



Search & Rescue

Documentation

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1. Introduction

Search & Rescue is an application to make recovering text from memory a quick and easy task. The most likely scenario in which you may need Search & Rescue is if you suffer from a crash (either application or system) while working on a typed document, and you lose some or all of you text. It is likely that the text is still there, somewhere, in memory, but with no way to get at it, you are stuck! This is where Search & Rescue comes in. You simply enter a portion of text, which you know to exist in your document, and Search and Rescue will locate possible places in memory where you may be able to salvage your text - either in part or, if you're lucky, in full.

Search & Rescue differs from auto-savers because it can be used in situations where you don't normally save what you are typing. For example if you are submitting some information in a form on the web and you experience a crash, or your browser 'deletes' the text for some reason (like you loaded a different page), then Search & Rescue may be able to salvage that text. Search & Rescue does not have to be installed as a system extension or control panel - it can always be there if you need it.

2. Getting Started

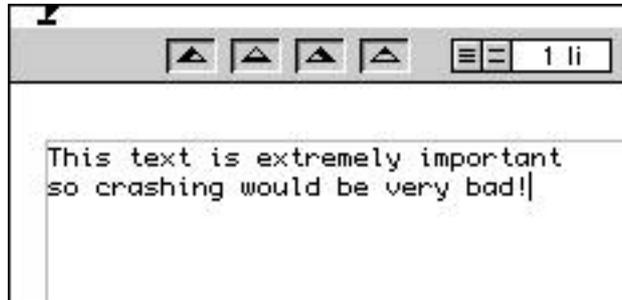
The main interface to Search & Rescue consists of 3 elements -

- The top part of the window - where you enter the text to search for and the button to initialise a search
- The middle part of the window - this is where results are listed - click on a result to view memory at that location
- The bottom part of the window - this is where memory is displayed. You can extend this portion of text up and down

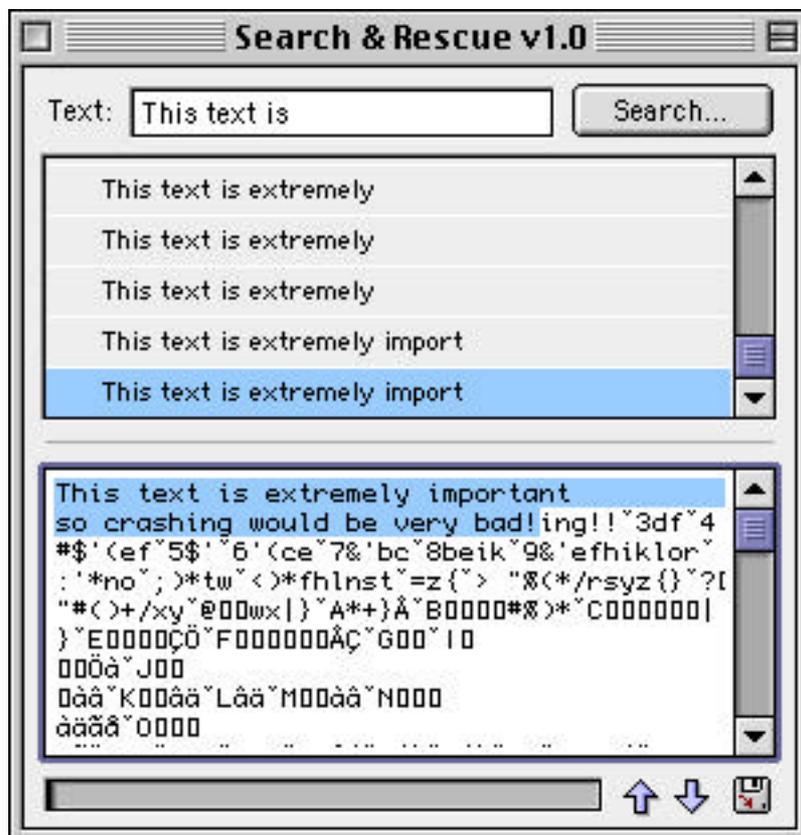
Searching

To demonstrate how to use Search & Rescue we can simulate a scenario of a word processor crashing while working on a document.

1. Open a word processor - ClarisWorks will do fine.
2. Create a new document window and type in some text:



3. Force quit (or to be on the safe side just quit) your word processor without saving anything at all. This is our simulation of an application crash!
4. Open up Search & Rescue. A new Search window should open automatically.
5. In the text box at the top of the window, type the first few words of your document. Click "Search"
6. After a few seconds you should see some results appearing in the results list.
7. Click on these results until you find one that contains all or your text.



If this didn't work (it should!), refer to the section of this document titled "Limitations".

You may perform searches after a program has crashed but also after the entire machine has crashed. Simply restart the machine using the standard 'ctrl-option-power' key combination but do not switch off your Mac - either by the power switch of at the wall - as this will drastically increase the chances that you will not be able to recover your work. It is possible that information will not be lost from memory if the machine is switched on and then switched back on within a 2 or 3 seconds but, as Apple recommend that you wait at least 10 seconds before switching back on, it is best if this is not done.

Rescuing

You can save text that you found in two different ways. If you were searching for a fairly small section of text and it fits, in its entirety, into the bottom text box then you can save the data of that result by selecting 'Save' in the File menu or by clicking the save button in the lower corner of the window.



You'll be prompted on where you would like to save the plain text document. See the "Preferences" section of this document for more information on saving files.

