

# The `fontsize` package

*A small package to change the font size*

Ivan Valbusa  
Ivan dot Valbusa at gmail dot com

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The `fontsize` package allows you to set arbitrary sizes for the main font of the document, through the `fontsize=<size>` option. The value for the `<size>` can be given in any unit recognized by TeX (for example: `6mm`, `1ex`, `11.5pt`). If the unit is not declared it defaults to `pt`. So `fontsize=11` is the same as `fontsize=11pt`. See the example below.

## Caveat

Although effective with any value for the `<size>` (as long as the font is scalable!), the package is meant for small font size changes. For truly optimal results you should not use this package at all. Rather, a `.clo` file should be defined for each main size, even if this is pretty hard work. Particularly, you should define `\parindent` accordingly to the used size.

## Credits

The code is a minimal part of the `scrextend`, with few minor changes to make it completely independent of the Koma bundle (see [1]).

## An example

```
\usepackage[fontsize=10.5]{fontsize}

The \tiny size is: 5.25 pt.
The \baselineskip is 6.29997pt

The \scriptsize size is: 7.00005 pt.
The \baselineskip is 8.40002pt

The \footnotesize size is: 8.7501 pt.
The \baselineskip is 10.50009pt

The \small size is: 9.58131 pt.
The \baselineskip is 11.49754pt

The \normalsize size is: 10.5 pt.
The \baselineskip is 12.59996pt
```

The \large size is: **12.59996 pt.**  
The \baselineskip is 15.1199pt

The \Large size is: **15.12003 pt.**  
The \baselineskip is 18.14398pt

The \LARGE size is: **18.14397 pt.**  
The \baselineskip is 21.77269pt

The \huge size is: **21.77705 pt.**  
The \baselineskip is 26.13239pt

The \Huge size is: **26.12407 pt.**  
The \baselineskip is 31.3488pt

## References

- [1] Frank Neukam, Markus Kohm, Axel Kielhorn, *KOMA – Script. A versatile L<sup>A</sup>T<sub>E</sub>X 2<sub>&</sub> bundle.* <https://www.ctan.org/pkg/koma-script>
- [2] Hendri Adriaens, *The xkeyval package,* <https://www.ctan.org/pkg/xkeyval>.
- [3] Philipp Lehman, Joseph Wright, *The etoolbox Package. An e-T<sub>E</sub>X Toolbox for Class and Package Authors,* <https://www.ctan.org/pkg/etoolbox>.

## 1 The Code

```
1 \@ifpackageloaded{xkeyval}{}{\RequirePackage{xkeyval}}
2 \@ifpackageloaded{etoolbox}{}{\RequirePackage{etoolbox}}
```

Here begins the scrextend code. Only a few names have changed. The value for \fontsizefilebase is set to custom instead of scrsize.

```
3 \providecommand*{\fontsizefilebase}{custom}
4 \DeclareOptionX{fontsize}[10]{%
5   \expandafter\@defaultunits\expandafter\@tempdima#1 pt\relax\@nnil
6   \edef\@tempa{\#1}%
7   \setlength{\@tempdimb}{\@tempdima}%
8   \edef\@tempb{\strip@pt\@tempdimb}%
9   \addtolength{\@tempdimb}{-10\p@}%
10  \edef\@ptsize{\strip@pt\@tempdimb}%
```

```

11 \edef@\tempa{%
12   \noexpand\makeatletter
13   \noexpand\InputIfFileExists{\@fontsizefilebase\@tempa.clo}{%
14     \noexpand\PackageInfo{fontsize}{%
15       File '\@fontsizefilebase\@tempa.clo' used to setup font sizes}%
16   }{%
17     \noexpand\changefontsize{#1}%
18   }%
19   \noexpand\catcode`\noexpand@=\the\catcode`\@
20 }%
21 \expandafter\AtEndOfPackage\expandafter{\@tempa}%
22 }
23 \ProcessOptionsX*\relax

