

# IndexExploit User Guide

## For Release 2.4

### INTRODUCTION

IndexExploit is an add-in for Microsoft Word embedded indexing and index linking. If you are using Libre Office or another word processor, then it will not run.

Conventional indexes are created when proofs are ready for publication. They depend on the proofs being stable, and any alterations may require complete re-indexing. Microsoft Word supports embedded indexing using an indexing module that has remained stable since the 1980s. Using special XE fields, index entries are made directly into the document close to the referenced text. For certain types of text, indexing can be very rapid. Improvements in computing power now enable XE fields to be used and manipulated for purposes probably imagined at the time of introduction but way beyond the available computing resources. Many processes have been developed to make embedded indexing easy and to hide users from the necessity of understanding the Word indexing module. When a process fails, users are left wondering what to do. This has contributed to the slow take-up of Word embedded indexing among professional indexers and publishers.

IndexExploit was developed originally to enhance the capability of the Word embedded indexing module by adding a linking capability using a picklist created by parsing and sorting the XE field index entries. It also enhanced the embedded indexing capability, providing an integrated bookmark and index entry form. It did not remove the need to use Word's Mark entry form which has some remarkably powerful capabilities, especially for complex text containing diacritics, complex styles and special fonts. Text such as Protein Kinase C index to XE field referenced bookmark and index to PDF page.

### FREE EVALUATION

For a free evaluation of IndexExploit go to the [IndexExploit Downloads](http://www.indexbase.co.uk) page at [www.indexbase.co.uk](http://www.indexbase.co.uk).

Evaluation allows you 50 free embedded indexing menu selections, enough to index a moderate size book. You are allowed 100 free PDF menu selections and 100 hyperlink insertions in any document. For enquiries email [enquiries@indexbase.co.uk](mailto:enquiries@indexbase.co.uk).

### THIS USER GUIDE

This user guide contains instructions for installing and using IndexExploit. It contains a lot of information about the XE and INDEX fields used by Word for embedded indexing. It explains the PDF functionality and how to turn page numbers into hyperlinks to the right pages in online PDFs.

IndexExploit extends the Word indexing capability, building on the strengths and overcoming many of the weaknesses of the Word indexing module.

IndexExploit now supports several index linking models enabling a Word document with an embedded index to be given a linked index, and then exported to PDF or epub

**Mark Entry** complements the Word Mark Index Entry form and the Bookmark form. A single form is used for bookmarking and index entry. Un-indexed bookmarks can be found and indexed.

Minimum screen area is used, allowing the user maximum visibility of the document being indexed, and enhancing the feel of working in the document. Form width can be increased for long entries. Zoom adapts form sizes to the size of your screen.

Keyboard shortcuts are available for some operations.

Easy transfer of text from the document being indexed or another document to the Mark Entry form supports fast, error free indexing. The entry fields are enhanced by autocomplete with a list of possible entries based on the existing embedded entries. When **Index** is selected the autocomplete lists are updated.

Entry inversion is available for name entries.

Index entries for footnotes and endnotes can automatically be labelled **bold**, *italic* or **bold italic**.

Embedding is immediate.

Entries can be visible or hidden during indexing. The hidden option reduces clutter.

Headings and subheadings can be swapped to provide multiple entry points in an index.

When an entry has been created it can be quickly found in the index from the Mark entry form.

A comprehensive find and index process is included, giving the indexer more control of index entries than is possible using Word's Mark all.

**AutoMark File** supports easy creation of a Word AutoMark file from an embedded index for rapid indexing of certain entries.

**Index** creates a linked picklist arranged by alphabetical or page order. A parser reads XE fields, separates the components and creates an internal database containing sorted entries. Word supports seven heading levels and complex locators, IndexExploit matches that capability, it checks index entries and can generate an error report. It can highlight indexed content showing regions missed. Cross references can be checked with provision for multiple languages where cross references are not *see* and *see also*. Footnote, endnote, table, and text box labels are automatically included in the pick list.

An ixex spreadsheet compatible file is written when alphabetical sort is selected. This can be read next time to generate the picklist more quickly. An ixep file is written when page number sort is selected. The ixex files include column labels.

The **Index Picklist** links to the embedded entries using a combination of field IDs and bookmarks, supporting rapid navigation around the document. It can help determine whether an indexing strategy is working and whether ranges and XE fields are in the right place. Adjustments can be made to an existing embedded index using a combination of the IndexExploit **Picklist** and **Mark Entry** form, Word find/replace, the Word **Bookmark** and **Mark Index Entry** forms, the. Option **Index from selection** generates a picklist from a reduced range.

**Adjust** alters embedded indexes without having to re-index, including re-sorting using a stop word file. Documents including embedded indexes can be adjusted to enable safe merging. Range embedded entries can be moved close to content, this supports document reorganisation, updates and compatibility with publishing applications. Insertion point entries can be automatically adjusted to range entries, this enables creation of a linked index.

**Export** generates a variety of files including a plain export of the embedded index, styled exports, files capable of linking back to content, and a file that can be processed by IndexConvert for import into indexing software.

## WORD EMBEDDED INDEX COMPATIBILITY WITH PUBLISHING SOFTWARE

Import into publishing software of Word documents containing embedded indexes is problematic because of mismatches between the syntactic rules of the embedded index entries. Addressing this mismatch normally involves complex manual or semi-automated manipulations following import. IndexExploit can move XE fields and write compatibility codes into XE fields to help overcome mismatches. The typesetting process can use the compatibility codes.

## PDF GOTO WITH INDEXEXPLOIT

The PDF Goto functionality uses a page number to go to that page in a PDF. Originally intended to work with indexes it can work with any document referencing PDFs. Examples could include legal reports, treaties, student notes etc.

The PDF capability is enabled by a start page adjustment for simple PDFs and a document map for more complex documents. The **Add hyperlinks** command uses the document map to embed a hyperlink into each page number.

Acrobat Pro or equivalent is required if the PDFs are installed on a computer or network.

## UTILITIES

Utilities will be added as a need arises.

### Hyperlinks Table

This utility copies the content of all hyperlinks in the document to a table in another document. It was developed to support maintenance of a cumulative index by an indexing society.

## DISCLAIMER

Please read Disclaimer and Licensing before using IndexExploit.

## Tables of Contents

A flow chart, Figure 7 shows how the IndexExploit embedded indexing capability is used with Word and other files and add-ins. Flowchart objects are numbered and the numbers are included in headings shown below.

## CONTENTS

Introduction.....	i
Free Evaluation .....	i
This User Guide.....	i
Word Embedded Index Compatibility with Publishing Software.....	ii
PDF Goto With IndexExploit.....	ii
Utilities.....	ii
Hyperlinks Table.....	ii
Disclaimer .....	ii
Contents .....	iii
Tables.....	vii
Figures .....	vii
Download and Installation .....	1
Download from Website.....	1
Installation.....	1
Start IndexExploit.....	1
Shortcuts .....	1
Embedding and Linking (Definitions).....	2
Embedding .....	2
Linking.....	2
Index Linking using IndexExploit.....	3
Word Embedded Indexing - Process Diagram.....	4
Word Embedded Indexing and the Indexing Module (2).....	4
Word Indexing Module.....	4
Word Indexing Module Strengths.....	4
Word Indexing Module Weaknesses .....	5
Control Characters used in XE Fields.....	5
Page Number Format .....	5
Embedded Entry Fields.....	5
Bookmarks.....	6
Cross References.....	6
Method 1.....	6
Method 2.....	6
Method 3.....	7
Page Numbers in the Index.....	7
Stories.....	7
Text Boxes.....	7
Captions.....	8

Footnotes .....	8
Endnotes .....	8
XE Field Content and Switches .....	9
Bookmark Form (2.1).....	10
Mark Index Entry Form (2.2) .....	10
Copy/Paste Index Entry.....	10
Index Fonts and Styles .....	10
IndexSort Order (2.4).....	10
Page Number Evaluation.....	11
Errors.....	11
AutoMark (2.3).....	11
When to Index .....	11
Word and IndexExploit Side by Side .....	12
Editing an Embedded Index (2.5) (4).....	14
Using Word .....	14
Chapters.....	14
Copy and Paste .....	14
Find and Replace .....	14
With IndexExploit.....	14
Adjust .....	14
Mark Entry form.....	15
Index Picklist .....	15
Error Report.....	15
Adjust Index Order .....	15
Index Coverage.....	15
IndexExploit for Word Embedded Indexes (4).....	16
Menu Selections .....	16
Start-Up.....	16
Configuration (4.1) .....	16
Mark Entry Form (4.3) .....	17
Where to Place Embedded Index Entries.....	17
Bookmarking .....	17
Mark Entry.....	18
Options Form ( ).....	19
Above the Tabs.....	19
Below theTabs .....	20
Bookmark Options (4.2) .....	20
Mark Entry Options (4.2).....	21
Message Form .....	22
AutoMark File (4.9).....	22
Index (4.5).....	23

Word Embedded Index Fields, And how they are Processed by Word and IndexExploit.....	24
Word Index Field, Styles and Switches (2.4).....	24
Index Processing by Word and IndexExploit .....	27
Error Reports .....	28
Index Picklist (4.5) .....	30
Index Entries.....	30
Entry Selection.....	30
Index Options (4.2).....	32
Adjust (4.6) .....	35
Export (4.8) (7) (8) .....	37
Export Options (4.2).....	37
Compatibility with Other Applications (9).....	38
Bookmarks.....	38
XE Field Position.....	38
Fonts and Styles.....	38
Compatibility Codes in XE Fields.....	39
Syntax for Compatibility Information.....	39
Range information .....	39
Chapter Prefix.....	39
Footnotes, Endnotes, Textbox, Table Labels .....	39
Remove Compatibility.....	40
Control characters .....	40
InDesign .....	40
InDesign Script .....	40
Information for Indexers.....	40
Cambridge University Press (CUP).....	40
Manchester University Press .....	40
Kindle.....	40
DocBook.....	40
EPUB.....	41
InDesign .....	41
Calibre .....	41
PDF .....	41
Adobe Acrobat Pro .....	41
Other routes TBD.....	41
Compatibility Options .....	41
IndexExploit Reserved Bookmarks.....	42
Indexing Footnotes and Endnotes .....	42
Indexing Text Boxes.....	42
Automatic Fields .....	43
Unicode.....	43

Rich Text.....	43
Master/Subdocument Structure.....	43
Default Options .....	44
An Automark File Example (3).....	46
Stop Word Files and how they are used (6).....	48
XE Field Parsers.....	49
Word.....	49
Track Changes .....	49
IndexExploit .....	49
Some of the Terms Used and Important Data Structures .....	50
IndexExploit for PDFs.....	52
PDF Goto Menu .....	52
PDF Options .....	53
PDF Goto Options .....	53
Document Map .....	53
Adobe Acrobat Pro .....	53
Hyperlinks.....	53
Mixed .....	53
Start / ID .....	53
Goto.....	53
PDF ID .....	53
Close.....	53
Add Hyperlinks.....	53
Insert Hyperlinks Options.....	54
Using the Active PDF.....	54
Collection of PDFs on a Computer or Network (Adobe Acrobat Pro) .....	54
Accidental File Closure.....	55
Using a Document Maps.....	55
Path .....	55
Filename .....	55
ID .....	55
Start Page.....	55
End Page.....	55
First Page (PDF).....	55
Found .....	55
Second and subsequent document .....	56
Testing.....	56
Content Protection.....	56
Example Document Maps .....	56
Utilities .....	58
Hyperlinks Table .....	58

Example.....	58
Index Extract.....	58
Alternative Installation .....	59
Trust Settings .....	60
Activate.....	60
AutoExec Word Macro.....	60
Word and VBA Compatibility with Known Platforms .....	61
Performance .....	62
Known Errors .....	62
Bibliography.....	63
Disclaimer and Licensing .....	63
IndexExploit Copying, Licence Keys, and Redistribution .....	64
Software Security .....	64
Index .....	65

## TABLES

Table 1 Cross References Example.....	7
Table 2 XE Field Content and Switches.....	9
Table 3 Message Controls.....	22
Table 4 Word INDEX Field and Switches .....	26
Table 5 Microsoft Word Index Generation Process and IndexExploit Behaviour .....	27
Table 6 XE Field Selection and Highlighting.....	31
Table 7 Index Error Messages .....	33
Table 8 Export Behaviour.....	37
Table 9 ixc Reserved Bookmark Names .....	42
Table 10 Default Options.....	44
Table 11 Combined Extract from possible AutoMark Files.....	46
Table 12 Important Data Structures or Terms .....	50
Table 13 PDF Example.....	56
Table 14 PDF Document Map - Each Chapter is a Single PDFs.....	56
Table 15 PDF Document Map - Multiple Sections in One PDF .....	56
Table 16 Hyperlinks Table.....	59
Table 17 Compatible File Formats.....	61

## FIGURES

Figure 1 Unblock file.....	1
Figure 2 Word Security Warning.....	1
Figure 3 IndexExploit Installer .....	1
Figure 4 IndexExploit Picklist form.....	3
Figure 5 Word Index Sample.....	3
Figure 6 IndexExploit PDF Goto .....	3
Figure 7 Process Diagram.....	4
Figure 8 Page Number Format.....	5
Figure 9 Word Bookmark Form.....	10
Figure 10 Word Mark Entry .....	10
Figure 11 Word Mark Index Entry.....	12

Figure 12 Word Bookmark Form.....	12
Figure 13 IndexExploit Mark Entry Form Page range.....	12
Figure 14 Word Adjust sentence and word spacing automatically.....	14
Figure 16 Word Embedded Menu.....	16
Figure 17 Configuration .....	16
Figure 18 Mark Entry Form.....	17
Figure 19 Styled Insertion Point .....	18
Figure 20 Options Form.....	19
Figure 21 Options: Bookmark - Default Values .....	20
Figure 22 Options: Mark Entry - Default Values.....	21
Figure 23 Messages .....	22
Figure 24 ixr File Found.....	23
Figure 25 Progress Indicator.....	23
Figure 26 Timer Message .....	23
Figure 27 ixr file write failed.....	23
Figure 28 INDEX Styles.....	24
Figure 29 Index Picklist.....	30
Figure 30 XE Field.....	31
Figure 31 Options: Index - Default Values.....	32
Figure 32 Index Error Message.....	33
Figure 33 Options: Adjust - Default Values .....	35
Figure 34 Options: Export - Default Values.....	37
Figure 35 InDesign New Page Reference Form .....	40
Figure 36Options: Compatibility - Default Values .....	41
Figure 37 PDF Goto - Initial View.....	52
Figure 38 PDF Goto – After Document Mapr.....	52
Figure 39 PDF Goto Options .....	53
Figure 40 Insert Hyperlinks Options.....	54
Figure 41 Acrobat has stopped working.....	55
Figure 42 Utilities.....	58
Figure 43 Utilities Options: Hyperlinks Table.....	58
Figure 44 Microsoft Office Trusted Locations .....	60
Figure 45 Templates and Add-ins .....	60
Figure 46 Windows - Adjust Performance .....	62



## DOWNLOAD AND INSTALLATION

### DOWNLOAD FROM WEBSITE

Security is enhanced for later versions of Word, making the download and installation more complex.

Download the IndexExploit file containing the macro from the [www.indexbase.co.uk](http://www.indexbase.co.uk) and copy it somewhere safe. When the file is opened you may get the warning “PROTECTED VIEW Be Careful – files from the Internet can contain viruses. Unless you need to edit, it’s safer to stay in Protected View”.

Close the file, find it in File Explorer, mouse right click open the Properties form and unblock the file using the General tab as shown in Figure 1. The Security Unblock checkbox is at the bottom.

### INSTALLATION

The IndexExploit macro is supplied in a Word docm (macro enabled document) file. The installation saves the file as a Word dotm (macro enabled template) file in the Word startup folder. To install IndexExploit open IndexExploit x.x.x.docm where x.x.x is the version number. On opening the file, a security warning may be seen - Figure 2. The display may differ slightly depending on your version of Word. Allow macros to run.

The form shown in Figure 3 appears. Select **Install**. If an earlier version of IndexExploit is present this is overwritten.

Select **Uninstall** if you need to uninstall IndexExploit. If Install and Uninstall don’t work you may need to delete an earlier version manually in the Startup folder.

The startup folder location is displayed by selecting **Startup Path**.

For IndexExploit to become available, Word must be restarted following an installation or re-installation.

An appropriate version of Adobe Acrobat must be installed on your computer if you are using the PDF capability with files on a computer or network. Adobe Acrobat Pro supports the Adobe Inter Application Communication (IAC) interface used by IndexExploit.

If initial installation is unsuccessful, check the startup location. If a file with an identical name but different capitalisation is present, e.g. IndexExploit.dotm remove it and try installing again.

If your IT organization configurations prevent this installation or you prefer a different installation then see Alternative Installation, page 58.

## START INDEXEXPLOIT

Select View>Macros>View Macros, select IndexExploit and Run.

Do not attempt to run multiple parallel IndexExploit sessions. It is not supported by the software design.

### SHORTCUTS

Any macro can be assigned to a custom key combination by using Office Button>Word Options>Customise>Customise. Find Macros towards the bottom of the list. Select IndexExploit and enter a key combination to assign to the macro. For Word 2010 find File>Options>Customise Ribbon.

Some versions of Word allow a shortcut to be added to the quick access toolbar. Later versions allow them to be added to the ribbon.

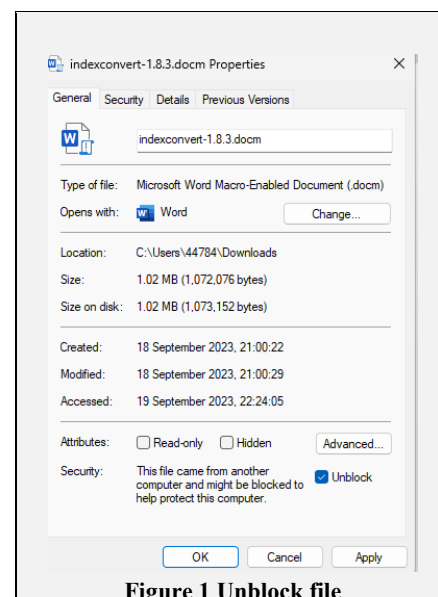


Figure 1 Unblock file

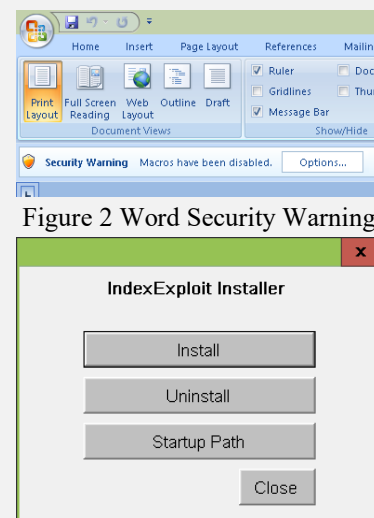


Figure 2 Word Security Warning

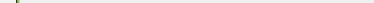


Figure 3 IndexExploit Installer

Keyboard shortcuts on IndexExploit forms are indicated by underlined characters. The cursor must be in the form area.

## **EMBEDDING AND LINKING (DEFINITIONS)**

Embedding and linking are often conflated. The terms are separated and explained below.

### **EMBEDDING**

Word processing and publishing software manage text layout and many other features using embedded codes. Examples include fonts, styles, fields, bookmarks, tables, pictures, and shapes. Microsoft Word uses over 70 field types for page numbering, contents lists, indexes, and other purposes. Bookmarks are used to name positions and ranges. Embedded codes are also used in PDF and other file types. Each embedded item must have a unique identity, ideally fixed. Word fields, including embedded index XE fields are numbered. As fields are added or removed the field numbering changes.

### **LINKING**

Linking allows a user to move easily from a location in a document to another location in the same or another document. A good linking strategy allows the user to return easily. Links are not hard wired like wiring in a city, they are created as needed usually by a search mechanism often aided by complex databases and lots of computing power. The hyperlink, the backbone of the World Wide Web is a good example. A hyperlink typically links to a website or document. It can target a location or page within a document if a sub address is used. Hyperlinks are defined in international standards such as W3C documentation but not always implemented by browsers for security reasons. Sub-addresses are defined but detailed behaviour is for software developers to determine. Word supports Hyperlink sub-addresses to ranges and page numbers in PDFs.

Many features can be used as link targets, but special processing is required if standards are not used. The best targets are those with a fixed identity such as headings, captions, bookmarks, or shapes in Word. Page numbers and fields can be used when the document is stable. IndexExploit uses Word field numbers when linking a Word embedded index. It uses Adobe Inter Application Communication (IAC) when linking to PDFs on a computer or network, and hyperlinks to find pages in PDF documents on the Internet.

Word also uses internal links called references. Contents lists use references to link to sections, tables, diagrams etc. They are used by cross references.

INDEX LINKING USING INDEXEXPLOIT

For **Word embedded indexes**, an active pick list Figure 4 is created from embedded index entries. Selecting an entry takes the user to the indexed content. Embedded index editing and debugging facilities are included.

For PDFs on a computer or network, Adobe inter application communication (IAC) is used from Word to select a page in a PDF. The **Goto** command reads a number in the Word document, for instance an index, Figure 5, and takes the user to that page in the correct PDF file. Hyperlinks are used to perform the same function for PDFs on the Internet.

IndexExploit Picklist

The picklist is active. Designed for use with embedded indexes in Word files, it finds indexed content fast. Users can go to an XE field or its associated bookmark. Bookmarks can be re-ranged from the picklist.

IndexExploit

Index

ID 5  
XEs 264

Stop scrolling on

add BM

add BM

add range to insertion point entries

adjust\*

adjust\*

adjust

default values

allow bookmarks in endnotes

and adjust

allow bookmarks in footnotes

and adjust

allow bookmarks in text boxes

and adjust

allow multiple types

allow range change

auto goto

auto goto

autocreate headings from

AutoMark file\*

AutoMark file

AutoMark file

default values

example\*

automatic fields\*

automatically label notes as Bold

automatically label notes as Bold

p.42

<<

idxAdjustal

>>

+A

+B

A

B

Select A to B

Re-BM

Refresh

Word Index

Goto XE

Close

Figure 4 IndexExploit Picklist form

PDF Goto

A user can select a page number in an index in a Word document and be automatically taken to the right PDF document and page when Goto is selected. A Document map supports navigation of complex documents.

page numbers, 28, 31

page order, 28, 31

PDFs, 50

active, 50

collection, 51

end, 51

filename, 51

files table, 51, 52

found, 51

goto, 50

ID, 51

path, 51

start, 51

picklist

bookmark, 31

highlighting, 30

navigation, 31

page numbers, 30, 31

Figure 5 Word Index Sample

IndexExploit

IndexExploit

Version 2.4.0

Acrobat Page No.

Configuration

Options

Document map

ID

Goto

D.

Close

Hyperlink

Figure 6 IndexExploit PDF Goto

3

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## WORD EMBEDDED INDEXING - PROCESS DIAGRAM

The diagram below shows how IndexExploit fits within the Word embedded indexing and editing process. Entity and process numbers are included in heading titles to aid understanding.

