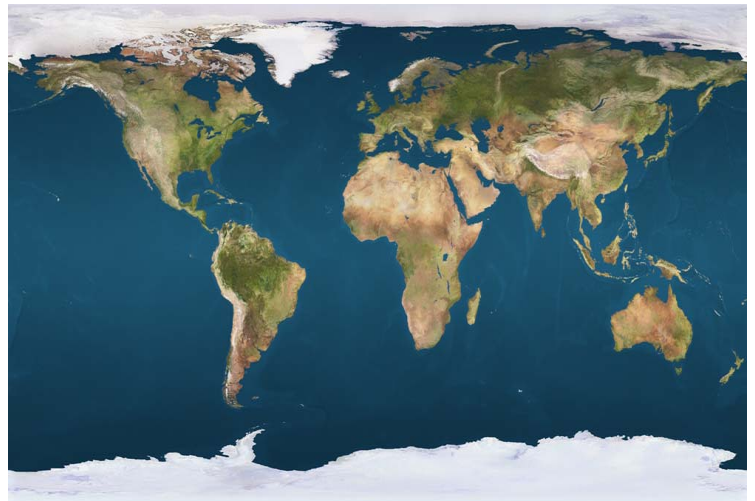




QUANTUM3D®
Delivering Affordable Reality

Documentation Style Guide for Quantum3D® User Manuals

Formatting, Styles, and Usage with Examples



Quantum3D, Inc.
6330 San Ignacio Avenue
San Jose, CA 95119-1209 USA

Telephone (408) 361-9999
Facsimile (408) 361-9980

General <http://www.quantum3d.com>
Support <http://www.quantum3d.com/support>

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Author Steven Wells
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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user’s own expense.

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Save these instructions.

Changes or modifications to this device that are not approved by the party responsible for compliance could void the user’s authority to operate the equipment.

To reduce the risk of electrical shock, do not attempt to open the device unless instructed to do so. Do not use any tool for purposes other than instructed.

There are no user-serviceable parts in the unit. Refer all servicing of the unit to qualified service personnel.

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Chapter 1

Introduction

This guide documents a set of stylistic formatting for use within Quantum3D (Q3D) user manuals, as developed originally in the summer and fall of 2006. Most of the formatting crystallized during that initial period, but over time we made a few modifications and many incremental additions. This is a work in progress, subject to the new ideas and needs established through discussion with Q3D staff and other contributors. We occasionally make reference to legacy or alternative formats when they illustrate techniques or clarify improvements. In the spring and summer of 2008, Q3D adopted new company-wide logograms and documentation layouts, which introduced a new cover design for our user manuals.

Some components of this document are not applicable for specific use here, rather they are present as templates for use in other documents. These include ITAR and proprietary warnings, legal information, Sections 1.2, “Contacting Quantum 3D Technical Support” on page 2 through 1.4, “Conventions” on page 3, and numerous examples.

Note *Although this document is titled as a “guide,” the template materials may use the word “manual” in support of our user manuals, the majority of our user-facing documentation.*

1.1 About This Guide

This guide provides the details of all stylistic information defined and used to date. The actual styles and formatting are used wherever possible to provide both visual guidance and usable samples. You can use this entire document as a template for new work, or copy the samples into existing documents.

The main sections, chapters, and appendixes include the following:

- Title page
- Identification Page
- Legal Information [as a Q3D standard sample]
- Contents
- Introduction [including document conventions]
- Usage
- Page Setup
- Styles
- Samples
- Table of Figures
- Glossary [as a sample]

1.2 Contacting Quantum 3D Technical Support

Web Based Support

Quantum3D customer support provides a web-based online problem tracking and reporting system. Hardware and software products are only covered during their warranty or maintenance period. We recommend that you review the warranty documentation that accompanied your system and be prepared to provide proof of warranty coverage to Quantum3D upon request. Warranty information can also be found on the Quantum3D website.

Quantum3D customers and authorized representatives may visit our online support system at:

<http://www.quantum3d.com/support>

You should request an account in the online support system as soon as possible after receiving your Quantum3D product. To request your account, follow these instructions, and an account will be created for you:

1. Click this link to [Customer Support](#), or type <http://www.quantum3d.com/support> into your web browser, and then click the **Online Support Database** link to view our online problem reporting system.
2. Have the following information available, and then click the **Support Login Request** link to prepare an email to us:
 - First and last name
 - Company
 - Mailing address
 - Telephone number
 - Email address
 - Quantum3D products used
 - Quantum3D product serial number
3. You will receive an email within 48 hours providing your login credentials and instructions for using the system.

Note *Your User ID is case sensitive. Your Password is case-sensitive and stored in clear text. Support administrators will have access to your password.*

1.3 Obtaining the Most Current Version of this Manual

The current version of this manual is available from your Quantum3D sales representative.

1.4 Conventions

The following are general documentation conventions used in this manual.

Font Formatting

Font formatting indicates that the text serves a particular function.

- **Bold** font style highlights document titles, command-line and Graphical User Interface (GUI) captions, heightened emphasis, and program elements.
- *Italic* font style indicates emphasis, document title references, parameters, and placeholders.
- ***Bold Italic*** font style indicates critical information.
- **Menu** → **Command** indicates a menu command sequence or the path used to navigate through a hierarchical tree structure.
- **Note** *Indicates important background information with technical emphasis.*
- **TIP** Indicates information that might be useful, but is not critical for safe or trouble-free operation.
- Monospaced font styles indicate program listings, command line entries, and file folders.

Icon



The caution graphic and accompanying bold italic text indicate critical information to avoid a major malfunction or prevent hazardous conditions.

Interface Terminology

The following terms describe actions you may perform with your mouse. If you use another pointing device or have interchanged the effect of the left and right buttons, adjust your usage accordingly.

- **Click** Point to the indicated item (or in the indicated area), and then press and release the *left* mouse button.
- **Right-click** Point to the indicated item (if any), and then press and release the *right* mouse button.
- **Double-click** Point to (or in) the indicated item, and then press and release the *left* mouse button twice in rapid succession.
- **Drag** Point to the indicated item, press and hold the *left* mouse button, move the mouse pointer to the destination, and then release the button.
- **Scroll** Point to a scroll bar, press and hold the *left* mouse button, move the mouse pointer within the scroll box until the desired content is displayed, and then release the button.
- **Rotate** Turn the mouse wheel button, if your mouse is so equipped, until the desired content or option is displayed.

1.5 Procedure Documents

Procedure documents, as compared to user manuals, present procedural steps as the primary focus for an audience of manufacturing or testing workers. These documents include:

- MPI – Manufacturing Procedure Instructions
- TPI – Test Procedure Instructions
- Procedure Guides

Such documents require a different format for the main headings and other styles than are used in this guide. Obvious and persistent numbering dominate the main heading styles, which largely preempt the function of list-numbered styles. Because presentation is less formal, introductory chapter formatting is more subdued.

