

## Morse-Code Clipboard 3.0

This program allows you to translate any text on the Windows™ clipboard to or from a textual representation of International Morse Code. It also allows you to listen to any Morse code on the clipboard, or to the Morse equivalent of ordinary text on the clipboard, if your PC is equipped for sound (with a sound board or PC speaker and an appropriate Windows sound driver installed).

**This program is protected by copyright. See Copyright, distribution, and miscellaneous information for important details before installing or using this software.**

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## Installation

Installation of the Morse-Code Clipboard is extremely simple.

There are four files compacted into the distribution ZIP file for this program, as follows:

- MORSE.EXE**    The Morse-Code Clipboard program itself
- MORSE.HLP**    The online Windows help file for the program (the file you are reading now)
- MORSE.WAV**    A waveform file providing a continuous tone for use with the audio playback feature of the Morse-Code Clipboard
  
- README.TXT**    A simple text file giving the basics of program installation. The online help you are reading now contains the same information, and more.

You'll need at least 200 KB of available disk space to install all of these files.

You can put all of the files in the same directory, if you wish. The **MORSE.HLP** file must be in the same directory as the **MORSE.EXE** file, or in a directory contained in your search path (such as C:\WINDOWS, on most PCs). The **MORSE.WAV** file can be placed anywhere, since you will explicitly tell the Morse-Code Clipboard where to find it when you configure the program.

Use the **New** option of the Program Manager to install the Morse-Code Clipboard icon in a program folder so that you can execute it easily. See the standard Windows documentation for information on how to do this.

## Deinstalling the Morse-Code Clipboard

To deinstall the Morse-Code Clipboard, delete all the above-named files.

This program also adds one line to the **WIN.INI** file the first time it executes, in the **[sounds]** section, beginning with the keyword "**MorseCW**"; this line identifies the file containing the tone used by Morse-Code Clipboard for audio playback. You may delete this line after deleting the program files, if you prefer a tidy **WIN.INI** file.

The program also creates a file called **MORSE.INI** in your Windows directory to contain program-specific configuration information. You may delete this file after deinstalling the program.

## International Morse Code

International Morse Code is a system of communication that uses long and short pulses of light, sound, a radio-frequency carrier or modulation thereof, or some other medium to communicate messages consisting of letters of the alphabet, spaces, digits, and a few special characters. International Morse Code is based on a code developed by Samuel Finley Breese Morse (1791-1872) in the 1830s for use in telegraphic communications. It is still used today in situations or media that do not allow for the use of more sophisticated communications protocols, and a knowledge of International Morse Code is required for many technical occupations in military and civilian life, especially those dealing with communication by radio.

The following table shows the pattern of **dots** and **dashes** used to represent each of the characters that may be communicated using International Morse Code. Note that a **space** is represented simply by a pause in transmission. No distinction is made between uppercase and lowercase alphabetic characters.

Character	Dot-Dash Pattern	Character	Dot-Dash Pattern
A	.-	Ä	.-.-
B	-...	É	..-..
C	-.-.	Ñ	--.---
D	-..	Ö	---.
E	.	Ü	..--
F	...-	1	.-----
G	--.	2	..-----
H	....	3	...----
I	..	4	....-
J	.---	5	.....
K	-.-	6	-.....
L	.-..	7	--....
M	--	8	----..
N	-.	9	-----.
O	---	0	-----
P	.-..	period	.-.-.-
Q	--.-	comma	--.-.-
R	.-.	colon	---...
S	...	<u>question mark</u>	..-.-.
T	-	apostrophe	.------
U	...-	hyphen	-.....-
V	...-	slash (fraction bar)	-...-
W	.-.-	<u>parenthesis</u>	-.-.-.-
X	-.-.-	quotation mark	.-.-.-.
Y	-.--	semicolon	-.-.-.
Z	--..	underline	..-.-.-
Á	.-.-.-		

By convention, the length of a dash is three times the length of a dot, and the interval of silence between a dot or dash and the following dot or dash is equal in duration to a dot. The pause between consecutive codes is equal to the length of three dots, and the pause between words is equal to seven dots. These are the **defaults** used by the Morse-Code Clipboard, although you can modify them by invoking the Configure... dialog of the program when you start it. The default duration of a single dot is 200 milliseconds (1/5 second).

