Practical Series

By

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This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

A note by the author

Documentation is a dull and sombre affair, tedious even; technical documentation is much worse. Then there are the people who write it; I’m sure professional authors and typesetters live for this stuff, but we’re dealing with engineers with all their unnecessary apostrophes and a concept of grammar that starts with assembler language (could be worse, could be salesmen with their inappropriate personal pronouns, all that “how are your good selves”).

Engineers are bad at documentation, they don’t want to do it and when they do, it’s generally awful: default settings, no headers, no page numbers, poor structure, bad punctuation and so on. Really, just awful.

This is a copy of a formally issued design document from a well-known international pharmaceutical company (I’ll not embarrass them; let’s just refer to them as GastroSmallKiln):

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I mean, MHRA, FDA, Good Manufacturing Practice, all out the window — these people make drugs for a living, and what do they issue — a document with no page numbers, no document number, no revision numbers, standard Word headings (in all their splendid Technicolor glory), no review process, no approval; yes it has the technical detail, but none of the niceties: no layout, no consistency, no explanations, no conversation, no romance, no seduction — alright, I’m getting carried away now, but you see what I’m getting at — engineers: worst writers in the world.

I don’t know why, it’s not as though we’re stupid (yes, I’m an engineer too, and yes I am including civil engineers in that statement). It’s true, we may not be tainted by emotion; and yes, we may be borderline autistic; but still, surely it’s within us to write a decent document.

So, I’ve made an attempt, it’s a starting point, and this document is it.

It’s a template document that can be used by engineers in most circumstances (but not when talking to girls); it’s well set out, has a range of nice and consistent styles that can be used with almost no effort. It has plenty of instructions for what to do and when. It’s consistent in its appearance and is (relatively) easy to use (obviously if all you do normally is open Word, start hammering away and save the result as Fred.doc, then you might be in for a shock — GastroSmallKiln people, I’m thinking of you here). There’s even some maths and geometry involved in how the margins work (yep, still an engineer).

So, sit down and brace yourself, dig deep. Remember, (especially if you work at GastroSmallKiln), you might be an engineer, but you are also an author, and we have standards.

Michael Gledhill  
Chester, April 2019

|  |
| --- |
| How to use this document |
| 1 |
| How to use this document |
| This chapter contains the instructions for using this document and some examples of how things should look. |

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| 1.1 | Using this document |
| Using this document |

This document is both a template for publications and a style guide for writing professional documents.

Clearly, the document is quite long 190+ pages at the last count, and should be viewed as a both a template and an instruction manual.

The document is a DOTM file; that is a Word document template (rather than a DOCX Word document). Opening this file as a template and then saving it will create a new DOCX document that can be edited and saved without changing the original template.

The document can be used in three ways:

1. For the first time, by someone who has not encountered the template before and wishes to understand it and use it properly
2. By someone who has used the template before and just wishes to use it as a template for a new publication
3. By someone who has not seen it before, can’t be bothered reading it and just wants to use it.

I cater for all three:

### Using the template for the first time

The template is fairly straight forward to use, the margins are set, the styles are defined (what you are reading now) and are good enough to just start using.

The most important thing to understand is the concept of styles. Styles must be used. The whole document is built using styles. These are explained in § 2; start there.

The second most important thing is the use of tables for formatting text and holding objects (such as figures), these are explained in §§ 4-6. These sections explain the use of tables for holding images, tables for emphasis and the use of sidebars. Each section has a full explanation of each of these uses for tables.

Section 3 explains how headings are used; this is more to do with the special formatting applied to chapter and section headings, these can be just treated as examples of how to do it.

Section 7 is the style guide; it is broken down into a series of points that cover most aspects of typography and document styles, it explains what line spacing should be used, how lists should be punctuated &c. Read the bits you need as you need them.

Section 8 clears up some of the more confusing aspects of Word (creating multilevel headings for example). This is just for information, you don’t need to know how to do this — the document comes correctly configured, but it’s useful information if need to do it yourself from scratch.

That’s it, create a new document from this template (see § 8.5.1), save it with a new file name and do everything in the next section:

### Using the template as a new document

For someone familiar with the contents of this document, someone to whom the document is just a means to obtain a working publication for a particular purpose; the bulk of the contents can quite simply be deleted; keeping only those parts that are required:

1. Table of contents
2. Table of figures (and tables) if required
3. Section 10 (the empty section)
4. An appendix (if required)
5. Any example tables, figures or sidebars (and their captions)

### The template for Philistines

For those using this document for the first time, it contains a great deal of information about how to lay out a document and some fundamental principles of typography. This is useful stuff and interesting — to those of a certain proclivity.

For those barbarians who just want a document without the bother of reading, I give the following guidance:

1. Read the damn book, it won’t kill you

Failing that:

1. Save the document as a DOCX (Word file)
2. Keep those parts that are needed (see § 1.1.2 above)
3. Use the standard styles-in-use (see § 2.4.2), the ones beginning BO are for body text; the ones beginning GB or GH are for use in tables (body and header). Those that begin FO are font styles used for emphasis

And one final point:

1. Read the damn book, it won’t kill you

|  |  |
| --- | --- |
| 1.2 | What’s where in this document |
| What’s where in this document |

This document is split into convenient sections for easy reference:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Section | Name | Purpose |  |
|  | 1 | How to use this document | This section, explains how to use this document |  |
|  | 2 | Document styles & properties | Explains the principles behind styles and the style structure within this document  Explains how user configured document properties are setup and used within this document |  |
|  | 3 | Headings & hyperlinks | Explains how chapter, section and inline headings are constructed and used within this document |  |
|  | 4 | Figures, diagrams & images | Explains how to insert and caption figures diagrams and images in this document, including image formats and resolutions |  |
|  | 5 | Tables & equations | Explains how to insert tables as a grid of information, tables for text formatting and equations in this document |  |
|  | 6 | Sidebars | Explains how sidebars are constructed and how they should be used |  |
|  | 7 | Document typography | A whole section on typography, use this for a reference about everything typographical, from point size to list points, line length to ligatures. |  |
|  | 8 | Using Word | Explains how to use the more confusing aspects of Word (such as multilevel numbered headings &c.) |  |
|  | 10 | Empty section | An empty section with instructions for copying it |  |
|  | Table . The document sections | | |  |

It is intended that a section on grammar will be added at some point. I’ve noticed in my working life that engineers are — how shall I put this? “Innocent of grammatical concepts”, so, if you find yourself “innocent of grammatical concepts”, I’m afraid you’ll have to wait for the next edition. As an interim solution, I suggest you learn Latin (given my usual rate of progress, it might just be quicker).

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| 1.3 | Extracts and examples |
| Extracts and examples |

This section contains an extract from “The Race to the Moon”[[1]](#footnote-1); it is an example of a technical work with sidebars and footnotes; it was chosen to appeal to engineers (every engineer wanted to work on Apollo):

|  |
| --- |
|  |
| The LOX pump would have filled a swimming pool twenty-five feet long, ten feet wide, and six feet deep in twenty-seven seconds. |

— EXTRACT —   
In principle, liquid rocket engines are simple, far simpler than the internal combustion engine. Liquid fuel is pumped into a combustion chamber in the presence of liquid oxygen and a flame. It burns. That’s all there is to it. There are no crankshafts to turn, no pistons to drive. The burning fuel produces energy in the form of gases that exit through the rocket’s nozzle. The force the gases produce against the top of the engine is called thrust. The thrust is transmitted through the rocket’s structure and, if it is greater than the weight of the rocket, the rocket lifts off. Put in its most basic terms, for any rocket to work there are two things that must be done extremely well: The propellants must be brought together, and then they must burn smoothly.

In the F-l, just pumping the propellants to the combustion chamber raised unprecedented demands. The F-l used liquid oxygen (LOX) and R.P.-1, a form of kerosene. The pumps, one for the fuel and one for the LOX, had to deliver the kerosene from the tankage to the combustion chamber at the rate of 15,741 gallons per minute, and the LOX at the rate of 24,811 gallons per minute. Driven by a 55,000-horsepower turbine, the pumps had to operate at drastically different temperatures: 60 degrees Fahrenheit for the fuel, –300 degrees for the LOX, while the turbine itself ran at 1,200 degrees. To complicate matters, the whole assembly had to be light and compact enough to fit on board the rocket and nonetheless sturdy enough to resist the pressures, vibrations, and other stresses of launch and flight.

Developing the pumps was still not as hard as solving the second basic problem of rocket engines: making the propellants burn smoothly once they had reached the combustion chamber. The pumps brought the kerosene and the LOX to a circular metal slab three feet in diameter and about four inches thick, weighing 1,000 pounds, called the injector plate[[2]](#footnote-2). The injector plate was pocked with 6,300 holes less than a quarter of an inch in diameter through which the kerosene and LOX entered the combustion chamber. Most of the propellant streams were arranged in groups of five. Two of the five, both kerosene, impinged on each other at a carefully defined distance below the top of the plate, forming a fan-shaped spray. The other three in each five-hole group were of LOX. These also impinged on one another, forming another fan. The two fans intersected. There, given the presence of a flame, they would combust.

In the F-l, the combustion chamber was a barrel about thirty-six inches wide and thirty inches long, closed at one end by the injection plate and opening into a nozzle at the other end. A few seconds before ignition, four small pre-burners in the combustion chamber — pilot lights, in effect — were lit, providing a flame at the point of impingement. As the pumps screamed up to speed, valves snapped open and more than a ton of kerosene and two tons of liquid oxygen burst into the combustion chamber. Per second. The gases produced by their ignition roared out through the throat, the open bottom of the barrel, into the cone of the nozzle below. In the course of the few seconds from ignition to full power (mainstage), the interior of the combustion chamber went from ambient temperature to 5,000 degrees Fahrenheit. At the face of the injector plate, pressure went from zero to 1,150 pounds per square inch. Given that combination of propellants, pressures, and nozzle design, the force generated totalled 1.5 million pounds. In the first stage of a Saturn V, five F-l s were to ignite simultaneously and sustain mainstage combustion for 150 seconds.

By the early 1960s, creating an engine to withstand the temperatures and the pressures of the F-l was, thanks to new metallurgical and engineering techniques, not a formidable problem. The difficulty was to achieve what the engineers called a “smooth flame front,” in which the kerosene and oxygen combined and burned at a uniform temperature across the face of the injector plate.

Achieving this stable combustion with an injector plate three feet in diameter created unprecedented problems. If, for example, the holes in the plate were drilled so that one side of the flame front had a slightly higher oxygen content than the other side, the high-oxygen area would get hotter and produce higher pressures on that side. In a smaller combustion chamber, this imbalance might not create difficulties. But in the F‑l, there was plenty of room for a racetrack effect to get started, in which a higher pressure on one side of the chamber would bounce, starting a wave front that would begin careening around the perimeter of the barrel. Within milliseconds, the heat fluxes inside the chamber would be bounding back and forth across the combustion chamber, reinforcing each other, going out of control, and destroying the engine. “The slightest thing could trigger it,” said one of F-l’s engineers of combustion instability. This was a vexing situation, because the inside of an F-l combustion chamber during launch was prone to develop a variety of “slightest things.” If the pumps entered cavitation and failed to supply the propellants to the injector plate at an absolutely uniform rate, the streams of propellant and LOX impinged at the wrong points and could disrupt the burning process. Thermal shocks as the engine went from ambient temperature to 5,000 degrees could disrupt the burning process. Acoustical shocks that hit the chamber at the moment of ignition were the most troublesome of all. With the sole exception of a nuclear explosion, the noise of a Saturn launch was the loudest noise ever produced by man. The only sound in nature known to have exceeded the noise of a Saturn V was the fall of the Great Siberian Meteorite in 1883. Sound waves of such force tended to disrupt the burning process.

— END-of-EXTRACT —

Cool stuff; best thing is they solved the problem by detonating a bomb in the combustion chamber with the F-1 going flat out — seriously (yay engineers!). That’s another book you should read.

This section contains an extract from Robert Louis Stevenson’s “Treasure Island” (1883, Cassell & Company); it shows how the standard body text of the document should appear on both odd and even numbered pages. It was chosen to appeal to everyone (who doesn’t want to be a pirate?):

— EXTRACT —   
Squire Trelawney, Dr. Livesey, and the rest of these gentlemen having asked me to write down the whole particulars about Treasure Island, from the beginning to the end, keeping nothing back but the bearings of the island, and that only because there is still treasure not yet lifted, I take up my pen in the year of grace 17\_\_ and go back to the time when my father kept the Admiral Benbow inn and the brown old seaman with the sabre cut first took up his lodging under our roof.

I remember him as if it were yesterday, as he came plodding to the inn door, his sea-chest following behind him in a hand-barrow — a tall, strong, heavy, nut-brown man, his tarry pigtail falling over the shoulder of his soiled blue coat, his hands ragged and scarred, with black, broken nails, and the sabre cut across one cheek, a dirty, livid white. I remember him looking round the cover and whistling to himself as he did so, and then breaking out in that old sea-song that he sang so often afterwards:

"Fifteen men on the dead man's chest –  
Yo-ho-ho, and a bottle of rum!"

in the high, old tottering voice that seemed to have been tuned and broken at the capstan bars. Then he rapped on the door with a bit of stick like a handspike that he carried, and when my father appeared, called roughly for a glass of rum. This, when it was brought to him, he drank slowly, like a connoisseur, lingering on the taste and still looking about him at the cliffs and up at our signboard.

"This is a handy cove," says he at length; "and a pleasant sittyated grog-shop. Much company, mate?"

My father told him no, very little company, the more was the pity.

"Well, then," said he, "this is the berth for me. Here you, matey," he cried to the man who trundled the barrow; "bring up alongside and help up my chest. I'll stay here a bit," he continued. "I'm a plain man; rum and bacon and eggs is what I want, and that head up there for to watch ships off. What you mought call me? You mought call me captain. Oh, I see what you're at — there"; and he threw down three or four gold pieces on the threshold. "You can tell me when I've worked through that," says he, looking as fierce as a commander.

And indeed bad as his clothes were and coarsely as he spoke, he had none of the appearance of a man who sailed before the mast, but seemed like a mate or skipper accustomed to be obeyed or to strike. The man who came with the barrow told us the mail had set him down the morning before at the Royal George, that he had inquired what inns there were along the coast, and hearing ours well spoken of, I suppose, and described as lonely, had chosen it from the others for his place of residence. And that was all we could learn of our guest.

He was a very silent man by custom. All day he hung round the cove or upon the cliffs with a brass telescope; all evening he sat in a corner of the parlour next the fire and drank rum and water very strong. Mostly he would not speak when spoken to, only look up sudden and fierce and blow through his nose like a fog-horn; and we and the people who came about our house soon learned to let him be. Every day when he came back from his stroll he would ask if any seafaring men had gone by along the road. At first we thought it was the want of company of his own kind that made him ask this question, but at last we began to see he was desirous to avoid them. When a seaman did put up at the Admiral Benbow (as now and then some did, making by the coast road for Bristol) he would look in at him through the curtained door before he entered the parlour; and he was always sure to be as silent as a mouse when any such was present. For me, at least, there was no secret about the matter, for I was, in a way, a sharer in his alarms. He had taken me aside one day and promised me a silver fourpenny on the first of every month if I would only keep my "weather-eye open for a seafaring man with one leg" and let him know the moment he appeared. Often enough when the first of the month came round and I applied to him for my wage, he would only blow through his nose at me and stare me down, but before the week was out he was sure to think better of it, bring me my four-penny piece, and repeat his orders to look out for "the seafaring man with one leg."

How that personage haunted my dreams, I need scarcely tell you. On stormy nights, when the wind shook the four corners of the house and the surf roared along the cove and up the cliffs, I would see him in a thousand forms, and with a thousand diabolical expressions. Now the leg would be cut off at the knee, now at the hip; now he was a monstrous kind of a creature who had never had but the one leg, and that in the middle of his body. To see him leap and run and pursue me over hedge and ditch was the worst of nightmares. And altogether I paid pretty dear for my monthly fourpenny piece, in the shape of these abominable fancies.

But though I was so terrified by the idea of the seafaring man with one leg, I was far less afraid of the captain himself than anybody else who knew him. There were nights when he took a deal more rum and water than his head would carry; and then he would sometimes sit and sing his wicked, old, wild sea-songs, minding nobody; but sometimes he would call for glasses round and force all the trembling company to listen to his stories or bear a chorus to his singing. Often I have heard the house shaking with "Yo-ho-ho, and a bottle of rum," all the neighbours joining in for dear life, with the fear of death upon them, and each singing louder than the other to avoid remark. For in these fits he was the most overriding companion ever known; he would slap his hand on the table for silence all round; he would fly up in a passion of anger at a question, or sometimes because none was put, and so he judged the company was not following his story. Nor would he allow anyone to leave the inn till he had drunk himself sleepy and reeled off to bed.

— END-of-EXTRACT —

Guess what Monkey Island fans? You’ll sleep when you’re dead, so you’ll have plenty of time to read the book.

|  |  |
| --- | --- |
| 1.4 | Tools of the trade |
| Tools of the trade |

I talk a lot about Word in this document, well, complain really; and sometimes I’m rude; but I don’t mean it.

Word is incredibly powerful (I’m talking about the Window’s version, not that strange cut down thing that runs on Macs), and it should be praised — praise it with great praise.

It has its detractors: “it’s not open source” they say (Linux people — I’m talking about you here), it’s not free (Linux people — still you), it’s Microsoft, it’s Windows, it’s the devil’s work, blah, blah…(right, so it’s just Linux people that don’t like it).

But, and it’s a big enough but to start a paragraph with, we all use it — it’s the industry standard, yes it’s pricy and has it’s foibles but, it’s so much better than everything else.

Word is a jack of all trades and generally it does it well. There are some peculiarities, but mostly it’s easy to use and it just works. It handles tables and lists, the headings are simple to use, it hyphenates and justifies, it turns straight quotes into curly quotes without you noticing, it will automatically make tables of content and even indexes (yes, that is the right plural), it handles ligatures and kerning and some quite high level typographic concepts without bothering you.

It is probably the application that engineers use the most (probably more than programming packages and Excel), it’s one of the main tools of the trade, and yet, few engineers learn how to use it properly.

To some extent, it’s its own worst enemy; it’s easy to just open Word and start typing, it’s also easy to copy an existing document and use it for a new purpose. The thing just works and it hides all the complex stuff. But the complex stuff is there, and for something that gets used every day, it’s worth knowing what’s happening behind the scenes.

So, the important bits of Word: and I know I bang on about this, but if you learn nothing else learn about styles. Styles, styles, styles it’s how Word is supposed to work, use them grasshopper. And then learn how to use document properties (it’s all in § 2).

Next, paragraph spacing and line spacing; no more blank lines between paragraphs, it’s not supposed to work like that. A rule of thumb: never hit the space bar twice in succession (never pad things out with spaces) and never ever have a blank line in your text (that’s what paragraph spacing is for). See § 7.

Section 7 discuses (in a fairly easy manner) various typographical concepts that should be used to improve the appearance of a document. A lot of these use features that are built into Word (automatic hyphenation for example) and these are explained from the Word perspective, you don’t need to learn these by heart, just be aware of them — you can always look them up if you need them, it’s knowing that they’re there in the first place that’s the difficult bit.

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | By the Way |  |
|  |  |  |
|  | Word has a couple of undocumented features; just type =lorem() on a blank line and hit enter to get lorem ipsum[[3]](#footnote-3) padding text (add a number between the brackets to get that many lines of lorem ipsum).  Alternatively use =rand(x,y) to create x paragraphs with y sentences of English text, =rand.old(x,y) is a hangover from previous versions of Word and will use “the quick brown fox…” as its sentence. |  |
|  |  |  |
|  |  |  |

Now, continue onto the subject of styles. This is the most important section in the document:

|  |
| --- |
| Document styles & properties |
| 2 |
| Document styles & properties |
| A list of the styles and properties available within the document and a description of how they should be used. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| 2.1 | Styles and using them |
| Styles and using them |

Styles are the key to creating and maintaining documents, they’re there to make life easier. Styles are the backbone of the document, they control the layout and the typography throughout the whole document — they are the standards, they can be used across multiple documents, they give consistency, they save time and they’re easy to use.

Given all this, it is curious that so many engineers don’t know how to use them, they format their document a paragraph and heading at a time; it’s an old fashioned or possibly ignorant approach, and it’s not how Word was designed to work.

Most of the tools needed to produce and maintain well formatted documents are present in Word (some may be a little frustrating to implement, but they’re all there), Word is now part of the engineering tool kit, everybody uses it, and it’s not unreasonable to expect engineers to learn how to use it properly.

So styles; what are they and how are they used?

### What are styles?

Styles are all of the following:

1. Styles define sets of formatting attributes that are applied together. So instead of selecting a heading, changing it to 13 point, bold, and all caps, define a style that includes these three attributes, and then just apply the style to the heading. What’s the benefit? At the next heading, it is not necessary to individually apply those three attributes again. Simply apply the previously defined style. The headings will then match.
2. Styles change the formatting across a class of related elements. If it were necessary to change the previous headings from 13 point to 13.5 point. Instead of selecting each heading separately and changing the point size individually — a tedious task — simply change the point size in the heading style definition from 13 point to 13.5 point. All the headings using that style will be automatically updated.

