



Live Captioning

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Live Captioning

(Chapter 7 of CaptionMaker Manual)

Overview

The CaptionMaker is designed for live realtime captioning using a steno machine.

Additionally, it can also be used for:

1. Budget realtime captioning using optional speed typing software.
2. Budget realtime captioning using optional speech recognition software.

DSP-1000 LED Display Device Beside captioning video with a standard closed caption encoder, you can also display captions on Museum Technology's LED display DSP-1000/CC-1000 device. This is a 4 line 32 column LED display device. CaptionMaker can send caption data in Roll-up mode to this device via a serial connection. This is usually used for live caption for a large audience sitting in an auditorium.

Realtime Captioning Using a Steno Machine

For realtime captioning with a steno machine, you need:

1. A steno machine (writer) to enter data at high speed.
2. A high-speed computer with a sizable amount of memory to store a large dictionary, which is used to translate steno keystrokes into words.
3. Realtime captioning software, which translates steno keystrokes into English and then sends that data to an encoder.
4. A caption encoder to insert the caption data onto the video.
5. A highly skilled court reporter (realtime captioner).

Preparation and Fixes

Before the show starts, the realtime captioner goes through the materials that will be covered in the show and enters all the proper names and new words that might not be in their dictionary. For a half-hour show the captioner sometimes needs to spend an additional half-hour or more to do this.

Some TV stations rebroadcast their evening news later at night. You may have observed that the rebroadcast part of the late night news has virtually no captioning errors. This happens because the captioner has time to fix errors before the news is rebroadcast. At the time of rebroadcast, the captioner simply presses only one key to send one line of captions at a time from the script prepared earlier for the evening news. Since one whole line goes out at a time, captions are painted on the screen very smoothly from left to right. You can easily identify these captions. You may sometimes even see the captions appear before they are spoken!

Captioning at the Top of the Screen

Decoders adopting the new 1993 FCC/EIA specifications can support Roll-Up captioning at the top of the screen. All decoders manufactured before July, 1993, can only display Roll-Up captions at the bottom of the screen. If you have a new decoder or a new TV with a built-in decoder, you might sometimes see captions appear at the top of the screen to avoid conflicts with the graphics (names of people, etc.) at the bottom of the screen. Of course, the captioner has to make an extremely fast decision to move the captions to the top when necessary. If the captioner does not do that, even with the new decoders you will see captions covering graphics at the bottom.

Do Not Blame the Captioners for All Errors

Not all the captioning errors on the TV news are the result of mistakes made by captioners. The captioners work under intense pressure, and it is quite possible that they make some errors. A good captioner normally does not make more than 2% errors.

Errors can also arise because the caption information is a very sensitive signal encoded in a small area inside the video. If the picture reception on your TV is not very good, you will invariably see some mistakes in captions due to the distortions of the caption signal.

The Ultimate Solution

Ideally, if there were a machine (speech recognition) to translate the speech of all speakers into captions, you would not need highly skilled and expensive captioners. The expense factor prevents many TV stations from captioning the news. But the present speech recognition systems are still in their infancy. They cannot even interpret more than one speaker at a time. A large amount of research and money is being spent every year to make this technology feasible, but there is still a long way to go.

Realtime Captioning and Steno Writing

There are more than 20,000 court reporters in the United States. When they work in the courtroom environment they can afford to make some mistakes. They can fix the mistakes later and present the final corrected copy the next day (unless they are doing realtime reporting). In regard to realtime captioning, they do not have that luxury. Because the captions go out live instantly, there is no time for corrections. This is why not all court reporters are realtime captioners. In fact, only a small percentage (less than 2%) are certified as realtime captioners. Their average writing speed is around 250 words per minute. The steno machine has only 24 keys with thousands of possible keystroke combinations. There are 4 keys for vowels (A, O, E and U). To write a letter I, you need to press E and U together. The rest of the keys are divided into two parts. The left keys are for the beginning of a word, and the right keys are for the end part of a word. Left keys are S, T, K, P, W, H and R; and right keys are F, R, P, B, L, G, T, S, D and Z. Not all consonants are available as a single keystroke. For example, to write B, you need to press P and W together. You may press only one key, or as many as 10 keys all at the same time. Each keystroke, whether it is a single key or multiple keys, can produce a syllable, a word or even a phrase. It completely depends how you design your dictionary to respond to your keystrokes. It is astounding to think how it is possible to remember thousands of keystrokes. Of course, there are some standards which people follow. But every captioner adds their own keystrokes to their system. Here are you a few examples.

