



The Surgeon in the Digital Age:  
Voice Recognition  
for the Surgeon

SOCIETY OF AMERICAN GASTROINTESTINAL AND ENDOSCOPIC SURGEONS

# The Surgeon in the Digital Age: Voice Recognition for the Surgeon

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# Introduction to the SAGES “Surgeon in the Digital Age” Workshop: Voice Recognition for the Surgeon



*Welcome to the latest SAGES Surgeon in the Digital Age Workshop. The goal of this session is to become familiar with all aspects of using a state-of-the-art voice recognition system. We will be using Nuance’s Dragon NaturallySpeaking 9.0 program for our course.*

**A**s a surgeon you undoubtedly generate a tremendous volume of word-processed material. For every patient you see in your office you write a progress note and possibly a letter to the referring physician. Every operation generates an operative note. These days, we find ourselves writing letters to insurance companies more and more frequently. And no one needs to be reminded how much time is spent writing and responding to emails.

If you have top notch secretarial help, this may help with your office documents. If you have top quality dictation services, this may address the issue of operative notes. And if your typing skills are excellent, then responding to email may not be an issue. However, many of us do not have such resources available. For those of us who do, we probably spend a fair amount of money on them. And even with the best possible secretarial help and dictation services, email remains a huge time sink.

To address these concerns, voice recognition software can be a tremendously valuable tool to the practicing surgeon. Recent developments in voice recognition technology allow us to run versatile dictation software on a standard office PC, or even a laptop. By wearing a headset and speaking into the microphone, you can have your computer automatically type whatever you say.

The purpose of this course is to teach you everything you need to know to get started using this powerful technology in your daily practice. We will be using the only software package that is currently available for this purpose: Nuance's Dragon Systems NaturallySpeaking 9.0 Medical Version (hereafter referred to as DNS9, or simply Dragon).

During this workshop, you will:

- Learn how to install and set up the DNS9 software
- Learn how to set up your headset microphone
- Learn how to train DNS9 to recognize your voice
- Get a “quick tour” introduction to the DNS9 software
- Learn how to edit, move and select text using your voice
- Learn how to use your voice to add punctuation to your dictation
- Learn how to proofread and correct your dictated text
- Learn specific ways to use DNS9 software in Word, Outlook and other applications
- Learn how to create a customized dictionary and vocabulary
- Learn how to use DNS9 to control your computer
- Learn advanced ways to incorporate voice recognition into every aspect of computer use

Since the SAGES Voice Recognition Workshop is the first of its kind, your feedback (both good and bad) is essential! At the end of this workshop, please fill out the evaluation form as fully as possible.

## Important Disclosure & Thanks

**This course focuses on a single product, Nuance's Dragon NaturallySpeaking 9.0 Medical Version. Additionally, many of the teaching points come from material presented in SaylCan's DNS9 Video Guide. Please note that the course directors (Drs. Herron and Reardon) have no commercial or financial interest in Nuance, SaylCan, or any of the other corporate entities that will be mentioned in today's course.**

**In 2007, there is only one comprehensive voice recognition system available for Windows systems: Dragon NaturallySpeaking 9.0. Thus, the focus of this course will be on the DNS9, not because of any particular favoritism, but rather because it is the only system available. The inherent bias created by this focus is therefore a function of necessity.**

**Finally, we would like to thank both Nuance and SaylCan for their support of this course, without which the course would not be possible. In addition to participating in the teaching of the course, Nuance has generously provided 2 copies of the software that will be raffled off at the completion of the course to 2 lucky participants! Additionally, many of the teaching points offered in this course were taken (with permission) from Dan Newman's DNS9 Video Guide.**

# Part I: A Brief History of Voice Recognition

## The Early Years of Voice Recognition

Although its use has not become widespread until recently, voice recognition has existed for many years. In 1922, the Elmwood Button Co., developed a sound activated toy dog called Radio Rex. The dog would emerge from his toy doghouse when you called out “Rex”, but not if you said another name.

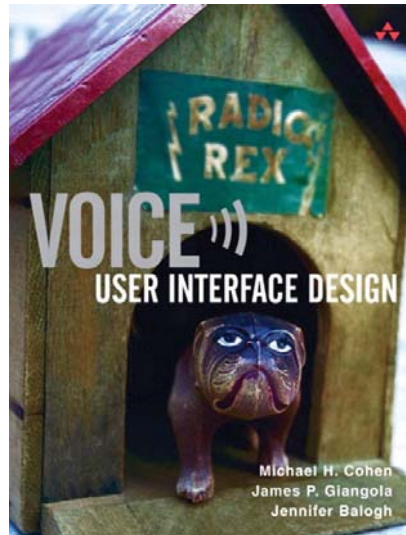


Figure 1. “Radio Rex”, a voice-activated toy dog from 1922 – the earliest known commercial use of voice recognition. The image of “Radio Rex” appears on the cover of a voice recognition textbook by Cohen et al.

In the absence of widespread computer technology, progress in voice recognition was extremely slow. The first serious application of voice recognition did not occur until 1952, when Bell Labs created a system that recognized small words, primarily numerical digits, over the telephone. The central idea was that voice recognition would be useful in routing telephone calls, but the vacuum tube technology available at that time was inadequate to take the concept much further.

### IBM’s “Shoebbox”

Ten years later, in 1962, IBM developed its so-called “Shoebbox” device that could recognize about 16 spoken words, including the digits zero through nine, mathematical operators like “plus” and “minus” and simple commands like “total”. Presented at the World’s Fair, the system functioned well but was not felt to have much commercial potential at the time.



Figure 2. The IBM “Shoebox” (1962) could do simple addition and subtraction purely by voice command.

## Jim Baker’s Early Work in Mathematical Models of Voice Recognition

After the IBM Shoebox was demonstrated in the early 1960s, interest in voice recognition waned for some time. However, a number of mathematicians and engineers worked through the 60s and 70s to push forward the underlying mathematical models that would ultimately form the basis of modern speech recognition technology.

In 1972 Jim Baker (Carnegie Mellon University) introduced the concepts of “hidden Markov models” and “stochastic processing”. Although a discussion of these ideas goes far beyond the scope of this course, these models allowed speech to be broken up into small segments and statistically linked with the most likely represented word.

A number of other researchers worked on systems that relied upon context to understand spoken language. That is, by knowing the speaker’s identity, interests, and the topics that the speaker would address, those systems sought to enhance their accuracy. The Baker system, on the other hand, was based purely on statistical models. It would know the probability that one word would appear after another in the English language and link sounds to words on this basis.

In 1975 Baker went to work at the IBM T. J. Watson Research Laboratory in Yorktown Heights, NY, and ultimately developed a system with a 1000-word vocabulary. However, the system was very resource intensive, requiring an IBM 370 mainframe computer to run. It could not understand speech in real time and took about 1 hour to decode a single sentence.

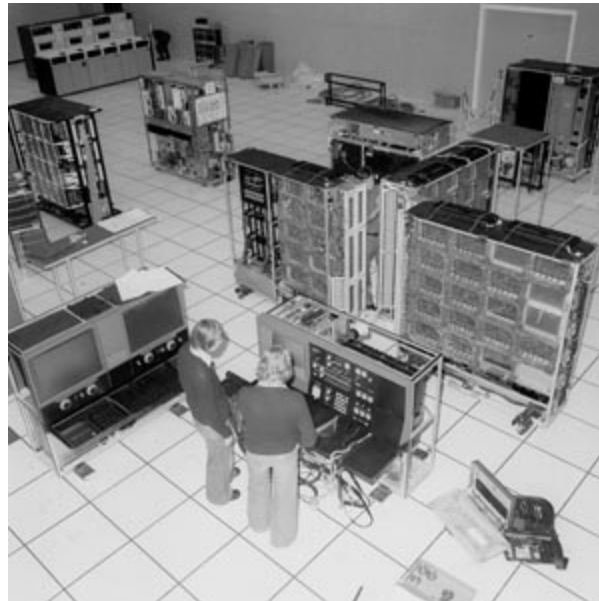


Figure 3. In 1975 Jim Baker created a 1000-word vocabulary system that required an IBM 370 mainframe computer to run

Again, IBM did not see much commercial future in voice recognition, and Baker left in 1979 to join Verbex, an Exxon subsidiary, to continue his work on voice recognition.

Like IBM, Exxon did not see much commercial potential in such technology and left the speech recognition field. Shortly thereafter, frustrated with the lack of support from existing companies, Baker and his wife formed Dragon Systems, a company focusing entirely on voice recognition. In one of their early products, they provided Apricot Computer with the first speech recognition system that functioned on a personal computer.



Figure 4. The Apricot Computer was the first personal computer to use speech recognition. The Apricot ultimately closed in 1999.

By 1988 Dragon systems had performed a public demonstration of an 8000-word voice recognition system running on a personal computer. However, this system still required users to speak each word individually.

By 1990 Dragon's system had been remarkably improved, and could recognize continuous spoken speech with a 5000 word vocabulary. In 1997 a simple voice recognition system was created for one of the first PDAs, the apple Newton device.



Figure 5. The Apple Newton was one of the first widely used PDAs. Dragon Systems created a voice recognition system for it.

## Dragon Dictate Turns into Dragon NaturallySpeaking

In 1990 a user could purchase a single user license for Dragon Dictate for DOS, for the sum of \$9,000. Although it had a fairly large vocabulary, Dragon dictate was still a “discrete” speech recognition engine. The user had the pause between each word while dictating. Thus, voice recognition was used primarily by individuals who did not have the use of their hands and could not use a keyboard.

In 1997, Dragon systems released the first NaturallySpeaking product, Dragon NaturallySpeaking 1.0. This product, which ran on a standard personal computer, had a 23,000 word vocabulary and could understand continuous speech.

The NaturallySpeaking product went through many iterations and at present is up to version 9.0. It is available in standard, preferred and professional versions, each with incrementally improved feature sets. Additionally, specialized medical and legal versions are available that use the same speech recognition engine but have a specialized vocabulary. Retail pricing for current versions ranges from \$99 for the standard version to \$1199 for the medical and legal versions. (You can probably find better prices if you do some shopping online).

The current software is up to 99% accurate, depending on how well you have “trained” the software, and can run on either a desktop or laptop PC.

## Overview of the Course

Today's course is designed to be a very hands-on learning experience. Apart from the introductory lecture, most of the course will be extremely interactive. After discussing new features, you will be given an opportunity to master them on the PC right in front of you!

So without further ado, let's get going!

## Part II: Installation and Initial Training of the Software

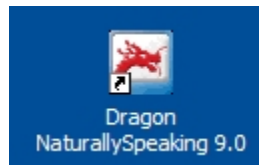
If you were to purchase a retail version of the Dragon NaturallySpeaking 9 software, it would include 3 CD-ROMs, a small printed manual, and a low-cost but relatively high-quality noise canceling microphone. The first step in installation, that we already done for you, is to insert the CD-ROMs into the computer and follow the instructions. Additionally, you would need to plug your headset into the microphone-in jack. This has also been done for you already.

