

The `useclass.sty` Package: Load Classes as Packages

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TL;DR Use `\useclass` to load a class with the same usage as `\usepackage`:

```
\usepackage{useclass}  
\useclass[full]{13doc}
```

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**Huang* is his surname.

1 Introduction

`useclass` is a package that enables the usage of classes as packages. It was originally designed for the `l3doc` class, which is employed for documenting L^AT_EX code with numerous useful features. However, employing the `l3doc` class as a package is not convenient when using the `developing` class as the style for the document. Therefore, this package provides a simple interface for utilizing classes as packages. The package `useclass` was initially released on 2024-03-05, under the LaTeX Project Public License Version 1.3c¹ or later, and is maintained at <https://github.com/huangyxi/useclass>. The latest documentation can be found at <https://github.com/huangyxi/useclass/releases/latest/download/useclass.pdf>.

2 Installation

The following are the methods for installing and updating the package. You can choose the method that is most suitable for you.

Since this package is tangled from the `.dtx` file, the easiest way to install or update the package is to place or replace the `useclass.sty` file in the same directory as your working document. You can find `useclass.sty` at GitHub Release².

For a full installation of the package, you can use the T_EX repository manager, such as T_EX Live. This method will download the package from CTAN, and install all required files to T_EX Directory Structure (TDS). For command-line users, you can use the following command:

```
tlmgr [--usermode] install useclass
tlmgr [--usermode] update useclass
```

If you're a developer interested in contributing to the project's development, or just want to try the latest features before they are released, you can clone the repository from GitHub, and use either `l3build` or `make` to install the package.

¹<https://www.latex-project.org/lppl/lppl-1-3c.txt>

²<https://github.com/huangyxi/useclass/releases/latest/download/useclass.sty>

3 Usage

```
\useclass \useclass {<class>}
\useclass* \useclass [(options)] {<class>}
\useclass* \useclass* {<class>}
\useclass* [(options)] {<class>}
```

Load class with options, where *<options>* is the options for the class and *<class>* is the class name without the extension. When using the starred version `\useclass*`, the tokens, dimensions, and control sequences modified by the class will be saved before loading the class and restored after loading the class. Currently, the starred version is only applicable to the `l3doc` class.

Example for a `dtx` file:

```
% \iffalse
\documentclass{article}
\usepackage{useclass}
\useclass*[full]{l3doc}
\begin{document}
  \DocInput{\jobname.dtx}
\end{document}
% \fi
%
% \section{Implementation}
% \begin{variable}{\l_demo_tl}
%   \begin{macrocode}
\tl_new:N \l_demo_tl
%   \end{macrocode}
% \end{variable}
```

4 useclass Implementation

- 1 `<@@=useclass>`
- 2 `<*package>`

4.1 Variables

`\c__useclass_cs_name_tl` Prefix of control sequence names for saving and restoring.

- 3 `\tl_const:Nn \c__useclass_cs_name_tl {__useclass_s_cs_}`

(End of definition for `\c__useclass_cs_name_tl`.)

`\g__useclass_tl_seq` Sequence of variables to save before, and restore after loading class.

- 4 `\seq_new:N \g__useclass_tl_seq`
- 5 `\seq_new:N \g__useclass_dim_seq`
- 6 `\seq_new:N \g__useclass_cs_name_seq`

(End of definition for `\g__useclass_tl_seq`, `\g__useclass_dim_seq`, and `\g__useclass_cs_name_seq`.)

`\l__useclass_class_prop` Temporary property list of class configuration.

7 `\prop_new:N \l__useclass_class_prop`

(End of definition for `\l__useclass_class_prop`.)

`\l__useclass_csname_seq` Temporary sequence of csnames of variables to save and restore.

8 `\seq_new:N \l__useclass_csname_seq`

(End of definition for `\l__useclass_csname_seq`.)

`\l__useclass_tmpa_tl` Temporary variables used in the implementation.

`\l__useclass_tmpb_tl` 9 `\tl_new:N \l__useclass_tmpa_tl`

`\l__useclass_tmpa_dim` 10 `\tl_new:N \l__useclass_tmpb_tl`

`__useclass_tempa_cs:w` 11 `\dim_new:N \l__useclass_tmpa_dim`

12 `\cs_new_eq:NN __useclass_tempa_cs:w ?`

(End of definition for `\l__useclass_tmpa_tl` and others.)

