

URL Checking with Xenu Software  
revised by CARLI Data Services staff  
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## Introduction

### *Why use link checking software?*

As more and more resources for library patrons are to be found only online, the URL's provided in bibliographic records provide the same access as do call numbers on print materials. An incorrect URL is as useless to a library user as an incorrect or missing call number. Link checking software can point out incorrect URL's, whether they are out-dated, if the source has been discontinued, or simply are input incorrectly into the catalog record.

A note about this documentation: It was originally written to support activities in the ILC SO Voyager environment. However, link checking software can be useful to all CARLI libraries, not just those participating in I-Share. While the content of this document refers to the I-Share Voyager environment, the instructions below for generating lists of URL's via Access should be applicable to any library using Voyager. Libraries who have other online systems will have to devise similar procedures that will accomplish the same results for their systems.

### *Why not use Endeavor's standard Cat Jobs 9 and 10?*

Voyager's Cat Job 9 is supposed to be able to limit its searches by date ranges, but it cannot - see SupportWeb Incident # 124876. Therefore, Cat Job 10 checks all URL's each time it's run; in sizeable databases, the job slows down and never finishes.

### *Some suggested background reading:*

- "Link Checking Best Practices," which is NISO's short checklist of best practices.  
<http://www.niso.org/linkcheck/NISOLinkCheck.html>
- "Cataloging Electronic Resources/Electronic Resources Display in the OPAC Task Force - Final Report," sections R9 - R18, pp. 6 - 7.  
[http://www.carli.illinois.edu/mem-prod/I-Share/cat/archive/040419\\_cater\\_final.pdf](http://www.carli.illinois.edu/mem-prod/I-Share/cat/archive/040419_cater_final.pdf)

## Software Selection

There are a number of link checking software programs available. The most desirable criteria for a package to be used by I-Share libraries included:

- little or no cost;
- ability to run on local workstations (rather than a central server). This allows a library to use the program at any time, at any location. It also prevents any potential problems with URL's that depend on IP recognition to allow access;
- easy to use, without a lot of extra "features" that could be confusing or slow down performance;
- Windows based (rather than UNIX or PERL), so as to make it accessible on the most workstations.

After a review of the available programs, the one called Xenu was selected. It is very straight-forward to use. It can be downloaded from the URL below:

<http://home.snafu.de/tilman/xenulink.html>

Xenu does not come with user documentation; however, a very usable “manual” can be downloaded from:  
<http://portal.pik-potsdam.de/dept/dc/dcit/howto/linkcheck/x2.pdf#search=%22frank%20visser%20xenu%22>

### **One Possible Workflow**

The workflow for using Xenu to check URL’s can be broken into two phases: (1) Analysis of the scope of the task and initial preparation; and (2) Ongoing checking. Below is a summary of these tasks, with details for the tasks described further in this section.

- Analysis of the scope of the task and initial preparation:

A. If you are curious, see just how many records of which type may be candidates for checking. (*Figure 1*)

B. Decide whether MFHD or Bib records with URL’s should receive first priority.

C. Generate an Access report of all records selected in decision B. (*Figure 2*)

D. Do a brief review of this list to identify: a) obvious errors (typos, blanks, etc.) and b) which URL’s to weed out of automated checking (JSTOR, ereserves, FirstSearch, etc.) (*Figure 3*)

- Ongoing checking:

E. Select a subset of the URL’s and generate two Access reports (the first with just URL’s and the second with URL’s, MFHD ID, Bib ID, and brief title, if desired); see further guidelines in Section E. below.

F. Configure Xenu for checking the selected URL’s

G. Use Xenu to check the subset of URL’s generated in E. above.

H. Combine the results of the spreadsheet with Bib and MFHD ID’s with the Xenu results

I. “Redirected” URL’s

J. Some other things to consider and how can broken links be corrected?

K. Questions, Hints and Tips, Reports of Success and Workflow Strategies

**A. If You Are Curious:**

To get a handle on how many records there may be to check, get a count of the URL's in your database by type: Bib, MFHD, or Electronic; records types are B, M, or E.

