

IN CUBE Voice Command for MS-Windows

Release Notes Version 1.13

November 22, 1994

Release Notes:

These release notes describe the expanded features of IN CUBE and serve to supplement the documentation.

The release notes, in "Write" format, are installed with the sample lexicons as the file "release.wri". An ascii text version is installed as the file, "release.txt". The release notes are also now available within IN CUBE's on-line help system.

Microphone Connections

Microphone connections vary among audio boards. Check the board manufacturer's documentation. Listed below is some information on popular boards.

SoundBlaster - Dynamic and electret (self-powered) microphones with 2 or 3 conductor plugs will work.

Microsoft Sound System- Dynamic microphones don't work with this audio board. This board uses a uniquely wired condenser microphone which is powered from the jack.

MediaVision - The Pro Audio Basic board has mono microphone input. A 3 conductor plug will not work. If you are using a microphone with a 3 conductor plug like the Audio-Technica PRO 8 supplied by Command Corp., use a stereo to mono adapter. Radio Shack Cat. No. 274-368.

Logitech Soundman - Same as MediaVision.

Command Keystrokes:

When entering key sequences into the "keystrokes" field, keep in mind that the characters associated with control keys are case sensitive. For instance, entering a "{Ctrl}b" results in a lower case "b" with the control key depressed. Upper case characters are expressed as shifted characters. Entering a "{Ctrl}B" results in a "b" with BOTH the control and shift keys depressed. Some applications will perform different actions for these two different cases.

The "Other keys" scroll list in the lexicon edit windows contains three options for executing an "Enter". The "Enter" selection chooses the keypress for the "Enter" key adjacent to the "qwerty" keys. The "Num Enter" selection chooses the keypress for the "Enter" key located on the numeric key pad. The "Return" selection enters the code for an ascii "Carriage Return". This "Carriage Return" is also equivalent to a "{Ctrl}m". Use the "Return" selection to perform a carriage return for applications running in a DOS command shell window.

Class Identifiers:

Class identifiers are defined when an application registers one or more "window classes". Class identifiers are used by the "class" command in command mode for locating windows to be raised or opened.

To determine the class name of a window, click the left mouse button on the "Window Class" button located in right side of the "New Command" and "Update Command" dialogue windows. The cursor will then change to cross-hairs. Move the cross-hairs to the title bar or icon of the desired window. Clicking any mouse button will then enter the class name of the window into the keystroke line. See the IN CUBE on-line help entry on "Window Class" for more information.

Audio Device Drivers:

Some device drivers and audio subsystems provided by various manufactures do not permit opening the audio wave input device immediately after closing the audio wave output device without yielding the processor in between. IN CUBE has been enhanced to work with these drivers by avoiding the conditions which cause these drivers to fail.

Some audio device drivers introduce an inordinate amount of time when switching directly from input mode (record) to output mode (playback). This can introduce an unacceptable delay associated with the microphone "beep" as the voice operated microphone switched is turned on and off. To work with these audio drivers, the audio beeps may be disabled from the menu selection "options->beeps->microphone". The status of the microphone switch can be determined by observing the color of the lips icon.

Audio Device Access Contention:

Most audio device drivers do not permit "sharing" the audio device. Also, due to hardware limitations on most boards, the audio input (record) and audio output (playback) are mutually exclusive. The standard access arbitration convention to such exclusive devices normally follows an "acquire and hold" methodology which means that an application acquires or opens the audio device and holds it while in use. Other applications requesting service from the device get an error when trying to open indicating that the resource is already allocated.

IN CUBE now utilizes a "yield on demand" convention for arbitrating access contention for the audio devices. When another application requests service from either the audio input or audio output device, IN CUBE voluntarily surrenders the audio device. This occurs transparent to the other application, requiring no specialized protocol or knowledge on the part of the other application. When the other application is finished with the audio device and returns the resource to the system, IN CUBE then reacquires the audio device for its own use once again.

This has the effect of permitting any arbitrary system module or application, unrestricted access to the audio input (wave-in) and audio output (wave-out) devices while maintaining the operation of the speech recognition subsystem. When the audio input is allocated to another application, the recognition subsystem is in a stand-by mode and recognition is disabled. For boards and device drivers enforcing mutual exclusion of audio input and audio output, this also applies when the audio output is allocated to another application.

When the audio input is not enabled for IN CUBE to utilize, the microphone disappears from the lips on the IN CUBE icon. If the system uses the audio board to "beep" or if another application

requests the audio device for playing sounds or recording messages, the microphone disappears and recognition is disabled until the audio device becomes available for IN CUBE once again.

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