Actual samples of the styles are not included within this document. For information highlighting the formatting differences between procedure documents and user manuals, refer to the document, *Documentation Style Addendum for Quantum3D® Manufacturing and Testing Procedures*. That document includes the styles formatted explicitly for MPIs, TPIs, and procedure guides.

Chapter 2

Usage

2.1 Word Processor

We use Quantum3D Microsoft® Word® software as the application for writing, editing, and presenting technical publications. Its prime virtues are its near ubiquity, relatively low cost, and quasi-familiar user interface, especially compared to such powerful and robust applications as Adobe® FrameMaker® and Adobe® InDesign® document authoring software, which are rarely available, expensive, difficult to learn, and complicated to use. Unfortunately, Word is not nearly as robust as Microsoft would want users to believe, so pay attention to instability and bizarre “misbehavior.” Malfunctions most often appear as:

- Improperly numbered lists that start with some number other than 1.
- Abnormal outline level indentation in headings, especially of *Heading 1* style.
- Broken cross-references that contain large blocks of text near or surrounding the referenced item.
- One or more words or sentences that are reset arbitrarily to some language other than English (U.S.), often French (France) and Portuguese (Brazil).

Currently (late 2008 through early 2009), we are within a transitional period when Microsoft® Office® 2007, of which Word is a part, is becoming the corporate standard for editing documents. However, for compatibility throughout the company and with external vendors and customers, we save documents in Office 2003 format.

2.2 Reference Materials

This guide assumes the availability of a comprehensive style manual suitable for computer oriented industries. The style manual in use here at present is the *Microsoft Manual of Style for Technical Publications*, 3rd Edition. Additional useful references include the *American Heritage Dictionary of the English Language*, 4th Edition, and the *Chicago Manual of Style*, 15th Edition.

2.3 Language

Quantum3D documentation uses the English language as spoken and written in the United States. Take care to write in a suitable style. (For more information, see Section 2.4, “Language Style” on page 6).

TIP Word Language Anomalies

Occasionally, Word arbitrarily resets some text to another language, especially within informally formatted documents. You might notice this more readily when these features are enabled:

Track Changes Some tracked changes explicitly list an unexpected language. Reject changes that only modify the language, otherwise accept the changes and note their location.

Check spelling as you type A word that you recognize to be spelled correctly appears with a wavy red underline indicating a spelling error.

To determine the language of suspected text, click within the text. The language, which appears on the status bar, should be **English (U.S)** [truncated in the available space]. If any other language appears:

1. Press CTRL+A to select the entire document.
2. From the menu, click **Tools** → **Language** → **Set Language** to open the **Language** dialog box.
3. Select **English (U.S.)** and clear the **Do not check spelling or grammar** check box.
4. Clear the **Detect language automatically** check box.
Selection of this check box typically worsens the language problems cited above.
5. Click **OK**.

2.4 Language Style

Documentation should follow the language style common to most current technical writing. This provides consistency, improves readability, and helps both native speakers and those for whom English is not a first language. It also helps in the event that a Q3D document must be translated into another language for international product distribution. Follow these general rules:

- Use active voice as much as reasonably possible. Use passive voice sparingly, such as when it is more concise or when omitting the sentence subject to avoid laying blame for errors.
- Use present tense unless you *must* use another tense to express the idea, as when specifying a future consequence of a present action.
- Use imperative mood for procedural steps, referring to the reader simply as *you*, rather than couching the reader in third-person anonymity as *one* or *the user*.
- Omit the word *please* except to match its appearance within a user interface. This is *not* impolite.
- Use the word *enable* rather than *allow* except when (infrequently) expressing actual permission. For example, system features enable user productivity, but security features allow access.
- Be concise.

2.5 Manual vs. Guide

A customer-facing document that provides essential information about a Quantum3D product's preparation, installation, operation, use, maintenance, or repair is called a *Manual*. A company-facing document that provides essential design, development, manufacturing, or packaging procedures is also called a manual. A *Guide* is a document used for aiding internal corporate processes, such as this *Documentation Style Guide* you are reading, or providing customer-facing information that is primarily

helpful rather than essential. Manuals carry greater weight and consequences than guides. Failure to adhere to the information in a guide might result in alternatively useful outcomes. Failure to adhere to the information in a manual typically results in unacceptable (or even dangerous) outcomes.

2.6 Screen Terminology

Message box

A message box is a dialog box that contains only informational text and a single button to close the box after the text has been read. The Microsoft manual recommends the term *message box* for developer documentation, but simply *message* for end user documentation. For consistency with the dialog box metaphor, use message box in all cases regardless of audience.

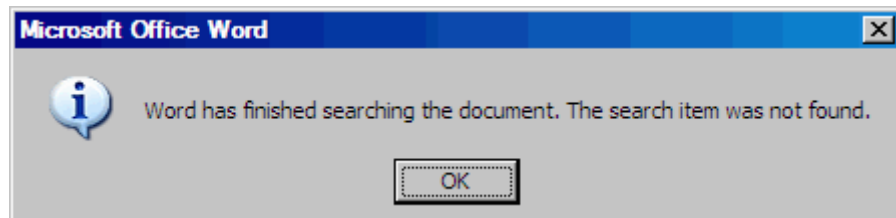


Figure 2-1 Sample message box

Note All too frequently, as in Figure 2-1 above, the OK button accompanies a potentially disappointing or irritating message that is not okay. If you can influence the terminology used within the GUI for such cases, label the button with “Close” or a similarly appropriate word.

MMC User Interface

The Microsoft Manual of Style does not include screen terminology for Microsoft® Management Console (MMC) hierarchical tree structures or window-like container objects. The MMC component is a key development environment for Q3D solutions. This section defines suitable terminology.

Developer vs User terminology

MMC uses programming structures called *pages* that produce user interface window elements and other controls, and property *sheets* upon which users set system parameters. *Pages* and *sheets* are developer terminology that would not be clear to end users. Only use those terms in documents intended specifically for a software developer audience, such as *IData* or *Mantis* manuals. For user-facing documents, do not refer to the underlying control structure. Instead use the terms for the visible interface as defined below.

Hierarchical Tree Elements

Hierarchical tree elements are each called *nodes*, and the control icons, a plus sign to expand the view of sub-nodes and a minus sign to collapse the view, are called, respectively, *the plus sign (+) icon* and *the minus sign (-) icon*.