On most headsets, the microphone plug is the red one. The microphone jack on the back of your computer should be similarly color-coded. When using voice recognition on the computer, there are times when he will want to have the computer play a sentence back to you. If you were working in a quiet room like your office, you could use your computer's own speakers for this purpose. Since we are in a room with 50 PCs, we will use the headphone built into your headset. The headphone plug is typically black or green. Again, the jack on the back or side of your computer should be similarly color-coded.

**VERY IMPORTANT POINT: Mistakes are a normal part of using any voice recognition system. Over time, as the system becomes more accustomed to your voice, mistakes become increasingly rare. However, even with a skilled user on a well-trained system mistakes will happen approximately 1% of the time. Do your best not to get frustrated, and remember that the software will get better with time as will your dictation skills.**

### Initial Training

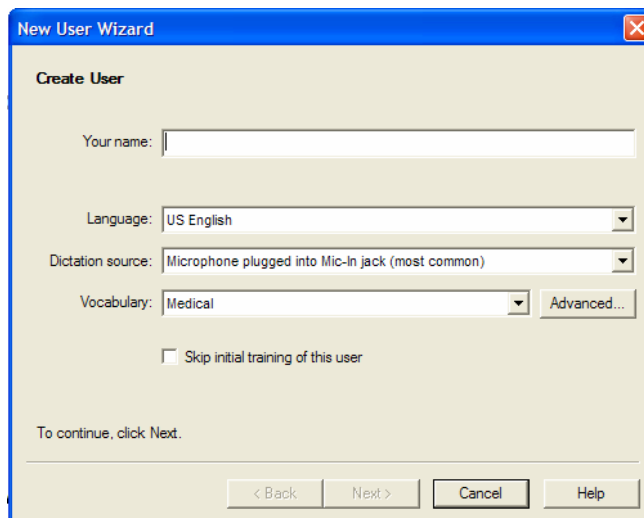
To get the Dragon program running, click on the Dragon NaturallySpeaking 9.0 icon on your desktop. That's the one the looks like this:



**ANOTHER VERY IMPORTANT POINT : Today we are using an unactivated version of Dragon NaturallySpeaking 9. It can only be run 5 times before it needs to be activated through the Internet. Hopefully, you will just need to run it once at the beginning of this course, and you can leave it running for the duration of the course today. If you do accidentally exit out of the program, you can rerun it, but don't make this mistake more than 4 times!**

## New User Wizard

Once the program is running, you will need to create a new user. You will see a dialog box that looks like the following:



Type your own name into the “Your name” box. Next, choose your language. The dictation source that we’re using today is a microphone headset plugged into the mic-in jack, so make sure this option is selected. The vocabulary we’ll be using today is the surgical vocabulary. When all these items are selected, click on the “next” button.

Your computer will now crunch some numbers while it creates your user files and your personalized vocabulary. You will see a box pop up to let you know this is happening. It may take some time.

Next, the system will ask you to select your sound system. You can click “Default” and it will pick the correct sound card.

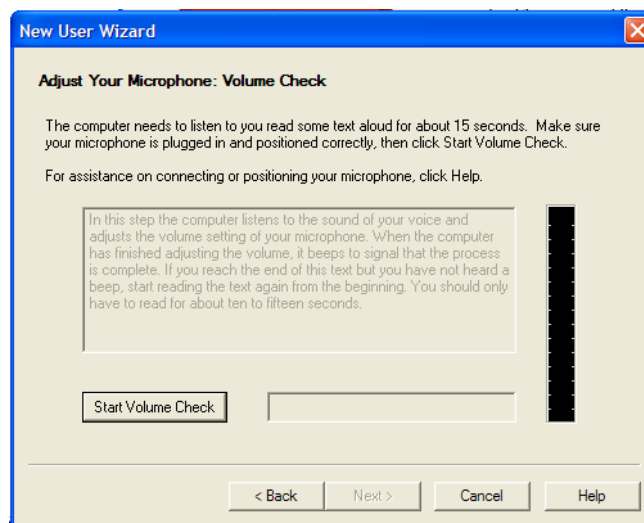


Next, you will need to position your microphone. Start by making the headset sit comfortably on your head. Then, move the microphone so that it is about 1/2" to 1" from the corner of your mouth. If it's too close, you'll get too many breath sounds in your dictation. If it's too far away, the volume will be too low and you'll get a poor signal-to-noise ratio. As a rough rule of thumb, use your thumb! Your thumb should just fit between the corner of your mouth and the microphone.

You may want to attach the clip on the cord to your shirt or jacket. That way, if you get up and walk away from your computer by accident the cord will pull on your jacket instead of your head.

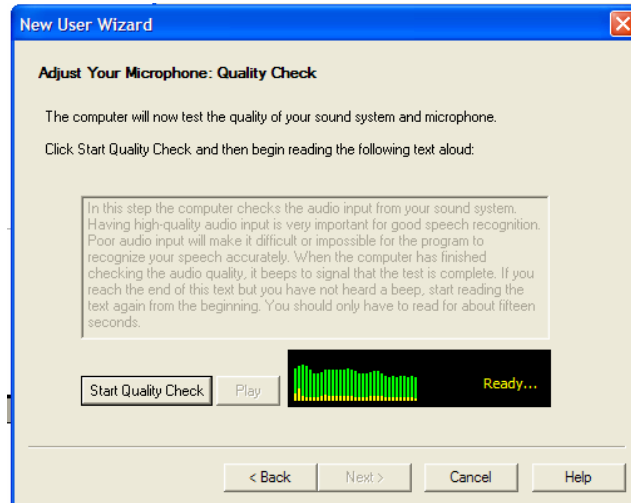
## Volume Check

Next, the computer will check your microphone volume. You will see the following dialog box:

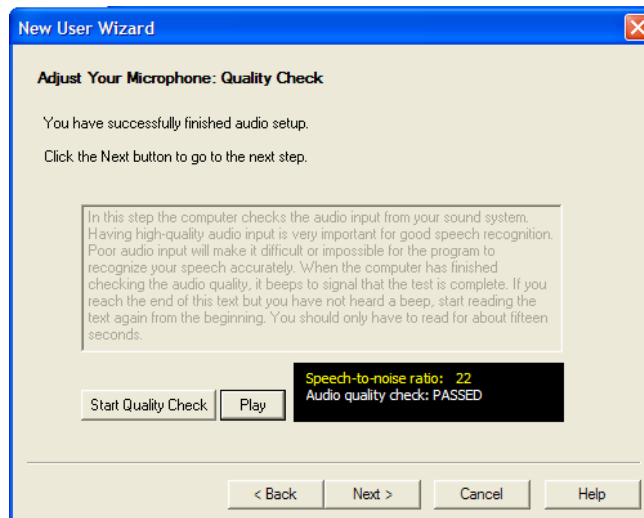


Click on the “Start Volume Check” box and read the text in the box. The computer will let you know when it’s done. You don’t have to read any of the punctuation.

It will now do a quality check. You’ll see the following window:



Just like before, click on the “Start Quality Check” button and read the text in the box. The computer will let you know when it’s done.

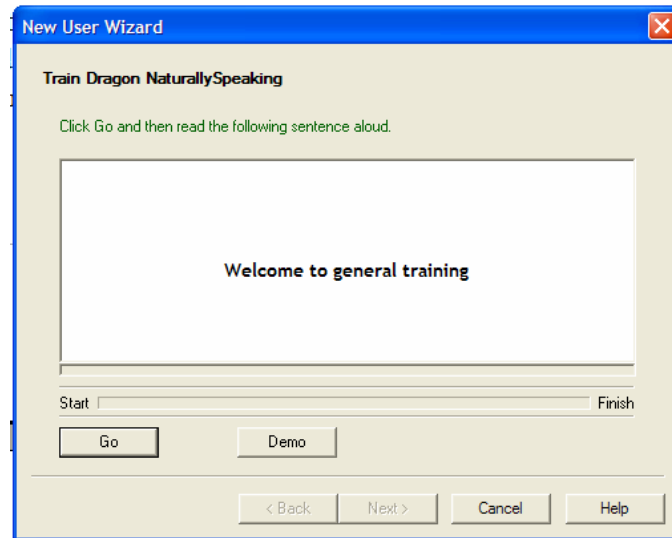


At the end of the check it will tell you the speech-to-noise ratio and whether the audio check passed. If you did not pass, start by clicking on the “Play” button to hear what your dictation sounded like to the computer.

The most common problems that interfere with quality are that the microphone is not plugged in correctly or that it is malpositioned on your face. Also, the room may be too noisy – try moving to a quieter place if possible.

## General Training

Finally, you will be taken to general training. Click “Go” and read the text in the box. The computer will ask you to choose something to read. Choose whichever option appeals to you and continue until you’re done. **Please read in a low voice, since we have a lot of users in this room!** Thanks!



Training may go on for a few minutes. When you’re done, the computer will tell you that it is “adapting your user files”. This means that it is completing its customization of your personalized dictionary.

Finally, Dragon will ask if it should adapt to your writing style. If you selected this option, it would go through all your Microsoft Word documents, e-mails, etc. to learn more about your personal writing style. Since you don’t have any of your own user files on this machine we will skip this step. If you install Dragon on your own machine at home, definitely do not skip this step.

## Starting to Dictate

At this point, you’re ready to start dictating. Here are a few important points:

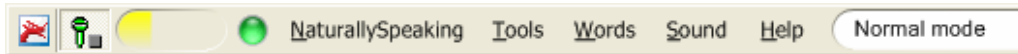
- If you see the DragonBar at the top of your screen (we’ll go into a lot more detail about this later) this tells you that DNS9 is running.
- The microphone button at the left of the DragonBar will tell you if your microphone is on, off or in “sleep mode”
- Remember to say all your punctuation: (“period”, “comma”, “new paragraph”, etc.)
- Speak quickly! It is not necessary to slow down your speech for Dragon to understand it. This will interfere with its ability to understand your words.
- Don’t mumble! It just doesn’t understand mumbling!

## Part III: A Quick Tour of the Program

Because, as surgeons, we are naturally impatient, will start off with a quick tour of how to use the Dragon program. Don't worry, we'll get into a lot more detail later today.

### The DragonBar

The DragonBar is your interface with the DNS9 program. Let's quickly run through what you can do with the DragonBar.



### Turning the Microphone On and Off

When using DNS9, it is critically important to know whether your microphone is on or off at all times. Look at the left-hand side of the DragonBar, immediately adjacent to the Dragon icon. If you see a picture of vertical microphone, that means your microphone is on. If the microphone picture is horizontal, the microphone is off. If the microphone is diagonal, it is in "sleep mode".

You can switch the microphone off and on by left-clicking on the image of the microphone. You can use voice commands to turn the microphone off, but not on! If the microphone is on, you can turn it off by saying "microphone off".

