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# VoiceCaptioner™

[CPC-500: Caption Maker®]

*Realtime Closed and Open Captioning Software*

## **User's Guide**

*Windows 98/2000/XP*

*Version 3.06*

January 2007



*Computer Prompting & Captioning Co.*

The Industry Leader Since 1985

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# Overview

## The CPC-500 VoiceWriter™

A cost-effective system to meet your realtime captioning needs. The VoiceCaptioner is easy to use. First train the speech recognition software to recognize your voice. Next, connect your computer via a serial cable to a closed caption encoder which also receives a feed of your video. Then simply speak and your words are automatically turned into captions. To have the speech of multiple speakers appear as captions use a “shadow speaker”

## Television Use

### Sports and Weather Captioning

If your newsroom system automatically captions the teleprompter text, you are probably are not captioning sports and weather, since these segments usually are not on teleprompter. The VoiceCaptioner can automatically caption these segments if you have your sports and weather talent train the speech recognition software to their speech pattern.

### Emergency Announcement Captioning

If you have to go on the air quickly with an emergency announcement, the VoiceCaptioner can help fulfill your captioning needs. Have two or three employees on each shift train the speech recognition software to their speech pattern. When the talent (who has not trained the speech recognition software to their speech pattern) goes on air on short notice, have one of these employees act as a shadow speaker to caption the talent’s speech.

## Classroom Use

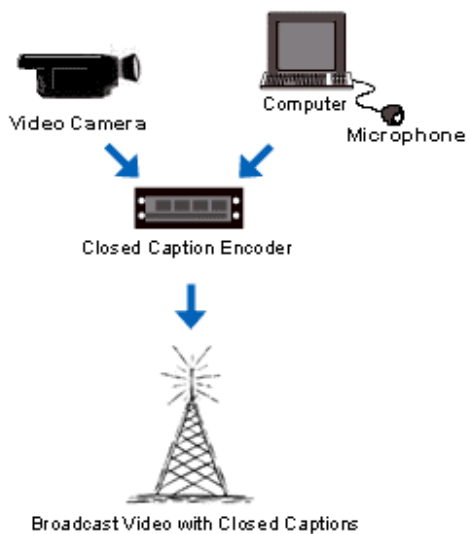
Currently, many schools use speech-to-text note taking systems which display text on a screen in front of the student. When reading the text, the student is unable to watch the instructor without taking their eyes off the screen. This setup is far from ideal, and clearly puts the student at a disadvantage. Studies have shown that visual perception plays a big part in a student's ability to learn new material. The VoiceCaptioner allows the student to see the instructor and any demonstration they may be conducting via a video monitor while simultaneously reading the text of what is being spoken. The text produced from the instructor's speech is automatically displayed as traditional captions overlaying the video.

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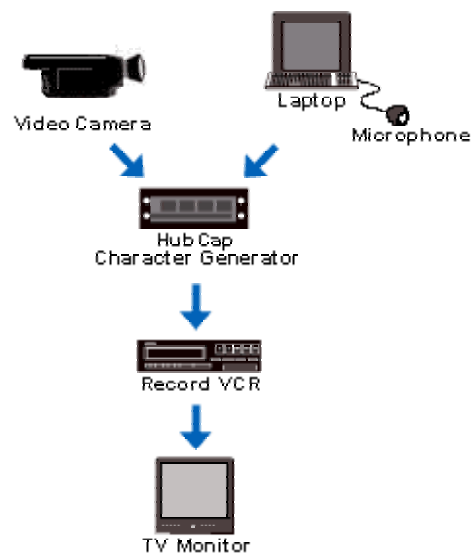
## Meeting Use

The VoiceCaptioner makes it practical to caption almost any meeting because it is so simple to use. If there is only one speaker, that person trains the software to their speech prior to the meeting. During the meeting they speak into a microphone connected to the captioning system. If there are multiple speakers, a shadow speaker is used (see sidebar below). It takes practice to get used to being a shadow speaker, but most people master it with little difficulty. This contrasts with traditional realtime captioning systems which have high labor costs (e.g. for stenographers) that often makes them prohibitively expensive to use.

## System Diagrams



**Television use**



**Classroom use**

# Chapter 1

## Hardware Installation

### System Requirements

#### Computer

The VoiceCaptioner works with IBM PC compatible computers (Pentium recommended) with:

- ◆ Windows 98/2000/XP
- ◆ Minimum computer requirements: 1.0 GHz & 512 MB RAM 50 GB of hard drive space
- ◆ Microphone optimized for speech recognition (with USB microphone interface)
- ◆ Serial port (also known as a COM port or RS 232 port)

#### CPC Protection Box (CPB)

The CPC Protection Box supplied with the CaptionMaker comes in two flavors – USB port or parallel printer port. The CPB must be attached to a USB port or parallel port on the computer for CaptionMaker to work. If you use a printer port-type CPB and a printer is currently connected to the parallel port, remove the printer cable from the parallel port, attach the male end of the Protection Box to the printer port, and connect the printer cable to the female end of the Protection Box. If you attach a printer cable to the Protection Box, the printer may need to be turned on for the CaptionMaker software to run.

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**Warning:** If you lose the Protection Box, you will not be able to run the software! You will have to pay a hefty price to replace it. You may move the Protection Box from computer to computer, allowing different users to operate the CaptionMaker software, but only one user may run the software at a time.

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#### Open Caption Character Generators (Analog)

The CaptionMaker is compatible with these open caption character generators:

- ◆ SoftTouch HubCap (Mag)
- ◆ Ultech DisplayaCap
- ◆ EEG DE 241CG/352/132

## Closed Caption Encoders (Analog & Digital)

To produce closed captions, an encoder is required to insert caption data in line 21 of the Vertical Blanking Interval (VBI).

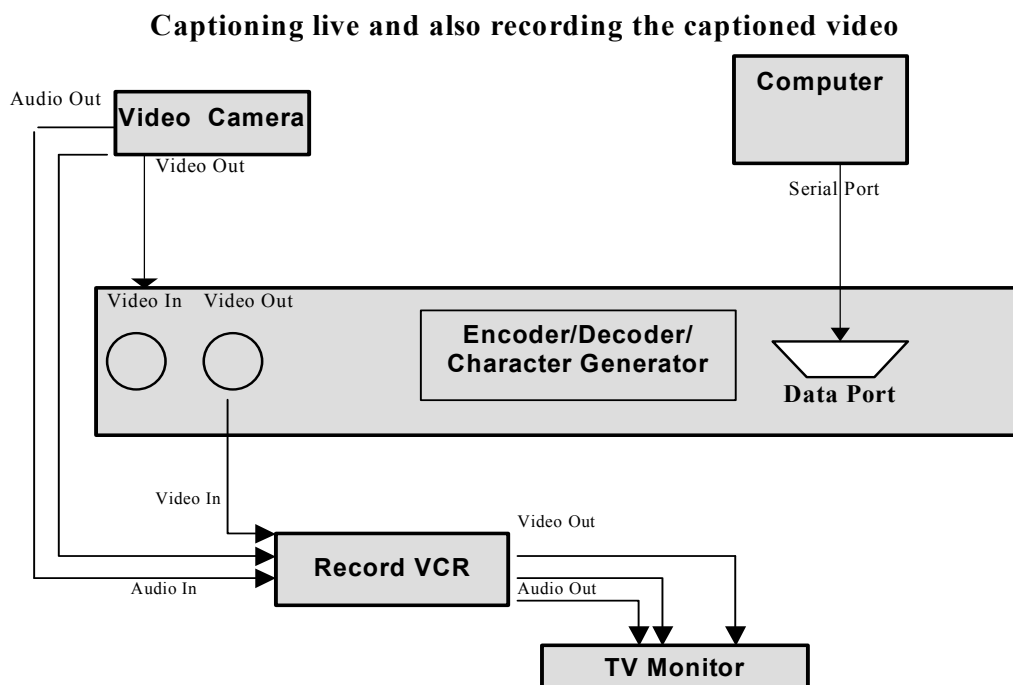
There are 525 lines from the top to the bottom of an NTSC (American Standard) video signal. When you watch TV, you do not see all of these lines. The first 25 lines are hidden above the visible TV picture. Line 21 contains the captioning information. Other information kept in the first 25 lines includes VITC time code, color bars, copy protection, and EDS (Extended Data Service) data.

