The `amsmidx` package

American Mathematical Society
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1 Introduction

This package provides the facility to produce multiple indexes with $\mathcal{AMS}$-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 $\mathcal{AMS}$-LaTeX document classes.

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

Standard file identification.

```
\NeedsTeXFormat{LaTeX2e}[1995/06/01]
\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 `\Printendex` 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 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.

```
\renewcommand{\makeindex}[1]{%
  \begingroup
    \makeatletter
    \if@filesw \expandafter\newwrite\csname #1@idxfile\endcsname
    \expandafter\immediate\openout \csname #1@idxfile\endcsname #1.idx\relax
    \typeout{Writing index file #1.idx }\fi
  \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.

```
\renewcommand{\index}[1]{%
  \@bsphack
  \begingroup
    \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.

```
\renewcommand{\@wrindex}[2]{%
  \let\thepage\relax
  \xdef\@gtempa{%
    \@ifundefined{#1@idxfile}{%
      \PackageError{\@packagename}{%
        The requested file, #1@idxfile.idx, does not exist;\MessageBreak
        index term #2 will not be be written out.%
      }%
    }{%
      \expandafter\write\csname #1@idxfile\endcsname
        {\string\indexentry{#2}{\thepage}}%
      }%
    }%
  \endgroup\@gtempa
  \if@nobreak \ifvmode\nobreak\fi\fi
  \@esphack
  }
```

printindex 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.

```
\renewcommand{\printindex}[1]{\@input{#1.ind}}
\newcommand{\Printindex}[2]{%
  \begingroup
    \cleardoublepage
    \def\indexname{#2}%
    \raggedright
    \hyphenpenalty=10000
    \renewcommand{\seename}{see~also}
    \renewcommand{\subitem}{\par\hangindent 3em\hspace*{1em}}
    \@input{#1.ind}%
  \endgroup
  }
```

indexcomment indexchap Format comments in a block somewhat narrower than the full page width, and redefine \indexchap to insert the block below the title, before starting the

two-column index. Clear out `\indexcomment` after use.

```
\newdimen\@indexcommentwidth
\@indexcommentwidth=\textwidth
\ifdim\@indexcommentwidth > 26pc
  \advance\@indexcommentwidth-6pc
\else
  \advance\@indexcommentwidth-4pc
\fi
\newcommand{\indexcomment}[1]{%
  \def\theindexcomment{%
    \vskip\baselineskip
    \parbox[t]{\@indexcommentwidth}{\normalsize\mdseries#1}%
    }%
  }
\let\theindexcomment\@empty
\renewcommand{\indexchap}[1]{%
  \global\topskip 7.5pc\relax
  \twocolumn[\fontsize{\@xivpt}{18}%
    \vskip\topskip\vskip-\baselineskip\hbox{}% adjust top space
    \bfseries\centering #1\par
    \ifx\theindexcomment\@empty
    \else \theindexcomment
      \global\let\theindexcomment\@empty
    \fi
    ]%
  \global\topskip 34\p@
}
```

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

```
\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.

Symbols

.idx *1*, *1*, *1*, *2*
.ind *1*
\@gtempa 16, 27
\@indexcommentwidth 43, 44, 45, 46, 48, 53
\@packagename 18
\@sanitize 13
\@wrindex . *2*, 13, 14, 14
\@xivpt 59

A

amsbook *1*
AMSMIDX package *2*
amsmidx package *1*

B

\backmatter *1*
\bfseries 61

C

\centering 61
\cleardoublepage . . 34

D

docstrip *3*

E

\endinput *3*

F

filename-a.idx *1*
\fontsize 59

H

\hbox 60
\hspace 39
\hyphenpenalty 37

I

\index *1*, *2*, 10, 10
\indexchap . . . *2*, 43, 57
\indexcomment *1*, *1*, *3*, 43, 50
\indexentry 24
\indexname 35

M

\makeindex . . *1*, *2*, 3, 3
\mdseries 53
\MessageBreak 19
multind.sty package . *1*

N

\NeedsTeXFormat 1
\newdimen 43
\normalsize 53

P

\PackageError 18
\parbox 53
\Printendex *1*

\Printindex 1, 1, 2, 31, 32
\printindex . . 2, 31, 31
\ProvidesPackage . . . 2

R

\raggedright 36

S

\seename 38
\subitem 39

T

\textwidth 44
\theindexcomment . . . 51, 56, 62, 63, 64
\topskip 58, 60, 67
\typeout 8