4.2 Helpers

`__useclass_prop_get_prop:NnN` Since the values of `\c__useclass_classes_prop` are token lists, we need to
`useclass_prop_get_seq:NnN` parse them to property.

13 `% \cs_set_eq:NN __useclass_prop_set_from_keyval:Nn \prop_set_from_keyval:Nn`

14 `% \cs_generate_variant:Nn __useclass_prop_set_from_keyval:Nn { No }`

15 `\cs_new_protected:Npn __useclass_prop_get_prop:NnN #1 #2 #3`

16 `{`

17 `\prop_get:NnN #1 {#2} \l__useclass_tmpa_tl`

18 `\exp_args:NNo \prop_set_from_keyval:Nn #3 \l__useclass_tmpa_tl`

19 `}`

20 `\cs_new_protected:Npn __useclass_prop_get_seq:NnN #1 #2 #3`

21 `{`

22 `\prop_get:NnN #1 {#2} \l__useclass_tmpa_tl`

23 `\exp_args:NNo \seq_set_from_clist:Nn #3 \l__useclass_tmpa_tl`

24 `}`

(End of definition for `__useclass_prop_get_prop:NnN` and `__useclass_prop_get_seq:NnN`.)

`__useclass_cs_swap:NN` Define a helper function to swap two control sequences.

25 `\cs_new:Npn __useclass_cs_swap:NN #1 #2`

26 `{`

27 `\cs_set_eq:NN __useclass_tempa_cs:w #1`

28 `\cs_set_eq:NN #1 #2`

29 `\cs_set_eq:NN #2 __useclass_tempa_cs:w`

30 `}`

(End of definition for `__useclass_cs_swap:NN`.)

4.3 Variables Save and Restore

```

\__useclass_save_tl:N Save and restore the token lists of the class.
\__useclass_restore_tl:N
31 \cs_new_protected:Npn \__useclass_save_tl:N #1
32   {
33     \__useclass_prop_get_seq:NnN #1 {tl} \l__useclass_csname_seq
34     \seq_map_inline:Nn \l__useclass_csname_seq
35     {
36       \tl_set:Nx \l__useclass_tmpa_tl {\tl_use:c {##1}}
37       \seq_gput_right:No \g__useclass_tl_seq {\l__useclass_tmpa_tl}
38     }
39   }
40 \cs_new_protected:Npn \__useclass_restore_tl:N #1
41   {
42     \__useclass_prop_get_seq:NnN #1 {tl} \l__useclass_csname_seq
43     \seq_map_inline:Nn \l__useclass_csname_seq
44     {
45       \seq_gpop_left:NN \g__useclass_tl_seq \l__useclass_tmpa_tl
46       \tl_set:cn {##1} {\l__useclass_tmpa_tl}
47     }
48   }

```

(End of definition for __useclass_save_tl:N and __useclass_restore_tl:N.)

```

\__useclass_save_dim:N Save and restore the dimensions of the class.
\__useclass_restore_dim:n
49 \cs_new_protected:Npn \__useclass_save_dim:N #1
50   {
51     \__useclass_prop_get_seq:NnN #1 {dim} \l__useclass_csname_seq
52     \seq_map_inline:Nn \l__useclass_csname_seq
53     {
54       \tl_set:Nx \l__useclass_tmpa_tl {\dim_use:c {##1}}
55       \seq_gput_right:No \g__useclass_dim_seq {\l__useclass_tmpa_tl}
56     }
57   }
58 \cs_new_protected:Npn \__useclass_restore_dim:N #1
59   {
60     \__useclass_prop_get_seq:NnN #1 {dim} \l__useclass_csname_seq
61     \seq_map_inline:Nn \l__useclass_csname_seq
62     {
63       \seq_gpop_left:NN \g__useclass_dim_seq \l__useclass_tmpa_dim
64       \dim_set:cn {##1} {\l__useclass_tmpa_dim}
65     }
66   }

```

(End of definition for __useclass_save_dim:N and __useclass_restore_dim:n.)

```

\__useclass_save_cs:N Create a new control sequence with the transformed name, and save and restore
\__useclass_restore_cs:N the original control sequence with the new name.
67 \cs_new_protected:Npn \__useclass_save_cs:N #1
68   {

