

# The `amsmidx` package

American Mathematical Society  
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## 1 Introduction

This package provides the facility to produce multiple indexes with  $\mathcal{AMS}$ - $\text{\LaTeX}$  document classes (particularly `amsbook` and the AMS author packages for books), superseding the built-in index facility which can accommodate only one index. This may in the future be incorporated as an option into the  $\mathcal{AMS}$ - $\text{\LaTeX}$  document classes.

This package is based on `multind.sty` by F.W. Long.

Standard file identification.

```
1 \NeedsTeXFormat{LaTeX2e}[1995/06/01]
2 \ProvidesPackage{amsmidx}[2004/08/03 v2.01 multiple indexes for AMS classes]
```

## 2 User instructions

In the preamble, invoke `\makeindex` with a file name to provide as many indexes as desired:

```
\makeindex{filename-a}
\makeindex{filename-b}
```

This will initiate the creation of `filename-a.idx` etc.

In the body of the text, use the `\index` command with two arguments

```
\index{filename-a}{index term}
```

as appropriate to populate the `.idx` files.

In the `\backmatter` segment of the driver file, insert the `\Printindex` command to print the indexes; the second argument gives the title to be printed at the top of the index:

```
\Printindex{filename-a}{First Index}
\Printindex{filename-b}{Second Index}
```

On the first pass, the `.idx` files will be created. Process each `.idx` file with *MakeIndex* to generate an `.ind` file, which will then be read in by `\Printindex`. Whenever any page references change, be sure to run *MakeIndex* again, and process the entire job with  $\text{\LaTeX}$  once more to get the correct page references in the indexes.

To include a paragraph of comments below the index title, insert the text as an `\indexcomment` before the relevant `\Printindex`:

```
\indexcomment{Text of comments}
\Printindex{...}{...}
```

The `\indexcomment` text will be cleared after use.

### 3 Implementation

**makeindex** Redefine `\makeindex` to create a new `.idx` file with the name provided by argument #1.

```

3 \renewcommand{\makeindex}[1]{%
4   \begingroup
5     \makeatletter
6     \if@filesw \expandafter\newwrite\csname #1@idxfile\endcsname
7     \expandafter\immediate\openout \csname #1@idxfile\endcsname #1.idx\relax
8     \typeout{Writing index file #1.idx }\fi
9   \endgroup}

```

**index** Redefine `\index` to specify into which file/index the term is to be placed. Argument #1 identifies the file, #2 provides the text of the term to be indexed.

```

10 \renewcommand{\index}[1]{%
11   \@bsphack
12   \begingroup
13     \def\protect##1{\string##1\space}\@sanitize\@wrindex{#1}}

```

**@wrindex** `\@wrindex` checks to make sure that the requested file is available, and writes an entry into the file or emits an error message.

```

14 \renewcommand{\@wrindex}[2]{%
15   \let\thepage\relax
16   \xdef\@gtempa{%
17     \ifundefined{#1@idxfile}{%
18       \PackageError{\@packagename}{%
19         The requested file, #1@idxfile.idx, does not exist;\MessageBreak
20         index term #2 will not be written out.%
21       }%
22     }%
23     \expandafter\write\csname #1@idxfile\endcsname
24     {\string\indexentry{#2}{\thepage}}%
25   }%
26  }%
27 \endgroup\@gtempa
28 \if@nobreak \ifvmode\nobreak\fi\fi
29 \@esphack
30 }

```

**printindex** Redefine `\printindex` to specify the file to be included; provide an alternate command `\Printindex` that specifies both the file and the index title to be printed. Argument #1 identifies the file, #2 provides the title. Also modify some formatting commands to improve the appearance of index entries, especially long ones in the presence of three index levels.

```

31 \renewcommand{\printindex}[1]{\@input{#1.ind}}
32 \newcommand{\Printindex}[2]{%
33   \begingroup
34     \cleardoublepage
35     \def\indexname{#2}%
36     \raggedright
37     \hyphenpenalty=10000
38     \renewcommand{\seename}{see~also}
39     \renewcommand{\subitem}{\par\hangindent 3em\hspace*{1em}}
40     \@input{#1.ind}%
41   \endgroup
42 }