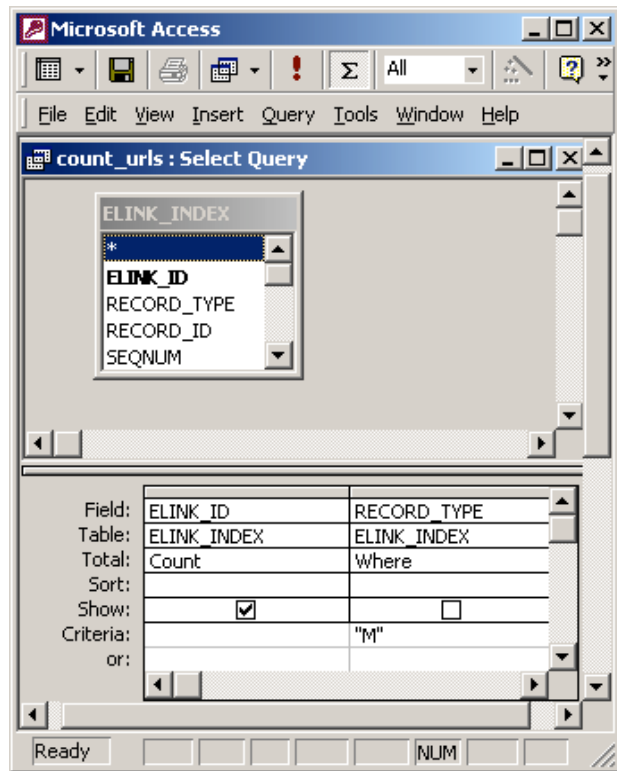


Figure 1.

Result of query in Figure 1.

CountOfELINK_ID
21728

C. Generate an Access report of all records that have been selected as the first priority (in this example, MFHD's were chosen as the first priority).

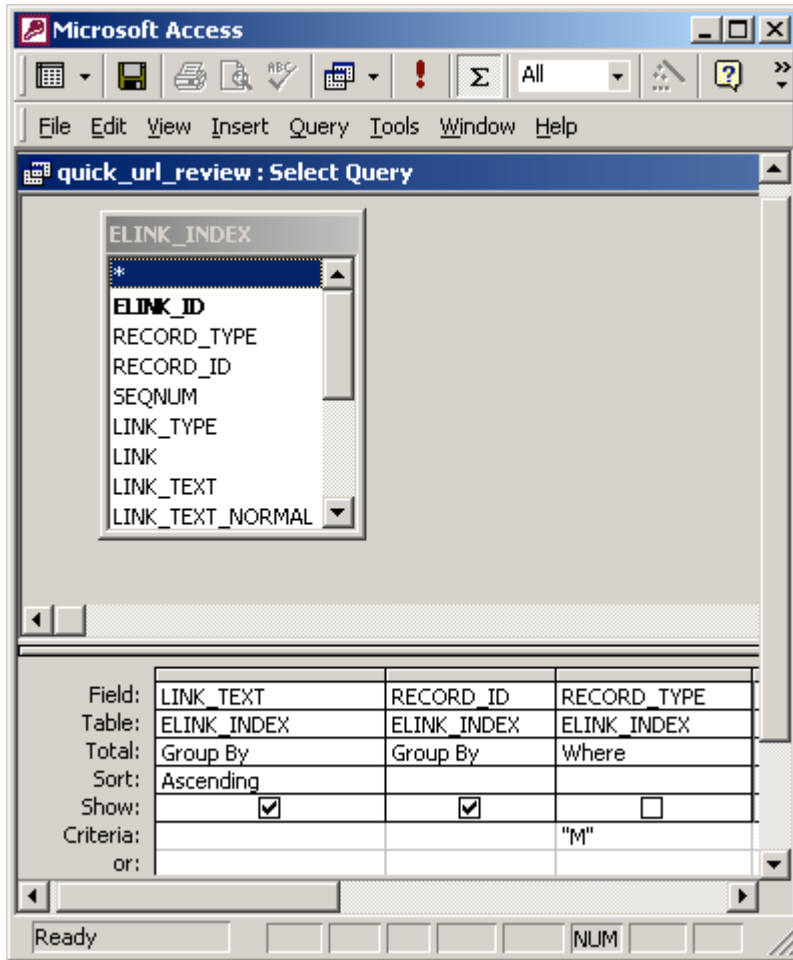


Figure 2.

D. Do a brief review of this list to identify: a) obvious errors (typos, blanks, coding mistakes, etc.) and b) which URL's to weed out of automated checking (JSTOR, ereserves, FirstSearch, those requiring a login/password, etc.)