What’s the benefit? Updating the formatting is centralised and automatic. It is possible to experiment with formatting and layout ideas with little manual effort.

1. Styles can inherit formatting from other styles. A change to the parent style will propagate to all the substyles. But a change to the substyle will only affect that one style.

I know what you’re thinking: “this is just like classes and inheritance in object orientated code” — yep, it is — GastroSmallKiln people, I just know, you weren’t thinking this were you?

What’s the benefit? Inheritance adds another layer of centralised automation — it’s like having a style of styles. You can define a set of foundation styles (these are the base styles referred to in the following sections) and use them as the basis for more elaborate styles.

### How to use styles effectively

This is a general rule of thumb: if there are two document elements that have the same formatting, that formatting should be defined as a style.

There are two basic types of style: font (or character) styles and paragraph styles.

Font styles incorporate attributes that apply to letters, word and sentences (generally text within a paragraph as opposed to the entire paragraph): font, point size, letter spacing, bold or italic, &c.

Paragraph styles incorporate all the attributes of a font style, but also have additional layout attributes: indents, tab positions, line spacing, paragraph spacing, rules and borders &c.

Why have two types of style? Only one paragraph styles can be applied to each paragraph, but multiple font styles can be applied to text within that paragraph. In the paragraph above, the whole paragraph is given the #000 BO Body Text style (a paragraph style), but the italicised Paragraph style at the start is given the italic style by a font style applied on top of the paragraph style, this is style #100 FO First Use (It).

Styles can be named; initially, it may be tempting to name styles by their characteristics — “Calisto 10 point Italic” — and this would be better than applying the same formatting manually; however, this overlooks another benefit of naming styles, this is to name the style in terms of what it is used for rather than how it looks. Thus if creating a font style to emphasise the first use of a phrase, call it “First Use”, this is better than “Calisto 10 point Italic”. And, if the point size is later changed, the name will still be accurate.

Think of styles names as meaningful mnemonics in software rather than absolute addresses.

Word has a long list of built-in styles, some of these are essential and are linked to functions within Word itself: Heading 1–9, TOC 1–9, &c; however, many of the styles are not so useful or have very specific usage: HTML Abbreviation for example.

Generally, where a style is linked to a required Word function (such as headings) it is always better to use the built-in style; however, Word has an eclectic interpretation of how its built-in styles should look — it’s difficult to think of a polite word to describe these styles — let’s say “interesting”. The default style for Header 1 is a 14 point blue Cambria bold style with few redeeming qualities — it’s “interesting”:

|  |  |  |
| --- | --- | --- |
|  | **Word — Heading 1 (default style)** |  |

I’m not too worried; by the time you’ve read this document and listened to me banging on about typography, I know you wouldn’t use this style — not without fixing it first.

|  |  |
| --- | --- |
| 2.2 | Styles in this document |
| Styles in this document |

This document contains a lot of styles that have been defined specially for it. The bulk of these styles are the document default styles and these all start with a four digit number (see § 2.3), this is done largely to give some order and grouping to the styles and also to put them at the top of the style list in Word (I’m an engineer, I like to number things).

The key to these default styles are the base styles (these all start with the number 9xxx) and these determine the underlying font for each of the other styles, these represent the foundation styles discussed in the previous section.

The default styles all inherit their fundamental properties from these base styles. The base styles set the basic font and font characteristics used by all the higher level styles. This allows global changes to a font to be easily made: change the base body style for the serif font to Garamond, and all the serif body text in the document will be changed to Garamond — base styles are powerful.

The remaining default styles apply proper paragraph formatting to the base styles, they set indents, line spacing, paragraph spacing &c. to make the styles useful. There are many default styles (again see § 2.3) for many different scenarios of document. It is not intended that all these styles should be used in a given document, but certain documents will require one set of styles; a different type of document will require another set. The author has the freedom to choose the styles required by the document. The default set just forces consistency and a common approach upon that choice.

There is a final group of styles within the document, these are the styles-in-use; these are the subset of the default styles (with perhaps some additional formatting, such as colour) that are actually used in the document. These are the styles with the meaningful names that were discussed in the previous section (I say meaningful, I’m an engineer, it’s a bit more complicated than that, see § 2.4)

|  |  |
| --- | --- |
| 2.3 | Style naming conventions |
| Style naming conventions |

This document contains a large number of default styles, these all start with a four digit number and these form the basis of the styles available to the user. Not all of these styles will be used in a particular document; they simply give a range of stylistic options to the author.

The leading number defines the broad area to which the style applies, the numbering convention is:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Style | Style Type | Function |  |
|  | 0xxx | Body text | Main body text within the document, includes indented text and inline notes &c. |  |
|  | 1xxx | Font & leading styles | Overriding font styles (applied to a section of text within a paragraph.  Leading is simply paragraph spacing that can be applied for specific formatting situations. |  |
|  | 2xxx | Grid (table) body text | Text used within tables. |  |
|  | 3xxx | Grid (table) Headings | Heading text for tables. |  |
|  | 4xxx | Spare | Not used. |  |
|  | 5xxx | Annotation (figure, table) | For captions specifically, figure, table and equations. |  |
|  | 6xxx | Titles & Headings | Formatting for the various different titles used within the document. |  |
|  | 7xxx | Spare | Not used. |  |
|  | 8xxx | Proofing | Hidden text used for authoring notes and proof reading. |  |
|  | 9xxx | Base styles | The base styles (containing only font information) upon which all other styles are based. |  |
|  | Table . Style numbering | | |  |

There is a general naming convention associated with the default styles:

NNNN TT SSSpJ EM FFF D…

Where:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | NNNN | STYLE NUMBER | (See Table 2.1) |  |
|  | TT | STYLE TYPE  BO FO LE LI GB GH AN TI HF PR BA | (use of)  Body Text Font Style Leading Listing (numbered or bullet list) Grid body text Grid heading Annotation Title (or Heading) Header & Footer Proofing Base Style |  |
|  | SSSp | TEXT SIZE  Smlp Nrmp Lrgp | (p specifies the degree 1..6)  Small text (<10 point) Normal sized text (gen 10-11 point) Large text (>11 point) |  |
|  | J | JUSTIFICATION  C J L R | Centred Justified Left aligned Right aligned |  |
|  | EM | EMPHASIS  AC BO Head IT Sb SC Su | All caps Bold Heading Italic Subscript Small Caps Superscript |  |
|  | FFF | FONT STYLE  SER SAN CDE | Serif font Sans serif font Non-proportional font (for code) |  |
|  | D… | DESCRIPTION  P-No HgL HgLR InL InLR NSp ESp BSp Asp BO AC SC BO AC BO SC Textual description | (adds additional Information)  With Paragraph numbering Hanging left indent Hanging left, indented right Indented left Indented left and right No paragraph spacing Even paragraph spacing (before & after) Paragraph spacing before [paragraph] Paragraph spacing after [paragraph] Bold All caps Small caps Bold and all caps Bold and small caps additional description  Note: emphasis is included here if EM is set to Head |  |
|  | Table . Style naming convention | | |  |

The following figures show a full list of the default numbered styles available within this template.

Where a style is based on another style, the style upon which it is based is shown in the clear box with a brief indication of the type of changes applied in the resultant style.

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Body text styles | | |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Inline font text & leading styles | | |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Grid & table body text styles | | |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Grid & table heading styles | | |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Annotation styles | | |
|  |  |  |
| Figure . Titles, header & footer styles | | |
|  |  |  |
| Figure . Proofing styles | | |
|  |  |  |
| Figure . Base styles | | |

### Base styles (9xxx)

Base styles set the underlying font properties for each style. This allows the font to be changed globally for a style without affecting the paragraph styling applied at the higher style levels.

The default font size is set to 11 point, kerning is active for 8 point text and above. All font ligatures are active (see § 7.5.1 and § 7.5.2 for information about kerning and ligatures).

There are certain base styles that apply font formatting to the styles that are built into Word: headings, tables of content and hyperlinks (see § 3.2, § 8.3 and § 3.3 respectively).

### Body styles (0xxx)

Body styles are applied to the body text within a document (this paragraph is body text). Body text makes up the bulk of any document and is consequently the most important style in the document. The body text should be the first style to be chosen in any document, see § 7.3.1.

All default body styles are linked to one of the base styles, these generally have the numbering 90xx (although it is perfectly possible to link a body style to a grid style base style 92xx). The base style sets the font and default point size for the body style. Thus to change the font for all body styles, it is only necessary to change the base style to which they are all linked.

There are three types of base body styles: serif font, sans serif font and code (non-proportional) font. The first two also have numbered versions that can be used for paragraph numbering. There are serif and sans serif base styles to allow a document to contain both types of font in the body text.

The body styles use the font that is set in the base style and apply paragraph formatting: before and after spacing, indentations, justification, hyphenation &c. The body style can also change the point size of the text: the normal size uses the default set in the base style, the small size is one point smaller (10.5 point in this case).

### Font (character) styles (1xxx)

Font styles are applied to sections of text within a paragraph to give some form of emphasis to the text (the words normal and small in the previous paragraph for example). Generally font styles are based on the underlying text and have no base style, the exception is font styles that use small capitals (see § 7.5.1 for a discussion of small caps); these do have a base style that uses a special small caps version of the font. Generally, if a font does not have a distinct small caps version, do not use small caps at all (never use the small caps option in the font dialogue box, again see § 7.5.1).

### Leading styles (19xx)

Leading (lead to rhyme with bed, not deed) styles are used for specialised paragraph spacing to give the correct paragraph space between objects that do not have built-in before and after spacing (usually tables and figures).

Leading styles must not contain any text; the font colour is set to bright orange to highlight any text that is inserted accidentally into the style.

All leading styles are linked to a single base style (9190 BA Leading); this sets a default font for the style (the font is not used, leading styles do not contain text, but the style obviously needs a font).

### Grid body styles (2xxx)

Grid body styles are applied to text used within tables. Like body text, all grid body styles are linked to one of the base styles, these are numbered 92xx. The base style sets the font and default point size for the grid body style. Thus to change the font for all grid body styles, it is only necessary to change the base style to which they are all linked.

There are three types of base grid body styles: serif font, sans serif font and code (non-proportional) font.

The grid body styles use the font that is set in the base style and apply before and after spacing (none, even and after) and bold and italic emphasis (note: italic emphasis is only available for serif fonts, see § 7.4.11).

The grid body style can also change the text point size; this is indicated by SmlP, NrmP and LrgP where P indicates the degree of application (see Table 2.3):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sml6** | **7.0 point** | **Nrm1** | **10.0 point** | Lrg1 | 11.5 point |
| Sml5 | 7.5 point | Nrm2 | 10.5 point | **Lrg2** | **12.0 point** |
| **Sml4** | **8.0 point** | Nrm3 | 11.0 point | Lrg3 | 12.5 point |
| Sml3 | 8.5 point |  |  | **Lrg4** | **13.0 point** |
| **Sml2** | **9.0 point** |  |  | Lrg5 | 13.5 point |
| Sml1 | 9.5 point |  |  | **Lrg6** | **14.0 point** |
| Table . Grid styles, point size | | | | | |

This document only contains those styles that are shown in bold in the above table (although space has been allocated for all the others).

Note: Grid body text is generally smaller than body text (styles 0xxx); hence normal grid body sizes are comparable to small body text sizes. Grid body text has a greater range of text sizes than body text; this is to accommodate the variations in tables required in a document.

### Grid head styles (3xxx)

Grid head styles are applied to headings used within tables. Like grid body text, all grid head styles are linked to one of the grid body base styles, again these are the same as grid body base styles and have the numbering 92xx.

The grid head styles use the font that is set in the base style and apply specific emphasis to the text: all capitals, small capitals, bold, bold all caps and bold small caps.

Grid headings have the same range of text size as grid body styles (see Table 2.3).

### Annotation styles (5xxx)

Annotation styles are used to give captions to figures, tables and equations within a document; they are also used for footnotes such as this[[4]](#footnote-4). Figures and table use the same style; this is available in serif and sans serif styles each with two spacing options: no spacing (used where a table or figure is at the bottom edge of a page) and para-spacing (used where a figure or table is followed by a paragraph — this gives the correct spacing between the table and the following text).

Equation annotations have no spacing and are centred within the cell holding the equation.

All annotations are linked to a base style (95xx), of which there are two, one a serif font and one a sans serif font. This document uses serif annotation for figures and images and a sans serif font for tables.

Annotations are also available in two text sizes, normal and small.

### Title styles (6xxx)

Title styles are the default styles used throughout the document for titles and headings; these include the document title on the first page, non-indexed headings (those that are not included in the table of contents such as the contents page title itself), indexed headings (such as Preface and Appendices that are included in the table of contents) and the heading styles for chapters, sections and inline titles (see § 3.1 for a discussion of chapter, section and inline headings).

Each title style is linked to a base style; there are base styles for titles (document titles on the first page), page heading (contents, preface, appendices &c.), headings (chapter and section) and inline (such as the heading at the start of this subsection).

Title styles also include the header and footer styles, these have their own base styles (965x) in both serif and sans serif fonts.

### Proofing styles (8xxx)

Proofing styles are styles used to make non-printing annotations within the document (author’s notes &c.). Proofing styles cannot be seen if hidden text is not set to visible within the document File tab → Options → Display → check or uncheck Hidden Text. All proofing styles use a sans serif font, set to a red colour.

### A note on viewing text formatting

Word has a show/hide button ¶ available on the Home tab → Paragraph group, if activated, all text formatting will become visible; it will be possible to see where paragraph breaks, page breaks and section breaks are positioned.

It will also show other text formatting such as non-breaking hyphens and spaces.

|  |  |
| --- | --- |
| 2.4 | How to use styles in this document |
| How to use styles in this document |

There are three stages to using the styles available in this document:

1. The base styles
2. The default styles
3. The styles-in-use

The Base Styles (numbered 9xxx) set the font and the basic font properties for the higher level styles.

The Default Styles (numbered 0xxx to 8xxx) are all linked to a base style; but the default styles change additional properties (paragraph spacing, indents, justification &c.) to give a wide range of styles that cover most requirements for a document.

The base and default styles are listed in the previous section.

The styles-in-use have not so far been discussed (briefly mentioned in § 2.2); these are the styles that are actually in use within the document. Styles-in-use all start with a hash ( # ) followed by a three digit number.

The styles-in-use are all based on one of the default styles, and can carry additional formatting (usually text colour). The purpose of the styles-in-use is to narrow the large range of default styles to those that are actually used within the document.

For example, there are a large number of default body text styles; these include small, normal and large text sizes, serif and sans serif options and various permutations of indentations justification and paragraph numbering.

In practice, the number of body text options used within the document will be a small subset of the default styles available. Indeed in this document, only 9 of the 132 default body styles are required. In a different document, depending on the requirements of the author, a completely different set may be used; in all cases however, the number of body styles-in-use will be small compared with the number of default styles available.

The body styles-in-use in this document are:

|  |  |  |
| --- | --- | --- |
|  | #000 BO Body Text | The general body text used throughout the document, it is an 11.5 point serif font, spans the page and has appropriate line and paragraph spacing.  Based on 0000 BO NrmJ SER. |
|  | #001 BO Body Text InL | An indented left version of the body text in use (used to indent text for emphasis, the “Fifteen men” of § 1.3 uses this style).  Based on 0054 BO NrmL SER InL. |
|  | #002 BO Body Text Note (It HgL) | A hanging left and italicised version of the body text (used to indicate a note to the previous paragraph, an example can be seen in § 3.1.1).  Based on 0022 BO NrmJ It SER HgL. |
|  | #003 BO Body Text L | Left aligned body text, (otherwise the same as #000 BO Body Text), generally used where hard line breaks are employed to prevent false justification. |
|  | #020 BO BTW Head | A san serif font used as a heading to a By the Way point (an explanation, summary or aside to the main point), § 5.2.1 has an example.  Based on 3687 GH Sml2 Head SAN BO SC. |
|  | #021 BO BTW Body | A san serif font used within a By the Way point, usually contained within a table in the main section of the document, § 5.2.1 has an example.  Based on 2682 GB Sml2 SAN Asp. |
|  | #050 BO Chap Intro | A sans serif version of the body text used in the chapter introduction (follows the chapter name). |
|  | #060 BO List (Num) | A specialised numbered list that uses circled numbers (see the list in § 2.4 above).  Based on 6300 LI Num. |
|  | #061 BO List (No Num) | A specialised non-numbered (bullet point) list Based on 6301 LI No Num. |
|  | #090 BO Copyright Text | Body text used on the copyright page  Based on 2181 GB Sml 2 SER ESp |
|  | Table . Styles-in-use (part 1), body text | |

The naming convention for the styles-in-use is only partially prescriptive; the # indicates that the style is part of the styles-in-use group and places it at the top of the styles list (if sorted alphabetically).

The style-in-use numbering is three digits, the leading digit should match the area with which it is associated, thus for body text the leading digit would be 0, for font styles it would be 1 &c. the remaining two digits can be freely associated to place the styles in whatever order is deemed appropriate for the document in question.

Thus, within this document the BTW styles (see § 5.2.1) have been given body text designations (leading character is a zero) even though the associated styles are grid styles and the BTW entry appears in a table. They have been given this designation because the intention is for the text to appear as body text (even though it is disguised in a table), the table is for formatting only (it would not for example, be given a table number) — hence the body text numbering.

The author is free to make such decisions; the only restraining factor is consistency (and possibly subtlety).

The next two characters are the TT characters of Table 2.2; in the case of styles-in-use, these show the expected area of deployment (hence the BTW styles are given the type BO — body rather than GB — grid). An additional designation has also been added:

|  |  |
| --- | --- |
| #4xx SB Sidebar | For use in the sidebar text box and tables |
|  |  |

Sidebars are text boxes located in the margins used for notes and asides (see § 6); there are no default styles for sidebars, the grid styles are suitable for use within sidebars and have sufficient diversity for most applications. The reason that styles-in-use has a sidebar allocation is for ease of use (generally, sidebars contain various paragraph and font formats for first use, headings &c. and it is better for these to be clearly delineated for sidebar usage).

Sidebar styles are given the style-in-use prefix #4.

### The visibility of styles

The large number of default styles can make the Style bar difficult to navigate (the style bar is accessed by clicking the  button on the Home tab → Styles group. To overcome this, all the default styles are set to hidden. These can be made visible by managing the styles:

To open the Manage Styles dialogue box, click the  icon at the bottom of the style bar. To set the visibility of the styles, select the recommended tab (Figure 2.9):

|  |  |
| --- | --- |
|  |  |
| Figure . Style manager | Figure . Visible styles |

The default styles should generally be hidden, (those starting with 0 to 9) leaving only the styles-in-use (starting with a #). The built-in heading styles should also remain visible (Heading 1-4 and to Heading 6-8). All other built-in styles can be set to hidden.

### The standard styles-in-use

This document is issued with a standard set of styles-in-use, these are the styles used to write this document, the text in this paragraph is style-in-use #000 BO Body Text. These standard styles-in-use can be linked to different default styles to change the appearance of the text, new styles-in-use can be created and the existing ones deleted if not required; they are simply presented as a starting point. The following table lists the styles-in-use in this document and their intended function.

|  |
| --- |
|  |
| Sidebars use the style #400 SB Body, this has reduced character and line spacing. |
| Sidebars can also contain emphasised text (#142 FO Sidebar Emph) and first use text (#141 FO Sidebar First Use) |

The styles-in-use for body text are listed in Table 2.4; the remaining styles-in-use are listed below:

|  |  |  |
| --- | --- | --- |
|  | #100 FO First Use (It) | Font style, applied within a paragraph to indicate the first use of a phrase. The #000 BO Body Text in the first paragraph of this section § 2.4.2 has this style applied. |
|  | #101 FO Body Emph (BO) | Font style, applied within a paragraph for emphasis (in bold). |
|  | #105 FO All Caps | Used to highlight the first word or phrase in a new chapter, e.g. Squire Trelawney in the first paragraph of the extract, § 1.3. |
|  | #108 FO Hyperlink | Used to designate a hyperlink within the document, this can be seen in § 10.1.1. |
|  | #110 FO Menu (SC) | Used to show menu and command options, see "accessing the style bar", § 2.4.1. |
|  | #120 FO Code (CDE) | Used to indicate a code fragment or command. |
|  | #141 FO Sidebar First Use (It) | Italic serif font applied to text within the sidebar to indicate the first use of a phrase. See the sidebar on this page. |
|  | #142 FO Sidebar Emph (BO) | Used for emphasis within the sidebar text, applies a bold font to the selected text. See the sidebar on this page. |
|  | #155 FO F-note First Use (It) | Italic sans serif font applied to text within a footnote to indicate the first use or the title of a reference (italics are not generally used wits sans fonts (see § 7.4.11, but standard book referencing dictates otherwise). |
|  | #180 FO Inline Image (Lower 3pt) | Forces an image inserted in a paragraph to line up with the descender positions (makes it sit correctly in parenthesis) |
|  | #191 LE Pad 1pt | 1 point leading used as a break point between consecutive tables or as a placeholder within a table that holds an image. |
|  | #192 LE Placeholder | 7 point leading used as a placeholders in tables with images. |
|  | #200 GB Table Body (SAN) | Body text for use in tables, this table uses this style |
|  | #205 GB Table Body Sml (SAN) | Small body text used in high density tables |
|  | #220 GB Code | A non-proportional font used for code fragments |
|  | #300 GH Table Heading (SC Gy) | Table heading, small caps in grey. See Table 5.1. |
|  | #310 GH Table Heading (BO Wh) | Table heading, bold, in white. See Table 5.5. |
|  | #320 GH Table FileName (SAN) | Used for the file name row in a code fragment table |
|  | #400 SB Body (SAN) | The body text used in sidebars, see the sidebar on the previous page. |
|  | #511 AN Fig Cap – No Spacing | Annotation used for figure captions, centred serif font with no following paragraph spacing (for use in full page images, see Figure 3.1). |
|  | #512 AN Fig Cap – Para Spacing | Annotation used for figure captions, centred serif font with the same paragraph spacing as normal body text (for use with images, leaves the correct paragraph spacing after the image, see Figure 3.2). |
|  | #521 AN Tab Cap – No Spacing | Annotation used for table captions, sans serif font with no following paragraph spacing (see Table 2.4). |
|  | #522 AN Tab Cap – Para Spacing | Annotation used for table captions, sans serif font with the same paragraph spacing as normal body text (leaves the correct paragraph spacing after the table, see the caption for this table). |
|  | #530 AN Equ Cap – No Spacing | Annotation used for equations, see (5.1). |
|  | #550 AN Footnote | Annotation used for footnotes, see § 2.3.7. |
|  | #600 TI Cover Main 1 | Main title on the cover page |
|  | #601 TI Cover Main 2 | Secondary title on the cover page |
|  | #605 TI Cover Author | Author’s entry on the cover page |
|  | #606 TI Cover Sub 1 | Sub heading on the cover page |
|  | #610 TI Non Index 1 | Page heading that will not be in the TOC |
|  | #611 TI Index 1 | Page heading that will be in the TOC |
|  | #660 HF Header Footer | The text used in the header and footers (in this document the header is not generally used). |
|  | Table . Styles-in-use (part 2) | |

The other visible styles in the style bar are the default (built-in) heading styles. These are used directly for headings within the document.

