

# L<sup>A</sup>T<sub>E</sub>X Class for *Association for Computing Machinery*\*

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## Abstract

This package provides a class for typesetting publications of Association for Computing Machinery.

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# 1 Introduction

Association for Computing Machinery is the world's largest educational and scientific computing society, which delivers resources that advance computing as a science and a profession<sup>1</sup>. It was one of the early adopters of T<sub>E</sub>X for its typesetting.

It provided several different classes for a number of journal and conference proceedings. Unfortunately during the years since these classes were written, the code was patched many times, and the support of the different versions of the classes became difficult.

This package provides the uniform interface for all ACM publications. It is intended to replace all different classes and packages and provide an up to date L<sup>A</sup>T<sub>E</sub>X package.

The package uses only free T<sub>E</sub>X packages and fonts included in T<sub>E</sub>XLive, MikT<sub>E</sub>X and other popular T<sub>E</sub>X distributions. It is intended to be published in these distributions itself, which minimizes users' efforts in the installation and support of the package.

## 2 User's guide

### 2.1 Installation

Most probably, you already have this package installed in your favorite T<sub>E</sub>X distribution; if not, you may want to upgrade. You may need to upgrade it anyway since the package uses a number relatively recent packages, especially the ones related to the fonts.

If you decide to install the package yourself, follow the standard rules:

1. Run `latex` on `acmart.ins`. This will produce the file `acmart.cls`.
2. Put the file `acmart.cls` and the bibliography files `*.bst` to the places where L<sup>A</sup>T<sub>E</sub>X can find them (see [1] or the documentation for your T<sub>E</sub>X system).
3. Update the database of file names. Again, see [1] or the documentation for your T<sub>E</sub>X system for the system-specific details.
4. The file `acmart.pdf` provides the documentation for the package (this is the file you are probably reading now).

As an alternative to items 2 and 3 you can just put the files in the working directory where your `.tex` file is.

### 2.2 Invocation and options

To use the class put in the preamble of your document

```
\documentclass[<options>]{acmart}
```

There are several options corresponding to the type of the document and its general appearance. They are described below. Generally speaking, the options have key=value forms, for example

---

<sup>1</sup><http://www.acm.org/>

Table 1: The possible values for the format option

Value	Meaning
manuscript	A manuscript. This is the default
acmsmall	Small format, used for CIE, CSUR, JACM, JDIQ, JEA, JERIC, JETC, TAAS, TACCESS, TACO, TALG, TALLIP (formerly TALIP), TCPS, TEAC, TECS, TIIS, TISSEC, TIST, TKDD, TMIS, TOCE, TOCHI, TOCL, TOCS, TOCT, TODAES, TODS, TOIS, TOIT, TOMACS, TOMM (formerly TOMCCAP), TOMPECS, TOMS, TOPC, TOPLAS, TOS, TOSEM, TOSN, TRET, TSAS, TSLP, TWEB.
acmlarge	Large single column format, used for JOCCH, TAP
acmtog	Large double column format, used for TOG
sigconf	Proceedings format for most of ACM conferences (with the exceptions listed below)
siggraph	Proceedings format for SIGGRAPH and SIGGRAPH Asia conferences, published in ACM Transactions on Graphics journal issues
sigplan	Proceedings format used for SIGPLAN conferences
sigchi	Proceedings format for SIGCHI conferences
sigchi-a	Format for SIGCHI extended abstract

```
\documentclass[format=acmsmall, screen=true, review=false]{acmart}
```

The option format describes the format of the output. There are several possible values for this option, for example,

```
\documentclass[format=acmtog]{acmart}
```

Actually the words format= can be omitted, e.g.,

```
\documentclass[acmtog, review=false]{acmart}
```

The possible formats are listed in Table 1. Note that formats starting with acm are intended for journals and transactions, while formats starting with sig are intended for proceedings published as books.

There are several Boolean options which can take true or false values. They are listed in Table 2. The words =true can be omitted when setting the Boolean option, so instead of screen=true one can write just screen, for example,

```
\documentclass[acmsmall, screen, review]{acmart}
```

The option review is useful when combined with the manuscript format option: it provides a version suitable for reviewers and copyeditors. The option screen may in the future involve additional features suitable for on-screen versions of the articles. The

Table 2: Boolean options

Option	Default	Meaning
review	false	A review version: doublespaced, lines are numbered, hyperlinks are colored
screen	false	A screen version: hyperlinks are colored
natbib	false	Whether to use natbib package (see Section 2.8)
anonymous	false	Whether to make the authors anonymous

option natbib is used when the corresponding BibTeX style is based on natbib. The option anonymous is used for anonymous review process: all author information becomes obscured.

## 2.3 Topmatter commands

A number of commands set up *top matter* information, or, in the computer science jargon, *metadata* for the article. They establish the publication name, article title, authors, doi and other data. Some of these commands, like \title or \author, should be put by the authors. Others, like \volume or \doi—by the editors. Below we describe these commands and mention who should issue them. These macros should be used *before* the \maketitle command. Note that in the previous versions of ACM classes some of these commands should be used before \maketitle, and some after it. Now they all must be used before \maketitle.

The class internally loads amsart class, so many top matter commands are inherited from amsart [2].

\acmJournal

The macro \acmJournal{<shortName>} sets the name of the journal or transaction for journals and transactions. The argument is the short name of the publication *in uppercase*, for example,

```
\acmJournal{TOMS}
```

The currently recognized journals are listed in Table 3. Note that conference proceedings published in *book* form do not set this macro.

It is expected that this command is inserted by the author of the manuscript when she decides to which journal to submit the manuscript.

\acmConference

The macro \acmConference[<short name>]{<name>}{<date>}{<venue>} is used for conference proceedings published in the book form. The arguments are the following:

**short name:** the abbreviated name of the conference (optional).

**name:** the name of the conference *or* the name of the book as set by the editor.

**date:** the date(s) of the conference.

**venue:** the place of the conference.

Table 3: ACM publications and arguments of the \acmJournal command

Abbreviation	Publication
CIE	ACM Computers in Entertainment
CSUR	ACM Computing Surveys
JACM	Journal of the ACM
JDIQ	ACM Journal of Data and Information Quality
JEA	ACM Journal of Experimental Algorithmics
JERIC	ACM Journal of Educational Resources in Computing
JETC	ACM Journal on Emerging Technologies in Computing Systems
JOCCH	ACM Journal on Computing and Cultural Heritage
TAAS	ACM Transactions on Autonomous and Adaptive Systems
TACCESS	ACM Transactions on Accessible Computing
TACO	ACM Transactions on Architecture and Code Optimization
TALG	ACM Transactions on Algorithms
TALLIP	ACM Transactions on Asian and Low-Resource Language Information Processing
TAP	ACM Transactions on Applied Perception
TCPS	ACM Transactions on Cyber-Physical Systems
TEAC	ACM Transactions on Economics and Computation
TECS	ACM Transactions on Embedded Computing Systems
TIIS	ACM Transactions on Interactive Intelligent Systems
TISSEC	ACM Transactions on Information and System Security
TIST	ACM Transactions on Intelligent Systems and Technology
TKDD	ACM Transactions on Knowledge Discovery from Data
TMIS	ACM Transactions on Management Information Systems
TOCE	ACM Transactions on Computing Education
TOCHI	ACM Transactions on Computer-Human Interaction
TOCL	ACM Transactions on Computational Logic
TOCS	ACM Transactions on Computer Systems
TOCT	ACM Transactions on Computation Theory
TODAES	ACM Transactions on Design Automation of Electronic Systems
TODS	ACM Transactions on Database Systems
TOG	ACM Transactions on Graphics
TOIS	ACM Transactions on Information Systems
TOIT	ACM Transactions on Internet Technology
TOMACS	ACM Transactions on Modeling and Computer Simulation
TOMM	ACM Transactions on Multimedia Computing, Communications and Applications
TOMPECS	ACM Transactions on Modeling and Performance Evaluation of Computing Systems
TOMS	ACM Transactions on Mathematical Software
TOPC	ACM Transactions on Parallel Computing
TOPLAS	ACM Transactions on Programming Languages and Systems
TOS	ACM Transactions on Storage
TOSEM	ACM Transactions on Software Engineering and Methodology
TOSN	ACM Transactions on Sensor Networks
TRETS	ACM Transactions on Reconfigurable Technology and Systems
TSAS	ACM Transactions on Spatial Algorithms and Systems
TSLP	ACM Transactions on Speech and Language Processing
TWEB	ACM Transactions on the Web

Examples:

```
\acmConference[TD'15]{Technical Data Conference}{November
12--16}{Dallas, TX, USA}
\acmConference{SA'15 Art Papers}{November 02--06, 2015}{Kobe, Japan}
```

Normally this command is entered either by the editor or by the typesetter.

`\title` The command `\title`, as in `amsart` class, has two arguments: one optional, and one mandatory:

```
\title[\ShortTitle]{\FullTitle}
```

The mandatory argument is the full title of the article. The optional argument, if present, defines the shorter version of the title for running heads. If the optional argument is absent, the full title is used instead.

It is expected that this command is inserted by the author of the manuscript.

`\subtitle` Besides title, ACM classes allow subtitle, set with the `\subtitle{\subtitle}` macro.

`\author` The interface for specifying the authors and their affiliations is close to the one of  
`\affiliation` `amsart` [3] (and different from the standard  $\LaTeX$ ). For each author a separate command  
`\email` `\author` should be used, followed by `\affiliation` and `\email`. If several authors share  
affiliations, in journal formats like `acmsmall` or `acmlarge` one may put the affiliation  
after all these authors, for example:

```
\author{A. U. Thor}
\email{author@nsw.au.edu}
\affiliation{University of New South Wales}
\author{A. N. Other}
\author{C. O. Respondent}
\affiliation{University of Pennsylvania}
```

In the cases of overlapping affiliations it is advisable to repeat the full list, for example,

```
\author{A. U. Thor}
\affiliation{University of New South Wales, Australia}
\email{author@nsw.edu.au}
\author{A. N. Other}
\affiliation{University of Pennsylvania, USA and University of New South
Wales, Australia}
\email{other@upenn.edu}
```

For *conferences* the affiliations should *always* be repeated, even if they are shared between the authors.

Note that old ACM conference formats did not allow for more than six authors and required some efforts from the authors to achieve alignment. The new format is much better in this.

It is expected that these commands are inserted by the author of the manuscript.

`\thanks` Like `amsart` (and unlike standard  $\LaTeX$ ), we allow `\thanks` only *outside* of commands

`\title` and `\author`. Example:

```
\thanks{This work is supported by the Widget Corporation Grant
\#312-001.\\
Author's address: D. Pineo, Kingsbury Hall, 33 Academic Way, Durham,
N.H. 03824; email: dspineo@comcast.net; Colin Ware, Jere A. Chase
Ocean Engineering Lab, 24 Colovos Road, Durham, NH 03824; email:
cware@ccom.unh.edu;
Sean Fogarty, (Current address) NASA Ames Research Center, Moffett
Field, California 94035.}
```

It is expected that this command is inserted by the author of the manuscript.

`\titlenote`      While the command `\thanks` generates a note without footnote mark, sometimes  
`\subtitlenote` the authors might need notes more tightly connected to the title, subtitle or author. The  
`\authornote` commands `\titlenote`, `\subtitlenote` and `\authornote` that follow the corresponding  
commands (`\title`, `\subtitle` and `\author`) generate such notes, for example

```
\title{This is a title}
\titlenote{This is a titlenote}
\author{A. U. Thor}
\authornote{This is an authornote}
```

`\acmVolume`      The macros `\acmVolume`, `\acmNumber`, `\acmArticle`, `\acmYear` and `\acmMonth` are  
`\acmNumber` inserted by the editor and set the journal volume, issue, article number, year and month  
`\acmArticle` correspondingly. The arguments of all these commands, including `\acmMonth` is numer-  
`\acmYear` ical, including `\acmMonth`, for example,  
`\acmMonth`

```
\acmVolume{9}
\acmNumber{4}
\acmArticle{39}
\acmYear{2010}
\acmMonth{3}
```

`\articleSeq`      The articles in the same issue of a journal have *sequential number*. It is used to  
position black blob in same formats. By default it is the same as article number, but the  
command `\articleSeq` sequence number can be used to change it:

```
\acmArticle{39} % The sequence number will be 39 by default
\articleSeq{5} % We rededine it to 5
```

`\acmPrice`      The macro `\acmPrice{<price>}` sets the price for the article (by default 15.00), for  
example,

```
\acmPrice{25.00}
```



`\isbn` Book-like volumes have ISBN numbers attached to them. The macro `\isbn{<ISBN>}` sets it. Normally it is set by the typesetter, for example,

```
\isbn{978-1-4503-3916-2}
```

`\doi` The macro `\doiDOI` sets the DOI number of the article, for example,

```
\doi{http://doi.acm.org/10.1145/9999997.9999999}
```

It is normally set by the typesetter.

`\startPage` The macro `\startPage{<page>}` sets the first page of the article in the journal or book. It is used by the typesetter.

`\terms` The macros `\terms{<term, term,...>}` and `\keywords{<keyword, keyword,...>}` set the main terms and the additional keywords for the article. Term and keywords must be separated by commas, for example,

```
\terms{wireless, interference}
\keywords{wireless sensor networks, media access control,
multi-channel, radio interference, time synchronization}
```

`CCSXML` ACM publications are classified according to the ACM Computing Classification Scheme (CCS). CCS codes are used both in the typeset version of the publications *and* in the metadata in the various databases. Therefore you need to provide both  $\TeX$  commands and XML metadata with the paper.