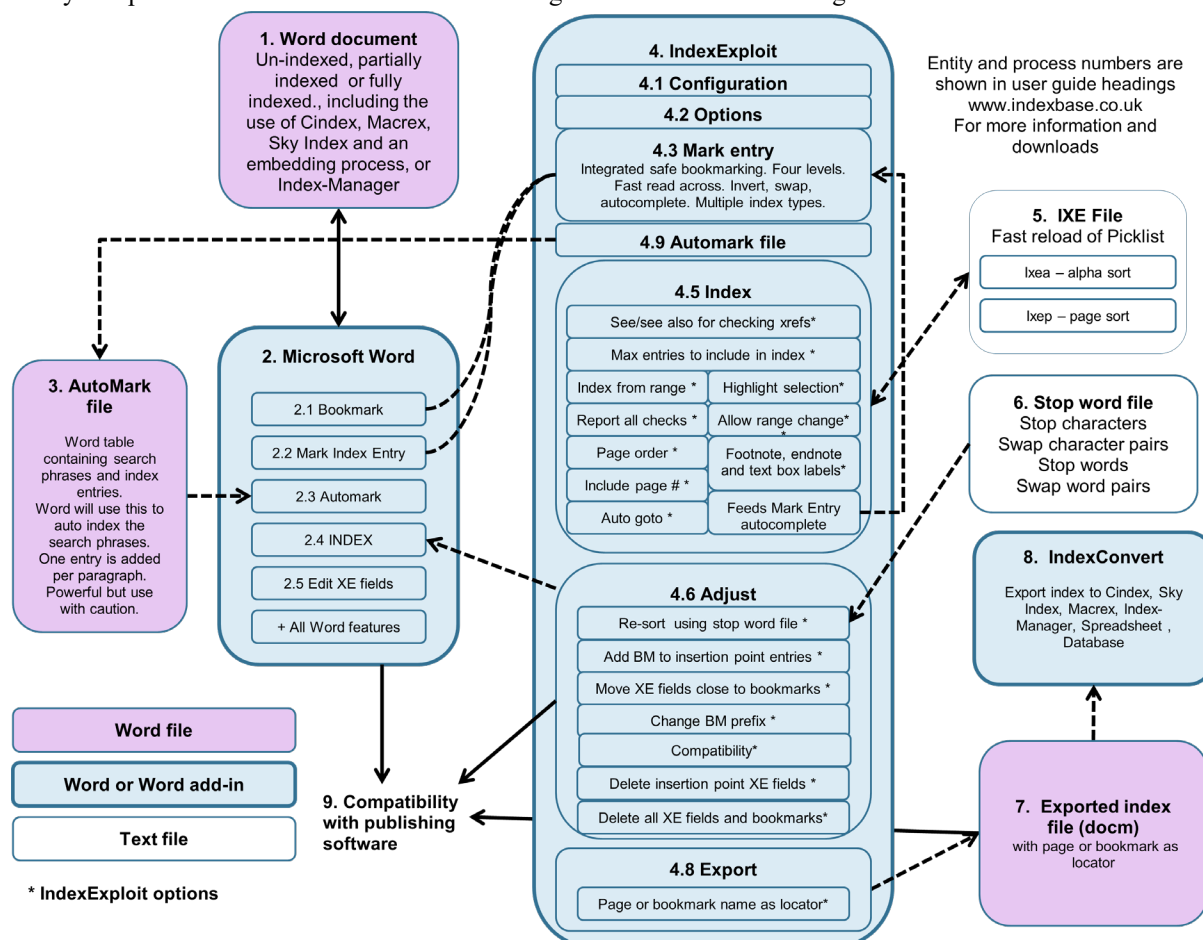


Figure 7 Process Diagram

## WORD EMBEDDED INDEXING AND THE INDEXING MODULE (2)

### WORD INDEXING MODULE

If you've created an embedded index using Word then you will have used the indexing module. You may have been pleased with how easy it is to create insertion point entries, especially as you don't need to worry about page numbering which is worked out when the index is created or updated. You may have wanted to create range entries and been disappointed by the cumbersome process. You may have wanted to create a separate author or names index, how? Having created an index you may be unhappy with some of the entries and want to alter them or adjust page ranges. There may be unexpected fonts or styles, or entries not appearing in the index. You may be one of the many people who ask can I link this index. You may want to re-sort the index. You may want to adjust an index created using one of the many alternative embedding processes. You may want to revise the document, swapping sections in, around and out and find which sections haven't been indexed. You may want to merge several indexed documents or even export the embedded index entries. IndexExploit supplies a range of facilities to help.

### Word Indexing Module Strengths

Index entries are embedded. Page numbers are calculated from embedded entries when the index is generated or updated.

The indexing capability is consistent for all desktop and laptop versions of Microsoft Word.

The Mark Index Entry form enables rapid insertion point indexing and should be used wherever feasible. Selected text automatically appears in the **Main entry** field when the cursor is moved to the form. The form supports rich text -  $C_{148}H_{221}N_{35}O_{50}S_2$  can be indexed in two keystrokes

Copy/paste can be used to create entries as an alternative to using the Mark Index Entry form.

Word has extensive multiple language capability including Unicode and diacritics.

Multiple indexes (e.g. subject and name) can be generated.

Section or chapter indexes can be created.

Index update is easy after document revisions, what could be several weeks work is completed in minutes.

The Word indexing module has been largely unchanged since 1988.

### Word Indexing Module Weaknesses

Indexing of ranges is clumsy, slow and error prone.

Documentation is hard to find, many features are undocumented.

Re-sorting an index is impossible.

Index is not linked.

Unexpected fonts or styles may occur in the generated index when 'leaked' from the text during a format change

Clutter caused by visible XE fields when indexing.

Some features including multiple indexes are not straightforward to achieve.

Errors in embedded entries can prevent the entry appearing in the index.

### Control Characters used in XE Fields

Colons :, semicolons ;, double quotation marks "" and back slashes \ are control characters used in XE fields.

Colons separate subheadings from headings. Semicolons identify forced sorts. Quotation marks identify the beginning and end of text. Back slashes are used to label control characters and also to identify switch characters that label page styles, ranges and other fields. If you use Word Mark Index Entry or IndexExploit any back slashes are normally inserted automatically before quotation marks. The user must insert backslashes before colons and semicolons to prevent them being used as subheading or forced sort controls.

### Page Number Format

Page numbers in the document are defined by the Page Number Format form Figure 8. **Number format** allows selection of Roman, Arabic and alphabetical numbering.

**Include chapter number** allows a heading level to be chosen to define chapters. Heading level 1 is recommended for a coherent contents list.

**Use separator** defines a separator between chapter and page number. The default is a hyphen which is the same as the page range separator. Options are hyphen, period, colon, em dash, en dash. A colon is a good choice as it will not be confused with a range separator in the index.

**Page numbering** defines whether numbering starts at the section or continues from the previous section. Elision in a generated index follows Chicago rules.

See also the INDEX field in Table 12.

Figure 8 Page Number Format

### Embedded Entry Fields

Embedded entries are written to XE fields. These are hidden text fields but can be made visible using show/hide or ctrl-shift-\*. The XE fields are enclosed by field markers and curly brackets and include XE to make them visible as embedded entries. Three types of entry are allowed.

- Insertion point
- Range
- Cross reference

{ XE "heading" } is a simple insertion point entry. The page number appearing in the index is for the page containing the XE field.

{ XE "heading" \r "rangename" } is a simple range entry. rangename is the name of a bookmark. The page number or range span is for the page or pages containing the range. The XE field should be placed within or close to the bookmark.

{ XE “cross reference” \t “*see also* heading 1” } is a simple cross reference entry.

{ XE “cross reference:*see also* heading 1;zzz” \t “” } is an alternative. The \t flag prevents a page number appearing in the index.

## Bookmarks

Bookmarks serve many purposes in Word. They have been borrowed to support embedded indexing but the convenience of being able to create, move and delete bookmarks requires special care when using them in embedded index entries.

{ XE “heading” \r “rangename” } is an embedded entry referencing a bookmark called rangename. Many XE fields can reference the same range name. Bookmark names must be unique within the scope of the index. If when creating a bookmark you choose a name that already exists then the bookmark is moved to the new location. Word gives no warning. IndexExploit checks for existing bookmark names and automatically adjusts your chosen name to make it unique before it is written.

## Cross References

Some users compile all cross reference entries in a separate file and copy them across when indexing is complete. It is tempting to enter cross references on separate lines, separated by returns. When they are hidden a blank page or pages may appear. Someone may be tempted to delete the page.

Three methods are available, depending on personal choice and compliance with Microsoft Word rules.

### Method 1

Word expects cross references to be entered using the **Cross reference** option in the Word Mark Index Entry form or Cross ref in the IndexExploit form. Resulting cross references appear in the index following the heading or subheading. See also cross references appear in line with the first heading or subheading depending on the entry. A simple example is shown below.

XE “heading” \t “*see also* target heading”

It is good practise<sup>1</sup> to group all cross references in a single XE field for each heading. They can be separated by semicolons because they are not control characters in a \t text field.

XE “heading” \t “*see also* target heading a; target heading b; target heading c”

The indexer must arrange the entries in the right order.

### Method 2

Use subheadings, as in the example below.

XE “art:anti-art” \t “*see* anti-art”, XE “art:Dada” \t “*see* Dada”

A valid cross reference appears in the index, it is arranged correctly in the sequence, can be entered easily when indexing.

---

<sup>1</sup> If you know your document is to be imported into another application for publication then different rules may apply. You can play safe by limiting to a single cross reference per entry.

**art**

and aesthetic judgement, 120  
 alienation of art from truth, 22  
 anti-art. see anti-art  
 autonomisation, 146  
 autonomy. see autonomy  
 avant-garde. see avant-garde  
 bourgeois art. see bourgeois art  
 and the bourgeois self, 36  
 and bourgeois sensibility, 36  
 the classical debate, 158–86  
 committed art. see committed art  
 communication of political effects,  
 18  
 conceptual art. see conceptual art  
 Dada. see Dada

Table 1 Cross References Example

**Method 3**

Indexers may prefer see also cross references to appear as the last subheading. In this case the following is needed.

- Create the entry with Cross reference selected
- Write the cross reference text in the sub entry.
- Use \t "" for the Cross reference field. Blank entry.
- Add a forced sort such as zzz# to force the entry to the end of the list.
- Test it.

XE "art:anti-art. see anti-art" \t "", XE "art:Dada. see Dada" \t ""

Once a good example is established it may be easiest to copy/paste and edit for remaining cross references.

These entries will reported as errors by IndexExploit error checking because they don't conform to the Word standard.

**Page Numbers in the Index**

Embedded entries don't contain page number information, this is calculated when an index is generated using an INDEX field.

- For insertion point XE fields the page number is worked out from the location of the XE field.
- For entries with referenced ranges defined by bookmarks (\r) the page number(s) are worked out from the bookmark range. Page numbers are not calculated for cross references.
- Duplicate insertion point page numbers are suppressed but nested or overlapping page ranges are not.
- Location of the page spans within the entry is worked out from the location of the XE field. If the XE field is too far from the range this may upset page numbering, e.g. 11-12, 4,5,6, 13-15

**Stories**

Word documents are represented internally as stories. The main document, headers and footers, footnotes, endnotes, textboxes are different stories. When creating embedded XE field range entries ensure that the range is in the same story as the entry or it will not be found. when the index is generated.

**Text Boxes**

Take particular care when adding XE fields to text boxes.

**Text Box**

Avoid using range entries as the page number may show as 0 in the index. The Word Mark Index Entry will not write to text boxes but embedded entries can be copied and pasted .

**Captions**

Avoid placing XE fields into captions. If they are cross referenced the XE field may be included, causing an erroneous entry in the index.

**Footnotes**

XE fields can be placed in footnotes<sup>2</sup>.

**Endnotes**

XE fields can be placed in endnotes.<sup>i</sup>

---

<sup>2</sup> XE fields can be placed in footnotes.



## XE Field Content and Switches

**Table 2 XE Field Content and Switches**

Feature	Behaviour	Word Mark Index Entry	IndexExploit Mark Entry
XE	This label must always present in an XE field. It must precede heading text but need not be the first feature	The Mark Index Entry form writes the XE field when Mark is selected.	A Word VBA function writes the XE field. This ensures Word rules are followed.
Headings and subheadings	Headings and subheadings including optional forced sort text. Word supports up to 6 subheading levels (7 heading levels). A colon (:) separates heading levels. heading:subheading A semicolon (;) identifies forced sorts. { XE “the Darwin papers;Darwin papers” }	Supports rich text. Supports all languages supported by Word. User must manage unique bookmark naming. It does not support the \f (type) switch which needs to be added later. The form cannot be used to write index entries to text boxes.	Doesn’t support rich text. Supports all left-right languages.  Bookmark naming is managed automatically. If a \f type switch is used, it is automatically added after the XE field is written. \b and \i switches can be set automatically for note and table entries.
Switches	\b      The locator in the index will be highlighted by a bold style		
	\i      The locator in the index will be highlighted by an italic style		
	\f      Index type, for multiple indexes		
	\r      The flag is followed by the name of a range		
	\t      Suppresses the page number in the generated index and causes the following text to be written instead. Conventionally used for cross reference text.		

## Bookmark Form (2.1)

The Word Bookmark form can be used to insert bookmarks. It closes and has to be reopened for each bookmark. Great care needs to be taken to create unique bookmarks as reusing an existing bookmark name alters the range and will direct an embedded index entry to the wrong location in the document.

## Mark Index Entry Form (2.2)

The Word Mark Index Entry form supports Unicode and rich text. Text selected in a Word document is transferred to the Main entry field when the cursor moves to the form, the Subentry field is cleared. This can be confusing but can enable quick indexing. When entering a Main entry and a Subentry, first copy any text required for the Subentry. Select any text required for the Main entry and move the cursor to the Mark entry form. The selected text appears in the Main entry. Copied text can be pasted to the Subentry.

Because Unicode and Rich text are supported complex entries containing non-English text, mixed styles and subscripts/superscripts are retained and written to the index entry. **Mark** creates a single embedded entry. All XE fields become visible.

**Cross-reference** allows cross references to be added. Only one *see* cross reference is expected for an entry but there can be many *see also* cross references, these are best entered into a single XE field to give the required layout.

**Current page** is as shown. **Mark All** becomes available when text is carried across from the text to the Main entry.

**Page range** enables the Bookmark drop down list.

**Mark All** indexes one occurrence in each paragraph of the Word document containing the text in the Main entry.

## Copy/Paste Index Entry

Once an index entry has been created it can be copied and pasted to another location and adjusted for the new index entry. This can be a very convenient and fast method of indexing. Take care if pasting into text boxes. The user is responsible for escaping any control characters with a backslash \.

## Index Fonts and Styles

When an index entry is first embedded the default font and style are applied. There are a variety of circumstances where the entry may inherit the font and style of the surrounding text, for instance if a style automatically updates or if the format painter is applied when embedded entries are visible.

When the index is created an embedded index entry font or style uses the font or style of the first entry at that level matching the text.

Fonts and styles may be overridden by Index styles set when inserting an INDEX field. However the rules are complex and should be tested by the user.

Where publishers manipulate fonts and styles as part of their process, XE fields may be impacted, resulting in unexpected changes to fonts and styles in the generated index. These processes should be run with XE fields hidden.

## IndexSort Order (2.4)

Entries are arranged using a 'simple' sort. This can be overridden by a forced sort string following a semicolon in a Main entry or Subentry.

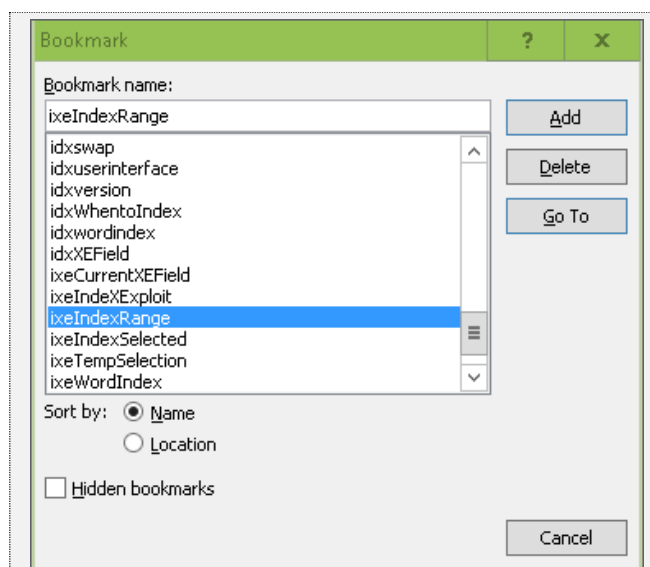


Figure 9 Word Bookmark Form

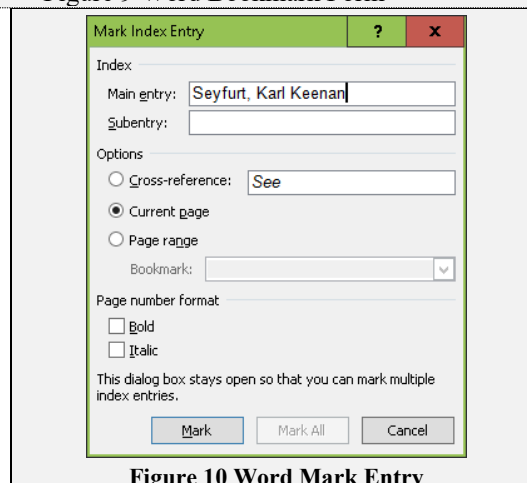


Figure 10 Word Mark Entry

## Page Number Evaluation

Where a range is referenced in Word indexing module the XE field, the page range is determined by the referenced range. Where there is no range, the insertion point page number is used. If there are multiple, identical XE fields on the same page, only one is included in the index.

## Errors

If index entries contain errors, Word may miss them completely or miss parts when compiling the index.

### AutoMark (2.3)

An AutoMark file contains one or more tables with at least two columns. The first column in each table contains a trigger word or clause that will trigger an index entry. The second column defines the index entry. The Automark file must be saved as a .doc file.

When AutoMark is selected from the Word INDEX form an AutoMark file is requested. Each paragraph in the document being indexed is searched. If a trigger phrase is found then an index entry is created next to (following) the first occurrence in the paragraph. Subsequent occurrences of the trigger clause in the same paragraph are ignored.

If there is a trigger in column 1 but no entry in column 2 then the trigger becomes the index entry.

An AutoMark file can contain many tables. Every table will be processed.

The trigger and entry can be separated by tabs.

Third and subsequent columns in an AutoMark file are ignored by Word and can be used for notes.

Don't include text before or after tables in an AutoMark file, this will be used by Word as a trigger and cause unexpected index entries.

It is possible to run several AutoMark files against the same text.

It is valid to include multiple index entries in an AutoMark file for the same trigger. Each needs to be in a separate row of the AutoMark table, and contain separate index entries.

Up to seven heading levels separated by colons (:) can be used, each level can contain a forced sort term identified by a semicolon (;).

Examples of AutoMark table entries are shown in Table 11.

Automark will index a 500 page book in less than a minute

## WHEN TO INDEX

Embedded indexing supports early indexing of a document. However, subsequent alterations can be disruptive causing bookmarks to be relocated, removed or extended. Embedded entries can be accidentally deleted. It is best to index when the text is reaching maturity and the contents list is becoming stable.

## WORD AND INDEXEXPLOIT SIDE BY SIDE

### Word

Mark Index Entry supports rich text. It is excellent for insertion point indexing and for cross references. Use with bookmarks created by the Word Bookmark form or the IndexExploit Mark Entry form. Mark all should be used with care.

Figure 11 Word Mark Index Entry

Bookmarks are used widely in Word. The Bookmark form is not optimised for indexing. It closes when a bookmark is written and the user is responsible for unique bookmark naming. The Mark Index Entry form is used for range indexing.

Figure 12 Word Bookmark Form

### IndexExploit

The Mark Entry form includes index entry and bookmark fields. It remains open until closed by the user. Software ensures bookmark names are unique. Un-indexed bookmarks can be found and indexed. Added features include; **Read, Invert, Sort, Swap, find XE** which searches for the entry in the document and **Word index** which searches for the entry in the index. Interactive **Find** and index including wildcard search replaces Word Mark All

Figure 13 IndexExploit Mark Entry Form Page range

The form shows the IndexExploit Mark Entry form with Page range selected. When Page range is selected the form size is increased to show the lower part associated with bookmarking. Add BM, shown in red, when selected, will write the bookmark next to the Page range selector.

Underlined characters on controls show keyboard shortcuts. Activate using the alt key. The cursor must be within the form area for keyboard shortcuts to be available. Show/Hide XEs does what it says.



## EDITING AN EMBEDDED INDEX (2.5) (4)

Simple edits including typos can be accomplished easily using Word find and replace. IndexExploit uses Word find when looking for an XE field or an index entry from the Mark Entry form. When the find form is opened it contains the search term placed by IndexExploit. This can be used or adjusted to accomplish simple edits.

More complex edits may include replacing and re-indexing individual chapters, re-arranging chapters and merging separate files.

Word files may have been indexed using the Word indexing module, or one of the main indexing programs and an embedding process. Index-Manager may have been used. If normal Word embedding rules have been followed then any embedded index can be edited.

### USING WORD

#### Chapters

Word can create indexes for bookmarked ranges using the \b switch. Example INDEX \c "2" \z "2057" \b "Chapter3" where Chapter3 is the name of the bookmark containing the chapter text. This has been used to generate a template for indexing a replacement chapter.

#### Copy and Paste

When copy/paste is used with Word the default behaviour is to adjust word spacing. This is inconvenient when copying and pasting into XE fields as additional actions are required to remove the spaces. Behaviour can be changed using Options>Advanced>Use smart cut and paste>settings>Adjust sentence and word spacing automatically. Figure 14

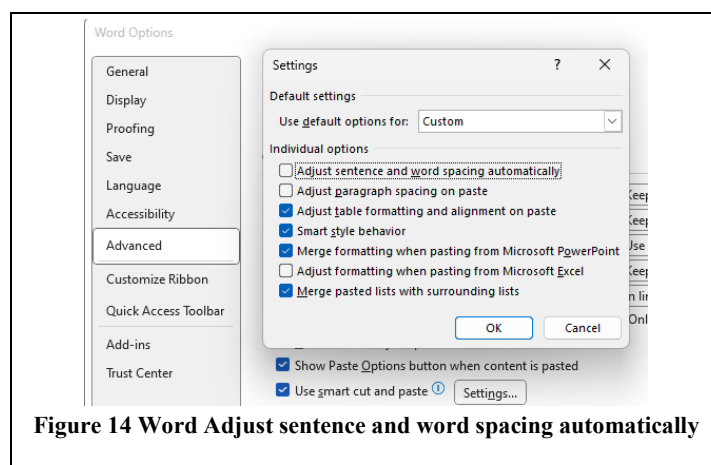


Figure 14 Word Adjust sentence and word spacing automatically

### Find and Replace

Word find /replace can be used for adjusting embedded index entries. XE fields must be visible. Care needs to be taken to choose patterns that alter XE fields but don't alter the document being indexed. The example below recovers italic text using markup labels /i1...../i0

To recover italics using advanced find and replace.

