

# 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.

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The development version of the package is available at <https://github.com/borisveytsman/acmart>.

## 2 User's guide

The class uses many commands and customization options, so it might appear intimidating for a casual user. Do not panic! Many of these commands and options can be safely left with their default values, or the values recommended by your conference or journal editors. If you have problems or questions, do not hesitate to ask me directly or the community at <https://github.com/borisveytsman/acmart>, <https://tex.stackexchange.com> or the closest T<sub>E</sub>X Users Group. The world-wide T<sub>E</sub>X Users Group is at <https://tug.org/>; please consider joining us if you use T<sub>E</sub>X regularly.

### 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 of relatively recent packages, especially the ones related to the fonts.

The latest released version of the package can be found on CTAN: <https://www.ctan.org/pkg/acmart>. The development version can be found on GitHub: <https://github.com/borisveytsman/acmart>. At this address you can file a bug report—or even contribute your own enhancement making a pull request.

Most users should not attempt to install this package themselves, and rather rely on their T<sub>E</sub>X distributions to provide it. If you decide to install the package yourself, follow the standard rules:

---

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

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  $\text{\LaTeX}$  can find them (see [1] or the documentation for your  $\text{\TeX}$  system).
3. Update the database of file names. Again, see [1] or the documentation for your  $\text{\TeX}$  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.

The class uses a number of other packages. They are included in all major  $\text{\TeX}$  distributions ( $\text{\TeX}$ Live, Mac $\text{\TeX}$ , Mik $\text{\TeX}$ ) of 2015 and later, so you probably have them installed. Just in case here is the list of these packages:

- *amscs*, <http://www.ctan.org/pkg/amscs>
- *amsfonts*, <http://www.ctan.org/pkg/amsfonts>
- *amsmath*, <http://www.ctan.org/pkg/amsmath>
- *binhex*, <http://www.ctan.org/pkg/binhex>
- *caption*, <http://www.ctan.org/pkg/caption>
- *comment*, <http://www.ctan.org/pkg/comment>
- *cm-super*, <http://www.ctan.org/pkg/cm-super>
- *cmap*, <http://www.ctan.org/pkg/cmap>
- *draftwatermark*, <http://www.ctan.org/pkg/draftwatermark>
- *environ*, <http://www.ctan.org/pkg/environ>
- *etoolbox*, <http://www.ctan.org/pkg/etoolbox>
- *fancyhdr*, <http://www.ctan.org/pkg/fancyhdr>
- *float*, <http://www.ctan.org/pkg/float>
- *fontaxes*, <http://www.ctan.org/pkg/fontaxes>
- *geometry*, <http://www.ctan.org/pkg/geometry>
- *graphics*, <http://www.ctan.org/pkg/graphics>
- *hyperref*, <http://www.ctan.org/pkg/hyperref>
- *ifluatex*, <http://www.ctan.org/pkg/ifluatex>
- *ifxetex*, <http://www.ctan.org/pkg/ifxetex>

- *inconsolata*, <http://www.ctan.org/pkg/inconsolata>
- *libertine*, <http://www.ctan.org/pkg/libertine>
- *manyfoot*, <http://www.ctan.org/pkg/manyfoot>
- *microtype*, <http://www.ctan.org/pkg/microtype>
- *mmap*, <http://www.ctan.org/pkg/mmap>
- *ms*, <http://www.ctan.org/pkg/ms>
- *mweights*, <http://www.ctan.org/pkg/mweights>
- *natbib*, <http://www.ctan.org/pkg/natbib>
- *nccfoots*, <http://www.ctan.org/pkg/nccfoots>
- *newtx*, <http://www.ctan.org/pkg/newtx>
- *oberdiek*, <http://www.ctan.org/pkg/oberdiek>
- *pdftex-def*, <http://www.ctan.org/pkg/pdftex-def>
- *refcount*, <http://www.ctan.org/pkg/refcount>
- *setspace*, <http://www.ctan.org/pkg/setspace>
- *textcase*, <http://www.ctan.org/pkg/textcase>
- *totpages*, <http://www.ctan.org/pkg/totpages>
- *trimspaces*, <http://www.ctan.org/pkg/trimspaces>
- *upquote*, <http://www.ctan.org/pkg/upquote>
- *url*, <http://www.ctan.org/pkg/url>
- *xcolor*, <http://www.ctan.org/pkg/xcolor>
- *xkeyval*, <http://www.ctan.org/pkg/xkeyval>
- *xstring*, <http://www.ctan.org/pkg/xstring>

## 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

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

Table 1: The possible values for the format option

Value	Meaning
manuscript	A manuscript. This is the default
acmsmall	Small single column format, used for CIE, CSUR, JACM, JDIQ, JEA, JERIC, JETC, PACMHCI, PACMPL, TAAS, TACCESS, TACO, TALG, TALLIP (formerly TALIP), TCPS, TEAC, TECS, THRI, TIS, TISSEC, TIST, TKDD, TMIS, TOCE, TOCHI, TOCL, TOCS, TOCT, TODAES, TODS, TOIS, TOIT, TOMACS, TOMM (formerly TOMCCAP), TOMPECS, TOMS, TOPC, TOPLAS, TOPS, TOS, TOSEM, TOSN, TRET, TSAS, TSC, TSLP, TWEB, including special issues.
acmlarge	Large single column format, used for IMWUT, JOCCH, POMACS, TAP, including special issues.
acmtog	Large double column format, used for TOG, including special issues.
sigconf	Proceedings format for most of ACM conferences (with the exceptions listed below) and all ICPS volumes.
siggraph	As of March 2017, this format is no longer used. Please use sigconf for SIGGRAPH conferences.
sigplan	Proceedings format for SIGPLAN conferences.
sigchi	Proceedings format for SIGCHI conferences.
sigchi-a	Format for SIGCHI extended abstract.

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.

Note that sometimes conference proceedings are published as a special issue (or issues) of an ACM journal. In this case you should use the journal format for a conference paper. Please contact your conference committee if in doubt.

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.

Table 2: Boolean options

Option	Default	Meaning
review	false	A review version: lines are numbered, hyperlinks are colored
screen	see text	A screen version: hyperlinks are colored
natbib	true	Whether to use natbib package (see Section 2.10)
anonymous	false	Whether to make author(s) anonymous
authorversion	false	Whether to generate a special version for authors' personal use or posting (see Section 2.3)
timestamp	false	Whether to put a time stamp in the footer of each page
authordraft	false	Whether author's draft mode is enabled
acmthm	true	Whether to define theorem-like environments, see Section 2.6

The default for the option `screen` depends on the publication. At present it is false for all publications *but* PACM, since PACM is now electronic-only. Thus PACM titles (see Table 3) set this option to true. This option may in the future involve additional features suitable for on-screen versions of the articles.

The option `natbib` is used when the corresponding BibTeX style is based on natbib. In most cases you do not need to set it. See Section 2.10.

The option `anonymous` is used for anonymous review process: all author information becomes obscured.

The option `timestamp` is used to include a time stamp in the footer of each page. When preparing a document, this can help avoid confusing different revisions. The footer also include the page range of the document. This helps detect missing pages in hard copies.

The option `authordraft` is intended for the authors' drafts, not intended for distribution. It typesets copyright block to give the authors the idea of its size and overall size of the paper, but overprints it with the phrase "Unpublished working draft. Not for distribution", which also is used as a watermark. This option sets `timestamp` and `review` to true, but these decisions can be overridden by setting these options to false *after* `authordraft`.

## 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 `\acmVolume` or `\acmDOI`—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`.

	<p>The class internally loads <code>amsart</code> class, so many top matter commands are inherited from <code>amsart</code> [2].</p>
<code>\acmJournal</code>	<p>The macro <code>\acmJournal{&lt;shortName&gt;}</code> sets the name of the journal or transaction for journals and transactions. The argument is the short name of the publication <i>in uppercase</i>, for example,</p> <pre>\acmJournal{TOMS}</pre>
	<p>The currently recognized journals are listed in Table 3. Note that conference proceedings published in <i>book</i> form do not set this macro.</p> <p>It is expected that this command is inserted by the author of the manuscript when she decides to which journal to submit the manuscript.</p>
<code>\acmConference</code>	<p>The macro <code>\acmConference[&lt;short name&gt;]{&lt;name&gt;}{&lt;date&gt;}{&lt;venue&gt;}</code> is used for conference proceedings published in the book form. The arguments are the following:</p> <p><b>short name:</b> the abbreviated name of the conference (optional).</p> <p><b>name:</b> the name of the conference.</p> <p><b>date:</b> the date(s) of the conference.</p> <p><b>venue:</b> the place of the conference.</p> <p>Examples:</p> <pre>\acmConference[TD'15]{Technical Data Conference}{November 12--16}{Dallas, TX, USA} \acmConference[SA'15 Art Papers]{November 02--06, 2015}{Kobe, Japan}</pre>
<code>\acmBooktitle</code>	<p>By default we assume that the conference proceedings are published in the book named <i>Proceedings of CONFERENCE</i>, where <i>CONFERENCE</i> is the name of the conference inferred from the command <code>\acmConference</code> above. However, sometimes the book title is different. The command <code>\acmBooktitle</code> may be used to set this title, for example,</p> <pre>\acmBooktitle{Companion to the first International Conference on the Art, Science and Engineering of Programming (Programming '17)}</pre>
<code>\editor</code>	<p>In most cases conference proceedings are edited. You can use the command <code>\editor[&lt;editor&gt;]</code> to set the editor of the volume. This command can be repeated, for example,</p> <pre>\editor{Jennifer B. Sartor} \editor{Theo D'Hondt} \editor{Wolfgang De Meuter}</pre>
<code>\title</code>	<p>The command <code>\title</code>, as in <code>amsart</code> class, has two arguments: one optional, and one mandatory:</p>



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

Abbreviation	Publication
CIE	ACM Computers in Entertainment
CSUR	ACM Computing Surveys
IMWUT	PACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
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
PACMHCI	PACM on Human-Computer Interaction
PACMPL	PACM on Programming Languages
POMACS	PACM on Measurement and Analysis of Computing Systems
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
THRI	ACM Transactions on Human-Robot Interaction
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
TOPS	ACM Transactions on Privacy and Security
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
TSC	ACM Transactions on Social Computing
TSLP	ACM Transactions on Speech and Language Processing
TWEB	ACM Transactions on the Web

`\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.

The commands for specification of authors are highly structured. The reason is, they serve double duty: the authors' information is typeset in the manuscript, *and* is used by the metadata extraction tools for indexing and cataloguing. Therefore it is very important to follow the guidelines exactly.

`\author` The basic commands are `\author`, `\orcid` (for the researchers registered with ORCID, <http://www.orcid.org/>), `\affiliation` and `\email`. In the simplest case you enter them in this order:

```
\email
\author{...}
\orcid{...}
\affiliation{...}
\email{...}
```

Do *not* use  $\LaTeX$  `\and` macro! Each author deserves his or her own `\author` command.

Note that some formats do not typeset e-mails of ORCID identifiers. Do not worry: metadata tools will get them.

Sometimes an author has several affiliations. In this case the `\affiliation` command should be repeated:

```
\author{...}
\orcid{...}
\affiliation{...}
\affiliation{...}
\email{...}
```

Similarly you can repeat `\email` command.

You may have several authors with the same affiliation, different affiliations, or overlapping affiliations (author  $A_1$  is affiliated with institutions  $I_1$  and  $I_2$ , while author  $A_2$  is affiliated with  $I_2$  only, and author  $A_3$  is affiliated with  $I_1$  and  $I_3$ , ...). The recommended solution is to put the `\affiliation` commands after each author, possibly repeating them:

```
\author{...}
\orcid{...}
\affiliation{...}
\affiliation{...}
\email{...}
\author{...}
\orcid{...}
\affiliation{...}
\email{...}
```

```

\author{...}
\orcid{...}
\affiliation{...}
\affiliation{...}
\email{...}

```

In some cases when several authors share the same affiliation you may try to save the space using the format

```

\author{...}
\email{...}
\author{...}
\email{...}
\affiliation{...}

```

However, this format is not generally recommended.

`\additionalaffiliation`

In some cases too many affiliations take too much space. The command `\additionalaffiliation{<affiliation>}` creates a footnote after author’s name with the words “Also with *{<affiliation>}*”. You should use this command only as the last resort. An example of usage is:

```

\author{G. Tobin}
\author{Ben Trovato}
\additionalaffiliation{%
  \institution{The Th{\o}rv{\a}ld Group}
  \streetaddress{1 Th{\o}rv{\a}ld Circle}
  \city{Hekla}
  \country{Iceland}}
\affiliation{%
  \institution{Institute for Clarity in Documentation}
  \streetaddress{P.O. Box 1212}
  \city{Dublin}
  \state{Ohio}
  \postcode{43017-6221}
}

```

Here Trovato and Tobin share their affiliation with the Institute for Clarity in Documentation, but only Ben Trovato is affiliated with The Thørvæld Group.

<pre> \position \institution \department \streetaddress \city \state \postcode \country </pre>	<p>The <code>\affiliation</code> and <code>\additionalaffiliation</code> commands are further structured to interact with the metadata extraction tools. Inside these commands you should use <code>\position</code>, <code>\institution</code>, <code>\department</code>, <code>\city</code>, <code>\streetaddress</code>, <code>\state</code>, <code>\postcode</code> and <code>\country</code> macros to indicate the corresponding parts of the affiliation. Note that in some cases (for example, journals) these parts are not printed in the resulting copy, but they <i>are</i> necessary since they are used by the XML metadata extraction programs. Do <i>not</i> put commas or <code>\\</code> between the elements of <code>\affiliation</code>: they will be provided automatically.</p>
--	--

An example of the author block:

```

\author{A. U. Thor}
\orcid{1234-4564-1234-4565}
\affiliation{%
  \institution{University of New South Wales}
  \department{School of Biomedical Engineering}
  \streetaddress{Samuels Building (F25), Kensington Campus}
  \city{Sidney}
  \state{NSW}
  \postcode{2052}
  \country{Australia}}
\email{author@nsw.au.edu}
\author{A. N. Other}
\affiliation{%
  \institution{University of New South Wales}
  \city{Sidney}
  \state{NSW}
  \country{Australia}}
\author{C. O. Respondent}
\orcid{1234-4565-4564-1234}
\affiliation{%
  \institution{University of Pennsylvania}
  \city{Philadelphia}
  \state{PA}
  \country{USA}}
\affiliation{%
  \institution{University of New South Wales}
  \city{Sidney}
  \state{NSW}
  \country{Australia}}

```

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.

Sometimes an author works in several departments within the same insitution. There could be two situations: the departments are independent, or one department is within another. In the first case just repeat the command `\department` several times. To handle the second case the command has an optional numerical parameter. The departments with higher numbers are higher in the organizational chart. Compare

```

\affiliation{%
\department[0]{Department of Lunar Studies} % 0 is the default
\department[1]{John Doe Institute} % higher than 0
\institution{University of San Serriffe}
\country{San Serriffe}}

```

and

```

\affiliation{%

```

```

\department{Department of Lunar Studies} % Not within JD Inst!
\department{John Doe Institute}
\institution{University of San Serriffe}
\country{San Serriffe}}

```

The command `\affiliation` formats the output according to American conventions. This might be wrong for some cases. Consider, for example, a German address. In Germany postcode is put before city and is not separated by a comma. We can handle this order using

```

\affiliation{%
  \institution{Fluginstitut}
  \streetaddress{Sonnenallee 17}
  \postcode{123456}
  \city{Helm}
  \country{Germany}
}

```

However, the comma after postcode is unfortunate: the address will be typeset (in some formats) as

```

Fluginstitut
Sonnenallee 17
123456, Helm, Germany

```

To overcome this problem, the command `\affiliation` has an optional parameter `obeypunctuation`, which can be `false` (the default) or `true`. If this parameter is `true`, `\affiliation` obeys the author's command. Thus

```

\affiliation[obeypunctuation=true]{%
  \institution{Fluginstitut}\\
  \streetaddress{Sonnenallee 17}\\
  \postcode{123456}
  \city{Helm},
  \country{Germany}
}

```

will be typeset as

```

Fluginstitut
Sonnenallee 17
123456 Helm, Germany

```

Note that you should *not* use this option for journals.

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

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

`\title` and `\author`. This command is obsolete, and should *not* be used in most cases. Do not list your acknowledgements and grant sponsors here: put this information in the `acks` environment (see Section 2.9).

`\authorsaddresses` In some formats the addresses are printed as a footnote on the first page. By default  $\TeX$  typesets them itself using the information you give it. However, you can override its choice using the command `\authorsaddresses{<contact addresses>}`, for example,

```
\authorsaddresses{%
  Authors' addresses: G.~Zhou, Computer Science Department, College of
  William and Mary, 104 Jameson Rd, Williamsburg, PA 23185, US;
  V.~B\eranger, Inria Paris-Rocquencourt, Rocquencourt, France;
  A.~Patel, Rajiv Gandhi University, Rono-Hills, Doimukh, Arunachal
  Pradesh, India; H.~Chan, Tsinghua University, 30 Shuangqing Rd,
  Haidian Qu, Beijing Shi, China; T.~Yan, Eaton Innovation Center,
  Prague, Czech Republic; T.~He, C.~Huang, J.~A.~Stankovic University
  of Virginia, School of Engineering Charlottesville, VA 22903, USA;
  T. F. Abdelzaher, (Current address) NASA Ames Research Center,
  Moffett Field, California 94035.}
```

You can *suppress* printing authors' addresses by setting them to an empty string: `\authorsaddresses{}`.

`\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 correspond-  
 ing 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}
```

Please never use `\footnotes` inside `\author` or `\title` commands, since this confuses metadata extraction software (actually these commands now produce errors).

`\authornotemark` Sometimes one may need to have the same footnote connected to several authors. The command `\authornotemark[<number>]` adds just the footnote mark, for example

```
\author{A. U. Thor}
\authornote{Both authors contributed equally to the paper}
...
\author{A. N. Other}
\authornotemark[1]
```

The correct numbering of these marks is the responsibility of the user.

`\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}

```

Note that `\acmArticle` is used not only for journals, but also for some conference proceedings.

`\acmArticleSeq`     The articles in the same issue of a journal have a *sequential number*. It is used to vertically position the black blob in some formats. By default it is the same as article number, but the command `\acmArticleSeq{<n>}` can be used to change it:

```

\acmArticle{39}     % The sequence number will be 39 by default
\acmArticleSeq{5}   % We redefine it to 5

```

Setting this number to zero suppresses the blob.

`\acmSubmissionID`     If you paper got a Submission ID from the Conference Management System, put it here:

```

\acmSubmissionID{123-A56-BU3}

```

`\acmPrice`     The macro `\acmPrice{<price>}` sets the price for the article

```

\acmPrice{25.00}

```

Note that you do not need to put the dollar sign here, just the amount. By default the price is \$15.00, unless the copyright is set to `usgov` or `rightsretained`, when it is suppressed. Note that to override the defaults you need to set the price *after* the `\setcopyright` command to override the default. Also, the command `\acmPrice{}` suppresses the printing of the price.

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

```

\acmISBN{978-1-4503-3916-2}

```

Setting it to empty string, as `\acmISBN{}`, suppresses printing of ISBN.

`\acmDOI`     The macro `\acmDOI{<DOI>}` sets the DOI number of the article, for example,

```

\acmDOI{10.1145/9999997.9999999}

```

It is normally set by the typesetter. Setting it to empty string, `\acmDOI{}` suppresses DOI.

`\acmBadgeR`     Some conference articles get special distinction, for example, the artifact evaluation  
`\acmBadgeL`     for PPOPP 2016 (see <http://ctuning.org/ae/ppopp2016.html>). These articles display special badges supplied by the conference organizers. The class provides commands to

add these badges: `\acmBadgeR[\url]{\graphics}` and `\acmBadgeL[\url]{\graphics}`. The first command puts the badge to the right of the title, and the second one—to the left. The exception is the `sigchi-a` mode for SIGCHI Extended abstract, which puts the badges on the left margin. The argument have the following meaning: [*\url*], if provided, sets the link to the badge authority in the screen version, while {*\graphics*} sets the graphics file with the badge image. The file must be a cropped square, which is scaled to a standard size in the output. For example, if the badge image is `ae-logo.pdf`, the command is

```
\acmBadgeR[http://ctuning.org/ae/ppopp2016.html]{ae-logo}
```

`\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 command `\keywords{\keyword, keyword,...}` sets keywords for the article.  
`\keywords`        They must be separated by commas, for example,

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

`CCSXML`            ACM publications are classified according to the ACM Computing Classification  
`\ccsdesc`        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.
licensedusgovmixed	Some authors are employees of the US Government, and the publication rights are licensed to ACM.
licensedcagov	All the authors are employees of the Canadian Government, and the publication rights are licensed to ACM.
licensedcagovmixed	Some authors are employees of the Canadian Government, and the publication rights are licensed to ACM.
othergov	Authors are employees of a Government other than US or Canada.
licensedothergov	Authors are employees of a Government other than US or Canada, and the publication rights are licensed to ACM.

