

1 Introduction

This document is a review of books that relate to computing and copy editing, in order to consolidate the guidance they offer. The aim is to provide a quick reference for the style issues of interest to authors and editors of technical material relating to computers. For more complete information, you should consult the References given at the back of this guide.

The critical difference between this and other similar guides is that I have tried wherever possible to give *reasons* behind the recommendations that are proposed. This allows you to decide for yourself whether or not you agree with the recommendations, and makes it easier for me to replace weak suggestions with better ones over time, without losing important rationale in the process.

This is a *living* document that will evolve over time. If you have any comments, or would like to suggest changes for future versions, please email me. My contact details, and the latest version of this document, are available from <http://www.philoxenic.com>.

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The structure of the rest of this document is:

2. **General Style Notes:** miscellaneous guidance about grammar, structure and tone.
3. **Nomenclature:** an A–Z listing of terms likely to appear in technical writing, and guidance for their use.
4. **Citing Electronic Sources:** the fields that should be included in references to non-print documents.
5. **Units of Measure:** some notes about scientific and technical units and prefixes.
6. **Trademarks:** a list of some common terms that are trademarks, the type of trademark, and who the holder is.
7. **References:** the books and Web sites cited in this document.

Acknowledgements

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2 General Style Notes

2.1 Active vs. Passive Voice

I remember being taught at school that all scientific writing should be in passive voice – “the test tube was filled...” instead of “I filled the test tube...”. This is clearly nonsense [1], and any writing, scientific or otherwise, is more likely to engage the reader by using active voice throughout. As [12] says, active voice is “generally more forceful and clear than passive voice”.

In particular, you should never refer to yourself in the third person (e.g. “the author recommends the following...”), since this is clunky! Of course, sentences written badly in active voice can grate also.

2.2 Anthropomorphism

Anthropomorphism is attributing human characteristics or behaviour to things that are not human; it should be avoided in technical writing.

Incorrect	Correct
To complete the action, the OK button needs to be pressed.	To complete the action, you need to press the OK button.
The two processes talk to each other over the LAN.	The two processes communicate over the LAN.

A list of particular words to watch out for is given in [12]:

• answer	• assume	• aware
• behave	• decide	• demand
• interested in	• know	• like
• own	• realize	• recognize
• refuse	• remember	• see
• think	• understand	• want

There is a case for saying that “will” (which implies desire and choice) should be replaced by “shall” whenever it refers to software or hardware; this distinction is often made in formal requirement specifications.

There are a small number of cases in which anthropomorphic terms are well-established (such as stating that a child object *inherits* attributes from its parent [12]); these can be kept.

2.3 Punctuation

2.3.1 Spacing

There should be only a single space after a full point, according to [12]. Emacs adds two spaces when folding paragraphs.

2.3.2 Em dash

You should not use normal spaces either side of an em dash; if your software supports it, each em dash should be padded with 1/4 en spaces [12].

The HTML code for an em dash is `—`;

2.3.3 En dash

Use en dashes to indicate a minus sign, including in front of negative numbers, and for number and year ranges [12].

The HTML code for an en dash is `–`;

2.3.4 Ellipsis

When referring to a menu option that ends with an ellipsis (to indicate that the command will open a dialog box), the ellipsis should be omitted—i.e., “On the **File** menu, click **Open**.” not “On the **File** menu, click **Open...**”.

The HTML code for an ellipsis is `…`;

2.4 Abbreviations & Acronyms

Abbreviations are formed by omitting the end of a word or words (VCR, lbw, Lieut.); *acronyms* are formed from the initial letters of words (SALT, Nazi, radar), the results being pronounced as words themselves [10].

There are some special cases (such as radar and laser) that started life as acronyms but have been embraced by dictionaries as words in their own rights. Other than these, the US style is to write acronyms in all caps; the British style (in some house styles) is to use only a single capital letter for acronyms exceeding four letters, unless this runs against the common practice in a discipline [10]. It therefore seems best to me, for the sake of consistency, to write all acronyms in all caps unless there is a tangible reason for doing otherwise.

It is good practice to expand acronyms on their first use [1], although this will depend on how common the acronym is likely to be to your readers. [10] gives the excellent advice that “abbreviations should be used as a convenience for the reader, not for the writer”. This is a fine sentiment that writers should apply widely—most documents are written once, but are then read many times.

3 Nomenclature

3.1 Miscellaneous terms

Term	In Preference To	Justification of Choice
Ada	ADA	
application software	applications software	Software is plural. See also <i>system(s) software</i> .
audio-visual (UK) audiovisual (US)		From [11].
back end (n.) back-end (adj.)		
backspace key		
backup (n., adj.) to back up (v.)		The verb form is split for consistency with <i>backing up, backed up</i> , etc? [12] agrees.
bandwidth		
BASIC	Basic	The programming language is an acronym for <i>Beginners' All-Purpose Symbolic Instruction Code</i> , so should be in capitals (or small caps) [11]. Compare <i>Visual Basic</i> . See also §2.4.
Bayesian	bayesian	See §5.1
billion	thousand million, milliard	The value of <i>billion</i> is now 10^9 everywhere in the English-speaking world [7]; it used to represent 10^{12} (now called a <i>trillion</i>) in the UK. France and Germany use this alternative usage [10], so be careful if translating documents.
bit rate (n.) bit-rate (adj.)		
Boolean	boolean	See §5.1. This rule should be considered as less strict than <i>Bayesian/bayesian</i> and others; it may be acceptable to use <i>boolean</i> in a programming context, as long as it is used consistently.
breakpoint	break point break-point	
CD		Note that this is <i>compact disc</i> , not <i>compact disk</i> .
CD case	jewel case	[12]
CD-ROM	CDROM	Specified by [7]. Also <i>CD-R</i> and <i>CD-RW</i> for writeable/rewriteable CD-ROMS respectively.
chat room	chatroom	
check box	checkbox, box	Should be used with the verbs <i>select</i> and <i>clear</i> [12].
choose	click	Use <i>choose</i> in preference to <i>click</i> when instructing the user to select a named menu item or command; they may be using the keyboard instead of the mouse. However, <i>click</i> should be used for actions that can be performed only by mouse. See also <i>press</i> .

