



Book Industry Study Group

EDI Strategies for the Book Industry and the 13-digit ISBN

A Roadmap for Electronic Commerce

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Developed by:
The Supply Chain EDI (SCEDI) Committee
of the Book Industry Study Group, Inc.

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Preface

This document was prepared by the Supply Chain EDI (SCEDI) Committee which is part of Book Industry Systems Advisory Committee (BISAC). BISAC is the standards-setting arm of the Book Industry Study Group, Inc. (BISG). The initial *EDI Strategies for the Book Industry and the 13-digit ISBN* was drafted in August 2004, with a revision in November 2006.

SCEDI's primary focus is on creating the XML documents that the book industry will use to transact business over the Internet. SCEDI is also charged with maintaining current EDI standards such as ASC X12 as it relates to our industry and with creating tools and documentation that aid the book industry as it moves to adopt or upgrade electronic commerce capabilities.

More information is available at <http://www.bisg.org/bisac/scedi/index.html>.

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Table of Contents

Introduction & Background	Page 3
The Strategy	Page 4
First-time EDI Implementation.....	Page 5
BISAC Fixed-Length Format Users	Page 5
ASC X12 Users.....	Page 5
EDIFACT Users.....	Page 6
XML Users	Page 7
Summary	Page 7

Introduction & Background

At the BISG Annual Meeting in September 2003, the BISG member organizations ratified a policy statement (http://www.bisg.org/docs/BISG_policy_001.pdf) that among other things, endorsed the ISO draft that is changing the ISBN from its current 10-digit form to a 13-digit version. In addition, the book industry is urged to become compliant with the GTIN family of product identifiers that includes packaging information.

It is not the purpose of this document to provide a tutorial on the whys and wherefores of this policy. Ample information is provided on the BISG website. However, the adoption of this policy provides members with unique electronic commerce challenges as they move to meet the January 1, 2007 implementation date.

A few definitions should serve to start everyone on stable footing:

- **ISBN-10** – The current 10-digit ISBN book identifier that uniquely identifies each book with a 9-digit core number and a tenth check digit.
- **ISBN-13** – On January 1, 2007, the ISBN will be redefined from the current 10-digit identifier to a 13-digit identifier. All ISBNs issued after January 1, 2007, will be 13 digits in length. All communication regarding 10-digit ISBNs issued prior to that date should utilize the 13-digit format. The terminology ISBN-13 is being used during the transition to differentiate between the two formats. As the transition is completed, only the terminology “ISBN” will be used.

Existing ISBN-10s will be expressed as ISBN-13s by prefixing the 9-digit core with “978” and calculating a new check digit. This 13-digit identifier is also sometimes referred to as a Bookland EAN; the ISBN-13 and Bookland EAN are equivalent when un-hyphenated. Only ISBN’s should ever be hyphenated (see the International ISBN Agency website for technical details).

As the need arises, ISBN-13s beginning with “979” will be allocated to national ISBN Agencies for assignment to publishers. There is no 10-digit equivalent for ISBN-13s beginning with “979”.

- **GTIN (Global Trade Identifier Number)** – The GTIN is a family of identifiers that includes EAN and UPC among others. The 14-digit member of the family is referred to in the book industry as GTIN-14.
- **GTIN-14** – The GTIN-14 is constructed by prefixing any EAN (including an ISBN-13) with a packaging level indicator and calculating a new check digit. The GTIN-14 is the recommended identifier for electronic communication in the book industry.

Any “EAN-13” (including the ISBN-13) can be converted and represented to trading partners as a GTIN-14 identifier by prefixing the EAN-13 with a packaging level indicator of zero. In the future, GTIN-14 identifiers beginning with numbers other than zero (e.g. 1-8) can be optionally assigned by publishers to uniquely identify packaging configurations of goods (e.g. a case pack or pallet of books). As mentioned above, the GTIN-14 check digit must be re-calculated whenever the EAN-13 is prefixed with a number other than 0.

Obviously, the path to compliance depends on where you are starting from. The next section of this document discusses the high-level strategy that SCEDI has chosen. Each remaining topic discusses how that strategy applies, and how to get into compliance based on your current EDI situation.