The CaptionMaker is compatible with the following encoders:

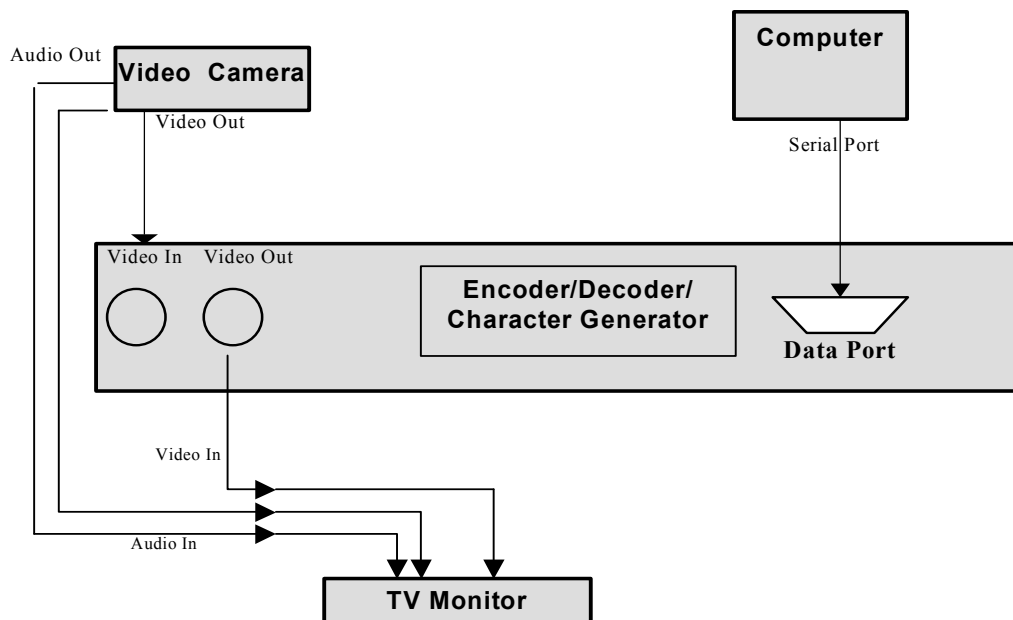
- ◆ Link PCE-845/D, PDR-885 (analog composite and component)
- ◆ EEG EN230, EN270, EN370 DT, EN470 (analog composite)
- ◆ Evertz Digital Encoder (component serial digital)
- ◆ Link PDE-890 (component serial digital)
- ◆ Norpak TES3 (analog)
- ◆ Norpak TES5 (component serial digital)
- ◆ Ultech InsertaCap (analog composite, S-video)

## Connections to Encoder/Decoder/Character Generator

For detailed instructions on how to make the connection using a HubCap (mag) as an example can be found in Appendix B.



### Captioning live and no recording



## Video Connections

In general, the process of connecting video equipment will involve the following steps:

1. Connect the Video Out from your video camera to the Video In on the encoder, decoder, or open caption character generator.
2. Connect the Video Out from the encoder, decoder, or open caption character generator to the Video In on the TV monitor or VCR.
3. If doing closed captioning, if you want to open up the captions to see them, you can take the Video Out from either the encoder or character generator or from the record device (Record VCR/VTR) and connect it to the Video In of the TV monitor.

---

**Note on Closed and Open Captions** If the Video Out signal carries closed captions from an encoder, you must have one of the following connections in order to decode (open) the captions, so they can be seen: the encoder must have an open caption Video Out; the monitor must have a built-in decoder; or you may use a stand-alone decoder.

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## Audio Connections

In the captioning/subtitling process, the audio does not go through the encoder, decoder, or character generator.

1. If using a VCR and TV monitor, connect the Audio Out from the camera into the Audio In of the VCR. Connect the Audio Out from the VCR to the Audio In of the TV monitor
2. If only using a TV monitor, connect the Audio Out of the camera to the Audio In of the TV monitor.

In the following section we are going to describe the video connection for specific encoders and open caption character generators. The audio connections and the serial port connection are same for all the hardware discussed below.

## Monitoring Equipment

To view closed captions on a video monitor or television, you need a decoder. The decoder can be:

- ◆ Built into the television (these will have the current EIA 608 decoder chips)
- ◆ An external decoder box (these might not have the current EIA 608 decoder chips)
- ◆ An encoder with built-in decoder

You also need some way to listen to the audio as you caption the video. You can either send the audio to an external monitor, or run it into the computer's sound card. Once the audio is connected you should have no trouble hearing sound.

## Open Captioning Devices

### SoftTouch Mag Hubcap Character Generator Decoders (Connections described previously)

#### Capabilities

- ◆ Generates open captions
- ◆ Decodes closed captions
- ◆ Creates a text file from previously closed captioned videos

The following decoders accept and output only Composite video. Make all the connections according to the diagram under "Connections to Encoder/ Decoder/Character Generator" (above).

### EEG DE 241CG/352/132 Open Caption Character Generator Decoders

#### Capabilities

- ◆ Generates open captions
- ◆ Decodes closed captions

These open caption character generators/decoders accept and output only Composite video. Make all the connections according to the diagram under “Connections to Encoder/Decoder/Character Generator” (above), keeping in mind the following discrepancies:

- ◆ On the back of the decoder, treat Monitor Out the same as Video Out in the diagram.

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**Note for DE241CG** Display On light on the front panel **should not be lit** when generating captions; it should be lit only when decoding closed captions from a closed captioned video. Also, CC1 should be lit.

**For DE352** The following buttons should be down (pressed): Pass Through, C1, C2, and T1.

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## Ultech DisplayaCap: Open Caption Character Generator/Decoder

### Capabilities

- ◆ Generates *only* open captions
- ◆ Decodes closed captions

The DisplayaCap accepts and outputs both Composite and S-Video.

Make all the connections according to the diagram under “Connections to Encoder/Decoder/Character Generator” (above), keeping in mind the following discrepancies:

- ◆ **For Composite Video:** Treat Y/CV In same as the Video In and Decoder CV Out same as the Video Out in the diagram.
- ◆ **For S-Video:** Treat S-Video In (see note below) same as the Video In and Decoder S-Video Out same as the Video Out in the diagram.
- ◆ **S-Video Break Out Cable:** You need one breakout cable to create an S-Video In port. Connect the two wires of the breakout cable — Y to Y/CV In and C to C In— to create the S-Video In port. The breakout cable is an option available from CPC.

## Closed and Open Captioning Devices

### Ultech InsertaCap Encoder

#### Capabilities

- ◆ Encodes closed captions
- ◆ Generates open captions
- ◆ Decodes closed captions

The InsertaCap accepts and outputs both Composite and S-Video.