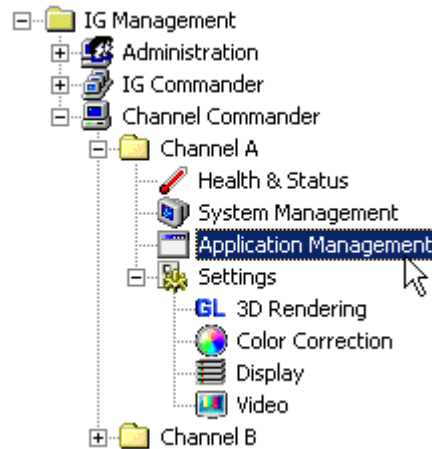


Figure 2-2 Sample hierarchical tree with nodes

Window, Pane, Panel, and Area

The overall screen window container is called a *window*. A simple (single) sub-window is called a *pane*, as in Figure 2-3, “Sample pane” below. A sub-window that contains a pane (or multiple panes) and other container elements is called a *panel*, embracing the *Control Panel* metaphor. A portion of a panel that contains multiple ungrouped panes or control elements is called an *area*. (For an example of a panel that contains areas and panes, see Figure 2-4, “Sample panel with areas (marked) containing panes” on page 9.) Unfortunately, it is crowded and confusing, thus not an example of good user interface design.

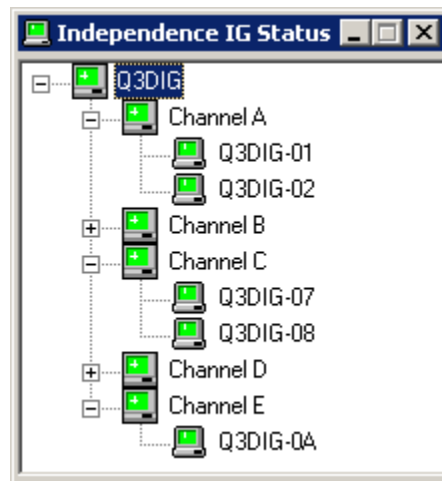


Figure 2-3 Sample pane

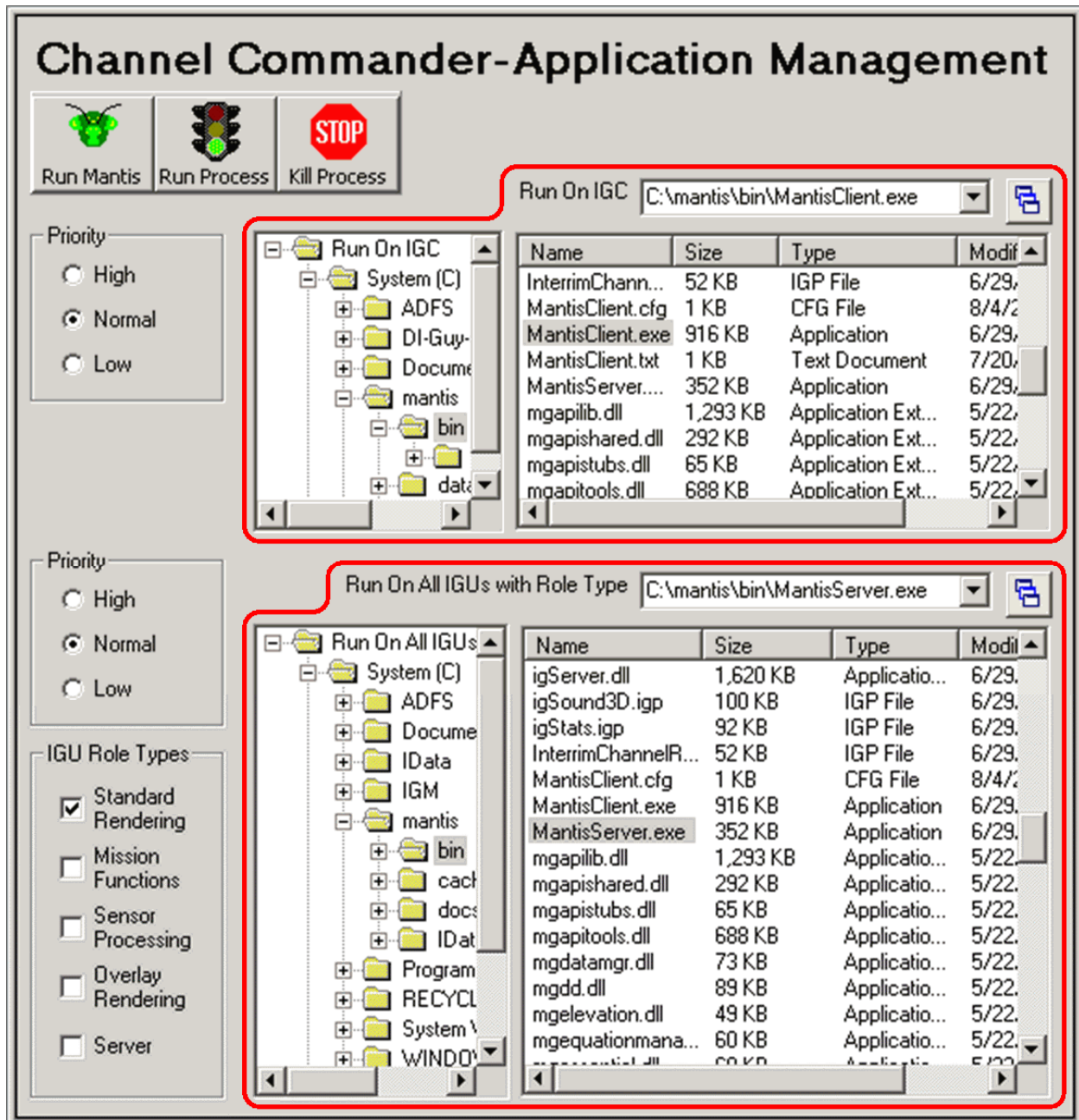


Figure 2-4 Sample panel with areas (marked) containing panes

Command Prompt

The console structure for issuing text-based commands is called the *Command Prompt* window, and commands are entered *at the command prompt*. If elaboration about opening a command prompt window is unnecessary, use for example, “At a command prompt, enter ...” or to avoid confusion when an application prompt might be available, “At a Windows command prompt, enter ...”

When referring to a typed command as a whole, it is called the *command line*; for example, “On the command line, append the /x option.”

2.7 Special Terminology

Our documentation needs require that we use special terminology, or occasionally contradict the Microsoft Manual of Style's recommendations.

Above and Below

The Microsoft Manual recommends the terms *previous*, *preceding*, or *earlier* instead of *above*, and *later* instead of *below*. In light of both common usage and the built-in Word *above/below* cross-references, use *above* and *below* when the referenced item is immediately adjacent. Otherwise, avoid the usage; create a hyperlinked figure and/or a page number cross-reference.