LINK_TEXT	RECORD_ID
2http-	508415
3Related resource: home page of the Clean Cities Program: http://www.ccities.doe.gov./ccnews-	631971
a\$q text/html \$u http://sun1.hazard.uiuc.edu:80/glrppr/LINK/link.html-	532121
a\$q text/html \$u http://www.legis.state.il.us/commission/ecfisc/ecfischome.html-	532186
a\$q text/html \$u http://www.state.il.us/dcf/budcont.htm-	533275
aVol. 1: 3http://purl.access.gpo.gov/GPO/LPS52401-	631273
aVol. 2: 3http://purl.access.gpo.gov/GPO/LPS52403-	631273
aboomer.er.usgs.gov lanonymous-	552754
aftp://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-95-0574/-	569604
aftp://unix2.nysed.gov/pub/state.lib.pubs/bibliographies/african.american/afamedu.txt-	559822
aftp://unix2.nysed.gov/pub/state.lib.pubs/bibliographies/african.american/afamedu.txt-	559823
ahhttp://clu-in.org-	555029
http://www.wwp.brown.edu/texts/wwentry.html	603487
http://wwwrvares.er.usgs.gov/wgn96	516388
http://wwwsc.er.usgs.gov/nawqa/sanhome.html	530388
http://purl.access.gpo.gov/GPO/LPS30083	607459
http://purl.access.gpo.gov/GPO/LPS30084	607459
http://purl.access.gpo.gov/GPO/LPS41423	614715
latest ed.	621455
lead articles only; some regular features from the print issue not included	89581
make choice of document from list (requires Adobe Acrobat software, which is available for download)	607416

Figure 3.

Note that the first entry in this list has no information and three of the last entries have three "t's" in the http prefix. Errors such as these are easy to identify and don't need to be included in the final list to be checked by Xenu.

## E. Select a subset of the URL's and generate two Access reports

1. Use Access to create the list of URL's to be checked.

NB: If you have not used Access for reporting before, you will need to install the Oracle 9 client, ODBC drivers and link to your database. I-Share libraries can find a set of instructions for this required setup in the "CARLI Oracle9/ODBC Installer" section at <http://www.carli.illinois.edu/mem-prod/I-Share/secure/execute.html#oracle9>. At this URL there are instructions for using the customized CARLI Oracle installation program, as well as instructions for manual installation of Oracle and ODBC drivers. You may need to work with whomever does PC support in your library to configure your workstation according to these instructions. In addition, staff need an Oracle account on the I-Share reports server to be able to run Access queries. Your library's I-Share Liaison or Security Contact can file a WRO (Work Request Online) to have this Oracle account created.

The selection criteria should limit the retrieval, either by INclusion or EXclusion, of certain records. Examples of URL's to exclude, at least in an initial project, could be JSTOR records (JSTOR blocks automatic link checking software). You may want to defer URL's that require a login until later in the review process; ereserve and other local sites may not be as high a priority as other links, etc.

Create a query in Access with the necessary criteria. In the example below (*Figure 4*), the criteria are:

RECORD\_TYPE: M (use only one type per query)

URL HOST: Not Like "\*gov" And Not Like "\*GOV"

And

Not Like "\*mil" And Not Like "\*MIL" And <>"www.mlb.ilstu.edu"

LINK: Not Like "https://www.mlb.ilstu.edu/ereserve\*"

NB: the only column that should be set to "Show" is the LINK column.

