Barcodes and the ISBN-13 system

Guidance for Lulu Authors

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Where a published book has an assigned ISBN number, it is essential to display a barcode on the back cover containing the ISBN number and some additional information. It is used by bookstores to scan sales information at checkouts, and by many distribution services (such as the stores system in Amazon) to confirm products are correct when being picked for orders. Without a barcode many outlets will refuse to stock your book. Lulu.com authors using the distribution packages must include the barcode on the back cover or their project will be rejected.

For two-piece covers Lulu adds the barcode and white rectangle automatically and you just need to leave the space for it. For one-piece wraparound covers you have to do all the work yourself.

The ISBN number used to be a 9-digit number that uniquely identified your book, followed by a single 'check digit' when displayed on a barcode. It has spaces in it to make it easier to read, but the spaces (or hyphens) aren't important. Recently we've changed to a 13-digit sequence called (duh!) ISBN-13 but all that happens is an extra three numbers are added to the start, and the final character at the end is changed. We'll say why in a moment.

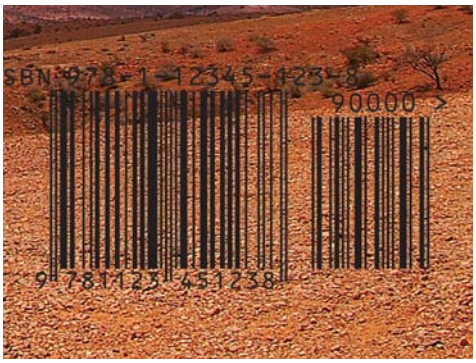
What's a barcode anyways?

Pretty much everything sold over the counter today has a barcode, and there are two standards inbroad use - the USA has the Universal Product Code (UPC) system and almost everywhere else uses the European Article Number (EAN) system, which is now called the GS1 system but I'll call it EAN here as everyone still does! The barcode on a book is very slightly different as it's not got the same internal construction, but it's based on the ISBN and so is guranteed to be a unique way to tell what the book is (since no two books should have the sme ISBN). There is a little more information tacked onto the end of the ISBN to form the barcode, but if you think of it as just a computer-readable version of the ISBN you typed on your copyright page, you won't be far wrong.

Barcodes are just stripes – thick and thin bars that translate into numbers, just like the dots and dashes in Morse code. There's a strict international standard that says what combinations of bar are used for what number, and they are read by a scanning light sensor or laser into a computer that works out the sequence and converts the bars back into the number. For EAN-13 (now called GTIN-13 and the sequence used on ISBN barcodes) there are always exactly 30 bars in the block. The big advantage of barcodes is that they can be read in different directions – so the computer can understand the bars even if the product is upside down or at an angle. Normally the barcode has human "eye-readable" characters above and below it, in case the store's scanner is broken and the sales assistant has to type it in by hand. The scanner DOES NOT read the numbers so there's no strict rule on the typeface, however most barcodes use a commercial typeface called OCR-B (or OCRB). At a push Courier will be OK if you don't have the the correct font installed on your computer.

If you don't care about the details and simply want to put a barcode on your cover, jump to page 7.

Of course the scanner must know when the code starts and finishes, and so the sequence of bars is always enclosed by extra bars called "guard bars" at each side and in the middle (you can see these on the barcode as they're slightly longer than the others). We also need to make sure it can't be confused by anything else nearby that looks like a bit of barcode! **The actual color of the bars is not that important** – if possible you should use black on a white background, but as long as there's a strong contrast it's sometimes necessary to use other colors. Looking at your groceries you'll often find barcodes using blue or green, just to save money on ink. Red is a problem as most scanners use red lasers, so they can't easily see red ink. It's also permitted to use a non-white background, but again only where you have to, and on books you don't have to! So, black bars on a plain white rectangle are expected.



