V.4.0
The iCommunicator™
Training Manual

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Getting Started

The Communication Accessibility Challenge

Each day, we communicate—at home, in the car, in the classroom, in the workplace, or in public venues. Those of us who can speak and hear normally have little trouble asking or answering questions, supplying vital information, or engaging in effective two-way communication. However, these simple acts can be a struggle for persons who are deaf, hard of hearing, or other persons who experience unique communication challenges. Access to acoustic information and communication are challenges these individuals face daily. Interactive Solutions, Inc., a subsidiary of Teltronics, Inc., developed the iCommunicator software program to enable persons to overcome communication challenges and to foster literacy development and independent communication.

The Impact of Hearing Loss

In the United States, an estimated twenty-eight million people have a hearing loss during their life (ASHA, 2000). More than 30% of people over sixty-five, and 14% between the ages of forty-five and sixty-four have some hearing loss. Nearly eight million people between the ages of eighteen and forty-four, and seven million children have hearing loss (Better Hearing Institute, 2001). Approximately 1.5 million individuals, ages three years and older, are deaf in both ears (Collins 1997).Research shows that 11.3% to 14.9% of school-aged children have a hearing loss that affects their learning and development (Bess, Dodd-Murphy & Parker, 1998; Niskar et al., 1998). Carney & Moeller (1998) reported that early-onset sensorineural hearing loss has many consequences on a child's development. For example, hearing loss alters the child's ability to extract linguistic clues from auditory language models. Hearing loss limits opportunities to overhear information, which is how persons with normal hearing typically learn the nuances of the English language. This deprivation brings negative consequences for language rule formation, word knowledge, and vocabulary development. Subsequently, many with hearing loss experience other unique communication challenges.

Classrooms are auditory-verbal environments. However, most of America's 92,012 schools do not provide students with hearing loss or auditory based learning challenges with the acoustic accessibility needed to fully comprehend messages. Noise, reverberation, and distance from the speaker compromises the student's speech perception abilities, even when he or she uses advanced signal processing, personal amplification equipment, or other assistive devices. The student needs access to the spoken word.

Listening is important to everyone, but it is more challenging for the person with hearing loss, because he or she may not have a rich linguistic background to help them eliminate the disparity during lectures, directions, and conversations. Adults spend 45% of their day involved in the listening process, but children spend 60% to 75% of their day listening (Butler, 1975; Dahlquist, 1997). These communication challenges often present barriers to listening and learning.

The Impact of Literacy Deprivation

Concern about the literacy levels of some persons who are deaf or hard of hearing was the inspiration for developing the iCommunicator software program. Often, students with hearing loss do not progress at the same rate as their hearing peers. More often, they only achieve only one-third of a grade advancement during an academic year (Wolk & Allen, 1984). The cumulative effect of this underachievement is that many deaf or hard of hearing students graduate from high school with a fourth grade reading comprehension level (Holt Traxler, & Allen, 1997). These lower literacy levels present barriers to post-secondary education. While 53.7% of high school graduates attend college, only 33.4% of students who are deaf pursue post-secondary education (Fairweather & Shaver, 1991).

Other Persons with Special Communication Needs

The iCommunicator program was initially developed as a solution for persons who are deaf or hard of hearing, giving them opportunities to achieve communication independence. However, the program has applications for many individuals who face unique communication challenges. For example, those with an auditory processing disorder, learning disability, and/or severe language impairment, or who experience difficulty with multitasking, may benefit from the iCommunicator program with its sophisticated note-taking technology. Persons with a specific learning disability, known as *dysgraphia,* and others with motor disabilities may also benefit from the program's ability to communicate and note-take during classes, discussions, and meetings. Systematic evaluation of a person's unique communication needs and the iCommunicator program features will determine if the iCommunicator program is an an appropriate assistive technology.

Individuals with significant, expressive speech or voice disorders may benefit from the voice output capabilities that allow them to interact independently during conversations. The iCommunicator program provides applications that assist with these needs through the developmental or recovery process. Visual acuity and visual perceptual

deficits also necessitate special communication accessibility. The size of the visual display and background/foreground contrast, are two needs the iCommunicator program accommodates. Another very large group with special communication needs are those whose native language is not English. Refer to Appendix A for additional information about factors to consider when evaluating the iCommunicator program as an assistive technology.

Access to Sign Language

In the United States, there is a critical shortage of sign language interpreters. It is estimated that there are approximately 40,000 interpreters nationally, though less than 25% of them hold certification. Altlhough the iCommunicator program is not intended to replace sign language interpreters, it can serve as an alternative access technology for people who communicate in sign language. The iCommunicator software program delivers American Sign Language (ASL) signs in English word order (subject+verb+object). Using this manually-coded English system, users can improve the association between spoken, written, and signed words, and improve literacy skills. The iCommunicator video sign language library has more than 9,200 individual video clips.

Rationale for Selecting iCommunicator's Sign Language Lexicon

The selection of signs for the iCommunicator program's signing lexicon is based on the goal of using this unique software application to enhance communication and literacy skills. As children begin to develop reading and writing skills they become aware of print in the environment and the use of print by others. Children start to understand and use written symbols before formal instruction in school. In order to understand written material, children must understand the written structures that are used. Simple sentences that follow subject+verb+object (S+V+O) structures are easier for children to understand than sentences with more complex structures.

Individuals who are deaf may use American Sign Language (ASL), Pidgin Sign English (PSE) (also known as contact signing), Manually Coded English (MCE), or English to communicate in face-to-face situations. ASL is a visual-gesture language with a rule structure that is different from English and other languages and has a very limited written format. Manually Coded English is a sign system that represents English in a visual-gesture modality. Manually Coded English was designed to make English visible. The three best known Manually Coded English systems in educational programs for students who are deaf are seeing Exact English

(SEE I), Signing Exact English (SEE II), and Signed English (Coryell & Holcomb, 1997; Gustason & Zawolkow, 1993). These manually coded English systems consist of a set of invented signs to represent English structures, such as pronouns, verb tenses, plurality, adverbs, possessives, comparatives, and articles. Pidgin Sign English, or contact sign, refers to the use of ASL signs in English word order, with some inclusion of English morphemes. PSE, or contact sign, is not a language in itself, but an incomplete version of ASL and an incomplete version of English.

Students with special needs are placed in a variety of educational settings to meet their educational needs. Options range from inclusive settings (regular education classes) to segregated classes (self-contained special education classes or residential schools). The increased emphasis on placing students in inclusive classes stresses the importance that students have good communication and literacy skills. Parents' abilities to communicate with their children, as well as their active involvement in their children's education, and children's desire to actively interact with peers in all environments, support the need to develop children's English skills.

To support an individual's improvement of communication and literacy skills, the use of the S+V+O structure is used as a basis for the selection of signs for the iCommunicator program's signing lexicon. The S+V+O structure enables children to learn the English language. For other applications of the iCommunicator software program, such as the workplace, English word order delivery of sign language is judged to be the most appropriate delivery mode. The use of real-time captioning and signing, as needed, are beneficial to the communication and language development of a variety of special learners, including persons who are deaf, deaf-blind, visually impaired, autistic, or aphasic. It also has applications for persons with motor problems or difficulties in multitasking, persons with specific learning disabilities, and other persons with unique communication challenges.

An Interactive Communication Access Solution

The iCommunicator™ software program, Version 4.0, is a leading edge communication access technology. This very powerful tool provides a multisensory, interactive communication solution for persons who are deaf or hard of hearing and other persons who experience unique communication challenges. While the iCommunicator software program promotes independent communication for persons who are deaf or hard of hearing, it is offered as an alternative, rather than a replacement, for sign language interpreters.

Real-time Translation

This advanced speech-to-text technology is the first of its kind to enter the marketplace. It allows effective communication to occur in most natural environments. Dragon NaturallySpeaking Professional, Version the underlying speech recognition engine, offers many features to personalize a speaker's speech and voice recognition (S/VR) file and enhance translation accuracy. The iCommunicator program efficiently converts in real-time:

- speech to text
- speech to video sign language
- speech to computer-generated voice
- text to computer-generated voice or video sign language

End User Benefits

The iCommunicator program's unique technological features provide end users with unparalleled opportunities to achieve efficient, effective communication in most natural environments. End users have the chance to:

- increase spoken language comprehension
- achieve two-way communication
- improve reading and language skills
- increase independence and self-confidence and improve quality of life
- increase opportunities for advancement and success in education, employment, personal relationships, and public access venues

Version 4.0 Software and Peripheral Kit

The iCommunicator software program, Version 4.0, runs on a high-end laptop or desktop computer that meets the minimum hardware requirements. (Refer to the minimum hardware requirements on page 20.) Version 4.0 offers an enhanced sign language presentation, easy auto-load self-installation, and major code changes to ensure a reliable and efficient program. Simply point and click. The new iText tool will sign and/or read email, web pages, or other documents. Owners can easily install the software on their own computer using the auto-load installation guide.

The 4.0 software and peripheral kit includes:

- iCommunicator Software Kit V 4.0
- Dragon NaturallySpeaking Professional
- iCommunicator User Guide and Training Manual
- Hardware security key (dongle)
- Audio Cables (connector cable, Y-cable)
- Microphone options wireless or wired
    - Professional - LightSPEED LES 360 wireless RF system with TK-250 noise canceling microphone (LightSPEED system includes 360R receiver, 360T transmitter and TK-250 microphone, BC-4 battery charger & cables, 2 NiMH rechargeable batteries.)
    - Standard - Parrott Bermuda direct-connect microphone

The manufacturer has qualified the LightSPEED and Parrott units as the only high quality microphones that are compatible with the iCommunicator software in order to achieve maximum translation accuracy. Prior to shipping, the LightSPEED system is professionally calibrated to optimal settings to support maximum performance and translation accuracy. The computer also may be coupled with peripheral assistive hearing devices such as personal FM systems, hearing aids, and cochlear implant speech processors. When used on a laptop computer, iCommunicator technology becomes a portable, interactive solution to communication accessibility challenges in multiple communication environments—educational, workplace, and public venues. Warranty software support is available for 90 days.

Systematic Evaluation and Recommendation

The manufacturer supports careful and systematic evalution of potential end user needs and the iCommunicator program features to ensure that this software technology application is a viable solution. To promote positive outcomes, evaluation and planning teams must determine if the iCommunicator is the right technology for the right end user, and then implement the program in the right way. Various federal regulations specify entitlements to assistive technology. State and local interpretations should guide assistive technology evaluation teams. Refer to the *Candidacy Criteria Considerations* and *Individuals with Communication Challenges: The Need and Feature Match* documents in Appendix A for further information regarding factors to consider in determining if the iCommunicator program is the appropriate assistive technology for a specific end user.

Training to Ensure Positive Outcomes

The iCommunicator program uses continuous recognition of natural speech to translate speech to text and/or sign language in real time. Systematic professional training is strongly encouraged to maximize use of the unique features and capabilities of the program. The end user must be completely trained in the operation of the iCommunicator program to achieve positive outcomes, and adequate supports will need to be available for the end user for technical assistance and support. Managers of the iCommunicator program should possess computer literacy skills necessary to use and maintain the program and peripherals and provide training for both end users and speakers in the unique features of this communication access technology. Speech and voice recognition enhancements available in iCommunicator program, V 4.0, allow most speakers to easily achieve

90% or better translation accuracy with approximately one hour of speech and voice recognition (S/VR) training. Additional time is required to customize the speaker's S/VR file by adding unique vocabulary specific to the speaker's profession or worksite application.

Section 508 Compatibility

The manufacturer is committed to helping the government, as well as private and public sector businesses, provide improved accessibility of information and technology through its products, information, services, and programs. As such, the iCommunicator website and software application meet Section 508 requirements for electronic and information technology accessibility. The iCommunicator program is fully 508 compliant in the Standard viewing mode, and following are some of the features.

- iCommunicator program works correctly with the Accessibility Aids Microsoft bundles with the Operating System.
- In Standard mode, all menus display Alt key combinations.
- A microphone on/off choice has been added to the Options menu in Standard mode and a visual microphone on/off button has been added to the control window.
- Text Window options have been added on the menu bar in Standard mode.
- The Change Speaker choice has been added to the Options/Speech Recognition menu.
- The program is now 16-bit color compatible.

Special Features for End Users

The iCommunicator program's unique technological features provide end users with unparalleled opportunities to achieve efficient and effective communication. The signing engine has been rewritten to be faster, more efficient, and more accurate.

Translation Actions and End User Options

- translates spoken language to real time on-screen text
  - adjust the font size for comfortable viewing
  - adjust the size of the Text Window (custom mode)
- translates spoken language into sign language

- signs on-screen text
  - adjust the signing speed
  - adjust the size of the Signing Window (custom mode)
  - locate a sign using the Word List feature
- speaks on-screen text using a clear computer-generated voice
  - select the speaking voice (e.g., male or female)
  - adjust the pitch and rate (i.e., speed) of the computer-generated speech
  - deliver written manuscripts and reports using computer-generated speech
  - listen to stories or lectures delivered via computer-generated speech

Other Unique Features and Capabilities

- save text for later use, editing, or clarification
- insert notes into real time text for later reference
- formulate questions and statements for immediate response in class, during meetings, or during personal conversations
- prepare and execute formulated statements and questions using Quick Say/Edit function keys
- quickly navigate the keyboard using hotkeys
- choose a desirable, personalized color scheme
- select a comfortable mode of computer use - standard or custom mode
- lock signing (if preferred)
- protect notes by using Autosave and selecting the time interval
- eliminate unwanted translations by using the onscreen microphone ON/OFF button
- use iText to have email (and other documents) signed and/or read

Potential to Improve Speech Recognition and Intelligibility

- speaks incoming words to enhance speech recognition
- playback of text converted to speech at variable rates to improve speech recognition and intelligibility
- couple with peripheral hearing devices (e.g., hearing aids, FM systems, cochlear implant speech processors) directly to the computer with the audio Y-cable to clearly hear the computer-generated voice

Enhance Language and Literacy Skills

- find word definitions using an integrated, electronic dictionary
- view the sign for a specific word
- allows immediate text display using Show Results Box
- associate spoken words with displayed text and sign language that is delivered in English word order

Special Features for Speakers

The iCommunicator program's exclusive features provide speakers the opportunity to easily and directly converse with people that have special communication needs.

- enhanced speech and voice recognition translation accuracy through iCommunicator's expertly integrated program
- user-friendly, on-screen prompts and dialogue boxes to assist speakers during speech/voice recognition training
- speaker verification window to protect the user's speech/voice files
- opportunity for most speakers to achieve 92% (or better) speech and voice recognition translation accuracy in approximately thirty minutes
- fine tuning of the speech/voice file through a guided vocabulary building process
- decrease speech/voice recognition training time by analyzing electronic documents, such as texts, manuscripts, scanned materials, summaries, glossaries, and vocabulary lists
- fine-tune the speech/voice recognition file using special features in Dragon NaturallySpeaking, such as the Accuracy Center and the Acoustic Optimizer
- directly communicate with persons who have special communication needs

iCommunicator Training Overview

Assistive technology (AT) service, as specified in the Individuals with Disabilities in Education (IDEA) 1997 Amendments (§300.6), requires that training or technical assistance be provided for a child with a disability, and if appropriate, the child's family. This would apply to the iCommunicator software program, if it is recommended by the evaluation/planning team as an appropriate AT. The IDEA also requires AT training be provided for professionals delivering educational or

rehabilitation services, employers, or other individuals who provide services to, employ, or are in any other way substantially involved in the child's major life functions. As such, local education agencies (LEAs) have a responsibility to remove barriers to the use of AT to enable a student to have independence in major life functions, one of which is communication. For applications in the workplace, higher education, public access venues, and other sites, systematic training is encouraged to maximize the potential of the iCommunicator program for both end users and speakers. Accessibility in workplace environments and public venues is addressed in other regulatory authorities described in Appendix C.

Purpose and Value of Training

It is critical that end users, speakers, and managers of this assistive technology receive appropriate training in order to achieve maximum benefits from the program. Successfully trained persons will be able to use and maintain the iCommunicator program and peripherals in an efficient and effective manner for all applications of the technology. Thus, the investment made in customized professional training will provide owners with the accountability necessary to ensure that the program can be properly implemented.

Who Should Participate in iCommunicator Training

The manufacturer recommends that those responsible for managing the program implementation participate in the professional training. This "train the trainer" approach ensures that the owner has key people trained in all aspects of the program, including use and application. The trainer is then responsible for training both speakers and end users, and serves as implementation manager. We recommend that speakers and managers be adept at the computer skills comparable to those offered through a Beginning Windows 98 course.

Prerequisite skills required:

- basic knowledge of Windows 98 (ability to modify the basic computer environment, multitasking, and file management)
- keyboard familiarity (how to type, familiar with shortcuts)
- use of the mouse (how to move the mouse; how to point and click, double-click, and click and drag)
- familiarity with menu commands
- familiarity with navigating windows (activate, move, resize, minimize, maximize, restore)

- familiarity with opening, closing, and saving simple documents
- ability to navigate to and select folders, sub folders, and the documents contained within

Training Delivery Model

The User Guide and Training Manual provide implementation managers, speakers, and end users with useful information pertinent to the effective use of the software program and peripherals. Contact 1450, Inc. for more information about training options.

Master Inservice Component: iCommunicator Training

The master in-service training component meets professional continuing education activity requirements. The training module includes goals, objectives, and a training activity description.

General Objectives

The iCommunicator training helps the participant:

- understand the basics of the iCommunicator program
- understand the program applications
- navigate the program
- accomplish speech and voice recognition training

Goals

Training helps you achieve the following goals:

- demonstrate the iCommunicator features and capabilities
- present the user and speaker features
- determine if the iCommunicator program is the right technology for an end user
- describe applications for all users

Learner Objectives

The iCommunicator training will help you to:

- identify the iCommunicator program's capabilities and who will benefit from them
- identify specific features and enhancements
- set up the system components and perform a System Check
- understand the speech and voice recognition training process
- perform speech/voice recognition training
- achieve at least 90% accuracy using the speech/voice training process
- analyze text documents and build vocabulary
- fine-tune the speaker's speech/voice recognition file
- demonstrate the iCommunicator program when delivering on-line text and other data streams with at least 90% accuracy
- demonstrate knowledge of the troubleshooting tips

Using the iCommunicator Training Manual

This manual assists end users, speakers, and managers to learn and use the unique features of the iCommunicator (V.4.0) software program, and introduces related concepts and program functions. It includes four modules: iCommunicator Program Overview, Menus and Windows, Speech and Voice Recognition Training, and Vocabulary Building. Each module begins with a preview that covers concepts and objectives. Each module includes procedures, explanations, demonstrations, illustrations, and exercises. A brief review and practice session conclude each module to help reinforce understanding of the information presented. Useful *iTips* and reference materials are provided at the end of the modules and in the Appendices.

During the training, you will access text files to complete some of the exercises in this manual. Later, you will open the vocabulary file (vocab.rtf) and add your name, additional names, technical terms, and other words and phrases. You will analyze these words and phrases during vocabulary building exercises.

You can download the training text files from the website at **www.myicommunicator.com**. Follow the steps below to download the text files.

1. Select **Product Information** from the left panel of the webpage.

2. Select **Product Download** from the top panel of the Product Information page.

3. Select **Vocabulary Files**.

4. An Authentication Screen will appear.

   a. User Name: **Vocab**

   b. Password: **dragonflies**

5. Click **OK**.

   The File Download screen will appear.

6. Select **Save** and specify where you would like to save the file.

7. Select **Open** to access the text files.

Notes

Module 1
iCommunicator Overview

Module 1 Objectives

In this module, you will learn the skills necessary to:

- use the transmitter and position the microphone
- connect the receiver
- connect the audio outputs
- manage battery usage
- perform a System Check
- open the iCommunicator program

Preview: iCommunicator Program (V 4.0) Kit Overview

The iCommunicator, Version 4.0 program has many enhancements that distinguish it as a patented, leading edge communication access technology. Some key features in V.4.0 include:

- Dragon NaturallySpeaking Professional – speech and voice recognition engine underlying the software for the highest speech-to-text translation accuracy in the industry
- LightSPEED FM system compatibility with Phonak's Microlink, the Phonic Ear Sprite, and other wireless FM systems transmitting on 216 MHz
- Sign language video library – re-engineered sign for maximum translation efficiency
- iText tool – allows email, web pages, and documents created in other applications to be signed and/or spoken through the iCommunicator program.

The iCommunicator program works with a Pentium III-based multimedia laptop or desktop computer that meets the minimum hardware specifications identified by the manufacturer.

The software includes:

- iCommunicator V.4.0 software kit
- Dragon NaturallySpeaking Professional
- Babylon Translator

The iCommunicator program runs efficiently on Windows 98, Windows 2000, and Windows XP operating systems. Dragon NaturallySpeaking Professional is the underlying speech recognition engine incorporated into the iCommunicator program. This speech/voice recognition software program has the highest industry rating for translation accuracy and training time for speakers to establish their speech/voice profile has been reduced significantly. Version 4.0 software is easily installed by the owner when following the step-by-step procedure described in the Install Guide.

Version 4.0 software is available as a professional version or a standard version, and the difference is the microphone used to input the speaker's voice. The professional version includes the LightSPEED 360 wireless FM system and the standard version includes the Parrott Bermuda wired, direct-connect microphone. The manufacturer has qualified the LightSPEED and Parrott units as the only high quality microphones that are compatible with the iCommunicator software in order to achieve maximum translation accuracy. The manufacturer will take no responsibility for product failure if the purchaser uses an alternative microphone.

Prior to shipping, the LightSPEED system is professionally calibrated to optimal settings to support maximum performance and translation accuracy. The manufacturer has selected an upgraded LightSPEED noise canceling microphone for use with the iCommunicator software to enhance translation accuracy. Owners of the iCommunicator program should consult the product literature for the microphone shipped with their software kit for further details.

Speech recognition software is what the iCommunicator software program uses to translate speech. Translated words can be sent to an external source using a double wire cable, called the Audio Y-cable. One end of the Y-cable plugs into the laptop, the other cable end splits into two plugs. The yellow-coded plug may be connected to a peripheral hearing device, such as a cochlear implant speech processor, FM system, or personal hearing aid. The blue-coded plug may be connected to external speakers if the end user requires this option for voice output.

iCommunicator Program and Hardware Connections

When setting up your computer, consult the appropriate user information that accompanies your computer. Information in the iCommunicator User's Guide, the Install Guide, and product literature for your specific microphone should be consulted for details regarding use of the iCommunicator software and peripherals. Before you power on the computer, connect all hardware and verify that all cables are secure.

Minimum Computer Hardware Requirements

The iCommunicator V.4.0 software program operates on a high end laptop or desktop PC platform using a Pentium III-based multimedia computing system that meets the minimum hardware specifications. For enhanced performance, a 1 GHz processor and 512 MB RAM is recommended.

Processor	Pentium III 800MHz
Memory	256 MB RAM
Hard Drive	Must have 2 GB of available space on Drive C
Parallel Port	Must have parallel port to attach hardware security key
Video	8MB
Display Resolution	800x600 screen area capability; high quality
Sound/Speakers	SoundBlaster Pro Compatible
CD-ROM	24X (or DVD-ROM)
Software	Word Processing Program
Operating System	Microsoft Windows XP, Windows 2000, or Windows 98SE (*The manufacturer recommends Windows XP or 2000 for maximum performance.)*

When you operate the laptop on battery power, the battery should last for about two hours. Connect the power cord to the laptop computer. If your computer is a desktop PC, connect the keyboard, mouse, and monitor before you turn it on. You may need a power strip or appropriate extension cord if the computer is not close to an electrical outlet. Connect the hardware security key.

Microphone

A clear input signal is required for the iCommunicator software program to achieve accurate speech translation.

The **iCommunicator V.4.0 Professional Kit** includes the LightSPEED LES 360 wireless FM system, which includes the 360R receiver, 360T transmitter and TK-250 microphone, BC-4 battery charger and cables, and two NiMH rechargeable batteries. The speaker wears a battery operated transmitter and headset microphone that allows the speaker to transmit from anywhere in the classroom, workplace, or other environment. The transmission range is approximately 300 feet.

Speech broadcasts from the transmitter over a designated frequency to the receiver, which is connected to the computer with the color-coded audio connector cord. Before shipping, the LightSPEED system is professionally calibrated to optimal settings to support maximum performance and translation accuracy.

The **iCommunicator V.4.0 Standard Kit** includes the Parrott Bermuda microphone, which is connected directly to the computer using the microphone jack.

The manufacturer will take no responsibility for product failure if the purchaser uses an alternative microphone.

LightSPEED LES 360 System

The LightSPEED LES 360 system transmits on 216 MHz. The system has two frequency channels that are designated on the back of the receiver and transmitter. The LES 360R receiver and the LES 360T transmitter must be set to the *same* frequency channel for speech transmission to occur. Refer to the LightSPEED Wireless Transmitter & Receiver Setup guide shipped with your kit for additional information.

Setup Summary:

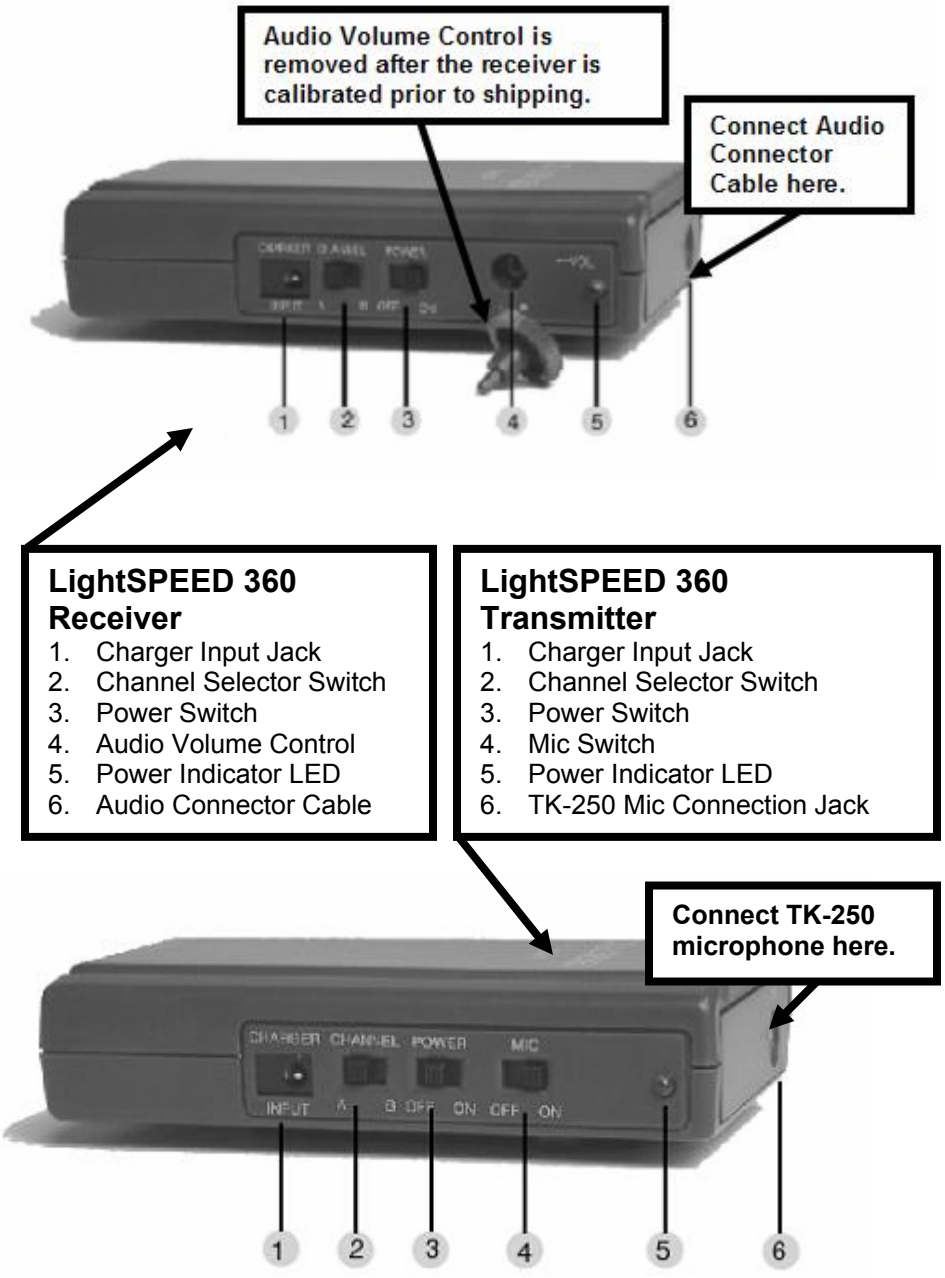
1. Connect the 360R receiver to the computer's microphone input jack using the color-coded audio connector cord.