**QUESTION: How does DNS9 know the difference between text that is to be transcribed and text that serves as a command?**

**ANSWER: You have to pause after you give a command so that it can be interpreted as such. If you continue speaking after giving a command the command will be interpreted as dictation!**

When the microphone is turned off, it is truly off. This means you can't say "microphone on" because the computer just isn't listening. If you want the computer to temporarily stop listening to you, say "go to sleep". This will make the microphone image diagonal. Although the microphone is still turned on, the computer will not transcribe anything you say. Tell the computer to "wake up" or say "listen to me" to turn the microphone fully on again. To summarize, you can

Put the microphone into sleep mode:

- "Go to sleep"
- "Stop listening to me"

Wake the microphone up again:

- “Wake up”
- “Listen to me”

Because you will be turning the microphone off and on again quite frequently, Dragon assigns one key on the keyboard to be a “microphone on/off” key – this is the “plus” key on your numeric key pad all the way on the right of your keyboard. Pressing this key will toggle the microphone from on to off or vice versa.

If you are using Dragon on your laptop computer, you will want to change these keys because you do not have a separate numeric key pad. This can be done from the Tools/Options/Hot keys menu on the DragonBar.

## The Results Box

As you talk, the words you say will appear in the “results box”. The results box is a small beige box that appears directly underneath the DragonBar. This is also a very important part of the Dragon program. If you see your spoken words appearing in the results box, you know that the program is hearing you. If the program doesn’t appear to be working right (you’re talking but your words aren’t being typed) the first thing you should do is check the results box.

If you don’t like where the results box appears, you can drag it anywhere you want on the screen.

When you give a command with the word “that” (like “bold that”) it will apply to whatever text you see in the results box.

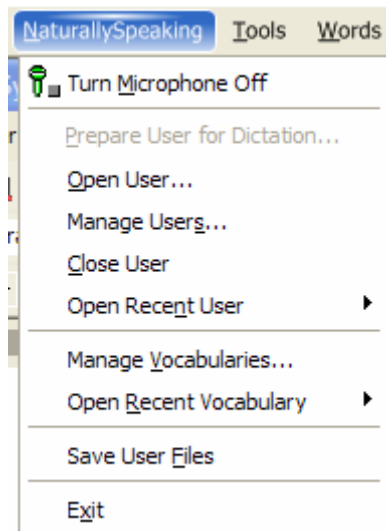
## The Sound Meter

Just to the right of the microphone icon in the DragonBar, you will see a sound meter. If the microphone is off it will be gray. If the mic is on but you are not talking, the bar will be short and yellow, telling you that the microphone is only picking up background noise in the room. If you are actively dictating, the bar will move back and forth and should usually be green but may sometimes be red. This means that it is hearing what you’re saying. If it is always in the red, you may need to adjust your microphone.

## The Green Button

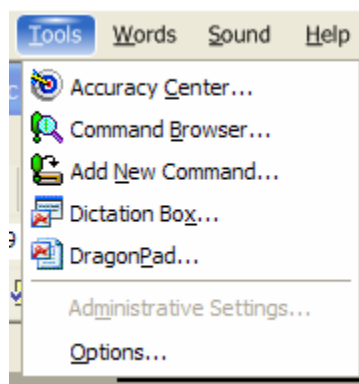
Just to the right of the sound meter is a little green button. This should usually be green. If it is not green it means that you are trying to dictate into a “nonstandard window”. This should be very rare in normal usage but if you do see that the button is not green you must use `DNS9` in a special way (more details to follow).

## The NaturallySpeaking Menu



There are a number of important things you can do from the NaturallySpeaking menu. At the top is another way to turn the microphone on or off. Below that are user management commands. This allows you to add a new user, switch between users etc. Below the user options are commands to let you manage your vocabulary. For example, you may want to use a medical vocabulary when you're at your office and the personal vocabulary when you're writing a personal letter.

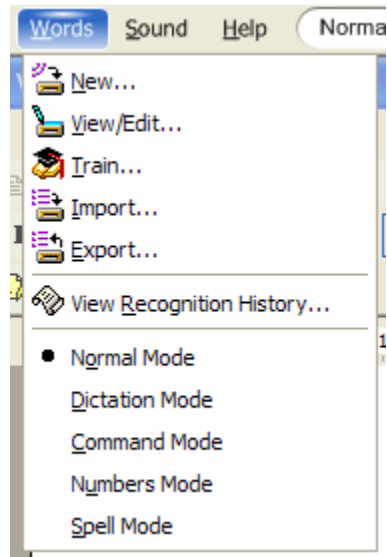
## The Tools Menu



The top option in the tools menu is the "Accuracy Center". This is a very useful screen that will allow you to change your audio settings if you switch microphones, allow you to perform additional general training by reading to the computer, etc. The "Command Browser" option allows you to see spoken commands that you can give to your computer and to add new ones. The dictation box is what we use for

dictating into “nonstandard” windows -- more on that later. DragonPad is a very simple word processor you can use when you don’t need to fancy for matting features of Microsoft word. Finally, “Options” allows you to customize the way your program runs.

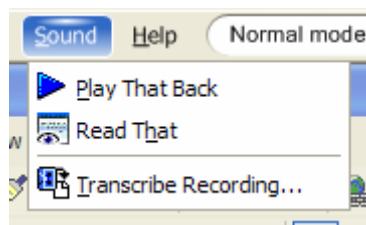
## The Words Menu



The words menu is relatively self-explanatory. It allows you to enter new words, view or edit existing words, train DNS9 to recognize new words, import vocabularies and export vocabularies. You can also view your recognition history.

Immediately underneath is the indication of what “mode” DNS9 is currently in. “Normal Mode” is what we use most of the time. In “Dictation Mode” everything you say is transcribed and nothing is taken as a command. In “Command Mode” the computer hears only commands and no dictation. In “Numbers Mode” the computer only hears numbers, which is useful if you’re entering data into spread sheets. Finally, “Spell Mode” requires that you to spell letter by letter.

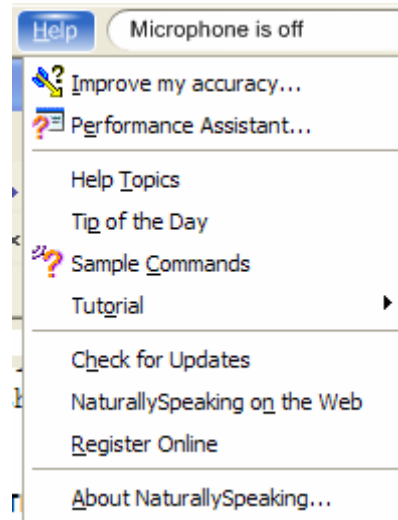
## The Sound Menu



The Sound Menu is also very straightforward. If you highlight a piece of text and click “Play That Back” it will play back a recording of what you said.

If you choose “Read That” the computer will read the highlighted text in a synthesized voice. The “Transcribe Recording” option is used if you previously recorded your dictation into a WAV or MP3 file using a handheld digital voice recorder.

## The Help Menu



The Help menu has some very useful items in it. The “Improve my accuracy” option will help you to troubleshoot your voice recognition. “Performance Assistant” will show you how to turn off features that you don’t use in order to improve the performance of your computer.

The “Sample Commands” option will give you a partial listing of the commands you can use in any particular program. You can call up this menu by giving the voice command “what can I say?”

The “Tutorial” option is a great way get started with DNS9. It gives you step-by-step teaching on how to use the program.

“Check for Updates” will check online to see if there are any updates to your version of the software. Since the computers in this class are not connected to the Internet this option will not work.

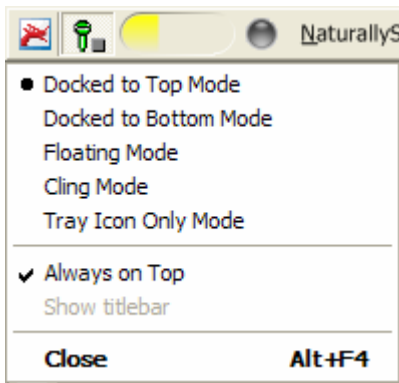
## The Status Window

The status window can give you some very useful information about the mode Dragon is in. For example, if your microphone is off this will be indicated in the status window. If the microphone is on, it will tell you whether you were in normal mode or different dictation mode.

## The Extras Toolbar

You may have noticed the double down arrow at the very rightmost part of the DragonBar. Clicking on this will bring up the “Extras Toolbar”. In general, we will not need any of these tools for this course. However, if you were using a portable dictation device this would give you the controls to transcribe from previously recorded text.

## The Dragon Icon



Last, but not least, the Dragon icon in the leftmost part of the DragonBar is not just for decoration. If you click on it you will be able to adjust where the DragonBar is docked. The default position is docked to the top, but many users prefer “docked to bottom mode”. “Floating mode” means that you can move the DragonBar around in its own window. “Cling mode” means that Dragon will stick to the upper left-hand corner of the active window.

“Tray icon only mode” is self-explanatory. All of the functions of Dragon can be accessed from the icon in the windows tray in the lower right-hand corner of your screen. It may require a little more browsing through menus, however.

Finally, “Close” allows you to exit out of the Dragon program. Because DNS9 is a very complex program that consumes a substantial amount of your computer's resources, it's a good idea to exit out when you're done with it.

## Part IV: Moving and Selecting Text

### Moving around Your Document

One of the great things that DNS9 allows you to do is move around your document without using your hands. You can move by characters, words or lines.

Here are some examples of things you can say:

- “Move down 4 lines”
- “Move left 7 words”
- “Move right 5 words”
- “Move up 2 sentences”
- “Move down 2 paragraphs”

Here are some other ways you can move:

- “Go to top of document”
- “Go to bottom of document”
- “Go to beginning of line”
- “Go to end of line”

You can be very useful to use one of a following commands. (Please replace “whatever” with a piece of text from your document).

- “Insert after *whatever*” (this will move your cursor just after “whatever”)
- “Insert before *whatever*” (this will move your cursor just before “whatever”)

### Selecting Words In Your Document

You can use similar commands to select text. Here some examples:

- “Select next 5 words” (this will highlight the 5 words to the right of your cursor)
- “Select next 2 paragraphs” (this will highlight the two paragraphs beneath your cursor)
- “Select back 4 characters” (this will highlight the last 4 characters)

It can be tremendously useful to select text with this command:

- “Select *whatever*” (highlights “whenever” and pops up the correction menu)
- “Select *whatever* through *badabing*” (does what it sounds like it does)

## Part V: Editing by Voice

### Deleting Text

If you don't like what you just dictated you can always say "scratch that" to delete it.

**QUESTION: We are always using the word "that". What exactly does "that" refer to?**

**ANSWER: If there is highlighted text in your document then "that" refers to the highlighted text! If there is no text highlighted, then "that" refers to everything you said since your last pause.**

If you want to delete something in your document besides what you just said, select it first using the commands we just described, then say "delete that".

Here are some other examples of ways you can edit text:

- "Bold that"
- "Copy that"
- "Paste that"
- "Cut that"
- "Select all"
- "Copy all to clipboard"

Let us not forget about the humble backspace key. You can say:

- "Backspace"
- "Backspace 5" (you can go up to 20)

Finally, you can always select the text that you want to change and redictate over it.

## Part VI: Nonstandard Windows and the Dictation Box

### The Difference between “Standard” and “Nonstandard” Windows

In a standard window DNS9 is able to “read” the text within it. This allows you to use all the moving, selecting and editing commands we just learned about. However, some programs behave in a nonstandard manner that makes it impossible for DNS9 to read their text.

