

ISBN-13: Key Issues for Library Systems

Note. This is a pre-print extended version of an article to be published in the April 2005 issue of Against the Grain (<http://www.against-the-grain.com/>).

The ISBN standard is changing

The ISBN standard will change from ten to thirteen digits on 1 January 2007. By then at the latest, library systems and all other systems that handle ISBNs must be fully able to work with the new ISBN format.¹

The ISBN is used by publishers worldwide and its use in digital publishing, including an ISBN for each format of an e-book and for separately traded parts of books, has added to the pressure on capacity. The numbers in some areas are running low. ISBN revision is addressing issues of capacity, governance, funding and allocation rules.

An opportunity is also being taken to align standards. The new format will be identical to the EAN², the global article numbering system, which is the standard for the barcode number that is printed on the back of the book. EANs with the prefix 978 are currently used for books. The next nine characters are the same as the first nine of the 10-digit ISBN. The last character, the check digit, is calculated differently for the EAN. This means it is easy to convert between the 10-digit ISBN and the 13-digit version. To make more numbers available, most of the EAN range beginning 979 has been designated for new format ISBNs (these will not have a 10-digit equivalent), to be used when the 978 range is exhausted.

The ISBN and libraries

The ISBN is a product identifier. Its primary purpose is to facilitate the trading of book products. But libraries use it for far more than that. It has become a vital part of integrated library systems and other tools used by libraries. Software for handling ISBNs exists throughout the functionality of these systems.

Generally, the change is likely to impact on aspects such as online displays, printing and validation of data entry, as well as EDI messages, indexing, searching through numerous routes and a wide range of processes involving record identification and matching.

It's worth stressing that January 1st 2007 is the deadline – systems must be modified and implemented by then. Indeed, pressure to change sooner is growing. Publishers, distributors, booksellers and other players in the industry are implementing transitional arrangements. Since Summer 2004, books have been appearing with both forms of the ISBN printed in them. This is rapidly increasing. Since October 2004, MARC records have been carrying both forms of ISBN, reflecting what is found in the book.³

Acquisitions EDI

The ISBN is obviously a vital data element in the library book acquisition process: it identifies the product being bought. According to the 'Guidelines for the Implementation of 13-Digit ISBNs' produced by the International ISBN Agency⁴, all ISBNs quoted in trading must be in the 13-digit form, even for books published with only a 10-digit ISBN.

To enable a transition where trading partners can modify their systems independently and continue trading without disruption, the relevant organisations in the UK and US have published guidelines.^{5,6} These recommend a dual-use approach, where both forms of ISBN are carried in all EDI messages so that the recipient system can switch from using the ISBN-10 to the ISBN-13 in its own time. This will work until publishers begin to assign 13-digit ISBNs beginning 979, some time after January 1st 2007.

The first step is to modify systems to send both forms of ISBN as soon as possible and to ensure that receiving them in EDI messages, even if they are not used in processing, does not cause a problem. The old BISAC format, which has fixed length fields, will not support ISBN-13, so systems that still use it will have to start using a more modern EDI format such as ASC X12, EDIFACT or the new XML-based format. In EDIFACT, the already defined EAN area will be used to carry the ISBN-13.

Libraries should be planning for their systems to be processing the ISBN-13 or EAN instead of the ISBN-10 in all EDI messages received, by the end of 2006.

Libraries are different

The publishing and bookselling parts of the book industry can and will move exclusively to using ISBN-13, even for publications that were originally assigned a 10-digit ISBN, which will gradually disappear. But books with 10-digit ISBNs will exist in libraries indefinitely. Librarians will continue to process them for various reasons (acquiring older books; interlibrary loans) and users will continue to need and look for them. Both librarians and users may start from information that only gives the 10-digit ISBN.

So library systems should allow users to be unaware of ISBN revision. For those ISBNs that can be translated uniquely between 10 and 13 digits (that is, all 10-digit ISBNs and those 13-digit ISBNs beginning 978), users should be able to retrieve records using either form. When entering data, librarians should be able to record the ISBN in the form(s) given in the item. This latter point means that ISBNs in existing bibliographic records do not need to be converted. Also, the MARC format does not need to be modified because the ISBN field (tag 020) can already accommodate ISBN-13.

Display and printing

ISBNs are displayed in many places throughout library systems, in both front-of-house and back office modules. This may include displays of outputs from batch processes. Systems need to be able to display both 10-digit and 13-digit ISBNs, whichever occurs in the data. Does the screen real estate allow for longer ISBNs? Printed outputs may be more likely to have real estate restrictions. These could cover a wide range from reports supporting staff activities such as cataloguing, to overdue notices to users.

Validation of data entry

In some systems ISBNs may be validated when entered as data, such as in a MARC cataloguing record, a purchase order or inter-library loan request form. Perhaps they are validated when entered in a search query. If so, both ISBN-10 and ISBN-13 should be allowed as valid.

