

## DISCLAIMER

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Thanks are due to :-

Lyn, for even more coffee and patience.  
Chas Dillon.  
Dave Jones.

## SECTOR SOFTWARE

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# SPELLBOUND

## INTRODUCTION

SPELLBOUND was primarily intended to check the validity of words as they were typed into Quill, against a usefully sized dictionary, in an expanded QL computer.

At this time it was assumed that input would be checked by the word.

This was quite soon accomplished on a test basis but it soon became evident that this method could be improved upon. For example this method would allow you to enter a complete word, possibly commencing with an errant character. It would then indicate to the user that something was not as it should be, with the result that the user would be required to cursor back and correct the whole word. This was felt to be a cumbersome implementation of the concept and so we experimented with checking input by the character.

Providing that this could be done fast enough not to interfere with fast typists and that its operation was not intrusive to the flow of input, this method held many advantages.

After some false starts a system was produced that achieved this goal but a single method of error indication that suited the styles of various typists could not be achieved. For this reason SPELLBOUND has 5 levels of operation ranging from totally unobtrusive to absolutely insistent, all with comparison spellings available to the user at all times.

The next problem was finding a level of compression that would allow for high levels of dictionary compression on media (for microdrive users) that would still allow the vital checking speed in memory. This was found to be a moving target, so 2 levels of text compression were utilised.

The supplied dictionary contains approximately 30,000 words and in its native format would consume an estimated 300 kilobytes, so a high level of compression is used on the media which will allow the average microdrive to contain approximately 50,000 words. As stated above the speed of character recognition and comparison is paramount and our system of carrying this out uses a different compression level.

For this reason the dictionary format is changed in memory when it is loaded, from a compression ratio of 5:1 to a ratio of 3:1.

SPELLBOUND as supplied checks the validity of the currently input character against its present library of 30,000 words every time you type a character. This has been verified at 100 words per minute. It is supplied with a 30,000 word dictionary. It allows for dictionary expansion up to memory / media limits. It allows for the construction of specialist dictionaries. It offers examples and if required types them in for you and is designed to be extremely user friendly.

## GETTING STARTED

The SPELLBOUND disc / microdrive master should be auto booted from drive 1. The sole purpose of the master copy is to create a working copy of the program. DO NOT ATTEMPT TO RUN SPELLBOUND FROM THE MASTER COPY BUT ONLY FROM THE WORKING COPY. DO NOT RENAME THE SPELLBOUND FILE ON EITHER MASTER OR WORKING COPIES. DO NOT SAVE ANY FILES COMMENCING "Spellbound" TO YOUR WORKING COPY.

After a short loading sequence the screen will indicate what events are taking place :- "Loading Spellbound / Minimal / Dictionary"

Then you will be asked to indicate what device you normally boot from :- Fd1\_ / Hd1\_ or Fdk1\_ by pressing the appropriate number.

You will then be instructed to remove the master and keep safe.

Next comes the instruction to insert a disc / microdrive with at least 200 free sectors and then to hit "ENTER".

Microdrive users will then be told that the necessary files are being saved to microdrive 1. Following this the screen will clear and you will be told that the process is complete and you should reset the QL.

Disc users at this stage will be asked if the inserted disk already contains a file called "boot" and you should indicate yes or no.

The reason for this is that at this stage of configuration you may want to install the program files onto their own disc or to install to the disc that you normally boot up from (TaskMaster for example).

If the latter is the case then you will be informed that the existing boot will be renamed as "Spellboot2". This file will then be ran on future loadings AFTER the Spellbound loading sequence as it is essential that Spellbound is loaded first.

Alternatively if you have answered "no" then the 3 files will simply be copied to the device which you have indicated.

Thats all there is to it. You have now produced a working copy of SPELLBOUND configured for your system ..... life will never be the same again !

## USING SPELLBOUND

When the working copy of SPELLBOUND is booted at the start of a working session you will be presented with the loading screen and the status window. This will indicate "Read(device)Dictionary and "Words:" The options available to you at this time are as follows.