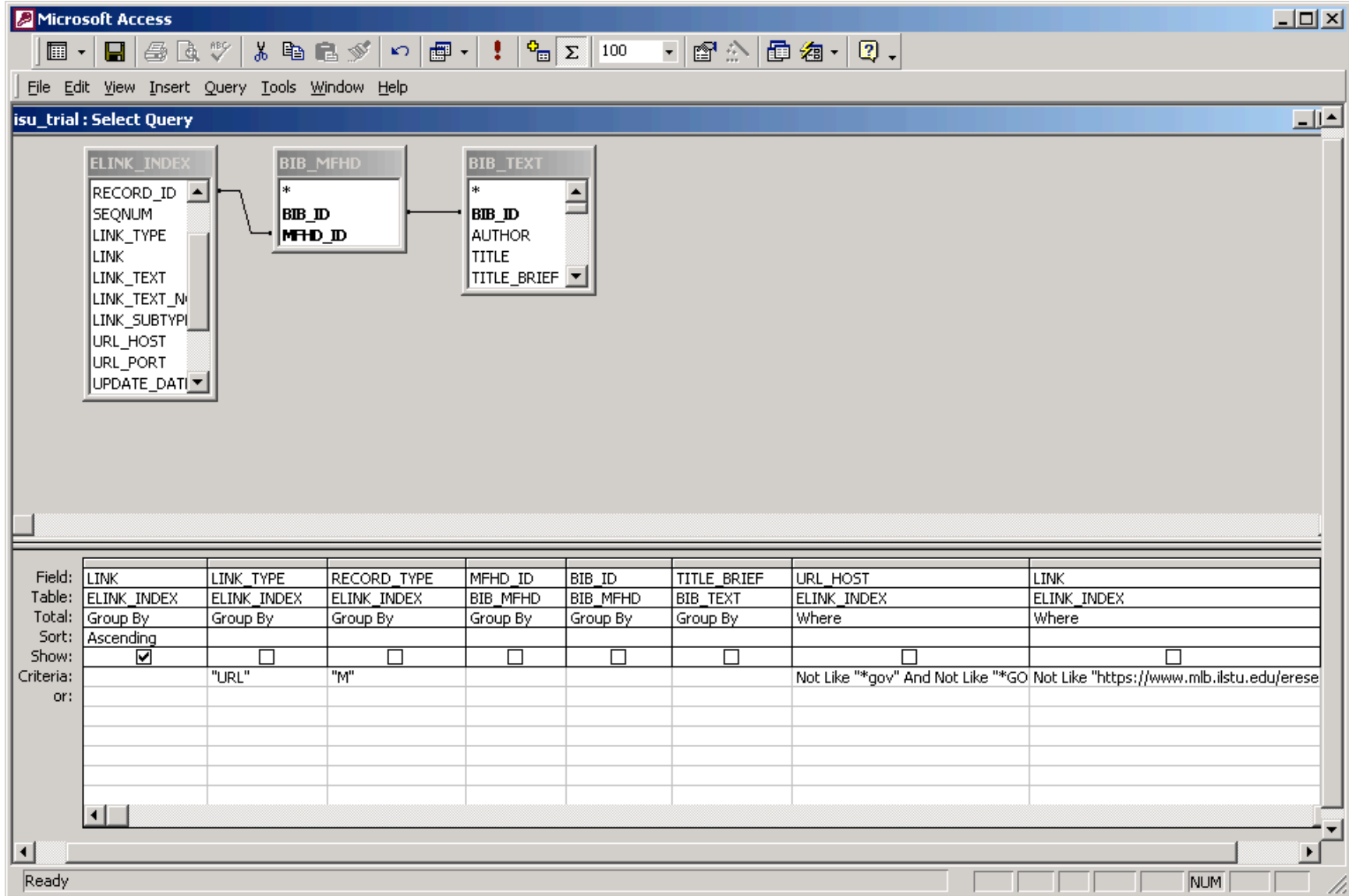


Figure 4.

The only display result is the actual URL itself. It is very important to sort the LINK column as this will be used later to match with Bib and MFHD ID's in a subsequent report.

Export the results of the query as a .txt file, fixed width. This will be the import file for Xenu to check.

