The arlticle Document Class

ARL Technical Report Document Class File

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Contents

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1 Document-Class arlticle-Specific Commands

To begin, we will enumerate the ARL Specific commands that can or must be included, as needed, in the .tex file that constitutes your ARL report. These

commands are new, in some cases, or reworked *vis-à-vis* standard LaTeX in other cases.

1.1 Front Matter

1.1.1 Report Cover & Title Page

`\arladdress{`*string*`}`
`\arlzipcode{`*string*`}`
`\arlrptno{`*string*`}`
`\pubdate{`*string*`}`
`\arltitle{`*string*`}`
`\allauthors{`*string*`}`
`\authorsA{`*string*`}`
`\organizationA{`*string*`}`
`\authorsB{`*string*`}`
`\organizationB{`*string*`}`
`\authorsC{`*string*`}`
`\organizationC{`*string*`}`
`\authorsD{`*string*`}`
`\organizationD{`*string*`}`
`\authorsE{`*string*`}`
`\organizationE{`*string*`}`
`\UnderContract{`*string*`}`
`\titlepagenote{`*string*`}`
`\distcodes[`*ofc.symbol*`]{`*dstr.letter*`}{`*dstr.number*`}{`*export.control*`}`
`\AddDistributionReason{`*dstr.number*`}`
`\distribution{`*string*`}`
`\PageStamp[`*string*`]`
`\def\PageStampColor{`*color*`}`
`\StopPageStamp`
`\FOUOPageStamp[`*string*`]`
`\FOIAexemptions{`*string*`}`
`\UseClassMarkings`
`\downgrading{`*Classifying Individual*`}{`*Title*`}{`*SCG*`}{`*Source date*`}{`*Declas. date*`}`
`\useSingleFigure`
`\useSingleTable`
`\ARLcover[`*string*`]{`*code*`}`
`\arltitlepage`
`\sectspace`
`\nosectspace`
`\spaceout{`*string*`}`

Note that as of arlticle version 2.10, the proper sans serif font to be used in ARL LaTeX reports is OpenSans, which the arlticle `\documentclass` will attempt

to load. If your LaTeX installation cannot load this font, please contact Steven Segletes for further assistence.

`\arladdress` Titlepage data. Default Address is "Aberdeen Proving Ground, MD 21005-5066." This will allow reset to other addresses, such as "Adelphi, MD 20783-1197."

`\arlzipcode` Titlepage data. Default Zipcode is 21005-5066. Set the ZIPcode to that associated with your particular directorate/building (for APG use only).

`\arlrptno` Cover and Titlepage Data. You won't know your ARL report number until it is assigned, very close to publication. At that point, enter data as the argument, so that the report number page prints out correctly on the cover and title page.

`\pubdate` Cover and Titlepage Data. You won't know the official publication date of your report until it is assigned to you, close to publication. At this point, enter the data as the argument, so that the cover and title page print out the publication date correctly.

`\arltitle` Cover and Titlepage Data. The argument is the title of your ARL report. Line breaks (\\) may be added to achieve proper appearance.

`\allauthors` Cover Data. All authors of the report should be provided in the argument as a comma separated list of the form {author1, author2, ..., and author-n}. If needed, line breaks (\\) may be employed to separate the list over several lines.

`\authorsA` Titlepage Data. The argument to this command is a comma separated list of authors from the lead organization. Names are given as First name or initial(s) followed by last name. The ordering is for the authors to adjudicate amongst themselves.

`\organizationA` Titlepage Data. The argument to this command is the name of the lead organization. If it is within ARL, the form it will take is "Full Directorate Name, ARL".

`\authorsB` Titlepage Data. The argument to this command is a comma separated list of authors from the secondary organization. Names are given as First name or initial(s) followed by last name. The ordering is for the authors to adjudicate amongst themselves. Do not specify, if only one organization/directorate produced the report.

`\organizationB` Titlepage Data. The argument to this command is the name of the secondary organization. If it is within ARL, the form it will take is "Full Directorate Name, ARL". Do not specify if only one organization/directorate produced the report.

`\authorsC` `\authorsD` `\authorsE` Titlepage Data. The argument to these commands are a comma separated list of authors from the third, fourth, and fifth organizations. Names are given as First name or initial(s) followed by last name. The ordering is for the authors to adjudicate amongst themselves. Do not specify, if less than three organizations/directorates produced the report.

`\organizationC` `\organizationD` `\organizationE` Titlepage Data. The arguments to these commands are the names of the third, fourth, and fifth organizations. If it is within ARL, the form it will take is "Full Di-

rectorate Name, ARL". Do not specify if less than three organizations/directorates produced the report.

`\UnderContract` The `\UnderContract` macro takes as its argument a string containing the contract number which funded the report, if it is in the ARL-CR series. In addition, this invocation will alter the author attribute "by" to "prepared by". This macro actually makes use of the `\titlepagenote` macro for saving and placing the string.

`\titlepagenote` Titlepage Data. The argument to this optional command is a note that is printed out on the title page, below the authors' names. For example, in the case of an RP series report, this command can be used to indicate the journal source from which the reprint originated, such as: `\titlepagenote{Appearing in \textit{Zymurgy}, vol. 1, pp. 236-248, 2003}`. Note that this macro cannot be used in conjunction with `\UnderContract`, which shares the same mechanism.

`\distcodes` Cover, Titlepage and SF298 Data. This command is used to specify the report distribution statement. The first argument, which is optional, is the office symbol of the *DOD Controlling Office* for the report, within ARL. This optional argument, *ofc.symbol*, is required for all distributions other than unlimited distribution. The first mandatory argument, *dstr.letter*, is the letter code corresponding to the distribution. Valid choices include A, B, C, D, E, and F (as of V2.25, choice X is no longer valid). For codes B through E, the next argument, *dstr.number*, is an integer that corresponds to the justifying reason. Valid numbers include the range 0–11. The last argument is used to specify the export-control status of the document. The argument is is left blank, *i.e.*, {}, if there is no export control limitation on the document, whereas any non blank argument will be taken to indicate an export-control restriction on the document.

As of V2.25, reports will have an abbreviated distribution statement printed at the bottom of each page, beginning at page iii. However, this abbreviated distribution is disabled for classified reports, which is triggered whenever `\downgrading` is invoked.

When `\distcodes` is called for a limited distribution document, there is one primary reason given for the distribution limitation, as indicated by the *dstr.number* argument of `\distcodes` which you provided. If there are other additional reasons for the limitation, in addition to the primary reason, the

`\AddDistributionReason` `\AddDistributionReason` macro is used (before the cover is printed, except in the case of reason 10, "export limitations"[1]). Its argument is a number denoting one of the possible reasons for distribution limitation, as given in the ARL Form-1 instructions. The macro `\AddDistributionReason` can be invoked more than one time with different reasons.

`\distribution` [NOTE: The use of `\distcodes[]{}{}{}` is preferred to this command.]

[1]For export controlled documents, use the last argument of `\distcodes` to invoke the full statement on the cover, title page and SF-298, and then, just before invoking `\tableofcontents`, invoke `\AddDistributionReason{10}` so that "export limitations" is added to the footer of each

Cover, Titlepage and SF298 Data. The argument to this command is the full and proper distribution statement for the report, which must be compatible, of course, with that provided on the Form ARL-1 which authorizes the report. For open distribution reports, for example, the argument would be "Approved for public release; distribution is unlimited." While outmoded, this command is retained for reasons of backward compatibility. It may also be used if the *DOD Controlling office* is outside of ARL, requiring the distribution statement to be customized.