Navigate

The Microsoft Manual avoids the term *navigate*, preferring the term *browse* to include a search for either specific or unplanned material, primarily in a web environment or when a user must open a browser. However, use *navigate* to describe the process of maneuvering toward a specific destination or control program through a hierarchical folder structure or a control structure.

Power On/Off, Boot, and Associated Terms

The Microsoft Manual states that you should not use the terms *power on*, or *power off*, nor use *boot* as a verb. However, Microsoft users generally need not distinguish among the subtle differences that characterize Quantum3D hardware and software operation. Use the following terms as defined here:

Power on, power off	Provide (or remove) power to a computer or system.
Turn on, turn off	Turn (or flip) a switch that provides (or removes) power.
Start, start up	Cause hardware or an application to begin operation. Use <i>start</i> as a transitive verb; <i>start up</i> as an intransitive verb, for example, <i>Start the application; the application starts up.</i>
Restart	Cause hardware or an application to stop and then begin operation again. Use <i>restart</i> for both transitive and intransitive verbs, for example, <i>Restart the application; the application restarts.</i>
Boot, boot up	Cause the computer hardware to initialize and load the operating system. Use <i>boot</i> as a transitive verb; <i>boot up</i> as an intransitive verb, for example, <i>Boot the computer; the computer boots up.</i>
Reboot	Cause the computer to stop and reinitiate the boot sequence. Use <i>reboot</i> for both transitive and intransitive verbs, for example, <i>Reboot the computer; the computer reboots.</i>
Shut down	Cause the operating system to stop itself, and depending on the system settings, power off the hardware.

Area

The term *area* is used here for an ungrouped region in a user interface, as opposed to the Microsoft Manual, which refers to the region enclosed by a group box frame as an *area*. When possible, refer to a box as a whole by its title with *under*, as in, *Under Video, select...* Otherwise, when referring to the box as a user interface element, use *group box*; as in, *The Video group box contains...*

In the example of Figure 2-4, “Sample panel with areas (marked) containing panes” on page 9, the two areas are best described as the **Run on IGC** area, and the **Run On All IGUs of Role Type** area. There are two **Priority** group boxes and one **IGU Role Types** group box.

Trademark Adjectives

Treat the trademark name of a system or solution as an adjective describing the system or solution noun. For example, use the *Independence Image Generator* or *Independence IG*, not the *Independence*. Use the *IDX platform*, not the *IDX*. However, treat the Image Generator Manager software name *IGM* as a noun; for example, *To start IGM and display its user interface....*

Part Numbers

Refer to Quantum3D part numbers by using the abbreviation “No.” rather than the number sign (#) or the word “number.” Include intervening spaces after the word “Part” and before the numerals. For example, express the part number for this Style Guide document as *Part No. 030-1002-01*.

Note *The Latin word “Numerus” is the base-form for number. We abbreviate its ablative case “Numero” roughly meaning in number as “No.”*

Adapter vs. Adaptor

As specified in the Microsoft Manual, use *adapter*, not *adaptor* as the preferred spelling, also recommended in Webster’s Dictionary. It is the more common spelling for *graphics adapter* products on the NVIDIA website, and *SCSI adapter* products nearly everywhere.

Drive Letters

As specified in the Microsoft manual, place the logical drive letter after the word *drive*. Do not use a colon. For example, use *restore drive C*, but not *restore drive C:*, *restore the C drive*, or *restore the C: drive*.

Directory vs. Folder

Generally, use the term *folder* for the container of files (represented by icons) and other folders. However, use *directory* when necessary for any of the following reasons:

- Consistency with an interface that refers to directories and subdirectories.
- Consistency with the rest of the document that requires frequent use of *directory*.
- Reference to the structure of the file system, particularly for a developer audience.
- Reference to the structure of the file system for multiple operating systems.

Table of Figures

If the document contains only figures, or both figures and tables, title the automatically generated table of combined figures and tables as *Table of Figures*. If the document contains *only* tables but no figures, title the automatically generated table of tables as *List of Tables*. (*Table of Figures* would be inaccurate, and *Table of Tables* sounds either redundant or grandiose.)

2.8 Typography

Serif vs. Sans Serif

The serifs of a serif font help the reader's eye follow long sections of descriptive text. Ordinarily, such text (the *Body Text* styles) would be set in a serif font for readability. However, our manuals contain frequent transitions between body text and the many other styles. This is sufficient to make the transitions visually obtrusive, thus descriptive and all other text, except as noted below, is set in a sans serif font.

Standard Fonts

We chose certain specific fonts because of their universal availability on all computers running the Microsoft® Windows® operating system without concern for licensing issues.

- The general sans serif font is set as *Arial*.
- Within tables, where space constraints warrant a condensed font, the table text is set as *Arial Narrow*.
- Typed text is set in a monospaced font, *Courier New*, but set bold for readability: **[A sample]**.
- If a need arises for the use of serif text, for its availability, it is to be set as *Times New Roman*.

Monospaced Fonts

Monospaced fonts find use in technical documents for:

- Typed text
- Programming code
- BIOS screen emulation
- Line drawing
- Column alignment where tabs are ineffective or overly complicated.

Inadequate Monospaced Fonts

Because Courier New is ubiquitous on Windows systems, it is adequate for use as common typed text. However, it is a very poor monospaced font for documentation purposes.

- It has too light a weight, requiring bold text for readability: Light Roman, **Bold is readable**
- The Capital O and 0 (zero) are somewhat ambiguous: Capital O and 0 (zero)
- The serifs are too small, but just large enough for a visually unpleasant result.
- In line drawing uses, vertical lines have noticeable gaps.

The Windows standard font Lucida Console, has a short capital letter height and character ambiguities. Other nonstandard fonts have detractions:

- Monaco Pleasantly casual, but with major gaps between vertical line drawing characters.
- Andale Mono Well-proportioned, without ambiguity. Its minor detraction is a demi character weight.

Nonstandard Monospaced Fonts for Quantum3D Documents

Two nonstandard monospaced fonts stand out for their usability:

- Deja Vu Sans Mono An open source font that avoids licensing issues. It is well proportioned, without ambiguity, and available in a bold/italic-inclusive quad-family. Set programmer code and BIOS sample text as Deja Vu Sans Mono.

- **ProFontWindows** A specialty variant of Monaco with short descenders. It is compact for its point size, is very readable at small sizes, and is well suited for use in programmer code. It is freely distributed, avoiding licensing issues. Set compact programmer code as ProFontWindows.

Note *The Quantum3D IT department installs the Deja Vu Sans Mono and ProFontWindows fonts on all new user systems within the company.*

Because these are nonstandard (rare) fonts, to make them available for document reading and printing, you must either embed these fonts into the individual documents that contain them or provide the font to users who may open the Word document. Font embedding adds approximately one-half megabyte to the file size. To embed the fonts:

1. From the **Tools** menu, click **Options**, and then click the **Save** tab.
2. Under **Save options**, select the **Embed TrueType fonts** and **Do not embed common system fonts** check boxes. Clear the **Embed characters in use only** check box.

