

```
1  %%%=====
.  %% Copyright 2023-present by Alceu Frigeri
.  %%
.  %% This work may be distributed and/or modified under the conditions of
.  %%
.  %% * The [LaTeX Project Public License](http://www.latex-project.org/lppl.txt),
.  %% version 1.3c (or later), and/or
.  %% * The [GNU Affero General Public License](https://www.gnu.org/licenses/agpl-3.0.html),
.  %% version 3 (or later)
10 %%
.  %% This work has the LPPL maintenance status *maintained*.
.  %%
.  %% The Current Maintainer of this work is Alceu Frigeri
.  %%
.  %% This is version {1.7} {2025/04/21}
.  %%
.  %% The list of files that compose this work can be found in the README.md file at
.  %% https://ctan.org/pkg/codedescribe
.  %%%=====
20 \NeedsTeXFormat{LaTeX2e}[2022/06/01]
.
. \ProvidesExplPackage
. {codelisting}
. {2025/04/21}
. {1.7}
. {LaTeX Code Listing}
.
. %%%
. %%%
. %%% Just an attempt of having my packages info in a regular way
. %%% Idea being: { <pck-name> / pkg info } for each and all.
. %%%
. %%%
. \keys_define:nn { codelisting / pkg info}
. {
.   name      .code:n = {codelisting} ,
.   prefix    .code:n = {codelist} ,
.   date      .code:n = {2025/04/21} ,
40  version    .code:n = {1.7} ,
.   description .code:n = {\LaTeX~Code~Listing}
. }
. \cs_if_exist:NF \PkgInfo
. {
.   \NewDocumentCommand \PkgInfo {mm} { \keys_set:nn {#1 / pkg info}{#2} }
.   \NewDocumentCommand \PkgDescription {m}
.   { \noindent Package~ \textbf{\PkgInfo{#1}{name}}~Version:~\PkgInfo{#1}{version}~ ~ ~ \PkgInfo{#1}{date}\par \emph{\PkgInfo{#1}{description}}~\P
.   }
. }
. %%%
. %%% End of cut-n-paste
. %%%
50 \RequirePackage{listings,scontents}
.
. \msg_new:nnnn {codelist} {invalid key}
. {
.   (ID:#1)~Key (#2) ~not~defined!
. }
. {
60  You~tried~to~use~a~non~defined~key:#2.
.   ~Error~Code~ ID:<#1>.
. }
.
. \dim_new:N \l__codelist_demo_parindent_dim
. \dim_new:N \l__codelist_org_parindent_dim
.
. \dim_set:Nn \l__codelist_org_parindent_dim { \parindent }
.
. \colorlet{c__codelist_lightred_color}{white!97!red}
. \colorlet{c__codelist_lightgreen_color}{white!97!green}
70 \colorlet{c__codelist_lightblue_color}{white!97!blue}
. \colorlet{c__codelist_lightmagenta_color}{white!97!magenta}
. \colorlet{c__codelist_lightyellow_color}{white!97!yellow}
. \colorlet{c__codelist_lightteal_color}{white!97!teal}
. \colorlet{c__codelist_lightcyan_color}{white!97!cyan}
.
. \colorlet{c__codelist_lightgray_color}{white!97!black}
. \colorlet{c__codelist_gray_color}{gray}
. \definecolor{c__codelist_grayblack_color}{rgb}{0.8,0.8,0.8}
80 \definecolor{c__codelist_blackgray_color}{rgb}{0.8,0.8,0.8}
.
. \colorlet{c__codelist_darkred_color}{red!30!black!100}
. \colorlet{c__codelist_darkgreen_color}{green!30!black!100}
. \colorlet{c__codelist_darkblue_color}{blue!30!black!100}
. \colorlet{c__codelist_darkmagenta_color}{magenta!30!black!100}
. \colorlet{c__codelist_darkyellow_color}{yellow!30!black!100}
. \colorlet{c__codelist_darkteal_color}{teal!30!black!100}
. \colorlet{c__codelist_darkcyan_color}{cyan!30!black!100}
.
. \colorlet{c__codelist_redishblack_color}{red!50!black!100}
. \colorlet{c__codelist_greenishblack_color}{green!50!black!100}
90 \colorlet{c__codelist_blueishblack_color}{blue!50!black!100}
. \colorlet{c__codelist_magentaishblack_color}{magenta!50!black!100}
. \colorlet{c__codelist_yellowishblack_color}{yellow!50!black!100}
. \colorlet{c__codelist_tealishblack_color}{teal!50!black!100}
. \colorlet{c__codelist_cyanishblack_color}{cyan!50!black!100}
.
. \colorlet{c__codelist_redblack_color}{red!75!black!100}
. \colorlet{c__codelist_greenblack_color}{green!75!black!100}
100 \colorlet{c__codelist_blueblack_color}{blue!75!black!100}
. \colorlet{c__codelist_magentablack_color}{magenta!75!black!100}
. \colorlet{c__codelist_yellowblack_color}{yellow!75!black!100}
. \colorlet{c__codelist_tealblack_color}{teal!75!black!100}
. \colorlet{c__codelist_cyanblack_color}{cyan!75!black!100}
.
. \colorlet{c__codelist_grayred_color}{red!30!gray!100}
. \colorlet{c__codelist_graygreen_color}{green!30!gray!100}
. \colorlet{c__codelist_grayblue_color}{blue!30!gray!100}
. \colorlet{c__codelist_graymagenta_color}{magenta!30!gray!100}
110 \colorlet{c__codelist_grayyellow_color}{yellow!30!gray!100}
```

```
111 \colorlet{c_codelist_grayteal_color}{teal!30!gray!100}
    \colorlet{c_codelist_graycyan_color}{cyan!30!gray!100}
    .
    \colorlet{c_codelist_redishgray_color}{red!50!gray!100}
    \colorlet{c_codelist_greenishgray_color}{green!50!gray!100}
    \colorlet{c_codelist_blueishgray_color}{blue!50!gray!100}
    \colorlet{c_codelist_magentaishgray_color}{magenta!50!gray!100}
    \colorlet{c_codelist_yellowishgray_color}{yellow!50!gray!100}
    \colorlet{c_codelist_tealishgray_color}{teal!50!gray!100}
120 \colorlet{c_codelist_cyanishgray_color}{cyan!50!gray!100}