`\PageStamp` If you want a page stamp (*i.e.*, a page classification marking), issue the command `\PageStamp[`*Banner Text*`]` to activate the page stamp. This text will be the page's top/bottom banner until it is later turned off or changed with another invokation of `\PageStamp[`*new Banner Text*`]`. The color of the stamp (for all pages except the cover) may be defined with `\def\PageStampColor{}`. The page stamp may be turned off altogether with `\StopPageStamp`. The default *Banner Text* is "DRAFT", so as to be useful in unclassified mode as well. When used for page classification markings, the `\PageStamp[...]` command should precede the invocation of `\ARLcover`.

`\PageStampColor` `\StopPageStamp`

If one desires to employ a two-line page stamp, the following unofficial 'fix' may be employed:

```
\newsavebox{\doublestamp}
\savebox{\doublestamp}[6.0in]
  {\parbox{6.0in}{\begin{center}\bf line 1\\line 2\end{center}}}
\PageStamp[\usebox{\doublestamp}]
```

Naturally, 'line 1' and 'line 2' should be replaced with the desired page stamp text.

`\FOUOPageStamp` The macro `\FOUOPageStamp` is a variation on `\PageStamp` that places the stamp only at the bottom of the page, rather than at the top and bottom. This bottom-only stamp is the proper form for documents which are "FOR OFFICIAL USE ONLY," which is the default text for this macro. If a different page-stamp text is required at the bottom-only of each page, the optional argument is provided.

`\FOIAexemptions` For certain types of documents, such as FOUO documents, a statement needs to be added to the cover and title page which makes the document exempt from Freedom of Information Act (FOIA) requests. There are nine possible reasons for invoking an exemption, given at `http://www.sec.gov/foia/nfoia.htm`. The macro `\FOIAexemptions`, invoked prior to printing the report cover, will make sure an exemption notice is placed on the document cover and title page. The argument to the macro is either a single digit number in the range 1–9, specifying the lone reason for the exemption, or a string specifying the multiple exemption categories. Typical usage, therefore, would be syntax such as `\FOIAexemptions{3}` or, in the case of multiple exemptions, `\FOIAexemptions{3, 4, and 5}`.

`\UseClassMarkings` If you are using the arltıcle class to create a classified report, issue the `\UseClassMarkings` command at some point before the table of contents is created. This command will make sure that the following report section types will

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document page from page iii, onward.

be preceded by the "(U)" label: Contents, List of Figures, List of Tables, Acknowledgement(s), References, Appendix, and Distribution List. For regular sections in which the section title is otherwise specified by way of `\section{...}` commands, the author should include the appropriate classification label with each section-title definition.

`\downgrading`

Cover and Titlepage data (revised SEP13). For classified reports, the `\downgrading` command places the downgrading instructions on the cover and title page. The five arguments are: 1) the classifying individual (typically the primary author), 2) his or her official job-series title, 3) the document from which the classification decision was derived, 4) the date of the source document, and 5) the declassify-on date. If the format of your downgrading instruction is different than this stencil, you may alternately just specify the downgrade instruction (formatted for LaTeX) in the variable `\downgradetext`. For unclassified reports, do not specify `\downgrading`. If `\downgrading` is specified, the abbreviated distribution statements normally found at the bottom of each page are disabled.

`\downgradetext`

`\useSingleFigure`
`\useSingleTable`

When an ARL report contains only a single figure or a single table, the caption labeling, both in the figure and/or table, as well as in the List of Figures and/or the List of Tables, does not contain a number. In addition, the figure label changes from "Fig." to "Figure". These commands will auto-revise the format for the captions, and Lists of Figures and/or Tables, to reflect a single item. These commands, if used, **must** be invoked prior to `\listoffigures` and/or `\listoftables`.

`\ARLcover`

This command outputs the front cover and disclaimer page to your ARL report, using the data that have been provided in the various aforementioned variables. Various "CoverLogo" files containing the EPS or PDF graphic are employed for this task.

The optional first argument allows one to add a personalized notation, such as "`\fbox{AUTHOR'S VERSION. UNOFFICIAL}`", across the front cover. The mandatory "*code*" argument to `\ARLcover` is to be left blank for normal use, as in `{}`. However, if a zero is passed as the argument, as in `\ARLcover{0}`, a low-ink-usage version of the cover is employed, which can be employed during the "draft" stage of your document preparation.

`\arltitlepage`

This command, without arguments, outputs the title page to your ARL report, using the data that has been provided in all the aforementioned variables. The page is automatically cleared before the text of the page is written.

`\sectspace`

In V2.10, the `\sectspace` macro was introduced which serves one purpose: it provides additional kerned space between the letters of section headings (that is, the argument to `\section{}` macros). This extra space gives the impression of more boldness to the section headings. However, it can operate only with normal text and macros for which it is programmed to handle (currently `\label` and `\color`).

If your section headings contain any macros other than these limited exceptions, then an error will be thrown and you should remove `\sectspace` from your

\nosectspace document. Alternately, it can be disabled with \nosectspace. If you like the effect of \sectspace but require a macro in your section heading, please contact Steven Segletes for assistance. Just as a point of note, the spacing out of arbitrary

\spaceout text can alternately be achieved with the user macro \spaceout{}, which will space out the text of its argument.

1.1.2 Report Documentation Page

```
\begin{createSFtwoNINEeight}
  \SFitemTWO{string}
  \SFitemTHREE{string}
  \SFitemFIVEb{string}
  \SFitemFIVEc{string}
  \SFitemFIVEd{string}
  \SFitemFIVEe{string}
  \SFitemFIVEf{string}
  \SFitemSIX{string}
  \SFitemSEVEN{string}
  \SFitemNINE{string}
  \SFitemTEN{string}
  \SFitemELEVEN{string}
  \SFitemTHIRTEEN{string}
  \SFitemFOURTEEN{string}
  \SFitemFIFTEEN{string}
  \SFitemSIXTEENa{string}
  \SFitemSIXTEENb{string}
  \SFitemSIXTEENc{string}
  \SFitemEIGHTEEN{string}
  \SFitemNINETEENa{string}
  \SFitemNINETEENb{string}
\end{createSFtwoNINEeight}
```

As of V2.1, there is only one way for the user to address the issue of the SF298 report documentation page, which follows the title page of an ARL report.

`createSFtwoNINEeight`

To achieve an SF-298 creation, the user calls upon an environment named `createSFtwoNINEeight` and invokes various routines that fill in the particular itemized fields of the SF298. It should be mentioned that a number of the SF298 fields (fields 1, 2 [2], 4, 5a, 6, 8, 12, and 17) are automatically filled in using data provided for the report cover and title page. Additionally, fields 16a, b, and c are all prefilled with the word "UNCLASSIFIED."

`\SFitem...`

The commands that may be used to fill the various fields of the SF298 take the form `\SFitem`*FIELDNUMBER*`{`*string*`}`. The *FIELDNUMBER* is a capitalized part of the LaTeX command, and is thus spelled out in letters, such as `\SFitemTHREE{`*string*`}` to fill in field 3 with *string*. All SF298 fields that are not auto-filled have macro calls available to the user, though a number of fields are optional. In the case of block 2 on the form, the default value is the string "Unknown Report Type". However, an attempt is made to auto-determine a more appropriate setting by examining the previously specified argument to `\arlrptno`. If the default or determined value is not the proper one, it can be overridden with

[2] Field 2 is auto-filled but may be overridden with `\SFitemTWO`.

an explicit use of \SFitemTWO{}. In the case of block 4 on the form, its value is now taken from the value specified in \arltitle, except that linebreaks are removed. Likewise, for block 6, the value is taken from \allauthors with linebreaks removed. Data for block 5a is drawn from \UnderContract. In the case of block 17, its value is no longer to be set by the user, but is instead automatically set to "UU" or "SAR," based on the setting of \distcodes.