A more flexible way to organise and save rescued text is to create a new text window - File Menu->New->New Text Window...

You can copy text from search results and paste them into this window. This is a good idea if you need to conduct multiple searches to rescue a large amount of text (see "Tips" - Large Documents). This text document can then be saved - File Menu->Save.

To view more text than is displayed in the text area, click the up and down icons in the corner of the search window:



3. Tips

- Large Documents

You may find that when rescuing data, it is not always possible to retrieve everything in one search. You may, for example, find the first section of your text but not be able to locate the rest in that search. If this is the case then you will probably need to perform a number of searches. The most effective way to recover all of your data is to start at the beginning of your document and work your way through it, piecing together the scraps of text that you find:

1. First, create a new Text Window, by selecting "New Text Window..." from the file menu.
2. Enter the first few words of your document into the search window and start a search.
3. Copy to the clipboard the text that you find and paste it into your text window.
4. Copy the last few words of what you found to the clipboard, copy them into the search window, and start another search for these.
5. Repeat step 3 and 4 until you have salvaged all your text.

This may seem an obvious way to do it, but it is tempting to save everything you can from the

first search, without organising what you have found into

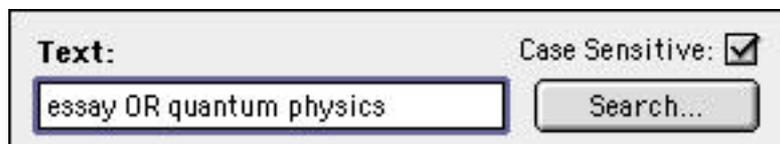
If you experience a crash while working with a previously saved document it is often an easier task to simply search for the additions or changes you made (since the last save) and edit these into the older version of your document rather than try to rescue the entire document. A large document could exist only in a mass of smaller parts therefore trying to find it in its entirety may be very difficult and time consuming.

- Navigating

When using the arrow buttons to extend the viewing range of the data within a result, move the cursor to the very first position in the text - before the first character - or the very last position - following the last character. This will cause the cursor position to be maintained - either at the start or end of the text - while you step up or down.

- Multiple Phrase Searches

To search for more than one phrase you can perform a boolean 'OR' search. For example:



You can use more than one 'OR' but note that searching for more than one phrase takes considerably longer.

- System Crashes

If you are forced to restart your Mac after a crash you may experience more success recovering your text if, when rebooting your Mac, you disable extensions from loading by holding down the shift key during the restart.

4. Preferences

Search & Rescue has several preference items which you may wish to change to suit your own needs. Each item is listed below with a description of its usage:

Popup Menu - "Saved files are type..."

This item reflects the application that Search & Rescue will associate with any files it saves. If you save some recovered data, then double clicking it in the Finder will result in it being opened with the application specified here. On the default setting Search & Rescue will be used to view any text files you save and then reopen. You can, of course, drag saved files onto other application icons and open them from within the application.

"Text up/text down moves text:"

This is the number of lines that the text will shift when the 'up' and 'down' arrows at the bottom of the search menu are pressed. The default setting is 5 lines.

"Initial text sample size:"

The number of characters of memory to show in the bottom text box when a result is clicked from the results list. The default setting is 2000 characters.

5. Advanced Features

- Hexadecimal Viewer

For more advanced uses, results can be viewed using a hexadecimal viewer. To do this, select the result you wish to view, adjust the range appropriately using the up and down buttons, and select "View Using Hex Editor..." from the edit menu. You can search for data in the hex editor, with as an ASCII string of a hexadecimal value, using the "Find..." command in the edit menu.

- Viewing ASCII Characters Only

Viewing only ASCII characters may help if you have found what you think is your text but it has 'garbage' mixed in with it. The ASCII characters set includes all alpha-numeric characters plus the usual special characters.

To strip all the junk characters out of a result in a search window, choose:

Edit -> View ASCII Only

You can toggle this off and on.

To do the same in a text window choose:

Edit -> Strip Non-ASCII Characters...

Note that this operation in a text window (not a search window) is not undoable.

6. Limitations

It is very difficult for me to explore all the possible eventualities that a user may encounter when using Search & Rescue but here is a list of possible problems and solutions you may run into when using Search & Rescue:

"Search & Rescue could not find my text anywhere in memory!"

This could be for a variety of reasons, some technical and some not:

- Restarting/shut down - Search & Rescue should make successful searches after an immediate restart. If the computer is switched off, then the data in memory will be lost because the computer needs power to maintain the electrical state of RAM. If this is the case then it is unlikely that S&R will make successful searches.
- Low memory systems - if your Mac has a small amount of memory (you rarely run more than one application as well as the Finder) then you may find that searches are less successful than on a machine with a lot of RAM. This is because, on a machine with lots of RAM, there is less chance that Search & Rescue will be loaded into RAM 'on top of' the location that the crashed application occupied. If this happens then there is a chance that Search & Rescue will overwrite data that could have given results in a search. A solution to this is to put an alias to Search & Rescue in your startup items folder and leave Search & Rescue to run in the background so that you can immediately switch to it to perform a search. Of course this will not always be possible on a low-memory machine.
 - The application may have overwritten your text while in the process of crashing - this is just bad luck.
 - If you have virtual memory or Ram Doubler installed, the text may have been kidnapped by one of these pesky utilities.

7. More Help

If you need more help email me at <tjriley@kagi.com>

Warranty

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