Note *Microsoft Word does not always embed the above fonts reliably. We recommend that for documents that include these fonts, distribute the fonts to the recipients with the documents.*

Kerning

Kern fonts that are at least 16 pts.

Indentation

Primary forms of chapter headings, text, bulleted lists, and numbered lists are flush left; that is, without indentation. Secondary matter is indented, as are the special forms, *cautions* and *notes*.

Text Alignment

Descriptive text is set to *Justified* alignment. To improve the appearance of justified text for lines ending with a manual line break [SHIFT+ENTER], select the Word configurable option **Don't expand character spaces on the line ending Shift-Return**. To access it from the **Tools** menu, select **Options**, select the **Compatibility** tab, and then in the **Options** pane, select its check box.

Word sometimes expands lines ending with a manual line break regardless of the option's selection. To work around this (to keep lines from expanding), type a TAB character just before the manual line break.

Sentence Spacing

Rules created for archaic monospaced typewriters serve poorly for text set in modern proportional fonts. Per the *Microsoft Manual of Style*, "Use only one space after a period in both printed and online content." Use tabs, punctuation, and formatting to avoid any usage of multiple adjacent space characters, so you can replace *all* instances of two adjacent spaces with single spaces.

Note *Legacy document headers contained a set of three non-breaking spaces that separated the chapter number from its name, which precluded global string replacement. That sequence has been replaced with one non-breaking space on each side surrounding an en-dash " – ".*

Serial Commas

A comma precedes the conjunction before the final item in a series of three or more terms. This minimizes ambiguity in combined terms. Particularly, serial terms in Quantum3D documents typically cannot be read as being in apposition to each other. For example:

Ambiguous: Acceptable actions include right-click, double-click, click and drag and drop.

Unambiguous: Acceptable actions include right-click, double-click, click and drag, and drop.

Unambiguous: Acceptable actions include right-click, double-click, click, and drag and drop.

The *Microsoft Manual of Style*, the United States Government Printing Office's style manual, the *Chicago Manual of Style*, *The American Medical Association Manual of Style*, and other respected style manuals also advocate mandatory use of the serial comma.

Hyphenation

We do not use automatic hyphenation (across line breaks).

ASCII and Unicode Characters

Typing ASCII Characters

To type an ASCII character, press and hold down either ALT key, on the numeric keypad type the character's 4-digit ASCII decimal code (the first character is always a zero), and release the ALT key.

Do not use the row of number keys above the letter keys to type ASCII codes—they do not work.

For example, to produce a multiplication sign, press and hold down ALT, on the numeric keypad type **0215** (its ASCII decimal code), and release ALT. The “×” character appears.

TIP Viewing Characters and Codes

Use the *Character Map* application to view the available characters in a font and their character codes.

From the Taskbar, click **Start** → **Programs** → **Accessories** → **System Tools** → **Character Map**.

Click a character to display its Unicode *hexadecimal* code and character name on the bottom-left of the Character Map panel and its ASCII decimal code (if such exists) on the bottom-right of the panel. For example, click the multiplication sign × to display on the left **U+00D7: Multiplication Sign** and on the right **Keystroke: Alt+0215**. You can copy and paste selected characters or type them directly within Word.

Typing Unicode Characters

To type a Unicode character, type its Unicode hexadecimal value, select those four characters, and press ALT+X to toggle the selection between its hexadecimal and character forms.

For example, to produce a right arrow in the Arial font, type **2192** (its Unicode hexadecimal value), select the four **2192** characters, and press ALT+X. The “2192” becomes “→”.

To view the code of an existing character, highlight the character, and then press ALT+X. For example, to see the code for an instance of the ⅓ character, highlight it and toggle it with ALT+X to **2153**. You might surmise correctly that **2154** toggles to ⅔.

TIP Typing Decimal Values for Unicode Characters

If you know the *decimal* value of a Unicode character's *hexadecimal* code, you can type the character directly as though it was an ASCII character. For example, 8594 (decimal) is equal to 2192 (hexadecimal) for the right arrow character. Press and hold down either ALT key, on the numeric keypad, type the *decimal* Unicode value **8594**, and release the ALT key to type →. If you frequently type particular Unicode characters, you can create a list of their decimal values and type them directly. This is easier than typing a hexadecimal code (which you likely must look up from a listing or the Character Map application anyway), selecting it, and using the ALT+X toggle.

Quotation Marks

Except in code text (and sometimes in measurements or specifications where they might look out of place), use “curly” left and right quotation marks “ and ” (ASCII 0147 and 0148, respectively), and curly apostrophes ‘ and ’ (ASCII 0145 and 0146, respectively). To set Word to apply the curly forms as you type, from the **Tools** menu, select **AutoCorrect Options**, click the **AutoFormat As You Type** tab, and then under **Replace as you type**, select **"Straight quotes" with “smart quotes”**. In code text, always use straight quotation marks (") and apostrophes (') unless other character forms are explicitly required.

Copyright Symbol

Use the copyright symbol © (ASCII 0169) at its full size, as for example,
Copyright © 2009 Quantum3D, Inc. All rights reserved.

Trademark Symbols

The trademark symbol ™ (ASCII 0153) is sized and positioned as a superscript glyph, so do not apply superscript formatting. However, the *registered* trademark symbol ® (ASCII 0174) is full sized, so apply superscript formatting.

This example shows correctly formatted trademark “bugs”: NVIDIA® Quadro™ 4500 graphics adapter.

Command Sequences and Hierarchical Trees

Command sequences and hierarchical tree structures are often complex and difficult to format. With more than two or three items, normal instructional wording becomes bulky and confusing. The Microsoft manual provides no formal convention for navigation through long command, menu, or tree structures. Therefore, we show these structures in bold text as their components in hierarchical order, separated by right arrow (→) characters (Unicode 2192 hexadecimal). Place a space between the arrow and each surrounding word. The arrows are available as Unicode characters within primary Windows fonts including *Arial*, *Times New Roman*, and *Courier New*.

Temporary Text

Temporary *placeholder* text does not appear in a final-form document, but can serve to mark material (or the lack of it) during the composition and editing processes. A unique searchable string can mark text or a location without the overhead or page size (or formatting) disturbance of formal bookmarks, tracked changes, or comments. For example, the innocuous search string “!!!” is unlikely to appear as ordinary content in a technical document.

TIP Do not use xxx

Avoid using “xxx” as placeholder text. It occasionally appears as ordinary content in technical documents, for example in IP address formatting or product model numbers.