```

**indexcomment** Format comments in a block somewhat narrower than the full page width, and  
**indexchap** redefine `\indexchap` to insert the block below the title, before starting the two-column index. Clear out `\indexcomment` after use.

```

43 \newdimen\@indexcommentwidth
44 \@indexcommentwidth=\textwidth
45 \ifdim\@indexcommentwidth > 26pc
46   \advance\@indexcommentwidth-6pc
47 \else
48   \advance\@indexcommentwidth-4pc
49 \fi
50 \newcommand{\indexcomment}[1]{%
51   \def\theindexcomment{%
52     \vskip\baselineskip
53     \parbox[t]{\@indexcommentwidth}{\normalsize\mdseries#1}%
54   }%
55 }
56 \let\theindexcomment\@empty
57 \renewcommand{\indexchap}[1]{%
58   \global\topskip 7.5pc\relax
59   \twocolumn[\fontsize{\@xivpt}{18}%
60     \vskip\topskip\vskip-\baselineskip\hbox{}% adjust top space
61     \bfseries\centering #1\par
62     \ifx\theindexcomment\@empty
63       \else \theindexcomment
64     \global\let\theindexcomment\@empty
65   \fi
66   ]%
67   \global\topskip 34\p@
68 }
```

The usual `\endinput` to ensure that random garbage at the end of the file doesn't get copied by `docstrip`.

```
69 \endinput
```

## Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

<b>Symbols</b>	<code>\bfseries</code> ..... 61	<code>\hyphenpenalty</code> .... 37
<code>.idx</code> ..... 1, 1, 1, 2		
<code>.ind</code> ..... 1	<b>C</b>	<b>I</b>
<code>\@gtempa</code> ..... 16, 27	<code>\centering</code> ..... 61	<code>\index</code> .... 1, 2, 10, 10
<code>\@indexcommentwidth</code>	<code>\cleardoublepage</code> .. 34	<code>\indexchap</code> .. 3, 43, 57
..... 43,		<code>\indexcomment</code> ....
44, 45, 46, 48, 53	<b>D</b>	... 1, 1, 3, 43, 50
<code>\@packagename</code> ..... 18	<code>docstrip</code> ..... 3	<code>\indexentry</code> ..... 24
<code>\@sanitize</code> ..... 13	<b>E</b>	<code>\indexname</code> ..... 35
<code>\@wrindex</code> . 2, 13, 14, 14	<code>\endinput</code> ..... 3	
<code>\@xivpt</code> ..... 59		<b>M</b>
<b>A</b>	<b>F</b>	<code>\makeindex</code> .. 1, 2, 3, 3
<code>amsbook</code> ..... 1	<code>filename-a.idx</code> ..... 1	<code>\mdseries</code> ..... 53
<code>AMSMIDX</code> package ..... 2	<code>\fontsize</code> ..... 59	<code>\MessageBreak</code> ..... 19
<code>amsmidx</code> package ..... 1	<b>H</b>	<code>multind.sty</code> package . 1
<b>B</b>	<code>\hbox</code> ..... 60	<b>N</b>
<code>\backmatter</code> ..... 1	<code>\hspace</code> ..... 39	<code>\NeedsTeXFormat</code> .... 1

<code>\newdimen</code> . . . . .	43	. . . 1, 1, 2, <u>31</u> , 32	<code>\subitem</code> . . . . .	39
<code>\normalsize</code> . . . . .	53	<code>\printindex</code> . .	2, <u>31</u> , 31	
		<code>\ProvidesPackage</code> . . .	2	
<b>P</b>				
<code>\PackageError</code> . . . . .	18	<b>R</b>		
<code>\parbox</code> . . . . .	53	<code>\raggedright</code> . . . . .	36	
<code>\Printindex</code> . . . . .	1	<b>S</b>		
<code>\Printindex</code> . . . . .		<code>\seename</code> . . . . .	38	
		<b>T</b>		
		<code>\textwidth</code> . . . . .	44	
		<code>\theindexcomment</code> .		
			51, 56, 62, 63, 64	
		<code>\topskip</code> . . .	58, 60, 67	
		<code>\typeout</code> . . . . .	8	