Find what: (/i1)(\*)(/i0)                      group 1 = (/i1), group 2 = (\*), group 3 = (/i0)

Use Wildcards

Replace with: \2    Format = italic    Group 2

Bold, superscript and other styles can be recovered.

### WITH INDEXEXPLOIT

#### Adjust

**Adjust** provides features enabling sections to be moved and documents to be split and merged. XE fields can be moved close to ranges. Referenced ranges in XE fields can be changed with corresponding range name changes in the document.

## Mark Entry form

You can use the IndexExploit Mark Entry form to read entries in the index. Then **Find XE**. Edit the field and update the index.

When **Show all bookmarks in Entry form** is selected in Options, bookmarks are listed in order of appearance in the document and the closest is selected and placed into the bookmark name field. Otherwise, un-indexed bookmarks are shown.

## Index Picklist

The Index picklist is very effective for navigating and editing an embedded index.

Each line of the picklist represents an embedded index entry. Subheadings are set-out with the first on the same line as the heading, separated by `:=`. This makes lone subheadings more easily visible enabling adjustment when required. The **Stop scrolling on** field, when populated, will stop scrolling when that text is present in the index entry.

Double clicking on a picklist line or selecting the **Goto XE** button will take the user to the embedded entry. The XE field can be edited in Word, the referenced range (if it is a range entry) can be redefined by selecting a range followed by **Rerange BM**.

The bookmark name will be displayed in the **Mark Entry** form when it is open in Page Range mode.

Option>Index>**Auto goto** causes the XE field and range, if present to be found automatically.

The IndexExploit database created when Index is selected contains the XE field ID and a copy of the XE field content. If the field ID is found, the XE field content is checked against the database. If there is a mismatch the document is searched for the expected XE field content. and the colour of Goto XE changes. As XE fields are edited, added, moved, and deleted, this process will become unreliable and Index needs to be rerun. Use Option **Index from selection** to build the Picklist from the region of interest. Use INDEX \c "2" \z "2057" \b "ixeIndexSelected" to create an index synchronised to the selected region.

## Error Report

An error report is always recommended. Select Options:Index **Report all Checks** and run **Index**. Errors are reported as they occur and recorded in a separate Word file.

## Adjust Index Order

Select or create an appropriate stop word file and run **Adjust**. Main headings and subheadings can be individually sorted. Sub-subheadings and all lower level headings will be sorted during the same run. With care it is possible to apply different stop word files at each level. Indexes to religious texts can be arranged in book:chapter order.

## Index Coverage

Index coverage highlights indexed regions. This can help show any problems with moving large blocks of text before making the alteration.

## INDEXEXPLOIT FOR WORD EMBEDDED INDEXES (4)

The menu is shown in Figure 15.

### MENU SELECTIONS

**Version** opens the IndexExploit downloads website. Check the website occasionally for updates.

**Word embedded** is the selected user interface.

**Configuration (4.1)** See page 16

**Options (4.2)** See page 19

**Mark Entry (4.3)** See pages 17,

**Automark File (4.9)** See page 22

**Index (4.5)** See page 23

**Adjust (4.6)** See page 35

**Export (4.8)** See page 37

**Exit** stops IndexExploit.

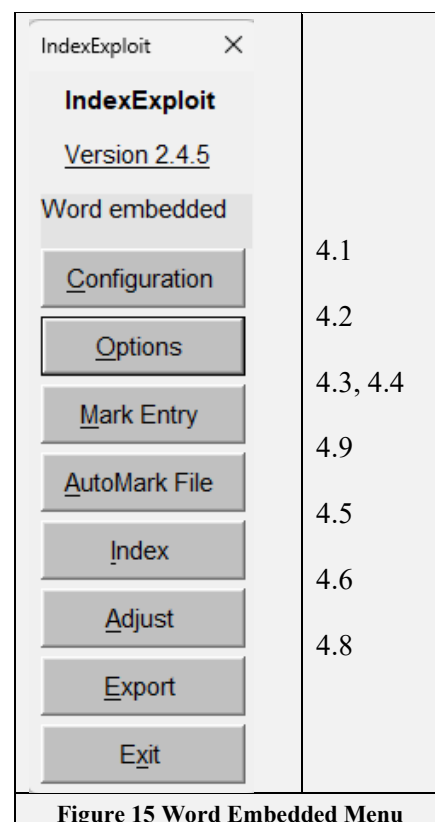


Figure 15 Word Embedded Menu

### START-UP

The stop word file (if selected) is read when the Word embedded form is opened. A stop word file can be defined in the **Adjust** options. If one is not found, then a message is displayed. The stop word file is used to force sort embedded index entries. See page 48.

Bookmarks beginning with **Bookmark prefix** are read if there are no more than 100 bookmarks total. Use **Read BMs** on the Mark Entry form to update the bookmarks list. If no bookmarks are found then a warning message is displayed.

### Configuration (4.1)

When IndexExploit is run for the first time a software licence (license) is applied. This supports 50 menu selections for Word embedded indexing, which is enough to index a moderate size book. 100 PDF selections are allowed, with a maximum of 100 linked entries for an export.

An empty Configuration form is then displayed, Figure 16.

**Licence** When IndexExploit is purchased a licence key is supplied. This includes coded values for an expiry date and the functions available.

**Name, email, Company** These may be used in files generated by IndexExploit.

**Doc Type** is used to choose an IndexExploit menu form. Choices are **Word embedded index** and **PDF**. The value chosen is remembered when the document is next opened.

**Licence Type** is the licence type.

**First Used** is the date of first use.

**Expiry Date** changes colour as the expiry date becomes close and becomes red when it is expired.

**Metrics Report** creates a Word document summarizing IndexExploit usage.

**Word actions** is the number of menu selections made with the Word embedded menu selected.

**PDF searches** is the number of PDF actions conducted.

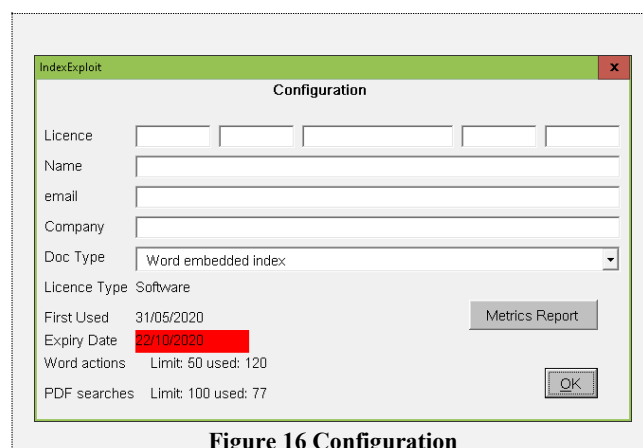


Figure 16 Configuration



If you have been supplied with a new or special licence, then it can be entered by selecting Configuration from whichever menu you are using.

## MARK ENTRY FORM (4.3)

### Where to Place Embedded Index Entries

It is the location of embedded index entries that determines the page number(s) in the generated index. The following guidelines may help.

**Current page** entries should be placed close to the beginning of the text referenced.

For **Page range**, the bookmarked range should span the text referenced. The XE field should be placed close to or within the bookmarked range. Refer to the compatibility section on page 24 for more information.

XE field placement is affected by the Compatibility setting on the Options form.

Cross references can be placed anywhere.

Selecting Index and trying a few entries from the Picklist will quickly tell you whether your indexing strategy is working.

### Bookmarking

The Bookmark fields and controls are at the bottom of the Mark Entry form, Figure 17. They appear when **Page range** or **Select A to B** is selected.

+A inserts bookmark ixmA at the cursor location.

+B inserts bookmark ixmB at the cursor location.

A goes to bookmark ixmA

B goes to bookmark ixmB

**Select A to B** selects a range extending from the beginning of bookmark ixmA to the end of bookmark ixmB. This can be used when defining a range and also for selecting entry terms.

The field next to the **Page Range** selector is used to enter the name of the bookmark to be added. A range must be selected before a bookmark will be written.

When option **Dbl-Click creates bookmark from selection** is selected the bookmark name is created from selected text.

When a new bookmark name is entered **Add BM** shows as red indicating the bookmark has not been written.

**Rerange-BM** redefines the bookmarked range to the current selection, use +A, +B and **Select A to B** if convenient.

**Add BM** creates the bookmark name by prepending **Bookmark prefix**. If the bookmark already exists then a number is appended to make the name unique. The bookmark name is displayed below the bookmark field which is left empty to receive the next bookmark name.

Selecting the bookmark name selects the bookmarked range. << and >> select the beginning and end of the bookmarked range.

If option **Create bookmark name from entry** is selected this creates a bookmark name from the lowest level heading when **Add BM** is selected.

**Read BMs** reads bookmarks with Option **Bookmark prefix** into the listbox. By default un-indexed bookmarks are read. If Option **Show all bookmarks in entry form** is selected, all bookmarks are read and the nearest is selected.

**Delete BM** deletes the selected bookmark.

Figure 17 Mark Entry Form

## Mark Entry

To find the latest embedded index entry created by IndexExploit click on the **Mark Entry** or **Main entry** labels at top left of the Mark Entry form.

A **Main entry** can be entered by keying the text or using **Read**. If **Index** has been run with default page order which is alphabetical then index entries are used for auto-complete. Click on the dropdown box at the end of the field to select an entry. New entries are added to the dropdown list. Auto-complete is case independent. A lower case typed character will match to an upper case entry if this is the first to be found. Adjustment may be required to achieve what is required, which may involve editing the XE field in Word once it's been written.

**Index type** (see Options) is available when multiple indexes are being created. Use a single character. The default index value should be left blank. When **Mark Entry** is selected the index entry is inserted first and the Index type is inserted afterwards. This leaves the insertion point near the top of the screen.

**Subentry, Sub-sub and Level 4** are entered in the same manner as **Main Entry**. Autocomplete and a dropdown list are available as described in **Main entry**.

**Read** copies selected text into the selected heading field. Double click can be used if the option

**Dbl-Clk creates heading from selection** is selected. If it is not selected then double clicking on an entry removes that entry and all lower entries from the form. They can be recovered by selecting **Restore**.

If the selected text is longer than Option **Heading length** then it will be truncated. The form supports Unicode but does not support rich text. Edit the entry in Word if the font or style needs to be changed.

**Invert** reads the cursor position or text in the selected heading field, inverts the entry and inserts a comma.

**Restore** replaces the heading with the text copied by the last Read operation.

**Mark Entry** Writes the XE field to the Word document. It checks that the right document is selected before writing an entry. This allows entries to be copied from another Word document, for instance an earlier index or controlled vocabulary.

A range entry will include a \r reference to the bookmarked range, a cross reference will include a \t followed by the cross reference. If the insertion point is within styled text or the non-default font the user is warned and is given the option of moving the insertion point. This avoids unexpected styling of the embedded entry and the corresponding index entry. Style checking can be cancelled, preventing the form Figure 18 displaying again. When the embedded entry is added to the document the **Mark Entry** button shows green. The new entry is highlighted green, this will show in the updated index.

Avoid placing XE fields in captions and other cross reference targets. If text is cross referenced the index entry may appear in the cross reference leading to an incorrect index entry

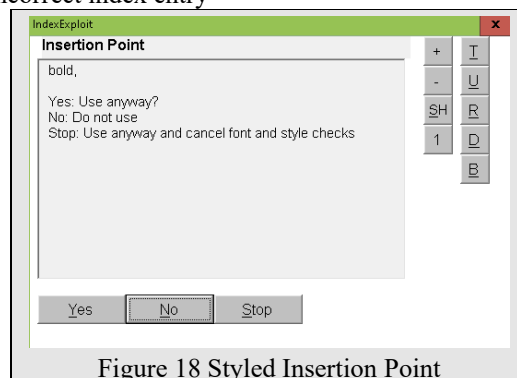


Figure 18 Styled Insertion Point

If a range has been selected when inserting a current page entry the entry is placed at the beginning of the range.

Range entries should be placed within the range or very close. A warning is given if the entry is too far away.

**Show/Hide XEs** is a quick way of showing and hiding XE fields when indexing or editing.

**Delete** removes text from the identified fields. **Delete 1-4** removes all four entry levels, when Main entry has been selected. If Subentry is selected then **Delete 2-4** is available. When Sub-sub is selected then **Delete 3-4** is available. This action does not remove any embedded XE fields.

**Sort** If a stop word file has been selected the forced sort text is automatically added in accordance with the selected stop file. If an entry contains a colon (:) or semicolon (;) no change will be made. ;**Sort 1** is displayed when the cursor is in Main entry, ;**Sort 2** is displayed when the cursor is in Subentry. Behaviour is repeated for sub-sub and Level 4. The forced sort can be edited but be aware that if **Adjust** is selected from the Menu the forced sort may be replaced. This can be prevented by including a **Fix sort override** character such as # in the Adjust Options. See Stop Word File on page 48.

**Swap 1,2** is displayed when the cursor is in Main entry. This then swaps Main entry and Subentry. When Subentry is selected it becomes **Swap 2,3**.

**Locator bold**, when checked, sets the locator to **bold** in the Word index.

**Locator italic**, when checked, sets the locator to *Italic* in the Word index.

**Word Index** attempts to find the selected entry in the Word index. Only the heading is used in the search. As headings may turn up as subheadings earlier in the index, the user is asked whether the right entry has been found, with an opportunity to continue the search or stop. The **Word Index** control is replaced by **Return** which returns the user to the original location when selected.

**Find XE** uses the contents of the entry fields to search for a matching XE field. If an index entry is badly formed then Find XE will not work. Use Ctrl-F Word find or the Advanced find form. The Find field will contain what Find XE is looking for. Modify as necessary and use Find Next.

The find value can be modified as necessary. To find subheadings only use Find XE “\*:subheading with Wildcards set. Find XE works best when Ctrl-Home is selected first to take the cursor to the start of the document.

Selecting the **Mark Entry** or **Main entry** label on the Mark Entry form finds the last entry

**Find** uses Word search to find text in the adjacent field. Case, Whole word and Wildcard are available. **Find** stops at the last occurrence, It doesn't wrap back to the beginning of the document.

**Close** closes the form.

Cross references can be entered by selecting **Cross ref**. The field next to the selector is used for cross reference text.

IndexExploit doesn't support rich text, so some adjustment of see and see also terms in the XE fields will be required if italics are used.

## OPTIONS FORM ( )

The **Options** form is shown in Figure 19. There are several tabs, each relating to a different selection or form. All settings shown in this guide are seen when **Reset to Default Values** is selected.. When options are altered most are remembered between sessions. Some are stored on the computer, some are stored in the document. Table 10 contains a list of all options and default values and explains where they are stored. Options and controls above and below the tabs are always visible, these are addressed first.

### Above the Tabs

**Show Embedded Entries** When checked, bookmark range symbols and embedded index XE fields are visible. When unchecked, IndexExploit will hide the XE fields. If the Word Mark Index Entry form is used then XE fields will become visible again. To hide, either toggle **Show embedded entries** or select **Word embedded** on the menu.

**Highlight selection** causes the selected XE field if visible to be highlighted. The selected bookmarks if present will be highlighted. If IndexExploit detects highlighting in the document when it is started the Highlight selection option is automatically disabled to protect existing highlighting. It can be enabled if it is safe.

**Form added width pts** widens the Mark Entry and Index form by the number of points entered.

**Remove all Highlighting**. Processes are included to remove highlighting where it is no longer needed but the software involved is complex and doesn't always work. If too much highlighting is present, select the whole document and remove highlighting. If that doesn't remove all then select **Remove all highlighting**.

### Tip text guides

Stored options may be written to computer memory or into the document. Temporary options are forgotten between sessions. Tip texts are prefixed [C] for values stored on the computer, [D] for values stored in the document, and [T] for temporary values lost when a session ends.

Figure 19 Options Form

## Below the Tabs

**Reset to default values** sets certain options to default values. Some values are unchanged, including the stop word file if one has been selected.

**Close** closes the form.

## BOOKMARK OPTIONS (4.2)

See Figure 20.

**Bookmark prefix** is prepended to bookmarks created by IndexExploit. Any value or none may be used except `ixe` which is reserved for IndexExploit use. The default is `idx`. The prefix is stored within the document as a custom property named `ixeBookmarkPrefix`. As you change from one document to another the appropriate prefix will be used automatically. Word does not allow certain characters in bookmark names. A warning is given if an invalid prefix is chosen.

**Min bookmark range** is the minimum number of characters that can be selected as the referenced range in an XE field. This ensures that the bookmark is visible when highlighted by a later search by Word Find or another application. If a range shorter than this is selected a warning is given and a bookmark will not be written.

**Max length of bookmark name** is the maximum number of characters that will be used when a bookmark name is created automatically. This is a guide only as the prefix is not included and a random number may be added if the initially generated bookmark already exists.

**Show all bookmarks** The bookmarks list shows bookmarks prefixed with **Bookmark prefix**. By default only un-indexed bookmarks are shown. Selecting this option shows all bookmarks

**Dbk-clk creates BM from selection** When the Bookmark text box is double clicked in the Bookmark form, the selected text in the Word document is used to create a bookmark name.

**Goto end of range after BM creation** defines where the cursor is located after inserting a bookmark. The default is the beginning of the range. When this option is checked the cursor is set to the end of the range. Intended for preliminary document scanning.

**Create bookmark name from entry** causes a bookmark name to be generated from the lowest level heading.

**Allow bookmarks in text boxes** allows bookmarks in text boxes. Also used by **Adjust**.

**Allow bookmarks in footnotes** allows bookmarks in footnotes. Also used by **Adjust**.

**Allow bookmarks in endnotes** allows bookmarks in endnotes. Also used by **Adjust**.

The screenshot shows the 'IndexExploit' window with the 'Options' tab selected. The 'Bookmark' sub-tab is active. The 'Bookmark prefix' is set to 'idx'. The 'Min bookmark range (for visibility)' is set to 4, and the 'Max length of bookmark name' is set to 8. The 'Show all bookmarks in Entry form' checkbox is unchecked. The 'Dbk-clk creates BM from selection' checkbox is checked. The 'Goto end of the range after BM creation' checkbox is unchecked. The 'Create bookmark name from entry' checkbox is unchecked. The 'Allow bookmarks in text boxes' checkbox is unchecked. The 'Allow bookmarks in footnotes' checkbox is unchecked. The 'Allow bookmarks in endnotes' checkbox is unchecked. The 'Reset to default values' and 'Close' buttons are at the bottom.

Figure 20 Options: Bookmark - Default Values

## MARK ENTRY OPTIONS (4.2)

See Figure 21.

When **Dbl-clck creates heading from selection** is selected, double clicking in Main entry, Subentry or Sub-sub transfers selected text to the selected text box. **Read** performs the same transfer and is the recommended method.

**Max heading length on dbl-clk** defines the maximum number of characters that will be transferred when text selected in the Word document is transferred by double clicking a heading field

**Allow multiple types ( \f )** opens the **Type** field in front of the Main heading. A letter entered here will be added to the entry as a type flag. Use this when multiple indexes are to be generated. A type flag is not needed for the largest (general) index. When selected, the first character of the type (if present) will precede the entry in the **Index picklist**.

**Autocreate headings from bookmarks.** If structured bookmarks are used, (heading\_subheading\_subsub) entries are offered automatically by the Mark Entry form. Can be useful for an initial bookmarking scan of the document before indexing.

**Label notes as Bold/Italic** when checked causes IndexExploit to recognise when an entry is in a footnote or endnote and automatically includes a \b or \i or both) in the embedded entry to cause the page number to appear as bold /italic text.

**Label table entry as Bold/Italic** when checked causes IndexExploit to recognise when an entry is in a table and automatically includes a \b or \i or both) in the embedded entry to cause the page number to appear as bold /italic text.

**Mark entry form zoom %** alters the form size to suit your requirements.

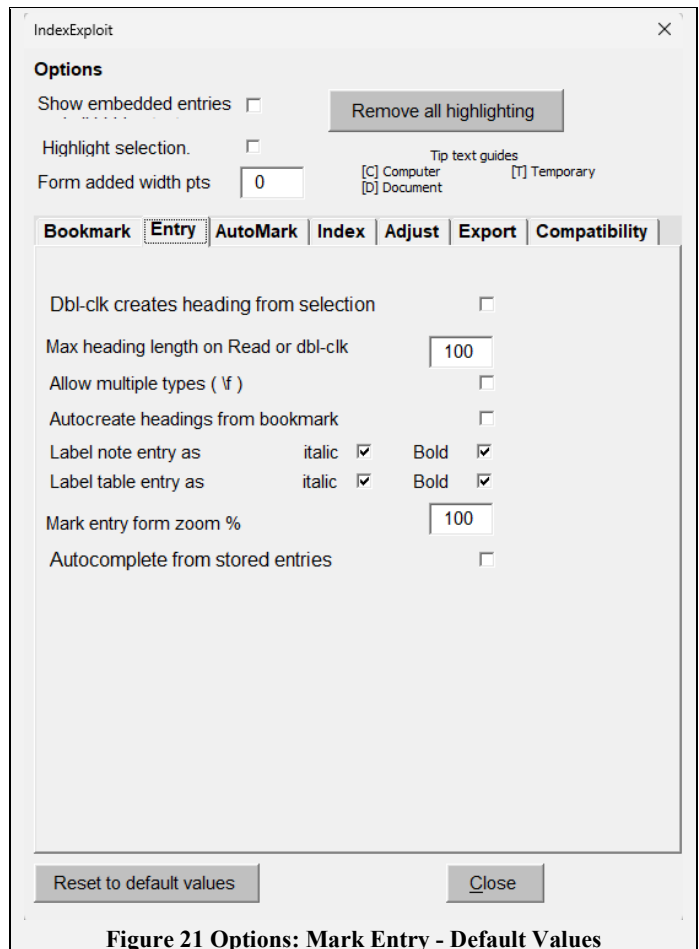


Figure 21 Options: Mark Entry - Default Values

## MESSAGE FORM

An active message form is used in IndexExploit. This has a number of controls gathered at the right edge. The controls operate as described in Table 3 below.

Text in the message area can be copied.