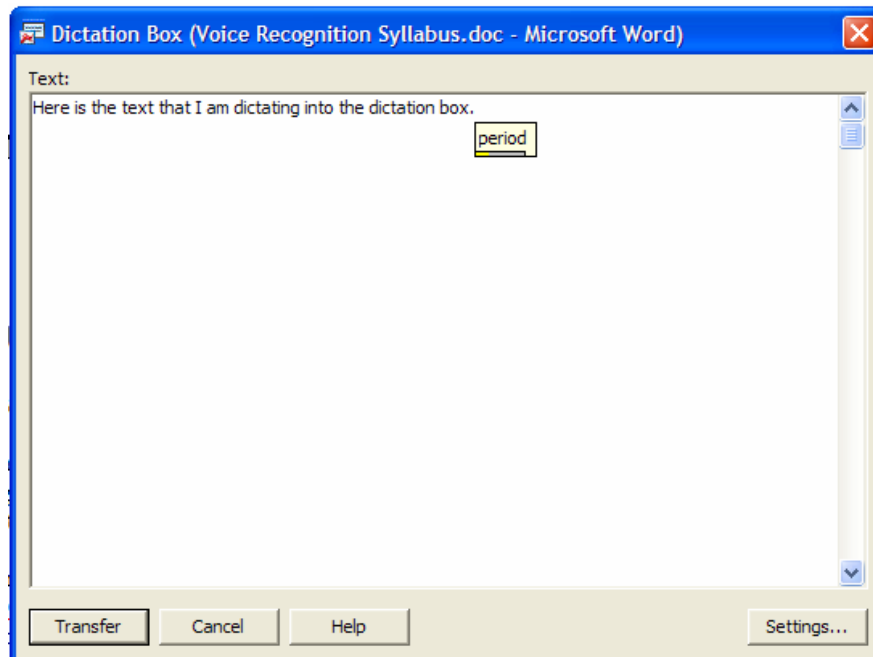
For example, suppose you were using the envelope tool in Microsoft word. The green button near the left of the DragonBar turns to gray, meaning that the window is nonstandard. You still might be able to use DNS9 to dictate into this window but the full functionality will not be available. You can address this problem using the “dictation box”.

### Using the Dictation Box

There are two ways to call up the Dictation Box:

- Say “show dictation box”
- Select “dictation box” from the Tools menu

The dictation box looks like this:



You can dictate text right into the dictation box using the full functionality of DNS9. When you're done, just say "transfer" or click on the "transfer" button and the text you just dictated will be transferred back into your application.

## Part VII: Punctuation

We have already learned how to do basic punctuation in DNS9. In addition to punctuation words like “period” and “comma” you can use the following punctuation:

- “Exclamation point”
- “Open quote”
- “Close quote”
- “Open paren”
- “Close paren”
- “Dash” (this is a double-dash)
- “Hyphen” (this is a single-dash)
- “Apostrophe s”

There is a function in DNS9 where you can have the program automatically insert commas and periods based on pauses in your speech. This can be enabled in the Tools/Options menu under the Formatting tab. DO NOT use this function as it will be wrong more often than it is right.

## Part VIII: Capitalization, Formatting Text & Font Selection

### Capitalization

Normally, DNS9 will recognize names and capitalize them automatically. However, sometimes you want to have manual control over capitalization. This can be accomplished using the following commands:

- “Caps on”
- “Caps off”
- “Cap that”
- “All cap that”

**QUESTION: What is the best way to capitalize a group of words in DNS9?**

**ANSWER: Pause for a moment, say the words that you want to capitalize, then say “Cap that”**

### Formatting Text

It’s very easy to use DNS9 to change the format of existing text. You can say:

- “Bold that”
- “Italicize that”
- “Underline that”
- “Strikeout that”

If you don’t like the formatting, you can always go back and say:

- “Format that normal”

Other options include:

- “Format that bullet style”
- “Format that right aligned”
- “Format that left aligned”
- “Center that”

## Changing the Font

To change to a different font, select the text and say:

- “Set font Helvetica”
- “Set size 18”
- “Increase font by 12 points”
- “Decrease font by 2 points”

## Undoing Your Changes

To undo your last change, simply say “Undo that”.

Don’t forget, you can always type Ctrl-Z to accomplish the same thing.

## New Line versus New Paragraph

There are some subtle differences between saying “New line” and “New paragraph”.

“New paragraph” moves you down 2 lines and gets ready to capitalize the next word.

“New line” moves the cursor down only by 1 line, and does not automatically capitalize the next word.

## Part IX: Spelling and Numbers

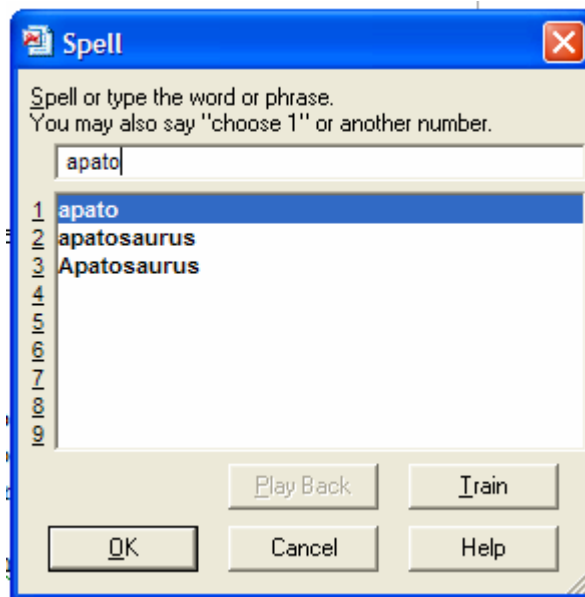
### Spelling for the Computer

There may be times where you would like to spell a word out for the computer. One way to do this is to say “Spell” followed immediately by the letters.

- “Spell Cap D A N I E L”

If you prefer to use the spelling dialog box you can say “spell” and pause for a moment. This will bring up the Spell dialog box. (Make sure that this option is selected by going to Tools/Options/Correction and checking the “Spell command brings up spell dialog box” option)

As you spell the word will appear in the top line along with a bunch of alternatives and the lines below. If you spelled out: “A P A T O” it would give you the following options, and you could just say “Choose 2” instead of spelling out the rest of “Apatosaurus”.



Many letters sound very similar to the computer, such as B, D, P, T, etc. You will find that Dragon has a lot of trouble differentiating these. It is far more accurate to use the internationally recognized NATO phonetic alphabet (“Alpha”, “Bravo”, “Charley”, “Delta”...) Dragon will recognize these just like the actual letters.

If you’re interested in trying spell using the phonetic alphabet, here is a table of all the characters:

IP ADDRESS	SUBNET MASK	IP ADDRESS	ADDRESS (PHONE NUMBER)
1	0 - - -	ALL	1 ALL 0-0-0
2	- 0 0 0	Three	2 ALL 00 000
3	- - 0 - 0	Four	3 ALL 00-00-00-00
4	- - - 0 0	Five	4 ALL 0-0-0-0-0
5	- - - - 0	Six	5 ALL 0-0-0-0-0-0
6	- - - - - 0	Seven	6 ALL 0-0-0-0-0-0-0
7	0 0 0 0	Eight	7 ALL 00 00 00 00
8	0 0	Nine	8 ALL 00-00-00
9	0 - - - -	Ten	9 ALL 0-00-00-00-00
10	0 - - 0 0	Eleven	10 ALL 0-0-00-00-00
11	0 - - - 0	Twelve	11 ALL 0-0-0-00-00-00
12	0 - - - - 0	Thirteen	12 ALL 0-0-0-0-00-00-00
13	0 - - - - - 0	Fourteen	13 ALL 0-0-0-0-0-00-00-00
14	0 0 0 0	Fifteen	14 ALL 00 00 00 00
15	0 0	Sixteen	15 ALL 00-00-00
16	0 - - - -	Seventeen	16 ALL 0-00-00-00-00
17	0 - - - 0 0	Eighteen	17 ALL 0-0-00-00-00-00
18	0 - - - - 0	Nineteen	18 ALL 0-0-0-00-00-00-00
19	0 - - - - - 0	Twenty	19 ALL 0-0-0-0-00-00-00-00
20	0 0 0 0	Twenty One	20 ALL 00 00 00 00
21	0 0	Twenty Two	21 ALL 00-00-00
22	0 - - - -	Twenty Three	22 ALL 0-00-00-00-00
23	0 - - - 0 0	Twenty Four	23 ALL 0-0-00-00-00-00
24	0 - - - - 0	Twenty Five	24 ALL 0-0-0-00-00-00-00
25	0 - - - - - 0	Twenty Six	25 ALL 0-0-0-0-00-00-00-00
26	0 0 0 0	Twenty Seven	26 ALL 00 00 00 00
27	0 0	Twenty Eight	27 ALL 00-00-00
28	0 - - - -	Twenty Nine	28 ALL 0-00-00-00-00
29	0 - - - 0 0	Thirty	29 ALL 0-0-00-00-00-00
30	0 - - - - 0	Thirty One	30 ALL 0-0-0-00-00-00-00
31	0 - - - - - 0	Thirty Two	31 ALL 0-0-0-0-00-00-00-00

## Numbers, Phone Number and Money

Numbers are pretty easy to deal with using DNS9:

- “Two” will give you **two**
- “Numeral two” will give you **2**
- “Thirty thousand fifty nine” will give you **30,059**

Amounts of money are also fairly straightforward to deal with. It is certainly easier to dictate amounts of money than to earn it:

- “Three dollars” will give you **three dollars**
- “Three dollars zero cents” will give you **\$3.00**
- “Three dollars five cents” will give you **\$3.05**

If you want DNS9 to spell out a number, use the command “format that spelled out”:

- “Five thousand nine hundred sixty four” gives you **5964**
- “Format that spelled out” turns it to: **Five thousand nine hundred sixty-four**

Phone numbers are fairly self-explanatory:

- “Three one oh four three seven oh five four four” **310-437-0544**
- “Open paren three one oh close paren four three seven oh five four four” **(310) 437-0544**

Times of day are also straightforward:

- “Eight o’clock” will give you **8 o'clock**
- “Eight fourteen” will give you **814**
- “Eight fourteen a.m.” will give you **8:14 a.m.**
- “Oh eight fourteen hours” will give you **0814 hrs**

When you say dates, you don’t need to give punctuation:

- “April 20 2007” will give you **April 20, 2007**

If there is a particular way that you would like your dates to be formatted, you can go to the Tools/Options menu item and click on the “formatting” tab. Select whatever format you would like under the “date” item.