    .
    \colorlet{c_codelist_redgray_color}{red!75!gray!100}
    \colorlet{c_codelist_greengray_color}{green!75!gray!100}
    \colorlet{c_codelist_bluegray_color}{blue!75!gray!100}
    \colorlet{c_codelist_magentagray_color}{magenta!75!gray!100}
    \colorlet{c_codelist_yellowgray_color}{yellow!75!gray!100}
    \colorlet{c_codelist_tealgray_color}{teal!75!gray!100}
    \colorlet{c_codelist_cyangray_color}{cyan!75!gray!100}
    .
130 \tl_set:Nn \l__codelist_bckgnd_color_default_tl{c_codelist_lightgray_color}%
    \tl_set:Nn \l__codelist_string_color_default_tl{c_codelist_darkteal_color}
    \tl_set:Nn \l__codelist_comment_color_default_tl{c_codelist_darkgreen_color}
    .
    \tl_set:Nn \l__codelist_texcsA_color_default_tl{c_codelist_darkblue_color}
    \tl_set:Nn \l__codelist_texcsB_color_default_tl{c_codelist_blueishblack_color}
    \tl_set:Nn \l__codelist_texcsC_color_default_tl{c_codelist_blueblack_color}
    \tl_set:Nn \l__codelist_texcsD_color_default_tl{c_codelist_blueishgray_color}
    .
    \tl_set:Nn \l__codelist_keywdA_color_default_tl{c_codelist_darkcyan_color}
    \tl_set:Nn \l__codelist_keywdB_color_default_tl{c_codelist_cyanishblack_color}
    \tl_set:Nn \l__codelist_keywdC_color_default_tl{c_codelist_cyanblack_color}
    \tl_set:Nn \l__codelist_keywdD_color_default_tl{c_codelist_cyanishgray_color}
    .
    \tl_set:Nn \l__codelist_emphA_color_default_tl{c_codelist_darkred_color}
    \tl_set:Nn \l__codelist_emphB_color_default_tl{c_codelist_redishblack_color}
    \tl_set:Nn \l__codelist_emphC_color_default_tl{c_codelist_redblack_color}
    \tl_set:Nn \l__codelist_emphD_color_default_tl{c_codelist_redishgray_color}
    .
140 \tl_set:Nn \l__codelist_rule_color_default_tl{c_codelist_gray_color}
    \tl_set:Nn \l__codelist_number_color_default_tl{c_codelist_gray_color}
    .
    \keys_define:nn {codelist / options} {
        settexcs .usage:n = general,
        settexcs .code:n = { \tl_set:Nn \l__codelist_texcsA_tl {#1} },
        settexcs .default:n = ,
        .
        texcs .usage:n = general,
        texcs .code:n = { \tl_put_right:Nn \l__codelist_texcsA_tl { , #1 } },
        texcs .default:n = ,
        .
160 texcsstyle .usage:n = general,
        texcsstyle .code:n = { \tl_set:Nn \l__codelist_texcsAstyle_tl {#1} },
        texcsstyle .default:n = \bfseries\color{\l__codelist_texcsA_color_default_tl },
        .
        settexcs2 .usage:n = general,
        settexcs2 .code:n = { \tl_set:Nn \l__codelist_texcsB_tl {#1} },
        settexcs2 .default:n = ,
        .
170 texcs2 .usage:n = general,
        texcs2 .code:n = { \tl_put_right:Nn \l__codelist_texcsB_tl { , #1 } },
        texcs2 .default:n = ,
        .
        texcs2style .usage:n = general,
        texcs2style .code:n = { \tl_set:Nn \l__codelist_texcsBstyle_tl {#1} },
        texcs2style .default:n = \bfseries\color{\l__codelist_texcsB_color_default_tl } ,
        .
        settexcs3 .usage:n = general,
        settexcs3 .code:n = { \tl_set:Nn \l__codelist_texcsC_tl {#1} },
        settexcs3 .default:n = ,
        .
180 texcs3 .usage:n = general,
        texcs3 .code:n = { \tl_put_right:Nn \l__codelist_texcsC_tl { , #1 } },
        texcs3 .default:n = ,
        .
        texcs3style .usage:n = general,
        texcs3style .code:n = { \tl_set:Nn \l__codelist_texcsCstyle_tl {#1} },
        texcs3style .default:n = \bfseries\color{\l__codelist_texcsC_color_default_tl } ,
        .
190 settexcs4 .usage:n = general,
        settexcs4 .code:n = { \tl_set:Nn \l__codelist_texcsD_tl {#1} },
        settexcs4 .default:n = ,
        .
        texcs4 .usage:n = general,
        texcs4 .code:n = { \tl_put_right:Nn \l__codelist_texcsD_tl { , #1 } },
        texcs4 .default:n = ,
        .
        texcs4style .usage:n = general,
        texcs4style .code:n = { \tl_set:Nn \l__codelist_texcsDstyle_tl {#1} },
        texcs4style .default:n = \bfseries\color{\l__codelist_texcsD_color_default_tl } ,
        .
200 setkeywd .usage:n = general,
        setkeywd .code:n = { \tl_set:Nn \l__codelist_keywdA_tl {#1} },
        setkeywd .default:n = ,
        .
        keywd .usage:n = general,
        keywd .code:n = { \tl_put_right:Nn \l__codelist_keywdA_tl { , #1 } },
        keywd .default:n = ,
        .
        keywdstyle .usage:n = general,
        keywdstyle .code:n = { \tl_set:Nn \l__codelist_keywdstyle_tl {#1} },
        keywdstyle .default:n = \bfseries\color{\l__codelist_keywdA_color_default_tl } ,
        .
        setkeywd2 .usage:n = general,
        setkeywd2 .code:n = { \tl_set:Nn \l__codelist_keywdB_tl {#1} },
        setkeywd2 .default:n = ,
        .
        keywd2 .usage:n = general,
        keywd2 .code:n = { \tl_put_right:Nn \l__codelist_keywdB_tl { , #1 } },
        keywd2 .default:n = ,
        .
220
```