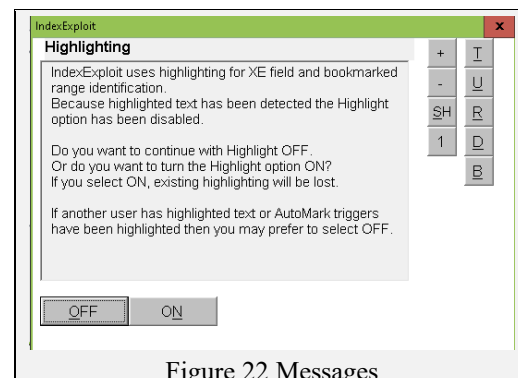


Figure 22 Messages

Table 3 Message Controls

Control	Action
+	Increase Word document zoom
-	Decrease Word document zoom
SH	Show/hide embedded index entries
1	Increase form size (1 to 1.6, effective next time it is used)
T	Top of file
U	Up 5 lines (depends on zoom)
R	Return to original position
D	Down 5 lines (depends on zoom)
B	Bottom of file

## AUTOMARK FILE (4.9)

Word **Automark** automatically searches for trigger clauses from the first column in an Automark file and indexes them with predefined insertion point entries from the second column. Further columns are ignored. A trigger clause can be indexed with multiple embedded entries by including it in several rows. Automark is very quick. IndexExploit is able to help with creation of an Automark file by reading highlighted trigger clauses in a Word document.

There are no Options. The AutoMark file must be saved as a .doc file.

**Automark File** in IndexExploit creates or updates an AutoMark file using highlighted trigger clauses. These are appended to the first column of the selected AutoMark file. Processing begins at the cursor location in the Word file and proceeds to the end. This allows an AutoMark file to be created in stages. The user creates entries in the second column where necessary, these are used by Word Automark to automatically add embedded entries to the file being indexed. If the trigger clause is to be used as the embedded entry there is no need for an entry in column 2. Subsequent columns can be added, these are ignored by Word and can be used for notes.

**Automark file** requires you to have only two Word files open. First open the file being indexed and place the cursor where you want **AutoMark file** to start, then open the Automark file. Start IndexExploit and select **Automark file**. IndexExploit will ask whether the selected file is the Automark file.

The Automark file can be blank or it can contain earlier entries. If blank a new table will be created. Otherwise, new entries will be added to the end of the existing table. Highlighting is copied across and can be removed. Formatting is carried across; this may include bullet points or numbering which can be confusing but is easily removed.

Sort the AutoMark table as required, remove duplicates, and add entries into column 2 as required.

When the AutoMark file is ready run **AutoMark** from the Word Insert Index form.



## INDEX (4.5)

This runs the index parser, opens the index picklist, updates any Word indexes and goes to the first Word index. An ixea (alphabetically sorted) or ixep (page sorted) file may be written. If an ixc file is found when **Index** is selected, then this is offered to save processing time. See Figure 23. Every embedded index entry in the selected range is parsed and split into its components. The main text is parsed first, followed by text boxes, footnotes, endnotes. Computing power will affect performance. Close unnecessary files and applications as necessary.

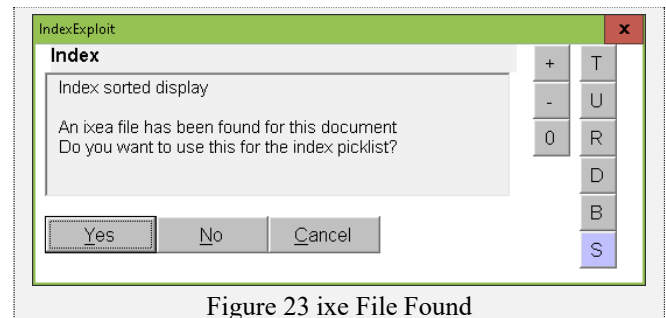


Figure 23 ixc File Found

A progress indicator appears during processing, Figure 24, and a timer message Figure 25 appears every at intervals to show processing is still continuing. If you need to stop processing at any time and re-start IndexExploit then key Ctrl-break. For those of you that don't have a break key on your keyboard **esc** may work.

When complete a new ixc file will be written if **Index from range** and **Report all errors** are not selected. If an ixc file has been set to read-only then the new ixc file will not be written and an error is displayed, Figure 26.

Selecting **Index** again when a picklist has been created will normally re-open the picklist. This is a design decision, made to prevent users unintentionally re-starting the Index process. Use **Refresh** to recreate the picklist..

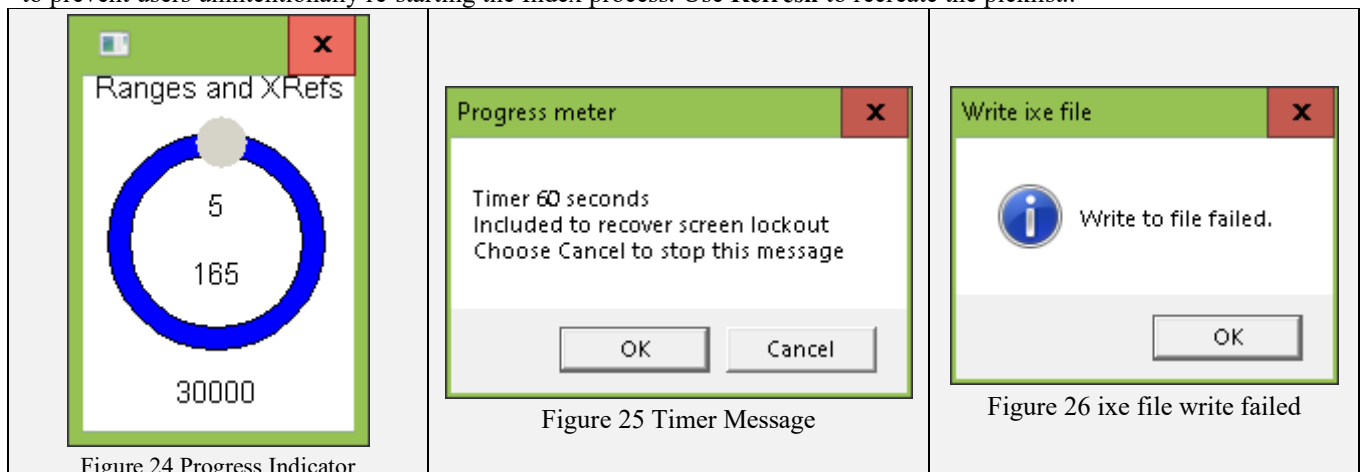


Figure 24 Progress Indicator

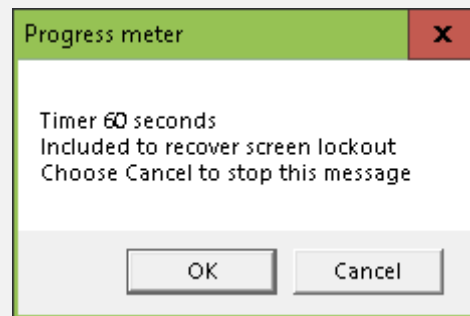


Figure 25 Timer Message

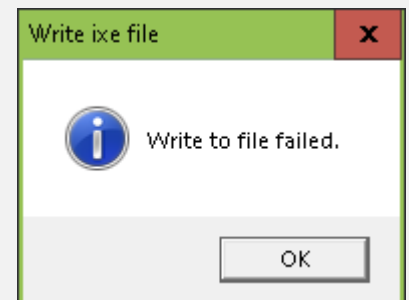


Figure 26 ixc file write failed

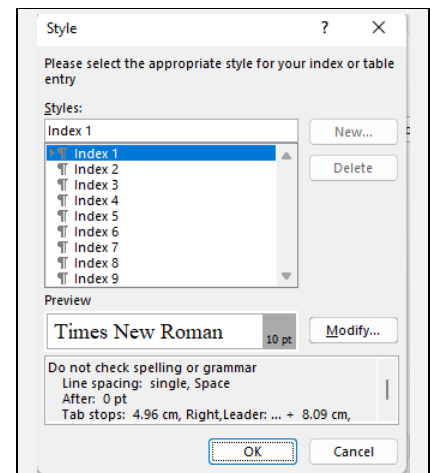
**WORD EMBEDDED INDEX FIELDS, AND HOW THEY ARE PROCESSED BY WORD AND INDEXEXPLOIT**

Microsoft doesn't publish information about how the indexing module works. It has been inferred from experience and testing.

**WORD INDEX FIELD, STYLES AND SWITCHES (2.4)**

An INDEX field defines the location, styles and content of an index.

When inserting an INDEX field, you can choose Index styles. This may prevent style bleeding from XE fields into the index.



**Figure 27 INDEX Styles**



Table 4 shows the switches used by Word when generating an index and the equivalent processing by IndexExploit.

**Table 4 Word INDEX Field and Switches**

Switch	Word functionality	IndexExploit Picklist
\b	uses a bookmark to specify area of document from which to build index	When indexing a selected range it is bookmarked ixelIndexSelected. This can be used to generate a synchronised index. Example INDEX \c "2" \z "2057" \b "ixelIndexSelected"
\c	creates an index with more than one column on a page (maximum = 4)	N/A
\d	with the \s switch defines the separator between sequence and page numbers	N/A
\e	defines the separator characters used between an index entry and its page number (default comma space)	N/A
\f	creates an index by using only the specified \f type in the XE fields. Do not use this for the 'primary' index  { INDEX \c "2" \z "1033" } is the default index { INDEX \c "2" \z "1033" \f "i" } only includes entries with \f "i"	Not used. The picklist includes all entries
\g	defines the separator characters used in a page range (default is em dash)	Not used
\h	\h " " inserts a blank line formatted with the index heading style between groups in the index \h "A" inserts a heading letter formatted with the index heading style between groups in the index	Not used
\k	defines the separators between cross references and other entries (default is full stop followed by space)	Not used
\l	defines the separators between page numbers for multiple page references (default comma space)	Not used
\p	limits the index to the specified letters	Index Option Alphabet range
\r	runs index subentries onto the same line as the main entry (default set-out)	Not used
\s	includes the referenced sequence number with the page number. Sequence number is a selected heading level.	Index Option Sequence for locator prefix. Heading 1 is recommended, labelled as Chapter
\y	enables the use of yomi text for index entries	Not tested
\z	\z "#####" defines the language ID Word used to generate the index (default depends on region)	Not used

### ***Index Processing by Word and IndexExploit***

Table 5 shows how Microsoft Word processes index entries, possible anomalies, and how these are addressed by IndexExploit.

A Word index is created when a new INDEX field is inserted or when an existing field is updated. It may be updated when print is selected, depending on Word Options settings.

When **Index** is selected from the IndexExploit menu, XE fields in the main text, footnotes, endnotes and text boxes are read and parsed. The picklist is updated and entries are passed to the Mark Entry form to support autocomplete and a dropdown list.

**Table 5 Microsoft Word Index Generation Process and IndexExploit Behaviour**

Topic	Word process	Features of the Word index	IndexExploit behaviour
Headings	XE fields are read in the order they are encountered in the document. The first occurrence of a heading determines the font and styles.	If an index entry uses the same wording as another earlier entry the style and font is as the earlier entry.	XE fields are read and parsed for main text, footnotes, endnotes and text boxes.
Heading sort	Headings are arranged by forced sort if present, otherwise using a simple word by word sort.	If forced sort is applied inconsistently, duplicated entries will appear.	As for Word. Page number order is available as an option.
Subheadings and lower	Are treated the same as headings but at the lower level, down to seven levels (six subheadings levels), any remainder is included in the seventh level.	See above	As for Word.
Insertion point entries	The location of the XE field determines the page number in the index. When several identical XE fields appear on the same page, repeating page numbers in the index are suppressed.	Multiple occurrences on a single page are not apparent.	All entries are included in the Picklist.
Range entries	The page numbers for the span are worked out from the beginning and end page numbers of the range. The location of the XE field determines where the page number span appears in a locator string.	If XE fields are far from the referenced range, locator order may be incorrect within an entry.	Page numbers are an option in the picklist and can slow it's creation considerably. The page numbers for the span are worked out from the beginning and end page numbers of the range.
\f Multiple indexes	\f values in the XE fields and INDEX field must match.	An index or entries may be missed if a \f setting in an XE fields is not matched by an INDEX field with a corresponding setting.	Not used. All entries are included in the picklist.
\p Selected indexes	Limits the index to the specified letters		Not used. An Index option causes the picklist to include a selected character range
\s Sequence number	Prefixes the page number with the selected sequence. Heading 1 is recommended, formatted as Chapter.	Take care selecting a sequence. Heading 1 is recommended for chapters to give a coherent contents list.	Prefixes the page number with the selected sequence. Restricted to Heading levels.

## Error Reports

Error reports can be created by the **Index** process to support index debugging. Select Option **Report all checks**. .ixe files and error reports have been shared by users to fix embedded index compatibility issues in the publishing process. Each error report shows metrics followed by individual error entries. An extract is shown below. A real document containing a few errors was modified for testing to show all error types. Picklist entries are labelled, and scrolling will stop at records containing errors. The error may be labelled with a bookmark corresponding to the Reference in the table below. Error types labelled BM are bookmarked.

Error Type	Quantity
Total entries	904
Bookmark range too short (BM)	1
Compatibility illegal characters	1
XE field too far from range (BM)	1
Empty headings	1
Parser errors	1
Referenced range missing (BM)	1
Space in bookmarks	2
Space in forced sort	0 Not considered a fault
Space in headings (BM)	5
Space in Text field	2
Cross reference in heading	1
Cross reference not found (BM)	1
Range may be too large (BM)	4
Ranges overlap (BM)	2

Reference	Type	Embedded Entry	Bookmark	Observation
ixeErr00001	Illegal characters in heading	XE "rural <dweller>:reported a high quality of life"		Illegal characters in heading <>
ixeErr00002	Space in L2	XE "United States: " \r "idxUnitedStates"	idxUnitedStates	Space in L2
ixeErr00004	XE field parser	XE "Colorado study:results" \r "idxColorado Results"		C5 Embedded entry range error near location 45 in XE field o R
ixeErr00006	Space in L1	XE "individualism vs. collectivism "		Space in L1
ixeErr00007	Unexpected use of text field	XE "built environment:Denmark:see Denmark"		Cross reference is in heading
ixeErr00009	Cross reference not found	XE "wellbeing" \t "see also community wellbeingx"		Cross reference community wellbeingx Not found
ixeErr00010	Range length	XE "rural-urban happiness paradox" \r "idxRuralUrbanHP"	idxRuralUrbanHP	Bookmarked range less than 4 characters
ixeErr00011	XE field location	XE "rural-urban binary" \r "idxruralurb"	idxruralurb	XE field 35894 from expected position Separation greater than 2000 characters
ixeErr00012	Bookmark not found	XE "Colorado study:method" \r "idxColaradoMethod"	idxColaradoMethod	Bookmark in XE field idxColaradoMethod has not been found.
ixeErr00013	Range greater than 100000 characters	XE "built environment" \r "idxBuiltEnvironment"	idxBuiltEnvironment	Bookmarked range is 383473 characters
ixeErr00016	Range greater than 100000 characters	XE "rural vs urban quality of life" \r "idxRuralVsUrban"	idxRuralVsUrban	Bookmarked range is 392813 characters
ixeErr00017	Entry after XE "women:and COVID-19"	XE " :urban green" \r "idxUrbanGreen"	idxUrbanGreen	Empty Level 1 during alpha sort
ixeErr00018	Range overlap warning	XE "China study:Everyone is an Artist, project"	idxEveryoneIsArtist	Embedded Entry within Bookmark h Delete Embedded Entry

Reference	Type	Embedded Entry	Bookmark	Observation
ixeErr00019	Range overlap warning	XE "Scotland studies:outdoor recreation" \r "idxOutdoor2"	idxOutdoor idxOutdoor2	Range overlap b2 Extend range idxOutdoor and delete Embedded Entry

## INDEX PICKLIST (4.5)

### Index Entries

If the **Page Order** Option is selected, the picklist is arranged in the order that entries are parsed with main text entries first followed by footnotes, endnotes, and text boxes.

If the **Page Order** Option is not selected, then entries are arranged in alphabetical order. If a forced sort is included in a heading, this is used to position the entry. Page numbers are included only when the **Include page numbers** option is selected.

Every XE field is represented in the picklist, the first subheading is included on the same line as a heading to achieve this. If a bookmarked range is referenced the entry is labelled with an asterisk (\*). Footnotes are identified with **Footnote label**, endnotes are identified by **Endnote label**, text boxes are identified by **Textbox label**, table entries are identified by **Table label**.

If **Allow multiple types** is selected then if the \f type switch is used the first character of the index type appears at the beginning of the picklist entry.

If **Report all Checks** is selected errors are reported as they are encountered and error codes are included in the picklist. An error report will be created automatically.

When XE fields are longer than 500 characters, which can occur if an index hasn't been embedded properly, then Trunc. and the length of the XE field appears at the beginning of the entry. The picklist entry will have been truncated.

### Entry Selection

Double click an entry to find the indexed content in the Word document. When IndexExploit looks for indexed content it looks for the XE field with an expected field ID and reads it's content. If it matches the content stored in the IndexExploit database it takes the user to that location in the document. If a match is not found it looks for a field containing progressively shorter versions of the stored XE field content. This is less precise as there could be several fields with the same content. When this happens the Goto XE button is highlighted red. The Word Find buffer is loaded with the search term. Use Word Find to perform a manual search if required.

If the entry references a bookmark, the name is posted to the **Mark entry** form.

To see the XE fields select Option **Show embedded entries**.

Rules for highlighting of content are shown in **Table 6**.

If **Auto goto** is selected the indexed content is automatically found in the Word document. Otherwise double click the entry. **Highlight selection** enables highlighting of entries. Option **Show embedded entries** causes XE fields to be displayed.

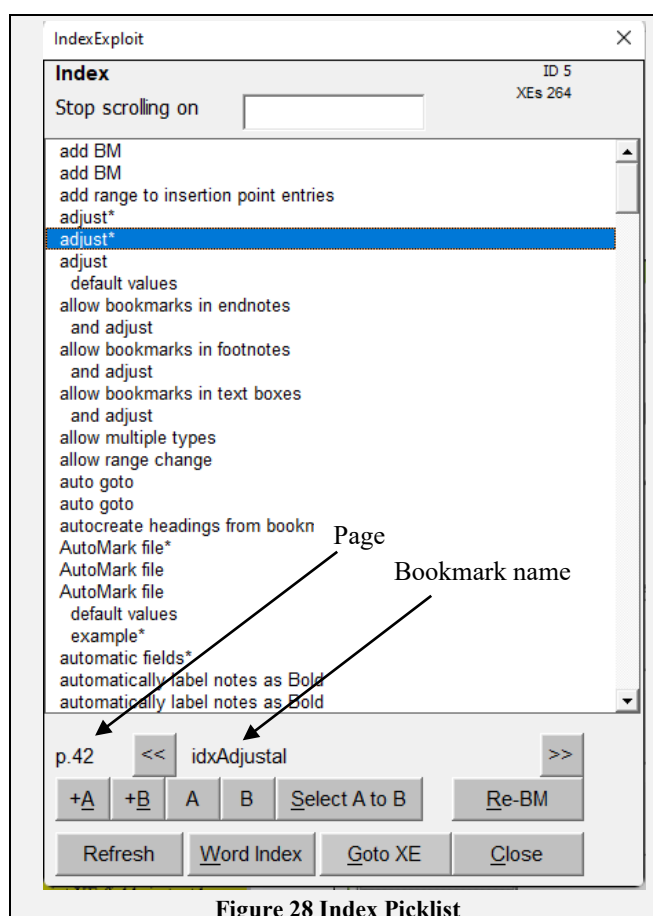


Figure 28 Index Picklist

The sidebar, PgUp, PgDn and cursor keys are used to navigate the picklist. Keying a single character moves the cursor to that section of the picklist. When an entry is selected the page number and if applicable the bookmark name appear below the picklist.

**Stop scrolling on** will stop scrolling when the content of the field occurs in a picklist entry. This can be used with the Up and Down keys to find specific words in the index. Looking for `:=` will find first subheadings, including lone subheadings, enabling quick editing of entries.

Selecting **Page** opens a form showing the XE field content Figure 29. Text displayed here can be copied. This enables hidden text in XE fields to be copied and pasted elsewhere.

Selecting **Bookmark name** goes to the referenced range. Selecting `<<` or `>>` goes the beginning or end of the bookmarked range.

**+A** and **+B** create bookmarks ixmA and ixmB at the selected text. **A** and **B** return to the bookmarked entries ixmA and ixmB. **Select A to B** selects the range from the beginning of bookmark ixmA to the end of ixmB. Used with **Re-BM**.

**Re-BM** alters the range of the bookmark to the selected range.

**Refresh** refreshes the picklist using the range selected when **Index** was selected.

**Word Index** attempts to find the selected entry in the Word index. Only the heading is used in the search. As headings may turn up as subheadings earlier in the index, the user is asked whether the right entry has been found, with an opportunity to continue the search or stop.

**Goto XE** goes to the XE field in the Word document. If **Show embedded entries** is selected the XE field is selected, otherwise the line containing the XE field is selected. Goto XE reads the entry in the IndexExploit database, determines the XE Field ID, goes to that field, reads the content and compares it with the content in the database. If there is not a match because the entry has changed or something has happened to alter the XE Field ID the IndexExploit searches for progressively shorter versions of the expected entry and sets the **XE Field** control red to indicate there may be a problem. If no match is found a warning is given.

**Close** closes the Index form and returns the cursor to its position when Index was selected.

Table 6 XE Field Selection and Highlighting

		XE Field Selection and Highlighting	
Highlight Selection	Show embedded entries	Bookmark absent in XE field	Bookmark present in XE field
<input type="checkbox"/>	<input type="checkbox"/>	Line containing XE field is selected	Bookmark selected if length is greater than <b>Min bookmark range</b> , otherwise the line is selected.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Line containing XE field is highlighted	Bookmark highlighted if length is greater than <b>Min bookmark range</b> , otherwise the line is highlighted.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	XE Field selected	Bookmark selected if length is greater than <b>Min bookmark range</b> , otherwise the line is selected.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	XE Field highlighted	Bookmark highlighted if length is greater than <b>Min bookmark range</b> , otherwise the line is highlighted.

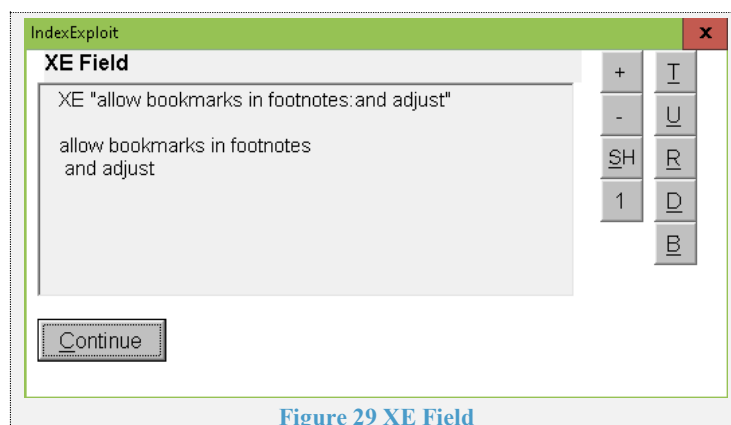


Figure 29 XE Field

## INDEX OPTIONS (4.2)

See Figure 30. The options below affect operation of the **Index** process and the **Index picklist**.