The styles-in-use can contain colour information; the following colour abbreviations are used, Table 2.6.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Black | BK | Orange | | OR | Blue | BU | White | WH |
| Brown | BN | Yellow | | YE | Violet | VT | Pink | PK |
| Red | RD | Green | | GN | Grey | GY | Turquoise | TQ |
| Table . Colour abbreviations (IEC standards) | | | | | | | | |
| 2.5 | | | Document properties | | | | | |
| Document properties | | | | | |

The document is equipped with a set of configured properties that can be referenced within the text of the document: document title, author &c.

The properties are defined and set to specific values in the properties dialogue box (Figure 2.11); this is accessed from the File tab → Info → Properties (on the right hand side) → Advanced properties.

|  |
| --- |
|  |
| Figure . Document properties dialogue box |

The following properties are defined:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Name | Function | Use in Document |  |
|  | 01 TitleMain\_1 | Document Main Title (part 1) | Front page (title page) |  |
|  | 02 TitleMain\_2 | Document Main Title (part 2) | Front page (title page) |  |
|  | 03 TitleMain\_3 | Document Main Title (part 3) | NOT USED |  |
|  | 11 TitleSub\_1 | Document Sub Title (part 1) | Front page (title page) |  |
|  | 12 TitleSub \_2 | Document Sub Title (part 2) | NOT USED |  |
|  | 13 TitleSub \_3 | Document Sub Title (part 3) | NOT USED |  |
|  | 21 AuthName | Name of the Author | Front page (title page) |  |
|  | 22 AuthQual | Author’s main qualifications | NOT USED |  |
|  | 23 AuthPos\_1 | Author’s position of employment (part 1) | NOT USED |  |
|  | 24 AuthPos\_2 | Author’s position of employment (part 2) | NOT USED |  |
|  | 25 AuthPos\_3 | Author’s position of employment (part 3) | NOT USED |  |
|  | 31 PubName | Name of publisher (or company name) | Copyright page |  |
|  | 32 PubAdd\_1 | Publisher’s address (line 1) | Copyright page |  |
|  | 33 PubAdd\_2 | Publisher’s address (line 2) | Copyright page |  |
|  | 34 PubAdd\_3 | Publisher’s address (line 3) | Copyright page |  |
|  | 35 PubAdd\_4 | Publisher’s address (line 4) | Copyright page |  |
|  | 36 PubAdd\_5 | Publisher’s address (line 5) | NOT USED |  |
|  | 41 CopyRtName | To whom the copyright belongs (name) | Copyright page |  |
|  | 42 CopyRtDate | Date (year) of the copyright | Copyright page |  |
|  | 51 CurVer | Current version of the document XXX.XXX | Copyright page |  |
|  | 52 CurVerDate | Current version date (DD MMM YYY) | Copyright page |  |
|  | 61 Edition\_01 | Edition 01 status (draft, 01 &c.) | Copyright page |  |
|  | 62 Edition\_01 Date | Edition 01 release date (year) | Copyright page |  |
|  | Table . Document properties | | |  |

The properties in the document are all set to default values that describe the property. To change the value of the property, select the property by clicking on it in the Properties box at the bottom; the property name will appear in the Name field and its current contents in the Value field.

To change the contents of the property, change the Value field to the required text and click modify; the value will have been changed (note: it is important to click modify, pressing enter is not sufficient).

To add a new property, simply enter a new property name in the Name field and enter its associated text into the Value field.

### Using a property in the document

To use a predefined property within the document, select Insert tab → Quick Parts → Field to open the property field entry dialogue box (Figure 2.12).

|  |
| --- |
|  |
| Figure . Property entry field dialogue box |

Select DocProperty within the Field names box, and select the required user defined property from the Property list. Click OK to enter the property field in the document.

Note: If a property value is changed, the property field in the document must be updated; to do this select the property field (or select all ctrl + a) and press F9.

|  |
| --- |
| Headings & hyperlinks |
| 3 |
| Headings & hyperlinks |
| This section explains how headings are to be used in a document, including the special formatting used for chapter and section headings.  The use and formatting of hyperlinks is also explained. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |
| --- |
|  |
| Figure . Chapter heading layout |

|  |  |
| --- | --- |
| 3.1 | Chapter, section & subsection headings |
| Chapter, section & subsection headings |

Chapter headings, section headings and inline subsection headings all use the Heading Styles built into Word, these are Heading 1 to Heading 9 (the names have been slightly modified in this document to provide an indication of how the style should be used).

This section details the construction of the headings, §§ 7.4.13-7.4.15, give guidance on how they should be used. The following headings are used:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Name | Use in Document |  |
|  | Heading 1, Chapter | Chapter heading — gives the principal number 1, 2, 3 &c |  |
|  | Heading 2, Section | Section heading — gives the first sub number 1.1, 1.2 &c |  |
|  | Heading 3, Inline num | Sub-heading number 1.1.1, 1.1.2 &c. Final numbering level |  |
|  | Heading 4, Inline no-num | Similar to Heading 3, but without number (will be in the TOC) |  |
|  | Heading 6, App Chapter | Appendix chapter heading — gives the principal letter A, B, &c |  |
|  | Heading 7, App Section | Appendix section heading — gives the sub number A.1, A.2, &c |  |
|  | Heading 8, App Inline | Appendix Sub-heading number A.1.1, A.1.2 &c |  |
|  | Table . Heading styles | |  |

### Chapter headings

The chapter heading page uses a table to position the various parts of the heading correctly, page 4 is the chapter heading page for this chapter.

The table holding the chapter heading has three main areas and a sub-area; the three areas (A, B and C) are shown diagrammatically in Figure 3.1, the table is designed to fit exactly within the body text area of a page and as such is 140 mm wide by 198 mm tall, the three sections A, B and C subdivide the table in ratios given by the Golden Section (a ratio of 1:1.618), such that the height of area B is that of Area A divided by the Golden Section (1.618). The height of area C is that of Area B divided by the Golden Section.

This gives the following heights for the three areas:

Area A 99 mm high  
Area B 61 mm high  
Area C 38 mm high

Note: The table is 143.8 mm wide and the page is only 140 mm wide, the difference is attributable to table having default left and right cell margins of 1.9 mm, pushing the left and right borders of the cell into the margin areas (these are non-printing areas and do not affect the appearance of the table).

Area A has a sub-area at the top that is 6 mm high; this area is used to store the actual heading (this is built-in style Heading 1, Chapter or Heading 6, App Chapterif being used for an appendix). The actual heading is based on style 9900 BA Word Heading, and whilst this is the actual heading for the purposes of the document (it is this that appears in the table of contents), it does not provide the required typographical formatting needed for the document. To achieve this, individual cross references are inserted in Areas A and B of the table: Area A holds the heading number and Area B the associated heading text.

To insert a cross reference for the chapter number, highlight everything in Area A of the table; select References tab → Captions → Cross-reference to open the cross reference dialogue box (Figure 3.2):

|  |
| --- |
|  |
| Figure . Cross-reference dialogue box |

Set the Reference type to Headings and Insert reference to to Heading Number; now select the chapter heading in the For which heading area. Click Insert and the chapter number will appear in large text in Area A; if selected, it will have a grey background — indicating that it is a field within the document.

To insert a cross reference for the chapter text in Area B, highlight everything in Area B of the table and repeat the process of opening the Cross-reference dialogue box. This time, ensure that Insert reference to is set to Heading Text and again select the chapter heading in the For which heading area. Click Insert and this time the text of the chapter title will be inserted.

The actual heading in the sub-area uses the base style 9900 BA Word Heading this is set by default to a pale red colour and is visible in the document (for ease of use). To prevent these headings being printed, or being visible while viewed on a computer, the font colour must be changed to white in the base style (this will automatically change the colour for all dependent styles).

Note: It was initially intended that the 9900 BA Word Heading style would be given a hidden attribute to prevent the text from appearing in printed documents; however, this has the unfortunate effect of removing the ordinals from the table of contents.

To ensure that the Chapter Number appears in the centre of Area A (and is not displaced by the height of the sub-area at the top), the paragraph line spacing has been adjusted to ensure the centre line of the font lies along the centre line of Area A (maintaining the Golden Section ratio).

Area C provides space for a summary or introductory text to be included; this text should not exceed the bounds of the table and should be centred vertically within the cell. Text in this area is designated #050 Chap Intro.

Note: If the comment in area C is only one line in length, then centre the text horizontally in area C.

### Section headings

Section headings, like chapter headings also use a table to hold the individual parts of the heading: number and text and, like the chapter headings, these are formatted separately and use cross references to link to the number and text of the actual heading; Figure 3.3 shows the dimensions and layout of the table.

|  |
| --- |
|  |
| Figure . Section heading layout |

The table is designed so that two lines of section text (Area B) are the same height as the section number in Area A, Area A can accommodate numbers of up to three digits plus one decimal place (i.e. 99.9 or 9.99).

The table is 143.8 mm wide to accommodate the non-printing cell margins of 1.9 mm, giving a true visible width of 140 mm (see the note in § 3.1.1).

Area B has a sub-area at the bottom that is 6 mm high; this area is used to store the actual heading (this is built-in style Heading 2, Section or Heading 7, App Section if being used for an appendix). The actual heading is based on style 9900 BA Word Heading, (same as the chapter heading) and whilst this is the actual heading for the purposes of the document (it is this that appears in the table of contents); however, it does not provide the required typographical formatting needed for the document. To achieve this individual cross references are inserted in Areas A and B of the table: Area A holds the heading number and Area B the associated heading text.

The section number and section text in Areas A and B are constructed in a similar way to the chapter number and chapter text listed in § 3.1.1.

### Inline subsection headings (numbered)

Subsection headings appear directly in the body text (hence inline) and use the built-in styles Heading 3 and Heading 4 for the main document, or Heading 8 and Heading 4 for appendices. There are two varieties of subsection headings: numbered and non-numbered. The subsection heading above (§ 3.1.3) is an example of a numbered subsection heading and is the most common form of subsection heading used. The non-numbered heading is shown below:

#### Inline subsection heading (non-numbered)

The above heading is the normal heading used where numbering is not required; the heading will appear in the table of contents, but will not have any associated number.

Note: Sections generally start on a new page (see § 3.1); however, this is a typographical choice and it needn’t be the case, the section heading below is starting midway through a page. To make the table start on a new page, click anywhere in the first column (holding the number 3.2 in this case) and insert a page break (ctrl + return). An additional row of fixed 4 mm height must be added to the top of the section table to add additional spacing from the previous paragraph.

|  |  |
| --- | --- |
| 3.2 | Heading base styles |
| Heading base styles |

There are two base styles that are defined for built-in Word headings within this document 9900 BA Word Headings and 9622 BA Inline Heading. Heading 1–2 and Heading 6–7 (the chapter and section headings for the main document and appendices) use style 9900 BA Word Headings; Heading 3–4 and Heading 8 (the inline styles) use style 9622 BA Inline.

The reason for this is that the chapter and section headings are constructed from cross referenced data that is linked to the actual heading text or number. This is done for formatting purposes; the actual title itself (the heading that is actually of the Heading 1 or 2 style) is only needed as a place holder. It should not, itself, be visible.

The inline headings are directly visible, the Inline Subsection Headings (numbered) and the Inline Subsection Headings (non-numbered) in the previous section are using the built-in Word styles Heading 3 and 4 and these styles need to be visible.

Hence the two styles, 9900BA Word Heading that, in the finished document, will be set to a white colour to make the headings invisible and 9622 BA Inline that holds the base font for the inline (numbered and non-numbered) styles and needs to always be visible.

|  |  |
| --- | --- |
|  | |
| 3.3 | Hyperlinks |
| Hyperlinks |

Hyperlinks occur in a document either as a link to another part of the document or as a link to an external document or website.

The convention here is to use the style #108 FO Hyperlink to display these links.

These have the following appearance: [Link to Previous Section](#_Heading_Base_Styles); [Link to Google](http://www.google.co.uk) &c. use ctrl + Left click to follow the link.

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |
| --- |
| Figures, diagrams & images |
| 4 |
| Figures, diagrams & images |
| Explains the use of figures, diagrams and images within a document.  (note where this comment is only one line, centre it horizontally) |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| 4.1 | Figures & diagrams |
| Figures & diagrams |

All figures should be inserted into tables that act as placeholders for both the image itself and for the caption details. Generally there are two types of figures that can be used: full page figures and figures that require less than a whole page of space. The difference in requirements for these figures is entirely to do with the table arrangements:

### Full page figures

Figure 4.1 shows a full page image in a horizontal orientation (caption located at the bottom). The containing table has two fixed height rows, the top row (containing the image) is exactly 193 mm high and the second row (containing the caption) is exactly 4 mm high. This allows the image to correctly fit the page and allows room for the caption at the bottom.

The style applied to the section of the table that is to contain the figure is a 7 point leading style #192 LE Fig Placeholder (based on 1912 LE 07.0 Leading), this prevents additional paragraph spacing being added to the table cell.

If a graphical image is to be placed into the table, an image of 529 × 729 pixels will fit precisely at 100% size (it will not need to be scaled).

A vertical arrangement is also possible (Figure 4.2 and Figure 4.3) here the table has two fixed width columns, the caption column being exactly 4 mm wide and the image column being exactly 136 mm wide (note, the left and right table cell margins must be set to 0.0 mm if the caption is to be visible).

The table height is exactly 197 mm; this allows an image of 506 × 745 pixels to be placed in the table without scaling.

Note: The Vertical arrangement is different for odd and even numbered pages; the caption column must always be on the outside edge (the bottom of the image must also be along this edge) and must run from top to bottom on even numbered pages and from bottom to top on odd numbered pages.

The table holding each full page image is followed by a 1 point leading line; this is to prevent the place holder table becoming attached to any table that may be placed in the first line of the following page — Word has a habit of joining tables together.

With full page image tables, the row or column holding the image caption has a fixed height of 4 mm and zero margins, giving the minimum spacing for the font used; this allows the image to occupy the largest possible portion of the page.

Unscaled full page images have the following sizes:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Orientation | Width in Pixels | Height in Pixels | Aspect Ratio |  | |
|  | | Horizontal | 529 | 729 | 1:1.38 |  | |
|  | | Vertical | 506 | 745 | 1:1.47 |  | |
|  | Table . Full page image unscaled resolutions | | | | | |  |
|  | | | | | | | |
| Figure . Full page image horizontal arrangement (529 × 729 pixels) | | | | | | | |

|  |  |
| --- | --- |
| Figure . Full even page image vertical arrangement (506 × 745 pixels) |  |

|  |  |
| --- | --- |
|  | Figure . Full odd page image vertical arrangement (506 × 745 pixels) |

To give some indication of the appearance of a scaled image, Figure 4.4 contains a 1920 × 1080 pixel original image scaled to 39% of the original size. The text in this image is the same 10 point text that is shown unscaled in Figure 4.2 and Figure 4.3. Figure 4.5 shows a 1920 × 1200 pixel image with the same degree of scaling.

With this degree of scaling, the 10 point text in the image appears on the page as approximately 3.5 point; it remains legible, but only just.

With all full page images, the caption text does not require paragraph spacing (caption paragraph spacing is normally only required where text appears after the figure and this is not possible with full page images). To this end, full page image captions always use the style #511 AN Fig Cap – No Spacing.

### A note on figure captions

Every figure in the document should have a figure caption. The caption is of the form:

|  |  |  |
| --- | --- | --- |
|  | Figure X.X Caption text |  |

The caption text is separated from the number by a tab character (this is done to improve the appearance of the table of figures; a space character leads to irregular positioning of the caption in the table).

The caption text should be in sentence case, see § 7.4.15.

### A note on figures used in a paragraph

Sometimes it is necessary to insert a figure in a line of text (e.g. click the button ). To do this, the image must be set to the same height in cm as the text point size (this is given by 0.0353 × TextPointSize).

The in-paragraph image will automatically align with the baseline of the text (the lower edge of capital letters), this makes the image too high and it must be moved down to the level of the letter descenders. To do this, apply the font style #180 FO Inline Image (lower 3pt), this changes the font property Font → Advance tab → Position: Lower → By: 3pt; shifting the image down by 3 points.

|  |  |  |
| --- | --- | --- |
|  | | Figure . Full paged scaled image with 39% scaling (original 1920 × 1080) |
| Figure . Full paged scaled image with 39% scaling (original 1920 × 1200) |  | |

### Partial page figures

With diagrams that do not occupy the whole page, the caption row needs to be bigger to force proper paragraph spacing with the text that follows it (Figure 4.6):

|  |
| --- |
|  |
| Figure . Inline figure and image table (529 pixels wide) |

Here the top row of the image table has no height requirements (it will automatically match the height of the image), the caption row also has no height requirements; however, to give the correct paragraph spacing to the following text the caption style uses paragraph spacing after the text. The caption style is #512 AN Fig Cap – Para Spacing.

Again the table will accommodate images of up to 529 pixels wide without scaling (the same as a full page horizontal image).

It is also possible to place two or more figures side by side (Figure 4.7 and Figure 4.8). With two side by side images the maximum pixel width is reduced slightly to accommodate the central margin between the two images. This reduces the maximum pixel width of each image to 256 pixels, a total of 512 for both images compared with 529 for a full width image. For three side by side images this is reduced by a further 16 to give a maximum image width of 166 pixels.

Image table examples, 2 images side by side:

|  |  |
| --- | --- |
|  |  |
| Figure . Side by side image A (256 pixels wide) | Figure . Side by side image B (256 pixels wide) |

Image table examples, 3 images side by side:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Image A (166 pixels wide) | Figure . Image B (166 pixels wide) | Figure . Image C (166 pixels wide) |

It is also possible to have inline image tables where the text wraps around the table; this is achieved by setting the table property option to around as show in Figure 4.12 and Figure 4.13. Table properties are accessed by clicking in the table Layout tab → Table group → Properties.

The use of inline figures should be carefully considered, remember a gap consistent with a paragraph break will be forced if the table is placed in the middle of paragraph. A consistent approach should be taken to the positioning of figures.

An example of inline figures and text is shown below:

SQUIRE TRELAWNEY, Dr. Livesey, and the rest of these gentlemen having asked me to write down the whole particulars about Treasure Island, from the beginning to the end, keeping nothing back but the bearings of the island, and that only because there is still treasure not yet lifted, I take up my pen in the year of grace 17\_\_ and go back to the time when my father kept the Admiral Benbow inn and the brown old seaman with the sabre cut first took up his lodging under our roof.

|  |
| --- |
|  |
| Figure . Inline image left |

I remember him as if it were yesterday, as he came plodding to the inn door, his sea-chest following behind him in a hand-barrow — a tall, strong, heavy, nut-brown man, his tarry pigtail falling over the shoulder of his soiled blue coat, his hands ragged and scarred, with black, broken nails, and the sabre cut across one cheek, a dirty, livid white. I remember him looking round the cover and whistling to himself as he did so, and then breaking out in that old sea-song that he sang so often afterwards:

|  |
| --- |
|  |
| Figure . Inline image right |

"Fifteen men on the dead man's chest –  
Yo-ho-ho, and a bottle of rum!"

in the high, old tottering voice that seemed to have been tuned and broken at the capstan bars. Then he rapped on the door with a bit of stick like a handspike that he carried, and when my father appeared, called roughly for a glass of rum. This, when it was brought to him, he drank slowly, like a connoisseur, lingering on the taste and still looking about him at the cliffs and up at our signboard.