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<i>Term</i>	<i>In Preference To</i>	<i>Justification of Choice</i>
click	click on	[12]
COBOL	Cobol	
command	menu item, choice, option	Menus contain <i>commands</i> [12].
computer-aided design	computer aided design	
Coordinated Universal Time (UTC)	Universal Time Coordinate	[12]
coordinates	co-ordinates	
cutting edge		Cliché – avoid. See also <i>state of the art</i> . Better alternatives are <i>advanced, current, innovative, novel, progressive, radical, unconventional, and up-to-date</i> .
cyberspace	cyber space	
DAT	DAT tape	DAT is an acronym of <i>digital audio tape</i> .
data		Strictly speaking, data is the plural of <i>datum</i> . However, <i>data</i> is generally treated as an uncountable noun (as are <i>information</i> and <i>understanding</i>), so should be treated as singular. See also <i>software</i> .
data bank	databank	Two words according to [11].
database	data base	One word, according to [11].
data-set	data set, dataset	Hyphenated, according to [11].
dialog box	dialog, dialogue (box)	For a pop-up dialog in a GUI it is typical to use the US spelling even in British texts (see also <i>disk/disc, program/programme</i>). Appending <i>box</i> is recommended by [12].
dial-up (adj.)	dialup	Use only as an adjective [12].
disk	disc	Even in British English, the spelling <i>disk</i> is used in preference to <i>disc</i> for computer diskettes (see also <i>dialog/dialogue, program/programme</i>). Use <i>diskette</i> for a removable disk. Compare with <i>CD</i> and <i>DVD</i> .
diskette	floppy disk	[12] suggests using just <i>disk</i> . I believe that the term ‘floppy disk’ is discouraged due to the possible confusion for inexperienced users, now that 3 ½” diskettes have a hard plastic case (compared with the <i>floppy</i> construction of the earlier 5 ¼” diskettes). A Google search (13/9/04) gave: <i>diskette</i> (1,760,000 results), and <i>floppy disk</i> (2,210,000 results).

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Term	In Preference To	Justification of Choice
DOS	MS-DOS, MS/DOS, PC- DOS	If talking generically about the pre-Windows operating system for PCs, <i>DOS</i> will suffice if no distinctions need to be drawn between the various flavours. Predictably, [12] favours <i>MS-DOS</i> .
dot-com	dot.com, dotcom, dot com, .com	As recommended by [4], [12]. The alternative dot.com would read “dot dot com”.
download	down-load	
double buffering	double-buffering	Do not use <i>double buffer</i> as a verb [12].
double-click	double click, double-click on	[12]
drag	drag and drop, click and drag	You drag something to somewhere [12].
drop-down list		
DVD		Note that this is <i>digital versatile disc</i> , not <i>digital versatile disk</i> .
email (n., v.)	e-mail, E-mail, Email	Since no-one is likely to be confused by the use of <i>email</i> instead of <i>e-mail</i> , I recommend this as the simplest choice, as does [11]. Note that [4] recommends <i>e-mail</i> , and [7] mentions both but remains undecided. [12] gives <i>e-mail</i> , and only as a noun, preferring <i>send</i> for the verb.
exit	quit	To exit a program [12].
fail	crash	For hardware. See also <i>stop responding</i> [12].
family name	surname	A culturally neutral, and clear alternative to <i>surname</i> . See also <i>given name</i> .
FAQ	FAQs	FAQ is an acronym of <i>frequently asked questions</i> , so FAQs is redundant. According to [12], precede with <i>a</i> not <i>an</i> .
file name	filename	[12]
folder	directory	In a GUI context use <i>folder</i> ; <i>directory</i> is OK in a shell or when talking about a hierarchy [12].
font	fount, typeface	The word <i>fount</i> may be used by typesetters in the UK, but hardly ever by computer users [7].
formulas	formulae	As with indexes/indices, choose the simplest of the two alternatives, particularly for a US readership.
FORTH	Forth	Caps / even small caps [11].
Fortran	FORTTRAN	<i>Fortran</i> is preferred [12], but <i>FORTTRAN</i> would be OK if used consistently [11]. Apparently <i>FORTTRAN</i> was recast as <i>Fortran</i> in the 1990 standard.
forums	fora	<i>Fora</i> should be used only in Roman or legal contexts [11].
front end (n.) front-end (adj.)		