**‘See’ text for checking xrefs, ‘See also’ for checking xrefs** are used when checking matches to a target cross reference. The \t (text) switch in an XE field that suppresses the page number in the index. Text following the \t switch is shown instead.

Conventionally this is used for cross references. Some indexers place cross references in subheadings and write \t “” into the XE field. They then force sort the entry using an appropriate forced sort, for instance ;zzz#. This gives greater control over where cross references appear in the index. IndexExploit will check for cross references in subheadings and text fields. Non-English cross reference terms can be entered supporting the multi-language abilities of Word.

Checking occurs when **Report all checks** is selected. IndexExploit looks for an exact match. If this is not found the entry is bookmarked ixErr and a number, e.g. ixErr001. An entry is created for an error report. IndexExploit expects headings in cross references to be separated by semicolons (;). It expects subheadings to be preceded by colons (:) or commas (,). Cross references are matched to the heading level only.

**Max entries to include in index** defines the maximum number of entries used for the Index picklist. If no value or a negative value is set the default value will be applied which is derived from the licence. If 0 is chosen the picklist will contain entries in footnotes, endnotes and text boxes only.

**Alphabet range** creates the picklist for the start and end character range defined.

**Index from selection** causes the Index picklist to be populated using the selected range. If the selected a range is less than 100 characters then a range is calculated by finding the largest bookmarked range which includes the selection. If the selected range doesn’t include any XE fields then IndexExploit will attempt 10 PgUp and 20 PgDn and will generate the picklist from the selected range. Only main text entries are included in the picklist, not notes or text boxes.

When **Index from selection** is not selected, IndexExploit generates a picklist from the entire document and creates an ixc file that can be loaded when Index is selected during a later session. This removes the need to re-create the picklist every time IndexExploit is used. The ixc file name is the same as that of the document but with extension ixca (index order) or ixep (page order). ixc files can be transferred to other IndexExploit users. They are spreadsheet compatible. The first row contains column headings. The second row contains configuration information. ixc files distributed to other users should be set read-only to prevent accidental replacement.

IndexExploit

**Options**

Show embedded entries ☐

Highlight selection. ☐

Form added width pts

Remove all highlighting

Tip text guides  
 [C] Computer [D] Document [T] Temporary

**Bookmark** **Entry** **AutoMark** **Index** **Adjust** **Export** **Compatibility**

'See' text for checking xrefs

'See also' for checking xrefs

Max entries to include in index

Alphabet range  to

Index from selection ☐

Report all checks ☒

Page order ☐

Include page ☐

Auto goto ☐

Allow range change ☒

Show coverage ☐

Sequence for locator prefix

Picklist zoom %

Footnote label

Endnote label

Text box label

Table label

Reset to default values

Close

Figure 30 Options: Index - Default Values



**Report all checks** causes IndexExploit to report possible faults when the picklist is created, entries are automatically bookmarked ixErr001 upwards as they are encountered. Figure 31 is an example error message. The error reporting interval can be chosen for convenience. **Halt** stops reporting checks in the current story and moves to the next. Errors are written to a separate Word document which can be used for subsequent analysis, adjustment of the embedded entries, and can be shared with other users. The codes are also shown in the index picklist. Error codes are listed in Table 7

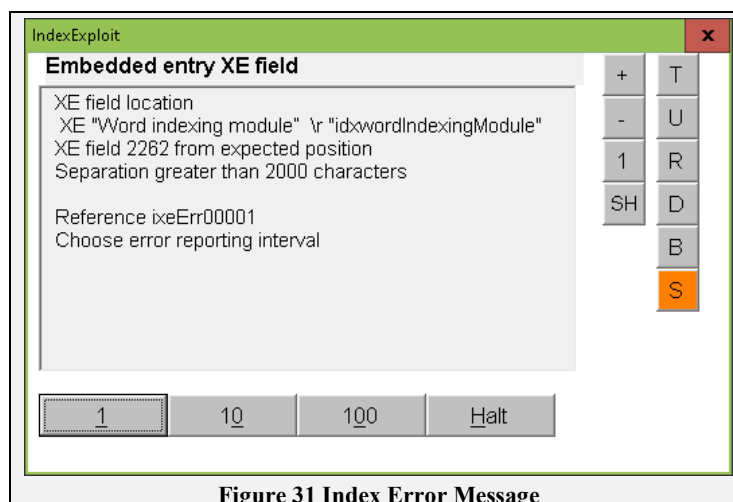


Table 7 Index Error Messages

Code	Meaning
B	Space at beginning or end of a bookmark name
C	Compatibility including illegal characters in entries or cross references, XE field too far from referenced range
FS	Forced sort not adjusted because an escaped control character is present
Ln	Space at beginning or end of heading level n
LnS	Space at beginning or end of a forced sort
M	Maintainability. XE fields more than 2000 characters from referenced bookmark.
P	XE field could not be parsed because XE field syntax has not been followed.
P	Empty heading (parser error)
R	Referenced range bookmark missing
R10k	Referenced range greater than 10,000 characters. This is information only but may indicate a problem.
R50	Index range > 50 pages. This is information but may indicate a problem.
RR	Contiguous or overlapping ranges
T	Cross reference text not found following \t. Not always an error, can be used to force see also cross references to the last subheading.
T	Space at beginning or end of a Text field
V	Visibility. Referenced bookmark range length less than <b>Min referenced range</b> .
X	Cross referenced target not found, a complete match is sought.

**Page Order** when checked causes the Index picklist to appear in page order. The default is alphabetical order. Note that if the Pick list has been generated and the Page Order is changed, entries are read from the wrong database, taking the user to the wrong locations in the document.

**Include Page Numbers** Adding page numbers to the index picklist slows the generation of the picklist. The default is to exclude page numbers, this doesn't reduce the ability to find content.

For a 500 page book with 2000 index entries and 2000 footnotes, **Index** is processed in about 1 minute without page numbers. It took 8 hours with page numbers because Word repaginates each time a page number is requested. When **Index** is complete, an ixexa file is saved, this loads in about one second if **Report all checks** is not selected.

Include page numbers when:

- Document is fully indexed and you are ready to create the final index or picklist version.
- An export including page numbers is required

**Auto Goto** causes IndexExploit to find the indexed content immediately an entry is selected. Double clicking the entry is normally required. Auto Goto slows down picklist browsing because of the time required to move through the document.

**Allow range change** allows bookmarks to be re-ranged from the Picklist.

**Show coverage**, when selected uses highlighting to show index coverage. Select **Highlight selection** and **Remove All Highlighting** before selecting **Index**.

**Sequence for locator prefix** allows a page number prefix to be added, for instance Heading 1. It should be the same as chosen for Word page numbering.

**Picklist zoom %** adjusts the size of the picklist to your requirements.

**Footnote label** is added to a picklist entry for a footnote. Default is f.

**Endnote label** is added to the picklist entry for an endnote. Default is e.

**Textbox label** is added to the picklist entry for a textbox. Default is x.

**Table label** is added when an embedded entry is in a table cell. Default is t.

Labels don't affect the Word index and should not be left blank.

## ADJUST (4.6)

Adjust alters embedded index fields. Depending on the Options settings it can:

- Alter the forced sort strings by reference to a stop word file, causing the index to be re-sorted.
- Convert insertion point entries to range entries.
- Move XE fields close to the referenced ranges when the separation is more than 2000 characters.
- Change bookmark prefixes. Referencing XE fields are adjusted.
- Add compatibility information to assist with electronic publishing.
- Delete all insertion point embedded entries. If this option is selected no other options are processed and the user is given two chances to cancel.
- Delete all XE fields and referenced bookmarks if present. If this option is selected no other options are processed and the user is given two chances to cancel. Use Mark entry to show remaining un-indexed bookmarks.

There is no form associated with **Adjust**

These options affect operation of the Adjust process.

**Allow bookmarks in text boxes, Allow bookmarks in footnotes, Allow bookmarks in endnotes** in Bookmark options allows bookmarks to be added as referenced ranges to insertion point XE fields in text boxes, footnotes and endnotes.

**Browse for Stop Word File** selects a stop word file. The stop word file is described on page 50.

**Report adjustments** shows adjustments as they occur. It is useful when trying out a new stop word file to be able to check that the index is being sorted in the expected manner. Other checks are also included. The user is able to gradually reduce the level of reporting when this option is selected.

**Replace smart quote delimiters with plain in XE fields** causes smart quote delimiters in XE fields to be replaced by plain quotes while retaining escaped smart quotes. Entry, cross reference and bookmark parts are among those treated. This functionality was added when an indexer found that another application would not import XE fields correctly. Smart quotes can appear in XE fields when Option Replace 'straight' quotes with 'smart' quotes is chosen. Manually adjusting an XE field may cause smart quotes to appear. Third part software may cause smart quotes to be written.

**Re-sort headings using stop word file** causes heading forced sorts in XE fields to be adjusted by reference to the selected stop word file which is read when Adjust is selected. **Show embedded entries** must be selected. XE fields containing a backslash (\) are not adjusted. Word escapes certain characters used for control with a backslash (\). This makes adjustment more complex and is therefore avoided. Control characters include double quotation marks " , and backslash \.

**Re-sort subheadings using stop word file** causes subheading forced sorts in the XE fields to be adjusted by reference to the selected stop word file which is read when Adjust is selected. XE fields containing a backslash (\) in a heading or subheading are not adjusted

**Re-sort sub-sub headings and lower level headings** causes Level 3 to Level 7 heading forced sorts to be adjusted by reference to the selected stop word file which is read when Adjust is selected. **Show embedded entries** must be selected. XE fields containing a backslash (\) are not adjusted

**Fix Characters** A user may wish to prevent a forced sort being altered during Adjust processing. Any character in Fix characters present in an existing forced sort will prevent any alteration. # is a good initial choice

**Add range to insertion point entries** Entry point embedded entries are modified to include a range. The range name includes the **Bookmark prefix**, a name based on the lowest level subheading in the embedded entry and optionally a number chosen to make the bookmark unique. If a valid bookmark name cannot be created from a heading then a random text generator creates a valid name.

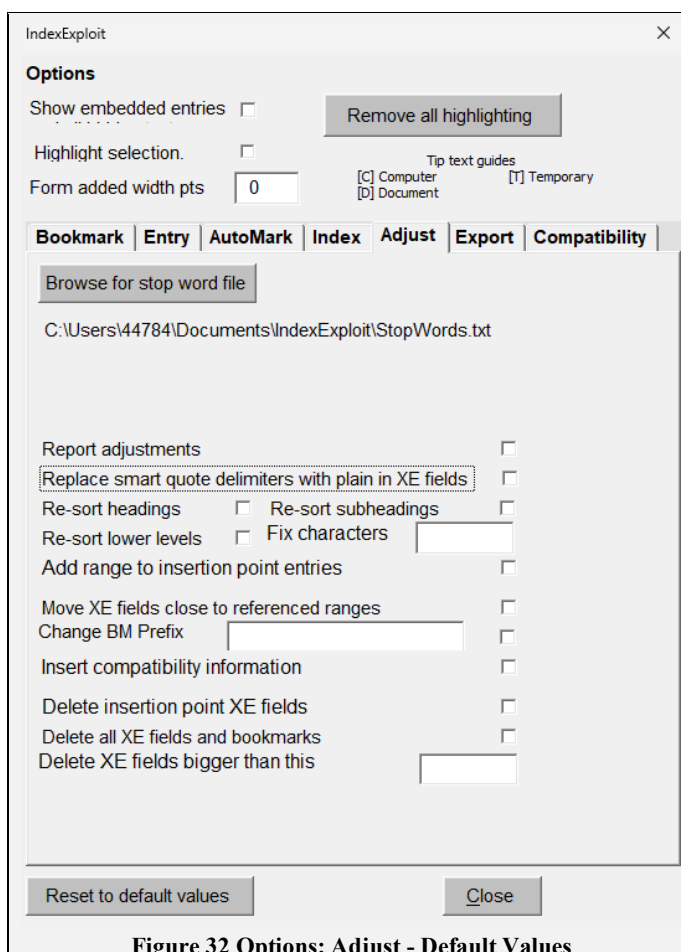


Figure 32 Options: Adjust - Default Values

**Move XE fields close to referenced ranges** Word allows XE fields containing referenced bookmarks to be located anywhere in the document. This can present problems when a text is to be modified and re-indexed. Moving XE fields close to their referenced ranges may remove maintainability problems. When this option is checked, **Adjust** causes all XE fields more than 2000 characters away from their bookmarked range to be moved next to or into the bookmarked range.

**Change BM Prefix** Any bookmarks already with prefix **Change BM Prefix** will be unchanged. Any prefixed by **Bookmark prefix** will have the bookmark prefix changed. Other bookmark names will be prepended with **Change BM Prefix**. XE fields referencing the bookmark are updated.

**Insert compatibility information** causes compatibility information to be written to XE fields.

**Delete Insertion Point XE Fields** causes all insertion point XE fields to be deleted. This is intended to be used when Word AutoMark has been run but the result is unsatisfactory. This deleted approximately 1000 entries per minute during testing. If Word undo is available this is much faster. When selected **Adjust** only performs this action

**Delete all XE fields and bookmarks** causes all XE fields and their associated bookmarks to be permanently removed. When selected **Adjust** only performs this action. Two opportunities are presented to cancel the process. IndexExploit forgets this selection when a session has ended.

**Delete XE fields bigger than this** is used in conjunction with **Delete Insertion Point XE Fields** and **Delete all XE fields and bookmarks**. It causes XE fields larger than this value to be deleted. It was introduced when an embedding process went badly wrong and a badly corrupted embedded index was presented where large XE fields needed to be deleted.

## EXPORT (4.8) (7) (8)

There are several ways of transferring a Word index to another document. The Word generated index can be copied and pasted. Take care not to include the INDEX field markers when copying because the index will disappear when the field is updated. Once copied it becomes a static document. Any links between the embedded index entries and the new index are broken.

IndexExploit can be used. A variety of options are provided. Some include link mechanisms such that when the new document text is copied into the original, locators are linked to content.

## EXPORT OPTIONS (4.2)

By default the export is from the IndexExploit database used to create the picklist with a single font and style.

**Page range separator** allows the user to choose a separator for page ranges. The default is en dash.

When **Add IndexConvert Labels** is selected, headings are labelled \$H1\_, \$H2\_ etc. locators are labelled {tab}\$L\_. Forced sorts are labelled \$FA\_....\$FZ\_.

The export is compatible with IndexConvert. It can be processed for import to any indexing program, a database or a spreadsheet.

**Copy fonts and styles** copies entries from the Word index and includes any fonts and styles used. This can take a long time for a large index.

**Link entries to bookmarks with hyperlinks** uses hyperlinks as locators. This works when **Adjust** has been run with **Add range to insertion point entries** selected. The exported file can be added to the document being indexed. Static page ranges are used. Select all and F9 will cause hyperlinks to be updated to reference the correct locations. If the document is reflowed, Link should be run again.

**Link entries to bookmarks with references** uses dynamic cross references as locators. This works when **Adjust** has been run with **Add range to insertion point entries** selected. The exported file can be added to the document being indexed. Select all and F9 will cause cross references to be updated to the correct page numbers. Page ranges are not displayed.

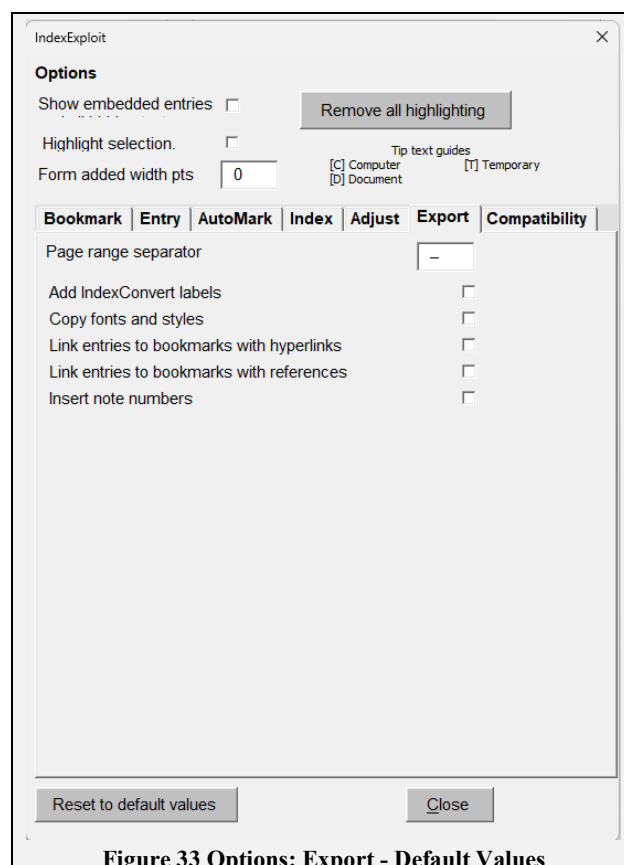
When neither of the link options is selected locators are not linked.

**Insert note number** adds locator labels set on the Index option page.

Table 8 shows export behaviour with various options. For linked indexes, first run **Adjust** with **Add range to insertion point entries**.

**Table 8 Export Behaviour**

Export selection		Index Option Include page Nos	
		Unchecked	Checked
<b>No selection</b>	IndexExploit internal database is exported. Plain text only.	Locators include XE field IDs, Range names, Shape names.	Locators include Page numbers. Styles are defined by Bold and Italic selections in XE fields.
<b>Copy fonts and styles</b>	Uses Word fonts and styles in the export. Achieved by finding the entry in the Word BoB index, copying and pasting.	Word index fonts and styles	Word index fonts and styles



**Figure 33 Options: Export - Default Values**

Export selection		Index Option Include page Nos	
		Unchecked	Checked
<b>Link entries to bookmarks with hyperlinks</b>	Hyperlinks are associated with locators. Display text is fixed.	Locators are shown as (1), (2), etc. hyperlinked to bookmarks. No display change with document reflow	Locators include page numbers hyperlinked to bookmark. No display change with document reflow
<b>Link entries to bookmarks with references</b>	References are associated with locators. Display text alters with pagination. First page only is displayed for ranges.	Entries include a single updateable locator. Range is indicated by the number of paragraphs (paragraphs).	As for unchecked.
<b>Insert note number</b>	Locators include footnote labels and numbers, endnote labels and numbers, textbox labels and table labels	Note, textbox and table labels included	Note, textbox and table labels included
<b>Add IndexConvert Labels</b>	Headings are labelled \$H1_, subheadings are labelled \$H2_ etc. Locator strings are labelled \$L_. Forced sorts are included at the beginning of entries or subentries and are labelled \$FA_forced sort\$FZ	\$H, \$L and \$F labels inserted	\$H, \$L and \$F labels inserted

## COMPATIBILITY WITH OTHER APPLICATIONS (9)

You will be affected by compatibility if you need your document published in a format not available from Word. Examples include InDesign or EPUB. These use different and often incompatible index codes.

Compatibility is addressed in several ways including location and content of XE fields and bookmarks.

XE field location can be controlled when indexing to meet compatibility requirements. They can be moved to referenced range start or end position depending on the requirements of the other application.

Compatibility codes can be added to XE fields. These can be visible in the index for manual processing or hidden, to be picked up and processed by software.

### Bookmarks

Bookmarks can be added to insertion point entries enabling an application to link to bookmarks for embedded entries.

Using the Adjust Options, select **Add range to insertion point entries** and run **Adjust**

### XE Field Position

Word uses the location of insertion point XE fields to generate a page number in the index. IndexExploit forces XE fields to the beginning of the selected range for an insertion point entry. Thus, if a long book title is selected when **Mark Entry** is selected the XE field is inserted at the beginning of the title, ensuring that correct page number appears in the index

Word uses range start and end locations to generate the page ranges for a range entry. The location of the XE field determines the position of the span in the locator string. IndexExploit guides the user to insert XE fields within the referenced range.

When **Enforce compatibility** is selected, IndexExploit places the XE field at the beginning of the selected range. If **XE fields at end of range** is selected then it is placed at the end of the referenced range.

### Fonts and Styles

See the discussion above on Index Fonts and StylesIndex Fonts and Styles

## Compatibility Codes in XE Fields

IndexExploit can add compatibility codes to XE fields including:

- Chapter (Word recommendation for including chapter in page numbers must be followed)
- Range as the number of paragraphs and number of characters.
- footnote label
- endnote label
- table label
- text box label
- footnote number (counted from beginning of document)
- endnote number (counted from beginning of document)

Certain information is fluid and should be used with great care. This includes

- XE Field ID
- Page number

There are currently no plans to make these available in compatibility information.

## Syntax for Compatibility Information

Syntax used is \$CA\_ compatibility \$CZ\_.

By default this is placed in the lowest level subheading in the XE field and appears as part of the entry in the Word generated index.

An alternative location is at the end of the XE field. It is ignored by Word.

A new subheading can be added for compatibility information.

Compatibility is added using the Adjust command.

### Range information

If the XE fields references a bookmark then Wrp=p, will be written where

- p is the range length in paragraphs.

If the separation between the XE field and it's chosen position is more than 200 characters then Wrsc=s and Wrec=e will also be written. An entry will be created in the error report.

- s is the number of characters separating the start of the XE field from the range start as characters.
- e is the number of characters separating the start of the XE field from the range end as characters.
- Where the value of s or e is negative the = is replaced by -.

Examples

- \$CA\_ Wrp=10 Wrsc=400 Wrec=1234 \$CZ\_

Examples

- { XE "subject:heading;heading sort:subheading;sh sort:subsub\$CA\_ Wrpp=10 \$CZ\_;subsub sort" }  
The tag will appear in the index when it is next updated and will appear in the InDesign embedded entries when the Word document is imported.
- { XE "subject:heading;heading sort:subheading;sh sort:subsub;subsub sort" \b \u \$CA\_ Wrp=10 Wsc=400 Wrec=1234 \$CZ\_ }  
The tag will not appear in the index when it is next updated but will appear in the InDesign embedded entries when the Word document is imported TO BE CONFIRMED.

### Chapter Prefix

The chapter number appearing in the page number is available and will be included if available. Example:

- \$CA\_ Wrp=10 pre=1 \$CZ\_

### Footnotes, Endnotes, Textbox, Table Labels

Suffix information is available and will be written. This includes footnote, endnote, textbox, table. A single suffix is suggested as these are unlikely to occur together. Footnote number and endnote number, counted from the beginning of the document will be included. Characters identifying footnotes, endnotes, textbox and table are user configurable. Examples

- suf=f10 (footnote)

- suf=e25 (endnote)
- s (for text box, a shape)
- t (locator is in a table"
- \$CA\_ Wrp=10 pre=1 suf=e2 \$CZ\_

### ***Remove Compatibility***

If it is necessary to remove compatibility information then Word find/replace with wildcards. Search for

\$CA\_\*\$CZ\_ (When visible this is within the XE text )

"\$CA\_\*\$CZ\_" (When hidden this is outside the XE field text and enclosed in ".....")