If we just drew the barcode on the cover, obviously there's going to be problems if the background has a pattern. We could also get a problem if the barcode is right next to something that looks like more bars, and the standards require an empty rectangle for the barcode that has a certain amount of space at either side called the "Quiet Zone" or "light margin", that stops the scanner from accidentally reading a bit of your cover. Imagine what could happen if your barcode is printed over a photo of a tree and the scanner starts looking at the branches!

Now there's two ways we could get a quiet zone – we could hope that the person laying out the cover remembers one, or we could add stuff to the barcode so it forces enough space either side of the bars. Most barcodes use this 'enforced light margin' method – the right-side is forced by adding a '>' symbol to the sequence, and the left-side is forced by placing the '9' outside the guard bars. It means that you could (if you really wanted to) crop your white background right down until it touches the '9' and the '>' without confusing the scanners. There's no quiet zone at the top and bottom – your white rectangle can be cropped as tight as you want in the vertical direction, but there's a sensible limit of about 1mm to make sure the text isn't too hard to read. This is important to remember - that ">" is not part of the barcode or the entry the store clerk types in, and so if you don't need it you can delete it. It's visible on lots of products simply because the barcode designer wanted to make sure the person designing the rest of the background played ball.

For a standard sized barcode the minimum widths defined in the EAN standard for the three green quiet-zone areas shown below are (from left to right) 7 times, 7 times and 5 times the bar X-width. Provided your barcode has the overhanging "9" and ">" characters you'll have more than enough space to meet these specs, and any barcode-generating software will ensure the middle quiet zone is the correct size.

OK, so we know our book cover barcode will be black on a white background, the next question is…

What does the barcode mean?!

EAN barcodes (on beer, cereal and stuff) identify the product to the store's sales system and are issued very carefully so no two products have the same code. The start of the sequence identifies the country. Books wanted to hijack the barcode for a slightly different reason – the ISBN-10 number isn't really the same as the EAN product code, so somehow the store computer needed to know this wasn't a can of beer. What was decided is that books have a country all of their own – code 978 – and the ISBN-13 barcode is just the 9-digit ISBN number with '978' in front and one number following it. Now when an ISBN-13 barcode is scanned in WalMart the computer inside the cash register knows it's not a normal code. It may understand it, it may not... but only books live in country 978.

There are so many books out there, almost all the '978' codes are used up and so the ISBN system will start using '979' in the second quarter of 2008. We're stealing the 979 code from music publishing as they don't release as much material. That should keep us happy for another 10 years or so, but looming on the horizon after 979 is filled is the EAN-14 system!

What happens if the scanner makes a mistake though? Surely a split-second swipe across a laser might get it wrong? Well yeah – it can. So the barcode has one more digit – called the 'check digit', added to the end of the sequence. This is calculated from the rest of the code, and allows the scanner to see if it got it right. If the check digit doesn't match what the scanner expected, it beeps, or waves a flag, or electrocutes someone... anyways it complains instead of selling someone a Buick instead of a Book. The check digit is calculated by all the barcode-producing software you'll be using and I've explained how to do it manually at the end of this document, if you're really curious! Most of the time it'll be another number, but it may sometimes appear on older books as 'X' – which represents 10.

The actual bars (the black lines) are calculated using a quite complicated three-stage process to make sure a scanner can cope with upside-down products, so there isn't actually a single bar sequence for "1" or "5" - there's actually three depending on where it appears and what else is in the EAN number.

So let's look at the barcode again… now we can see where the ISBN comes in, but what's the little block on the right? What's 90000 mean?

Well, remember the ISBN is pretending to be an EAN product code. They talk about sales prices and stuff. Our ISBN number may be unique, but it doesn't include the price! What happened to fix this, and avoid bookstores going insane with sticky labels, was the idea of adding a second barcode into the rectangle. It's called the Supplement Code, and it can be formed from two or five digits – books always use five. It's supposed to hold the cover price, and many bookstores will read it and believe it, so if you aren't sure that the cover price is going to stay the same, or don't even know what it is yet, you have to put something 'empty' in that block. You can't leave it out as the poor bookstore scanner will be looking for it! The solution is to use the special code 90000, which means "no price information". It's bad practice to use another code (like 00000) as most of these other 'silly' supplement codes mean something important. I've listed them at the end of this document in case you're curious.