1. Press ENTER to load the dictionary as indicated.
2. Edit this line to load a dictionary from elsewhere.
3. Press up or down arrow to reject the dictionary and to continue with loading the next program. This last option must be used with caution for the following reasons.  
SPELLBOUND will quite happily load a dictionary at a later stage providing there is sufficient memory available in the machine. However if Quill is loaded beforehand into a machine that is not being controlled via a memory management system such as TaskMaster then it will immediately grab all the available memory. This will preclude the loading of a dictionary during the session. This is not the case with "The Editor" which allows the user to define its memory allocation, so providing that you allot a reasonable memory figure to Editor you may load the dictionary subsequently.

Under normal circumstances one of the first two options will be selected, and assuming a dictionary is found on the indicated device the dictionary loading sequence will take place.

This is a short process and is in 2 parts.

First the compressed dictionary is loaded into memory and secondly it is decoded into the form that is used by SPELLBOUND.

Whilst this is taking place a number will appear adjacent to "Words:" in the status window. This is a running total of words as they are decoded and is incremented every time 1000 words is decoded. This may sound like a long process but in fact the words are decoded at the rate of approximately 2300 per second. The final figure to appear in this window is an exact word count of the loaded dictionary.

When this has been completed you will be prompted to place the media to be run into the appropriate device and then to press ENTER.

This will boot up the desired program just as if it were being loaded into a fresh machine.

For our purposes we will assume that you have just loaded Quill by the above method and that you wish to use the program.

Further details on using SPELLBOUND within TaskMaster are to be found along with specific points relating to "The Editor" which will follow the next section regarding general use of SPELLBOUND.

## SPELLING CHECKING WITH SPELLBOUND

Assuming that you have loaded the programs as described you are now looking at the standard Quill working screen, and at this stage Quill will perform just as it did yesterday.....try it.....

The vast majority of Quill users have the right hand margin set at 70 if that is not the case with yours, set it to 70 now.

If you now hold down the CTRL key and press o for on (not 0) you will notice that the word "SPELLBOUND" has appeared at the bottom of the screen looking very "Quillish". There will also be a number 3 flashing red adjacent to it. This is indicating the current mode (there are 4 others but we will cover that later).

Type this as quickly as you can. "the quick brown fox".  
Now one of two things has happened, either you are a good typist and there are no errors or the text will have one or more "hats" among the characters and you will have heard from the QL speaker.

The hats are indicating a mistake in that word or that the word is not in the dictionary.

Now type this. abbreviationsxxxxxxx  
Your one should look like this abbreviations^xxxxxxx indicating that up to the s the word was valid. The error window at the bottom of the screen is indicating "Not found :- X". Now delete back by one character and the window says "Still not found". Subsequent deletions will give the same result until you get back to the s.

At this point it should be noted that any cursor key or Quill command will switch off SPELLBOUND as synchronisation within a word boundary is vital to the operation of the program. The only cursor movement that is supported is delete backwards.

Now type this. abbr and press CTRL and e (for examples).  
You will see a list of words that commence with these letters.  
This list is always available when SPELLBOUND is switched on.

Now delete the r and call up the examples again, you will see more of them. If you now delete back leaving only the a and call examples you will be presented with all the words in the dictionary starting with the letter a. These can be paged by pressing the F5 key.

Now type this. abbr and press CTRL plus SHIFT plus e.  
You will now be presented with only 1 example, "abbreviate".  
Press the F5 key now and you get one more... "abbreviated".  
Press ENTER now and the word is typed in for you...thats it.

If you have done all the examples as set out so far you should now understand the rudiments of how SPELLBOUND can work for you.

## OPERATING MODES

### Mode selection.

As with all other SPELLBOUND commands these are selected by holding down the CTRL key and pressing another, in this case CTRL plus numbers 1 to 5 will select the required mode, but only when SPELLBOUND is switched on (CTRL plus o)

As previously mentioned there are 5 different operating modes available to the user to cover a variety of typing styles and preferences. These are as follows.