2. Connect the TK-250 noise canceling microphone to the microphone jack on the 360T transmitter.

   Note: The transmitter does not connect to the computer. The TK-250 microphone must be connected to the transmitter and not directly to the computer when performing speech-to-text translation.

3. Check the Channel Selector Switch on the side of the 360R receiver and 360T transmitter to make certain that both are set to the same frequency channel.

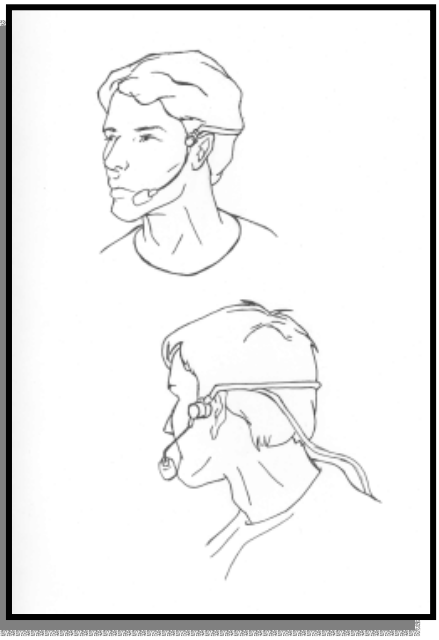
4. Place the TK-250 headset with the arms of the headband above the ears and the headband around the back of the head. Resize the headband by stretching it farther apart or rolling the loop into a tighter circle.



5. Position the boom microphone along the left jaw line, about an inch from the left corner of the mouth. The rounded portion of the microphone element should be positioned in front of the chin and not directly in front of the mouth. The flat side of the microphone is directed away from the face. The microphone should always be placed

in the same position to ensure translation accuracy. Squeeze the microphone through the windscreen to check the position.

Note: The manufacturer selected the TK-250 noise canceling headset microphone for its ease of use, comfort, and ability to capture critical speech elements necessary for high translation accuracy. The headset microphone must be worn on the head to obtain the very best signal.



LightSPEED TK-250 microphone worn in the correct position. (Illustration courtesy of LightSPEED Technologies.)

6. Turn on the Power switch on the 360R receiver and 360T transmitter.

7. Locate the Mic Switch on the transmitter. Use this control as the mute switch to prevent transmitting unwanted verbiage or other sounds. The Mic Switch must be turned on in order to transmit speech.

Battery Management:

The BC-4 Battery Charger is used to charge the NiMH batteries provided with the LES system. To maximize the life of the batteries, charge them nightly and do not allow them to drain completely.

1. Turn off the power on the receiver and transmitter before charging.

2. Insert one end of the charging cable into the battery charger and the other end into the charger jack on the receiver and the transmitter. The red LED on the charger should light when the batteries are charging.

If alkaline batteries are alternatively used in the LES system, do not attempt to recharge these batteries. It will damage the system. Be sure to match battery polarity (i.e., + and – terminals) when replacing batteries in the receiver and transmitter. The batteries should fit snugly against the contacts. Every two or three months, clean the battery contacts with a deoxidizer, such as alcohol.

The rechargeable batteries shipped with your FM system should offer maximum performance for 12 months. This is based on usage for 8 hours per day, 5 days per week. The most frequent problem associated with wireless FM systems is directly related to low battery power.

For additional information about the FM system, consult the *iTip: LightSPEED LES 360 Systems: Troubleshooting and Maintenance* chart on page 29 or the LES 360 User Manual shipped with your kit.

The LightSPEED LES 360 system is compatible with other peripheral hearing devices that transmit in the 216MHz frequency. The *FCC Channel References iTip* on page 30 provides information about the frequency channels of other FM products that are compatible with the eight frequencies available on the LES 360 system. Whenever possible, match the frequency channel with other FM systems so that the speaker will need to use only one transmitter. It is recommended that you use only the LES transmitter on these matched frequencies. Consult with an audiologist to ensure that the appropriate frequency channels are selected to accommodate the various FM products.

Parrott Bermuda Microphone

The Parrott Bermuda Microphone accompanies the Standard Version Kit. The Parrott Bermuda is a noise canceling electrets microphone. In order to use this microphone, simply insert the pink microphone plug into the microphone input jack on the computer. Use the inline mute switch to avoid transmitting unwanted verbiage while using the iCommunicator software program for speech-to-text conversion. Push "in" to mute and push again to engage the microphone.

Parrott Bermuda Microphone
(Photograph courtesy of VXI Corp.)

The headset may be worn with the swivel microphone on either side of the face. Position the microphone along the jaw line. The flat part of the Parrott Bermuda microphone should be located one finger-width from the corner of the mouth. For voice conversion, you will not need to be concerned with the Parrott Translator, which is the plastic case between the microphone line and the microphone plug.

Hardware Security Key

The hardware security key shipped with your kit must be attached to your computer's parallel port in order for the iCommunicator software program to run on your computer. Sometimes computers do not immediately recognize the hardware security key and an error message occurs when you attempt to open the iCommunicator program. If this occurs, it will be necessary to make an adjustment to the parallel port setting on your computer. Consult the *iTip: Getting Your Computer to Recognize the Hardware Security Key* at the end of this module for further information.

Audio Y-cable Connector

This unique iCommunicator accessory lets you connect the computer to both standard speakers and peripheral hearing devices, such as cochlear implant speech processors, personal FM systems, or personal hearing aids.

1. Connect the Y-cable to the headphone jack on the computer.
2. Connect the cable end marked with the yellow band to the cochlear implant speech processor, personal FM system, or hearing aid. This

allows the end user to listen to the speaker's voice converted to computer-generated speech, or to listen to the computer read a text file such as an e-story downloaded from the Internet or informational documents.

3. Connect the audio end marked with the blue band to external speakers if the end user requires voice output.

System Check

Before using the iCommunicator software program, complete a System Check. A System Check should also be performed at any time when there are speech/voice translation accuracy problems. The System Check *iTip* found on page 33 addresses the following keys to successful operation.

- power (computer, receiver, transmitter)
- battery status (computer, receiver, transmitter)
- connections (power, audio connectors, microphone)
- frequency setting (transmitter and receiver)
- microphone placement
- other programs running on the computer (including screensavers)

Software

The iCommunicator software kit includes the iCommunicator software program, Version 3.1; Dragon NaturallySpeaking Professional speech recognition software, and Babylon Translator. The iCommunicator program runs on Windows 98SE, Windows 2000, and Windows XP operating systems. Speakers are encouraged to become familiar with helpful features within Dragon NaturallySpeaking Professional, such as the Accuracy Center and the Acoustic Optimizer.

Install the iCommunicator V.4.0 software according to the Install Guide that was shipped with your software kit.

If you have purchased the iCommunicator V.4.0 software program and do not have a previous version installed on your computer, you will be completing a new installation. After installation you will be directed to immediately Create a New User, that is, build a speech/voice recognition file. This is necessary so that you will be able to speak to your computer and have it recognize your S/V characteristics. Refer to Modules 3 and 4 in the Training Manual for directions.

If you currently have the iCommunicator software V.2.1.1 installed, you will follow the iCommunicator V.4.0 Upgrade Procedure. It is necessary to uninstall Dragon NaturallySpeaking Preferred, before installing Dragon Naturally Speaking Professional. The speaker will need to create a new speech/voice file.

The User Guide and Training Manual are excellent references that will guide you through this process. These documents also contain additional information to benefit end users, speakers, and implementation managers.

Coupling Peripheral Hearing Devices with the iCommunicator

You can couple peripheral hearing devices with the iCommunicator to clearly hear the computer-generated voice. Coupling options vary, depending upon the specific peripheral device. Contact the audiologist at Interactive Solutions for information about specific coupling options.

Opening the iCommunicator Program

Turn ON the computer.

The iCommunicator program works best when no other programs are running. Other programs should not be open, as this slows the speech conversion process. If you choose to install other programs, do not place them in the start up menu.

You can start the iCommunicator program using several methods, depending on the computer system set-up. Use one of the following methods to start the program.

- Double-click the iCommunicator icon on the desktop.
- From the Start button at the bottom of the computer screen, select Programs ▸ iCommunicator.

A series of messages appear on the iCommunicator's splash screen as the program loads. The program opens to the iCommunicator's main screen (shown below). The iCommunicator program is now ready for use.

iCommunicator Main Screen

Module 1 Review

True or False

____ 1. The iCommunicator program runs efficiently when other programs are open and in use on the computer.

____ 2. A lapel microphone is just as effective as a headset microphone.

____ 3. The frequencies selected on the transmitter and receiver must match.

____ 4. The Y-cable enables you to output synthesized speech to both external speakers and specialized hearing assistive devices.

____ 5. The iCommunicator program runs most efficiently on a Pentium III computer.

____ 6. The transmitter must plug into the computer using the audio connector cord in order to transmit speech.

____ 7. The headset microphone can be worn around the neck and still achieve the same high quality speech signal for speech/voice recognition.

Check your answers using the Answer Key in the back.

Getting Your Computer to Recognize the Hardware Security Key

The **hardware security key** shipped with your kit must be attached to your computer's parallel port in order for the iCommunicator software program to run on your computer. Sometimes computers do not immediately recognize the hardware security key and an error message occurs when you attempt to open the iCommunicator program. For example, "E0209 - Hardware Key Not Found or a similar message may display".

If this occurs, it will be necessary to make an adjustment to the **Parallel Port Setting** on your computer. Follow the steps listed below to make the adjustment. After you have changed the setting, the iCommunicator program should recognize the hardware security key and you will be able to successfully use the program. The examples provided in these directions refer to making this adjustment on a Compaq computer.

1. Power on your computer.

2. As the first splash screen appears (usually the computer company name), press the appropriate key(s) to enter the **ROM based setup**. For instance, Compaq generally uses the F10 key. However, this will vary from one computer manufacturer to another.

3. On Compaq computers, select **Device Options**. For other manufacturers choose the appropriate menus to access the device options.

4. Select **Parallel Port Mode**. Change the setting to **Standard Mode** or **ECP**. It should never be set to Bi-Directional.

5. Press F10 to Accept the change, or the appropriate Save function.

6. On Compaq PCs go to the File menu. Select Save Changes and Exit. A verification screen appears (Are you sure you want to save changes and exit?). Press F10 (yes) to accept the changes and exit. The steps that are required to Save and Exit will be different on different manufactures PCs.

For further information, contact Customer Service at 800-245-2133

FCC Channel References

The LightSPEED LES 360 has eight frequency channels available, which are compatible with frequencies of other FM systems (i.e., Phonak, AVR, Phonic Ear) that transmitted on 216 MHz. Whenever possible, matching frequencies will require a speaker to use only one transmitter.

FCC Channel	Frequency in MHz	LightSPEED	Phonak	AVR	Phonic Ear
1	**216.0125**	**0125**	**N 01**	**C 01**	**0125**
2	216.0375		N 02		
3	216.0625				
4	216.0875		N 04		
5	216.1125		N 05	C 05	1125
6	216.1375				
7	216.1625				
8	216.1875		N 08		
9	**216.2125**	**2125**	**N 09**	**C 09**	**2125**
10	216.2375				
11	216.2625				
12	**216.2875**	**2875**	**N 12**	**C 12**	**2875**
13	216.3125		N 13		
14	216.3375				
15	216.3625				
16	216.3875		N 16	C 16	3875
17	216.4125		N 17		
18	**216.4375**	**4375**	**N 18**	**C 18**	**4375**
19	216.4625				
20	216.4875				
21	216.5125		N 61	C 21	5125
22	216.5375		N 62		
23	216.5625				
24	**216.5875**	**5875**	**N 64**	**C 24**	**5875**
25	216.6125		N 65	C 25	6125
26	216.6375				
27	216.6625				
28	216.6875		N 68		
29	216.7125		N 69	C 29	7125
30	216.7375				
31	216.7625				
32	**216.7875**	**7875**	**N 72**	**C 32**	**7875**
33	216.8125		N 73	C 33	8125
34	216.8375				
35	216.8625				
36	216.8875		N 76		
37	**216.9125**	**9125**	**N 77**	**C 37**	**9125**
38	216.9375				
39	216.9625		N 79	C 39	9625
40	**216.9875**	**9875**	**N 80**	**C 40**	**9875**

LightSPEED LES 360 Systems: Troubleshooting and Maintenance

Consult the User Manual for additional information on the LightSPEED LES 360 system use and maintenance.

Battery Check

- Were the batteries charged overnight? (If not, replace with alkaline batteries or fully charged 9-volt batteries.)
- Is the charging LED illuminated red while charging?
- Are the transmitter and receiver turned OFF while charging?

Speech-to-Text Translation Delay/Translation Inaccuracy

- **Power.** Refer to the System Check.
- **Batteries.** Check the batteries first.
  - Check battery contacts for correct polarity match.
  - Check to see that the batteries fit snugly against the contact points in the battery compartment.
  - Clean battery contacts if necessary. (Use a deoxidizer, such as an alcohol wipe, every 2-3 months.)
  - Recheck the operation of the receiver and transmitter using fully charged 9-volt batteries.
- **Microphone.** Is the microphone cable inserted securely into the transmitter?
  - Wiggle the microphone cord while speaking into the microphone. If there is inconsistent or intermittent speech-to-text translation, the problem may be a damaged microphone cord.
  - Clean the microphone jack using an alcohol wipe.
  - If available, insert another TK-150 microphone into the transmitter and repeat the check described above.
- **Radio Frequency Interference.** Switch to the other channel frequency to determine if translation inaccuracy may be due to radio frequency interference (RFI). If the interference is no longer present, RFI was the problem.
  - Confirm that the selected frequency channel is not duplicated by another wireless RF system in a nearby location.
  - Continued RFI may require exchanging your LES 360 system for one with a different frequency.

iCommunicator System Check

Before using the iCommunicator software program, complete a System Check. A System Check should also be performed at any time when there are speech/voice translation accuracy problems.

Checkpoint	LES 360 Solution	Parrot Bermuda Solution
System Connections	• Is the receiver connected to the computer's microphone jack via the audio connector cord? • Is the computer plugged into an electrical outlet?	• Is the microphone connected to the microphone jack of the computer? • Is the computer plugged into an electrical outlet?
Power	• Is the computer powered ON? • Is the receiver powered ON? • Is the transmitter powered ON?	• Is the computer powered ON? • Does the green light show when you depress the button on the front of the microphone assembly?
Battery Status	• Are the transmitter and receiver batteries charged? • Laptop (If using battery power, monitor battery status by clicking on the icon.)	• Laptop (If using battery power, monitor battery status by clicking on the icon.)
Receiver and Transmitter Frequency Settings	• Are the receiver and transmitter set to the same frequency channel? •	• N/A
Correct Microphone Placement	• Is the microphone positioned properly (round part of the microphone facing the mouth)?	• Is the microphone positioned properly (flat side of microphone facing the mouth)?
Mute Capabilities	• Are you using the Mic switch on the transmitter and the microphone button/status bar on the main screen to avoid transmitting unwanted verbiage?	• Are you using the in-line mute switch and the microphone button/status bar on the main screen to avoid transmitting unwanted verbiage?
Other Programs	• Make sure there are no other programs running on the laptop in the background.	• Make sure there are no other programs running on the laptop in the background.

iCommunicator™, V 4.0
Installation Procedures Summary Guide

Follow the steps below to install the iCommunicator Version 4.0 software. The various screens and windows are designated in bold. If you have any questions, additional information is available in the Installation Guide.

1. **Attach the hardware security key.**

2. **Turn on your computer.**

3. **Insert the iCommunicator Setup CD #1 into the CD-ROM drive.**
   - **Welcome** – Click *Next*.
   - **Licensing Agreement** – Read the licensing agreement. Click *Yes* to proceed.
   - **Additional Task** – Leave the Install Signing Videos option selected. Click *Next.*
   - **Setup iCommunicator** – Installation window appears and the installation begins.
   - **Setup Needs the Next Disk** – Insert CD #2 when you see this prompt.

4. **Insert the iCommunicator Setup CD #2 into the CD-ROM drive.**
   - Click *OK*.
   - When prompted, click *Finish* to exit the installation setup.

5. **Insert the Dragon NaturallySpeaking Professional into the CD-ROM drive.**
   - **NaturallySpeaking Setup** – Click *Next.* (You may be prompted to restart your computer. If prompted, click *OK* to restart.)
   - **Licensing Agreement** – Click *Yes* to proceed.
   - **Customer Information** – Enter customer name and the serial number of the back of the CD envelope. Click *Next* and then *Next* again for the default install path.
   - **Setup Type** – Select option number 3, *Custom Installation,* and click *Next* to proceed.
   - **Select Components** – Deselect *Text to Speech Files* by clicking in the box to the left of the option. Make no other changes. Click *Next* to proceed.
   - **Start Copying Files** – Click *Yes* to proceed with the installation. A blue progress bar will indicate that program files are being installed.
   - **Dragon Systems Product Registration** – Choose your desired registration method and proceed.
   - **InstallShield Wizard Complete** – On the InstallShield Wizard Complete, deselect *Enable QuickStart mode on Windows Startup.* Click *Finish* to complete the setup.
   - Eject the Dragon CD.

6. **Connect the microphone.**
   - Locate the microphone system provided with your iCommunicator Kit.
   - Follow the setup instructions provided for your system and make the proper connections to the microphone input jack on your computer.

7. **Launch the iCommunicator program.**
   - Double click on the iCommunicator icon on the desktop or go to the Start Menu > Programs > iCommunicator to launch the program.
   - When the program starts for the first time, a new speech/voice file must be created before you can speak to the computer and have it translate your voice. Refer to Module 3 in the Training Manual for guidance in this systematic process.

Module 2
Menus and Windows

Module 2 Objectives

In this module, you will learn the skills necessary for:

- working with windows
- working with menus
- using the Control window
- using the Text window
- using the Signing window

Preview: Menus and Windows

The iCommunicator main screen contains three windows in the standard viewing mode, each serving a different function. Seven menus appear on the menu bar to help you navigate and manage the iCommunicator program. Highlight an option, and then click the left mouse button to execute it. The *Menu and Window Feature*, located at the end of Module 2, is a useful quick reference guide.

- The File menu manages files.
- The Views menu controls the Signing and Text windows, color themes, and the viewing mode.
- The Options menu lets you access unique iCommunicator features, such as Speak Incoming Words, Set Talking Voice, Edit Quick Say Keys, iText tool, and Speech and Voice Recognition training.
- The Actions menu lets you turn on or change the signing and speaking actions that occur in the Text window.
- The Signing Options menu lets you enable or disable signing, control the signing speed, and retrieve a sign using the Word List.
- The Font menu offers font sizes from 8 through 72.
- Obtain help by selecting a topic from the Table of Contents or Index, or by conducting a search for a specific topic using the Help menu.

The Control window is the heart of the iCommunicator program. Use its menu commands to perform most program operations. The Control window also displays the current speaker, a microphone controls, and a special text box.

The Text window serves different purposes. Primarily, it displays translation of incoming speech. As a speaker talks, the speech recognition software translates spoken words into written words, which are then displayed in the Text window. As the speaker transmits speech to the computer, the program uses acoustical, linguistic, and lexical information to translate speech to text. When the speaker pauses, the translation process occurs. There is no punctuation in the translation. The Text window also displays text when a user opens an existing text file. Use it to recite words, sign words, or display a word's definition using the electronic dictionary.

The Signing window translates converted speech into sign and fingerspelling videos. As spoken words are recognized and translated, a video clip plays in the window, reinforcing the written word and its accompanying sign. Similarly, when a text file is opened, iCommunicator can display the signing and fingerspelling for specific words, or an entire text passage.

Menus

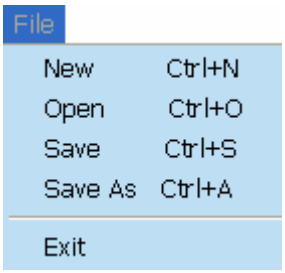
The standard mode displays seven menus on menu bar at the top of the iCommunicator's main screen. These pull-down menus let end users and speakers navigate the program and execute actions. The custom mode has the same options, although organized differently.

To view the menu selections, click a menu name. Move the mouse pointer to highlight the item you want, and then click the left mouse button to select it.

Keyboard shortcuts appear to the right of some menu selections. See page 66 for a complete listing of keyboard shortcuts and hot keys.

File Menu

The File Menu offers a variety of options to manage files.



New (Ctrl + N)

Use this to clear any text in the Text window or to prepare a new file.

When you select this option, the iCommunicator program removes the text from the window, but does not save it. If you want to save the text in this window, you must do so before selecting New.

Open (Ctrl + O)

This opens an existing file and displays it in the Text window. It only opens files or documents previously saved as text files—for example, **.txt** or **.rtf**.

Demonstration:

1. From the File menu, select Open
2. Choose iCommunicator text file *Teddy Roosevelt* or any other text file available on the computer. The file loads to the text window.
3. From the File menu, select New. The Text window clears.

Save (Ctrl + S)

Use this command to save the contents of the Text window to a file.

Save As (Ctrl + A)

Use this command to name and save the contents of the Text window under a new file name.

Establish a strategy for naming and organizing files for easy access.

Exit

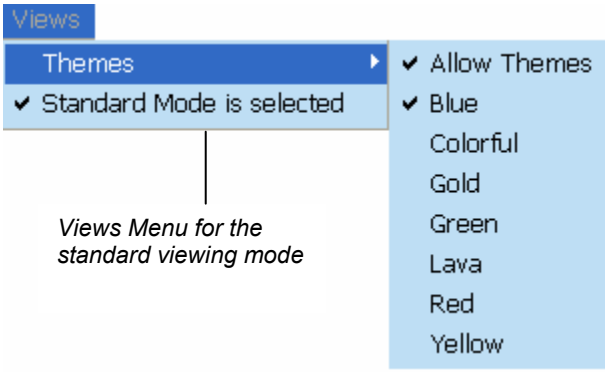
Use this command to close the iCommunicator program and return to the desktop. In the standard viewing mode, you can also click on the X in the upper right corner of the main screen to exit the program. In the custom viewing mode, you can also exit the program by clicking on the X in the upper right hand corner of the control window.

Views Menu

The Views Menu controls the viewing mode, background themes, and the Signing and Text windows. The training process described in this manual refers to the standard rather than the custom viewing mode. When an end user selects a viewing mode, window arrangement, and/or theme, the program remembers that choice and the next time the iCommunicator program is opened, the previous viewing mode will display. Additional information on the custom mode is available at the end of Module 2. The custom mode allows the end user to customize the view by moving and resizing windows. Consult the *Custom Mode Viewing Options iTip* on page 64 for information about moving and resizing windows. Experiment with resizing and repositioning the windows to customize the view.

Standard Mode

A check appears next to Standard Mode is Selected when the user is viewing in the Standard mode. Click on this option to change to the custom viewing mode.



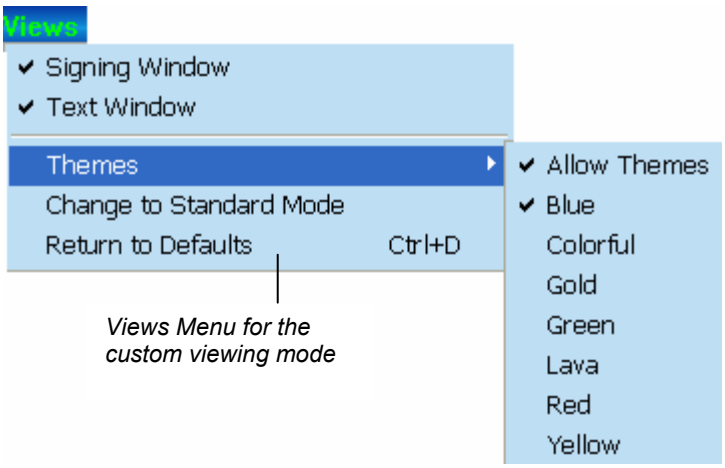
Views Menu for the standard viewing mode

Themes

Use this to change the border display and color themes for the iCommunicator windows. Different color backgrounds and contrasts improve on-screen visibility for some individuals and also allow end users to personalize the appearance of the iCommunicator program. If Allow Themes is deselected, the display will revert to grayscale. The iCommunicator program is compatible with the Microsoft Accessibility features, which allow additional modifications regarding viewing accessibility, such as a high contrast theme.

Custom Mode

In the custom viewing mode, the end user can customize by resizing and repositioning the windows. Refer to the *iTip* at the end of this module to learn more about customizing the view.



Views Menu for the custom viewing mode

Signing Window (custom mode only)

Use this to control the Signing window display in the custom viewing mode. This is an open/close function. A check mark indicates the window is open.

Text Window (custom mode only)

Use this to control the Text window display in the custom viewing mode. This is an open/close function. A check mark indicates the window is open.

Demonstration:

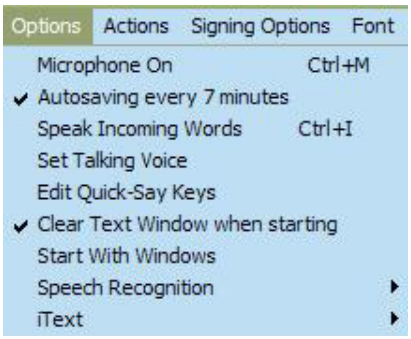
1. From the Views menu, select Themes ▸ Allow Themes.
2. Select other themes to view those available.

Return to Defaults (custom mode only)

Use this option to return the window arrangement and background theme to the manufacturer's default settings, which are the standard viewing mode and the blue theme. Return to Defaults can only be selected from the Custom Views Menu.

Options Menu

The Options Menu allows end users to access unique iCommunicator features, such as Speak Incoming Words, Set Talking Voice, Edit Quick Say Keys, and the iText tool. Speakers use the Options Menu to access speech and voice recognition training.