## Part X: Correcting by Voice

### Dragon Learns More about Your Voice Each Time You Correct It

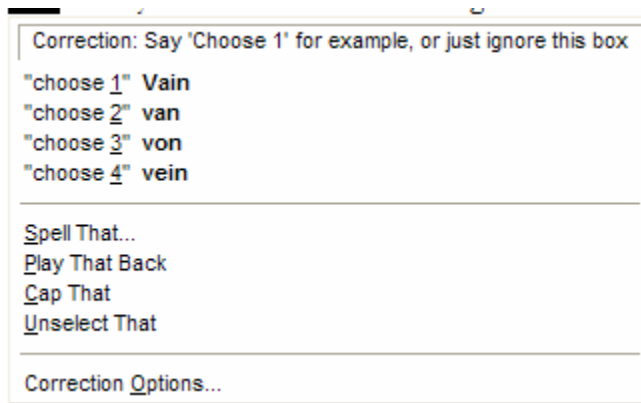
Early on when you are using Dragon, it will undoubtedly make many errors. However, it will learn more about your voice each time you correct it. There are many ways to go about correcting Dragon's mistakes. The first thing you need to do is select the incorrect words.

If you want to correct what you just dictated, just say "correct that". If you want to correct something else, select it, and this will automatically call up the correction menu (unless you've changed this option in the Tools/Options/Correction menu).

- "Select *whatever*" will highlight the text "whatever" and call up the correction menu

You can also select the text you want to correct and press the correction hot key. This defaults to the "-" key on your numeric key pad (all the way on the right side of your keyboard), but can be changed to anything you want under the Tools/Options/Hot Keys menu.

Suppose you were dictating an operative note and Dragon misinterpreted the word "vein" and typed out **vain** instead. You would say "select vain" and you would see the following correction box:



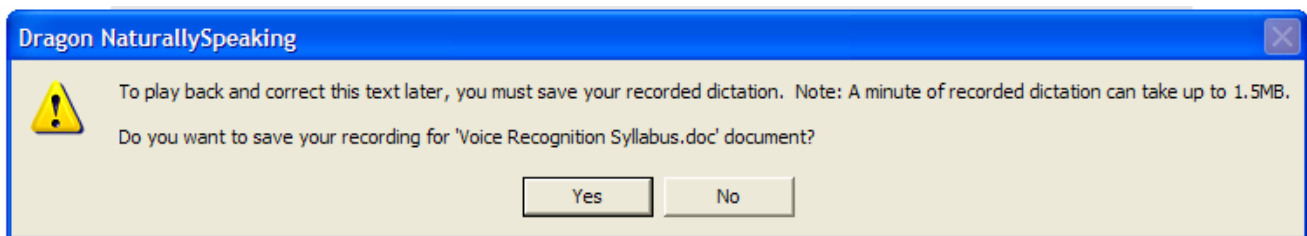
You could just say "choose 4" and this would replace the selected text with the correct word. You can also use your mouse to click on the desired choice.

If the words you're looking for don't appear in the correction box, you can always redictate the selection from scratch. This is what you would do if you were dictating an unfamiliar name to Dragon.

### IMPORTANT POINTS:

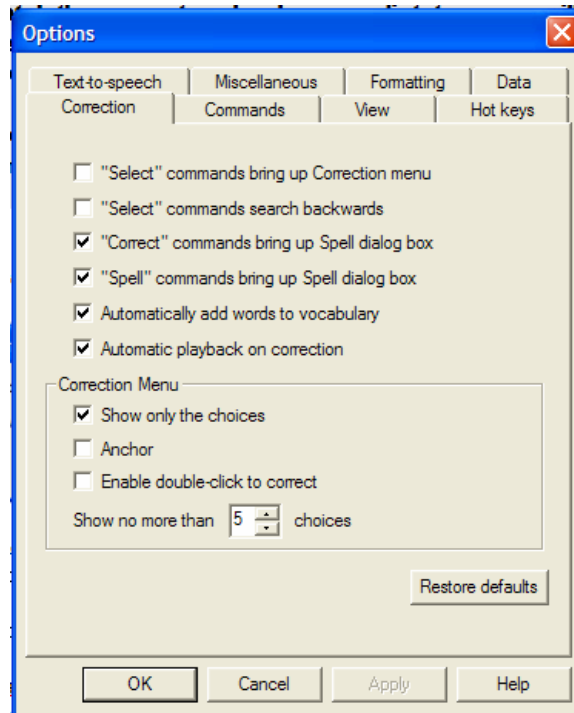
- Always correct Dragon, particularly early in your experience, or it will not learn about your voice
- Try not to watch the screen too closely as you dictate, or you will get too caught up with corrections and lose your train of thought. This is probably the single most common reason why people get frustrated with Dragon and stop using it early in their experience.
- Dictate a whole paragraph, or even a whole letter, then go back in correct it. If you can't remember exactly what you said, use the "play that back" function.

When you close your Microsoft Word document, you will see the following dialog box:



If you answer “yes” then you will be able to play back voice dictation the next time you open the file. Because this eats up so much disk space however, your default answer should be “no”. If it bugs you to be asked this question every time you close a document, you can go to Tools/Options/Data and set the option under “Save recorded dictation with document”.

Dan Newman from SayICan describes a nice way to configure your corrections menu. If you go to the Tools/Options/Correction tab and check all the boxes except for the first and last two it will look like this:



Now, when he want to correct a sequence of words just say:

- “Correct *sequence of words?*”

This will call up the spelling dialog box. You can either choose the correct line, spell at yourself, or redictate. Saying “select...” will not call up the dialog box, but just highlight that text.

## Part XI: Using DNS9 with Specific Programs: Microsoft Word

### Tips and Tricks from Dan Newman's SayICan Guide to Dragon

Here are some commands you can use within Microsoft Word:

- “Insert date” lets you insert today’s date into your document
- “Color that blue” changes the selected text color to blue
- “Increase selection by 6 points” enlarges the font by 6 points
- “What can I say?” shows a window of possible commands
- “Set tab at 2 inches” places a tab at the 2” mark
- “Set tab at 3 ¾ inches” places a tab at the 3 ¾” mark
- “Tab key” moves the cursor to the next tab stop
- “Insert a 4 by 2 table” inserts a 4 by 2 table
- “Next cell” moves you to the next cell in the table
- “Next row” moves you to the next row in the table
- “Bold that row” boldfaces the entire row in the table

SayICan recommends that you turn off the “check spelling” and “check grammar” options and Microsoft Word to conserve memory and system resources. This will substantially speed up the speed of your dictation. To do this, go to the Tools/Options/Spelling & Grammar menu in Microsoft Word.

## Part XII: Using DNS9 with Specific Programs: Microsoft Outlook

### Tips and Tricks from Dan Newman's SayICan Guide to Dragon

DNS9 has built-in commands for four different e-mail clients: Outlook, Outlook Express, Lotus Notes and America Online. Because the commands for the different programs are very similar, we will only address Microsoft Outlook here.

Here are some commands you can use within Microsoft Outlook:

- “Start Mail” Starts you email program from the desktop
- “Go to in box” Moves you to your e-mail's in box
- “Reply to mail” Creates a reply
- “Send mail” Sends your mail
- “Move down one” Moves down to the next e-mail in your in box
- “Forward mail” Forwards your e-mail
- “Delete mail” Delete the selected e-mail
- “New message” Creates a new e-mail message
- “New mail” “““
- “Goto cc:” Moves the cursor to the cc: field of your e-mail
- “Goto subject” Moves the cursor to the subject field of your e-mail
- “Go to body” Moves the cursor to the body field of your e-mail
- “What can I say” Opens up the sample commands box

### Using Dragon in Internet Explorer

DNS9 has many built-in commands for use in Internet Explorer. However, at least in my opinion, the Internet is much better navigated using a mouse.

If you're interested in using Dragon in Internet Explorer I would recommend using the command “what can I say” while Internet Explorer is open. A far more detailed instruction guide is available in Dan Newman's guide to NaturallySpeaking.

## Part XIII: Customizing the Vocabulary in DNS9

### Overview of Customization

Although Dragon NaturallySpeaking has an extensive surgical vocabulary, you may need to teach it new words; for example, devices that have been introduced since the software was last updated and terms that are extremely specialized.

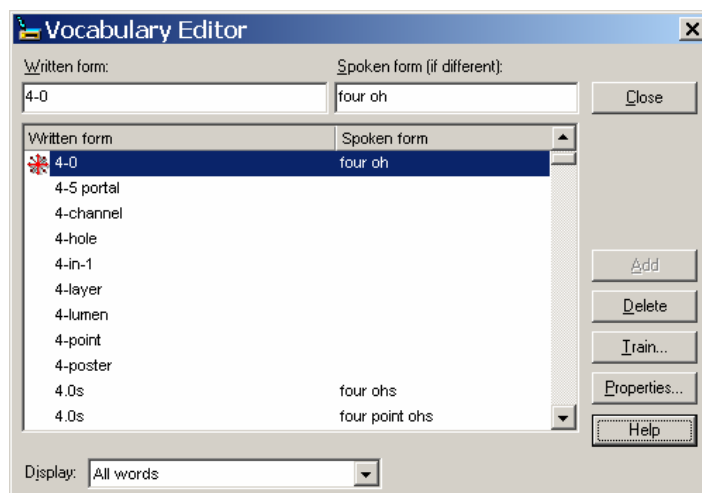
You can teach Dragon NaturallySpeaking most new terms simply by dictating and correcting them. The same is true for acronyms if they are entirely in uppercase and pronounced as either a word or a series of letters.

However, unusually spelled words such as letter-number combinations and words with symbols in them may need to be added manually, so that you can tell Dragon NaturallySpeaking how they should be pronounced.

You can also use the Vocabulary Editor to add phrases—groups of several words that always occur together. A common use of a phrase is for the name of a medical institution in your area, such as “National Park Medical Center,” or a department in your hospital or clinic. Once you have added a phrase, Dragon NaturallySpeaking capitalizes it correctly whenever you dictate it, without your having to say **cap** or **cap that**.

### Adding an unusually spelled term to the vocabulary

1. Start the Vocabulary Editor by clicking Words/Edit Vocabulary on the DragonBar. Or turn the microphone on and say “**edit vocabulary**”.
2. In the Written form field, type the word.
3. In the Spoken form field, type a word or phrase that sounds like the word:



## Examples of Unusual Words

Here are some words that would need to be added with the Vocabulary Editor, and suggested spoken forms for them:

Written form	Spoken form	Notes on spoken forms
A+	A. positive	When using an isolated letter in a spoken form, follow it with a period and a space.
t(14;18)	T. fourteen eighteen	
BCR/ABL	BCR able	When using two or more letters together, put them in all caps.
TCO2	total CO two	You can add the same written form with multiple pronunciations.
TCO2	TCO two	

**NOTE:** Not all terms with unusual spellings or pronunciations need to be added to the vocabulary. Terms in common usage are already there. For example, if you say “B I D” Dragon NaturallySpeaking types “b. i. d.” or if you say “C one C two” it types “C1-C2”. If you are not sure whether something is in the vocabulary, simply try dictating it.

To see the vocabulary words that have spoken forms, in the Display list choose Words with spoken forms only. Browse through the list of words to see examples of how to make spoken forms.