2.9 Measurements

Negative Values

To express negative values, precede the value with a *minus sign* character (−) [Unicode 2212 hexadecimal]. This character is larger (longer) than a hyphen (-), but shorter than an en dash (–) [ASCII 0150].

Zero Values

Do not use a plus or minus sign for zero values, except in dimensional tolerances, for example 2.500" +0.002" −0.000".

Angles and Temperatures

If there is any possibility of confusion, precede positive angular or temperature values with a plus sign (+). Use a minus sign − (Unicode 2212 hexadecimal) rather than a hyphen or en dash to precede negative values. Do not use a sign for zero values. For temperatures, use the degree symbol ° (ASCII 0176) as the unit suffix (with no intervening space) and include the temperature system (C, F, or K); as for example, −40°C, 0°C, +68°F, 98.6°F, or 273.15°K. For angular ranges, use “deg” as the unit suffix, with an intervening space, as for example, 90 deg, although the term 360° *view* is acceptable.

Ranges

In descriptive ranges, use *from* and *through*, as for example, select a resolution from 640×480 through 1600×1200.

In specifications, if there is any possibility of confusion or inconsistency with adjacent matter, separate the ends of a range with *to*, as for example, 5.25 to 5.35 GHz.

If there is no ambiguity, use an en dash – (ASCII 0150) without intervening spaces, as for example, 9–12 ft. For temperature or angular ranges, to avoid ambiguity with negative values, separate the ends of the range with “ to ”, as for example, −40° to +40°C.

For ranges with equal extremes, use the plus and minus symbol ± (ASCII 0177) without intervening spaces between the symbol and numeral, as for example, ±20°C or ±0.5 ft.

Multiple-Component Measurements

In multiplicative quantities, measurements, or specifications, use the multiplication symbol × (ASCII 0215) rather than an upper or lower case “X” to separate the values. Include intervening spaces around the multiplication symbol, except in these cases:

- Screen and pixel resolutions
- Where space limitations are prohibitive (as in captions)
- Where necessary to match the interface

Use for example, 2 × USB 2.0, Length × Width × Height, 3.00" × 4.00" × 5.00", but 1280×1024 @ 60 Hz.

2.10 Cross-References

This guide uses and defines numerous cross-references that link references and fields with other portions of the document. These include headings, captions, procedure steps, the Table of Contents, and the Table of Figures.

Inserting Cross-References

To insert a cross-reference:

1. From the menu click **Insert** → **Reference** → **Cross-reference** to open the **Cross-reference** dialog box.
2. Under **Reference type**, select the desired type, usually **Numbered item**, **Figure**, or **Table**.
3. Select the **Insert as hyperlink** check box if it is not already selected.
4. Under **For which numbered items** (for numbered items) or **For which caption** (for figures or tables), select the item you want to reference [if you can find it—ease-of-use eluded the Word dialog box designers.]
5. Under **Insert reference to**, select the desired forms of the cross-reference, typically in sequence:
 - For numbered items **Paragraph number**, **Paragraph text**, and either **Page number** or **Above/below**. Click **Insert** after each selection.
 - For figures or tables **Only label and number**, and either **Page number** or **Above/below**. Click **Insert** after each selection.

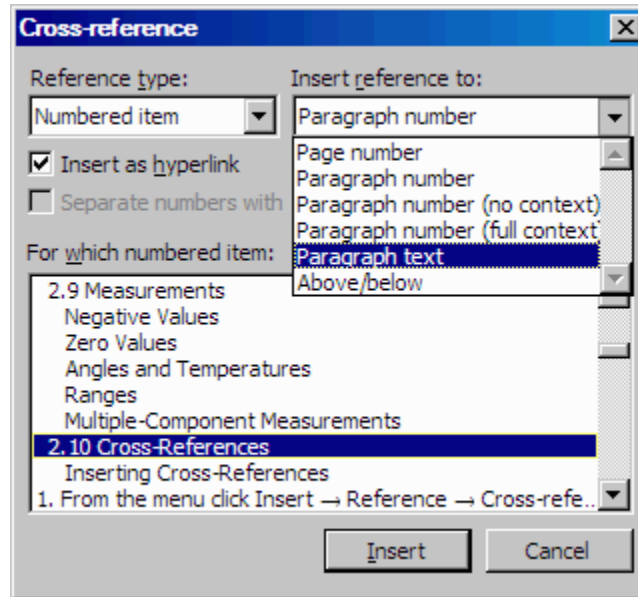


Figure 2-5 Cross-reference dialog box

6. Click **Cancel** to close the dialog box.
7. Type any additional material, such as quote marks, “Section”, or “on page” to finish the cross-reference. (For additional formatting information, see “Formatting Cross-References” on page 18.)

Formatting Cross-References

When cross referencing a heading or caption, include the heading or caption number followed by a comma, the referenced item's text (paragraph text) enclosed within quotes, and the page number (or above/below if the material is adjacent and likely when repaginated to remain on the same page as the reference.) Do not capitalize the word *page* in the reference. Capitalize the word *chapter* or *section* for headings when using those words for explicit specification, as for example, when referring to Chapter 2, "Usage" beginning on page 5, but do not capitalize when using the words generally, as for example, when referring to the chapter "Usage" beginning on page 5. When the chapter/section number is present, place a comma between the number and its name. Do not include a comma between the quoted title reference and the page reference (or above/below). Other reference formatting rules include:

- Include introductory text to explain the reference's purpose, as for example: (For information about describing the user interface, see Section 2.5, "Screen Terminology" on page 6.)
For comparison, this example is insufficient: (See Section 2.5, "Screen Terminology" on page 6.)
- When referencing a caption located immediately below the reference, omit the paragraph text, as for example:
The system may include special cables as in Figure 8-2 below.
- When referencing a third level heading (Heading 3), omit the paragraph number, as for example,
For table caption information, see "Style Notes" on page 48.
- When referencing a procedure step, do not capitalize the word *step*, and omit the paragraph text.
- When a reference offering additional information begins on the same line as other text, enclose the reference within parentheses. (To see an example that begins on the same line, see the next-to-last bulleted item under "Formatting Cross-References" above.) [This paragraph]
- When an informational reference begins on a new line, do not enclose it within parentheses.
To see an example that begins on a new line, see the last bulleted item under "Formatting Cross-References" above. [This paragraph]

Accessing and Updating Cross-References

- To follow a link, press CTRL and click the object that contains the link.
- To update one of the tables or any other cross-reference, right-click it, and then select **Update**, or select it and press F9.
- To update all cross-references in a document, press CTRL+A to select the entire document, and then press F9. Dialog boxes sequentially open (if changes are pending) enabling you to update the Table of Contents and the Table of Figures. For each, click **Update entire table**, and then click **OK**.

