

Crypto! (tm)

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What is *Crypto!* ?

Crypto! is a Windows version of the popular cryptogram puzzles often found in puzzle books or the Sunday paper. *Crypto!* selects a quote or phrase from its library, encrypts it, and presents it to you to solve. By playing *Crypto!*, not only will you have fun solving cryptogram puzzles, but you will read a lot of interesting, thought-provoking, and sometimes downright funny quotes of famous, not-so-famous, and wishing-they-hadn't-been-quoted people.

Warranty Disclaimer

Crypto! is supplied as is. The author disclaims any and all warranties, expressed or implied, including but not limited to warranties of merchantability and of fitness for any purpose. The author assumes no liabilities for any damages, direct or consequential, which may result from the use of *Crypto!*. (For heaven's sake, *it's only a game!*)

What is a Cryptogram?

A cryptogram is an ordinary phrase or quote. What makes it interesting is that it has been disguised by changing its letters. For example, all of the A's may have been changed to Q's, all of the B's to W's, etc. Text that has been disguised in this manner is called "ciphertext." The original text of the phrase is called "plaintext."

Playing *Crypto!*

The following sections describe how to play *Crypto!* Read them carefully to get the most enjoyment out of the game.

Object of the Game

A cryptogram is solved by guessing which plaintext character each ciphertext character stands for. When you have gotten them all, you will see the original phrase.

The *Crypto!* Screen

When *Crypto!* is running the screen is divided into two windows. The left window contains the ciphertext; this is shown in red.** The right window shows three things: first is a list of the plaintext letters that have not yet been chosen, shown in blue.** This is followed by a list showing how many times each ciphertext character appears. The last thing in this window is the scoreboard, which shows the elapsed time (including any penalties) and the number of hints and erasures you've used.

** Note: these are the default colors. You can change to other colors if you prefer. [Click here](#) for details.

Making a Guess

To make a guess, point to a ciphertext (red)** character with the mouse and click the left mouse button. (You can point to a ciphertext character in either window.) The character you have chosen will turn black** everywhere it appears in the phrase. Now point to the plaintext (blue)** character you think it stands for and click the left mouse button again. This plaintext character is now shown above every occurrence of the ciphertext character in the cryptogram. If you wish, you can select the plaintext character first, then the ciphertext character.

** Note: these are the default colors. You can change to other colors if you prefer. [Click here](#) for details.

Erasing Mistakes

As you guess more and more plaintext characters, you should begin to be able to read the quote; if what you see doesn't make any sense, then you may have made some wrong guesses. If you wish to undo a guess, simply point the mouse at the ciphertext or plaintext character you wish to undo and click the right mouse button. Also, if you have selected the wrong plaintext or ciphertext character with your first click of the mouse, clicking the right mouse button will erase it.

Using the Keyboard

If you prefer, you may use the keyboard instead of the mouse. To make a guess, first type a ciphertext character, then type the plaintext character you want to guess for it. From the keyboard, the ciphertext character must be selected first, and you must enter the characters in lower case.

If you find that you have entered the wrong ciphertext character, press Backspace to clear it. To undo a guess from the keyboard, press and hold the Shift key while you type the ciphertext character you wish to undo. If you enter an illegal key, *Crypto!* will beep at you.

You may also use the keyboard to obtain hints, start a new game, and to perform many other functions. Each menu entry that is accessible from the keyboard lists the key combination needed to invoke it. For example, holding Alt while typing a B (denoted Alt+B) gives you a big hint. Here are the functions you can use in this manner:

Key	Function
Alt+N	<u>Start a new puzzle</u>
Alt+E	<u>Enter your own cryptogram from the keyboard</u>
Alt+R	<u>Restart the current puzzle with new encryption</u>
Alt+X	Exit <i>Crypto!</i>
Alt+C	<u>Confirm whether all guesses are correct</u>
Alt+U	<u>Undo an erroneous guess</u>
Alt+L	<u>Give a little hint</u>
Alt+B	<u>Give a big hint</u>
Alt+S	<u>Solve the puzzle</u>

Using Hints

If you can't get started, try getting a hint from the Hint menu. To see what a specific ciphertext character is, select it with either the keyboard or the mouse and then select Hint|Big. To see which ciphertext character represents a specific plaintext character, select the plaintext character with the mouse and then select Hint|Big. If no characters are selected, Hint|Big tells you the plaintext letter for the ciphertext character that is most often used. The next big hint exposes the next most often used ciphertext, and so on. However, a 60 second penalty is added to your time for each big hint you use.

