



# Connecting to the 11 Cats Network

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# Introduction

Thank you for your interest in participating in our 11 Cats nets! We host a variety of nets on a weekly basis. For our current net schedule please refer to <https://www.11cats.org/amateur-radio/>. Our goal is to provide a friendly venue for licensed ham radio operators to communicate using the English language.

Our network is based on Allstar with EchoLink, IRLP and direct D-Star, D-Star Terminal Mode, Yaesu System Fusion (YSF), and Digital Mobile Radio (DMR) bridges. Please let us know if you have an additional protocol that you would like us to support ( P25 and M17 are already on our list! ).

If you would like to listen, we stream to Broadcastify <https://www.broadcastify.com/listen/feed/42257>. We also have a web player on <https://www.11cats.org> or you can use your favorite player to open <https://listen.broadcastify.com/d6hk0y8fjpswrxg.mp3>

## 11 Cats Etiquette

Our motto is freedom of speech with respect for other opinions, while complying with FCC Part 97 Amateur Radio Service Rules, of course. Please be polite at all times. When there's a talking point you want to touch on, follow the net controller instructions on comments. Some net controllers will permit comments directed through net control, others will ask that you write down the points you want to make and then make them when it is your turn.

In addition, the usual rules of sane civil discourse apply:

- Treat others as you want to be treated.
- Listen to others without interrupting them.
- Sarcasm can help make a point, but don't forget that it can be misinterpreted.
- Keep your personal information private.
- Remember that what has been said, can not be unsaid.
- Lastly, don't forget about the 3 minute time out timer. We want to hear everything you have to say, so all you have to do un-key every couple minutes to allow a system reset.

## Network Voice Traffic Priority

1. Emergencies (we will do our best to relay and assist)
2. Scheduled Net (the net scheduled for the current time slot)
3. Ad-Hoc "Pop-Up" Nets (may or may not have a net controller)
4. General QSOs (no time limit, just give up the channel to higher priority traffic)

## Voice Quality

All licensed ham operators are welcome on our network. Everyone appreciates perfect subjective “in the room” 55 quality, however everyone is learning (including us!) so for the audio comfort of net listeners, during a scheduled net, we ask for a minimum subjective evaluation by our net controller “signal report” of at least 33 to participate (Readability and Signal Strength). Please do not be offended by the net controller stating that you are less than 33, we’ve all been there at one time or another! Time permitting they will help you adjust your settings to acceptable quality. This may involve you adjusting your microphone gain, staying that “just right” distance from your microphone, no background noise, a stable internet connection, etc.

In general, all our participants appreciate:

Good Fidelity

No Background Noise

No Echo

## Connections

There are a lot of ways to “get it done” and all of them require an internet connection. We’ll start off with general connection specifications, then illustrate examples ranging from Radio Only, Hotspots, Microsoft Windows, Apple MacOS, Apple IOS, Google Android and Debian Linux.

### General connection specification

(Note: Conference servers will be disconnected without prior permission, and please be diligent by removing secondary connections from your end).

The following protocols are bridged at our hub (please do not bridge them together on your end). The order is alphabetical and not intended as an endorsement of one protocol over another.

### AllStar Nodes

Connect to 559385 or 559386 using AllStarLink authentication ( <https://www.allstarlink.org> ). Non-standard port UDP 4573 is in use.

### DMR

MMDVM Server address is [xlx311.11cats.org](https://www.radioid.net/). You will need your callsign and numeric DMR ID id ( <https://www.radioid.net/> ). Standard UDP port 62030. TS 2, Talk Group 4001 is 11 Cats (XLX Module A), Private call 4000 to disconnect, group call to 4001 to connect. If you are cross mode, route to 4001.

