

The IEEE Communications Society Publications Department Style Guide

GENERAL EDITORIAL POLICY

We approach articles with as light a hand as possible. We trust that the authors are experts (or experts in training) in their fields, and that they know what they are writing about. Also, each paper has been extensively reviewed before it reaches the Publications Department. We work within the house style guidelines, which have been created from the IEEE editorial style guidelines, *The Chicago Manual of Style*, and ComSoc editorial preferences.

Papers are referred to as “articles” once they are being published in our magazines, although references to other work and when referring to material submitted for the magazine may refer to “papers.”

Single spaces are used between sentences.

TITLES AND HEADERS

Feature Topic parts shall be “Feature Topic Title: Part 1” (or 2 etc.) using a colon and an Arabic numeral in editorials and Tables of Contents.

Titles should be clear and (hopefully) not overlong. If there are two parts to a title, a colon should be used (e.g., **ATM over IP: The Future of the Web**), not an em dash.

We do not use section/subsection numbers; hence, references within an article to material in separate sections/subsections are preferably indicated as appearing “earlier/later” or “above/below.” If necessary, section titles can be used.

Never define an acronym in a title or section head/subhead; use either the acronym or the definition, but not both. If an author has done so, remove the acronym and define it in the body of the text.

The levels of headers are referred to as follows:

Title
Header 2: section title
Header 3: subsection title
Run-in: header within a subtitle
Sub-run-ins: the next level down.

AUTHOR AFFILIATIONS

Author affiliations appear in a footnote on the first page of each article. They are to appear in italics. Each author’s name will be spelled out in full (i.e., no initials unless we only have initials for a given author). However, it is all right to indicate that they are all with “the same [university, company, etc.]” when that is the case; for example, “The authors are with Carleton University.” There is a line space between each affiliation. We do not include countries in affiliations.

TRADEMARK AND REGISTERED TRADEMARK

These must appear only once: at the very first appearance of the item in the article. They are not simply superscripts. No other appearances of the item should have either of those symbols apart from reference titles. Any trademark information provided (i.e., “Blah is a trademark of . . .”) should appear in an unnumbered footnote (with the trademark or registered trademark symbol instead) on the page in which the first instance appears.

PREFERRED SPELLING AND FORM

American, not British, spelling: signaling, modeling, traveling; focused, buses; in general, one letter is better than two when either is correct.

Wherever possible, do not hyphenate; however, when two vowels are involved, hyphenate most of the time:

multimedia, interoffice, intranetwork, multihop
intra-element

Do not use the additional e in acknowledgment and judgment.

And: real-time (adj.); real time (noun): a real-time video transmission; a video transmission in real time (applicable to many similar terms)

The correct form of path loss is path loss, not pathloss or path-loss. Data center: two words

PUNCTUATION

Series, or Oxford, commas are used (a, b, and c).

An em dash has a space on each side. An en dash will or won't have a space on each side depending on its usage. When used as a minus symbol, there is a space on each side; when used to indicate "4 to 8" it does not have any space around it (4–8).

We do not like ampersands (&). We avoid them whenever possible, changing them to "and." Only when they exist in titles (usually in references) or proper names do we allow them.

A list (bulleted or numbered) is always preceded by a colon.

CAPITALIZATION

Most protocol and algorithm names are initial capped; for example, the Leaky Bucket algorithm, Transmission Control Protocol (TCP).

Acronym definitions are generally lower case if not proper names; for example, asynchronous transfer mode (ATM), very large-scale integration (VLSI).

No matter how short a word is, if it is a verb, it is initial capped in titles, headers, and other places where initial caps are used. Examples would be:

"Vehicle Maintenance Is Easy for Mechanics"; "You Are What You Eat"; "Terabytes Are the Next Step toward Petabytes." When not the first word in a sentence or title, prepositions are not initial capped.

Generally, the first letter after a colon is lower-case when not followed by a complete sentence:

- Asynchronous transfer mode: an extremely popular topic at this time
- WiMAX: This was developed by the IEEE as a form of wireless communications.

The Internet
The web

LISTS

Bullets should be used wherever possible. Subsequent text below should be quickly checked for use of numbers used by authors in a list, in which case only Arabic numerals are used, followed by a period.