Little hints expose the least often used ciphertext, so they are less helpful, but they also carry a smaller time penalty: 30 seconds. At any time during the game, Hint|Confirm can be used to verify whether or not your guesses so far are correct; it carries a 15 second penalty. Hint|Undo Error will identify and undo one incorrect guess, or tell you if there are none, but it costs you 30 seconds either way. Finally, Hint|Solve Puzzle does just that.

Winning

For all practical purposes, the game is over when you can read the quote or phrase. Technically, though, you haven't won until you finish it on the screen, so *Crypto!* won't admit that you have won until you actually mark all of the plaintext characters correctly. In fact, placing the last letters on the screen will sometimes show that the quote was not quite what you thought it was.

Casual or beginning users will use hints to solve the cryptogram. Purists will refuse to use any of the hints, and will consider a game lost if they have to undo any guesses. You should play *Crypto!* in whatever manner you enjoy the most.

Starting Over

If you want to start again from the beginning on a cryptogram, you may select the Game| Restart menu entry. This will encrypt the puzzle differently, clear the hint totals, and start the clock again. This is useful if you were interrupted and had to leave the game for a long time.

Starting Another Cryptogram

When you solve a puzzle, you will be asked whether you want to start another one. However, you may start a new puzzle at any time, even in the middle of a game, by selecting the Game|Next Quote menu item. If you gave up and let *Crypto!* solve the puzzle for you, this is how to advance to the next one.

Crypto! remembers which puzzles you have solved and does not select them for you to solve again. When all puzzles in the file have been done, the memory is erased and it starts over. If you change a quote file, for example by adding or removing puzzles from it, the memory is also discarded. Also, no memory is kept for uncompressed quote files.

Selecting A Different Quote File

The Game|Open menu entry allows you to select a quote from a different file. The shareware version comes with only one quote file so that you can evaluate the program. Other users may use this to choose among the different quote files provided when the program is purchased.

Solving Your Own Cryptograms

You may also use *Crypto!* to help you solve cryptograms that you find in the newspaper or in puzzle books. To do this, select the Game|Enter Quote menu entry. A box will be displayed; type the cryptogram in the indicated space. Use a couple of dashes or other punctuation to separate the author's name from the quote.

Be sure to type the quote correctly! If you make a mistake, you may change the text you have entered so far by using the Home, End, Backspace and Delete keys, and the mouse in the usual Windows manner. When the text is correct, click the OK button. If you change your mind, click Cancel and another cryptogram will be selected instead from the current quote file.

Enter the cryptogram exactly as you wish to see it on the screen. If you prefer seeing puzzles in capital letters, for example, you may wish to press the Caps Lock key before you begin to type. But if you use the keyboard instead of the mouse to solve the puzzle, be sure to release Caps Lock before you begin solving or *Crypto!* will beep at you a lot!

When solving one of your own cryptograms, *Crypto!* does not know the correct answer, so it cannot tell you when you have solved the puzzle, nor can it give you any hints. Therefore Hints menu is disabled, and the scoreboard does not display any hint totals. When you have made a guess for each letter, the clock will stop, but if you erase any guesses, it will start again.

Strategy

The letter frequencies are one key to solving cryptograms. While different authorities will list them in slightly different orders, the most commonly used letters in ordinary English text are E, T, O, A, N, I, R, S, and H. It is likely, then, that the ciphertext letters which appear most often stand for these letters, but there is no guarantee: try them in various combinations and see what you get.

Letter frequencies are not the only thing, however: you can also look at the ciphertext itself for clues. For example, there are only two English words that are one letter long, "a" and "I." If you see a one letter word in the ciphertext, it must be one of these. If it is not capitalized, it must be an "a." Contractions, three letter words which appear over and over (e.g. "the", "and") and punctuation also provide clues. But watch out for abbreviations and other unusual text.

After selecting a plaintext letter, look throughout the phrase and see if it makes sense everywhere it appears. For example, if you find that your selection has created a two-letter word in which both letters are consonents, something is obviously wrong.

Changing the Screen Colors

To customize the colors to your liking, choose the Game|Change Colors menu entry. You will be shown a menu of six different things whose colors can be changed. Select one of them and click Change, then select the desired color. Unless your system has a fancy graphics card, only solid colors (not the dithered representations) may be chosen; for reference, the "Custom Colors" section shows all the valid solid colors. Then click OK. The menu of things to change will reappear; you can select another one, or click Done when you are satisfied with the colors. Your colors will be saved and continue to be used when you run *Crypto!* in the future.