### Mode 1.

This is the least intrusive of all and merely indicates in the error window which is the errant character. As with all the other modes however the examples may be displayed and sent to the document.

### Mode 2.

This is just as in mode 1, but with the addition of an audible signal indicating an error condition.

### Mode 3.

This is probably the best mode for the experienced typist who requires reliable error checking but does not want the flow of typing interrupted.

As you have probably already seen, this mode not only gives audible error indication which can be corrected at source but also inserts an easily spotted marker character that has become affectionately known to us as a "hat".

This mode therefore provides an easy method of retrospective visual error correction. As an example of this, a page or so could be typed in and then either a visual scan for these hats could be made or Quills search routine could be used.

### Mode 4.

This mode provides secure error checking and is probably better suited to the less experienced typist.

When an error is detected all keyboard input is refused for a period of approximately 1.35 seconds. Although this may seem a very short pause it has been found that this time lag is sufficient to halt keyboard input and to indicate the errant character thus making overrun unlikely.

### Mode 5.

This mode gives belt and braces error protection. When an errant character is detected all further keyboard entry is refused. The only way typing can be continued is either after the examples window has been called up, or, after the ESC key has been hit.

## DICTIONARIES

SPELLBOUND is supplied with an approximately 30,000 word dictionary and an empty dictionary called "Minimal".

In general use the main dictionary is used and added to as required. When a new word is encountered SPELLBOUND will show it as an error. At this stage the word can be added by pressing (guess what) CTRL plus a (for add). This will add the current word to the dictionary in memory for this session only unless the dictionary is later written out to a device. More on reading and writing dictionaries later.

Because of the possible memory limitations encountered by the program during use it was necessary to predefine the expansion area available to SPELLBOUND which means that a maximum figure of added words must exist. This figure is renewed on each subsequent loading and the effect of this is that approximately 300 words may be added during each use of the program.

When a word is added it could well have a space appended to it or contain a "hat". This will have no effect on the inserted word as these characters are stripped off during the insertion routine.

Now seems like a good time to mention the handling of capitals. When using the examples window you have probably noticed that all the words are in upper case and that sometimes the words at the start of a category have a white initial character.

All the words contained in the dictionary are in upper case for display purposes. All the words with a white initial character are recorded as being capitals and are actually held in a sub dictionary although that will never be evident to you.

When you add a word that begins with a capital you will be asked "Capital y/n". This is because you have typed in the new word with an upper case initial letter and the program cannot know whether or not it is to be inserted in the capitals dictionary or if it was merely the start of a sentence.

Because of the way the dictionary is arranged there is no reason to insert the same word into upper and lower case departments, doing this will waste space and may throw the checking into confusion.

In brief the only words that should ever be inserted in the upper case dictionary are those words which can only ever be written correctly with a capital letter and therefore would be incorrect if inserted in the lower case dictionary.

You will see in the dictionary strange entries consisting of a single letter with 10 dashes. These cannot be deleted and are for program reference. They are not included in the word count.

The minimal dictionary contains only these entries and can be built up as you may require.

## READING AND WRITING DICTIONARIES

During normal use a dictionary will be read in when the program is started but you may at sometime wish to write it out if you have made additions.

It is important to realise that the act of writing out a dictionary does not merely record a copy of it to tape or disc but initiates a complicated series of events that result in the dictionary being encoded and saved then actually being erased from memory.

Obviously after writing a dictionary then, it will be necessary to read it, or another back into the machine. You should be aware that if after writing out a dictionary you were to directory a device for the first time (for example) you may not be able to read it, or another, back into the machine.

This is due to the fact that under these circumstances QDOS may well allocate some of the vacated memory area for its own use.

In general terms then if you intend to write out a dictionary mid session, and wish to continue checking, you should read in the dictionary immediately afterwards.