## **D-Star**

Set your gateway is [xlx311.11cats.org](https://xlx311.11cats.org), reflector is XLX311, two modules configured, Module A is 11 Cats Network, Module B is administrative and testing. Standard UDP ports 12345 - 12346 (Icom Terminal presence and request port), 20001 (DPlus protocol), 30001 (DExtra protocol), 30051 (DCS protocol), 30062 (CCS port) and 40000 (Icom Terminal dv port) are in use. D-Star callsign registration is at ( <https://regist.dstargateway.org> ).

## **EchoLink Conference Rooms**

Connect to \*11CATS\* (186343) and \*11CATS2\*(210595) using EchoLink authentication ( <https://echolink.org> ) Standard UDP ports 5198 and 5199 and TCP 5200 in use.

## **IRLP**

Connect your IRLP node to either one of our experimental IRLP nodes, 0107 or 0112 (\*11CATS\* and \*11CATS2\* respectively).

## **YSF**

Server is XLX311 (003311), address is [xlx311.11cats.org](https://xlx311.11cats.org), DG 10 is 11 Cats (XLX311 Module A), standard UDP port (42000).

## **Examples**

The order is alphabetical and not intended as an endorsement of one software and/or hardware package over another.

### **Android**

#### ***Allstar***

<https://play.google.com/store/apps/details?id=org.dvswitch>

#### ***EchoLink***

<https://play.google.com/store/apps/details?id=org.echolink.android>

#### ***DV (Digital Voice) Software***

If you have a Kenwood D75, check out <http://www.pa7lim.nl/bluedv-connect/>

### **Apple iPhone & iPad (IOS)**

#### ***Allstar***

<https://repeaterphone.com> supports Allstar authentication and EchoLink.

## **EchoLink**

<https://apps.apple.com/us/app/echolink/id350688562>

## **OpenSpot**

The SharkRF app is available in the Apple App Store

## **Apple MacOS**

### **Allstar**

<https://apps.apple.com/us/app/transceive/id1529395199?mt=12>

### **EchoLink**

<https://apps.apple.com/us/app/echoham/id873302145?mt=12>

A web only application is available as well: <https://webapp.echolink.org>

## **DV Software**

There are a lot of options available, consider taking a look at <https://github.com/nostar/DroidStar>.

## **Hotspots**

Hotspots range from being able to use a VHF/UHF radio hosting a AllStar node and connecting node to being able to use software application and/or a digital capable radio to connect to a wide variety of networks via digital modes.

### **OpenSpot 4 Pro / Hotspot with vocoder**

The OpenSpot 4 Pro (<https://www.sharkrf.com/>) has a hardware vocoder chip installed. Using it gives you the ability to use the SharkRF application (<https://www.sharkrf.com/products/sharkrf-link-app/>) as a transceiver. SharkRF provides software for Microsoft Windows, Apple iPhone and iPad (App Store), Apple Mx series computers (iPad emulation, or you can use the Beta App), Linux, and Android.

Also, you can use most digital capable radios described in the next section.

### **OpenSpot / Hotspot without vocoder options**

Please refer to ( <https://manuals.sharkrf.com/openspot4/en/setting-up-your-transceiver.html#page-top> ) for the OpenSpot 4 or ( <https://www.sharkrf.com/products/> ) for legacy devices.

### **Pi-Star**

Pi-Star (<https://www.pistar.uk/index.php>) is a software image built initially for the Raspberry Pi (produced by the Raspberry Pi Foundation). The design concept is simple, provide the complex services and configuration for Digital Voice on Amateur radio in a way that makes it easily accessible

to anyone just starting out, but make it configurable enough to be interesting for those of us who cant help but tinker.

## **SHARI**

SHARI (SA818 Ham Allstar Radio Interface) is a ham construction project designed by N8AR that implements a Raspberry Pi hosted Allstar node using a NiceRF SA818 embedded UHF (420 – 450 MHz) or VHF (144-148 MHz) radio module. Please refer to <https://kits4hams.com/> for all options.