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Term	In Preference To	Justification of Choice
function(s)	functionality	Unless <i>function</i> has a specific domain meaning (e.g. when talking about a programming language), the long-winded <i>functionality</i> can be replaced by <i>function</i> or <i>functions</i> without changing the meaning.
given name	christian name, first name	A culturally neutral and clear alternative. See also <i>family name</i> .
handshaking	hand shaking	
hard copy (n.) hard-copy (adj.)	hardcopy	Two words [11]. Noun advocated by [12], which says to avoid using the adjective.
hard disk	fixed disk	[12]
Help	online Help, context-sensitive Help	Preferred in general [12].
hexadecimal	hex	[12]
high level (n.) high-level (adj.)		[12]
high tech (n.) high-tech (adj.)		
homepage	Home page, home page	A Google search of the Internet (2002) found <i>homepage</i> outnumbering <i>home page</i> by more than 7:1 [7]. [12] specifies <i>home page</i> .
HTML	html	HTML is an acronym for <i>Hypertext Markup Language</i> , not a word in its own right. See also §2.4.
hyperlink	hyper link	[12]
hypertext	hyper text hyperText	
inbox	Inbox	The word Inbox is a trademark of Sun Microsystems, Inc., so it is better to use the lower case <i>inbox</i> when talking about the generic email term.
indexes		For general use, including indexes into arrays in software [1], [11], [12].
indices		Specifically for mathematical indices [1], [11], [12].
insertion point	cursor	See also <i>pointer</i> [12].
the Internet / the Net internet tools	internet	The majority of writers use <i>Internet</i> , although it can only be a matter of time before it is decapitalized [7]. Note, however, that [7] uses <i>internet</i> in its own text for other entries. Caps in [12].
intranet	Intranet	Lower case, since it is <i>an</i> intranet (compare with <i>the Internet</i>). Lower case in [12].
invalid	illegal	Use <i>illegal</i> only in connection with the law [12].

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<i>Term</i>	<i>In Preference To</i>	<i>Justification of Choice</i>
justified	fully justified	There is only one type of justification; see <i>left-aligned</i> and <i>right-aligned</i> .
keyboard	key board	
keyboard shortcut	accelerator key, access key, hot key, quick key, shortcut key, speed key.	According to [12], <i>accelerator key</i> is obsolete, and the two terms <i>access key</i> and <i>shortcut key</i> should be used in only technical (not end-user) documentation.
keystroke	key stroke	
laptop (n., adj.)	lap top	<i>Portable computer</i> is preferred by [12], precisely because it is more ambiguous (i.e. applies to palmtops, and so on).
label	caption	Preferred when talking about the static text in a GUI element [12].
laser	LASER	Even though laser is an acronym (light amplification by stimulated emission of radiation), it is a common noun in its own right [7]. See also <i>radar</i> .
later	greater, better	When referring to requirements, e.g. ... requires Windows 98 or later [12].
left-aligned	left-justified	Justified text is both left-aligned and right-aligned [12].
licence (n. UK) license (v. UK, v. & n. US)		[11]
LISP	Lisp	Programming language [11].
log in (n., v.) log-in (adj.)	login	Recommended by [3] and [4]. Similarly for “log out” (or “log on”/“log off” used as an alternate pair). [12] prefers <i>log on / log off</i> (v.) and <i>logon / logoff</i> (n., adj.) See also <i>sign in</i> .
lookup (n., adj.) to look up (v.)		
lowercase (adj.)	lower case	
low level (n.) low-level (adj.)		
main board	mother board, motherboard	It is not clear what the politically correct version of “daughter board” is.
makefile	make file	[12]
master/ subordinate	master/slave	[12] says “although the <i>master/slave</i> relationship between server and client is in common use, the term is offensive in some cultures.”

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Term	In Preference To	Justification of Choice
metadata	METADATA	“METADATA” is a trademark of the Metadata Company; the lower case <i>metadata</i> should be used when describing <i>data about data</i> in a generic sense.
mice (pl.)	mouse devices	The phrase <i>mouse devices</i> is recommended by both [5] and [12] as the plural for <i>mouse</i> , but I have never seen it used in practice, whereas I have read and heard the term <i>mice</i> often. The plural <i>mouses</i> is recommended by [4].
model	paradigm	Unless writing for a very technical and well-read audience, <i>model</i> is likely to be clearer than <i>paradigm</i> in most contexts.
multitasking	multi-tasking	
newsgroup	news group	[12]
nonnegative	non-negative	A Google search (2/9/04) provided: nonnegative = 601,000 results; non-negative = 393,000 results.
notification area	system tray	[12]
NTFS file system	NT file system, New Technology file system	According to [12], the redundant phrase is correct.
object oriented	object-oriented, object orientated	
on-line (adj.) to go on line (v.)	online, on line	However, [12] mandates <i>online</i> in all instances.
option button	radio button	Preferred by [12], and probably less confusing even for a technical audience unless discussing UI design.
page		Be aware of the potential for confusion between the different meanings of <i>page</i> : a screenful, a printed page, and a Web page of indeterminate length [7].
path	pathname	[12]
per cent (UK) percent (US)		The national preferences for spelling are given in [7].
perimeter network	demilitarized zone (DMZ)	Culturally sensitive term [12].
Plug and Play		Use only as a noun or adjective, capitalised as shown [12].
(mouse) pointer	(mouse) cursor	Recommended by [12]. Although no reason is given, it is possible to have both a <i>cursor</i> (indicating where typed text will be inserted) and a <i>pointer</i> displayed at the same time, so it makes sense to distinguish between them. See also <i>insertion point</i> .
point to	move the mouse pointer to	[12]

