The \texttt{captcont} Package\footnote{This paper documents the \texttt{captcont} package vv2.0, last revised 2002/01/23.}

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2002/02/14

Abstract

This article documents the \LaTeX\ package \texttt{captcont}, which provides support for retaining a figure or caption number across several float environments—usually over several pages. It allows control over the contents of the List-of-Figures and the List-of-Tables pages. It should be compatible with all other packages that modify or extend the float environment and with the \texttt{subfigure} package \cite{subfigure} in particular.

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\newpage
1 Introduction

The \texttt{captcont} package provides support for figures and tables that continue or span two or more pages, but cannot be easily handled by another mechanism such as the \texttt{longtable} package \cite{longtable} or the \texttt{supertabular} environment \cite{supertabular}. The reason for this is usually that the figure or table is made up of multiple small parts. Therefore this package is typically used in conjunction the \texttt{subfigure} package\cite{subfigure}.

This \LaTeX{} 2e package replaces the older \LaTeX{} 2.09 style fragment written by Anonymous. This is a complete re-implementation of the older style so that the List-of-Figures, List-of-Tables and the \texttt{pageref} command have the correct page numbers.

2 The User Interface

To use this package place

\begin{verbatim}
\usepackage[\textit{options}]\{captcont\}
\end{verbatim}

in the preamble of your document. The supported options are shown in table 1.\footnote{If the \texttt{subfigure} package is also loaded, then the \texttt{subfigure} package options override these.}

This package redefines the \texttt{\caption} command and defines three new commands to work with it. The new commands act very similar to the caption, but control when the \textit{figure} or \textit{table} counter is incremented and whether or not the caption text shows up in the List-of-Figures or List-of-Tables pages. The commands are:

\begin{verbatim}
\caption \{\textit{lst_entry}\} \{\textit{caption}\}
\caption* \{\textit{lst_entry}\} \{\textit{caption}\}
\captcont \{\textit{lst_entry}\} \{\textit{caption}\}
\captcont* \{\textit{lst_entry}\} \{\textit{caption}\}
\end{verbatim}

The \texttt{\captcont} and \texttt{\captcont*} commands do not increment the \textit{figure} or \textit{table} counters and the \texttt{\captcont*} and \texttt{\caption*} commands do not print to the List-of-Figures or List-of-Tables.

If the caption proceeds the figure (\textit{i.e.}, \texttt{figtopcap} or \texttt{tabtopcap}), then for a series of \texttt{float} environments that are to be considered as one \textit{figure} or \textit{table}, you begin the first with a \texttt{\caption} or \texttt{\caption*} and use \texttt{\captcont} or \texttt{\captcont*} in each of the following ones. If the caption follows the figure (\textit{i.e.}, \texttt{figbotcap} or \texttt{tabbotcap}), then you do just the opposite and use \texttt{\captcont} or \texttt{\captcont*} on each of the series of \texttt{float} environments that are to be considered as one \textit{figure} or \textit{table}, the use a \texttt{\caption} or \texttt{\caption*} on the very last one.

3 Examples

Four examples are given below of the use of the \texttt{captcont} package. The “figures” in each are drawn using the following command which creates a small box representing a figure in the example output and centers provided text in the box. The height of the box is fixed at 15mm and the width varies with the provided text.
Table 1: capitcont package options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>figbotcap</td>
<td>The figure caption follows the figure (default).</td>
</tr>
<tr>
<td>figtopcap</td>
<td>The figure caption precedes the figure.</td>
</tr>
<tr>
<td>tabbotcap</td>
<td>The table caption follows the figure.</td>
</tr>
<tr>
<td>tabtopcap</td>
<td>The table caption precedes the figure (default).</td>
</tr>
</tbody>
</table>

```
\newcommand{\figbox}[1]{% Frame the box to make the ‘‘figure’’
  \fbox{% Make it 15mm tall
    \vbox to 15mm{% Vertically center this next \hbox
      \hbox{\space #1% Add the supplied text with spaces
        \space}%
      \vfil}}}
```

3.1 Two Continued Figures

Example 1 shows the case of a set of three pages containing parts of one figure. In this case the author desires that the caption of each page shows up in the List-of-Figures page. The \caption follows the figure body, so we use the \captcont command on the initial pages and the \caption on the last.

```
\listoffigures
...  
\begin{figure}[p]
  \figbox{Figure \ref{fig:ex1-1}, part 1, page \pageref{fig:ex1-1}}
  \captcont{Figure one.}
  \label{fig:ex1-1}
\end{figure}
\begin{figure}[p]
  \figbox{Figure \ref{fig:ex1-1}, part 2, page \pageref{fig:ex1-2}}
  \captcont{Figure one. (cont)}
  \label{fig:ex1-2}
\end{figure}
\begin{figure}[p]
  \figbox{Figure \ref{fig:ex1-1}, part 3, page \pageref{fig:ex1-3}}
  \caption{Figure one. (cont)}
  \label{fig:ex1-3}
\end{figure}
```
Example 1: Four pages showing a continued figure with List-of-Figures entries for each.