During the encoding routine that occurs when writing out, the new word count will be displayed just as it was when reading in.

During use it is good practice to vary the name of the increased dictionary to ensure that you never over write your only copy which could subsequently become corrupted.

When writing a dictionary out 2 levels of media error can occur.

On the mildest of these levels the error message may be "not found" or "read only". This means that before the file could be opened on the device an error was detected and no encoding will have taken place.

At this stage you may either exit the writing routine by pressing the up or down cursor keys and the dictionary in memory will still be intact. Alternatively you may correct the fault and press ENTER to retry.

A more serious possibility is that the device was found and the file was opened to it. At this stage the encoding will take place followed by the writing of the file. If at this stage the device gives a "Drive full" error message BE CAREFUL.....

TAPPING AN UP OR DOWN CURSOR KEY AT THIS STAGE TO QUIT THE WRITING ROUTINE WILL RESULT IN THE DICTIONARY BEING LOST FROM MEMORY AND THE ONLY OPTION OPEN WILL BE TO LOAD A NEW DICTIONARY.

What can be done is to replace the full drive with a tape or disc known to have enough free space and to press ENTER to retry.

## ABBREVIATIONS

Abbreviations are catered for with the same logic as applied to capitals. That is to say that if a word is entered as an abbreviation ie. ending with a dot, it will only be registered as correct if it is typed in ending with a dot. This will always be the case unless the same group of letters has been entered (wrongly) without a dot.

When adding a word with a dot therefore you will be asked "Abbreviation y/n".

## SPELLBOUND WITHIN TASKMASTER

When using SPELLBOUND within TaskMaster you will be able to check all keyboard input to all programs currently loaded.

SPELLBOUND may be loaded with or without its dictionary either first or last.

The easiest way is to allow the configuration program to rename the boot file on your working copy of TaskMaster as described previously.

One important point to remember is always to switch off SPELLBOUND before switching programs or you will be unable to switch it on in the current program. Also you must never switch between programs whilst reading or writing a dictionary.

An amusing exercise in nonsense is to invoke Keydefine whilst SPELLBOUND is activated, this will check the spelling as the words are input to quill etc. Very useful.

## SPELLBOUND AND THE EDITOR

SPELLBOUND is fully compatible with the latest version of the editor and the latest version of Turbo Toolkit.  
(Editor versions 1.17, 1.18 and on, Toolkit versions 1.42 and on).

The screen co-ordinates for Editor that best suit SPELLBOUND are :-

Left 4 : Top 1 : Width 72 : Height 22 :

The only other difference in Editor is that SPELLBOUND must be switched on with CTRL plus SHIFT plus o.

## SPELLBOUND AND THE THOR

We believe that SPELLBOUND could easily be made Thor compatible.

SPELLBOUND COMMANDS

- CTRL + o = On . (CTRL + SHIFT + o in Editor)
- CTRL + a = Add to dictionary
- CTRL + e = Examples (paged)
- CTRL + SHIFT + e = Examples (singly and sending via ENTER)
- CTRL + d = Delete word from dictionary
- CTRL + r = Read in dictionary
- CTRL + w = Write out dictionary
- CTRL + i to 5 = Mode selection

WORD BOUNDARIES AND SYNCHRONISATION

The whole concept of SPELLBOUND relies on the synchronisation within word boundaries of the input string with on screen characters.

SPELLBOUND assumes that a word boundary is as follows.

The start boundary is considered to be the space character which precedes the current word . When this boundary is deleted back to SPELLBOUND will switch off as there can exist no match with previous words.

The termination boundary is however deemed to be the first character of the following word wherever that may be.

It is for this reason that words may be added and deleted from the dictionary or examples of them obtained regardless of whether there is a trailing space or not.

The only exception to the above is that if the current word is sent via examples , or deleted from the dictionary , then deleting backwards will switch off SPELLBOUND.

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