In the case of inline text being made into a list, things such as "a) ... b) ..." or (i ... iii) should be made into bulleted lists.

Bullets should be used for reasonably short listed items.

Numbered Lists

Place a period after each number. Use bullet paragraph style.

List Items

Each item in a list should end one of two ways. If at least one item is a complete sentence, each item should end in a period. (It is up to a copy editor to attempt to change the rest of the list into complete sentences if possible.)

If none of the items are complete sentences, none of them should have any punctuation at the end.

In no case should commas or semi-colons appear at the end of any list item.

ACRONYMS

These are always defined at their first appearance in the text of each article as shown above in the section on capitalization. After an acronym has been defined, it should be used throughout the remainder of the article instead of the spelled-out version. Generally, they are not used/defined in the Abstract unless an acronym is used further on in the Abstract. One can either spell the name out each time the acronym shows up or not; abstracts are short, and readers should be able to connect the acronym with the spelled out definition in the body of the text without any trouble. Acronyms known to the general public do not always need to be defined (e.g., RF, LTE).

NUMBERS AND SYMBOLS

For specific values (e.g., 1 bit, 50 km) numerals are always used; however, for other uses (three to four users, hundreds of megabits per second) the following rules apply:

- For zero through nine, spell out the number.
- Ten or 10 is contextual (from three to four minutes, sometimes as long as ten minutes; or 50 to 60 MHz in the case of 10 users on 7 phones); follow the most commonly used form in a sentence.
- For 11 and up, use numerals only.
 - 1000–9999: no comma.
10,000 and up: comma.
One million or 1 million, 40 billion, and so on.
- US\$1; US\$1 million. The money of other countries should appear as most commonly denoted (e.g., €).

The percent symbol (%) is never used in text; the word is always spelled out. The symbol may be used in figures and tables.

ITALIC AND BOLD TEXT

The introduction of new or article-specific terminology should be italicized, not in quotes or bold.

All variables in math statements shall be italicized, although subscript words or abbreviations should not be (e.g., N_i , X_{\max} , S_{variable}). Vertices and matrices should generally be bold.

et al. is the only common borrowing from Latin that still gets italicized; *ad hoc*, *etc.*, *e.g.*, *i.e.*, and *a priori* are not.

Versus/versus should always be *vs.*, in or out of parentheses, and in titles and headers, and never italicized or otherwise set apart from surrounding text.

ABBREVIATIONS

i.e., *e.g.*, *etc.* should not appear in text except within parentheses; use *that is*, *for example*, and *so on* instead in regular unparenthetical text

Megabits, kilobytes, and so on: When not a specific value, spell out: hundreds of megabits per second; when referring to a specific amount, abbreviate (e.g., 10 Mb/s, 100 kB/s); frames per second: fps. If there's any question about something not covered in this guide, see "Units and Quantity Symbols" attached to this document to use correct abbreviations.

Wi-Fi or WiFi; either one is all right as long as it is used consistently throughout an article. WiMAX is the correct combination for that term.

Millimeter-wave (always hyphenated); mmWave abbreviated

With a numeral or other variable, bytes shall be B. For example, 1 B, A kB ... MB ... GB. 10 gigabits per second is 10 Gb/s; several gigabits per second is spelled out.

Months of the year with five or more letters are abbreviated: Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec.

Incorrect but commonly seen: Jun., Jul., Sep.

Months are abbreviated only in references, not in biographies or body text

In the body of text, the word “Figure” is used only as the first word of a sentence. Elsewhere, it is abbreviated to “Fig.”

FIGURES

In figures, sub-captions (i.e., a, b, c, d) preferably appear in the captions rather than in the figure. For example:

Figure 2. Security attacks on a CACC vehicle stream: a) falsification attack; b) eavesdropping attack; c) radio jamming attack; d) tampering attack.

Only a, b, c, and d should appear in the figure.

TABLES

Only the first word of each column and row head is capitalized. This is only changed for proper names when used as either type of header. This also holds true for the text in each cell of a table.

REFERENCES

Sample formats for references as well as additional reading (items not referred to in text):

[1] A. Writer, C. Author, and E. Expert, *Book Title*, Publisher, 20xx.