## Overview

The **Morse-Code Clipboard** is a Windows-based application that allows for easy translation of ordinary text into a textual representation of International Morse Code (dots and dashes) and *vice versa*. The text to be translated need only be copied to the Windows clipboard, and a click of a button in the Morse-Code Clipboard application will perform the translation.

In addition to this translation function, the Morse-Code Clipboard will play back Morse code on the clipboard through a PC speaker or a sound board, if the PC is so equipped, and if the appropriate Windows device drivers are installed. The speed and timing of the audio playback may be customized by the user to suit his preferences.

## Hardware and Software Requirements

This program requires only very modest resources. It consists only of the executable program itself, a online Windows help file, and a .WAV sound file containing, in digital form, the continuous tone used by the program to generate audio playback.

This program was written and tested under **Windows for Workgroups 3.11** and **MS-DOS 6.22**. It will probably run under some earlier versions of MS-DOS, and it should also run under **Windows 3.1**, but this cannot be guaranteed. The program is **not** compatible with **Windows 3.0**, since it uses a number of functions that became available only with Windows 3.1. Windows should be running in Enhanced mode when the Morse-Code Clipboard is in use.

The Morse-Code Clipboard also requires at least a 80386 or larger microprocessor, not for performance reasons, but simply because it uses instructions that are present only on the 80386 and later microprocessors.

There are no significant memory or disk requirements.

Some sort of audio device is required if the audio playback function is to be used. This means either the PC speaker with a PC-speaker driver for Windows installed (no such driver is installed by default, but you can obtain one for free from various sources) or a sound board--such as a **Sound Blaster™** or the equivalent--with appropriate drivers (normally included with the board). The program was tested with a Sound Blaster board. See the Technical notes portion of this online help for additional information on audio playback.

If you do not have any kind of audio output device, the program will still perform its translation function, but the audio playback function will not be available.

**MS-DOS®** is a registered trademark for Microsoft Corporation's operating system for IBM-compatible microcomputers.

The **clipboard** is a temporary storage area for text, graphics, and other forms of information copied or cut from documents managed by Windows applications. Most Windows programs allow information to be copied to the clipboard or pasted from it into documents or other files. Consult the standard Windows documentation for complete details.

A **driver** is a Windows software component that manages a specific type of hardware device. In order to play sounds through your built-in PC speaker from within Windows, you must have a PC-speaker driver installed. No such driver is provided with Windows, but you can obtain one easily enough from a number of sources. Drivers for sound boards are usually provided with the board. If you aren't sure which drivers you have installed, the Windows Control Panel can tell you which drivers are active in your PC. Consult the standard Windows documentation for complete details.

A **question mark** in ordinary text is translated to this code in Morse, and *vice versa*. In addition, the program also translates any unrecognized Morse code to a question mark when translating from Morse code to ordinary text.

Only one **parenthesis** exists in International Morse Code. The Morse-Code Clipboard tracks the pairing of parentheses in a block of text when translating from Morse to ordinary text, and translates the first and all odd-numbered occurrences of this code as an opening parenthesis, and the second and all even-numbered occurrences of this code as a closing parenthesis. Both types of parenthesis are translated into the same Morse code when translating from ordinary text to Morse.

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The **PC speaker** is a small, cheap audio speaker built in to most PCs. You can use it for audio output if you have the correct driver installed under Windows (no driver is provided with Windows, however). The Morse-Code Clipboard works best with a sound board, though.

An **80386** is a type of microprocessor used in PCs. If the model number of your PC contains the digits "386," your PC probably contains an 80386 or compatible microprocessor. Larger and more recent PCs may contain 80486 or Intel Pentium® microprocessors, which are compatible with the earlier 80386 microprocessors. However, if your PC contains only an 80286 microprocessor, you cannot run the Morse-Code Clipboard on your PC.