```

The command `\ctm@setlength` has the same definition as `\scr@setlength` of `scrextend.sty`.

```

24 \newcommand*\ctm@setlength[4]{%
25   \ifdim #2<\ifdim #2=\z@ \z@ \else \p@ \fi
26   \ifdim #3<\ifdim #3=\z@ \z@ \else \p@ \fi
27   \ifdim #4<\ifdim #4=\z@ \z@ \else \p@ \fi
28   \setlength{#1}{\p@ \cplus \p@ \cminus \p@}%
29   \else
30   \setlength{#1}{\p@ \cplus \p@ \cminus #4}%
31   \fi
32   \else
33   \ifdim #4<\ifdim #4=\z@ \z@ \else \p@ \fi
34   \setlength{#1}{\p@ \cplus #3 \cminus \p@}%
35   \else
36   \setlength{#1}{\p@ \cplus #3 \cminus #4}%
37   \fi
38   \fi
39   \else
40   \ifdim #3<\ifdim #3=\z@ \z@ \else \p@ \fi
41   \ifdim #4<\ifdim #4=\z@ \z@ \else \p@ \fi
42   \setlength{#1}{#2 \cplus \p@ \cminus \p@}%
43   \else
44   \setlength{#1}{#2 \cplus \p@ \cminus #4}%
45   \fi
46   \else
47   \ifdim #4<\ifdim #4=\z@ \z@ \else \p@ \fi
48   \setlength{#1}{#2 \cplus #3 \cminus \p@}%
49   \else
50   \setlength{#1}{#2 \cplus #3 \cminus #4}%
51   \fi
52   \fi
53   \fi
54 }

```

The command `\changefontsize` has the same definition as `\changefontsizes` of `scrextend.sty`.

```

55 \providecommand*\changefontsize}[2][1.2\@tempdima]{%
56   \defaultunits\@tempdima#2pt\relax\@nnil
57   \setlength{\@tempdimc}{\@tempdima}%

```

```

58  \addtolength{@tempdimc}{-10\p@}%
59  \edef\@ptsize{\strip@pt@tempdimc}%
60  \@defaultunits@tempdimb#1pt\relax\@nnil
61  \setlength{@tempdimc}{\dimexpr (100@tempdimb / \tempdima * \p@)}%
62  \edef\@tempb{\the@tempdimc}%
63  \setlength{@tempdimc}{\tempdima}%
64  \def@tempa##1##2##3##4##5\@nil{\def##1{##2.##3##4}}%
65  \expandafter@tempa\expandafter\@tempb\@tempb\@nnil%
66  \ctm@setlength{\abovedisplayskip}%
67  {.8333@tempdimb}{.1667@tempdimb}{.5@tempdimb}%
68  \ctm@setlength{\abovedisplayshortskip}{\z@}{.25@tempdimb}{\z@}%
69  \ctm@setlength{\belowdisplayshortskip}%
70  {.5@tempdimb}{.25@tempdimb}{.25@tempdimb}%
71  \setlength{\belowdisplayskip}{\abovedisplayskip}%
72  \edef\normalsize{%
73      \noexpand\@setfontsize\noexpand\normalsize
74      {\the\tempdima}{\the\tempdimb}%
75      \abovedisplayskip \the\abovedisplayskip
76      \abovedisplayshortskip \the\abovedisplayshortskip
77      \belowdisplayskip \the\belowdisplayskip
78      \belowdisplayshortskip \the\belowdisplayshortskip
79      \let\noexpand\@listi\noexpand\@listI
80  }%
81  \setlength{\tempdima}{0.9125@tempdimc}%
82  \setlength{\tempdimb}{\tempb\tempdima}%
83  \ctm@setlength{\abovedisplayskip}%
84  {.8333@tempdimb}{.1667@tempdimb}{.5@tempdimb}%
85  \ctm@setlength{\abovedisplayshortskip}{\z@}{.25@tempdimb}{\z@}%
86  \ctm@setlength{\belowdisplayshortskip}%
87  {.5@tempdimb}{.25@tempdimb}{.25@tempdimb}%
88  \setlength{\belowdisplayskip}{\abovedisplayskip}%
89  \edef\small{%
90      \noexpand\@setfontsize\noexpand\small
91      {\the\tempdima}{\the\tempdimb}%
92      \abovedisplayskip \the\abovedisplayskip
93      \abovedisplayshortskip \the\abovedisplayshortskip
94      \belowdisplayskip \the\belowdisplayskip
95      \belowdisplayshortskip \the\belowdisplayshortskip
96      \let\noexpand\@listi\noexpand\@listi@small
97  }%
98  \setlength{\tempdima}{.83334@tempdimc}%
99  \setlength{\tempdimb}{\tempb\tempdima}%
100 \ctm@setlength{\abovedisplayskip}%
101 {.8333@tempdimb}{.1667@tempdimb}{.5@tempdimb}%
102 \ctm@setlength{\abovedisplayshortskip}{\z@}{.25@tempdimb}{\z@}%
103 \ctm@setlength{\belowdisplayshortskip}%
104 {.5@tempdimb}{.25@tempdimb}{.25@tempdimb}%
105 \setlength{\belowdisplayskip}{\abovedisplayskip}%
106 \edef\footnotesize{%
107     \noexpand\@setfontsize\noexpand\footnotesize
108     {\the\tempdima}{\the\tempdimb}%
109     \abovedisplayskip \the\abovedisplayskip