The tool at <http://dl.acm.org/ccs.cfm> can be used to generate CCS codes. After you select the topics, click on “Generate CCS codes” to get the result like the following:

```
\begin{CCSXML}
<ccs2012>
  <concept>
    <concept_id>10010520.10010553.10010562</concept_id>
    <concept_desc>Computer systems organization~Embedded systems</concept_desc>
    <concept_significance>500</concept_significance>
  </concept>
  <concept>
    <concept_id>10010520.10010575.10010755</concept_id>
    <concept_desc>Computer systems organization~Redundancy</concept_desc>
    <concept_significance>300</concept_significance>
  </concept>
  <concept>
    <concept_id>10010520.10010553.10010554</concept_id>
    <concept_desc>Computer systems organization~Robotics</concept_desc>
    <concept_significance>100</concept_significance>
  </concept>
  <concept>
    <concept_id>10003033.10003083.10003095</concept_id>
    <concept_desc>Networks~Network reliability</concept_desc>
    <concept_significance>100</concept_significance>
  </concept>
</ccs2012>
\end{CCSXML}
```

Table 4: Parameters for \setcopyright command

Parameter	Meaning
none	The copyright and permission information is not typeset (this is the option for some ACM conferences).
acmcopyright	The authors transfer the copyright to ACM (the “traditional” choice).
acmlicensed	The authors retain the copyright but license the publication rights to ACM.
rightsretained	The authors retain the copyright and publication rights to themselves or somebody else.
usgov	All the authors are employees of the US Government.
usgovmixed	Some authors are employees of the US Government.
cagov	All the authors are employees of the Canadian Government.
cagovmixed	Some authors are employees of the Canadian Government.

</concept>

</ccs2012>

\end{CCSXML}

\ccsdesc[500]{Computer systems organization~Embedded systems}

\ccsdesc[300]{Computer systems organization~Redundancy}

\ccsdesc{Computer systems organization~Robotics}

\ccsdesc[100]{Networks~Network reliability}

You need to just copy this code and paste it in your paper anywhere before \maketitle.

\setcopyright There are several possibilities for the copyright of the papers published by ACM: the authors may transfer the rights to ACM, license them to ACM, some or all authors might be employees of the US or Canada Government, etc. Accordingly the new command \setcopyright{...} is introduced. Its argument is the copyright status of the paper, for example, \setcopyright{acmcopyright}. The possible values for this command are listed in Table 4.

The ACM submission software should generate the right command for you to paste into your file.

\copyrightyear Each copyright statement must have the year of copyright. By default it is the same as \acmYear, but you can override this decision using the macro \copyrightyear, e.g.,

\acmYear{2016}

\copyrightyear{2015}

abstract The environment abstract must *precede* \maketitle command. Again, this is different from the standard L<sup>A</sup>T<sub>E</sub>X.

teaserfigure A special kind of figure is used for many two-column conference proceedings.

Table 5: Settings for `\settopmatter` command

Parameter	Values	Meaning
<code>printccs</code>	true/false	Whether to print CCS categories
<code>printbib</code>	true/false	Whether to print ACM bibliographic entry

This figure is placed just after the authors, but before the main text. The environment `teaserfigure` is used for these figures. This environment must be used *before* `\maketitle`, for example,

```
\begin{teaserfigure}
  \includegraphics[width=\textwidth]{sampleteaser}
  \caption{This is a teaser}
  \label{fig:teaser}
\end{teaserfigure}
```

`\settopmatter` Some information in the top matter is printed for certain journals or proceedings and suppressed for others. You may override these defaults using the command `\settopmatter{<settings>}`. The settings and their meanings are listed in Table 5. For example,

```
\settopmatter{printbib=false, printccs=true}
```

`\received` The command `\received{<[<stage>]<date>}` sets the history of the publication. The `<stage>` argument is optional; the default is Received for the first date and revised for the subsequent ones. For example

```
\received{February 2007}
\received[revised]{March 2009}
\received[accepted]{June 2009}
```

`\maketitle` The macro `\maketitle` must be the last command in the top matter group: i.e., it must follow the commands defined in this section.

`\shortauthors` After the command `\maketitle` the macro `\shortauthors` stores the names of the authors for the running head. You may redefine it if the list of author's name is too long, e.g.,

```
\maketitle
\renewcommand{\shortauthors}{Zhou et. al.}
```

## 2.4 Algorithms

There now several good packages for typesetting algorithms [4, 5, 6], and the authors are now free to choose their favorite one.

## 2.5 Figures and tables

New ACM styles use the standard  $\LaTeX$  interface for figures and tables. There are some important items to be aware of, however.

1. The captions for figures must be entered *after* the figure bodies, and for the tables *before* the table bodies.
2. ACM uses the standard types for figures and tables and adds several new ones. In total there are following types:

**figure, table:** a standard figure or table, taking full text width in one-column formats and one column in two-column formats.

**figure\*, table\*** in two-column formats, a special figure or table taking full text width.

**teaserfigure:** a special figure before `\maketitle`.

**sidebar, marginfigure, margintable:** in the sigchi-a format, special sidebars, tables and figures on the margin.

3. Accordingly, when scaling the images, one should use the following sizes:
  - (a) For figure in one-column mode, figure\* in two-column mode or teaserfigure—`\textwidth` (in the one-column you can also use `\columnwidth`, which coincides with `\textwidth` in this case).
  - (b) For figure in two-column mode—`\columnwidth`.
  - (c) For marginfigure—`\marginparwidth`.
  - (d) For figure\* in SIGCHI Extended abstracts—`\fulltextwidth`.

It is strongly recommended to use the package `booktabs` [7] and follow its main principles of typography with respect to tables:

1. Never, ever use vertical rules.
2. Never use double rules.

It is also a good idea not to overuse horizontal rules.

For table *footnotes* you have several options described in TeX FAQ [1]. The simplest one is to use `\minipage` environment:

```
\begin{table}
\caption{Simulation Configuration}
\label{tab:conf}
\begin{minipage}{\columnwidth}
\begin{center}
\begin{tabular}{ll}
\toprule
TERRAIN\footnote{This is a table footnote. This is a
table footnote. This is a table footnote.} &
```

```

(200\,m$\times$200\,m) Square\\
Node Number      & 289\\
Node Placement   & Uniform\\
Application       & Many-to-Many/Gossip CBR Streams\\
Payload Size     & 32 bytes\\
Routing Layer    & GF\\
MAC Layer        & CSMA/MMSN\\
Radio Layer      & RADIO-ACCNOISE\\
Radio Bandwidth  & 250Kbps\\
Radio Range      & 20m--45m\\
\bottomrule
\end{tabular}
\end{center}
\bigskip
\footnotesize\emph{Source:} This is a table
sourcernote. This is a table sourcernote. This is a table
sourcernote.

\emph{Note:} This is a table footnote.
\end{minipage}
\end{table}

```

sidebar  
 marginfigure  
 margintable

Sigchi extended abstract extensively uses margin space. The package provides three environments for this with option captions:

**sidebar:** textual information on the margin

**marginfigure:** a figure on the margin

**margintable:** a table on the margin

## 2.6 Theorems

ACM classes define two theorem styles and several pre-defined theorem environments:

**acmplain:** this is the style used for theorem, conjecture, proposition, lemma, corollary, and

**acmdefinition:** this is the style used for example and definition.

## 2.7 Online-only and offline-only material

printonly  
 screenonly

Some supplementary material in ACM publication is put online, but not in the printed version. The text inside the environment `screenonly` will be typeset only when the option `screen` (see Section 2.2) is set to true. Conversely, the text inside the environment `printonly` is typeset only when this option is set to false. For example

```
\section{Supplementary materials}
```

```

\begin{printonly}
  This section is included in the online version of the paper.
\end{printonly}

\begin{screenonly}
  (The actual section).
\end{screenonly}

```

## 2.8 Bibliography

The Boolean option `natbib` selects whether to use `natbib` package for bibliography. If you use `natbib`, then commands like `\citep` and `\citeauthor` are automatically supported.

ACM journals use `natbib` and the style `ACM-Reference-Format-Journals`.

ACM conference proceedings do *not* use `natbib`. SIGGRAPH conferences use `acmsiggraph` style. SIGCHI conferences use `SIGCHI-Reference-Format` style. The other conferences employ one of the four styles:

1. `acm-abbrev`
2. `acm-alpha`
3. `acm-plain`
4. `acm-unsrt`

The author should consult specific instructions about the style to choose.

## 2.9 Colors

While printed ACM publications are usually black and white, screen mode allows the use of colors. The ACM classes pre-define several colors according to [?]: `ACMBlue`, `ACMYellow`, `ACMOrange`, `ACMRed`, `ACMLightBlue`, `ACMGreen`, `ACMPurple`, `ACMDarkBlue`. You can use them in the color assignments.

## 3 Implementation

### 3.1 Identification

We start with the declaration who we are. Most .dtx files put driver code in a separate driver file .drv. We roll this code into the main file, and use the pseudo-guard <gobble> for it.

```
1 <class>\NeedsTeXFormat{LaTeX2e}
2 <*gobble>
3 \ProvidesFile{acmart.dtx}
4 </gobble>
5 <class>\ProvidesClass{acmart}
6 [2016/04/18 v1.01 Typesetting articles for Association of
7 Computing Machinery]
```

And the driver code:

```
8 <*gobble>
9 \documentclass{ltxdoc}
10 \usepackage{array,booktabs,amsmath,graphicx,fancyvrb,tabularx}
11 \usepackage[tt=false]{libertine}
12 \usepackage[libertine]{newtxmath}
13 \usepackage[varqu]{zi4}
14 \usepackage[tableposition=top]{caption}
15 \usepackage{hypdoc}
16 \PageIndex
17 \CodelineIndex
18 \RecordChanges
19 \EnableCrossrefs
20 \begin{document}
21   \DocInput{acmart.dtx}
22 \end{document}
23 </gobble>
24 <*class>
25 \def\@classname{acmart}
```

### 3.2 Options

We need xkeyval since some of our options may have values:

```
26 \RequirePackage{xkeyval}
```

format The possible formats

```
27 \define@choicekey*+{acmart.cls}{format}[\ACM@format\ACM@format@nr]{%
28   manuscript, acmsmall, acmlarge, acmtog, sigconf, siggraph,
29   sigplan, sigchi, sigchi-a}[manuscript]{}{%
30   \ClassError{\@classname}{The option format must be manuscript,
31     acmsmall, acmlarge, acmtog, sigconf, siggraph,
32     sigplan, sigchi or sigchi-a}}
33 \def\@DeclareACMFormat#1{\DeclareOptionX{#1}{\setkeys{acmart.cls}{format=#1}}}
34 \@DeclareACMFormat{manuscript}
```

```

35 \@DeclareACMFormat{acmsmall}
36 \@DeclareACMFormat{acmlarge}
37 \@DeclareACMFormat{acmtog}
38 \@DeclareACMFormat{sigconf}
39 \@DeclareACMFormat{siggraph}
40 \@DeclareACMFormat{sigplan}
41 \@DeclareACMFormat{sigchi}
42 \@DeclareACMFormat{sigchi-a}
43 \ExecuteOptionsX{format}

\if@ACM@screen Whether we use screen mode
44 \define@boolkey+{acmart.cls}[@ACM@]{screen}[true]{%
45   \if@ACM@screen
46     \PackageInfo{\@classname}{Using screen mode}%
47   \else
48     \PackageInfo{\@classname}{Not using screen mode}%
49   \fi}{\PackageError{\@classname}{Option screen can be either true or
50     false}}
51 \ExecuteOptionsX{screen=false}

\if@ACM@review Whether we use review mode
52 \define@boolkey+{acmart.cls}[@ACM@]{review}[true]{%
53   \if@ACM@review
54     \PackageInfo{\@classname}{Using review mode}%
55   \else
56     \PackageInfo{\@classname}{Not using review mode}%
57   \fi}{\PackageError{\@classname}{Option review can be either true or
58     false}}
59 \ExecuteOptionsX{review=false}

\if@ACM@natbib Whether we use natbib mode
60 \define@boolkey+{acmart.cls}[@ACM@]{natbib}[true]{%
61   \if@ACM@natbib
62     \PackageInfo{\@classname}{Using natbib mode}%
63   \else
64     \PackageInfo{\@classname}{Not using natbib mode}%
65   \fi}{\PackageError{\@classname}{Option natbib can be either true or
66     false}}
67 \ExecuteOptionsX{natbib=false}

\if@ACM@anonymous Whether we use anonymous mode
68 \define@boolkey+{acmart.cls}[@ACM@]{anonymous}[true]{%
69   \if@ACM@anonymous
70     \PackageInfo{\@classname}{Using anonymous mode}%
71   \else
72     \PackageInfo{\@classname}{Not using anonymous mode}%
73   \fi}{\PackageError{\@classname}{Option anonymous can be either true or
74     false}}
75 \ExecuteOptionsX{anonymous=false}

