ICTALK v2.9

This program was written by me DJ0HF and designed to allow simple operation of Icom transceivers for the blind, using single key presses to select most options and doesn't need any libraries etc. just one single exe file to run. It has been tested on an ICOM 705 and an ICOM 7100 and the radio entry in the configuration file can be set to auto and then the correct ICOM address for your radio will be found automatically. However it is possible to have more than one ICOM radio connected on the same CI-V cable, in which case you can select the radio you want to talk to from the list below and the following radio's are currently recognised by the program :-

IC703,705,706,706MK2,706MK2G,718,728,735,737,738,746,746PRO
751A,756PRO,756PRO2,756PRO3,765,775,781,821,7000,7100,7200
7300,7400,7410,7600,7610,7700,7800,7851,9100

 But other ICOM radio's could be added if requested if auto is not used then when entering the radio type into the config file it is important to enter it exactly as shown in this list which means all character are Capitals/Upper case.

I C Talk is designed to work with ICOM radio's but will also normally work with many Xiegu transceivers such as the X6100, X5105, G106 etc. which use a sub set of the ICOM commands and most of the main commands will work making the radio very usable. For Xiegu transceivers you may find the radio will work set to auto but if not you will need to set the radio to 7000 or 7100 in the config file, whichever works for your transceiver.

 The program is free to download along with this documentation and other files but of course although the program has been extensively tested you use it at your own risk. Also unlike F T T S and K X Talk I have to use two programs one for the user interface and commands and another to translate the commands into a form that the ICOM radio can understand.
So at the beginning there are two extra steps to preparing your computer which are described below, but once IC-Talk is running then it works in

the same way as my other Talk programs, using exactly the same commands.

I have included in the package the document Getting Started written by Gena M0EBP which I recommend you read first as it will help ensure you have the correct drivers etc. in your computer for the radio you are using and may also help if you use the Windows Defender program which can cause problems by producing false positives with programs it doesn't recognise like mine.

And although I have made this program/package free for all to use none of the files in this package may be modified in any way without my written permission.

If you have a question which is not answered by the documentation, or a problem then I can be contacted via the E-Mail address :-
dj0hf@spencerweb.net

Preparing your Radio
Now you can connect a standard USB cable between the USB or 9 pin port of your radio and a usb or serial port on the computer.

Normally most ICOM radio's have there com port speed setting set to Auto which means you can choose the speed you want to use and which needs to be put in the config file as described below, however auto will only recognise speeds up to19200 so I recommand this speed. If your ICOM radio has a speed other than auto set in the radio then you need to use this speed or change it to Auto.

IC TALK is a Windows program and should run fine on all version from XP onwards, so also Windows 7, 8, 10 and 11 though it has only been tested on windows 10 and 11.

Preparing your computer
There are a couple more steps for I C Talk when compared to F T Talk, T S Talk and K X Talk but they are not difficult to do.
First after unzipping the I C Talk folder onto your computer you need to start the exe file com0com which is part of this package and install it, please use this version and not any later version you may find on the

internet. Com0com may ask you to install net framework 3.5, if it does then follow the instructions to install this windows package.

Then execute the setupcom0 bat file and you are finished. I C Talk actually uses two programs and this sets up two virtual comports 20 and 21 which the two programs use to communicate with each other.

Configuring the config file

Use a text editor to change the first line in ictalk.cfg to match your comport between 1 and 99 and the second line Serial speed you want to use with your radio, I recommend 115200 Baud but as mentioned above some ICOM radio's can't work at speeds faster than 19200 Baud.

The third line of the config file is the radio type which by default is set to auto meaning the program automatically recognises which ICOM radio is connected, however as mentioned above if you have more than one ICOM radio connected to the CI-V cable the you can enter the model name of the radio you want to talk to but it must be one of those in the list at the start of this help document and all characters are in capitals/upper case.