"This is a handy cove," says he at length; "and a pleasant sittyated grog-shop. Much company, mate?"

### Extended full page figures

In extreme situations, it is possible to insert an extended figure table to allow larger images to be displayed on a single page; like underlining (see § 7.4.12), this should never be used. However, if all else has failed, this is how it is done.

This extended layout requires a new document section to be included within which the top and bottom margins are equalised at 33 mm and the left and right margins at 23 mm as shown on the following page.

Note: Extended pages must always be in their own sections of the document, this is the only way to maintain the correct margin settings.

The table width for extended full page image tables is 167.8 mm and the table height is 228 mm.

Each extended diagram is followed by 1 point leading, on the last extended diagram this is also followed by a section break.

The extended diagrams start on the next page and are again organised into horizontal (caption at the bottom) and vertical (caption on the outside edge with different versions for odd and even pages).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Orientation | Width in Pixels | Height in Pixels | Aspect Ratio |  | |
|  | | Extended Horizontal | 624 | 850 | 1:1.36 |  | |
|  | | Extended Vertical | 602 | 864 | 1:1.44 |  | |
|  | Table . Extended full page image unscaled resolutions | | | | | |  |

|  |
| --- |
|  |
| Figure . Extended page image horizontal arrangement (624 × 850 pixels) |

|  |  |
| --- | --- |
| Figure . Extended even page image vertical arrangement (602 × 864 pixels) |  |

|  |  |
| --- | --- |
|  | Figure . Extended odd page image vertical arrangement (602 × 864 pixels) |

|  |  |
| --- | --- |
| 4.2 | The use of images |
| The use of images |

This document template, while complete in itself for paper publications, is also designed to be adapted for electronic books (E-books; specifically the Amazon Kindle) and for web publications.

If the document is for use only as a paper publication or pdf, then there are no particular requirements placed upon the images used (other than those listed in § 4.1). If however, the publication is also to be used on a website or as an E-book, then it makes some sense to have images that can be reused within all environments with the minimum of rework.

The use of images in this Word document, on a website and within an E-book all have different requirements and restrictions and each can accommodate different resolutions. The broad requirement of each is examined in the following sections:

### Images in an E-book

The image requirements for use in an E-book are at best very vague. There are many different types of E-book all with their own standards; to narrow the situation, the Kindle family of E-books (made by Amazon) are the target device for the electronic version of this publication.

Narrowing the E-book down to the Kindle family still leaves many problems; the Kindle is available in several different versions all with different screen resolutions and aspect ratios. Some devices have colour displays and some (the Paperwhite devices) are monochrome. All the devices are being constantly upgraded, and the Kindle is also available as an application for tablet, mobile devices and for PCs.

There is in short, a bewildering range of devices that can display a Kindle E-book.

The most consistent advice available gives the following requirements for a full page image that is to be used on a Kindle device:

1. The aspect ratio of the image must be 2:3
2. The image pixel count must not exceed 50,000,000
3. The source image resolution should greatly exceed the resolution of the devices themselves

### Images in this document

This document, the standard publishing template, can accommodate four styles of full page images:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Full Page Image | Width in Pixels | Height in Pixels | Aspect Ratio |  | |
|  | | Horizontal | 529 | 729 | 1:1.38 |  | |
|  | | Vertical | 506 | 745 | 1:1.47 |  | |
|  | | Extended Horizontal | 624 | 850 | 1:1.36 |  | |
|  | | Extended Vertical | 602 | 864 | 1:1.44 |  | |
|  | Table . Full page image styles and resolutions | | | | | |  |

Of these figures, the extended images do not conform to the proportional page layout of the standard document and should not be used.

The full page vertical arrangements Figure 4.2 and Figure 4.3 have an aspect ratio of 2:2.94 (≡ 1:1.47) this is the nearest fit to the 2:3 (≡ 1:1.5) ratio required by the E-book.

### Images on a website

This is the easiest category and has only the following restrictions:

1. Maximum picture width is 748 pixels (no height restrictions)
2. The image format should be svg

### Images sizes for all platforms

The best image size and format that provides a degree of commonality for all three media is to use a scalable graphic format of 1488 × 2232 pixels. This has the following properties:

1. 2:3 aspect ratio
2. Total of 3.3 million pixels (less than the E-book maximum)
3. Scaling to 50.0% gives a web resolution of 744 × 1116 pixels (fits the web page)
4. Scaling to 33.3% gives a document resolution of 496 × 744 pixels (fits the full page vertical layout)

### A note on image formats

It is generally preferable to use vector graphic formats for images; these are scalable images that do not loose definitions when resized. The Scalable vector graphic (svg) format is supported directly by web browsers and is the preferred format for all images.

Scalable vector graphics are the native format for the Inkscape drawing package and this is recommended as the preferred package for the production of all images.

Inkscape is free to download from the [Inkscape Website](https://inkscape.org/en/download/windows/).

Word 2010 and 2013 do not directly support svg files; however, Inkscape can save the images as enhanced metafiles (emf) and these are supported by Word. Enhanced metafiles are also vector graphic files and can be scaled without loss. Visio can also produce emf files.

Where a more standard image format is required (a bit map, jpeg or png type file), the svg file should be scaled to the required size before being converted to the standard format; there should be as little re-scaling of the converted image as possible.

|  |
| --- |
| Tables & equations |
| 5 |
| Tables & equations |
| Tables are useful formatting tools for holding grids of information. Tables also allow text formatting that cannot easily be accomplished with indents and paragraph spacing.  Equations have their own formats and structures and these are explained here. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| 5.1 | Tables used for grids of information |
| Tables used for grids of information |

Tables that represent a grid of information should generally be as subtle as possible; the following is perhaps the simplest form of table used in the document:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item | Function |  |
|  | 01 | Functional Description |  |
|  | 02 | Functional Description |  |
|  | 03 | Functional Description |  |
|  | Table . Simple table style | |  |

As with figures, the last row of the table holds the table caption, again there are two styles, one with paragraph spacing (this is the most common and is used where text follows the table, Table 5.1 above). The second has no paragraph spacing and is used for full page tables.

The two table caption styles:

#521 AN Tab Cap – No Spacing  
#522 AN Tab Cap – Para Spacing

In the simple table above, the horizontal lines are shaded grey; the exact shade being White Background, Darker 1, 25% and this is available from the standard colour selection table (Figure 5.1).

The colour of the font used for the heading is White Background, Darker 1, 50% and this is also available from the standard colour selection table (Figure 5.2).

The general preference is for tables to use san serif fonts at smaller point size than the main body text.

Where it is necessary to show a full grid arrangement or a more pronounced table, borders and additional shading can be used. The following shows the available table styles (in order of decreasing subtlety):

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item | Function |  |
|  | 01 | Functional Description |  |
|  | 02 | Functional Description |  |
|  | 03 | Functional Description |  |
|  | Table . Sample table (very simple table, style 1) | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Symbol | PLC Address | Rack/ Slot | Card Type | Signal | Description |
| CVO001\_OPENED | I 00.0 | 01/04 | DIx32 | 24VDC | Vent Valve - Opened Limit |
| CVO001\_CLOSED | I 00.1 | 01/04 | DIx32 | 24VDC | Vent Valve - Closed Limit |
| CVO003\_OPENED | I 00.4 | 01/04 | DIx32 | 24VDC | Vent Isolate Valve - Opened Limit |
| Table . Sample table (simple table, style 2) | | | | | |

|  |  |
| --- | --- |
|  |  |
| Figure . Simple table border colour | Figure . Simple table heading font colour |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Symbol | PLC Address | Rack/ Slot | Card Type | Signal | Description |
| CVO001\_OPENED | I 00.0 | 01/04 | DIx32 | 24VDC | Vent Valve - Opened Limit |
| CVO001\_CLOSED | I 00.1 | 01/04 | DIx32 | 24VDC | Vent Valve - Closed Limit |
| CVO003\_OPENED | I 00.4 | 01/04 | DIx32 | 24VDC | Vent Isolate Valve - Opened Limit |
| Table . Sample table (shaded table, style 3) | | | | | |

|  |  |
| --- | --- |
|  |  |
| Figure . Shaded table fill colour | Figure . Shaded table heading font colour |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Symbol | PLC Address | Rack/ Slot | Card Type | Signal | Description |
| CVO001\_OPENED | I 00.0 | 01/04 | DIx32 | 24VDC | Vent Valve - Opened Limit |
| CVO001\_CLOSED | I 00.1 | 01/04 | DIx32 | 24VDC | Vent Valve - Closed Limit |
| CVO003\_OPENED | I 00.4 | 01/04 | DIx32 | 24VDC | Vent Isolate Valve - Opened Limit |
| Table . Sample table (shaded table, style 4) | | | | | |

|  |  |
| --- | --- |
|  |  |
| Figure . Blue table heading fill colour |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Symbol | PLC Address | Rack/ Slot | Card Type | Signal | Description |
| Digital Inputs |  |  |  |  |  |
| CVO001\_OPENED | I 00.0 | 01/04 | DIx32 | 24VDC | Vent Valve - Opened Limit |
| CVO001\_CLOSED | I 00.1 | 01/04 | DIx32 | 24VDC | Vent Valve - Closed Limit |
| CVO003\_OPENED | I 00.4 | 01/04 | DIx32 | 24VDC | Vent Isolate Valve - Opened Limit |
| Table . Sample table (shaded table, style 5) | | | | | |

|  |  |
| --- | --- |
|  |  |
| Figure . Blue shaded table heading fill colour | Figure . Blue Shaded Table row Fill Colour |

### A note on the use of colour

Colour should be used sparingly within a document; emphasis is better achieved with bold and italic changes to the font (see § 7.4.11). Subtle colour within the body text is permitted, but only to identify some specific function (menu commands, code fragments &c.). Blocks of coloured body text should never be used.

Where tables are used, shading is permissible, particularly to distinguish one row from another. Where shading is used, this should be done consistently and sparingly, the same colour should be used throughout the document.

Generally, the colours used for shading rows in a table should be selected from the faintest colours available in the default pallet, the heading background shading from the top row of the default pallet (Figure 5.8 and Figure 5.9 respectively).

|  |  |
| --- | --- |
|  |  |
| Figure . Row shading (faintest) | Figure . Heading shading |

Note: Some of the faintest colours (particularly grey) do not print clearly and darker colours may have to be used. This depends on the printer and samples should be printed prior to deciding on the colours.

### A note on table captions

Every table of information in the document (this does not include tables used for emphasis or text formatting) should have a caption. The caption is of the form:

|  |  |  |
| --- | --- | --- |
|  | Table X.X Caption text |  |

The caption text is separated from the number by a tab character (this is done to improve the appearance of the table of tables; a space character leads to irregular positioning of the caption in the table).

The caption text should be in sentence case, see § 7.4.15.

|  |  |
| --- | --- |
| 5.2 | Tables used for emphasis |
| Tables used for emphasis |

### “By the Way” tables

Tables can be used for inline body text emphasis and pointed explanations, generally referred to as By the Way tables or BTW, thus:

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | By the Way (Heading) — #020 BO BTW Head |  |
|  |  |  |
|  | By the Way (Body) — #021 BO BTW Body |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
|  |  |
| Figure . BTW table top & bottom border colour | Figure . BTW table central fill colour |

The construction behind the BTW table can be seen by showing the borders:

|  |  |  |
| --- | --- | --- |
|  | Fixed height (5 mm) spacer — contains outline rule at the top |  |
|  | Heading Text Area — #020 BO BTW Head |  |
|  | Fixed height (5 mm) spacer |  |
| 11 mm wide edge | Body text area — #021 BO BTW Body.  This row is unrestricted and contains as much text as required | 11 mm wide edge |
|  | Fixed height (3 mm) spacer — contains outline rule at the bottom |  |
|  | Fixed height (5 mm) spacer — gives whitespace to next paragraph (not needed at end of page) |  |
|  |  |  |

There is subtle shading on the central areas of each row, excepting the last row, this has no shading and is used give the correct amount of whitespace between the bottom of the table and the following paragraph.

Note: Again, some of the faintest shading may not print clearly and darker colours may have to be used. Print samples prior to finalising the colours.

The columns to the right and left are to centralise the table in the page area, the overall table is the standard 143.8 mm wide, with 11 mm columns to either side (half the smallest margin width) giving a central area width of 121.8 mm.

### Tables for code fragments

Coding fragments can be used within paragraphs by using the Inline Coding style, #120 FO Code (CDE). Code fragments are always in a non-proportional font.

Code fragments can also be inserted as a block using a table:

|  |  |  |
| --- | --- | --- |
|  | File Name Row | |
|  |  | |
|  | <div class="rg-row">                                <!-- Start of cover row --> |
|  | <div class="rg-col rg-span1-5"></div>        <!-- Left column NOT USED --> |
|  | <div class="rg-col rg-span3-5">                <!-- Start of Cover area column --> |
|  | <div class="cover-overline"></div>          <!-- Over-line bar --> |
|  |  | |
|  |  | |

Alternatively, full width:

|  |
| --- |
| File Name Row |
|  |
| <div class="rg-row">                                <!-- Start of cover row --> | |
| <div class="rg-col rg-span1-5"></div>        <!-- Left column NOT USED --> | |
| <div class="rg-col rg-span3-5">                <!-- Start of Cover area column --> | |
| <div class="cover-overline"></div>          <!-- Over-line bar --> | |
|  |
|  |

The choice of partial or full width appearance is entirely personal; however, be consistent and stick to the same one throughout.

Like the BTW table, the code fragment table is made up of multiple rows (a minimum of 4) and again this can be seen by applying borders:

|  |  |
| --- | --- |
|  | File Name Row (optional) |
|  | Upper Blank line - Fixed height (5 mm) spacer — top border if no filename row |
| 11 mm wide edge | Code fragment area #220 GB Code (CDE)  This row is unrestricted and can contain as many lines as needed (it can also consist of multiple single line rows) |
|  | Lower Blank line - Fixed height (5 mm) spacer — bottom border |
|  | Fixed height (5 mm) spacer — gives whitespace to next paragraph (not needed at end of page) |

The top row (filename row) is optional and is used to identify a specific file or file type (css, html, &c.). If a filename or type is not required, the filename row can be omitted; if this is the case, the following blank line (upper blank line) must have a top border identical to the bottom border of the lower blank line.

|  |  |
| --- | --- |
| 5.3 | Equations |
| Equations |

Equations, like figures use tables as place holders to allow the equation to be numbered with a caption and for this caption to remain associated with the equation as follows:

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

The table that holds the equation has three rows and two columns; these can be seen if the borders are shown:

|  |  |
| --- | --- |
| Equation Area (Cambria Math — 9 point Text) — 15 mm | Cap Area |
|  |
|  |  |

The large space on the top row holds the equation; the smaller space to the right holds the equation number (caption). This top row has a fixed height of exactly 15 mm; this forces the equation to be correctly positioned in the grid. The second row has a fixed height of exactly 2.3 mm and this give the correct amount of whitespace between the equation and any following paragraph.

Equation tables have the top and bottom cell margins set to 1.9 mm to ensure that there is space above and below the equation, allowing the equation to be shaded for emphasis, see equation (5.2).

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

Where equations are shaded, these should use the faintest default colours available to the default Word pallet (see § 5.1.1).

|  |
| --- |
| Sidebars |
| 6 |
| Sidebars |
| Sidebars fit in the outer margin area and contain notes and asides. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| 6.1 | Sidebars — construction & use |
| Sidebars — construction & use |

Sidebars are text boxes inserted in the outer margin area; the text box is exactly 30 mm wide by 198 mm high. The sidebars are precisely positioned to match the height of the body text area of the page. The positioning is different for odd and even numbered pages:

Text Box sidebar for odd numbered pages, outside margin is 11mm from text box to page edge (1/2 of the inside margin).

Sidebars use the style #400 SB Body, this has reduced character and line spacing.

|  |  |
| --- | --- |
|  |  |
| Figure . Even page sidebar positioning | Figure . Odd page sidebar positioning |

The sidebar text box has its internal margins set to zero for all four margin areas.

The font used within the sidebars is sans serif and has a smaller point size (9 point) than standard body text (11.5 point). The justification of the sidebar text changes depending on whether it is on an odd or even numbered page: left justified on odd and right justified on even.

The sidebars can hold tables; these provide the best mechanisms for spacing text within the sidebar — particularly if this needs to match the alignment of the body text.

Generally, sidebars should be used sparingly, don't be tempted to put body text content into the sidebars, sidebars should contain only short points of clarification.

The following extract demonstrates the correct use of sidebars on both even and odd numbered pages.

— EXTRACT —   
Production calculations

|  |
| --- |
|  |
| Flow variations  Blender flow variations are restricted between 1.02 % and 95 % of target flow. |

The blender operations during production are reasonably complicated and require various calculations and conversions to condition the signals used by the two PID control loops. This process is summarised below:

The system calculates the required product flow (the total of water and syrup needed, ultimately, by the filler); the basic flow demand is that set as the production flow rate in the recipe and this is qualified by the level in the production tank.

The system is designed to accommodate slight variations in the flow demand from the filler and it does this by monitoring the production tank level — if the level is above the normal setpoint (i.e. the filler is taking less than its target demand, the production tank level will increase) the production flow is reduced in proportion to this level; similarly if the production tank level is below its setpoint (i.e. the filler is taking more that its target demand — draining the production tank) the production flow is increased in proportion to the level below the setpoint.

The system determines how this flow is to be split between water and syrup by calculating the ratio of water to syrup.

For Ratio and Dietetic recipes the ratio is specified as the recipe parameter RatioVol and this value simply becomes the required ratio.

For Brix Recipes, it is more complicated; here the ratio is calculated from the difference between the Syrup Brix (measured) and the required recipe parameter Beverage Brix (unmeasured). The following equation is used to calculate the volumetric ratio:

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

For the system to complete this equation it needs to know the density of the syrup; fortunately, this can be calculated from the syrup Brix reading.

The syrup density is given by:

|  |
| --- |
|  |
| Brix & specific gravity  As all good schoolboys know, the standard approximation for linking brix and specific gravity is: |
|  |
| Note:  Dietetic Recipes cannot reliably use this equation. |

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

The equation above uses a constant of 256.1, not the approximation of 261.3 given in the standard formula (see the sidebar); this may be to make allowance for the water temperature (water density at 20°C is 0.9992 g/cm3 not 1) and to compensate for dissolved solids &c. or it may simply be based on the empirical evidence of the manufacturer. Whatever the reason, it is proposed that the constant 256.1 remain in the new system.

The system has calculated two of the three variables needed to enable the PID loops to control the flows (total product flow required and the ratio between water and syrup); the other parameter required is the actual water and syrup flows in volumetric format. In the case of water flow, this is simply the value read by the water flow meter.

The volumetric syrup flow is calculated from the mass flow reading given by the syrup flow meter (the standard technique for converting mass flow to volumetric flow is to divide by the density of the substance being measured).

In the case of Brix and Ratio recipes, the syrup density is that calculated in (6.2) above, thus:

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

All that now remains is for the system to generate the setpoints (SP) for the PID loop and pass to them the process variables (PV). The setpoints for the water and syrup loops are calculated by taking the required total flow and splitting it according to the ratio determined in (6.1) above.

— END-of-EXTRACT —

— NON PRINTING COMMENT —

This page is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |
| --- |
| Document typography |
| 7 |
| Document typography |
| Typography is the visual and stylistic aspect of the written word; it is how a document looks and feels and indeed can determine how approachable and usable a document is.  This section draws extensively on Matthew Butterick’s definitive work on the subject of typography: [Practical Typography](http://practicaltypography.com/) and for this I beg his indulgence. The errors are all my own. |

— NON PRINTING COMMENT —

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|  |  |
| --- | --- |
| 7.1 | Typography and this document |
| Typography and this document |

This section is the style guide (and here I don’t mean the Word styles that I’ve been banging on about all through this document), it gives the rules for how the document should look.

Engineers are all professional writers — I don’t mean we’re novelists — but we all write for a living. Usually it’s design documents or specifications, but we get paid to write them so we are professional writers. I said at that start of this that engineers are bad at documentation and I mean it. We are bad at it. So I’ve done the hard work and written this as a standard template, it’s usable and doesn’t look too bad, and in doing so I’ve made a bit of a study of typography and as a treat I’ve written down what I’ve learned.

That’s what this section is; it’s the guide to what makes a visually pleasing document. Some of these pearls of wisdom are my own, some are fairly standard conventions. For a more detailed and comprehensive study of typography I refer you to Mr Butterick and his website: [Practical Typography](http://practicaltypography.com/).

|  |  |
| --- | --- |
| 7.2 | Typography basic rules |
| Typography basic rules |

Mr Butterick talks at great length about the intricacies of typography, but he also condenses the essence of it into five rules — I’ve summarised them below

1. Body text. The bulk of any document is made up of body text (body text is what you are reading now). How the body text looks determines the overall quality of the document. Start by making the body text look right.
2. Point size is the size of the letters. In print, the most comfortable range for body text is 10–12 point. Different font have different appearances for the same point size, experiment with the font you are using until you get it right.
3. Line spacing is the vertical distance between lines (it is the distance between the bottom of capital letter on subsequent lines). It should be 120–145% of the point size (in Word the setting is a multiple between 1.03–1.24).
4. Line length is the horizontal width of the text on the page. Line length should be an average of 45-90 characters per line (including spaces) or 2-3 lowercase alphabets (without spaces).
5. Font choice. Use a sensible font. Generally, don’t use Times New Roman or Arial (these are vastly overused). This document is using Calisto MT (serif font) and Gill Sans MT (sans serif font). It also uses Consolas for code fragments.

|  |  |
| --- | --- |
| 7.3 | Body text & margins |
| Body text & margins |

### Body text

Body text is the main part of the document and fits in the main page area. It is the most common element in the document and is therefore the most important part of the document. The appearance of the body text dominates the appearance of the whole document and even small changes to it will have a very noticeable effect.