Lulu authors cannot use a price on their barcodes as it has to be written in 'local currency'.

If your book was published only in the USA and the cover price was $14.95 then the Supplement Code would be 51495 (the '5' means the numbers that follow are a price in US Dollars). However you only put a barcode on a Lulu book with a distribution package (Published by..) - and since Lulu may sell your book to a store in Madrid or Mexico City, who'll want a price code *in local currency*, you can't pre-print it on the cover. All Lulu books therefore have to use code 90000, and it's then up to the store to handle the true price either in their computerised cash register or by adding a sticky label.

How BIG is it supposed to be???

Ahh, now we get to the fun part!

There's a standard for EAN/UPC codes that defines both the width of the bars themselves and the overall height. The problem is the standard also allows people to break the rules! A product with lower-quality printing or a rough surface needs a larger code so it can be scanned reliably. A smaller code may be required on physically small products, but there's a limit to how small it can be or the scanners will fail to find it. What's important to remember is that within these limits the size of your barcode *does not matter at all*. Look at fifty books and they'll have 50 different sized barcodes.

Before we go any further, let's look at a typical bar code at **100% scale**:-

I've given the sizes in real units and in pixels assuming a 300dpi image resolution, as most people laying out covers will be working in software that shows things in pixels. There are 72 'points' (pt) in one inch.

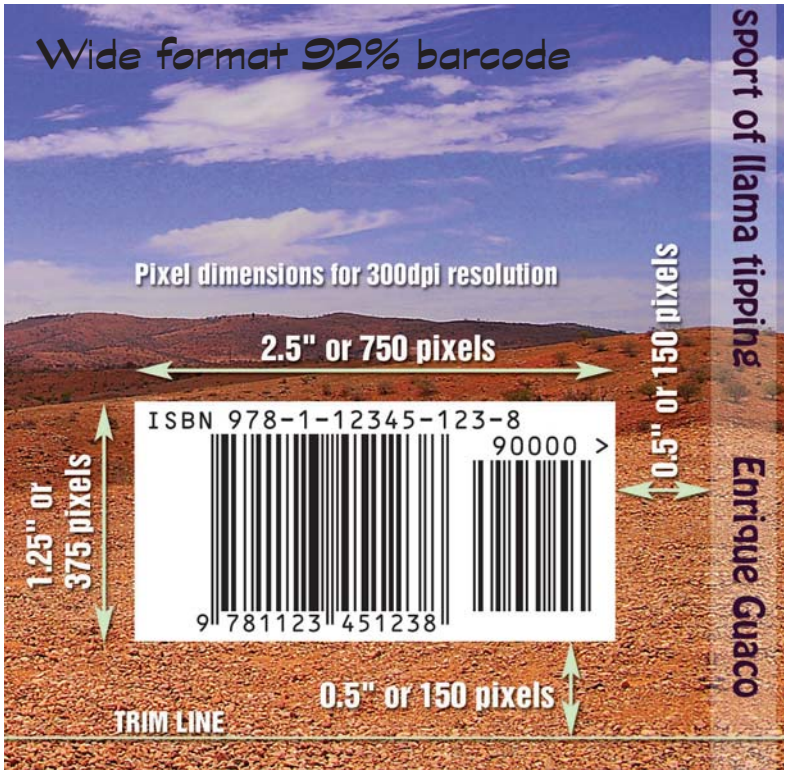
- The standard bar height is 72pt (25.4mm or 1", 300 pixels)
- The height of the guard bars is 77pt (27.1mm or 1.07", 321 pixels).
- The standard bar width (the X-dimension) is 1.42pt (0.5mm or 0.02", 6 pixels)
- The central quiet zone width is 6.75pt (2.4mm or 0.09", 28 pixels).
- The supplement bar height is 61pt (21.6 mm or 0.852", 254 pixels)
- ***There must be no printed border around the barcode's background box.***

