AMERICAN SOCIETY FOR INDEXING

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Portland Head Lighthouse
Cover photo by E.J.Johnson Photography

IXMLembedder

What Does It Do and How Would You Use It?*

Lucie Haskins with significant contributions from Angela Howard[1]

***Editor's Note**: In the interest of furthering indexers' knowledge and familiarity with cutting-edge indexing software, the following article was written for Key Words as a step-by-step review and introduction to the IXMLembedder software recently created and developed by David K. Ream, of Leverage Technologies. As the Leverage Technologies website states, software such as IXMLembedder was created for publishing professionals such as indexers to work more efficiently and with more accurate results.*

I specialize in embedded indexing (Word, FrameMaker, InDesign, XML). Because the indexing modules native to these software applications/formats are rudimentary at best, I'm always looking for ways to streamline my indexing process.

Through the years, I've discovered and added numerous third-party add-ons to my embedded or back-of-the-book indexing toolkit. And, because I'm a documenter and researcher at heart, whenever I run across new tips or tutorials on how to use these add-on tools, I make the information accessible to other indexers on my website.[2]

I also use CINDEX as my primary back-of-the-book indexing software and have been a satisfied client of David Ream's since I started indexing back in 2000. I have purchased many of his CINDEX-based utilities[3] because they work and because they help me enhance my work performance. So when I heard that David was working on an embedded indexing tool, it definitely sparked my interest.

EMBEDDED INDEXING IN GENERAL

Before I discuss IXMLembedder's bells and whistles, I feel compelled to mention embedded indexing in general. There's a lot of hoopla nowadays about ebooks and electronic formats. Combine that with the ever-increasing pressure to shorten publication timelines, and embedded indexing is coming more and more into the publishing consciousness, if not quite in its mainstream.

However, if you are a back-of-the-book indexer who is just hearing about embedded indexing and don't really know how it applies to your indexing practice or if you should even consider adding it as to your service offering, it's not a decision to be made lightly.

The topic of embedded indexing is complex and really outside the scope of this article, but I'd like to point you to an article I wrote for *The Indexer* (along with some associated articles written by other indexers) that hopefully add some clarity to this topic and address your questions.[4]

IXMLEMBEDDER OVERVIEW

IXMLembedder[5] is David Ream's latest creation and is intriguing in its concept because it combines functionality into one package that was only available in separate utilities from different developers (if it was available at all).

In a nutshell, IXMLembedder embeds index entries into Word documents, InDesign files, or XML tagset[6] formats. That is, indexers can use the robust and sophisticated functionality of their CINDEX or Sky software, saving the index as an IXML file, which can then import the index entries to the supported formats to create completely native embedded files. It is this de facto standard index data format (IXML) that allows users of any indexing software that exports it to make use of IXMLembedder. (Currently, both Cindex and Sky support the IXML format.[7])

I still remember the first time I came across the embed-in-one-fell-swoop concept for Word documents (using DEXembed and WordEmbed)[8] and raved about these utilities:

> *"In my mind, they revolutionized embedding indexes in Word. With these utilities, you can finally have the best of both worlds. You index in the proprietary indexing package of your choice... and then import your finished index into Word in one fell swoop! You never have to index in Word itself!*
>
> *I was blown away by their functionality and, a decade later, I'm still impressed with the sheer creativity of both utilities.*

Then I discovered the KPS plugins[9] that performed the same magic for InDesign projects.

And now IXMLembedder has arrived on the scene — a worthy successor to these earlier utilities.

However, IXMLembedder goes one step further in also providing previously unavailable embed-in-one-fell-swoop functionality for XML formats. What's especially clever is that IXMLembedder combines this functionality within one utility, not multiple utilities. So, once the IXMLembedder process is learned for one project type (Word, InDesign, or XML tagset), it is remarkably similar for the other two.