Microphone On/Off

Use this option to turn the microphone ON or OFF. The microphone can also be turned ON or OFF by clicking the microphone button in the Control Window, by toggling the Microphone Status Bar in the Control Window, or by using the Control+M hotkey. End users need to monitor the microphone status, as the following actions (by design) disable the microphone. After any of these actions, the end user must make certain that the microphone is turned ON in order to receive speech-to-text translation.

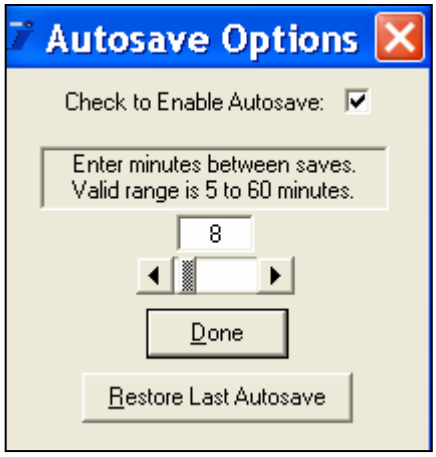
- Opening or closing the iCommunicator program
- Selecting any signing or speaking action
- Selecting reset
- Selecting a new file
- Clicking the Show button
- Double clicking a word to obtain a sign

If the microphone is in the ON position, it is temporarily disabled when any of the following actions occur. When the action has completed, the microphone is returned automatically to the ON position.

- Opening Edit Quick Say Keys
- Opening the Word List
- Opening AutoSave
- Opening Signing from a Password (if signing is locked)
- Opening Save File As
- Opening Talking Voices

Autosave

This feature allows the end user to select the automatic save option to save translated text displayed in the Text window. Click inside the box to enable Autosave. The Autosave feature can be adjusted by to save text every 5 to 60 minutes. The Autosave feature also allows the end user to restore the last Autosave by selecting Restore Last Autosave. This will overwrite any text currently in the Text Window.



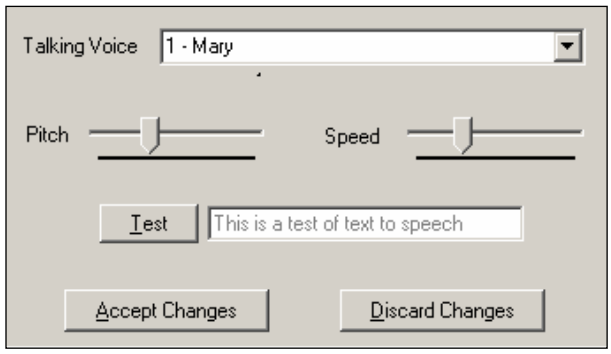
Speak Incoming Words

This feature converts recognized words to audible, computer-generated speech and transmits speech to the end user's hearing assistive device. Connect the end user's hearing assistive device to the audio Y-cable when using the Speak Incoming Words feature. Otherwise, the speaker's voice converts to computer-generated speech that others can hear from the computer's speakers, and this could be disturbing to others nearby. There is value in listening to computer-generated speech, in that the dynamic range is more restricted than the human voice, and sound patterns are predictable.

Set Talking Voice

The talking voice speaks translated, incoming words and it verbalizes the words found in text documents. It also gives intelligible speech to users who need this type of assistance for voice output. To make a comment, ask a question, or to reply, simply type the words into the Say This/Note This text box. Press Enter and the computer speaks the words that appear in the text box.

The Set Talking Voice command opens a dialog box that lets end users choose options to customize the computer-generated voice.



A male or female voice may be selected. The parameters of pitch and rate (speed) may be manipulated. Then listen to your selections, and Accept or Discard the changes by selecting the appropriate button. Adjust the rate of speed to help users hear multi-syllable words, such as *Constantinople.* Use this feature to improve speech recognition and speech intelligibility skills.

Demonstration

1. Choose a male or female voice.
2. Click the down arrow to view a list of talking voice options.
3. Click and highlight to choose a talking voice.
4. Click Test to hear the talking voice.

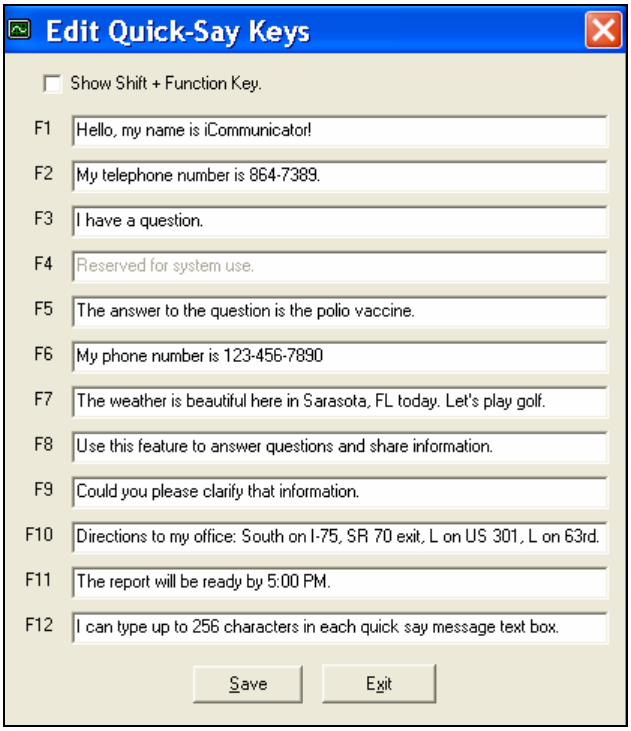
Pitch and Rate

Use these features to manipulate the pitch and rate (speed) of the computer-generated voice.

Demonstration

1. Move the sliders to change the pitch and rate.
2. Click Test to hear the pitch and rate variations.

Edit Quick Say Keys



This feature lets end users create and edit the Quick Say messages assigned to the function keys. The iCommunicator program can store up to 22 Quick Say messages (two text boxes are reserved for system use). Enable the second set of twelve text boxes by clicking inside the Show Shift + Function Key box. Enter up to 256 characters (including spaces) in each text box.

The computer delivers these comments, questions, and ideas when you press the appropriate Quick Say function key. This end user feature can be useful for medical appointments, interviews, or other instances where the end user wants to prepare responses or important information in advance and not be concerned about spending time during an interchange to type the messages.

Demonstration

1. From the Control window's Options menu, select Edit Quick Say Keys.
2. Edit the text in the F12 Quick Say text box.
3. Choose Save to store your Quick Say message.
4. Choose Exit to close the window and return to your iCommunicator window.
5. Press F12+Enter to hear the computer speak the corresponding text.

Clear Text Window When Starting

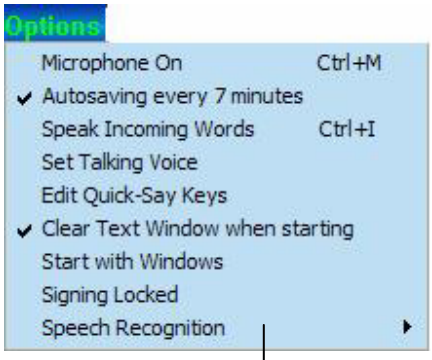
When you select this feature, an empty Text window displays each time you turn on the iCommunicator program.

Start With Windows

Select this feature to have the iCommunicator program open automatically when you start your computer.

Signing Locked

When the end user prefers not to use the signing feature, the Signing Window may be disabled or locked. The process uses password protection. The lock feature is available only g in the Custom viewing mode. When this feature is selected, all commands for the signing option disappear from the



Options Menu in the Custom Viewing Mode

iCommunicator program menus. A check mark appears on the Options menu to indicate that signing is locked. A user cannot unlock and enable signing without the correct password.

Demonstration

To lock or unlock the Signing window:

1. Switch to the custom mode. From the Views menu, deselect Standard Mode is Selected.
2. From the Options menu, choose Signing Locked. The password window appears.
3. Enter a password in the Password window text box.

✶**Note**: **defaultpassword** is the password when the iCommunicator program ships from the manufacturer. You must type **defaultpassword** in the text box before attempting to lock signing or change the password.

4. Choose the Enter button to enter a password, the Change button to change your password, or the cancel button to close the password window without changes. Follow the instructions on your screen. Remember the password you select. You will need it to unlock the signing feature.

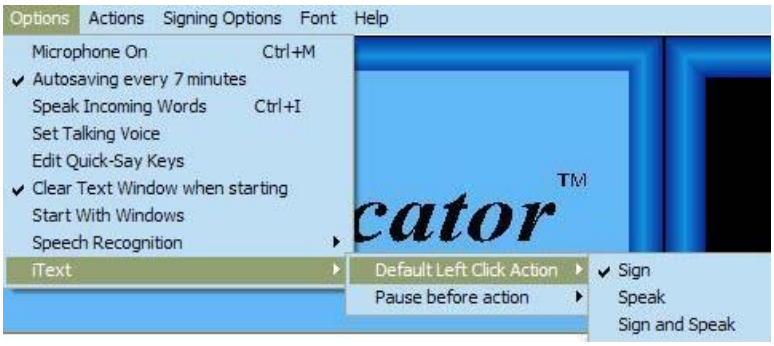
iText Tool

Use the iText tool to have documents, email, and web pages signed and/or spoken through the iCommunicator program. iText captures text from web pages, email, word processing documents, and other software applications and immediately displays it in the iCommunicator Text window. Pre-select the action (i.e., signing, speaking, signing and speaking) and the pause time before the action initiates. Then, simply point and click on the iText button in your computer's Systray to initiate the desired action. The iCommunicator program will remember your settings when you close the program. The iText feature is only available in the Standard viewing mode.

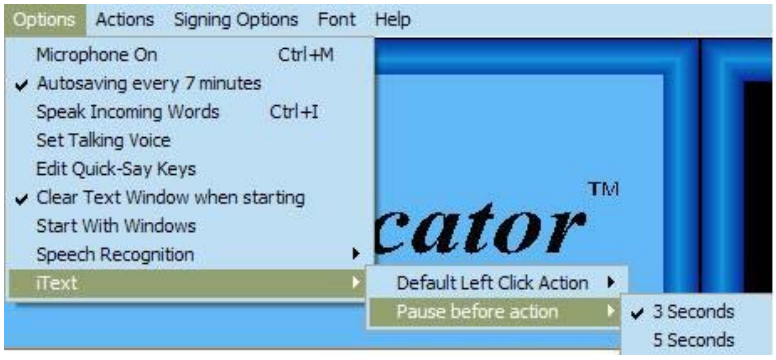
Demonstration

Follow these directions to use iText.

1. Open the iCommunicator program.
   a. The iText button will display in your computer's Systray.
   b. From the Options menu, select iText ▸ Default Left Click Action. Click on the desired action.

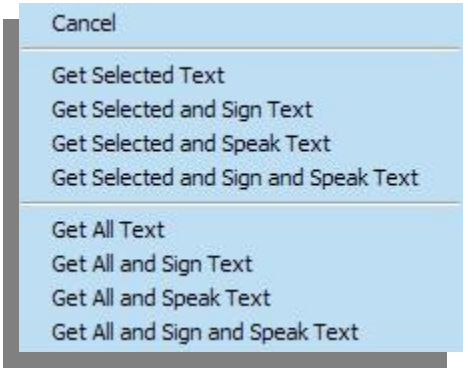


   c. From the Options menu, select iText ▸ Pause Before Action. Select the delay time before the action starts in the Text window.



2. Select and open a document in another application, such as Word, Excel, PowerPoint, an email message, or a web page. Place the cursor in the text.

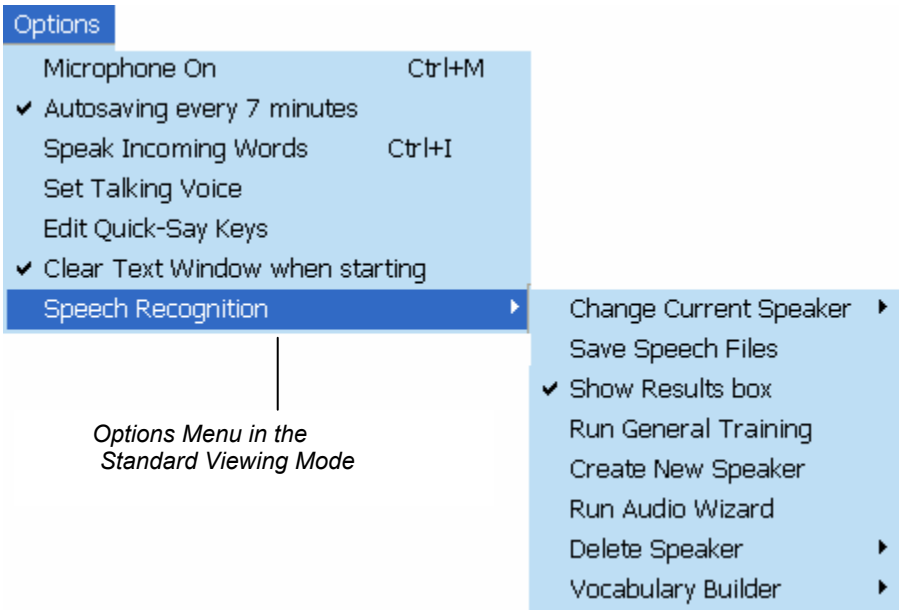
3. To capture all of the text in the document:
   a. Click on the iText button in the Systray.
   b. Text will display in the iCommunicator Text window and the chosen action will begin.



4. To capture selected text in the document:
   a. Highlight the text you wish to have signed and/or spoken.

b. Right click on the iText button in the Systray. A pop-up menu displays.
c. Left click on the desired action for the selected text (i.e., sign, speak, sign and speak).
d. Selected text will appear in the iCommunicator text window. Text will be signed and/or spoken according to the action from the pop-up menu.

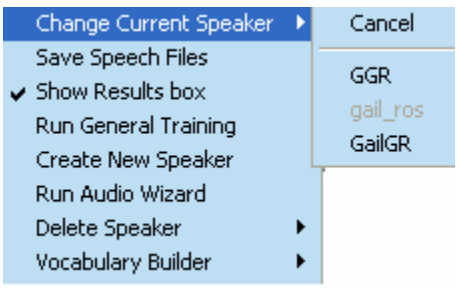
Speech Recognition



Options Menu in the Standard Viewing Mode

Speakers use these menu options to create a new user, save speech files, run General Training, run Audio Wizard, and run the Vocabulary Builder and Vocabulary Editor. Each activity is part of the speech/voice recognition training process. These options are described in Modules 3 and 4. You will work with these features during speech and voice recognition training.

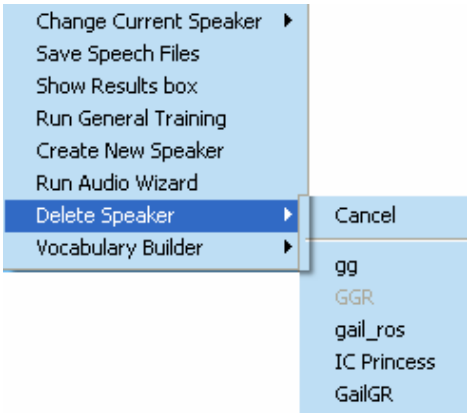
Change Current Speaker



The iCommunicator program performs speech-to-text translation when a speaker has his/her own speech/voice file selected. From the Options Menu, select Speech Recognition ► Change Current Speaker. Select the speaker's name from the list. You will see the message, "Changing active speech files. Please wait." It also is possible to change the current speaker by clicking on the current speaker's name at the bottom of the Control Window, and then selecting the desired speaker's name from the list.

Delete Speaker

If you are certain that you no longer need a speaker's speech/voice file, you can delete it. Once you delete a speaker's S/V file, it is gone forever. Make sure you do not need it before you remove it.

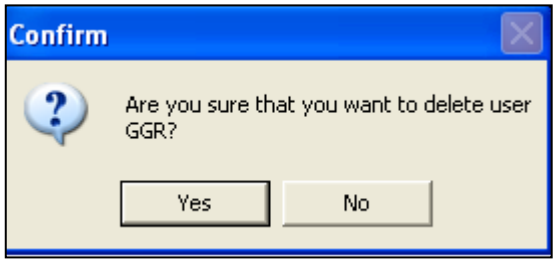


You may wish to archive the speaker's S/V file for use at a later time. In this instance, transfer the S/V file to a zip disk, CD, or LAN. Always use the Delete Speaker menu selection to delete speaker files. Delete Speaker is the only way to properly remove all information about a user. Before deleting the current speaker, close that speaker's S/V file by opening another speaker's file, then select Delete Speaker. The important point to remember is that you cannot delete the current speaker easily.

Demonstration

To delete a speaker's S/V file:

1. From the Options menu, select Speech Recognition ► Delete Speaker
2. From the Speaker list box, select the name you want to remove.
3. Click Delete and answer Yes to the prompt confirming that you wish to delete the speaker.
4. When the Done window appears, click OK.



Show Results Box

The Show Results Box is a small, floating text box that displays the results of the speech/voice analysis as it occurs. When the red square appears in the upper left hand corner of the text box, this indicates that speech recognition is occurring. The Show Results Box functions somewhat like a notepad, where you jot down ideas, and later formulate the precise sentence you wish to write.

> the show results box is a helpful tool because it displays translated text almost immediately although some of the words may not appear in the text window because the system is using contextual information to determine the most appropriate words it also is helpful when the speaker talks a long time before taking a pause

It is not uncommon for words in the Show Results Box to change while a speaker is talking. This occurs because the speech recognition engine is taking time to make decisions about which words to translate. It does this by considering contextual and speech model information (i.e., acoustical, lexical, linguistic) to select the appropriate word choice for translation. Sometimes the program has to hear a word in a phrase or sentence before it actually recognizes the word.

Some users prefer displaying the Show Results box along with the other iCommunicator features, because it gives them the opportunity to view speech-to-text translation almost immediately. Experiment in using this feature when you speak to the computer later in the training process.

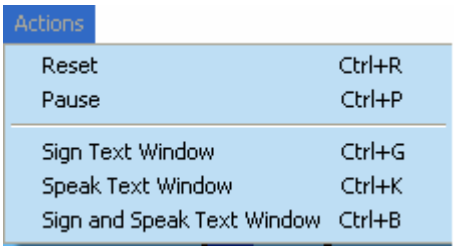
Change Font Size and Color

The default font size in the Show Results Box is 8; however, end users can change the font size to a maximum of 24. In addition, the font color can be changed. The following procedure is based upon the Windows XP operating system (OS). If your computer has an earlier operating system, consult the system's Help File for information on locating the path to the ToolTip.

Follow these steps to change the font size and color: Start ► Control Panel ►Appearance and Themes ► Display ► Appearance ► Advanced ► ToolTip. At this point you will be able to change the color and size of the font that will display in the Show Results Box. If you change the font size or color in the ToolTip, those changes will be effective for the entire operating system.

Change Position of the Show Results Box
To prevent the Show Results Box from moving on the iCommunicator main screen, use the mouse to click and drag the text box to the desired position on the screen. Then right-click the Results box, and select Anchor. The Show Results Box will remain anchored in that location.

Actions Menu



Pause button changes to Continue until the action is restarted.

The Actions Menu lets you turn on or change the signing and speaking actions that occur in the Text sindow. To choose the starting point for an action, place the cursor in the text box and click where you want the action to begin **before** selecting the Actions menu command. The Actions menu commands **Reset** and **Pause** also appear on the top border of the Text Window for easy access. Simply click to use the Action command. The button on the Text Window changes from "Pause" to "Continue". Click **Continue** to restart the action.

Reset

Use Reset to halt the computer-generated speech, turn off signing, and reset the microphone. Access this command from the Actions menu or the button on the Text Window.

Pause

Use this feature to temporarily halt the action in the Text or Signing windows, or to stop delivery of computer-generated speech. Click Continue to restart the halted action. Access this command from the Action menu or the Text Window.

Sign Text Window

Select Sign Text Window to have the iCommunicator program sign the words in the Text window without generating a voice. From the Signing Options menu, select the signing speed for comfortable viewing.

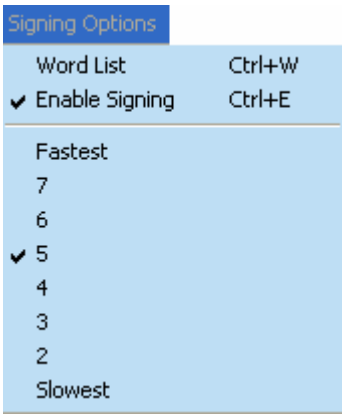
Speak Text Window

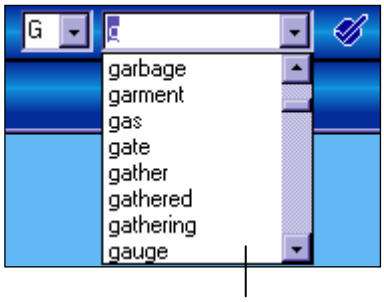
Select this action to convert the words in the Text window to audible computer-generated speech. The computer-generated speech can then be delivered through the computer's speakers, or sent to the end user's hearing assistive device via the Audio Y-cable.

Sign and Speak Text Window

This action simultaneously signs the words in the Text window and generates audible computer-generated voice.

Signing Options Menu





Scroll to find a word, then click the check mark to view the sign.

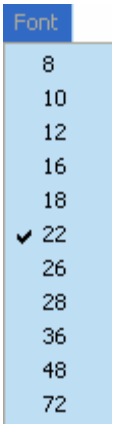
The Signing Options Menu lets you enable or disable signing, change the signing speed, and find the sign for a word by accessing the Word List.

Enable or disable signing by clicking Enable Signing, or by using the shortcut Control+Enter.

Select a comfortable signing speed, ranging from slowest to fastest. Most end users who use sign language choose a speed of 4 or 5. In Version 4.0, the signing speeds have been readjusted so that the slowest speed represents the actual film speed of the sign video. Individuals who wish to learn fundamental sign language may choose the slowest speed.

Select **Word List** to view an alphabetical display of words in the signing video library. Choose a word from the drop-down list, and then click the check mark to view the accompanying signing video.

Font Menu



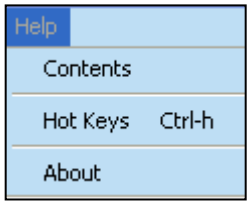
Select the font size for comfortable on-screen viewing. Font sizes are available from 8 through 72.

The electronic dictionary operates most efficiently with the font size 16 or 18.

Demonstration:

1. From the File menu, choose Open, and then select *Teddy Roosevelt*. Text displays in the Text window.
2. From the Font menu, select different font sizes for comfortable viewing.
3. From the Actions menu, choose Sign Text Window.
4. Press Control+P to halt signing. Press Control+P again to resume signing.
5. Place the cursor next to any word in the Text window to begin signing. This also applies to the Speak Text Window function.
6. From the Signing Options menu, make selections to manipulate the signing speed, and enable/disable signing.
7. From the Actions menu, select Sign and Speak Text Window.
8. From the Actions menu, select Speak Text Window.
9. Press Control+R to turn off the speaking action.
10. From the Signing Options menu, select Word List. Select a letter from the pull down menu and then select a word. Click on the check mark and to see the accompanying sign display.

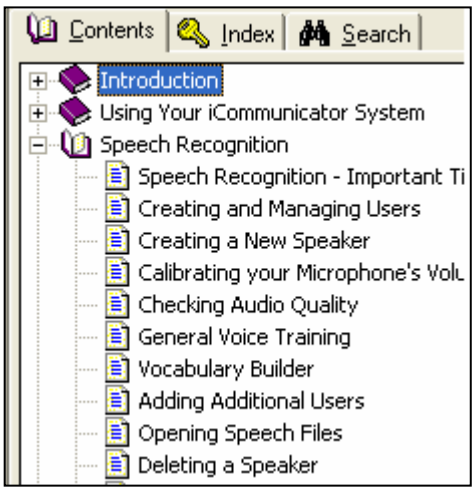
Help Menu



The iCommunicator program provides a comprehensive help system. Although the iCommunicator windows, menus, and features are easy to use, you may occasionally need help. If you are unable to find the information you need, contact Customer Service at (800-245-2133) for assistance.

Contents

When you select Contents, the iCommunicator Help System opens with the Table of Contents tab active. The left pane of the Help window displays the system hierarchy from which you can select a topic. The right pane displays the selected topic explanation. Use the Contents, Search, or Index tabs to find additional information to assist you. The Search tab lets you locate help by performing a key word search. Use the Index tab to select a help topic from an alphabetical list.



Hot Keys

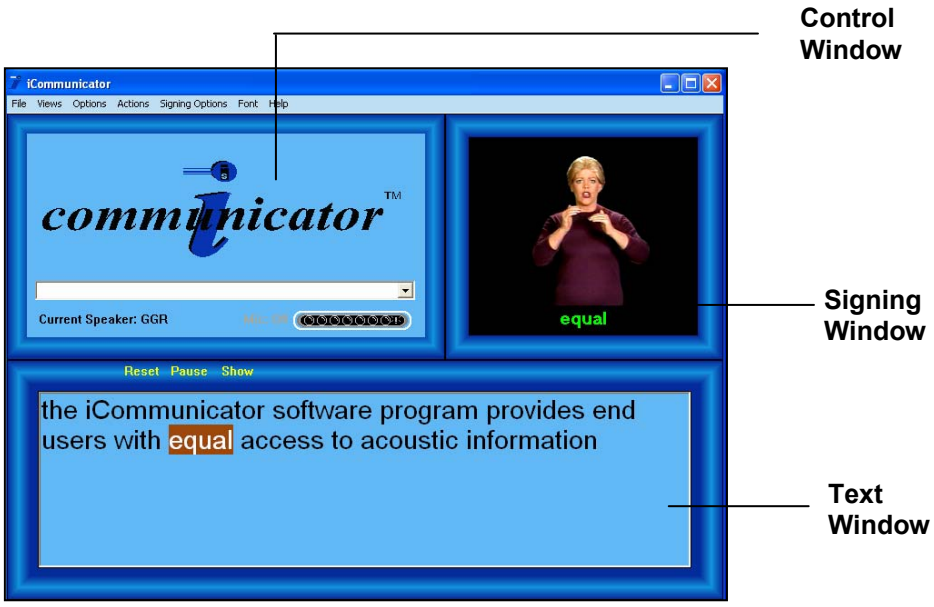
This option displays a list of iCommunicator program hot keys and their function. Hot keys can be used to quickly execute iCommunicator menu commands by using keyboard combinations. The list of hot keys can be accessed with the Control+H keyboard command. A listing of the hot keys is available on page 66.

About

About displays license information about the iCommunicator program, such as the version and build numbers, serial number, and other program information. You will need this information if you contact Customer Service for support.

Windows

The iCommunicator program contains three windows – the Control window, the Text window, and the Signing window. All display on the iCommunicator's main screen.