1.1.3 Other Front Matter

```
\begin{MultipleSourcesMemo}{day of month}
  \item...
\end{MultipleSourcesMemo}
\signMultipleSourcesMemo{Name}{Branch}
\tableofcontents
\listoffigures    or    \listoffigures*
\listoftables     or    \listoftables*
\acknowledgement
\acknowledgements
\acknowledgment
\acknowledgments
\blankpage
```

MultipleSourcesMemo

For documents that are classified by "multiple sources," a memo enumerating those sources must appear on page iii of the report (immediately following the SF298). The MultipleSourcesMemo environment sets up the memo, allowing individual \items to be used for the enumeration, one for each source.

With one exception, data in the memo header and regrading instructions are extracted from prior definitions and thus need not be repeated in the \items. The one piece of header data needed, comprising the mandatory argument to the environment, is the day of the month to be printed on the letterhead. This supplied information is used in conjunction with the already known publication month and year to form the date stamp at the top-right of the memorandum.

\signMultipleSourcesMemo

After the MultipleSourcesMemo environment is closed, the signature may be affixed to the memorandum with the use of the \signMultipleSourcesMemo macro. Two mandatory arguments are to be provided: the name of the signer, and his/her branch affiliation. In addition to adding the signatures, this macro also inserts an intentionally left \blankpage as page iv of the report. If the multiple source list is particularly long and already spills over onto page iv, then the additional \blankpage may be suppressed by invoking an empty optional argument, as in \signMultipleSourcesMemo[]{*Name*}{*Branch*}.

\tableofcontents

Clears the page and prints the Table of Contents, according to the ARL style.

\listoffigures

Clears the page and prints out the List of Figures. The star form of the command, \listoffigures*, suppresses the initial \clearpage. Any page created

with the `figure` environment or the `\bxfigure` command will appear in the List of Figures. However, `\bxfigure` (using the ARLboxhandler package) provides the flexibility to match the ARL format for figure caption appearance which is not automatically satisfied by invoking the `figure` environment. In the ARL format, the List of Figures appears after the Table of Contents and before the List of Tables. See the boxhandler style package for details on use of the `\bxfigure` call (`http://ctan.org/pkg/boxhandler`).

`\listoftables` Clears the page and prints out the List of Tables. The star form of the command, `\listoftables*`, suppresses the initial `\clearpage`. Any page created with the `table` environment or the `\bxtable` command will appear in the List of Tables. However, `\bxtable` provides the flexibility to match the ARL format for table caption appearance which is not automatically satisfied by invoking the `table` environment. In the ARL format, the List of Tables appears after the List of Figures, and before the Acknowledgments. See the boxhandler style package for details on use of the `\bxtable` call (`http://ctan.org/pkg/boxhandler`).

The arlticle class loads the xcolor package with the `[table]` option set, so that table rows, columns, and cells may be set in color. See documentation to the colortbl package for details on how this is done (`http://ctan.org/pkg/colortbl`).

In both the List of Figures and List of Tables, the indent of the actual caption with respect to the label is sufficiently spaced to handle up to 99 tables and/or figures. However, if the numbers of figures or tables exceeds 99, **or if figures or tables are employed in an appendix** (where the labels take on a more lengthy form such as "Figure A-10"), the width of the caption's label needs to be augmented. The routine used by the arlticle class is an adaptation of the tocloft package, and so this augmentation of the label width is accomplished for figures and tables, respectively, by way of the following commands, which (if needed) are placed in the preamble to your document:

```
\addtolength{\cftfignumwidth}{len}
\addtolength{\cfttabnumwidth}{len}
```

These lengths affect only the Lists of Figures and Tables themselves, and not the caption that appears in the document itself. The caption appearance in the actual document is controlled by the boxhandler package, if the figures and tables were created by `\bxfigure` and `\bxtable`, respectively.

`\acknowledgement` `\acknowledgements` `\acknowledgment` `\acknowledgments` Any one of these four commands (without argument) will create an acknowledgment header, to be followed by the text of the acknowledgment(s). Note, however, that the ARL style has a preferred spelling for these words, and so the section will appear in the ARL report as "Acknowledgment" or "Acknowledgments" (without the extra "e") regardless of how the command was spelled when invoked. In the ARL style, the Acknowledgments appear after the List of Tables, right before the first section of the report.

\blankpage This command will clear the current page, and print a blank page with the words "INTENTIONALLY LEFT BLANK" in the center. The command \blankpage may be used to force certain ARL report entities to begin on an odd-numbered page, such as the report's first section, the reference list, the distribution list, etc.

1.2 Report Matter

\allocateSpaceOnce{*real number*}
\orphan
\widow
\section{*title*}
  \subsection{*title*} \subsubsection{*title*} \paragraph{*title*}
\section*{*title*}
  \subsection*{*title*} \subsubsection*{*title*} \paragraph*{*title*}
\baresection{*title*}
\begin{ARLtable}[tbph]...\end{ARLtable} (optional)
\begin{ARLfigure}[tbph]...\end{ARLfigure} (optional)
\FOUOunderset[*gap*]{*object*}
\FOUOincludegraphics[*options*]{*filename*}
\secref{*ref-label*} (Made obsolete by V2.17)
\citep{*label*} (Made obsolete by V2.00)
\AddSpaceInCites (Made obsolete by V2.10)
\arlbibliography[*flag1 flag2*]{*bibfile*}
\begin{references} ... \end{references}
\appendix*{*title*}
\appendix{*title*}
\freefootnote{*text*}

\allocateSpaceOnce \allocateSpaceOnce is used on rare occasions to set a multiplier of the default vertical space requested from the needspace package when making a call to \section or \section*. It's function is to supress or precipitate pagination at a section boundary. The default vertical space (\defaultsectionspace), equal to 5.5\baselinskip is intended so that at least two lines of the next section can be printed on the same page as the section heading, or else a page break is forced before the printing the section header. Some quirks in LaTeX require the flexibility provided by this factor to multiply the \defaultsectionspace on rare occasion, just prior to a section call. The argument of this command is a non-negative real value, typically in the range of 0.8 to 1.5, which is set to accomplish its goal of correcting a sticky or loose section-boundary pagination. A value below unity supresses a premature pagination, while a value above unity can be used to force pagination at a section boundary. It is conveniently set with a call to \allocateSpaceOnce with the argument being a number that will be stored in \sectionSpaceMultiplier. Note: Each call to \section or \section* ends with this factor being reset to unity. Sample usage: \allocateSpaceOnce{0.8}\section{*title*}.

\orphan
\widow

The commands \widow and \orphan are optionally used to prevent dangling single lines at the beginning (widow) or end (orphan) of a page. The command \orphan should be used at the beginning of a paragraph which dangles its first line at the end of a page. The command \widow should be used at the end of a paragraph which dangles its last line at the beginning of a page.

\section

The \section command in the arlticle class creates a new document section, creating a ruled header in accordance with the ARL style. The argument is the section name. The section number is handled automatically. An entry is made in the table of contents. The command \allocateSpaceonce{} may be used immediately prior to the \section command in order to achieve proper pagination, if required. The section command can be invoked repeatedly, once for every section of the report, prior to the bibliography. Lower sectioning levels are available with \subsection, \subsubsection, and \paragraph.