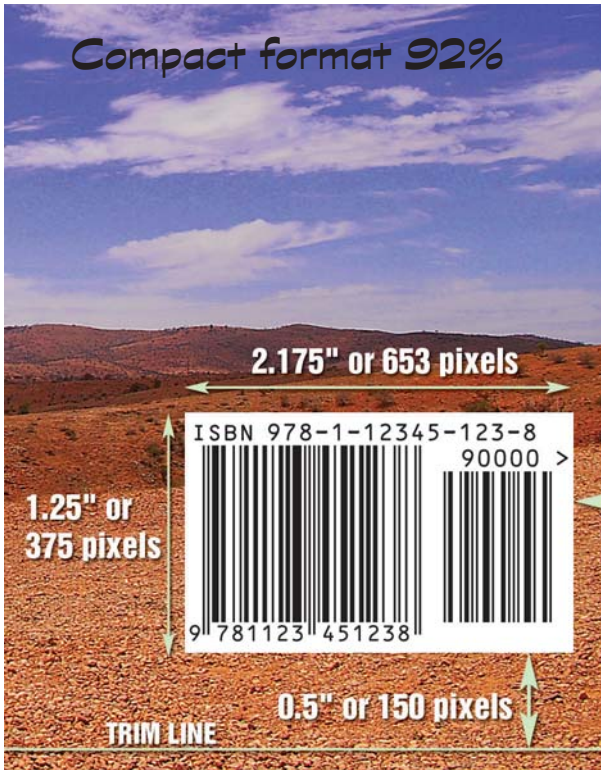
What we're talking about is the size of the barcode itself – not the white rectangle. Some books don't have a rectangle as the cover is plain white already! We aren't concerned yet with any of the human-readable text - just the bars. However we can say where that text goes:- the top and bottom margins between the bars and the text are usually 2mm, the font size should be at least 9pt, and usually is exactly 9pt. The guard bars extend into the bottom line of text as shown. Note that the bars for the Supplement Code are shorter but follow all the other rules on widths and spacing. The supplement bars should align with the bottom of the standard bars.

So if that's the size for "100%", what am I expected to use on my book?

Well EAN codes can be scaled to anything from 80% to 200%, but the 'accepted' size for the barcode on books is 92%. I know it sounds stupid, but for various reasons nobody wanted to use 100% even though it would have been more sensible. 92% it is, but if you make your barcode a different size it'll still be read by scanners so long as it's in the 80% to 200% range. **You are however 'expected' to use 92% unless there's some compelling reason not to (such as a very small book)**. So you have a bit of your answer - the BARS are scaled to 92%. Of course with an ISBN barcode that's not the complete answer since we're also putting the ISBN number above the barcode. In what we call the 'wide format' this text is centred across the main barcode block and so extends to the left of it. In the 'compact format' it's justified against the entire barcode. The expected size of the white rectangle for a 92% wide barcode is 2.5" x 1.25" (XXmm x 27mm). Using the less common '92% compact format' barcode with an indented ISBN text line, the width of the background rectangle can reduce to around 2.175 inches.

Note that even though we are scaling the bars to 92%, **the text stays at the full size** - ideally 9pt.





Now we're getting somewhere... but just in case you're measuring the books on your shelf and thinking "Hey.. these are all smaller! Whassup?" I need to mention that Bookland, who started the whole ISBN-barcode thing, *used* to specify an 80% scale barcode (1.75" x 1.00") as they thought 92% was a little too large for small paperbacks. Now we're using ISBN-13 and wanting to keep scanners happy that expect an EAN code, ***we should be using 92% scale even on small books***. This change from 80% to 92% is one of the most confusing things for new designers as it's almost never mentioned in specification sheets issued by publishers, but it's why books printed a few years ago had smaller barcodes than they do today.