Project types. IXMLembedder supports three project types (Word, InDesign, and XML tagsets). Of course, with any utility this sophisticated and encompassing in scope, there are preparatory steps and post-embed steps that must be completed. While the majority of the process steps are consistent across all the project types, there are some unique steps and considerations for each type. In the interest of this article's organization and easy navigation to both high-level and detailed information, the discussions specific to each project type have been split into the following sections, which immediately follow the Conclusion section:

- Using IXMLembedder with Word Documents
- Using IXMLembedder with InDesign Files
- Using IXMLembedder with XML Documents (Angela Howard)

Installation and pricing structure. IXMLembedder is installed as a separate executable on the computer system. The main executable purchase price is $195, which includes one project type of your choice (Word, InDesign, or XML tagset). Additional project types can be purchased separately for $100 each.

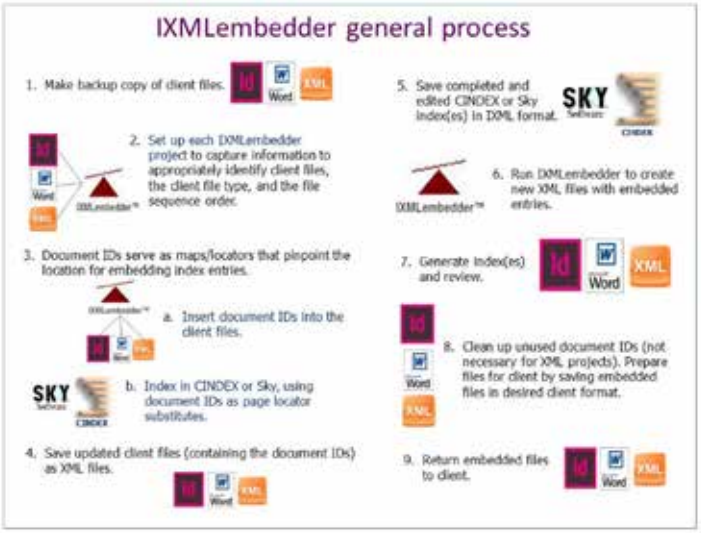
Documentation. IXMLembedder includes a robust user manual along with QRs (quick references) to highlight the main process steps for each of the three project types. This extensive documentation is a must-read as it provides so much more depth and breadth of information regarding functionality than can be provided in an article. (For example, IXMLembedder can also extract embedded index entries from Word, InDesign, or DocBook documents when that might be helpful at the beginning of a project.)

Support. David Ream has a long history of providing indexing-related services through LevTech Technologies. Visit his website for contact information and details regarding his products and services.

IXMLembedder general process

Please note that IXMLembedder does NOT completely exclude you from working in Word, InDesign, or XML as there are some process steps that need to be performed within the applications/editors themselves. But saving you from the agony of having to create your indexes within these applications/editors is worth its weight in gold.

The general IXMLembedder process is shown below:



IXMLembedder major tabs

All IXMLembedder processing is controlled through four main tabs.

The **Project tab** is the initial screen that displays when IXMLembedder is invoked. This screen allows you to create new projects that will use IXMLembedder. This tab also provides the buttons that allow you to access the user manual and the Quick Reference guides specific to each project type.

The **Document(s) tab** allows you will to set up information so IXMLembedder can properly identify what project type you'll be using (Word, InDesign, or XML tagset), which client files you'll be using, and where the client files are located. In addition, this is the tab that you will use to generate the document IDs that serve as page locator substitutes for your indexing software.

The **Index(es) tab** provides the location for you to identify the CINDEX or Sky index file name and location to link this project. This is also the tab that invokes the Embed (import all index entries) process (and the Extract (extracting embedded index entries) process.)

The **Tagsets tab** is used primarily with XML tagset projects and allows you to customize existing tagsets or to create new ones.

CONCLUSION

With continuing stagnation in indexing fee structures, adding helpful utilities like IXMLembedder can increase your productivity quite drastically, thus positively improving your bottom line. As an added plus, these utilities remove you from the frustration of having to use the rudimentary indexing modules in desktop publishing packages. And, like me, you might now start accepting projects that hadn't been financially beneficial prior to using tools like these.

So, if embedded indexing is pertinent to your indexing practice, I'd recommend you investigate IXMLembedder for its potential. I think you'll find that IXMLembedder will save you time and protect your sanity by letting you create and edit your index in your standalone indexing software. It's definitely worth adding to your toolkit if you create embedded indexes in XML files, and it's a top contender for Word and InDesign projects as well. If you create embedded indexes in all three formats, it's practically a no-brainer to buy and learn only one piece of software to do so.