## Adding a Phrase

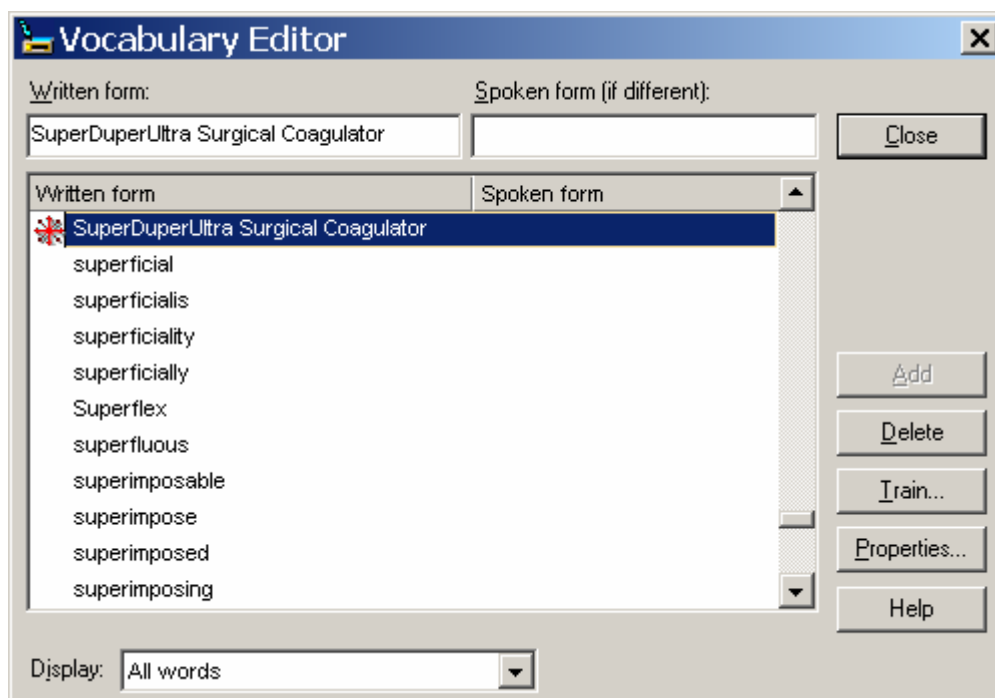
To add a phrase to the vocabulary: Home

1. Start the Vocabulary Editor by clicking Words/Edit Vocabulary on the DragonBar. Or turn the microphone on and say “**edit vocabulary**”.
2. In the Written Form field, type or dictate the phrase you want to add.
3. If the phrase should have been capitalized, say “**cap that**”.
4. Click the Add button. Your new phrase should now appear in the word list with a red star next to it.

**NOTE:** Many common institutional names do not need to be added as phrases. For example, the name “Holy Cross” and the capitalized word “Hospital” are already in the vocabulary, so if you dictate “Holy Cross Hospital” it is capitalized correctly.

## Adding a Trade Name

1. Dictate a sentence containing the name of a device that may need to appear in your dictation. For example: “The SuperDuperUltra Surgical Coagulator was then used...”
2. If any words in the phrase were not spelled or capitalized correctly, add the phrase to the vocabulary as in “Adding a Phrase” above. (There is no need to add a spoken form if the name is made up of English words or if any new words are spelled the way they are pronounced.)
3. Close the Vocabulary Editor.
4. Go back to your note and dictate the same sentence again. The phrase should now be spelled and capitalized correctly.

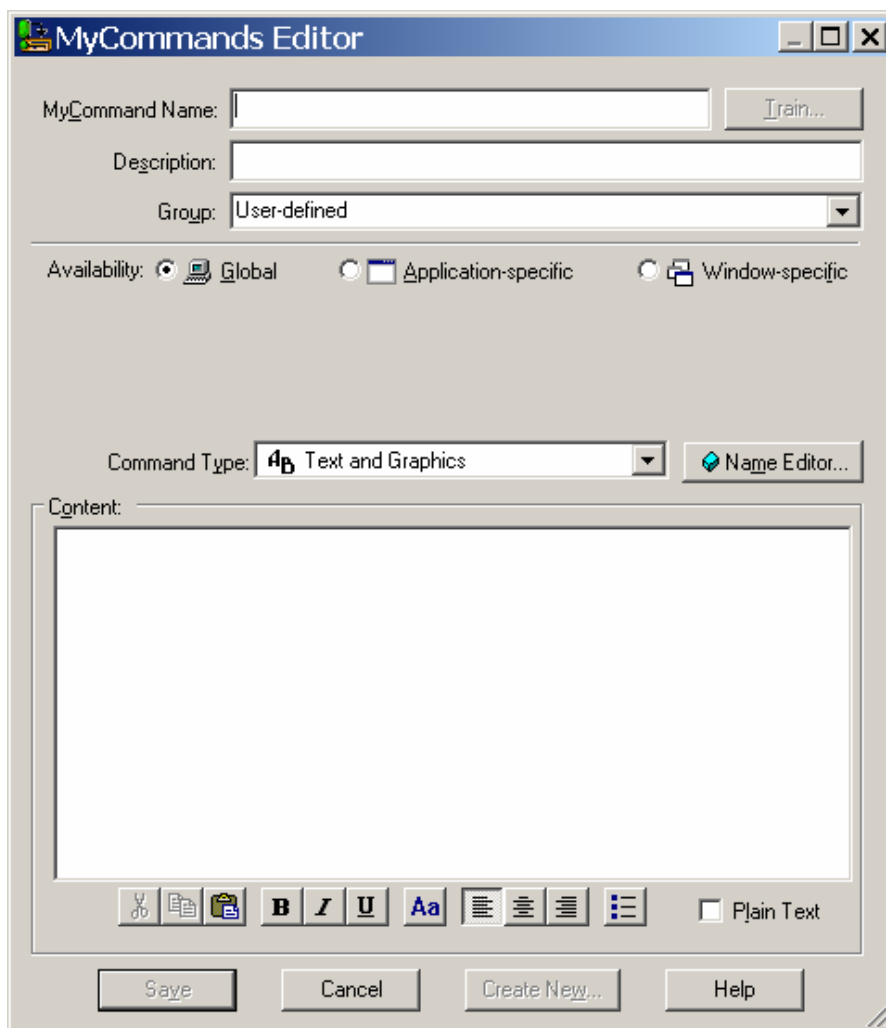


## Part XIV: Boosting Productivity with Custom Commands

Text-and-Graphics commands paste blocks of formatted text. Quick and easy to create, they allow you to save even more time: instead of dictating a whole paragraph, you can just invoke its pasting with a voice command.

### Creating Text-and-Graphics Commands

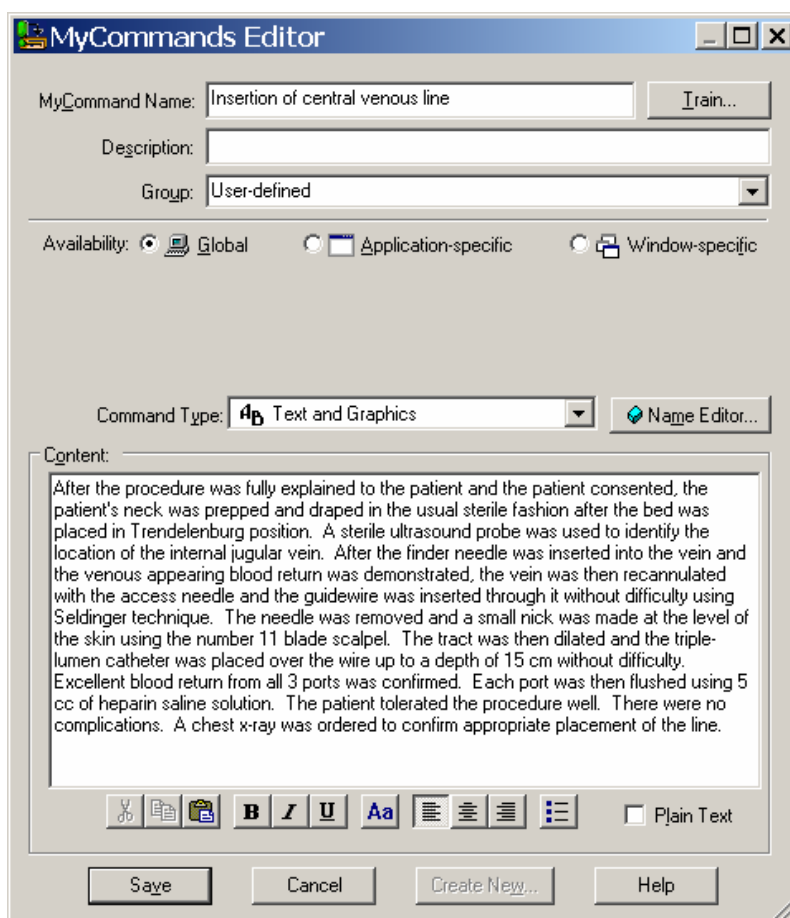
1. Open the MyCommands Editor—click **T**ools/**A**dd **N**ew Command on the DragonBar.
2. Choose a name for your command and enter it in the **MyCommand Name** field.



Important: The command's name is the phrase you will say to insert the text. It should be easy to remember and easy to say, like Insert Hernia Repair. When naming your custom commands:

- Choose a descriptive name
- Make it not too long, not too short (between 2 and 5 words is usually best)
- Use easily pronounceable words (all words in the command name should be in the vocabulary)
- If it would be helpful, include a prefix word such as "insert" or "type." Including a prefix is optional, but many users find that a prefix is a good memory-jogger.

3. In the **Description** field, enter some information about your command. This is optional, but it helps remember any important details about the command (what it accomplishes, when and where you might use it...)
4. In the Content field, enter what you want Dragon NaturallySpeaking to paste when you say your command.



5. Click Save.
6. Write down the name of the command so that you can remember what you called it.

**Tip: If you want the text to take on the font size and style of the document or application into which you are pasting it, check the Plain Text box.**

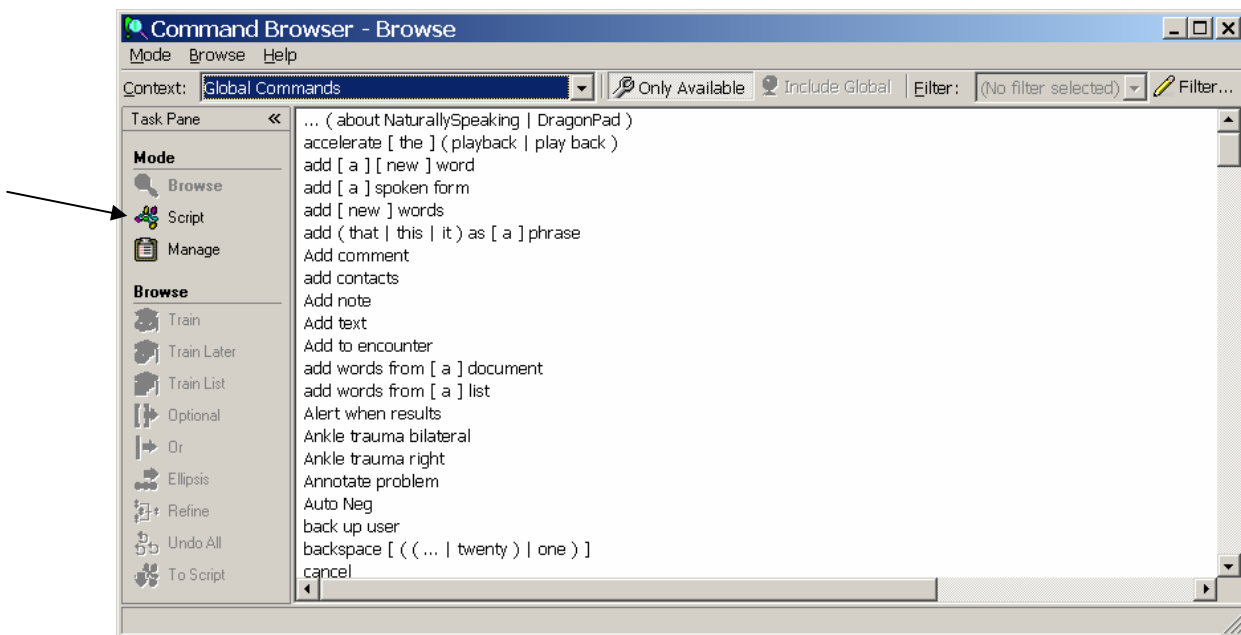
**Tip: If the text you want already exists in a document, you can save time: highlight the desired text in the original document, then say make that a shortcut. Dragon NaturallySpeaking opens the MyCommands Editor and pastes the selection into the Content field. All you have to do now is give the command a name.**

## Managing Custom Commands

After you create commands, you may wish to edit them. You may also want to delete or rename a command.