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221 keywd2style .usage:n = general,
    keywd2style .code:n = { \tl_set:Nn \l__codelist_keywdBstyle_tl {#1} },
    keywd2style .default:n = \bfseries\color{\l__codelist_keywdB_color_default_tl } ,
    .
    .
    .
    setkeywd3 .usage:n = general,
    setkeywd3 .code:n = { \tl_set:Nn \l__codelist_keywdC_tl {#1} },
    setkeywd3 .default:n = ,
    .
    .
    .
230 keywd3 .usage:n = general,
    keywd3 .code:n = { \tl_put_right:Nn \l__codelist_keywdC_tl { , #1 } },
    keywd3 .default:n = ,
    .
    .
    .
    keywd3style .usage:n = general,
    keywd3style .code:n = { \tl_set:Nn \l__codelist_keywdCstyle_tl {#1} },
    keywd3style .default:n = \bfseries\color{\l__codelist_keywdC_color_default_tl } ,
    .
    .
    .
    setkeywd4 .usage:n = general,
    setkeywd4 .code:n = { \tl_set:Nn \l__codelist_keywdD_tl {#1} },
    setkeywd4 .default:n = ,
    .
240 keywd4 .usage:n = general,
    keywd4 .code:n = { \tl_put_right:Nn \l__codelist_keywdD_tl { , #1 } },
    keywd4 .default:n = ,
    .
    .
    .
    keywd4style .usage:n = general,
    keywd4style .code:n = { \tl_set:Nn \l__codelist_keywdDstyle_tl {#1} },
    keywd4style .default:n = \bfseries\color{\l__codelist_keywdD_color_default_tl } ,
    .
    .
    .
250 setemph .usage:n = general,
    setemph .code:n = { \tl_set:Nn \l__codelist_emphA_tl {#1} },
    setemph .default:n = ,
    .
    .
    .
    emph .usage:n = general,
    emph .code:n = { \tl_put_right:Nn \l__codelist_emphA_tl { , #1 } },
    emph .default:n = ,
    .
    .
    .
    emphstyle .usage:n = general,
    emphstyle .code:n = { \tl_set:Nn \l__codelist_emphAstyle_tl {#1} },
    emphstyle .default:n = \bfseries\color{\l__codelist_emphA_color_default_tl } ,
    .
260 setemph2 .usage:n = general,
    setemph2 .code:n = { \tl_set:Nn \l__codelist_emphB_tl {#1} },
    setemph2 .default:n = ,
    .
    .
    .
    emph2 .usage:n = general,
    emph2 .code:n = { \tl_put_right:Nn \l__codelist_emphB_tl { , #1 } },
    emph2 .default:n = ,
    .
    .
    .
270 emph2style .usage:n = general,
    emph2style .code:n = { \tl_set:Nn \l__codelist_emphBstyle_tl {#1} },
    emph2style .default:n = \bfseries\color{\l__codelist_emphB_color_default_tl } ,
    .
    .
    .
    setemph3 .usage:n = general,
    setemph3 .code:n = { \tl_set:Nn \l__codelist_emphC_tl {#1} },
    setemph3 .default:n = ,
    .
    .
    .
    emph3 .usage:n = general,
    emph3 .code:n = { \tl_put_right:Nn \l__codelist_emphC_tl { , #1 } },
    emph3 .default:n = ,
    .
280 emph3style .usage:n = general,
    emph3style .code:n = { \tl_set:Nn \l__codelist_emphCstyle_tl {#1} },
    emph3style .default:n = \bfseries\color{\l__codelist_emphC_color_default_tl } ,
    .
    .
    .
    setemph4 .usage:n = general,
    setemph4 .code:n = { \tl_set:Nn \l__codelist_emphD_tl {#1} },
    setemph4 .default:n = ,
    .
    .
    .
290 emph4 .usage:n = general,
    emph4 .code:n = { \tl_put_right:Nn \l__codelist_emphD_tl { , #1 } },
    emph4 .default:n = ,
    .
    .
    .
    emph4style .usage:n = general,
    emph4style .code:n = { \tl_set:Nn \l__codelist_emphDstyle_tl {#1} },
    emph4style .default:n = \bfseries\color{\l__codelist_emphD_color_default_tl } ,
    .
    .
    .
    stringstyle .usage:n = general,
    stringstyle .code:n = { \tl_set:Nn \l__codelist_stringstyle_tl {#1} },
    stringstyle .default:n = \color{\l__codelist_string_color_default_tl } ,
    .
300 commentstyle .usage:n = general,
    commentstyle .code:n = { \tl_set:Nn \l__codelist_commentstyle_tl {#1} },
    commentstyle .default:n = \color{\l__codelist_comment_color_default_tl } ,
    .
    .
    .
    bckgndcolor .usage:n = general,
    bckgndcolor .code:n = { \tl_set:Nn \l__codelist_bckgndcolor_tl {#1} },
    bckgndcolor .default:n = \color{\l__codelist_bckgnd_color_default_tl } ,
    .
    .
    .
    rulecolor .usage:n = general,
    rulecolor .code:n = { \tl_set:Nn \l__codelist_rulecolor_tl {#1} },
    rulecolor .default:n = \color{\l__codelist_rule_color_default_tl } ,
    .
310 numbers .usage:n = general,
    numbers .code:n = { \tl_set:Nn \l__codelist_numbers_tl {#1} },
    numbers .default:n = none,
    .
    .
    .
    numberstyle .usage:n = general,
    numberstyle .code:n = { \tl_set:Nn \l__codelist_numberstyle_tl {#1} },
    numberstyle .default:n = \tiny\color{\l__codelist_number_color_default_tl } ,
    .
320 parindent .usage:n = general,
    parindent .code:n = { \dim_set:Nn \l__codelist_demo_parindent_dim{#1} },
    parindent .default:n = \l__codelist_org_parindent_dim,
    .
    .
    .
    codeprefix .usage:n = general,
    codeprefix .code:n = { \tl_set:Nn \l__codelist_codeprefix_tl {#1} },
    codeprefix .default:n = \LaTeX\ Code:,
    .
    .
    .
330 resultprefix .usage:n = general,
    resultprefix .code:n = { \tl_set:Nn \l__codelist_resultprefix_tl {#1} },
    