```

```

69 \__useclass_prop_get_seq:NnN #1 {cs} \l__useclass_csname_seq
70 \seq_map_inline:Nn \l__useclass_csname_seq
71 {
72   \tl_concat:NNN \l__useclass_tmpa_tl \c__useclass_cs_name_tl {##1}
73   \cs_set_eq:cc \l__useclass_tmpa_tl {##1}
74   \seq_gput_right:No \g__useclass_cs_name_seq {\l__useclass_tmpa_tl}
75 }
76 }
77 \cs_new_protected:Npn \__useclass_restore_cs:N #1
78 {
79   \__useclass_prop_get_seq:NnN #1 {cs} \l__useclass_csname_seq
80   \seq_map_inline:Nn \l__useclass_csname_seq
81   {
82     \seq_gpop_left:NN \g__useclass_cs_name_seq \l__useclass_tmpa_tl
83     \cs_set_eq:cc {##1} \l__useclass_tmpa_tl
84   }
85 }

```

(End of definition for __useclass_save_cs:N and __useclass_restore_cs:N.)

4.4 Dependences loading

useclass currently don't have any explicit dependences.

4.5 Patched Macros

__useclass_LoadClass:n Patched \LoadClass to do nothing.

```
86 \cs_new:Npn \__useclass_LoadClass:n #1 {}
```

(End of definition for __useclass_LoadClass:n.)

4.6 Before Loading Class

__useclass_save_before:N Save variables before loading class.

```
87 \cs_new_protected:Npn \__useclass_save_before:N #1
88 {
89   \__useclass_save_tl:N #1
90   \__useclass_save_dim:N #1
91   \__useclass_save_cs:N #1
92 }

```

(End of definition for __useclass_save_before:N.)

__useclass_use_before: These are the general things to do before loading class.

```
93 \cs_new_protected:Npn \__useclass_use_before:
94 {
95   \__useclass_cs_swap:NN \LoadClass \__useclass_LoadClass:n
96 }

```

(End of definition for __useclass_use_before:.)

4.7 Loading Class

```
\_useclass_use_class:nn Load class with options.  
97 \cs_new_protected:Npn \_useclass_use_class:nn #1 #2  
98 {  
99   \@fileswithoptions\@clsextension[#1]{#2}  
100 }
```

(End of definition for _useclass_use_class:nn.)

4.8 After Loading Class

```
\_useclass_use_after: These are the general things to do after loading class.  
101 \cs_new_protected:Npn \_useclass_use_after:  
102 {  
103   \_useclass_cs_swap:NN \LoadClass \_useclass_LoadClass:n  
104 }
```

(End of definition for _useclass_use_after:.)

```
\_useclass_restore_after:N Restore variables after loading class.  
105 \cs_new_protected:Npn \_useclass_restore_after:N #1  
106 {  
107   \_useclass_restore_cs:N #1  
108   \_useclass_restore_dim:N #1  
109   \_useclass_restore_tl:N #1  
110 }
```

(End of definition for _useclass_restore_after:N.)

4.9 User Interface

```
\useclass Load patch class with options.  
\useclass*  
111 \NewDocumentCommand {\useclass} { s O{} m }  
112 {  
113   \bool_if:NTF #1  
114   {  
115     \_useclass_prop_get_prop:NnN \c__useclass_classes_prop {#3} \l__useclass_class_prop  
116     \_useclass_save_before:N \l__useclass_class_prop  
117     \_useclass_use_before:  
118     \_useclass_use_class:nn {#2} {#3}  
119     \_useclass_use_after:  
120     \_useclass_restore_after:N \l__useclass_class_prop  
121   }  
122   {  
123     \_useclass_use_before:  
124     \_useclass_use_class:nn {#2} {#3}  
125     \_useclass_use_after:  
126   }  
127 }
```

(End of definition for `\useclass` and `\useclass*`. These functions are documented on page 2.)

4.10 Classes Configuration

Configuration for classes to restore after loading. The defined property is NOT nested, where values in the prop are token lists but not properties or sequences.

```
128 \prop_const_from_keyval:Nn \c__useclass_classes_prop {
129   l3doc = {
130     tl = {
131       partname,
132     },
133     dim = {
134       textwidth,
135       marginparwidth,
136       oddsidemargin,
137       evensidemargin,
138       parindent,
139       itemindent,
140       parskip,
141     },
142     cs = {
143       list,
144       l@section,
145       l@subsection,
146       @maketitle,
147     },
148   },
149 }
```

(End of definition for `\c__useclass_classes_prop`.)

```
150 \endpackage
```

Change History

v1.0	v1.1
General: Initial release. 1	<code>\c__useclass_classes_prop</code> : Support ctex classes. 7

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it is used.

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