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Term	In Preference To	Justification of Choice
press (or push)	click, depress	Use <i>press</i> when instructing the user to press a button in a GUI (for example, the OK button on a dialog), since this is independent of the input device used. See also <i>choose</i> .
program	programme	For a computer program it is typical to use the US spelling even in British texts (see also disk/disc, dialog/dialogue). For a programme of events, the British spelling should be maintained.
plug-in (n., adj.) to plug in (v.)	plugin	
pop-up (n., adj.) to pop up (v.)	popup	Same as for a pop-up children's book.
postmaster	post master, Post Master	The only form given in [11].
press	hit, strike	In reference to operating a key on a keyboard [12].
printout (n., adj.) to print out (v.)		
program	programme	For a computer program, the US spelling is preferred, even in the UK.
PROLOG	Prolog	<i>PROLOG</i> preferred, but <i>Prolog</i> given as an alternative, in [11].
pseudocode	pseudo code, pseudo-code	
push button (n.)		
radar	RADAR	Even though radar is an acronym (radio detection and ranging), it is a common noun in its own right [7]. See also <i>laser</i> .
read-only (adj.)	read only	[12]
real time (n.) real-time (adj.)		
real world (n.) real-world (adj.)		
restart	reboot	Making it clear whether it is a single program or the whole computer that is being restarted [12].
right-aligned	right-justified	Justified text is both left-aligned and right-aligned [12].
right mouse button	mouse button 2, secondary mouse button	Although users may have reprogrammed their buttons, this term is understood and users "make the mental shift" [12].
run	execute	[12]

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Term	In Preference To	Justification of Choice
run time (n.), runtime (n.), run-time (adj.)		<i>Run time</i> is the time during which an application is running. A <i>runtime</i> is an environment that is required to run programs that are not compiled to machine language (e.g. Java runtime). <i>Run-time</i> describes a thing occurring or relevant at <i>run time</i> [12].
sans serif	sanserif	[11].
SCSI, a	an SCSI	Pronounced “scuzzy” [12]
set-up (n., adj.) [UK] setup (n., adj.) [US] to set up (v.)		[11].
screen capture	screen shot	More descriptive alternative.
select	highlight, pick	[12]
shaded	greyed, dimmed	For a check box that represents an indeterminate option (typically an option for a group of items, only some of which have the option set) [12].
shortcut menu	context menu, right-click menu	[12]
sign in (n., v.) sign-in (adj.)	signin	The equivalent of <i>log in / out</i> , but across a network.
simple	simplistic	The word <i>simplistic</i> means <u>too</u> easy; be careful not to use <i>simplistic</i> where you mean <i>simple</i> [7].
software		Generally treated as an uncountable noun (as are <i>information</i> and <i>understanding</i>), so should be treated as singular. See also <i>data</i> .
spam	Spam, SPAM	The word <i>spam</i> should always be lower case, to prevent confusion with <i>SPAM</i> ® (the processed meat product, the name of which is a registered trademark of Hormel Foods Corporation) – see [13].
spreadsheet	spread sheet	
SQL, an	a SQL	[12] an SQL database, but a SQL [pronounced <i>sequel</i>] Server database.
stand-alone (adj.)		Do not use as a noun [12].
start	invoke, launch, start up	
state of the art (n.) state-of-the-art (adj.)		Cliché – avoid! See also <i>cutting edge</i> . Better alternatives are <i>advanced</i> , <i>current</i> , <i>innovative</i> , <i>novel</i> , <i>progressive</i> , <i>radical</i> , <i>unconventional</i> , and <i>up-to-date</i> .

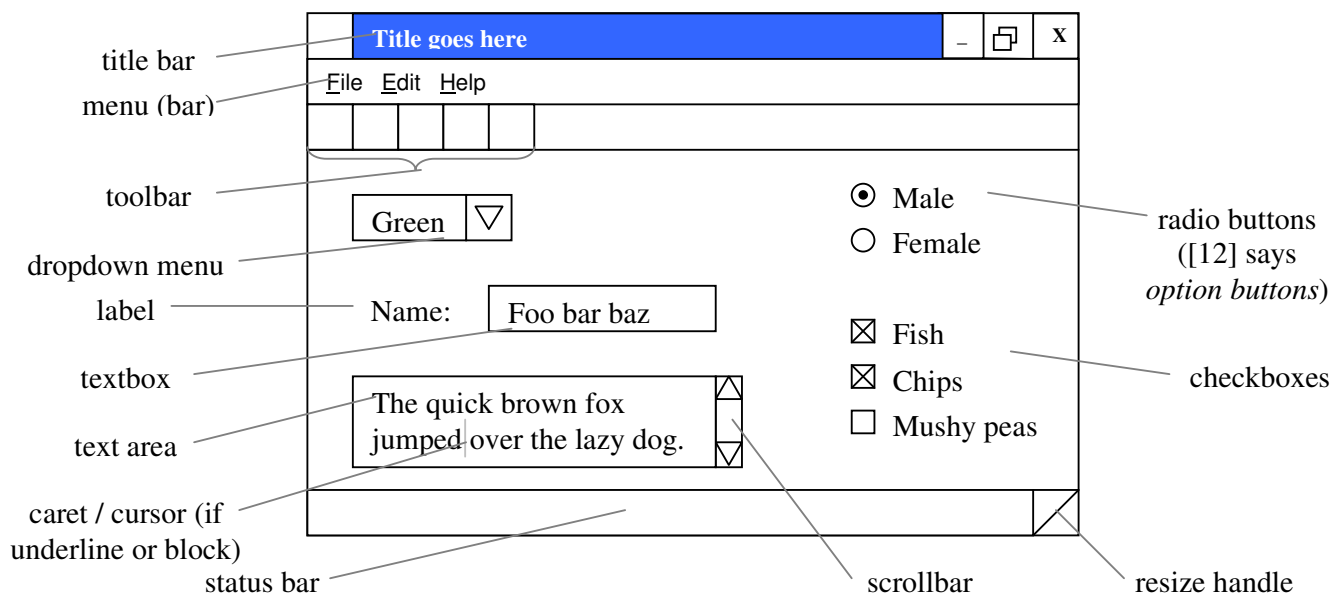
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Term	In Preference To	Justification of Choice
stop responding	hang, crash	<i>Hang</i> is a culturally sensitive term, according to [12]. <i>Stop responding</i> is the more descriptive term anyway. This is for software: see <i>fail</i> for hardware.
style sheet	stylesheet	[12]
subclass (n., v.)	sub-class	
subroutine	sub-routine	
supersede	supercede	Common misspelling.
system software	systems software	[12]
time stamp	timestamp	[12]
time-out (adj., n.), time out (v.)		[12]
title	caption	For a window title [12].
toolbox	tool box	Toolbox, in the traditional hardware sense, is one word, so this spelling should be carried forward to its use in software [11].
type (v)	input	[12]
unavailable	grey, greyed, disabled	In reference to commands [12].
Unified Modeling Language	Unified Modelling Language	Spell <i>Modeling</i> with one <i>l</i> , even in British English, since it is a proper noun phrase used as a brand name.
Unix UNIX[®]	unix	Capitalize for generic use; use all upper case for the trade name. Early papers used small caps—UNIX—largely due to the novelty of being able to do this (using <i>troff</i>) [14]; this form is now unusual.
upload	up-load	
URI / URL		The terms URI and URL are not interchangeable – a URL is a specific instance of a URI. See [6] for definitions of the two terms.
Usenet	usenet	As for the Internet, there is only one.
user (or customer, or you)	end user	[12]
user friendly		Avoid. Recast as <i>XYZ is easy to use</i> .
user name	username	[12]
user rights	access privileges, access rights	Recommended by [12], which doesn't give a reason. My guess is that Microsoft uses "accessibility" specifically in terms of ensuring that software is usable by all people, including those with disabilities.
viruses	virii	Note that [4] and [11] don't list <i>virii</i> as even an optional plural of <i>virus</i> .