```

```
331 resultprefix .default:n = \LaTeX\ Result:,
.
. ruleht .usage:n = general,
. ruleht .code:n = { \tl_set:Nn \l__codelist_ruleheight_tl {#1} },
. ruleht .default:n = 1,
.
. basicstyle .usage:n = general,
. basicstyle .code:n = { \tl_set:Nn \l__codelist_basicstyle_tl {#1} },
. basicstyle .default:n = \footnotesize\ttfamily ,
340
. default .usage:n = general,
. default .meta:n = {
.   settexcs , texcsstyle ,
.   settexcs2 , texcs2style ,
.   settexcs3 , texcs3style ,
.   settexcs4 , texcs4style ,
.   setkeywd , keywdstyle ,
.   setkeywd2 , keywd2style ,
.   setkeywd3 , keywd3style ,
350   setkeywd4 , keywd4style ,
.   setemph , emphstyle ,
.   setemph2 , emph2style ,
.   setemph3 , emph3style ,
.   setemph4 , emph4style ,
.   stringstyle ,
.   commentstyle ,
.   bckgndcolor , rulecolor ,
.   numbers , numberstyle ,
.   parindent ,
360   codeprefix , resultprefix ,
.   ruleht ,
.   basicstyle ,
. } ,
.
. %%%
. %%% This one can't be protected
. %%%
. \cs_new:Npn \__codelist_set_options:n #1 {\keys_set:nn {codelist / options}{#1}}
370
. \__codelist_set_options:n{default}
.
. %%%
. %%% From doctools.dtx file
. %%% Lstlistings 'definitions'
. %%%
. %%%
380 %%%
. %%% Listings
. %
. \lstdefinestyle{lstStyleDefault}{
.   ,basicstyle=\small\ttfamily % Standardschrift
.   ,floatplacement=tbp % is used as float place specifier
.   ,aboveskip=\medskipamount % define the space above and
390   ,belowskip=\medskipamount % below displayed listings.
.   ,lineskip=0pt % specifies additional space between lines in listings.
.   ,boxpos=c % c,b,t
.   ,showlines=false % prints empty lines at the end of listings
.   ,extendedchars=true % characters
.   ,% allows or prohibits extended characters
.   ,% in listings, that means (national)
.   ,% characters of codes 128-255.
.   ,upquote=true % determines printing of quotes
400   ,tabsize=2, % chars of tab
.   ,showtabs=false % do not show tabs
.   ,showspaces=false % do not show spaces
.   ,showstringspaces=false % do not show blank spaces in string
.   ,% Line numbers
.   ,numbers=none % Left, right, none
.   ,% Captions
.   ,numberbychapter=true %
.   ,captionpos=b % t,b
.   ,abovecaptionskip=\smallskipamount % the vertical space respectively above
410   ,belowcaptionskip=\smallskipamount % or below each caption
.   ,% Margins and Line shape
.   ,linewidth=\linewidth % defines the base line width for listings.
.   ,xleftmargin=0pt % extra margins
.   ,xrightmargin=0pt %
.   ,resetmargins=false % indentation from List environments like enumerate
.   ,% or itemize is reset, i.e. not used.
.   ,breaklines=true % line breaking of long lines.
.   ,breakatwhitespace=false % allows line breaks only at white space.
.   ,breakindent=0pt % is the indentation of the second, third, ...
420   ,% Line of broken lines.
.   ,breakautoindent=true % apply indentation
.   ,columns=flexible %
.   ,keepspace=true %
. }
.
. \lstdefinestyle{lstDocStyleBase}{
.   ,style=lstStyleDefault %%% base style
430
.   ,commentstyle=\slshape
.   ,% Line numbers
.   ,numbers=left % Left, right, none
.   ,stepnumber=1 % separation between numbers
.   ,numberfirstline=false % number first line always
.   ,%
.   ,numberstyle={\l__codelist_numberstyle_tl} % style of numbers
.   ,numbersep=5pt % distance to text
.   ,numberblanklines=true %
440   ,% Language
```