```

```

110      \abovedisplayshortskip \the\abovedisplayshortskip
111      \belowdisplayskip \the\belowdisplayskip
112      \belowdisplayshortskip \the\belowdisplayshortskip
113      \let\noexpand\@listi\noexpand\@listi@footnotesize
114  }%
115 \setlength{\@tempdima}{.66667\@tempdimc}%
116 \setlength{\@tempdimb}{\tempb\@tempdima}%
117 \edef\scriptsize{%
118     \noexpand\@setfontsize\noexpand\scriptsize
119     {\the\@tempdima}{\the\@tempdimb}%
120 }%
121 \setlength{\@tempdima}{.5\@tempdimc}%
122 \setlength{\@tempdimb}{\tempb\@tempdima}%
123 \edef\tiny{%
124     \noexpand\@setfontsize\noexpand\tiny
125     {\the\@tempdima}{\the\@tempdimb}%
126 }%
127 \setlength{\@tempdima}{1.2\@tempdimc}%
128 \setlength{\@tempdimb}{\tempb\@tempdima}%
129 \edef\large{%
130     \noexpand\@setfontsize\noexpand\large
131     {\the\@tempdima}{\the\@tempdimb}%
132 }%
133 \setlength{\@tempdima}{1.44\@tempdimc}%
134 \setlength{\@tempdimb}{\tempb\@tempdima}%
135 \edef\Large{%
136     \noexpand\@setfontsize\noexpand\Large
137     {\the\@tempdima}{\the\@tempdimb}%
138 }%
139 \setlength{\@tempdima}{1.728\@tempdimc}%
140 \setlength{\@tempdimb}{\tempb\@tempdima}%
141 \edef\LARGE{%
142     \noexpand\@setfontsize\noexpand\LARGE
143     {\the\@tempdima}{\the\@tempdimb}%
144 }%
145 \setlength{\@tempdima}{2.074\@tempdimc}%
146 \setlength{\@tempdimb}{\tempb\@tempdima}%
147 \edef\huge{%
148     \noexpand\@setfontsize\noexpand\huge
149     {\the\@tempdima}{\the\@tempdimb}%
150 }%
151 \setlength{\@tempdima}{2.488\@tempdimc}%
152 \setlength{\@tempdimb}{\tempb\@tempdima}%
153 \edef\Huge{%
154     \noexpand\@setfontsize\noexpand\Huge
155     {\the\@tempdima}{\the\@tempdimb}%
156 }%
157 \normalsize
158 \setlength{\@tempdimb}{\f@baselineskip}%
159 \ctm@setlength{\parsep}%
160 {.3333\@tempdimb}{.1667\@tempdimb}{.0833\@tempdimb}%
161 \ctm@setlength{\topsep}%

```

```

162 {.6667\@tempdimb}{.1667\@tempdimb}{.3333\@tempdimb}%
163 \@tempswafalse
164 \begingroup
165 \def\@list@extra{\aftergroup\@tempswatrue}%
166 \csname @listi\endcsname
167 \endgroup
168 \edef\@listi{\leftmargin\leftmargini
169   \topsep \the\topsep
170   \parsep \the\parsep
171   \itemsep \parsep
172   \if@tempswa\noexpand\@list@extra\fi
173 }%
174 \let\@listI\@listi
175 \ctm@setlength{\parsep}%
176 {.1667\@tempdimb}{.0833\@tempdimb}{.0833\@tempdimb}%
177 \ctm@setlength{\topsep}%
178 {.3333\@tempdimb}{.1667\@tempdimb}{.1667\@tempdimb}%
179 \@tempswafalse
180 \begingroup
181 \def\@list@extra{\aftergroup\@tempswatrue}%
182 \csname @listi\endcsname
183 \endgroup
184 \edef\@listi@small{\leftmargin\leftmargini
185   \topsep \the\topsep
186   \parsep \the\parsep
187   \itemsep \parsep
188   \if@tempswa\noexpand\@list@extra\fi
189 }%
190 \ctm@setlength{\parsep}%
191 {.125\@tempdimb}{.0625\@tempdimb}{.0625\@tempdimb}%
192 \ctm@setlength{\topsep}%
193 {.25\@tempdimb}{.125\@tempdimb}{.125\@tempdimb}%
194 \@tempswafalse
195 \begingroup
196 \def\@list@extra{\aftergroup\@tempswatrue}%
197 \csname @listi\endcsname
198 \endgroup
199 \edef\@listi@footnotesize{\leftmargin\leftmargini
200   \topsep \the\topsep
201   \parsep \the\parsep
202   \itemsep \parsep
203   \if@tempswa\noexpand\@list@extra\fi
204 }%
205 \ctm@setlength{\parsep}%
206 {.1667\@tempdimb}{.0833\@tempdimb}{.0833\@tempdimb}%
207 \ctm@setlength{\topsep}%
208 {.3333\@tempdimb}{.1667\@tempdimb}{.0833\@tempdimb}%
209 \@tempswafalse
210 \begingroup
211 \def\@list@extra{\aftergroup\@tempswatrue}%
212 \csname @listii\endcsname
213 \endgroup