Include a leading space in both cases. Test the find before use to avoid surprises.

### **Control characters**

Certain characters are used by Word as control characters. Other applications may use different control characters.

IndexExploit can check for a list of characters in headings and a separate list of characters in cross references. < and > may risk interfering with XML type codes. A semicolon in cross references will identify multiple cross references.

### **InDesign**

InDesign embedded entry markers can contain:

- Up to four heading levels with associated forced sorts
- Locator information
- Page number style information

Locator information is derived from the locator position. Ranges are measured forward from the location of index marker.

The locator can include a cross reference

### ***InDesign Script***

InDesign scripts need to perform the following

- Read the \$CA\_ compatibility \$CZ\_ tag
- process the compatibility
- Address cases where Wrcs is considered too large
- Optionally remove the tag

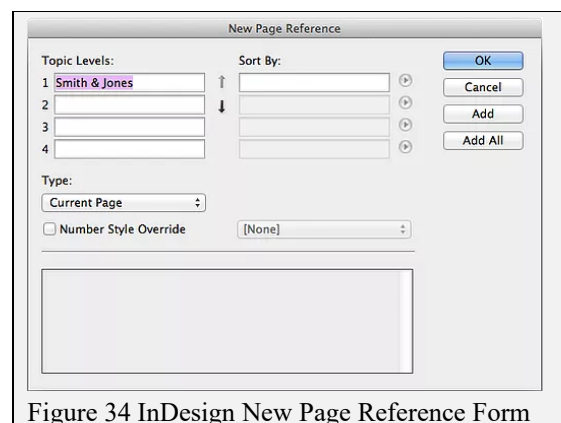


Figure 34 InDesign New Page Reference Form

### ***Information for Indexers***

Use insertion point embedded entries as much as possible.

Place XE fields as close as possible to the start of referenced ranges, consider setting **Enforce compatibility**.

InDesign is likely to re-sort and alter the layout of the index in accordance with selected style sheets and stop word list.

### **Cambridge University Press (CUP)**

Indexing and proofreading are parallel processes. The index typesetting process is semi-automatic and normally very robust. A marked up copy of the index can be supplied. A wide range of processes are accepted when creating an index for CUP.

Zero length ranges have been a problem for one indexer who had an index rejected. IndexExploit was used to make the necessary changes. Other difficulties have been encountered, it seems to depend on the skill and experience of the typesetters and the supporting software tools.

### **Manchester University Press**

MUP uses a process very similar to CUP.

### **Kindle**

If the publishing route is via InDesign then follow InDesign rules. Amazon now expect EPUB documents.

Other routes TBD.

### **DocBook**

If the publishing route is via InDesign then follow InDesign rules.



Other routes TBD.

## EPUB

### *InDesign*

If the publishing route is via InDesign then follow InDesign rules.

### *Calibre*

When creating a linked index for use by an EPUB, use hyperlinked locators. Locators using references didn't work when tested in May 2024.

## PDF

### *Adobe Acrobat Pro*

A Word document exports well using Acrobat Pro. Linked indexes with hyperlinks and references have been found to work. With hyperlinks, Open link highlights the bookmarked range, providing great precision when the XE field and referenced range are accurately placed.

### *Other routes TBD.*

## COMPATIBILITY OPTIONS

Figure 35 shows an example of Compatibility options. All are stored as properties within the document and are unaffected by **Reset to Default Values**.

**Enforce compatibility** causes insertion point entries to be placed at the beginning of the selected text.

XE Fields at end of range causes the XE field to be placed at the end of the referenced range.

Prevent Compatibility codes showing in index causes compatibility codes to be written outside of the XE field text, and therefore hidden from the index.

**Include \$C code.** Compatibility information is enclosed by \$CA\_...\$CZ\_

**Include range information.** Range extent is included in compatibility information.

**Include note numbers.** Note numbers are included in compatibility information.

**Add new subheading.** Compatibility information is included in a new subheading.

**Characters not allowed in headings.** Certain characters may interfere with downstream processing. Warnings are given and an error report entry created.

**Characters not allowed in cross references.** Certain characters may interfere with downstream processing. Warnings are given and an error report entry created.

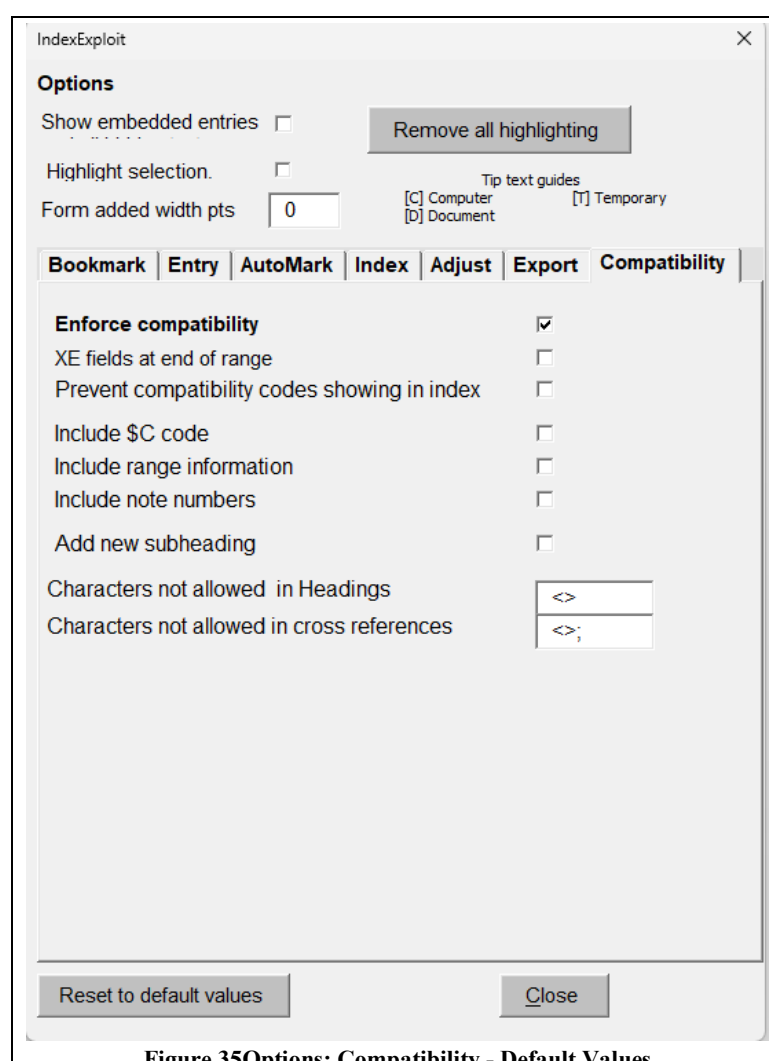


Figure 35 Options: Compatibility - Default Values

## INDEXEXPLOIT RESERVED BOOKMARKS

IndexExploit uses bookmarks prefixed ixex to support processing. XE fields cannot be entered using IndexExploit if prefix ixex is chosen for a range name.

**Table 9 ixex Reserved Bookmark Names**

Bookmark Name	Usage
ixexA	Used to label the beginning of a selected range
ixexB	Used to label the end of a selected range
ixexErr	If the <b>Report all checks</b> Option is selected, additional processing and reporting is invoked, including the creation of a report listing all errors found. This can be used when correcting the index. If possible errors are found they are bookmarked using prefix ixexErr and a number, e.g. ixexErr001 ixexErr002 etc. When <b>Index</b> is selected all ixexErr bookmarks are automatically removed and a new set created if errors remain.
ixexHereFormB	When an active message form is opened this bookmark is written. When R is selected the cursor returns to this position.
ixexIndexExploit	This is used as a general place marker when IndexExploit is running.
ixexLastEntry	Written whenever an embedded entry is written by IndexExploit.
ixexIndexSelected	If a range is selected to create the Index Picklist it is bookmarked as ixexIndexSelected. This can be used in the INDEX field to create a Word index using the same content. When editing or reviewing an index it is possible to create a second index containing the bookmark name ixexIndexSelected. A full index and a partial, synchronized index will both be updated when Index is selected but IndexExploit will go to the first index. The INDEX field below will create a synchronized index. INDEX \c "2" \z "2057" \b "ixexIndexSelected" Range ixexIndexSelected may be extended by IndexExploit if the initial selection is too small. It first attempts to find the largest enclosing bookmark, then will try to select 20 pages. IndexExploit will only include main text entries in the picklist, whereas Word will also include notes and text boxes.
ixexSelectedRange	Used by the Bookmark form when inserting bookmarks
ixexWordIndex	The start of the first Word index is bookmarked ixexWordIndex
ixexXEFIELD	When an embedded entry is found using the Index Picklist the embedded XE field is bookmarked ixexXEFIELD and an associated bookmark if present is bookmarked ixexXEFIELDRange
ixexXEFIELDRange	When an embedded entry is found using the Index Picklist the embedded XE field is bookmarked ixexXEFIELD and an associated bookmark if present is bookmarked ixexXEFIELDRange
ixexTargetXEn	In an exported index. Supports a growth path to linking a cross reference to its target.

## INDEXING FOOTNOTES AND ENDNOTES

Footnotes and endnotes can be indexed using IndexExploit. **Automatically label notes as Bold** and **Automatically label notes as Italic** may be selected, this causes the appropriate \i or \b switches to be written automatically.

## INDEXING TEXT BOXES

The Word Mark entry form is greyed out when the cursor is within a textbox. An embedded index entry can be copied and pasted into a text box. If a bookmark is associated with an embedded entry in a text box the Word index will find the embedded entry but will report an incorrect page number of 0. It will report a bookmark error if the referenced bookmark isn't in the text box.

The IndexExploit Mark Entry form will write an embedded index entry in a text box, however the process doesn't check for control characters, if double quotes, colon or semicolon appear in the entry a warning gives the opportunity to escape them with a backslash \.

When the index is exported the text box name is used as the locator instead of the bookmark name if **Include page numbers** is not selected.

### **AUTOMATIC FIELDS**

Avoid placing embedded index entries into automatic fields. When they are updated any bookmarks and XE fields will be removed. These automatic fields include contents lists, bibliographies, cross references and indexes.

Embedded entries may reappear in cross references to captions and other active fields.

### **UNICODE**

IndexExploit is compatible with Unicode utf-8. IndexExploit may be confused by right-to-left characters. The Index Picklist may miss characters or page references when these are present, but the indexed content will be located.

### **RICH TEXT**

The forms used by IndexExploit do not support a rich text display. The Word Mark Entry form should be used for entering rich text into XE fields. Or use copy/paste. You will be able to use bookmarks created using IndexExploit. XE fields can be edited in the Word document.

### **MASTER/SUBDOCUMENT STRUCTURE**

IndexExploit can be used with a master/subdocument structure. When indexing a master/subdocument text two approaches are available when using IndexExploit which can be used together if required. Testing has revealed the following. When a bookmark name referenced by an XE field appears in more than one subdocument only the first will be found by the Word index. IndexExploit will find all occurrences. To prevent this problem when using IndexExploit for indexing set a different bookmark prefix for each subdocument and another for the master document. You can then index each subdocument separately or index the entire text by opening the master document.

**DEFAULT OPTIONS****Table 10 Default Options**

Options Page	Parameter	Initial and Default Value	Type
<b>All</b>	Show embedded entries	False	Computer
	Highlight selection	False	Computer
	Form added width points	0	Computer
<b>Bookmark</b>	Bookmark Prefix	idx for a new document then unchanged	Document
	Min bookmark range	4 characters	Computer
	Max BM Length on dbl-clk	8 characters	Computer
	Show all bookmarks in Entry form	False	Computer
	Dbl-clk creates BM from selection	True	Computer
	Goto end of range after BM creation	False	Computer
	Create bookmark name from entry	False	Computer
	Allow bookmarks in text boxes	False for a new document then No change	Document
	Allow bookmarks in footnotes	False for a new document then No change	Document
	Allow bookmarks in endnotes	False for a new document then No change	Document
	Dbl-clk creates heading from selection	False	Computer
	Max heading length on dbl-clk	100 characters	Computer
<b>Entry</b>	Allow multiple types ( \f )	False	Computer
	Autocreate headings from bookmark	False	Computer
	Label note entry as Italic	False for a new document then No change	Document
	Label note entry as Bold	False for a new document then No change	Document
	Label note entry as Italic	False for a new document then No change	Document
	Label note entry as Bold	False for a new document then No change	Document
	Mark entry form zoom %	100	Computer
	Autocomplete from stored entries	False	Computer
	No options for AutoMark		
	'See' text for checking xrefs	see	Computer
	'See also' text for checking xrefs	see also	Computer
	Max entries to include in index	30000, based on licence.	Computer
<b>Index</b>	Alphabet range (From ... To)	Blank	Temporary
	Index from selection	False	Computer
	Report all checks	True	Computer

Options Page	Parameter	Initial and Default Value	Type
	Page order	False	Computer
	Include page	False	Computer
	Auto goto	False	Computer
	Allow range change	True	Computer
	Show coverage	False	Temporary
	Sequence for locator prefix	Blank for a new document then No change	Document
	Picklist zoom %	100	Computer
	Footnote label	f	Computer
	Endnote label	e	Computer
	Text box label	x	Computer
	Table label	t	Computer
<b>Adjust</b>	Stop word file	Undefined when IndexExploit first installed then No change	Computer
	Report adjustment	False then no change	Temporary
	Re-sort headings	False	Computer
	Re-sort subheading	False	Computer
	Re-sort lower levels	False	Computer
	Fix characters	Blank for new document then no change	Document
	Add range to insertion point entries	False	Computer
	Move XE fields close to referenced ranges	False	Computer
	Change BM prefix	The prefix field is blank and the change checkbox is False	Temporary
	Insert compatibility information	False	Temporary
	Delete insertion point XE field	False	Temporary
	Delete all XE fields and bookmarks if present	False	Temporary
	Delete XE fields bigger than this	Blank	Temporary
<b>Export</b>	Page range separator	En dash	Document
	Add IndexConvert labels	False	Computer
	Copy fonts and styles	False	Computer
	Link entries to bookmarks with hyperlinks	False	Computer
	Link entries to bookmarks with references	False	Computer
	Insert labels and note numbers	False	Computer
<b>Compatibility</b>	Enforce compatibility	False for a new document then No change	Document
	XE Fields at end of range	False for a new document then No change	Document
	Prevent compatibility codes showing in index	False for a new document then No change	Document

Options Page	Parameter	Initial and Default Value	Type
	Include \$C code	False for a new document then No change	Document
	Include range information	False for a new document then No change	Document
	Include note numbers	False for a new document then No change	Document
	Add new subheading	False for a new document then No change	Document
	Characters not allowed in headings	False for a new document then No change	Document
	Characters not allowed in cross references	False for a new document then No change	Document

### AN AUTOMARK FILE EXAMPLE (3)

The example is created from several real documents and includes examples of possible automark file entries.

In practice a good automark file requires a significant amount of work and may not work as desired. Matching triggers in contents lists, captions etc. may be indexed causing confusion.

The first row is for clarity, it is not part of an Automark file.

**Table 11 Combined Extract from possible AutoMark Files**

Trigger	Index entry	Note
“Appeasement” Crises prior to World War II	appeasement crises:prior to World War II	Trigger term chosen to occur only once. A subheading is forced. Check for other appeasement crises.
Abu Bakr al-Baghdadi	al-Baghdadi, Abu Bakr; Baghdadi, Abu Bakr	Entry includes a forced sort
Aldrich et al. 2006	Aldrich, John	Author. Date is included to make the trigger unique
Allison 1969	Allison, Graham T.	Author. Date is included to make the trigger unique
Bueno de Mesquita and Siverson	Bueno de Mesquita, Bruce	Authors. Both authors are included to make the trigger unique.
Bueno de Mesquita and Siverson	Siverson, Randolph M.	Authors. Trigger is repeated for the second author.
China		Trigger is used as the entry.  China appears 9 times in the book. This can be reduced by careful use of trigger clauses.
Cold War		Trigger is used as the entry.  24 occurrences. This can be reduced by careful use of trigger clauses.
George H.W. Bush	Bush, George H.W.	Subsequently referred to as Bush which cannot be used as an index trigger.

Trigger	Index entry	Note
George W. Bush	Bush, George W	Subsequently referred to as Bush which cannot be used as an index trigger.
Accioly	Accioly, Hildebrando	Last name only used as it does not appear in any other context
Agamben	Agamben, Giorgio	
Júnior	Amaral Júnior	
Armstrong	Armstrong, David	
Barcellos	Barcellos, Ana Paula de	
ACCIOLY	Accioly, Hildebrando	Names above repeated because they are capitalised in footnotes
AGAMBEN	Agamben, Giorgio	
JÚNIOR	Amaral Júnior	
ARMSTRONG	Armstrong, David	
BARCELLOS	Barcellos, Ana Paula de	

## STOP WORD FILES AND HOW THEY ARE USED (6)

A stop word file is a plain text file that should be created using Notepad and saved with Unicode UTF-8 encoding. Don't open a stop word file with a word processor. Case is significant, A is not the same as a!

Five record types are recognized.

- A record beginning with a semicolon is a comment.
- The first non-commented record contains characters to be ignored. During processing a stage 1 forced sort candidate is created by removing all 'ignore' characters. If ignore characters are not required leave the line blank.
- The second non commented record contains character find/replace pairs. 'Find' characters in the stage 1 forced sort candidate are replaced by 'replace' characters to create a stage 2 forced sort candidate.
- Following records are stop words or clauses if they don't contain a colon ( : ) and find/replace words or clauses if they do contain a colon. List order is unimportant. The stage 2 forced sort candidate is processed using these records. Any stop words are removed if they become the first word(s) in the forced sort candidate. When 'find' words or clauses become the first word(s) in the stage forced sort candidate they are replaced by the 'replace' word(s). The result is a stage 3 forced sort candidate.

If the stage 3 forced sort candidate is the same as the heading, i.e. no matches are found, no forced sort will be written. A stage 4 forced sort candidate is created by limiting the length to four words to prevent it becoming unwieldy for a very long heading or subheading.

Headings containing a backslash ( \ ) are not processed. The \ is the escape character before double quotation marks, colons and semicolons to prevent them being recognised as control characters in an embedded entry. Software to handle all cases has not been included because of the unexpected changes that could result if it doesn't work correctly. These entries need to be adjusted manually.

**Adjust** will include stop word processing when a **Re-sort** option is chosen.

**;Sort** on the Bookmark and Mark entry forms uses stop word processing unless a colon or semicolon is present.

Bookmark, Mark entry and Adjust all read the stop word file when selected, it is therefore possible to keep a stop word file open, adjust it, save it, and immediately see the result.

Lists of stop words are included in an article in The Indexer by Max McMaster [1].

A sample of a possible stop word file is shown below, sections are labelled a, b, c, d.

```
;a Ignore characters
\'"“”(){}[].,
;b Find/replace pairs
åäääæëÄÅÄÅÆA
;c Stop words
a
A
an
An
against
Against
;d Replacement strings
Genesis:Bible 010
```

If the find replace pair list (b) contains two pairs that counter each other, e.g. abba then the routine will not find a substitution and will move on after 100 attempts.

The order of processing for each heading or heading or subheading is a b c d.

Processes a and b affect characters appearing anywhere in a subheading.

Process c and d apply to first words. As a first word is removed from a candidate it may expose another in the stop word list which is then removed.



## **XE FIELD PARSERS**

### **Word**

Behaviour of the Word parser can only be determined from user experience. It is closely integrated into Word, is fast and relatively robust. Missing bookmarks result in an error message in the index. The position of switches such as \f before or after a main entry doesn't confuse the parser. \f "a" and \f a are equivalent and both work. XE and xe both work. Bookmark names can be plain or enclosed in quotation marks.

Do not attempt to edit a Word generated index. All changes will be lost when the INDEX field is updated.

Some publishers accept changes made in a copy of the index, for instance addition of footnote and endnote numbers. Select the complete index, do not include field markers {, } or any additional text, and Copy. Then Paste into a new document. If you've copied too much and have included the INDEX fields then Update field will be available which, if selected, will cause the index to disappear.

### ***Track Changes***

Styles and fonts in embedded entries affect index parsing. Entries containing the same characters but with different styles or fonts will not merge. Styles and fonts are affected by the track changes process. An index being developed while track change is on may not merge correctly until all changes are accepted.

### **IndexExploit**

IndexExploit reads each XE field and splits it into its components, checking that known Word rules are obeyed. Only XE is accepted. xe is not. IndexExploit will find errors where the Word parser won't recognise an entry. The indexExploit parser will accept switches before and after the main entry and the presence or absence of quotation marks for switch characters and ranges. XE must be the first characters in the XE field.

ixea files and ixep files include information created by the IndexExploit parser. These can be opened using a spreadsheet program such as Excel.

## SOME OF THE TERMS USED AND IMPORTANT DATA STRUCTURES

**Table 12 Important Data Structures or Terms**

Data Structure or Item	Meaning
AutoMark file, Word feature	An AutoMark file contains one or more two-column tables or tab delimited lists. The first column contains trigger words or clauses that will trigger an index entry. The second column defines index entries. A third column, ignored by AutoMark can be used for notes.  Must be a .doc file.
Bookmark, Word feature	A bookmark marks a range or location in a Word document. Bookmarks can be inserted using the Word Bookmark or the IndexExploit Bookmark form. They can be found using the Word Bookmark or Find form or by using IndexExploit. Certain characters are forbidden in bookmarks, these include space, hyphen, colon, semicolon.
Bookmark Prefix, IndexExploit feature	IndexExploit allows the user to specify bookmark prefixes to prevent confusion with bookmarks created by other users, or used for other purposes. If it is known that the document is to be merged with another then a unique prefix can be chosen.  IndexExploit reserves prefix <code>ixe</code> for bookmarks used during processing. These can be found by the user to locate highlighted text or entries marked during error checking.
Compatibility	The compatibility of embedded index data when transferred to other applications. For instance, Word and InDesign work differently but by taking care how embedded entries are positioned, and including special data in XE fields the interface can be improved. IndexExploit can supply data but it requires the other application to process it correctly.
Concordance	A concordance is a list of words in a text. When used as an AutoMark file the result is usually unsatisfactory but may be useful for very specific documents such as software manuals, certain user guides and religious works.
Field, Word feature	Word uses fields for many purposes. They include contents lists, captions, index entries and indexes. Automation features are often associated with fields causing them to be updated automatically.  A macro can cause fields to be updated The print operation can cause fields to be updated. An embedded index entry is an XE field.
Insertion point, Word feature	Cursor position. A zero length range.
Interface Control Document (ICD)	A document used to define the interface between two or more systems.
ixe File (5)	Spreadsheet compatible ixex files are used to store picklist data.. Column headings are listed below. For more information open a real ixex file. ixea files contain data in alphabetical order. ixep files contain data in page order, main text followed by footnotes, endnotes and text boxes. ;XE Field L1 L1Sort L2 L2Sort L3 L3Sort L4 L4Sort L5 L5Sort L6 L6Sort L7 L7Sort Bookmark Unassigned Bold Italic EntryType Text Picklist lField ID lPageStart sPgeEnd sPgeStart sPgeEnd FNNum EndNNum ShapeName ShapeType TableLabel lChap sChap ChSep Note#
Maintainability	A Word document may go through many revisions, including updates to the embedded index. Recognising that parts of the document may be moved, added and deleted requires embedded index entries to be placed close to referenced ranges to maximise maintainability.
Range, Word feature	A section of content within a document defined by a starting point and an end point, given a range name.
Stop word file	A stop word file is used by the <b>;Sort</b> command to sort Word embedded entries when using the IndexExploit Bookmark form or Mark entry form when indexing. It is also used by the <b>Adjust</b> command to re-sort embedded indexes.