Keystrokes	English word(s)
TH	This
g_	Is
PW A_LS _D	Balanced
PWLTD SKWR_ET	Budget
SPH A_FT	as a matter of fact

Captioners keep a number of phrases and abbreviations like this in their repertoire to attain writing speeds in excess of 250 wpm.

Realtime Captioning Not Using a Steno Machine

Since it is impossible type as fast as words are spoken, realtime captioning can only be done properly by using a steno machine. A professional realtime captioner can type more than 250 words per minute with over 99% accuracy using a steno machine. Due to their amazing skills, these professionals are quite expensive.

For low-budget situations, there are two possible alternatives solutions that are not as good as realtime captioning with steno machines, but in some cases are acceptable. Instead of using the steno machine, text

can be entered using speed typing software or speech recognition software. The details can be found at the end of this chapter.

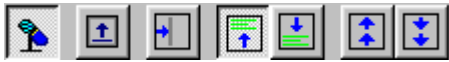
Realtime Captioning Setup

To set up for Live Caption, make sure to go through the following checklist.


1. Open Ancillary Toolbar
2. Invoke Full Screen Spreadsheet view
3. Invoke Live Caption mode
4. Set the desired choices to display captions
5. Configure Encoder/Decoder
6. Modem setup (if you are captioning from a remote location)
7. Install software for text entry (steno machine, etc.)

Open Ancillary Toolbar

Go to the View menu and click the Ancillary Toolbar. At the right end of this toolbar you see icons pertinent to Live Captioning. Bring the mouse on top of each icon to view the tool tip and familiarize yourself with the function of each icon. The details can be found in the “Chapter 9: Icons and Buttons”.




Invoke Full Screen Spreadsheet View

It is much easier to caption live in the full-screen view as opposed to the screen with the video window. Click on the option under *View* → *Full screen Spreadsheet* menu to set the full screen view. You may also click on the icon  to toggle between the two screens.

Note: Do not use the view with video preview window. This window takes lot of processing power and slows down captioning.

Invoke Live Caption Mode

Click on the option under *Caption* → *Live Caption* menu to set the Live Caption mode. You may also click on the icon  on the ancillary toolbar to do the same. In Live Caption mode, CaptionMaker captions in the Roll-Up mode only. Roll-Up captions scroll up from the bottom (usually) of the screen one line at a time. Two to four lines of captions (maximum of 32 characters per line) normally appear on the screen at any given time. Television news and talk shows normally use Roll-Up captioning.

Set the Desired Choices to Display Captions

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 8: 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.

Tip Make sure the Display column shows Roll-Up mode (not Pop-On or Paint-On). To change the mode, click on the **Display** header to highlight the column. Right-click anywhere on the column except the header and choose a mode.

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.

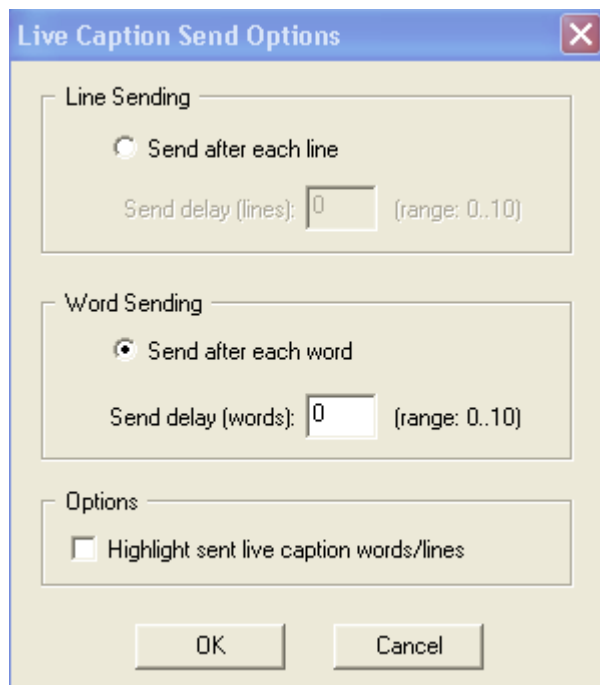
Roll-Up One Blank Line

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. The font height seen by home viewers cannot be changed.