```



`\ACM@fontsize` The font size to pass to the base class

```

76 \def\ACM@fontsize{}
77 \DeclareOptionX{9pt}{\edef\ACM@fontsize{\CurrentOption}}
78 \DeclareOptionX{10pt}{\edef\ACM@fontsize{\CurrentOption}}
79 \DeclareOptionX{11pt}{\edef\ACM@fontsize{\CurrentOption}}
80 \DeclareOptionX{12pt}{\edef\ACM@fontsize{\CurrentOption}}

81 \DeclareOptionX{*}{\PassOptionsToClass{\CurrentOption}{amsart}}
82 \ProcessOptionsX
83 \ClassInfo{\@classname}{Using format \ACM@format, number \ACM@format@nr}

```

### 3.3 Setting switches

`\if@ACM@manuscript` Whether we use manuscript mode

```

84 \newif\if@ACM@manuscript

```

`\if@ACM@journal` There are two kinds of publications: journals and books

```

85 \newif\if@ACM@journal

```

`\if@ACM@sigchiamode` The formatting of SIGCHI abstracts is quite unusual. We have a special switch for them.

```

86 \newif\if@ACM@sigchiamode

```

Setting up switches

```

87 \ifnum\ACM@format@nr=0\relax
88   \@ACM@manuscripttrue
89 \else
90   \@ACM@manuscriptfalse
91 \fi
92 \@ACM@sigchiamodefalse
93 \ifcase\ACM@format@nr
94 \relax % manuscript
95   \@ACM@journaltrue
96 \or % acmsmall
97   \@ACM@journaltrue
98 \or % acmlarge
99   \@ACM@journaltrue
100 \or % acmtog
101   \@ACM@journaltrue
102 \or % sigconf
103   \@ACM@journalfalse
104 \or % siggraph
105   \@ACM@journalfalse
106 \or % sigplan
107   \@ACM@journalfalse
108 \or % sigchi
109   \@ACM@journalfalse
110 \or % sigchi-a
111   \@ACM@journalfalse
112   \@ACM@sigchiamodetrue
113 \fi

```

### 3.4 Loading base class and package

At this point we either have `\ACM@fontsize`, or use defaults

```

114 \ifx\ACM@fontsize\empty
115   \ifcase\ACM@format@nr
116     \relax % manuscript
117     \def\ACM@fontsize{9pt}%
118   \or% acmsmall
119     \def\ACM@fontsize{10pt}%
120   \or % acmlarge
121     \def\ACM@fontsize{9pt}%
122   \or % acmtog
123     \def\ACM@fontsize{9pt}%
124   \or % sigconf
125     \def\ACM@fontsize{9pt}%
126   \or % siggraph
127     \def\ACM@fontsize{9pt}%
128   \or % sigplan
129     \def\ACM@fontsize{9pt}%
130   \or % sigchi
131     \def\ACM@fontsize{10pt}%
132   \or % sigchi-a
133     \def\ACM@fontsize{10pt}%
134   \fi
135 \fi
136 \ClassInfo{\@classname}{Using fontsize \ACM@fontsize}
137 \LoadClass[\ACM@fontsize, reqno]{amsart}
138 \RequirePackage{microtype}

```

We need `totpages` package to calculate the number of pages

```

139 \RequirePackage{totpages}

```

The `amsmath \collect@body` is defined using `\def`. We load `environ` to access the `\long` version of the command

```

140 \RequirePackage{environ}

```

We use `setspace` for doublespacing

```

141 \if@ACM@manuscript
142 \RequirePackage{setspace}
143 \onehalfspacing
144 \fi

```

Citations:

```

145 \if@ACM@natbib
146   \RequirePackage{natbib}
147   \bibpunct[, ]{[}{]}{;}{a}{},{}
148 \fi

```

Before we call `hyperref`, we redefine `\startsection` commands to their  $\LaTeX$  defaults, since `amsart` ones are too AMS-specific. We need to do this early since we want `hyperref` to have a chance to redefine them again:

```

149 \def\@startsection#1#2#3#4#5#6{%
150   \if@noskipsec \leavevmode \fi
151   \par
152   \@tempskipa #4\relax
153   \@afterindenttrue
154   \ifdim \@tempskipa <\z@
155     \@tempskipa -\@tempskipa \@afterindentfalse
156   \fi
157   \if@nobreak
158     \everypar{}%
159   \else
160     \addpenalty\@secpenalty\addvspace\@tempskipa
161   \fi
162   \@ifstar
163     {\@ssect{#3}{#4}{#5}{#6}}%
164     {\@dblarg{\@sect{#1}{#2}{#3}{#4}{#5}{#6}}}
165 \def\@sect#1#2#3#4#5#6[#7]#8{%
166   \ifnum #2>\c@secnumdepth
167     \let\@svsec\@empty
168   \else
169     \refstepcounter{#1}%
170     \protected@edef\@svsec{\@secntformat{#1}\relax}%
171   \fi
172   \@tempskipa #5\relax
173   \ifdim \@tempskipa>\z@
174     \begingroup
175       #6{%
176         \@hangfrom{\hskip #3\relax\@svsec}%
177         \interlinepenalty \@M #8\@par}%
178     \endgroup
179     \csname #1mark\endcsname{#7}%
180     \addcontentsline{toc}{#1}{%
181       \ifnum #2>\c@secnumdepth \else
182         \protect\numberline{\csname the#1\endcsname}%
183       \fi
184       #7}%
185   \else
186     \def\@svsechd{%
187       #6{\hskip #3\relax
188         \@svsec #8}%
189       \csname #1mark\endcsname{#7}%
190       \addcontentsline{toc}{#1}{%
191         \ifnum #2>\c@secnumdepth \else
192           \protect\numberline{\csname the#1\endcsname}%
193         \fi
194         #7}}%
195   \fi
196   \@xsect{#5}}
197 \def\@xsect#1{%
198   \@tempskipa #1\relax

```

```

199 \ifdim \@tempskipa>\z@
200   \par \nobreak
201   \vskip \@tempskipa
202   \@afterheading
203 \else
204   \@nobreakfalse
205   \global\@noskipsectrue
206   \everypar{%
207     \if@noskipsec
208       \global\@noskipsecfalse
209       {\setbox\z@\lastbox}%
210       \clubpenalty\@M
211       \begingroup \@svsechd \endgroup
212       \unskip
213       \@tempskipa #1\relax
214       \hskip -\@tempskipa
215     \else
216       \clubpenalty \@clubpenalty
217       \everypar{}%
218     \fi}%
219 \fi
220 \ignorespaces}
221 \def\@secntformat#1{\csname the#1\endcsname\quad}
222 \def\@ssect#1#2#3#4#5{%
223   \@tempskipa #3\relax
224   \ifdim \@tempskipa>\z@
225     \begingroup
226       #4{%
227         \@hangfrom{\hskip #1}%
228         \interlinepenalty \@M #5\@par}%
229     \endgroup
230   \else
231     \def\@svsechd{#4{\hskip #1\relax #5}}%
232   \fi
233   \@xsect{#3}}

And hyperref
234 \let\@footnotemark@nolink\@footnotemark
235 \let\@footnotetext@nolink\@footnotetext
236 \RequirePackage{hyperref}
237 \if@ACM@sigchiamode
238   \urlstyle{sf}
239 \else
240   \urlstyle{rm}
241 \fi
242 \if@ACM@screen
243   \hypersetup{colorlinks,
244     linkcolor=ACMRed,
245     citecolor=ACMPurple,
246     urlcolor=ACMDarkBlue,

```

```

247   filecolor=ACMDarkBlue}
248 \else
249   \hypersetup{hidelinks}
250 \fi

  Bibliography mangling
251 \if@ACM@natbib
252   \let\citeN\cite
253   \let\cite\citep
254   \let\citeANP\citeauthor
255   \let\citeNN\citeyearpar
256   \let\citeyearNP\citeyear
257   \let\citeyear\citeyearpar
258   \let\citeNP\citealt
259   \def\shortcite#1{\citeyear{#1}}
260   \DeclareRobustCommand\citeA
261     {\begingroup\NAT@swafalse
262       \let\NAT@ctype\@ne\NAT@partrue\NAT@fullfalse\NAT@open\NAT@citetp}
263   \providecommand\newblock{}
264 \else
265   \providecommand\citename[1]{#1}
266 \fi

  Graphics and color
267 \RequirePackage{graphicx, xcolor}

  We define ACM colors according to [?]:
268 \definecolor[named]{ACMBlue}{cmyk}{1,0.1,0,0.1}
269 \definecolor[named]{ACMYellow}{cmyk}{0,0.16,1,0}
270 \definecolor[named]{ACMOrange}{cmyk}{0,0.42,1,0.01}
271 \definecolor[named]{ACMRed}{cmyk}{0,0.90,0.86,0}
272 \definecolor[named]{ACMLightBlue}{cmyk}{0.49,0.01,0,0}
273 \definecolor[named]{ACMGreen}{cmyk}{0.20,0,1,0.19}
274 \definecolor[named]{ACMPurple}{cmyk}{0.55,1,0,0.15}
275 \definecolor[named]{ACMDarkBlue}{cmyk}{1,0.58,0,0.21}

```

### 3.5 Paper size and paragraphing

We use geometry for dimensions

```

276 \RequirePackage{geometry}
277 \ifcase\ACM@format@nr
278 \relax % manuscript
279   \geometry{letterpaper,head=1pc}%
280 \or% acmsmall
281   \geometry{twoside=true,
282     includeheadfoot, head=1pc, foot=2pc,
283     paperwidth=6.75in, paperheight=10in,
284     top=58pt, bottom=44pt, inner=46pt, outer=46pt
285   }%
286 \or % acmlarge

```

```

287 \geometry{twoside=true, head=1pc, foot=2pc,
288   paperwidth=8.5in, paperheight=11in,
289   includeheadfoot,
290   top=78pt, bottom=114pt, inner=81pt, outer=81pt
291 }%
292 \or % acmtog
293 \geometry{twoside=true, head=1pc, foot=2pc,
294   paperwidth=8.5in, paperheight=11in,
295   includeheadfoot, columnsep=24pt,
296   top=52pt, bottom=75pt, inner=52pt, outer=52pt
297 }%
298 \or % sigconf
299 \geometry{twoside=true, head=1pc,
300   paperwidth=8.5in, paperheight=11in,
301   includeheadfoot, columnsep=2pc,
302   top=57pt, bottom=75pt, inner=54pt, outer=57pt
303 }%
304 \or % siggraph
305 \geometry{twoside=true, head=1pc,
306   paperwidth=8.5in, paperheight=11in,
307   includeheadfoot, columnsep=2pc,
308   top=57pt, bottom=75pt, inner=54pt, outer=57pt
309 }%
310 \or % sigplan
311 \geometry{twoside=true, head=1pc,
312   paperwidth=8.5in, paperheight=11in,
313   includeheadfoot, columnsep=2pc,
314   top=74pt, bottom=70pt, inner=54pt, outer=54pt
315 }%
316 \or % sigchi
317 \geometry{twoside=true, head=1pc,
318   paperwidth=8.5in, paperheight=11in,
319   includeheadfoot, columnsep=2pc,
320   top=66pt, bottom=78pt, inner=54pt, outer=48pt
321 }%
322 \or % sigchi-a
323 \geometry{twoside=false, head=1pc,
324   paperwidth=11in, paperheight=8.5in,
325   includeheadfoot, marginparsep=72pt,
326   marginparwidth=170pt, columnsep=20pt,
327   top=72pt, bottom=72pt, left=314pt, right=72pt
328 }%
329 \@parswitchfalse
330 \reversemarginpar
331 \fi

```

\parindent Paragraping

```

\parskip 332 \setlength\parindent{10\p@}
333 \setlength\parskip{\z@}
334 \ifcase\ACM@format@nr

```

```

335 \relax % manuscript
336 \or% acmsmall
337 \or % acmlarge
338 \or % acmtog
339 \setlength\parindent{9\p@}%
340 \or % sigconf
341 \or % siggraph
342 \or % sigplan
343 \or % sigchi
344 \or % sigchi-a
345 \fi

\footnoterule Tschichold's rules:
346 \def\footnoterule{\kern-3\p@
347 \hrule \@width \columnwidth \kern 2.6\p@}

\endminipage We do not use footnote rules in minipages
348 \def\endminipage{%
349 \par
350 \unskip
351 \ifvoid\@mpfootins\else
352 \vskip\skip\@mpfootins
353 \normalcolor
354 \unvbox\@mpfootins
355 \fi
356 \@minipagefalse %% added 24 May 89
357 \color@endgroup
358 \egroup
359 \expandafter\@iiparbox\@mpargs{\unvbox\@tempboxa}}
360

\@makefnmark We do not use indentation for footnotes
361 \def\@makefnmark{\noindent\@makefnmark}

\@footnotetext In sigchi-a mode our footnotes are on the margins!
362 \if@ACM@sigchiamode
363 \long\def\@footnotetext#1{\marginpar{%
364 \reset@font\small
365 \interlinepenalty\interfootnotelinepenalty
366 \protected@edef\@currentlabel{%
367 \csname p@footnote\endcsname\@thefnmark
368 }%
369 \color@begingroup
370 \@makefnmark{%
371 \rule{z@footnotesep\ignorespaces#1\@finalstrut\strutbox}%
372 \color@endgroup}}%
373 \fi

```

### 3.6 Fonts

We use Times throughout

```
374 \usepackage[tt=false]{libertine}
375 \usepackage[libertine]{newtxmath}
376 \usepackage[varqu]{zi4}
```

The sigchi abstract are sans serif:

```
377 \if@ACM@sigchiamode
378   \renewcommand{\familydefault}{\sfdefault}
379 \fi
```