But wait a minute - Lulu's website says it should be a lot bigger!?!?

Lulu makes things a little more confusing because when it adds a barcode automatically to the back of a *two-piece* cover, it doesn't just use the white rectangle for displaying the barcode. No – that's just too sensible! It also prints the project ID to the left of the barcode, and so asks for a white rectangle that's **far wider** than you'd expect (3.625" wide, 1.25" high).

If you're making one-piece covers then you won't normally bother with a project ID (it has no importance to anyone in the retail sector and will appear on the inside back sheet of your book anyway, which is why Lulu ask for that page to be kept blank) - so you shoulduse either of the standard "92%" formats shown above. The web-based barcode generator most people know about can only create the wide format, but my Cover Wizard for Photoshop CS3 uses the compact form.

If for some strange reason you wish to use a 100% scaled barcode then of course your white rectangle needs to be bigger, so there's at *least 1mm of margin on all sides*. You should never use more than 100% scaling, or retailers wishing to cover your barcode with a sticky label will obviously have problems!

Where do I put the barcode?

There's no international standard but most distributors and retailers expect the barcode to be on the back cover, in the bottom right corner and no less than 5mm from the edges. Usually it's inset about half an inch from the bottom edge to allow for some variation on cropping, as we've shown on the previous page. Some books may put the barcode elsewhere on the cover, but that enrages distributors and is likely to get your book dropped unless you're selling them by the billion and can shout back even louder - successful publishing in the print-on-demand market is all about sticking with the crowd and making your book as simple as possible for stores to process! BISG requires that the barcode is on the back cover (called in the industry "cover 4") and says it should be at "the bottom" but makes no ruling on left or right positioning - however the idea of "bottom right" is now so entrenched that it's a standard in all but name.

It's also sometimes permitted to rotate the barcode through 90 degrees to fit on an extremely small book, but the formats printed by Lulu are big enough for that never to happen - so don't!

Do I need the ISBN printed above the barcode?

Yes of course you do, as it's there for the checkout assistant to read if their scanner is dead. They could try to read the numbers along the bottom of the barcode but as you can see they are harder to read! Most distributors will insist on the ISBN displayed above the bars in "eye-readable form", and LSI - the printer used by Lulu - is one of them. This 'top ER text'should use hyphens (or spaces at a push) to separate the sequence into blocks of numbers according to the pattern your ISBN vendor has told you. The text 'ISBN ' should prefix it to indicate to the operator that it is not a standard EAN-13 sequence and you should avoid any other text within the quiet zone. A few publishers sneak a vertical line of text to the left of the first guard bar, but it's frowned upon as it breaks the strict rules on keeping that space white.

So if the ISBN isn't a UPC or EAN barcode, do I need that as well?

Not any more! For pulp fiction in grocery stores in the past there's usually been two barcodes – one is the ISBN-10 code and one is the EAN/UPC code. The scanner at the checkout will ignore one of them as 'wrong' and read the other, so a bookstore scanner saw the ISBN-10 and a grocery store scanner saw the price code instead. ISBN-13 solved this problem by using a country code, so grocery store scanners can now understand it. Now it's up to the store to decide if their scanner can convert the ISBN into a price on the cash register, but it's not your problem.

For print-on-demand or books distributed solely via bookstores a second code was never required as all the scanners likely to swipe your book would have been programmed to understand the ISBN. If a bookstore insists on using another barcode for some internal reason they'll just stick one on the cover – you see that in many bookstores and it's their job, not yours. Print-on-demand books with an ISBN-13 can of course be sold through grocery stores as their barcode is readable, but it's your problem to get them there in the first place!

What makes a 'good' barcode?