Furthermore, in Acquisitions, when ordering an older book and the source information only gives the ISBN-10, the system should translate it to ISBN-13 for use in the EDI Order message.

Indexing and search

To fulfil the need to allow searching on dual forms of ISBN regardless of the form(s) of the ISBN in the bibliographic record, it is highly likely that changes will be required to indexes and search interface software. How this is achieved internally is up to each system vendor.

One approach, which is being looked at by several library system vendors, is to convert all ISBNs in indexes to their 13-digit form and to normalise 10-digit ISBNs in search queries to 13 digits on the fly. ISBNs could occur not only in a specific ISBN index and search option, but also in others such as keywords. Within the library system, there will be relevant search interfaces in most staff modules as well as the public access catalogue (OPAC), including cataloguing, acquisitions and inter-library loans.

The same search issues as described above will apply to any software that allows remote applications to search your catalogue, typically via the z39.50 protocol. Conversely, many libraries have metasearch tools to search across multiple diverse sources using a variety of protocols. The impact of ISBN-13 on the protocol-handling software will need to be checked and it would be advisable to talk to those targets that support ISBN searching about their plans to implement ISBN-13, to ensure a trouble free transition.

Linking

Increasingly, library systems are linked to and from external content and services. Often, the linking mechanism includes an ISBN, so libraries and system vendors should be checking these and communicating with the content and service providers. Examples include

- * Enrichments: images, tables of contents, summaries, reviews, etc. accessed from remote services in real time to build results pages
- * E-books: the ISBN is probably in the URL when the user accesses the full text
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- * Open URL link resolvers: ISBNs may occur, perhaps for e-books
- * Institution portals are increasingly incorporating components of library system functionality, such as the display of 'my account' information, where the interaction may involve ISBNs
- * Learning Management Systems can be linked in either or both directions with library systems, typically extracting bibliographic data from the library system
- * Reading List and E-Reserve Systems, typically extracting bibliographic data from the library system and being accessed from within the OPAC (which reading lists is this book on?)
- * Booksellers' systems, possibly linked from the acquisitions module, perhaps to dynamically access price and availability information.

Record identification and matching

Most library systems can import bibliographic records, both online and in batches. Typically, incoming records are matched by ISBN (and sometimes by other elements) against the database to detect duplicates. Similarly, it is common for metasearch systems to de-duplicate or merge results from multiple sources; again, the ISBN plays a major part. These will need to accommodate ISBN-13 and be able to cope with a mixed picture where the same ISBN could occur in both 10-digit and 13-digit forms from different sources.

Phew! Anything else?

Physical union catalogues face the same issues on a larger scale as local library catalogues, needing to take account of ISBN-13 in de-duping and in making ISBN revision transparent for search. There may be additional issues regarding holdings notification and updating, which could also affect the contributing library systems, depending on the format and protocol used. Virtual union catalogues face the same issues as metasearch systems.

Systems supporting resource sharing and consortial borrowing use ISBNs. Since these are about interoperability, it is important to communicate with partner organisations as well as check software, to avoid disruption.

Binding management modules are likely to be affected and serials management should be checked, since ISBNs can be related to serials in some cases. Other systems using non-MARC bibliographic metadata might also be affected, such as systems for managing digital content and learning objects.

Finally, don't forget your barcode scanners! Usually, those used for scanning the barcode on the back of the book are programmed to convert the barcode EAN to the 10-digit ISBN. Ideally, scanners used for searching should be re-programmed when indexing and search have been ISBN-13 enabled, and certainly before numbers with prefix 979 appear. For data entry, such as into a MARC record, you should enter 10-digits and/or 13 digits, depending on what is in the book. The optimum time to re-programme scanners for this purpose will be when 13-digit ISBNs start to occur more frequently than 10-digit ISBNs.

Conclusion

The ISBN is a core identifier and enabler in complex library systems. Where systems are interoperable, dependencies should be minimised by heeding the W3C principle of tolerance: 'Be liberal in what you require but conservative in what you do.'⁷ Librarians need to check their systems, plan for change and talk to system vendors, materials vendors, consortial and ILL partners, linked content and service providers and consumers, and anyone else who might be relevant.

References

1. For more information on the new ISBN format, see the web site of the ISO committee with responsibility for revising the ISBN standard: www.lac-bac.gc.ca/iso/tc46sc9/wg4.htm
2. EAN International: <http://www.ean-int.org/>
3. LC Plan to Accommodate 13-Digit ISBN: <http://www.loc.gov/cds/notices/notisbn13.html>
4. ISO Guidelines for the Implementation of 13-Digit ISBNs: <http://www.isbn-international.org/en/download/implementation-guidelines-04.pdf>
5. Book Industry Communication (BIC) Implementation of 13-digit ISBNs in EDI trading: <http://www.bic.org.uk/ISBN%20revision.html>
6. BISG EDI Strategies for the Book Industry and the 13-Digit ISBN: http://www.bisg.org/docs/BISG_EDI_Roadmap.pdf
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