Make all the connections according to the diagram under “Connections to Encoder/Decoder/Character Generator” (above), keeping in mind the following discrepancies:

- ◆ **For Composite video:** Treat Y/CV In same as the Video In and Y/CV Out same as the Video Out in the diagram.
- ◆ **For S-video:** Treat S-Video In (see breakout cable note below) same as the Video In and S-Video Out same as the Video Out in the diagram.
- ◆ **S-Video Break Out Cable:** You need two breakout cables to create S-Video In and S-Video Out ports. Connect the two wires of one breakout cable - Y to Y/CV In and C to C In to create the S-Video In Port. Similarly, connect the two wires of the other breakout cable — Y to Y/CV Out and C to C Out — to create the S-Video Out Port. The breakout cable is an option available from CPC.
- ◆ **For Closed Captions:** Take the video out from the Encoder section.
- ◆ **For Open Captions:** Take the video out from the Decoder section.

## Link PCE-845/D & PDR-885 Encoders

### Capabilities

- ◆ Encodes closed captions
- ◆ Generates open captions
- ◆ Decodes closed captions

The PDR-885 accepts and outputs Composite S-Video and Component video.

Make all the connections according to the diagram under “Connections to Encoder/Decoder/Character Generator” (above), keeping in mind the following discrepancies:

- ◆ **For Composite Video:** Treat NTSC/Y In same as the Video In and NTSC/Y Out same as the Video Out in the diagram.
- ◆ **For S-video:** Treat S-Video In same as the Video In and S-Video Out same as the Video Out in the diagram.
- ◆ **For Component Video:** Treat NTSC/Y, R-Y and B-Y In together as the Video In and similarly, NTSC/Y, R-Y and B-Y In together as the Video Out in the diagram.
- ◆ **To Record Closed Captions:** Take the video out from the left side on the back of the Encoder.
- ◆ **To Record Open Captions:** Take the video out from the Decoder section on the right side on the back of the Encoder.

## EEG EN470 Smart Encoder

### Capabilities

- ◆ Encodes closed captions
- ◆ Generates open captions
- ◆ Decodes closed captions

The EN470 accepts and outputs Composite video.

Make all the connections according to the diagram under “Connections to Encoder/Decoder/Character Generator” (above), keeping in mind the following discrepancies:

- ◆ **Serial Cable:** Serial cable must be a null modem cable (Pin 2 and 3 switched)
- ◆ **To Record Closed Captions:** Take the video out from the Encoder section.
- ◆ **To Record Open Captions:** Connect Encoder Out 1 to the Decoder In-A. Take the video out from the Decoder section.
- ◆ **Monitoring Closed Captions:** If you are recording closed captions, to monitor captions, you must connect the Decoder Out (open captions) to the Monitor directly unless you have a monitor with a built-in decoder.

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# Chapter 2

## Software Installation and Configuration

### Installing the Software

The CPC CD-ROM disk is designed to automatically execute a setup program that will install the CPC CaptionMaker onto your hard disk. At one point of installation, you need to choose CPC-500. When you are prompted for a password, type the password for CPC-500, provided by CPC for the installation to take place. It is best to have at least 10 megabytes of free hard disk space for the setup routine to work properly. You can choose the directory where you want the program to reside.

It is important to run the installation routine, rather than just copying the files from a previous installation, because the installation routine creates registry keys and makes sure all of the appropriate DLLs are installed in the computer.

New updates are released regularly. For the latest version of the program, go to [www.cpcweb.com](http://www.cpcweb.com) and choose “Download Software”.

### Computer Screen Resolution

CaptionMaker works at a screen resolution of 800 x 600 or more. If your computer monitor display is below that, go to *Start* → *Setting* → *Control Panel* → *Display* and change the screen resolution to at least 800 x 600.

### Selecting a Caption Device

You will probably need to select a caption device, such as, HubCap (Mag), InsertaCap etc. In the Current Settings area of the Caption → Device dialog box, there is a pull-down box that will let you select a caption device. Note that some manufacturers, such as Link, have a standard for talking to their devices, so you do not have to choose the individual model, only the manufacturer.

After you have selected a device, click on the Configure button. It will open a Device Settings dialog box that will display the COM Port settings for the device, as well as several other settings. It is highly unlikely that you will ever need to adjust any setting but the COM port setting, unless you have changed DIP switches or otherwise reconfigured your device. Your

caption device communicates with the computer through a serial or COM port. A computer can have up to 8 COM ports, called COM1 through COM8.

The Restore Defaults button is very useful. It will restore every one of the settings to the device's factory defaults. It is highly unlikely that the factory defaults will be incorrect for your configuration, except for the choice of COM port. The best way to test your device is to send a few characters to it.

## Setting up IBM ViaVoice® Speech Recognition Software

Assuming that ViaVoice has been installed on your computer, click on the ViaVoice icon located on your desktop to open ViaVoice. A User Wizard window should pop up like the one pictured. Enter your user name and begin the User Wizard. If you'd like, you can read only one of the 10-15 minute short stories as a test so you can see the ViaVoice in action.



It is strongly recommended that you train ViaVoice to the user's speech for at least 2-3 hours before actual use. Once you are done with training, exit the ViaVoice Option window. Open the CPC-500. On the ViaVoice task bar, click on "ViaVoice" then "Dictate to", and select "Directly into application".

Now, when you speak into the microphone you should see your speech transcribed on to the CaptionMaker screen.

If you have set up everything correctly, your speech will appear as text in the CPC-500 screen, which will in turn be displayed as open captions on your TV monitor.

## Choosing Keyboards

The CaptionMaker is designed to be completely compatible with Windows conventions for International Language Fonts and Keyboards. You can type the accented and special characters using any one of the following methods.

## Multiple Keystroke Method

If you do not know how to use a keyboard for characters used in a particular foreign language, you can install your keyboard to type those characters with multiple keystrokes.

1. To install the keyboard to type accented characters, go to *Start* → *Settings* → *Control Panel* → *Keyboard*, and click on the *Language/Input Locales* tab.
2. Click on the Properties button. On a Standard United States version of Windows, a pull-down box will appear containing many keyboard layouts.
3. Select the keyboard layout *United States - International*. Then click OK.

This keyboard will allow you to type accented English characters used in most European languages, including French, German, Spanish, Danish, Italian, Dutch, Finnish, Portuguese, Norwegian and Swedish.

To type the following characters on the left side of the table below, type two characters on the same row one after another. When you type the first character you will not see anything appearing on the screen. As soon as you type the next character, you will see the accented character. It is very simple to type the accented characters this way. You do not have to know the keyboard used for the associated language or any character code number associated with that character.

Character	First Key	Second Key
á	' (under the ")	a
à	`(under the ~)	a
ä	"	a
ã	~	a
â	^ (under the 6)	a
ç	' (under the ")	c
é	'(under the ")	e
è	`(under the ~)	e
ë	"	e
ê	^	e
í	'(under the ")	i
ì	`(under the ~)	i
ï	"	i
î	^	i
ñ	~	n
ó	'(under the ")	o
ò	`(under the ~)	o
õ	~	o

ô	^	o
ú	'(under ")	u
ù	`(under ~)	u
ü	"	u
û	^	u
ý	'(under ")	y
ÿ	"	y

Any of the above characters can be typed in uppercase, simply by pressing the [**Shift**] key while you type the second character.

The following characters can also be typed by a combination of keystrokes.