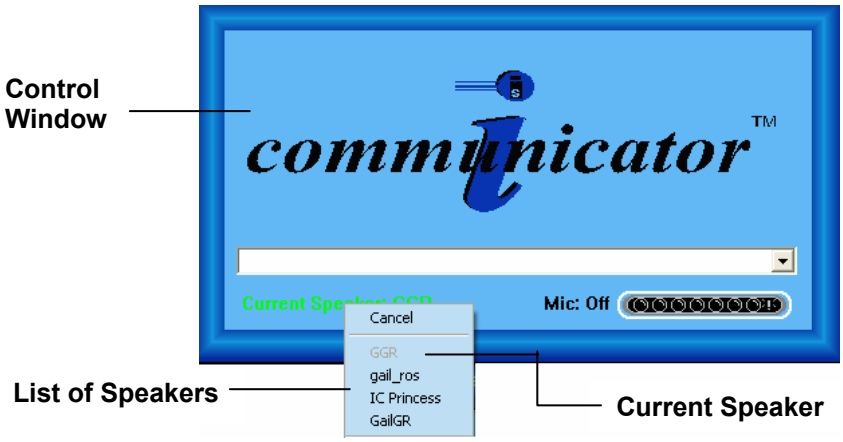


The standard window display is used for training purposes. Refer to the *Custom Mode Viewing Options iTip* on page 64 for information about customizing the window arrangement and minimizing and restoring the iCommunicator windows.

Control Window

The Control window lets you to manage the program's functions. The Control window has four components:

1. Say This/Note This text box
2. Current Speaker indicator
3. Microphone Status Bar
4. Microphone ON/OFF Button

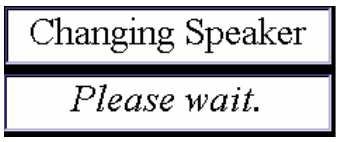


The Control window features, combined with the menus, let you manage how the program functions. Do not close the Control window until you are ready to stop using the iCommunicator application. Closing the Control window exits the iCommunicator program.

Select the Current Speaker

Use this feature to change the speaker you want the iCommunicator program to recognize. After a speaker completes initial speech/voice recognition training, their file name appears on the list of Current Speakers. You must tell the iCommunicator program which speech/voice file to use. It is important to only use your own speech/voice file to ensure translation accuracy. To view the list of speakers who have speech/voice recognition files, simply click on the Current Speaker indicator. Select a speaker from the drop down list.

A message box displays when changing speaker files. It takes less than a minute for the program to change from one speaker to the next. When the new speaker's name appears, the program is ready to receive the speaker's speech.



Demonstration:

- Click on the Current Speaker indicator to display a list of speaker's speech/voice recognition files recognized by the program.
- Select a different speaker's file, if other files exist on your computer.

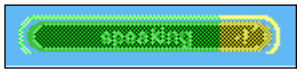
Say This/Note This Text Box

This unique feature lets the user enter text that the computer speaks. It also inserts notes or comments in the Text window. This feature is helpful for taking notes during a lecture, or to display two-way conversation.

Say This

The computer converts the words typed in the text box to computer-generated speech. You can choose to deliver computer-generated speech to the computer's speakers, the external speakers, or to an individual's personal assistive hearing device using the audio Y-cable.

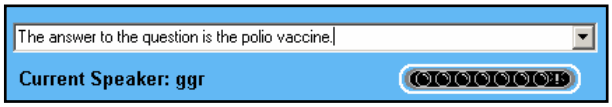
As iCommunicator speaks the contents of the Say This text box, the microphone status area changes to a colored speaking indicator. This lets users who are deaf or hard of hearing know when iCommunicator is finished



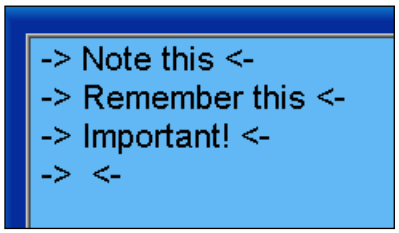
speaking. When transmission is complete, the speaking status bar disappears.

Demonstration:

1. Type a statement into the text box.
2. Press enter. The computer-generated voice delivers the text.

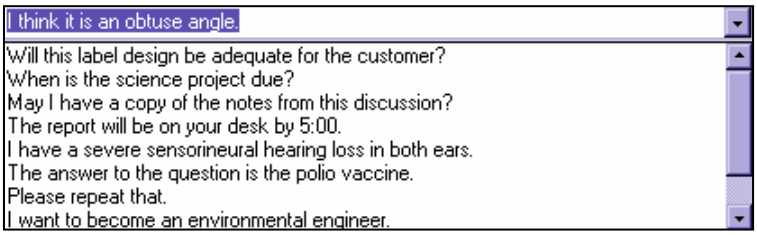


Note This



Add notes to the Text window by typing in the Say This/ Note This text box and then pressing Control+Enter. The text appears in the Text window, enclosed with arrows. If you choose not to type, use Control+Enter to place the arrows in the text box. For example, use the double arrows to indicate important information.

The last 10 entries placed in the Say This/Note This text box can be displayed by clicking the down arrow on the right hand side of the text box. This is useful if the end user wishes to repeat a comment. The Note This function does not generate voice output.



Pull-down window displays the last 10 entries.

Demonstration:

1. Type some text in the Note This/Say This text box.
2. Press Control+Enter. The text appears in the Text window enclosed by arrows.
3. Press Control+Enter. The two arrows appear in the Text window and serve as a notation.
4. To display the last ten entries, place your cursor on the arrow to the right of the text box. Highlight a selection and it will appear in the text box.

Microphone Status Bar

The microphone status bar displays a graphic indicator of the microphone input. Color appears over the background to indicate the status.

Color	Status
amber	• on and ready to receive speech • listening, but not detecting any sounds it considers to be speech
green	• in use and receiving speech
red	• audio level is too high • can occur if speaking voice is louder than the presentation voice used during speech/voice training • need to rerun Audio Wizard
black	• microphone is OFF

Demonstration

Use the microphone status bar to turn the microphone OFF and ON.

1. Move the mouse pointer directly over the microphone status bar and click it once to turn off the microphone.
2. Click it again to turn on the microphone. The default is the ON position.
3. If the Microphone Status Bar turns red while speaking into the microphone, the audio level is too high. You must run the Audio Wizard and recalibrate the microphone. If the redlining continues, further troubleshooting and adjustment may be necessary. Contact Customer Service for assistance.

Microphone ON/OFF Button

Click this button to turn the microphone ON or OFF. For more information about the functions of the Microphone ON/OFF button, refer to page 41.

Demonstration:

- Experiment with turning the microphone ON and OFF by toggling the Microphone Status Bar and by using the Microphone button. Use this feature during speech/voice recognition training and vocabulary building.

Text Window

Speech converts to text and displays in the Text window. When the Text window is closed, the program continues to translate and add text. The translated text appears in the Text window when it reopens.

General Features of Text Window

Speech to text conversion occurs when the speaker pauses or takes a breath. Text wraps onscreen when the speaker pauses. A slight delay in the text display occurs as the program compares what the speaker says with its internal speech/voice model. The program uses acoustical, lexical, and linguistic information, as well as context clues to translate speech to text.

The Show Results Box offers a direct way to view translated text before it appears in the Text window. This small box resembles a tool tip. The Show Results Box is helpful when the speaker infrequently pauses during delivery. To activate the Show Results Box, select Speech Recognition ▶ Show Results Box from the Options menu.

You can enter keyboarded text directly into the text window, or use the Say This/Note This feature.

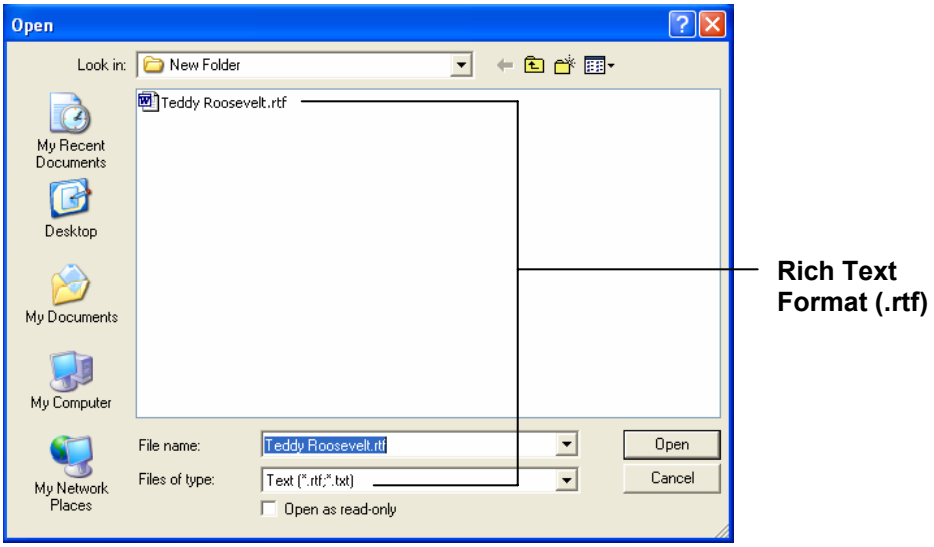
From the Actions menu, you can choose to have the iCommunicator program sign, speak, or simultaneously speak and sign text that displays in the Text window. Three actions (i.e., Reset, Pause, Show) may be activated easily by clicking the appropriate button on the border of the Text window. These actions also may be initiated by using the Actions menu.

Change the Font

Use the Font menu to change the font size. Click on the Font menu, and then select a font size that allows for comfortable viewing of the computer screen.

Save the Text Window Contents

Use this option to save the contents of the Text window for later use. The program saves the text in Rich Text Format (.rtf).



Demonstration:

1. Type a few sentences in the Text window.
2. From the File menu, select Save As (The Save As window appears.)
3. Type a name for your file in the file name text box.
4. Click Save.
5. From the File menu, select Open, and select your File's Name (Note that it has been saved in Rich Text Format [.rtf].)
6. Click Cancel.

Clearing the Text Window

To clear text that appears in the Text window:

Demonstration:

1. From the Control window File menu, select New

2. Choose Yes to remove the text from the window.

Use the Clear Text When Starting option when you want a clear Text window each time you open the iCommunicator program.

- From the Options menu, select Clear Text Window When Starting.

Closing and Opening the Text Window

Demonstration

Open the Text Window

- From the Control window Views menu, select Text Window.

  A check mark appears on the menu, indicating the option is enabled.

Close the Text Window

Do one of the following:

- From the Views menu, deselect Text Window.
- Click the X in the upper right corner of the Text window. (**Custom mode only)**

Changing the Windows Theme

Choose from several preprogrammed themes to change the background color theme of the iCommunicator windows. The program remembers your theme each time you make a change.

Demonstration

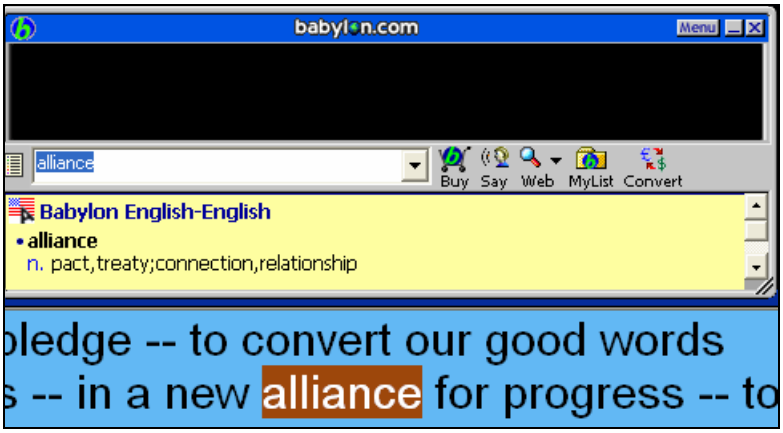
1. From the Views menu, select Allow Themes.
2. A check mark appears on the menu, indicating this option is on.
3. Click on a theme name to select a theme.
4. To deselect themes, click on Allow Themes again.
5. The check mark disappears from the menu, indicating the option is off.

Resize the Text Window

This option is available in the custom mode only. Refer to the *Custom Mode Viewing Options iTip* on page 64 for further information.

Using the Electronic Dictionary within the Text Window

The iCommunicator program's electronic dictionary provides end users with a valuable literacy tool. The electronic dictionary gives an immediate definition for a selected word in the Text window. Owners can take advantage of the free registration at **www.babylon.com** to receive notification of downloadable electronic dictionary updates. The electronic dictionary is also accessible when using a word processing program.



Demonstration

1. Place the cursor on a word in the Text window, and then press Shift+Right Click (right mouse button). The definition displays.
2. Click the Say button, and the computer pronounces the word.
3. Click on another word in the definition. The electronic dictionary then displays the definition for the new word.

Retrieving a Sign for a Word in the Text Window

There are two ways to retrieve a sign for a word displayed in the Text window. Place the cursor on a word, such as *numerous*. If the sign is not in the video sign language dictionary, the program fingerspells the word.

1. Double click on the word with the left mouse. In this example, double clicking the word *numerous* produced the sign.
2. Click the Show button on the Text window border. The sign for the word displays in the Signing window.

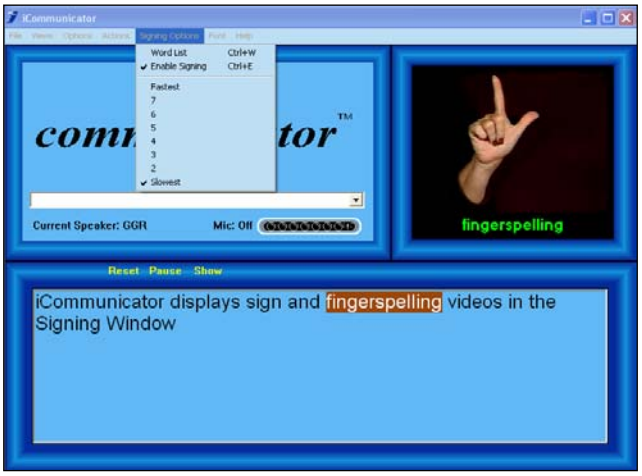
Demonstration:

1. From the File menu, select Open, and then choose *Ancient History.*
2. Place the cursor on a word.
3. Press Shift+Right Click. The definition displays.
4. Click on the Say icon to hear the word spoken.
5. Click another word in the definition to see its definition display.
6. Place the cursor on another word.
7. Double click on the word. (The sign will display.)

Signing Window

The Signing window displays sign language and fingerspelling videos. The program contains more than 9,200 video clips of individually signed words and fingerspelling videos. If there is a sign video in the library, it displays; otherwise, the word is fingerspelled. When several persons are viewing the screen, enlarging the Signing window in the Custom viewing mode may be helpful. Image clarity changes with enlargement. Use magnifier buttons at the top of the Signing window to increase or decrease the size of the Signing window.

Use the Signing Options menu to control the signing functions. Select Enable Signing to turn on signing. A check mark appears beside the menu option. The signing speed can be controlled from this menu. Turn off signing by selecting Enable Signing again, and the check mark will disappear. A sign can also be accessed for a word in the Text window by clicking the Show button on the Text window. Another option for obtaining a sign is to use the Word List from the Signing Options menu.



Module 2 Review

True or False

____ 1. You should not close the Control window until you are ready to stop using iCommunicator program.

____ 2. To return windows to their default configuration, select the Return to Defaults command.

____ 3. Translated speech does not continue to add to the Text window when the window is closed.

____ 4. Selecting a different theme can improve on-screen visibility.

____ 5. A black Microphone Status Bar indicates that the transmitter is OFF.

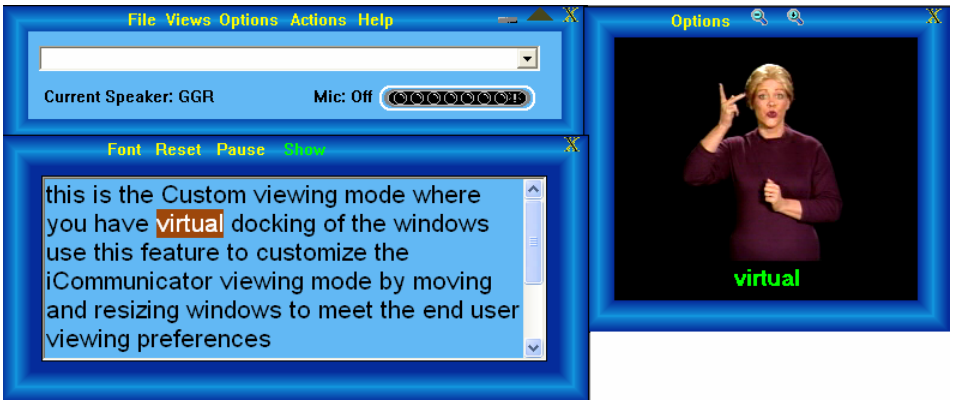
Multiple Choice

6. There is nothing displaying in the Signing window. What do you do to investigate the problem?
   a. Select the Options menu in the Signing window and see if Enable Signing command is selected or not.
   b. Click the Options menu in the Control window to see if signing is locked.
   c. Close down the program and open it again.
   d. Both a. and b.

7. The Signing Locked command
   a. sets the speed at which sign language and fingerspelling are displayed.
   b. is password protected.
   c. removes all references to signing in the iCommunicator.
   d. Both b. and c.

Check your answers using the Answer Key in the back.

Custom Mode Viewing Options



The Custom viewing mode is accessed from the Views menu. In the Custom mode, the end user has the opportunity to customize the appearance of the iCommunicator windows by moving, closing, and resizing the windows to meet individual viewing needs and preferences. This virtual docking feature allows the end user to use the right mouse and move all of the windows as one unit.

Key Differences from the Standard Mode

The Font menu moved from the menu bar to the Text window and the Signing Options menu moved from the menu bar to the Signing window.

You can resize and reposition windows.

Moving the Windows

Demonstration

1. Move your mouse pointer over the window you want to move.
2. Hold down the left mouse button and drag to the window.
3. Click and hold down the left mouse button and drag the window to the desired location.
4. Release the mouse button.

Minimizing and Restoring Windows in the Custom Mode

Close windows by clicking on the "X" in the upper, right-hand corner of the window.

Icons in the upper-right corner of the Control window provide a quick and easy way to minimize, restore, resize, and exit the iCommunicator program.

Use	To
▬	Reduce (minimize) the iCommunicator program to a button on the task bar. Click the taskbar button to open iCommunicator again.
▼	Decrease the Control window size.
▲	Increase the Control window Size.
X	Exit the iCommunicator program and return to your desktop.

Use the magnifiers on the Signing window to increase or decrease the size of the Signing window. There are three sizes available.

You must be using the custom mode in order to resize the Text window.

Demonstration

1. Move the mouse pointer to the window's edge at any of the four sides.
2. When the double arrow appears, hold down the left mouse button and drag to the desired size.
3. Release the mouse button when the desired size appears.

Keyboard Shortcuts and Hotkeys

You can quickly execute iCommunicator menu commands using keyboard combinations, called hot keys. The hot key combination displays on the pull-down menu along with the command. Hold down the first key (e.g., Ctrl or Alt), and then press the key shown with it to use the shortcut. In the Standard mode, all menus display the hot keys.

Hot Key Combination	Menu	iCommunicator Menu Command
Ctrl+A	File	Save As
Ctrl+B	Actions	Sign and Speak Text window
Ctrl+D	View	Return to Defaults
Ctrl+E	Options	Enable Signing
Ctrl+G	Actions	Sign Text window
Ctrl+I	Options	Speak Incoming Words
Ctrl+K	Actions	Speak Text window
Ctrl+N	File	New
Ctrl+O	File	Open
Ctrl+P	Actions	Pause
Ctrl+R	Actions	Reset
Ctrl+S	File	Save
Ctrl+W	Actions	Word List
Ctrl+Enter	N/A	Place Note This text in Text Window

iCommunicator Menu and Window Feature and Function Guide

MENU	FUNCTION
File Menu	**Manages files**
• New	Clear text in Text window or prepare new file
• Open	Open existing file and place in Text window
• Save	Save contents of Text window; saves in Rich Text Format (.rtf)
• Save As	Save contents of Text window under a different file name
• Exit	Close iCommunicator program (or click X in upper right corner of main screen)
Views Menu	**Controls Signing and Text windows, color themes, and viewing mode**
• **Standard Mode**	Default window configuration is the standard mode; windows stationary
• Themes	Allow themes; change border display and background color theme for personalized and comfortable viewing; default theme is blue
• Standard Mode is Selected	Select Standard Mode is Selected to remain in the Standard viewing mode
• **Custom Mode**	Deselect Standard Mode is Selected; customize window arrangement/size
• Signing Window	Select or deselect to open or close the Signing window
• Text Window	Select or deselect to open or close the Text window.
• Themes	See Themes under Standard Mode.
• Change to Standard Mode	Select to return to the Standard viewing mode
• Return to defaults	Returns window configuration to Standard and theme to blue
Options Menu	**Unique end user features and speech/voice recognition training**
• Microphone ON/OFF	Select to turn microphone ON/OFF
• Autosave	Enable to Autosave contents of Text window @ 5-60 min. intervals
• Speak Incoming Words	Convert speech to computer-generated voice and deliver to peripheral assistive hearing device via audio Y-cable
• Set Talking Voice	Personalize the computer talking voice by selecting gender, pitch, and rate
• Edit Quick Say Keys	Assign messages to 22 text boxes; press appropriate function key to initiate delivery by computer-generated voice
• Clear Text Window When Starting	Select to display an empty Text window when starting iCommunicator program.
• Start with Windows	Select to have iCommunicator open automatically when starting computer
• Signing Locked	Accessible only from the Custom mode; disable signing using a password.
• Speech Recognition	Opens another menu panel with features used to create, build, save, and manage a speech/voice recognition file
• Change Current Speaker	Select S/V file from menu or select from Current Speaker pull down list on Control Window.
• Save Speech Files	Select to save changes to S/V file; red warning screen appears.
• Show Results Box	Floating text box that displays speech-to-text during analysis process.
• Create New Speaker	Initiates process of creating a new speaker S/V file
• Run Audio Wizard	Calibrate microphone.
• Run General Training	Select stories to read to build S/V file.
• Delete Speaker	Select S/V file to be deleted; confirmation screen appears.
• Vocabulary Builder	Processes to fine tune a speaker's S/V file.
○ Vocabulary Editor	Add, train, or delete words or phrases in the program's vocabulary.
○ Vocabulary Builder	Analyze documents and train unfamiliar words.
• iText	Displays email, web pages, and other documents in Text window for information to be signed, spoken, or signed and spoken
○ Default Left Click Action	Choose sign, speak, or sign and speak as the desired action
○ Pause Before Action	Choose either a 3 or 5 second pause before the action begins in the Text window

MENU	FUNCTION
Actions Menu	**Initiate or change signing and speaking actions in the Text window.**
• Reset	Halt computer-generated speech, turn off signing, reset the microphone, and other actions; also initiate action from Text window border.
• Pause	Temporarily halt action in Text or Signing windows; also initiate from button on Text window border.
• Sign Text Window	Place cursor and the text is signed.
• Speak Text Window	Place cursor and the text is spoken.
• Sign and Speak Text Window	Place cursor and the text is simultaneously signed and spoken.
Signing Options Menu	**Enable signing, select a sign using the word list, and control the signing speed.**
• Enable/disable signing	Select or deselect to enable or disable signing.
• Select signing speed	Select a comfortable signing speed to match the end user's proficiency level, from slowest to fastest; 5 is the speed most users prefer.
• Word List	Select and then scroll to find the word for a sign; click the check and the sign displays.
Font Menu	**Change the font size for comfortable viewing.**
Help Menu	**Use to find information about the iCommunicator program features and functions.**
• Contents	Displays contents of the Help files.
• Hot Keys	Displays list of keyboard shortcuts.
• About	Provides licensing information about the iCommunicator program you own.

WINDOW	FUNCTION
Control Window	**Controls the microphone, lists current speakers, and the Say This/Note This text box.**
• Current Speaker Indicator	Displays name of current speaker; pull down list displays names of all speakers with S/V files recognized by the program.
• Say This/Note This	Type text in the text box and the computer speaks it (Enter) or displays it in the text box enclosed with < > symbols (Control+Enter)
• Microphone ON/OFF	Click the button to turn onscreen microphone on or off.
• Microphone Status Bar	Toggle over the bar to turn the microphone on or off; color indicator displays the status of speech input.
Text Window	**Displays speech converted to text or an existing document file.**
• Reset Button	Same as Actions Menu.
• Pause Button	Same as Actions Menu; changes to Continue until Pause is selected again to resume the action.
• Show Button	Place cursor on a word, click Show button, and sign displays
• Obtain Definition	Place cursor on a word, then Shift+Right Click, and definition displays; click Say to hear pronunciation.
• Retrieve Sign	Double click on a word and the sign displays.
Signing Window	
• Display Signs	More than 9000 sign and fingerspelling videos display in the Signing window.
• Resize Window	In the custom viewing mode, Signing window can be resized.

Module 3
Speech and Voice Recognition Training

Module 3 Objectives

In this module, you will learn the skills necessary for:

- using the New User Wizard
- creating a Speech/Voice Recognition file
- calibrating the microphone
- initial speech/voice training

Preview: Speech and Voice Recognition Training

When the iCommunicator Version 4.0 software installation is completed, a speech and voice (S/V) recognition file must be created before anyone can speak into the microphone and have their speech translated to text. Creating a new user is a simple and systematic process. You must provide the computer your name and the speech and vocabulary models needed for iCommunicator. You will train the computer to recognize your unique speech and voice patterns.

Initial S/V training is not difficult, taking only about 10 minutes to calibrate your microphone and read aloud a short selection. To assist you, the iCommunicator software program provides an easy-to-use interface called the New User Wizard. You will read a short, instructive selection entitled "Talking to Your Computer."

When you complete the initial training, you are invited to have the program analyze documents to adapt to your writing style. If a speaker does not have files on the computer, it is recommended that the speaker load available technical documents, vocabulary lists, or other documents so that the program can analyze the documents. It takes only a few minutes and it does increase translation accuracy. Load these electronic files before you begin to create your speech/voice recognition file. The program has the capability to analyze documents created in the following programs or naming conventions: Microsoft Word, Word Perfect, Text, and Rich Text Files.

Complete an Accuracy Check following the initial training, using a prescribed protocol. (Refer to Appendix B to locate the Accuracy Check.) If your accuracy is 90% or better, it will not be necessary to complete a second reading. Proceed to Vocabulary Building in Module 4.

If the Accuracy Check shows that your accuracy needs improvement, read one more short selection. From the Options menu, choose Speech Recognition ▸ Run General Training. The selections available in this section take about ten minutes to read. This evaluates how well the iCommunicator program is translating your speech. When you achieve 90% or better accuracy, you can proceed to Vocabulary Building.

Environmental factors and the condition of your voice can significantly influence speech and voice recognition training. Whenever possible, create speaker files and complete initial voice training in the environment in which you plan to use iCommunicator. If training occurs in a different environment, you will need to rerun Audio Wizard when you use the iCommunicator in the classroom or in the workplace. This will calibrate the microphone. You do not have to rerun Audio Wizard daily – only if there is a condition that indicates the needs to repeat the process.

Since your speaking voice may differ greatly from your reading voice, it is important that you perform speech and voice training in the *same* voice and with the *same* vocal effort that you plan to use with the iCommunicator program in your workplace or other special application environment. Rerun the Audio Wizard any time conditions change, such as the acoustical environment, voice change due to a cold, translation accuracy is degraded, or when a different microphone or sound card is used.

Dictation tips included in this module will assist speakers in mastering the speech and voice recognition training process. Follow the basic guidelines in this module to establish your speech/voice recognition file and achieve accurate speech translation.

Speech and Voice Recognition Training

System Check

Refer to the System Check on page 33.