**Enhanced mode** is the preferred mode for execution of Windows 3.1 and later versions of Windows. Only an 80386 or larger microprocessor can support Enhanced mode. The Morse-Code Clipboard should only be executed when Windows is running in Enhanced mode. If you are not sure whether or not your PC is running in this mode, the Help dialog boxes of many Windows applications will indicate the operating mode of Windows if you examine them. Consult the standard Windows documentation for complete details.

A **sound board** is an add-on board that you can install in your PC to provide digital, high-fidelity sound effects and music to accompany Windows and other applications. A sound board is recommended for use with the Morse-Code Clipboard, for performance reasons, but it is not essential.

## Technical Notes

Below are a few technical notes concerning the Morse-Code Clipboard:

1. This program is written such that the rest of Windows continues to run during audio playback, under most conditions. However, if you are using a PC-speaker driver for the audio playback function, Windows will probably stall during playback, because of the way such drivers must be implemented. It may be difficult to stop playback in this case, so beware. If you are using a sound board, you should have no trouble.
2. The MORSE.WAV file provided with the program contains roughly five seconds of a fairly clean sine-wave audio signal at 880 Hz. You can replace this file with the file of your choice, or you can massage the MORSE.WAV itself (the Windows Sound Recorder allows a little bit of manipulation along these lines). Whatever you do, try to use a file that contains some sort of continuous tone, because the program will use snippets of the file to play back dots and dashes. The duration of the sound on the file should be at least as long as the longest sound (normally a dash) used by the program; if the file isn't long enough, the program will loop it to obtain the required duration.
3. The audio timing used by the program is approximate, for a number of reasons. First, Windows is not a real-time system, so precise timing is not guaranteed for Windows applications. Second, the speed of your PC has some influence on the fastest playback speed that the program can support. Third, the number of applications you have running elsewhere in the PC has some effect on playback speed. Finally, the PC architecture itself limits time resolution to about 50 milliseconds. The timing is close enough for most purposes, though.
4. This program was written entirely in C++, and the executable files were built with Borland C++ 4.5. All testing was performed on a 486 at 33 MHz, with 8 MB of RAM.
5. If the program displays a message saying that it cannot obtain enough memory, try translating or playing back smaller chunks of text or code.
6. If the program displays a message saying that it cannot obtain a timer, try terminating other applications under Windows.
7. Any Windows application that can copy text to the clipboard and/or paste text from the clipboard will work with the Morse-Code Clipboard. Formatting information (boldface, underlines, etc.) may be lost when pasting text back into an application after translation, though.
8. If you begin audio playback and the clipboard contains ordinary text, the program will quietly translate the text to Morse code and write that back out to the clipboard before beginning playback. If the clipboard already contains Morse code, it will be played directly.
9. If you don't like the "73" test pattern used by the Configure... dialog box, you can change it manually. Open the file **MORSE.INI** (in your Windows directory) with Windows Notepad, and insert the string of dots and dashes that you wish to use after the **TestString** keyword in the **Sounds** section. The string must not exceed 256 characters in length, and only dots, dashes, and spaces are allowed.

## Using the Program

To use the Morse-Code Clipboard, double-click on the program icon in the Program Manager, if you have set up an icon for it; or double-click on **MORSE.EXE** from the File Manager.

The program initially displays a small dialog box with a copyright notice and three pushbuttons:

- The **OK** pushbutton runs the program and brings up the Control Box. The Control Box allows you to use the program to translate text on the clipboard and/or play Morse code on your PC speaker or sound board. See the Control Box topic for complete details. This is the pushbutton that you will normally select once you have the program configured.
- The Configure... pushbutton allows you to configure the program before running it. See the Program Configuration topic for details.
- The **Quit** pushbutton terminates the program.