### 3.7 Floats

We use caption package

```
380 \RequirePackage{caption, float}
381 \captionsetup[table]{position=top}
382 \if@ACM@journal
383   \captionsetup{labelfont={sf, small},
384     textfont={sf, small}, margin=\z@}
385   \captionsetup[figure]{name={Fig.}}
386 \else
387   \captionsetup{labelfont={bf},
388     textfont={bf}, labelsep=colon, margin=\z@}
389   \ifcase\ACM@format@nr
390     \relax % manuscript
391     \or % acmsmall
392     \or % acmlarge
393     \or % acmtog
394     \or % sigconf
395     \or % siggraph
396     \captionsetup{textfont={it}}
397     \or % sigplan
398     \or % sigchi
399     \captionsetup[figure]{labelfont={bf, small},
400       textfont={bf, small}}
401     \or % sigchi-a
402     \captionsetup[figure]{labelfont={bf, small},
403       textfont={bf, small}}
404   \fi
405 \fi
```

sidebar The sidebar environment:

```
406 \newfloat{sidebar}{s}{sbar}
407 \floatname{sidebar}{Sidebar}
408 \renewenvironment{sidebar}{\Collect@Body\@sidebar}{}
```

\@sidebar The processing of the saved text

```
409 \long\def\@sidebar#1{\bgroup\captionsetup{type=sidebar}%
410   \marginpar{\small#1}\egroup}
```



`marginfigure` The marginfigure environment:

```
411 \newenvironment{marginfigure}{\Collect@Body\@marginfigure}{}

\@marginfigure The processing of the saved text
412 \long\def\@marginfigure#1{\bgroup\captionsetup{type=figure}%
413   \marginpar{\small#1}\egroup}

marginfigure The margintable environment:
414 \newenvironment{margintable}{\Collect@Body\@margintable}{}

\@margintable The processing of the saved text
415 \long\def\@margintable#1{\bgroup\captionsetup{type=table}%
416   \marginpar{\small#1}\egroup}

SIGCHI extended abstract provides an interesting possibility to push into the margin.
Here we use figure* and table* for this.

\fulltextwidth We define the width of the boxes as
417 \newdimen\fulltextwidth
418 \fulltextwidth=\dimexpr(\textwidth+\marginparwidth+\marginparsep)

\@dblfloat We redefine the double float command. First, we make the size bigger. Second, our
default position is going to be tp (to give marginalia a chance)
419 \if@ACM@sigchiamode
420 \def\@dblfloat{\bgroup\columnwidth=\fulltextwidth
421   \let\@endfloatbox\@endwidefloatbox
422   \def\@fpsadddefault{\def\@fps{tp}}%
423   \@float}
424 \fi

\end@dblfloat And the end. Just adding a \bgroup.
425 \if@ACM@sigchiamode
426 \def\end@dblfloat{%
427   \end@float\egroup}
428 \fi

\@endwidefloatbox This is the end of a wide box - we basically move everything to the left
429 \def\@endwidefloatbox{%
430   \par\vskip\z@skip
431   \@minipagefalse
432   \outer@nobreak
433   \egroup
434   \color@endbox
435   \global\setbox\@currbox=\vbox{\moveleft
436     \dimexpr(\fulltextwidth-\textwidth)\box\@currbox}%
437   \wd\@currbox=\textwidth
438 }
```

### 3.8 Top matter data

We use keyval interface to define journal title and relevant information

```
439 \define@choicekey*+{ACM}{acmJournal}[\@journalCode\@journalCode@nr]{%
440   CIE,%
441   CSUR,%
442   JACM,%
443   JDIQ,%
444   JEA,%
445   JERIC,%
446   JETC,%
447   JOCCH,%
448   TAAS,%
449   TACCESS,%
450   TACO,%
451   TALG,%
452   TALLIP,%
453   TAP,%
454   TCPS,%
455   TEAC,%
456   TECS,%
457   TIIS,%
458   TISSEC,%
459   TIST,%
460   TKDD,%
461   TMIS,%
462   TOCE,%
463   TOCHI,%
464   TOCL,%
465   TOCS,%
466   TOCT,%
467   TODAES,%
468   TODS,%
469   TOG,%
470   TOIS,%
471   TOIT,%
472   TOMACS,%
473   TOMM,%
474   TOMPECS,%
475   TOMS,%
476   TOPC,%
477   TOPLAS,%
478   TOS,%
479   TOSEM,%
480   TOSN,%
481   TRETs,%
482   TSAS,%
483   TSLP,%
484   TWEB%
485 }{%
```

```

486 \ifcase\@journalCode@nr
487 \relax % CIE
488 \def\@journalName{ACM Computers in Entertainment}%
489 \def\@journalNameShort{ACM Comput. Entertain.}%
490 \def\@permissionCodeOne{1544-3574}%
491 \or % CSUR
492 \def\@journalName{ACM Computing Surveys}%
493 \def\@journalNameShort{ACM Comput. Surv.}%
494 \def\@permissionCodeOne{0360-0300}%
495 \or % JACM
496 \def\@journalName{Journal of the ACM}%
497 \def\@journalNameShort{J. ACM}%
498 \def\@permissionCodeOne{0004-5411}%
499 \or % JDIQ
500 \def\@journalName{ACM Journal of Data and Information Quality}%
501 \def\@journalNameShort{ACM J. Data Inform. Quality}%
502 \def\@permissionCodeOne{1936-1955}%
503 \or % JEA
504 \def\@journalName{ACM Journal of Experimental Algorithmics}%
505 \def\@journalNameShort{ACM J. Exp. Algor.}%
506 \def\@permissionCodeOne{1084-6654}%
507 \or % JERIC
508 \def\@journalName{ACM Journal of Educational Resources in Computing}%
509 \def\@journalNameShort{ACM J. Edu. Resources in Comput.}%
510 \def\@permissionCodeOne{1073-0516}%
511 \or % JETC
512 \def\@journalName{ACM Journal on Emerging Technologies in Computing Systems}%
513 \def\@journalNameShort{ACM J. Emerg. Technol. Comput. Syst.}%
514 \def\@permissionCodeOne{1550-4832}%
515 \or % JOCCH
516 \def\@journalName{ACM Journal on Computing and Cultural Heritage}%
517 \def\@journalNameShort{ACM J. Comput. Cult. Herit.}%
518 \or % TAAS
519 \def\@journalName{ACM Transactions on Autonomous and Adaptive Systems}%
520 \def\@journalNameShort{ACM Trans. Autonom. Adapt. Syst.}%
521 \def\@permissionCodeOne{1556-4665}%
522 \or % TACCESS
523 \def\@journalName{ACM Transactions on Accessible Computing}%
524 \def\@journalNameShort{ACM Trans. Access. Comput.}%
525 \def\@permissionCodeOne{1936-7228}%
526 \or % TACO
527 \def\@journalName{ACM Transactions on Architecture and Code Optimization}%
528 \or % TALG
529 \def\@journalName{ACM Transactions on Algorithms}%
530 \def\@journalNameShort{ACM Trans. Algor.}%
531 \def\@permissionCodeOne{1549-6325}%
532 \or % TALLIP
533 \def\@journalName{ACM Transactions on Asian and Low-Resource Language Information Processing}%
534 \def\@journalNameShort{ACM Trans. Asian Low-Resour. Lang. Inf. Process.}%
535 \def\@permissionCodeOne{2375-4699}%

```

```

536 \or % TAP
537 \def\@journalName{ACM Transactions on Applied Perception}%
538 \or % TCPS
539 \def\@journalName{ACM Transactions on Cyber-Physical Systems}%
540 \or % TEAC
541 \def\@journalName{ACM Transactions on Economics and Computation}%
542 \or % TECS
543 \def\@journalName{ACM Transactions on Embedded Computing Systems}%
544 \def\@journalNameShort{ACM Trans. Embedd. Comput. Syst.}%
545 \def\@permissionCodeOne{1539-9087}%
546 \or % TIIS
547 \def\@journalName{ACM Transactions on Interactive Intelligent Systems}%
548 \def\@journalNameShort{ACM Trans. Interact. Intell. Syst.}%
549 \def\@permissionCodeOne{2160-6455}%
550 \or % TISSEC
551 \def\@journalName{ACM Transactions on Information and System Security}%
552 \def\@journalNameShort{ACM Trans. Info. Syst. Sec.}%
553 \def\@permissionCodeOne{1094-9224}%
554 \or % TIST
555 \def\@journalName{ACM Transactions on Intelligent Systems and Technology}%
556 \def\@journalNameShort{ACM Trans. Intell. Syst. Technol.}%
557 \def\@permissionCodeOne{2157-6904}%
558 \or % TKDD
559 \def\@journalName{ACM Transactions on Knowledge Discovery from Data}%
560 \def\@journalNameShort{ACM Trans. Knowl. Discov. Data.}%
561 \def\@permissionCodeOne{1556-4681}%
562 \or % TMIS
563 \def\@journalName{ACM Transactions on Management Information Systems}%
564 \def\@journalNameShort{ACM Trans. Manag. Inform. Syst.}%
565 \def\@permissionCodeOne{2158-656X}%
566 \or % TOCE
567 \def\@journalName{ACM Transactions on Computing Education}%
568 \def\@journalNameShort{ACM Trans. Comput. Educ.}%
569 \def\@permissionCodeOne{1946-6226}%
570 \or % TOCHI
571 \def\@journalName{ACM Transactions on Computer-Human Interaction}%
572 \def\@journalNameShort{ACM Trans. Comput.-Hum. Interact.}%
573 \def\@permissionCodeOne{1073-0516}%
574 \or % TOCL
575 \def\@journalName{ACM Transactions on Computational Logic}%
576 \def\@journalNameShort{ACM Trans. Comput. Logic}%
577 \def\@permissionCodeOne{1529-3785}%
578 \or % TOCS
579 \def\@journalName{ACM Transactions on Computer Systems}%
580 \def\@journalNameShort{ACM Trans. Comput. Syst.}%
581 \def\@permissionCodeOne{0734-2071}%
582 \or % TOCT
583 \def\@journalName{ACM Transactions on Computation Theory}%
584 \def\@journalNameShort{ACM Trans. Comput. Theory}%
585 \def\@permissionCodeOne{1942-3454}%

```

```

586 \or % TODAES
587 \def\@journalName{ACM Transactions on Design Automation of Electronic Systems}%
588 \def\@journalNameShort{ACM Trans. Des. Autom. Electron. Syst.}%
589 \def\@permissionCodeOne{1084-4309}%
590 \or % TODS
591 \def\@journalName{ACM Transactions on Database Systems}%
592 \def\@journalNameShort{ACM Trans. Datab. Syst.}%
593 \def\@permissionCodeOne{0362-5915}%
594 \or % TOG
595 \def\@journalName{ACM Transactions on Graphics}%
596 \def\@journalNameShort{ACM Trans. Graph.}%
597 \def\@permissionCodeOne{0730-0301}%
598 \or % TOIS
599 \def\@journalName{ACM Transactions on Information Systems}%
600 \def\@journalNameShort{ACM Transactions on Information Systems}%
601 \def\@permissionCodeOne{1046-8188}%
602 \or % TOIT
603 \def\@journalName{ACM Transactions on Internet Technology}%
604 \def\@journalNameShort{ACM Trans. Internet Technol.}%
605 \def\@permissionCodeOne{1533-5399}%
606 \or % TOMACS
607 \def\@journalName{ACM Transactions on Modeling and Computer Simulation}%
608 \def\@journalNameShort{ACM Transactions on Modeling and Computer Simulation}%
609 \def\@journalNameShort{ACM Trans. Model. Comput. Simul.}%
610 \or % TOMM
611 \def\@journalName{ACM Transactions on Multimedia Computing, Communications and Applications}%
612 \def\@journalNameShort{ACM Trans. Multimedia Comput. Commun. Appl.}%
613 \def\@permissionCodeOne{1551-6857}%
614 \def\@permissionCodeTwo{0100}%
615 \or % TOMPECS
616 \def\@journalName{ACM Transactions on Modeling and Performance Evaluation of Computing Systems}%
617 \def\@journalNameShort{ACM Trans. Model. Perform. Eval. Comput. Syst.}%
618 \def\@permissionCodeOne{2376-3639}%
619 \or % TOMS
620 \def\@journalName{ACM Transactions on Mathematical Software}%
621 \def\@journalNameShort{ACM Trans. Math. Softw.}%
622 \def\@permissionCodeOne{0098-3500}%
623 \or % TOPC
624 \def\@journalName{ACM Transactions on Parallel Computing}%
625 \def\@journalNameShort{ACM Trans. Parallel Comput.}%
626 \def\@permissionCodeOne{1539-9087}%
627 \or % TOPLAS
628 \def\@journalName{ACM Transactions on Programming Languages and Systems}%
629 \def\@journalNameShort{ACM Trans. Program. Lang. Syst.}%
630 \def\@permissionCodeOne{0164-0925}%
631 \or % TOS
632 \def\@journalName{ACM Transactions on Storage}%
633 \def\@journalNameShort{ACM Trans. Storage}%
634 \def\@permissionCodeOne{1553-3077}%
635 \or % TOSEM

