- Elmering Day	tiny.cc/n1mm-elmer	youtu.be/55rVW449Uk	
	N1MM Contesting Software- Short	https://docs.google.com/presentation/d/1v3830/edit	https://youtu.be/9SK2G1a	
	N1MM Logger+ for FD Logging	tiny.cc/n1mmfd		
	WA7BNM Contest Calendar	tiny.cc/testcal	TBA	
CW/ Morse	3830 Contest Score Rumor Site	tiny.cc/3830	TBA	
	Fun with Morse	tiny.cc/fwm	youtu.be/OC2jQW7zmIo	
	Fun with Morse- QSO Today Expo 2020	tiny.cc/fwm	youtu.be/BofbNl_RLTI	
Field Day	Fun with Morse- Short	https://docs.google.com/presentation/d/1v3830/edit		
	Field Day 2021 in Social Distancing- II The Sequel	tiny.cc/fdsd	vimeo.com/553180527	
	Field Day in Social Distancing		youtu.be/v-S_84p-Hf8	
	Field Day in Social Distancing- IARU		youtu.be/xLk5_BlpF6s?t=1	
Food	N1MM Logger+ for FD Logging	tiny.cc/n1mmfd	TBA	
	Cooking- Value Added Flavor; Low Cost & Free Ways Improve Your Cooking	tiny.cc/vaflav		
FT8/ FT4	FT8 & FT4 Digital Soundcard Modes An Introduction- QSO Today Expo 2020	tiny.cc/ft8ft4	www.youtube.com/watch?v=...	
	FT8/FT4 Digital Modes	tiny.cc/ft8ft4		
	FT8/FT4 Digital Modes- ARRL Webinar	tiny.cc/ft8ft4	www.gotostage.com/channel/15065	
	FT8/FT4 Digital Modes- G-QRP	tiny.cc/ft8ft4	www.youtube.com/watch?v=...	
	FT8/FT4 Digital Modes- P...	tiny.cc/ft8ft4	youtu.be/8Z7C8...	

Free Software (& Paid Shareware- SW\$, Commercial- \$)

- **Logging Software-**
- Log4OM- www.log4om.com
 - Swisslog- www.informatix.li/index.htm
 - DX Keeper- www.dxlabsuite.com/dxkeeper
- **Contesting**
 - N1MM+ Logging Software- <http://n1mm.hamdocs.com/tiki-index.php>
- **CW Training / CW Decoding / CW Sending**
 - G4FON Trainer Koch Method- www.g4fon.net/CW%20Trainer.htm
 - Just Learn Morse Code- www.justlearnmorsecode.com/download.html
 - *CW Skimmer* 1.8 (SW\$)- Multi-channel CW decoder and analyzer
 - CW Decoder/Transmit (WD6CNF)- www.hotamateurprograms.com/downloads.htm
 - Youtube- Morse Code Software - overview of some great CW apps - [link](#)
- **DX**
 - VE3SUN DX Monitor (SW\$) - www.ve3sun.com
 - DXLab Suite- www.dxlabsuite.com
 - DX Atlas Electronic World Atlas (SW\$) - www.dxatlas.com/DxAtlas
- **Digital**
 - *FLDigi*
 - *WSJT-X*
- **General**
 - “Big List of Ham Software” - www.w1wc.com/software
 - www.hotamateurprograms.com

Contesting & Other Operating Activities-

- WA7BNM Contest Calendar- www.hornucopia.com/contestcal
- N1MM+ Logging Software- <http://n1mm.hamdocs.com/tiki-index.php>
- NG3K Amateur Radio Contest/DX Page- www.ng3k.com
- Summits On The Air (SOTA) – www.sotadata.org.uk.
- US Islands On The Air - www.usislands.org.

Major Rig Manufacturers-

- Alinco- www.alinco.com
- Baofeng- <https://baofengradio.us>
- Elecraft- www.elecraft.com
- FlexRadio Systems- www.flexradio.com
- Icom- www.icomamerica.com
- Kenwood- www.kenwood.com/usa/com/amateur
- MFJ HF Transceivers- www.mfjenterprises.com/Categories.php?sub=0&ref=34
- Yaesu (Standard)- www.yaesu.com

Vendors (Multiproduct)-

- AES- www.aesham.com
- BARC Internet Vendor List- [list](#)
- CQ Radio Vendor List- [list](#)
- DX Engineering- www.dxengineering.com
- GigaParts- www.gigaparts.com
- Ham Radio Outlet- www.hamradio.com
- Main Trading Company- www.mtcradio.com
- R & L Electronics- www.randl.com
- Universal Radio- www.universal-radio.com