A tool called the *Command Browser* lets you perform all tasks related to commands, including your own custom commands. Deleting, renaming and modifying commands are done through its *Manage* area.

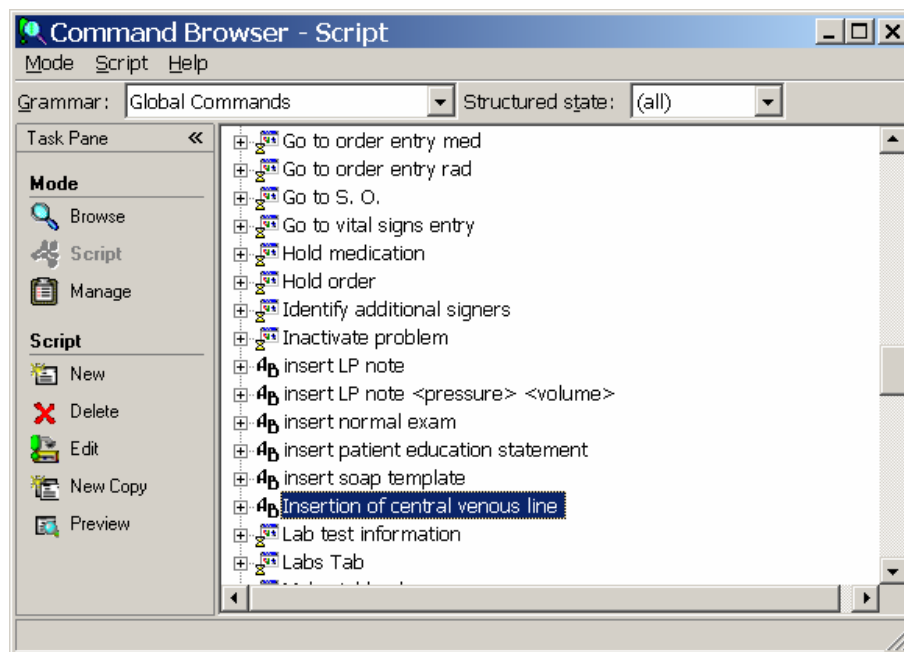
1. Click Tools, Command Browser (You can also use the link in the Accuracy Center).



2. When the Command Browser window opens, click **Script**.

**Tip: You can also search for your commands by “filtering” for keywords: choose *Filter* from the *Browse* display to specify one or more keywords (see your documentation for more details).**

3. With your command highlighted, click the **Edit** button (or choose **Edit** from the **Script** menu). The MyCommands Editor will open, displaying the command’s attributes and content.
4. Make your changes, then click **Save**.

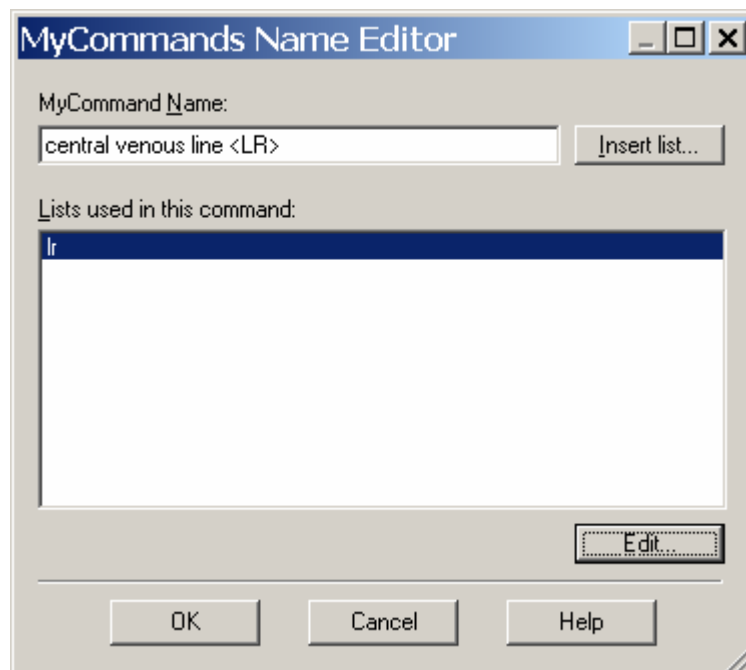


**Note: If you wish to delete a command, you can do so from the Script or Manage displays: check the box next to the desired command(s), then choose Delete.**

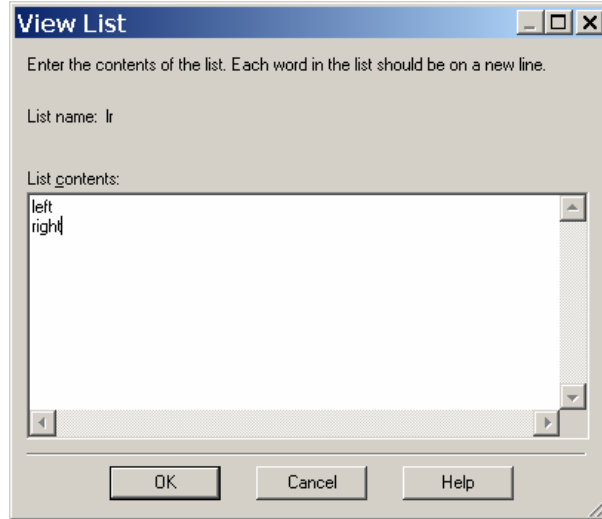
## Creating a Text and Graphics Command with a List

Lists allow you to create commands that contain variations. If a procedure description contains a small number of variable elements (up to three or so), you can use lists within it.

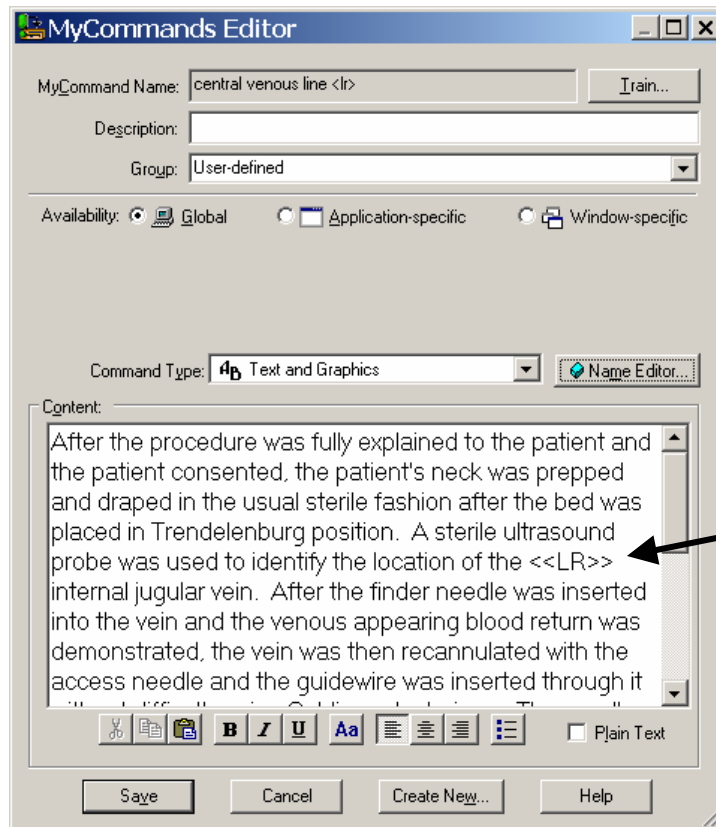
1. Decide what elements of the command name should be lists. For each one, choose an arbitrary name (such as LR for a list containing the words left and right).
2. Create a new command or edit an existing one.
3. At each point where you would like list to occur in the command name, put its name in angle brackets (such as <LR>). Notice that the MyCommands Name Editor dialog appears when you type an angle bracket; simply continue typing the command name.
4. Under “Lists used in this command,” select the list name and click Edit.



5. Type the values for the list, one on each line. Then click OK.



6. In the content of the command, at each point where you would like a list item to occur in the text, place the list name in double angle brackets (such as <<LR>>). You can use the same list name more than once in the content.



7. Test your command by saying it in multiple ways.

In the above example, there are two ways to say the command: “central venous line left” and “central venous line right.”