TIP Word Update Malfunction

Occasionally, Word does *not* perform this Microsoft-documented procedure to update all references. To update all references when you have selected the entire document, but some do not update:

1. Click within the first line of the document.
2. Scroll (drag the scroll bar) to the last reference object, or beyond the last reference object.
3. Hold down SHIFT, click the reference object (or a place beyond it), release SHIFT, and press F9.
4. In each dialog box that opens, click **Update entire table**, and then click **OK**.

TIP Cross-Reference Content Malfunction

Occasionally, Word seriously malfunctions by replacing a cross-reference with a large block of text located near or surrounding the referenced item. If this occurs, highlight the broken cross-reference, right-click, select **Cut**, and freshly reinsert the reference from the **Insert** menu.

2.11 Inserted Elements

Graphics

Descriptive text or procedural steps precede any associated graphic, and if possible, the text is kept together with the graphic, especially in procedures. Whenever possible, set inserted graphics inline, centered, and labeled with a *Figure* caption centered below the graphic. The captions include the chapter number (or appendix letter).

Inline Toolbar Button Graphics

When necessary to represent a toolbar button or other small icon-like object, place the graphic inline without a caption. Adjust the line spacing for a visually pleasing result. For a description of a button function, place the graphic at the end of the description, with two non-breaking spaces before the graphic. (To type a non-breaking space, press CTRL+SHIFT+SPACEBAR.) For example:

To make tab settings more accessible, add a customized **Tab** toolbar button to your toolbar:



For a button graphic used as a noun in a procedure, place one non-breaking space on each side of the graphic. For example:

- Click  to open the **Tabs** dialog box.

TIP For a standard toolbar button, a 0.25" square graphic is suitable, and for larger buttons, 0.35".

Inset Graphics

To create visually pleasing layouts with numerous small graphics, you may place the graphics toward the right side of the page, inset from corresponding descriptive text. Label with a *Figure* caption centered below the graphic, though this involves arcane subtleties for the caption. (For an example of an inset graphic, see the appendix section "Inset Graphic" on page 57.)

Layout

1. Right-click the graphic and select **Format Picture** to open the **Format Picture** dialog box.
2. Click the **Layout** tab, and then under **Wrapping style** click **Tight** or **Behind text**, and under **Horizontal alignment** click **Right**.
3. If the graphic overlaps paragraph text, format the paragraph with a hanging indent and break the line with manual line breaks as necessary.

Captions

When you insert captions for graphics that are not inline, Word creates the caption in a text box. The text box and its contents are on the *drawing* layer, which unfortunately, the Table of Figures ignores. However, you can convert the text box to a *frame*, which exists on the *text* layer, which the Table of Figures processes. Typically, the *Figure* label and its text are too long for an appealing layout, but you can place a manual line break with care *before the tab character*, otherwise it appears in the Table of Figures as a space character leading the figure text. To create and format the caption:

1. Select the graphic and on the **Insert** menu, click **Reference** → **Caption**.
2. Within the caption's text box, insert a manual line break *before* the tab character.

3. Right-click the text box frame, and then click **Format Text Box** to open the **Format Text Box** dialog box.
4. If the text box has any border or fill color, click the **Colors and Lines** tab.
 - a. Under **Fill**, set **Color** to **No fill**.
 - b. Under **Line**, set **Color** to **No line**.
5. Click the **Text Box** tab, click **Convert to Frame**, and then click **OK**.
6. Right-click the frame, and then click **Format Frame**.
7. Set the **Width** to **Exactly** (not **Auto**) and **At** to some nominal size such as **2"**.
8. Format the caption paragraph under **Special** as **First line**, and under **By**, enter a small indentation number such as **0.5"**. Keep the caption paragraph aligned as **Centered** or the first line indentation will not produce pleasing results.
9. Adjust the frame size and first line indentation to visually center the figure label above its text (as a single line). If the frame cannot be resized narrow enough without wrapping the caption text, set a small explicit tab, such as **0.2"** with **Alignment** of **Left**.
10. Reposition the frame and the graphic as necessary to keep them from extending beyond the margins or to align them with other inset graphics on the page.

Tables

Tables are labeled with a *Table* caption centered below the table. The captions include the chapter number.

Visio Drawing Objects

Rather than embedding a Visio drawing object, create a graphic from the drawing and embed the graphic. Retain a copy of the Visio drawing in a secure location for future editing as needed. To create the graphic, from the Visio **File** menu, click **Save As**. Under **Save as type**, select **Graphics Interchange Format (*.gif)**, and then click **Save**. In the **GIF Output Options** dialog box that opens, select these options:

Data format	Non-Interlace	Background color	White
Color reduction	Adaptive	☐ Transparency color	[Cleared]
Rotation	None	☐ Flip horizontal	[Cleared]
		☐ Flip vertical	[Cleared]
Resolution	Custom	600×600 pixels / in	
Size	Custom	[Click sequentially Printer , Source , and Custom to reset.]	

Note *If Visio reports an error when attempting to save a large drawing, reduce the **Resolution** as necessary. The default value of **96×96 pixels / in** usually works adequately for very large detailed drawings, such as Independence IG 35U cabinets.*

Inserted Visio drawings often increase the Word document file size substantially, especially if you make any attempt to edit the Visio object. For example, if you double-click a Visio object, the Word file can increase by 15 MB or more, even if you close the Visio drawing without making any changes to it.

Chapter 4

Printing

4.1 Color

If a cost effective duplex color printer is available, print the entire manual *in color*. External color printing services, for example FedEx Kinko's®, are *very* cost prohibitive. *Always* print the title page in color, even if the remainder is to be printed in monochrome (black and white).

4.2 Sides

Set the printer for duplex (double-sided) printing. With the symmetric 1" margins, a gutter is unnecessary. Print the first sheet obverse (title page) in color. The first sheet reverse (identification page) may be printed in color if convenient, otherwise print it in monochrome (black and white).

Avoid printing on a simplex (single-sided) printer, except when absolutely necessary, such as when the content requires color printing, but only a simplex color printer is available. Be careful, because a single mis-fed sheet will crosslink subsequent pages, for example page 8 might print on the reverse of page 5.

4.3 Paper

Print documents on bright high-quality paper of greater than average weight. For example, Office Depot® Color Laser Paper (28 pound, 115 bright) produces excellent results. By comparison, Office Depot Premium White Copy Paper (20 pound, 104 bright) produces noticeably inferior results.

Note *A paper stock brightness number and its perceived brightness are often only loosely related.*

4.4 Binding

Use a standard plastic 19-ring comb binding. For thin or medium thickness documents (40–70 pages), use a 3/8" or 1/2" diameter comb. For thicker documents (150–250 pages), use a 5/8" or 3/4" diameter comb. Include a clear plastic front cover and an opaque plastic back cover. If a plastic cover is not included, print the cover on a heavyweight stock and include a blank back cover of equal weight.

