EchoLink is a computer program that runs under Microsoft Windows to allow radio amateurs to communicate with one another using Voice over IP (VoIP) technology on the internet for at least part of the path between them. It was designed by Jonathan Taylor, a radio amateur with callsign K1RFD.

The program allows reliable worldwide connections to be made between radio amateurs, greatly enhancing Amateur Radio's communications capabilities. In essence it is the same as other VoIP applications (such as Skype), but with the unique addition of the ability to link to an amateur radio station's transceiver. Before using the system it is necessary for a prospective user's callsign to be validated. The EchoLink system requires that each new user provide positive proof of license and identity before his or her callsign is added to the list of validated users.

Radio amateurs using the EchoLink software can operate it in one of two modes
Single User Mode. If they have an Internet-connected computer, they can use the computer's microphone and speakers to connect to (or through - see below) other EchoLink-enabled computers over the Internet and talk to the amateur at the other end.

Sysop Mode. This entails connecting their own VHF or UHF transceiver to their Internet-connected PC with a specially-designed hardware interface. Doing this enables another radio amateur with their own transceiver, who is within radio range of this station, to communicate with (or through) any other EchoLink-equipped station anywhere in the world. This is the unique feature of EchoLink.

Radio amateurs without the EchoLink software or a computer connected to the Internet can take advantage of the EchoLink network if they are within radio range of a sysop mode EchoLink station. It is also possible to link a sysop mode EchoLink station to a local repeater, further enhancing the communication possibilities.

Voice-over-Internet protocol (VoIP) is a protocol optimized for the transmission of voice through the Internet or other packet-switched networks. VoIP is often used abstractly to refer to the actual transmission of voice (rather than the protocol implementing it). This latter concept is also referred to as IP telephony, Internet telephony, voice over broadband, broadband telephony, and broadband phone.

VoIP providers may be viewed as commercial realizations of the experimental Network Voice Protocol (1973) invented for the ARPANET providers. Some cost savings are due to utilizing a single network to carry voice and data, especially where users have underused network capacity that can carry VoIP at no additional cost. VoIP-to-VoIP phone calls are sometimes free, while VoIP calls connecting to public switched telephone networks (VoIP-to-PSTN) may have a cost that is borne by the VoIP user.

Voice-over-IP systems carry telephony signals as digital audio, typically reduced in data rate using speech data compression techniques, encapsulated in a data-packet stream over IP.

<u>CQ 100 – Virtual Ionosphere for Amateur Radio</u>
CQ100 is a 'virtual transceiver' using a 'virtual ionosphere'. It looks like a transceiver, which runs on your PC and allows you to 'tune' and change bands. You can use the 'transceiver' to speak or send Morse. CQ-100 is essentially a virtual reality radio. It looks like a radio - and to use it, you need to be a licenced amateur, but that's where it stops. CQ-100 is a nice front end to a Voice-over-IP (VoIP) system.

Some hackles were raised when an article on CQ100 appeared in the RSGB's magazine, 'Radcom'. It's not real radio they said (it isn't) - why are you giving it column space? A more valid objection that I saw suggested that potentially it took traffic away from the amateur bands - which is clearly a bad thing in terms of band occupancy and therefore the justification for us being given valuable spectrum. Over on the First Class CW Operators Club reflector, tempers are rising as some members discuss using it! The phrase 'off-air computer games' has been mentioned! Strong stuff.

Interesting! It all comes back to how we use amateur radio. As I explain our hobby to 'outsiders', I say that very often we are not interested in what we say to each other, but how we say it. In other words, the media is the message. The fascination of tuning a radio, to me, is not knowing who I will hear. Will I hear some DX - or will the band be closed? Why is the band behaving as it is? That's one of the fascinating aspects of the hobby to me. If I want to chat to someone at length, it's doubtful, these days, whether I would do so on short-wave. There are just so many other ways to do it. Skype, telephone, E-mail, Twitter - the list goes on. That doesn't mean I don't want to use HF - it just changes the way I use it.

CQ-100 has nothing to do with radio, except the people that use it. If it connects people that could not otherwise talk, then surely that's a good thing. If people can practice their Morse with each other, then surely that's a good thing too. If it enables people in nursing homes to keep in touch with amateur radio, then again, how can that be bad?

CQ-100 won't replace radio for the people who are really interested in how it all works. Those people will retain their fascination with the fact that signals can bounce around the globe without any infrastructure - that's the magic of real radio.

Regard CQ100 as you'd regard Skype for radio amateurs - and you won't go far wrong. Have fun with CQ100 if you will, but do tune the real bands and be active. That's what really counts.

<u>System Requirements:</u>
CQ100 requires Windows 2000, XP or VISTA with sound card, microphone and speakers (or headset). A reliable internet connection is required with a speed of at least 33.6k dialup.

<u>Features and Specifications:</u>
Just works right "out of the box" with no need to configure router ports. This means it can be used from hotel rooms, airports, public libraries, internet cafes, etc. Covers 5 HF radio bands - 80, 40, 20, 15 and 10 meter bands. Computer microphone provides voice modulation. Includes built in CW keyer. Simply type on the keyboard to send perfect CW. Spectrum graph shows radio activity within a settable sweep range of 50, 100, 200 and 500 kHz. Call sign, handle, QTH, etc are automatically displayed for current transmitting station. Keyboard "Hot Keys" provide a simple interface for vision impaired operators. "Round-Table" QSO's are possible because any frequency may have a large number of listeners.

<u>Pricing:</u>
The CQ100 transceiver is free to all licensed stations who register for QsoNet.
A $32 USD annual subsription to QsoNet is required after a 90 day trial period.