File → Export → [select a destination and filename] → Save

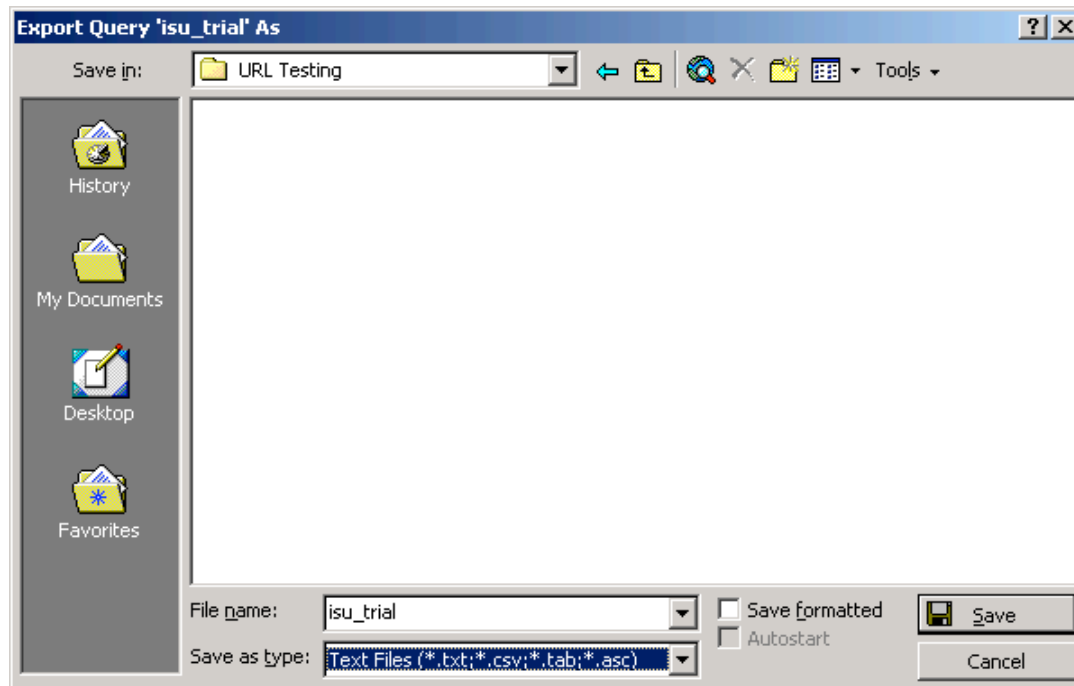


Figure 5.

When prompted by Access, export the first query as a “Fixed Width” file.

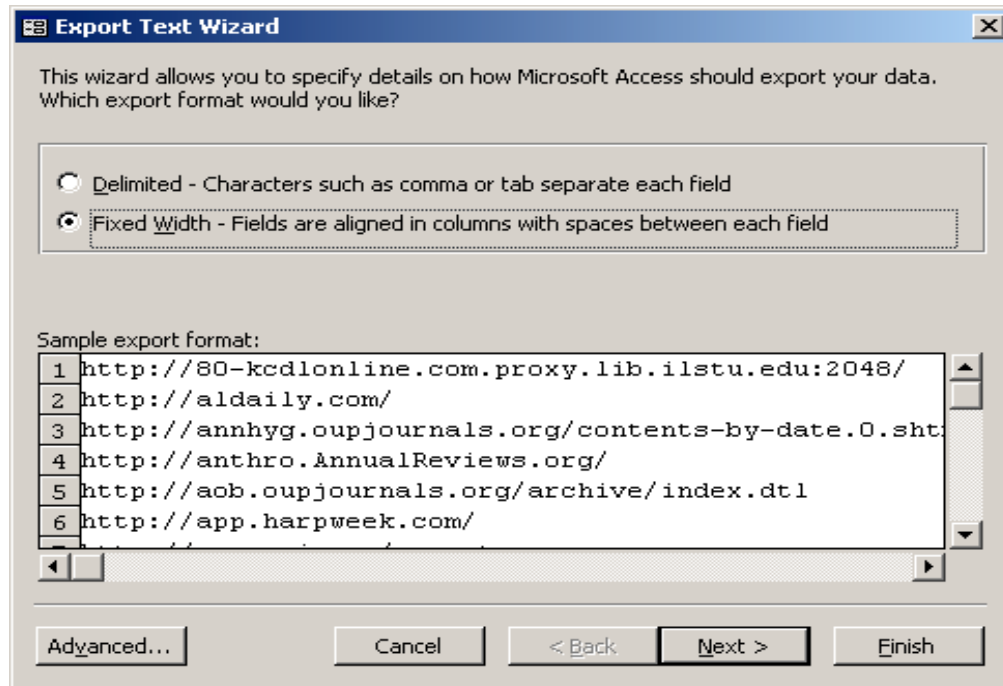


Figure 6.