In this document, the basic body text style (and the style of this paragraph) is *#000 BO Body Text*; this uses the Calisto MT font at 11 point. The Calisto MT font is a serif font and it is a rule that body text should always be a serif font (these are easier to read than sans serif fonts).

The two predominant fonts used in this document are Calisto MT (serif) and Gill Sans MT (sans serif) and these have been chosen in preference to the ubiquitous Times Roman and Arial. See § 7.5 for a discussion of fonts.

Note: It is important that if the body text is justified, that automatic hyphenation is switched on, see § 7.4.3.

### Point size

The optimal point size for body text in a document 10–12 point.

Over the years, 12 point has become the default size in word processors, and hence the basis of many corporate documents. It is not the most comfortable size for reading; nearly every book and newspaper is set smaller than 12 point.

Generally, use a point size smaller than 12, remember too that Word supports half point sizes (10.5, 11.5 &c.) and these can be useful increments.

The point size sets the height of the text, but not the width of the characters; thus two fonts set at the same point size can take up a different amount of paragraph space, see the following two extracts:

|  |  |  |
| --- | --- | --- |
|  | He was a very silent man by custom. All day he hung round the cove or upon the cliffs with a brass telescope; all evening he sat in a corner of the parlour next the fire and drank rum and water very strong. | Times New Roman 11 point |
|  | He was a very silent man by custom. All day he hung round the cove or upon the cliffs with a brass telescope; all evening he sat in a corner of the parlour next the fire and drank rum and water very strong. | Calisto MT 11 point |

Both are set at 11 point, but Calisto MT text takes up more “horizontal” space. Be aware of this when changing font, it will have an impact on line length (see § 7.4.1) and will change the line break and page break points.

### Margins

The document is based around an A4 page (210 mm wide, 297 mm tall); this has a width to height ratio of 1:√2 or 1:1.414; the A4 page is very much the standard for office documents, but is generally too large for books and other publications, these tend to use the old standards of Demy, Crown, Royal &c. These standards are not practical for office publications (it is difficult to buy loose leaf paper in these sizes); hence the standardisation of A4 as the paper size. This now leaves the problem of laying out the page to give a pleasing appearance on A4 paper; leading to a discussion of the canons of page construction — of which there are many.

The Van De Graaf canon (no relation to the Van De Graaff of generator fame) is used to provide a page layout that is both visually and mathematically pleasing. The Van De Graaf cannon is illustrated in Figure 7.1; the entire area is two A4 sheets arranged long edge to long edge (in effect an A3 sheet). Diagonals are drawn from the bottom corners, one diagonal to the opposite corner on the A3 sheet and one to the equivalent corner on the A4 sheet; verticals are drawn at the point of intersection and further diagonals constructed within the resulting rectangles.

|  |  |
| --- | --- |
|  | Figure . Van De Graaf cannon |

The two triangles (shown in blue in Figure 7.1) are congruent and a rectangle constructed by joining the top left vertices of these triangles gives the body text area. This area is in the same ratio as the page dimensions (in this case 1:√2). The margins given by this arrangement are in the approximate ratio 2:3:4:6 (inner–top–outer–bottom). In our case (with A4 paper) these equate to 23.5 mm (inner), 33 mm (top), 46.5 mm (outer) and 66 mm (bottom); further, the two inner margins added together equate to the outer margin (these are the same proportions of the 1455 Gutenberg Bible).

The page layout allows for a 30 mm sidebar (ostensibly for notations) on the outer edge of the page; this is spaced 11.75 mm from the outer page edge (11.75 mm is half the size of the inner margin).

Word can set margins for the whole document or for just a section of a document. Generally, for consistency, the margins should be the same for the whole document. Word also allows for mirrored margins (for double sided printing). This document is designed to be printed double sided (like a book) and consequently, it uses mirrored margins.

In Word the margins are set from the Page layout tab → Margins → Custom Margins. This opens the Margins dialogue box, the margins settings are split over two tabs: Figure 7.2 and Figure 7.3.

### Setting margins in Word (normal margins)

For normal (non-mirrored) margins, the multiple pages field must be set to normal.

The first thing to understand is the gutter, the gutter is a hangover from printing days and it leaves a gap at either the top of the page or on the left hand side for binding. The gutter affects either the top margin or the left margin (depending where it is positioned). The top margin or the left margin is measured from gutter position (see Figure 7.4 and Figure 7.5). The gutter is always measured from the edge of the page.

It is best to always set the gutter to zero; it can then be ignored completely.

|  |  |
| --- | --- |
|  |  |
| Figure . Page setup, normal margins | Figure . Page setup, normal layout |
|  |  |
| Figure . Normal margins, gutter at top | Figure . Normal margins, gutter on the left |

The body text is constrained by the margin settings, Figure 7.2; the bottom and right margins are always measured from the edge of the page (a right margin setting of 2.0 cm means that the right end of a line of text will end with a gap of 2.0 cm between it and the right hand edge of the paper, Figure 7.4 and Figure 7.5.

The left margin is measured from the edge of the paper if the gutter is positioned at the top (Figure 7.4). It is measured from the gutter position, if the gutter is positioned on the left; thus, if the gutter is set to 1.0 cm and the left margin is set to 2.0 cm, the left hand edge of the text will start 3.0 cm from the edge of the page (gutter + left margin).

The top margin is measured from the edge of the paper if the gutter is positioned at the left (Figure 7.5). It is measured from the gutter position, if the gutter is positioned at the top; thus, if the gutter is set to 1.0 cm and the top margin is set to 2.0 cm, the top edge of the text will start 3.0 cm from the top edge of the page (gutter + top margin).

The positions of the header and footer are always measured from the edge of the paper. These distances are set on the Layout tab, Figure 7.3, these distances are shown on Figure 7.4 and Figure 7.5.

Note: If the ‘from edge to header’ distance exceeds the top margin, the header will overlap the main body text. Thus the top margin must always exceed the distance to header plus the height of the header itself (and similar for the footer).

### Setting margins in Word (mirrored margins)

For mirrored margins, the Multiple pages field must be set to Mirror margins. This document uses mirrored margins and its settings are shown in Figure 7.6 and Figure 7.7.

With mirrored margins, there is a top, bottom, inside and outside margin (not left and right), also the gutter is always on the inside (never the top). The inside margin is measured from gutter position (see Figure 7.8). The gutter is always measured from the edge of the page.

|  |  |
| --- | --- |
|  |  |
| Figure . Page setup, mirrored margins | Figure . Page setup, mirrored layout |
|  | |
| Figure . Mirrored margins | |

It is best to always set the gutter to zero; it can then be ignored completely.

The body text is constrained by the margin settings, Figure 7.8; the top, bottom and outside margins are always measured from the edge of the page. The inside margin is measured from the gutter position.

The positions of the header and footer are always measured from the edge of the paper. These distances are set on the layout tab, Figure 7.7, these distances are shown on Figure 7.8.

Note: If the ‘from edge to header’ distance exceeds the top margin, the header will overlap the main body text. Thus the top margin must always exceed the distance to header plus the height of the header itself (and similar for the footer).

### Headers and footers

Headers and footers contain common information that appears either at the top (header) or at the bottom (footer) of every page. Headers and footers contain information such as page numbers, document titles &c.

Each section (that is a logical Word section, rather than a typographical chapter or section) can have its own header and footer; these can be different for the first page and can also be different for odd and even numbered pages. This document uses the different odd and even setting; this document is intended to be printed double sided (like a book) and the page numbers always appear on the outside edge of the page, this means that the page numbers are on the right hand side on odd numbered pages and on the left on even pages, so the footers have to be different on odd and even pages.

The Different first page headers and footers setting is turned off in this document; this is a personal preference rather than a professional rule; here, where first pages are different to the following pages (such as the cover page), the page is in its own Word section. The same is true of blank pages; these are in their own section allowing the footers to be blank (i.e. not displaying the page number). Blank pages should be completely blank, see below.

Where headers and footers are used, the text in those headers and footers should be contained within a table. The headers in this document are blank; the footers however contain a table that holds the page number (double click in the footer area to see it clearly). Using tables in headers and footers give better control over the text layout.

There is one final point with headers and footers, Word has the option of linking a header or footer to the previous section (link to previous) and this is turned on by default when creating a new section; it means that the new section will have the same headers and footers as the previous section. This is generally a good idea; mostly the new section will have the same headers and footers as the previous, but not always, and there is the danger that if the link to previous is left active, a change to one section can ripple all the way through the document (usually deleting the page numbers) until it reaches a section that is not linked to the previous.

The best course of action when creating a new section (and sometimes when copying a section) is to let Word link to the previous section, and then turn the link off double click the header or footer area → Design tab → Navigation group → Link to previous.

### Blank pages

When a page is left intentionally blank, such as the page after each chapter heading in this document; the page must be completely blank, no text whatsoever, not even a page number.

This may not be possible in technical publications that require page x of y on each page along with revision and tracking information. In this case, don’t have blank pages; place the text “Page intentionally left blank” on the page — better still, just don’t have blank pages.

### Page numbers

Word can automatically paginate documents and has some standard mechanisms for applying the page number (top, bottom, middle &c.); these are accessed from the Insert tab → Header & footer group→ Page number — don’t use them. Always insert page numbers by using the document properties (§ 2.5.1)

Open the property field entry dialogue Insert tab → Quick Parts → Field (Figure 2.12), scroll down the Field name box and click Page to add the page number anywhere in the document (obviously the footer is the best place), having selected page, the format field allows the number formatting to be changed (clearly after reading § 7.4.13, you will select Arabic numbering 1. 2. 3…and not be tempted by romanettes). The other field of interest is NumPages this give the number of pages in the document.

|  |  |
| --- | --- |
| 7.4 | Typographical matters |
| Typographical matters |

This section discusses general points of typography that are pertinent to this document, both in its construction and in its use. These points are taken from Matthew Butterick’s definitive work on the subject of typography: [Practical Typography](http://practicaltypography.com/).

### Line length

Line length is the width of a block of text (usually between the left and right margins of a document). Longer lines are harder to read, the eye has to move further at the end of each line).

Mr Butterick states that the average line should be between 45 and 90 characters per line (including spaces), and having spent a lot of time looking at different pages and documents I tend to agree with him. The paragraph below (ignoring the last, partial line) is used to illustrate this point:

— EXTRACT —   
He was a very silent man by custom. All day he hung round the cove or upon the cliffs with a brass telescope; all evening he sat in a corner of the parlour next the fire and drank rum and water very strong. Mostly he would not speak when spoken to, only look up sudden and fierce and blow through his nose like a fog-horn; and we and the people who came about our house soon learned to let him be. Every day when he came back from his stroll he would ask if any seafaring men had gone by along the road. At first we thought it was the want of company of his own kind that made him ask this question, but at last we began to see he was desirous to avoid them. When a seaman did put up at the Admiral Benbow (as now and then some did, making by the coast road for Bristol and Bath) he would look in at him through the curtained door before he entered the parlour; and he was always sure to be as silent as a mouse when any such was present. For me, at least, there was no secret about the matter, for I was, in a way, a sharer in his alarms. He had taken me aside one day and promised me a silver fourpenny on the first of every month if I would only keep my "weather-eye open for a seafaring man with one leg" and let him know the moment he appeared. —

This extract (ignoring the last incomplete line), according to the word count facility in Word 2010 has 1181 characters (with spaces) across 14 lines, giving 84 characters per line — the word count is accessible from the Review tab → Proofing group → Word count.

This is at the higher end of the 45-90 range, but is perfectly acceptable. Thus the margin arrangement given by the Van De Graaf canon (§ 7.3.2) is accepted.

An alternative to counting characters is to use the lowercase alphabet to set the line length. An acceptable line length is between two and three lowercase alphabets (without spaces); this is a rough rule of thumb and is a less accurate method:

abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvw

=75 characters or 2.8 alphabets.

### Justification

Justified text has additional spacing added between words to make both the left and right sides of a text block have straight edges. If text is left-aligned text; this has a straight edge on the left and a jagged edge on the right.

Justified text gives a more formal look. This paragraph above is justified.

There is not right or wrong to using justifying text in place of left aligned text, it is a matter of personal taste or stylistic effect (magazines and newspapers often use both on the same page). Justification can often look wrong if the line length is short (the gaps between words have to be correspondingly bigger). This paragraph is left aligned.

If justified text is used, automatic hyphenation should also be use, see the following section:

### Hyphenation

Justification has been used in this document. Where justified text is used, automatic hyphenation should also be used. This prevents large spaces occurring between words and stops the “rivers of whitespace” effect. To turn on automatic hyphenation select: Page Layout tab → Page Setup group → Hyphenation → Automatic.

Hyphenation can be turned off for a particular paragraph by right clicking the text and selecting: Paragraph → Line and Page Breaks tab → Don’t hyphenate.

Note: Automatic hyphenation is a global setting, once turned on it applies to the whole document, it must then be turned off for the selected paragraphs where it is not required.

The effect of hyphenation can be seen in the following extracts, the paragraphs are identical, but the first is with hyphenation and the second without it:

— EXTRACT —   
The equation above uses a constant of 256.1, not the approximation of 261.3 given in the standard formula (see the sidebar); this may be to make allowance for the water temperature (water density at 20°C is 0.9992 g/cm3 not 1) and to compensate for dissolved solids &c. or it may simply be based on the empirical evidence of the manufacturer. Whatever the reason, it is proposed that the constant 256.1 remain in the new system.

— EXTRACT —   
The equation above uses a constant of 256.1, not the approximation of 261.3 given in the standard formula (see the sidebar); this may be to make allowance for the water temperature (water density at 20°C is 0.9992 g/cm3 not 1) and to compensate for dissolved solids &c. or it may simply be based on the empirical evidence of the manufacturer. Whatever the reason, it is proposed that the constant 256.1 remain in the new system.

### Non-breaking hyphens & spaces

Word assumes that any hyphen marks a safe place to break text onto a new line or page. The non-breaking hyphen looks identical to a normal hyphen but will not be used as a place for a line or page break:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | It uses the standardised UTF-8 encoding for the files |  | Wrong |  |
|  | It uses the standardised UTF‑8 encoding for the files |  | Right |  |
|  |  |  |  |  |

Spaces, like hyphens, are assumed to be a safe point at which to insert a line or a page break, a non-breaking space (like a non-breaking hyphen) prevents this happening, keeping the two words together:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | This can be identified in Exhibit A |  | Wrong |  |
|  | This can be identified in Exhibit A |  | Right |  |
|  |  |  |  |  |

Non-breaking spaces should be used before any numeric or alphabetic reference to prevent awkward line breaks.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Item | Symbol in Word | Short Cut Key |  |
|  | Non breaking hyphen | - | Ctrl + shift + hyphen (underscore) |  |
|  | Non breaking space | ˚ | Ctrl + shift + spacebar |  |
|  | Table . Non-breaking hyphen and space | | |  |

### Optional hyphens

The optional hyphen (sometimes called a soft hyphen) marks where a word should be hyphenated if the word is at the end of a line. Optional hyphens are not normally visible (they will be visible if Show/Hide is set to show in Word, activate the ¶ button in Home tab → Page Setup group).

The reason for doing this is that the hyphenation engine in Word often gets things wrong. For instance the word TrueType will often get hyphenated by Word as Tru-eType. Inserting an optional hyphen in the middle (True¬Type) will force Word to hyphenate correctly (Word will use optional hyphens in preference to automatically generated hyphens). Words with manually inserted optional hyphens will still be found by Find and Replace in Word.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Item | Symbol in Word | Short Cut Key |  |
|  | Optional hyphen | ¬ | Ctrl + hyphen |  |
|  | Table . Optional hyphen and space | | |  |

### Dashes

Dashes come in two sizes, the en dash (–) and the em dash ( — ).The em dash is typically about twice as wide as the en dash.

The en dash has two uses: it indicates a range of values: 1920–1987, pages 42–79, appendices J–K &c. (where a range is specified with “from”, it should be paired with “to” instead of an en dash: from 1920 to 1987). Its second use is to denote a connection or contrast between pairs of words (e.g. Yorkshire–Lancashire).

The em dash is used to separate parts of a sentence. It inserts a pause in the text — and it is very useful.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Item | Type | Alt Code |  |
|  | - | Hyphen: appears when a word breaks onto the next line | - |  |
|  | – | en dash: indicates a range of values 1920–1987 | alt + 0150 |  |
|  | — | em dash: used as a break between parts of a sentence | alt + 0151 |  |
|  | Table . Hyphen, en and em dash | | |  |

Compound names use a hyphen: Mr Fenthom-Fletcher, when quoting joint authors; the en dash should be used: Gilbert–Sullivan.

### Straight and curly quotes

Straight quotes are vertical quotation marks: the straight single quote ( ' ) and the straight double quote ( " ).

Curly Quotes are the proper quotation marks that should be used in professional documents. There are four such characters: the opening single quote ( ‘ ), the closing single quote ( ’ ), the opening double quote ( “ ) and the closing double quote ( ” ).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Item | Type | Alt Code |  |
|  | ' | Straight single quote (opening and closing) | alt + 0039 |  |
|  | " | Straight double quote (opening and closing) | alt + 0034 |  |
|  | ‘ | Curly single quote (opening) | alt + 0145 |  |
|  | ’ | Curly single quote (closing) | alt + 0146 |  |
|  | “ | Curly double quote (opening) | alt + 0147 |  |
|  | ” | Curly double quote (closing) | alt + 0148 |  |
|  | Table . Straight & curly quotes | | |  |

Generally, do not use straight quotes.

Curly quotes should always be used in standard body text; they are more legible and easier to read:

|  |  |
| --- | --- |
| "It's in Peter's 'magic' locker." | Wrong |
| “It’s in Peter’s ‘magic’ locker.” | Right |

Using straight quotes in Word is quite is easy, there is a smart quote feature that can be turned on from the easily accessible: File tab → Options → Proofing → AutoCorrect Options → AutoFormat as you type check or uncheck Straight quotes with smart quotes.

Note: A word of caution: be careful when using smart quotes with code fragments, especially if it is intended that the fragments can be cut and pasted into code editors. The string C:\"My Folder" is different to C:\“My Folder”, a code editor will not understand the curly quotes.

### Inch and minute marks

The previous section explained that straight quotes should always be replaced with curly quotes. The exception to this is when using quotation marks to represent inches, feet, minutes and seconds. These always use straight quotes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Item | Type | Alt Code |  |
|  | ' | Feet or minute mark | alt + 0039 |  |
|  | " | Inch or second mark | alt + 0034 |  |
|  |  |  |  |  |

The correct way to use these marks is explained in § 7.4.18.

### Line spacing, paragraph spacing and hard line breaks

Line spacing is the vertical distance between lines of text within a paragraph. For most text, the optimal line spacing is between 120% and 145% of the point size. Word uses a peculiar formula to calculate line spacing. In Word line spacing is set by right clicking the text and selecting: Paragraph → Line Spacing: Multiple → At:.

To achieve a spacing of 120% to 145% with Word, use a multiple of 1.03 to 1.24. The default body text uses a line spacing multiple of 1.18, giving a true line spacing of approximately 138%.

Paragraph spacing is the larger spacing between paragraphs and is used as an alternative to first line indents (never use both), paragraph spacing should be between 50%–100% of the point size. In the case of this document, paragraph spacing for body text is set at 11.5 point (100% of point size) and is always space after (there is no particular reason for this, other than to maintain consistency).

Hard line breaks don’t add paragraph  
spacing between lines — make sure left   
justification is selected.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Item | Symbol in Word | Short Cut Key |  |
|  | Hard line break | ↵ | Shift + enter |  |
|  | Page break | .........................Page Break.......................... | Ctrl + enter |  |
|  | Table . Hard line break & page break | | |  |

Hard line breaks are generally used in things like addresses where paragraph spacing in not needed between each line.

### Letter spacing and all capitals

Letter spacing changes the space between individual letters in a word. Lower case letters and capital letters followed by lower case letters (such as those at the start of a sentence) do not need letter spacing.

Where a word in made up of capital letters, additional spacing is required between each letter; this letter spacing should be between 5–12% of the font point size. In the following example, the Squire Trelawney in the second line is set to the style #105 FO All Caps which is an overlay (or font) style (applies only certain qualities to the style beneath it) that changes the text to All Capitals and changes the letter spacing to Expanded by 1pt this increases the letter spacing by about 9%.

The difference can be seen in the following two lines:

SQUIRE TRELAWNEY  
SQUIRE TRELAWNEY

The first line has no additional letter spacing; the second line has 1 point extended letter spacing : Font → Advance tab → Spacing: Expanded → By: 1pt.