\section*

The \section* command in the arlticle class inserts an unnumbered section into the document, using the ARL style to create the appearance of the section header. The section will, by default, not show up in the Table of Contents, unless otherwise invoked to do so (see \baresection command below). Generally, the user will not have a need to call on this form of the section command. However, the arlticle class itself calls upon it several times, to create, for example, Acknowledgments, Appendices, Lists of Tables and Figures, the Table of Contents, and the Abstract, to name a few. The \section* command is equivalent to... in fact, it calls upon... the \ruledheading macro. The command \allocateSpaceonce{} may be used immediately prior to the \section* command in order to achieve proper pagination, if required. Lower unnumbered sectioning levels are available with \subsection*, \subsubsection*, and \paragraph*.

\baresection

The \baresection command is like the aforementioned \section*, except that an entry is made into the Table of Contents. This is useful for adding things like Lists of Symbols, Abbreviations, Acronymns, *etc.*

ARLtable
ARLfigure

As always, the figure and table environments continue to exist and are available for use. In so doing, the caption style is changed by the class to conform to the ARL style. The caption fontsize is reduced to \footnotesize, as well. However, the standard figure and table present their content in \normalsize, and left-aligned. Therefore the environments ARLtable and ARLfigure have been introduced. They function exactly as the default table and figure environments, except that they additionally preset the fontsize to \footnotesize and center the content.

For those who set floats with the \bxfigure and \bxtable macros (in preference to the figure and table environments), the use of the ARLboxhandler package automatically sets the default captions and contents size in accordance with the ARL style. Additionally, for those accustomed to using the longtable package, the ARLlongtable package is likewise introduced with an ARLlongtable environment to conform to the ARL table-formatting standard.

\FOUOunderset
\FOUOincludegraphics

If an object such as an image or a tabular in a report is For Official

Use Only, it needs to have a bold sffamily "FOUO" label underneath it. The `\FOUOunderset` macro will place such a label under its mandatory argument. It's optional argument controls the underset gap, which defaults to 3pt. The macro `\FOUOincludegraphics` is a particular instance of `\FOUOunderset` applied to imported graphical images. The arguments are identical to `\includegraphics`.

`\arlbibliography` This command is the ARL technical report "hook" into BibTeX. The command's argument is the name of your .bib bibliography file. The macro clears the page, defines the bibliography style as `{ARL}`, and calls BibTeX via the `\bibliography` command. The *ARL.bst* bibliography-style file is based closely on the achemso bibliography style, with only minor modifications.

The optional argument to `\arlbibliography` is for flags which can change the default appearance of the bibliography. Currently, there are two flags: one concerning journal-title abbreviation, and the other involving state-name postal-code abbreviations. One or both flags may be included in the optional argument, separated by spaces.

A number of oft referenced journals have had abbreviation codes created, which may be used by the author within their .bib file (*e.g.*, `JOURNAL = jap`). The file that lists these journals codes is named *journals.pdf*. An `f` flag in the optional argument is used to expand the journal code to the unabbreviated journal name. By default, the journal code expands to the abbreviated journal name. For example, the code `jap` is, by default, expanded to *J. Appl. Phys.*. With the `f` option active, `jap` is expanded to *Journal of Applied Physics*.

There is also a `p` flag which instructs LaTeX to replace certain state-identification codes with their postal abbreviation, rather than the full state name. The codes in question, one for each state, are given by "*xx*`.us`" where *xx* is the states' postal code. By default, this code will expand to the full state name. With the `p` flag, the code will expand to the postal code for the state. As an example, if your .bib file contained the entry `location = {Madison, } # wi.us`, the bibliography entry would, by default, print as "Madison, Wisconson." With the `p` flag active, it would instead print as "Madison, WI."

`references` If one does not wish to use BibTeX, the `references` environment is provided as an alternative. This command automatically creates a new numbered report section called "References," prior to printing out the actual bibliography. The `references` environment is a list making environment, in which the user must type their references in directly, in a brute-force manner. The environment will space and format the references appropriately.

`\appendix*` The starred form of the `\appendix` call is used when there is a single appendix to the document. This call will therefore label the appendix simply as "Appendix," rather than assigning it an alphabetic index (*e.g.*, "Appendix A"). The page is cleared, and the centered appendix title will be placed by itself at the vertical center of the new page. Subsequent text following this call will constitute the substance of the appendix, until some other environment is invoked. NOTE: the use of the cleveref package redefines the `\appendix*` macro. One can use the older

syntax of `\loneappendix` in place of `\appendix*` if this conflict arises.

`\appendix` The standard (unstarred) call to `\appendix` is used to begin each new appendix in a multi-appendix document. The title is passed as the argument. LaTeX will keep track of which appendix is being added. The page is cleared, and the new centered appendix title will be placed by itself at the vertical center of the new page, as a separate title page. Subsequent text following an `\appendix` call will constitute the substance of the appendix, until another appendix call or some other environment is invoked. NOTE: the use of the cleveref package redefines the `\appendix` macro. One can use the older syntax of `\anappendix` in place of `\appendix` if this conflict arises.

Either form of call to `\appendix` treats the entity as a report section with alphabetic section "numbers" A, B, C, *etc.*, as needed. Subsections of an appendix will be created as A.1, A.2, *etc.* for the first appendix, B.1, B.2, *etc.* for the next, and so on. Equations are numbered as (A-1), (A-2), *etc.* and follow a similar pattern for subsequent appendices. Figures and tables are numbered as A-1, A-2, *etc.*

`\freefootnote` LaTeX already has a `\footnote` macro. However, the `\freefootnote` macro is for placing an *unmarked* footnote on a page. *Unmarked* means that there will be no symbol at the point where the call is made, nor any associated symbol at the head of the footnote. If called within a `\section` or `\appendix` command, it must be protected. For example,

```
\appendix*{My Appendix Name%
  \protect\freefootnote{%
    This appendix appears in its original form, %
    without editorial change.}
}
```

Occurances of `\freefootnote` that occur in section headings (as in the above example) will be screened so that the footnote does not likewise appear in the Table of Contents.

1.3 Back Matter

`\distributionlistpage`
`\def\MandatoryDL{`*ARL-Mandatory-DL*`.dls}`
`\def\LocalMandatoryDL{`*Local-Mandatory-DL*`.dls}`
`\def\UserDL{`*User-DL*`.dls}`
`\distlistsetup[[w]` *or* `x` *or* `p]`
`\begin{distributionlist}`
`\pdlitem [`*extra-lines*`]{`*copies*`}` *distribution-list-entry*
`\hdlitem [`*extra-lines*`]{`*copies*`}` *distribution-list-entry*
`\xdlitem [`*extra-lines*`]{`*copies*`}{`*etc.*`\\`*etc.*`}` *distribution-list-entry*
`\ldlitem {`*copies*`}{`*etc.*`\\`*etc.*`}` *distribution-list-entry*
`\dlem[x]{`*email address*`}`

```
  \apg
  \def\addressdefaultlines{number}
  \dlt
  \needlines{lines}
  \pagestyle{distlist}                (Made obsolete by V2.00)
  \pagestyle{distlistend}             (Made obsolete by V2.00)
\end{distributionlist}
\distlistcleanup
\backcover
```

Retained for backward compatibility (pre V1.60) are

```
\dlitem [extra-lines]{copies} distribution-list-entry
\item [copies] distribution-list-entry
```

The user has the opportunity to handle the Distribution List in one of two ways: either set aside a place-holder page, and have the ARL technical report staff prepare the distribution list; or to actually create the Distribution List as part of the report document. Both methods are described below.

`\distributionlistpage` This command clears the page, adds the Distribution List to the Table of Contents, and prints a placeholder page telling you to "REPLACE THIS PAGE WITH DISTRIBUTION LIST."