</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 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}
```

There is a special case for a personal copy that the authors may be allowed to generate for their use or a posting on a personal site (check the instructions for the specific journal or conference for the details). The document option `authorversion=true` produces the special form of the copyright statement for this case. Note that you still need the `\setcopyright` command and (optionally) `\copyrightyear` command to tell  $\TeX$  about the copyright owner and year. Also, you should be aware that due to the different sizes of the permission blocks for the printed version and authors' version the page breaks might be different between them.

`abstract` The environment `abstract` must *precede* `\maketitle` command. Again, this is different from the standard  $\LaTeX$ .

`teaserfigure` A special kind of figure is used for many two-column conference proceedings. 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{printacmref=false, printccs=true, printfolios=true}
```

The parameter `authorsperrow` requires some explanation. In conference proceedings authors' information is typeset in boxes, several boxes per row (see `sample-sigconf.pdf`, `sample-sigplan.pdf` etc.). The number of the boxes per row is determined automatically. If you want to override this decision, you may do it using this parameter, for example,

```
\settopmatter{authorsperrow=4}
```

However, in most cases you should *not* do this and use the default settings. Setting `authorsperrow` to 0 will revert to default settings.

`\received` The command `\received[<stage>]{<date>}` sets the history of the publication. The

Table 5: Settings for `\settopmatter` command

Parameter	Values	Meaning
<code>printccs</code>	true/false	Whether to print CCS categories
<code>printacmref</code>	true/false	Whether to print ACM bibliographic entry
<code>printfolios</code>	true/false	Whether to print page numbers (folios)
<code>authorsperrow</code>	numeric	Number of authors per row for title page in conference proceedings formats

[ $\langle stage \rangle$ ] 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 are now several good packages for typesetting algorithms [3, 4, 5], 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 the 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` [6] 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
sourcenote. This is a table sourcenote. This is a table
```

```
sourcenote.
```

```
\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

Tables and figures (including margin tables and margin figures) are by default centered. However, in some cases (for example, when you use several subimages per figure) you may need to override this decision. A good way to do so is to put the contents into a `\minipage` of the width `\columnwidth`.

## 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, and corollary, and

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

These environments are defined by default. In the unusual circumstance that a user does not wish to have these environments defined, the option `acmthm=false` in the preamble will suppress them.

## 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}
```

We use *comment* package for typesetting this code, so `\begin` and `\end` should start at the first positions of the lines of their own (no initial spaces etc.).

## 2.8 Note about anonymous mode

`anonsuppress` When the option `anonymous` is selected,  $\TeX$  suppresses author information (including number of authors) for a blind review. However, sometimes the information identifying the authors may be present in the body of the paper

```
\begin{anonsuppress}
  This is the continuation of the previous work by the author
  \cite{prev1, prev2}.
\end{anonsuppress}
```

As for `printonly` and `screenonly` environments, `\begin{anonsuppress}` and `\end{anonsuppress}` should start the line of their own (no leading or trailing spaces).

## 2.9 Acknowledgments

The traditional “Acknowledgments” section is conventionally used to thank persons and granting agencies for their help and support. However, there are several important considerations about this section.

First, in the anonymous mode this section must be omitted: it gives too much information to the reviewers. Second, the data about the grants is extracted and stored separately by the postprocessing software. ACM classes provide facilities for both these tasks.

`acks` The environment `acks` starts an unnumbered section “Acknowledgments” unless the anonymous mode is chosen. Put all thanks inside this environment.

As for `printonly` and `screenonly` environments, `\begin{acks}` and `\end{acks}` should start the line of their own (no leading or trailing spaces).

`\grantsponsor` All the financial support *must* be listed using the commands `\grantsponsor` and  
`\grantnum` `\grantnum`. These commands tell the postprocessing software about the granting organization and the grant. The format of the command is the following:

```
\grantsponsor{\<sponsorID>}{\<name>}{\<url>}
\grantnum[\<url>]{\<sponsorID>}{\<number>}.
```

Here `{\<sponsorID>}` is the unique ID used to match grants to sponsors, `{\<name>}` is the name of the sponsor, `{\<url>}` is its URL, and `{\<number>}` is the grant number. The `{\<sponsorID>}` of the `\grantnum` command must correspond to `\sponsorID` of a `\grantsponsor` command. Some awards have their own web pages, which you can include using the optional argument of `\grantnum` command.

At present `{\<sponsorID>}` is chosen by the authors and can be an arbitrary key, in the same way the label of `\cite` is arbitrarily chosen. There might be a change to this policy if ACM decides to create a global database of sponsoring organizations.

Example:

```

\begin{acks}
  The authors would like to thank Dr. Yuhua Li for providing the
  matlab code of the \textit{BEPS} method.

  The authors would also like to thank the anonymous referees for
  their valuable comments and helpful suggestions. The work is
  supported by the \grantsponsor{GS501100001809}{National Natural
  Science Foundation of
  China}{https://doi.org/10.13039/501100001809} under Grant
  No.:~\grantnum{GS501100001809}{61273304}
  and~\grantnum[http://www.nnsf.cn/youngscientsts]{GS501100001809}{Young
  Scientists' Support Program}.
\end{acks}

```

## 2.10 Bibliography

ACM uses the *natbib* package for formatting references and the style `ACM-Reference-Format.bst` for Bib<sub>TeX</sub> processing. You may disable loading of *natbib* by using the option `natbib=false` in `\documentclass`. However, it is not recommended, as well as the use of Bib<sub>TeX</sub> styles other than `ACM-Reference-Format.bst`, and may delay the processing of the manuscript.

`\citestyle` If you use *natbib*, you can select one of two predefined citation styles: the author-year format `acmauthoryear` or the numeric format `acmnumeric` using the command `\citestyle`, for example,

```
\citestyle{acmauthoryear}
```

Note that numeric citations are the default mode for most formats.

`\setcitestyle` You may further customize *natbib* using `\setcitestyle` command, for example,

```
\setcitestyle{numbers,sort&compress}
```

If you use *natbib*, then commands like `\citep` and `\citeauthor` are automatically supported. The command `\shortcite` is the same as `\cite` in numerical mode, and cites the year in the author-date mode.

There are several customized Bib<sub>TeX</sub> entries and fields in ACM style `ACM-Reference-Format.bst` you may want to be aware of.

The style supports fields `doi` and `url`, for example,

```
doi = "10.1145/1188913.1188915",
url = "http://ccrma.stanford.edu/~jos/bayes/bayes.pdf",
```

The style supports arXiv recommended fields `eprint` and (optionally) `primaryclass`, for example,

```
eprint = "960935712",
primaryclass = "cs",
```

See the examples at <http://arxiv.org/hypertex/bibstyles/>.

There are special entries online and game for Web pages and games, for example,

```
@online{Thornburg01,
  author =      "Harry Thornburg",
  year =        "2001",
  title =        "Introduction to Bayesian Statistics",
  url =          "http://ccrma.stanford.edu/~jos/bayes/bayes.html",
  month =        mar,
  lastaccessed = "March 2, 2005",
}
```

For these entries you can use the `lastaccessed` field to add the access date to the URL.

There are two ways to enter video and audio sources in the bibliography corresponding to two different possibilities. For standalone sources available on WWW you can use an online entry, setting there `howpublished` field, for example,

```
@online{Obama08,
  author =      "Barack Obama",
  year =        "2008",
  title =        "A more perfect union",
  howpublished = "Video",
  day =         "5",
  url =          "http://video.google.com/videoplay?docid=6528042696351994555",
  month =        mar,
  lastaccessed = "March 21, 2008",
}
```

For the sources available as attachments to conference proceedings and similar documents, you can use the usual `inproceedings` entry, again setting the `howpublished` field:

```
@inproceedings{Novak03,
  author =      "Dave Novak",
  title =        "Solder man",
  booktitle =    "ACM SIGGRAPH 2003 Video Review on Animation theater Program",
  year =         "2003",
  publisher =    "ACM Press",
  address =      "New York, NY",
  pages =        "4",
  month =        "March 21, 2008",
  doi =          "10.9999/woot07-S422",
  howpublished = "Video",
}
```

Sometimes you need to cite a complete issue of a journal. The entry `periodical` is intended for this:



```
@periodical{JCohen96,
  key =      "Cohen",
  editor =   "Jacques Cohen",
  title =    "Special issue: Digital Libraries",
  journal =  "Communications of the {ACM}",
  volume =   "39",
  number =   "11",
  month =    nov,
  year =     "1996",
}
```

If you do not know the year of publication, the style will add “[n. d.]” (for “no date”) entry.

If you do not know the author (this is often the case for online entries), use key field to add a key for sorting and citations, for example,

```
@online{TUGInstmem,
  key =      {TUG},
  year =     2017,
  title =    "Institutional members of the {\TeX} Users Group",
  url =      "http://wwtug.org/instmem.html",
  lastaccessed = "May 27, 2017",
}
```

## 2.11 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 [7]: ACMBLue, ACMYellow, ACMOrange, ACMRed, ACMLightBlue, ACMGreen, ACMPurple, ACMDarkBlue. You can use them in the color assignments.

ACM provides the following recommendation on color use.

The most accessible approach would be to ensure that your article is still readable when printed in greyscale. The most notable reasons for this are:

1. The most common type of inherited Color Vision Deficiency (CVD) is red-green (in which similar-brightness colors that only differ in their amounts of red or green are often confused), and it affects up to 8% of males and 0.5% of females of Northern European descent.
2. The most common type of acquired Color Vision Deficiency (CVD) is blue-yellow (including mild cases for many older adults).
3. Most printing is in Black & White.
4. Situational impairments (e.g., bright sunlight shining on a mobile screen) tend to reduce the entire color gamut, reducing color discriminability.

**Note:** It is *not* safe to encode information using only variations in color (i.e., only differences in hue and/or saturation), as there is bound to be someone affected!

To ensure that you are using the most accessible colors, ACM recommends that you choose sets of colors to help ensure suitable variations in Black & White using either of the following tools:

1. ColourBrewer: <http://colorbrewer2.org/>
2. ACE: The Accessible Colour Evaluator: <http://daprlab.com/ace/> for designing WCAG 2.0 compliant palettes.

## 2.12 Other notable packages and typographic remarks

Several other packages are recommended for specialized tasks.

The package *subcaption* [8] is recommended for complex figures with several subplots or subfigures that require separate subcaptioning. The packages *nomencl* [9] and *glossaries* [10] can be used for the automatic creation of the lists of symbols and concepts used.

By default `acmart` prevents all widows and orphans (i.e. lonely lines at the beginning and the end of the page) and hyphenation at the end of the page. This is done by rather strict settings

```
\widowpenalty=10000
\clubpenalty=10000
\brokenpenalty=10000
```

However, this may lead to frustrating results when the authors must obey a page limit. Setting these penalties to smaller values may help if you absolutely need to.

Another problem might be the too strict line breaking rules. Again, a strategically placed `\sloppy` command or putting the problematic paragraph inside `sloppypar` environment might help—but beware the results might be, well, sloppy.

Note that the uppercasing in section titles is done using *textcase* package [11], so command `\NoCaseChange` inside title may help to prevent extraneous uppercasing.

## 2.13 A note for wizards: `acmart-preload-hook.tex`

Sometimes you need to change the behavior of `acmart`. The usual way to do this is to redefine commands in the preamble. However, these definitions are executed *after* `acmart` is loaded, and certain decisions are made. This presents a number of problems.

For example, one may want to use `titletoc` package with `acmart`. This package should be loaded before `hyperref`. However, since `acmart` loads `hyperref` itself, the line `\usepackage{titletoc}` in the preamble will lead to grief (see <http://tex.stackexchange.com/questions/357265/using-titletoc-with-acm-acmart-style>).

Another example is passing options to package. Suppose you want to use `dvipsnames` option of `xcolor` package. Normally you cannot do this because `acmart` loads this package itself without options.

The file `acmart-preload-hook.tex` may be used to solve these problems. If this file exists, it will be processed before any other package. You can use this file to load packages or pass options to them. For example, if you put in this file

```
\let\LoadClassOrig\LoadClass
\renewcommand\LoadClass[2][\LoadClassOrig[#1]{#2}%
\usepackage{titletoc}
```

then `titletoc` will be loaded before `hyperref`. If you put in this file

```
\PassOptionsToPackage{dvipsnames}{xcolor}
```

you will pass `dvipsnames` to `xcolor`.

**Important note.** This hook makes it too easy to create a manuscript which is not acceptable by ACM. Even easier it is to create a file which cannot be compiled. So please do not use it *unless you know what you are doing*. And if you use it, *do not ask for support*. If you decided to use this hook, you are on your own.

## 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 [2017/08/31 v1.47 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, type1=true]{libertine}
12 \usepackage[varqu]{zi4}
13 \usepackage[libertine]{newtxmath}
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 Preload

We preload acmart-preload-hook:

```
26 \InputIfFileExists{acmart-preload-hook.tex}{%
27   \ClassWarning{\@classname}{%
28     I am loading acmart-preload-hook.tex. You are fully responsible
29     for any problems from now on.}}{}
```

### 3.3 Options

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

```
30 \RequirePackage{xkeyval}
```

We use xstring to check whether user input is integer

```
31 \RequirePackage{xstring}
```

format The possible formats

```

32 \define@choicekey*+{acmart.cls}{format}[\ACM@format\ACM@format@nr]{%
33 manuscript, acmsmall, acmlarge, acmtog, sigconf, siggraph,
34 sigplan, sigchi, sigchi-a}[manuscript]{}{%
35 \ClassError{\@classname}{The option format must be manuscript,
36 acmsmall, acmlarge, acmtog, sigconf, siggraph,
37 sigplan, sigchi or sigchi-a}}
38 \def\@DeclareACMFormat#1{\DeclareOptionX{#1}{\setkeys{acmart.cls}{format=#1}}}
39 \@DeclareACMFormat{manuscript}
40 \@DeclareACMFormat{acmsmall}
41 \@DeclareACMFormat{acmlarge}
42 \@DeclareACMFormat{acmtog}
43 \@DeclareACMFormat{sigconf}
44 \@DeclareACMFormat{siggraph}
45 \@DeclareACMFormat{sigplan}
46 \@DeclareACMFormat{sigchi}
47 \@DeclareACMFormat{sigchi-a}
48 \ExecuteOptionsX{format}

```

\if@ACM@screen Whether we use screen mode

```

49 \define@boolkey+{acmart.cls}[\ACM@]{screen}[true]{%
50 \if@ACM@screen
51 \PackageInfo{\@classname}{Using screen mode}%
52 \else
53 \PackageInfo{\@classname}{Not using screen mode}%
54 \fi}{\PackageError{\@classname}{Option screen can be either true or
55 false}}
56 \ExecuteOptionsX{screen=false}

```

\if@ACM@acmthm Whether we define theorem-like environments.

```

57 \define@boolkey+{acmart.cls}[\ACM@]{acmthm}[true]{%
58 \if@ACM@acmthm
59 \PackageInfo{\@classname}{Requiring acmthm}%
60 \else
61 \PackageInfo{\@classname}{Suppressing acmthm}%
62 \fi}{\PackageError{\@classname}{Option acmthm can be either true or
63 false}}
64 \ExecuteOptionsX{acmthm=true}

```

\if@ACM@review Whether we use review mode

```

65 \define@boolkey+{acmart.cls}[\ACM@]{review}[true]{%
66 \if@ACM@review
67 \PackageInfo{\@classname}{Using review mode}%
68 \else
69 \PackageInfo{\@classname}{Not using review mode}%
70 \fi}{\PackageError{\@classname}{Option review can be either true or
71 false}}
72 \ExecuteOptionsX{review=false}

```

```

\if@ACM@authorversion Whether we use author's version
73 \define@boolkey+{acmart.cls}[@ACM@]{authorversion}[true]{%
74   \if@ACM@authorversion
75     \PackageInfo{\@classname}{Using authorversion mode}%
76   \else
77     \PackageInfo{\@classname}{Not using authorversion mode}%
78   \fi}{\PackageError{\@classname}{Option authorversion can be either true or
79     false}}
80 \ExecuteOptionsX{authorversion=false}

```

\if@ACM@natbib@override

```

\if@ACM@natbib Whether we use natbib mode
81 \define@boolkey+{acmart.cls}[@ACM@]{natbib}[true]{%
82   \if@ACM@natbib
83     \PackageInfo{\@classname}{Explicitly selecting natbib mode}%
84   \else
85     \PackageInfo{\@classname}{Explicitly deselecting natbib mode}%
86   \fi}{\PackageError{\@classname}{Option natbib can be either true or
87     false}}
88 \ExecuteOptionsX{natbib=true}

```

```

\if@ACM@anonymous Whether we use anonymous mode
89 \define@boolkey+{acmart.cls}[@ACM@]{anonymous}[true]{%
90   \if@ACM@anonymous
91     \PackageInfo{\@classname}{Using anonymous mode}%
92   \else
93     \PackageInfo{\@classname}{Not using anonymous mode}%
94   \fi}{\PackageError{\@classname}{Option anonymous can be either true or
95     false}}
96 \ExecuteOptionsX{anonymous=false}

```

```

\if@ACM@timestamp Whether we use timestamp mode
97 \define@boolkey+{acmart.cls}[@ACM@]{timestamp}[true]{%
98   \if@ACM@timestamp
99     \PackageInfo{\@classname}{Using timestamp mode}%
100   \else
101     \PackageInfo{\@classname}{Not using timestamp mode}%
102   \fi}{\PackageError{\@classname}{Option timestamp can be either true or
103     false}}
104 \ExecuteOptionsX{timestamp=false}

```

```

\if@ACM@authordraft Whether we use authordraft mode
105 \define@boolkey+{acmart.cls}[@ACM@]{authordraft}[true]{%
106   \if@ACM@authordraft
107     \PackageInfo{\@classname}{Using authordraft mode}%
108     \@ACM@timestamptrue
109     \@ACM@reviewtrue
110   \else

```

```

111 \PackageInfo{\@classname}{Not using authordraft mode}%
112 \fi}{\PackageError{\@classname}{Option authordraft can be either true or
113     false}}
114 \ExecuteOptionsX{authordraft=false}

```

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

```

115 \def\ACM@fontsize{}
116 \DeclareOptionX{9pt}{\edef\ACM@fontsize{\CurrentOption}}
117 \DeclareOptionX{10pt}{\edef\ACM@fontsize{\CurrentOption}}
118 \DeclareOptionX{11pt}{\edef\ACM@fontsize{\CurrentOption}}
119 \DeclareOptionX{12pt}{\edef\ACM@fontsize{\CurrentOption}}

120 \DeclareOptionX{draft}{\PassOptionsToClass{\CurrentOption}{amsart}}
121 \DeclareOptionX{*}{\PassOptionsToClass{\CurrentOption}{amsart}}
122 \ProcessOptionsX
123 \ClassInfo{\@classname}{Using format \ACM@format, number \ACM@format@nr}

```

### 3.4 Setting switches

\if@ACM@manuscript Whether we use manuscript mode

```

124 \newif\if@ACM@manuscript

```

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

```

125 \newif\if@ACM@journal

```

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

```

126 \newif\if@ACM@sigchiamode

```

Setting up switches

```

127 \ifnum\ACM@format@nr=5\relax % siggraph
128 \ClassWarning{\@classname}{The format 'siggraph' is now obsolete.
129     I am switching to sigconf.}
130 \setkeys{acmart.cls}{format=sigconf}
131 \fi
132 \ifnum\ACM@format@nr=0\relax
133 \@ACM@manuscripttrue
134 \else
135 \@ACM@manuscriptfalse
136 \fi
137 \@ACM@sigchiamodefalse
138 \ifcase\ACM@format@nr
139 \relax % manuscript
140 \@ACM@journaltrue
141 \or % acmsmall
142 \@ACM@journaltrue
143 \or % acmlarge
144 \@ACM@journaltrue
145 \or % acmtog

```

```

146 \ACM@journaltrue
147 \or % sigconf
148 \ACM@journalfalse
149 \or % siggraph
150 \ACM@journalfalse
151 \or % sigplan
152 \ACM@journalfalse
153 \or % sigchi
154 \ACM@journalfalse
155 \or % sigchi-a
156 \ACM@journalfalse
157 \ACM@sigchiamodetrue
158 \fi

```

### 3.5 Loading base class and package

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

```

159 \ifx\ACM@fontsize\@empty
160 \ifcase\ACM@format@nr
161 \relax % manuscript
162 \def\ACM@fontsize{9pt}%
163 \or % acmsmall
164 \def\ACM@fontsize{10pt}%
165 \or % acmlarge
166 \def\ACM@fontsize{10pt}%
167 \or % acmtog
168 \def\ACM@fontsize{9pt}%
169 \or % sigconf
170 \def\ACM@fontsize{9pt}%
171 \or % siggraph
172 \def\ACM@fontsize{9pt}%
173 \or % sigplan
174 \def\ACM@fontsize{10pt}%
175 \or % sigchi
176 \def\ACM@fontsize{10pt}%
177 \or % sigchi-a
178 \def\ACM@fontsize{10pt}%
179 \fi
180 \fi
181 \ClassInfo{\@classname}{Using fontsize \ACM@fontsize}
182 \LoadClass[\ACM@fontsize, reqno]{amsart}
183 \RequirePackage{microtype}

```

We need etoolbox for delayed code

```
184 \RequirePackage{etoolbox}
```

We need totpages package to calculate the number of pages and refcount to use the number

```

185 \RequirePackage{refcount}
186 \RequirePackage{totpages}

```



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

```
187 \RequirePackage{environ}
```

We use `setspace` for doublespacing

```
188 \if@ACM@manuscript
```

```
189 \RequirePackage{setspace}
```

```
190 \onehalfspacing
```

```
191 \fi
```

We need `textcase` for better upcasing

```
192 \RequirePackage{textcase}
```

Citations. We patch `\setcitestyle` to allow, e.g., `\setcitestyle{sort}` and `\setcitestyle{nosort}`. We patch `\citestyle` to warn about undefined citation styles.