### Emphasis with bold and italic

Bold and italics are mutually exclusive, only use one or the other (never emphasise the same phrase with both bold and italic). Secondly, use bold and italic as little as possible; these are tools for emphasis — if everything is emphasised, then nothing is.

Generally, with a serif font, use italics for general emphasis and bold for heavier emphasis.

If using a sans serif font, use bold and not italics for emphasis. Italic text does not show up very well on sans serif fonts.

### Emphasis with underlining

Simple: don’t. Ever.

### Using hierarchical headings

Headings and particularly multiple levels of headings can cause problems; this document has three levels of headings: chapter, section and subsection. Generally, the fewer levels the better.

Do not switch between different types of labelling e.g. roman numerals to start (I, II, III); then Arabic numerals (1, 2, 3) then lowercase (a, b, c) then romanettes (i, ii, iii) &c. (Word thinks this is a good idea, but it isn’t).

Roman numerals are hard to read (what number is XLVI?).

Letters should not be used as the heading labels in the main document (they are used in this document for appendices only) particularly where the letters are simply replacements for numbers: it’s immediately recognizable that A, B, C are equivalent to 1, 2, 3 but the correlation becomes weaker further down the alphabet (what number is R?). If what is meant by M, N, O is 13, 14, 15 then simply use the numbers.

Technical writers always use hierarchical numbers for headings:

|  |  |
| --- | --- |
| 1 | Primary heading |
| 1.1 | Section heading |
| 1.2 | Another section heading |
| 1.2.1 | First subsection heading |
| 1.2.2 | Second subsection heading |
| 2 | Another primary heading |

This is more understandable and is easier to navigate.

### The appearance of headings

Headings have two problems, organisational and typographical appearance:

Organisationally, headings should not have too many levels (see § 7.4.13). This leads to strange attempts to distinguish between them. If you’ve arrived at this point, you’ve probably gone wrong:

|  |  |
| --- | --- |
|  | ***7(c)(A1)(xiv) Insufficient Bandwidth for Helicopter Views.*** |

Headings should simplify a document, not make it more complicated. Do not use headings for every topic and subtopic. Headings should be logical and meaningful.

Headings should be substantive indicators of what follows, do not use generic headings such as:

|  |  |
| --- | --- |
| 1 | Introduction |

Clearly this would be the first section of the document, it’s obviously an introduction.

This gives a better explanation of what is in section 1:

|  |  |
| --- | --- |
| 1 | The existing plant and proposed modifications |

Typographically, there are several points that govern the appearance of headings within documents; these are summarised here:

1. Do not underline
2. Do not centre headings
3. Do not colour heading (despite what Word may think)
4. Do not indent every heading further into the page, generally keep the heading aligned with the left margin (only indent if the body text follows the indentation — and, don’t do that either)
5. Do not use bold and italic together
6. Generally, use only bold for headings (even this is an option not a requirement, consider point size changes; non-bold headings are a perfectly good option)
7. Be subtle with point size changes, it is not necessary to jump to a large point size, if the text is 12 point, try a small increase 12.5 or 13 point before moving to 14 or 16 point
8. The best way to emphasize a heading is by using whitespace above and below it (lots of whitespace — whitespace is good — never be frightened of whitespace — just look at these margins)
9. Do not hyphenate headings and always keep the heading with the following paragraph (prevents headings breaking awkwardly across pages)

### The use of title case

Do not use title case in headings or captions; headings and captions (for figures and tables) are not titles. The only title in this document is on the first page and this does use title case.

Headings and captions should always be sentence case (but don’t put a full stop at the end); i.e. only capitalise the first letter, proper nouns and adjectives derived from proper nouns (e.g. Shakespearean).

### Referencing sections and paragraphs

When citing references to sections or numbered paragraphs, the section mark ( § ) and paragraph mark ( ¶ ) should be used (e.g. see § 7.4.16, ¶ 1).

Use these in preference to the words “Section” and “Paragraph” unless the reference is at the start of a sentence, in this case spell out the word:

|  |  |  |
| --- | --- | --- |
|  | The result can be seen in Section 7.4.16…  § 7.4.16 demonstrates how this result was determined… | Wrong |
|  |  |  |
|  | The result can be seen in § 7.4.16…   Section 7.4.16 demonstrates how this result was determined… | Right |
|  |  |  |

A section or paragraph mark must be followed by a non-breaking space to stop the reference becoming separated from the section or paragraph mark.

In a reference to multiple sections or paragraphs, double the mark (e.g. §§ 7.4.16–7.4.18).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Item | Symbol in Word | Short Cut Key |  |
|  | Section mark | § | alt + 0167 |  |
|  | Paragraph mark | ¶ | alt + 0182 |  |
|  | Table . Section and paragraph marks | | |  |

### Lists and bullet points

When introducing a list (or any item that follows) use a colon ( : ) not a colon dash ( :‑ ). Think of the colon as a substitute for the word “namely”, if it works with namely, then a colon can be used.

The points of contention with lists and bullet points are whether to capitalise at the start and whether to use a full stop at the end. The strict answer is no to both, but there are complications: lists and bullet points are generally not complete sentences and as such should not start with a capital or end with a full stop:

Tonight’s agenda will include:

* Progress review
* Commissioning requirements

However, they could include complete sentences:

The agenda for tonight is as follows:

1. We will review the project progress.
2. We will consider the commissioning requirements.

In this case it is perfectly proper to put capitals at the start and full stops at the end of each point.

Both these examples are correct and either could be used.

A full stop should also be used where the list completes an introductory sentence:

I live in a city because:

* of the night life.
* it’s closer to work.

The final alternative is a leading capital and no full stop:

Tonight’s agenda:

* Progress review
* Commissioning requirements

It is fair to say that this is the most common form found (largely because Word will automatically capitalise each line), all of these are right; in short there is no definitive rule, so:

The definitive rule

The last example is the one to use (there is a certain pedantry to the others — said the man writing about the different types of dashes). However, break the rule when necessary (see the list on page 4, here I’ve put full stops at the end of each point; this is because each point is a complete paragraph).

So the rules are:

1. Introduce the list with a colon ( : ) not a colon dash ( :‑ )
2. Start each point with a capital letter
3. Do not put a full stop (or any punctuation) at the end of each point
4. Be consistent throughout the document
5. Break the above rules when you think it necessary (see the list on page 4 for an example)

### Mathematical symbols and units

Always use the correct mathematical symbols. Do not use x (the letter ‘x’) in place of the multiplication operator ( × ), these are different characters.

Mathematical symbols have to be inserted manually Insert group → Symbol → More symbols make sure the from field is set to Unicode(hex) (bottom right). The alt codes for the common mathematical symbols are given in Table 7.7.

The best font for mathematical symbols is Cambria Math (this is the font used in equations) and has a comprehensive set of mathematical symbols.

|  |  |
| --- | --- |
| 123 x 456 - 789 = 55299 | Wrong |
| 123 × 456 − 789 = 55299 | Right |

Remember mathematical symbols should also be used in dimensions:

|  |
| --- |
| 1920 × 1080 px, 4 × 4 |

One final point, units; always, always, always, put a space between the number and its unit. The only exceptions to this are units that use these symbols: degrees ( °C ), minutes or feet ( ' ) and seconds or inches ( " ).

Note: The percentage symbol (% ) should not have a space between it and the number.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 64mm | 1920px | 990g/cm3 | 12 " | 15 °C | 90 % | Wrong |
| 64 mm | 1920 px | 990 g/cm3 | 12" | 15°C | 90% | Right |
|  |  |  |  |  |  |  |

The space between a number and its unit must be a non-breaking space (§ 7.4.4), the number must not be left orphaned on a preceding line with it unit on the next.

The following are the alt codes for the common mathematical symbols:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Operator | Symbol in Word | Short Cut Key |  |
|  | Multiplication | × | alt + 0215 |  |
|  | Division | ÷ | alt + 0247 |  |
|  | Minus sign | − | alt + 8722 |  |
|  | Plus sign | + | + |  |
|  | Plus minus | ± | alt + 0177 |  |
|  | Not Equal | ≠ | alt + 8800 |  |
|  | Less than or equal | ≤ | alt + 8804 |  |
|  | Greater than or equal | ≥ | alt + 8805 |  |
|  | Equivalent | ≡ | alt + 8801 |  |
|  | Almost equal | ≈ | alt + 8776 |  |
|  | Square root | √ | alt + 8730 |  |
|  | Infinity | ∞ | alt + 8734 |  |
|  | Right angle | ∟ | alt + 8735 |  |
|  | Partial differential | ∂ | alt + 8706 |  |
|  | Integral | ∫ | alt + 8747 |  |
|  | Summation | ∑ | alt + 8721 |  |
|  | Table . Mathematical symbols, alt codes | | |  |

### Using alt codes

Alt codes are a short cut for entering symbols into the text of a document; they are referenced throughout this document like so: alt + 9674, this will insert the lozenge character ( ◊ ).

Alt codes are entered by holding down the alt key and entering the specified digits on the numeric keypad (note: num lock must be on). All digits must be entered, even a leading zero. There is no time limit; the character is inserted when the alt key is released.

The following table lists the most common alt codes along with the HTML (&) symbol.

Note: Unicode decimal references are given in HTML as &#nnnn.  
hexadecimal HTML as &#xhhhh and in CSS as \hhhh (hhhh being the hexadecimal equivalent of the decimal ALT nnnn number given here).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mathematical | HTML | Alt |  | Mathematical cont. | HTML | Alt |
| × | Multiplication sign | &times; | alt + 0215 | ≈ | Almost equal to | &asymp; | alt + 8776 |
| ÷ | Division sign | &divide; | alt + 0247 | ≠ | Not equal to | &ne; | alt + 8800 |
| − | Minus sign | &minus | alt + 8722 | ≡ | Identical to | &equiv; | alt + 8801 |
| ± | Plus/minus sign | &plusmn; | alt + 0177 | < | Less than | &lt; | alt + 0060 |
| ⁄ | Fraction slash | &frasl; | alt + 8260 | > | Greater than | &gt; | alt + 0062 |
| ⁿ | Superscript lowercase n | - | alt + 8319 | ≤ | Less than or equal to | &le; | alt + 8804 |
| ℮ | Estimated symbol | - | alt + 8494 | ≥ | Greater than or equal to | &ge; | alt + 8805 |
| ∂ | Partial differential | - | alt + 8706 |  |  |  |  |
| ∆ | Increment | - | alt + 8710 |  | Miscellaneous |  |  |
| ∏ | N-array product | &prod; | alt + 8719 | ¦ | Broken vertical bar | &brvbar; | alt + 0166 |
| ∑ | N-array summation | &sum; | alt + 8721 | º | Degree sign | &deg; | alt + 0176 |
| ∕ | Division slash | - | alt + 8725 | · | Middle dot | &middot; | alt + 0183 |
| ∙ | Bullet operator | - | alt + 8729 | • | Bullet | &bull; | alt + 8226 |
| √ | Square root | &radic; | alt + 8730 | ← | Leftwards arrow | &larr; | alt + 8592 |
| ∞ | Infinity | &infin; | alt + 8734 | ↑ | Upwards arrow | &uarr; | alt + 8593 |
| ∟ | Right angle | - | alt + 8735 | → | Rightwards arrow | &rarr; | alt + 8594 |
| ∩ | Intersection | &cap; | alt + 8745 | ↓ | Downwards arrow | &darr; | alt + 8595 |
| ∫ | Integral | &int; | alt + 8747 | ↔ | Left right arrow | &harr; | alt + 8596 |
| ⌠ | Top half integral | - | alt + 8992 | ↕ | Up down arrow | - | alt + 8597 |
| ⌡ | Bottom half integral | - | alt + 8993 | & | Ampersand | &amp; | alt+0026 |
|  |  |  |  |  | Non breaking space | &nbsp; | alt+0160 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | NUMBERS | HTML | Alt |  | PUNCTUATION | HTML | Alt |
| ¹ | Superscript one | &sup1; | alt + 0185 | ‼ | Double exclamation mark | - | alt + 8252 |
| ² | Superscript two | &sup2; | alt + 0178 | ¡ | Inverted exclamation mark | &iexcl; | alt + 0161 |
| ³ | Superscript three | &sup3; | alt + 0179 | ¿ | Inverted question mark | &iquest; | alt + 0191 |
| ½ | Fraction one half | &frac12; | alt + 0189 | “ | Left double quote | &ldquo; | alt + 8220 |
| ⅓ | Fraction one third | - | alt + 8531 | ” | Right double quote | &rdquo; | alt + 8221 |
| ⅔ | Fraction two thirds | - | alt + 8532 | „ | Double low-9 quote | &bdquo; | alt + 8222 |
| ¼ | Fraction one quarter | &frac14 | alt + 0188 | ‘ | Left single quote | &lsquo; | alt + 8216 |
| ¾ | Fraction three quarters | &frac34 | alt + 0190 | ’ | Right single quote | & rsquo; | alt + 8217 |
| ⅛ | Fraction one eighth | - | alt + 8539 | ‚ | Single low-9 quote | &sbquo; | alt + 8218 |
| ⅜ | Fraction three eighths | - | alt + 8540 | ‛ | Single high-reversed-9 quote | - | alt + 8219 |
| ⅝ | Fraction five eighths | - | alt + 8541 | « | Left double angle quote | &laquo; | alt + 0171 |
| ⅞ | Fraction seven eighths | - | alt + 8542 | » | Right double angle quote | &raquo; | alt + 0187 |
|  |  |  |  | ‹ | Single left angle quote | &lsaquo; | alt + 8249 |
|  | CURRENCY |  |  | › | Single right angle quote | &rsaquo; | alt + 8250 |
| ¢ | Cent sign | &cent; | alt + 0162 | … | Horizontal ellipsis | &hellip; | alt + 8230 |
| £ | Pound sign | &pound; | alt + 0163 | – | En dash | &ndash; | alt + 8211 |
| ¤ | General currency sign | &curren; | alt + 0164 | — | Em dash | &mdash; | alt + 8212 |
| ₣ | French franc sign | - | alt + 8355 | ― | Horizontal bar | - | alt + 8213 |
| ₤ | Lira sign | - | alt + 8356 | ‗ | Double low line | - | alt + 8215 |
| ₧ | Peseta sign | - | alt + 0158 | ‾ | Overline | &oline; | alt + 8254 |
| ₪ | New sheqel sign | - | alt + 8362 |  |  |  |  |
| ₫ | Dong sign | - | alt + 8363 |  | SHAPES |  |  |
| € | Euro sign | &euro; | alt + 0128 | ▀ | Upper half block | - | alt + 9600 |
|  |  |  |  | ▄ | Lower half block | - | alt + 9604 |
|  | LEGAL & TECHNICAL |  |  | █ | Full block | - | alt + 9608 |
| § | Section sign | &sect; | alt + 0167 | ▌ | Left half block | - | alt + 9612 |
| ¶ | Paragraph sign | &para; | alt + 0182 | ▐ | Right half block | - | alt + 9616 |
| © | Copyright sign | &copy; | alt + 0169 | ░ | Light shade | - | alt + 9617 |
| ® | Registered trademark sign | &reg; | alt + 0174 | ▒ | Medium shade | - | alt + 9618 |
| ™ | Trademark sign | &trade; | alt + 8482 | ▓ | Dark shade | - | alt + 9619 |
| ª | Feminine ordinal indicator | &ordf; | alt + 0170 | ■ | Black square | - | alt + 9632 |
| ¬ | Not sign | &not; | alt + 0172 | □ | White square | - | alt + 9633 |
| ⌐ | Reversed not sign | - | alt + 8976 | ▪ | Black small square | - | alt + 9642 |
| µ | Micro sign | &micro; | alt + 0181 | ▫ | White small square | - | alt + 9643 |
| ‰ | Per mille sign | &permil; | alt + 8240 | ▬ | Black rectangle | - | alt + 9644 |
| ′ | Prime (straight quote) | &prime; | alt + 8242 | ▲ | Black up triangle | - | alt + 9650 |
| ″ | Double prime (straight quote) | &Prime; | alt + 8243 | ► | Black right pointer | - | alt + 9658 |
| ℅ | Care of | - | alt + 8453 | ▼ | Black down triangle | - | alt + 9660 |
| № | Numero sign | - | alt + 8470 | ◄ | Black left pointer | - | alt + 9668 |
| Ω | Ohm sign | - | alt + 8486 |  | Lozenge | &loz; | alt + 9674 |
| ⌂ | House | - | alt + 8962 | ○ | White circle | - | alt + 9675 |
| † | Dagger | &dagger; | alt+8224 | ● | Black circle | - | alt + 9679 |
| ‡ | Double dagger | &Dagger; | alt+8225 | ◘ | Inverse bullet | - | alt + 9688 |
|  |  |  |  | ◙ | Inverse white circle | - | alt + 9689 |
|  |  |  |  | ◦ | White bullet | - | alt + 9702 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | GREEK LETTERS | HTML | Alt |  | GREEK LETTERS | HTML | Alt |
| α | Greek small Alpha | &alpha; | alt + 0945 | Α | Greek capital Alpha | &Alpha; | alt + 0913 |
| β | Greek small Beta | &beta; | alt + 0946 | Β | Greek capital Beta | &Beta; | alt + 0914 |
| γ | Greek small Gamma | &gamma; | alt + 0947 | Γ | Greek capital Gamma | &Gamma; | alt + 0915 |
| δ | Greek small Delta | &delta; | alt + 0948 | Δ | Greek capital Delta | &Delta; | alt + 0916 |
| ε | Greek small Epsilon | &epsilon; | alt + 0949 | Ε | Greek capital Epsilon | &Epsilon; | alt + 0917 |
| ζ | Greek small Zeta | &zeta; | alt + 0950 | Ζ | Greek capital Zeta | &Zeta; | alt + 918 |
| η | Greek small Eta | &eta; | alt + 0951 | Η | Greek capital Eta | &Eta; | alt + 0919 |
| θ | Greek small Theta | &theta; | alt + 0952 | Θ | Greek capital Theta | &Theta; | alt + 0920 |
| ι | Greek small Iota | &iota; | alt + 0953 | Ι | Greek capital Iota | &Iota; | alt + 0921 |
| κ | Greek small Kappa | &kappa; | alt + 0954 | Κ | Greek capital Kappa | &Kappa; | alt + 0922 |
| λ | Greek small Lambda | &lambda; | alt + 0955 | Λ | Greek capital Lambda | &Lambda; | alt + 0923 |
| μ | Greek small Mu | &mu; | alt + 0956 | Μ | Greek capital Mu | &Mu; | alt + 0924 |
| ν | Greek small Nu | &nu; | alt + 0957 | Ν | Greek capital Nu | &Nu; | alt + 0925 |
| ξ | Greek small Xi | &xi; | alt + 0958 | Ξ | Greek capital Xi | &Xi; | alt + 0926 |
| ο | Greek small Omicron | &omicron; | alt + 0959 | Ο | Greek capital Omicron | &Omicron; | alt + 0927 |
| π | Greek small Pi | &pi; | alt + 0960 | Π | Greek capital Pi | &Pi; | alt + 0928 |
| ρ | Greek small Rho | &rho; | alt + 0961 | Ρ | Greek capital Rho | &Rho; | alt + 0929 |
| ς | Greek small Sigma 1 | &sigmaf; | alt + 0962 | Σ | Greek capital Sigma | &Sigma; | alt + 0931 |
| σ | Greek small Sigma 2 | &sigma; | alt + 0963 |  |  |  |  |
| τ | Greek small Tau | &tau; | alt + 0964 | Τ | Greek capital Tau | &Tau; | alt + 0932 |
| υ | Greek small Upsilon | &upsilon; | alt + 0965 | Υ | Greek capital Upsilon | &Upsilon; | alt + 0933 |
| φ | Greek small Phi | &phi; | alt + 0966 | Φ | Greek capital Phi | &Phi; | alt + 0934 |
| χ | Greek small Chi | &chi; | alt + 0967 | Χ | Greek capital Chi | &Chi; | alt + 0935 |
| ψ | Greek small Psi | &psi; | alt + 0968 | Ψ | Greek capital Psi | &Psi; | alt + 0936 |
| Ω | Greek small Omega | &omega; | alt + 0969 | Ω | Greek capital Omega | &Omega; | alt + 0937 |
| Table . Table of alt codes, Unicode characters and HTML equivalent characters | | | | | | | |

|  |  |
| --- | --- |
| 7.5 | Fonts |
| Fonts |

This document is based around the following three fonts:

|  |  |  |  |
| --- | --- | --- | --- |
|  | System Font | Type and Usage |  |
|  | Calisto MT | Serif font use for the main body text |  |
|  | Gill Sans MT | Sans serif font used for tables and sidebars |  |
|  | Consolas | Non-proportional font used for code fragments |  |
|  | Table . Recommended system fonts | |  |

### Kerning

Kerning is the adjustment of specific pairs of letters to improve the appearance and fit of those letters, kerning is a feature of the font (unlike letter spacing that applies to every letter). Most fonts have hundreds of kerning pairs that have been specifically created by the font designer. Kerning generally reduces the large gaps that occur between certain letter pairs, improving the appearance of the text.