The first time you start the program, you will be warned that you must configure the name of the sound file to be used for audio playback if you want **audio playback** capability. Select the **Configure...** pushbutton to do this. If you do not require or desire audio playback capability, you need not configure a sound file.

## Copyright, Distribution, and Miscellaneous Information

This program is protected by copyright; it is not in the public domain. It *is* free, however.

The author of the program, **Anthony Atkielski**, is the copyright holder, and you may contact him via e-mail at <[73064.2766@compuserve.com](mailto:73064.2766@compuserve.com)>.

Comments, suggestions, and bug reports are welcomed; however, the author cannot guarantee a response to any message, including bug reports, and no support for the program is available.

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6. You understand and accept that the author disclaims all warranties, express or implied, including but not limited to warranties of merchantability and fitness for a particular purpose, with respect to this program and its associated files.

## Selecting a Sound File

The **Select sound file...** button in the Configure... dialog box allows you to select a waveform file containing the sound or tone you wish to use to generate audio output with the Morse-Code Clipboard.

The file you select must be in the .WAV format recognized by Windows for audible signals. It should contain a digitized, continuous tone of a duration at least equal to that of the dash duration used by the Morse-Code Clipboard; however, you can use any type of .WAV file you wish. If the duration of the sound in the .WAV file is not great enough for the Morse-Code Clipboard's requirements, it will be looped as many times as necessary to achieve the necessary duration.

Morse-Code Clipboard is distributed with a standard .WAV file, MORSE.WAV, that may be used as the sound file for the program. You can save this file anywhere you wish on your PC, and then use the **Select sound file...** dialog to point the program to the location of the file.

If you have no sound file defined (and by default, no sound file is defined), the **Audio test** button in the **Configure...** dialog and the Play button in the Control Box of the program will be disabled.

The Morse-Code Clipboard will warn you that you have no sound file defined the first time that you run the program, and will remind you to use the **Configure...** dialog to select a sound file.

You also have the option of using the **Sounds** dialog of the Windows **Control Panel** to specify or change the name of the waveform file to be used for the Morse-Code Clipboard, instead of this program. Look for the sound designated as **Morse Code Tone** in the **Sounds** dialog. You must have executed the Morse-Code Clipboard at least once before attempting this, or the sound will not appear on the list of sounds that may be assigned.

## Using the Audio Playback Feature

Audio playback allows you to hear Morse code on the clipboard played back through your PC speaker or through your sound board, if your PC is so equipped, and if you have appropriate Windows drivers installed.

In order to use audio playback, you must configured a sound file. You may do this either by using the Selecting sound file... option of the Configure... dialog of the **Morse-Code Clipboard**, or by selecting a file through the **Sounds** dialog of the Windows **Control Panel** (provided that you have executed the Morse-Code Clipboard at least once). In the latter case, look for the **Morse Code Tone** sound in the Control Panel.

Audio playback works by reading Morse code from the clipboard and playing "dots" and "dashes" through the PC speaker or sound board. The dots and dashes are actually brief tones provided by the sound file that you have selected (a default sound file, MORSE.WAV, is provided for this purpose with the Morse-Code Clipboard). The durations of the dots and dashes are individually configurable using the **Configure...** dialog of the program, as are the silent periods between dots and dashes and between Morse codes. Playback begins when you click the **Play** button in the Control Box, and continues until the end of the clipboard is reached, or until you click the **Stop** button (the **Play** button changes to **Stop** during playback). If the **Play** button is disabled, you do not have a sound file configured for the Morse-Code Clipboard to use for playback.

The speed of playback depends in part on the speed of your PC and the number of other applications you have running under Windows, and in part on the parameters you have configured for audio-playback timing in the **Configure...** dialog. See the Technical Notes topic for more details.

**MORSE.WAV** is the Windows waveform sound file distributed with the Morse-Code Clipboard. It contains approximately five seconds of a fairly clean 880 Hz sine-wave audio tone. You can use this file for audio output, or any other file of your choosing.