## **Radio Only (no computer required)**

### ***D-Star Terminal Mode (IC-705, IC-9700)***

The IC-705 and IC-9700 have built in WiFi. The Icom HTs with D-Star that support terminal mode have to connect to an Internet connected Microsoft Windows notebook to supply a connection to the HT. If you have a notebook computer available consider using EchoLink or AllStar capable software applications to connect to us.

Using an IC-705 for example:

Connect to a local WiFi network that allows devices to open inbound ports or manually forward UDP Port 40000 from your router that has a public Internet address to your radio IP address and set your local DHCP server to make sure your radio always gets the same IP address.

In Menu, DV Gateway, Internal Gateway Settings:

1. Configure the DV gateway to [xlx311.11cats.org](http://xlx311.11cats.org)
2. Set Terminal Mode Callsign, if you don't have an unused callsign, add an eighth letter suffix to yours at ( <https://regist.dstargateway.org> ) for example, if your normal D-Star call is AB8CDE Z (don't forget the space is required), then find an unused suffix, such as AB8CED Y.
3. Set Gateway Type to Global
4. Set UDP Hole Punch to ON if your router has PnP enabled
5. Go up one menu level (the curved arrow in the lower right of the screen) and make sure Gateway Select is set to use Internal Gateway (WLAN)
6. Tap <<Terminal Mode>> to put the radio into terminal mode. FYI - When you want to exit terminal mode that menu position will have <<Normal Mode>> to select.
7. Tap to the right of the TO (on the right side of DV on the screen), in the "TO SELECT" menu scroll to find "Direct Input (RPT)" and enter (no quotes): "/XLX311A"
8. Key MIC once to connect, you should see a magenta up arrow and a green down arrow appear in the upper left part of your radio screen with no red "x".
9. Listen to make sure the channel is clear then state your callsign to test.

10. To exit <<Terminal Mode>> press the Menu button below the screen to the left, tap “DV GW” and select <<Normal Mode>>

## Linux

### **Allstar**

Please take a look at <https://github.com/nostar/DroidStar>, for security reasons we only support Allstar authentication which DroidStar does not do. However, you could build an AllStar node then use it to connect to us and use DroidStar or other applications like it to connect to your node.

### **DV Software**

There are a lot of options available, consider taking a look a <https://github.com/nostar/DroidStar> and [http://dvswitch.org/DVSwitch\\_install.pdf](http://dvswitch.org/DVSwitch_install.pdf)

### **EchoLink (Q-tel)**

<https://kd9cpb.com/qtel>

A web only application is available as well: <https://webapp.echolink.org>

### **OpenSpot Pro**

<https://www.sharkrf.com/products/sharkrf-link-app/>

## Microsoft Windows

### **AllStar**

Please review [Setup/Download IAXRpt – AllStarLink Wiki](#), for security reasons we only support Allstar authentication which IAXRpt does not do. However, you could build an AllStar node then use it to connect to us and use IAXRpt to connect to your node.

Zoiper is another option [Download Zoiper 5, a free VoIP softphone:: Zoiper](#), for security reasons we only support Allstar authentication which Zoiper does not do. However, you could build an AllStar node then use it to connect to us and use Zoiper to connect to your node.

### **Digital Voice Software**

There are a lot of options available, consider taking a look at <https://github.com/nostar/DroidStar> and <http://www.pa7lim.nl/peanut/>

### **EchoLink**

EchoLink is a great and easy way to connect to our EchoLink Conference Server. Please review [Introducing EchoLink](#), it will describe the system to you. Then follow the instructions on [Download EchoLink](#), run the software to register your callsign and then follow the instructions to validate your callsign at <https://echolink.org/validation/>



A web only application is available as well: <https://webapp.echolink.org>

***OpenSpot Pro Client***

<https://www.sharkrf.com/products/sharkrf-link-app/>

***Yaesu FT3/FT5 with PC connection kit***

<https://www.yaesu.com/> is a good place to get started.