USING IXMLEMBEDDER WITH WORD DOCUMENTS[10]

Early in my indexing career I was doing a lot of embedded indexing in FrameMaker. (Actually my first indexes were embedded—in VAX Document—when I was untrained but instinctively knowing that the technical documents I wrote needed indexes.) Luckily I had an indexing mentor who took me under her wing, introduced me to my still-to-this-day best client, and warned me to never ever index directly in FrameMaker (my best client's go-to package back in 2001. That's when I discovered the world of third-party add-ons and how beneficial and essential they were to provide much needed functionality. I used IXgen and, later, emDEX (my absolute favorite third-party utility of all time).

So when I decided to explore other indexing modules within publishing packages, I was naturally drawn to Word's indexing module. I was disheartened to discover its significant failings (no index preview, no entry autocompletion, no change propagation, and no temporary grouping among other serious deficiencies), and further disheartened to learn there weren't any third-party utilities available to remedy its drawbacks.

I also discovered that, unlike other embedded indexing packages, clients who contacted me with embedded Word projects didn't recognize the extra effort needed to index in Word itself and therefore didn't adjust their fee structures

accordingly. So, because I valued my sanity, and because I resisted being underpaid for significantly more difficult work, I made it a practice to decline all embedded Word indexing projects.

Then, around 2004, two third-party utilities (DEXembed and WordEmbed) each come on the scene and revolutionized working with embedded Word projects. Their developers had recognized the futility of trying to index effectively in Word and, rather than build onto that shaky foundation, decided that the less time spent in Word, the better. They each developed utilities that allowed indexers to create their indexes entirely in their dedicated indexing software (CINDEX, Sky, or Macrex) and then import those indexes in one fell swoop into the client's Word documents! Once the index file was imported, the entire index file was natively embedded in the Word document. This approach resolved all of Word's data entry, editing, and formatting shortcomings by simply making them inconsequential.

This was revolutionary! And I finally started accepting embedded Word indexing projects. Once again, third-party utilities had provided the mechanism to make embedded indexing workable in a particular application.

IXMLembedder follows this enduring legacy of enhancing indexers' toolsets with practical solutions. As with any revolutionary product, it takes it at least one step further—in this case by using the IXML format as its standard across all of the project types it supports.

IXMLembedder Process for Word documents compared to other utilities

Of course, there's some file preparation and project setup, as should be expected when transferring data between unrelated applications. But, with the aid of David's comprehensive user manual, his QR (quick reference) guide for Word projects, and additional detailed instructions I wrote and uploaded to my website, you'll be completely supported in working through the IXMLembedder process for Word.

Rather than just providing an overview of the IXMLembedder process for Word documents, I thought it would also be interesting to provide a comparison to DEXembed's and WordEmbed's import-in-one-fell-swoop steps in Table 1.

Takeaways

I've reviewed a slew of indexing (and other) utilities in both my indexing career and in my former life as a computer programmer. I've learned over and over again that new processes always take time to absorb and master. It depends a lot on the skill set you've built and your previous exposure to similar concepts, but you eventually get there. So, while I'm typically dismayed at having to start at square one again, I find that the more I work my way through a learning curve, the easier the process of learning becomes.

We are so lucky to live in such plentiful times! We now have the luxury of choosing from three utilities to embed index entries easily into Word! What largesse! To think that just over a decade ago, the only method to provide an embedded index for Word was to use Word. I still shudder to think about it.

In my mind, any utility that provides an alternative to indexing within Word itself is worth investigating. I've been extremely satisfied with my experiences with DEXembed and WordEmbed and I have to give both of them credit for blazing this trail.

When a new entry comes on the scene, taking advantage of newer methods and building the next rung in the ladder, it's always worth checking out. IXMLembedder brings so much that's new and exciting to the table and it holds its own among these established utilities. It is certainly worth taking for a test drive.