```

```

214 \edef@\listii{\leftmargin\leftmarginii
215   \labelwidth=\dimexpr \leftmargin-\labelsep
216   \topsep \the\topsep
217   \parsep \the\parsep
218   \itemsep \parsep
219   \if@tempswa\noexpand\@list@extra\fi
220 }%
221 \ctm@setlength{\topsep}%
222 {.1667\@tempdimb}{.0833\@tempdimb}{.0833\@tempdimb}%
223 \setlength{\partopsep}{\z@ \cplus\z@ \cminus\p@}%
224 \atempswafalse
225 \begingroup
226 \def\@list@extra{\aftergroup\@tempswatrue}%
227 \csname @listiii\endcsname
228 \endgroup
229 \edef@\listiii{\leftmargin\leftmarginiii
230   \labelwidth=\dimexpr \leftmargin-\labelsep
231   \topsep \the\topsep
232   \parsep \z@
233   \partopsep \the\partopsep
234   \itemsep \topsep
235   \if@tempswa\noexpand\@list@extra\fi
236 }%
237 \atempswafalse
238 \begingroup
239 \def\@list@extra{\aftergroup\@tempswatrue}%
240 \csname @listiv\endcsname
241 \endgroup
242 \edef@\listiv{\leftmargin\leftmarginiv
243   \labelwidth=\dimexpr \leftmargin-\labelsep\relax
244   \if@tempswa\noexpand\@list@extra\fi
245 }%
246 \atempswafalse
247 \begingroup
248 \def\@list@extra{\aftergroup\@tempswatrue}%
249 \csname @listv\endcsname
250 \endgroup
251 \edef@\listv{\leftmargin\leftmarginv
252   \labelwidth=\dimexpr \leftmargin-\labelsep\relax
253   \if@tempswa\noexpand\@list@extra\fi
254 }%
255 \atempswafalse
256 \begingroup
257 \def\@list@extra{\aftergroup\@tempswatrue}%
258 \csname @listvi\endcsname
259 \endgroup
260 \edef@\listvi{\leftmargin\leftmarginvi
261   \labelwidth=\dimexpr \leftmargin-\labelsep\relax
262   \if@tempswa\noexpand\@list@extra\fi
263 }%
264 \@listi
265 \setlength{\@tempdimb}{\f@baselineskip}%

```

```

266   \setlength{\footnotesep}{.555\@tempdimb}%
267   \ctm@setlength{\skip\footins}%
268   {.75\@tempdimb}{.3333\@tempdimb}{.1667\@tempdimb}%
269   \ctm@setlength{\floatsep}%
270   {\@tempdimb}{.1667\@tempdimb}{.1667\@tempdimb}%
271   \ctm@setlength{\textfloatsep}%
272   {1.6667\@tempdimb}{.1667\@tempdimb}{.3333\@tempdimb}%
273   \setlength{\intextsep}{\floatsep}%
274   \setlength{\dblfloatsep}{\floatsep}%
275   \setlength{\dbltextfloatsep}{\textfloatsep}%
276   \setlength{@fptop}{\z@ \@plus 1fil}%
277   \setlength{@fpsep}{.6667\@tempdimb \@plus 2fil}%
278   \setlength{@fpbot}{\@fptop}%
279   \setlength{@dblfpbot}{\@fptop}%
280   \setlength{@dblfpsep}{\@fpsep}%
281   \setlength{@dblfpbot}{\@fptop}%
282   \ctm@setlength{\partopsep}{.2\@tempdimb}{.1\@tempdimb}{.1\@tempdimb}%
283 }
284 \endinput

```

## Change History

v0.1

General: First public release . . . 1

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