Character	Combination
Å	Shift-Control-Alt-W
À	Control-Alt-W
Æ	Shift-Control-Alt-Z
Æ	Control-Alt-Z
Ð	Shift-Control-Alt-D
Ð	Control-Alt-D
Ø	Shift-Control-Alt-L
Ø	Control-Alt-L
Þ	Shift-Control-Alt-T
Þ	Control-Alt-T
¡	Control-Alt-1 (!)
¿	Control-Alt-/ (?)
ß	Control-Alt-S
§ (Music)	Shift-Control-Alt-S
©	Control-Alt-C
®	Control-Alt-R
¥	Control-Alt(-)
×	Control-Alt-[+]
<sup>3</sup> / <sub>4</sub>	Control-Alt-8
<sup>1</sup> / <sub>2</sub>	Control-Alt-7
<sup>1</sup> / <sub>4</sub>	Control-Alt-6
€	Control-Alt-5
¤	Control-Alt-4
<sup>3</sup>	Control-Alt-3
<sup>2</sup>	Control-Alt-2
¬	Control-Alt-\(l)
¶	Control-Alt-;
°	Shift-Control-Alt-;
«	Control-Alt-[

»	Control-Alt-]
ı	Shift-Control-Alt-1
£	Shift-Control-Alt-4
ç	Shift-Control-Alt-C
μ	Control-Alt-M
...	Control-Alt->

## Character Map Method

To find out how to type any given character on the keyboard, go to *Start* → *Programs* → *Accessories* → *System Tools* → *Character Map*. This will show the entire character set. To insert a certain character at the cursor location, simply double-click on the character in the character map table.

## Single Keystroke Method

If you know how to use a keyboard for characters used in a particular language, you can install your keyboard to type those characters with a single keystroke.

- To install more languages, go to *Start* → *Settings* → *Control Panel* → *Keyboard*, and click on the *Language/Input Locales* tab.
- Click the Add button. On a Standard United States version of Windows, a pull-down box will appear containing many languages.
- Select the language you want. Then click OK.

An indicator will appear in the lower right corner of your screen (task bar) next to the clock. By clicking on this, you can select any of the keyboards that you have installed, or you may press **[Alt]+[Left Shift]** to cycle through the keyboards.

Now you have set your keyboard the same way as the characters are accessed in the language in the associated country. For example, if you choose Portuguese, a single keystroke will give the following result:

If you type	You will get
;	ç
:	Ç
=	«
Shift =	»

## Captioning Characters Available

The closed caption *encoder* does not actually draw the characters, but tells the closed caption *decoder* which characters to display. The languages supported by the closed caption decoders include:

Dutch	German
English	Portuguese
French	Spanish

---

# Chapter 3

## Live Captioning

### Overview

#### Realtime Captioning with Speech Recognition Software

The CaptionMaker is designed for live realtime captioning using speech recognition software.

There are several software packages available, such as Naturally Speaking (English and Spanish) and ViaVoice (English), which can convert speech to text fairly well after you train the software to your voice. The more you train it, the better it gets. The main problem with these software packages is that they do not recognize a new voice, only the one they have been trained for.

With the aid of this software, if you can act somewhat like an interpreter who typically translates from one language to other for a live event, you can do live captioning fairly well. You do not have to translate, you just have to listen to the words from different speakers and repeat the words out loud, because the speech recognition software only recognizes your voice.

If you are regularly a speaker for live events, you could train speech recognition software to your voice and then caption live using CaptionMaker software.

First, run the speech recognition software and train the system to your voice. The more you train, better it understands you.

Next, minimize the speech recognition software and open the CaptionMaker software and speak. The text of your speech will appear inside the CaptionMaker screen. As soon as a line of text exceeds the *Total number of characters per line* you have chosen, the text will wrap around on the screen, and the line will go out to the encoder and appear on the video as captions.

#### Languages supported

Naturally Speaking is available in multiple languages such as, English, Spanish, French, German. ViaVoice is available only in English

#### Realtime Captioning with Naturally Speaking

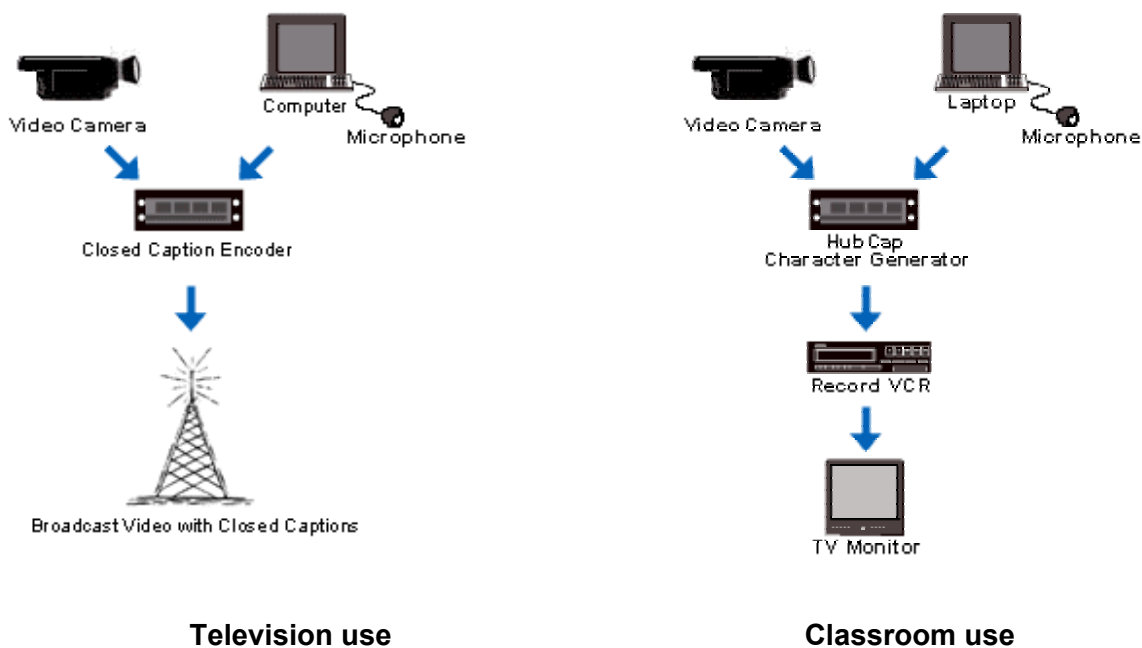
To use Dragon Naturally Speaking versions 7 and up with Captionmaker, it is necessary to execute a utility software called DnsIniFix. This utility will find the Naturally Speaking ini files on your computer and add an entry to them for CaptionMaker. The utility software

DnsIniFix.exe is available from [www.cpcweb.com/download/cmpete\\_software\\_downloads.htm#Utilities](http://www.cpcweb.com/download/cmpete_software_downloads.htm#Utilities)

### Accuracy & delay

Naturally Speaking software analyzes a complete sentence or a phrase until you pause talking and gives better accuracy compared to ViaVoice. Since Naturally Speaking analyzes the text before showing it on the screen, if you use it for live captioning, the captions might be delayed by a few seconds. For transcription purposes, the delay does not matter. So Naturally speaking is better than ViaVoice from the accuracy point of view.

### System Diagram



### Realtime Captioning Setup

You can customize the way captions are displayed to meet your specific needs. You can choose parameters like *Caption Length*, *Number of lines in Roll-Up mode*, *Left Indentation* etc. from the *Caption* → *Live Caption Options* menu. You may assign shortcut keys to invoke any of these options too. See “Chapter 4: Menus” for more details. Some of these options can be invoked either by clicking on the appropriate icons or by pressing multiple keystrokes. See the *Tools* → *Customize Keystrokes* menu.