In lieu of just printing out a placeholder page for the Distribution List, the user may choose to print out the actual Distribution List with their report. To do this, he places distribution-list (DL) data into a file ending with the extension "`.dls`." In addition, he must be cognizant of employing the ARL (and possibly directorate-level) mandatory distribution lists, which are provided through the use of this document class. The tokens `\MandatoryDL`, `\LocalMandatoryDL`, and `\UserDL` must be set in your document to the filenames where these `.dls` files are located. These assignments are often made in your document preamble, though defining them any time prior to `\distlistsetup` is sufficient. We will later describe the format of the content that goes inside of these `.dls` files, but to get to that point, one must make use of the following commands and environment:

`\MandatoryDL`
`\LocalMandatoryDL`
`\UserDL`

`\distlistsetup` This command is invoked only once, prior to entering the distributionlist environment. It modifies some of the page layout settings to allow for different line spacing and font size associated with the Distribution List. It also adds the Distribution List to the Table of Contents. There is an optional argument to this command, associated with writing a secondary document to provide the distribution list with email addresses included. If the optional argument is specified as `[x]`, there are no extra files written for creating a distribution list document with included email addresses.

By default, the optional argument to `\distlistsetup` is `[w]`, which instructs arltıcle to write a document with the name `DL_`*ARL-report-no*`.tex` (where *ARL-report-no* is the report number you have specified in your document). This se-

condary document, if compiled, produces a separate copy of the distribution list with email addresses included, to be passed on to ARL TechPubs, to assist them in distribution of the report.

If the optional argument to `\distlistsetup` is specified as `[p]` and the `\write18` feature of LaTeX is enabled on your installation, then the secondary `.tex` document for creating a distribution list with email addresses is not only written, but a `pdflatex` compilation of the secondary document is actually performed at the same time that you are compiling your report. Note, for MikTeX systems, the `\write18` feature can be enabled from the command line by compiling your document with the `--enable-write18` flag set.

`distributionlist` This environment is a list making environment in which the actual entries of the distribution are printed out. For several important reasons, it is recommended that distribution list matter (mandatory & user lists) be stored in separate files from your document, and fed into your document by way of `\input` commands, located within this environment (*i.e.*, between the `\begin {distributionlist}` and `\end{distributionlist}` statements of the environment.

Since all your distribution-list data is contained in `.dls` files, the two commands that should go inside the `distributionlist` environment are simply `\input{\MandatoryDL}\input{\UserDL}`. The `\LocalMandatoryDL` is automatically invoked by the ARL mandatory list and should not be separately listed. You can look at the arlstencil.tex file for an example of how this is set up. Inside your `.dls` files go the specific distribution list data, drawing upon the commands described below.

As of April 2013 (V1.60), the basic entry in a Distribution-List input file (recommended *.dls* extension) will take one of four forms:

`\pdlitem [`*extra-lines*`]{`*copies*`}` *distribution-list-entry*
`\hdlitem [`*extra-lines*`]{`*copies*`}` *distribution-list-entry*
`\xdlitem [`*extra-lines*`]{`*copies*`}{`*etc.*`\\`*etc.*`}` *distribution-list-entry*
`\ldlitem {`*copies*`}{`*etc.*`\\`*etc.*`}` *distribution-list-entry*

All these commands invoke an entry in LaTeX's list-making environment, but in different ways. A hint to remembering these names is to associate the first letters of each command: 'p' for "PDF," 'h' for "Hardcopy," 'x' for "eXtended," and 'l' for "Long."

`\pdlitem` `\hdlitem` In the first two forms, which will be prevalently used, `\pdlitem` and `\hdlitem` each have two arguments, the first one optional. The second mandatory argument is the integer number of copies of the report going to this particular *distribution-list-entry*. It appears in the distribution list output as a number located to the left of the organizational entity receiving the report. These two forms are differentiated by whether the recipient is receiving a PDF copy (`\pdlitem`) or a hardcopy (`\hdlitem`). In these two respective cases the phrase "(PDF)" or "(HC)" is written below the copy-count of reports.

`\xdlitem` The third version of the command, `\xdlitem`, is just like the first two instances, except that it has an additional mandatory argument for eXtended commentary

that will appear below the report copy-count. For example, if a given distribution entry is split between PDFs and hardcopies, the specific details of the breakdown can be included in the final argument, as in this example:

```
\xdlitem{4}{(3 PDF)\\(1 HC)}
```

To explain what the optional argument, *extra-lines*, means, it is first useful to point out that the protocol for listing entities in the distribution list is to not split an entry across a column or a page boundary, except if the entity is particularly long (*i.e.*, with many recipients enumerated from the organizational entity). The `\pdlitem`, `\hdlitem`, and `\xdlitem` commands attempt to satisfy this requirement automatically when creating an entry in your distribution list. It does this by allocating space for the entry prior to printing it (using the needspace package). If the space requested passes a column or page boundary, the column or page is bumped to a new column or page before the actual distribution-list entry is printed.

The default amount of space allocated by `\pdlitem`, `\hdlitem`, and `\xdlitem` is calculated on the fly as a multiple of the line spacing. That multiple equals the number of *copies* plus the number of *extra-lines*. The default number of *extra-lines* is 2. The very loose logic here is that a military PDF-*distribution-list-entry* will usually have: a title ("COMMANDER" or "DIRECTOR", for example); an organization name; and one line for each named recipient totalling the number of *copies*. The resulting default sum is *copies* + 2.

The actual *distribution-list-entry* may, however, have a total number of lines of text slightly different from this default formula, which can on rare occasion result in the *distribution-list-entry* breaking across a column or page boundary. If this happens, the problem can be corrected by specifying, as the optional argument to `\pdlitem`, `\hdlitem`, and/or `\xdlitem`, the number of *extra-lines*, *i.e.*, the actual number of lines in excess of *copies* that the *distribution-list-entry* takes up.

`\ldlitem` The last of the distribution list item entry formats is `\ldlitem`. It is for distribution list entries that are so long, that the user does not wish to confine them to a single column. Typically the APG distribution could be of a size calling for this form of distribution entry. Thus, there is no optional argument for *extra-lines* since there is no need to calculate the need for a column break. Other than that difference, the two mandatory arguments are stacked in the fashion of `\xdlitem`.

`\dlem` The `\dlem` command is placed in your .dls file data to denote, with its argument, the email address of a PDF-copy recipient. The motivator for this command is the need of ARL TechPubs for a copy of the email names of your PDF recipients. The argument of this command is not printed out in your report's distribution list. However, unless the `[x]` argument was specified to `\distlistsetup`, a new file will be created in your directory, named "`DL_`*ARL-Report-No*`.tex`", for example "`DL_ARL-TR-1234.tex`". This secondary document may be compiled to produce a listing of your distribution list with the email addresses included, to be sent to ARL TechPubs to satisfy their need. (In fact, if you compile your report under MikTeX with the `--enable-write18` flag set and specify the optional argument

to \distlistsetup as [p], the compilation of your technical report will automatically produce a separate PDF of your report's distribution list with the email addresses highlighted).

When \dlem is invoked in the compilation of this secondary document, it prints out a circle, followed by the email address in boldface red font. It ends with a carriage return. By specifying the optional argument to \dlem as [x] (actually) any non-blank character will do), the carriage return is supressed following the printing of the email address. This option can be used if the \dlem is the last thing listed in a Distribution-List entry.

While this \dlem approach is encouraged, an alternative is to place the email addresses in your .dls file following the comment character (%). In this way, the email addresses are ignored while compiling your report, while the commented .dls file itself may be sent to TechPubs as an ASCII file containing your email data.

\apg This macro prints out the underlined "Aberdeen Proving Ground" line which is included in the distribution list for local distributees. The appropriate spacing is included prior to the item.

