Library 1784: Compression Aid

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1. Disclaimer & Copyright

2. Credits

Thanks to ACO for the HP 49G, Wolfgang Rautenberg for OT49, Eduardo M. Kalinowski for "Programming in System RPL", Mika Heiskanen for BZ and various post from different authors in comp.sys.hp48, without them this program couldn't have been written.

3. System Requirements & Installation

3.1. System Requirements

Library 1784: Compression Aid has been coded and compiled with Debug2 / Debug4x and is written in System RPL. It was tested with Beta ROM 1.19-6 and newer in RPN-Mode. Using this library requires RPN mode.

3.2. Installation

Transfer Library 1784: Compression Aid (Checksum # 56A2h, 4.665,5 Bytes) to your HP 49G and store it in a port. After a warmstart the library will be attached to {HOME} and is available.

4. What this program does

4.1. Overview

This library has been developed for the compression of libraries. If the library is splitable then Compression Aid can be used to compress the library.
For example, use it to compress the data sets for TreeBrowser.

4.2. What you can do with this library

You have developed a library for the HP 49G. Your library is bug free and solves the problem for which it is written, but it is too big or it could be smaller for being more memory efficient. One way to solve this is to check the parts of your library, wether they are suitable for compression and how this will change the performance. Non time critical parts can be compressed (assuming that the compressed file is smaller than the original size). Doing this investigation manually with, for example, BZ or OT49 is laborious and time consuming and you have to keep some things in mind. For example ,*"if any of the programs in the library call other programs or functions within the same library, then compressing any such program would prevent the library builder (say D->LIB) from recognizing those calls; therefore any such calls would remain Global Names (as resulted from L->DIR), rather than being turned back into ROMPTR's ("XLIB names"), and the resulting "re-built" library function would not execute properly"* (quoted from John H. Meyers). So you have to use the ROMPTR in your source file, adding or removing files from your library means that you have to change the ROMPTR manually.
To simplify this is the goal of this library.

4.3. Commands

Library 1784: Compression Aid contains two commands:
COMPRESSION and AUTOCOMPRESSION.

COMPRESSION calls an input-form, in which the files of the library you are planning to compress are investigated.

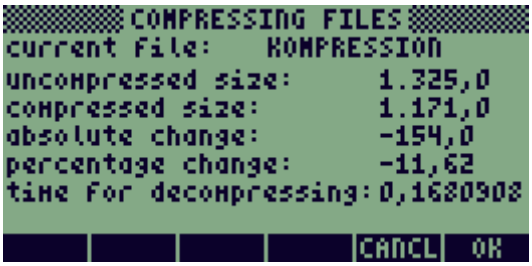
AUTOCOMPRESSION runs a previously with COMPRESSION created log file.

4.4. COMPRESSION

The library you want to compress must be present in a port.

Executing COMPRESSION calls the input-form. At this point you can still abort the program by pressing CANCL or the ON–key. After you have entered the LIB ID and OK or the ENTER–key has been pressed a regular exit from the program is not possible.

Enter the LIB ID. Pressing OK or the ENTER–key continues the program. The library will be split and saved to a temporary directory. The decompressor will be saved in this directory and the name of the decompressor will be added at the end of the $HIDDEN–list. After that the investigation of the first file in the library begins.



The uncompressed size is the size of the original file.

The compressed size is the new size of the file including the call to the decompressor.

The absolute change is the difference between the original size and the compressed file including the call to the decompressor.
If the absolute change is negative, then the compressed file including the call to the decompressor is smaller as the original file.

The time for decompression is measured in seconds and shows how long the HP 49G needs for decompressing the file. This is the time that it will take longer to execute the file if the compressed version is used.

You are familiar with your code and hence you know, for example, if the current file is time critical or not. Therefore you have to decide if you want to use the compressed file or the original one.

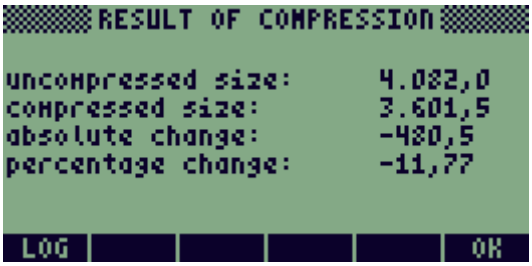
Pressing CANCL or the ON–key means, that you are keeping the original file.

Pressing OK or the ENTER–key means, that the original version will be replaced with the compressed file including the call to the decompressor.

This will be done for every file in the library.

Pressing MAX will start an automatic maximum compression of the library which means that all files of the library which are smaller (including the call to the decompressor) than the uncompressed original file are replaced by their compressed version.
It is not possible to interrupt or suspend this process[1].

[1] Famous last words… what if an idiot pushes the reset button on the back of the calculator?



After the last file a conclusion of the change in size will be shown. Pressing OK, the ON–key or the ENTER–key exits the program and the new, compressed library will be on Level 1 of the stack.

Pressing LOG also exits the program, but a log file will be placed on Level 1 of the stack and the new, compressed library will be on Level 2 of the stack.

Please remember: The original uncompressed library is still in port memory. Also the log file is only valid for the recently checked library. If you apply major changes to your source file you should go through the whole process to get your desired result.

4.5. AUTOCOMPRESSION

The library you want to compress must be present in a port.

AUTOCOMPRESSION runs a previous with LOG created log file and the result is the new, compressed library on Level 1 of the stack.
There is no checking if the list is valid!
The result is equal to the result of COMPRESSION, assuming that the same “source library” has been used.

The original uncompressed library is still in port memory.

4.6. IMPORTANT: Limitations

You can not exit COMPRESSION or AUTOCOMPRESSION regularly. You either have to go through the whole process or wait until the end of the excution.

If the program stops with the “Insufficient Memory“ error you probably need to clean the stack and delete the temporary directory manually.

The ON–key will not be checked while COMPRESSION or AUTOCOMPRESSION is running. Pressing the ON–key while the calculator is busy will most likely end in the “Try To Recover Memory?” screen.

Running AUTOCOMPRESSION from the command line results in the “Undefined Local Name“ error when CRLIB is called (same with D↔L from OT49).

You roughly need twice the size of the memory of the library you are planning to compress.

5. Version History

14.05.02	Version 1.0	first public version
28.06.04	Version 1.1	Fixed the bug in AUTOCOMPRESSION which caused to compress the wrong files while the program was running.

6. Known bugs

Fixed in Version 1.1	AUTOCOMPRESSION compressed the wrong files.

7. Caveat

These routines have not been tested on a HP 49G+ / HP 50G but should work there as well.