The laser scanners used today are pretty good at reading a smudgy or blurred code, as they're designed to read codes on cheap groceries and irregular surfaces like egg cartons. Figures from the leading suppliers of scanning equipment suggest that a modern laser reader will throw an error only once in every 500,000 scans, compared to one error in 300 keypresses for a human entering number sequences. However you can help them by making the bars as crisp as possible (use 300dpi) and trying to avoid any overuse of anti-aliasing blurring the bars. As we've said there's no standard typeface for the text, but you should try to use OCR-B if you can get hold of it, Courier if you can't. Don't use OCR-A, the blocky hard-to-read typeface used on checkbooks. OCR-B is easy for humans to read; OCR-A is easy for a computer. The text is for the checkout clerk's benefit not a robot!

Do I use the strippable symbol?

In the USA, a 'strippable' symbol is often shown next to the barcode on pulp material, as a capital S in a triangle. This indicates to the retailer that the cover can be ripped off and sent back for credit returns instead of sending the entire book, and is an industry method to reduce shipping costs. Stripping is not used for print-on-demand and so **the S symbol must NOT be used on a Lulu cover barcode**.

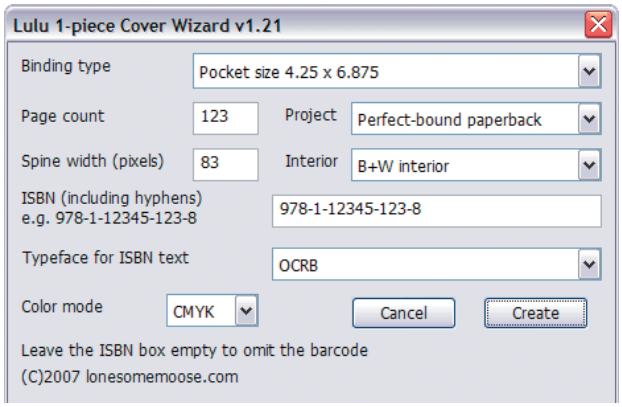
Do I use the text 'EAN' next to the barcode?

Not any more. It appeared to the left of the bars for a while when we were converting from ISBN-10 to ISBN-13 so small-town checkout clerks could understand why their cash register threw a hissy fit, but is now no longer required and should not appear.

How do I put a barcode on my artwork?

If you are a Photoshop CS3 user (and even if you aren't you can get a free 30-day trial version from Adobe, fully functioning and capable of everything you need for Lulu covers) then I recommend you to use my Cover Wizard. Yes, of course I'd say that since I wrote it, but it's completely free and rather good. You can download the wizard (it's a Photoshop CS3 Script, not a plugin, so works on Win + Mac) from this link:-

http:www.lonesomemoose.com/lulu/



Once you've copied the script to your Photoshop CS3/Presets/Scripts folder, you'll find a new menu item, under File.. Scripts.. Lulu Cover Wizard. Clicking that will open a dialog box as shown to the right.

You simply choose the binding type and style from the dropdown boxes, the interior ink type, and enter the number of pages your book has (PAGES not paper sheets.. a 100 page book will use 50 pieces of paper). The Wizard will calculate the spine width using the same mathematical rules that Lulu uses on their website, and show you the thickness on the remaining box. Finally choose if you want a document in CMYK or RGB color mode - I strongly advise using CMYK as it'll keep your colors better matched to the final printed book. If you don't want an ISBN barcode at all, then simply click CREATE and a new document will be opened with guides marking the position of the spine, bleed areas etc.

If you want a barcode (as you probably do if you're reading this) then type it into the box - the wizard will assume it's valid and doesn't try to look it up in the databases. Choose the typeface you want to use for the eye-readable text (if you have OCRB installed the Wizard will pick it for you; if not I suggest using Courier). Press CREATE and after a second or two of churning the new document will appear with a barcode embedded. The text, bars and background are all editable and on different layers of the document so if the font you've picked doesn't work you can change it or move the text around. Note that this free Wizard always uses the '90000' price code and doesn't allow you to change the size of the barcode - it embeds in 92% compact form every time.