Changing the Font

If you don't like the default font that *Crypto!* uses for its characters, you can select a different font, or you can change the size with the Game|Change Font menu entry. When you select this, you will be shown a list of font names and sizes. Only the fixed-width fonts installed on your system will be shown; *Crypto!* uses fixed-width fonts so that the letters of the ciphertext and the plaintext letters can be printed above one another correctly.

Select a font name from the list, and select a size with the mouse. You will be shown a sample of text in that font and size, and may choose again if you don't like what you see. If you want a size other than the ones shown in the list, type it into the box above the list of sizes and press the TAB key: you will be shown a sample. Note that not all sizes are available, but you should be able to find something that you like. When you do, click the OK button and *Crypto!* will change to that font and size, resizing the windows as needed. Next time you run *Crypto!* it will start with the font and size you selected.

We recommend that you avoid TrueType fonts. At some sizes, the characters of some TrueType fonts spill into one another's space. Ordinarily this is good, as it makes text written in that font more pleasant to read. But when you select a character with the mouse, *Crypto!* must rewrite it in a different color; if either of the adjacent characters spills over into this one's space, this will erase a little bit of the edge of the adjacent character. This causes no harm, but can be unpleasant to look at. In addition, using a TrueType font can cause some flicker in the, especially on machines without graphics accelerators when using more than the usual 16 colors or a higher than normal resolution. Again, this causes no harm, but you may find it distracting.

Customizing the Initialization File

Crypto! creates a file called "crypto.ini" stores in it any information that should be saved from game to game. This file, called the initialization file, also contains entries that control the settings of various options. If you wish, you may modify these entries in order to select different settings for the options listed below. But do not to modify any entries other than these!

Character Case

By default, puzzles are shown in both upper-case and lower-case characters. This often gives you some additional information that is useful in solving the quote, for example, a one-character word that is lower case cannot be an "I", it must be an "a". If you would rather not have this information, add the line

```
Case=Upper
```

to the initialization file. Starting with the next time you run *Crypto!*, the quotes will be shown in all upper-case letters.

If you specify "Lower" instead of "Upper" in this line, the quotes will be shown in all lower-case letters instead. Specifying "Default" or deleting the line completely from the initialization file will give the default behavior: upper and lower case.

Error Notification

When an input error occurs, clicking on two ciphertext characters in a row for example, a dialog box normally appears that tells you of the error. You must then click the OK button in the dialog box and start over. Many people, once they have learned how the game works, find the dialog box irritating.

This option changes how errors are reported when they occur. Adding the line

```
Error=Beep
```

causes *Crypto!* to beep rather than displaying a dialog box when an error occurs on character selection. If you specify "Nothing" instead of "Beep", input errors are silently ignored, but this can fool you into thinking that the game has stopped working when in fact you are trying to do something wrong.

Time Penalties

When you ask for a hint or confirmation, a penalty is added to the elapsed time. The default values for these penalties are shown below:

<u>Penalty</u>	<u>For What</u>
15 seconds	<u>Confirm</u>
30 seconds	<u>Undo Error</u>
30 seconds	<u>Little Hint</u>
60 seconds	<u>Big Hint</u>

You may change these values by adding the appropriate entries to the initialization file. Each gives a specific penalty time, specified in seconds. For example:

```
BigHintPenalty=240
```

sets the penalty for a big hint to four minutes. The entries "LittleHintPenalty", "ConfirmPenalty", and "UndoPenalty" are specified in the same manner.

Types of Quote Files

To save space on your disk, the quote files supplied with *Crypto!* are compressed (using a Huffman code for anyone interested in techno-trivia). These files have names ending in ".cqt", which stands for "compressed quote" file. Each compressed quote file has an accompanying index file that ends in ".cqi", which stands for "compressed quote index." The index files are used by *Crypto!* to find the beginning of each quote in the compressed file, and must not be deleted.

There is another file that is created the first time a puzzle from a compressed quote file is solved; its name will end with ".cqm", which stands for "compressed quote memory." These files hold the memory of which puzzles have been solved so far. They should not be deleted, or *Crypto!* will begin selecting puzzles that you have already seen.