The fourth line power should be set to the power level you want to use when you first connect the program to the radio between 0 and 100, or for the IC-703/IC-705 a maximum of 10 watts, which is also used if you have a Xiegu radio and have set the radio parameter to auto.

The fifth line is swr and if set to 0, in tune mode you have to press the S key to hear the SWR but if you set it to 1 then when in tune mode the SWR is repeated continually until you exit tune mode.

The sixth line is ATU if it is set to 0 then it will tune the antenna using the internal Automatic ATU However tuning can be very fast and then the radio will switch back to receive and the radio will no longer send the SWR and will send zero which will be voiced as 1.0 to 1.

But if set to 1 the program will switch on the transmitter with about 1 watt of carrier and will expect an external ATU and if it is a manual ATU then it can be useful to set the SWR parameter to 1 so that the SWR is continually repeated allowing you time to adjust a manual atu for best SWR.

Even if you have an internal atu it can be useful to set this parameter to 1 as it gives you more time to check the SWR as in this mode the radio doesn't automatically go back to receive but remains in transmit until you hit the T key again.

You can set this parameter to 2 which will use both methods, so it will first turn on the Auto ATU and tune automatically then after a few seconds it

will say Okay and turn on transmit with 5 watts of carrier and you will be able to hear the real SWR voiced.

The seventh line is bandmax which is set depending on the highest band available on your radio to 10, 6, 2 or 70 for bands between 10 metres and 70cm. The eighth line is Autoon which if set to 1 will automatically switch your radio on when you start the program and switch it off when you close the program with quit that is the Q key, so that for radio's with touch screen you do not accidentally touch the screen while searching for the on/off button. Default is 0.

Using IC TALK

If you have just installed the driver for your radio then when you start I C Talk for the first time there may be no audio from the program. This is because when installed radio drivers tend to divert all audio to and from the radio and you will need to go to the windows mixer and set the correct output device again, probably your speakers.

Now start the program ic-talk-v29.exe, you can exit the program at any time by hitting the Q key. It is important to quit the program with the Q key and not just to close the window as just closing the window will prevent the automatic power off for the radio from working or data from being saved. It's also important to always use the program to control the radio if you are running the talk program and operate buttons or other controls on the radio the program will not know you have done that. The exception is that you can tune the radio with the VFO knob on the radio and the program will follow your frequency changes.

The program will announce the version and then voice the last frequency and mode used with the program and also say connected if it is successful in communicating with the radio.

If it says Virtual com port not found it means that the com0com program or ports are not correctly set up and it may mean that your computer does not have the correct version of windows Net Framwork that is 3.5 installed and you may need to do a manual configuration of com0com as described below :-

Manually configuring com0com
If necessary go to the folder C:\Program Files (x86)\com0com.
Now start the program setupg.exe it's important to start setup g not setup c.
If Net framework is not installed on your computer then it will tell you and you need to follow the install procedure.
Once this is completed start the program setupg.exe again and this time a window should open and be on an edit field which should say COM20 but if it says CNCA0 then change this to COM20. Then tab once to the next edit field and this should say COM21 if it says CNCB0 then change it to COM21 and then tab until your reach the Apply button and click it.
The virtual com ports are now set up.

If the program doesn't say connected or virtual com port not found then probably the comm port or the speed or the radio type is wrong. If you hit Q then the program will close, however if it couldn't find the radio at all it can happen that the second program can't close because it is hung up in the driver and I have no control over the driver and you may need to use ALT + F4 to close the window. Your computer may sometimes be loading the wrong driver or if there is no voicing the audio output device does not have the loudspeaker on your computer selected as the default audio output device (see the getting started file from Gena M0EBP).

You can voice the help file at any time by hitting the H key.

You put the program into various modes by a single key press and when you first start the program it will initialize on 40 metres to 7.1Mhz unless you have used this program before in which case it will return to the last frequency and mode you were using on 40 Metres. If you would rather be on a different band then it takes just 2 key presses as explained below with band change mode.