```

```

636 \def\@journalName{ACM Transactions on Software Engineering and Methodology}%
637 \def\@journalNameShort{ACM Trans. Softw. Eng. Methodol.}%
638 \def\@permissionCodeOne{1049-331X}%
639 \or % TOSN
640 \def\@journalName{ACM Transactions on Sensor Networks}%
641 \def\@journalNameShort{ACM Trans. Sensor Netw.}%
642 \def\@permissionCodeOne{1550-4859}%
643 \or % TRET
644 \def\@journalName{ACM Transactions on Reconfigurable Technology and Systems}%
645 \def\@journalNameShort{ACM Trans. Reconfig. Technol. Syst.}%
646 \def\@permissionCodeOne{1936-7406}%
647 \or % TSAS
648 \def\@journalName{ACM Transactions on Spatial Algorithms and Systems}%
649 \def\@journalNameShort{ACM Trans. Spatial Algorithms Syst.}%
650 \def\@permissionCodeOne{2374-0353}%
651 \or % TSLP
652 \def\@journalName{ACM Transactions on Speech and Language Processing}%
653 \def\@journalNameShort{ACM Trans. Speech Lang. Process.}%
654 \def\@permissionCodeOne{1550-4875}%
655 \or % TWEB
656 \def\@journalName{ACM Transactions on the Web}%
657 \def\@journalNameShort{ACM Trans. Web}%
658 \def\@permissionCodeOne{1559-1131}%
659 \fi
660 \ClassInfo{\@classname}{Using journal code \@journalCode}%
661 }{%
662 \ClassError{\@classname}{Incorrect journal #1}%
663 }%

```

\acmJournal And the syntactic sugar around it

```

664 \def\acmJournal#1{\setkeys{ACM}{acmJournal=#1}}

```

The defaults:

```

665 \def\@journalName{}%
666 \def\@journalNameShort{\@journalName}%
667 \def\@permissionCodeOne{XXXX-XX}%
668 \def\@permissionCodeTwo{}%

```

\acmConference This is the conference command

```

669 \newcommand\acmConference[4][{}]{%
670 \gdef\acmConference@shortname{#1}%
671 \gdef\acmConference@name{#2}%
672 \gdef\acmConference@date{#3}%
673 \gdef\acmConference@venue{#4}%
674 \ifx\acmConference@shortname\@empty
675 \gdef\acmConference@shortname{#2}%
676 \fi}
677 \acmConference[Conference'17]{ACM Conference}{July 2017}{Washington,
678 DC, USA}

```

```

\subtitle The subtitle macro
679 \def\subtitle#1{\def\@subtitle{#1}}
680 \subtitle{}

\num@authors The total number of authors
681 \newcount\num@authors
682 \num@authors=0\relax

\author Adding an author to the list of authors and addresses
683 \renewcommand\author[2][{}%
684   \global\advance\num@authors by 1\relax
685   \ifx\addresses\@empty
686     \if@ACM@anonymous
687       \gdef\addresses{\@author{Anonymous}}%
688       \gdef\authors{Anonymous}%
689     \else
690       \gdef\addresses{\@author{#2}}%
691       \gdef\authors{#2}%
692     \fi
693   \else
694     \if@ACM@anonymous
695       \g@addto@macro\addresses{\and\@author{Anonymous}}%
696       \g@addto@macro\authors{\and Anonymous}%
697     \else
698       \g@addto@macro\addresses{\and\@author{#2}}%
699       \g@addto@macro\authors{\and#2}%
700     \fi
701   \fi
702   \if@ACM@anonymous
703     \ifx\shortauthors\@empty
704       \gdef\shortauthors{Anon.}%
705     \else
706       \g@addto@macro\shortauthors{\and Anon.}%
707     \fi
708   \else
709     \def\@tempa{#1}%
710     \ifx\@tempa\@empty
711       \ifx\shortauthors\@empty
712         \gdef\shortauthors{#2}%
713       \else
714         \g@addto@macro\shortauthors{\and#2}%
715       \fi
716     \else
717       \ifx\shortauthors\@empty
718         \gdef\shortauthors{#1}%
719       \else
720         \g@addto@macro\shortauthors{\and#1}%
721       \fi
722     \fi
723   \fi}

```

`\affiliation` The macro `\affiliation` mimics `\address` from `amsart`. Note that it has an optional argument we do not currently need, but keep for the possible future use.

```

724 \newcommand{\affiliation}[2][{}]{%
725   \if@ACM@anonymous
726     \g@addto@macro\addresses{\affiliation{}}{Address}}%
727   \else
728     \g@addto@macro\addresses{\affiliation{#1}{#2}}%
729   \fi}

```

`\email` The macro `\email` mimics `\email` from `amsart`. Again it has an optional argument we do not currently need, but keep for the possible future use.

```

730 \renewcommand{\email}[2][{}]{%
731   \if@ACM@anonymous
732     \g@addto@macro\addresses{\email{}}{e-mail}}%
733   \else
734     \g@addto@macro\addresses{\email{#1}{#2}}%
735   \fi}

```

`\@titlenotes` The titlenotes

```

736 \def\@titlenotes{}

```

`\titlenote` Adding note to the title

```

737 \def\titlenote#1{%
738   \g@addto@macro\@title{\footnotemark}%
739   \if@ACM@anonymous
740     \g@addto@macro\@titlenotes{%
741       \stepcounter{footnote}\footnotetext{Title note}}%
742   \else
743     \g@addto@macro\@titlenotes{\stepcounter{footnote}\footnotetext{#1}}%
744   \fi}

```

`\@subtitlenotes` The subtitlenotes

```

745 \def\@subtitlenotes{}

```

`\subtitlenote` Adding note to the subtitle

```

746 \def\subtitlenote#1{%
747   \g@addto@macro\@subtitle{\footnotemark}%
748   \if@ACM@anonymous
749     \g@addto@macro\@subtitlenotes{%
750       \stepcounter{footnote}\footnotetext{Subtitle note}}%
751   \else
752     \g@addto@macro\@subtitlenotes{%
753       \stepcounter{footnote}\footnotetext{#1}}%
754   \fi}

```

`\@authornotes` The subtitlenotes

```

755 \def\@authornotes{}

```



`\authornote` Adding note to the author

```

756 \def\authornote#1{\g@addto@macro\addresses{\@authornotemark}%
757   \if@ACM@anonymous
758     \g@addto@macro\@authornotes{%
759       \stepcounter{footnote}\footnotetext{Author note}}%
760   \else
761     \g@addto@macro\@authornotes{%
762       \stepcounter{footnote}\footnotetext{#1}}%
763   \fi}

```

`\acmVolume` The current volume

```

764 \def\acmVolume#1{\def\@acmVolume{#1}}
765 \acmVolume{VV}

```

`\acmNumber` The current number

```

766 \def\acmNumber#1{\def\@acmNumber{#1}}
767 \acmNumber{NNN}

```

`\acmArticle` The current article

```

768 \def\acmArticle#1{\def\@acmArticle{#1}}
769 \acmArticle{AA}

```

`\articleSeq` The sequence number

```

770 \def\articleSeq#1{\def\@articleSeq{#1}}
771 \articleSeq{\@acmArticle}

```

`\acmYear` The current year

```

772 \def\acmYear#1{\def\@acmYear{#1}}
773 \acmYear{YYYY}

```

`\acmMonth` The current month

```

774 \def\acmMonth#1{\def\@acmMonth{#1}}
775 \acmMonth{MM}

```

`\@acmPubDate` The publication date

```

776 \def\@acmPubDate{\ifcase\@acmMonth\or
777   January\or February\or March\or April\or May\or June\or
778   July\or August\or September\or October\or November\or
779   December\fi~\@acmYear}

```

`\acmPrice` The price

```

780 \def\acmPrice#1{\def\@acmPrice{#1}}
781 \acmPrice{15.00}

```

`\isbn` The paper isbn

```

782 \def\isbn#1{\def\@isbn{#1}}
783 \isbn{978-xxxx-xxxxx}

```

`\doi` The paper isbn  
784 `\def\doi#1{\def\@doi{\url{#1}}}`  
785 `\doi{dddddddddd}`

`\startPage` The start page of the paper  
786 `\def\startPage#1{\def\@startPage{#1}}`  
787 `\startPage{}`

`\terms` Terms are mostly obsolete, we use CCS now. Still it makes sense to keep them for compatibility.  
788 `\def\terms#1{\def\@terms{#1}}`  
789 `\terms{}`

`\keywords` Keywords are mostly obsolete, we use CCS now. Still it makes sense to keep them for compatibility.  
790 `\def\keywords#1{\def\@keywords{#1}}`  
791 `\keywords{}`

`abstract` Amsart puts abstract in the box. Since we do not know whether we will use two column mode, we prefer to save the text  
792 `\renewenvironment{abstract}{\Collect@Body\@saveabstract}{}`

`\@saveabstract` And saving the abstract  
793 `\long\def\@saveabstract#1{\long\gdef\@abstract{#1}}`  
794 `\@saveabstract{}`

`\@empty` The long version of `\@empty` (to compare with `\@abstract`)  
795 `\long\def\@empty{}`

`\if@ACM@printcss` Whether to print CCS  
796 `\define@boolkey+{@ACM@topmatter@}[@ACM@]{printcss}[true]{%`  
797 `\if@ACM@printcss`  
798 `\ClassInfo{\@classname}{Printing CSS}%`  
799 `\else`  
800 `\ClassInfo{\@classname}{Suppressing CSS}%`  
801 `\fi}{\ClassError{\@classname}{printcss must be true or false}}`

`\if@ACM@printbib` Whether to print ACM bib  
802 `\define@boolkey+{@ACM@topmatter@}[@ACM@]{printbib}[true]{%`  
803 `\if@ACM@printcss`  
804 `\ClassInfo{\@classname}{Printing bibformat}%`  
805 `\else`  
806 `\ClassInfo{\@classname}{Suppressing bibformat}%`  
807 `\fi}{\ClassError{\@classname}{printbib must be true or false}}`

`\settopmatter` The usual syntactic sugar  
808 `\def\settopmatter#1{\setkeys{@ACM@topmatter@}{#1}}`

Now the settings

```
809 \settopmatter{printcss=true}
810 \if@ACM@manuscript
811   \settopmatter{printbib=false}
812 \else
813   \if@ACM@journal
814     \settopmatter{printbib=true}
815   \else
816     \settopmatter{printbib=false}
817   \fi
818 \fi
```

\@received The container for the paper history

```
819 \def\@received{}
```

\received The \received command

```
820 \newcommand\received[2][\def\@tempa{#1}%
821   \ifx\@tempa\@empty
822     \ifx\@received\@empty
823       \gdef\@received{Received #2}%
824     \else
825       \g@addto@macro{\@received}{; revised #2}%
826     \fi
827   \else
828     \ifx\@received\@empty
829       \gdef\@received{#1 #2}%
830     \else
831       \g@addto@macro{\@received}{; #1 #2}%
832     \fi
833 \fi}
834 \AtEndDocument{%
835   \ifx\@received\@empty\else
836     \par\bigskip\noindent\small\normalfont\@received\par
837   \fi}
```

### 3.9 Concepts system

We exclude CCSXML stuff generated by the ACM system:

```
838 \RequirePackage{comment}
839 \excludecomment{CCSXML}
```

\@concepts This is the storage macro for concepts

```
840 \let\@concepts\@empty
```

\ccsdesc The first argument is the significance, the second is the concept(s)

```
841 \newcommand\ccsdesc[2][100]{%
842   \ccsdesc@parse#1~#2~}
```

\ccsdesc@parse The parser of the expression Significance~General~Specific:

```
843 \def\ccsdesc@parse#1~#2~#3~{%
844   \expandafter\ifx\csname CCS@#2\endcsname\relax
845     \expandafter\gdef\csname CCS@#2\endcsname{\textbullet\textbf{#2} $\to$ }%
846     \g@addto@macro{\@concepts}{\csname CCS@#2\endcsname}\fi
847   \expandafter\g@addto@macro\expandafter{\csname CCS@#2\endcsname}{%
848     \ifnum#1>499\textbf{#3; }\else
849     \ifnum#1>299\textit{#3; }\else
850     #3; \fi\fi}}
```

### 3.10 Copyright system

This is from acmcopyright.sty

\if@printcopyright A flag whether to print copyright symbol

```
851 \newif\if@printcopyright
852 \@printcopyrighttrue
```

\if@printpermission Whether to print permission block

```
853 \newif\if@printpermission
854 \@printpermissiontrue
```

\if@acmowned Whether ACM owns the rights to the paper

```
855 \newif\if@acmowned
856 \@acmownedtrue
```

Keys:

```
857 \define@choicekey*{ACM@}{acmcopyrightmode}[%
858   \acm@copyrightinput\acm@copyrightmode]{none,acmcopyright,acmlicensed,%
859   rightsretained,usgov,usgovmixed,cagov,cagovmixed,%
860   licensedusgovmixed,licensedcagovmixed,othergov,licensedothergov}{%
861   \@printpermissiontrue
862   \@printcopyrighttrue
863   \@acmownedtrue
864   \ifnum\acm@copyrightmode=0\relax % none
865     \@printpermissionfalse
866     \@printcopyrightfalse
867     \@acmownedfalse
868   \fi
869   \ifnum\acm@copyrightmode=2\relax % acmlicensed
870     \@acmownedfalse
871   \fi
872   \ifnum\acm@copyrightmode=3\relax % rightsretained
873     \@acmownedfalse
874   \fi
875   \ifnum\acm@copyrightmode=4\relax % usgov
876     \@printpermissiontrue
877     \@printcopyrightfalse
878     \@acmownedfalse
```

```

879 \fi
880 \ifnum\acm@copyrightmode=6\relax % cagov
881 \@acmownedfalse
882 \fi
883 \ifnum\acm@copyrightmode=8\relax % licensedusgovmixed
884 \@acmownedfalse
885 \fi
886 \ifnum\acm@copyrightmode=9\relax % licensedcagovmixed
887 \@acmownedfalse
888 \fi
889 \ifnum\acm@copyrightmode=10\relax % othergov
890 \@acmownedtrue
891 \fi
892 \ifnum\acm@copyrightmode=11\relax % licensedothergov
893 \@acmownedfalse
894 \@printcopyrightfalse
895 \fi}