USING IXMLEMBEDDER WITH INDESIGN FILES

Unlike my experiences with indexing directly in FrameMaker or Word, I don't have a lot of issues with indexing in InDesign. It provides for changes within index groups, displays the index as it's being built, and allows indexers to modify existing entries. But its small font for the index palette strains the eyes.

But then the KPS plugins came along and provided eyestrain relief with editor windows with decent-sized fonts and also provided the import-in-one-fell swoop capability for the first time. Who could resist?

So I've been using the KPS plugins more and more over the course of the last two years, to the point where I can't remember the last time I indexed natively in InDesign.

And as has been my experience with other embedded indexing packages and the marvelous third-party utilities that have sprung up to support them, I have a curiosity about each and every one of them. While I enjoy the existing utilities I already use, I wonder "What can this new tool provide?" "Can it shorten my work process?" "Can it ease my eyestrain?" "Can it make short work of parts of my process that I don't enjoy doing?" "Does it make my life easier?" And then I have to try it out.

Luxuriously, InDesign is now another arena where there are multiple utilities that augment its embedded indexing process. What a wonderful position to be in: to investigate the options and select the one best suited for one's work methods and needs.

IXMLembedder Process for InDesign files compared to KPS plugins

Up until this point I haven't often been in a position to discuss utilities that perform similar functions. I now have had the pleasure of working with both IXMLembedder and KPS plugins.

So, to add another dimension to this review, in addition to outlining the major process steps for IXMLembedder, I will also including the comparable process steps for the KPS plugins in Table 2.

For those interested in also reviewing IXMLembedder's process steps for InDesign in more detail, I've loaded more faceted instructions on my website's resource page.

Takeaways

It's wonderful having choices. To think that just a few years ago, we didn't have the luxury of having even one utility to help us in our embedded indexing in InDesign and now we have two.

Table 1. IXMLembedder Process for Word Documents Compared to Other Utilities

IXMLEMBEDDER	WORDEMBED	DEXEMBED
1. Setup a. Create project folders and download client files. Create client files in DOCX format. b. In IXMLembedder, create project (Project tab); link client files to project (Document(s) tab); link index file (Index(es) tab).	**1. Setup** Create client folder and download client files.	**1. Setup** a. Create client folder and download client files. b. For multi-file projects, append two-digit chapter prefix to file names. c. Select locator-level option from DEXembed menu. Then populate document IDs through Word documents.
2. Indexing and Editing a. Open your indexing software (CINDEX or Sky) in one window, and open the client Word document a second window. b. Create the index in your indexing software, inserting the document ID into the desired location in the Word document and then copying/pasting it into your indexing software's page locator field.	**2. Indexing and Editing** a. Open your indexing software (CINDEX or Sky) in one window, and open the client Word document in a second window. b. Create the index in your indexing software, inserting the document ID into the desired location in the Word document and then copying/pasting it into your indexing software's page locator field.	**2. Indexing and Editing** a. Open your indexing software (CINDEX or Sky) in one window, and open the client Word document in a second window. b. Create the index in your indexing software, using relevant document IDs for locator field.
3. Preparing for embedding Save index as IXML file. Save updated DOCX file as XML file.	**3. Preparing for embedding** Save index as RTF (CINDEX/Sky) or MBK (Macrex) file.	**3. Preparing for embedding** Save index as tab-delimited file.
4. Embedding In IXMLembedder, run the Embed process from the Index(es) tab.	**4. Embedding** In Word, Open the client Word document. Open the RTF/MBK index file. Select Embed Index button from WordEmbed menu.	**4. Embedding** In Word, open tab-delimited index file. Open and set focus on Word document to be embedded with index entries. Select Embed from Tab-delimited File from DEXembed menu.
5. Post-embedding In Word, open Word document. a. Generate the index at the end of the Word document or in the separate reference document using the Insert Index(es) or Create Reference Document option on Levtech tab (Word). b. Delete unused document IDs via option on LevTech tab (Word).	**5. Post-embedding** In Word, open Word document. a. Generate index from instructions provided. b. Remove temporary bookmarks using WordEmbed menu option.	**5. Post-embedding** In Word, open Word document. a. Generate index from instructions provided. b. Remove temporary document IDs via DEXembed menu.
6. File delivery to client Save updated XML files to DOCX for client delivery. Close Project.	**6. File delivery to client** Save client files and return updated files to client.	**6. File delivery to client** Save client files and return updated files to client.