A second type of quote file is the "uncompressed" file; these have names which end with ".qot", which stands for "quote." There is no memory file associated with uncompressed files, as they are so easily changed.

Creating Your Own Quote Files

You may create your own uncompressed quote files. They are ASCII files, created with any editor (such as Notepad; but not a word processor such as Write or Word). Each quote is on a single line; the name (if any) appears after the quote, separated from it by a tab. Quotes may be up to 1000 character in length.

The vertical bar character may be used in a quote to start a new line when the quote is displayed, for example, a limerick entered like this:

There was a young man from Ouray|Who didn't know how to play.|He...

would be displayed by *Crypto!* as separate lines. To convert an uncompressed quote file to a compressed file, run the "cryptocm.exe" program (not included with the shareware version of *Crypto!*) This is a DOS program which takes a single argument on the command line: the name of the uncompressed quote file to convert. The program reads this file and produces the .cqt and .cqi compressed files from it. The first time you solve a puzzle from the compressed file, *Crypto!* will create the .cqm memory file.

For example, to compress the file "myquotes.qot" you would run the following DOS command in the directory containing myquotes.qot:

```
cryptocm myquotes.qot
```

This will create the files "myquotes.cqt" and "myquotes.cqi". If either of these files already exists, you will be asked whether the old versions should be overwritten. Keep in mind that overwriting a compressed quote file will cause its memory to be discarded.

Contacting the Author

You may contact me by writing to:

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or by calling 716-293-3278. This phone has a box on it, but I will return your call as soon as possible. If you can send e-mail, you can reach me at

kar@cs.rit.edu (Internet)
74034,1441 (CompuServe)

Revision History

Crypto! owes its evolution largely to the people who have purchased it. If no one expressed any interest in the game, I would have dropped it long ago. In addition to financial and moral support, many users offer suggestions for improving the game. Sometimes these are things I was planning on doing anyway, and receiving the suggestion simply moves the change to the top of my to-do list. But often people suggest things I had not thought of, things which turn out to be great ideas. I offer my thanks to those who have given me both types of suggestions, and have tried to give appropriate credit below.

Most of all, thanks to everyone who has purchased *Crypto!* As I have said before, it is people like you who keep people like me producing software like this.

Version 2.0, released 03/01/95

- Added keyboard accelerators for menu entries
- Added hint for a specific plaintext or ciphertext character
- Consolidated scores and time into one scoreboard area
- Added upper-case-only and lower-case-only options (*thanks to Vivian Scott*)
- Improved handling of input errors
- Added option to specify input error notification method (*thanks to Geoff Coram*)
- Added ability to change time penalties from the initialization file
- Added ability to enter your own ciphertext phrases
- Added compressed quote files (*thanks to Geoff Coram, who said, If you were REALLY cool, you would ...*)
- Added quote memory to prevent selection of puzzles that have already been solved
- Added on-line help
- Added confirmation before moving to new puzzle from an unsolved one (*thanks to Geoff Coram*)

Version 1.5, released 11/07/94

- Implemented keyboard entry of plaintext/ciphertext letters (*thanks to Geoff Coram*)
- Added ability to select size and font of characters (*thanks to Dave Meyer, Geoff Coram, Andy Bartholomew*)
- Added menu to open different quote files

Version 1.4, released 10/06/94

- Eliminated annoying flicker when the screen was repainted (*thanks to Geoff Coram*)
- Starts with the same size window used last time (*thanks to Geoff Coram*)
- Added hint counters (*thanks to Geoff Coram*)
- Added formatting capability for quote files
- Fixed embarrassing bug: it did not actually check whether you got the right answer! (*thanks to Geoff Coram*)

Version 1.3, released 06/12/94

- Modified right mouse button to erase an incorrect selection
- Added ability to customize screen colors
- Added ability to select a quote file on the command line

Version 1.2, released 04/11/94

- Added elapsed timer
- Implemented ability to dynamically resize the screen

Version 1.1, released 03/20/94

- Provided support for screen resolutions other than 640x480

Version 1.0, released 03/01/94

Initial release

Cryptogram

An ordinary phrase or quote that has been disguised by changing its letters into others.

Ciphertext

The quote or phrase with its letters changed into others to hide its meaning.

Plaintext

The quote or phrase in its original, readable form.

Letter Frequencies

A list of how many times each letter occurs in the ciphertext. This information is helpful in determining which plaintext character each ciphertext character stands for.