```

\setcopyright This is the syntactic sugar around setting keys.

```

896 \def\setcopyright#1{\setkeys{ACM@}{acmcopyrightmode=#1}}
897 \setcopyright{acmcopyright}

```

\@copyrightowner Here is the owner of the copyright

```

898 \def\@copyrightowner{%
899 \ifcase\acm@copyrightmode\relax % none
900 \or % acmcopyright
901 ACM\@.
902 \or % acmlicensed
903 Copyright held by the owner/author(s). Publication rights licensed to
904 ACM\@.
905 \or % rightsretained
906 Copyright held by the owner/author(s).
907 \or % usgov
908 \or % usgovmixed
909 ACM\@.
910 \or % cagov
911 Crown in Right of Canada.
912 \or %cagovmixed
913 ACM\@.
914 \or %licensedusgovmixed
915 Copyright held by the owner/author(s). Publication rights licensed to
916 ACM\@.
917 \or %licensedcagovmixed
918 Copyright held by the owner/author(s). Publication rights licensed to
919 ACM\@.
920 \or % othergov
921 ACM\@.
922 \or % licensedothergov
923 \fi}

```

\@copyrightpermission The canned permission block.

```
924 \def\@copyrightpermission{%
925   \ifcase\acm@copyrightmode\relax % none
926   \or % acmcopyright
927     Permission to make digital or hard copies of all or part of this
928     work for personal or classroom use is granted without fee provided
929     that copies are not made or distributed for profit or commercial
930     advantage and that copies bear this notice and the full citation on
931     the first page. Copyrights for components of this work owned by
932     others than ACM must be honored. Abstracting with credit is
933     permitted. To copy otherwise, or republish, to post on servers or to
934     redistribute to lists, requires prior specific permission
935     and\hspace*{.5pt}/or a fee. Request permissions from
936     permissions@acm.org.
937   \or % acmlicensed
938     Permission to make digital or hard copies of all or part of this
939     work for personal or classroom use is granted without fee provided
940     that copies are not made or distributed for profit or commercial
941     advantage and that copies bear this notice and the full citation on
942     the first page. Copyrights for components of this work owned by
943     others than the author(s) must be honored. Abstracting with credit
944     is permitted. To copy otherwise, or republish, to post on servers
945     or to redistribute to lists, requires prior specific permission
946     and\hspace*{.5pt}/or a fee. Request permissions from
947     permissions@acm.org.
948   \or % rightsretained
949     Permission to make digital or hard copies of part or all of this work
950     for personal or classroom use is granted without fee provided that
951     copies are not made or distributed for profit or commercial advantage
952     and that copies bear this notice and the full citation on the first
953     page. Copyrights for third-party components of this work must be
954     honored. For all other uses, contact the
955     owner\hspace*{.5pt}/author(s).
956   \or % usgov
957     This paper is authored by an employee(s) of the United States
958     Government and is in the public domain. Non-exclusive copying or
959     redistribution is allowed, provided that the article citation is
960     given and the authors and agency are clearly identified as its
961     source.
962   \or % usgovmixed
963     ACM acknowledges that this contribution was authored or co-authored
964     by an employee, or contractor of the national government. As such,
965     the Government retains a nonexclusive, royalty-free right to
966     publish or reproduce this article, or to allow others to do so, for
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969     notice and the full citation on the first page. Copyrights for
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971     honored. To copy otherwise, distribute, republish, or post,
```

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 973 fee. Request permissions from permissions@acm.org.  
 974 \or % cagov  
 975 This article was authored by employees of the Government of Canada.  
 976 As such, the Canadian government retains all interest in the  
 977 copyright to this work and grants to ACM a nonexclusive,  
 978 royalty-free right to publish or reproduce this article, or to allow  
 979 others to do so, provided that clear attribution is given both to  
 980 the authors and the Canadian government agency employing them.  
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 982 use is granted. Copies must bear this notice and the full citation  
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 984 others than the Canadian Government must be honored. To copy  
 985 otherwise, distribute, republish, or post, requires prior specific  
 986 permission and\hspace\*{.5pt}/or a fee. Request permissions from  
 987 permissions@acm.org.  
 988 \or % cagovmixed  
 989 ACM acknowledges that this contribution was co-authored by an  
 990 affiliate of the national government of Canada. As such, the Crown  
 991 in Right of Canada retains an equal interest in the copyright.  
 992 Reprints must include clear attribution to ACM and the author's  
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 994 copies for personal or classroom use is granted. Copies must bear  
 995 this notice and the full citation on the first page. Copyrights for  
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 997 To copy otherwise, distribute, republish, or post, requires prior  
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 1006 purposes only.  
 1007 \or % licensedcagovmixed  
 1008 Publication rights licensed to ACM\@. ACM acknowledges that this  
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 1011 Government retains a nonexclusive, royalty-free right to publish or  
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 1013 purposes only.  
 1014 \or % othergov  
 1015 ACM acknowledges that this contribution was authored or co-authored  
 1016 by an employee, contractor or affiliate of a national government. As  
 1017 such, the Government retains a nonexclusive, royalty-free right to  
 1018 publish or reproduce this article, or to allow others to do so, for  
 1019 Government purposes only.  
 1020 \or % licensedothergov  
 1021 Publication rights licensed to ACM\@. ACM acknowledges that this

1022 contribution was authored or co-authored by an employee, contractor  
1023 or affiliate of a national government. As such, the Government  
1024 retains a nonexclusive, royalty-free right to publish or reproduce  
1025 this article, or to allow others to do so, for Government purposes  
1026 only.  
1027 \fi}

\copyrightyear By default, the copyright year is the same as \acmYear, but one can override this:  
1028 \def\copyrightyear#1{\def\copyrightyear{#1}}  
1029 \copyrightyear{\@acmYear}

\@teaserfigures The teaser figures container  
1030 \def\@teaserfigures{}

teaserfigure The teaser figure  
1031 \newenvironment{teaserfigure}{\Collect@Body\@saveteaser}{}

\@saveteaser Saving the teaser  
1032 \long\def\@saveteaser#1{\g@addto@macro\@teaserfigures{\@teaser{#1}}}

\thanks We redefine amsart \thanks, so the anonymous key works  
1033 \renewcommand{\thanks}[1]{%  
1034 \ifnotempty{#1}{%  
1035 \if@ACM@anonymous  
1036 \g@addto@macro\thankses{\thanks{A note}}}%  
1037 \else  
1038 \g@addto@macro\thankses{\thanks{#1}}}%  
1039 \fi}}

### 3.11 Typesetting top matter

\mktitle@bx Some of our formats use two column design, some use one column one. In all cases we use wide title. Thus we typeset the top matter in a special box to be use in the construction \@twocolumn[*{box}*].  
1040 \newbox\mktitle@bx

\maketitle The (in)famous \maketitle. Note that in sigchi-a mode authors are *not* in the title box.  
1041 \def\maketitle{\begingroup  
1042 \let\@footnotemark\@footnotemark@nolink  
1043 \let\@footnotetext\@footnotetext@nolink  
1044 \renewcommand\thefootnote{\@fnsymbol\c@footnote}%  
1045 \@topnum\z@ % this prevents figures from falling at the top of page  
1046 % 1  
1047 \hsize=\textwidth  
1048 \def\@makefnmark{\hbox{\@textsuperscript{\@thefnmark}}}  
1049 \@mktitle\if@ACM@sigchiamode\else\@mkauthors\fi\@mkteasers  
1050 \@printtopmatter  
1051 \if@ACM@sigchiamode\@mkauthors\fi



```

1052 \setcounter{footnote}{0}%
1053 \def\@makefnmark{\hbox{\@textsuperscript{\normalfont\@thefnmark}}}
1054 \@titlenotes
1055 \@subtitlenotes
1056 \@authornotes
1057 \let\@makefnmark\relax \let\@thefnmark\relax
1058 \let\@makefntext\noindent
1059 \ifx\@empty\thankses\else
1060   \@footnotetext{\def\par{\let\par\@par}\parindent\z@\@setthanks}%
1061 \fi
1062 \if@printpermission\@footnotetext{\parindent\z@\@copyrightpermission}\fi
1063 \@footnotetext{\parindent\z@
1064   \if@ACM@manuscript\else
1065     \if@ACM@journal\else % Print the conference short name
1066       {\itshape \acmConference@shortname, \acmConference@venue}\par
1067     \fi
1068   \fi
1069   \if@printcopyright
1070     \copyright\ \@copyrightyear\ \@copyrightowner\
1071   \else
1072     \@copyrightyear\
1073   \fi
1074   \if@ACM@manuscript
1075     Manuscript submitted to ACM\\
1076   \else
1077     \if@ACM@journal
1078       \@permissionCodeOne/\@acmYear/\@acmMonth-ART\@acmArticle\
1079       \$\@acmPrice\\
1080     \else % Conference
1081       \@isbn
1082       \ifx\@acmPrice\@empty.\else\dots\$\@acmPrice\fi\\
1083     \fi
1084   \fi
1085   DOI: \@doi}%
1086 \@mkabstract
1087 \if@ACM@printcss
1088   \ifx\@concepts\@empty\else\bgroup
1089     {\@specialsection{CCS Concepts}%
1090     \@concepts\par}\egroup
1091   \fi
1092 \fi
1093 \if\@terms\@empty\else\bgroup
1094   {\@specialsection{General Terms}%
1095   \@terms\par}\egroup
1096 \fi
1097 \ifx\@keywords\@empty\else\bgroup
1098   {\@specialsection{Additional Key
1099   Words and Phrases}\@keywords}\par\egroup
1100 \fi
1101 \andify\authors

```

```

1102 \andify\shortauthors
1103 \global\let\authors=\authors
1104 \global\let\shortauthors=\shortauthors
1105 \if@ACM@printbib
1106   \@mkbibcitation
1107 \fi
1108 \hypersetup{pdfauthor={\authors},
1109   pdftitle={\@title}, pdfkeywords={\@concepts}}%
1110 \@printendtopmatter
1111 \endgroup
1112 \setcounter{footnote}{0}%
1113 \@afterindentfalse
1114 \@afterheading
1115 }

```

`\@specialsection` This macro starts section for proceedings and uses small for journals

```

1116 \def\@specialsection#1{%
1117   \if@ACM@journal
1118     \par\medskip\small\noindent#1: %
1119   \else
1120     \section*{#1}%
1121   \fi}

```

`\@printtopmatter` The printing of top matter starts the new page, and uses the given title box.

```

1122 \def\@printtopmatter{%
1123   \ifx\@startPage\@empty
1124     \gdef\@startPage{1}%
1125   \else
1126     \setcounter{page}{\@startPage}%
1127   \fi
1128   \thispagestyle{firstpagestyle}%
1129   \noindent
1130   \ifcase\ACM@format@nr
1131   \relax % manuscript
1132     \box\mktitle@bx\par
1133     \noindent\hrulefill\par
1134   \or % acmsmall
1135     \box\mktitle@bx\par
1136     \noindent\hrulefill\par
1137   \or % acmlarge
1138     \box\mktitle@bx\par
1139     \noindent\hrulefill\par
1140   \or % acmtog
1141     \twocolumn[\box\mktitle@bx]%
1142   \or % sigconf
1143     \twocolumn[\box\mktitle@bx]%
1144   \or % siggraph
1145     \twocolumn[\box\mktitle@bx]%
1146   \or % sigplan
1147     \twocolumn[\box\mktitle@bx]%

```

```

1148 \or % sigchi
1149 \twocolumn[\box\mktitle@bx]%
1150 \or % sigchi-a
1151 \par\box\mktitle@bx\par\bigskip
1152 \fi
1153 }

\mktitle The title of the article
1154 \def\mktitle{%
1155 \ifcase\ACM@format@nr
1156 \relax % manuscript
1157 \mktitle@i
1158 \or% acmsmall
1159 \mktitle@i
1160 \or % acmlarge
1161 \mktitle@i
1162 \or % acmtog
1163 \mktitle@ii
1164 \or % sigconf
1165 \mktitle@iii
1166 \or % siggraph
1167 \mktitle@iii
1168 \or % sigplan
1169 \mktitle@iii
1170 \or % sigchi
1171 \mktitle@iii
1172 \or % sigchi-a
1173 \mktitle@iv
1174 \fi
1175 }

\mktitle@i The version of \mktitle for most journals
1176 \def\mktitle@i{\hsize=\textwidth
1177 \setbox\mktitle@bx=\vbox{\raggedright\LARGE\bfseries\sffamily\noindent
1178 \@title\par
1179 \ifx\@subtitle\@empty\else
1180 \noindent\mdseries\@subtitle\par
1181 \fi}}%

\mktitle@ii The version of \mktitle for TOG
1182 \def\mktitle@ii{\hsize=\textwidth
1183 \setbox\mktitle@bx=\vbox{\raggedright\Huge\sffamily\noindent
1184 \def\@currentfmarkstyle{\Huge\sffamily}%
1185 \@title
1186 \ifx\@subtitle\@empty\else
1187 \par\noindent{\LARGE\@subtitle}
1188 \fi
1189 \par\bigskip}}%