It's very important when printing your Photoshop document into a PDF file for upload to Lulu that you fully flatten and raster the artwork before trying to print it - in Photoshop save a backup copy then use the menu command Layer..Flatten Image. This will remove any fonts and transparent areas that Lulu can't handle.

Using Judah Milgram's online generator - making an EPS file

Before you can actually use the files this generator gives you, if you haven't got an OCR-B typeface installed then you'll need to hit the Web and find yourself one. The **official** OCR-B typeface is commercial and can be purchased from www.myfonts.com, but if you look about enough you'll find free mimics of it. I'm not about to list links as there are questions of trademark at stake, but Googling for 'free OCR-B font' is a good start!

Once the font is installed, visit http://www.tux.org/~milgram/bookland/

Now to fill in the form.. it looks complex but it's not:-

- Check 'yeah yeah..' or you'll get a red warning page instead of your barcode.
- Enter your ISBN **with hyphens**, such as 978-1-12345-123-8
- Enter 90000 as the add-on code. That's *four* zeroes...
- Usually you want CMYK. Leave the color numbers unchanged.
- Yes, you want the > quiet zone symbol
- Use 'OCRB' unless you're using a strange font with a different name. Note there's no hyphen.
- It was the armadillo all along, but it doesn't matter.
- ***Scale factor 92% - this is important!***
- Label scale 9
- Bar width reduction 0
- press 'Generate'

You'll be taken to a new (and very green) page showing a thumbnail of your barcode - DO NOT just save that image, it's too small to be of any use. Instead click on the link for the encapsulated Postscript (EPS) file and save it to your computer. If you really have no way of handling an EPS file then there's also a link to download the barcode as a PDF, but that hardly helps as any graphics package that can import from PDF can also read EPS files (they're based on the same thing). What you *can't* download are image-based barcodes (JPEG, etc.)

Important note for Internet Explorer users

IE on Windows gets confused when asked to download a .EPS file, and renames it into a .PS (Postscript) file which then can't be found when trying to place items into Photoshop or Illustrator. It's a bug in IE and the only way to avoid it is to right-click the download link from the above page, choose "Save as.." then in the folder selection window that opens CHANGE THE FILE EXTENSION back to '.eps'. The file itself isn't altered, just the extension, so if you forget just find the file and rename it manually.

To put an EPS barcode into a Photoshop document, you use the File..Place command NOT the copy/paste or File..Open commands. It will be placed on a new layer at the correct scale but cannot be edited.

If you want to convert the barcode to 'compact' then you'll need to open the EPS in a program that can edit it, such as Adobe Illustrator. Ungroup the file and move the top line of text across but be *very careful* not to move any of the bars! Unfortunately the grouping inside a Milgram EPS file is a little fragile so once you start exploding the structure inside Illustrator it's easy to grab the text and find you're also dragging bars about.

> **Users of QuarkXpress** should note that the EPS format supplied by the Milgram generator won't import (it's actually a complex Postscript program not just rectangles and text, and Quark can't execute all the commands inside the file). You must first open the EPS in an editor (Adobe Illustrator, etc.) and re-save to legacy format (Illustrator 7 EPS or earlier). While you're at it, you can save time by adding the white rectangle into the EPS so it's simpler to paste into a Quark picture box, and converting the text to outlines so there's no nasty font-embedding problems later on. Another option would be to use my PS CS3 Cover Wizard to create the barcode, crop it down, save it out as a 300dpi hi-res image (PNG or TIFF) then import into Quark like normal.

Pointless Info: Supplementary Code prefixes

Although Lulu authors **should never use the Supplementary Code section of the barcode** since the price may vary (and books are distributed worldwide, making the price a problem if it's in the wrong currency!), you may like to know what the numbers mean. I hate being told not to do something and then not be told why! This page isn't important if you're just trying to put a barcode on a Lulu book, but it may come in useful in the future when you're running a publishing empire...