Frequency mode in this mode which you can re-enter at any time by hitting the F key the up and down Cursor/Arrow keys change the frequency by 1Khz, left and right Cursor/Arrow keys change the frequency by plus or minus 100Hz except in FM mode where 100Hz is not really useful and so the left and right cursor keys control the squelch. The Page up and Page down keys increase or decrease the frequency in 10Khz steps, except in FM mode where they produce 12.5Khz steps. Plus and Minus

keys change the frequency in 1Mhz steps. Pressing F at any time will voice the mode and frequency and if set such things as split and CTCSS.

If you tune the radio using the main tuning knob the program will follow the frequency changes and if you stop tuning on a station and want to know the frequency just hit the F Key. You can get the **S meter** reading at any time by hitting the S key. Although it is probably best to control the radio with IC TALK if you do change bands with buttons on the radio the program will still follow those changes.

Frequency Entry Mode, hitting E will put you in frequency entry mode where you can enter a frequency between 1 and 440Mhz. The Mhz and Khz values must be separated by a full stop/point but for example to go to exactly 15Mhz you only need to enter 15 and then hit the carriage return to move to that frequency. Entering an invalid frequency the word invalid will be voiced and the entry will be ignored. Pressing F will confirm that the frequency change has taken place if you want to check. You can enter any valid frequency within the range of your transceiver if it is well outside an amateur band then it will be announced as band unknown. If you select a frequency your radio cannot use then it will be ignored.

Split Frequency mode is used when you want to work a DX or Expedition station and they are telling you up 5 or up 10 meaning you should transmit 5 or 10Khz higher than the frequency they are using. You enter Split Frequency Mode by hitting V and VFO B will then be displayed and you can increase or decrease the frequency using the usual cursor keys, Enter frequency command etc. And of course you can check the frequency of VFO B with the F key as usual. Now when you transmit you will be transmitting on VFO B and receiving on VFO A. To exit split mode just hit V again.
You can also use split mode to set up a repeater split, for example on 10 metres if you enter the receive frequency and then hit V and then enter your transmit frequency you can use the split mode to work through the repeater. Some repeaters use CTCSS or DCS access so see below for details. CTCSS/DCS must be enabled before split is selected.
If you want to save the split frequencies and/or CTCSS then you can hit C for channel save and then a number 0 to 9 to save the split/ctcss in that memory location and recall it at any time with G for go to channel and a number 0 to 9 (see also banks 0 to 9 in the Memories section).

Zero Frequency, Most stations tend to transmit on exact Khz frequencies and when you tune your receiver you may not be exactly on the Khz but if you tune the receiver so the audio frequencies sound a bit high then hitting Z will put you exactly on the Khz frequency in use by the station you are listening too. In CW mode Z will zero the station you are receiving to the tone frequency set in the radio typically between 400 and 800Hz and guarantee that you will be transmitting on exactly the same frequency as the station you are receiving.

You can change **Modulation mode** at any time by hitting the M key and it will cycle through LSB/USB/CW/AM and back to LSB. Except on 10 Metres to 70cm where FM follows AM and then back to LSB.

In the following modes the up and down arrow keys work to increase or decrease the parameter chosen.

Band change mode by hitting the B Key. In Band change mode each tap on the up arrow will go up one band or cursor down to go down one band. Or in band change mode you can go directly to any HF band by hitting one of the number keys 1 is 160Metres, 2 is 80Metres and so on with 0 being 10 metres. After selecting a band using the number keys the radio automatically returns to frequency mode. After 10 metres to get to the VHF/UHF bands you hit B and use the up and down arrow keys. Or you could hit E and enter a frequency for the band you want to go to.
If you are not sure which band you are on just hit the B key again to voice the band and then F will put you back in frequency mode.
 The program automatically puts the radio into LSB on 160/80 and 40Metres and USB for 60Metres and from 20Metres all bands up to 6Metres and FM on 2 metres and 70cm. Also the pre-amp is automatically turned off on bands 160 to 30 Metres and on for bands 20 metres and up.