```
193 \if@ACM@natbib
```

```
194 \RequirePackage{natbib}
```

```
195 \renewcommand{\bibsection}{%
```

```
196 \section*{\refname}%
```

```
197 \phantomsection\addcontentsline{toc}{section}{\refname}%
```

```
198 }
```

```
199 \renewcommand{\bibfont}{\bibliofont}
```

```
200 \renewcommand{\setcitestyle}[1]{
```

```
201 \@for\@tempa:=#1\do
```

```
202 {\def\@tempb{round}\ifx\@tempa\@tempb
```

```
203 \renewcommand\NAT@open{(\}\renewcommand\NAT@close{)}\fi
```

```
204 \def\@tempb{square}\ifx\@tempa\@tempb
```

```
205 \renewcommand\NAT@open{[\}\renewcommand\NAT@close{]}\fi
```

```
206 \def\@tempb{angle}\ifx\@tempa\@tempb
```

```
207 \renewcommand\NAT@open{$<$}\renewcommand\NAT@close{$>$}\fi
```

```
208 \def\@tempb{curly}\ifx\@tempa\@tempb
```

```
209 \renewcommand\NAT@open{\{\}\renewcommand\NAT@close{\}}\fi
```

```
210 \def\@tempb{semicolon}\ifx\@tempa\@tempb
```

```
211 \renewcommand\NAT@sep{;}\fi
```

```
212 \def\@tempb{colon}\ifx\@tempa\@tempb
```

```
213 \renewcommand\NAT@sep{;}\fi
```

```
214 \def\@tempb{comma}\ifx\@tempa\@tempb
```

```
215 \renewcommand\NAT@sep{,}\fi
```

```
216 \def\@tempb{authoryear}\ifx\@tempa\@tempb
```

```
217 \NAT@numbersfalse\fi
```

```
218 \def\@tempb{numbers}\ifx\@tempa\@tempb
```

```
219 \NAT@numberstrue\NAT@superfalse\fi
```

```
220 \def\@tempb{super}\ifx\@tempa\@tempb
```

```
221 \NAT@numberstrue\NAT@supertrue\fi
```

```
222 \def\@tempb{nobibstyle}\ifx\@tempa\@tempb
```

```
223 \let\bibstyle=\@gobble\fi
```

```
224 \def\@tempb{bibstyle}\ifx\@tempa\@tempb
```

```
225 \let\bibstyle=\@citestyle\fi
```

```
226 \def\@tempb{sort}\ifx\@tempa\@tempb
```

```

227 \def\NAT@sort{\@ne}\fi
228 \def\@tempb{nosort}\ifx\@tempa\@tempb
229 \def\NAT@sort{\@z}\fi
230 \def\@tempb{compress}\ifx\@tempa\@tempb
231 \def\NAT@cmprs{\@ne}\fi
232 \def\@tempb{nocompress}\ifx\@tempa\@tempb
233 \def\NAT@cmprs{\@z}\fi
234 \def\@tempb{sort&compress}\ifx\@tempa\@tempb
235 \def\NAT@sort{\@ne}\def\NAT@cmprs{\@ne}\fi
236 \def\@tempb{mcite}\ifx\@tempa\@tempb
237 \let\NAT@merge\@ne\fi
238 \def\@tempb{merge}\ifx\@tempa\@tempb
239 \ifnum{\NAT@merge<\tw}\let\NAT@merge\tw{}\fi
240 \def\@tempb{elide}\ifx\@tempa\@tempb
241 \ifnum{\NAT@merge<\thr}\let\NAT@merge\thr{}\fi
242 \def\@tempb{longnamesfirst}\ifx\@tempa\@tempb
243 \NAT@longnamestrue\fi
244 \def\@tempb{nonamebreak}\ifx\@tempa\@tempb
245 \def\NAT@nmfmt#1{\mbox{\NAT@up#1}}\fi
246 \expandafter\NAT@find@eq\@tempa=\relax\@nil
247 \if\@tempc\relax\else
248 \expandafter\NAT@rem@eq\@tempc
249 \def\@tempb{open}\ifx\@tempa\@tempb
250 \xdef\NAT@open{\@tempc}\fi
251 \def\@tempb{close}\ifx\@tempa\@tempb
252 \xdef\NAT@close{\@tempc}\fi
253 \def\@tempb{aysep}\ifx\@tempa\@tempb
254 \xdef\NAT@aysep{\@tempc}\fi
255 \def\@tempb{yysep}\ifx\@tempa\@tempb
256 \xdef\NAT@yrsep{\@tempc}\fi
257 \def\@tempb{notesep}\ifx\@tempa\@tempb
258 \xdef\NAT@cmt{\@tempc}\fi
259 \def\@tempb{citesep}\ifx\@tempa\@tempb
260 \xdef\NAT@sep{\@tempc}\fi
261 \fi
262 }%
263 \NAT@@setcites
264 }
265 \renewcommand\citestyle[1]{%
266 \ifcsname bibstyle@#1\endcsname%
267 \csname bibstyle@#1\endcsname\let\bibstyle\@gobble%
268 \else%
269 \@latex@error{Undefined ‘#1’ citestyle}%
270 \fi
271 }%
272 \fi

```

\bibstyle@acmauthoryear The default author-year format:

```

273 \newcommand{\bibstyle@acmauthoryear}{%
274 \setcitestyle{%

```

```

275   authoryear,%
276   open={},close={},citesep={;},%
277   aysep={},yysep={},,%
278   notesep={, }}

```

`\bibstyle@acmnumeric` The default numeric format:

```

279 \newcommand{\bibstyle@acmnumeric}{%
280   \setcitestyle{%
281     numbers,sort&compress,%
282     open={},close={},citesep={},,%
283     notesep={, }}

```

The default is numeric:

```

284 \if@ACM@natbib
285 \citestyle{acmnumeric}
286 \fi

```

`\@startsection` Before we call `hyperref`, we redefine `\startsection` commands to their  $\text{\LaTeX}$  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:

```

287 \def\@startsection#1#2#3#4#5#6{%
288   \if@noskipsec \leavevmode \fi
289   \par
290   \@tempskipa #4\relax
291   \@afterindenttrue
292   \ifdim \@tempskipa <\z@
293     \@tempskipa -\@tempskipa \@afterindentfalse
294   \fi
295   \if@nobreak
296     \everypar{}%
297   \else
298     \addpenalty\@secpenalty\addvspace\@tempskipa
299   \fi
300   \@ifstar
301     {\@ssect{#3}{#4}{#5}{#6}}%
302     {\@dblarg{\@sect{#1}{#2}{#3}{#4}{#5}{#6}}}
303 \def\@sect#1#2#3#4#5#6[#7]#8{%
304   \edef\@toclevel{\ifnum#2=\@m 0\else\number#2\fi}%
305   \ifnum #2>\c@secnumdepth
306     \let\@svsec\@empty
307   \else
308     \refstepcounter{#1}%
309     \protected@edef\@svsec{\@secntformat{#1}\relax}%
310   \fi
311   \@tempskipa #5\relax
312   \ifdim \@tempskipa>\z@
313     \begingroup
314       #6{%
315         \@hangfrom{\hskip #3\relax\@svsec}%

```

```

316         \interlinepenalty \@M #8\@par}%
317     \endgroup
318     \csname #1mark\endcsname{#7}%
319     \ifnum #2>\c@secnumdepth \else
320         \@tochangmeasure{\csname the#1\endcsname}%
321     \fi
322     \addcontentsline{toc}{#1}{%
323         \ifnum #2>\c@secnumdepth \else
324             \protect\numberline{\csname the#1\endcsname}%
325         \fi
326         #7}%
327 \else
328     \def\@svsechd{%
329         #6{\hspace #3\relax
330             \@svsec #8}%
331         \csname #1mark\endcsname{#7}%
332         \ifnum #2>\c@secnumdepth \else
333             \@tochangmeasure{\csname the#1\endcsname\space}%
334         \fi
335         \addcontentsline{toc}{#1}{%
336             \ifnum #2>\c@secnumdepth \else
337                 \protect\numberline{\csname the#1\endcsname}%
338             \fi
339             #7}}%
340 \fi
341 \xsect{#5}}
342 \def\xsect#1{%
343     \@tempskipa #1\relax
344     \ifdim \@tempskipa>\z@
345         \par \nobreak
346         \vskip \@tempskipa
347         \afterheading
348     \else
349         \@nobreakfalse
350         \global\@noskipsectrue
351         \everypar{%
352             \if@noskipsec
353                 \global\@noskipsecfalse
354                 {\setbox\z@\lastbox}%
355                 \clubpenalty\@M
356                 \begingroup \@svsechd \endgroup
357                 \unskip
358                 \@tempskipa #1\relax
359                 \hspace -\@tempskipa
360             \else
361                 \clubpenalty \@clubpenalty
362             \everypar{}%
363         \fi}%
364 \fi
365 \ignorespaces}

```

```

366 \def\@secntformat#1{\csname the#1\endcsname\quad}
367 \def\@sect#1#2#3#4#5{%
368   \@tempskipa #3\relax
369   \ifdim \@tempskipa>\z@
370     \begingroup
371       #4{%
372         \@hangfrom{\hspace #1}%
373         \interlinepenalty \@M #5\@par}%
374     \endgroup
375   \else
376     \def\@svsechd{#4\hspace #1\relax #5}}%
377   \fi
378   \@xsect{#3}}

```

\@startsection Amsart redefines \@startsection. Here we redefine it again to make TOC working

```

379 \def\@starttoc#1#2{\begingroup\makeatletter
380   \setTrue{#1}%
381   \par\removelastskip\vskip\z@skip
382   \@startsection{section}\@M\z@{\linespacing\@plus\linespacing}%
383     {.5\linespacing}{\centering\contentsnamefont}{#2}%
384   \@input{\jobname.#1}%
385   \if@filesw
386     \xp\newwrite\csname tf@#1\endcsname
387     \immediate\xp\openout\csname tf@#1\endcsname \jobname.#1\relax
388   \fi
389   \global\@nobreakfalse \endgroup
390   \addvspace{32\p@\@plus14\p@}%
391 }

```

\l@section Section spacing is more generous than for amsart

```

392 \def\l@section{\@toctline{1}{0pt}{1pc}{2pc}{}}

```

\l@subsection Amsart has too large spacing

```

393 \def\l@subsection{\@toctline{2}{0pt}{1pc}{3pc}{}}

```

\l@subsubsection Amsart has too large spacing

```

394 \def\l@subsubsection{\@toctline{2}{0pt}{1pc}{5pc}{}}

```

And hyperref

```

395 \let\@footnotemark@nolink\@footnotemark
396 \let\@footnotetext@nolink\@footnotetext
397 \RequirePackage[bookmarksnumbered,unicode]{hyperref}
398 \pdfstringdefDisableCommands{%
399   \def\unskip{}%
400   \def\textbullet{-}%
401   \def\textrightarrow{->}%
402   \def\footnotemark{}%
403 }
404 \urlstyle{rm}

```

```

405 \ifcase\ACM@format@nr
406 \relax % manuscript
407 \or % acmsmall
408 \or % acmlarge
409 \or % acmtog
410 \or % sigconf
411 \or % siggraph
412 \or % sigplan
413 \urlstyle{sf}
414 \or % sigchi
415 \or % sigchi-a
416 \urlstyle{sf}
417 \fi
418 \AtEndPreamble{%
419   \if@ACM@screen
420     \hypersetup{colorlinks,
421       linkcolor=ACMRed,
422       citecolor=ACMPurple,
423       urlcolor=ACMDarkBlue,
424       filecolor=ACMDarkBlue}
425   \else
426     \hypersetup{hidelinks}
427   \fi}
  Bibliography mangling.
428 \if@ACM@natbib
429   \let\cite\citeN
430   \let\cite\citep
431   \let\citeANP\citeauthor
432   \let\citeNN\citeyearpar
433   \let\citeyearNP\citeyear
434   \let\citeyear\citeyearpar
435   \let\citeNP\citealt
436   \DeclareRobustCommand\citeA
437     {\begingroup\NAT@swafalse
438       \let\NAT@ctype\@ne\NAT@partrue\NAT@fullfalse\NAT@open\NAT@citetc}%
439   \providecommand\newblock{}%
440 \else
441   \AtBeginDocument{%
442     \let\shortcite\cite%
443     \providecommand\citename[1]{#1}}
444 \fi
445 \newcommand\shortcite[2][]{%
446   \ifNAT@numbers\cite[#1]{#2}\else\citeyear[#1]{#2}\fi}

```

`\bibliographystyle` Amsart redefines `\bibliographystyle` since it prefers AMS bibliography. We turn it back to  $\text{\LaTeX}$  definition:

```

447 \def\bibliographystyle#1{%
448   \ifx\@begindocumenthook\@undefined\else
449     \expandafter\AtBeginDocument

```

```

450 \fi
451 {\if@filesw
452 \immediate\write\@auxout{\string\bibstyle{#1}}}%
453 \fi}}

```

### Graphics and color

```

454 \RequirePackage{graphicx, xcolor}

We define ACM colors according to [7]:

455 \definecolor[named]{ACMBlue}{cmyk}{1,0.1,0,0.1}
456 \definecolor[named]{ACMYellow}{cmyk}{0,0.16,1,0}
457 \definecolor[named]{ACMOrange}{cmyk}{0,0.42,1,0.01}
458 \definecolor[named]{ACMRed}{cmyk}{0,0.90,0.86,0}
459 \definecolor[named]{ACMLightBlue}{cmyk}{0.49,0.01,0,0}
460 \definecolor[named]{ACMGreen}{cmyk}{0.20,0,1,0.19}
461 \definecolor[named]{ACMPurple}{cmyk}{0.55,1,0,0.15}
462 \definecolor[named]{ACMDarkBlue}{cmyk}{1,0.58,0,0.21}

```

### Author draft mode

```

463 \if@ACM@authordraft
464 \RequirePackage{draftwatermark}
465 \SetWatermarkFontSize{0.5in}
466 \SetWatermarkColor[gray]{.9}
467 \SetWatermarkText{\parbox{12em}{\centering
468 Unpublished working draft\
469 Not for distribution}}
470 \fi

```

## 3.6 Paper size and paragraphing

We use geometry for dimensions. Note the presently margins do not depend on the font size option - maybe we will need to change this. See <https://github.com/borisveytsman/acmart/issues/5#issuecomment-272881329>.

```

471 \RequirePackage{geometry}
472 \ifcase\ACM@format@nr
473 \relax % manuscript
474 \geometry{letterpaper,head=13pt,
475 marginparwidth=6pc,heightrounded}%
476 \or % acmsmall
477 \geometry{twoside=true,
478 includeheadfoot, head=13pt, foot=2pc,
479 paperwidth=6.75in, paperheight=10in,
480 top=58pt, bottom=44pt, inner=46pt, outer=46pt,
481 marginparwidth=2pc,heightrounded
482 }%
483 \or % acmlarge
484 \geometry{twoside=true, head=13pt, foot=2pc,
485 paperwidth=8.5in, paperheight=11in,
486 includeheadfoot,
487 top=78pt, bottom=114pt, inner=81pt, outer=81pt,

```

```

488     marginparwidth=4pc,heightrounded
489   }%
490 \or % acmtog
491   \geometry{twoside=true, head=13pt, foot=2pc,
492     paperwidth=8.5in, paperheight=11in,
493     includeheadfoot, columnsep=24pt,
494     top=52pt, bottom=75pt, inner=52pt, outer=52pt,
495     marginparwidth=2pc,heightrounded
496   }%
497 \or % sigconf
498   \geometry{twoside=true, head=13pt,
499     paperwidth=8.5in, paperheight=11in,
500     includeheadfoot, columnsep=2pc,
501     top=57pt, bottom=73pt, inner=54pt, outer=54pt,
502     marginparwidth=2pc,heightrounded
503   }%
504 \or % siggraph
505   \geometry{twoside=true, head=13pt,
506     paperwidth=8.5in, paperheight=11in,
507     includeheadfoot, columnsep=2pc,
508     top=57pt, bottom=73pt, inner=54pt, outer=54pt,
509     marginparwidth=2pc,heightrounded
510   }%
511 \or % sigplan
512   \geometry{twoside=true, head=13pt,
513     paperwidth=8.5in, paperheight=11in,
514     includeheadfoot=false, columnsep=2pc,
515     top=1in, bottom=1in, inner=0.75in, outer=0.75in,
516     marginparwidth=2pc,heightrounded
517   }%
518 \or % sigchi
519   \geometry{twoside=true, head=13pt,
520     paperwidth=8.5in, paperheight=11in,
521     includeheadfoot, columnsep=2pc,
522     top=66pt, bottom=73pt, inner=54pt, outer=54pt,
523     marginparwidth=2pc,heightrounded
524   }%
525 \or % sigchi-a
526   \geometry{twoside=false, head=13pt,
527     paperwidth=11in, paperheight=8.5in,
528     includeheadfoot, marginparsep=72pt,
529     marginparwidth=170pt, columnsep=20pt,
530     top=72pt, bottom=72pt, left=314pt, right=72pt
531   }%
532   \@mparswitchfalse
533   \reversemarginpar
534 \fi

```

\parindent Paragraphing

\parskip 535 \setlength\parindent{10\p@}



```

536 \setlength\parskip{\z@}
537 \ifcase\ACM@format@nr
538 \relax % manuscript
539 \or % acmsmall
540 \or % acmlarge
541 \or % acmtog
542 \setlength\parindent{9\p@}%
543 \or % sigconf
544 \or % siggraph
545 \or % sigplan
546 \or % sigchi
547 \or % sigchi-a
548 \fi

```

`\normalparindent` amsart defines the `\normalparindent` length and initializes it to 12pt (the value of `\parindent` in amsart). It is later used to set the `\listparindent` length in the quotation environment and the `\parindent` length in the `\@footnotetext` command. We set `\normalparindent` to the value of `\parindent` as selected by acmart for consistent paragraph indents.

```

549 \setlength\normalparindent{\parindent}

```

Footnotes require some consideration. We have several layers of footnotes: front-matter footnotes, “regular” footnotes and the special insert for bibstrip. In the old ACM classes bibstrip was a `\@float`. The problem with floats is that they tend to, well, float—and we want the guarantee they stay.

We use *manyfoot* for layered footnotes instead.

`\copyrightpermissionfootnoterule` This is the footnote rule that separates bibstrip from the rest of the paper. It is a full width rule.