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<i>Term</i>	<i>In Preference To</i>	<i>Justification of Choice</i>
Visual Basic	Visual BASIC	<i>Visual Basic</i> is a registered trademark of Microsoft Corporation, and they choose to spell it like this. Can also be abbreviated to <i>VB</i> . Compare <i>BASIC</i> .
voicemail (UK) voice mail (US)		Unusually, one word in the UK but two in the US [11].
the World Wide Web, the Web	world wide web	According to Tim Berners-Lee [2], World Wide Web should be capitalised and set as three separate words, so that its acronym is three separate “W”s.
webcam		[12]
webcast		[12]
Web page webpage	web page	Nothing to choose between these—pick one and use it consistently. Should match the choice for <i>Web site / website</i> . Note that [7] states that <i>web page</i> is the most used in the Web itself.
Web site website	web site	Nothing to choose between these—pick one and use it consistently. Should match the choice for <i>Web page / webpage</i> . Note that [7] states that <i>website</i> is the most used on the Web itself.
webmaster	Webmaster	A webmaster is master of <i>a</i> web, rather than of <i>the</i> Web.
white space (n.), white-space (adj.)		[12]
Windows		Capitalise Microsoft Windows, to acknowledge the trademark. Use <i>windows</i> when talking about more than one window.
workstation	work station	[12]
timesharing		
trademark		One word. Compare with <i>trade name</i> .
trade name		Two words. Compare with <i>trademark</i> .
uppercase	upper case	
uptime	up time, up-time	
URL, a	an URL	[12]
X	X Windows	It is a windowing system called X, <i>not</i> X Windows.

3.2 Graphical User Interface (GUI) terms



Although there are four varieties of list box—static or drop-down, list box or combo box—there is rarely any advantage in distinguishing between these when explaining how to use a user interface.



3.3 Names of Keyboard Characters

Note that [12] recommends using all caps when referring to the name of a key.

Symbol	Term	Preferred To	Justification of Choice
Esc	Esc	Escape	[12]
#	hash (UK) pound (US)	square	
&	ampersand		
*	asterisk	star	[12]
~	tilde		
()	parentheses		
[]	square brackets		[12] gives just “brackets”
{ }	braces	curly braces	[12]
< >	angle brackets		[12]
\	backslash		[12]

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<i>Symbol</i>	<i>Term</i>	<i>Preferred To</i>	<i>Justification of Choice</i>
/	forward slash	oblique, diagonal, virgule, solidus	The word <i>slash</i> is recommended by [3], and [7] suggests that other guides are gradually migrating to this term. <i>Forward slash</i> is the preferred term given in [10] in a computing context.
^	caret		
@	at sign		[12]
'	apostrophe		
‘ ’	single curly quotation marks	quotes, quote marks	[12]
' '	single straight quotation marks	quotes, quote marks	[12]
" "	(straight) quotation marks	quotes, quote marks	[12]
“ ”	(curly) quotation marks	quotes, quote marks	[12]
¬	NOT sign		
« »	chevrons (opening & closing)		[12]
©	copyright symbol		[12]
®	registered trademark symbol		[12]
™	trademark symbol		[12]
†	dagger		[12]
‡	double dagger		
§	section		[12]
°	degree sign		[12]
…	ellipsis (s), ellipses (pl)		[12]
—	em dash		
–	en dash		
-	hyphen	dash	Typographically there is a significant difference between a <i>hyphen</i> (-), an <i>en dash</i> (–) and an <i>em dash</i> (—). Therefore the term <i>dash</i> on its own should be avoided.