### Number of Lines in Roll-Up Mode

You can set up the maximum number of lines of captions you would like to see on the video screen at any given time (typically 3). Go to the menu option *Caption → Live Caption Options* and choose for Roll-Up 3 Lines.

### Caption Length

Each line of text in the Work Area equals one caption line of up to 32 characters. You can choose to display less than 32 characters on a line if you so desire. If you choose an indentation other than 0, the length is reduced by that amount from 32. In other words, if you choose an indentation of 4, the maximum length allowable is 28.


### Indentation

You may also choose the desired amount of indentation (i.e., the left margin). You may choose the icon  to do the same.

### Fast Indentation

If you want to change the indentation on the fly, you may also do so by invoking any one of the 6 preset positions.

### Roll-Up One Blank Line

This menu item sends one blank caption line to the video resulting in rolling up the existing caption on the video by one line. This option can also be used to clear captions on the video by invoking it several times to roll up existing captions of more than one line. You may choose the icon  to do the same.

### Font Height...

The font height of the text seen on the CaptionMaker screen by the captioner in the Live Caption Mode can be changed. The choices are 9-point through 24-point type. A larger font is easier to read. This font size is only for the captioner, the font height of captioned text seen on the television by home viewers is fixed. The font comes from the television set and it is a standard font for all television sets.

### Send Option...

You may send the text to the closed caption encoder using either of the two options:

Send after each word  
Send after each line


For each option you may also choose a time delay. If the *Time delay* box is not checked, the *Send after each word* option sends a word as soon as you press the space character. The *Send after each line* option sends a line as soon as a line is completed and the cursor goes to the next line. You do not have any control to fix any word or line after the word or the line is sent to the encoder.


On the other hand, if you check the *Time Delay* box and set the delay time to any time between 0 and 10 seconds, you have time to fix any word or words that are not yet sent to the encoder.



The above seven options are available from the *Live Caption Option* menu. You will also need to know about a few more options, which are described below. They are related to the vertical position and clear captions from the video screen and converting upper and lower case text into all upper case. You also need to know about the status window, which shows some basic chosen parameters.

### Vertical Position


You may caption at the top or the bottom of the screen. Choose the desired vertical position from the *Attribute* → *Vertical Position* menu or from the icons on the Ancillary Toolbar. You may choose Top (Vertical position =1), Bottom (Vertical position =15) or any position 1 through 4 or 12 through 15. Roll-Up captions cannot be displayed with a base line starting from lines 5 through 11.

Click on the icon  to place the captions at the top of the screen.

Click on the icon  to place the captions at the bottom of the screen.

Click on the icons   to move the base row of Roll-Up captions up or down by one line.

### Clear Caption

You may clear the caption on the video monitor by choosing the *Caption* → *Clear Caption* menu option or, clicking on the icon  on the Ancillary Toolbar.

### Convert to uppercase

You may convert upper and lower case text to all uppercase captions by checking the box *Convert to uppercase* option from the *Caption* → *Properties* → *General Tab* menu.

### Status Window

At the bottom right side of the screen, a small window displays the default settings of the vertical (V) position, left indentation (L) and the choice of Lines for Roll-Up (R) mode. The default status is as follows:

V15L00R3

V15 indicates the vertical position is 15 which the bottom of the screen

L00 indicates the left indentation is 0.

R3 indicates Roll-Up 3 Line display mode.

## Configure Encoder/Decoder

See “Chapter 2: Hardware Installation” to make sure you are properly connected to the Encoder/Decoder.

## **Use of the Keyboard by Hard-of-Hearing Students to Ask Questions and Participate in Class Discussions**

The hard-of hearing students can participate in class discussions by typing text on the computer keyboard. The text appears as captions on the TV monitor. CPC plans to add speech synthesis software some time in the future which will vocalize the captions so hard-of-hearing students can be more fully integrated into classroom discussions.

To verify that both the CaptionMaker and ViaVoice software are running fine together, speak to the microphone and the text will appear on the computer screen. As the text being displayed exceeds the caption length chosen, the text will wrap around on the computer screen and go out to the caption device to produce one line of captions on the television screen.

## **Notes on ViaVoice**

**The key to making the system work properly is the manner in which you train the ViaVoice speech recognition software.** Based on our experience, we recommend the following.

The **initial training** consists of a few hours of reading a pre-written text file. The ViaVoice software comes with a several text files to read and gives you the option of training with your own pre-written text file.

After this training, you should reach a minimum of 80% accuracy. **If you do not achieve 80% accuracy after two to three hours of training, please call us.**

The **follow up training**, which will be used to increase the accuracy, consists of re-training the software to recognize the words which it incorrectly recognized after the initial training. **This is a key requirement of the training, and you probably will not achieve 90% to 95% accuracy if you do not do this.**

After each use of the software, run a spell check to find out which words were incorrectly recognized by the software. See the “Making Corrections”, “Train Word” and other sections dealing with making corrections of the ViaVoice® User’s Guide for instructions on teaching the software how to correct the works it misinterpreted.

Through progressive re-training sessions, the software’s accuracy will slowly increase. This will not happen overnight, but it does work. It requires a commitment from you to do this re-training. The reward will be increased accuracy as you do the re-training.

After a while, you will reach a level where re-training is rarely needed. At this point, you typically will only have to train the software to learn how to spell the names of new people, cities, and other terms not used previously by you.

**After installing the ViaVoice® software, in the “Dictate To” option, choose “Directly into application” when running ViaVoice with the CPC-500 software to do captioning.** When you are doing training, you can choose “SpeakPad”.

### **How can the software be used to caption a program in which there are many people speaking?**

The answer is through an off-camera person who previously trained the speech recognition software to their speech, and who repeats what the on-camera people are saying. This person is known in the industry as a “shadow speaker.”

It takes a while to develop the ability to act as a shadow speaker, but it is very possible to do so. For example, at the United Nations, simultaneous translators not only repeat what diplomats say, but also simultaneously translate their speech into another language. The typical shadow speaker only repeats what the talent is saying, and does not have to simultaneously translate it into another language.

### **Summary of how the system actually works**

A person speaks into a microphone attached to a computer. Their speech is transformed into a text file by speech recognition software, such as ViaVoice, running on the computer.

The text file is in turn formatted into a closed caption file by the CPC-500 software running on the same computer. This closed caption file is output to a standard closed caption encoder via a serial cable.

Video of the program is simultaneously input into the closed caption encoder through a standard video cable. The closed caption encoder encodes the caption text onto line 21 of the vertical blanking interval. The output of the encoder, which is standard video with embedded closed captions, is then broadcast out and/or recorded for later use.

There is typically a delay of about 3 seconds from the time a person says a word, until that word is output as a closed caption. This is very close to the delay time when a court reporter is used.

We have found that you will achieve the best accuracy by using a microphone with USB connector and not via the sound card.

## **How to correct mistakes made by ViaVoice**

### **Method 1**

- Click on the ViaVoice button at the top left of the screen and go to *Tools >> Manage My Vocabulary*
- Once you're in there, you may or may not already have a list of vocabulary words, if you see the word there that you want to correct, select it and click Train. Otherwise just click anywhere in the white space and then click Train.
- Write the word you want to fix, then hit the red record button and say the word clearly.

- The Vocabulary Manager should recognize the word from it's own library and match it to the word you spoke
- After you click Done the new word you added should appear on the list.