Often, however, you do not want the continued captions to appear in the List-of-Figures. Therefore the starred forms of the commands are available to suppress the addition of the caption text to the List-of-Figures, as shown in example 2 where only the first caption appears.

\listoffigures
...
\begin{figure}[p]
  \figbox{Figure \ref{fig:ex2-1}, part 1, page \pageref{fig:ex2-1}}
  \captcont{Figure two.}
  \label{fig:ex2-1}
\end{figure}
\begin{figure}[p]
  \figbox{Figure \ref{fig:ex2-1}, part 2, page \pageref{fig:ex2-2}}
  \captcont*{Figure one. (cont)}
  \label{fig:ex2-2}
\end{figure}
\begin{figure}[p]
  \figbox{Figure \ref{fig:ex2-1}, part 3, page \pageref{fig:ex2-3}}
  \caption*{Figure one. (cont)}
  \label{fig:ex2-3}
\end{figure}
3.2 A Continued Series of Subfigures

Example 3 shows the interaction of the contcap and the subfigure packages. When the subfigure package is also loaded, it overrides any options given with this package (it doesn’t matter if it is loaded before or after the captcont package). For this and the following example, we assume that the subfigure package was loaded with the options [FIGBOTCAP,TABTOPCAP]; therefore, for continued figures and tables, we end the series of continued figures and we begin the series of continued tables with with a \caption or \caption* command. The rest of the figure or tables parts use either the \captcont or the \captcont* command.

\begin{figure}[p]
\begin{center}
\subfigure[]{{\figbox{Subfigure 1A}}}
quad
\subfigure[]{{\figbox{Subfigure 1B}}}
\subfigure[]{{\figbox{Subfigure 1C}}}
quad
\subfigure[]{{\figbox{Subfigure 1D}}}
\end{center}
\caption{This is a simple figure.}
\label{fig:ex3-1}
\end{figure}
Example 3: Four pages showing a regular figure with four subfigures and a continued figure composed of twelve subfigures.

\begin{figure}[p]
\centering
\subfigure{\figbox{Subfigure 2A}}\quad
\subfigure{\figbox{Subfigure 2B}}
\subfigure{\figbox{Subfigure 2C}}\quad
\subfigure{\figbox{Subfigure 2D}}
\caption{This is a continued figure (cont.)}
\label{fig:ex3-2a}
\end{figure}
Here only the first two captions (for figures 3 and 4) appear in the List-of-Tables. The correct figure and page numbers are generated by any \label commands for later use with \ref or \pageref. When the subfigure package is loaded this goes for the \subref command also.

### 3.3 A Continued Series of Subtables

Example 4 also shows the interaction of the contcapt and subfigure packages. Here the table environment is used along with the TABTOPCAP option which insures that the numbering for the subtables is correct when the \caption precedes them rather than following them. As mentioned above, we use the \caption or \caption* command for the first float environment and the \captcont or \captcont* command for the continued float's.
Example 4: Four pages showing a regular table with four subtables and a continued table composed of twelve subtables.

\begin{table}
\caption{This is a simple table.}
\label{tab:One}
\begin{center}
\subtable\label{tab:OneA}\{\figbox{Subtable 1A}}\quad
\subtable\label{tab:OneB}\{\figbox{Subtable 1B}}\
\subtable\label{tab:OneC}\{\figbox{Subtable 1C}}\quad
\subtable\label{tab:OneD}\{\figbox{Subtable 1D}}
\end{center}
\end{table}

\begin{table}
\caption{This is a continued table (cont.)}
\begin{center}
\subtable\label{tab:OneE}\{\figbox{Subtable 2A}}\quad
\subtable\label{tab:OneF}\{\figbox{Subtable 2B}}\
\subtable\label{tab:OneG}\{\figbox{Subtable 2C}}\quad
\subtable\label{tab:OneH}\{\figbox{Subtable 2D}}
\end{center}
\end{table}

\begin{table}
\caption{This is a continued table (cont.)}
\begin{center}
\subtable\label{tab:OneI}\{\figbox{Subtable 2E}}\quad
\subtable\label{tab:OneJ}\{\figbox{Subtable 2F}}\
\subtable\label{tab:OneK}\{\figbox{Subtable 2G}}\quad
\subtable\label{tab:OneL}\{\figbox{Subtable 2H}}
\end{center}
\end{table}