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, *Send after each word* option sends a word as soon as you press the space character. *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 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 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 *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.

Modem Setup

If you are captioning from a remote location, you have to make sure that your modem is properly connected. See “Chapter 2: Hardware Installation” for details.

Install Software for Text Entry

See the next section, “Realtime Captioning Using a Steno Machine” for details.

Realtime Captioning Using a Steno Machine

The CaptionMaker has been designed to accept text input from any one of the following devices, and then send the input text, line by line, to the caption device to produce captions:

- Steno Machine running realtime court reporting software.
- Speech recognition software.
- Standard computer keyboard with or without speed typing software.

This section will describe exactly how the CaptionMaker interfaces to a steno machine running any Windows realtime court reporting software.

Note: CaptionMaker works with any Windows realtime steno software as long as the text from the steno software is inserted to the keyboard buffer.

A Windows steno software must be run in conjunction with CaptionMaker. Check the Steno software manual for details on:

- Installing a steno software in the computer.
- Which steno machine models you can use.
- Built-in and user dictionaries.
- Importing dictionaries from other court reporting systems.

Live Captioning in Action

Make sure that the *Live Caption* mode (inside the *Caption* menu) is checked. Type a short line of text on the computer keyboard and send the line by pressing the [+] key on the computer keyboard near the keypad area. If all the connections are correct, you will see the line of text appear as captions on the television screen, which indicates that the CaptionMaker software is working.

To verify that both the CaptionMaker and the steno software are running fine together, type a few words on the steno machine and the text will appear on the computer screen. As the text being typed 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.

Assigning Shortcut Keys from the Steno Machine

You can assign keystrokes to your desired keys for any one of the Live Caption options using *Customize Keystrokes* under the Tools menu. Here is a list of recommended keystrokes for some realtime captioning options.

Keystroke	Option
Ctrl+T	Top
Ctrl+B	Bottom

Ctrl+K	Clear captions
Ctrl+R	Roll up 1 blank line
Ctrl+ ↑	Move up 1 line
Ctrl+ ↓	Move down 1 line
Ctrl+0	Left Indent 0
Ctrl+1	Left Indent 4
Ctrl+2	Left Indent 8
Ctrl+3	Left Indent 12
Ctrl+4	Left Indent 16
Ctrl+5	Left Indent 20

After you assign the proper keystrokes inside the CaptionMaker, you may assign shortcut keys to your steno keyboard to invoke any of those options. Consult the steno software manual for instructions.

Live Mode Encoder Transparency

To invoke this option, click on the item to “Close Device” inside the Caption Menu.

When the caption device is closed, the caption encoder will be commanded to go into “transparent mode” to allow all existing caption data to pass through the caption encoder in tact. During Live caption encoding, closing the caption device allows upstream captions to pass through the caption encoder during commercials. Note that the caption encoder is automatically re-opened and re-initialized by CaptionMaker when you send any caption data to the caption encoder (continue typing in live mode, select “send caption” or “clear caption”, etc.).

Instantly Switching Between Realtime and Live Display Captioning

If you are captioning programs such as TV news, where you must caption some portions live and have text for other portions in advance, the CaptionMaker will enhance your captioning capability.

To provide an example of how this works, this section will walk you through the process of captioning a TV news program, illustrating how easy it is to switch between live captioning and captioning with prepared text. Note that pre-recorded portions should be ready for use prior to live broadcast.

The following chart and text provide an example of switching between Live Caption (Realtime) and *Live Display* (Post Caption). Live Display is used for segments that have been entered prior to airtime.

Type of Segment	Type of Captioning To Use
Live report from field	Realtime caption
Pre-recorded segment	Live Display
Weather	Realtime caption
Pre-recorded segment	Live Display
Late breaking news story	Realtime caption
Pre-recorded segment	Live Display

The procedure is simple. Import or enter any text available prior to the news program. Whenever there is a live segment, enter text into the steno machine for realtime captioning. When you reach a segment of pre-recorded text, click on the desired caption and press a pre-assigned key on your steno machine (to mimic the [+] key on the computer keyboard) to output the line of text as captions. When the segment with prepared text is finished, resume realtime captioning on your steno machine.