```

550 \def\copyrightpermissionfootnoterule{\kern-3\p@
551 \hrule \@width \columnwidth \kern 2.6\p@}

552 \RequirePackage{manyfoot}
553 \SelectFootnoteRule[2]{copyrightpermission}
554 \DeclareNewFootnote{authorsaddresses}
555 \SelectFootnoteRule[2]{copyrightpermission}
556 \DeclareNewFootnote{copyrightpermission}

```

`\footnoterule` Tschichold’s rules:

```

557 \def\footnoterule{\kern-3\p@
558 \hrule \@width 4pc \kern 2.6\p@}

```

`\endminipage` We do not use footnote rules in minipages

```

559 \def\endminipage{%
560 \par
561 \unskip
562 \ifvoid\@mpfootins\else
563 \vskip\skip\@mpfootins
564 \normalcolor

```

```

565     \unvbox\@mpfootins
566     \fi
567     \@minipagefalse    %% added 24 May 89
568     \color@endgroup
569     \egroup
570     \expandafter\@iiparbox\@mpargs{\unvbox\@tempboxa}}

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

\@footnotetext In sigchi-a mode our footnotes are on the margins!
572 \if@ACM@sigchiamode
573 \long\def\@footnotetext#1{\marginpar{%
574     \reset@font\small
575     \interlinepenalty\interfootnotelinepenalty
576     \protected@edef\@currentlabel{%
577         \csname p@footnote\endcsname\@thefnmark
578     }%
579     \color@begingroup
580     \@makefnmark{%
581         \rule{z@footnotesep}{\ignorespaces#1}\@finalstrut\strutbox}%
582     \color@endgroup}}%
583 \fi

\@mpfootnotetext We want the footnotes in minipages centered:
584 \long\def\@mpfootnotetext#1{%
585     \global\setbox\@mpfootins\vbox{%
586         \unvbox\@mpfootins
587         \reset@font\footnotesize
588         \hsize\columnwidth
589         \@parboxrestore
590         \protected@edef\@currentlabel
591             {\csname p@mpfootnote\endcsname\@thefnmark}%
592         \color@begingroup\centering
593         \@makefnmark{%
594             \rule{z@footnotesep}{\ignorespaces#1}\@finalstrut\strutbox}%
595         \color@endgroup}}

\@makefnmark AMS classes use a buggy definition of \makefnmark. We revert to the standard one.
596 \def\@makefnmark{\hbox{\@textsuperscript{\normalfont\@thefnmark}}}}

\@textbottom Added some stretch according to David Carlisle's advice at http://tex.stackexchange.com/a/62318/5522
597 \def\@textbottom{\vskip \z@ \@plus 1pt}
598 \let\@texttop\relax

```

### 3.7 Fonts

Somehow PDF<sub>T</sub>EX and XeTeX require different incantations to make PDF compliant with the current Acrobat bugs. Xpdf is much better.

The code below is by Ross Moore.

```
599 \RequirePackage{iftex}
600 \ifPDFTeX
601 \input{glyphtounicode}
602 \pdfglyphtounicode{f_f}{FB00}
603 \pdfglyphtounicode{f_f_i}{FB03}
604 \pdfglyphtounicode{f_f_l}{FB04}
605 \pdfglyphtounicode{f_i}{FB01}
606 \pdfglyphtounicode{t_t}{00740074}
607 \pdfglyphtounicode{f_t}{00660074}
608 \pdfglyphtounicode{T_h}{00540068}
609 \pdfgentounicode=1
610 \fi
611 \RequirePackage{cmap}
```

\if@ACM@newfonts Whether we load the new fonts

```
612 \newif\if@ACM@newfonts
613 \@ACM@newfontstrue
614 \IfFileExists{libertine.sty}{\ClassWarning{\@classname}{You do not
615   have libertine package installed. Please upgrade your
616   TeX}\@ACM@newfontsfalse}
617 \IfFileExists{zi4.sty}{\ClassWarning{\@classname}{You do not
618   have zi4 package installed. Please upgrade your TeX}\@ACM@newfontsfalse}
619 \IfFileExists{newtxmath.sty}{\ClassWarning{\@classname}{You do not
620   have newtxmath package installed. Please upgrade your
621   TeX}\@ACM@newfontsfalse}
```

We use Libertine throughout.

```
622 \if@ACM@newfonts
623 \RequirePackage[tt=false, type1=true]{libertine}
624 \RequirePackage[varqu]{zi4}
625 \RequirePackage[libertine]{newtxmath}
626 \RequirePackage[T1]{fontenc}
627 \fi
```

\liningnums Libertine defines \liningnums, which makes fontspec unhappy. While we do not use fontspec, some users do...

```
628 \let\liningnums\@undefined
629 \AtEndPreamble{%
630   \DeclareTextFontCommand{\liningnums}{\libertineLF}}
```

The SIGCHI extended abstracts are sans serif:

```
631 \if@ACM@sigchiamode
632   \renewcommand{\familydefault}{\sfdefault}
633 \fi
```

### 3.8 Floats

We use caption package

```

634 \RequirePackage{caption, float}
635 \captionsetup[table]{position=top}
636 \if@ACM@journal
637   \captionsetup{labelfont={sf, small},
638     textfont={sf, small}, margin=\z@}
639   \captionsetup[figure]{name={Fig.}}
640 \else
641   \captionsetup{labelfont={bf},
642     textfont={bf}, labelsep=colon, margin=\z@}
643   \ifcase\ACM@format@nr
644   \relax % manuscript
645   \or % acmsmall
646   \or % acmlarge
647   \or % acmtog
648   \or % sigconf
649   \or % siggraph
650     \captionsetup{textfont={it}}
651   \or % sigplan
652     \captionsetup{labelfont={bf},
653       textfont={normalfont}, labelsep=period, margin=\z@}
654   \or % sigchi
655     \captionsetup[figure]{labelfont={bf, small},
656       textfont={bf, small}}
657   \or % sigchi-a
658     \captionsetup[figure]{labelfont={bf, small},
659       textfont={bf, small}}
660   \fi
661 \fi

```

sidebar The sidebar environment:

```

662 \newfloat{sidebar}{}{sbar}
663 \floatname{sidebar}{Sidebar}
664 \renewenvironment{sidebar}{}{\Collect@Body\@sidebar}{}

```

\@sidebar The processing of the saved text

```

665 \long\def\@sidebar#1{\bgroup\captionsetup{type=sidebar}%
666   \marginpar{\small#1}\egroup}

```

marginfigure The marginfigure environment:

```

667 \newenvironment{marginfigure}{}{\Collect@Body\@marginfigure}{}

```

\@marginfigure The processing of the saved text

```

668 \long\def\@marginfigure#1{\bgroup\captionsetup{type=figure}%
669   \marginpar{\centering\small#1}\egroup}

```

marginatable The marginatable environment:

```

670 \newenvironment{marginatable}{}{\Collect@Body\@marginatable}{}

```

`\@margintable` The processing of the saved text

```
671 \long\def\@margintable#1{\bgroup\captionsetup{type=table}%
672   \marginpar{\centering\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

```
673 \newdimen\fulltextwidth
674 \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)

```
675 \if@ACM@sigchiamode
676 \def\@dblfloat{\bgroup\columnwidth=\fulltextwidth
677   \let\endfloatbox\endwidefloatbox
678   \def\@fpsaddddefault{\def\@fps{tp}}}%
679 \@float}
680 \fi
```

`\enddblfloat` And the end. Just adding a `\bgroup`.

```
681 \if@ACM@sigchiamode
682 \def\enddblfloat{%
683   \end@float\egroup}
684 \fi
```

`\@endwidefloatbox` This is the end of a wide box - we basically move everything to the left

```
685 \def\@endwidefloatbox{%
686   \par\vskip\z@skip
687   \@minipagefalse
688   \outer@nobreak
689   \egroup
690   \color@endbox
691   \global\setbox\@currbox=\vbox{\moveleft
692     \dimexpr(\fulltextwidth-\textwidth)\box\@currbox}%
693   \wd\@currbox=\textwidth
694 }
```

### 3.9 Lists

```
695 \ifcase\ACM@format@nr
696 \relax % manuscript
697 \or % acmsmall
698 \or % acmlarge
699 \or % acmtog
700 \or % sigconf
701 \or % siggraph
702 \or % sigplan
703 \def\labelenumi{\theenumi.}
```

```

704 \def\labelenumii{\theenumii.}
705 \def\labelenumiii{\theenumiii.}
706 \def\labelenumiv{\theenumiv.}
707 \or % sigchi
708 \or % sigchi-a
709 \fi

```

AMS uses generous margins for the lists. Note that `amsart` defines `\leftmargin` values for list levels at begin document, so we must redefine them in the same manner. Also, note that `amsart` redefines `enumerate` and `itemize` environments with a `\makelabel` command that uses `\llap`, so the `\labelwidth` value is (effectively) irrelevant; nonetheless, we follow `amsart` and set `\labelwidth` to `\leftmargin` minus `\labelsep`.

```

710 \newdimen\@ACM@labelwidth
711 \AtBeginDocument{%
712   \setlength\labelsep{4pt}
713   \setlength{\@ACM@labelwidth}{6.5pt}
714
715   %% First-level list: when beginning after the first line of an
716   %% indented paragraph or ending before an indented paragraph, labels
717   %% should not hang to the left of the preceding/following text.
718   \setlength\leftmarginii{\z@}
719   \addtolength\leftmarginii{\parindent}
720   \addtolength\leftmarginii{2\labelsep}
721   \addtolength\leftmarginii{\@ACM@labelwidth}
722
723   %% Second-level and higher lists.
724   \setlength\leftmarginiii{\z@}
725   \addtolength\leftmarginiii{0.5\labelsep}
726   \addtolength\leftmarginiii{\@ACM@labelwidth}
727   \setlength\leftmarginiiii{\leftmarginii}
728   \setlength\leftmarginiv{\leftmarginiii}
729   \setlength\leftmarginv{\leftmarginiv}
730   \setlength\leftmarginvi{\leftmarginv}
731   \@listi}
732 \newskip\listisep
733 \listisep\smallskipamount
734 \def\@listI{\leftmargin\leftmarginii
735   \labelwidth\leftmarginii \advance\labelwidth-\labelsep
736   \listparindent\z@
737   \topsep\listisep}
738 \let\@listi\@listI
739 \def\@listii{\leftmargin\leftmarginii
740   \labelwidth\leftmarginiii \advance\labelwidth-\labelsep
741   \topsep\z@skip}
742 \def\@listiii{\leftmargin\leftmarginiii
743   \labelwidth\leftmarginiiii \advance\labelwidth-\labelsep}
744 \def\@listiv{\leftmargin\leftmarginiv
745   \labelwidth\leftmarginiv \advance\labelwidth-\labelsep}
746 \def\@listv{\leftmargin\leftmarginv
747   \labelwidth\leftmarginv \advance\labelwidth-\labelsep}

```

```

748 \def\@listvi{\leftmargin\leftmarginvi
749   \labelwidth\leftmarginvi \advance\labelwidth-\labelsep}
\descriptionlabel We do not use default colon as \amsart does:
750 \renewcommand{\descriptionlabel}[1]{\upshape\bfseries #1}

\description Make description environment indentation consistent with that of itemize and
enumerate environments.
751 \renewenvironment{description}{\list{}{\%
752   \labelwidth\@ACM\labelwidth
753   \let\makelabel\descriptionlabel}%
754 }{
755   \endlist
756 }
757 \let\enddescription=\endlist % for efficiency

```

### 3.10 Top matter data

We use keyval interface to define journal title and relevant information

```

758 \define@choicekey*+{ACM}{acmJournal}[\@journalCode\@journalCode@nr]{%
759   CIE,%
760   CSUR,%
761   IMWUT,%
762   JACM,%
763   JDIQ,%
764   JEA,%
765   JERIC,%
766   JETC,%
767   JOCCH,%
768   PACMHCI,%
769   PACMPL,%
770   POMACS,%
771   TAAS,%
772   TACCESS,%
773   TACO,%
774   TALG,%
775   TALLIP,%
776   TAP,%
777   TCPS,%
778   TEAC,%
779   TECS,%
780   THRI,%
781   TIIS,%
782   TISSEC,%
783   TIST,%
784   TKDD,%
785   TMIS,%
786   TOCE,%
787   TOCHI,%

```

```

788 TOCL,%
789 TOCS,%
790 TOCT,%
791 TODAES,%
792 TODS,%
793 TOG,%
794 TOIS,%
795 TOIT,%
796 TOMACS,%
797 TOMM,%
798 TOMPECS,%
799 TOMS,%
800 TOPC,%
801 TOPS,%
802 TOPLAS,%
803 TOS,%
804 TOSEM,%
805 TOSN,%
806 TRETs,%
807 TSAS,%
808 TSC,%
809 TSLP,%
810 TWEB%
811 }{%
812 \ifcase\@journalCode@nr
813 \relax % CIE
814 \def\@journalName{ACM Computers in Entertainment}%
815 \def\@journalNameShort{ACM Comput. Entertain.}%
816 \def\@permissionCodeOne{1544-3574}%
817 \or % CSUR
818 \def\@journalName{ACM Computing Surveys}%
819 \def\@journalNameShort{ACM Comput. Surv.}%
820 \def\@permissionCodeOne{0360-0300}%
821 \or % IMWUT
822 \def\@journalName{Proceedings of the ACM on Interactive, Mobile,
823 Wearable and Ubiquitous Technologies}%
824 \def\@journalNameShort{Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.}%
825 \def\@permissionCodeOne{2474-9567}%
826 \@ACM@screentru
827 \PackageInfo{\@classname}{Using screen mode due to \@journalCode}%
828 \or % JACM
829 \def\@journalName{Journal of the ACM}%
830 \def\@journalNameShort{J. ACM}%
831 \def\@permissionCodeOne{0004-5411}%
832 \or % JDIQ
833 \def\@journalName{ACM Journal of Data and Information Quality}%
834 \def\@journalNameShort{ACM J. Data Inform. Quality}%
835 \def\@permissionCodeOne{1936-1955}%
836 \or % JEA
837 \def\@journalName{ACM Journal of Experimental Algorithmics}%

```



```

838 \def\@journalNameShort{ACM J. Exp. Algor.}%
839 \def\@permissionCodeOne{1084-6654}%
840 \or % JERIC
841 \def\@journalName{ACM Journal of Educational Resources in Computing}%
842 \def\@journalNameShort{ACM J. Edu. Resources in Comput.}%
843 \def\@permissionCodeOne{1073-0516}%
844 \or % JETC
845 \def\@journalName{ACM Journal on Emerging Technologies in Computing Systems}%
846 \def\@journalNameShort{ACM J. Emerg. Technol. Comput. Syst.}%
847 \def\@permissionCodeOne{1550-4832}%
848 \or % JOCCH
849 \def\@journalName{ACM Journal on Computing and Cultural Heritage}%
850 \def\@journalName{ACM J. Comput. Cult. Herit.}%
851 \or % PACM HCI
852 \def\@journalName{Proceedings of the ACM on Human-Computer Interaction}%
853 \def\@journalName{Proc. ACM Hum.-Comput. Interact.}%
854 \def\@permissionCodeOne{2573-0142}%
855 \@ACM@screentru
856 \PackageInfo{\@classname}{Using screen mode due to \@journalCode}%
857 \or % PACMPL
858 \def\@journalName{Proceedings of the ACM on Programming Languages}%
859 \def\@journalName{Proc. ACM Program. Lang.}%
860 \def\@permissionCodeOne{2475-1421}%
861 \@ACM@screentru
862 \PackageInfo{\@classname}{Using screen mode due to \@journalCode}%
863 \or % POMACS
864 \def\@journalName{Proceedings of the ACM on Measurement and Analysis of Computing Systems}%
865 \def\@journalName{Proc. ACM Meas. Anal. Comput. Syst.}%
866 \def\@permissionCodeOne{2476-1249}%
867 \@ACM@screentru
868 \PackageInfo{\@classname}{Using screen mode due to \@journalCode}%
869 \or % TAAS
870 \def\@journalName{ACM Transactions on Autonomous and Adaptive Systems}%
871 \def\@journalNameShort{ACM Trans. Autonom. Adapt. Syst.}%
872 \def\@permissionCodeOne{1556-4665}%
873 \or % TACCESS
874 \def\@journalName{ACM Transactions on Accessible Computing}%
875 \def\@journalNameShort{ACM Trans. Access. Comput.}%
876 \def\@permissionCodeOne{1936-7228}%
877 \or % TACO
878 \def\@journalName{ACM Transactions on Architecture and Code Optimization}%
879 \or % TALG
880 \def\@journalName{ACM Transactions on Algorithms}%
881 \def\@journalNameShort{ACM Trans. Algor.}%
882 \def\@permissionCodeOne{1549-6325}%
883 \or % TALLIP
884 \def\@journalName{ACM Transactions on Asian and Low-Resource Language Information Processing}%
885 \def\@journalNameShort{ACM Trans. Asian Low-Resour. Lang. Inf. Process.}%
886 \def\@permissionCodeOne{2375-4699}%
887 \or % TAP

```

```

888 \def\@journalName{ACM Transactions on Applied Perception}%
889 \or % TCPS
890 \def\@journalName{ACM Transactions on Cyber-Physical Systems}%
891 \or % TEAC
892 \def\@journalName{ACM Transactions on Economics and Computation}%
893 \or % TECS
894 \def\@journalName{ACM Transactions on Embedded Computing Systems}%
895 \def\@journalNameShort{ACM Trans. Embedd. Comput. Syst.}%
896 \def\@permissionCodeOne{1539-9087}%
897 \or % THRI
898 \def\@journalName{ACM Transactions on Human-Robot Interaction}%
899 \def\@journalNameShort{ACM Trans. Hum.-Robot Interact.}%
900 \def\@permissionCodeOne{2573-9522}%
901 \or % TIIS
902 \def\@journalName{ACM Transactions on Interactive Intelligent Systems}%
903 \def\@journalNameShort{ACM Trans. Interact. Intell. Syst.}%
904 \def\@permissionCodeOne{2160-6455}%
905 \or % TISSEC
906 \def\@journalName{ACM Transactions on Information and System Security}%
907 \def\@journalNameShort{ACM Trans. Info. Syst. Sec.}%
908 \def\@permissionCodeOne{1094-9224}%
909 \or % TIST
910 \def\@journalName{ACM Transactions on Intelligent Systems and Technology}%
911 \def\@journalNameShort{ACM Trans. Intell. Syst. Technol.}%
912 \def\@permissionCodeOne{2157-6904}%
913 \or % TKDD
914 \def\@journalName{ACM Transactions on Knowledge Discovery from Data}%
915 \def\@journalNameShort{ACM Trans. Knowl. Discov. Data.}%
916 \def\@permissionCodeOne{1556-4681}%
917 \or % TMIS
918 \def\@journalName{ACM Transactions on Management Information Systems}%
919 \def\@journalNameShort{ACM Trans. Manag. Inform. Syst.}%
920 \def\@permissionCodeOne{2158-656X}%
921 \or % TOCE
922 \def\@journalName{ACM Transactions on Computing Education}%
923 \def\@journalNameShort{ACM Trans. Comput. Educ.}%
924 \def\@permissionCodeOne{1946-6226}%
925 \or % TOCHI
926 \def\@journalName{ACM Transactions on Computer-Human Interaction}%
927 \def\@journalNameShort{ACM Trans. Comput.-Hum. Interact.}%
928 \def\@permissionCodeOne{1073-0516}%
929 \or % TOCL
930 \def\@journalName{ACM Transactions on Computational Logic}%
931 \def\@journalNameShort{ACM Trans. Comput. Logic}%
932 \def\@permissionCodeOne{1529-3785}%
933 \or % TOCS
934 \def\@journalName{ACM Transactions on Computer Systems}%
935 \def\@journalNameShort{ACM Trans. Comput. Syst.}%
936 \def\@permissionCodeOne{0734-2071}%
937 \or % TOCT

```