Check the following key points:

- system connections (power, audio connector cord, and microphone)
- power (computer, receiver, and transmitter)
- battery status (computer, receiver, and transmitter)
- receiver and transmitter frequency and channel settings
- correct microphone placement
- mute switch
- close all other programs when using the iCommunicator program

Overview of Continuous Speech Recognition

The iCommunicator program uses continuous recognition of natural speech to translate what a speaker is saying into text and/or sign in real time. Dragon NaturallySpeaking Professional is the speech recognition engine that underlies the iCommunicator Version 4.0 software program. The speech recognition engine tries to match the speaker's oral speech and language patterns with its own built-in oral speech and language model. The speech recognition engine relies on three information sources to achieve translation accuracy.

- Acoustic – what a typical voice sounds like
  - The speech recognition engine creates a mathematical model of the sound patterns used by each speaker.
- Linguistic – how a typical person puts words together
  - The speech recognition engine compiles statistical information associated with a vocabulary that describes the likelihood of words and sequences of words occurring in the speaker's language model.
- Lexical – a typical English vocabulary
  - The speech recognition engine recognizes thousands of words that are in its built-in lexicon, and each word in the vocabulary has both a text representation and a pronunciation.

When you Create a New User, you begin with a standard set of acoustic, linguistic, and lexical models. As you read selections, and later speak spontaneously into the computer, you customize these models for the manner in which you speak (acoustical model) and the way you use words (linguistic and lexical models). When the speech recognition program learns about your speech and voice characteristics, it will become more accurate in its translations. The speech recognition engine uses your customized speech/voice recognition file to predict the words you have spoken.

When you initially use the iCommunicator software program, you will notice some translation inaccuracies. Use Vocabulary Builder and Vocabulary Editor to customize and expand the lexical model. Add technical terms and vocabulary you routinely use by speaking or by analyzing documents, and then training any unfamiliar words that the iCommunicator program does not recognize.

You can enhance the linguistic model to better match your spoken language patterns by speaking to the computer and saving small segments of correctly translated speech. Another effective way to improve the linguistic model is to analyze existing documents, such as lecture material or reference documents, under the speaker's speech/voice recognition file. This process is very quick and the speaker then has the opportunity to train unfamiliar words. The speech recognition engine onboard vocabulary contains approximately 250,000 words.

Speech and Voice Recognition Training Tips

Presentation Voice

- Speaking clearly and consistently will improve recognition accuracy. The speech recognition engine needs to *hear* acoustical boundaries between words.
- Use the same vocal effort that you use when addressing a class or other audience. In other words, use your presentation voice and posture when training the iCommunicator program to recognize your speech and voice characteristics. Imagine that you are addressing at least 47 audience members.

Rate of Speech

- Speak at a comfortable pace and not too fast. The speech recognition engine can efficiently translate speech delivered at rates up to 160 words per minute.
- Use pauses as you naturally do during continuous speech.

Enunciation

- Enunciate words clearly and speak normally.
- Avoid exaggerating lip movements or words. It is important to speak clearly so the program can identify acoustical boundaries between words.

Microphone Placement

- Microphone placement is extremely important for accurate speech translation. Place the microphone in the same position each time you use the iCommunicator program.
- Squeeze the microphone through the windscreen and verify the microphone diaphragm is in the appropriate location.

Preventing Vocal Strain During Training

- Use good posture. Use vocal effort characteristic of your presentation voice. Breathe deeply from your abdomen, not from your chest.
- Take occasional breaks.
- Keep your vocal cords moist. Use a straw so you do not have to move the microphone.

Eating, Chewing, and Dictating

- Avoid eating, chewing gum, or drinking liquids while the microphone is ON.
- Use the mute switch to avoid transmitting non-speech sounds.

Eyes Off the Screen

- When dictating, try not to watch the computer screen.
- Viewing the text while dictating sometimes causes speakers to speak unnaturally. You can make corrections later.

Saving Small Segments

- After completing general training and vocabulary building, use your presentation voice while the iCommunicator translates your speech.
- Make corrections, and then save small segments of accurately translated speech. This helps in building, customizing, and fine-tuning your speech/voice file.

Judicious Use of the Mute Switch

- Use the Mic/Mute switch to avoid transmitting unwanted information, such as private conversations and non-speech sounds such as a cough.
- The computer tries to analyze all sounds, and may translate environmental sounds as unfamiliar words.

Rerun Audio Wizard

- If you train the program in an acoustical environment that is different from the one where you plan to use the iCommunicator program, rerun the Audio Wizard in the planned environment before you use it to translate your speech.

- From the Options menu, select Speech Recognition ▸ Audio Wizard
- A red warning screen displays to ensure that you are performing this action on the correct speech/voice file.
- Rerun Audio Wizard whenever any of the following conditions occur:
    - noticeable change in the speaker's voice
    - the acoustical environment changes
    - a different microphone is used
    - the sound card in the computer has been changed
    - translation accuracy is degraded
    - red appears on the iCommunicator's microphone status indicator (sometimes referred to as redlining)

Dictating or Speaking in Your Own Speech/Voice File

- When dictating or speaking using the iCommunicator, always be sure that you select your own speech/voice file from the Current Speaker drop-down list.
- A red speaker verification screen appears at specific points to remind speakers when they are about to take action on the selected speaker's speech/voice file.

Accuracy Checks

- Use the prepared materials in Appendix B.
- Calculate your accuracy using the chart provided.

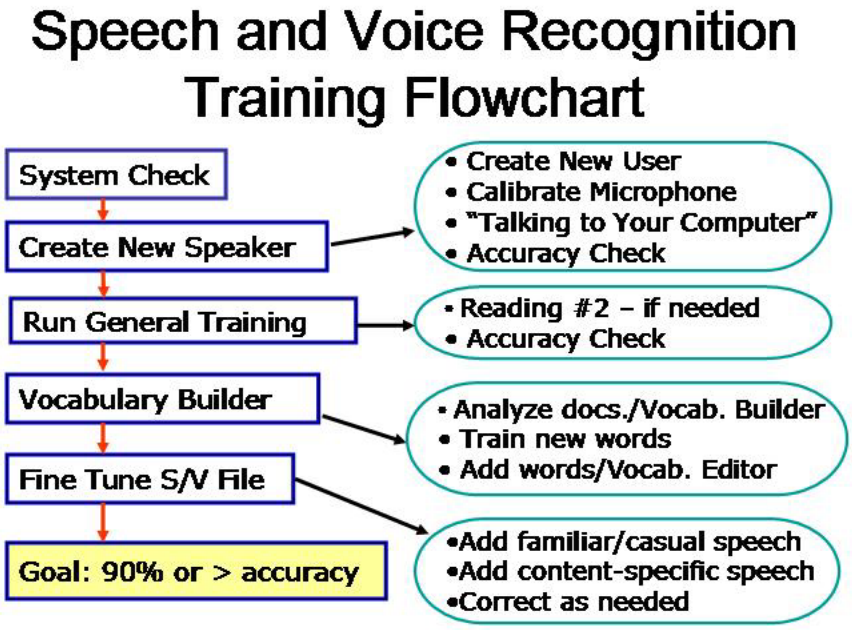
Fine tuning your speech/voice recognition file

- After reading two or three stories and adding vocabulary, read chapter summaries, a glossary, or other documents that contain the specific vocabulary and technical terminology that you typically use in your workplace or special application environment.
- Analyze documents available in electronic format to build the linguistic and lexical model.

Initial Speech and Voice Recognition Training Overview

During speech and voice recognition training, the iCommunicator program learns about your speech and voice characteristics by listening as you speak into the microphone.

The stories you read are selections from best selling books that the speech recognition engine has stored and analyzed. Because the speech recognition engine already knows the text that you are reading, it uses this time to model your voice and learn how you pronounce words. After reading one or two short stories, you will personalize S/V files by analyzing documents and building vocabulary. The flowchart below is an overview of the S/VR Training process. A more detailed flowchart may be found in Appendix B.



Follow these steps to build your speech/voice recognition file. The program will remind you at strategic points to complete various exercises.

1. Read Create a New User, page 77, through Initial Speech/Voice Recognition Training, page .85
2. Return to Create a New User, page 77, and then continue to Calibrating the Microphone on page 79, and Initial Speech/Voice Recognition Training on page 85.

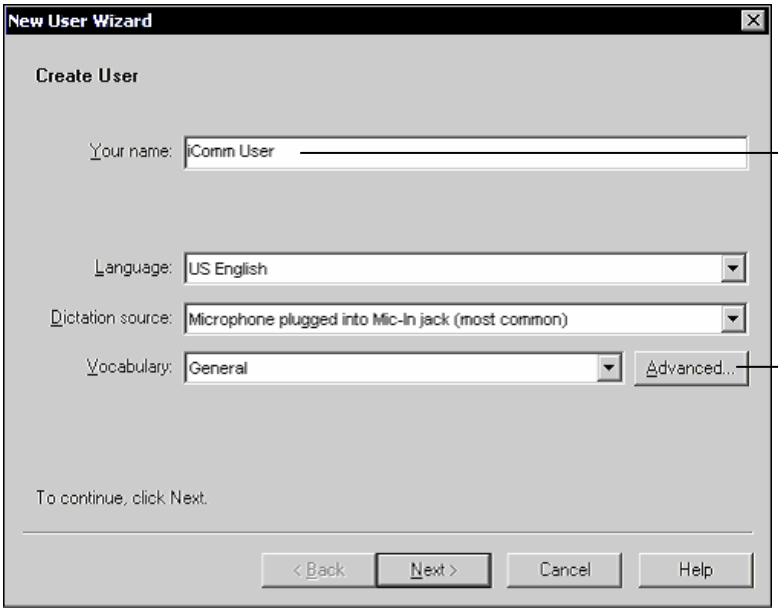
3. Read Run General Training on page 90, and then read a second selection.
4. Complete the Accuracy Check as described on page 92.

Create a New User

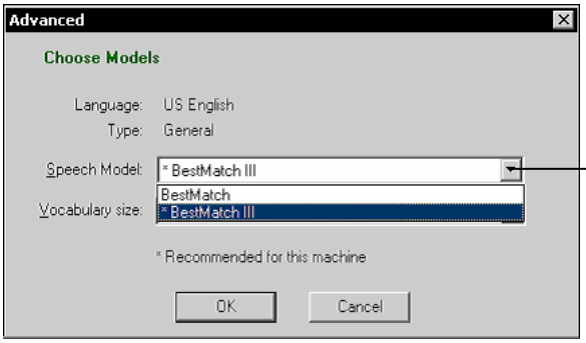
Creating your speech and voice file is a systematic process. First, you must provide the iCommunicator program with your name, the speech model, and your vocabulary choice when you begin to create your speech/voice recognition file as a new user. It is important to select the BestMatch III speech model. The BestMatch III technology takes full advantage of the powerful CPU in your computer. The vocabulary size should be Large. User-friendly prompts on the New User Wizard screen will guide you through this process.

When the iCommunicator program has the necessary information, it generates your speech/voice recognition file, loads the files, and loads a basic vocabulary to support your use of the iCommunicator program.

1. From the Options menu, select Speech Recognition ▸ Create New Speaker
2. Read the two information screens, and click OK after each one.

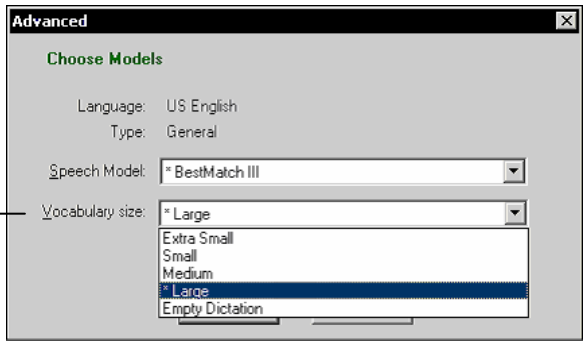


*When the New User Window appears, type the desired name in the **Your Name** area, and then click the **Advanced** button.*



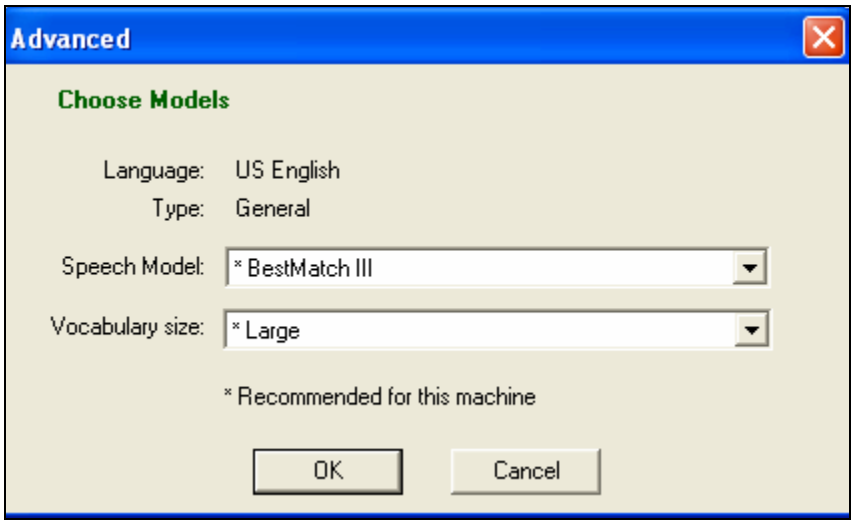
*Ensure that the **Speech Model** is set **to BestMatch III**. If not, click the dropdown menu and select it.*

*Verify that the **Vocabulary Size** option is set to **Large**. If not, select it from the dropdown menu, and then click **OK**.*



New User Wizard opens to the Create New User screen.

3. Enter your name. This field can hold up to 127 characters.
4. Press Tab to navigate to the next field.
5. Click the Advanced button to choose the speech model and vocabulary size.



Verify the following selections. If the recommended choice does not appear, click on the drop down menu and select the preferred choice listed below.

- "Speech Model" is Best Match III
- "Vocabulary Size" is Large.
- "Custom, based on advanced selections" will appear in the New User Wizard's Vocabulary window.

6. Choose OK to accept your changes.
7. Click Next.

Calibrating the Microphone

The headset noise canceling microphone is a critical component in the accurate translation of speech when using the iCommunicator program. The microphone's placement and performance directly affect the program's ability to recognize and translate speech. The New User Wizard includes a simple process to calibrate microphone volume input level and check the audio quality. This is the same simple procedure you will use when you run the Audio Wizard as you use the iCommunicator program.

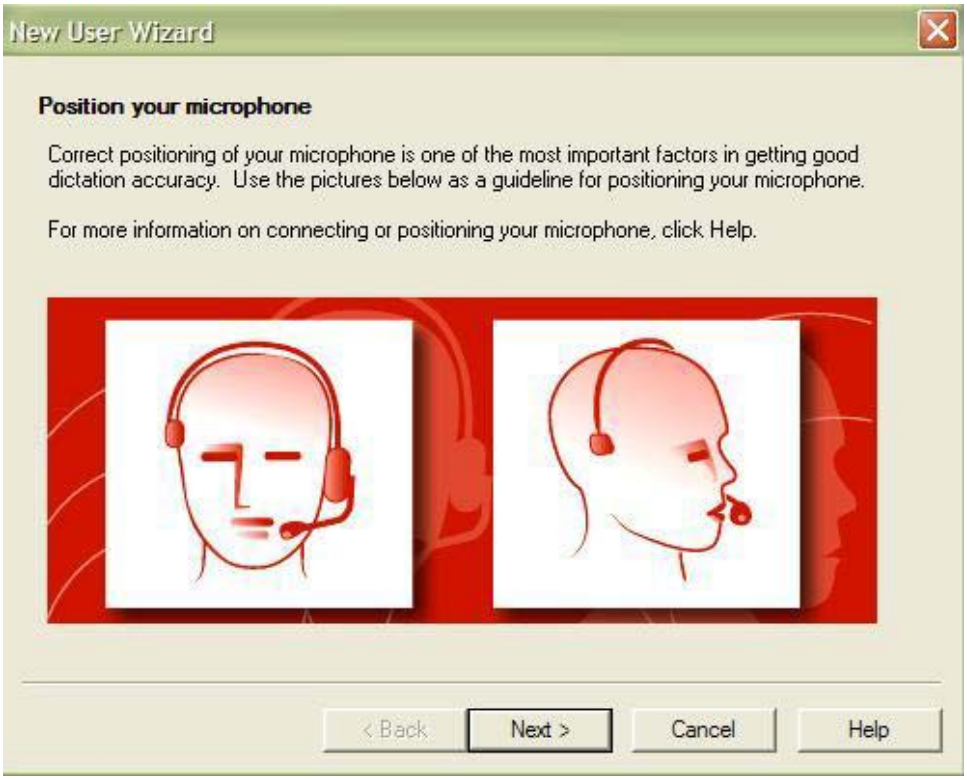
Several factors can affect the calibration process. Before you run the calibration, always complete a System Check with attention to the following:

- LightSPEED transmitter and receiver are set to the same frequency channel
- LightSPEED transmitter and receiver powered ON and batteries fully charged
- microphone switch is in the ON position
- microphone is positioned along the jaw line and slightly away from the mouth
    - LightSPEED: rounded portion of microphone toward the jaw line and flat portion away from the mouth
    - Parrott Bermuda: flat side of microphone toward the jaw line

If you receive an error message during audio calibration, investigate other factors. Consult the Dragon NaturallySpeaking help files for additional information. Simply click the New User Wizard Help button.

Position Your Microphone

The first screen you will see again stresses the importance of microphone position. For additional information regarding your specific microphone (professional or standard), refer to page 20.



Adjust Your Microphone: Volume Check

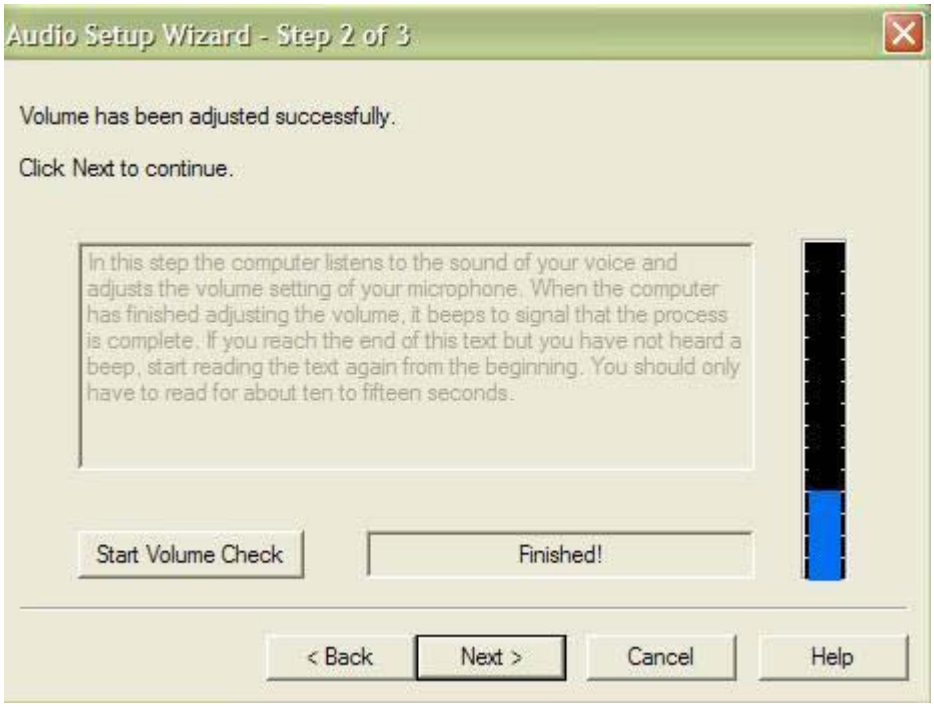
The program will test and adjust the volume of your sound system during the Volume Check. You will read some text aloud for about 15 seconds, and then move on to the Audio Quality Check. Follow these steps to complete the Volume Check.

1. Set the Mic switch to the ON position.
2. Click the Start Volume Check button.
3. Begin reading the text aloud, using the same vocal effort you use in your classroom or workplace

   A black meter moves downward in the blue scale as you read. The computer beeps when the volume check is finished. “Finished” displays at the bottom of the screen.

Adjust Your Microphone: Volume Check

1. If the volume indicator remains at the top of the scale, the volume test is not acceptable. You must recheck equipment settings and reread the passage. This typically occurs when the speaker forgets to turn on the microphone.
2. When the volume level has adjusted successfully, choose Next to continue.

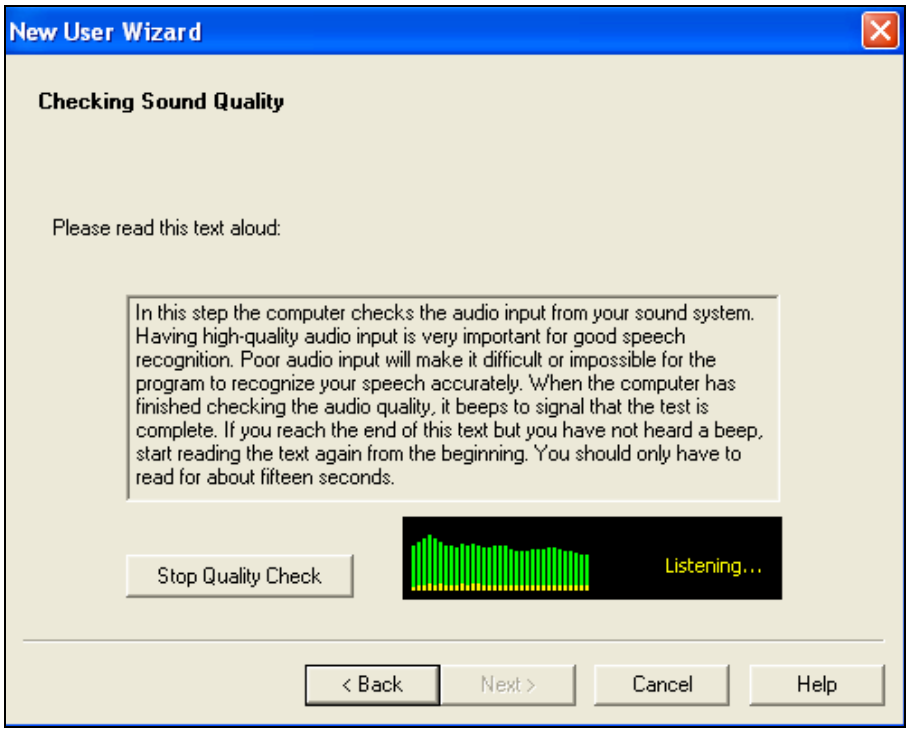


The New User Wizard advances to the quality check dialog box. You will read aloud again while the computer checks the quality of your audio input.

Sound Quality Check

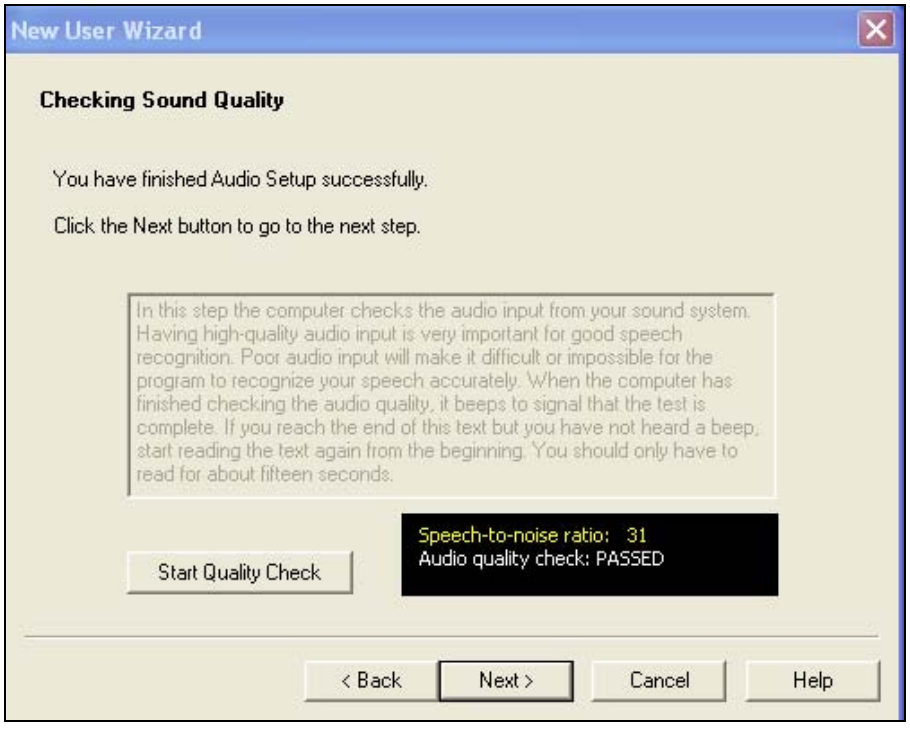
1. Verify that your microphone is ON.
2. Click the Start Quality Check button and read aloud the paragraph in the middle of the screen. A green and yellow graph displays as you speak. Keep reading until the computer beeps.

Tip: Wait a few seconds for the yellow and green graph to diminish in size before you read the text that displays.



Signal-to-Noise Ratio (SNR)

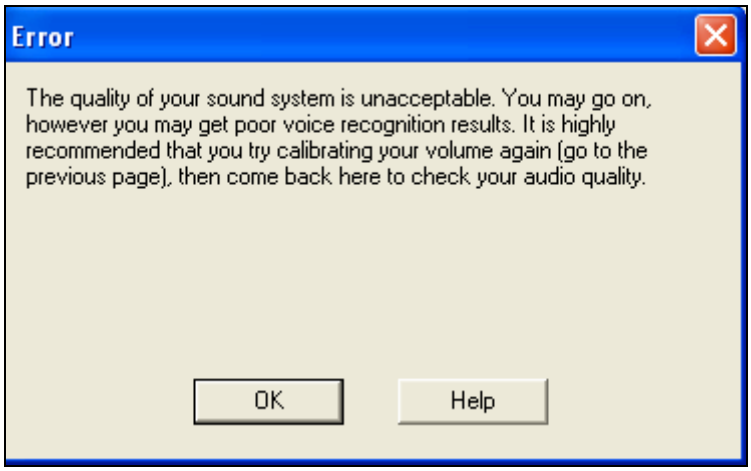
The speech-to-noise ratio (SNR) displays when the quality check is complete. **An acceptable value is within the low 20s to low 30s range, and must be a minimum rating of 22.**



Dragon NaturallySpeaking will indicate that 15 is acceptable; however, based on the quality testing performed by the manufacturer, we recommend that the minimum SNR be no less than 22. If your rating is below 22, it will be necessary to reread the paragraph. A low SNR rating requires the program to use more resources, resulting in a slower rate of speech to text conversion.

The graph showing the SNR should be approximately 90% green (speech) and 10% yellow (noise).

If an error message appears advising that your sound level is too low, click OK, and then recheck your system. Very often the problem is that the microphone is not turned on.



Before you proceed, recheck your system and repeat both steps of the process to recalibrate your microphone volume check and audio quality check.

3. When the audio quality is acceptable, click the Finish button.
4. Turn off your microphone.

Initial Speech/Voice Recognition Training

After you create a speech/voice file and calibrate the microphone, next you will complete initial speech/voice recognition training. You must complete this step to be able to use the iCommunicator program to translate your speech. This process takes five to ten minutes. You will dictate two sentences into your microphone and then read a short selection entitled "Talking to Your Computer." As you speak, you will train the program to recognize your speech and voice characteristics as you pronounce words. Initial speech/voice training is the first step to achieving translation accuracy.