```
441 , language = [LaTeX]TeX
      %%% commands
      % LaTeX programming
, moretexcs={setlength, usepackage, newcommand, renewcommand, providecommand, RequirePackage, SelectInputMappings, ifpdfTeX, ifpdfoutput, AtBeginEnvironment,
, moretexcs={maketitle, text, includegraphics, chapter, section, subsection,
, moretexcs={subsubsection, paragraph, textmu, enquote, blockquote, ding, mathds, ifcdef, Bra, Ket, Bracket, subcaption, lettrine, mdfrsetup, captionof, listoffigures, listof
, moretexcs={newcolumntype, rowfont, taburowcolors, rowcolor, rowcolors, bottomrule,
, toprule, midrule, }
, moretexcs={hypersetup}
450 , moretexcs={gls, printglossary, glsadd, newglossaryentry, newacronym}
, moretexcs={mainmatter, frontmatter, geometry, KOMAoptions, setkomafont, addtokomafont}
, moretexcs={si, SI, sisetup, unit, unitfrac, micro}
, moretexcs={newblock, ExecuteBibliographyOptions, addbibresource}
, moretexcs={operatorname, frac, sfrac, dfrac, DeclareMathOperator, mathcal, underset}
, moretexcs={democodefile, package, cs, command, env, DemoError, PrintDemo}
, moretexcs={theadstart, tbody, tsubheadstart, tsubhead, tend}
, moretexcs={DefineCodeSection, SetCodeSection, BeginCodeSection, EndCodeSection}
, moretexcs={IfDefined, IfUndefined, IfElseDefined, IfElseUndefined, IfMultDefined, IfNotDraft, IfNotDraftElse, IfDraft, IfPackageLoaded, IfElsePackageLoad
, moretexcs={setuptablefontsize, tablefontsize, setuptablestyle, tablestyle, setuptablecolor, tablecolor, disablealternatetables, tablealtcolored, tb
460 , moretexcs={todo, missingfigure}
, moretexcs={lstloadlanguages, lstdefinestyle, lstset}
, moretexcs={indexsetup}
, moretexcs={newglossarystyle, glossarystyle, deftranslation, newglossary}
, moretexcs={usetikzlibrary}
, moretexcs={definecolor, colorlet}
, moretexcs={captionsetup, DeclareCaptionStyle}
, moretexcs={floatsetup}
, moretexcs={EnableCrossrefs, DisableCrossrefs, PageIndex, CodelineIndex, CodelineNumbered}
, moretexcs={cref, Cref, vref, eqnref, figref, tabref, secref, chapref}
470 }