Insert CTCSS/DCS hitting I while in FM mode will ask you for a CTCSS tone or DCS number. For CTCSS this is the frequency of the CTCSS tone, so for example you might enter 151.4, then hit enter and the CTCSS tone will be inserted into the transmission and expected in the received signal from the repeater. For a DCS Code you need to hit N for Normal or R for reverse and then the DCS code so something like N followed by 306 and then hit Enter and this DCS code will be entered into the transmission and

expected in the received signal from the repeater. Hitting I again will turn off the CTCSS/DCS. CTCSS must be enabled before enabling split mode.

Bandwidth mode by hitting the W key. In Bandwidth mode the up and down cursor keys can vary the bandwidth in SSB between 3Khz and 1Khz and in CW mode between 1.5Khz and 50Hz.

Power mode by hitting the P key. In Power mode the up and down cursor keys increase or decrease the power in 10W steps between 10 and 100 watts. Cursor down from 10 watts gives you 5 watts the lowest power setting. On the IC703/IC705 the highest power is 10 Watts and you step in 1 watt increments between 1 and 10 watts.

RF Gain mode by hitting the R Key. In RF Gain mode the up and down cursor keys increase or decrease the RF gain.

AF GAIN mode by hitting the A key. In AF Gain mode the up and down cursor keys increase or decrease the AF gain.

Keying Speed, hitting K will turn on the keying speed adjustment and will put the radio into CW mode and announce the current keying speed. Hitting up or down cursor keys will increase or decrease the speed by one word per minute. If you operate the key while changing the speed you will hear the speed changing. Normally there will be no transmission unless break in is turned on and then the radio will transmit but at a very low power, so you will be unlikely to cause any real interference. Hitting any key other then the up and down cursor keys will exit the keying speed adjustment and put the radio back into it's last used mode.

Tune Mode, Hitting the T key will turn on the radio's transmitter in Tune mode so that the ATU can be used to adjust the antenna matching. Hitting T again will put the radio back into receive mode. While in tune mode if swr in the config file is set to zero then hitting S will give you the SWR of your antenna. If swr in the config file is set to 1 then the SWR will be automatically and continually repeated until you leave tune mode. Some radio's go back to receive automatically after the auto tune is finished (which can just be a couple of seconds) and you may no longer be able to read the SWR. In which case you can keep the transmitter on by setting the ATU parameter in the config file to 1 so that the radio stays in

transmit until you hit T again, this gives you plenty of time to hear the SWR, this is how you use a manual atu rather than the internal auto atu. If you have a manual ATU then set the SWR parameter in the config file to 1 and also the ATU parameter to 1. Now you will hear the SWR repeated all the time while in tune mode so that you can adjust your manual ATU for best SWR, however in manual atu tune mode you need to press and hold the ptt while adjusting the atu, this is a work around as the radio does not automatically begin transmitting RF. You then release the ptt and of course hit T to return to receive mode.

You can set the ATU parameter to 2 which will combine both modes, first starting an Auto ATU tune and after a few seconds the program will say Okay and then put the radio into transmit with 5 watts of carrier and you can then hear the real SWR of your antenna, again pressing and holding the ptt so that the radio emits RF.

Memories
The program offers 100 memories in 10 banks and you can store either a single frequency or if you have split setup then the split will be stored as will any CTCSS tone set.

The first 10 memories that is bank zero are quick memories so to store a channel in a memory you hit C for Channel save and then a number key 0 to 9.

To recall the memory hit G for go to channel and then a number key 0 to 9. Trying to recall a memory which hasn't been used results in an invalid message. To use the other banks after hitting C or G if you hit B it will ask you for a bank number between 0 and 9 and then will ask you for the channel number again from 0 to 9 and you will store or recall that memory slot.

Memory hopping, if after using G to recall a memory channel you hit U it will recall the next memory channel and you can cycle through all 10 channels in a bank.