2. Repeat the same type of query above, but with the MFHD\_ID, BIB\_ID, and TITLE\_BRIEF columns marked to Show (Figure 7):

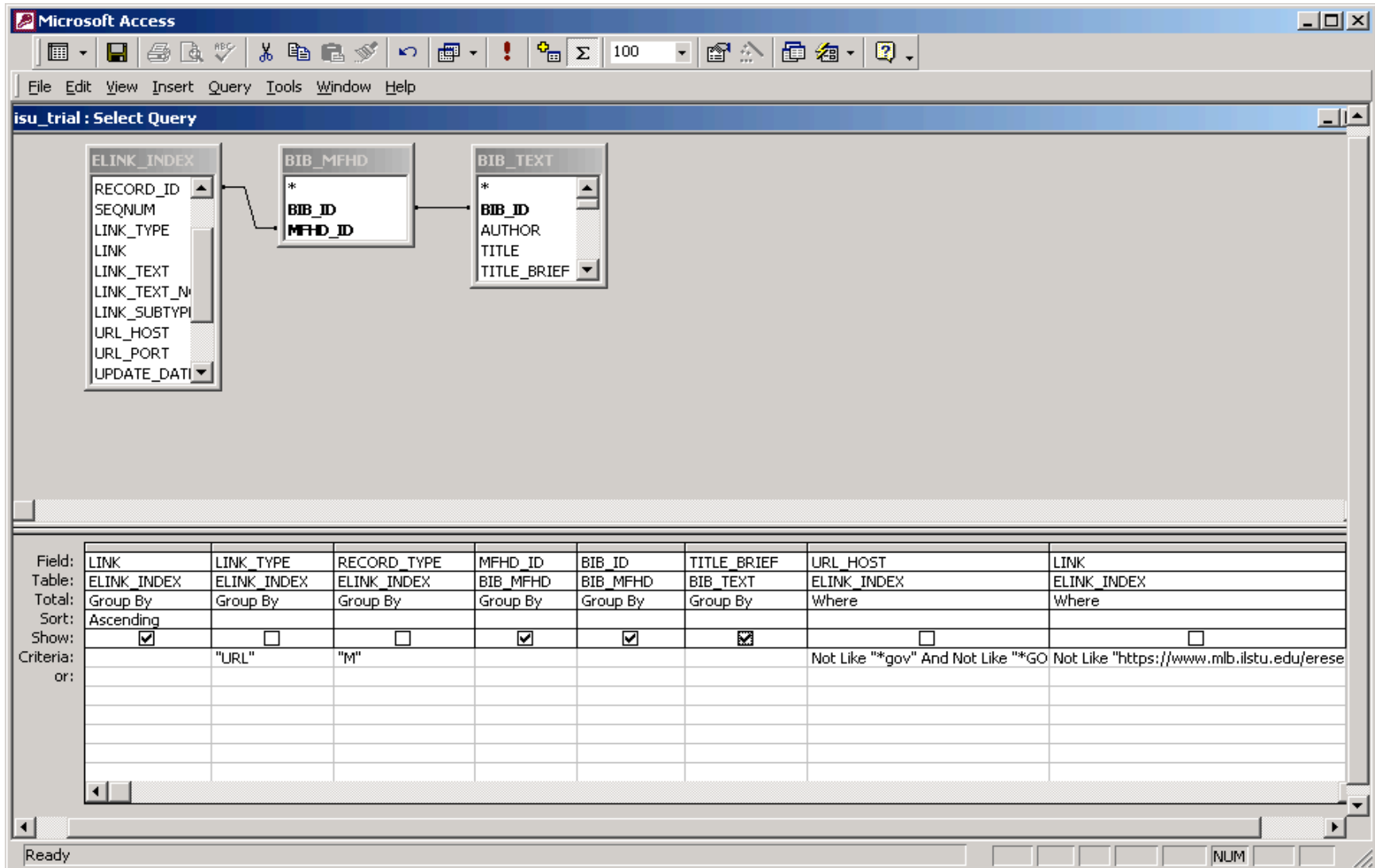


Figure 7.

This is the file that will be used map the Xenu checking results to specific bib and MFHD records. Export the results of the query as an .xls file.