## INDEXEXPLOIT FOR PDFS

Page numbers in a Word document are used by IndexExploit to link to pages in the corresponding PDF or suite of PDFs, on a computer or network, or on the Internet or an intranet. The Word document can be an index, a contents list or a set of notes referencing many PDF documents. Alternatively a single number in the Word file can be used and updated for the next search. When using Adobe Acrobat Pro it can take less than a second to find the right page. It takes longer on the Internet, and depends on the size of the PDF file and performance of the server.

From **Configuration** select **PDF**.

The PDF Goto functionality supports two modes.

Goto a wanted page in the active PDF on your computer

Goto a wanted page in a collection of PDFs or a PDF with multiple sections on your computer, a network, the Internet or an intranet..

Add hyperlinks converts page numbers to hyperlinks based on the content of the document map.

The Goto capability works by translating the wanted page number to the PDF internal page number, then using Adobe inter-application communication (IAC) or a hyperlink to go to that page.

When a single PDF is being searched, open the document in Acrobat before starting IndexExploit. In the field labelled **Start** enter the PDF internal page number corresponding to the visible page 1 in the PDF file.

For multi-page documents construct a document map before starting IndexExploit. See Table 14.

Add hyperlinks turns page numbers into hyperlinks using the document map. Locator strings must be labelled {tab}\$L\_ for the parser to work. Labelling can be done manually, by indexing software, or using IndexConvert.

### PDF GOTO MENU

Figure 36 shows the initial configuration of the PDF Goto form. It is configured for going to a selected page in the currently open PDF. Figure 37 shows the configuration when Document map has run successfully.

**Version** shows the current software version. When selected it opens the IndexExploit downloads website. Check the website occasionally for updates.

**PDF Goto** is the selected user interface.

This confirms that you are using the PDF Goto functionality.

**Configuration** See page 16

**Options** See page 53

**Document Map** See page 53

**Start/ID** See page 53

**Selected PDF** See page 53

**Close** Closes IndexExploit

**Add hyperlinks** See page 53

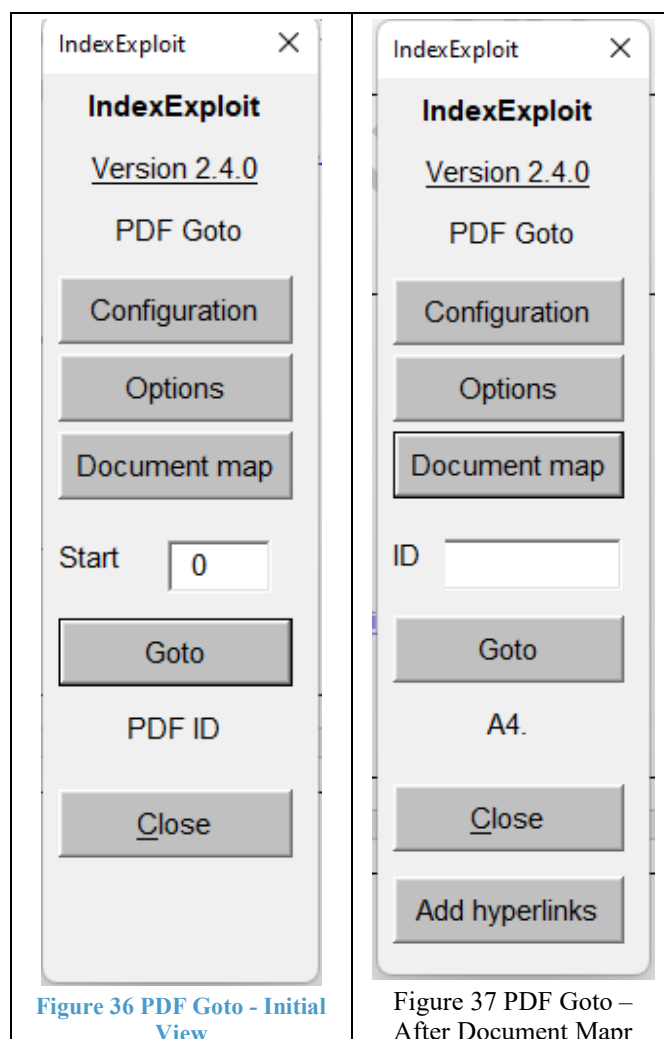


Figure 36 PDF Goto - Initial View

Figure 37 PDF Goto – After Document Mapr

## PDF Options

This command selects the **PDF Options** form. There are no options for PDF Goto.

### *PDF Goto Options*

**Goto hyperlinks** causes IndexExploit to attempt to open the target hyperlink when **Goto** is selected. This selection alone is useful when testing the document map.

**Update hyperlinks** causes IndexExploit to update the hyperlink associated with the selected page. This selection alone is useful when manually updating hyperlinks.

### **Document Map**

This reads the document map.

### *Adobe Acrobat Pro*

If the path and filename information is correct the **Found** column will be labelled with Y and will turn green. If details are wrong the **Found** column will be labelled N\*, coloured red and a warning message displayed.

### *Hyperlinks*

The Found column will contain http if an internet path is detected in the document map. There is no check on the presence of the web address. The **Add hyperlinks** command will be displayed.

### *Mixed*

A document map can include PDFs on the Internet or an Intranet and documents on a network. Adobe Acrobat Pro is required for network operation, hyperlinks will not be added.

### **Start / ID**

When using a single active PDF a start page is used to define the PDF start page of the section required. This is used to adjust for frontmatter and section page starts. This available when Acrobat Pro is installed.

When a document map is used the field becomes **ID**. Enter the PDF ID or chapter number defined in the document map. Alternatively select PDF ID or chapter in the document and double click on the text box for the text to be transferred.

### **Goto**

Place the cursor on or next to a page number in the index or document and select Goto.

IndexExploit reads Start/ID and the number, works out which PDF to use and goes to the selected page. If an internet path is selected the page number is updated to become a hyperlink.

### **PDF ID**

This shows the selected PDF.

### **Close**

This stops IndexExploit and closes any PDF files opened by IndexExploit.

### **Add Hyperlinks**

When Document map is selected, **Add hyperlinks** becomes available when locator strings labelled {tab}\$L\_ have been found. The labels can be added using indexing software, IndexConvert, or by manual markup.

IndexExploit looks for locator strings beginning \$L\_. It looks for a match in the document map for ID or chapter, and then a page number. When a page number is found it calls the same process used by **Goto** to add a deep hyperlink to the page. It doesn't attempt to go to the hyperlinked location as this would take too long. If entries in the Document map don't include an ID or chapter then the page number alone is used.

Chapter and page separators must be defined in the **PDF Options>Insert hyperlinks** form.

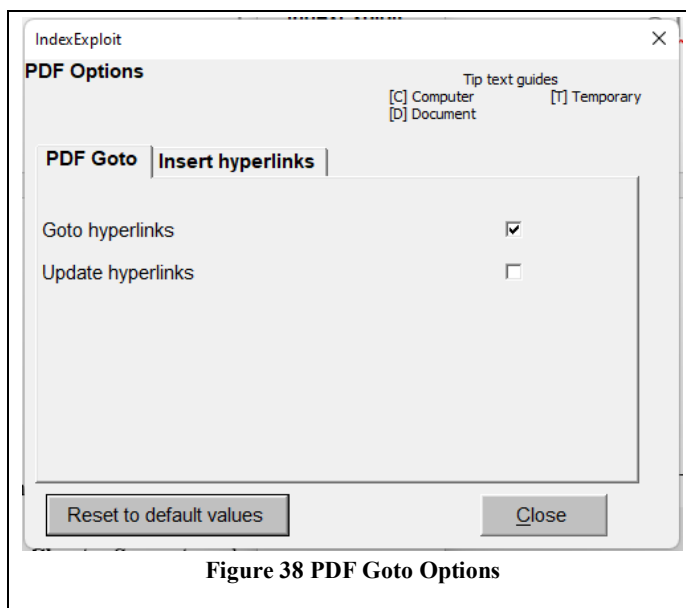


Figure 38 PDF Goto Options

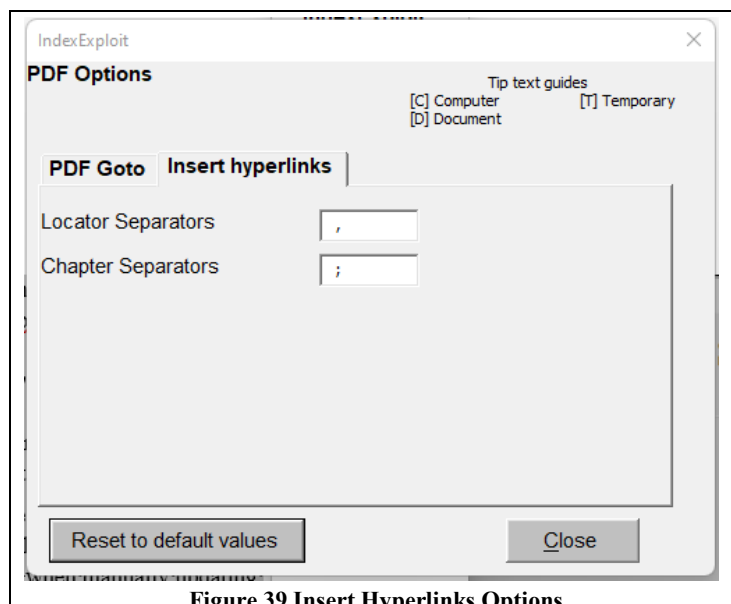
If the document map is altered and a new hyperlink path is added then **Add hyperlinks** will replace all the hyperlinks. Several conditions need to be satisfied for deep hyperlinks to work correctly.

- a. The PDFs must open when targeted by the hyperlink.
- b. The browser process must support deep hyperlinks to page.

### ***Insert Hyperlinks Options***

The parser sometimes needs help discriminating locators and chapters. This is assisted by two options. Use **Locator Separators** to define possible locator separators. Don't include spaces.

Use **Chapter Separators** to define possible chapter separators. Don't include spaces.



**Figure 39 Insert Hyperlinks Options**

### **USING THE ACTIVE PDF**

Your working Word document will contain a copy of the index which may have been copied from the active PDF or may have come from another source, for instance an indexing program.

Open the PDF corresponding to the index using Acrobat.

If page 1 doesn't correspond with the first page of the PDF then insert a compensating value in Start.

Place the cursor on a page number in the index, select Goto and IndexExploit will go to that page.

The Active PDF mode doesn't require a document map.

If your index includes front matter with Roman numerals followed by main text with Arabic page numbers then use a document map. One entry will define the Roman numeral page range and the other will define the Arabic numeral page range. Define an ID to identify each entry, for instance R for Roman and no ID for Arabic. Arabic numbering can be used throughout to overcome the absence of 0 and negative Roman numerals.

### **COLLECTION OF PDFs ON A COMPUTER OR NETWORK (ADOBE ACROBAT PRO)**

Create a table like Table 14 containing the file locations of the collection of PDFs. Then select **Document map**. When Adobe is used, IndexExploit checks for the presence of each file and confirms when it is found by writing Y into the Found column.

When **Goto** is selected the number under the cursor and the ID is read. The content of the PDF Files table is scanned to find the document containing a matching ID and page number. If not already open the document is opened and IndexExploit finds the selected page. The File ID displays the reference number of the file which is also displayed in the PDF name tab.

## Accidental File Closure

Avoid closing any PDF files when using IndexExploit. Communication is set up between Word and Acrobat, closing a PDF file can disrupt the communication resulting in an error message.

Close the index file and restart IndexExploit.

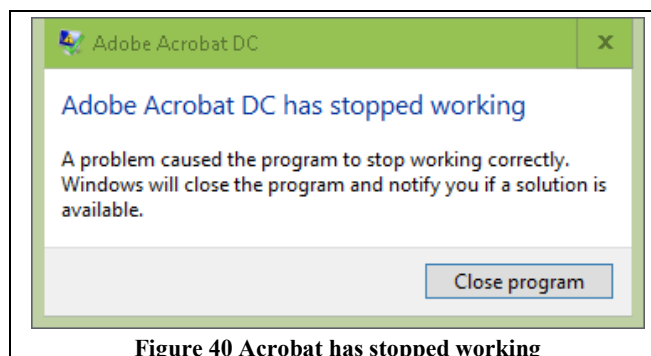


Figure 40 Acrobat has stopped working

## USING A DOCUMENT MAPS

There are two or more numbering schemes in a PDF. The **PDF page** is the number used by the PDF software. The first **PDF page** is always 1. The **Printed page** will normally be different. The document map identifies the documents and addresses the page number offsets. It must be the first table in the document.

Column headings are indicative and can be adjusted to fit the project. Columns can be added to the right for notes.

Path  
Filename  
ID  
Start page  
End page  
First page (PDF)  
Found

### *Path*

In the second row insert the path to the file containing the first document. If the second file uses the same path then the third (and subsequent rows) can be left empty.

The path must not be enclosed in “...” and must contain a terminating \ or /.

Local paths and hyperlink paths can be included in the same document map.

### **Filename**

Insert the filename of the first document in the second row of the table.

### *ID*

If the document has multiple volumes or chapters then use these if convenient or choose a convenient alternative to insert in the ID column. No value is needed if page numbers run sequentially between documents.

For **Add hyperlinks** to work the IDs must match those in the document, including any terminators. If locators are like A.123 then use ID A. in the document map.

### *Start Page*

Insert the start page number as shown on the ‘printed’ page for the first file in the second row. Roman numerals i to l (1 to 50) may be used.

### *End Page*

Insert the end page as shown on the ‘printed’ page in the second row. Roman numerals i to l (1 to 50) may be used.

### *First Page (PDF)*

This is the page number shown at the top of the Acrobat display. It may not be the ‘printed’ page number.

### *Found*

This is used by IndexExploit, leave empty. As the path and filename on a computer or network are read the existence of the file is checked. When a file is found a Y with a green background is inserted. If it is not found then N\* with a red

background is inserted and a message is displayed saying the file cannot be found. For http: addresses this checking is not performed.

### ***Second and subsequent document***

Complete the rows for subsequent documents.

If a path name is absent a value is inherited from above. If an entire suite of documents is moved only one path change is required in the table. If the document contains several sections then a row is recommended for each section, each using the same filename..

### ***Testing***

To test the document map, select the First page in each row and if necessary insert an ID. Select Goto and the right page should be found. If not then review and adjust the document map. Repeat for the Last page and for the remaining rows.

### ***Content Protection***

If it is important to protect the index from accidental change then consider setting the file read only or setting a password. If the file is password protected, file checking and reporting will take place but the Found column is not updated.

### **Example Document Maps**

The document maps below are examples.

Table 13 shows a simple example where the printed page number and PDF are the same. This is recommended as a starting point for building a more complex document map.

**Table 13 PDF Example**

PDF Path	File Name	ID (Section)	First Page	Last page	First Page PDF	Found
C:\Users\Owner\Documents\PDFs\	Example.pdf		1	500	1	Y

Insert here an index, contents list, notes, or even a single number.

Table 14 is based on a real set of proofs with front matter and several chapters as separate PDFs.

**Table 14 PDF Document Map - Each Chapter is a Single PDFs**

PDF Path	File Name	ID (Section)	First Page	Last page	First Page PDF	Found
C:\Users\Owner\Documents\Indexes\ Publisher\Title\Originals\	Chapter 1.pdf		i	xxx	1	Y
	Chapter 2.pdf	1	1	29	31	Y
	Chapter 3.pdf	2	30	55	31	Y
	Chapter 4.pdf	3	56	84	31	Y

Insert here an index, contents list, notes, or even a single number.

Table 15 is a document with multiple chapters and appendices in a single PDF.

**Table 15 PDF Document Map - Multiple Sections in One PDF**

IDs are terminated with a fullstop to support **Add hyperlinks**.

PDF Path	File Name	ID (Section)	First Page	Last page	First Page PDF	Found
https://www.justice.gov/storage/	report.pdf	I.	1	199	9	http
	report.pdf	II.	1	182	213	http
	report.pdf	A.	1	1	397	http
	report.pdf	B.	1	14	401	http



	report.pdf	C.	1	23	417	http
	report.pdf	D.	1	6	443	http

Insert here an index, contents list, notes, or even a single number.

## UTILITIES

The Utilities menu is shown in Figure 41. Options are shown in Figure 42. A default limit of 100 entries appears when first used. This allows for familiarisation of a process that can take a long time on a large index.

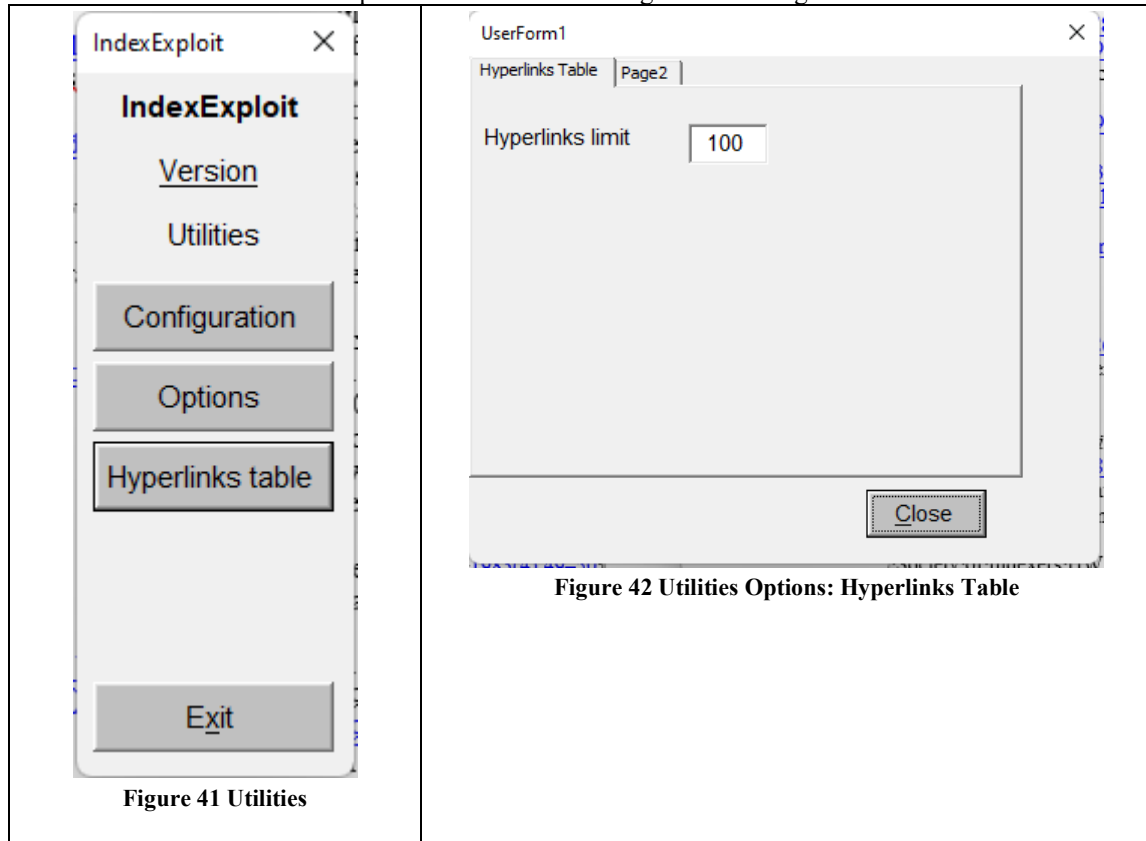


Figure 42 Utilities Options: Hyperlinks Table

## HYPERLINKS TABLE

Every hyperlink is read.

Display, Address, an Subaddress are checked against the IndexExploit database. If no match is found, then a new record is added.

The process is fast for the first few records but as the database becomes larger the comparison process takes longer. A progress indicator is displayed. The progress indicator halts every 2 minutes to allow recovery when another process appears to halt hyperlinks processing. You can cancel the interrupts to allow the process to complete.

### Example

The example below is from the Australia and New Zealand Society of Indexers cumulative newsletters index. The original files were not available. The index had been recovered from a PDF and imported into Sky Index indexing software. Hyperlinks could not be imported so a locator/hyperlink map was needed. The table generated can be sorted and manipulated as needed.

### *Index Extract*

This is an extract from the cumulative index.

Table 16 is the corresponding Hyperlinks Table. Records ID 7 and 8 appear the same but record 8 has a leading space in the Display text,

A to Z order. see [filing order](#)

ABIX (Australian Business Index), [1986\(3\):32](#)

Aboriginal issues, [1991\(10&11\):6](#)

Aboriginal language indexing, [1991\(10&11\):6](#)

'Abstracting and Indexing Services - Conser Project' (Davel), [1984\(2\):24](#)

academic indexing. *see* [scholarly book indexing](#)

access to information, [1987\(4\):41–3](#)

'Accounting aspects of freelance work: notes on a talk by Margaret Jackson, B.Ec. (Hons.), M.B.A., A.C.A. at General Meeting 17 November 1983', [1984\(1\):3–4](#)

accounting records, [1984\(1\):3–4](#), [1985\(4\):56](#)

*see also* [income tax](#)

accreditation. *see* [registration](#)

accuracy in indexing, [1974\(9\):S3](#)

**Table 16 Hyperlinks Table**

ID	Added	Display	Address	Subaddress
1	1	filing order		bookmark51
2	2	1986(3):32	<a href="https://www.anzsi.org/publications/aussi-news/1986/aussi-news-1986-3.pdf">https://www.anzsi.org/publications/aussi-news/1986/aussi-news-1986-3.pdf</a>	page%3D6
3	3	1991(10&11):6	<a href="https://www.anzsi.org/publications/aussi-news/1991/aussi-news-1991-10.pdf">https://www.anzsi.org/publications/aussi-news/1991/aussi-news-1991-10.pdf</a>	page%3D6
5	4	1984(2):24	<a href="https://www.anzsi.org/publications/aussi-news/1984/aussi-news-1984-2.pdf">https://www.anzsi.org/publications/aussi-news/1984/aussi-news-1984-2.pdf</a>	page%3D11
6	5	scholarly book indexing		_bookmark115
7	6	1987(4):41–3	<a href="https://www.anzsi.org/publications/aussi-news/1987/aussi-news-1987-4.pdf">https://www.anzsi.org/publications/aussi-news/1987/aussi-news-1987-4.pdf</a>	page%3D7
8	7	1984(1):3–4	<a href="https://www.anzsi.org/publications/aussi-news/1984/aussi-news-1984-1.pdf">https://www.anzsi.org/publications/aussi-news/1984/aussi-news-1984-1.pdf</a>	page%3D4
9	8	1984(1):3–4	<a href="https://www.anzsi.org/publications/aussi-news/1984/aussi-news-1984-1.pdf">https://www.anzsi.org/publications/aussi-news/1984/aussi-news-1984-1.pdf</a>	page%3D4
10	9	1985(4):56	<a href="https://www.anzsi.org/publications/aussi-news/1985/aussi-news-1985-4.pdf">https://www.anzsi.org/publications/aussi-news/1985/aussi-news-1985-4.pdf</a>	page%3D10
11	10	income tax		bookmark58
12	11	registration		bookmark111
13	12	1974(9):S3	<a href="https://www.anzsi.org/publications/socia-news/1974/socia-news-1974-9.pdf">https://www.anzsi.org/publications/socia-news/1974/socia-news-1974-9.pdf</a>	page%3D4

## ALTERNATIVE INSTALLATION

Installation instructions relate to Microsoft Office Word 2007 or 2010 running on Windows 10. Other installations may differ

The macro is contained in a file named IndexExploit x.x.x.docm where x.x.x is the release. This can be installed as a Word add-In. The following paragraphs explain how to configure security settings to let IndexExploit run and then activate it.

