

Shellsort

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REVISION HISTORY

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Chapter 1

Shellsort

1.1 Shellsort Guide by D. Herendic

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1.2 Introduction

Shellsort is an implementation of one [algorithm](#) in C which is, as far I know, best and fastest algorithm for sorting (If anybody knows about any better algorithm, let me know). I wrote this program because I wanted to have faaaast sort, and I did it. This program is about 9 to 10 times faster than sort we have on Workbench.

1.3 Algorithm

Here is sample of algorithm in C source:

```
void shellsort(char *p[], short n){
short dist,i,j;
char *temp;
for(dist=n/2;dist>0;dist/=2){
for(j=i-dist;j>0 && strcmp(p[j],p[j+dist])>0;j-=dist){
```

```
temp=p[j];
p[j]=p[j+dist];
p[j+dist]=temp;
}
}
}
/* *p[] - text lines, n - number of lines */
```

1.4 Requirements and explanations

This program should work on any Amiga with enough memory. Enough means following: size of the file to sort * 2 + number of lines in the file * 5 (in bytes). Why so much? Because I used double buffering plus additional buffer for pointers. This program was BUILT FOR SPEED and on the first place for speed. You won't sort files every day, so when you do it do it fast. Or if you do sort every day, do it fast anyway. Using stdin and stdout will slow down sort and I didn't implement that, and wildcards too.

1.5 Using Shellsort

Only possible usage is from CLI.

```
> shellsort [-n] [-oX] [-c] <input file> <output file>
```

There are three options:

-n This means that any special character(s) at beginning of line (with ASCII code less than #32) is (are) ignored and won't be in output file. Of course, characters with code greater than 126 aren't ignored.

-oX This option is for sorting with offset X from beginning of the line. This is on the first place for files that have listings of dirs and files, or in other words for files which have lines of same length. Of course, you can use it for any purpose.

Warning!

Take care when you have files with different line lengths and you use this option; if offset is greater than length of a line then there will be error in sorting, because you jumped entire line and get somewhere into the middle of another line.

-c Default is case sensitive sorting. With this option you turn off case sensitivity.

NOTE! Last line in input file MUST have line feed, or there will be some trash at the end of the output file.

1.6 In future...

This chapter should write the users. I hope there will be at least a few people who used my program. If there will be interest maybe I'll improve this program. But, remember that if there are more options we'll get bigger code and slower code.

1.7 Legal Stuff

COPYRIGHT NOTICE

Shellsort software and documentation are Copyright © 1994 by Drazen Herendic. All rights reserved, except algorithm.

DISCLAIMER

Shellsort was tested a lot of times and it worked good. I think that anyone who wants to go too far with experiments with this program, probably will do a mess. But under normal conditions sort will work fine.

PREFACE

This program is freeware, this means that you can copy it freely as long as you don't ask any more money for it than a nominal fee for copying. If you want to distribute this program you should keep this document with it. This program cannot be used for commercial purposes without written permission from the author.

None of the files of the Shellsort package may be modified or left out without permission of the author. Crunching or archiving is allowed only if none of the Shellsort files get modified by it.

Special permission is hereby granted to include Shellsort in Public-Domain collections such as Fred Fish's Amiga Library.

1.8 About the author and the program

I was writing this code about 1 year because I wasn't in a rush and this was one of many things I had to do and I was doing. First version was finished about 2-3 days after starting of my work, and there were a few versions that I wrote but I wasn't taking special notes about versions. These versions were, let's say, internal. Last Year I uploaded my first version on ftp site "ftp.funet.fi"

and probably it's still there.

Shellsort was written and tested mainly on my A1200 with HD.

Source code you can use with any assembler, eg. AsmOne, Trash'em One,...

I tested sort also on an A1200 with GVP1230 and HD, on A4000 with

Cyberstorm 040/40 with 16 Meg RAM. Program did goooooood job.

For example, 1.5 M file was sorted in 7 seconds, and with AmigaDOS Sort

I was waitnig over 5 minutes and pressed Ctrl-C !? So, what do you think?

If you have suggestions or remarks about this program, or if you find any bugs, please let me know.

When sending in bug reports, please state exactly under what circumstances the bug occurred, what equipment was used and what happened. If possible also try to give me enough information to reproduce the bug. It is very difficult to find bugs when you don't know exactly what happened.

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1.9 Personal Greetings

Greetings to all my friends in Croatia, and also to you people who write a lot of code on our favorite computer.

Drazen :-)

1.10 Apology

I apologize for comments in source, because they are written in Croatian, but I didn't have time to translate them. Anyway, anyone who understands programming on Amiga should understand my program also because there is nothing complicated.