## Part XV: General Speaking and Dictating Skills

As you probably figured out by this point in the course, speaking to a dictation system is much different from speaking to another human being. Here are some tips that will help you to achieve a high accuracy rate:

### Tips for High Accuracy

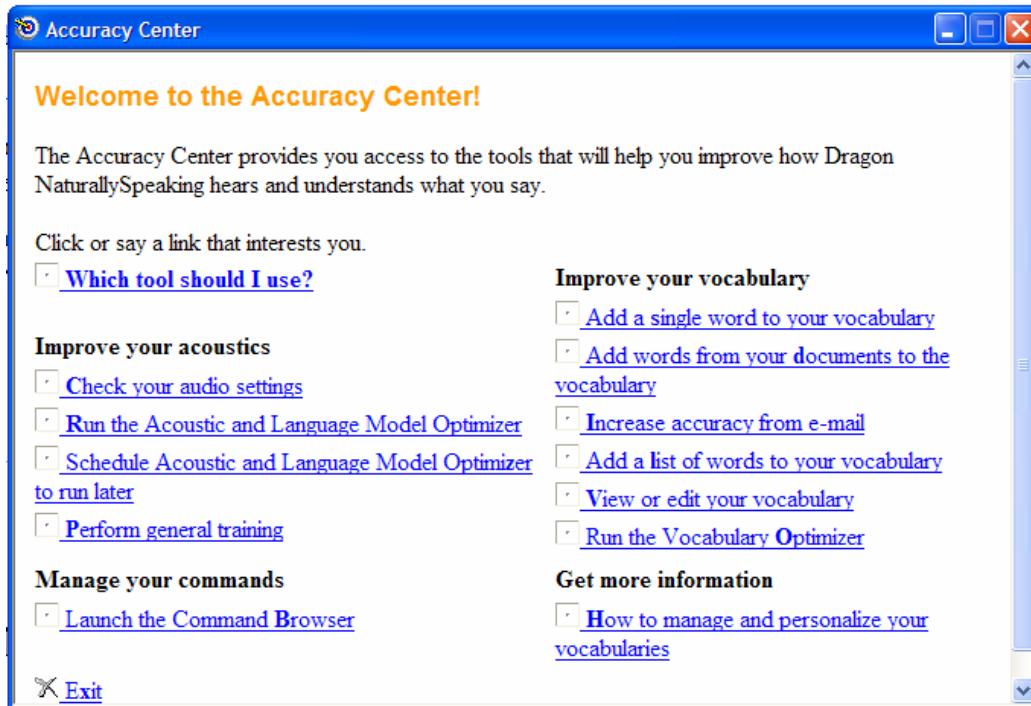
- Speak clearly and pronounce each word separately.
- Avoid mumbling at all costs.
- It's OK to stop talking while you're mentally composing what you're about to say.
- Don't talk like a robot. It will decrease your accuracy.
- Try looking away from your computer screen while your dictating – this will tend to make your speech flow more naturally and increase your accuracy rate.
- Try not to stress out when the computer makes mistakes. This is a normal part of the dictation process, and stress may alter your voice such that your accuracy rate decreases even further.
- Use the “Accuracy Center” tool which can be found under the Tools menu on the DragonBar.

**Tip: Many users go through general training once and never repeat it – this is a big mistake. It can be very useful to retrain – if only for two or three minutes – on a more frequent basis. Make sure that Dragon is set for “incremental adaptation”. To do this, go to Tools/Options/Data and check “incremental adaptation to general training”. Then, click on “General Training” and read to your computer just as you did with the initial training. This will allow the voice model to adapt your voice over time.**

- Avoid dictating in rooms with much background noise.
- If you can't avoid dictating in a room with substantial background noise then make sure that you do your training while the background noise is present.
- Chief your headset microphone in a consistent position. Remember the “thumb” trick.
- If you continue to have problems with accuracy, consider a new microphone.
- If your computer has a poor quality sound card, consider replacing it or purchasing a USB microphone.
- If you use more than one microphone, add a separate **source** under your user name. To do this, go to NaturallySpeaking/OpenUser, make sure your user name is highlighted, click “New” and make sure you choose the correct microphone type.

## Using the Accuracy Center

If you click on Tools/Accuracy Center, the following window will appear:



Clicking on the “check audio settings” link will take you to the Volume Check and Quality Check (that you may remember from the beginning of this course).

It is important to select “run acoustic and language model optimizer” at least once a week when you are beginning to use Dragon. However, note that the process takes over an hour. You will probably prefer to choose “Schedule acoustic and language model optimizer to run later”. This way you can arrange for it to run in the middle of the night when you’re not using your computer.

Finally, remember to repeat the “Perform general training” step on a regular basis. Even if you only put several minutes into retraining, this will substantially improve your accuracy. Remember, your voice is not static – it changes from day to day and week to week.

## Part XVI: Backing Up Your Voice Files

If you have ever lost valuable data when your computer crashed, you know the value of a backup. In order to avoid losing your user files, you should make sure that whatever backup system you are using backs up your NaturallySpeaking user files. If you want, you can also back up your files manually.

From the Dragon menu, click NaturallySpeaking/Manage Users/Advanced/Export. This will prompt you for a location to make a backup copy of your user files.

If your computer is not automatically backed up on a regular basis, you should strongly consider performing this type of manual backup once a month or more frequently.

## Part XVII: Using a Portable Voice Recorder (E.g. Olympus or Sony) with Dragon NaturallySpeaking

Most physicians are familiar with dictating into a voice recorder. Dragon can be used to transcribe from a digital voice recorder just like it transcribes from the headset plugged in the your computer.

Olympus, Sony and several other vendors make digital voice recorders that are very high-quality and reasonably priced. If you are planning to use DNS9 to transcribe your voice recorder-based dictation, speak to the recorder just like you would the Dragon. Make sure that your mouth remains a fixed distance from the microphone. (Some users like to use a headset even when dictating into a voice recorder). Also, make sure that your recorder is set to the highest possible sound quality.

### The “Resume With” Command Can Replace Rewinding

One difference is that you want to avoid using the rewind button on the voice recorder if possible. Instead, use the “resume with” command. This works as follows:

Suppose you incorrectly dictated: “The patient is a 49-year-old obese man with diabetes”. In fact, he does not have diabetes but has a strong family history of diabetes. You could fix this in one of two ways:

- Rewind your voice recorder until just after the word “with” and then re-dictate. This would take time, and you might have to try several times to rewind it to just the right position. Alternatively, you can...
- Dictate “resume from with a strong family history of diabetes”.

Dragon will automatically go back to the first word after “resume from” – in this case “with” – and resume the dictation. You will end up with: “The patient is a 49-year-old obese man with a strong family history of diabetes”.

### Transfer the Voice Files to Your Computer

After dictating, you need to transfer your voice files to your computer. You can do this by connecting your voice recorder to your computer with a USB cable or by removing the memory chip and inserting it into a card reader attached to your computer. You need to make sure that the format of the sound file can be understood by Dragon. This usually means converting it to a WAV or MP3 file.

## Transcribe the Voice Files into text

Choose Sound/Transcribe Recording from the DragonBar menu. Select the WAV file and set the destination to DragonPad. You will probably want to make sure that the “restricted commands” option is set. Otherwise, Dragon may incorrectly interpret dictated text as a Dragon command.

## Advice for Using a Voice Recorder

You will probably want to gain some practice on your computer before using a portable voice recorder. You can use the same set of user files used for your computer dictation for your voice recorder.

## Delegating Your Transcription to A Secretary

If you delegate your transcription to a secretary, make sure that he or she receives the original WAV or MP3 file containing your dictation. After they use Dragon for the initial transcription, they will need to listen to the original WAV or MP3 file in order to accurately correct the transcription. To facilitate this, you will need to get them a USB foot pedal (such as the one made by Olympus) to allow them to play, rewind and fast forward without removing their hands from the keyboard.

With this method, it is possible to decrease the amount of time required to transcribe one hour of dictation from approximately 3 to 4 hours to approximately 1 to 2 hours. This could potentially double your transcriptionist’s throughput.

## Part XVIII: Setting up Roaming Users

The professional and medical versions of NaturallySpeaking allow you to set up “roaming users”. This is a useful feature if you need to dictate from different computers at different times. Alternatively, you may want to be able to do your dictation from one of several different computers in your office.

Needless to say, you would not want to maintain different user files on each separate computer. With roaming users, you can instruct Dragon to store your user files on a central server. When you run Dragon on the outside computer, whether it be a desktop computer in the operating room or your laptop computer at home, it can access your user files from the server.

In this way, you maintain a single user file in a centrally accessible location. It is always up-to-date with voice training. Although the full details of how to do this go beyond what we can cover in this course, you can access this information through the help files that come with NaturallySpeaking or with the Say I Can NaturallySpeaking video guide.

## Part XIX: Where Do I Go From Here? Your Next Step After This Course

### Additional Educational Resources for Voice Recognition

After completing this course, you may be interested in learning more about using DNS9. There are a number of sources for additional learning:

- I highly recommend a series of training videos created by Dan Newman of SayICan. Many of the tips I gave you today were taken from the “Dragon NaturallySpeaking 9 Video Guide” (with permission from Dan Newman). You can learn more about this guide at: <http://www.sayican.com>.
- There are a number of books out there on voice recognition, including such venerable titles as “Dragon NaturallySpeaking for Dummies”. Please be careful, as many of the books out there are written for earlier versions of the software that are substantially different from 9.0. You can see what’s available by going to a commercial bookseller’s website such as amazon.com or bn.com and searching for “NaturallySpeaking”.
- If you are fairly confident you want to purchase voice recognition software, DNS9 has a built-in tutorial as well as very comprehensive help files. You may not need any more than this.

### I Want to Buy the Software, but What Version Should I Get?

- Dragon NaturallySpeaking 9.0 Medical Version is the most highly recommended version. It includes all the features discussed in today’s course as well as the medical vocabulary. Its retail price is \$1199 but it can be found discounted online under \$1000. (Consider [www.buy.com](http://www.buy.com) or, if you have an academic affiliation, [www.academicssuperstore.com](http://www.academicssuperstore.com)).
- The Professional Version of the software is slightly cheaper: it has the same features but lacks the medical vocabulary, so expect to spend a lot more time training it to recognize medical words. The retail price is \$899, and it can be found discounted under \$750.
- The Preferred Version is a lot less expensive, at \$169 retail. However, it lacks both the medical vocabulary and some advanced features (see chart on next page). Nonetheless, this program may be an excellent way to “get your feet wet”

## Feature Comparison Chart (from Nuance website)

FEATURE	PROFESSIONAL	PREFERRED	STANDARD
Microphone Included	✓	✓	✓
Short Set-up and User Enrollment	✓	✓	✓
Dictate into Most Microsoft® Windows®-based Applications	✓	✓	✓
No Training Required	✓	✓	✓
New Tutorials	✓	✓	✓
Support for Non-standard Edit Controls	✓	✓	✓
Select-And-Say Indicator	✓	✓	✓
Support for Mozilla Firefox and Thunderbird.	✓	✓	✓
Control Menus and Dialog Boxes in Most Microsoft® Windows® XP & Windows® 2000-based Applications by Voice	✓	✓	✓
Simultaneous Dictation and Command Modes	✓	✓	✓
Format and Edit by Voice	✓	✓	✓
Mouse Control by Voice	✓	✓	✓
Nothing But Speech (NBS)™ Natural Punctuation	✓	✓	✓
USB Audio Support	✓	✓	✓
Performance Optimizer	✓	✓	✓
Natural Punctuation	✓	✓	✓
Say Web and Browser Links by Voice	✓	✓	✓
Award-Winning RealSpeak™ 2 Text-to-Speech	✓	✓	
Dictation Playback	✓	✓	
Use with Handheld Digital Recorder	✓	✓	
Dictate into Pocket PC or palmOne™ Tungsten	✓	✓	
Smart Formatting	✓	✓	
Support for Cordless or Array Microphones	✓		
Save Audio with Text Dictation	✓		
Third-Party Correction	✓		
Roaming User	✓		
Smart Commands	✓		
Create Multiple Custom Vocabularies	✓		

### Macro Creation Tools

FEATURE	PROFESSIONAL	PREFERRED	STANDARD
Text and Graphics Dictation Shortcuts	✓	✓	
Complex Macro Support	✓		
Macro Recorder	✓		
Basic Scripting Commands	✓		
Advanced Microsoft® VBA-compatible Scripting	✓		