[2] G. Expert *et al.*, “Title,” *Periodical Name*, vol. x, no. y, 19xx, pp. 141–52.

[3] C. Author, “Title,” Aug. 20xx; <http://www.onlinedocs.com/c.author/work>, accessed July 25, 20xx.

[4] ITU-T Rec. X.123, “Title,” Sept. 19xx.

For ComSoc magazines’ commonly used periodical abbreviations, please refer to recent issues. For example, *Vehicular Technology* in the name of a publication becomes *Vehic. Tech.*, while *IEEE Journal on Selected Areas in Communications* becomes *IEEE JSAC*.

Article and paper titles should be in quotes. Book, periodical, conference proceedings, and thesis titles are italicized.

Note that no more than three authors should be listed. Where there are four or more authors, the name of the first author is followed by *et al.* (see [2] above).

References within text: Separate reference numbers appearing together will be placed within brackets and separated by commas. Hence, [3][12][17] will become [3, 12, 17]. Also, sequential reference numbers will be connected via an en dash. In this case, [3][4][5] or [3, 4, 5] will become [3–5].

BIOGRAPHIES

A biography should be one paragraph. The author’s full name should appear first in small caps, followed by IEEE membership info if any within brackets and his/her email address:

AUTHOR [SM] (author@email.com) ... (Info such as “... is a Senior Member of IEEE ...” is then deleted from the bio once it is indicated in brackets beside the author’s name and before the author’s email address in parentheses, whenever the latter is provided and placed in the biography). Multiple membership levels should be separated by commas: [M’12, SM’15, F’18].

Within the text of the biography, the author is only referred to as he or she, not by name.

He/she received a B.S., an M.S., or a Ph.D; he/she also may have received his/her degrees; however, no person has received *the* degree.

We delete information such as when and where they were born. The info we keep is: name [membership] (e@mail), education, current job, research interests, past jobs, published work, standards body work, conference and editorial/publications involvement, and awards. The above is merely what we keep, not the order in which it must appear.