### **Method 2**

- Click on the ViaVoice button at the top left of the screen and go to *Dictate To >> Word* or whichever program you want to use.
- Once you're in there, look for the icon of the pencil eraser, that is the "Correction Window" icon, and click it.
- Now you'll have a little window on the left hand side that you can use to correct mistakes made by ViaVoice.
- Start dictating normally and every time ViaVoice makes a mistake highlight the mistake.
- When you highlight the mistake, it should appear immediately in the Correction Window and provide a list of alternative words. If the word you intended to have written is not on the list, type it in.
- After you do this a few times, ViaVoice will begin to learn and you will get spontaneous pop-ups that will ask you if you want to add this particular word to your Vocabulary List.
- Always select Yes when opening a file and the IBM ViaVoice window pops up asking you "Do you wish to restore the speech session data associated with this document?" and always say Yes when saving if ViaVoice asks "Would you like to save your dictation session?"
- Words that get added to your Vocabulary List will appear over time in the *Manage My Vocabulary* window.

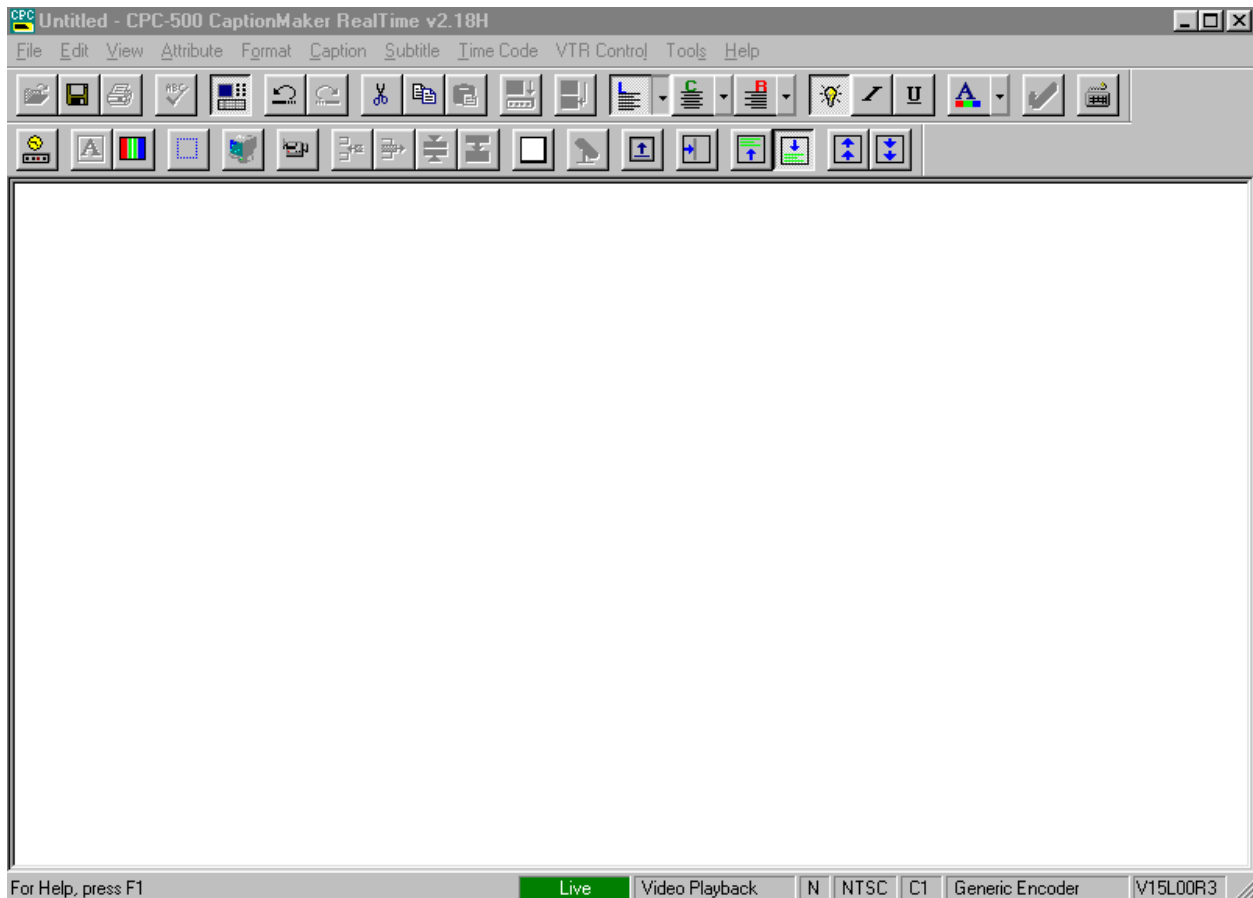
### **How to stop opening menus when dictating**

- ViaVoice has built-in commands that open certain menus when specific commands are given. This is useful when operating a program while dictating, but can be disastrous for live captioning.
- To disable all built-in commands in ViaVoice go to *ViaVoice >> User Options >> ViaVoice Options >> Command Sets* and uncheck every single box that is checked under the *Commands* section.
- If later, you want to be able to open windows and access menus with spoken commands, simply click the *Default Settings* button and all the boxes you unchecked will be checked again.

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# Chapter 4

## Menu



Screen shot CPC-500 CaptionMaker's opening screen



Two tool bars to access most functions with one click

## File Menu

### New

Creates an entirely new file. If you have a file open, it will give you the opportunity to save the currently open file, before it will create a new file. The CaptionMaker cannot support two files open at once.

### Save

Saves the current Work Area information to text file format (\*.txt) format. This file can be used with any word processor.

### Save As

Saves the current Work Area information to text file format (\*.txt) format. This file can be used with any word processor.

## List Of Most Recent Files Opened

At the bottom of the menu the program maintains a list of the most recently used files that were opened. In order to have a file appear in this list, you must exit the program normally.

### Exit

Closes the CaptionMaker program.

## Edit Menu

### Undo

This command will undo your last action. The computer maintains a deep stack of past actions. If there is nothing that can be undone, nothing will happen. The keyboard shortcut for Undo is [Ctrl] + Z.

### Cut

Takes the selected text and puts it onto the clipboard. Unlike Copy, it does not preserve the text selected. The keyboard shortcut for Cut is [Ctrl] + X.

### Copy

Takes the currently selected text or graphic and temporarily copies it onto the Clipboard. The keyboard shortcut for Copy is [Ctrl] + C.

## Caption

### Clear Captions

This option clears the captions off the video. Usually it is used to clear the captions when there is no dialog for more than few seconds. Captions can also be cleared off the video by sending multiple blank lines.

### Roll-Up 1 Blank Line

This menu item sends one blank caption line to the video resulting in rolling up the existing caption on the video by one line. This option can also be used to clear captions on the video by invoking this option several times to roll up the existing captions.

### Left Indentation

This option allows you to set the left margin. Sometimes you may need to access this option quickly on the fly. That's why even though this option is available inside the *Caption Properties* menu, it has also been put inside the pull down menu. In addition, there is an icon on the *toolbar* to active this option. You may also assign a keystroke from the *Tools* menu to access this option either from the keyboard or from the steno machine.

Note that there is another special indentation available for *Live Caption Mode* only. Check *Caption Properties* for details.