```

938 \def\@journalName{ACM Transactions on Computation Theory}%
939 \def\@journalNameShort{ACM Trans. Comput. Theory}%
940 \def\@permissionCodeOne{1942-3454}%
941 \or % TODAES
942 \def\@journalName{ACM Transactions on Design Automation of Electronic Systems}%
943 \def\@journalNameShort{ACM Trans. Des. Autom. Electron. Syst.}%
944 \def\@permissionCodeOne{1084-4309}%
945 \or % TODS
946 \def\@journalName{ACM Transactions on Database Systems}%
947 \def\@journalNameShort{ACM Trans. Datab. Syst.}%
948 \def\@permissionCodeOne{0362-5915}%
949 \or % TOG
950 \def\@journalName{ACM Transactions on Graphics}%
951 \def\@journalNameShort{ACM Trans. Graph.}%
952 \def\@permissionCodeOne{0730-0301}%
953 \or % TOIS
954 \def\@journalName{ACM Transactions on Information Systems}%
955 \def\@journalName{ACM Transactions on Information Systems}%
956 \def\@permissionCodeOne{1046-8188}%
957 \or % TOIT
958 \def\@journalName{ACM Transactions on Internet Technology}%
959 \def\@journalNameShort{ACM Trans. Internet Technol.}%
960 \def\@permissionCodeOne{1533-5399}%
961 \or % TOMACS
962 \def\@journalName{ACM Transactions on Modeling and Computer Simulation}%
963 \def\@journalName{ACM Transactions on Modeling and Computer Simulation}%
964 \def\@journalNameShort{ACM Trans. Model. Comput. Simul.}%
965 \or % TOMM
966 \def\@journalName{ACM Transactions on Multimedia Computing, Communications and Applications}%
967 \def\@journalNameShort{ACM Trans. Multimedia Comput. Commun. Appl.}%
968 \def\@permissionCodeOne{1551-6857}%
969 \def\@permissionCodeTwo{0100}%
970 \or % TOMPECS
971 \def\@journalName{ACM Transactions on Modeling and Performance Evaluation of Computing Systems}%
972 \def\@journalNameShort{ACM Trans. Model. Perform. Eval. Comput. Syst.}%
973 \def\@permissionCodeOne{2376-3639}%
974 \or % TOMS
975 \def\@journalName{ACM Transactions on Mathematical Software}%
976 \def\@journalNameShort{ACM Trans. Math. Softw.}%
977 \def\@permissionCodeOne{0098-3500}%
978 \or % TOPC
979 \def\@journalName{ACM Transactions on Parallel Computing}%
980 \def\@journalNameShort{ACM Trans. Parallel Comput.}%
981 \def\@permissionCodeOne{1539-9087}%
982 \or % TOPS
983 \def\@journalName{ACM Transactions on Privacy and Security}%
984 \def\@journalNameShort{ACM Trans. Priv. Sec.}%
985 \def\@permissionCodeOne{2471-2566}%
986 \or % TOPLAS
987 \def\@journalName{ACM Transactions on Programming Languages and Systems}%

```

```

988 \def\@journalNameShort{ACM Trans. Program. Lang. Syst.}%
989 \def\@permissionCodeOne{0164-0925}%
990 \or % TOS
991 \def\@journalName{ACM Transactions on Storage}%
992 \def\@journalNameShort{ACM Trans. Storage}%
993 \def\@permissionCodeOne{1553-3077}%
994 \or % TOSEM
995 \def\@journalName{ACM Transactions on Software Engineering and Methodology}%
996 \def\@journalNameShort{ACM Trans. Softw. Eng. Methodol.}%
997 \def\@permissionCodeOne{1049-331X}%
998 \or % TOSN
999 \def\@journalName{ACM Transactions on Sensor Networks}%
1000 \def\@journalNameShort{ACM Trans. Sensor Netw.}%
1001 \def\@permissionCodeOne{1550-4859}%
1002 \or % TRETTS
1003 \def\@journalName{ACM Transactions on Reconfigurable Technology and Systems}%
1004 \def\@journalNameShort{ACM Trans. Reconfig. Technol. Syst.}%
1005 \def\@permissionCodeOne{1936-7406}%
1006 \or % TSAS
1007 \def\@journalName{ACM Transactions on Spatial Algorithms and Systems}%
1008 \def\@journalNameShort{ACM Trans. Spatial Algorithms Syst.}%
1009 \def\@permissionCodeOne{2374-0353}%
1010 \or % TSC
1011 \def\@journalName{ACM Transactions on Social Computing}%
1012 \def\@journalNameShort{ACM Trans. Soc. Comput.}%
1013 \def\@permissionCodeOne{2469-7818}%
1014 \or % TSLP
1015 \def\@journalName{ACM Transactions on Speech and Language Processing}%
1016 \def\@journalNameShort{ACM Trans. Speech Lang. Process.}%
1017 \def\@permissionCodeOne{1550-4875}%
1018 \or % TWEB
1019 \def\@journalName{ACM Transactions on the Web}%
1020 \def\@journalNameShort{ACM Trans. Web}%
1021 \def\@permissionCodeOne{1559-1131}%
1022 \fi
1023 \ClassInfo{\@classname}{Using journal code \@journalCode}%
1024 }{%
1025 \ClassError{\@classname}{Incorrect journal #1}%
1026 }%

```

\acmJournal And the syntactic sugar around it

```

1027 \def\acmJournal#1{\setkeys{ACM}{acmJournal=#1}}

```

The defaults:

```

1028 \def\@journalCode@nr{0}
1029 \def\@journalName{}%
1030 \def\@journalNameShort{\@journalName}%
1031 \def\@permissionCodeOne{XXXX-XXXX}%
1032 \def\@permissionCodeTwo{}%

```

`\acmConference` This is the conference command

```

1033 \newcommand\acmConference[4][\%
1034   \gdef\acmConference@shortname{#1}%
1035   \gdef\acmConference@name{#2}%
1036   \gdef\acmConference@date{#3}%
1037   \gdef\acmConference@venue{#4}%
1038   \ifx\acmConference@shortname\@empty
1039     \gdef\acmConference@shortname{#2}%
1040   \fi}
1041 \acmConference[Conference'17]{ACM Conference}{July 2017}{Washington,
1042   DC, USA}

```

`\acmBooktitle` The book title of the conference:

`\@acmBooktitle`

```

1043 \def\acmBooktitle#1{\gdef\@acmBooktitle{#1}}
1044 \acmBooktitle{Proceedings of \acmConference@name
1045   \ifx\acmConference@name\acmConference@shortname\else
1046     \ (\acmConference@shortname)\fi}

```

`\@editorsAbbrev` How to abbreviate editors

```

1047 \def\@editorsAbbrev{(Ed.)}

```

`\@acmEditors` The list of editors

`\editor` Add new editor to the list

```

1048 \def\editor#1{\ifx\@acmEditors\@empty
1049   \gdef\@acmEditors{#1}%
1050   \else
1051     \gdef\@editorsAbbrev{(Eds.)}%
1052     \g@addto@macro\@acmEditors{\and#1}%
1053   \fi}

```

`\subtitle` The subtitle macro

```

1054 \def\subtitle#1{\def\@subtitle{#1}}
1055 \subtitle{}

```

`\num@authorgroups` The total number of “groups”. Each group is several authors with the same affiliations(s)

```

1056 \newcount\num@authorgroups
1057 \num@authorgroups=0\relax

```

`\num@author` The total number of authors.

```

1058 \newcount\num@author
1059 \num@author=0\relax

```

`\if@insideauthorgroup` Whether we are continuing an author group @insideauthorgroup insideauthorgroup-false

`\author` Adding an author to the list of authors and addresses

```

1060 \renewcommand\author[2][\%
1061   \global\advance\num@author by 1\relax

```

```

1062 \if@insideauthorgroup\else
1063   \global\advance\num@authorgroups by 1\relax
1064   \global\@insideauthorgrouptrue
1065 \fi
1066 \ifx\addresses\@empty
1067   \if@ACM@anonymous
1068     \gdef\addresses{\@author{Anonymous Author(s)}}%
1069     \gdef\authors{Anonymous Author(s)}%
1070   \else
1071     \gdef\addresses{\@author{#2}}%
1072     \gdef\authors{#2}%
1073   \fi
1074 \else
1075   \if@ACM@anonymous\else
1076     \g@addto@macro\addresses{\and\@author{#2}}%
1077     \g@addto@macro\authors{\and#2}%
1078   \fi
1079 \fi
1080 \if@ACM@anonymous
1081   \ifx\shortauthors\@empty
1082     \gdef\shortauthors{Anon.}%
1083   \fi
1084 \else
1085   \def\@tempa{#1}%
1086   \ifx\@tempa\@empty
1087     \ifx\shortauthors\@empty
1088       \gdef\shortauthors{#2}%
1089     \else
1090       \g@addto@macro\shortauthors{\and#2}%
1091     \fi
1092   \else
1093     \ifx\shortauthors\@empty
1094       \gdef\shortauthors{#1}%
1095     \else
1096       \g@addto@macro\shortauthors{\and#1}%
1097     \fi
1098   \fi
1099 \fi}

```

`\affiliation` The macro `\affiliation` mimics `\address` from `amsart`. Note that it has an optional argument, which we use differently from `amsart`.

```

1100 \newcommand{\affiliation}[2][{}]{%
1101   \global\@insideauthorgroupfalse
1102   \if@ACM@anonymous\else
1103     \g@addto@macro\addresses{\affiliation{#1}{#2}}%
1104   \fi}

```

`@ACM@affiliation@obeypunctuation` Whether to use author's punctuation (by default false = add American punctuation)

```

1105 \define@boolkey+{@ACM@affiliation@}[@ACM@affiliation@]{obeypunctuation}%
1106 [true]{}{\ClassError{\@classname}{obeypunctuation must be true or false}}

```

`\additionalaffiliation` Additional affiliations go to footnotes  
1107 `\def\additionalaffiliation#1{\authornote{\@additionalaffiliation{#1}}}`

`\@additionalaffiliation` Process additionalaffiliation inside \authornote  
1108 `\def\@additionalaffiliation#1{\bgroup`  
1109 `\def\position##1{\ignorespaces}%`  
1110 `\def\institution##1{##1\ignorespaces}%`  
1111 `\def\department{\@ifnextchar[{\@department}{\@department[]}}%`  
1112 `\def\@department[##1]##2{\unskip, ##2\ignorespaces}%`  
1113 `\let\streetaddress\position`  
1114 `\let\city\position`  
1115 `\let\state\position`  
1116 `\let\postcode\position`  
1117 `\let\country\position`  
1118 `Also with #1\unskip.\egroup}`

`\email` The macro \email mimics \email from amsart. Agian it has an optional argument we do not currently need, but keep for the possible future use.  
1119 `\renewcommand{\email}[2][{}]{%`  
1120 `\if@ACM@anonymous\else`  
1121 `\g@addto@macro\addresses{\email{#1}{#2}}%`  
1122 `\fi}`

`\orcid` Right now we do not typeset orcid

`\authorsaddresses` Setting up authors' addresses

`\@titlenotes` The titlenotes  
1123 `\def\@titlenotes{}`

`\titlenote` Adding note to the title  
1124 `\def\titlenote#1{%`  
1125 `\g@addto@macro\@title{\footnotemark}%`  
1126 `\if@ACM@anonymous`  
1127 `\g@addto@macro\@titlenotes{%`  
1128 `\stepcounter{footnote}\footnotetext{Title note}}%`  
1129 `\else`  
1130 `\g@addto@macro\@titlenotes{\stepcounter{footnote}\footnotetext{#1}}%`  
1131 `\fi}`

`\@subtitlenotes` The subtitlenotes  
1132 `\def\@subtitlenotes{}`

`\subtitlenote` Adding note to the subtitle  
1133 `\def\subtitlenote#1{%`  
1134 `\g@addto@macro\@subtitle{\footnotemark}%`  
1135 `\if@ACM@anonymous`  
1136 `\g@addto@macro\@subtitlenotes{%`  
1137 `\stepcounter{footnote}\footnotetext{Subtitle note}}%`

```

1138 \else
1139 \g@addto@macro\@subtitlenotes{%
1140 \stepcounter{footnote}\footnotetext{#1}}%
1141 \fi}

\@authornotes The authornotes
1142 \def\@authornotes{}

\authornote Adding note to the author
1143 \def\authornote#1{%
1144 \if@ACM@anonymous\else
1145 \g@addto@macro\addresses{\@authornotemark}%
1146 \g@addto@macro\@authornotes{%
1147 \stepcounter{footnote}\footnotetext{#1}}%
1148 \fi}

\authornotemark Adding footnotemark to authors
1149 \newcommand\authornotemark[1][\relax]{%
1150 \ifx#1\relax\relax\relax
1151 \g@addto@macro\addresses{\@authornotemark}%
1152 \else
1153 \g@addto@macro\addresses{\@authornotemark{#1}}%
1154 \fi}

\acmVolume The current volume
1155 \def\acmVolume#1{\def\@acmVolume{#1}}
1156 \acmVolume{1}

\acmNumber The current number
1157 \def\acmNumber#1{\def\@acmNumber{#1}}
1158 \acmNumber{1}

\acmArticle The current article
1159 \def\acmArticle#1{\def\@acmArticle{#1}}
1160 \acmArticle{}

\acmArticleSeq The sequence number
1161 \def\acmArticleSeq#1{\def\@acmArticleSeq{#1}}
1162 \acmArticleSeq{\@acmArticle}

\acmYear The current year
1163 \def\acmYear#1{\def\@acmYear{#1}}
1164 \acmYear{\the\year}

\acmMonth The current month
1165 \def\acmMonth#1{\def\@acmMonth{#1}}
1166 \acmMonth{\the\month}

```



\acmPubDate The publication date  
1167 \def\acmPubDate{\ifcase\acmMonth\or  
1168 January\or February\or March\or April\or May\or June\or  
1169 July\or August\or September\or October\or November\or  
1170 December\fi~\acmYear}

\acmPrice The price  
1171 \def\acmPrice#1{\def\acmPrice{#1}}  
1172 \acmPrice{15.00}

\acmSubmissionID The submission id  
1173 \def\acmSubmissionID#1{\def\acmSubmissionID{#1}}  
1174 \acmSubmissionID{}

\acmISBN The book isbn  
1175 \def\acmISBN#1{\def\acmISBN{#1}}  
1176 \acmISBN{978-x-xxxx-xxxx-x/YY/MM}

\acmDOI The paper doi  
1177 \def\acmDOI#1{\def\acmDOI{#1}}  
1178 \acmDOI{10.1145/nnnnnnn.nnnnnnn}

\if@ACM@badge Whether to print badge. Note that either left or right badge triggers it:  
1179 \newif\if@ACM@badge  
1180 \@ACM@badgefalse

\@ACM@badge@width The width of the badge  
1181 \newlength\@ACM@badge@width  
1182 \setlength\@ACM@badge@width{5pc}

\@ACM@title@width The width of the badge  
1183 \newlength\@ACM@title@width

\@ACM@badge@skip The space between the badge and the title  
1184 \newlength\@ACM@badge@skip  
1185 \setlength\@ACM@badge@skip{1pc}

\acmBadgeR Setting the right badge  
1186 \newcommand\acmBadgeR[2][\@ACM@badgetrue  
1187 \def\acmBadgeR@url{#1}%  
1188 \def\acmBadgeR@image{#2}}  
1189 \def\acmBadgeR@url{  
1190 \def\acmBadgeR@image{}

\acmBadgeL Setting the left badge  
1191 \newcommand\acmBadgeL[2][\@ACM@badgetrue  
1192 \def\acmBadgeL@url{#1}%  
1193 \def\acmBadgeL@image{#2}}  
1194 \def\acmBadgeL@url{  
1195 \def\acmBadgeL@image{}

`\startPage` The start page of the paper

```

1196 \def\startPage#1{\def\@startPage{#1}}
1197 \startPage{}

```

`\terms` Terms are obsolete, we use CCS now.

```

1198 \def\terms#1{\ClassWarning{\@classname}{The command \string\terms{} is
1199     obsolete. I am going to ignore it}}

```

`\keywords` Keywords are mostly obsolete, we use CCS now. Still it makes sense to keep them for compatibility.

```

1200 \def\keywords#1{\def\@keywords{#1}}
1201 \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

```

1202 \renewenvironment{abstract}{\Collect@Body\@saveabstract}{}

```

`\@saveabstract` And saving the abstract

```

1203 \long\def\@saveabstract#1{\long\gdef\@abstract{#1}}
1204 \@saveabstract{}

```

`\@empty` The long version of `\@empty` (to compare with `\@abstract`)

```

1205 \long\def\@empty{}

```

`\if@ACM@printccs` Whether to print CCS

```

1206 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printccs}[true]{%
1207     \if@ACM@printccs
1208         \ClassInfo{\@classname}{Printing CCS}%
1209     \else
1210         \ClassInfo{\@classname}{Suppressing CCS}%
1211     \fi}{\ClassError{\@classname}{printccs must be true or false}}

```

`\if@ACM@printacmref` Whether to print ACM bib

```

1212 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printacmref}[true]{%
1213     \if@ACM@printacmref
1214         \ClassInfo{\@classname}{Printing bibformat}%
1215     \else
1216         \ClassInfo{\@classname}{Suppressing bibformat}%
1217     \fi}{\ClassError{\@classname}{printacmref must be true or false}}

```

`\if@ACM@printfolios` Whether to print folios

```

1218 \define@boolkey+{@ACM@topmatter@}[@ACM@]{printfolios}[true]{%
1219     \if@ACM@printfolios
1220         \ClassInfo{\@classname}{Printing folios}%
1221     \else
1222         \ClassInfo{\@classname}{Suppressing folios}%
1223     \fi}{\ClassError{\@classname}{printfolios must be true or false}}

```

`\@ACM@authorsperrow` The number of authors per row. 0 means use default algorithm.

```

1224 \define@cmdkey{@ACM@topmatter@}{@ACM@}{authorsperrow}[0]{%
1225   \IfInteger{#1}{\ClassInfo{\@classname}{Setting authorsperrow to
1226     #1}}{\ClassWarning{\@classname}{Parameter authorsperrow must be
1227       numerical. Ignoring the input #1}}\gdef\@ACM@authorsperrow{0}}}
```

`\settopmatter` The usual syntactic sugar

```

1228 \def\settopmatter#1{\setkeys{@ACM@topmatter@}{#1}}
```

Now the settings

```

1229 \settopmatter{printccs=true, printacmref=true}
1230 \if@ACM@manuscript
1231   \settopmatter{printfolios=true}
1232 \else
1233   \if@ACM@journal
1234     \settopmatter{printfolios=true}
1235   \else
1236     \settopmatter{printfolios=false}
1237   \fi
1238 \fi
1239 \settopmatter{authorsperrow=0}
```

`\@received` The container for the paper history

```

1240 \def\@received{}
```

`\received` The `\received` command

```

1241 \newcommand\received[2][\def\@tempa{#1}%
1242   \ifx\@tempa\@empty
1243     \ifx\@received\@empty
1244       \gdef\@received{Received #2}%
1245     \else
1246       \g@addto@macro{\@received}{; revised #2}%
1247     \fi
1248   \else
1249     \ifx\@received\@empty
1250       \gdef\@received{#1 #2}%
1251     \else
1252       \g@addto@macro{\@received}{; #1 #2}%
1253     \fi
1254   \fi}
1255 \AtEndDocument{%
1256   \ifx\@received\@empty\else
1257     \par\bigskip\noindent\small\normalfont\@received\par
1258   \fi}
```

### 3.11 Concepts system

We exclude CCSXML stuff generated by the ACM system:

```

1259 \RequirePackage{comment}
1260 \excludecomment{CCSXML}

\@concepts This is the storage macro for concepts
1261 \let\@concepts\@empty

\ccsdesc The first argument is the significance, the second is the concept(s)
1262 \newcommand\ccsdesc[2][100]{%
1263   \ccsdesc@parse#1~#2~\ccsdesc@parse@end}

\ccsdesc@parse The parser of the expression Significance~General~Specific (we need textcomp for
\textrightarrow). Note that Specific can be empty!
1264 \RequirePackage{textcomp}
1265 \def\ccsdesc@parse#1~#2~#3~{%
1266   \expandafter\ifx\csname CCS@General@#2\endcsname\relax
1267     \expandafter\gdef\csname CCS@General@#2\endcsname{\textbullet\
1268       \textbf{#2}}}%
1269   \expandafter\gdef\csname CCS@Punctuation@#2\endcsname{; }%
1270   \expandafter\gdef\csname CCS@Specific@#2\endcsname{}%
1271   \g@addto@macro{\@concepts}{\csname CCS@General@#2\endcsname
1272     \csname CCS@Punctuation@#2\endcsname
1273     \csname CCS@Specific@#2\endcsname}%
1274   \fi
1275   \ifx#3\relax\relax\else
1276     \expandafter\gdef\csname CCS@Punctuation@#2\endcsname{
1277       \textrightarrow\ }%
1278     \expandafter\g@addto@macro\expandafter{\csname CCS@Specific@#2\endcsname}{%
1279       \ifnum#1>499\textbf{#3}; \else
1280       \ifnum#1>299\textit{#3}; \else
1281       #3; \fi\fi}%
1282   \fi
1283 \ccsdesc@parse@finish}

\ccdesc@parse@finish Gobble everything to \ccsdesc@parse@end
1284 \def\ccsdesc@parse@finish#1\ccsdesc@parse@end{}
```