<i>Symbol</i>	<i>Term</i>	<i>Preferred To</i>	<i>Justification of Choice</i>
—	underscore		[12]
=	equal sign	equals sign	Given in [12].
!	exclamation point	exclamation mark, bang	Given in [12].
`	grave accent	accent grave, back quote	Given in [12].
¶	paragraph mark		[12]
	pipe, vertical bar, or OR logical operator		[12]
Enter	Enter	Return	Note however that Mac OSX (and earlier?) has support for independent Return and Enter keys with different functions.
	space (char) spacebar (key)	space bar	
	Windows logo key		Given in [12].
PgUp/PgDg	Page Up/ Page Down	PgUp/PageUp /...	[12]

4 Citing Electronic Sources

4.1 URLs

4.1.1 Case-sensitivity

Since domain names (or entire email addresses) are case-insensitive, they should probably always be written in lower case. However, the portions of a URL other than the protocol (http://) and the domain name may be case-sensitive (depending on the operating system of the Web server used by that site).

4.1.2 Demarcation of URLs

Some sources suggest that all URLs are surrounded by angle brackets (for example, <http://www.philoxenic.com>), although [3] forbids this because angle brackets “have specific meaning within some markup languages, including html [sic]”. As long as due care is taken when translating raw text documents into HTML, this doesn’t seem a good enough reason not to use angle brackets if they otherwise help to clarify the text.

An alternative, understood by a lot of software, is to add *URI* after the opening triangular bracket, as is <URI:ftp://ftp.debian.org/debian/pool/main/>. This may be a more appropriate format for documents that will be mainly in electronic, rather than printed, form.

4.2 What to Cite

Table 1 gives a concise list of the recommendations given in [25] for the contents and order of the details to use in citations of electronic materials.

Table 1: ISO 690-2 Electronic Citation Recommendations

Electronic bulletin boards, discussion lists and electronic messages		Electronic serials		Electronic monographs, databases and computer programs			
Electronic messages	Entire message system	Articles and other contributions	Entire serial	Contributions to electronic document, program or database	Parts of document, program or database	Entire document, program or database	
✓✓		✓✓		✓✓	✓✓	✓✓	Primary responsibility ¹
✓✓		✓✓		✓✓			Title (of contribution)
				✓✓			Primary responsibility (of host document)
✓✓	✓✓	✓✓	✓✓	✓✓	✓✓ ²	✓✓	Title
✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	Type of medium
✓					✓✓	✓	Subordinate responsibility / recipients
		✓✓	✓✓	✓✓	✓✓	✓✓	Edition
		✓✓					Issue designation
✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	Place of publication
✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	Publisher
✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	Date of publication
		✓✓		✓✓	✓✓	✓✓	Date of update/revision
✓✓	✓✓	⊠	⊠	⊠	⊠	⊠	Date of citation
			✓			✓	Series
					✓✓		Chapter or equivalent designation (of part)
					✓✓		Title (of part)
✓				✓	✓		Numeration within host document / system
✓✓		✓✓		✓✓	✓✓		Location within host document / system
✓	✓	✓	✓	✓	✓	✓	Notes
✓✓ ³	✓✓	⊠	⊠	⊠	⊠	⊠	Availability and access
		✓✓	✓✓	✓✓	✓✓	✓✓	Standard number (ISBN, ISSN) [or permanent source identifier]

Key: ✓✓ – required, ✓ – optional, ⊠ – required for online source, optional otherwise

¹ Author

² of host document

³ Required, except for personal or unpublished communications.

4.3 *Type of Medium*

The following media designators are recommended by [25]:

[online]
[CD-ROM]
[magnetic tape]
[disk]

It also says that, if desired, the type of publication can also be included in the designator, yielding [database online], [computer program on disk], [bulletin board online] and [electronic mail¹].

4.4 *Missing Information*

4.4.1 *Place of publication*

If the place of publication is not known, but can be reasonably inferred, then it shall be given in square brackets [8]. This element can be omitted for online sources if it cannot be determined.

4.4.2 *Publisher*

If no publisher's name is given in the source, then the phrase "publisher unknown" (or similar) should be used [8]. This element can be omitted for online sources if it cannot be determined.

4.5 *Availability and access*

The phrase *available from* is recommended by [8], as in "available from Internet via anonymous FTP to <ftp.server.invalid>" or "available from World Wide Web: <http://www.server.invalid/path/to/file>".

There is no need, according to [10], to add *online* or *available from* to a citation that includes a URL because this is obvious from the inclusion of the address: this seems sensible to me. The same source notes, however, that some guides use *at* to refer to a unique location for a source and *available at* to refer to one particular location of the material.

4.6 *Dates*

4.6.1 *Date published*

Electronic sources are much more likely to be undated than printed works – this can be signalled by 'n.d.', [10] which is preferable to just excluding the date since it shows that at least you have looked!

4.6.2 *Access dates*

While [3 §17.12] sees these as of "limited value", it seems clear to me that they give important information to any reader trying to find the document for themselves: suppose the reader gets a "file not found" error – the last access date will hint how

¹ Note that [electronic mail] is a new designator in its own right; it is listed in the examples but not in the list of media types.

likely it is that the file has moved, rather than there being a transient problem with the Web server. The access date shows whether or not each link was checked for validity when the latest version of the referring document was published.

4.6.3 Digital Object Identifier System®

Because of the transient nature of content on the Internet, there are some schemes being developed to assign *permanent source identifiers* to electronic sources, so that they can be tracked if they move. One such scheme, highlighted in [3], is the Digital Object Identifier (DOI) System. See <<http://www.doi.org>> for more details.

It seems prudent to include the DOI string, whenever one is available, in a citation. See [9] for this document's citation of the DOI Handbook.

4.7 Examples

4.7.1 Online database

"The Cannonball Run", record tt0082136 in IMDb [database online].
<<http://www.imdb.com>>, accessed 2 September 2004.

4.7.2 Email message

Matthew Strawbridge [matthew@philoxenic.com], "Citing Electronic Material", private email to Joe Public [someone@somewhere.invalid], 17 May 2004.