I've used KPS plugins for a few years now and they've been a tried-and-true work horse. I've just started exploring IXMLembedder and its capabilities, but I find its functionality intriguing and I look forward to putting more and more projects through its processes. As with the Word arena, I find IXMLembedder to be a top contentder in the embedded InDesign indexing world.

USING IXMLEMBEDDER WITH XML DOCUMENTS (ANGELA HOWARD)

If you have created embedded indexes in XML-like documents before, you know that it can be very tedious and take a lot more time than indexing a book using stand-alone indexing software such as CINDEX or Sky. I use the term "XML-like," because there are a variety of markup language syntaxes that fall into this category that are supported by IXMLembedder,

Table 2. IXMLembedder Process for InDesign Files Compared to KPS Plugins

IXMLEMBEDDER	KPS PLUGINS
1. Setup a. Create project folders and download client files. Create client files in DOCX format. b. In IXMLembedder, create project (Project tab); link client files to project (Document(s) tab); link index file (Index(es) tab).	**1. Setup** a. Create client folder and download client files. b. Create a copy of the PDF from the INDD files as they exist.
2. Document IDs and Indexing **Option 1.** Use Kvern script to embed all document IDs at page-level and each paragraph. These can be copied/pasted as relevant into the CINDEX/Sky files during index entry. **Option 2.** Create document ID in relevant location within INDD file when adding each index entry into CINDEX/Sky. The process will involve moving back and forth between (copying from) the INDD file and (pasting into) the index file.	**2. Indexing** Use page numbers from PDF file as locators for index entries in CINDEX/Sky
3. Preparing for embedding Save each index as IXML file. Save each INDD file as IDML file.	**3. Preparing for embedding** a. Remove cross-references from index file. Save index with two spaces as delimiter in page field and as tab-delimited RTF file. b. In InDesign, add RTF index file to newly created INDD file. Also add new file to book (INDB) file. Make sure all files containing entries are open. Close all nonindexable INDD files.
4. Embedding In IXMLembedder, run the Embed process from the Index(es) tab.	**4. Embedding** In InDesign, highlight desired selection of index entries in newly created INDD file. Invoke Index Import from KPS menu and press Build Index button.
5. Post-embedding In InDesign a. Generate index using updated IDML files. Review, edit, and regenerate index as necessary. b. Delete unused document IDs if necessary.	**5. Post-embedding** In InDesign a. Enter cross-references manually. b. Move markers from temporary frames at top of page to proper location within text. (This is the most time-consuming portion of the import and can take a few hours or so to complete.) c. Delete temporary frames. d. Generate index. Review, edit, and regenerate index as necessary.
6. File delivery to client Save updated IDMLs as INDD files. Return updated INDD files to client.	**6. File delivery to client** Return updated INDD files to client.

some of which look a lot more like XML than others, but the general process is the same for all of them.

I've been embedding indexes in XML files the "hard way" (manually inserting index tags in XML files) for quite a while, and I'm used to it. I started out as a technical writer back in the days before WYSIWYG document processors like Word and InDesign, when all of our documents were written with a markup language in a text file. We were writing the content without seeing any of the formatting, and we had to frequently "compile" the document to see how it would look with formatting. Ironically, things have come full circle, and many books are now written XML, which is very similar to the markup languages I used to use. The reason we're using XML documents now is that it can be output in a variety of formats: PDF files, web pages, print books, and e-books. So I'm very used to working in XML-like documents, but I sure do find it tedious, and when I "get" to index a back-of-the-book index in Sky, I feel like I'm in an indexing fairyland.