Units and Quantity Symbols

<i>Unit</i>	<i>Symbol</i>								
ampere	A	foot pound-force	ft · lbf	meter	m	peta	P (prefix)		
ampere-hour	Ah, A · h	foot poundal (obsolete)	ft · pdl	meter, reciprocal	m ⁻¹	pico	p (prefix)		
ampere-turn	A	footcandle	fc	square meter	m ²	picoampere	pA		
ampere per meter	A/m	footlambert	fL	cubic meter	m ³	picofarad	pF		
ampere per square meter	A/m ²	gee	g	meter per second	m/s	picosecond	ps		
ampere meter squared	A · m ²	gauss	G	meter per second squared	m/s ²	picowatt	pW		
angstrom	Å	giga	G (prefix)	meter to the fourth power	m ⁴	pint	pt		
atmosphere, standard	atm	gigabit cycle per second	GHz	(ion) per cubic meter	m ⁻³	pound (avoirdupois)	lb		
atmosphere, technical	at	gigaelectronvolt	GeV	square meter per volt second	m ² /V · s	pound per cubic foot	lb/ft ³		
atomic mass unit (unified)	u	gigahertz	GHz	(electron) per cubic meter second	m ³ · s ⁻¹	pound-force	lbf		
atto	a	gilbert	Gb			pound-force foot	lbf ft		
attoampere	aA	gram	g	cubic meter per second	m ³ /s	pound-force per square foot	lbf/ft ²		
attofarad	aF	gray	Gy	metric ton	t	pound-force per square inch	lbf/in ²		
				mho	mho	quart	qt		
bar	bar	hecto	h	micro	μ (prefix)				
barn	b	henry (pl. henrys)	H	micromicro	p (prefix)	rad	rd		
baud	bd	henry, reciprocal	H ⁻¹	microampere	μA	radian	rad		
bel	B	henry per meter	H/m	microfarad	μF	radian per second	rad/s		
becquerel	Bq	horsepower	hp	microgram	μg	radian per second squared	rad/s ²		
billion electronvolts	GeV	hour	h	microhenry	μH	rem	rem		
bit	b			microinch	μin	revolution per minute	rpm		
bit per second	b/s			microliter	μL	revolution per second	rps		
byte	byte	inch	in	micrometer	μm	roentgen	R		
		inch per second	in/s	micron	μm				
candela	cd			microsecond	μs	second (plane angle)	...°		
candela per square foot	cd/ft ²	joule	J	microsiemens	μS	second (time)	s		
candela per square inch	cd/in ²	joule per degree Celsius	J/°C	microwatt	μW	second, reciprocal	s ⁻¹		
candela per square meter	cd/m ²	joule per kelvin	J/K	mil	mil	siemens	S		
candle	cd			mile (nautical)	nmi	sievert	Sv		
centi	c (prefix)	kelvin	K	mile (statute)	mi (statute)	slug	slug		
centimeter	cm	kilo	k (prefix)	mile per hour	mi/h	square foot	ft ²		
circular mil	cmil	kilobit	kb	milli	m (prefix)	square inch	in ²		
coulomb	C	kilobyte	kilobyte	milliampere	mA	square maer	m ²		
coulomb per meter	C/m	kilocycle per second	kHz	millibar	mbar	square meter per second	m ² /s		
coulomb meter	C/m	kilomegacycle per second	GHz	milligram	mg	square millimeter per second	mm ² /s		
coulomb per square meter	C/m ²	kilogauss	kG	millihenry	mH	square yard	yd ²		
coulomb per cubic meter	C/m ³	kilogram	kg	milliliter	mL	steradian	sr		
cubic centimeter	cm ³	kilogram-force	kgf	millimeter	mm				
cubic foot	ft ³	kilohertz	kHz	millimicron	nm				
cubic foot per minute	ft ³ /min	kilohm	kW	millipascal second	mPa · s	tera	T		
cubic ft per second cubic inch	ft ³ /s	kilojoule	kJ	millisecond	ms	tesla	T		
cubic inch	in ³	kilometer	km	millivolt	mV	therm	thm		
cubic meter	m ³	kilometer per hour	km/h	milliwatt	mW	ton (short)	ton		
cubic meter per second	m ³ /s	kilotesla	kT	minute (plane angle)	...'	ton, metric	t		
cubic yard	yd ³	kilovar	kvar	minute (time)	min	torr	torr		
cycle per second	Hz	kilovolt	kV	mole	mol				
		kilovoltampere	kVA	month	mo	(unified) atomic mass unit	u		
day	d	kilowatt	kW						
deci	d (prefix)	kilowatt hour	kWh	nano	n (prefix)	var	var		
decibel	DB	knot	kn	nanoampere	nA	volt	V		
decibel referred to (1 mW)	dB (1 mW)			nanofarad	nF	voltampere	VA		
		lambert	L	nanometer	nm	volt per meter	V/m		
degree	...°	liter	L	nanosecond	ns				
degree Celsius	°C	liter per second	L/s	nanowatt	nW	watt	W		
degree Fahrenheit	°F	lumen	lm	nat	nat	watt per meter kelvin	W/(m · K)		
degree Kelvin	°K	lumen per square foot	lm/ft ²	nautical mile	nmi	watt per steradian	W/sr		
degree Rankine	°R	lumen per square meter	lm/m ²	neper	Np	watt per steradian	W/sr · m ²		
deka	da (prefix)	lumen per watt	lm/W	neper per second	Np/s	square meter			
		lumen second	lm · s	neper per meter	Np/m	watthour	Wh		
electronvolt	eV	lux	lx	newton	N	watt per square meter	W/m ²		
erg	erg			newton meter	N · m	weber	Wb		
exa	E (prefix)	maxwell	Mx	newton per square maer	N/m ²	weber per meter	Wb/m		
		mega	M (prefix)			weight percent	wt%		
farad	F	megabyte	megabyte	oersted	Oe	yard	yd		
farad per meter	F/m	megaelectronvolt	MeV	ohm	Ω	year	a		
farad, reciprocal	F ⁻¹	megahertz	MHz	ohm meter	Ω · m				
femto	f (prefix)	megohm	MW	ounce (avoirdupois)	oz				
foot per minute	ft/min	megavolt	MV	pascal	Pa				
foot per second	ft/s	megawatt	MW	pascal second	Pa · s				
foot-pound	ft · lb			percent	%				