\addressdefaultlines The variable \addressdefaultlines contains the default number of *extra-lines*, equal to 2, a value which can be updated by the user. For example, foreign addresses usually contain an additional line (the recipient country name). Thus, immediately prior to enumerating the foreign distribution list entries in your *.dls* file, the user could reset \addressdefaultlines to 3, for example. Such an update will help to minimize the number of exceptions that arise requiring the override specificiation of *extra-lines*.

Within the *distribution-list-entry* itself, the double backslash (\\) will be needed to force line breaks at the proper locations. Tabbing is needed within the local Aberdeen Proving Ground *distribution-list-entry* to offset names from the respective office symbols. The command \dlt (*i.e.*, Distribution List Tab) produces a crude fixed-offset tab of sorts that serves the need.

\dlt

A typical entry in the user's *.dls* file, therefore, might look something like the following:

```
\hdlitem{2}
COMMANDER\\
US ARMY AVIATION \& MISSILE COMMAND\\
AMSAM RD PS BS\\
ATTILA THE HUN\\
GENGHIS KHAN\\
REDSTONE ARSENAL AL 35898-5247
```

If this particular entry proved problematic with regard to a column break, the \hdlitem{2} specification could be recast as \hdlitem[4]{2}, instead (since the entry has four printed lines in excess of the two enumerated recipients).

\needlines If additional formatting of a distribution list is occasionally required, in the form of allocating space to avoid unseemly column or page breaks for which

\pdlitem, \hdlitem, or \xdlitem is not appropriate, the command \needlines is available. Its argument, *lines* specifies the number of text lines to be reserved without encountering a column or page break. An example of when this might be used is when, within a long *distribution-list-entry* like the APG local distribution, one may wish to force the column break at the occurance of a new office symbol, even as the total *distribution-list-entry* is simultaneously **not** subject to a needspace call. In such cases, the \needlines command is embedded within the *distribution-list-entry*.

Between the domestic and foreign segments of the Distribution List and at the conclusion of the list, a \clearpage should be issued, as well.

As of Version 2.0 of arlticle, there is no longer a need to change page styles in the distribution list. Thus, the page styles \pagestyle{distlist} and \pagestyle{distlistend} should no longer be invoked.

\distlistcleanup After the distribution list has been printed, and the environment ended, the \distlistcleanup command should be invoked once. It's purpose is to restore the "original" pre-distribution-list page-layout, line-spacing, fontsize, etc. settings.

\backcover This command, without arguments, prints out two blank pages which, for a double-sided print, constitutes the back cover of the ARL report (without color). If page stamps are active, no page stamp is printed on the inner side of the back cover, whereas the page stamp that had been employed on the front cover is reiterated on the back cover.