The Supplementary Code Prefix is a 5-digit number, and originally was used for lots of things but is now firmly agreed as 'something to do with price', at least in terms of books. The grammatically-aware amongst you will of course be sreaming "it's not a prefix! It comes after the ISBN!" but clearly the EAN committee had issues with their school attendance. The real problem is that while the ISBN system is truly international, the supplementary codes are not, so each country varies the code sequences a little. Luckily there are some internationally-agreed "default" codes that we can use - 90000 is one of them. But what about the rest?

Prefixes 0 to 5 used to indicate the number following is a price, in a certain currency. Codes were assigned to various English-speaking countries, but a review in 2005 showed that very few, if any, were used other than the '5' prefix for US dollars. A new sequence was issued that uses the prefixes 0 to 5 differently:-

50001 – 59998	US$ 0.01 to US$ 99.98
59999	Price is greater than US$99.98 but value is not encoded
10000 – 19999	US$ 100.00 to US$ 199.99
20000 – 29999	US$ 200.00 to US$ 299.99
30000 – 39999	US$ 300.00 to US$ 399.99
40000 – 49999	US$ 400.00 to US$ 499.99

Codes '00000' and '50000' must never be used. Codes '60000' to '89999' have no agreed meaning at this time.

Code 90000 means "no encoded retail price" and is used on all Lulu books.

Codes 90001 to 98999 are reserved for use by publishers for internal cataloguing. Barcode scanners in stores will ignore them. They're usually used to trace print sources, batches and production dates. In theory you could use them for something but as you don't have your own printing plant you won't be scanning them yourself, so a code that means nothing to anyone else is pointless!

99990 is used by NACS (the US college bookstore network) to indicate a book is second-hand - it of course only appears on sticky labels as all new books are of course not second-hand, but it makes sure checkout scanners apply a discount to the price listed against the ISBN without having to individually re-price everything.

99991 means "Complimentary copy" and is also used to mark proofs not intended for sale. It should be noticed if it appears within the production channels as of course that means something went wrong! Please don't use it on Lulu projects even at the proofing stage, as if you forget and the barcode makes it into distribution many bookstores will refuse to sell it - their software detects '99991' as an error and voids the sale.

Even more pointless info:- Calculating the check digit in ISBN-13

Almost nobody works out the check digit in their head anymore, as they are either given a complete ISBN-13 code by their publisher or type it into a website. However in my usual tradition of showing you how things work, here's... how it works!

To find the check digit manually for the first 12 digits of an ISBN, use this table:-

ISBN-12												
Multiply by	1	3	1	3	1	3	1	3	1	3	1	3
Result												

Now add all the numbers in the last row together, and subtract that figure from the nearest equal or higher multiple of ten. The check digit is what remains.

For example if our ISBN is 978-1-12345-123:-

ISBN-12	9	7	8	1	1	2	3	4	5	1	2	3
Multiply by	1	3	1	3	1	3	1	3	1	3	1	3
Result	9	21	8	3	1	6	3	12	5	3	2	9

Sum = 9+21+…+2+9 = 82. Nearest 'higher multiple of ten' is 90, so the check digit = 90-82 = *8*

Useful links

BISG's specifications for ISBN barcodes:
http://www.bisg.org/documents/barcoding.html

Details on the ISBN-13 standard:
http://www.isbn-international.org/en/revision.html

Details on the EAN/GTIN standards:
http://www.ean.be/

Details on the bar sequences in EAN-13:
http://www.barcodeisland.com/ean13.phtml

Our tools and information for Lulu authors and cover artists:
http://www.lonesomemoose.com/lulu/

And because someone will ask "why did you write this?" - you're reading a document that originally wasn't anything to do with Lulu, as part of my job is teaching the technical side of publishing design. I made a Lulu-flavored version because the forums kept asking the same questions every day and it's easier to reply with a pasted link than a page of text!