%%%
%%%
%%%
%%% From doctools.dtx file
%%% Lstlistings 'definitions'
%%%
%%%
%%%
480
\lstloadlanguages{[LaTeX]TeX}
\lstdefinestyle{codestyle}{
  style = lstDocStyleBase,
  language = [LaTeX]TeX,
  numbers = none, %\L_codelist_numbers_tl,
  rulecolor = {\L_codelist_rulecolor_tl},
  backgroundcolor = {\L_codelist_bckgndcolor_tl},
  stringstyle = {\L_codelist_stringstyle_tl},
  commentstyle = {\L_codelist_commentstyle_tl},
490 framerule = 0pt, %0.4pt,
  nolol = true,
  frame = none,
  aboveskip = 0pt, % -2ex,
  belowskip = 0pt, % -2ex,
  basicstyle = {\L_codelist_basicstyle_tl}, %%\footnotesize\ttfamily ,
  rulesep = 0pt,
  breaklines = true,
  breakindent = 3em,
  moretexcs = {\L_codelist_texcsA_tl},
500 moretexcs = [2] {\L_codelist_texcsB_tl},
  moretexcs = [3] {\L_codelist_texcsC_tl},
  moretexcs = [4] {\L_codelist_texcsD_tl},
  texcsstyle = * {\L_codelist_texcsAstyle_tl},
  texcsstyle = * [2] {\L_codelist_texcsBstyle_tl},
  texcsstyle = * [3] {\L_codelist_texcsCstyle_tl},
  texcsstyle = * [4] {\L_codelist_texcsDstyle_tl},
  morekeywords = {\L_codelist_keywdA_tl},
  morekeywords = [2] {\L_codelist_keywdB_tl},
  morekeywords = [3] {\L_codelist_keywdC_tl},
510 morekeywords = [4] {\L_codelist_keywdD_tl},
  keywordstyle = {\L_codelist_keywdstyle_tl},
  keywordstyle = [2] {\L_codelist_keywdBstyle_tl},
  keywordstyle = [3] {\L_codelist_keywdCstyle_tl},
  keywordstyle = [4] {\L_codelist_keywdDstyle_tl},
  emph = {\L_codelist_emphA_tl},
  emph = [2] {\L_codelist_emphB_tl},
  emph = [3] {\L_codelist_emphC_tl},
  emph = [4] {\L_codelist_emphD_tl},
520 emphstyle = {\L_codelist_emphAstyle_tl},
  emphstyle = [2] {\L_codelist_emphBstyle_tl},
  emphstyle = [3] {\L_codelist_emphCstyle_tl},
  emphstyle = [4] {\L_codelist_emphDstyle_tl},
}
\lstset{style=codestyle}

\cs_generate_variant:Nn \keys_set:nx {nx}
%%%
%%% extending scontents package options !!!!
%%% changing it's default key handling from \msg_error to 'store-env'.
530 %%%
\keys_define:nx { scontents / scontents }
{
  st.meta:nx = { scontents } { store-env = #1 },
  st.value_required:n = true,
  store-at.meta:nx = { scontents } { store-env = #1 },
  store-at.value_required:n = true,
  unknown . undefine: ,
  unknown . code:n = { \keys_set:nx {scontents}{ store-env = \L_keys_key_str} }
}
540 \newenvsc{codestore}

%%%
%%%
%%%
%%% yep, the <verbatim> environment gets redefined
%%% each and every time (to change the 'listings' defaults/highlights !
%%%
%%%
550 %%%
```

```
551 \cs_undefine:c{verbatimsc}
. \cs_undefine:c{verbatimsc@@}
. \cs_undefine:c{verbatimsc@}
. \cs_undefine:c{endverbatimsc}
. \lstnewenvironment{verbatimsc}{\lstset{style=codestyle}}{}
.
. %%%
. %%% This one can't be protected
. %%%
560 \cs_new:Npn \__codelist_set_verbsc:n #1
{
. \cs_undefine:c{verbatimsc}
. \cs_undefine:c{verbatimsc@@}
. \cs_undefine:c{verbatimsc@}
. \cs_undefine:c{endverbatimsc}
.
. \__codelist_set_options:n{#1}
.
570 \lstnewenvironment{verbatimsc}
{
. \exp_args:Ne \lstset
{
. style=codestyle,
. moretexcs = {\l__codelist_texcA_tl},
. moretexcs = [2] {\l__codelist_texcB_tl},
. moretexcs = [3] {\l__codelist_texcC_tl},
. moretexcs = [4] {\l__codelist_texcD_tl},
580 . morekeywords = {\l__codelist_keywA_tl},
. morekeywords = [2] {\l__codelist_keywB_tl},
. morekeywords = [3] {\l__codelist_keywC_tl},
. morekeywords = [4] {\l__codelist_keywD_tl},
. emph = {\l__codelist_emphA_tl},
. emph = [2] {\l__codelist_emphB_tl},
. emph = [3] {\l__codelist_emphC_tl},
. emph = [4] {\l__codelist_emphD_tl},
. numbers = {\l__codelist_numbers_tl}
. }
. }
590 }
.
. %%% !!! DEPRECTAED !!!
. \NewDocumentEnvironment {verbsc} {m}
{
. \cs_undefine:c{verbatimsc}
. \cs_undefine:c{verbatimsc@@}
. \cs_undefine:c{verbatimsc@}
. \cs_undefine:c{endverbatimsc}
.
600 . \__codelist_set_options:n{#1}
. \lstnewenvironment{verbatimsc}
{
. \exp_args:Ne \lstset
{
. style=codestyle,
. moretexcs = {\l__codelist_texcA_tl},
. moretexcs = [2] {\l__codelist_texcB_tl},
. moretexcs = [3] {\l__codelist_texcC_tl},
610 . morekeywords = {\l__codelist_keywA_tl},
. morekeywords = [2] {\l__codelist_keywB_tl},
. morekeywords = [3] {\l__codelist_keywC_tl},
. emph = {\l__codelist_emphA_tl},
. emph = [2] {\l__codelist_emphB_tl},
. emph = [3] {\l__codelist_emphC_tl},
. numbers = {\l__codelist_numbers_tl}
. }
. }
620 }
{ } %environment's end
.
. \NewDocumentCommand \setcodekeys {m}
{
. \keys_set:nn {codelist / options}{#1}
. }
.
630 \NewDocumentCommand \setnewcodekey {mm}
{
. \keys_define:nn {codelist / options}
{
. #1 .meta:nn = {codelist / options} { #2 } ,
. #1 .value_forbidden:n = true ,
. }
. }
.
. \cs_new_protected:Npn \__codelist_ts_settings:nn #1#2
640 {
. \bool_if:nTF {#1}
{ % paragraph wide OR one below the other
. \dim_set:Nn \l__codedesc_width_dim {\l__codedesc_textcolwidth_dim}
. \dim_set:Nn \l__codedesc_offset_dim {0pt}
. \tl_set:Nn \l__codedesc_rule_in_tl {\__codedesc_rule:n {\l__codelist_ruleheight_tl}}
. \tl_set:Nn \l__codedesc_rule_out_tl {}
. }
. { % half as wide OR side-by-side
. \dim_set:Nn \l__codedesc_width_dim {0.5\l__codedesc_textcolwidth_dim}
. \dim_set:Nn \l__codedesc_offset_dim {0.5\l__codedesc_width_dim}
650 . \tl_set:Nn \l__codedesc_rule_in_tl {}
. \tl_set:Nn \l__codedesc_rule_out_tl {\__codedesc_rule:n {\l__codelist_ruleheight_tl}}
. }
.
. \__codelist_set_verbsc:n {#2}
. \tl_if_blank:VTF \l__codelist_codeprefix_tl
{
. \vcoffin_set:Nnn \__codelist_code_label_coffin {\l__codedesc_width_dim}
. {}
. }
660 }
```