Kerning should always be used for text above 8 point: Font → Advanced tab → Kerning.

### Ligatures and stylistic sets

Ligatures were invented to solve a practical typesetting problem. In the days of metal fonts, certain characters had features that physically collided with other characters. To fix this, font makers included ligatures with their fonts; these combined the troublesome letters into one piece of type.

The most common ligatures involve the lowercase letter f because of its unusual shape. The only time ligatures are mandatory is when letters actually overlap:

|  |  |
| --- | --- |
|  | Wrong |
|  | Right |
|  |  |

The base styles in this document use ligatures by default. To change the ligature setting, select Font → Advanced tab → Ligatures: All.

Stylistic sets are a feature of open type fonts (always use open type fonts) and give different options based on the specifications of the font designer. Stylistic sets are accessed from the font menu Font → Advanced tab → Stylistic Sets. Stylistic sets are numbered default, 1 to 9 and the exact function is specified in the documentation that came with the font.

Note: The fonts used here are system fonts and most system fonts do not have stylistic sets.

### A note on small capitals

Small capitals should only be use where there is a specific font dedicated to them. Word has a font option called small caps Font → Font tab → Small Caps but this should never be used (the font configuration option simply scales down capital letters, whereas true small caps are calibrated to blend well with normal uppercase letters).

Again, never use the small caps option in the font configuration.

|  |
| --- |
| Using Word |
| 8 |
| Using Word |
| Word has many foibles and peculiarities; this section tries to explain the more confusing of them. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| 8.1 | Creating Word headings from scratch |
| Creating Word headings from scratch |

Word Headings are the numbered styles applied to chapter and section headings in the main body and in the appendices (these are treated slightly differently). It is best to use the built-in Word Heading styles (by default these are named Heading 1–9). In this document Heading 1–4 are used for headings in the main document (the 8.1 in the section heading above) and Headings 6–8 and 4 are used for headings in the appendices.

The default styles applied by Word to these heading styles are fairly atrocious and new numbering styles need to be created with better fonts, colouring, numbering and indentations (§ 7.4.14 list the rules for heading appearance — Word manages to break all of them). The following sections demonstrate how to do this:

### Creating headings for the main document

First create a base style; this will contain only font and indentation information. Click the new style icon  at the bottom of the style bar (the style bar is accessed by clicking the  button on the Home tab → Styles group). In the new style dialogue box (Figure 8.1), give the style a name (here it is called 9622 BA Inline) and ensure that Style Based On is set to No Style.

Select the Format button and Paragraph to open the paragraph formatting dialogue box (Figure 8.2) and configure the Indentation as Hanging and in this case by 2.3 cm.

Note: The hanging indent of 2.3 cm is an arbitrary choice, any measurement that leaves a gap between the left aligned number and the heading text is fine. Here 2.3 is chosen to give conformity with the Van De Graaf cannon (see § 7.3.2) the inner margin of which is 2.3 cm.

|  |  |
| --- | --- |
|  |  |
| Figure . Create new style dialogue box | Figure . Paragraph formatting dialogue box |

Type some text onto three lines in the word document and set them to the newly created style (shown below):

Heading  
Section  
Subsection

Highlight the first line and in the Style bar (see § 2.4.1) move the mouse over Heading 1 until the dropdown arrow is displayed, click it and select Update Heading 1 to Match Selection (Figure 8.3):

|  |
| --- |
|  |
| Figure . Modify Heading 1 style |

Select the second line and repeat for Heading 2 and finally select the third line and repeat for Heading 3.

The first three headings have now been linked to the base heading style: 9622 BA Inline (this just stops Word applying the peculiar colours it uses by default for the Heading styles, it also means that by changing the base heading style, all headings will be changed automatically).

The next step is to create the multilevel numbering list that will provide the correct numbering to the heading styles. To do this, click the multilevel list button dropdown arrow  this displays the list library; select Define New List Style at the bottom (Figure 8.4):

Note: Do not, under any circumstances, use the Numbering button (  ).

This opens the New List Style dialogue box (Figure 8.5); give the new list a unique name, in this case: Heading – Main. The name is important, without it, it is not possible to subsequently modify the style.

Click Format and select Numbering to open the Modify Multilevel List dialogue box (Figure 8.6), click More to expand the box.

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Define new list | Figure . New list dialogue box | Figure . Modify multilevel list (level 1) |

This is the main dialogue box for configuring the numbered levels. In this case, only three levels will be configured for Headings 1, 2 & 3; for more levels, simply extend the process for Headings 4 &c.

Start by configuring the indents, in this case all numbers will be aligned at the left margin, and the heading text will be indented by 2.3 cm. This is achieved by the changing the settings in the Position area at the bottom of the Modify Multilevel List dialogue box:

Number alignment: Left  
Aligned at 0.0 cm  
Text Indent at: 2.3 cm

Click Set for All Levels, and in the new dialogue set the Additional Indent for Each Level to 0.0 (this staggers the numbering across the page, indenting further for each level down, setting this to zero keeps all heading numbers aligned at the left margin — anything else is too ostentatious).

The next step is to configure the different numbering levels for Headings 1, 2 and 3.

Level 1 numbering (Heading 1):

Configuring the numbering levels is achieved by selecting the level in the top left box (numbers 1 to 9) in the click level to modify area.

Click Level 1; at the right hand side in the Link Level to Style drop box select Heading 1.

Delete everything in the Enter Formatting for Numbering field, and in the Number Style for this Level field select 1, 2, 3.This will change the formatting field back to 1.

That’s it for level 1; it should now look like Figure 8.6 above.

Level 2 numbering (Heading 2):

Click Level 2; at the right hand side in the Link Level to Style drop box select Heading 2.

Delete everything in the Enter Formatting for Numbering field (this is the same as for level 1).

The different numbering levels must now be configured (this is different from level 1), in the Include Level Number from: drop list select Level 1, a 1 will appear in the Enter Formatting for Number field, enter a full stop after this number 1.

In the Number Style for this Level field select 1, 2, 3. This will change the formatting field to 1.1. The first 1 is the level 1 number; the second 1 is the level 2 number. Level 2 is now complete it should look like Figure 8.7.

Level 3 numbering (Heading 3):

Click Level 3; at the right hand side in the Link Level to Style drop box select Heading 3.

Delete everything in the Enter Formatting for Numbering field (as level 1 and level 2).

In the Include Level Number from: drop list select Level 1, a 1 will appear in the Enter Formatting for Number field, enter a full stop after this number 1.

Again in the Include Level Number from: drop list select Level 2, a second 1 will appear in the Enter Formatting for Number field after the full stop, now enter a second full stop after the second number 1.

In the Number Style for this Level field select 1, 2, 3. This will change the formatting field to 1.1.1 The first 1 is the level 1 number, the second 1 is the level 2 number and the third is the level 3 number.

Click through each to the remaining levels (4 to 9) and delete everything in the Enter Formatting for Number field to clear the formatting (Figure 8.8), this is just to make things tidy — Word has peculiar default numbering.

|  |  |
| --- | --- |
|  |  |
| Figure . Modify multilevel list (level 2) | Figure . Modify multilevel list (level 3) |

That’s it, click OK and then OK to close the dialogue boxes.

The three heading styles created in the document will now have the numbering formats applied to them:

1 Heading  
1.1 Section  
1.1.1 Subsection

The newly created numbering style will now appear in the List library, to see this click the multilevel list button dropdown arrow  (again, not the Numbering button next to it ).

Hover the mouse over the list style to show its name (Figure 8.9) and right click the list style and select modify to change any of the previously configured elements (Figure 8.10).

|  |  |
| --- | --- |
|  |  |
| Figure . List library and list style name | Figure . Modify list style |

Note: The modify option is only available on new styles; the default styles are unnamed and cannot be modified in the same way.

### Creating headings for the appendices

Appendix headings are created using the Heading styles that are built into Word. Word has 9 heading styles, the first three were used in the previous section for the main document headings; for the appendices, we will use heading styles Heading 6, 7 and 8. The process is very similar to that described for main headings (§ 8.1.1).

Firstly, type the following text onto three lines in the word document and set them to the base style created in the previous section 9622 BA Inline.

Appendix Heading  
Appendix Section  
Appendix Subsection

Highlight the first line and in the Style bar move the mouse over Heading 6 until the dropdown arrow is displayed, click it and select Update Heading 6 to Match Selection this is an identical process to that listed in the previous section for the main headings.

Select the second line and repeat for Heading 7 and finally select the third line and repeat for Heading 8.

The Headings 6, 7 and 8 have now been linked to the base heading style: 9622 BA Inline (again, this just stops Word applying the peculiar colours it uses by default for the Heading styles, it also means that by changing the base heading style, all the headings will be changed automatically).

The next step is to create the multilevel numbering list that will provide the correct numbering to the heading styles; again this is very similar to the process described in § 8.1.1. To do this, click the multilevel list button dropdown arrow ; this displays the list library; select Define New List Style at the bottom (Figure 8.11).

Note: Again, do not under any circumstances, use the Numbering button (  ).

This opens the New List Style dialogue box (Figure 8.12); give the new list a name, in this case: Heading – App, again the name must be unique.

Click Format and select Numbering to open the Modify Multilevel List dialogue box (Figure 8.13), click More to expand the box.

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Define new list | Figure . New list dialogue box | Figure . Modify multilevel list (level 1) |

This is the main dialogue box for configuring the numbered levels. In this case, only three levels will be configured for Headings 6, 7 & 8.

Start by configuring the indents (this is identical to the previous section); again, all numbers will be aligned at the left margin, and the heading text will be indented by 2.3 cm. This is achieved by the changing the settings in the Position area at the bottom of the dialogue box:

Number alignment: Left  
Aligned at 0.0 cm  
Text Indent at: 2.3 cm

Click Set for All Levels, and in the new dialogue set the Additional Indent for Each Level to 0.0.

The next step is to configure the different numbering levels for Headings 6, 7 and 8.

Level 1 letter (Heading 6):

Configuring the numbering levels is achieved by selecting the level in the top left box (numbers 1 to 9) in the Click level to modify area. This is different to the previous section; with appendices the leading character is a letter rather than a number.

Click Level 1; at the right hand side in the Link Level to Style drop box select Heading 6.

Delete everything in the Enter Formatting for Numbering field, and in the Number Style for this Level field select A, B, C. This will change the formatting field to A.

That’s it for level 1; it should now look like Figure 8.13 above.

Level 2 numbering (Heading 7):

Click Level 2; at the right hand side in the Link Level to Style drop box select Heading 7.

Delete everything in the Enter Formatting for Numbering field.

The different numbering levels must now be configured (this is different from level 1), in the Include Level Number from: drop list select Level 1, an A will appear in the Enter Formatting for Number field, enter a full stop after this letter A.

In the Number Style for this Level field select 1, 2, 3. This will change the formatting field to A.1. The A is the level 1 letter; the 1 is the level 2 number. Level 2 is now complete it should look like Figure 8.14.

Level 3 numbering (Heading 8):

Click Level 3; at the right hand side in the Link Level to Style drop box select Heading 8.

Delete everything in the Enter Formatting for Numbering field (as level 1 and 2).

In the Include Level Number from: drop list select Level 1, an A will appear in the Enter Formatting for Number field, enter a full stop after this.

Again in the Include Level Number from: drop list select Level 2, a number 1 will appear in the Enter Formatting for Number field after the full stop, now enter a second full stop after the number 1.

In the Number Style for this Level field select 1, 2, 3. This will change the formatting field to A.1.1. The first A is the level 1 letter, the first 1 is the level 2 number and the second is the level 3 number.

Click through each to the remaining levels (4 to 9) and delete everything in the Enter Formatting for Number field to clear the formatting (Figure 8.15), again this is just to make things tidy.

|  |  |
| --- | --- |
|  |  |
| Figure . Modify multilevel list (level 2) | Figure . Modify multilevel list (level 3) |

Click OK and then OK to close the dialogue boxes.

The three heading styles created in the document will now have the numbering formats applied to them. The newly created numbering style will now appear in the List library and can be modified in the same way as the main heading styles, see § 8.1.1.

A Appendix Heading  
A.1 Appendix Section  
A.1.1 Appendix Subsection

|  |  |
| --- | --- |
| 8.2 | Creating a numbered list style in Word |
| Creating a numbered list style in Word |

This document uses a list style for numbered items; it has the following appearance:

1. Numbered list fist point
2. Numbered list second point
3. Numbered list third point

In this list, the number is positioned 2.3 cm from the left margin, the text after the number starts at a distance of 3.4 cm from the left margin. The underlying font is the standard body text of the document.

To create this type of numbered list, start in a similar fashion to creating the headings in the previous section:

Type three line of text (this will form the initial list) in the standard body text (in this case #000 BO Body Text):

List 1

List 2

List 3

Highlight the first line and click the new style icon  at the bottom of the style bar (see § 2.4.1 to access the style bar) and enter a new style (in this case it is called 6300 NO List). Apply this style to the other two lines.

The next step is to create a new list style for the numbering (this is very similar to creating the heading lists in the previous section, but does not require multiple levels). To do this, click the multilevel list button dropdown arrow  this displays the list library; select Define New List Style at the bottom (Figure 8.16):

Note: Do not, under any circumstances, use the Numbering button (  ).

This opens the New List Style dialogue box (Figure 8.17); give the new list a unique name, in this case: T3 No:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Define new list | Figure . New list dialogue box | Figure . Modify multilevel list (level 1) |

This is the main dialogue box for configuring the numbered levels; it is the same as that used for creating the headings list (see the previous sections), but in this case only level 1 will be configured.

Set the font for the numbering, in this case it is Calisto MT, in the unlabelled drop box in the formatting section (on the same line as the Bold, Italic, Underline symbols) select Calisto MT as the font, the number in the example display box will turn to a circled 1.

Click Format and select Numbering to open the Modify Multilevel List dialogue box (Figure 8.18), click More to expand the box.

Start by configuring the indents, in this case all numbers will be aligned 2.3 cm from the left margin, and the text will be indented by 3.4 cm. This is achieved by the changing the settings in the Position area at the bottom of the dialogue box:

Number alignment: Left  
Aligned at 2.3 cm  
Text Indent at: 3.4 cm

Click Set for All Levels, and in the new dialogue set the Additional Indent for Each Level to 0.0 (this keeps all numbers aligned at the left tab stop).

Make sure that the level being modified is Level 1 in the Click level to modify area.

In the Link Level to Style drop box select the style created at the start of this section: 6300 NO List.

In the Enter Formatting for Numbering field delete the trailing bracket that is placed there by default, just leaving the circled number 1.

Click through each to the remaining levels (2 to 9) and delete everything in the Enter Formatting for Number field to clear the formatting, Figure 8.18.

That’s it, click OK and then OK to close the dialogue boxes.

The first line of the list will now look like:

1. List 1

The 6300 NO List style is now a default style, to do things properly, a style-in-use should be created for this style. To do this, select the first line in the list and click the new style icon  at the bottom of the style bar and enter a new style (in this case it is called #060 BO List – Num). Apply this style to the other two lines.

Note: When a new list is created, it will automatically continue the numbering of any previous list, to set the list to start at 1, right click in the first line of the list and select Restart at 1.

|  |  |
| --- | --- |
| 8.3 | Tables of content |
| Tables of content |

Tables of content are generally entered at the start of a document and consist of the Table of Contents (TOC), Table of Figures and the Table of Tables.

These automatically configure the lists of contents, figures and tables. The displayed styles in the TOC list use the in-built TOC styles (TOC 1 to TOC 9); the table of figures/tables use a hyperlink style called Table of Figures.

### Table of contents

A Table of Contents is entered from the References tab → Table of Contents group → Table of Contents, several pre-defined formats are available, ignore all of them and click the Insert Table of Contents… at the bottom to open the TOC dialogue box (Figure 8.19):

|  |  |
| --- | --- |
|  |  |
| Figure . Table of contents dialogue box | Figure . TOC options dialogue box |

The Options button (Figure 8.20) allows the elements that are to appear in the TOC to be defined.

The TOC is built from a list of the document styles; each style that is to appear in the Table of Contents is given a TOC level number (this corresponds to the TOC 1–9 styles). Table 8.1 lists the TOC level associations used in this document.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Style | Style |  |
|  | 6101 TI Page Indexed | 1 |  |
|  | Heading 1, Chapter | 1 |  |
|  | Heading 2, Section | 2 |  |
|  | Heading 3, Inline Num | 3 |  |
|  | Heading 4, Inline No Num | 4 |  |
|  | Heading 6, App Chapter | 1 |  |
|  | Heading 7, App Section | 2 |  |
|  | Heading 8, App Inline Num | 3 |  |
|  | Table . TOC levels | | |

The modify option on the Table of Contents dialogue box (Figure 8.19) opens the modify style dialogue box (tailored for just the TOC styles). This gives access to the standard options for modifying styles. All the TOC styles are linked to the base style 9910 BA Word TOC.

Note: It is perfectly possible to modify the TOC styles using the Style Bar.

### Table of figures and table of tables

A Table of Figures and a Table of Tables are essentially the same thing, a list of a particular caption type (in this case either Figure, Table, Fig\_App or Tab\_App).

A Table of Figures is entered from the References tab → Captions group → Table of Figures (this is another tab on the Table of Contents dialogue box).

A Table of Figures has fewer configuration options than the TOC, the only selection is the Caption label, and this determines what is to be in the list, for a Table of Figures select either Figure or Fig\_App (for a list of the figures in the appendices); for a Table of Tables, select either Table or Tab\_App.

Make sure the Use hyperlinks instead of page numbers is not ticked.

Use the Modify button to configure the style used in the table of figures.

|  |  |
| --- | --- |
| 8.4 | Creating caption types |
| Creating caption types |

Captions are the small entries at the bottom of figures and tables that say things like:

|  |  |  |
| --- | --- | --- |
|  | Figure 8.1 |  |

Some of these are present by default: Figure and Table; some need to be created from scratch. The captions themselves don't actually have to be associated with any particular object; they are similar to section headings in that they take the chapter number and add a second number after it, this second number just keeps counting up each time a new caption of that type is entered.

New captions can be inserted by simply copying an existing caption and pasting it in somewhere else. Take for example the following figures:

|  |  |
| --- | --- |
|  |  |
| Figure . Side by side image A (256 pixels wide) | Figure . Side by side image B (256 pixels wide) |

The first figure is Figure 8.21, the second Figure 8.22. If the first caption is copied and pasted into the document without a figure (as has been done bellow):

Figure .23 Side by side image C (256 pixels wide)

Then a new figure caption is created (Figure 8.23), but there is no associated figure.

Captions are essentially another version of a heading.

New caption types have to be created for figures and tables that are used in the appendices, theses captions must be linked to the chapter heading for appendices (Heading 6), rather than the chapter heading for the main document (Heading 1).

A new caption is created by selecting References tab → Captions group → Insert Caption; this opens the Caption dialogue box (Figure 8.24):

|  |  |
| --- | --- |
|  |  |
| Figure . Caption dialogue box | Figure . New caption label |

The new caption needs to be given a name, Click New Label and enter a name for the caption and click OK.

Note: This name must be unique, and since Figure already exists, the name Fig\_App will be used.

Tick the Exclude label from caption box (this is done to prevent Fig\_App being added to the caption, the actual label required is “Figure”, but this must be added manually — see below).

To set the numbering arrangements for the new caption, click Numbering to open the Caption Numbering dialogue box:

|  |
| --- |
|  |
| Figure . Caption numbering dialogue box |

Tick the Include chapter number and set Chapter starts with style to Heading 6, change the Use separator to (. period) and click OK.

The caption will appear in the document, select it and change the style to one of the caption styles (in this case either #511 AN Fig Cap – No Spacing or #512 AN Fig Cap – Para Spacing). To add the word “figure” to the caption, simply click before the newly inserted caption and type Figure, it will appear in any table of figures that is added to the document.

The new caption type (in this case Fig\_App) will appear in the cross reference list and references to it can be inserted in the document Insert tab → Links group → Cross Reference.

Note: Caption types are not copied with the document; they have to be set up in each Word application that needs to use them (i.e. on each machine running Word).

If a document is already equipped with Tables of Figures for any new captions (this one is set up for Figures, Fig\_App, Tables, Tab\_App and Code\_App), then the captions do not have to be defined in word, the table will update correctly without the styles being defined.

The new caption type is also available for selection as a Table of Figures entry (see § 8.3.2).

|  |  |
| --- | --- |
| 8.5 | Word template files |
| Word template files |

This document is issued as a standard Word file (a DOCX file) and it can be used, copied, modified and renamed like any other Word file.

If you wish to make this document a Word template file (a DOTM file) rather than a Word document file (DOCX) and use it as a template for Word documents, simply use File tab → Save As and save it as a Word Macro-enabled Template (dotm) file. To make Word find it as a template, it must be saved in the following location:

C:\Users\[UserName]\AppData\Roaming\Microsoft\Templates\

Replace [UserName] with the correct user name for the machine in use.

Once the template file has been copied to this location, it can be used as the basis for a new document.

### Creating a document from a template

Create a new document as follows: File tab → New → Available Templates → My templates and select the file you want from the Personal Templates area. Saving the newly created document will save it as a DOCX document file.