As recommended by [3], an individual's email address should generally be omitted, but if it really must be included, it may be cited only with the permission of its owner. Just as you would not publish someone's address or telephone number, their email address should be kept private. This also prevents any problems with spam if your material is published electronically (perhaps at a later date).

4.7.3 Usenet message

Matthew Strawbridge [google.groups@philoxenic.com], "Evaluating ClearCase UCM -- problem with ClearCase connecting to ClearQuest", comp.software.config-mgmt [newsgroup message], 8 August 2004. Available from <<http://groups.google.com/groups?selm=58088ad1.0408081005.11e79a2e%40posting.google.com>>, accessed 2 September 2004. Message ID: <58088ad1.0408081005.11e79a2e@posting.google.com>.

4.7.4 FTP site

Nicholas Pioch [pioch@poly.polytechnique.fr], "A short IRC primer", [text online], 22 August 1992. Available from <<ftp://ftp.demon.net/pub/doc/irc/IRCprimer.txt>>, accessed 17 May 2004.

4.7.5 Internet article based on a print source

Laura Kelly, "Soft skills are key for future IT managers" [electronic version]. Computer Weekly, 18 May 2004.

4.7.6 Article in an Internet-only journal / blog

Julian Robichaux “How to spot a fake programmer”, 2 March 2004, Nsftools blog. <<http://www.nsftools.com/blog/blog-03-2004.htm>>, accessed 17 May 2004.

4.7.7 Listserv message

Matthew Strawbridge [matthew@philoxenic.com], “Junk Food”, in SfEPLine 23 April 2004. Available from <<http://finance.groups.yahoo.com/group/SfEPLine/>>, accessed 20 August 2004.

4.7.8 Material from an unknown author

“London Survives 2012 Cut”, London: BBC, 19-May-2004. Available from <http://news.bbc.co.uk/sport1/hi/other_sports/olympics_2012/3720515.stm>, accessed 18 May 2004.

4.7.9 World Wide Web

Norbert Lindenberg and Masayoshi Okutsu, “Supplementary Characters in the Java Platform”, Sun Microsystems Inc, May 2004. Available from <<http://java.sun.com/developer/technicalArticles/Intl/Supplementary/>>, accessed 18 May 2004.

If referencing the main page of a site, give the shortest URL: e.g. refer to <http://www.philoxenic.com> rather than <http://www.philoxenic.com/index.jsp>.

4.7.10 Computer Programs

These are usually referenced first by title, although the author’s name should also be given, if known [7]. In addition to these recommendations, it will be useful to a reader wanting to use the software to add the platform on which it runs (*PC, Mac, UNIX, Linux, multi-platform*, etc), licensing terms (*open source, commercial, freeware*, etc), and a URL reference if the software has an official homepage:

Vim (vi Improved) [computer software (multi-platform): open source]. Bram Moolenaar. Available from <<http://www.vim.org>>.

If you need to refer to a specific version of the software (for example, if the text refers to features that may change in later versions of the software), then it seems sensible to cite the software version as well.

4.7.11 CD-ROM

The access path to the unit being cited should be indicated with one or more dashes [7]:

The ICAME Collection of English Language Corpora [CD-ROM] Bergen, Norway: Norwegian Computing Centre for the Humanities, 1993.
Helsinki Corpus – Early Modern English Texts.

5 Units of Measure

5.1 Upper/Lower case

All units of measure should take lower case letters when spelt out, even if they are derived from someone's name and/or their symbol is a capital letter [10]. This gives: *joule, newton, pascal, hertz*, etc. Lower case is also used for prefixes, hence: *gigahertz, kilobytes*, etc.

By contrast, upper case is used for (only) the name component of a compound noun, such as *Halley's comet* or *Planck's law* [10].

Note that *Celsius* (upper case) is preferred to *centigrade* (both abbreviated C) for temperature measurements [11].

Personally, I think that terms derived from proper nouns, but which are not units of measure, should still be capitalised: *Bayesian statistics, Boolean logic, Newtonian mechanics*. Note also that these terms are capitalised by Microsoft Word's spell checker.

5.2 A note about prefixes

The traditional units in computing use powers of two rather than powers of ten, but confusingly use the same letter prefixes as for SI units.

Table 2: Prefixes in colloquial computing usage

Name	Abbr	Factor	SI size
kilo	k ¹	2 ¹⁰ = 1024	10 ³ = 1000
mega	M	2 ²⁰ = 1 048 576	10 ⁶ = 1 000 000
giga	G	2 ³⁰ = 1 073 741 824	10 ⁹ = 1 000 000 000
tera	T	2 ⁴⁰ = 1 099 511 627 776	10 ¹² = 1 000 000 000 000
peta	P	2 ⁵⁰ = 1 125 899 906 842 624	10 ¹⁵ = 1 000 000 000 000 000
exa	E	2 ⁶⁰ = 1 152 921 504 606 846 976	10 ¹⁸ = 1 000 000 000 000 000 000
zetta	Z	2 ⁷⁰ = 1 180 591 620 717 411 303 424	10 ²¹ = 1 000 000 000 000 000 000 000
yotta	Y	2 ⁸⁰ = 1 208 925 819 614 629 174 706 176	10 ²⁴ = 1 000 000 000 000 000 000 000 000

In 1999, the International Electrotechnical Commission (IEC) published Amendment 2 to "IEC 60027-2: Letter symbols to be used in electrical technology – Part 2: Telecommunications and electronics", which introduced some new prefixes to be used in specifying these binary multiples:

Table 3: New IEC Standard Prefixes

Name	Abbr	Factor
kibi	Ki	2 ¹⁰ = 1024
mebi	Mi	2 ²⁰ = 1 048 576
gibi	Gi	2 ³⁰ = 1 073 741 824
tebi	Ti	2 ⁴⁰ = 1 099 511 627 776
pebi	Pi	2 ⁵⁰ = 1 125 899 906 842 624
exbi	Ei	2 ⁶⁰ = 1 152 921 504 606 846 976

¹ Although some technical sources (such as [6]) make a deliberate distinction between k = 1000 and K = 1024.