```

661 {
    \vcoffin_set:Nnn \__codelist_code_label_coffin {\l__codedesc_width_dim}
    {
        \raggedright
        \l__codelist_codeprefix_tl
    }
}

\tl_if_blank:VTF \l__codelist_resultprefix_tl
670 {
    \vcoffin_set:Nnn \__codelist_demo_label_coffin {\l__codedesc_width_dim}
    {}
}
{
    \vcoffin_set:Nnn \__codelist_demo_label_coffin {\l__codedesc_width_dim}
    {
        \raggedright
        \l__codelist_resultprefix_tl
    }
}
680 }

\cs_new_protected:Npn \__codelist_codecoffin:nnnn #1#2#3#4
{
    \vcoffin_set:Nnn \__codelist_code_coffin {\l__codedesc_width_dim}
    {
        \raggedright #4
        \tl_if_blank:nTF {#2}
        {
            {#3 {#1} }
            {#3 {#2}{#1} }
        }
    }
}

\cs_new_protected:Npn \__codelist_democoffin:nn #1#2
{
    \vcoffin_set:Nnn \__codelist_demo_coffin {\l__codedesc_width_dim}
    {
        \l__codedesc_rule_in_tl
        \group_begin:\vspace*{0.5\baselineskip}%\vspace*{-1ex}
        \setlength\parindent{\l__codelist_demo_parindent_dim}
        \tl_if_blank:nTF {#2}
        {
            \getstored {#1}
            {
                \getstored [#2]{#1}
            }
        }
        \group_end:
        \l__codedesc_rule_in_tl
    }
}

\cs_new_protected:Npn \__codelist_ts_code:nnnnn #1#2#3#4#5
{
    \__codedesc_set_textcolwidth:
    \group_begin:
    \par\noindent
    \__codelist_ts_settings:nn {#1}{#2}
    \__codelist_codecoffin:nnnn {#3}{#4}{#5}{}

    \coffin_join:NnnNnnnn
    \__codelist_code_label_coffin {1}{b}
    \__codelist_code_coffin {1}{t}
    {0pt}{-1ex}
    \vspace*{-1ex}
    \coffin_typeset:Nnnnnn \__codelist_code_label_coffin {1}{t}{\l__codedesc_offset_dim}{0pt}
    \vspace*{2ex}
    \par
    \group_end:
}

\NewDocumentCommand{\tscode}{sO{}mO{}}
{
    \__codelist_ts_code:nnnnn {#1}{#2}{#3}{#4}{\typestored}
}

\cs_new_eq:NN \typesetcode \tscode

\NewDocumentCommand{\tsmergedcode}{sO{}m}
{
    \__codelist_ts_code:nnnnn {#1}{#2}{#3}{}{\mergesc[\typestored,print-cmd]}
}

\cs_new_eq:NN \typesetmergedcode \tsmergedcode

\coffin_new:N \__codelist_code_coffin
\coffin_new:N \__codelist_code_label_coffin
\coffin_new:N \__codelist_demo_coffin
\coffin_new:N \__codelist_demo_label_coffin