(continued)

Table 3. Manual Embedded Process Compared to IXMLembedder Process for XML Files

MANUAL EMBEDDED INDEXING PROCESS	IXMLEMBEDDER INDEXING PROCESS
1. Setup Receive the XML files from the client, typically one file per chapter. Make backup copies, and generate an original PDF file for the book if necessary.	**1. Setup** a. Receive the XML files from the client, typically one file per chapter. Make backup copies.
	b. Set up a project in IXMLembedder, specifying the XML file names and the type of XML being used.
	c. Using the ID generation tool in IXMLembedder, insert document IDs into the XML files that will be used as locators. Generate a PDF file for the book that shows all of the document IDs.
2. Indexing, Editing, and Embedding a. Open the XML files, one chapter at a time, in an XML editor or text editor. While looking at the PDF file (either printed out or in a second window), determine where you want to place index entries, find the same spot in the XML file, and add index tags at that location. You'll need to look at the PDF version of the book while indexing so that you can see all of the figures and other linked content that may not be visible in the XML files. Continue adding index tags throughout the file. **Notes:** You must type in the index tag syntax or create macros in the editor to help. This is tedious and error-prone, because you can't see the index as it is being developed or edit the entries using the advanced features of stand-alone indexing software. (As an alternative, some indexers use a "double-entry" process, where they type each index entry once in the XML file, and once in their indexing software, indicating the file or chapter number in the locator field. This allows them to see the index as it is being developed, but it requires them to enter each entry twice, and navigate between three windows: the PDF file, the editor, and the indexing software.)	**2. Indexing and Editing** a. Open your indexing software (CINDEX or Sky) in one window, and open the PDF file in a second window (or print it out). Create the index in your indexing software, using the document IDs in the PDF file as locators. **Notes:** You must remember to restrict the kind of entries they enter in Sky or CINDEX according to the restrictions of the type of XML being used. For example, Sky and CINDEX allow the creation of cross-references from subheadings, but some XML types don't allow that. So if you created an index entry that contained a cross-reference from a subheading, you'll get an error either when IXMLembedder attempts to translate it into XML in step 3a, or when you try to generate a PDF file in step 3b.
b. After each chapter, re-generate a PDF file for the book so that you can see the index that was generated based on the index tags you've entered so far. After reviewing the index, edit the index tags in the files as needed. Repeat steps 2a -2b until you finish all the chapters in the book. **Notes:** Edits are much more likely to be needed because you weren't able to see the index as it was being developed (unless you used the double-entry system), and you'll need to search the file to find the index entries you need to change. (The double-entry system would help you determine where to look for the index entries.)	b. Editing the index can be done as you enter entries in step 2a, since you can see the index being developed as you go, or in stages at any time, or just once at the end of the process in step 2c.
c. Review the whole index and make more edits to the index tags throughout the XML files as needed. Generate the PDF file a final time to make sure it is correct. **Notes:** Edits at this stage are very tedious, because you have to do a search on all the files at once to find where the index entries are that you need to change.	c. Review the whole index and make edits in your indexing software. When the index is in final form, export it to an IXML file.

Table 3. *continued*

MANUAL EMBEDDED INDEXING PROCESS	IXMLEMBEDDER INDEXING PROCESS
	3. Embedding a. In IXMLembedder, run the Embed process. IXMLembedder translates the index entries in the IXML file into the appropriate XML syntax and embeds all of the index tags into the XML files.
	b. Check for errors in IXMLembedder's log file, and resolve as necessary. Generate a PDF file for the book containing the index, and compare it to the index you generated with CINDEX or Sky. Resolve any discrepancies as necessary.
3. Post-processing Return all of the XML files and the final PDF file back to the client.	**4. Post-processing** Return all of the XML files and the final PDF file back to the client.

So, when Leverage Technologies developed IXMLembedder, I saw my chance to work in indexing fairyland once again. The idea is that IXMLembedder can take index records in an IXML file and translate them into the XML index tag syntax you need, and embed them into the XML files for you. Because Sky and CINDEX can now export IXML files, you can write your index in Sky or CINDEX, with all of their advanced indexer-friendly features. Even better, IXMLembedder can help you with any type of embedded index, Word, or InDesign, or a variety of XML file formats, so there's only one product to learn.

Manual Embedded Process Compared to IXMLembedder Process for XML Files

Table 3 compares the embedded indexing processes for embedding manually and embedding using IXMLembedder. Notice that the IXMLembedder process has more steps, but that the actual indexing and editing work, the most complex and longest part of the process, is much easier with IXMLembedder. The difference is that there are a couple of additional setup steps at the beginning, and an extra (automated) embedding step at the end of the process.