Before you perform initial speech/voice recognition training, consider the difference between your reading voice and your speaking voice. It is essential that you use the same vocal intensity and effort you normally use in the environment where you will use the iCommunicator program. Speech/voice recognition is based solely upon what the program hears. When your training voice differs significantly from your speaking voice, the translation may not be as accurate. Consciously resist the urge to train the program in your reading voice, and the program will respond more accurately when you use the program in the classroom, workplace, or other public venue.

You must complete the initial voice training in order to create your own speech/voice file. It is necessary to read the first story to calibrate your speech/voice file. If you do not complete this step, iCommunicator alerts you that you did not calibrate your speech/voice file when you attempt to use the program as an identified speaker. Remember to load files to the computer to adapt to your writing style after you complete the initial reading

 **Tip:** Check your system before you begin this part of the training.

Begin Initial Speech/Voice Recognition Training

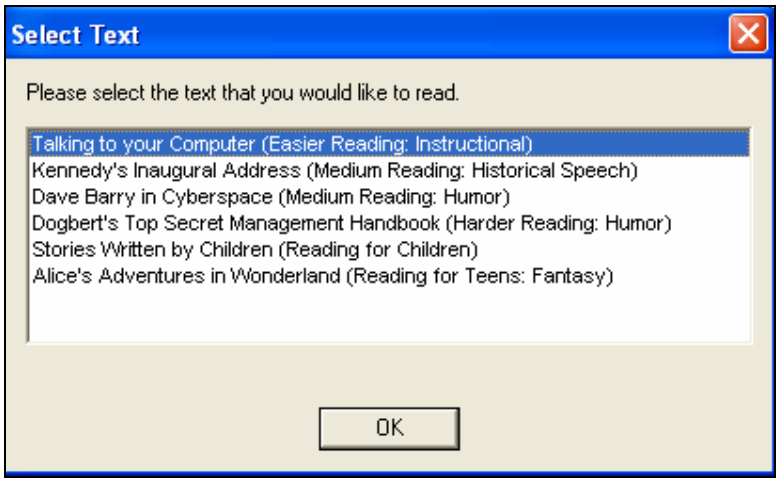
The New User Wizard screen opens, inviting you to train Dragon NaturallySpeaking.

1. Click Go and read aloud the sentence in the text box.

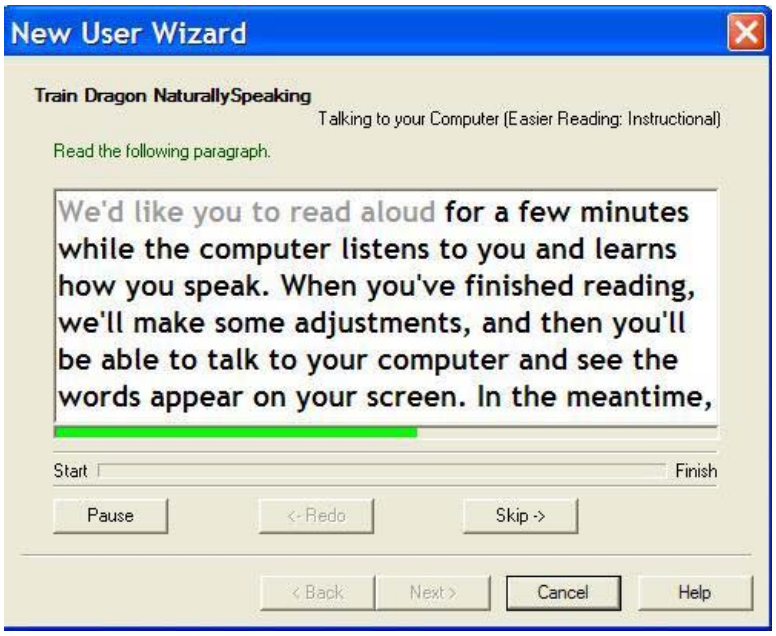
   As you read, the yellow (listening) indicator changes to green (receiving speech).

   You will read another sentence on the next screen: "Training is about to begin."

   The Select Text screen opens. We recommend that you select "Talking to Your Computer" for the initial training. This instructive selection takes about five to seven minutes to read.



2. Click OK after you select the story.



3. Read the story aloud using your presentation voice. As you read, a yellow arrow advances and after you complete a word, the text changes from black to gray. If the program does not understand a word you read, it will either ignore the mistake or display the yellow arrow pointing to the word it did not understand. This indicates that you should repeat the word in order to advance the arrow and add to your speech and voice file. You should try to read the text that appears in the text window. However, if you read something incorrectly, the computer will either ignore the mistake, or display the yellow arrow.

Tips:

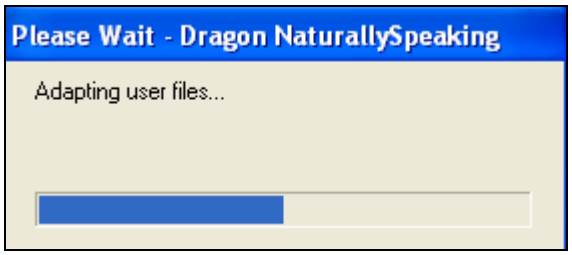
- Use the Pause button if you need to take a break.
- Use the Skip button if the program does not recognize how you pronounce a word, or if a word is unfamiliar.
- Use the Redo button to reread a passage.
- The blue progress bar indicates the amount of text remaining to read.
- Be sure to continue reading until the program prompts you to click the Finish button; otherwise, the program will not save the reading you have completed.

When you complete the last paragraph in the story, the Congratulations window appears.

4. Click OK.

   The program now begins adapting to your voice. It will take a few minutes for the program to adapt and save your speech/voice file.

5. Turn off your microphone.



Accuracy Check

The iCommunicator program now has a minute sample of your speech and voice patterns. You will now complete an Accuracy Check to determine how well the program is able to translate your speech. Return to the main screen of the iCommunicator program to complete the Accuracy Check.

The Accuracy Check prepared script is provided in Appendix B. The Accuracy Check contains two phonetically balanced paragraphs "The Rainbow Passage" and "My Grandfather". Follow the directions and read the two paragraphs, including the titles (232 words).

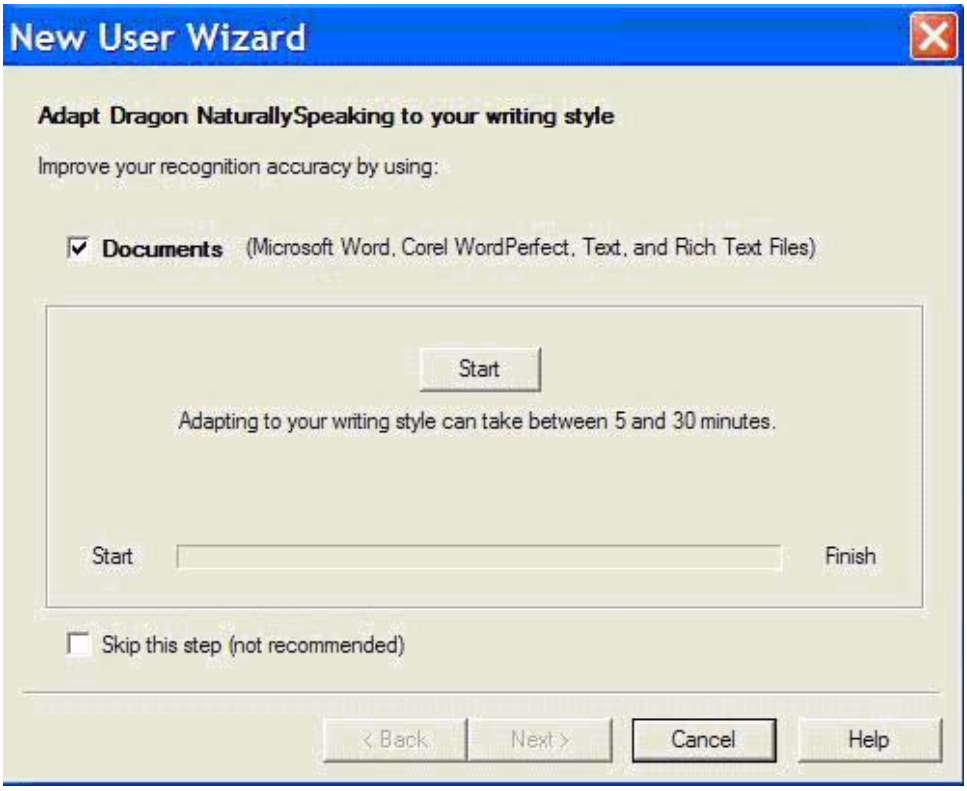
1. Turn on your microphone.
2. Use your presentation voice and read the paragraphs.
3. Compute your accuracy using the chart at the bottom of the page.

Tip: Expect some inaccuracies at this point, since the iCommunicator program has only a small sample of your speech and voice characteristics. If your accuracy is below 90% you may choose to read a second story by accessing Run General Training. Go to the Options Menu, Speech Recognition, and select Run General Training.

Adapting to Your Writing Style

You have now completed the Initial Speech/Voice Recognition Training. The initial 5 to 7 minute reading, followed by some vocabulary building, should be sufficient for most speakers to achieve a very high rate of speech-to-text translation accuracy. Speakers can choose to complete a second reading by following the Run General Training process described later in this module.

After the program adapts to your speech and voice patterns, the New User Wizard invites you to adapt Dragon NaturallySpeaking to your writing style. This step is recommended to increase translation accuracy, and only requires that speakers provide files for the program to analyze. If a speaker has files on the computer, this is recommended, because it will increase the speaker's overall recognition accuracy when he/she speaks to the computer. The program will analyze the following types of files: Text, Rich Text Format, Microsoft Word, and Word Perfect. A speaker may wish to load technical documents, a vocabulary list, and other information available in electronic format. If you are analyzing only a few documents, the process should take only a few minutes.



If you wish to skip this step, click inside the box.

A tutorial is available by clicking the appropriate box on the next screen exercise.

Return to page 77 and complete *Create a New User, Calibrating the Microphone,* and the *Accuracy Check.*

Follow the steps to complete the Initial Speech/Voice Recognition Training process.

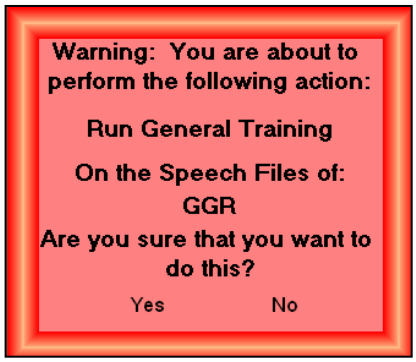
Run General Training

If you did not reach 90% accuracy on the Accuracy Check, read one more story to build a representative speech/voice file. You will complete an Accuracy Check following the selection.

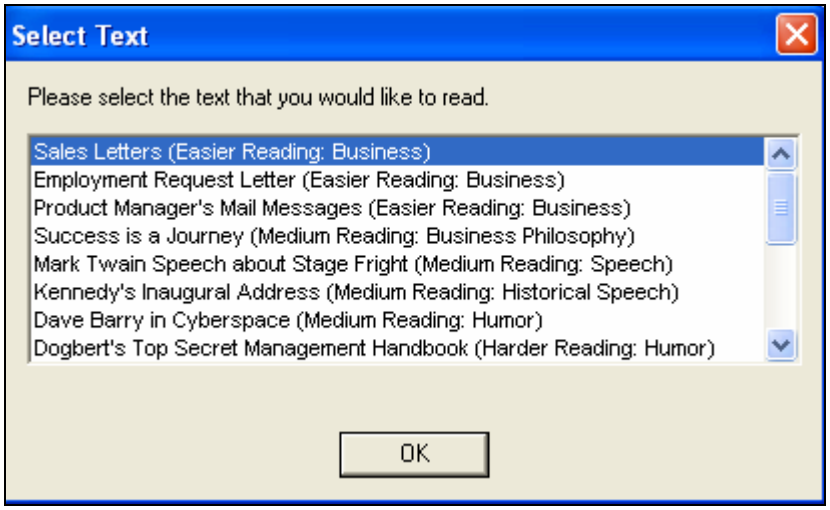
Tip: Remember to use the Pause, Skip, and Redo buttons as needed during this dictation process.

1. From the Options menu, select Speech Recognition ▸ Run General Training

2. A red warning screen appears. Select Yes to proceed.



4. The Select Text window displays. There are seventeen selections, ranging from easy to difficult reading, and covering various topics such as adventure, humor, science fiction, historical speeches, and classic literature.



Reading Selection

1. Highlight and select a story from those displayed.

   Tip: Some selections contain humor. The speech recognition engine will attempt to translate laughter as speech.

   You will read two introductory screens ("Welcome to General Training." and "Training is about to begin.") before reading your selection. It will take about ten minutes to read the story.

5. Turn on your microphone.

   Tip: Remember to use the same presentation voice that you used while reading the first selection.

6. Read the second selection.

Accuracy Check

The iCommunicator program now has approximately a 15-20 minute sample of your speech and voice patterns. You will now complete an Accuracy Check to determine how well the program is able to translate your speech. Return to the main screen of the iCommunicator program to complete the Accuracy Check, as you did following the initial reading.

1. Turn on your microphone.
7. Use your presentation voice and read the paragraphs.
8. Compute your accuracy using the chart at the bottom of the page.

   Tip: Expect some inaccuracies at this point, since the iCommunicator program has only a small sample of your speech and voice characteristics. You will see your accuracy improve after reading the second selection.

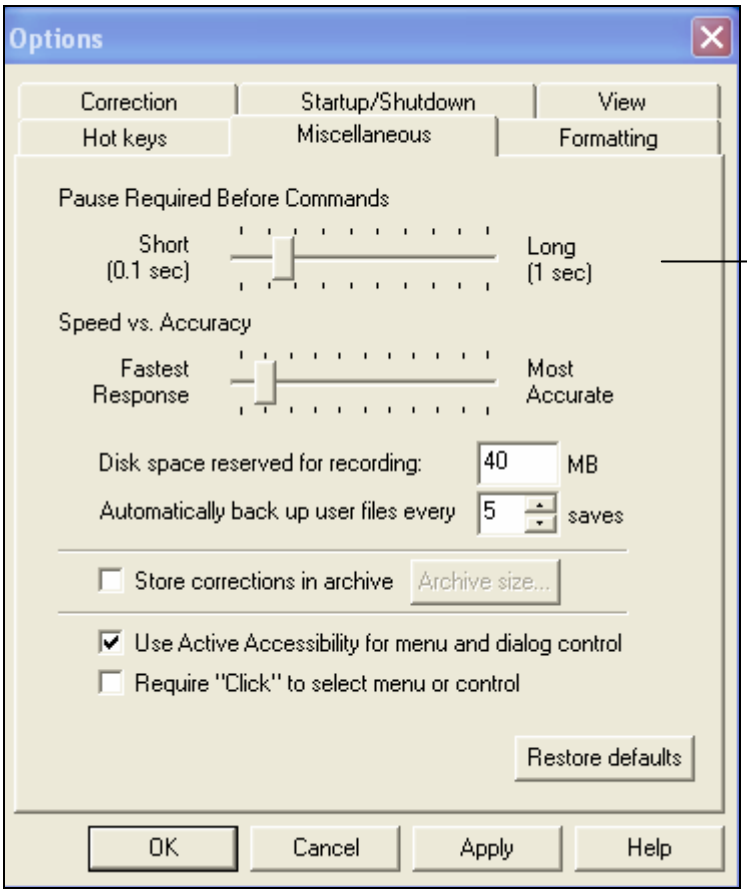
You have now completed the initial speech/voice recognition training. In the next module, you will begin to customize your speech/voice recognition file using vocabulary building activities.

Speed Vs Accuracy Adjustment

Sometimes the speech recognition engine requires a little fine tuning if you find it is mistranslating words. There is an adjustment within Dragon NaturallySpeaking called Speed Vs Accuracy that adjusts how much processing time it uses for speech/voice recognition.

The Speed Vs Accuracy option adjusts the number of words and phrases that the program evaluates in order to find a word match. The more words examined, the greater the possibility of an accurate match, although it make take slightly longer for the program to recognize your speech. The default is set for the fastest response. You can make an adjustment so that the program will take a little more time as it makes the decision about what words to translate. This change will only apply to your speech/voice file. Other speakers may choose to make this adjustment to their file later.

It is unnecessary to make an adjustment to the Pause Required Before Commands. The default setting at 250 msec. is appropriate for most speakers.



Move the slider for Speed Vs Accuracy 1 or 2 graticals to the right to allow the program slightly more time to make translation decisions.

Follow these steps to make the adjustment.

1. Open the Start menu on the taskbar. Select Programs ▸ Dragon NaturallySpeaking.
2. The Manage Users screen appears. Select your speech/voice file and click Open.
3. The Dragon Menu Bar appears. From the Tools Menu, select Options ▸ Miscellaneous.
4. Move the Speed Vs Accuracy slider one or two graticals to the right. Click Apply and then click OK.
5. Close the Dragon program and return to the iCommunicator main screen.
6. Run Audio Wizard again after changing this setting.
7. Complete another Accuracy Check. Then speak into your microphone and determine if this adjustment has made an improvement in translation accuracy.

Module 3 Review

True or False

____ 1. For speech/voice recognition to work properly, you must select BestMatch III as the speech model.

____ 2. You must perform every step in the New User Wizard to create a new user.

____ 3. Proper use of the microphone and careful calibration of the system's audio quality are two factors that significantly affect the accuracy of speech/voice recognition.

____ 4. The speech recognition engine will perform accurately even if you train the program using your reading voice and dictate into the computer using your speaking voice.

____ 5. Rerun Audio Wizard every day before you use iCommunicator.

Multiple Choice

6. Which should you always check before creating a new speaker?
   a. Make sure your transmitter and receiver are turned on and receiving adequate power.
   b. Make sure the transmitter and receiver are set to the same frequency.
   c. Make sure the audio button on the transmitter is set to the ON position.
   d. All of the above.

7. The benefits of reading more than one selection during speech/voice recognition training include:
   a. more opportunity for iCommunicator to learn to recognize your voice.
   b. exposure to more words and a larger vocabulary.
   c. a higher degree of speech recognition and speech-to-text translation.
   d. All of the above.

8. When you dictate into the microphone, you should always
   a. speak as quickly as possible.
   b. speak as slowly as possible.
   c. speak clearly and enunciate your words.
   d. none of the above.

Check your answers using the Answer Key in the Appendix.

Module 4
Vocabulary Building

Module 4 Module Objectives

In this module, you will learn the skills necessary to:

- use the Vocabulary Builder
- add vocabulary from a document file
- use the Vocabulary Editor
- correct translation errors

Preview: Vocabulary Building

During each phase of speech/voice recognition training, the words you speak become part of a basic vocabulary stored as your speech/voice recognition files. The iCommunicator program relies upon this vocabulary to recognize and translate your speech efficiently and accurately.

In real life, we seldom restrict our speech to basic vocabulary alone. Names, places, and unique terminology are essential to conveying our messages. It is very likely that some of the terminology that speakers use will exceed the basic vocabulary assembled by the iCommunicator program during speech/voice recognition training. When the program attempts to recognize these unfamiliar words, its translation falls to guess-work. Mistranslations may also occur if the spoken word or phrase sounds very similar to the word or phrase that the iCommunicator program translated.

Fortunately, the iCommunicator program offers several ways to add specialized terminology using the Vocabulary Builder and the Vocabulary Editor. The Vocabulary Builder analyzes the contents of a document file, and identifies words not included the iCommunicator program's lexicon. Vocabulary Builder invites you to select and train unfamiliar words so that the speech recognition engine will recognize the words when you speak them.

The Vocabulary Builder can analyze text in list form, or as a normal text passage. Words saved in list format (one word or phrase per line) add to the vocabulary in batch. You can also analyze documents, such as a technical article, chapter summary, or glossary of terms, and add the unknown words at your discretion.

The Vocabulary Editor provides an interactive way to add new words to your vocabulary. Using the Vocabulary Editor, type the words you wish to add to the program's vocabulary. Vocabulary Editor lets you specify one form of the word for its spoken form (e.g., "Doctor") and another form of the word for its written translation (e.g., "Dr."). Another example is the use of acronyms, such as IRS and its written counterpart, Internal Revenue Service.

After you enter new vocabulary words and train the program to recognize the words, errors sometimes occur. The speech recognition engine lets you correct such errors using a simple voice activated command known as "Correct That". Building and refining your vocabulary and training the program to recognize new words will improve your accuracy and the iCommunicator program's effectiveness as a communication access tool.

Vocabulary Building Overview

Vocabulary Builder analyzes documents that already exist. The vocabulary building process gathers information about your specific writing style and identifies unfamiliar words so you can add them to customize your speech/voice file. After you add and train new words, you will need to save your speech file by accessing the Options Menu ► Speech Recognition ► Save Speech File.

The greatest advantage of adding vocabulary in this manner is speed. The iCommunicator program can analyze a document and add a large number of words to your vocabulary far quicker than you can by individually entering each word.

Vocabulary changes apply only to the current speaker. If several speakers have speech/voice files that will be used with the iCommunicator program, and each uses a specialized vocabulary, then each speaker must add the vocabulary to his or her speech/voice recognition file.

Begin to make a list of words and phrases that are unique to your use of the iCommunicator program. For example, *iCommunicator* is a word that is not in the program's dictionary, and each speaker must add this word. You will note that *iCommunicator* is on the vocabulary list in the text file you downloaded from **www.myicommunicator.com**.

Analyze Documents

By Analyzing documents, you have the opportunity to personalize a vocabulary to more closely match your writing style that typically reflects your speaking style, particularly in the area of vocabulary usage and phrases. Analyze existing documents or manuscripts, electronic forms of textbooks, or reference documents, word lists, class, or employee lists, glossaries, and similar materials to build and customize your speech/voice recognition file.

Tip: Analyze a word list as a document rather than as a list. You will then have the opportunity to train the program for words not recognized.

Saving Speech/Voice Files

Tip: Always save your speech files after making vocabulary changes.

If you forget to do this, the program prompts you to do so the next time you change speakers, or exit the iCommunicator program.

1. From the options menu, select Speech Recognition ▸ Save Speech Files.
2. This is the only way to save your recordings. Choosing the Save option under the file menu saves only the text in the Text window (not speech files).

9. A red warning screen appears.
10. Click Yes and proceed.

Acronyms and Other Unique Text

You can add acronyms or other text, and then have the program show the actual words, or vice versa. Some examples follow.

Spoken Form	Written Form
IEP	Individual Education Plan
United States of America	USA
my email address	info@myicommunicator.com
our website	www.myicommunicator.com
my telephone number	123-456-7000

Add common phrases, colloquial speech, and contemporary phrases to your speech/voice file using the Vocabulary Editor. Some examples include: good morning, good afternoon, instructional technology department, deaf and hard of hearing, fixin' to, and Better Hearing and Speech Month.

Working with Document Text Files

Dragon NaturallySpeaking allows for documents saved in the following formats to be analyzed under a speaker's speech/voice file. Existing documents, or files from the Internet, such as classic literature, can be saved in one of these formats for analysis. Consult the Dragon help menu for useful information about preparing documents to add to the vocabulary.

- ASCII text (.txt)
- Microsoft Word (.doc)
- Rich Text Format (.rtf)
- Corel WordPerfect (.wpd)
- HyperText Markup Language (.htm or .html)

Scanning Documents for Vocabulary Building

Scan documents such technical reports, chapter summaries, glossaries, and other information pertinent to the speaker's typical vocabulary. The scanner must have optical character recognition (OCR) capability so that the program can read the words as text. Save the scanned document as a text file in .rtf format.

Vocabulary Builder: Analyzing Documents

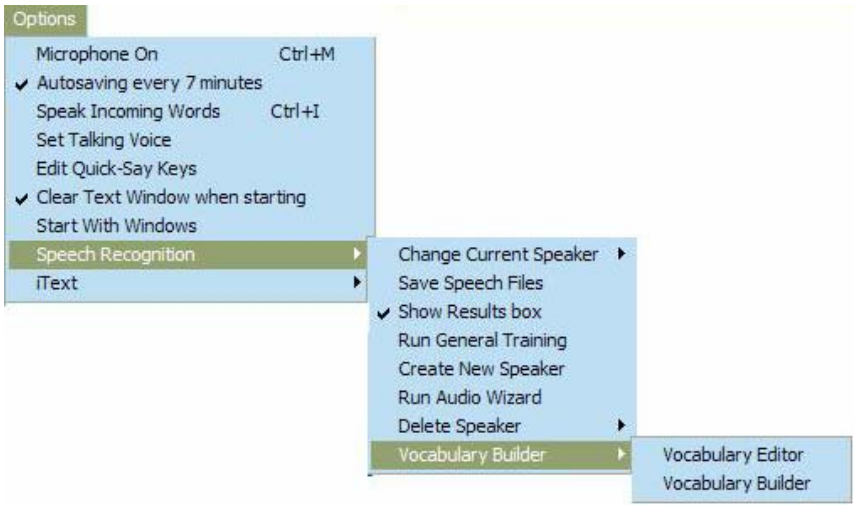
You will complete several exercises as you proceed through this portion of the training manual. Later, you will continue vocabulary building to improve translation accuracy.

System Check

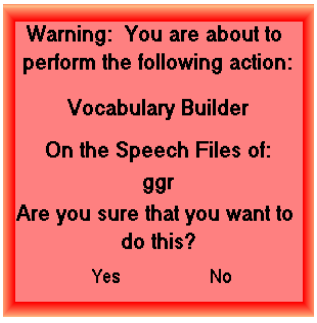
1. Check your system using the System Checklist appropriate for your microphone (i.e., professional or standard).
11. Make sure that your name displays in the Current Speaker window.
12. In the Control window, click the Microphone Status Bar or Microphone On/Off button so that the microphone is off, that is, totally black.

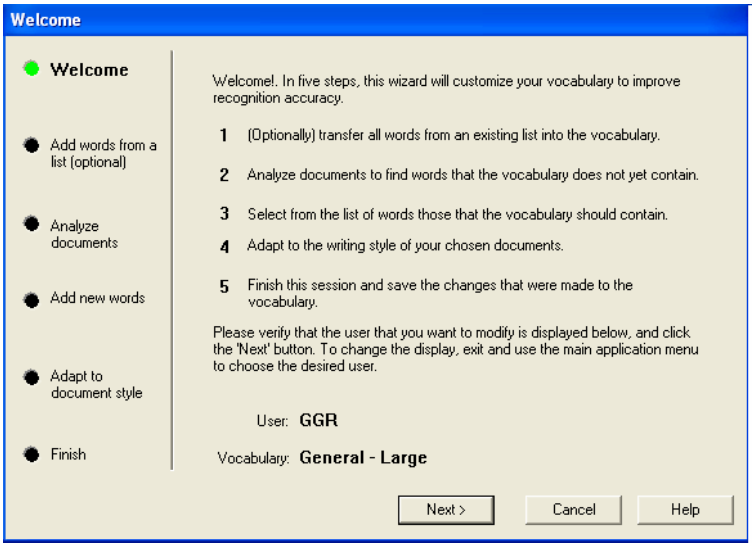
Starting Vocabulary Builder

1. From the Options menu, select Speech Recognition ▸ Vocabulary Builder ▸ Vocabulary Builder.



13. A red warning screen appears. Click Yes and proceed to the next screen.
14. The Vocabulary Builder Welcome Screen appears.
15. Read the information on the screen and click Next.