### Template saving preventions

Once a document has been created from a template, Word has an annoying habit of asking if you want to save changes to the template every time you want to save the document — I’m sure someone at Microsoft thought this was a good idea — everyone else just thinks it’s annoying, changing the resultant document does not change the template from which it was created. So, this is how you stop it asking:

Go to the File tab → Options → Add-ins (Figure 8.27)

|  |
| --- |
|  |
| Figure . Add-ins dialog box |

In the Mange dropdown box at the bottom, select Templates and click go to open the Templates and Add-ins dialog box.

|  |
| --- |
|  |
| Figure . Templates and add-ins dialog box |

Select al the text in the document template field (Figure 8.28) and delete it.

Click OK to accept the changes and exit.

— NON PRINTING COMMENT —

This page is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |
| --- |
| Typicals |
| 9 |
| Typicals |
| A list of typical document objects (figures, tables, equations &c). |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| 9.1 | Figures |
| Figures |

Unscaled full page images have the following sizes:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Full Page Image | Width in Pixels | Height in Pixels | Aspect Ratio |  | |
|  | | Horizontal | 529 | 729 | 1:1.38 |  | |
|  | | Vertical | 506 | 745 | 1:1.47 |  | |
|  | | Ext. Horizontal | 624 | 850 | 1:1.36 |  | |
|  | | Ext. Vertical | 602 | 864 | 1:1.44 |  | |
|  |  | | | | | |  |

The best image size that provides a degree of commonality for all three media is to use a scalable graphic format of 1488 × 2232 pixels. This has the following properties:

1. 2:3 aspect ratio
2. Scaling to 50.0% gives a web resolution of 744 × 1116 pixels (fits the web page)
3. Scaling to 33.3% gives a document resolution of 496 × 744 pixels (fits the full page vertical layout)

|  |
| --- |
|  |
| Figure . Page width figure (529 pixels wide) |

See Figure 9.1

|  |  |
| --- | --- |
|  |  |
| Figure . Side by side image A (256 pixels wide) | Figure . Side by side image B (256 pixels wide) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| Figure . Full page image horizontal arrangement (529 × 729 pixels) | | | |
|  | Figure . Full odd page image vertical arrangement (506 × 745 pixels) |

|  |  |
| --- | --- |
| Figure . Full even page image vertical arrangement (506 × 745 pixels) |  |

### Inline figures

|  |
| --- |
|  |
| Figure . Inline image left |

I remember him as if it were yesterday, as he came plodding to the inn door, his sea-chest following behind him in a hand-barrow — a tall, strong, heavy, nut-brown man, his tarry pigtail falling over the shoulder of his soiled blue coat, his hands ragged and scarred, with black, broken nails, and the sabre cut across one cheek, a dirty, livid white. I remember him looking round the cover and whistling to himself as he did so, and then breaking out in that old sea-song that he sang so often afterwards:

|  |
| --- |
|  |
| Figure . Inline image right |

in the high, old tottering voice that seemed to have been tuned and broken at the capstan bars. Then he rapped on the door with a bit of stick like a handspike that he carried, and when my father appeared, called roughly for a glass of rum. This, when it was brought to him, he drank slowly, like a connoisseur, lingering on the taste and still looking about him at the cliffs and up at our signboard.

|  |  |
| --- | --- |
| 9.2 | Tables & Equations |
| Tables & Equations |

Typical table and equations arrangements

|  |
| --- |
|  |
| Flow variations  Blender flow variations are restricted between 1.02% and 95% of target flow. |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item | Function |  |
|  | 01 | Functional Description |  |
|  | 02 | Functional Description |  |
|  | Table . Simple table style | |  |

See Table 9.1

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  | By the Way |  |
|  |  |  |
|  | By the way text. |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
|  | File Name Row |
|  |  |
|  | Code text |
|  |  |
|  | Code . Indented Code Fragment |

See Code 9.1

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

See Equation (9.1)

|  |  |
| --- | --- |
| 9.3 | Sidebars |
| Sidebars |

Sidebar arrangements (this page and previous).

Text Box sidebar for odd numbered pages, outside margin is 11mm from text box to page edge (1/2 of the inside margin).

Sidebars use the style #400 SB Body, this has reduced character and line spacing.

|  |
| --- |
|  |
| Flow variations  Blender flow variations are restricted between 1.02% and 95% of target flow. |

|  |  |
| --- | --- |
|  |  |
| Figure . Even page sidebar positioning | Figure . Odd page sidebar positioning |

|  |  |
| --- | --- |
| 9.4 | Alt codes |
| Alt codes |

The following table lists the most common alt codes along with the HTML (&) symbol.

Note: Unicode decimal references are given in HTML as &#nnnn.  
hexadecimal HTML as &#xhhhh and in CSS as \hhhh (hhhh being the hexadecimal equivalent of the decimal ALT nnnn number given here).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mathematical | HTML | Alt |  | Mathematical cont. | HTML | Alt |
| × | Multiplication sign | &times; | alt + 0215 | ≈ | Almost equal to | &asymp; | alt + 8776 |
| ÷ | Division sign | &divide; | alt + 0247 | ≠ | Not equal to | &ne; | alt + 8800 |
| − | Minus sign | &minus | alt + 8722 | ≡ | Identical to | &equiv; | alt + 8801 |
| ± | Plus/minus sign | &plusmn; | alt + 0177 | < | Less than | &lt; | alt + 0060 |
| ⁄ | Fraction slash | &frasl; | alt + 8260 | > | Greater than | &gt; | alt + 0062 |
| ⁿ | Superscript lowercase n | - | alt + 8319 | ≤ | Less than or equal to | &le; | alt + 8804 |
| ℮ | Estimated symbol | - | alt + 8494 | ≥ | Greater than or equal to | &ge; | alt + 8805 |
| ∂ | Partial differential | - | alt + 8706 |  |  |  |  |
| ∆ | Increment | - | alt + 8710 |  | Miscellaneous |  |  |
| ∏ | N-array product | &prod; | alt + 8719 | ¦ | Broken vertical bar | &brvbar; | alt + 0166 |
| ∑ | N-array summation | &sum; | alt + 8721 | º | Degree sign | &deg; | alt + 0176 |
| ∕ | Division slash | - | alt + 8725 | · | Middle dot | &middot; | alt + 0183 |
| ∙ | Bullet operator | - | alt + 8729 | • | Bullet | &bull; | alt + 8226 |
| √ | Square root | &radic; | alt + 8730 | ← | Leftwards arrow | &larr; | alt + 8592 |
| ∞ | Infinity | &infin; | alt + 8734 | ↑ | Upwards arrow | &uarr; | alt + 8593 |
| ∟ | Right angle | - | alt + 8735 | → | Rightwards arrow | &rarr; | alt + 8594 |
| ∩ | Intersection | &cap; | alt + 8745 | ↓ | Downwards arrow | &darr; | alt + 8595 |
| ∫ | Integral | &int; | alt + 8747 | ↔ | Left right arrow | &harr; | alt + 8596 |
| ⌠ | Top half integral | - | alt + 8992 | ↕ | Up down arrow | - | alt + 8597 |
| ⌡ | Bottom half integral | - | alt + 8993 | & | Ampersand | &amp; | alt+0026 |
|  |  |  |  |  | Non breaking space | &nbsp; | alt+0160 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | NUMBERS | HTML | Alt |  | PUNCTUATION | HTML | Alt |
| ¹ | Superscript one | &sup1; | alt + 0185 | ‼ | Double exclamation mark | - | alt + 8252 |
| ² | Superscript two | &sup2; | alt + 0178 | ¡ | Inverted exclamation mark | &iexcl; | alt + 0161 |
| ³ | Superscript three | &sup3; | alt + 0179 | ¿ | Inverted question mark | &iquest; | alt + 0191 |
| ½ | Fraction one half | &frac12; | alt + 0189 | “ | Left double quote | &ldquo; | alt + 8220 |
| ⅓ | Fraction one third | - | alt + 8531 | ” | Right double quote | &rdquo; | alt + 8221 |
| ⅔ | Fraction two thirds | - | alt + 8532 | „ | Double low-9 quote | &bdquo; | alt + 8222 |
| ¼ | Fraction one quarter | &frac14 | alt + 0188 | ‘ | Left single quote | &lsquo; | alt + 8216 |
| ¾ | Fraction three quarters | &frac34 | alt + 0190 | ’ | Right single quote | & rsquo; | alt + 8217 |
| ⅛ | Fraction one eighth | - | alt + 8539 | ‚ | Single low-9 quote | &sbquo; | alt + 8218 |
| ⅜ | Fraction three eighths | - | alt + 8540 | ‛ | Single high-reversed-9 quote | - | alt + 8219 |
| ⅝ | Fraction five eighths | - | alt + 8541 | « | Left double angle quote | &laquo; | alt + 0171 |
| ⅞ | Fraction seven eighths | - | alt + 8542 | » | Right double angle quote | &raquo; | alt + 0187 |
|  |  |  |  | ‹ | Single left angle quote | &lsaquo; | alt + 8249 |
|  | CURRENCY |  |  | › | Single right angle quote | &rsaquo; | alt + 8250 |
| ¢ | Cent sign | &cent; | alt + 0162 | … | Horizontal ellipsis | &hellip; | alt + 8230 |
| £ | Pound sign | &pound; | alt + 0163 | – | En dash | &ndash; | alt + 8211 |
| ¤ | General currency sign | &curren; | alt + 0164 | — | Em dash | &mdash; | alt + 8212 |
| ₣ | French franc sign | - | alt + 8355 | ― | Horizontal bar | - | alt + 8213 |
| ₤ | Lira sign | - | alt + 8356 | ‗ | Double low line | - | alt + 8215 |
| ₧ | Peseta sign | - | alt + 0158 | ‾ | Overline | &oline; | alt + 8254 |
| ₪ | New sheqel sign | - | alt + 8362 |  |  |  |  |
| ₫ | Dong sign | - | alt + 8363 |  | SHAPES |  |  |
| € | Euro sign | &euro; | alt + 0128 | ▀ | Upper half block | - | alt + 9600 |
|  |  |  |  | ▄ | Lower half block | - | alt + 9604 |
|  | LEGAL & TECHNICAL |  |  | █ | Full block | - | alt + 9608 |
| § | Section sign | &sect; | alt + 0167 | ▌ | Left half block | - | alt + 9612 |
| ¶ | Paragraph sign | &para; | alt + 0182 | ▐ | Right half block | - | alt + 9616 |
| © | Copyright sign | &copy; | alt + 0169 | ░ | Light shade | - | alt + 9617 |
| ® | Registered trademark sign | &reg; | alt + 0174 | ▒ | Medium shade | - | alt + 9618 |
| ™ | Trademark sign | &trade; | alt + 8482 | ▓ | Dark shade | - | alt + 9619 |
| ª | Feminine ordinal indicator | &ordf; | alt + 0170 | ■ | Black square | - | alt + 9632 |
| ¬ | Not sign | &not; | alt + 0172 | □ | White square | - | alt + 9633 |
| ⌐ | Reversed not sign | - | alt + 8976 | ▪ | Black small square | - | alt + 9642 |
| µ | Micro sign | &micro; | alt + 0181 | ▫ | White small square | - | alt + 9643 |
| ‰ | Per mille sign | &permil; | alt + 8240 | ▬ | Black rectangle | - | alt + 9644 |
| ′ | Prime (straight quote) | &prime; | alt + 8242 | ▲ | Black up triangle | - | alt + 9650 |
| ″ | Double prime (straight quote) | &Prime; | alt + 8243 | ► | Black right pointer | - | alt + 9658 |
| ℅ | Care of | - | alt + 8453 | ▼ | Black down triangle | - | alt + 9660 |
| № | Numero sign | - | alt + 8470 | ◄ | Black left pointer | - | alt + 9668 |
| Ω | Ohm sign | - | alt + 8486 |  | Lozenge | &loz; | alt + 9674 |
| ⌂ | House | - | alt + 8962 | ○ | White circle | - | alt + 9675 |
| † | Dagger | &dagger; | alt+8224 | ● | Black circle | - | alt + 9679 |
| ‡ | Double dagger | &Dagger; | alt+8225 | ◘ | Inverse bullet | - | alt + 9688 |
|  |  |  |  | ◙ | Inverse white circle | - | alt + 9689 |
|  |  |  |  | ◦ | White bullet | - | alt + 9702 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | GREEK LETTERS | HTML | Alt |  | GREEK LETTERS | HTML | Alt |
| α | Greek small Alpha | &alpha; | alt + 0945 | Α | Greek capital Alpha | &Alpha; | alt + 0913 |
| β | Greek small Beta | &beta; | alt + 0946 | Β | Greek capital Beta | &Beta; | alt + 0914 |
| γ | Greek small Gamma | &gamma; | alt + 0947 | Γ | Greek capital Gamma | &Gamma; | alt + 0915 |
| δ | Greek small Delta | &delta; | alt + 0948 | Δ | Greek capital Delta | &Delta; | alt + 0916 |
| ε | Greek small Epsilon | &epsilon; | alt + 0949 | Ε | Greek capital Epsilon | &Epsilon; | alt + 0917 |
| ζ | Greek small Zeta | &zeta; | alt + 0950 | Ζ | Greek capital Zeta | &Zeta; | alt + 918 |
| η | Greek small Eta | &eta; | alt + 0951 | Η | Greek capital Eta | &Eta; | alt + 0919 |
| θ | Greek small Theta | &theta; | alt + 0952 | Θ | Greek capital Theta | &Theta; | alt + 0920 |
| ι | Greek small Iota | &iota; | alt + 0953 | Ι | Greek capital Iota | &Iota; | alt + 0921 |
| κ | Greek small Kappa | &kappa; | alt + 0954 | Κ | Greek capital Kappa | &Kappa; | alt + 0922 |
| λ | Greek small Lambda | &lambda; | alt + 0955 | Λ | Greek capital Lambda | &Lambda; | alt + 0923 |
| μ | Greek small Mu | &mu; | alt + 0956 | Μ | Greek capital Mu | &Mu; | alt + 0924 |
| ν | Greek small Nu | &nu; | alt + 0957 | Ν | Greek capital Nu | &Nu; | alt + 0925 |
| ξ | Greek small Xi | &xi; | alt + 0958 | Ξ | Greek capital Xi | &Xi; | alt + 0926 |
| ο | Greek small Omicron | &omicron; | alt + 0959 | Ο | Greek capital Omicron | &Omicron; | alt + 0927 |
| π | Greek small Pi | &pi; | alt + 0960 | Π | Greek capital Pi | &Pi; | alt + 0928 |
| ρ | Greek small Rho | &rho; | alt + 0961 | Ρ | Greek capital Rho | &Rho; | alt + 0929 |
| ς | Greek small Sigma 1 | &sigmaf; | alt + 0962 | Σ | Greek capital Sigma | &Sigma; | alt + 0931 |
| σ | Greek small Sigma 2 | &sigma; | alt + 0963 |  |  |  |  |
| τ | Greek small Tau | &tau; | alt + 0964 | Τ | Greek capital Tau | &Tau; | alt + 0932 |
| υ | Greek small Upsilon | &upsilon; | alt + 0965 | Υ | Greek capital Upsilon | &Upsilon; | alt + 0933 |
| φ | Greek small Phi | &phi; | alt + 0966 | Φ | Greek capital Phi | &Phi; | alt + 0934 |
| χ | Greek small Chi | &chi; | alt + 0967 | Χ | Greek capital Chi | &Chi; | alt + 0935 |
| ψ | Greek small Psi | &psi; | alt + 0968 | Ψ | Greek capital Psi | &Psi; | alt + 0936 |
| Ω | Greek small Omega | &omega; | alt + 0969 | Ω | Greek capital Omega | &Omega; | alt + 0937 |
| Table . Table of alt codes, Unicode characters and HTML equivalent characters | | | | | | | |

|  |  |
| --- | --- |
| 9.5 | Highlight Colours |
| Highlight Colours |

On item selection in images — the orange highlight colour is RGB 255,108,009 (#FF6C09) for both the outline and the fill, the fill uses the secondary colour of Paint.Net and this has a transparency of 100.(# FF6C0964)

The border is 2 pixels with anti-aliasing active.

Font size is generally 12 point.

|  |  |
| --- | --- |
| 9.6 | Code fragments |
| Code fragments |

Code fragments are in Triplicate T4c, 7 point. Larger fragments can have paragraph before/after spacing set to zero and single line spacing — this reduces the table size considerably.

|  |  |
| --- | --- |
| 9.7 | Removing text background colour from code fragments |
| Removing text background colour from code fragments |

Sometimes copying code fragments from Brackets leave a light grey background colour applied to the text (not the cell); I don’t know why, but here’s how you get rid of it.

Select the affected cells right click and select borders and shading. Select the shading tab and change the fill box to no colour; in the apply to box select text (not cell). This will remove the colour from the text, but not the background colour from the cell.

Copy point 1

— NON PRINTING COMMENT —

This page is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

Copy point 2

|  |
| --- |
| Empty section |
| 10 |
| Empty section |
| This is an empty section for copying. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| 10.1 | Empty subsection |
| Empty subsection |

This section is essentially an empty and can be copied and inserted into the document to add a new chapter.

### Instructions for inserting a new chapter

Chapters always start on an odd page, if the previous chapter ended on an odd page, then a blank page must be inserted, to do this position the cursor at [CopyPoint1](#CopyPoint1) (located at the section break before the non-printing comment area that precedes the chapter number page) and copy down to the [CopyEndPoint](#CopyEndPoint) located before the section break below. Insert the copied section in the required place in the document (preferably just before a section break).

If the previous chapter ended on an even page number, then the blank page is not required, in this case position the cursor at [CopyPoint2](#CopyPoint2) (located at the section break that immediately precedes the chapter number page) and copy down to the [CopyEndPoint](#CopyEndPoint) located before the section break below. Insert the copied section in the required place in the document (preferably just before a section break).

When the copying is complete, ensure that odd and even page numbers are present in the footer on the copied version of this and the following pages; ensure that page numbers are not present on the blank pages (those that start with NON PRINTING COMMENT).

Now click in the footer area of the new section and ensure that link to previous is turned off for both headers and footers (Word turns these on by default) also check that extra paragraph breaks have not been added to the header and footer.

The Copy Point text can be deleted from the newly inserted sections; these will not retain the bookmarks set-up on this, the original section.

Copy End point

— NON PRINTING COMMENT —

This page is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

Appendices

— NON PRINTING COMMENT —

This page is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |
| --- |
| Appendix heading level |
| A |
| Appendix heading level |
| This is an Appendix Heading page. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| A.1 | Appendix section level |
| * 1. Appendix section level |

Appendix body text.

* + 1. Appendix inline subsection heading (numbered)

Subsection text.

#### Appendix inline subsection heading (non-numbered)

* + 1. Example content

|  |  |
| --- | --- |
| Item | Function |
| 01 | Functional Description |
| 02 | Functional Description |
| 03 | Functional Description |
| Table . Appendix Table | |

See Table A.1

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Appendix figure A | Figure . Appendix figure B | Figure . Appendix figure C |

See Figure A.1

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

See equation (A.1).

— NON PRINTING COMMENT —

This page is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |
| --- |
| Appendix empty |
| B |
| Appendix empty |
| This is an empty section for copying. |

— NON PRINTING COMMENT —

This page follows a chapter heading and is completely blank (no page numbers).

It is used to make the section text start on an ODD numbered page; giving a logical start to the section body text for double sided documents. To do this, the Chapter Page (previous page) and this one have their own section within the document (allowing the first odd footer to be blank).

|  |  |
| --- | --- |
| B.1 | Appendix section empty |
| * 1. Appendix section empty |

This section is empty and can be copied and inserted into the document to add a new chapter.

* + 1. Copying appendices

This appendix section is copied in the same way as a standard section, see section 10 for details.

* + 1. Example content

|  |  |
| --- | --- |
| Item | Function |
| 01 | Functional Description |
| 02 | Functional Description |
| 03 | Functional Description |
| Table . Appendix Table | |

See Table B.1

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Figure . Appendix figure A | Figure . Appendix figure B | Figure . Appendix figure C |

See Figure B.1

|  |  |  |
| --- | --- | --- |
|  | File Name Row | |
|  |  | |
|  | Code text | |
|  |  | |
|  | Code . 04-legal.html |  |

See Code B.1

|  |  |
| --- | --- |
|  | (.) |
|  |
|  |  |

See equation (B.1).

1. Cox, Catherine Bly & Charles Murray (1989). The Race to the Moon. Simon and Schuster. There is a Kindle version by the same authors, but just called Apollo. [↑](#footnote-ref-1)
2. The kerosene arrived by a circuitous route, first acting as a coolant for the engine shell by passing through a labyrinth of tubing on the walls of the combustion chamber and nozzle. The kerosene carried off heat from the walls of the engine. It made for a much more complicated pumping system, but it also saved weight — an engine made of metal strong enough to withstand the temperatures of the F-1 throughout launch would have been prohibitively heavy. [↑](#footnote-ref-2)
3. Lorem ipsum: this refers to a nonsensical Latin text used to fill space in a document. It has the correct distribution and frequency of letters to match Standard English; it has been used as filler text since the fourteenth century: Lorem ipsum dolor sit amet, consectetur adipiscing elit…  [↑](#footnote-ref-3)
4. This is a foot note using the #550 AN Footnote style. [↑](#footnote-ref-4)