**Windows** is Microsoft Corporation's popular Graphic User Interface (GUI) for IBM-compatible microcomputers running the MS-DOS® operating system. You must have at least **Windows version 3.1** and **MS-DOS version 6.0** installed on your PC to run the Morse-Code Clipboard.

## The Control Box

The **Control Box** is a tiny dialog box displayed by the Morse-Code Clipboard during normal execution. It contains nothing but three pushbuttons. These three pushbuttons allow you to translate text to and from Morse code, play Morse code through your PC Speaker or sound board, and stop the program.

The **Control Box** "floats" on your screen above other windows at all times, so that you can easily get to it. Of course, you can move it to whatever position on the screen suits you.

The three pushbuttons of the **Control Box** are used as follows:

- The **Translate** pushbutton converts any text currently on the clipboard to International Morse Code, or *vice versa* (see below). Normally, you copy the text you wish to translate to the clipboard from whichever application you are using, you click on the **Translate** pushbutton of the **Control Box** to cause a translation of the clipboard contents to take place, then you paste the result back into the application of your choice. The cursor changes to an hourglass during translation (this may not be noticeable on a fast PC, or if the amount of text being translated is not very large).
- The **Play** pushbutton allows you to listen to the Morse code currently contained on the clipboard over your PC speaker or sound board. During the audio playback, this pushbutton changes to **Stop**, so that you can stop playback by clicking this button, if you wish. The **Play** pushbutton is disabled if you have not yet configured a sound file through the Configure... dialog or through the Windows Control Panel.
- The **Quit** pushbutton terminates the program. If audio playback is in progress, playback is immediately cancelled.

## Translation Details

The Morse-Code Clipboard automatically determines which type of translation to perform: from ordinary text to Morse code, or *vice versa*. It does this by examining the text on the clipboard. If the text on the clipboard contains *no* characters that can be represented in International Morse Code (other than the dot and dash, also known as the period and the hyphen), the program assumes that the text is *already* in Morse code, and translates it back to ordinary text. If the text *does* contain such characters, the program assumes that the text is ordinary text, and translates it into International Morse Code. The result of the translation in each case replaces the original contents of the clipboard.

There are a few things that you should keep in mind when translating text:

- Because of the way the program works, each click on the **Translate** pushbutton alternates between ordinary text and Morse code on the clipboard.
- If you have enabled the **confirmation beep** in the Configure... dialog of the Morse-Code Clipboard, the program will confirm each translation of clipboard contents with an audible beep.
- If there is no text on the clipboard, each click on the **Translate** pushbutton will generate a beep and an error message.
- When translating from ordinary text to Morse code, the program does not translate characters that have no Morse equivalent; these characters are passed as-is. Thus, characters such as spaces, angle brackets, and the like are left untouched.
- When translating from Morse code to ordinary text, any unrecognized Morse codes are translated

as question marks.

- Accented letters with Morse equivalents are correctly translated to Morse code (see the [International Morse Code table](#) for details on the Morse codes known to the program). Accented letters without Morse equivalents are translated to the Morse equivalents of the corresponding unaccented letters. In addition, the character **ß** is translated into the Morse equivalent of **SS**, the characters **Þ** and **þ** are both translated to the Morse equivalent of **th**, and the ligatures **Œ**, **œ**, **Æ**, and **æ** are translated to the Morse equivalents of **OE**, **OE**, **AE**, and **AE**, respectively. No attempt is made to restore the original characters when translating back to plain text, *i.e.*, **ß** is translated to **SS** when translating from ordinary text to Morse, but the code ". . . . ." ("**SS**") in Morse is not translated back to **ß** when translating from Morse to ordinary text.
- If you have enabled the confirmation beep in the [Configure...](#) dialog, a beep will confirm each translation to or from Morse code.
- Morse code does not distinguish between opening and closing parentheses. When the Morse-Code Clipboard translates from Morse code to ordinary text, it will try to translate the code for a parenthesis to either an opening or closing parenthesis, by keeping track of paired parentheses.