### 3.12 Copyright system

This is from acmcopyright.sty

```

\if@printcopyright A flag whether to print copyright symbol
1285 \newif\if@printcopyright
1286 \@printcopyrighttrue

\if@printpermission Whether to print permission block
1287 \newif\if@printpermission
1288 \@printpermissiontrue
```

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

```
1289 \newif\if@acmowned
1290 \@acmownedtrue
```

Keys:

```
1291 \define@choicekey*{ACM@}{acmcopyrightmode}[%
1292   \acm@copyrightinput\acm@copyrightmode]{none,%
1293     acmcopyright,acmlicensed,rightsretained,%
1294     usgov,usgovmixed,cagov,cagovmixed,%
1295     licensedusgovmixed,%
1296     licensedcagov,licensedcagovmixed,othergov,licensedothergov}{%
1297   \@printpermissiontrue
1298   \@printcopyrighttrue
1299   \@acmownedtrue
1300   \ifnum\acm@copyrightmode=0\relax % none
1301     \@printpermissionfalse
1302     \@printcopyrightfalse
1303     \@acmownedfalse
1304   \fi
1305   \ifnum\acm@copyrightmode=2\relax % acmlicensed
1306     \@acmownedfalse
1307   \fi
1308   \ifnum\acm@copyrightmode=3\relax % rightsretained
1309     \@acmownedfalse
1310     \acmPrice{}%
1311   \fi
1312   \ifnum\acm@copyrightmode=4\relax % usgov
1313     \@printpermissiontrue
1314     \@printcopyrightfalse
1315     \@acmownedfalse
1316     \acmPrice{}%
1317   \fi
1318   \ifnum\acm@copyrightmode=6\relax % cagov
1319     \@acmownedfalse
1320   \fi
1321   \ifnum\acm@copyrightmode=8\relax % licensedusgovmixed
1322     \@acmownedfalse
1323   \fi
1324   \ifnum\acm@copyrightmode=9\relax % licensedcagov
1325     \@acmownedfalse
1326   \fi
1327   \ifnum\acm@copyrightmode=10\relax % licensedcagovmixed
1328     \@acmownedfalse
1329   \fi
1330   \ifnum\acm@copyrightmode=11\relax % othergov
1331     \@acmownedtrue
1332   \fi
1333   \ifnum\acm@copyrightmode=12\relax % licensedothergov
1334     \@acmownedfalse
1335   \fi}
```

`\setcopyright` This is the syntactic sugar around setting keys.

```
1336 \def\setcopyright#1{\setkeys{ACM@}{acmcopyrightmode=#1}}
1337 \setcopyright{acmcopyright}
```

`\@copyrightowner` Here is the owner of the copyright

```
1338 \def\@copyrightowner{%
1339   \ifcase\acm@copyrightmode\relax % none
1340   \or % acmcopyright
1341     Association for Computing Machinery.
1342   \or % acmlicensed
1343     Copyright held by the owner/author(s). Publication rights licensed to
1344     Association for Computing Machinery.
1345   \or % rightsretained
1346     Copyright held by the owner/author(s).
1347   \or % usgov
1348   \or % usgovmixed
1349     Association for Computing Machinery.
1350   \or % cagov
1351     Crown in Right of Canada.
1352   \or %cagovmixed
1353     Association for Computing Machinery.
1354   \or %licensedusgovmixed
1355     Copyright held by the owner/author(s). Publication rights licensed to
1356     Association for Computing Machinery.
1357   \or % licensedcagov
1358     Crown in Right of Canada. Publication rights licensed to
1359     Association for Computing Machinery.
1360   \or %licensedcagovmixed
1361     Copyright held by the owner/author(s). Publication rights licensed to
1362     Association for Computing Machinery.
1363   \or % othergov
1364     Association for Computing Machinery.
1365   \or % licensedothergov
1366     Copyright held by the owner/author(s). Publication rights licensed to
1367     Association for Computing Machinery.
1368   \fi}
```

`\@formatdoi` Print a clickable doi

```
1369 \def\@formatdoi#1{\url{https://doi.org/#1}}
```

`\@copyrightpermission` The canned permission block.

```
1370 \def\@copyrightpermission{%
1371   \ifcase\acm@copyrightmode\relax % none
1372   \or % acmcopyright
1373     Permission to make digital or hard copies of all or part of this
1374     work for personal or classroom use is granted without fee provided
1375     that copies are not made or distributed for profit or commercial
1376     advantage and that copies bear this notice and the full citation on
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```

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1428 \or % cagovmixed  
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 1471 such, the Government retains a nonexclusive, royalty-free right to  
 1472 publish or reproduce this article, or to allow others to do so, for  
 1473 Government purposes only.  
 1474 \or % licensedothergov  
 1475 Publication rights licensed to ACM\@. ACM acknowledges that this  
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```

1478   retains a nonexclusive, royalty-free right to publish or reproduce
1479   this article, or to allow others to do so, for Government purposes
1480   only.
1481   \fi}

\copyrightyear By default, the copyright year is the same as \acmYear, but one can override this:
1482 \def\copyrightyear#1{\def\@copyrightyear{#1}}
1483 \copyrightyear{\@acmYear}

\@teaserfigures The teaser figures container
1484 \def\@teaserfigures{}

teaserfigure The teaser figure
1485 \newenvironment{teaserfigure}{\Collect@Body\@saveteaser}{}

\@saveteaser Saving the teaser
1486 \long\def\@saveteaser#1{\g@addto@macro\@teaserfigures{\@teaser{#1}}}}

\thanks We redefine amsart \thanks, so the anonymous key works
1487 \renewcommand{\thanks}[1]{%
1488   \ifnotempty{#1}{%
1489     \if@ACM@anonymous
1490       \g@addto@macro\thankses{\thanks{A note}}%
1491     \else
1492       \g@addto@macro\thankses{\thanks{#1}}%
1493     \fi}}

```

### 3.13 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].
1494 \newbox\mktitle@bx

\maketitle The (in)famous \maketitle. Note that in sigchi-a mode authors are not in the title box.
Another note: there is a subtle difference between author notes, title notes and
thankses. The latter refer to the paper itself, and therefore belong to the copy-
right/permission block. By the way, this was the default behavior of the old ACM classes.
1495 \def\maketitle{%
1496   \if@ACM@anonymous
1497     % Anonymize omission of \author-s
1498     \ifnum\@authorgroups=0\author{}\fi
1499   \fi
1500   \begin{group}
1501     \let\@footnotemark\@footnotemark@nolink
1502     \let\@footnotetext\@footnotetext@nolink
1503     \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
1504     \global\@topnum\z@ % this prevents floats from falling

```

```

1505 % at the top of page 1
1506 \global\@botnum\z@ % we do not want them to be on bottom either
1507 \hsize=\textwidth
1508 \def\@makefnmark{\hbox{\@textsuperscript{\@thefnmark}}}%
1509 \mktitle\if@ACM@sigchiamode\else\mkauthors\fi\mkteasers
1510 \@printtopmatter
1511 \if@ACM@sigchiamode\mkauthors\fi
1512 \setcounter{footnote}{0}%
1513 \def\@makefnmark{\hbox{\@textsuperscript{\normalfont\@thefnmark}}}%
1514 \@titlenotes
1515 \@subtitlenotes
1516 \@authornotes
1517 \let\@makefnmark\relax \let\@thefnmark\relax
1518 \let\@makefntext\noindent
1519 \ifx\@empty\thankses\else
1520   \footnotetextauthorsaddresses{%
1521     \def\par{\let\par\@par}\parindent\z@\@setthanks}%
1522   \fi
1523 \ifx\@empty\@authorsaddresses\else
1524   \if@ACM@anonymous\else
1525     \if@ACM@journal
1526       \footnotetextauthorsaddresses{%
1527         \def\par{\let\par\@par}\parindent\z@\@setauthorsaddresses}%
1528       \fi
1529     \fi
1530   \fi
1531 \footnotetextcopyrightpermission{%
1532   \if@ACM@authordraft
1533     \raisebox{-2ex}[\z@]{\z@}{\makebox[0pt][l]{\large\bfseries
1534       Unpublished
1535       working draft. Not for distribution}}}%
1536   \color[gray]{0.9}%
1537   \fi
1538   \parindent\z@\parskip0.1\baselineskip
1539   \if@ACM@authorversion\else
1540     \if@printpermission\@copyrightpermission\par\fi
1541   \fi
1542   \if@ACM@manuscript\else
1543     \if@ACM@journal\else % Print the conference information
1544       {\itshape \acmConference@shortname, \acmConference@date, \acmConference@venue}\par
1545     \fi
1546   \fi
1547   \if@printcopyright
1548     \copyright\ \@copyrightyear\ \@copyrightowner\
1549   \else
1550     \@copyrightyear.\
1551   \fi
1552   \if@ACM@manuscript
1553     Manuscript submitted to ACM\
1554   \else

```

```

1555 \if@ACM@authorversion
1556     This is the author's version of the work. It is posted here for
1557     your personal use. Not for redistribution. The definitive Version
1558     of Record was published in
1559     \if@ACM@journal
1560         \emph{\@journalName}%
1561     \else
1562         \emph{\@acmBooktitle}%
1563     \fi
1564     \ifx\@acmDOI\@empty
1565         .
1566     \else
1567         , \@formatdoi{\@acmDOI}.
1568     \fi\
1569 \else
1570     \if@ACM@journal
1571         \@permissionCodeOne/\@acmYear/\@acmMonth-ART\@acmArticle
1572         \ifx\@acmPrice\@empty\else\ $\@acmPrice\fi\
1573         \@formatdoi{\@acmDOI}%
1574     \else % Conference
1575         \ifx\@acmISBN\@empty\else ACM~ISBN~\@acmISBN
1576         \ifx\@acmPrice\@empty.\else\dots\$\@acmPrice\fi\fi
1577         \ifx\@acmDOI\@empty\else\@formatdoi{\@acmDOI}\fi%
1578     \fi
1579 \fi
1580 \fi}
1581 \endgroup
1582 \setcounter{footnote}{0}%
1583 \@mkabstract
1584 \if@ACM@printccs
1585     \ifx\@concepts\@empty\else\bgroup
1586         {\@specialsection{CCS Concepts}%
1587         \@concepts\par}\egroup
1588     \fi
1589 \fi
1590 \ifx\@keywords\@empty\else\bgroup
1591     {\if@ACM@journal
1592         \@specialsection{Additional Key Words and Phrases}%
1593     \else
1594         \@specialsection{Keywords}%
1595     \fi
1596     \@keywords}\par\egroup
1597 \fi
1598 \andify\authors
1599 \andify\shortauthors
1600 \global\let\authors=\authors
1601 \global\let\shortauthors=\shortauthors
1602 \if@ACM@printacmref
1603     \@mkbibcitation
1604 \fi

```

```

1605 \hypersetup{pdfauthor={\authors},
1606   pdftitle={\@title},
1607   pdfsubject={\@concepts},
1608   pdfkeywords={\@keywords}}%
1609 \@printendtopmatter
1610 \@afterindentfalse
1611 \@afterheading
1612 }

```

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

```

1613 \def\@specialsection#1{%
1614   \ifcase\ACM@format@nr
1615   \relax % manuscript
1616   \par\medskip\small\noindent#1: %
1617   \or % acmsmall
1618   \par\medskip\small\noindent#1: %
1619   \or % acmlarge
1620   \par\medskip\small\noindent#1: %
1621   \or % acmtog
1622   \par\medskip\small\noindent#1: %
1623   \or % sigconf
1624   \section*{#1}%
1625   \or % siggraph
1626   \section*{#1}%
1627   \or % sigplan
1628   \paragraph*{#1}%
1629   \or % sigchi
1630   \section*{#1}%
1631   \or % sigchi-a
1632   \section*{#1}%
1633   \fi}

```

`\@printtopmatter` The printing of top matter starts the new page, and uses the given title box. Note that for sigchi-a we print badges here rather than in `\mkttitle` since we want them on the margins.

```

1634 \def\@printtopmatter{%
1635   \ifx\@startPage\@empty
1636     \gdef\@startPage{1}%
1637   \else
1638     \setcounter{page}{\@startPage}%
1639   \fi
1640   \thispagestyle{firstpagestyle}%
1641   \noindent
1642   \ifcase\ACM@format@nr
1643   \relax % manuscript
1644   \box\mkttitle@bx\par
1645   \or % acmsmall
1646   \box\mkttitle@bx\par
1647   \or % acmlarge

```

```

1648 \box\mktitle@bx\par
1649 \or % acmtog
1650 \twocolumn[\box\mktitle@bx]%
1651 \or % sigconf
1652 \twocolumn[\box\mktitle@bx]%
1653 \or % siggraph
1654 \twocolumn[\box\mktitle@bx]%
1655 \or % sigplan
1656 \twocolumn[\box\mktitle@bx]%
1657 \or % sigchi
1658 \twocolumn[\box\mktitle@bx]%
1659 \or % sigchi-a
1660 \par\box\mktitle@bx\par\bigskip
1661 \if@ACM@badge
1662 \marginpar{\noindent
1663 \ifx\@acmBadgeL@image\@empty\else
1664 \href{\@acmBadgeL@url}{%
1665 \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}%
1666 \hskip\@ACM@badge@skip
1667 \fi
1668 \ifx\@acmBadgeR@image\@empty\else
1669 \href{\@acmBadgeR@url}{%
1670 \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}%
1671 \fi}%
1672 \fi
1673 \fi
1674 }

```

\@mktitle The title of the article

```

1675 \def\@mktitle{%
1676 \ifcase\ACM@format@nr
1677 \relax % manuscript
1678 \@mktitle@i
1679 \or % acmsmall
1680 \@mktitle@i
1681 \or % acmlarge
1682 \@mktitle@i
1683 \or % acmtog
1684 \@mktitle@i
1685 \or % sigconf
1686 \@mktitle@iii
1687 \or % siggraph
1688 \@mktitle@iii
1689 \or % sigplan
1690 \@mktitle@iii
1691 \or % sigchi
1692 \@mktitle@iii
1693 \or % sigchi-a
1694 \@mktitle@iv
1695 \fi

```

```

1696 }

\@titlefont The font to typeset title
1697 \def\@titlefont{%
1698   \ifcase\ACM@format@nr
1699   \relax % manuscript
1700   \LARGE\sffamily\bfseries
1701   \or % acmsmall
1702   \LARGE\sffamily\bfseries
1703   \or % acmlarge
1704   \LARGE\sffamily\bfseries
1705   \or % acmtog
1706   \Huge\sffamily
1707   \or % sigconf
1708   \Huge\sffamily\bfseries
1709   \or % siggraph
1710   \Huge\sffamily\bfseries
1711   \or % sigplan
1712   \Huge\bfseries
1713   \or % sigchi
1714   \Huge\sffamily\bfseries
1715   \or % sigchi-a
1716   \Huge\bfseries
1717   \fi}

\@subtitlefont The font to typeset title
1718 \def\@subtitlefont{\normalsize
1719   \ifcase\ACM@format@nr
1720   \relax % manuscript
1721   \mdseries
1722   \or % acmsmall
1723   \mdseries
1724   \or % acmlarge
1725   \mdseries
1726   \or % acmtog
1727   \LARGE
1728   \or % sigconf
1729   \LARGE\mdseries
1730   \or % siggraph
1731   \LARGE\mdseries
1732   \or % sigplan
1733   \LARGE\mdseries
1734   \or % sigchi
1735   \LARGE\mdseries
1736   \or % sigchi-a
1737   \mdseries
1738   \fi}

\@mktitle@i The version of \mktitle for most journals

```

```

1739 \def\mktitle@i{\hsize=\textwidth
1740   \@ACM@title@width=\hsize
1741   \ifx\@acmBadgeL@image\@empty\else
1742     \advance\@ACM@title@width by -\@ACM@badge@width
1743     \advance\@ACM@title@width by -\@ACM@badge@skip
1744   \fi
1745   \ifx\@acmBadgeR@image\@empty\else
1746     \advance\@ACM@title@width by -\@ACM@badge@width
1747     \advance\@ACM@title@width by -\@ACM@badge@skip
1748   \fi
1749   \setbox\mktitle@bx=\vbox{\noindent\@titlefont
1750     \ifx\@acmBadgeL@image\@empty\else
1751       \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeL@url}{%
1752         \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}}%
1753       \hskip\@ACM@badge@skip
1754     \fi
1755     \parbox[t]{\@ACM@title@width}{\raggedright
1756       \@titlefont\noindent
1757       \@title
1758     \ifx\@subtitle\@empty\else
1759       \par\noindent{\@subtitlefont\@subtitle}
1760     \fi}%
1761     \ifx\@acmBadgeR@image\@empty\else
1762       \hskip\@ACM@badge@skip
1763       \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeR@url}{%
1764         \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}}%
1765     \fi
1766   \par\bigskip}}%

```

\mktitle@ii The version of \mktitle for TOG. Since v1.06 is subsumed by the \mktitle@i macro

\mktitle@iii The version of \mktitle for sigproc. Note that since the title is centered, we leave the space for the left badge even if only the right badge is defined.

```

1767 \def\mktitle@iii{\hsize=\textwidth
1768   \setbox\mktitle@bx=\vbox{\@titlefont\centering
1769     \@ACM@title@width=\hsize
1770     \if@ACM@badge
1771       \advance\@ACM@title@width by -2\@ACM@badge@width
1772       \advance\@ACM@title@width by -2\@ACM@badge@skip
1773       \parbox[b]{\@ACM@badge@width}{\strut
1774         \ifx\@acmBadgeL@image\@empty\else
1775           \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeL@url}{%
1776             \includegraphics[width=\@ACM@badge@width]{\@acmBadgeL@image}}}%
1777         \fi}%
1778       \hskip\@ACM@badge@skip
1779     \fi
1780     \parbox[t]{\@ACM@title@width}{\centering\@titlefont
1781       \@title
1782     \ifx\@subtitle\@empty\else
1783       \par\noindent{\@subtitlefont\@subtitle}

```

```

1784     \fi
1785   }%
1786   \if@ACM@badge
1787     \hskip\@ACM@badge@skip
1788     \parbox[b]{\@ACM@badge@width}{\strut
1789       \ifx\@acmBadgeR@image\@empty\else
1790         \raisebox{-.5\baselineskip}[\z@][\z@]{\href{\@acmBadgeR@url}{%
1791           \includegraphics[width=\@ACM@badge@width]{\@acmBadgeR@image}}}%
1792       \fi}%
1793   \fi
1794   \par\bigskip}}%

```

\@mktitle@iv The version of \@mktitle for sigchi-a

```

1795 \def\@mktitle@iv{\hsize=\textwidth
1796   \setbox\mktitle@bx=\vbox{\raggedright\leftskip5pc\@titlefont
1797     \noindent\leavevmode\leaders\hrule height 2pt\hfill\kern0pt\par
1798     \noindent\@title
1799     \ifx\@subtitle\@empty\else
1800       \par\noindent\@subtitlefont\@subtitle
1801     \fi
1802     \par\bigskip}}%

```

\@ACM@addtoaddress The macro adds an item to address using the following rules:

1. If we start a paragraph, add the item
2. Otherwise, add a comma and the item
3. However, the comma is deleted, if it is on the end of the line. We use the magic cleaders trick for this.

```

1803 \newbox\@ACM@commabox
1804 \def\@ACM@addtoaddress#1{%
1805   \ifvmode\else
1806     \if@ACM@affiliation@obeypunctuation\else
1807       \setbox\@ACM@commabox=\hbox{, }%
1808       \unskip\cleaders\copy\@ACM@commabox\hskip\wd\@ACM@commabox
1809     \fi\fi
1810   #1}

```

\institution heoretically we can define the macros for \@affiliation inside the \@mkauthors-style commands. However, this would lead to a strange error if an author uses them outside  
\position commands. However, this would lead to a strange error if an author uses them outside  
\department \@affiliation. Of course we can make them produce an error message, but...