You will know the segment is finished when the text segment ends and the Talent begins another segment of live speaking. Note that the position of the cursor when ending one segment is exactly at the position to begin captioning the next prepared segment.

A typical file will look like the following.

#	H	V	Display	Caption/Subtitle
1	L	B	Roll-Up 3	Start entering text from here.
2	L	B	Roll-Up 3	
3	L	B	Roll-Up 3	This is the first segment
4	L	B	Roll-Up 3	of Live display.
5	L	B	Roll-Up 3	Simply press the [+] key to
6	L	B	Roll-Up 3	send these four lines of text.
7	L	B	Roll-Up 3	
8	L	B	Roll-Up 3	Start entering text from here.
9	L	B	Roll-Up 3	
10	L	B	Roll-Up 3	This is the second segment
11	L	B	Roll-Up 3	of Live display.
12	L	B	Roll-Up 3	Five lines of Live Display text.
13	L	B	Roll-Up 3	Simply press the [+] key to
14	L	B	Roll-Up 3	send these five lines of text.

Notice the file has been created with the prepared text. The text in Red (gray) indicates the place where you enter text from the steno machine or from a speech recognition system. The blank rows send a blank line of caption in between the Live Display and Live Caption modes.

To send a row of text (or blank line), simply press the [+] key from the keyboard or from the Steno Writer.

Realtime Captioning Not Using a Steno Machine

Since it is impossible to type as fast as words are spoken, realtime captioning can only be done properly by using a steno machine, which can be quite costly. For low-budget situations, there are two possible alternatives solutions that are acceptable in some cases.

Budget Realtime Captioning with Speed Typing Software

There are a few software packages on the market designed to enhance your typing speed. If your typing speed is around 70 wpm, you can increase your typing speed to 150 wpm or so after a few months' practice. It works like macrotyping in some word processors. For example, you program this software so that every time you type "ys" and then press the space bar, it will replace "ys" with "Yours Sincerely". Many secretaries at lawyers' offices use this software to enhance their typing speed.

If you take this route, you can type most of the words of a live event even if the speaker talks fast. CaptionMaker will simply send the words at the same speed you type.

Contact CPC for information on speed typing software.

Budget Realtime Captioning with Speech Recognition Software

There are several software packages available, such as ViaVoice or Naturally Speaking, 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.

Dragon 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/cmplete_software_downloads.htm#Utilities

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.

You may also press the **[+]** key to send an unfinished line at any moment if you want to.

This function is available in only the Roll-Up display mode. Set the proper left and right margins and the maximum number of rows for Roll-Up captions. As you type the text, as soon as the text wraps around to the next row, the text is automatically sent out for captions. You may also press the **[+]** key any time to send the text in the current row.

For a details on how Speech Recognition software can be used for live captioning, check the document: www.cpcweb.com/TechSupport/CapMaker/SpeechRecognitionSoftware.pdf

Captioning Video from Remote Location

If you are captioning a video generated at a remote location, you need to connect your computer to the encoder located at the remote location via a telephone line using a modem attached to your computer. The encoder must have a built-in modem or a modem attached to it. If you have a Norpak enoder, you may also connect the encoder via a LAN or via internet. See *Hardware Installation* chapter for the details.

Modem

If you are using an external modem, you should see the name of the external modem appearing in the Modem Settings windows. You must have the external modem

- ◆ Powered on.
- ◆ Connected to the computer via a serial cable.
- ◆ Must have been recognized by Windows when you power the computer on.

Whether you have an internal modem built into your computer or an external modem attached to the computer, the process of choosing the modem is the same. You need to select both the caption device (encoder) and the modem.

- ◆ First choose the caption device (encoder)
- ◆ Then click on the Configure button inside the *Caption Device* dialog box. Check the box *Connect via modem using* inside the *Caption Device Settings* dialog box below and select your modem.

LAN and Internet

If you are using a Norpak encoder, you can connect the encoder via a LAN connection or via an internet connection as long as the encoder is associated to an IP address.

Click on Connect via Local Area Network (LAN) radio button. Type the IP address and Connection IP Port.