1.4 A Sample .bib File

Since BibTeX allows different fields to be defined in the master ARL.bst file, it will influence the structure that you need to define in your own bib files. Below, we provide some sample bib entries that are known to work with the current ARL bibliography style (Note: these are pseudo-fictitious bibliography entries)

```
@TECHREPORT{C.qr0,
    AUTHOR      = "Joseph Collins",
    TITLE       = "Quantal Response{:} Practical Sensitivity Testing",
    INSTITUTION = "Army Research Laboratory (US)",
    NUMBER      = "ARL-TR-6022",
    ADDRESS     = "Aberdeen Proving Ground (MD)",
    MONTH       = jun,
    YEAR        = 2012     }

@TECHREPORT{TOPexample,
    TITLE       = "Test Operations Procedure{:} Ballistic Test of Armor
                         Materials",
    INSTITUTION = "Army Test and Evaluation Command (US)",
    TYPE        = "TOP",
    NUMBER      = "2-2-710, ADA137873",
    ADDRESS     = "Aberdeen Proving Ground (MD)",
    MONTH       = feb,
    YEAR        = 1984     }
```

```
@TECHREPORT{segl08,
    AUTHOR      = "{\"E}S{\"e}gletes, Steven B. and Ergun, {\"O}zlem",
    TITLE       = "A Test with Umlauted Author Names",
    NUMBER      = "ARL-TR-4393",
    INSTITUTION = "Army Research Laboratory (US)",
    ADDRESS     = "Aberdeen Proving Ground (" # md.us # ")",
    YEAR        = "2008",
    MONTH       = mar # " 15"     }

@TECHREPORT{wils20,
    AUTHOR      = "Wilson, E. B.",
    TITLE       = "Bomb Trajectories",
    TYPE        = "NACA Report",
    NUMBER      = "79",
    ADDRESS     = "Washington (DC)",
    INSTITUTION = "National Advisory Committee for Aeronautics",
    YEAR        = "1920"     }

@TECHREPORT{walt11,
    AUTHOR      = "Walters, W. P. and Segletes, S. B.",
    TITLE       = "Distance Traveled by a Hypervelocity Projectile in Air",
    NUMBER      = "ARL-TR-5612",
    INSTITUTION = "Army Research Laboratory (US)",
    ADDRESS     = "Aberdeen Proving Ground (" # md.us #")",
    YEAR        = "2011",
    MONTH       = jul     }

@TECHREPORT{instruction20038500,
    TITLE       = {Information Assurance ({IA}) Implementation},
    TYPE        = {Instruction},
    INSTITUTION = {Department of Defense},
    ADDRESS     = "Washington (DC)",
    NUMBER      = {8500.2},
    YEAR        = {2003}     }

@TECHREPORT{stouffer2011guide,
    TITLE       = {Guide to industrial control systems ({ICS}) security},
    AUTHOR      = {Stouffer, Keith and Falco, Joe and Scarfone, Karen},
    TYPE        = {Special Publication},
    INSTITUTION = {National Instititute of Standards and Technology},
    ADDRESS     = "Gaithersburg (MD)",
    NUMBER      = {800-82},
    YEAR        = {2011},
    PUBLISHER   = {Citeseer}     }

@INPROCEEDINGS{hou10,
    AUTHOR    = "Hou, S.",
    TITLE     = "Measurement of the Location of Impact Point in Bombing
                 Systems",
    BOOKTITLE = "Proceedings of the First International
                 Conference on Pervasive Computing, Signal
                 Processing and Applications (IEEE)",
    VENUE     = "Harbin Heilongjiang, China",
    PAGES     = "1172--1175",
    MONTH     = sep # "~17--19",
    YEAR      = "2010"     }
```

```
@INPROCEEDINGS{moss93,
    AUTHOR    = "Moss, G. M.",
    TITLE     = "Range Danger Area Assessment for Shaped Charge
                 Warheads",
    MONTH     = sep # "~26--29",
    CONFERENCEYEAR = "1993",
    BOOKTITLE = "Proceedings of the 14th International Symposium on
                      Ballistics",
    EDITOR    = "Noname, John and Nobody, S. Z.",
    VENUE     = "Quebec City, Canada",
    PUBLISHER = "Publisher",
    ADDRESS   = "Pub's Address",
    YEAR      = "1994",
    PAGES     = "805--813"     }

@INPROCEEDINGS{Scheidler,
    TITLE     = {Analytical and computational study of one-dimensional impact
                 of graded elastic solids},
    AUTHOR    = {Scheidler, M. J. and Gazonas, G. A.},
    PAGES     = {689--692},
    BOOKTITLE ={Shock Compression of Condensed Matter-2001},
    EDITOR    = {Furnish, M.D.},
    PUBLISHER ={American Institute of Physics},
    ADDRESS   ={New York (NY)},
    YEAR      =   {2002},
    SERIES    ={AIP Conference Proceedings},
    NUMBER    = 23     }

@INPROCEEDINGS{ScheidlerA,
    TITLE     = {Analytical and computational study of one-dimensional impact
        of graded elastic solids},
    AUTHOR    = {Scheidler, M. J. and Gazonas, G. A.},
    PAGES     = {689--692},
    BOOKTITLE = {Shock Compression of Condensed Matter-2001},
    EDITOR    = {Furnish, M.D.},
    PUBLISHER ={American Institute of Physics},
    ADDRESS   ={New York (NY)},
    MONTH     = oct # " 23",
    CONFERENCEYEAR = {2001},
    VENUE     = "Snowbird, UT",
    YEAR      =   {2002},
    SERIES    ={AIP Conference Proceedings},
    NUMBER    = 23     }

@INPROCEEDINGS{ritzel2011a,
    AUTHOR    = {D. V. Ritzel and S. A. Parks and J. Roseveare and G. Rude
                 and T. W. Sawyer},
    TITLE     = {Experimental Blast Simulation for Injury Studies},
    BOOKTITLE = {Proc. HFM-207 NATO Symposium on a Survey of Blast Injury
                 Across the Full Landscape of Military Science},
    MONTH     = {October},
    YEAR      = {2011},
    VENUE     = {Halifax, Nova Scotia, Canada}     }

@INPROCEEDINGS{zalesak89,
    AUTHOR    = {J. F. Zalesak and {Poch\'e}, Jr,  L. B.},
    TITLE     = {The Shock Test Facility{:} An Explosive-Driven, Water-Filled
```

```
                Conical Shock Tube},
    BOOKTITLE = {60th Shock and Vibration Symposium},
    YEAR      = {1989},
    MONTH     = nov,
    VOLUME    = {III},
    NOTE      = "Note: page range not available.",
    VENUE     = {Virgina Beach, VA}     }

@INPROCEEDINGS{ritzel2011b,
    AUTHOR    = {T. W. Sawyer and P. Nelson and T. Weiss and M. Villanueva
                 and C. Tenn and Y. Wang and G. Rude and J. Lee and L. Zhang
                 and S. Parks and J. Roseveare and D. V. Ritzel},
    TITLE     = {Development of a Novel In Vitro Approach to Assess
                 Blast-Induced Traumatic Brain Injury},
    BOOKTITLE = {Proc. HFM-207 NATO Symposium on a Survey of Blast Injury
                 Across the Full Landscape of Military Science},
    MONTH     = {October},
    YEAR      = {2011},
    VENUE     = {Halifax, Nova Scotia, Canada},
    PAGES     = "25\rule[3pt]{.5ex}{.8pt}1\,-\,25\rule[3pt]{.5ex}{.6pt}7" }

@PROCEEDINGS{ibs93,
    MONTH     = sep # "~26--29",
    CONFERENCEYEAR= "1993",
    TITLE     = "Proceedings of the 14th International Symposium on
                 Ballistics",
    EDITOR    = "Noname, John and Nobody, S. Z.",
    VENUE     = "Quebec City, Canada",
    PUBLISHER = "Publisher",
    ADDRESS   = "Pub's Address",
    YEAR      = "1994"     }

@INTERNET{www11b,
    AUTHOR    = "Schultheis, J. D.",
    TITLE     = "Fun with Reference Citations",
    ADDRESS   = "Baltimore (MD)",
    PUBLISHER = "Random House",
    YEAR      = "2013",
    MONTH     = sep # " 10",
    ACCESSED  = "2014 " # sep # " 26",
    WEBSITE   =
             "http://en.wikipedia.org/wiki/Trajectory\_of\_a\_projectile",
    DOI       = "doi:10.10.1038/nphys1170"     }

@INTERNET{www11a,
    TITLE    = "Flight Equations with Drag",
    WEBSITE  = "http://www.grc.nasa.gov/WWW/k-12/airplane/flteqs.html",
    ACCESSED = "2011 " # oct     }

@INTERNET{www11c,
    AUTHOR   = "Grissom, Gus",
    INSTITUTION = "Glenn Research Center, National Aeronautics
                   and Space Administration",
    TITLE    = "Flight Equations with Drag",
    ADDRESS  = "Cleveland (OH)",
    YEAR     = "1999",
    MONTH    = dec # "12",
```

```
    REVISED  = "2014 " # jun # " 12",
    ACCESSED = "2014 " # oct # " 7",
    WEBSITE  = "http://www.grc.nasa.gov/WWW/k-12/airplane/flteqs.html"
}

@INTERNET{manktelow2010history,
    TITLE     = "History of taxonomy",
    AUTHOR    = "Manktelow, Mariette",
    WEBSITE   = "\url{http://www.atbi.eu/summerschool/files/%
                 summerschool/Manktelow\_Syllabus.pdf}",
    ACCESSED  = "2014 Aug~26",
    ADDRESS   = "Uppsala (Sweden)",
    PUBLISHER = "Uppsala University Dept. of Systematic Biology",
    YEAR      = "2010"     }

@INTERNET{smith2014metcalf,
    TITLE    = "Assault on california power station raises alarm on
                potential for terrorism",
    AUTHOR   = "Rebecca Smith",
    WEBSITE  = "\url{http://online.wsj.com/news/articles/%
                SB10001424052702304851104579359141941621778}",
    ACCESSED = "2014 Aug 26",
    JOURNAL  = "The Wall Street Journal",
    MONTH    = feb,
    YEAR     = {2014}     }

@PRESENTATION{gum93NotPub,
    AUTHOR   = "Gumley, John A.",
    TITLE    = "A Topic not Published",
    MONTH    = sep # "~26--29",
    YEAR     = "1993",
    AUDIENCE = "14th International Symposium on Ballistics",
    VENUE    = "Quebec City, Canada"     }

@PRESENTATION{hadley2006scada,
    AUTHOR   = "{Department of Energy ({US}), Pacific Northwest National
                 Laboratory}",
    TITLE    = "The Role of Authenticated Communications for Electric Power
                Distribution",
    MONTH    = nov # "~8--9",
    YEAR     = "2006",
    AUDIENCE = "Network Embedded Control for Cyber Physical Systems
               ({HCSS-NEC4CPS})",
    VENUE    = "Pittsburgh, PA"     }

@BOOK{broc09,
    AUTHOR    = "Brockmann, W.",
    TITLE     = "Adhesive Bonding: Materials, Applications and
                 Technology",
    EDITION   = "3rd",
    PUBLISHER = "Wiley",
    ADDRESS   = "Hoboken (NJ)",
    YEAR      = "2009"     }

@BOOK{Comsol4,
    TITLE     ={COMSOL Multiphysics Reference Manual. Ver. 4.4},
    PUBLISHER = {COMSOL, Inc.},
```

```
    ADDRESS   = {Burlington (MA)},
    YEAR      = {2013}     }


@BOOK{Comsol4.1,
    AUTHOR    = "Nobody, I. M.",
    TITLE     = {COMSOL Multiphysics Reference Manual. Ver. 4.4},
    PUBLISHER = {COMSOL, Inc.},
    ADDRESS   = {Burlington (MA)},
    YEAR      = {2013}     }

@ARTICLE{bjer92,
    AUTHOR   = "Bjerke, Jr., Todd W. and Zukas, J. A. and Kimsey, K. A.",
    TITLE    = "Penetration Performance of Disk Shaped Penetrators",
    JOURNAL  = ijie,
    YEAR     = "1992",
    VOLUME   = "12",
    NUMBER   = "2",
    PAGES    = "263--280"     }

@ARTICLE{barq97,
    AUTHOR   = "Barquins, M. and Cicotti, M.",
    TITLE    = "On the Kinetics of Peeling of an Adhesive Tape
                under Constant Imposed Load",
    JOURNAL  = "Int. J. Adhesion and Adhesives",
    VOLUME   = "17",
    PAGES    = "65--68",
    YEAR     = "1997"     }

@ARTICLE{beye05,
    AUTHOR   = "Beyer, M. K. and Clausen-Schaumann, H.",
    TITLE    = "Mechanochemistry{:}  The Mechanical Activation of
                Covalent Bonds",
    JOURNAL  = "Chem. Rev.",
    YEAR     = "2005",
    VOLUME   = "105",
    NUMBER   = "8",
    PAGES    = "2921--2948"     }

@MILSTD{m5,
    NUMBER      = "MIL-H-2813B",
    TITLE       = "Hoists, chain and wire rope, pneumatic",
    ADDRESS     = "Falls Church (VA)",
    INSTITUTION = "Defense Quality and Standardization Office",
    YEAR        = "1994 Aug 17"     }

@MANUAL{corvid-velodyne_manual,
    TITLE       = "Velodyne User's Manual.~Ver.~2.303",
    INSTITUTION = "Corvid Technologies, Inc.",
    ADDRESS     = "Moorseville (NC)",
    YEAR        = "2013",
    MONTH       = apr     }

@MANUAL{dyna3d_manual,
    AUTHOR      = "Hallquist, J. H",
    TITLE       = "DYNA3D User Manual",
    INSTITUTION = "Lawrence Livermore National Laboratory, Methods
```

```
                  Development Group",
    ADDRESS     = "Livermore (CA)",
    YEAR        = "1998",
    NOTE        = "Electronic version only"  }

@PHDTHESIS{igure2007taxonomy,
    TITLE    = {A taxonomy of security vulnerabilities in SCADA protocols},
    AUTHOR   = {Vinay M. Igure},
    ADDRESS  = "Charlottesville (VA)",
    SCHOOL   = {University of Virginia},
    MONTH    = {January},
    YEAR     = {2007}     }
```