### Fast Indent

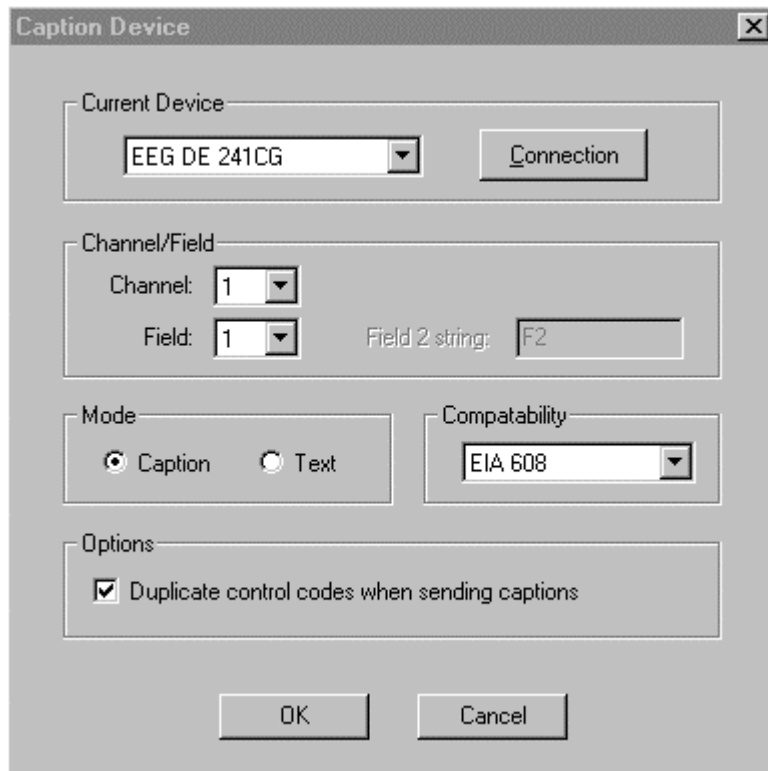
This option allows you to set left margin to some preset values. The default keystrokes for preset left margins are as follows. Of course, you can change the keystrokes to your desired keys using *Customize Keystrokes* under the *Tools* menu.

Keystroke	Left Indent
Ctrl+0	0
Ctrl+1	4
Ctrl+2	8
Ctrl+3	12
Ctrl+4	16
Ctrl+5	20

### Device

You may need to select a caption device. Pull down the caption menu and click Device at the bottom In the Current Settings area of the Caption →Device dialog box, there is a pull-down box that will let you select a caption device.

You need to select a caption device and/or a modem depending on whether you are captioning on-site, or at a remote location. Pull down the Caption menu and click on Device. The following screen will appear.



Click on the pull-down box under Current Device, which will let you select a caption device. Note that some closed caption encoder manufacturers, such as Link, have a standard for talking to their devices. For these manufacturers, you do not have to choose the individual model, only the manufacturer.

After you've selected a device, click on the Connection button. It will display a Device Settings dialog box that will display the COM Port settings for the device, as well as several other settings. It is highly unlikely that you will ever need to adjust any setting but the COM port setting, unless you have changed DIP switches, or otherwise reconfigured your device. Your caption device communicates with the computer through a serial or COM port. A computer can have up to 8 COM ports, called COM1 through COM8.

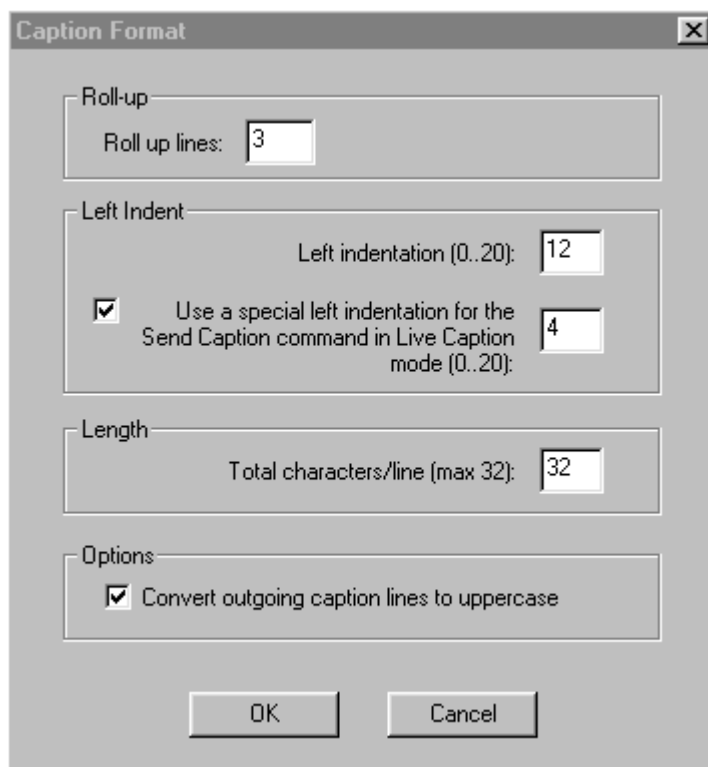
The Restore Defaults button is very useful. It will restore every one of the settings to the device's factory defaults. It is highly unlikely that the factory defaults will be incorrect for your configuration, except for the choice of the COM port. The best way to test your caption device is to send a few characters to it.

## Caption Properties

You may choose number of lines for Roll-up captions, and other parameters from this option. The number of lines for Roll-up captions ranges from 2 to 4. The maximum number of characters per line is 32. You may choose any left indentation from 0 to 32. But keep in mind that indentation plus the number of characters per line must be equal to or less than 32.

You may choose a left indentation of few characters to keep the captions slightly away from the left side of the screen. Many people like a left indentation of 4 characters and length of captions 28.

Finally, if you want to see your captions all uppercase even though your text is in upper and lower case, you may check the box *Convert outgoing captions to upper case*.



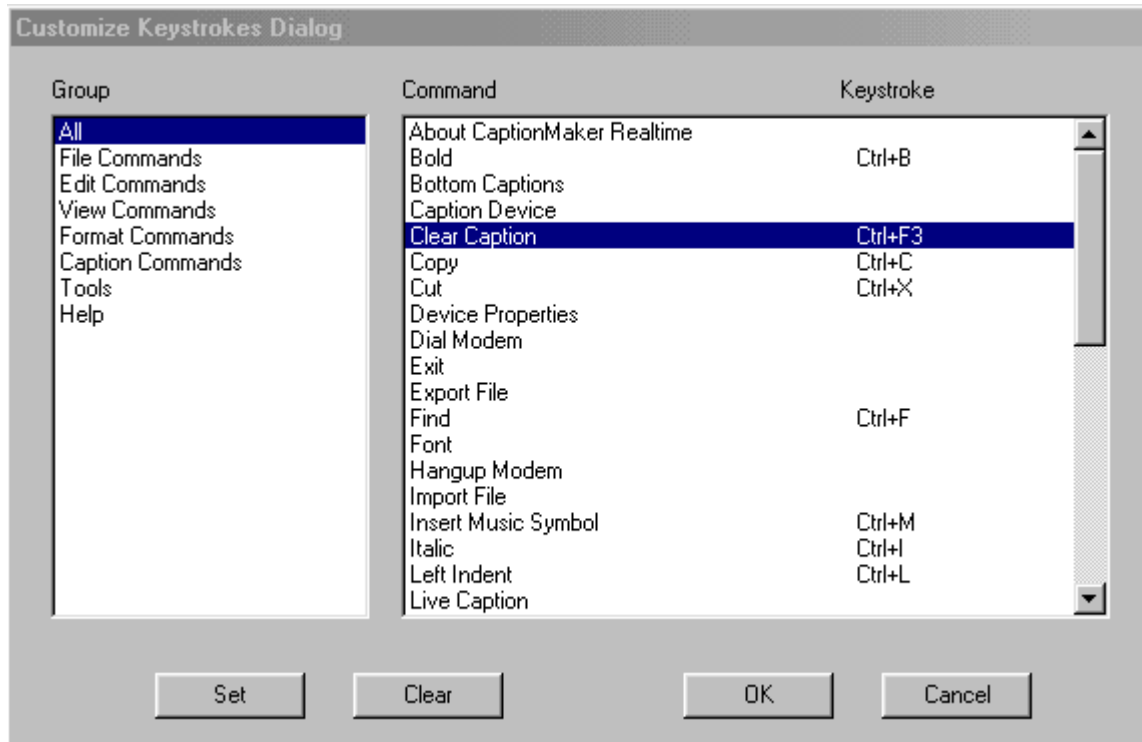
## Initialize Device

Initializes the device. In case you power off or change the caption in the middle of a session, you can click on the device to ensure proper initialization of the device.