```

```

\mktitle@iii The version of \mktitle for sigproc
1190 \def\mktitle@iii{\hsize=\textwidth
1191   \setbox\mktitle@bx=\vbox{\centering\Huge\sffamily\bfseries\noindent
1192     \@title
1193     \ifx\@subtitle\@empty\else
1194       \par\noindent{\LARGE\mdseries\@subtitle}
1195     \fi
1196   \par\bigskip}}%

\mktitle@iv The version of \mktitle for sigchi-a
1197 \def\mktitle@iv{\hsize=\textwidth
1198   \setbox\mktitle@bx=\vbox{\raggedright\leftskip5pc\bfseries\Huge
1199     \noindent\leavevmode\leaders\hrule height 2pt\hfill\kern0pt\par
1200     \noindent\@title
1201     \ifx\@subtitle\@empty\else
1202       \par\noindent\mdseries\@subtitle
1203     \fi
1204   \par\bigskip}}%

\mkauthors Typesetting authors
1205 \def\mkauthors{\begingroup
1206   \hsize=\textwidth
1207   \ifcase\ACM@format@nr
1208   \relax % manuscript
1209   \mkauthors@i
1210   \or % acmsmall
1211   \mkauthors@i
1212   \or % acmlarge
1213   \mkauthors@i
1214   \or % acmtog
1215   \mkauthors@ii
1216   \or % sigconf
1217   \mkauthors@iii
1218   \or % siggraph
1219   \mkauthors@iii
1220   \or % sigplan
1221   \mkauthors@iii
1222   \or % sigchi
1223   \mkauthors@iii
1224   \or % sigchi-a
1225   \mkauthors@iv
1226   \fi
1227   \endgroup
1228 }

\authorfont Somehow different conferences use different fonts for author names. Why?
1229 \def\authorfont{\Large\sffamily}

\affiliationfont Font for affiliations
1230 \def\affiliationfont{\normalsize\normalfont}

```

### Adjusting fonts for different formats

```

1231 \ifcase\ACM@format@nr
1232 \relax % manuscript
1233 \or % acmsmall
1234 \or % acmlarge
1235 \or % acmtog
1236   \def\@authorfont{\LARGE\sffamily}
1237   \def\@affiliationfont{\large}
1238 \or % sigconf
1239   \def\@authorfont{\LARGE}
1240   \def\@affiliationfont{\large}
1241 \or % siggraph
1242   \def\@authorfont{\normalsize\normalfont}
1243   \def\@affiliationfont{\normalsize\normalfont}
1244 \or % sigplan
1245 \or % sigchi
1246   \def\@authorfont{\bfseries}
1247   \def\@affiliationfont{\mdseries}
1248 \or % sigchi-a
1249   \def\@authorfont{\bfseries}
1250   \def\@affiliationfont{\mdseries}
1251 \fi

```

\@mkauthors@i This is version used in most formats. Note that \and between authors with the same affiliation becomes \_and\_:

```

1252 \def\@mkauthors@i{%
1253   \def\@currentauthors{%
1254     \def\and{%
1255       \andify\@currentauthors\par\noindent
1256       \@currentauthors\def\@currentauthors{}}%
1257     \def\@author##1{%
1258       \ifx\@currentauthors\@empty
1259         \gdef\@currentauthors{\@authorfont\MakeUppercase{##1}}%
1260       \else
1261         \g@addto@macro{\@currentauthors}{\and\MakeUppercase{##1}}%
1262       \fi
1263     \def\and{}}%
1264   \def\email##1##2{%
1265     \def\affiliation##1##2{%
1266       \ifx\@currentauthors\@empty\else
1267         \andify\@currentauthors\par\noindent\@currentauthors
1268       \fi
1269       \def\@currentauthors{\def\@tempa{##2}\ifx\@tempa\@empty\else
1270         \unskip, {\@affiliationfont##2}\fi\def\and{\par\noindent}}%
1271       \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par\medskip
1272       \noindent\addresses\andify\@currentauthors\par\noindent\@currentauthors\par\medskip}%
1273     }

```

\@mkauthors@ii This is version used in acmtog. A more vertical design

```

1274 \def\@mkauthors@ii{\par\medskip
1275 \def\@currentauthors{}%
1276 \def\and{}%
1277 \def\@author##1{%
1278 \ifx\@currentauthors\@empty
1279 \gdef\@currentauthors{\@authorfont
1280 \MakeUppercase{##1}}%
1281 \else
1282 \g@addto@macro{\@currentauthors}{\and\MakeUppercase{##1}}%
1283 \fi\def\and{}}%
1284 \def\email##1##2{%
1285 \def\affiliation##1##2{%
1286 \ifx\@currentauthors\@empty\else
1287 \andify\@currentauthors\par\noindent\@currentauthors
1288 \fi
1289 \def\@currentauthors{\def\@tempa{##2}\ifx\@tempa\@empty\else
1290 \par\noindent{\@affiliationfont##2}\fi
1291 \def\and{\par\noindent{\@affiliationfont and}\par
1292 \noindent\def\and{}}}%
1293 \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par\medskip
1294 \noindent\addresses\andify\@currentauthors\par\noindent\@currentauthors\par\medskip}%
1295 }

```

\author@bx The box to put individual author to

```
1296 \newbox\author@bx
```

\author@bx@wd The width of the author box

```
1297 \newdimen\author@bx@wd
```

\author@bx@sep The separation between the author boxes

```
1298 \newskip\author@bx@sep
1299 \author@bx@sep=1pc\relax
```

\@mkauthors@iii The sigconf version. Here we use centered design with each author in a separate box.

```
1300 \def\@mkauthors@iii{%
```

First, we need to determine the design of the author strip. The boxes are separated by \author@bx@sep plus two \author@bx@sep margins. This means that each box must be of width  $(\text{textwidth} - \text{author@bx@sep})/N - \text{author@bx@sep}$ , where  $N$  is the number of boxes per row.

```

1301 \author@bx@wd=\textwidth\relax
1302 \advance\author@bx@wd by -\author@bx@sep\relax
1303 \ifcase\num@authors
1304 \relax % 0?
1305 \or % 1=one author per row
1306 \or % 2=two authors per row
1307 \divide\author@bx@wd by \num@authors\relax
1308 \or % 3=three authors per row
1309 \divide\author@bx@wd by \num@authors\relax

```

```

1310 \or % 4=two authors per row (!)
1311     \divide\author@bx@wd by 2\relax
1312 \else % three authors per row
1313     \divide\author@bx@wd by 3\relax
1314 \fi
1315 \advance\author@bx@wd by -\author@bx@sep\relax

```

Now, parsing of \addresses:

```

1316 \gdef\@currentauthors{}%
1317 \gdef\@currentaffiliation{}%
1318 \def\author##1{\ifx\@currentauthors\@empty
1319     \gdef\@currentauthors{\par##1}%
1320 \else
1321     \g@addto@macro\@currentauthors{\quad##1}%
1322 \fi}%
1323 \def\email##1##2{\ifx\@currentaffiliation\@empty
1324     \gdef\@currentaffiliation{\nolinkurl{##2}}%
1325 \else
1326     \g@addto@macro\@currentaffiliation{\par\nolinkurl{##2}}%
1327 \fi}%
1328 \def\affiliation##1##2{\ifx\@currentaffiliation\@empty
1329     \gdef\@currentaffiliation{##2}%
1330 \else
1331     \g@addto@macro\@currentaffiliation{\par##2}%
1332 \fi}%

```

Actual typesetting is done by \and macro

```

1333 \def\and{\bgroup\hsize=\author@bx@wd\def\and{\quad}%
1334     \global\setbox\author@bx=\vtop{\centering
1335         \@authorfont\@currentauthors\par\@affiliationfont
1336         \@currentaffiliation}\egroup
1337     \box\author@bx\hspace{\author@bx@sep}%
1338     \gdef\@currentauthors{}%
1339     \gdef\@currentaffiliation{}}%

```

And here we use it:

```

1340 \hsize=\textwidth
1341 \global\setbox\mktitle@bx=\vbox{\noindent
1342     \box\mktitle@bx\par\medskip\leavevmode
1343     \lineskip=1pc\relax\centering\hspace*{-1em}%
1344     \addresses\and\par\bigskip}}

```

\@mkauthors@iv The sigchia version. Now we put authors in the main text, and no more than 2 authors per line.

```

1345 \def\@mkauthors@iv{%

```

First, we need to determine the design of the author strip. The boxes are separated by \author@bx@sep plus two \author@bx@sep margins. This means that each box must be of width  $(\text{textwidth} - \text{author@bx@sep})/N - \text{author@bx@sep}$ , where  $N$  is the number of boxes per row.

```

1346 \author@bx@wd=\columnwidth\relax

```

```

1347 \advance\author@bx@wd by -\author@bx@sep\relax
1348 \ifcase\num@authors
1349 \relax % 0?
1350 \or % 1=one author per row
1351 \else % 2=two authors per row
1352 \divide\author@bx@wd by 2\relax
1353 \fi
1354 \advance\author@bx@wd by -\author@bx@sep\relax

```

Now, parsing of \addresses:

```

1355 \gdef\@currentauthors{}%
1356 \gdef\@currentaffiliation{}%
1357 \def\@author##1{\ifx\@currentauthors\@empty
1358 \gdef\@currentauthors{\par##1}%
1359 \else
1360 \g@addto@macro\@currentauthors{\quad##1}%
1361 \fi}%
1362 \def\@email##1##2{\ifx\@currentaffiliation\@empty
1363 \gdef\@currentaffiliation{\nolinkurl{##2}}%
1364 \else
1365 \g@addto@macro\@currentaffiliation{\par\nolinkurl{##2}}%
1366 \fi}%
1367 \def\@affiliation##1##2{\ifx\@currentaffiliation\@empty
1368 \gdef\@currentaffiliation{##2}%
1369 \else
1370 \g@addto@macro\@currentaffiliation{\par##2}%
1371 \fi}%

```

Actual typesetting is done by \and macro

```

1372 \def\and{\bgroup\hsize=\author@bx@wd\def\and{\quad}%
1373 \global\setbox\author@bx=\vtop{\raggedright
1374 \authorfont\@currentauthors\par\@affiliationfont
1375 \@currentaffiliation}\egroup
1376 \box\author@bx\hskip\author@bx@sep
1377 \gdef\@currentauthors{}%
1378 \gdef\@currentaffiliation{}}%

```

And here we use it:

```

1379 \bgroup\hsize=\columnwidth
1380 \par\raggedright\leftskip=\z@
1381 \lineskip=1pc\noindent\addresses\and\par\bigskip\egroup}

```

\@authornotemark Adding footnotemark to authors

```

1382 \def\@authornotemark{\g@addto@macro\@currentauthors{\footnotemark}}

```

\@mkteasers Typesetting teasers

```

1383 \def\@mkteasers{%
1384 \ifx\@teaserfigures\@empty\else
1385 \def\@teaser##1{\par\bigskip\bgroup
1386 \captionsetup{type=figure}##1\egroup\par}
1387 \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par

```



```

1388     \noindent\@teaserfigures\par\medskip}%
1389     \fi}

\@setaddresses This is an amsart macro, which we do not need.
1390 \def\@setaddresses{}

\@mkabstract Typesetting abstract
1391 \def\@mkabstract{\bgroup
1392     \ifx\@abstract\@empty\else
1393     {\if@ACM@journal
1394         \small\noindent
1395     \else
1396         \section*{ABSTRACT}%
1397     \fi
1398     \@abstract\par}%
1399     \fi\egroup}

\@mkbibcitation Print bibcitation format
1400 \def\@mkbibcitation{\bgroup
1401     \par\medskip\small\noindent{\bfseries ACM Reference format:}\par
1402     \noindent\authors. \@acmYear. \@title. \textit{\@journalNameShort}
1403     \@acmVolume, \@acmNumber, Article~\@acmArticle\
1404     (\@acmPubDate), \ref{TotPages}~pages.\par
1405     \noindent DOI: \@doi
1406 \par\egroup}

\@printendtopmatter End the top matter
1407 \def\@printendtopmatter{\par\medskip
1408     \ifcase\ACM@format@nr
1409     \relax % manuscript
1410     \noindent\hrulefill\par\medskip
1411     \or% acmsmall
1412     \noindent\hrulefill\par\medskip
1413     \or% acmlarge
1414     \noindent\hrulefill\par\medskip
1415     \or% acmtog
1416     \par\bigskip
1417     \or% sigconf
1418     \par\bigskip
1419     \or% siggraph
1420     \par\bigskip
1421     \or% sigplan
1422     \par\bigskip
1423     \or% sigchi
1424     \par\bigskip
1425     \or% sigchi-a
1426     \fi
1427 }

\@setthanks We redefine \setthanks using \long
1428 \def\@setthanks{\long\def\thanks##1{\par##1\@addpunct.}\thankses}