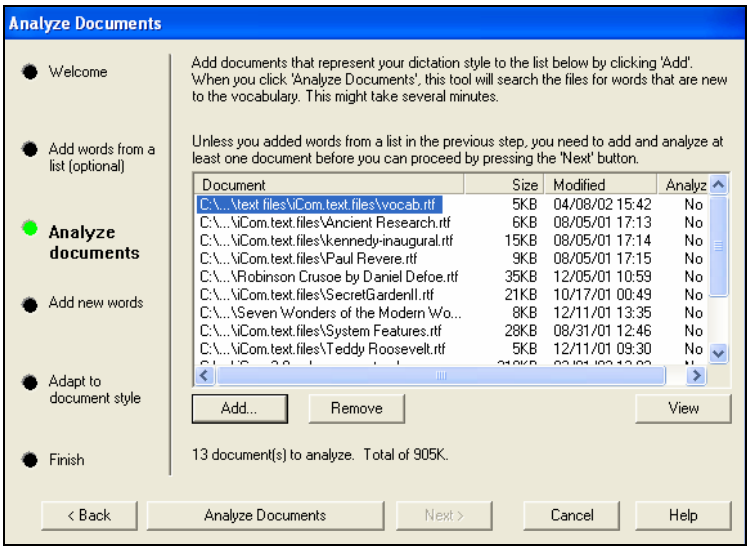
At this point, the Vocabulary Builder advances to the Add Words From a List dialog box. Only use this feature if the file you wish to analyze is a word list. Using this feature to analyzing the word list will not give you the opportunity to train words. We recommend that you use the Analyze Documents feature to analyze word lists so that you will have the opportunity to train unfamiliar words.

Analyze Documents

To analyze a document:

1. Click Next.

   The Analyze Documents dialog box appears.



16. Click Add.

17. Click Browse to locate your text file(s).

18. Select one or more text files to analyze.

Tip: You can select multiple documents to analyze by holding down the Control key while you click to select files.

19. Click Open. The file path name then appears on the Vocabulary Builder screen.

20. Choose the Analyze Documents button**.**

This process is very quick. You will notice that as document analysis completes, the comment in the Analyzed column changes from No to Yes.

21. When the program is finished processing all of your text files, click Next.

Exercise:

1. From the File menu, select Open, and then select the Temp File (or another file where you stored text files).

22. Click on the first file.

23. Press and hold down the Control key while you click on all of the other files in the folder.

24. Click Open. (All of the files now appear in the Analyze Documents window.)

25. Choose Analyze Documents. (Observe as the No changes to Yes in the Analyzed column.)

Add New Words

Review the steps in this process, and then complete the exercise.

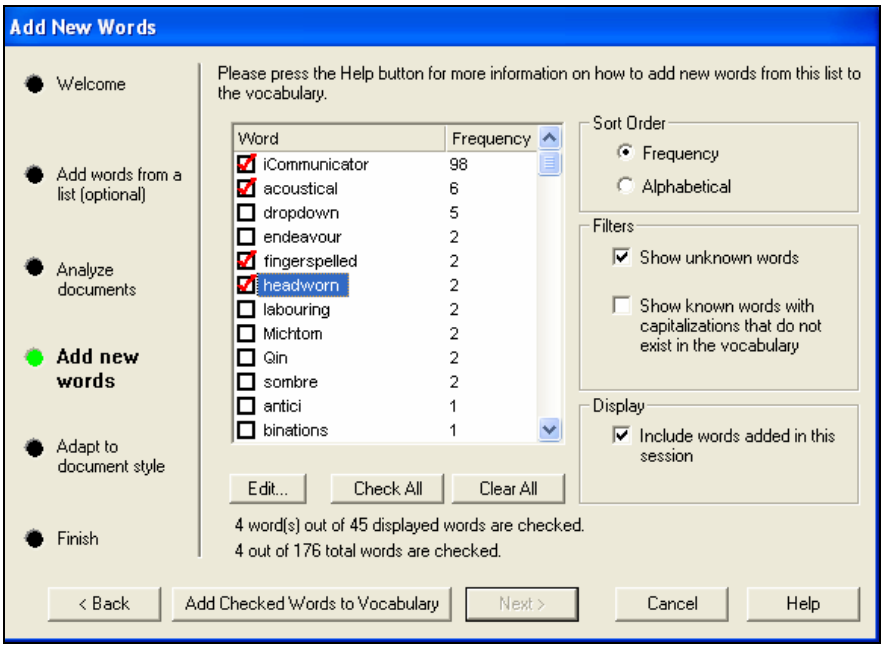
After the program finishes analyzing your text documents and you choose Next, the Add New Words screen appears. Words that the program does not recognize appear here. The number of times each unfamiliar word appears in the file analysis displays in the Frequency column.

1. If you want to change the default settings, select options using the radio buttons and checkboxes on the right of the screen.

26. Most users find that the default settings are adequate.

27. Check each word you want to add to your vocabulary. If you wish to add all the words, simply click the Check All button.

28. Correct misspelled words using the Edit button.



29. Use the Edit button to add a word (or abbreviation) that has a different spelling than the written form. For example, to say IRS but have the program display Internal Revenue Service, use the Edit button to make the appropriate changes.

30. When you finish your selections, choose the Add Checked Words to Vocabulary button.

Exercise:

1. Click inside the box beside each word you want to add to your vocabulary.

   Note: Select the box beside the word *iCommunicator*.

31. If words are misspelled, click Edit, and then correct the spelling.

32. After selecting which words to add, choose the Add Checked Words to Vocabulary button.

Train Words

Review the information in this section and then complete the exercise.

A dialog box displays and asks if you want to train the new words.

1. Choose Train.

   The Train Words dialog opens.

33. Turn on the microphone.
34. Say Go, and then say each word as it appears in the text box.

    Use your presentation voice. The microphone bar changes from yellow to green when you say each word. If a second or third bubble appears, that is your prompt to repeat the word.

35. Choose Done when you finish training.
36. Turn off the microphone.

Adapting Vocabulary

Proceed through the remaining steps to complete the Vocabulary Builder exercise. You can follow this procedure to analyze additional documents in the future.

1. When you finish training all words, the Add New Words dialog box appears again. Click Next.

37. The Adapt to document style dialog box appears. Accept the default settings, and click Next.

38. Choose Finish, and then confirm by clicking Yes.

39. Save your changes (from the Options menu, select ▸ Speech Recognition ▸ Save Speech Files).

40. A red warning screen appears. Click Yes to save your speech/voice file.

Vocabulary Editor

Purpose

Use the Vocabulary Editor to enter and train individual words you want to add, or to delete unwanted words. When Vocabulary Editor opens, you can view the entire vocabulary. It contains approximately 250,000 words. The vocabulary changes you make to your speech/voice file will apply only to your file and not to other speaker's speech/voice files.

You can also use Vocabulary Editor to customize the vocabulary in your speech/voice recognition file. When the written form and the spoken form of a word are different, such as scientific terminology, abbreviations, and acronyms, use the Vocabulary Editor to input these differences.

Examples:

Written Form	**Spoken Form**
A+	A plus
Inc.	Incorporated
Hz	Hertz
Ti	titanium
fixing to	fixin' to
www.isi-iCommunicator.com	our website
hill	heel (regional dialect)

Complete the sample exercises as you proceed through this section. You may then add other words using Vocabulary Editor.

Getting Ready

Follow these steps to use Vocabulary Editor.

1. Check your system.

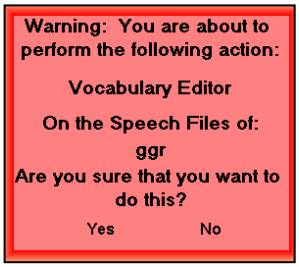
41. Verify that your name appears as the current speaker.

42. Verify that the microphone status bar is on (yellow) before opening the Vocabulary Editor.

    Tip: Because the microphone is live, it is important that you do not speak until it is time to train words; otherwise, you will find unwanted letters in the text box, along with the word you wish to add and train.

43. From the Options menu, select Speech Recognition ▸ Vocabulary Builder ▸ Vocabulary Editor. (Refer to the figure under *Starting Vocabulary Builder*, page 100.)

44. A red warning screen displays. Click Yes to proceed.

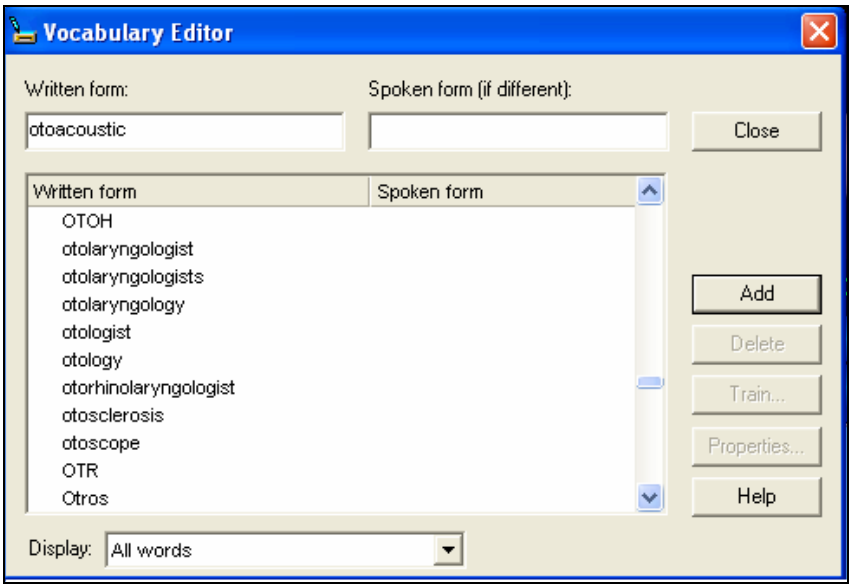


When Vocabulary Editor opens, you can scroll through the entire vocabulary. To determine if a word is included in the vocabulary, simply type the word. When the program finds the word, it displays in the list, highlighted. If it is not in the program's vocabulary, it does not appear in the list.

Adding and Training Words

1. Type a word such as *otoacoustic* to see if it is in the vocabulary.

45. If the word does not display in the vocabulary list, choose Add. The word then appears in the list.



46. Click Train.

    The Train Words dialog opens. You then train the program to recognize the word's pronunciation.

The following procedures are the same in both Vocabulary Editor and Vocabulary Builder.

1. Choose Train.

   The Train Words dialog opens.

47. Turn on the microphone.
48. Say Go, and then say the word that appears in the text box. Use your presentation voice.
49. Choose Done when you finish training the last word.
50. Turn off the microphone.
51. Save your speech files. (From the Options menu, select Speech Recognition ▸ Save Speech Files.)

Correcting Errors Using "Correct That"

Purpose

Sometimes the iCommunicator program is unable to translate a word or phrase correctly, especially technical vocabulary or uniquely spelled names. The word must be included in the program's vocabulary in order for accurate translation to occur. You must add unfamiliar words using Vocabulary Editor or Vocabulary Builder or by using the Spell dialog box.

You can choose the Correct That feature to correct a word or phrase that translates incorrectly. It is not recommend that you use Correct That to add vocabulary. Use Vocabulary Builder or Vocabulary Editor to add new words. New words can be added using Spell That, which is available through the Correct That process, however, there are some limitations. For instance, you cannot use the Spell That dialog box to add a word that has hyphens or spaces, such as "Smith-Jones" or info-iCommunicator, because the program recognizes each part of such a word as a separate word. To add these types of words, use the Vocabulary Editor.

It is important not to repeat words that appear incorrectly. Correct them the first time you see the inaccurate translation. When you select Save Speech Files, the program saves everything you say (both correctly and incorrectly), even when text box is clear. The only way to begin anew is to exit (without saving) and return, or change to another speaker.

Some commands for using the "Correct That" feature may be voice activated.

Using "Correct That"

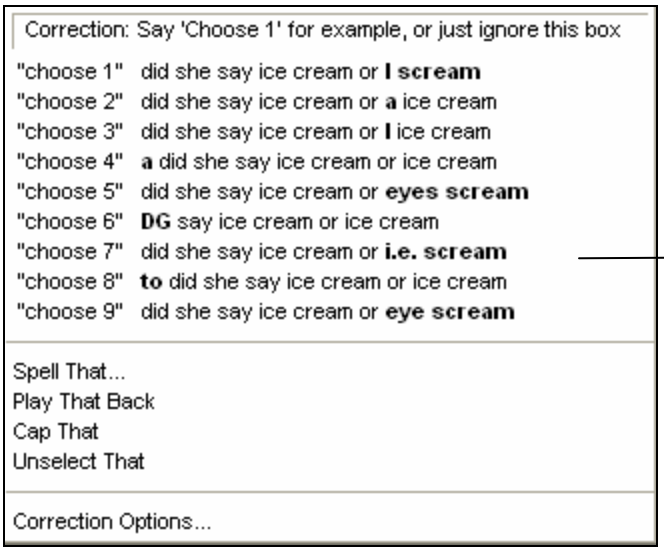
Use the following steps to correct a word:

1. Repeat the word once so that it appears (incorrectly translated) on a line by itself.

   Tip: If the word appears correctly, you will not need to correct it.

2. Say, **"**Correct That.**"** Wait a moment, and the Correction window will appear.

   Tip: You may use other voice commands such as *select, go, train, record,* and *done* to easily navigate through this process.



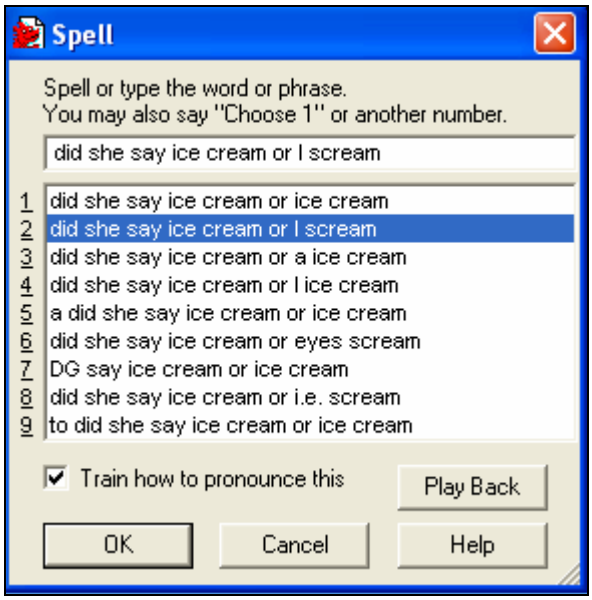
The Correction window displays alternatives based on word predictability. If the correct translation is not a choice, click Spell That.

52. Select the correct word or text from the numbered list of recognition alternatives.

    In the example above, the speaker actually said, "Did she say ice cream or I scream?"

53. If the correct alternative is not a choice, select Spell That…

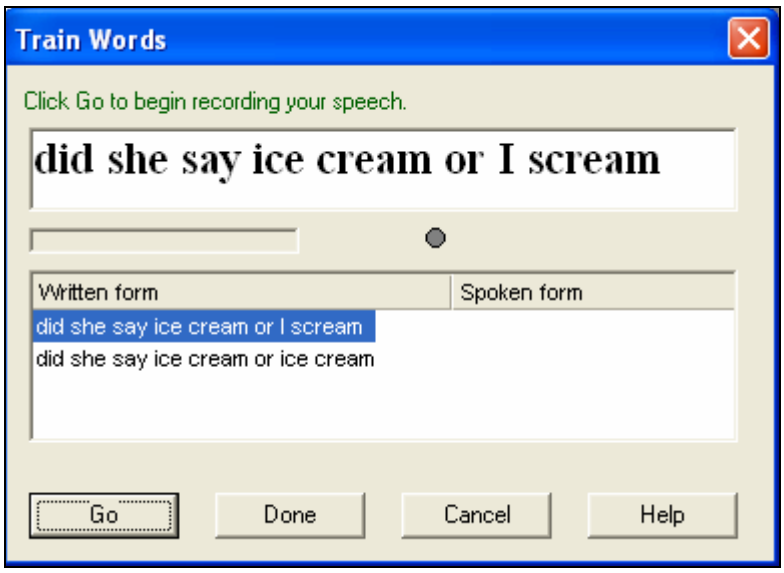
    The Spell That dialog box appears.



54. If the correct text is displayed, click the number or say "Choose "x", where "x" is the number of the correct text. If the correct text is not displayed, type it in the text box.

55. Click inside the "Train how to pronounce this" box. Then click OK.

    The Train Words window displays both the correct and incorrect word(s).



    Teach the program how each word sounds as you record them. It is very important to distinctly note the pronunciation differences between the two written texts. Sometimes two or three bubbles will show on the right, and this means the program wants you to repeat the word one or two more times. In this example, the speaker initiates the Go command and then repeats both sentences. This teaches the program to differentiate between the two sentences.

56. Click (or say) Go.
57. Speak the first word or phrase as it appears in the top box.
58. Speak the second word or phrase when it appears.
59. Click or say Done.

    The Train Words window closes.

60. Say the word or sentence again to confirm that the program now recognizes it.
61. Save your speech/voice files. (From the Options menu, select Speech Recognition ▸ Save Speech Files.)

You can also correct words or phrases by saying, “Correct x”, where (x) is the targeted word or phrase. This correction method is useful when you review your translations and find a conversion error. The training process is the same as Correct That**.** You can also say “Select x” instead of “Correct x” to correct text using voice commands.

After correcting a word or phrase, return to the main screen of the iCommunicator program. Speak the word in a few sentences or phrases to confirm that the program recognizes it in context. Then save this correctly translated text to your speech/voice file.

Continuing to Fine-tune the Speech/Voice Recognition File

Continue building your speech/voice recognition file until you achieve 90% or better accuracy. Most iCommunicator users achieve 90% accuracy with the recommended phonetically balanced paragraphs they use to complete the Accuracy Checks. Improvement beyond that usually requires additional dictation. The more you dictate, the more opportunities the program has to listen to your speech and voice characteristics, and to fine-tune the acoustical, linguistic, and lexical model.

The following summarizes speech/voice recognition activities that aid in building your speech/voice file and help you achieve good translation accuracy.

- Use the common phrase and sentence lists in Appendix B. Record a set of ten, then make corrections and save. Repeat with additional sets of ten. Also add colloquial expressions.

- Analyze documents you have available on disk or CD.

- Take the time to add words that are specific to the vocabulary you use in the classroom or workplace. Examples include names of students and co-workers, technical vocabulary and phraseology, commonly used acronyms, and colloquialisms.

- If you notice problems with translation accuracy, rerun Audio Wizard.

- Remember that iCommunicator is not as smart as you are! It does not know what you meant to say. It needs to hear acoustical boundaries between words in order to translate your speech accurately.

- Refer to Speech and Voice Recognition Training Tips, page 73, for additional information.

- You can store speech/voice recognition files on a server, zip disk, or CD when a speaker is not using the iCommunicator. When the need arises again, reload the file on the computer. The speaker then runs Audio Wizard and updates vocabulary, if needed. Refer to the Archiving and Retrieving S/V Files iTip on page 117 for more information.

- Another option is available through Dragon NaturallySpeaking. From the Start menu in the taskbar, select Programs ► Dragon. The Manage Users screen appears. Select your voice file and choose Open. Go to the Tools menu on the Dragon Menu bar, and select Accuracy Center. Here you will find some helpful tips for fine-tuning your speech/voice file, as well as troubleshooting tips.

- Another very useful tool available in Dragon's Accuracy Center is the Acoustic Optimizer. As you make corrections and add to your speech/voice file, the speech recognition engine archives this acoustic information and uses it to enhance recognition accuracy. The Acoustic Optimizer accumulates this data from each training session. It will take some time for the Acoustic Optimizer to process, so make sure that you run this option when you have time available for the computer to be unoccupied with other programs running. The Acoustic Optimizer dialog box will display the amount of time to finish adapting your user files and display a progress bar to indicate how much of the job is complete.

Top Ten Tips for Successful iCommunicator Program Use

1. End user needs and program features match.

   A match must exist between the end user's communication access needs and the iCommunicator features. It must be the right technology, for the right end user, for the right application, and implemented in the right way for maximum potential. (Refer to *Appendix A*

   iCommunicator Candidacy Criteria Considerations for further information.)

2. Train end users and speakers.

   End users and speakers need thorough training. Training opportunities are available through authorized iCommunicator resellers. Contact 1450, Inc. for details.

3. Implementation Managers

   Identify implementation managers and train them in all aspects of the program, from training to troubleshooting. These individuals serve an important role in successfully implementing the program.

4. Consistency, consistency, consistency!

   Successful speech translation requires consistent vocal effort, speech and vocal patterns, and microphone placement.

5. Judicious use of the mute switch.

   Using the transmitter's mute switch enhances translation accuracy. The mute capability prevents the program from processing unwanted verbiage and sounds.

6. Routine System Check**.**

   This becomes a shared responsibility between the end user, speakers, and the implementation manager. Translation accuracy degrades when the program and its peripherals are not performing optimally.

7. Rerun Audio Wizard.

   Run Audio Wizard any time there is a change in the speaker's voice, the acoustical environment, the microphone, or the computer's sound card. You should also rerun Audio Wizard when you notice

degradation in translation accuracy, or when the iCommunicator's microphone status bar shows red (redlining) while speaking. Audio Wizard completes in less than a minute.

8. Add New Vocabulary**.**

   Speakers should add new vocabulary as necessary to ensure that new technical terms, names of colleagues, and other such terminology are input to the program to enhance translation accuracy.

9. Not a replacement for sign language interpreters – an alternative**.**

   The iCommunicator is not intended to replace sign language interpreters, but is an alternative for situations where its capabilities meet the end user's needs and/or specific application. Due to the concern about literacy levels of persons who are deaf or hard of hearing, iCommunicator delivers American Sign Language (ASL) signs in English word order. The iCommunicator has applications for others who face communication access challenges.

10. Call for assistance and check for update information**.**

    For technical assistance, contact Customer Service. at 800-245-2133. Visit our website at www.myicommunicator.com for periodic updates. Use the website and the toll free number to share your comments and ideas with us.

Module 4 Review

True or False

____ 1. You type new vocabulary words into the Vocabulary Builder.

____ 2. You can display the entire vocabulary in the Vocabulary Editor.

____ 3. The Vocabulary Builder can analyze a text file saved in .doc, .rtf, .xls or .txt file formats.

____ 4. You should train any new words you add to your vocabulary.

____ 5. You should repeat a mistranslated word a second time before using the *Correct That* command.

Multiple Choice

6. Which is *not* correct regarding the *Correct That* command?

   a. You select the *Correct That* command from the menu in the Dragon NaturallySpeaking dialog box.
   b. You verbally speak the *Correct That* command.
   c. Issuing the command opens the Correction dialog box.
   d. Possible replacement words are listed in the Correction dialog box.

7. The Vocabulary Editor

   a. is an appropriate tool for quickly adding a large number of vocabulary words.
   b. analyzes a text file for unknown words.
   c. is used to save your speech files.
   d. lets you type in and train new vocabulary words.

Check your answers using the Answer Key in the Appendix.

Archiving and Restoring Speech/Voice Recognition Files

There may be times when it is necessary to backup a speaker's speech/voice (S/V) file:

- a speaker completes S/V recognition training on one computer and needs to transfer the S/V file to another computer
- to remove a speaker's S/V file from a computer and save it for future use

A speaker's S/V file is typically 30 to 40 MB, but may be more than 80 MB. This file size limits storage to Zip Drives, Local Area Network (LAN), LS-120 SuperDisk Drives, or CD-R(W) Drives. Follow the procedures below to archive and restore a speaker's S/V recognition file. Review each procedure before initiating the process.

Location

Each speaker who establishes a speech/voice recognition file within the program has his or her own named folder inside the User's folder.

Speech/voice recognition files for iCommunicator Version 4.0 are located in C:\Program Files\Dragon\NaturallySpeaking\Users\Speaker S/V file name.

Archive Procedure

Use Windows Explorer to copy S/V files to the appropriate external device destination, such as a Zip Drive, LAN, Superdisk Drive, or CD-R/W.

1. From the Windows Start button, select Programs ▸ Accessories ▸ Windows Explorer.

62. To back up all S/V files on the computer system, navigate to the User folder (My Computer, C: Drive, Program Files, Dragon, NaturallySpeaking, Users, Speaker S/V file name). Select the User folder, and then copy it to the appropriate destination.

63. To backup a specific S/V file, navigate down one level and then select speaker's S/V folder you wish to backup. (From the left panel select My Computer. Then select the following path. C:\ProgramFiles\Dragon\NaturallySpeaking\Users\ Speaker S/V file name).
64. Copy the speaker's S/V folder to the appropriate destination.

Restoring Speaker S/V Files

1. To restore **all** speakers, copy the previously backed-up User folder to drive C:\Program Files\Dragon\NaturallySpeaking.

   Tip: This process replaces all speaker files currently recognized by the iCommunicator program. If the S/V files recognized by the program are valid, use the backup procedure described above before you initiate restore process.

65. To restore a specific S/V file, copy the speaker's S/V backup file to drive C:\Program Files\Dragon\NaturallySpeaking\Users\Speaker S/V file name
66. Start iCommunicator.
67. From the Options menu, select Speech Recognition ▸ Create New Speaker.
68. Enter the correct voice file name in the Your Name field, and then continue until the Audio Wizard Setup is complete.
69. Select Cancel and close the iCommunicator program.
70. You must run Audio Setup the first time you use the restored S/V file.

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Appendix A

iCommunicator Candidacy Criteria Considerations

Individuals with Communication Challenges: The Need and Feature Match

Candidacy Criteria Considerations

User Characteristics and Skills

The iCommunicator program provides communication accessibility for persons who are deaf or hard of hearing and other persons with unique communication challenges. The Candidacy Criteria Considerations include end user characteristics and skills that should be considered by evaluation and planning teams (e.g., assistive technology, IEP, transition, rehabilitation), disability coordinators, human resources departments, and other decision-makers to determine the appropriateness of this communication access technology for a specific end user or special applications in a variety of settings, such as education, workplace, and public venues.

Special Communication Needs

Individuals with special communication access needs, such as those listed below, may be candidates for the iCommunicator program.

- Deaf or hard of hearing
- Significant speech or voice disorder
- Learning disability (e.g., dysgraphia)
- Auditory processing disorder, learning disability, and/or severe language impairment that results in difficulty with multitasking and notetaking
- Attention deficit disorder that results in the need for notetaker assistance
- Visual impairment (e.g., low vision)
- Physical impairment
- English as a Second Language (ESOL)

Independent Use: Candidacy Criteria Considerations

These characteristics, abilities, and requirements should be considered by the evaluation and planning teams when determining if the iCommunicator program is the appropriate communication access technology. The criteria considerations for independent use should be factored into the evaluation and planning process to reach an informed recommendation. Communication access needs should be identified in order to determine effectiveness gains. For use as a learning station in a

classroom or other facility, there are no limitations, as the use of the iCommunicator program would be under the direction of the classroom teacher, supervisor, or other professional.