The Strategy

If every company in this industry had just one electronic-commerce trading partner, the migration strategy would be simple and straightforward. Both companies would upgrade and test their systems at the same time. Then, at some preordained moment, both would “flip the switch” rolling out the changes to their production systems. A test or two to ensure proper operation and the job would be done. However, imagining this scenario in the complicated, interrelated book industry quickly reveals the folly of this approach. One can imagine one person on duty in every IT department at midnight on December 31, 2006, ready to “flip the switch” in unison with every other switch flipper.

Equally appealing—at least at first blush—is the idea of simply “picking” the 9-digit core out of the ISBN-13 or GTIN-14 and ignoring those pesky prefixes and check digits. This plan would work until the first ISBN with a “979” prefix is released (predicted for mid-2007). Suddenly there will be two books with the same 9-digit core; one with a “978” prefix and one with “979”. Which product is it?

Clearly we need an approach that allows each company to migrate independent of trading partners. Companies that have completed their upgrade must still be able to communicate and exchange business documents with those who have not yet completed the process. In short, the process must be seamless and flexible.

The most practical way to accomplish this is for compliant companies to follow these steps (using the ASC X12 format as an example):

- 1) Ensure that current EDI translation software uses the Product ID Qualifier in conjunction with the Product ID. For instance, the software should understand that if the qualifier is ‘IB’, then the value in the Product ID field is the ISBN-10. Moreover, all trading partners must be transmitting and receiving documents with this qualifier. The reason that this is important is that additional qualifiers will be added (see next steps) and the translation software must be able to discern between the different types. All EDI enabled companies should already be following this practice, but due to its importance, this functionality should be checked.
- 2) After upgrading backend systems as needed, reconfigure EDI systems to be able to receive and transmit all three numbers (ISBN-10, ISBN-13, GTIN-14), with their unique qualifiers, for all line items. For incoming documents, the desired number can be selected through the use of the correct qualifier.

NOTE: Since some trading partners will not be set up to send and receive all three identifiers as soon as others, configuring your EDI system to reply with the same identifier(s) received line item by line item may be a way to provide alternative flexibility during the transition. Please check with your trading partners to test system compatibility.

- 3) After all trading partners have upgraded, support for the ISBN-10 can be discontinued. Additionally, if two trading partners agree to only use either the ISBN-13 or the GTIN-14, support for the other code can be dropped. The decision of whether, when, or even if the support is to be dropped is at the discretion of the trading partners.

This process will allow each company to implement the changes at their own pace, independent of their trading partners.

First-time EDI Implementation

When considering implementation of EDI capabilities for the first time, the choice should be simple. The XML standards as defined by SCEDI will provide you with a flexible, highly functional, easy-to-implement system. However, before making this decision it would be wise to consult with your trading partners to ensure that they will be able to interact with you in XML. Larger companies often support multiple formats, but you may have some trading partners that only support one format (*i.e.*, ASC X12). If you need to trade electronically with these partners you will have to choose the format that they support. Designing your system with the strategy outlined in the previous section will ensure that support for ISBN-13 and GTIN-14 will be online from the start.

BISAC Fixed-Length Format Users

The BISAC format (as opposed to BISAC, the organization) was created in the mid 1970s. As one would guess, it is a very old technology that was designed for punch cards and uses fixed length fields. For instance, the ISBN is always located in bytes 31-40 in the 40 record. There is no ability to vary the length of this field to accommodate ISBN-13 or GTIN-14. There is also no functionality to include multiple product identifier codes for each line item, nor any qualifiers to define what the numbers are. Clearly BISAC is a severely limited format, especially when compared to the less old technologies of ASC X12 and EDIFACT, let alone the new XML standard.

Although the BISAC format has served the book industry well (it was one of the founding purposes of BISAC, the organization), its time has clearly passed. In recognition of the limitations of the format to meet the current needs, BISAC voted in 1995 to cease maintenance on it. In other words, there are no plans to try to make the BISAC format work with the new product identifier codes.

From a practical standpoint, the amount of programming and development work that a BISAC user would have to invest to be able to handle the ISBN changes would probably rival that required to implement the much newer XML technology.

It is therefore the recommendation of SCEDI that any companies using the BISAC format to transmit and receive business documents should immediately start to investigate implementation of XML. After review of the technology and consultation with trading partners it is decided that XML cannot be implemented, the use of ASC X12 or EDIFACT will at least allow the company to support the new ISBNs.