Additional detailed instructions for IXMLembedder's process steps for XML files are available on Lucie's website resource page.

Takeaways

There is a learning curve, and it'll take a couple of projects before you get used to the process and are able to use it efficiently. Once I got through the initial learning stage, though, I found that I can complete the beginning setup (step 1, above right) in one day at the beginning of the project, and I can complete the embedding step (step 3, above right) in one day at the end of the project, although I usually allow two days at the end in case there are unanticipated problems. And, IXMLembedder is new; there are a few kinks still to be worked out, but there are more of us using it now, and David Ream has been very responsive to answering our questions and tweaking things as needed.

You will still need to learn the index tag syntax for your XML format, because if there are errors in the embedding process, you'll have to look at the index tags that IXMLembedder created in the XML files to see what's wrong. And you don't need all the features of an XML editor, just a text editor. I use EditPlus, but any text editor that lets you edit multiple files at once and has a user interface you like should be fine. If you already have an XML editor and are used to it, that's perfect, but a text editor is all you really need, because one of the main reasons for using IXMLembedder is that you have to work in the XML files as little as possible.

The middle part, creating the index in your indexing software (step 2, above right) takes just a little longer than it would for any other back-of-the-book index, but is still a lot easier than embedding index tags manually in the XML files. The "little longer" part is because you have to be aware of how you might need to do things differently in your indexing software than you usually would, because of the restrictions of the XML format that the index will be eventually translated into, as described in step 2a (above right). During your first couple of projects, I recommend creating a cheat sheet for yourself listing the kinds of entries you shouldn't create for that specific XML format.

All that being said, I would much rather do an embedded XML index using IXMLembedder than embedding manually. By far, the longest, most tedious, and frustrating part of embedding index entries manually, was having to write the index without seeing it develop, and in the editing stage, having to find each entry in all of the files and fix them one by one. Being able to create and edit the index in Sky makes all the difference to my sanity, and to the quality of index I can produce in a given timeframe. I feel that I can actually focus on the content of the index while I'm writing it, and not on the syntax.

(continued)

FOOTNOTES

1. My sincere thanks go to Angela Howard for writing the *Using IXMLembedder with XML Documents* section and for her helpful and much appreciated contributions to other sections of this article.

2. My website resources page (luciehaskins.com/resources.shtml) provides links to articles I've written or found helpful from other sources along with my presentation handouts on indexing-related topics.

3. David Ream's company is Leverage Technologies (www.levtechinc.com). He provides a host of indexing services along with mostly CINDEX-based add-on utilities.

4. "Jumping on the embedded indexing bandwagon… or should I? (*The Indexer*, June 2016) and other articles and handouts from presentations addressing embedded indexing can be found on my website resources page. See footnote 2 for the link.

5. Additional information on IXMLembedder can be found here http://www.levtechinc.com/publishing-indexing-products/utilities/IXMLembedder.asp.

6. IXMLembedder supports common tagsets for standard XML schemas and some publisher markup, to include (but not limited to) DITA, DocBook XML, TEI XML, LaTeX, and O'Reilly Media's HTMLBook and AsciiDoc extensions.

7. MACREX does not currently support IXML formatted files. Additional information for CINDEX can be found at www.indexres.com/cindex.html and for Sky Index at www.sky-software.com.

8. "Digging In for the Long Haul: How to Get a Handle on the Embedded Word Indexing Utilities Out There," *Key Words*, Vol. 13 No. 2, April-June 2005 and "How DEXembed and WordEmbed work, and why you might use them," *The Indexer,* Vol. 32, No. 3, September 2014. See footnote 2 for a link to these articles.

9. "Working smarter, not harder, with the KPS Indexing Plugins," *The Indexer*, Vol. 31, No. 4, December 2013. See footnote 2 for a link to this article.

10. I want to thank Joan Shapiro for being so generous and helpful in providing her experiences in working with IXMLembedder for her first Word embedded indexing project. Her feedback was invaluable in strengthening my understanding of this process. ■

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