1. Communication Access Needs (i.e., workplace, education, lifestyle)
    - a.
    - b.
    - c.
2. Age of user
3. Cognitive level
    - Ability to learn and remember new procedures
    - Ability to troubleshoot and/or problem-solve
    - Attention span
    - Divided attention (i.e., ability to divide attention among windows displayed, the speaker, and other visual displays in the environment)
    - Working memory
4. Language level and primary mode of communication (receptive and expressive language skills)
    - Language processing ability
    - Vocabulary level
    - Language comprehension level (e.g., ability to chunk information, use tag words as meaning clues)
    - Ability to derive meaning using contextual clues
5. Reading comprehension level
    - Word recognition level (i.e., at least second grade level)
    - Spelling ability
    - Grade equivalent/Standard Score
    - Visual processing speed
6. Personal Characteristics
    - Motivation to use the iCommunicator software program
    - Responsibility and maturity
    - Self-discipline
        - Patience with using this type of technology
        - Appraisal by teacher(s)/supervisors and parent/caregiver

7. Computer literacy

    - Keyboarding skills
    - Ability to navigate the Windows operating system
    - Need for external mouse or other peripherals

8. Purpose for use (e.g., classroom instruction, access in the workplace, access to services)

    - Content (e.g., core subject area, therapy tool, staff meetings, training, counseling, intake data)
    - Delivery style (e.g., primarily lecture, highly interactive, small groups, one-on-one)
    - Willingness of speakers to provide accessibility by creating a speech/voice recognition file and using the technology
    - Amount of use per day
    - Availability of back-up plan for when iCommunicator interface is unavailable

9. User supports

    - On-site and off-site staff support
    - Technical support
    - Resources (batteries, transporting to classes, cart, case)
    - Family/caregiver/supervisor

Training Requirements and Supports

1. The end user must be completely trained in the operation of the iCommunicator program to achieve positive outcomes. End users need to demonstrate competency in the use of a computer with respect to working within a Windows environment.

2. Adequate technical assistance/support will need to be available for the end user. This will vary with the individual end user's level of independence in using a computer and the software program and the specific application of the technology.

3. Implementation managers should possess computer literacy skills necessary to use and maintain the computer, software program, and to train both end users and speakers in the unique features of this communication access technology.

Individuals with Communication Challenges: The Need and Feature Match

The iCommunicator software program is appropriate for many individuals with communication challenges. Careful evaluation of an end user's needs will help in determining which iCommunicator features are best for that individual.

The iCommunicator program is a great benefit for persons who are deaf or hard of hearing. However, the program has applications that many other individuals who face unique communication challenges can use. For instance, persons with auditory processing disorder, learning disability, and/or severe language impairment who have trouble with multitasking will benefit from the iCommunicator as a sophisticated, note-taking technology. Persons with a specific learning disability known as *dysgraphia* and those with motor disabilities may also benefit from the program. They can use it to communicate and to take notes during classes, discussions, and meetings. Individuals with significant, expressive speech or voice disorders may benefit from the voice output capabilities, since it allows them to interact independently in personal and group conversations.

Severe language impairment, either acquired or developmental, may require a need for accessible communication devices. The iCommunicator provides assistance through the developmental or recovery process. Persons with visual acuity and visual perceptual deficits have special communication needs, such visual display size and background/foreground contrast. The iCommunicator can accommodate these needs. Another very large group with special communication needs is those whose native language is not English.

The following table lists these special populations and the iCommunicator features that could match their unique communication challenges. Refer to the preceding Candidacy Criteria Considerations, for additional information about factors to consider in evaluating the iCommunicator as an assistive technology for a specific end user.

Target Population	Needs and Opportunities Related to iCommunicator Capabilities
Auditory Processing Disorders	• need for note-taking assistance due to difficulty multitasking • need for text display due to difficulty applying meta-linguistic and metacognitive skills necessary for message comprehension.
Deaf and Hard of Hearing	• need for sign language to augment oral communication in various settings • need to improve literacy skills • need for voice output to communicate in one-on-one or group settings • need for note-taking assistance due to difficulty multitasking • opportunity to improve speech recognition and speech intelligibility
English Speakers of Other Languages (ESOL)	• need for written English to augment oral presentations • need to improve English literacy skills • opportunity to hear playback notes and stories to learn the English language • opportunity to improve speech recognition and speech intelligibility
Learning Disability	• need for note-taking assistance • need for note-taking assistance due to dysgraphia • need for visual augmentation due to visual processing deficits
Low Vision	• need for increased font size • need for high contrast schemes • need for voice output
Physical Disability	• need for note-taking assistance due to difficulty multitasking • need for voice output • need for portable assistive technology that will accommodate peripheral and/or alternative devices
Severe Language Impairment (developmental or acquired)	• need for note-taking assistance due to difficulty multitasking • need for visual augmentation to (re)learn metalinguistic and metacognitive skills to enhance comprehension • possible need for voice output
Speech or Voice Disorder	• need for voice output device • opportunity to improve speech recognition and speech intelligibility

Appendix B

Speech and Voice Recognition Training:

Flowchart

Accuracy Check

Common Phrases

Speech and Voice Recognition Training Flowchart

System Check → Check all system components, connections, and functions.

Create New Speaker → Options>Speech Recognition>Create New Speaker

1. Create New User
2. Calibrate Your Microphone
3. Initial Voice Training
   "Talking to Your Computer"

Remember to speak in your presentation voice. If accuracy is 90% or better on the Accuracy Check, skip the second reading.

Run General Training → Options>Speech Recognition>Run General Training

1. Select a Reading
2. Accuracy Check

Vocabulary Builder → Options> Speech Recognition> Vocabulary Builder> Vocabulary Builder

1. Analyze documents saved as text files → Examples: manuscripts, electronic forms of textbooks, scanned text, other personal/technical documents
   a. Analyze
   b. Train
   c. Save Speech Files → Options>Speech Recognition>Save Speech Files
2. Analyze word lists as documents → Examples: technical vocabulary, content vocabulary, class lists, acronyms, other unique vocabulary
   a. Analyze
   b. Train
   c. Save Speech Files → Options>Speech Recognition>Save Speech Files
3. Vocabulary Editor → Options> Speech Recognition> Vocabulary Builder> Vocabulary Editor
   a. Enter
   b. Add → Examples: same as word lists, but by individual entry
   c. Train
   d. Save Speech Files → Options>Speech Recognition>Save Speech Files

To enhance your translation accuracy, remember to:
- ***make judicious use of the mute control to avoid transmitting unwanted verbiage***
- ***save short, correct(ed) passages to your speech/voice file***

Talk to Your iCommunicator

1. Read/speak sets of 10 familiar phrases/sentences
   a. Use presentation voice
   b. Correct as needed → Use "Correct"/"Correct That" Feature
   c. Save Speech Files → Options>Speech Recognition>Save Speech Files
2. Deliver content-specific and casual speech
   a. Use presentation voice
   b. Correct as needed → Use "Correct"/"Correct That" Feature
   c. Save Speech Files → Options>Speech Recognition>Save Speech Files

Accuracy Check Using Phonetically Balanced Paragraphs

Read these two phonetically balanced paragraphs, including the titles, and then check your accuracy using the chart on the next page.

The Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

My Grandfather

You wish to know all about my grandfather. Well, he is nearly ninety-three years old, yet he still thinks as swiftly as ever. He dresses himself in an old black frock coat, usually several buttons missing. A long beard clings to his chin, giving those who observe him a pronounced feeling of the utmost respect. When he speaks, his voice is just a bit cracked and quivers a bit. Twice each day he plays skillfully and with zest upon a small organ. Except in the winter when the snow or ice prevents, he slowly takes a short walk in the open air each day. We have often urged him to walk more and smoke less, but he always answers, “Banana oil!” Grandfather likes to be modern in his language.

Compute Your Accuracy Score

Use the chart below to compute your accuracy rate. (Subtract the number of translation errors from 232 and locate your accuracy rate.)

Raw Score	%	Raw Score	%	Raw Score	%
232	100.00	208	89.66	184	79.31
231	99.57	207	89.22	183	78.88
230	99.14	206	88.79	182	78.45
229	98.71	205	88.36	181	78.02
228	98.28	204	87.93	180	77.59
227	97.84	203	87.50	179	77.16
226	97.41	202	87.07	178	76.72
225	96.98	201	86.64	177	76.29
224	96.55	200	86.21	176	75.86
223	96.12	199	85.78	175	75.43
222	95.69	198	85.34	174	75.00
221	95.26	197	84.91	173	74.57
220	94.83	196	84.48	172	74.14
219	94.40	195	84.05	171	73.71
218	93.97	194	83.62	170	73.28
217	93.53	193	84.09	169	72.84
216	94.00	192	82.76	168	72.41
215	92.67	191	82.33	167	71.98
214	92.24	190	81.90	166	71.55
213	91.81	189	81.47	165	71.12
212	91.38	188	81.03	164	70.69
211	90.95	187	80.60	163	70.26
210	90.52	186	80.17	162	69.83
209	90.09	185	79.74	161	69.40

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My Grandfather (Phonetically balanced paragraph [131 words] from Charles Van Riper, Speech Correction.)

Common Phrases and Sentences for Speech/Voice Recognition Training

Use these common phrases and sentences to build your speech/voice recognition file. Read a set of ten, speaking in your presentation voice, and then correct mistranslations. Save to your speech/voice file. Read another set of ten, correct, and save. Add more phrases, sentences, and colloquial speech that are characteristic of your speech and language patterns. Remember to use the mute switch while completing these tasks.

1. Good morning, class.
2. Take out your book.
3. Write your name on your paper.
4. It's time for lunch.
5. Where is your book?
6. Good job!
7. That's great!
8. Time out!
9. You're late.
10. Turn to page 52.

11. Look at this.
12. Who is absent?
13. Please sit down.
14. Raise your hand.
15. Why did you do that?
16. Turn around.
17. Pay attention.
18. Take your seat.
19. Let's begin.
20. It's your turn.

21. Here is your hall pass.
22. Did you know that?
23. Put away your books.
24. That's right.
25. I'm only kidding.
26. No way.
27. That's cool.
28. Where are you going?
29. Please give that to me.
30. That's awesome.

31. Don't you feel well?
32. Let's stop here.
33. Who did that?
34. I know you can do this.
35. Go for it.
36. Give it to me right now.
37. Pass your papers to the left.
38. I don't know.
39. I have no idea.
40. No, thank you.

41. Where did you get that?
42. Let me tell you a story.
43. What is that?
44. How could you?
45. Look it over.
46. What about it?
47. Here are some more.
48. Very well, thank you.
49. Please do.
50. As I said before…

51. How could you do that?
52. First things first.
53. It's raining cats and dogs.
54. Only one at a time.
55. What would you do?
56. Listen carefully.
57. Where are we going?
58. Where is your book?
59. You need to do this.
60. Do you feel ill?

61. What did you say?
62. You've got to be kidding.
63. Do you think so?
64. Things are looking better.
65. Not at this time.
66. Have you seen this?
67. Where are you going?
68. Do you know the answer?
69. Is that my pen?
70. Do you have any more?

71. I feel great today.
72. Is it raining outside?
73. I like this one, too.
74. How could that happen?
75. What did she say?
76. Let's not go there.
77. Time for discussion.
78. It's time for your test.
79. It must be…
80. Do you expect me to believe that?

81. I don't understand.
82. Give it to me.
83. Did he miss the bus?
84. Please take this to the office.
85. Now that's a surprise.
86. Use your quiet voice.
87. Get a tardy slip.
88. Here's your pass.
89. Take this to the media center.
90. You did very well.

91. Did you clean out your desk?
92. Turn in your homework.
93. Remember that.
94. Do you have a question?
95. Good afternoon, class.
96. Class dismissed.
97. Roll call.
98. What a pleasant surprise.
99. The assignment is due next week.
100. Sharpen your pencils now.

101. I am grateful for your help.
102. Speak up!
103. Close the door.
104. Open the window.
105. Listen to the announcements.
106. Circle time.
107. It's really hot today!
108. Hello, class.
109. Hello, boys and girls.
110. Hello, ladies and gentlemen.

111. My name is _____.
112. Where were you?
113. I appreciate that.
114. Thank you very much.
115. You may go now.
116. What's for lunch?
117. What is your address?
118. For goodness sake!
119. How about that?
120. It's too noisy in here.

121. I'm happy to meet you.
122. I don't believe it.
123. It's the truth.
124. Like it or not, it's true.
125. Where did you hear that?
126. Come on, now!
127. It's really true.
128. Sorry to hear about that.
129. I wish I could help you.
130. How do you do?

131. How are you?
132. Get out your pads and pencils.
133. Take out your laptop.
134. Take care.
135. I'm sorry.
136. That's terrible news.
137. How do you spell your name?
138. Tell me all about it.
139. It's about time.
140. After all this time…

141. Once upon a time…
142. That's all I know about it.
143. Where have you been?
144. It always happens.
145. I believe so.
146. He knows better
147. Just between you and me…
148. Bring it here.
149. I'm glad to meet you.
150. Can you do this?

151. I don't care.
152. Did you know that?
153. I don't know about that.
154. Turn the page, please.
155. Can you find it?
156. He's feeling fine.
157. I have to go.
158. Can you hear me?
159. What did I say?
160. What did I tell you?

161. Hello there.
162. Happy birthday!
163. Are you interested?
164. This is very important.
165. How are you feeling?
166. How did this happen?
167. Wait just a minute.
168. Just a second…
169. Do you have time to do this?
170. What time is it?

171. That didn't work.
172. I can't find it.
173. Where is your assignment?
174. I need to call your parents.
175. What's the matter?
176. What's wrong?
177. That's too bad.
178. You're in trouble now!
179. Turn on the lights.
180. Put away your books.

181. We will have a test on _____.
182. Where did you get that?
183. That's cute.
184. That's funny.
185. That's hilarious.
186. She was first.
187. You need to study.
188. See me after class.
189. What's the score?
190. Who won the game?

191. Please erase the board.
192. Turn on your computers.
193. No school tomorrow.
194. Don't interrupt now.
195. Where did he go?
196. What did you find?
197. What time is it?
198. Yes, I can.
199. Yes, you may.
200. That's wrong.

201. He's right.
202. See you later.
203. No, I didn't say that.
204. I just barely made it.
205. What's up?
206. Hang in there.
207. What's the rush?
208. Time to line up.
209. Go wash your hands.
210. It's a fire drill.

211. My goodness!
212. Holy cow!
213. What do you think about that?
214. Help me, please.
215. No gum chewing!
216. May I have your attention?
217. What does this mean?
218. Tell me about it.
219. Turn it on now.
220. Be quick about it.

221. What is it made out of?
222. That will be fine.
223. Take care of it right away.
224. Take a break.
225. Oh, good!
226. What is that?
227. Here we go.
228. Where are you going?
229. Everything's all right.
230. It's time to go.

231. I'll think it over.
232. Call me later.
233. What's new?
234. It's nice and quiet in here.
235. How are you doing?
236. How's it going?
237. Time's up.
238. How do you know?
239. Do you have change?
240. What time is it?

241. Where's your paper?
242. How much time do we have?
243. Where do you work?
244. What time did you go to bed?
245. School is over at _____.
246. What's your address?
247. How is your family?
248. My watch is slow.
249. Did you tell him about it?
250. Good bye.

251. All right.
252. Look out!
253. How have you been?
254. Neatness counts!
255. How much was it?
256. Excuse me.
257. Pardon me.
258. Where are you going?
259. When will you be finished?
260. What time is practice?

261. Practice makes perfect.
262. I cannot remember that.
263. Did you forget?
264. Of course.
265. You look very nice today.
266. Aren't you feeling well?
267. What happened here?
268. It's all over.
269. It's all over but the shouting.
270. OK

271. Did you like it?
272. What grade did you get?
273. Did you pass?
274. I'll see you tomorrow.
275. What number is it?
276. I know all about it.
277. Just give me the facts.
278. I'd better go now.
279. Do you understand this?
280. So, what do you think?

281. Come back again.
282. I can't stand it anymore.
283. It's your turn.
284. Turn out the lights.
285. What day is it?
286. What time does it come on?
287. The pencil is broken.
288. Watch it!
289. What time is it now?
290. Who won the game?

291. It won't last that long.
292. Answer the question, please.
293. Don't play games with me.
294. You have a lot of homework.
295. Is your brother in high school?
296. Where's your sister?
297. We have plenty.
298. One day at a time….
299. Did you trick me?
300. See you next year.

301. Is that an appropriate response?
302. Remember your manners.
303. Be polite.
304. What is the meaning of this?
305. That's wonderful.
306. That's marvelous.
307. That's super.
308. It's "A OK".
309. Your score is 100%.
310. We have 10 minutes left.

311. Can you change this, please?
312. I bought it for a song.
313. When it rains it pours!
314. How did that happen to you?
315. It just doesn't seem fair.
316. Where's your buddy?
317. This is your last chance.
318. What's the rush?
319. What's the funny business?
320. I didn't say anything

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339. What's the funny business?
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Add more common phrases, sentences, and colloquial speech that are characteristic of the speaker's language and speech patterns.

Notes

Appendix C

Communication Accessibility Regulations

Regulatory Authority Related to Communication Accessibility

Communication accessibility is addressed in various federal regulations, such as the Americans with Disabilities Act of 1990 (ADA), Assistive Technology Act of 1998, the Individuals with Disabilities in Education Act of 1997 (IDEA), and the Rehabilitation Act Amendments of 1998. The following is a summary of key legislation related to communication accessibility for Persons with Disabilities and links to full text of the regulatory acts.

Americans with Disabilities Act (ADA) of 1990

The Americans with Disabilities Act, Public Law 336 of the 101st Congress, was signed into law on July 26, 1990. The purposes of the ADA are to: (1) provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities; (2) provide clear, strong, consistent, enforceable standards addressing discrimination against individuals with disabilities; (3) ensure that the Federal Government plays a central role in enforcing the standards established in this Act on behalf of individuals with disabilities; and (4) invoke the sweep of congressional authority, including the power to enforce the fourteenth amendment and to regulate commerce, in order to address the major areas of discrimination faced day-to-day by people with disabilities. The ADA prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities, and transportation. It also mandates the establishment of TDD/telephone relay services. Section 3 (1) of the ADA specifically addresses auxiliary aids and services for persons with disabilities and includes: (1) qualified interpreters or other effective methods of making aurally delivered materials available to individuals with hearing impairments; (2) qualified readers, taped texts, or other effective methods of making visually delivered materials available to individuals with visual impairments; (3) acquisition or modification of equipment or devices; and (4) other similar services and actions. If you would like further information vist the web page: www.usdoj.gov/crt/ada/pubs/ada.txt.

Assistive Technology Act of 1998

The act authorizes the State to pay for expenses and The Assistive Technology Act of 1998 (P.L. 105-394, formerly the Technology-Related Assistance for Individuals with Disabilities Act of 1988) supports programs of grants to States to address the assistive technology needs of

individuals with disabilities, and for other purposes. The original Technology-Related Assistance for Individuals with Disabilities Act of 1988 was the first time the importance and necessity of assistive technology in everyday life was clearly defined at the national level. P.L. 105-394 establishes the mandatory and discretionary activities for any State receiving continuity grants for assistive technology for individuals with disabilities to states that have received less than ten years of funding under the Technology-Related Assistance for Individuals with Disabilities Act of 1988. The Act also authorizes States to enter cooperative agreements with other States to expand their capacity to assist individuals with disabilities of all ages to learn about, acquire, use, maintain, adapt, and upgrade assistive technology devices and services. Furthermore, the act authorizes States to operate or to participate in a computer system through which the State may communicate electronically with other States to gain timely technical services necessary for access to the comprehensive statewide program of technology-related assistance by individuals with disabilities in financial need who are ineligible for such services through another public agency or private entity.

Individuals with Disabilities Education Act (1997) (IDEA)

The Individuals with Disabilities Education Act (IDEA) (formerly called P.L. 94-142 or the Education for all Handicapped Children Act of 1975) requires public schools to make available to all eligible children with disabilities a free appropriate public education in the least restrictive environment appropriate to their individual needs. President Bill Clinton signed the Individuals with Disabilities Education Act Amendments of 1997 (P.L. 105-17) on June 4, 1997. The Final IDEA '97 Regulations were released on Friday, March 12, 1999. This Act strengthens academic expectations and accountability for the nation's 6.1 million children with disabilities and bridges the gap that has too often existed between what children with disabilities learn and what is required in regular curriculum. IDEA requires public school systems to develop appropriate Individualized Education Programs (IEPs) for each child. The specific special education and related services outlined in each IEP reflect the individualized needs of each student. IDEA also mandates that particular procedures be followed in the development of the IEP. Each student's IEP must be developed by a team of knowledgeable persons and must be at least reviewed annually. The team includes the child's teacher; the parents, subject to certain limited exceptions; the child, if determined appropriate; an agency representative who is qualified to provide or supervise the provision of special education; and other individuals at the parents' or agency's discretion. Among the significant changes in the revision of the IDEA is the focus on student's accessibility to education in the regular education curriculum and access to participation in general assessments

that are provided to all other students. Another key feature of the IDEA is that assistive technology must be considered for every student for whom an IEP is developed. The final amendments were published in the Federal Register on March 12, 1999. If you would like further information, see: www.edu.gov/IDEA.

Rehabilitation Act

The Rehabilitation Act prohibits discrimination on the basis of disability in programs conducted by Federal agencies, in programs receiving Federal financial assistance, in Federal employment, and in the employment practices of Federal contractors. The standards for determining employment discrimination under the Rehabilitation Act are the same as those used in title I of the Americans with Disabilities Act. Of particular interest are Sections 504 and 508.

Section 504 states that "no qualified individual with a disability in the United States shall be excluded from, denied the benefits of, or be subjected to discrimination under" any program or activity that either receives Federal financial assistance or is conducted by any Executive agency or the United States Postal Service. Each Federal agency has its own set of section 504 regulations that apply to its own programs. Agencies that provide Federal financial assistance also have section 504 regulations covering entities that receive Federal aid. Requirements common to these regulations include reasonable accommodation for employees with disabilities; program accessibility; effective communication with people who have hearing or vision disabilities; and accessible new construction and alterations. Each agency is responsible for enforcing its own regulations.

Section 508 establishes requirements for electronic and information technology developed, maintained, procured, or used by the Federal government. Section 508 requires Federal electronic and information technology to be accessible to people with disabilities, including employees and members of the public. An accessible information technology system is one that can be operated in a variety of ways and does not rely on a single sense or ability of the user. For example, a system that provides output only in visual format may not be accessible to people with visual impairments and a system that provides output only in audio format may not be accessible to people who are deaf or hard of hearing. Some individuals with disabilities may need accessibility-related software or peripheral devices in order to use systems that comply with Section 508.

The Architectural and Transportation Barriers Compliance Board (Access Board) issued final accessibility standards for electronic and information technology covered by section 508 of the Rehabilitation Act Amendments of 1998 on December 21, 2000. Section 508 requires the Access Board to publish standards setting forth a definition of electronic and information technology and the technical and functional performance criteria necessary for such technology to comply with section 508. Section 508 requires that when Federal agencies develop, procure, maintain, or use electronic and information technology, they shall ensure that the electronic and information technology allows Federal employees with disabilities to have access to and use of information and data that is comparable to the access to and use of information and data by Federal employees who are not individuals with disabilities, unless an undue burden would be imposed on the agency. Section 508 also requires that individuals with disabilities, who are members of the public seeking information or services from a Federal agency, have access to and use of information and data that is comparable to that provided to the public who are not individuals with disabilities, unless an undue burden would be imposed on the agency. On April 25, 2001, the General Services Administration issued a final rule that incorporates the standards into the Federal government's procurement regulations and establishes the effective date as June 25, 2001. For further information on Section 508 compliance go to www.section508.gov/docs/Final99607A.htm. For further information on the Rehabilitatin Act: www.usdoj.gov.

Information on ADA accessibility issues and Section 508 compliance also is available on the Architectural and Transportation Barriers Compliance Board's website www.access-board.gov and the Section 508 website at www.section508.gov.

Notes

Glossary

accuracy

An expression of correctly translated words that match spoken words, usually expressed as a percentage.

ambient noise

Surrounding sounds present in any typical environment, such as that of traffic, coughing, distant conversation, or equipment noise.

ASL

An acronym for American Sign Language.

American Sign Language

The native language of many individuals who are deaf or hard of hearing. ASL is a visual language characterized by facial expression, lip movement, and hand gestures.

close button

The small "X" in the top-right corner of each iCommunicator Window. Click the close button to close that specific window. Clicking the Control window's close button exits the iCommunicator program.

Cochlear implant

An electronic device surgically implanted into the inner ear that enables a person who is deaf hear sound when using an external speech processor.

Control window

The portion of the iCommunicator interface that allows you to manage the three windows and their functions.

CPU

Central Processing Unit. The part of the computer that processes information input.

custom words

Subject-specific vocabulary added to the program by the user (indicated by a red star).

defaults

A program's original settings and configurations.

filename extension

The suffix at the end of a filename that includes a period and up to three characters. The filename extension usually describes the file type.

floating window

In the Windows 98 and 2000 environments, floating windows are rectangular containers that can be dragged to a different portion of the computer screen.

FM system

An FM system operates on a radio frequency to provide a listener with a clear acoustic signal that is uninterrupted by ambient noise. The system consists of a receiver and a transmitter. This type of assistive listening device may be used instead of or in conjunction with a hearing aid, and may be coupled with the iCommunicator.

function keys

Specialty keys, labeled with an "F," which perform specific tasks when pressed.

frequency

A specific, unique wavelength by which a signal is broadcast and received. A radio station's signal is broadcast on a specific frequency.

icon

A small graphical representation of an element in a graphical user interface. Clicking an icon performs some kind of action (e.g., clicking a magnifying glass icon to resize a window).

memory

Also referred to as RAM (Random Access Memory). The computer's workspace (physically, a collection of computer chips usually located within integrated circuit chips). Memory determines the size and number of programs that can be open at the same time, as well as the amount of data that can be processed.

menu

A list of available commands in an application window.

microphone status bar

A graphical area of the Control Window that indicates when the program is monitoring sound input from the microphone.

RAM

See *Memory*.

receiver

A device that receives the signal broadcast by the transmitter. To work properly, both the transmitter and receiver must be set to the same frequency.

shortcut key

A key or combination of keys that you press to carry out a specific command without accessing a menu.

signing

The act of communicating with sign language.

Signing window

Displays sign language and fingerspelling videos.

Text window

The portion of the iCommunicator interface that displays speech that was translated into text.

themes

Color schemes and border displays, which change the appearance of the iCommunicator interface.

transmitter

A device that broadcasts a signal.

voice training

The process of teaching the iCommunicator software what your voice sounds like, so that it can recognize and translate your speech with accuracy.

Y-cable

An audio cord that enables a signal coming from a single port to be connected to two ports. The iCommunicator uses the y-cable to direct a signal to both external speakers and to a hearing assistive device.

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W

Notes

Module Review Answer Key

Module 1

1 False
2 False
3 True
4 True
5 True
6 False
7 False

Module 2

1 True
2 True
3 False
4 True
5 False
6 d
7 d

Module 3

1 True
2 True
3 True
4 False
5 False
6 d
7 d
8 c

Module 4

1 False
2 True
3 False
4 True
5 true
6 a
7 d