4.5 Partial Printing

Sometimes you may want to print only a portion of the document. Select that portion in the **Print** dialog box, under **Page range**:

- To print the current page, click **Current page**.

- To print several noncontiguous pages, in the **Pages** text box, type the page numbers separated by commas. For example, to print the pages 10, 20, and 35, type **10,20,35**.
- To print a range of contiguous pages, separate the first and last page numbers in the range using a hyphen. For example, to print the pages from 10 through 35, type **10-35**.
- You can mix noncontiguous pages and ranges. For example, to print the pages from 10 through 35, page 42, from pages 45 through 50, and page 75, type **10-35,42,45-50,75**.
- You can print pages from particular sections or ranges that span sections, including sections that have unusual or noncontiguous numbering. This is especially useful when duplicate numbering exists, to distinguish for example pages iii through vi from pages 3 through 6.
The current page and section numbers appear on the status bar, for example, **Page 8 Sec 5**
To print using section numbers, include the page **p** and section **s** prefix letters. For example,
 - To print the third section, type **s3**.
 - To print the third section and the sixth section, type **s3,s6**.
 - To print the third page of section 4 through the tenth page of section 5, type **p3s4-p10s5**.
 - To print the third page of section 4 through the tenth page of the same section, type **p3s4-p10s4**. If you specify section printing, you must include the section number prefix letters even within a single section.

4.6 Printing to PDF

When printing to Portable Document Format (pdf) using Adobe Acrobat (if installed), you must use version 8.1 or later. Version 8.0 and earlier cannot include heading bookmarks without adding undesirable spurious characters in page headers.

Style Notes

A *Note* contains the word “Note” formatted manually as Roman, bold text, underlined. A tab separates the note from its explanatory matter, which is in italic text.

Note *The Note word must be set manually to Roman, bold, underlined text. This sample of a technical note continues to a second line.*

5.16 Tips

Style Details

Tip Normal + Font: Bold, Font color: Blue, Indent: Left: 0", Hanging: 0.5", Space After: 0 pt, Keep with next, Tabs: 0.5", Left

Style Notes

Tip is set as bright blue text. Use the tip style as a heading to introduce longer body text if the tip information is substantial. Set the word tip in uppercase.

TIP **Useful Information**

The tip introduces information that might be useful, but is not critical for safe or trouble-free operation.

5.17 Page Fillers

Style Details

Verso-Page Filler Font: (Default) Arial, 12 pt, English (U.S.), Kern at 16 pt, Centered, Line spacing: single, Space Before: 216 pt, Widow/Orphan control, Page break before

Style Notes

Verso-Page Filler text is placed manually just before a Section Break (Odd Page) that terminates an odd-numbered page. The paragraph's *page break before* formatting forces text onto the otherwise unprinted verso (reverse side of the sheet) even-numbered page.

The easiest method to add a *Verso-Page Filler* notice is to copy it from an existing sample to the location just before the Section Break (Odd Page) on an odd-numbered page. To manually update the cross reference, right-click it, and then click **Update Field**. If you update all references globally, the cross reference will update. (For more information, see the section “Accessing and Updating Cross-References” on page 18.)

If you copy a *Verso-Page Filler* notice to an appendix chapter, the cross reference, which references the Heading 1 style, will always reference the last non-appendix (wrong) chapter. To fix this:

1. Right-click the cross reference, and then click **Edit Field** to open the **Field** dialog box.
2. Under **Style name**, select **Heading 1 Appendix**, and then click **OK**.
The reference updates to the correct style and the current appendix chapter name.

5.18 Caution

Style Details

Caution Normal + Font: 11 pt, Bold, Italic, Indent: Left: 0.63", Right: 0.38", Justified

Style Notes

Caution is an indented form with strong visual emphasis and an attached caution graphic.

Because of design deficiency, Word cannot set the size and vertical position of a graphic used in a bullet format. To set a graphic large, one must set the text large, or set the paragraph mark to a large size while setting the rest of the text to a normal size. Regardless, the baseline of a graphic bullet aligns with the base of the text, unsuitable for a graphic that is much larger than the accompanying text.

The graphic is a red outlined triangle containing a black exclamation point located at the left margin.

The easiest method to add a *Caution* message and its graphic is to copy them from an existing sample (paragraph and graphic together) and adjust the text content at the new location. To copy a *Caution* message and its graphic, select them, right-click the selection, and then click **Copy**. The CTRL+C keyboard shortcut does *not* copy them, however, the CTRL+V keyboard shortcut *does* paste them.

- Graphic GIF, 300×250 pixels, 3.72 KB
- Attachment *Caution* style paragraph
- Size Height: 0.32", Width: 0.38" [Sometimes the width appears as 0.39".]
- Layout Wrapping Style: Behind text: Other, with Advanced positioning
Advanced Horizontal: Absolute Position: 0.0" to the right of Margin
Vertical: Alignment Top relative to Line



The caution graphic and accompanying bold italic text indicate critical information to avoid a major malfunction or prevent hazardous conditions.

5.19 Code

Style Details

Code

Normal + Font: (Default) DejaVu Sans Mono, 9 pt, Space After: 0 pt

Style Notes

Code is set in a nonstandard monospaced font, at a slightly reduced height because the font is somewhat large for its point size. At 9 point height, 86 characters of code fit within the margins. Documents containing this style can be configured for font embedding. (For information about font embedding, see “Nonstandard Monospaced Fonts” on page 12.)

Code Sample of Style Detail Extraction Macro

Run the following VBA macro within Microsoft Word to extract the details of the style gallery and place them into a new document.

```
Sub ListStyleGallery()
'
' ListStyleGallery Macro
' Macro created 1/13/2005 by Steven Wells
' List the details of ALL styles available in a document, built-in or custom.
'
Dim docActive As Document
Dim docNew As Document
Dim styleLoop As Style

Set docActive = ActiveDocument
Set docNew = Documents.Add

With docNew.Range
    .PageSetup.TopMargin = InchesToPoints(0.7)
    .PageSetup.BottomMargin = InchesToPoints(0.7)
    .PageSetup.LeftMargin = InchesToPoints(0.7)
    .PageSetup.RightMargin = InchesToPoints(0.7)
    .Paragraphs.TabStops.Add Position:=InchesToPoints(1.7)
    .Paragraphs.TabHangingIndent (1)
    .Font.Name = "Arial"
    .Font.Size = 10
End With

For Each styleLoop In docActive.Styles
    With docNew.Range
        .InsertAfter Text:=styleLoop.NameLocal & Chr(9) _
            & styleLoop.Description
        .InsertParagraphAfter
    End With
Next styleLoop
End Sub
```