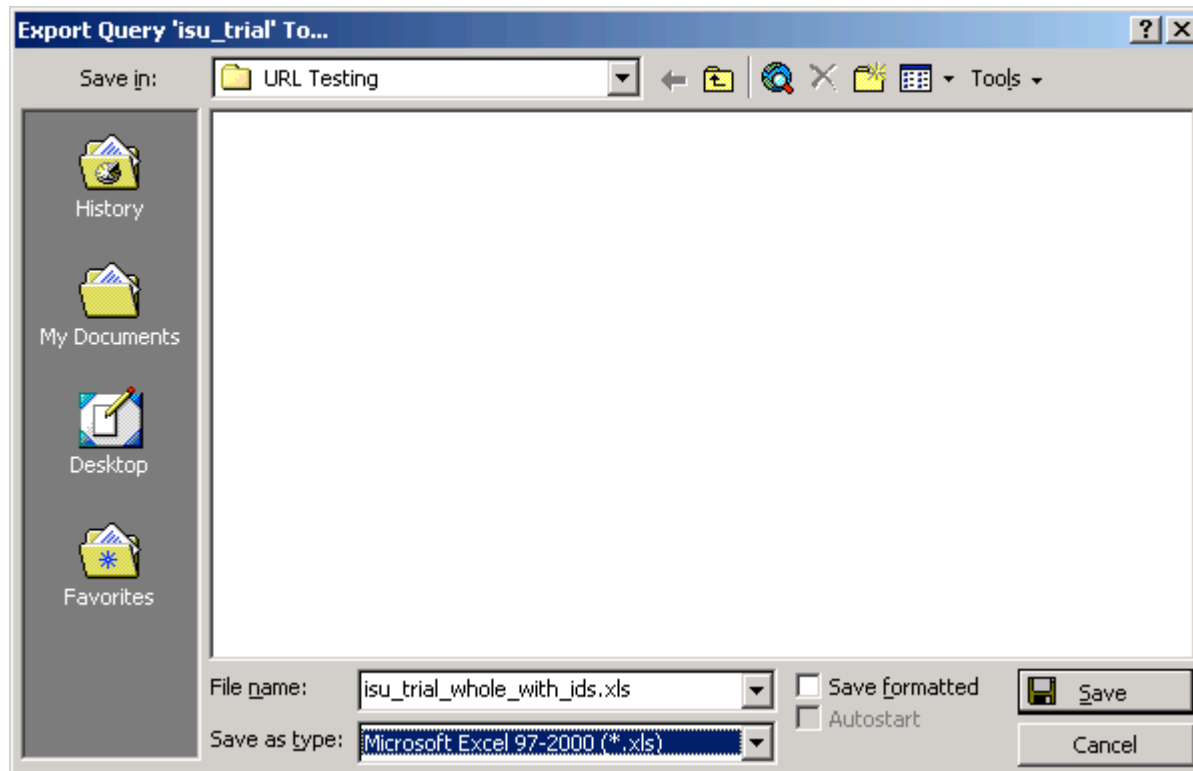


Figure 8.

## F. Configure Xenu for Checking the Selected URL's

Xenu's reports can be configured to contain a variety of information.

From Xenu's task bar: Options → Preferences...

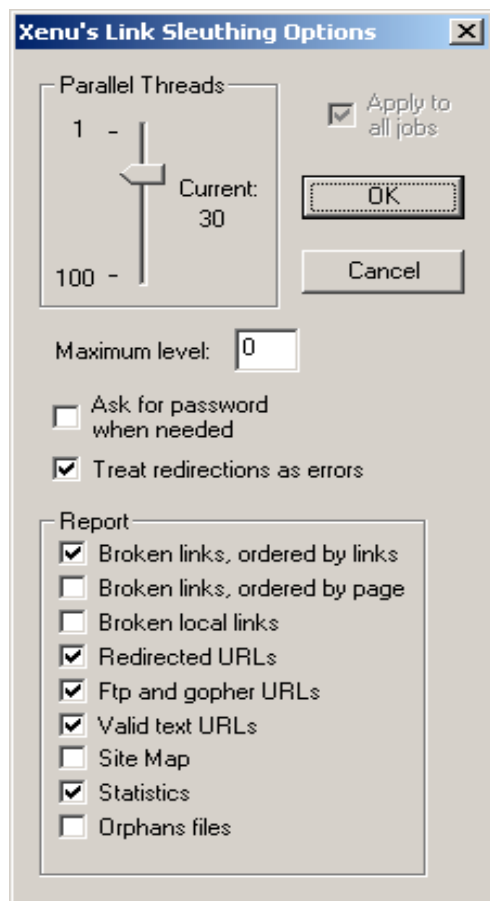


Figure 9.