2 arlstencil Document-Stencil Files

To make getting started with the arlticle class easier, a stencil file has been created, named *arlstencil.tex*. It contains the skeleton commands, laid out in the proper sequence, for creating an ARL report. For one just getting started in creating an ARL report with LaTeX for the first time, the stencil can expedite the process significantly. While there is no additional documentation for the stencil file, it is largely self-documenting, with numerous comments to aid the author.

In addition to the file *arlstencil.tex*, there are other associated files that serve as part of the stencil. They include: *arlstencil.bib* which is a bibliography stencil; *arlstencil.dls* which is a distribution-list stencil; and *arlstencil.dvi* and *arlstencil.pdf* which illustrate the output of compiling *arlstencil.tex* with LaTeX.

3 Troubleshooting Your LaTeX Installation

Some people who have used the arlticle class have approached me believing that the page margins for the class were improperly set. In all cases, it was a case of misconfiguration of their system, in one of several ways. Here are some things to look for, if you believe your margins appear improperly on the printed page.

(1) Check to see that your printer is configured to print the page with "Scaling" set to "None," rather than "Fit to Printable Area."

(2) Make sure your LaTeX installation defaults to 8.5x11 "Letter" sized paper (many LaTeX installations default to A4 paper). While arlticle uses the geometry package to set the page to letter size, the commands of this package do not carry over into pdfTeX. If you have doubts, you can check the properties of a created PDF file to determine its pagesize.

4 Task Routines

For those wishing to delve into and understand the coding of the arlticle class, this section will describe certain task routines that are part of the class, in some cases added, in others, modified. These routines will **not** be called upon directly by the user of the arlticle class, but may need to be modified, if there arise unanticipated changes in the official ARL document style.

4.1 Added Task Routines

```
\ruledsection{title}
\ruledheading{title}
\sectionprelude
\sectionpostlude
\anappendix{title}
\loneappendix{title}
\ps@distlist - page style for distribution list headers
\ps@distlistend - page style for distribution list headers
```

`\ruledsection` This macro is the routine that is actually called upon an invocation of the redefined `\section`. It is responsible for creating a LaTeX section, whose heading reflects the appearance of the ARL style, with ruled lines above and below the section name. To achieve this appearance, it calls upon the routines `\sectionprelude` and `\sectionpostlude`.

`\ruledheading` This macro is the routine that is actually invoked upon invocation of the redefined `\section*`. Like `\ruledsection`, it also creates a report section heading. However, the section heading is not numbered and it will not appear in the Table of Contents, unless otherwise invoked to do so.

`\sectionprelude` This macro, called by `\ruledsection` and `\ruledheading`, reserves vertical page space for the new section (causing a page break if necessary), and prints out the top ruler line of the section heading. Finally the `\sectionSpaceMultiplier` is reset to unity.

`\sectionpostlude` This macro, called by `\ruledsection` and `\ruledheading`, prints out the bottom ruler line of the section heading, and creates the proper amount of vertical space following it for the subsequent section text.

`\anappendix` This macro is the routine that is actually invoked upon invocation of the redefined `\appendix`. It is responsible for creating an appendix as part of a multi-appendix document. The argument is just the appendix title itself. The routine adds the words "Appendix *index*." to the lead of the title, keeping track of the alphabetic *index* with each appendix created. The entry is added to the Table of Contents.

`\loneappendix` This macro creates a report appendix when it is the only appendix in the whole document. It is very similar to `\anappendix` in its behavior, except that there is

no alphabetic *index* associated with the appendix name.

`\ps@distlist` With the creation of a `distlist` page style, this command is the enabling command that is called to define the page headers and footers.

`\ps@distlistend` With the creation of a `distlistend` page style, this command is the enabling command that is called to define the page headers and footers (for the one-column version).

4.2 Modified Task Routines

The following routines are standard LaTeX routines from the article class which have been modified for use with the arlticle class.

```
\thesection
\thesubsection
\thesubsubsection
\origsection
\subsection
\subsubsection
\@makecaption
\@dotsep
\@pnumwidth
\thebibliography{...}
\@biblabel{...}
\citeleft
\citeright
\abovecaptionskip
\belowcaptionskip
\@oddhead
\@evenhead
\@oddfoot
\@evenfoot
```

`\thesection` This routine has been modified to put a period at the end of the section number.

`\thesubsection` This routine has been modified to adjust to the redefinition of `\thesection`.

`\thesubsubsection` This routine has been modified to adjust to the redefinition of `\thesubsection`.

`\origsection` This is the renamed version of `\section` originally found in the article class, albeit modified for a `\large` font, instead of `\Large`. It is called upon by the updated `\section` and `\section*` commands.

`\subsection` Modified to reflect altered font size and line spacing.

`\subsubsection` Modified to reflect altered line spacing.

`\@makecaption` Modified to print captions in text with `\small` font.

`\@dotsep` Modified to reset the spacing for runout dots in the *toc*, *lof* and *lot*.

`\@pnumwidth` Modified to reset spacing of page-number-width in *toc*, etc.

`\thebibliography` Modified to provide `\bibliography` in the ARL style.

`\@biblabel` Modified to provide the reference numbers in the bibliography listing in the form "*ref#*.", instead of "[*ref#*]".

`\citeleft` [Package cite] Modified to begin italic font of a citation after the occurance of the opening left parenthesis "(".

`\citeright` [Package cite] Modified to cease the italic font of a citation prior to the occurance of the closing right parenthesis ")".

`\abovecaptionskip` Modified to provide the proper space above a caption (Note: not used if/when using `\bxtable` and `\bxfigure`).

`\belowcaptionskip` Modified to provide the proper space below a caption (Note: not used if/when using `\bxtable` and `\bxfigure`).

`\@oddhead` `\@evenhead` Modified to set up the page headers for the distribution list, which is the same for both odd and even pages.

`\@oddfoot` `\@evenfoot` Modified to set up the page footers for the distribution list, which is the same for both odd and even pages.