

Quick floats in LaTeX ^{*}

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Abstract

The `trivfloat` package provides a quick method for defining new float types in LaTeX. A single command sets up a new float in the same style as the LaTeX kernel `figure` and `table` float types.

1 Introduction

The LaTeX kernel provides the `figure` and `table` floating environment, but does not provide an easy method for defining new float types. This problem is addressed by the `float` package, which provides an array of commands to create new float types. However, the one command missing is a quick-and-dirty one to set up a new float type with no customisation. This is addressed by the `trivfloat` package.

2 Usage

`\trivfloat`
`\listoffloat-names`

The package provides a single command to produce the new float type, `\trivfloat`. This takes a single argument $\{\langle float-name \rangle\}$, which will be the name of the new floating environment. The new environment can be used as normal; the new floats should behave exactly the same as `figure` and `table` environments. The command `\listof\langle float-name \rangle s` is also provided.

New floats can also be generated by passing the name of the desired float type to the package as an option. This works in exactly the same way as the `\trivfloat` command.

^{*}This file describes version v1.1, last revised 2007/08/13.

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3 Implementation

3.1 Setup code

The first part of the package is concerned with basic identification and loading support packages.

```
1\NeedsTeXFormat{LaTeX2e}
2\ProvidesPackage{trivfloat}
3 [2007/08/13 v1.1 Quick floats in LaTeX]
4\RequirePackage{float}
```

3.2 Internal macros

`\tfl@floatcount` A new counter is needed to track how many floats have been generated by `trivfloat`.

```
5\newcount\tfl@floatcount%
```

`\tfl@genext` Each float type needs a list to store entries when generating a contents listing.
`\tfl@ext@i` Rather than try complex things with the initial characters of the float name, an arbitrary file extension is used. Note that `lof`, `log` and `lot` are taken by default, so we don't use them. Also notice that if people try to make too many new float types, then extension `xxx` will be used. This is very unlikely, but odd things might happen so we warn them.

```
6\def\tfl@genext{%
7 \expandafter\def\csname tfl@ext@\romannumeral\tfl@floatcount%
8 \expandafter\endcsname{%
9 \ifcase\tfl@floatcount%
10 \PackageError{trivfloat}%
11 {Something's wrong here --- Contact the package author!}%
12 \@eha%
13 \or % 1
14 loa%
15 \or % 2
16 lob%
17 \or % 3
18 loc%
19 \or % 4
20 lod%
21 \or % 5
22 loe%
23 \or % 6
24 loh%
25 \or % 7
26 loi%
27 \or % 8
28 loj%
29 \or % 9
30 lok%
```

```

31    \or % 10
32        lol%
33    \or % 11
34        lom%
35    \or % 12
36        lon%
37    \or % 13
38        loo%
39    \or % 15
40        loq%
41    \or % 16
42        lor%
43    \or % 17
44        los%
45    \or % 18
46        lou%
47    \or % 19
48        lov%
49    \or % 20
50        low%
51    \or % 21
52        lox%
53    \or % 22
54        loy%
55    \or % 23
56        loz%
57    \else % 24 or more
58        \PackageWarning{trivfloat}%
59            {I've run out of extensions \MessageBreak%
60            I'm using \jobname.xxx to list all future floats}%
61        xxx%
62    \fi%
63 }%
64 }%

```

\tfl@gennam
\tfl@gennam
\tfl@name@i

The conversion of the supplied float name to a form suitable for using as a title is achieved here. We strip off the first letter, convert to uppercase, then convert the rest to lowercase. Thanks to Martin Heller for the method to strip the first letter off.

```

65 \def\tfl@gennam#1#2\end{%
66     \expandafter\def\csname tfl@name@\romannumeral\tfl@floatcount%
67         \expandafter\endcsname{%
68         \MakeUppercase{#1}%
69         \MakeLowercase{#2}%
70     }%
71 }%
72 \def\tfl@gennam#1{%
73     \tfl@gennam#1\end%
74 }%

```

`\tfl@list` An auxiliary function is needed to define the `\listoffloat-names` macros.
`\listoffloat-names` This is to ensure that expansion occurs properly.

```
75 \def\tfl@list#1#2#3{%
76   \newcommand*{#1}{\listof{#2}{#3}}%
77 }%
```

3.3 User space macros

`\trivfloat` The only user-facing macro we need is `\trivfloat`. This does the work of setting up the new float type. Thanks to Heiko Oberdiek for the method to expand arguments correctly. Notice that a single command for the extension would work. However, the float name does need different commands for each float. So for consistency, both have numerals appended.

```
78 \newcommand*{\trivfloat}[1]{%
79   \advance\tfl@floatcount\@ne%
80   \tfl@genext%
81   \tfl@gennname{#1}%
82   \PackageInfo{trivfloat}%
83   {Listing all floats of type #1 in \jobname.%
84     \csname tfl@ext@\romannumeral\tfl@floatcount\endcsname}%
85   \begingroup%
86     \edef\x{\endgroup%
87       \noexpand\newfloat{#1}{tbp}{%
88         \csname tfl@ext@\romannumeral\tfl@floatcount\endcsname%
89       }%
90       \noexpand\floatname{#1}{%
91         \expandafter\noexpand%
92         \csname tfl@name@\romannumeral\tfl@floatcount\endcsname%
93       }%
94       \noexpand\tfl@list{\csname listof#1s\endcsname}{#1}{%
95         List of \expandafter\noexpand%
96         \csname tfl@name@\romannumeral\tfl@floatcount\endcsname s%
97       }%
98     }%
99   \x%
100 }%
```

3.4 Package options

Any package options given are assumed to be new float types. Every option is therefore passed to `\trivfloat`.

```
101 \DeclareOption*{\expandafter\trivfloat\expandafter{\CurrentOption}}
102 \ProcessOptions
```

Change History

v1.0	v1.1
General: Initial public release 1	General: Floats can be generated as package options 1

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