\begin{table}
\caption{This is a continued table (cont.)}
\begin{center}
\subtable\label{tab:OneM}\{\figbox{Subtable 2I}}\quad
\subtable\label{tab:OneN}\{\figbox{Subtable 2J}}\
\subtable\label{tab:OneO}\{\figbox{Subtable 2K}}\quad
\subtable\label{tab:OneP}\{\figbox{Subtable 2L}}
\end{center}
\end{table}
\begin{table}[p]
\caption{This is a continued table.}
\begin{center}
\subtable{\figbox{Subtable 2A}}\quad
\subtable{\figbox{Subtable 2B}}
\end{center}
\end{table}

\begin{table}[p]
\caption{This is a continued table (cont.)}
\begin{center}
\subtable{\figbox{Subtable 2E}}\quad
\subtable{\figbox{Subtable 2F}}
\end{center}
\end{table}

\begin{table}[p]
\caption{This is a continued table (cont.)}
\begin{center}
\subtable{\figbox{Subtable 2I}}\quad
\subtable{\figbox{Subtable 2J}}
\end{center}
\end{table}
4 The Code

4.1 Identification

We start off by checking that we are loading into \LaTeX\ and announcing the name and version of this package.

1 \NeedsTeXFormat{LaTeX2e}[1994/12/01]
2 \ProvidesPackage{captcont}[2002/02/14 v2.0 captcont package]

4.2 Declaration and Execution of the Options

First we check if the flags figuretopcap and tabletopcap exist; if they are not present, than they are created. These are used to remember the options and are also the same internal \if's used by the subfigure package for this purpose and so we check if the subfigure package has already been loaded (by the existence of the \subfloat command and if so, then we entirely skip loading the options.

However if the subfigure package has not been loaded, we check for the options below and set the two \if's accordingly. By default figuretopcap is set false and tabletopcap is set true. If the subfigure package is loaded later, then it will override any settings made here!

3 \@ifundefined{figuretopcaptrue}{\newif\figuretopcap}{}
4 \@ifundefined{tabletopcaptrue}{\newif\tabletopcap}{}
5 \@ifundefined{@subfloat}{% 
6 \DeclareOption{figbotcap}{\figuretopcapfalse}
7 \DeclareOption{figtopcap}{\figuretopcaptrue}
8 \DeclareOption{tabbotcap}{\tabletopcapfalse}
9 \DeclareOption{tabtopcap}{\tabletopcaptrue}
10 \ExecuteOptions{figbotcap,tabtopcap}
11 \ProcessOptions{ }

4.3 The Updated \caption Commands

\caption First, we save the current \caption command as \cc@caption. Then we redefine \caption to check for a trailing '*' so that we can choose the regular caption (\cc@caption) for a special caption (\cc@scaption) that does not add a line to the “List-of” pages.

12 \let\cc@caption=\caption
13 \renewcommand{\caption}{% 
14 \@ifstar\cc@scaption\cc@caption}

Next, we define the \cc@scaption and \cc@@scaption commands to do everything that the regular \caption command would have done, except for adding a line to the “List-of” pages.

If \@captype is undefined, then write out an error and ‘eat’ (i.e., throw away) the argument(s). Otherwise, add one to the figure or table counter and define the \@currentreference, then call \cc@@scaption with the expanded arguments.
Note that we allow an optional argument for the \cc@@scaption even though this will never be used. The reason for this is to allow the shift from \caption to \caption* or back, when deciding if something should or should not be shown in the “List-of” pages, to be done with just the addition or removal of the ‘*’.

15 \newcommand{\cc@scaption}{%
16 \iffalse\@captype\undefined
17 \latexerror{\noexpand\caption* outside float}\@ehd
18 \expandafter\@gobble
19 \else
20 \refstepcounter\@captype
21 \expandafter\@firstofone
22 \fi
23 {\@dblarg{\cc@@scaption\@captype}}}

We add a \par to end the current horizontal list, then we normalize the paragraph setting parameters, however we call \@setminipage if the \if@minipage is still true to enable \everypar to make it false later. (This is the case if the \caption is not the first entry in the float) environment.

24 \long\def\cc@scaption#1[#2]#3{%
25 \par
26 \begingroup
27 \@parboxrestore
28 \if@minipage
29 \@setminipage
30 \fi

Next \normalsize is restored (we just assume something else was set) and we typeset the caption followed by another \par. Unlike the regular \caption command, we skipped adding a line to the List-of-Figures or List-of-Tables.

31 \normalsize
32 \@makecaption{\@nameuse{fnum@#1}}{\ignorespaces #3}\par
33 \endgroup}

4.4 Work with the \label/\ref Mechanism

\ccset@currentlabel

We define this command to conditionally increment the figure or table counter according to the respective flag telling us if the \caption is normally placed before or after the figure or table. Then globally reset the currentlabel for use with the \label command.