\dim_new:N \l__codedesc_width_dim
\dim_new:N \l__codedesc_offset_dim
750

\NewDocumentCommand{\tsdemo}{sO{}mO{}}
{
    \__codedesc_set_textcolwidth:
    \group_begin:
    \par\setlength\parindent{0pt}
    \__codelist_ts_settings:nn {#1}{#2}

    \__codelist_codecoffin:nnnn {#3}{#4}{\typestored}{\vspace*{0.1ex}}
    \__codelist_democoffin:nn {#3}{#4}

    \bool_if:nTF {#1}
    {
        % one below the other
        \coffin_join:NnnNnnnn
        \__codelist_code_label_coffin {1}{b}
        \__codelist_code_coffin {1}{t}
        {0pt}{-1ex}
        \vspace*{-1ex}
        \coffin_typeset:Nnnnnn \__codelist_code_label_coffin {1}{t}{0pt}{0pt}\vspace*{1ex}
        \par
        \coffin_join:NnnNnnnn
    }
}
770

```

```
771 \__codelist_demo_label_coffin {1}{b}
    \__codelist_demo_coffin {1}{t}
    {0pt}{-lex}
    \coffin_typeset:Nnnnn \__codelist_demo_label_coffin {1}{t}{0pt}{0pt}
    \vspace*{\baselineskip}
    %\vspace*{1ex}
  }
  { % side-by-side
780 \coffin_join:NnnNnnnn
    \__codelist_code_label_coffin {r}{b}
    \__codelist_demo_label_coffin {1}{b}
    {0pt}{0pt}
    \coffin_join:NnnNnnnn
    \__codelist_code_coffin {r}{vc}
    \__codelist_demo_coffin {1}{vc}
    {0pt}{0pt}

    \coffin_typeset:Nnnnn \__codelist_code_label_coffin {1}{t}{0pt}{0pt}\vspace*{1ex}\par
    \l_codedesc_rule_out_tl
790 \coffin_typeset:Nnnnn \__codelist_code_coffin {1}{t}{0pt}{0pt}
    \vspace*{0.25ex}
    \l_codedesc_rule_out_tl
    \vspace*{\baselineskip}
  }
  \par
}
\group_end:

800 \cs_new_eq:NN \typesetdemo \tsdemo

\NewDocumentCommand{\tsexec}{mO{}}
{
  \tl_if_blank:nTF {#2}
  { \getstored{#1} }
  { \getstored{#2}{#1} }
}

\cs_new_protected:Npn \__codelist_ts_demo:nnnn #1#2#3#4
810 {
  \__codedesc_set_textcolwidth:
  \group_begin:
  \par\setlength\parindent{0pt}
  \__codelist_ts_settings:nn {#1}{#2}

  \tl_set:Nn \l_codedesc_rule_in_tl {\__codedesc_rule:n {\l_codelist_ruleheight_tl}}
  \__codelist_democoffin:nn {#3}{#4}

820 \coffin_join:NnnNnnnn
  \__codelist_demo_label_coffin {1}{b}
  \__codelist_demo_coffin {1}{t}
  {0pt}{-lex}
  \coffin_typeset:Nnnnn \__codelist_demo_label_coffin {1}{t}{\l_codedesc_offset_dim}{0pt}
  \vspace*{\baselineskip}
  \par
  \group_end:
}

830 \NewDocumentCommand{\tsresult}{sO{}}mO{}
{
  \__codelist_ts_demo:nnnn {#1}{#2}{#3}{#4}
}

\cs_new_eq:NN \typesetresult \tsresult

%%%
%%% from https://en.wikibooks.org/wiki/LaTeX/Source_Code_Listings#Encoding_issue
840 \lstset{iterate=
  {á}{\a}1 {é}{\e}1 {í}{\i}1 {ó}{\o}1 {ú}{\u}1
  {Á}{\A}1 {É}{\E}1 {Í}{\I}1 {Ó}{\O}1 {Ú}{\U}1
  {à}{\a}1 {è}{\e}1 {ì}{\i}1 {ò}{\o}1 {ù}{\u}1
  {À}{\A}1 {È}{\E}1 {Ì}{\I}1 {Ò}{\O}1 {Ù}{\U}1
  {ä}{\a}1 {ë}{\e}1 {ï}{\i}1 {ö}{\o}1 {ü}{\u}1
  {Ä}{\A}1 {Ë}{\E}1 {Ï}{\I}1 {Ö}{\O}1 {Ü}{\U}1
  {â}{\a}1 {ê}{\e}1 {î}{\i}1 {ô}{\o}1 {û}{\u}1
  {Â}{\A}1 {Ê}{\E}1 {Î}{\I}1 {Ô}{\O}1 {Û}{\U}1
  {ã}{\a}1 {õ}{\o}1
  {Ã}{\A}1 {Õ}{\O}1
  {ÿ}{\y}1 {Ÿ}{\Y}1 {ÿ}{\y}1 {Ÿ}{\Y}1
  {œ}{\oe}1 {Œ}{\OE}1 {æ}{\ae}1 {Æ}{\AE}1 {ß}{\ss}1
  {ç}{\c c}1 {Ç}{\c C}1 {ø}{\o}1 {å}{\r a}1 {Å}{\r A}1
  {€}{\EUR}1 {£}{\pounds}1
}

\endinput
```