```

\streetaddress 1811 \def\streetaddress#1{\unskip\ignorespaces}
\city           1812 \def\postcode#1{\unskip\ignorespaces}
\state          1813 \if@ACM@journal
\postcode       1814 \def\position#1{\unskip\ignorespaces}
\country        1815 \def\institution#1{\unskip~#1\ignorespaces}
                1816 \def\city#1{\unskip\ignorespaces}
                1817 \def\state#1{\unskip\ignorespaces}

```



```

1818 \newcommand\department[2][0]{\unskip\ignorespaces}
1819 \def\country#1{\if@ACM@affiliation@obexpunctuation\else, \fi#1\ignorespaces}
1820 \else
1821 \def\position#1{\if@ACM@affiliation@obexpunctuation#1\else#1\par\fi}%
1822 \def\institution#1{\if@ACM@affiliation@obexpunctuation#1\else#1\par\fi}%
1823 \newcommand\department[2][0]{\if@ACM@affiliation@obexpunctuation
1824 #2\else#2\par\fi}%
1825 % \def\streetaddress#1{\if@ACM@affiliation@obexpunctuation#1\else#1\par\fi}%
1826 \let\city\@ACM@addtoaddress
1827 \let\state\@ACM@addtoaddress
1828 % \def\postcode#1{\if@ACM@affiliation@obexpunctuation#1\else\unskip\space#1\fi}%
1829 \let\country\@ACM@addtoaddress
1830 \fi

```

\@mkauthors    Typesetting authors

```

1831 \def\@mkauthors{\begingroup
1832 \hsize=\textwidth
1833 \ifcase\ACM@format@nr
1834 \relax % manuscript
1835 \@mkauthors@i
1836 \or % acmsmall
1837 \@mkauthors@i
1838 \or % acmlarge
1839 \@mkauthors@i
1840 \or % acmtog
1841 \@mkauthors@i
1842 \or % sigconf
1843 \@mkauthors@iii
1844 \or % siggraph
1845 \@mkauthors@iii
1846 \or % sigplan
1847 \@mkauthors@iii
1848 \or % sigchi
1849 \@mkauthors@iii
1850 \or % sigchi-a
1851 \@mkauthors@iv
1852 \fi
1853 \endgroup
1854 }

```

\@authorfont    Somehow different conferences use different fonts for author names. Why?

```

1855 \def\@authorfont{\Large\sffamily}

```

\@affiliationfont    Font for affiliations

```

1856 \def\@affiliationfont{\normalsize\normalfont}

```

Adjusting fonts for different formats

```

1857 \ifcase\ACM@format@nr
1858 \relax % manuscript

```

```

1859 \or % acmsmall
1860   \def\@authorfont{\large\sffamily}
1861   \def\@affiliationfont{\small\normalfont}
1862 \or % acmlarge
1863 \or % acmtog
1864   \def\@authorfont{\LARGE\sffamily}
1865   \def\@affiliationfont{\large}
1866 \or % sigconf
1867   \def\@authorfont{\LARGE}
1868   \def\@affiliationfont{\large}
1869 \or % siggraph
1870   \def\@authorfont{\normalsize\normalfont}
1871   \def\@affiliationfont{\normalsize\normalfont}
1872 \or % sigplan
1873   \def\@authorfont{\Large\normalfont}
1874   \def\@affiliationfont{\normalsize\normalfont}
1875 \or % sigchi
1876   \def\@authorfont{\bfseries}
1877   \def\@affiliationfont{\mdseries}
1878 \or % sigchi-a
1879   \def\@authorfont{\bfseries}
1880   \def\@affiliationfont{\mdseries}
1881 \fi

```

\typeset@author@line At this point we have \@currentauthors and \@currentaffiliations. We typeset them in the journal style

```

1882 \def\@typeset@author@line{%
1883   \andify\@currentauthors\par\noindent
1884   \@currentauthors\def\@currentauthors{}%
1885   \ifx\@currentaffiliations\@empty\else
1886     \andify\@currentaffiliations
1887     \unskip, {\@currentaffiliations}\par
1888   \fi
1889   \def\@currentaffiliations{}}

```

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

```

1890 \def\mkauthors@i{%
1891   \def\@currentauthors{}%
1892   \def\@currentaffiliations{}%
1893   \global\let\and\@typeset@author@line
1894   \def\@author##1{%
1895     \ifx\@currentauthors\@empty
1896       \gdef\@currentauthors{\@authorfont\MakeTextUppercase{##1}}%
1897     \else
1898       \g@addto@macro{\@currentauthors}{\and\MakeTextUppercase{##1}}%
1899     \fi
1900     \gdef\and{}}%
1901   \def\email##1##2{%

```

```

1902 \def\affiliation##1##2{%
1903   \def\@tempa{##2}\ifx\@tempa\@empty\else
1904     \ifx\@currentaffiliations\@empty
1905       \gdef\@currentaffiliations{%
1906         \setkeys{@ACM@affiliation@}{obeypunctuation=false}%
1907         \setkeys{@ACM@affiliation@}{##1}%
1908         \@affiliationfont##2}%
1909     \else
1910       \g@addto@macro{\@currentaffiliations}{\and
1911         \setkeys{@ACM@affiliation@}{obeypunctuation=false}%
1912         \setkeys{@ACM@affiliation@}{##1}##2}%
1913   \fi
1914 \fi
1915 \global\let\and\@typeset@author@line}%
1916 \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par\medskip
1917   \noindent\addresses\@typeset@author@line
1918   \par\medskip}%
1919 }

```

\mkauthors@ii \mkauthors@ii was version used in acmtog. No longer necessary

\author@bx The box to put individual author to  
1920 \newbox\author@bx

\author@bx@wd The width of the author box  
1921 \newdimen\author@bx@wd

\author@bx@sep The separation between the author boxes  
1922 \newskip\author@bx@sep  
1923 \author@bx@sep=1pc\relax

\@typeset@author@bx Typesetting the box with authors. Note that in SIGCHI-A the box is not centered.

```

1924 \def\@typeset@author@bx{\bgroup\hsize=\author@bx@wd\def\and{\par}%
1925   \global\setbox\author@bx=\vtop{\if@ACM@sigchiamode\else\centering\fi
1926     \@authorfont\@currentauthors\par\@affiliationfont
1927     \@currentaffiliation}\egroup
1928   \box\author@bx\hspace{\author@bx@sep}%
1929   \gdef\@currentauthors{}}%
1930   \gdef\@currentaffiliation{}}

```

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

```

1931 \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.

```

1932   \author@bx@wd=\textwidth\relax
1933   \advance\author@bx@wd by -\author@bx@sep\relax

```

```

1934 \ifnum\@ACM@authorsperrow>0\relax
1935   \divide\author@bx@wd by \@ACM@authorsperrow\relax
1936 \else
1937   \ifcase\num@authorgroups
1938   \relax % 0?
1939   \or % 1=one author per row
1940   \or % 2=two authors per row
1941   \divide\author@bx@wd by \num@authorgroups\relax
1942   \or % 3=three authors per row
1943   \divide\author@bx@wd by \num@authorgroups\relax
1944   \or % 4=two authors per row (!)
1945   \divide\author@bx@wd by 2\relax
1946   \else % three authors per row
1947     \divide\author@bx@wd by 3\relax
1948   \fi
1949 \fi
1950 \advance\author@bx@wd by -\author@bx@sep\relax

```

Now, parsing of \addresses:

```

1951 \gdef\@currentauthors{}%
1952 \gdef\@currentaffiliation{}%
1953 \def\@author##1{\ifx\@currentauthors\@empty
1954   \gdef\@currentauthors{\par##1}%
1955 \else
1956   \g@addto@macro\@currentauthors{\par##1}%
1957 \fi
1958 \gdef\and{}}%
1959 \def\@email##1##2{\ifx\@currentaffiliation\@empty
1960   \gdef\@currentaffiliation{\nolinkurl{##2}}%
1961 \else
1962   \g@addto@macro\@currentaffiliation{\par\nolinkurl{##2}}%
1963 \fi}%
1964 \def\@affiliation##1##2{\ifx\@currentaffiliation\@empty
1965   \gdef\@currentaffiliation{%
1966     \setkeys{@ACM@affiliation@}{obexpunctuation=false}%
1967     \setkeys{@ACM@affiliation@}{##1}##2}%
1968 \else
1969   \g@addto@macro\@currentaffiliation{\par
1970     \setkeys{@ACM@affiliation@}{obexpunctuation=false}%
1971     \setkeys{@ACM@affiliation@}{##1}##2}%
1972 \fi
1973 \global\let\and\@typeset@author@bx
1974 }%

```

Actual typesetting is done by \and macro:

```

1975 \hsize=\textwidth
1976 \global\setbox\mktitle@bx=\vbox{\noindent
1977   \box\mktitle@bx\par\medskip\leavevmode
1978   \lineskip=1pc\relax\centering\hspace*{-1em}%
1979   \addresses\let\and\@typeset@author@bx\and\par\bigskip}}

```

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

1980 `\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.

```
1981 \author@bx@wd=\columnwidth\relax
1982 \advance\author@bx@wd by -\author@bx@sep\relax
1983 \ifnum\@ACM@authorsperrow>0\relax
1984   \divide\author@bx@wd by \@ACM@authorsperrow\relax
1985 \else
1986   \ifcase\num@authorgroups
1987     \relax % 0?
1988   \or % 1=one author per row
1989     \else % 2=two authors per row
1990       \divide\author@bx@wd by 2\relax
1991   \fi
1992 \fi
1993 \advance\author@bx@wd by -\author@bx@sep\relax
```

Now, parsing of `\addresses`:

```
1994 \gdef\@currentauthors{}%
1995 \gdef\@currentaffiliation{}%
1996 \def\author##1{\ifx\@currentauthors\@empty
1997   \gdef\@currentauthors{\par##1}%
1998 \else
1999   \g@addto@macro\@currentauthors{\par##1}%
2000 \fi
2001 \gdef\and{}}%
2002 \def\email##1##2{\ifx\@currentaffiliation\@empty
2003   \gdef\@currentaffiliation{\nolinkurl{##2}}%
2004 \else
2005   \g@addto@macro\@currentaffiliation{\par\nolinkurl{##2}}%
2006 \fi}%
2007 \def\affiliation##1##2{\ifx\@currentaffiliation\@empty
2008   \gdef\@currentaffiliation{%
2009     \setkeys{@ACM@affiliation@}{obeypunctuation=false}%
2010     \setkeys{@ACM@affiliation@}{##1}##2}%
2011 \else
2012   \g@addto@macro\@currentaffiliation{\par
2013     \setkeys{@ACM@affiliation@}{obeypunctuation=false}%
2014     \setkeys{@ACM@affiliation@}{##1}##2}%
2015 \fi
2016 \global\let\and\@typeset@author@bx}%
2017 %
```

Actual typesetting is done by `\and` macro

2018 `\bgroup\hsize=\columnwidth`

```

2019 \par\raggedright\leftskip=\z@
2020 \lineskip=1pc\noindent
2021 \addresses\let\and\@typeset@author@bx\and\par\bigskip\egroup}

\mkauthorsaddresses Typesetting authors' addresses in the footnote style

\setaddresses This is an amsart macro, which we do not need.
2022 \def\setaddresses{}

\authornotemark Adding footnotemark to authors. This version adds "normal" footnotemark.
2023 \def\authornotemark{\g@addto@macro\currentauthors{\footnotemark\relax}}

\@authornotemark Adding footnotemark to authors with the given number
2024 \def\@authornotemark#1{\g@addto@macro\currentauthors{\footnotemark[#1]}}

\mkteasers Typesetting teasers
2025 \def\mkteasers{%
2026 \ifx\@teaserfigures\empty\else
2027 \def\@teaser##1{\par\bigskip\bgroup
2028 \captionsetup{type=figure}##1\egroup\par}
2029 \global\setbox\mktitle@bx=\vbox{\noindent\box\mktitle@bx\par
2030 \noindent\@teaserfigures\par\medskip}%
2031 \fi}

\mkabstract Typesetting abstract
2032 \def\mkabstract{\bgroup
2033 \ifx\@abstract\empty\else
2034 {\phantomsection\addcontentsline{toc}{section}{Abstract}%
2035 \if@ACM@journal
2036 \small\noindent
2037 \else
2038 \section*{Abstract}%
2039 \fi
2040 \ignorespaces\@abstract\par}%
2041 \fi\egroup}

\mkbibcitation Print bibcitation format
2042 \def\mkbibcitation{\bgroup
2043 \def\@pages@word{\ifnum\getrefnumber{TotPages}=1\relax page\else pages\fi}%
2044 \def\footnotemark{}%
2045 \def\{\unskip{} \ignorespaces}%
2046 \def\footnote{\ClassError{\@classname}{Please do not use footnotes
2047 inside \string\title{} or \string\author{} command! Use
2048 \string\titlenote{} or \string\authornote{} instead!}}%
2049 \def\@article@string{\ifx\@acmArticle\empty{\ }else,
2050 Article~\@acmArticle\ }fi}%
2051 \par\medskip\small\noindent{\bfseries ACM Reference Format:}\par\nobreak
2052 \noindent\authors. \@acmYear. \@title
2053 \ifx\@subtitle\empty. \else: \@subtitle. \fi

```

```

2054 \if@ACM@journal
2055     \textit{\@journalNameShort}
2056     \@acmVolume, \@acmNumber \@article@string (\@acmPubDate),
2057     \ref{TotPages}~\@pages@word.
2058 \else
2059     In \textit{\@acmBooktitle}%
2060     \ifx\@acmEditors\@empty\textit{.}\else
2061         \andify\@acmEditors\textit{, }\@acmEditors~\@editorsAbbrev.%
2062     \fi\
2063     ACM, New York, NY, USA%
2064     \@article@string\unskip, \ref{TotPages}~\@pages@word.
2065 \fi
2066 \formatdoi{\@acmDOI}
2067 \par\egroup}

```

\@printendtopmatter    End the top matter

```
2068 \def\@printendtopmatter{\par\bigskip}
```

\@setthanks    We redefine \@setthanks using \@long

```
2069 \def\@setthanks{\@long\def\thanks##1{\par##1\@addpunct.}\thankses}
```

\@setauthorsaddresses

```
2070 \def\@setauthorsaddresses{\@authorsaddresses\unskip\@addpunct.}
```

### 3.14 Headers and Footers

We use fancyhdr for our headers and footers:

```
2071 \RequirePackage{fancyhdr}
```

\ACM@linecount@bx    This is the box displayed in the review mode

```

2072 \if@ACM@review
2073     \newsavebox{\ACM@linecount@bx}
2074     \newlength\ACM@linecount@bxht
2075     \newcount\ACM@linecount
2076     \ACM@linecount\@ne\relax
2077     \def\ACM@mk@linecount{%
2078         \savebox{\ACM@linecount@bx}[4em][t]{\parbox[t]{4em}{%
2079             \setlength{\ACM@linecount@bxht}{0pt}%
2080             \loop{\color{red}\scriptsize\the\ACM@linecount}\
2081             \global\advance\ACM@linecount by \@ne
2082             \addtolength{\ACM@linecount@bxht}{\baselineskip}%
2083             \ifdim\ACM@linecount@bxht<\textheight\repeat
2084             {\color{red}\scriptsize\the\ACM@linecount}\hfill
2085             \global\advance\ACM@linecount by \@ne}}}%
2086 \fi

```

\ACM@linecountL    How to display the box on the left

```

2087 \def\ACM@linecountL{%
2088     \if@ACM@review

```

```

2089 \ACM@mk@linecount
2090 \begin{picture}(0,0)%
2091   \put(-26,-22){\usebox{\ACM@linecount@bx}}%
2092 \end{picture}%
2093 \fi}

\ACM@linecountR How to display the box on the right
2094 \def\ACM@linecountR{%
2095   \if@ACM@review
2096     \ACM@mk@linecount
2097     \begin{picture}(0,0)%
2098       \put(20,-22){\usebox{\ACM@linecount@bx}}%
2099     \end{picture}%
2100   \fi}

\ACM@timestamp The timestamp system
2101 \if@ACM@timestamp
2102   % Subtracting 30 from \time gives us the effect of rounding-down despite
2103   % \numexpr rounding to nearest
2104   \newcounter{ACM@time@hours}
2105   \setcounter{ACM@time@hours}{\numexpr (\time - 30) / 60 \relax}
2106   \newcounter{ACM@time@minutes}
2107   \setcounter{ACM@time@minutes}{\numexpr \time - \theACM@time@hours * 60 \relax}
2108   \newcommand\ACM@timestamp{%
2109     \footnotesize%
2110     \the\year-\two@digits{\the\month}-\two@digits{\the\day}{ }%
2111     \two@digits{\theACM@time@hours}:\two@digits{\theACM@time@minutes}{ }%
2112     page~\thepage\ (pp. \@startPage-\pageref*{TotPages})%
2113     \ifx\@acmSubmissionID\@empty\relax\else
2114     ~Submission~ID: \@acmSubmissionID
2115   \fi
2116 }
2117 \fi

\@shortauthors Even if the author redefined \shortauthors, we do not print them in the anonymous
mode in the headers:
2118 \def\@shortauthors{\if@ACM@anonymous Anon.\else\shortauthors\fi}

\@headfootfont The font to typeset header and footer text.
2119 \def\@headfootfont{%
2120   \ifcase\ACM@format@nr
2121   \relax % manuscript
2122   \sffamily
2123   \or % acmsmall
2124   \sffamily
2125   \or % acmlarge
2126   \sffamily
2127   \or % acmtog
2128   \sffamily

```



```

2129 \or % sigconf
2130 \sffamily
2131 \or % siggraph
2132 \sffamily
2133 \or % sigplan
2134 \sffamily
2135 \or % sigchi
2136 \sffamily
2137 \or % sigchi-a
2138 \sffamily
2139 \fi}

```

standardpagestyle The pagestyle for all pages but the first one

```

2140 \fancypagestyle{standardpagestyle}{%
2141 \fancyhf{}%
2142 \renewcommand{\headrulewidth}{\z@}%
2143 \renewcommand{\footrulewidth}{\z@}%
2144 \ifcase\ACM@format@nr
2145 \relax % manuscript
2146 \fancyhead[LE]{\ACM@linecountL\if@ACM@printfolios\thepage\fi}%
2147 \fancyhead[RO]{\if@ACM@printfolios\thepage\fi}%
2148 \fancyhead[RE]{\@shortauthors}%
2149 \fancyhead[LO]{\ACM@linecountL\shorttitle}%
2150 \fancyfoot[RO,LE]{\footnotesize Manuscript submitted to ACM}%
2151 \or % acmsmall
2152 \fancyhead[LE]{\ACM@linecountL\@headfootfont\@acmArticle\if@ACM@printfolios:\thepage\fi}%
2153 \fancyhead[RO]{\@headfootfont\@acmArticle\if@ACM@printfolios:\thepage\fi}%
2154 \fancyhead[RE]{\@headfootfont\@shortauthors}%
2155 \fancyhead[LO]{\ACM@linecountL\@headfootfont\shorttitle}%
2156 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2157 \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
2158 \or % acmlarge
2159 \fancyhead[LE]{\ACM@linecountL\@headfootfont
2160 \@acmArticle\if@ACM@printfolios:\thepage\fi\quad\textbullet\quad\@shortauthors}%
2161 \fancyhead[LO]{\ACM@linecountL}%
2162 \fancyhead[RO]{\@headfootfont
2163 \shorttitle\quad\textbullet\quad\@acmArticle\if@ACM@printfolios:\thepage\fi}%
2164 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2165 \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
2166 \or % acmtog
2167 \fancyhead[LE]{\ACM@linecountL\@headfootfont
2168 \@acmArticle\if@ACM@printfolios:\thepage\fi\quad\textbullet\quad\@shortauthors}%
2169 \fancyhead[LO]{\ACM@linecountL}%
2170 \fancyhead[RE]{\ACM@linecountR}%
2171 \fancyhead[RO]{\@headfootfont
2172 \shorttitle\quad\textbullet\quad\@acmArticle\if@ACM@printfolios:\thepage\fi\ACM@linecountR}%
2173 \fancyfoot[RO,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2174 \@acmNumber, Article \@acmArticle. Publication date: \@acmPubDate.}%
2175 \else % Proceedings
2176 \fancyfoot[C]{\if@ACM@printfolios\footnotesize\thepage\fi}%

