

`cpath.sty`: A path canonicalizer

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Abstract

The package offers a path canonicalizer, which is used in package `modules`, in order to support modules specified with relative path.

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1 Usage

By calling `\@cpath{<path>}`, the canonicalized path will be stored in `\@CanPath`. To print a canonicalized path, simply use `\cpath{<path>}`.

2 Examples

path	canonicalized path
aaa	aaa
.././aaa	.././aaa
aaa/bbb	aaa/bbb
aaa/..	
.././aaa/bbb	.././aaa/bbb
../aaa/./bbb	../bbb
../aaa/bbb	../aaa/bbb
aaa/bbb/./ddd	aaa/ddd
aaa/bbb/./..	

3 The Implementation

```
1 \RequirePackage{xstring}
2 \RequirePackage{forloop}
3 \RequirePackage{calc}
```

We first create some counters. `AddrNum` will count the number of sections in the input path, `iLoop` will be used as the loop iterator, `iName` will be used for generating names such as `Addri`, `Addrii`, `RealAddrNum` will count the number of sections in the canonicalized path, `Cutable` will count the number of sections besides ...

```
4 \newcounter{AddrNum}
5 \newcounter{iLoop}
6 \newcounter{iName}
7 \newcounter{RealAddrNum}
8 \newcounter{Cutable}
```

We define two macros for later comparison.

```
9 \def\@ToTop{..}
10 \def\@Slash{/}
```

Then we split the input path.

```
11 \def\@MultiAddrs#1/#2\@nil{%
12   \def\CurArg{#1}%
13   \def\NextArg{#2}%
14   \ifx\@empty\CurArg% for the first one
15   \else%
16     \stepcounter{AddrNum}%
17     \expandafter\edef\csname Addr\roman{AddrNum}\endcsname{#1}% storing
18   \fi%
19   \ifx\@empty\NextArg% for the last one
```

```

20 \let\next\@gobble%
21 \fi%
22 \next#2\@nil% recursion
23 }%

Implement \@cpath.
24 \def\@cpath#1{%
25 \let\next\@MultiAddrs%
26 \setcounter{AddrNum}{0}%
27 \setcounter{iLoop}{0}%
28 \setcounter{iName}{0}%
29 \setcounter{RealAddrNum}{0}%
30 \setcounter{Cutable}{0}%
31 \def\@CurrPath{}%
32 \def\@CanPath{}%
33 \def\@TempPath{}%
34 \def\@Rubbish{}%
35 \expandafter\next#1/\@nil% recursion starts
36 \forloop{iLoop}{0}{\value{iLoop} < \value{AddrNum}}{%
37 \stepcounter{iName}%
38 \edef\@CurrPath{\csname Addr\roman{iName}\endcsname}%
39 \ifx\@CurrPath\@ToTop%
40 \ifnum\value{Cutable} = 0%
41 \edef\@CanPath{\@CanPath\csname Addr\roman{iName}\endcsname/}%
42 \stepcounter{RealAddrNum}%
43 \else%
44 % cut the last part, and add a slash at the end
45 \StrCut[\value{RealAddrNum}]{/\@CanPath}{/}\@TempPath\@Rubbish%
46 \StrCut[1]{\@TempPath/}{/}\@Rubbish\@CanPath%
47 \addtocounter{RealAddrNum}{-1}%
48 \addtocounter{Cutable}{-1}%
49 \fi%
50 \else%
51 \edef\@CanPath{\@CanPath\csname Addr\roman{iName}\endcsname/}%
52 \stepcounter{RealAddrNum}%
53 \stepcounter{Cutable}%
54 \fi%
55 }%
56 \StrCut[\value{RealAddrNum}]{\@CanPath}{/}\@CanPath\@Rubbish% cut last /
57 }%

Implement \cpath to print the canonicalized path.
58 \newcommand\cpath[1]{% print canonical path
59 \@cpath{#1}%
60 \@CanPath%
61 }%

```