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While these new prefixes have not yet gained widespread use, anyone editing technical documents should be aware of their existence, and the potential ambiguities involved in using the older units.

5.3 Bits & Bytes

A capital *B* is used for *bytes*; a lower case *b* is used for *bits*: MB = megabyte, Mb = megabit.

5.4 Hyphens

When a unit of measurement is compounded to form an adjective, it takes a hyphen [10]: *a 10-GB hard disk*, or *an eight-week project*. This is worded in [12] as “hyphenate two words that precede and modify a noun as a unit if the two modifiers are a number or single letter and a noun or participle”, examples being *80-column text card* and *16-bit bus*.

This means that one should write “the drive has a capacity of 10 GB”, but “it is a 10-GB drive”. However, I am told that many style guides specifically state that a space should be used even for adjectives; often a thin space is used in front of the unit symbol, which ties it to the numerical part of the value and obviates the use of a hyphen. This is one of those cases where consistency of application is more important than which rule is applied.

6 Trademarks

There are three types of trademark that need to be highlighted in text:

- Unregistered trademarks (denoted by the TM symbol)
- Service marks (denoted by the SM symbol)
- Registered trade marks (denoted by the ® symbol)

It is sufficient (according to [5]) to use the trademark symbol after only the first or most prominent occurrence of the trademark in the text.

This section lists some words and phrases that are trademarks often needed in computing texts. **You use this information entirely at your own risk—it may be incorrect or out of date, and I accept no responsibility for any consequences of the use of this information.** Clearly, terms not in this list may also be trademarks.

Mark	Holder
Active Directory®	Microsoft Corporation
ActiveX®	Microsoft Corporation
Ada®	U.S. Government (Ada Joint Program Office)
Apple®	Apple Computer, Inc.
BackOffice®	Microsoft Corporation
BizTalk®	Microsoft Corporation
Celeron®	Intel Corporation
Centrino™	Intel Corporation
CORBA®	Object Management Group, Inc.
Direct3D®	Microsoft Corporation
DirectX®	Microsoft Corporation

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EJB™	Sun Microsystems, Inc.
FireWire®	Apple Computer, Inc.
FrontPage®	Microsoft Corporation
IBM®	International Business Machines Corporation
iBook® / iMac®	Apple Computer, Inc.
Intel®	Intel Corporation
IntelliSense®	Microsoft Corporation
Itanium®	Intel Corporation
J2EE™/J2ME™/J2SE™	Sun Microsystems, Inc.
Java™	Sun Microsystems, Inc.
JavaBeans™	Sun Microsystems, Inc.
Javadoc™	Sun Microsystems, Inc.
JavaScript™	Sun Microsystems, Inc.
JavaServer Pages™/JSP™	Sun Microsystems, Inc.
JDK™	Sun Microsystems, Inc.
JDBC™	Sun Microsystems, Inc.
Jscript®	Microsoft Corporation
Linux®	Linus Torvalds
LISTSERV®	L-Soft international, Inc.
Mac® / Macintosh®	Apple Computer, Inc.
Mac OS®	Apple Computer, Inc.
Microsoft®	Microsoft Corporation
Microsoft Press®	Microsoft Corporation
MS-DOS®	Microsoft Corporation
.NET logo™	Microsoft Corporation
Netscape Navigator™	Netscape Communications Corporation
OneNote®	Microsoft Corporation
OpenGL®	Silicon Graphics, Inc.
OpenType®	Microsoft Corporation
Outlook®	Microsoft Corporation
Pentium®	Intel Corporation
PostScript®	Adobe Systems, Inc.
PowerPC™	International Business Machines Corporation
PowerPoint®	Microsoft Corporation
QuickTime®	Apple Computer, Inc.
RealAudio™	Progressive Networks, Inc.
Simula 67™	Simula AS
Smalltalk-80™	ParcPlace Systems
Solaris™	Sun Microsystems, Inc.
Sun®	Sun Microsystems, Inc.
TrueType®	Apple Computer, Inc.
UML®	Object Management Group, Inc.
UNIX®	UNIX System Laboratories
VAX®	Digital Equipment Corporation
Visio®	Microsoft Corporation
Visual Basic®	Microsoft Corporation
Visual C++®	Microsoft Corporation
Visual C#®	Microsoft Corporation
Visual FoxPro®	Microsoft Corporation

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Visual InterDev®	Microsoft Corporation
Visual J++®	Microsoft Corporation
Visual J#®	Microsoft Corporation
Visual SourceSafe®	Microsoft Corporation
Visual Studio®	Microsoft Corporation
W3C®	World Wide Web Consortium
Webdings®	Microsoft Corporation
Win32®	Microsoft Corporation
Windows®	Microsoft Corporation
Windows NT®	Microsoft Corporation
Wingdings®	Microsoft Corporation
Xeon®	Intel Corporation
X Window System™	Massachusetts Institute of Technology

Trademarks should be used as **adjectives**, not as nouns, and should not be used as possessives or be pluralized. So, for example, strictly speaking you should use “boot into the Microsoft® Windows® operating system” rather than “boot into Windows®”.

7 References

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