For users who prefer not to have to activate IndexExploit for each Word session there is a description of how to configure an AutoExec macro to activate IndexExploit when Word starts.

## TRUST SETTINGS

The Trust settings can be adjusted to allow files in the chosen directory and subdirectory to be trusted. Use Word Options>Trust Center>Trust Center Settings.

Select the View ribbon and Macros. A form appears. Select IndexExploit and Run. The security warning will no longer appear.

## ACTIVATE

IndexExploit is active for a word session following activation. You will be able to avoid this step if you have an AutoExec macro configured to activate IndexExploit.

To activate IndexExploit select the Office Button>Word Options>Add-Ins>Word Add-Ins>Go. Select Add as shown in the form below if IndexExploit is not present and add the file. If IndexExploit is already present then check it to activate it.

If you do this with macro recording on the macro created will include an AddIns command that can be used in an AutoExec macro.

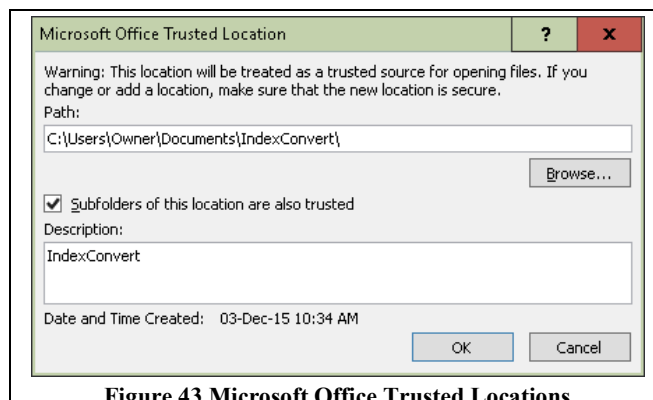


Figure 43 Microsoft Office Trusted Locations

## AUTOEXEC WORD MACRO

AutoExec is a Word macro that runs on commencement of Word. It is installed in 'All active templates and documents'.

AutoExec can perform chosen commands when Word starts which can include activating IndexExploit.

If an AutoExec file exists then include AddIns commands to activate selected add-ins when Word starts. If AutoExec does not exist it can be created using the Word Macros form.

The AddIns command syntax is

```
AddIns("Path").Installed = True
```

An example of Path is

```
C:\Users\Owner\Documents\IndexExploit\IndexExploit.docm
```

If you change the file name to remove the version number and remember to do this whenever a new version is released then the AutoExec file will not need to be changed. An example AutoExec is shown below.

```
Sub AutoExec()
```

```
AddIns("C:\Users\Owner\Documents\IndexExploit\IndexExploit.docm").Installed = True
```

```
AddIns("C:\Users\Owner\Documents\IndexExploit\Elided_123_4.docm").Installed = True
```

```
End Sub
```

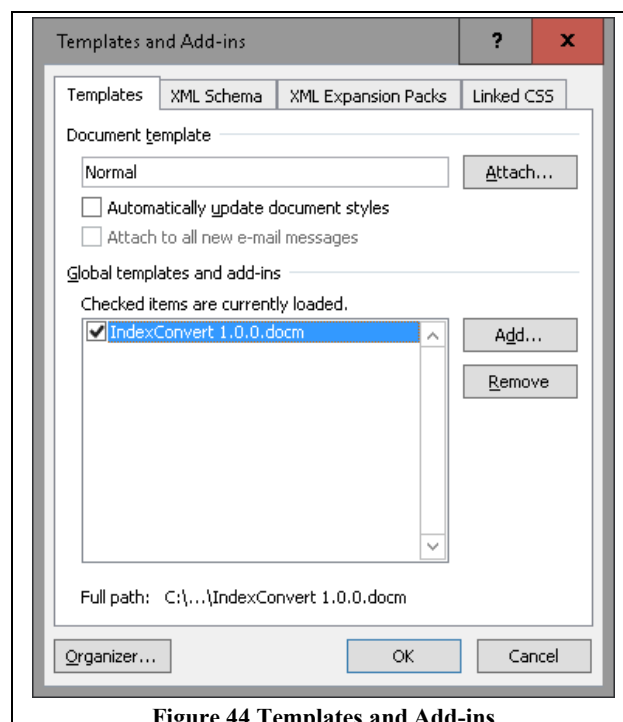


Figure 44 Templates and Add-ins

## WORD AND VBA COMPATIBILITY WITH KNOWN PLATFORMS

NOTE: Compatibility of the Acrobat PDF capability has only been tested on PCs with Windows. The remainder of the section relates to Word compatibility.

IndexExploit is compatible with desktop versions of Microsoft Word for PC and Mac. It is not compatible with Word clones such as Libre Office and other word processors.

It is compatible with Macs running Word for Windows under Parallels for IndexExploit version 1.0.2 and later.

The add-in is written using Word VBA. Microsoft withdrew support for Visual Basic (VBA) with Office 2008 but subsequently included it with later versions of Word.

Compatibility has been tested where possible and results are shown in Table 17. See also the [Microsoft Word features website](#).

A version of this document was used for testing. It was saved using a variety of formats and tested using an installed version of IndexExploit. Not all combinations have been tested.

**Table 17 Compatible File Formats**

Word File Format	Compatible with IndexExploit	Notes
docx	Yes	Windows 10 Pro, Word 2007 Pro (Development platform) Windows 10 Home, Word 2010 Home and Student, Windows 10 Pro, Word 365 (2022) Windows 10 Home, Word 365 (2022)
docm	Yes	Windows 10 Pro, Word 2007 Pro Windows XP, Word 2007 Pro Windows 10 Home, Word 2010 Home and Student Windows 10 Pro, Word 365 (2022) Windows 10 Home, Word 365 (2022)
rtf	Yes	Windows 10 Pro, Word 2007 Pro Windows XP, Word 2007 Pro Windows 10 Home, Word 2010 Home and Student
doc	Yes	Windows 10 Pro, Word 2007 Pro Windows XP, Word 2007 Pro Windows 10 Home, Word 2010 Home and Student
XML 2003	Yes	Windows 10 Home, Word 2010 Home and Student
XML 2010	Yes	Windows 10 Home, Word 2010 Home and Student
odt	Yes	Windows 10 Pro, Word 2007 Pro Windows 10 Home, Word 2010 Home and Student Diagrams were truncated.

## PERFORMANCE

IndexExploit is a complex VBA macro. To get best performance you can alter your computer setting. Figure 45 shows recommended settings for Windows.

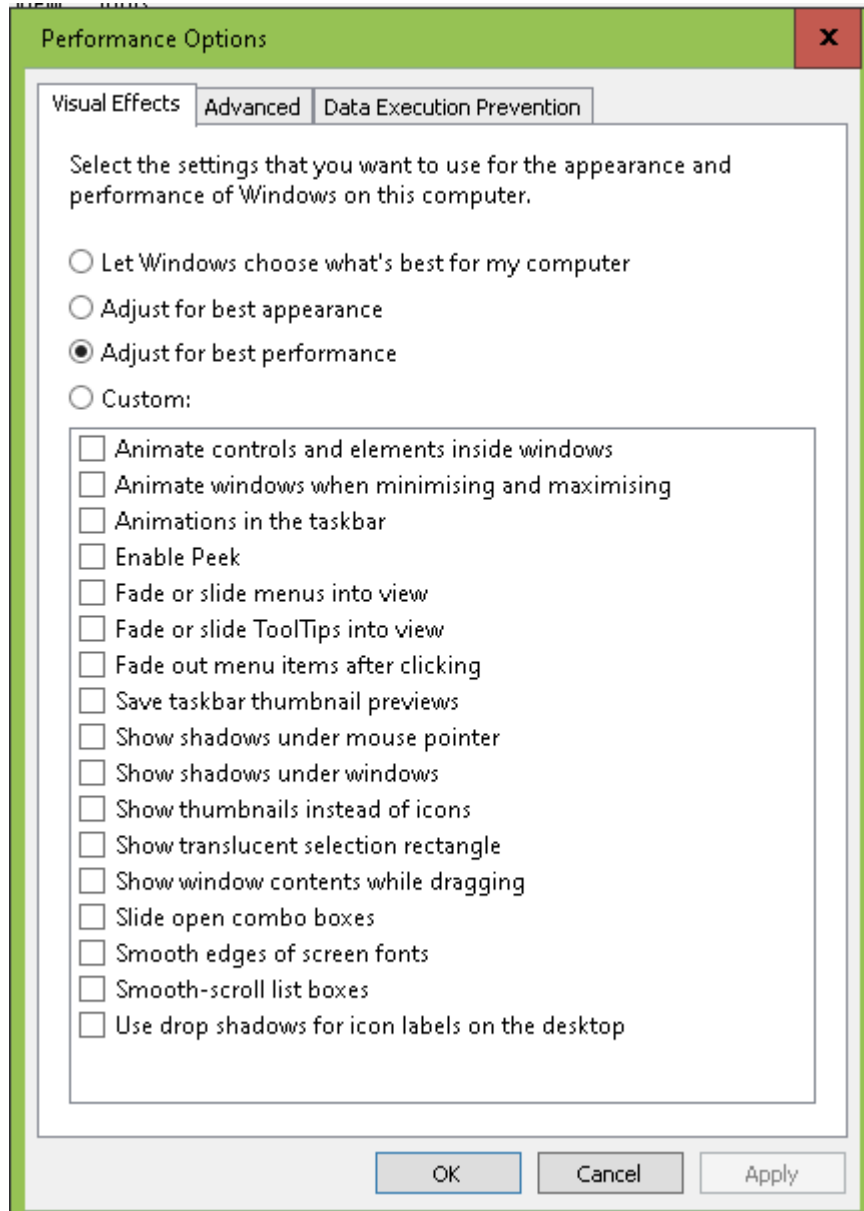


Figure 45 Windows - Adjust Performance

## KNOWN ERRORS

210411 When selecting Index, if Page order or Alpha order is selected, Index is cancelled and the order selection changed an error occurs.

From the Index Picklist. If an entry is in a text box, following entries may not be found. Select an entry with a referenced range then try again.

On a Windows PC, "Run-time error 52: Bad file name or number" error message has been reported when **Index** is selected. The error stopped when the PC was re-started.

The complete set of compatibility codes cannot be written if any XE fields are in text boxes. Other exceptions may occur..

## BIBLIOGRAPHY

The references here provide useful information about embedded indexing in Word which can be used when interpreting how best to use IndexExploit.

Johncocks [2] provides useful information about the technicalities of embedded indexing in Word.

Lyon [3] describes IndexLinker which creates a hyperlinked index in Word where the embedded index fields reference ranges.

McGhie is a Microsoft technical author, now retired, who wrote an article about embedded indexing in Word. He expects to be able to index 500 pages in a week.

Seth Maislin [4] has written a very useful article about indexing in Microsoft Word.

Cambridge University Press provides information for authors [5] including guidance on Word embedded indexing. There is also a video [6]

- [1] M. McMaster, "Stop Words in the Filing of Subheadings," *The Indexer*, vol. 34, no. 2, pp. 68-70, 2016.
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## INDEX

- (IAC) Adobe inter application communication, 3
- Add hyperlinks, ii
- Adjust, ii, 35–36
- Adjust options
  - Add range to insertion point entries, 35
  - Browse for Stop Word File, 35
  - Change BM Prefix, 36
  - Delete all XE fields and bookmarks, 36
  - Delete Insertion Point XE Fields, 36
  - Delete XE fields bigger than this, 36
  - Fix Characters, 35
  - Insert compatibility information, 36
  - Move XE fields close to referenced ranges, 36
  - Replace smart quote delimiters with plain in XE fields, 35
  - Report adjustments, 35
  - Re-sort headings using stop word file, 35
  - Re-sort subheadings using stop word file, 35
  - Re-sort sub-sub headings and lower level headings, 35
- Adobe inter application communication (IAC), 3
- Auto goto, 15
- AutoMark, 46–47
- AutoMark File, ii, 22
- automatic fields, 43
- Bookmark options
  - Allow bookmarks in endnotes, 20, 35
  - Allow bookmarks in footnotes, 20, 35
  - Allow bookmarks in text boxes, 20, 35
  - Bookmark prefix, 20
  - Create bookmark name from entry, 20
  - Dbl-clk creates BM from selection, 20
  - Goto end of range after BM creation, 20
  - Max length of bookmark name, 20
  - Min bookmark range, 20
  - Show all bookmarks, 20
- Cambridge University Press (CUP), 40
- captions, 8
- company, 16
- compatibility
  - with other applications, 38
  - with publishing software, ii
  - Word file formats and IndexExploit, **61**
- Compatibility, 41
  - Add new subheading, 41
  - Bookmarks, 38
  - Chapter Prefix, 39
  - Characters not allowed in cross references, 41
  - Characters not allowed in headings, 41
  - Compatibility Codes in XE Fields, 39
  - control characters, 40
  - endnotes, 40
  - Enforce compatibility, 38
  - footnotes, 39
  - Include \$C code, 41
  - Include note numbers, 41
  - Include range information, 41
  - InDesign, 40
  - ixeTargetXEn, **42**
  - Range information, 39
  - remove compatibility, 40
  - Syntax for Compatibility Information, 39
  - tables, 40
  - text boxes, 40
  - XE Field Position, 38
- configuration, 16
- controlled vocabulary, 18
- cross references
  - IndexExploit, 19
  - method 1, 6
  - method 2, 6
  - method 3, 7
- default Options, **44–46**
- Doc Type, 16
- DocBook, 40
- download from website, 1
- editing an embedded index, 14–15, *see also* Adjust
  - Adjust, 14
  - change index order, 15
  - copy and paste settings, 14
  - error report, 15
  - find and replace, 14
  - Index coverage, 15
  - replacing chapters, 14
  - using Index Picklist, 15
  - using Mark entry form, 15
- email, 16
- embedding, 2
- endnotes, 42
- EPUB
  - Calibre, 41
  - Indesign, 41
- error report, 15
- error reports, 28–30, 28
- evaluation, i
- Expiry date, 16
- Export, ii, 37–38
  - Add IndexConvert Labels, 37, **38**

- Add range to insertion point entries, 37
- and IndexConvert, 37
- Copy fonts and styles, 37
- Insert note number, 37, **38**
- Link entries to bookmarks with hyperlinks, 37, **38**
- Link entries to bookmarks with references, 37, **38**
- Page range separator, 37
- first used, 16
- footnote label, 30
- footnotes, 42
- forced sort, 15
- Hyperlinks Table, ii
- Index, ii, 18, 23
  - error messages, **33**
  - Index from range, 23
  - Refresh, 23
  - Report all errors, 23
- index coverage, 15
- Index from selection, ii
- Index options
  - Allow range change, 33
  - Alphabet range, 32
  - Auto goto, 33
  - Cross-references, 32
  - Endnote label, 34
  - Footnote label, 34
  - Include Page Numbers, 33
  - Index from selection, 32
  - Max entries to include in index, 32
  - non-English cross reference terms, 32
  - Page Order, 33
  - Picklist zoom %, 34
  - Report all Checks, 32, 33
  - See also text, 32
  - See text, 32
  - Sequence for locator prefix, 34
  - Show coverage, 33
  - Table label, 34
  - Textbox label, 34
- index order, 15
- index parsers
  - IndexExploit, 49
  - Word, 49
- Index Picklist, ii, 30–34
  - +A, 31
  - +B, 31
  - A, 31
  - Allow multiple types, 30
  - and editing entries, 15
  - Auto goto, 30
  - B, 31
  - Bookmark name, 31
  - bookmarks, 30
  - endnotes, 30
  - entry selection, 30
  - Footnotes, 30
  - Goto XE, 31
  - Highlight selection, 30
  - Include page numbers, 30
  - navigating the picklist, 31
  - Page Order, 30
  - Re-BM, 31
  - Refresh, 31
  - Report all Checks, 30
  - Rerange BM, 15
  - Select A to B, 31
  - selecting page, 31
  - Show Embedded Entries, 30
  - Stop scrolling on, 15, 31
  - Word Index, 31
  - XE Field Selection and Highlighting, **31**
  - XE fields longer than 500 characters, 30
- index processing
  - IndexExploit, 27–31
  - Word, 24–27
- Index type, 18
- installation, 1–2
  - alternative installation, 59–60
- lxe files, ii
- ixea files, 49
- ixep files, 49
- keyboard shortcuts, i, 1
- Kindle, 40
- Libre Office, i
- Licence, 16
- Licence Type, 16
- linking, 2
  - PDFs, 3
  - picklist, 3
- Manchester University Press, 40
- Mark Entry form, i, 17–21
  - +A, 17
  - A, 17
  - Add BM, 17
  - and editing entries, 15
  - B, 17
  - bookmarking, 17
  - captions, 18
  - Create bookmark name from entry, 17
  - Current page, 17
  - DbI-Clk creates bookmark from selection, 17
  - DbI-Clk creates heading from selection, 18
  - Delete, 18
  - Delete BM, 17
  - Find, 19
  - Find XE, 19
  - Fix sort override, 18
  - Heading length, 18

- Invert, 18
- Level 4, 18
- Locator bold, 19
- Locator italic, 19
- Main entry, 18
- Mark Entry, 18
- Page range, 17
- Read, 18
- Read BMs, 17
- Rerange-BM, 17
- Restore, 18
- Select A to B, 17
- Show/Hide XEs, 18
- Sort, 18
- Subentry, 18
- Sub-sub, 18
- Swap, 19
- Word Index, 19
- Mark entry options
  - Allow multiple types ( \f ), 21
  - Autocreate headings from bookmarks, 21
  - Dbl-clck creates heading from selection, 21
  - Label notes as Bold/Italic, 21
  - Label table entry as Bold/Italic, 21
  - Mark entry form zoom %, 21
  - Max heading length on dbl-clk, 21
- master/subdocument structure, 43
- menus
  - PDF Goto, 52
  - Utilities, 58
  - Word embedded indexes, 16
- Message form, 22
- Metrics report, 16
- Name, 16
- Options form
  - Form added width pts, 19
  - Highlight selection, 19
  - Mark Entry, 19–21
  - Remove all Highlighting, 19
  - Reset to default values, 20
  - Show Embedded Entries, 19
  - Tip text guides, 19
- PDF Goto, ii, **3**
- PDF searches, 16
- PDFs, 52–57
  - active PDF, 54
  - Add Hyperlinks, 53
  - Adobe Acrobat Pro, 53
  - Chapter Separators, 54
  - collection of PDFs, 54
  - Configuration, 52
  - document map, 53
  - end page, 55
  - examples, 56–57
  - filename, 55
  - First Page (PDF), 55
  - Found, 55
  - ID, 55
  - Path, 55
  - start page, 55
  - testing, 56
- Goto, 53
- Hyperlinks, 53
- Insert Hyperlinks Options, 54
- linked indexes, 41
- Locator Separators, 54
- PDF Goto, 52
- PDF Goto Menu, 52
- PDF ID, 53
- single active PDF, 53
- Version, 52
- performance, 62
- picklist, **3**
- Picklist
  - alphabet range, **26**
  - and bookmark ixelIndexSelected, **26**
  - and chapters, **26**
  - and \f switch, **26**
- process diagram, 4
- Protein Kinase C C<sub>148</sub>H<sub>221</sub>N<sub>35</sub>O<sub>50</sub>S<sub>2</sub>, 5
- reserved bookmarks, **42**
  - ixeA, **42**
  - ixeB, **42**
  - ixeErr, **42**
  - ixeHereFormB, **42**
  - ixeIndexExploit, **42**
  - ixeIndexSelected, **42**
  - ixeLastEntry, **42**
  - ixeSelectedRange, **42**
  - ixeWordIndex, **42**
  - ixeXEField, **42**
  - ixeXEFieldRange, **42**
- rich text, **9**, 43
- shortcuts, 1
- start IndexExploit, 1, 16
- stop word files, 48
- text boxes, 7
- textboxes, 42
- Unicode, 43
- Utilities, ii, 58–59
  - hyperlinks table, 58–59
- when to index, 11
- Word actions, 16
- Word Embedded Index Compatibility with Publishing Software, ii
- Word INDEX field, 24–27

## Word indexing module, 4–12

AutoMark, 11

\b switch, 14

Bookmark form, 10

side by side with IndexExploit, **12**

bookmarks, 6

captions, 8

chapters, 5

Chicago rules, 5

control characters, 5

copy/paste, 10

cross references, 6, **9**

Method 1, 6

Method 2, 6

Method 3, 7

Cross-references, 10

Current page, 10

endnotes, 8

errors, 11

\f type switch, **9**

fonts, 10

forced sorts, **9**heading levels, **9**heading separators, **9**Heading sort, **27**Headings, **27**

index sort order, 10

Insertion point entries, **27**

Mark, 10

Mark All, 10

Mark Index Entry form, 10

side by side with IndexExploit, **12**multiple indexes, **9**Multiple indexes, **27**

page numbers, 5, 7

bold, **9**italic, **9**

Page range, 10

Range entries, **27**ranges, **9**rich text, **9**Selected indexes, **27**

separator, 5

Sequence number, **27**

stories, 7

strengths, 4

styles, 10

Subheadings and lower, **27**

text boxes, 7

weaknesses, 5

XE fields, 5

switches, **9**

Word quick access toolbar, 1

Word ribbon, 1

XE fields in endnotes, **69**XE fields in footnotes, **8**

Zoom, i

---

<sup>i</sup> XE fields can be placed in endnotes.