ASC X12 Users

Upgrading an ASC X12 EDI infrastructure to support the new ISBN should prove fairly easy. In-depth information on the using ASC X12 in the book industry is on the BISG website (<http://www.bisg.org/documents/standards.html>), however all ASC X12 documents that use an ISBN make use of the Product/Service ID Qualifier (element 235) to define the Product/Service ID (element 234). Using the following P01 segment from a Purchase Order as an example:

PO1*497583*4*UN*14**IB*0140179178*B5*GREAT JONES STREET.*B6*DELILLO,
DON.*B7*HOUGHTON MIFFLIN,*B4*P

The “IB” indicates that the following field (0140179178) contains an ISBN. Once upgraded to be compliant with the new ISBN, we would expect the segment to be:¹

PO1*497583*4*UN*14**IB*0140179178*EN*9780140179170*UK*09780140179170*B5*GREAT
JONES STREET.*B6*DELILLO, DON.*B7*HOUGHTON MIFFLIN,*B4*P

The “EN” code indicates that the next field is an ISBN-13 and the “UK” code is for a GTIN-14 code.

Your EDI system is correctly configured for the changes to the ISBN field once your EDI system can:

- a) Accept the 13- and 14-digit product identifiers on inbound documents.
- b) Pass the 13- and/or 14-digit code to your backend systems.
- c) Produce outbound EDI documents with all three identifiers.

IMPORTANT NOTE: The order in which product identifiers are sent and received can vary. Your EDI system should be made flexible enough to read the ID qualifiers (i.e. IB, EN, and UK) in any order. **DO NOT** expect to receive the three identifiers in a fixed order, or any one identifier in a fixed position.

For example:

PO1*497583*4*UN*14**EN*9780140179170*UK*09780140179170*IB*0140179178*B5*GREAT
JONES STREET*B6*DELILLO, DON*B7*HOUGHTON MIFFLIN*B4*P

is the same as:

PO1*497583*4*UN*14**IB*0140179178*EN*9780140179170*UK*09780140179170*B5*GREAT
JONES STREET.*B6*DELILLO, DON*B7*HOUGHTON MIFFLIN*B4*P

Some EDI documents have the functionality to specify a ‘replacement ISBN’. This is most commonly used when the ISBN of the product being supplied is different than the ISBN of the ordered product. The X12 standard specifies the use of the “AI” qualifier for a replacement ISBN-10. The “RR” qualifier will be used to specify a replacement ISBN-13 and “SR” will be used to specify a replacement GTIN-14 code.

EDIFACT Users

As mentioned in the *Introduction*, responsibility for EDIFACT lies with EDItEUR (www.editeur.org). However, EDIFACT uses a methodology that is very similar to ASC X12 and their solution is expected to be very similar to the ASC X12 solution.

XML Users

Complete information and schemas for the XML documents for the book industry are maintained by SCEDI and can be found on the BISG (www.bisg.org) and EDItEUR (www.editeur.org) websites. All of

the electronic commerce XML documents use the product numbers in the same way. The example below shows a ProductID segment that has been designed to include all three product identifiers.¹

```
<ProductID>
  <ProductIDType>ISBN</ProductIDType>
<Identifier>0140179178</Identifier>
</ProductID>
<ProductID>
<ProductIDType>EAN13</ProductIDType>
<Identifier>9780140179170</Identifier>
</ProductID>
<ProductID>
<ProductIDType>GTIN14</ProductIDType>
<Identifier>09780140179170</Identifier>
</ProductID>
```

As with ASC X12, XML systems can be said to be compliant when they:

- a) can accept all three numbers;
- b) act on the 13- or 14-digit identifiers; and
- c) output documents with all three identifiers.

Summary

The following points cannot be stressed enough:

- The EDI subsystems of **EVERY** participant in the book industry **MUST** be upgraded before January 1, 2007.
- Following the plan outlined in this document will allow individual organizations to upgrade on their own timetable
- Users of the BISAC format for transmitting data need to upgrade to another format, preferably XML.

Lastly, BISG and the Supply Chain EDI Committee are always looking for new members to assist in defining the standards that guide the book industry. To learn more about joining, contact the BISG office at 646-336-7141 or via e-mail at info@bisg.org.

¹ All of the examples of actual X12 and XML syntax are meant as illustration only. For the actual data, tags and qualifiers, consult the BISG (www.bisg.org) and/or EDItEUR (www.editeur.org) websites for the current standards.