## Audio Playback Details

See [Using the audio playback feature](#) for details on use of the audio playback feature.

## Program Configuration

The **Morse Clipboard Configuration** dialog allows you to customize certain features of the Morse-Code Clipboard. The controls of the Configuration dialog function as follows:

The **Character options** group allows you to specify the characters used by the Morse-Code Clipboard to represent Morse code, and includes the following controls:

- The **Dot** control allows you to specify the character you want the program to use to represent a **Morse-code dot**. By default, this character is a period '.'. You can specify any character you want, as long as it is not a character with a Morse equivalent (except the period and hyphen). The program will use the character you specify to represent a dot when translating from ordinary text to Morse code, and it will interpret that same character as a dot when translating from Morse code to ordinary text. It will also take this character into account when attempting to determine whether the clipboard contains ordinary text or Morse code (see the [Control Box](#) topic for details). You may specify only one character (in other words, you cannot specify a group of characters to represent the dot).
- The **Dash** control works just like the **Dot** control, except that it allows you to specify the character to be used to represent a **Morse-code dash**. The default character is a hyphen '-'.
- The **Space character between codes** control allows you to specify the character that is used to separate Morse-codes within the same word. This control is similar to the **Dot** and **Dash** controls, except that you must specify the space character as a decimal number between **1** and **254** inclusive. For example, if you specify 32, the ANSI blank character ' ' (which has a character code of 32) will be used as the space character. The default character is an "unbreakable blank," which has a character code of **160**; this character is just like a normal blank, except that word processors will not wrap lines across an unbreakable blank. This default character ensures that words in Morse code will not be split across lines.
- The **Translate to lowercase** checkbox, if checked, causes Morse codes to be translated to *lowercase* letters (if applicable) when the program is translating from Morse codes to ordinary text. Normally, the program translates codes to *uppercase* letters (Morse code itself makes no distinction between uppercase and lowercase letters). By default, this feature is disabled.

Whichever characters you choose, you must ensure that the dot, dash, and space characters are all different from each other.

The **Audio timing parameters** group allows you to control the timing of dots and dashes for [audio playback](#), and includes the following controls:

- The **Base time unit** control specifies the time interval, in milliseconds, that is used to calculate the durations of other Morse-code features during audio playback. You may specify between **1** and **10000** milliseconds inclusive; the default value is **200** milliseconds. Changing this value changes the overall speed of Morse-code playback. See the [Technical notes](#) and [Audio Playback](#) topics for additional information concerning timing of audio playback.
- The **Dot duration** control specifies the multiplier used to determine the duration of a dot during audio playback. For example, if **Dot duration** is set to **2**, and the **Base time unit** is set to **250**, a dot will sound for **500** milliseconds during audio playback. The default value is **1**. Any value between **1** and **10000** inclusive is acceptable.
- The **Dash duration** control is similar to the **Dot duration** control, except that it controls the duration of a **dash** during audio playback. The default value is **3**. The greater the difference between the dash duration and the dot duration, the easier it is to distinguish between dots and

dashes during playback. If both durations are the same, you won't be able to tell dots and dashes apart.

- The **Between codes** control is similar to the **Dot duration** control, except that it controls the duration of the **silent period** *between dots and dashes* during audio playback. The default value is **1**. Unless you have an extremely fast PC, there will always be a brief silence between dots and dashes, so it is normally not necessary to increase this value beyond the default.
- The **Between words** control is similar to the **Dot duration** control, except that it controls the duration of the **silent period** *between complete Morse codes* during audio playback. More specifically, this control specifies the duration of the silent period inserted during audio playback by the Morse-Code Clipboard for every character that does not represent a Morse code on the clipboard. For example, every *space* or *special character* encountered during playback will produce a silence of the duration specified in this control. The default value is **7**. By playing with this value, without modifying any other values, you can slow down the overall speed of playback while retaining the playback speed of individual codes.
- The **Confirmation beep** checkbox, when checked, causes the Morse-Code Clipboard to play a confirmation beep each time it translates the contents of the clipboard to or from Morse code. By default, this beep is disabled.
- The **Select sound file...** pushbutton displays another dialog box that allows you to select the .WAV file to be used to generate sounds during audio playback. See the [Selecting a Sound File](#) topic for details on specifying a sound file.