```

### 3.12 Headers and Footers

We use fancyhdr for our headers and footers:

```

1429 \RequirePackage{fancyhdr}

\ACM@linenum The number of lines (plus one) on the page
1430 \def\ACM@linenum{42}
1431 \ifcase\ACM@format@nr
1432 \relax % manuscript
1433 \def\ACM@linenum{43}
1434 \or% acmsmall
1435 \def\ACM@linenum{51}
1436 \or % acmlarge
1437 \def\ACM@linenum{54}
1438 \or % acmtog
1439 \def\ACM@linenum{61}
1440 \or % sigconf
1441 \def\ACM@linenum{60}
1442 \or % siggraph
1443 \def\ACM@linenum{60}
1444 \or % sigplan
1445 \def\ACM@linenum{60}
1446 \or % sigchi
1447 \def\ACM@linenum{53}
1448 \or % sigchi-a
1449 \def\ACM@linenum{40}
1450 \fi

\ACM@linecount@bx This is the box displayed in the review mode
1451 \if@ACM@review
1452 \newsavebox{\ACM@linecount@bx}
1453 \savebox{\ACM@linecount@bx}[4em][t]{\parbox[t]{4em}{%
1454 \@tempcnta\@ne\relax
1455 \loop{\color{ACMRed}\scriptsize\the\@tempcnta}\@
1456 \advance\@tempcnta by \@ne\ifnum\@tempcnta<\ACM@linenum\repeat}}
1457 \fi

\ACM@linecount How to display the box
1458 \def\ACM@linecount{%
1459 \if@ACM@review
1460 \begin{picture}(0,0)%
1461 \put(-26,-22){\usebox{\ACM@linecount@bx}}%
1462 \end{picture}%
1463 \fi}

standardpagestyle The pagestyle for all pages but the first one
1464 \fancypagestyle{standardpagestyle}{%
1465 \fancyhf{}%
1466 \renewcommand{\headrulewidth}{\z@}%

```

```

1467 \renewcommand{\footrulewidth}{\z@}%
1468 \ifcase\ACM@format@nr
1469 \relax % manuscript
1470 \fancyhead[RE]{\thepage}%
1471 \fancyhead[LO]{\ACM@linecount\thepage}%
1472 \fancyhead[LE]{\ACM@linecount\shortauthors}%
1473 \fancyhead[RO]{\shorttitle}%
1474 \fancyfoot[RO,LE]{\footnotesize Manuscript submitted to ACM}%
1475 \or% acmsmall
1476 \fancyhead[RE]{\sffamily\@acmArticle:\thepage}%
1477 \fancyhead[LO]{\ACM@linecount\sffamily\@acmArticle:\thepage}%
1478 \fancyhead[LE]{\ACM@linecount\sffamily\shortauthors}%
1479 \fancyhead[RO]{\sffamily\shorttitle}%
1480 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1481 \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
1482 \or % acmlarge
1483 \fancyhead[LE]{\ACM@linecount\sffamily
1484 \@acmArticle:\thepage\quad\textbullet\quad\shortauthors}%
1485 \fancyhead[LO]{\ACM@linecount}%
1486 \fancyhead[RO]{\sffamily
1487 \shorttitle\quad\textbullet\quad\@acmArticle:\thepage}%
1488 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1489 \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
1490 \or % acmtog
1491 \fancyhead[LE]{\ACM@linecount\sffamily
1492 \@acmArticle:\thepage\quad\textbullet\quad\shortauthors}%
1493 \fancyhead[LO]{\ACM@linecount}%
1494 \fancyhead[RO]{\sffamily
1495 \shorttitle\quad\textbullet\quad\@acmArticle:\thepage}%
1496 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1497 \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
1498 \else % Proceedings
1499 \fancyfoot[R]{\footnotesize\thepage}%
1500 \fancyhead[L]{\ACM@linecount}%
1501 \fi
1502 }
1503 \pagestyle{standardpagestyle}

\@folio@wd Folio blob width, height, offsets and max number
\@folio@ht
\@folio@voffset
\@folio@max
1504 \newdimen\@folio@wd
1505 \@folio@wd=\z@
1506 \newdimen\@folio@ht
1507 \@folio@ht=\z@
1508 \newdimen\@folio@voffset
1509 \@folio@voffset=\z@
1510 \def\@folio@max{1}
1511 \ifcase\ACM@format@nr
1512 \relax % manuscript
1513 \or% acmsmall
1514 \@folio@wd=45.75pt\relax

```

```

1515 \@folio@ht=1.25in\relax
1516 \@folio@voffset=.2in\relax
1517 \def\@folio@max{8}
1518 \or % acmlarge
1519 \@folio@wd=43.25pt\relax
1520 \@folio@ht=79pt\relax
1521 \@folio@voffset=.55in\relax
1522 \def\@folio@max{10}
1523 \fi

```

\@folioblob The macro to typeset the folio blob.

```

1524 \def\@folioblob{\@tempcnta=\@articleSeq\relax
First, we calculate \@articleSeq modulo \@folio@max
1525 \loop
1526   \ifnum\@tempcnta>\@folio@max\relax
1527   \advance\@tempcnta by - \@folio@max
1528   \repeat
1529   \advance\@tempcnta by -1\relax
1530   \@tempdima=\@folio@ht\relax
1531   \multiply\@tempdima by \the\@tempcnta\relax
1532   \advance\@tempdima by -\@folio@voffset\relax
1533   \begin{picture}(0,0)
1534     \makebox[\z@]{\raisebox{-\@tempdima}{%
1535       \rlap{%
1536         \raisebox{-0.45\@folio@ht}{\z@}{\z@}{%
1537           \rule{\@folio@wd}{\@folio@ht}}}%
1538       \parbox{\@folio@wd}{%
1539         \centering
1540         \textcolor{white}{\LARGE\bfseries\sffamily\@acmArticle}}}}
1541   \end{picture}}
1542

```

firstpagestyle The pagestyle for all pages but the first one

```

1543 \fancypagestyle{firstpagestyle}{%
1544   \fancyhf{}%
1545   \renewcommand{\headrulewidth}{\z@}%
1546   \renewcommand{\footrulewidth}{\z@}%
1547   \ifcase\ACM@format@nr
1548   \relax % manuscript
1549     \fancyhead[L]{\ACM@linecount}%
1550     \fancyfoot[R0,LE]{\small\thepage}%
1551     \fancyfoot[RE,LO]{\footnotesize Manuscript submitted to ACM}%
1552   \or% acmsmall
1553     \fancyfoot[R0,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1554       \@acmNumber, Article \@acmArticle. Publication date:
1555       \@acmPubDate.}%
1556     \fancyhead[LE]{\ACM@linecount\@folioblob}%
1557     \fancyhead[LO]{\ACM@linecount}%
1558     \fancyhead[R0]{\@folioblob}%

```

```

1559 \fancyheadoffset[R0,LE]{0.6\@folio@wd}%
1560 \or % acmlarge
1561 \fancyfoot[R0,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1562 \@acmNumber, Article \@acmArticle. Publication date:
1563 \@acmPubDate.}%
1564 \fancyhead[R0]{\@folioblob}%
1565 \fancyhead[LE]{\ACM@linecount\@folioblob}%
1566 \fancyhead[L0]{\ACM@linecount}%
1567 \fancyheadoffset[R0,LE]{1.4\@folio@wd}%
1568 \or % acmtog
1569 \fancyfoot[R0,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
1570 \@acmNumber, Article \@acmArticle. Publication date:
1571 \@acmPubDate.}%
1572 \fancyhead[L]{\ACM@linecount}%
1573 \else % Conference proceedings
1574 \fancyhead[L]{\ACM@linecount}%
1575 \fancyfoot[R]{\footnotesize\thepage}%
1576 \fi
1577 }

```

### 3.13 Sectioning

Fonts for sections etc. are different for different formats. Also, some formats use the ugly period after section number (sigh):

```

1578 \def\@secfont{\sffamily\bfseries\raggedright\MakeUppercase}
1579 \def\@subsecfont{\sffamily\bfseries\raggedright}
1580 \def\@subsubsecfont{\sffamily\itshape}
1581 \def\@parfont{\itshape}
1582 \setcounter{secnumdepth}{3}
1583 \ifcase\ACM@format@nr
1584 \relax % manuscript
1585 \or% acmsmall
1586 \or % acmlarge
1587 \def\@secfont{\sffamily\large\raggedright\MakeUppercase}
1588 \def\@subsecfont{\sffamily\large\raggedright}
1589 \or % acmtog
1590 \def\@secfont{\sffamily\large\raggedright\MakeUppercase}
1591 \def\@subsecfont{\sffamily\large\raggedright}
1592 \or % sigconf
1593 \def\@secfont{\bfseries\Large\raggedright\MakeUppercase}
1594 \def\@subsecfont{\bfseries\Large\raggedright}
1595 \or % siggraph
1596 \def\@secfont{\bfseries\sffamily\Large\raggedright\MakeUppercase}
1597 \def\@subsecfont{\bfseries\sffamily\Large\raggedright}
1598 \or % sigplan
1599 \def\@secfont{\bfseries\Large\raggedright\MakeUppercase}
1600 \def\@subsecfont{\bfseries\Large\raggedright}
1601 \or % sigchi
1602 \setcounter{secnumdepth}{1}

```

```

1603 \def\@secfont{\bfseries\sffamily\raggedright\MakeUppercase}
1604 \def\@subsecfont{\bfseries\sffamily\raggedright}
1605 \or % sigchi-a
1606 \setcounter{secnumdepth}{0}
1607 \def\@secfont{\bfseries\sffamily\raggedright\MakeUppercase}
1608 \def\@subsecfont{\bfseries\sffamily\raggedright}
1609 \fi

```

\@adddotafter Add punctuation after the command

```

1610 \def\@adddotafter#1{#1\@addpunct{.}}

```

Sectioning is different for different levels

```

1611 \renewcommand\section{\@startsection{section}{1}{\z@}%
1612 {- .75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1613 {.25\baselineskip}%
1614 {\@secfont}}
1615 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
1616 {- .75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1617 {.25\baselineskip}%
1618 {\@subsecfont}}
1619 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{10pt}%
1620 {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1621 {-3.5\p@}%
1622 {\@subsubsecfont\@adddotafter}}
1623 \renewcommand\paragraph{\@startsection{paragraph}{4}{\parindent}%
1624 {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
1625 {-3.5\p@}%
1626 {\@parfont\@adddotafter}}
1627 \renewcommand\part{\@startsection{part}{9}{\z@}%
1628 {-10\p@ \@plus -4\p@ \@minus -2\p@}%
1629 {4\p@}%
1630 {\@parfont}}

```

### 3.14 Theorems

acmplain The acmplain theorem style

```

1631 \newtheoremstyle{acmplain}%
1632 {.5\baselineskip\@plus.2\baselineskip
1633 \@minus.2\baselineskip}% space above
1634 {.5\baselineskip\@plus.2\baselineskip
1635 \@minus.2\baselineskip}% Space below
1636 {\itshape}% body font
1637 {\parindent}% indent amount
1638 {\scshape}% head font
1639 {.}% punctuation after head
1640 {.5em}% spacing after head
1641 {\thmname{#1}\thmnumber{ #2}\thmnote{ (#3)}}% head spec

```

acmdefinition The acmdefinition theorem style

```

1642 \newtheoremstyle{acmdefinition}%
1643   {.5\baselineskip\@plus.2\baselineskip
1644     \@minus.2\baselineskip}% space above
1645   {.5\baselineskip\@plus.2\baselineskip
1646     \@minus.2\baselineskip}% Space below
1647   {\normalfont}% body font
1648   {\parindent}% indent amount
1649   {\itshape}% head font
1650   {.}% punctuation after head
1651   {.5em}% spacing after head
1652   {\thmname{#1}\thmnumber{ #2}\thmnote{ \itshape(#3)}}}% head spec

```

The definitions for theorems:

```

1653 \theoremstyle{acmplain}
1654 \newtheorem{theorem}[Theorem][section]
1655 \newtheorem{conjecture}[theorem]{Conjecture}
1656 \newtheorem{proposition}[theorem]{Proposition}
1657 \newtheorem{lemma}[theorem]{Lemma}
1658 \newtheorem{corollary}[theorem]{Corollary}
1659 \theoremstyle{acmdefinition}
1660 \newtheorem{example}[theorem]{Example}
1661 \newtheorem{definition}[theorem]{Definition}

```

proof We want small caps proof name

```

1662 \renewenvironment{proof}[1][\proofname]{\par
1663   \pushQED{\qed}%
1664   \normalfont \topsep6\p@\@plus6\p@\relax
1665   \trivlist
1666     \item[\indent\hskip\labelsep
1667       \scshape
1668       #1\@addpunct{.}]\ignorespaces
1669 }{%
1670   \popQED\endtrivlist\@endpfalse
1671 }

```

### 3.15 Conditional typesetting

We use the comment package for conditional typesetting:

```

1672 \if@ACM@screen
1673   \includecomment{screenonly}
1674   \excludecomment{printonly}
1675 \else
1676   \excludecomment{screenonly}
1677   \includecomment{printonly}
1678 \fi

```

### 3.16 End of Class

```

1679 \normalsize\normalfont

```

1680 </class>



## References

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## Change History

v1.00		
General: First released version . . . . .	15	<a href="#">acmart/issues/1</a> ) . . . . . 15
v1.01		Defined ACM colors . . . . . 15
General: Changed hyperref colors		Set headheight to 1pc for all formats
in screen mode (closes <a href="#">https://github.com/borisveytsman/</a>		(closes <a href="#">https://github.com/borisveytsman/acmart/issues/5</a> ) . . . . . 15

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