Note that this leaves the counter with a possibly incorrect setting, so this should be used within a group to limit it’s scope.

34 \newcommand{\ccset@currentlabel}{[1]{%
35 \@nameuse{if\@captype topcap}\else
36 \@advance\@nameuse{c@\@captype}\@ne
37 \fi
38 \global\edef\@currentlabel{%
39 \@nameuse{p@#1}\@nameuse{the#1}})}
4.5 The New Caption Continuation Commands

The \captcont and \captcont* commands are just like the corresponding \caption and \caption* command, except that they do not cause the figure or table counters to be incremented.

The first step is to check for a following ‘*’ to decide if an entry on the “List-of” page is to be made. The ‘*:’ version does not add an entry.

\newcommand{\captcont}{%  
\@ifstar\cc@scaptcont\cc@captcont}

Next, we define the \cc@captcont and \cc@scaptcont commands to check to insure that we are inside a float environment. If not, then we report an error and exit. Otherwise we call the respective \cc@captcont or \cc@scaptcont command to finish the processing, without changing the current counter value or updating the \@currentreference value. Those will be done locally, as necessary, in the following commands.

Note that we have an optional argument for the \cc@scaptcont even though this will never be used. The reason for this, as above, is to allow the shift from \captcont to \captcont* or back to be done with just the addition or removal of the ‘*’ when deciding if something should or should not be shown in the “List-of” pages.

\newcommand{\cc@captcont}{%  \ifx\@captype\@undefined  \@latex@error{\noexpand\captcont outside float}\@ehd  \else  \expandafter\@firstofone  \fi}{\@dblarg{\cc@@captcont\@captype}}
\newcommand{\cc@scaptcont}{%  \ifx\@captype\@undefined  \@latex@error{\noexpand\captcont* outside float}\@ehd  \else  \expandafter\@firstofone  \fi}{\@dblarg{\cc@@scaptcont\@captype}}

These two commands do the real work and finish up the “captcont” processing. They both insert a \par to finish off the prior horizontal list (if any) and then locally update the figure or table counter (if necessary) and globally set the \@currentlabel value using \ccset@currentlabel, defined above.

The difference between them is that \cc@scaptcont then writes to the “List-of” page, while \cc@scaptcont does not. They both then finish just like the \cc@scaption command, by resetting the paragraph and font parameters and then calling \@makecaption to typeset the caption followed by a \par.
\long\def\cc@captcont#1[#2]#3{\
\par\
\begingroup\
\ccset@currentlabel{#1}\
\addcontentsline{\@nameuse{ext@#1}}{#1}\
  {\protect\numberline{\@nameuse{the#1}}{\ignorespaces #2}}\
\@parboxrestore\
@if@minipage\
\@setminipage\
@endif\
\normalsize\
\@makecaption{\@nameuse{fnum@#1}}{\ignorespaces #3}\par\
\endgroup}

\long\def\cc@scaptcont#1[#2]#3{\
\par\
\begingroup\
\ccset@currentlabel{#1}\
\@parboxrestore\
@if@minipage\
\@setminipage\
@endif\
\normalsize\
\@makecaption{\@nameuse{fnum@#1}}{\ignorespaces #3}\par\
\endgroup}
Acknowledgement

I wish to thank William 'bil' L. Kleb (w.l.kleb@larc.nasa.gov) for his willingness to proofread this document and his many valuable suggestions as to its improvement.

References


Change History

v1.0

General: Initial revision. 

Index

Numbers written in italic refer to the page where the corresponding entry is described, the ones underlined to the code line of the definition, the rest to the code lines where the entry is used.

<table>
<thead>
<tr>
<th>C</th>
<th>\caption</th>
<th>\cc@caption</th>
<th>\cc@scaption</th>
</tr>
</thead>
<tbody>
<tr>
<td>\captcont</td>
<td>40</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>\captcont*</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\caption</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\caption*</td>
<td>12</td>
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<td></td>
</tr>
<tr>
<td>\cc@@captcont</td>
<td>49, 58</td>
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</tr>
<tr>
<td>\cc@@scaptcont</td>
<td>57, 58, 71</td>
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</tr>
<tr>
<td>\cc@@scaption</td>
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</tr>
<tr>
<td>\cc@captcont</td>
<td>41, 42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I</th>
<th>\cc@caption</th>
<th>\cc@scaption</th>
<th>\ccset@currentlabel</th>
</tr>
</thead>
<tbody>
<tr>
<td>\iffiguretopcap</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\iftabletopcap</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F</th>
<th>\figuretopcapfalse</th>
<th>\tabletopcapfalse</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T</th>
<th>\figuretopcaptrue</th>
<th>\tabletopcaptrue</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>