## Tools

### Customize Keystrokes

You may customize keystrokes to almost all the menu items, so instead of using the mouse to invoke an option, you can do so either from the keyboard or from the steno machine.



For example, to clear captions from the video, you can assign your choice of keystrokes, such as *Ctrl+F3* as shown above. You can change the keystrokes at any time by clicking on the *Set* button and simply typing the keystrokes. If the keystrokes you are trying to assign to a function are used by some other function, that function cannot be accessed by those keystrokes any more.

You may also clear the keystrokes for a function by highlighting that function clicking on the *Clear* button.

## Help

### Help Topics

Calls up this help system, which is “context sensitive”. If you are in a dialog box and press [F1], the appropriate topic will appear in the help window.

### About CaptionMaker

Displays the Copyright notice and contact information for CPC.

# Appendix A

## Connecting All the Components

In this example, we have used HubCap Mag as a caption device. For any other caption device, you need to connect the video and serial cables to the appropriate ports on that device.

### Step 1: Identify Components



Hubcap Open Caption  
Character Generator



CPC Protection Box

### CPC Protection Box (CPB)

The CPC Protection Box supplied with the VoiceCaptioner comes in two flavors – USB port or parallel printer port. The CPB must be attached to a USB port or parallel port on the computer for VoiceCaptioner to work.

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**Warning:** If you lose the Protection Box, you will not be able to run the software! You will have to pay a hefty price to replace it. You may move the Protection Box from computer to computer, allowing different users to operate the VoiceCaptioner software

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### Computer Requirement

The VoiceCaptioner works with IBM PC compatible computers with:

- ◆ Windows 98/2000/XP (XP recommended)
- ◆ Minimum computer requirements: 1.0 GHz & 512 MB RAM 40 GB of hard drive space
- ◆ Microphone optimized for speech recognition (USB microphone interface recommended)

- ◆ Serial port (also known as a COM port or RS 232 port)

## What Else Do You Need?

You will also need

- ◆ A TV monitor with audio/video input jacks (Hubcap does not work with the antenna RF connector)
- ◆ 2 RCA to BNC cables
- ◆ 1 RCA-RCA audio cable
- ◆ 1 Serial Cable

## Step 2: Connecting the HubCap

First, connect the HubCap's power supply to the HubCap and to a power outlet. Next, take the BNC end of the white cable currently connected to a camera receiver or a VCR, and connect it to the video in of the HubCap.



Now take the BNC end of the blue cable and connect it to the video out of the HubCap. The RCA end will be connected to the TV monitor in the next step.

The CC and 1 lights on the HubCap should be lit as shown on the accompanying photo. If they are not lit, press the *Select* button until the CC and 1 lights are lit.



### Step 3: Connecting the TV Monitor

Connecting the TV monitor consists of two steps. First, connect the Power Cable to the 12V DC connector on the back of the TV monitor, and plug the power into a power outlet.

Then take the RCA end of the blue cable connected to the HubCap and plug it into the video 1 input on the back of the TV monitor.

Make sure the TV is in the video mode (not set to any TV channel).



### Note on Closed Caption Encoders

VoiceCaptioner works with all closed caption encoders including

- ◆ Link PCE-845D, PDR-885, (analog composite and component)
- ◆ EEG EN230, EN270, EN370 DT, EN470 (analog composite)
- ◆ Link PDE-890 (component serial digital)
- ◆ Ultech InsertaCap (analog composite, S-video)

If you use a closed caption encoder instead of the HubCap, connect the in/out video cables and the serial cable to the appropriate ports.

### Step 4: Connecting the Laptop/Computer

If the power to your laptop has not already been connected, connect it now. Then connect the CPC Protection box to the USB or Parallel port; depending on which Protection Box type you received.



Connect one end of the RS232 serial cable to the data port of the HubCap. The other end will be connected to the Laptop computer in a later step.


## Step 5: Connecting the Microphone

Microphones with USB connectors with noise reduction circuits give better result in speech recognition.

Finally, connect the microphone jack to the microphone “in” input on the side of the Laptop. If you have a microphone with USB connector, connect it to an USB port.



## Step 6: Testing the HubCap

Install CPC-500 software on your computer. Click on the CPC VoiceCaptioner icon  to open the CPC-500. If you are having any problems opening the CPC-500, please make sure that the Protection Box is firmly in place.

Go to the Caption > Device menu and select HubCap (Mag) as your device

Type a few words into the text box. If you do not see captions on the TV monitor, check the following:

- ◆ You must type more than 2 words for the VoiceCaptioner to begin sending out the previous words as captions.
- ◆ Are the lights on the HubCap lit correctly, with only CC and 1 lit?
- ◆ In the VoiceCaptioner program, click on Caption, then Device.
- ◆ Is the HubCap selected as your device?
- ◆ Is the video showing on the TV
- ◆ When inside the Caption > Device menu, press configure. Is the port set to COM 1?
- ◆ Is the serial cable firmly attached and screwed in to the COM 1 serial port on your computer?

If you are seeing captions on the video, then you have successfully set up the hardware. You're almost ready to start realtime captioning!

## Step 7: Setting up IBM ViaVoice®

Assuming that ViaVoice has been installed on your computer, click on the ViaVoice icon located on your desktop to open ViaVoice. A User Wizard window should pop up like the one pictured. Enter your user name and begin the User Wizard. If you'd like, you can read only one of the 10-15 minute short stories as a test so you can see the ViaVoice in action.



It is strongly recommended that you train ViaVoice to the user's speech for at least 2-3 hours before actual use. Once you are done with training, exit the ViaVoice Option window. Open the CPC-500. On the ViaVoice task bar, click on "ViaVoice" then "Dictate to", and select "Directly into application".

Now, when you speak into the microphone you should see your speech transcribed on to the VoiceCaptioner screen.

If you have set up everything correctly, your speech will appear as text in the CPC-500 screen, which will in turn be displayed as open captions on your TV monitor

Your system is now configured and you are almost ready to begin realtime captioning.

It is important to decide whose speech will be captioned. Some institutions opt to have the speech of the speaker captioned, in which case the speaker should use a headset microphone optimized for speech recognition (available from CPC).

Other institutions opt to caption the speech of a shadow speaker. In this later case you should use a mask microphone (also available from CPC).

A shadow speaker is a second party who repeats the spoken dialogue (of the instructor and anyone else who speaks) into a mask microphone. The mask microphone funnels the speech of the shadow speaker into the microphone imbedded in the mask. The mask prevents outside noise from reaching the microphone, providing an optimal speech to noise ratio, and increased speech recognition accuracy. The mask also does a good job of preventing the shadow speaker's voice from leaving the mask, and disturbing students seated nearby.