Finally, several pushbuttons control overall configuration, as follows:

- The **OK** pushbutton accepts all the changes you have made and makes them permanent. If there are any parameters that you have specified incorrectly, you will be told, the configuration will not be updated, and you will be given the opportunity to correct your mistake. If all parameters are correct, the dialog box will be closed.
- The **Cancel** pushbutton cancels any changes you have made (including the selection of a sound file, if any), and closes the dialog box.
- The **Defaults** pushbutton resets all configuration parameters to their default values (except for the [sound-file](#) selection, which has no default), but does not close the dialog box.
- The **Audio test** pushbutton plays the fixed Morse code sequence "-- . . . . . --" ("**73**") in audio-playback mode. This allows you to test timing parameters without closing the dialog box. During playback, this button changes to **Stop** to allow you to stop playback early. For more information on audio playback, see the [Audio Playback](#) topic. If you have not selected a [sound file](#), this button is disabled.

## Memory Errors

The Morse-Code Clipboard may run out of memory while trying to translate ordinary text into Morse code, or *vice versa*, or during translation in preparation for audio playback. This usually happens because you have a very large amount of text on the clipboard (more than 30,000 bytes or so), and it is more likely when the program is translating to Morse code than it is when it is translating from Morse code (because the former increases the size of the text more than the latter). Try to translate the text by copying it to the clipboard in smaller chunks.

## Base-Unit Errors

The **base unit** for audio timing is a value in milliseconds. It must be between **1** (0.001 sec) and **10000** (10.000 sec) inclusive. The value must be a positive integer (no minus sign, and no decimal point). See the [Program Configuration](#) topic for complete details.

## **Timer Errors**

The Morse-Code Clipboard displays an error message if it cannot obtain a system timer for audio playback. This error can occur when you have too many other applications running under Windows that require timers (games, animation programs, programs with flashing cursors or other flashing objects). Terminate a few of the applications you have running and try again.

## Clipboard Errors

The Morse-Code Clipboard will display an error or message if the clipboard contains no text to translate or play back. Copy some text to the clipboard from another application and try again. See the [Control Box](#) topic for more information.

## Number-Format Errors

For certain audio timing parameters, the Morse-Code Clipboard expects to see a positive integer (no minus sign, and no decimal point) between **1** and **10000** inclusive. See the [Program Configuration](#) topic for more information.

## Dot-Character Errors (uniqueness)

The **dot** character must be different from the **dash** and **space** characters. See the [Program Configuration](#) topic for more information.

## Dash-Character Errors (uniqueness)

The **dash** character must be different from the **dot** and **space** characters. See the [Program Configuration](#) topic for more information.

## Sound-File Errors

You have not configured a **sound file** for audio playback. This error message is normal the first time you run the Morse-Code Clipboard, and serves only as a reminder. If you do not configure a sound file, the program will still work, but the audio playback feature will be disabled. See the Program Configuration and Selecting a Sound File topics for more information.

## Dot-Character Errors (length)

Only one character may be used to represent a **dot**. See the [Program Configuration](#) topic for more information.

## Dash-Character Errors (length)

Only one character may be used to represent a **dash**. See the [Program Configuration](#) topic for more information.

## Dash-Character Errors (type)

The **dash** character must not be a character that has a Morse-Code representation (except for the hyphen or period). See the [Program Configuration](#) topic for more information.

## Dot-Character Errors (type)

The **dot** character must not be a character that has a Morse-Code representation (except for the hyphen or period). See the [Program Configuration](#) topic for more information.

## Space-Character Errors (type)

The **space** character must not be a character that has a Morse-Code representation (except for the hyphen or period). See the [Program Configuration](#) topic for more information.