```

```

2177 \fancyhead[LO]{\ACM@linecountL\@headfootfont\shorttitle}%
2178 \fancyhead[RE]{\@headfootfont\@shortauthors\ACM@linecountR}%
2179 \fancyhead[LE]{\ACM@linecountL\@headfootfont\acmConference@shortname,
2180 \acmConference@date, \acmConference@venue}%
2181 \fancyhead[RO]{\@headfootfont\acmConference@shortname,
2182 \acmConference@date, \acmConference@venue\ACM@linecountR}%
2183 \fi
2184 \if@ACM@sigchiamode
2185 \fancyheadoffset[L]{\dimexpr\marginparsep+\marginparwidth}}%
2186 \fi
2187 \if@ACM@timestamp
2188 \fancyfoot[LO,RE]{\ACM@timestamp}
2189 \fi
2190 }
2191 \pagestyle{standardpagestyle}

\@folio@wd Folio blob width, height, offsets and max number
\@folio@ht
\@folio@voffset
\@folio@max
2192 \newdimen\@folio@wd
2193 \@folio@wd=\z@
2194 \newdimen\@folio@ht
2195 \@folio@ht=\z@
2196 \newdimen\@folio@voffset
2197 \@folio@voffset=\z@
2198 \def\@folio@max{1}
2199 \ifcase\ACM@format@nr
2200 \relax % manuscript
2201 \or % acmsmall
2202 \@folio@wd=45.75pt\relax
2203 \@folio@ht=1.25in\relax
2204 \@folio@voffset=.2in\relax
2205 \def\@folio@max{8}
2206 \or % acmlarge
2207 \@folio@wd=43.25pt\relax
2208 \@folio@ht=79pt\relax
2209 \@folio@voffset=.55in\relax
2210 \def\@folio@max{10}
2211 \fi

\@folioblob The macro to typeset the folio blob.
2212 \def\@folioblob{\@tempcnta=0\@acmArticleSeq\relax
2213 \ifnum\@tempcnta=0\relax\else
First, we calculate \@acmArticleSeq modulo \@folio@max
2214 \loop
2215 \ifnum\@tempcnta>\@folio@max\relax
2216 \advance\@tempcnta by - \@folio@max
2217 \repeat
2218 \advance\@tempcnta by -1\relax
2219 \@tempdima=\@folio@ht\relax
2220 \multiply\@tempdima by \the\@tempcnta\relax

```

```

2221 \advance\@tempdima by -\@folio\voffset\relax
2222 \begin{picture}(0,0)
2223 \makebox[\z@]{\raisebox{-\@tempdima}{%
2224 \rlap{%
2225 \raisebox{-0.45\@folio@ht}{\z@}{\z@}{%
2226 \rule{\@folio@wd}{\@folio@ht}}}%
2227 \parbox{\@folio@wd}{%
2228 \centering
2229 \textcolor{white}{\LARGE\sffamily\bfseries\@acmArticle}}}}
2230 \end{picture}\fi}
2231

```

firstpagestyle The pagestyle for the first page only.

```

2232 \fancypagestyle{firstpagestyle}{%
2233 \fancyhf{}%
2234 \renewcommand{\headrulewidth}{\z@}%
2235 \renewcommand{\footrulewidth}{\z@}%
2236 \ifcase\ACM@format@nr
2237 \relax % manuscript
2238 \fancyhead[L]{\ACM@linecountL}%
2239 \fancyfoot[R0,LE]{\if@ACM@printfolios\small\thepage\fi}%
2240 \fancyfoot[RE,LO]{\footnotesize Manuscript submitted to ACM}%
2241 \or % acmsmall
2242 \fancyfoot[R0,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2243 \@acmNumber, Article \@acmArticle. Publication date:
2244 \@acmPubDate.}%
2245 \fancyhead[LE]{\ACM@linecountL\@folioblob}%
2246 \fancyhead[LO]{\ACM@linecountL}%
2247 \fancyhead[R0]{\@folioblob}%
2248 \fancyheadoffset[R0,LE]{0.6\@folio@wd}%
2249 \or % acmlarge
2250 \fancyfoot[R0,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2251 \@acmNumber, Article \@acmArticle. Publication date:
2252 \@acmPubDate.}%
2253 \fancyhead[R0]{\@folioblob}%
2254 \fancyhead[LE]{\ACM@linecountL\@folioblob}%
2255 \fancyhead[LO]{\ACM@linecountL}%
2256 \fancyheadoffset[R0,LE]{1.4\@folio@wd}%
2257 \or % acmtog
2258 \fancyfoot[R0,LE]{\footnotesize \@journalName, Vol. \@acmVolume, No.
2259 \@acmNumber, Article \@acmArticle. Publication date:
2260 \@acmPubDate.}%
2261 \fancyhead[L]{\ACM@linecountL}%
2262 \fancyhead[R]{\ACM@linecountR}%
2263 \else % Conference proceedings
2264 \fancyhead[L]{\ACM@linecountL}%
2265 \fancyhead[R]{\ACM@linecountR}%
2266 \fancyfoot[C]{\if@ACM@printfolios\footnotesize\thepage\fi}%
2267 \fi
2268 \if@ACM@timestamp

```

```

2269 \ifnum\ACM@format@nr=0\relax % Manuscript
2270 \fancyfoot[LO,RE]{\ACM@timestamp\quad
2271 \footnotesize Manuscript submitted to ACM}
2272 \else
2273 \fancyfoot[LO,RE]{\ACM@timestamp}
2274 \fi
2275 \fi
2276 }

```

`\ACM@restore@pagestyle` The following code by Ross Moore protects against changes by `totpages` package:

```

2277 \let\ACM@ps@plain\ps@plain
2278 \let\ACM@ps@myheadings\ps@myheadings
2279 \let\ACM@ps@headings\ps@headings
2280 \def\ACM@restore@pagestyle{%
2281 \let\ps@plain\ACM@ps@plain
2282 \let\ps@myheadings\ACM@ps@myheadings
2283 \let\ps@headings\ACM@ps@headings}
2284 \AtBeginDocument{\ACM@restore@pagestyle}

```

### 3.15 Sectioning

Sectioning is different for different levels

```

2285 \renewcommand\section{\@startsection{section}{1}{\z@}%
2286 {- .75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2287 {.25\baselineskip}%
2288 {\@secfont}}
2289 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
2290 {- .75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2291 {.25\baselineskip}%
2292 {\@subsecfont}}
2293 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{10pt}%
2294 {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2295 {-3.5\p@}%
2296 {\@subsubsecfont\@adddotafter}}
2297 \renewcommand\paragraph{\@startsection{paragraph}{4}{\parindent}%
2298 {- .5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2299 {-3.5\p@}%
2300 {\@parfont\@adddotafter}}
2301 \renewcommand\part{\@startsection{part}{9}{\z@}%
2302 {-10\p@ \@plus -4\p@ \@minus -2\p@}%
2303 {4\p@}%
2304 {\@parfont}}

```

`\section@raggedright` Special version of `\raggedright` compatible with `\MakeUppercase`

```

2305 \def\section@raggedright{\@rightskip\@flushglue
2306 \rightskip\@rightskip
2307 \leftskip\z@skip
2308 \parindent\z@}

```

```

\@secfont Fonts for sections etc. are different for different formats.
\@subsecfont 2309 \def\@secfont{\sffamily\bfseries\section@raggedright\MakeTextUppercase}
\@subsubsecfont 2310 \def\@subsecfont{\sffamily\bfseries\section@raggedright}
\@parfont 2311 \def\@subsubsecfont{\sffamily\itshape}
2312 \def\@parfont{\itshape}
2313 \setcounter{secnumdepth}{3}
2314 \ifcase\ACM@format@nr
2315 \relax % manuscript
2316 \or % acmsmall
2317 \or % acmlarge
2318 \def\@secfont{\sffamily\large\section@raggedright\MakeTextUppercase}
2319 \def\@subsecfont{\sffamily\large\section@raggedright}
2320 \or % acmtog
2321 \def\@secfont{\sffamily\large\section@raggedright\MakeTextUppercase}
2322 \def\@subsecfont{\sffamily\large\section@raggedright}
2323 \or % sigconf
2324 \def\@secfont{\bfseries\Large\section@raggedright\MakeTextUppercase}
2325 \def\@subsecfont{\bfseries\Large\section@raggedright}
2326 \or % siggraph
2327 \def\@secfont{\sffamily\bfseries\Large\section@raggedright\MakeTextUppercase}
2328 \def\@subsecfont{\sffamily\bfseries\Large\section@raggedright}
2329 \or % sigplan
2330 \def\@secfont{\bfseries\Large\section@raggedright}
2331 \def\@subsecfont{\bfseries\section@raggedright}
2332 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{\z@}%
2333 {-1.75\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2334 {.25\baselineskip}%
2335 {\@subsubsecfont}}
2336 \def\@subsubsecfont{\bfseries\section@raggedright}
2337 \renewcommand\paragraph{\@startsection{paragraph}{4}{\z@}%
2338 {-1.5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2339 {-3.5\p@}%
2340 {\@parfont\@addspaceafter}}
2341 \def\@parfont{\bfseries\itshape}
2342 \renewcommand\subparagraph{\@startsection{subparagraph}{5}{\z@}%
2343 {-1.5\baselineskip \@plus -2\p@ \@minus -.2\p@}%
2344 {-3.5\p@}%
2345 {\@subparfont\@addspaceafter}}
2346 \def\@subparfont{\itshape}
2347 \or % sigchi
2348 \setcounter{secnumdepth}{1}
2349 \def\@secfont{\sffamily\bfseries\section@raggedright\MakeTextUppercase}
2350 \def\@subsecfont{\sffamily\bfseries\section@raggedright}
2351 \or % sigchi-a
2352 \setcounter{secnumdepth}{0}
2353 \def\@secfont{\sffamily\bfseries\section@raggedright\MakeTextUppercase}
2354 \def\@subsecfont{\sffamily\bfseries\section@raggedright}
2355 \fi

```

`\@adddotafter` Add punctuation after the command  
2356 `\def\@adddotafter#1{#1\@addpunct{.}}`

`\@addspaceafter` Add space after the command  
2357 `\def\@addspaceafter#1{#1\@addpunct{\enspace}}`

### 3.16 TOC Lists

`\@dotsep` Related to the `\tableofcontents` are all the horizontal fillers. Base  $\LaTeX$  defines `\@dottedtocline`, which we should not disable. Yet, this command expects `\@dotsep` to be defined, but leaves this to the class implementation. Since `amsart` does not provide this, we copy the standard variant from `article` here.  
2358 `\providecommand*\@dotsep{4.5}`

### 3.17 Theorems

`\@acmplainbodyfont` The font to typeset the `acmplain` theorem style body.  
2359 `\def\@acmplainbodyfont{\itshape}`

`\@acmplainindent` The amount to indent the `acmplain` theorem style.  
2360 `\def\@acmplainindent{\parindent}`

`\@acmplainheadfont` The font to typeset the `acmplain` theorem style head.  
2361 `\def\@acmplainheadfont{\scshape}`

`\@acmplainnotefont` The font to typeset the `acmplain` theorem style note.  
2362 `\def\@acmplainnotefont{\@empty}`

Customization of `acmplain` theorem style:

```
2363 \ifcase\ACM@format@nr
2364 \relax % manuscript
2365 \or % acmsmall
2366 \or % acmlarge
2367 \or % acmtog
2368 \or % sigconf
2369 \or % siggraph
2370 \or % sigplan
2371 \def\@acmplainbodyfont{\itshape}
2372 \def\@acmplainindent{\z@}
2373 \def\@acmplainheadfont{\bfseries}
2374 \def\@acmplainnotefont{\normalfont}
2375 \or % sigchi
2376 \or % sigchi-a
2377 \fi
```

acmplain The acmplain theorem style

```

2378 \newtheoremstyle{acmplain}%
2379   {.5\baselineskip\@plus.2\baselineskip
2380     \@minus.2\baselineskip}% space above
2381   {.5\baselineskip\@plus.2\baselineskip
2382     \@minus.2\baselineskip}% space below
2383   {\@acmplainbodyfont}% body font
2384   {\@acmplainindent}% indent amount
2385   {\@acmplainheadfont}% head font
2386   {.}% punctuation after head
2387   {.5em}% spacing after head
2388   {\thmname{#1}\thmnumber{ #2}\thmnote{ {\@acmplainnotefont{#3}}}}% head spec

```

\@acmdefinitionbodyfont The font to typeset the acmdefinition theorem style body.

```

2389 \def\@acmdefinitionbodyfont{\normalfont}

```

\@acmdefinitionindent The amount to indent the acmdefinition theorem style.

```

2390 \def\@acmdefinitionindent{\parindent}

```

\@acmdefinitionheadfont The font to typeset the acmdefinition theorem style head.

```

2391 \def\@acmdefinitionheadfont{\itshape}

```

\@acmdefinitionnotefont The font to typeset the acmdefinition theorem style note.

```

2392 \def\@acmdefinitionnotefont{\empty}

```

Customization of acmdefinition theorem style:

```

2393 \ifcase\ACM@format@nr
2394 \relax % manuscript
2395 \or % acmsmall
2396 \or % acmlarge
2397 \or % acmtog
2398 \or % sigconf
2399 \or % siggraph
2400 \or % sigplan
2401   \def\@acmdefinitionbodyfont{\normalfont}
2402   \def\@acmdefinitionindent{\z@}
2403   \def\@acmdefinitionheadfont{\bfseries}
2404   \def\@acmdefinitionnotefont{\normalfont}
2405 \or % sigchi
2406 \or % sigchi-a
2407 \fi

```

acmdefinition The acmdefinition theorem style

```

2408 \newtheoremstyle{acmdefinition}%
2409   {.5\baselineskip\@plus.2\baselineskip
2410     \@minus.2\baselineskip}% space above
2411   {.5\baselineskip\@plus.2\baselineskip
2412     \@minus.2\baselineskip}% space below
2413   {\@acmdefinitionbodyfont}% body font

```

```

2414 {\@acmdefinitionindent}% indent amount
2415 {\@acmdefinitionheadfont}% head font
2416 {.}% punctuation after head
2417 {.5em}% spacing after head
2418 {\thmname{#1}\thmnumber{ #2}\thmnote{ {\@acmdefinitionnotefont{#3}}}}% head spec

```

Make acmplain the default theorem style.

```

2419 \theoremstyle{acmplain}

```

Delay defining the theorem environments until after other packages have been loaded. In particular, the `cleveref` package must be loaded before the theorem environments are defined in order to show the correct environment name (see <https://github.com/borisveytsman/acmart/issue/10>). The `acmthm` option is used to suppress the definition of any theorem environments. Also, to avoid obscure errors arising from these environment definitions conflicting with environments defined by the user or by user-loaded packages, we only define environments that have not yet been defined.

```

2420 \AtEndPreamble{%
2421   \if@ACM@acmthm
2422     \theoremstyle{acmplain}
2423     \@ifundefined{theorem}{%
2424       \newtheorem{theorem}{Theorem}[section]
2425     }{}
2426     \@ifundefined{conjecture}{%
2427       \newtheorem{conjecture}[theorem]{Conjecture}
2428     }{}
2429     \@ifundefined{proposition}{%
2430       \newtheorem{proposition}[theorem]{Proposition}
2431     }{}
2432     \newtheorem{lemma}[theorem]{Lemma}
2433     \@ifundefined{lemma}{}{}
2434     \@ifundefined{corollary}{%
2435       \newtheorem{corollary}[theorem]{Corollary}
2436     }{}
2437     \theoremstyle{acmdefinition}
2438     \@ifundefined{example}{%
2439       \newtheorem{example}[theorem]{Example}
2440     }{}
2441     \@ifundefined{definition}{%
2442       \newtheorem{definition}[theorem]{Definition}
2443     }{}
2444     \fi
2445     \theoremstyle{acmplain}
2446 }

```

`\@proofnamefont` The font to typeset the proof name.

```

2447 \def\@proofnamefont{\scshape}

```

`\@proofindent` Whether or not to indent proofs.

```

2448 \def\@proofindent{\indent}

```



Customization of proof environment.

```

2449 \ifcase\ACM@format@nr
2450 \relax % manuscript
2451 \or % acmsmall
2452 \or % acmlarge
2453 \or % acmtog
2454 \or % sigconf
2455 \or % siggraph
2456 \or % sigplan
2457 \def\@proofnamefont{\itshape}
2458 \def\@proofindent{\noindent}
2459 \or % sigchi
2460 \or % sigchi-a
2461 \fi

```

proof We want some customization of proof environment.

```

2462 \renewenvironment{proof}[1][\proofname]{\par
2463 \pushQED{\qed}%
2464 \normalfont \topsep6\p@\@plus6\p@\relax
2465 \trivlist
2466 \item[\@proofindent\hskip\labelsep
2467 {\@proofnamefont #1\@addpunct{.}}]\ignorespaces
2468 }{%
2469 \popQED\endtrivlist\@endpfalse
2470 }

```

### 3.18 Acknowledgments

\acks This is a comment-like structure

```

2471 \specialcomment{acks}{%
2472 \begingroup
2473 \section*{Acknowledgments}
2474 \phantomsection\addcontentsline{toc}{section}{Acknowledgments}
2475 }{%
2476 \endgroup
2477 }

```

\grantsponsor We just typeset the name of the sponsor

```

2478 \def\grantsponsor#1#2#3{#2}

```

\grantnum

```

2479 \newcommand\grantnum[3][\#3%
2480 \def\@tempa{#1}\ifx\@tempa\empty\else\space(\url{#1})\fi}

```

### 3.19 Conditional typesetting

We use the comment package for conditional typesetting:

```

2481 \AtEndPreamble{%

```

```

2482 \if@ACM@screen
2483   \includecomment{screenonly}
2484   \excludecomment{printonly}
2485 \else
2486   \excludecomment{screenonly}
2487   \includecomment{printonly}
2488 \fi
2489 \if@ACM@anonymous
2490   \excludecomment{anonsuppress}
2491   \excludecomment{acks}
2492 \else
2493   \includecomment{anonsuppress}
2494 \fi}

```

### 3.20 Additional bibliography commands

`\showeprint` The command `\showeprint` has two arguments: the (optional) prefix and the eprint number. Right now the only prefix we understand is the (lowercase) word ‘arxiv’ (see <http://arxiv.org/hypertex/bibstyles/>).

```

2495 \newcommand\showeprint[2][arxiv]{%
2496   \def\@tempa{#1}%
2497   \ifx\@tempa\@empty\def\@tempa{arxiv}\fi
2498   \def\@tempb{arxiv}%
2499   \ifx\@tempa\@tempb
2500     arXiv:\href{http://arxiv.org/abs/#2}{#2}\else arXiv:#2%
2501   \fi}

```

### 3.21 End of Class

```

2502 \normalsize\normalfont\frenchspacing
2503 </class>

```

## References

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- [10] Nicola L. C. Talbot. *User Manual for glossaries.sty v4.25*, June 2016. <http://www.ctan.org/pkg/subcaption>.
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## Change History

v1.00		v1.05	
General: First released version . . . . .	28	General: Added processing doi numbers for acmsiggraph and doi numbers for sigproc.bib . . . . .	28
v1.01		Patched \setcitestyle command; closes <a href="https://github.com/borisveytsman/acmart/issues/19">https://github.com/borisveytsman/acmart/issues/19</a> . . . . .	28
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Defined ACM colors . . . . .	28	v1.06	
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Set headheight to 1pc for all formats (closes <a href="https://github.com/borisveytsman/acmart/issues/5">https://github.com/borisveytsman/acmart/issues/5</a> ) . . . . .	28	\@ACM@badge@width: Added macro . . . . .	57
v1.02		\@ACM@title@width: Added macro . . . . .	57
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Documentation changes (closes <a href="https://github.com/borisveytsman/acmart/issues/13">https://github.com/borisveytsman/acmart/issues/13</a> ) . . . . .	28	Made generic . . . . .	70
v1.03		\@mktitle@ii: Now this macro is obsolete . . . . .	71
\@formatdoi: Added macro . . . . .	62	\@mktitle@iii: Added processing badges . . . . .	71
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\maketitle: Added special case of authorversion . . . . .	65	\@mktitle@iv: Made more generic . . . . .	72
General: Added anonsuppress environment . . . . .	28	\@printtopmatter: Added processing badges . . . . .	68
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v1.04		\@titlefont: Added macro . . . . .	70
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\acmDOI: Name change by Matthew Fluet . . . . .	57	\acmBadgeR: Added macro . . . . .	57
\acmISBN: Name change by Matthew Fluet . . . . .	57	\if@ACM@badge: Added macro . . . . .	57
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		Corrected a bug with permission and footnotes order . . . . .	65
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