

# 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}
```

## Contents

<b>1 Introduction</b>	<b>1</b>
<b>2 Installation</b>	<b>2</b>
<b>3 Usage</b>	<b>2</b>
<b>4 useclass Implementation</b>	<b>3</b>
4.1 Variables . . . . .	3
4.2 Helpers . . . . .	4
4.3 Variables Save and Restore . . . . .	4
4.4 Dependences loading . . . . .	5
4.5 Patched Macros . . . . .	6
4.6 Before Loading Class . . . . .	6
4.7 Loading Class . . . . .	6
4.8 After Loading Class . . . . .	6
4.9 User Interface . . . . .	7
4.10 Classes Configuration . . . . .	7
<b>Index</b>	<b>8</b>

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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<sup>A</sup>T<sub>E</sub>X 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 1.3c<sup>1</sup> 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 Release<sup>2</sup>.

For a full installation of the package, you can use the T<sub>E</sub>X repository manager, such as T<sub>E</sub>X Live. This method will download the package from CTAN, and install all required files to T<sub>E</sub>X 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.

---

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

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

### 3 Usage

---

```
\useclass \useclass {<class>}
\useclass* \useclass [<options>] {<class>}
\useclass* \useclass* {<class>}
\useclass* \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{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.
\g__useclass_dim_seq 4 \seq_new:N \g__useclass_tl_seq
\g__useclass_cs_name_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.

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

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

```
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 parse them to property.

`\__useclass_prop_get_seq:NnN`

```
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     },
147   },
148 }

```

(End of definition for `\c__useclass_classes_prop`.)

```

149 </package>

```

# Index

The italic numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.

	<b>B</b>	<code>\cs_new_eq:NN</code> . . . . . 12
bool commands:		
	<code>\bool_if:NTF</code> . . . . . 113	<code>\cs_new_protected:Npn</code> . . . . .
		. . . . . 15, 20, 31, 40,
		49, 58, 67, 77, 87, 93, 97, 101, 105
	<b>C</b>	
cs commands:		
	<code>\cs_generate_variant:Nn</code> . . . . 14	<code>\cs_set_eq:NN</code> 13, 27, 28, 29, 73, 83
	<code>\cs_new:Npn</code> . . . . . 25, 86	



	<b>D</b>		
dim commands:			<code>\c__useclass_classes_prop</code> ..
<code>\dim_new:N</code> .....	11		..... 4, 115, 128
<code>\dim_set:Nn</code> .....	64		<code>\g__useclass_cs_name_seq</code> ...
<code>\dim_use:N</code> .....	54		..... 4, 74, 82
	<b>E</b>		<code>\c__useclass_cs_name_tl</code> ... 3, 72
exp commands:			<code>\__useclass_cs_swap:NN</code> .....
<code>\exp_args:NNo</code> .....	18, 23		..... 25, 25, 95, 103
	<b>L</b>		<code>\l__useclass_csname_seq</code> .....
<code>\LoadClass</code> .....	6, 95, 103		..... 8, 33, 34, 42,
	<b>N</b>		43, 51, 52, 60, 61, 69, 70, 79, 80
<code>\NewDocumentCommand</code> .....	111		<code>\g__useclass_dim_seq</code> .. 4, 55, 63
	<b>P</b>		<code>\__useclass_LoadClass:n</code> .....
prop commands:			..... 86, 86, 95, 103
<code>\prop_const_from_keyval:Nn</code> ..	128		<code>\__useclass_prop_get_-</code>
<code>\prop_get:NnN</code> .....	17, 22		<code>prop:NnN</code> .....
<code>\prop_new:N</code> .....	7		..... 13, 15, 115
<code>\prop_set_from_keyval:Nn</code> ..	13, 18		<code>\__useclass_prop_get_seq:NnN</code>
	<b>S</b>		... 13, 20, 33, 42, 51, 60, 69, 79
seq commands:			<code>\__useclass_prop_set_from_-</code>
<code>\seq_gpop_left:NN</code> ....	45, 63, 82		<code>keyval:Nn</code> .....
<code>\seq_gput_right:Nn</code> ...	37, 55, 74		..... 13, 14
<code>\seq_map_inline:Nn</code> .....	34, 43, 52, 61, 70, 80		<code>\__useclass_restore_after:N</code>
<code>\seq_new:N</code> .....	4, 5, 6, 8		..... 105, 105, 120
<code>\seq_set_from_clist:Nn</code> ....	23		<code>\__useclass_restore_cs:N</code> ...
	<b>T</b>		..... 67, 77, 107
$\TeX$ and $\LaTeX 2\epsilon$ commands:			<code>\__useclass_restore_dim:N</code> 58, 108
<code>\@clsextension</code> .....	99		<code>\__useclass_restore_dim:n</code> .. 49
<code>\@fileswithoptions</code> .....	99		<code>\__useclass_restore_tl:N</code> ...
tl commands:			..... 31, 40, 109
<code>\tl_concat:NNN</code> .....	72		<code>\__useclass_save_before:N</code> ..
<code>\tl_const:Nn</code> .....	3		..... 87, 87, 116
<code>\tl_new:N</code> .....	9, 10		<code>\__useclass_save_cs:N</code> 67, 67, 91
<code>\tl_set:Nn</code> .....	36, 46, 54		<code>\__useclass_save_dim:N</code> 49, 49, 90
<code>\tl_use:N</code> .....	36		<code>\__useclass_save_tl:N</code> 31, 31, 89
	<b>U</b>		<code>\__useclass_tempa_cs:w</code> .....
<code>\useclass</code> .....	1, 2, 111		..... 9, 12, 27, 29
useclass internal commands:			<code>\g__useclass_tl_seq</code> ... 4, 37, 45
<code>\l__useclass_class_prop</code> .....	7, 115, 116, 120		<code>\l__useclass_tmpa_dim</code> .. 9, 63, 64
			<code>\l__useclass_tmpa_tl</code> .....
			..... 9, 17, 18, 22, 23, 36, 37,
			45, 46, 54, 55, 72, 73, 74, 82, 83
			<code>\l__useclass_tmpb_tl</code> .....
			..... 9
			<code>\__useclass_use_after:</code> .....
			..... 101, 101, 119, 125
			<code>\__useclass_use_before:</code> .....
			..... 93, 93, 117, 123
			<code>\__useclass_use_class:nn</code> ...
			..... 97, 97, 118, 124
			<code>\useclass*</code> .....
			..... 2, 111
			<code>\usepackage</code> .....
			..... 1