If you have set up a large number of memory channels it's difficult to remember all of them, so when you quit the program it creates a file called memory.txt, which is a list of all the memory channels you are using in a human readable form.

Level Control, if after turning on the Noise blanker or Noise reduction you hit L for level control you can now use the up and down cursor keys to

increase or decrease the level of the selected option. Listen to your radio to find the optimum level.

Extended Command Mode is turned on by hitting X and extends the command set for commands which are used less often. Hitting X again will turn it off as will hitting any command key not used in Extended Command Mode, such as F, P etc.

Digital modes using Extended Command mode.

In version 2.8 some basic digi mode control is provided. If you are using wsjtx in a mode like FT8 then you can configure wsjtx to recognise your radio and automatically configure the important parameters so my program may not be necessary. However if you want to work RTTY, PSK31 etc. with a program like MultiPSK or TrueRTTY then you will need to feed the audio in both directions from your computer to your radio and then in principal if you put the radio into USB mode then you will be able to work in the chosen mode. But one of the problems is that not all radio's will allow VOX to be used with digital audio from the computer.

You could simple press the transmit button manually on those radio's that don't recognise VOX. Or in those programs if you set the com port in the digital program to use RTS (request to send) as the PTT then in my program you can go to extended mode with X and then hit R which will turn the RTS PTT function on or off in the IC705, IC7300 or IC9700. Or in the case of the IC9100 and IC7100 it will turn on the CAT PTT control. Other radio's may not have this function implemented. Until I release v3.0 of my program only one program can talk to the computer at a time so after setting up the approximate frequency for the RTTY and setting USB and RTS On, you should quit my program and start your RTTY program which should be configured to use RTS as the PTT. Then if necessary you can tune the radio a little around the RTTY frequencies with the tuning knob.

Be careful if you leave RTS PTT On then the next time you power up the computer you may hear your radio swap backwards and forwards between receive and transmit during the boot up because the computer is changing the RTS signal, this may happen several times on some computers. In which case it is best to turn the RTS PTT off after you finish using a digital mode.

F1 switches the **Preamp** on or off
F2 switches the **attenuator** on or off

F3 switches the **Noise Blanker** on or off
F4 switches the **Noise Reduction** on or off
F5 switches the **Notch Filter** on or off
To adjust the level of the noise blanker/noise reduction, see the Level control information below.
F6 Not used at present
F7 switches the **Speech Compressor** on or off
F8 switches **VOX** or **Break-In** on or off

F11 puts the radio into mic gain mode so that you can adjust the mic gain using the ALC readings from the radio.
First it is important to do the tuning operation to make sure your antenna is matched to the radio and you are not going to be transmitting into a high SWR. When you hit F11 you will hear Mic Gain and a reading for example four two meaning the mic gain is set to 42 at the moment. Then the program will voice Peak ALC and it will probably say 0 as we haven't begun the adjustment yet. Now press the PTT and speak normally into the microphone for about 10 seconds. Now release the PTT and the program will be telling you your peak ALC reading where values between 40 and 60 seem to be good for many Icom transceivers but the best test is to do the adjustment while another station is listening to your transmission . If the ALC is low then you can hit the cursor up key one or more times to increase the mic gain or it it is too high then that is too much ALC and you can use the cursor down key to reduce the mic gain. As the mic gain goes from 0 to 255 the program changes the mic gain in steps of 10. After hitting cursor up or cursor down you will now hear that the peak ALC voicing has gone back to zero. So press the PTT and repeat the operation until you get your ALC which you are happy with. Remember these are only empirical values and you may need to test while speaking to a station on the air and the levels may vary with different models of ICOM radio's and of course if they say you need to increase or decrease the mic gain then just hit F11 and use the up and down cursor keys to change the mic gain and then hit F11 again to exit the mic gain mode.

F12 switches the Auto ATU on and off if fitted, if switched off the ATU parameter in the config file should be set to 1 for manual ATU. This is also useful if the radio is feeding an amplifier, rather than an external ATU.