The most concise report would have just the "Broken links, ordered by links" box checked. Checking "Treat redirections as errors" may be useful for identification of URL's for further follow-up – see the section on "Redirected" output below.

The "Maximum level" selection controls how far "down" within the URL Xenu will go. When the value is set to "0," Xenu will check the test URL only; when the value is set to "1," Xenu will check the URL + one additional level down. In a test set of 100 URL's, setting the value to "1" actually

reported on more than 1,500 URL's. This could be useful if a library has a "main" site it wants to check without creating an input file of individual URL's. A potential problem with this is that a site may have many pages, but the library has/needs access to only a few.

NB: It is strongly suggested that the value in "Maximun level" never be greater than 1.

Moving the slide bar in "Parallel Threads" controls how many URL's are checked simultaneously. Some PC's may have trouble with too many parallel processes and fail to complete the searches because of insufficient RAM.

Most of the other selections in the above "Preferences" table do not assist in the type of checking for errors that I-Share libraries wish to do. You are free to experiment with them, if you wish. The selections above are the recommended ones.

Xenu produces reports in three formats:

On-screen

"Export to TAB separated file" (spreadsheet)

HTML based

Each report contains:

Address

Status

Type

Size

Title

Date

Level

Links Out

Links In

Server

Error

Duration

It is likely that the Address and Status columns only will be sufficient to identify those URL's needing correction.

The on-screen report gives you an idea of how many URL's had problems, but it is not easily print-able; see *Figure 10* for an example of the on-screen report.

Address	Status	Type	Size	Title	Date	Level	Links Out	Links In	Server	Error
http://www.netLibrary.com/summary.asp?ID=12217	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=12214	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=12189	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=12181	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=12180	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=12156	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=12112	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=12111	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=11452	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=11116	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=10871	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=10312	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=10289	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=10251	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=38536	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.netLibrary.com/summary.asp?ID=33383	ok	text/html	145			0			Microsoft-IIS/6.0	
http://www.neramicrosoft.com/level_1/nera_tt.htm	no such host					0				The se
http://www.ndu.edu/library/docs/d04394g.pdf	ok	applicati...	11...		05.03.2004 14:29:50	0			Microsoft-IIS/5.0	
http://www.ndu.edu/library/docs/d0438.pdf	ok	applicati...	28...		11.03.2004 19:06:48	0			Microsoft-IIS/5.0	
http://www.ndu.edu/library/docs/d04254.pdf	ok	applicati...	10...		11.03.2004 19:05:59	0			Microsoft-IIS/5.0	
http://www.ndu.edu/inss/strforum/forum134.html	not found	text/html				0			Microsoft-IIS/5.0	
http://www.ndu.edu/inss/macnair/mcnair17.txt	not found	text/html				0			Microsoft-IIS/5.0	
http://www.ndu.edu/inss/DefHor/DH22/DH22.pdf	ok	applicati...	682168		30.12.2002 11:53:55	0			Microsoft-IIS/5.0	
http://www.ncte.org/coc7/subj49_anderson.html	not found	text/html				0			Microsoft-IIS/5.0	
http://www.ncsl.org/programs/press/2003/pr030204.htm	ok	text/html	15061			0			Microsoft-IIS/6.0	
http://www.ncrs.fs.fed.us/pubs/ch/ch02/CHvolume02page284.pdf	ok	applicati...	35...		27.03.2002 22:33:05	0			Microsoft-IIS/5.0	
http://www.ncjrs.org/txtfiles/tasc.txt	ok	text/plain	6420		25.08.1997 16:59:13	0			Apache/1.3.22 (Unix)	
http://www.ncjrs.org/txtfiles/ncpc.txt	ok	text/plain	6698		25.08.1997 16:59:04	0			Apache/1.3.22 (Unix)	
http://www.ncjrs.org/txtfiles/denybene.txt	ok	text/plain	9110		05.01.1998 21:35:06	0			Apache/1.3.22 (Unix)	
http://www.ncjrs.org/txtfiles/corrupt.txt	ok	text/plain	6329		10.09.1997 14:41:57	0			Apache/1.3.22 (Unix)	
http://www.ncjrs.org/txtfiles/casemgmt.txt	ok	text/plain	7484		07.02.1997 16:12:35	0			Apache/1.3.22 (Unix)	
http://www.ncjrs.org/txtfiles/busallnc.txt	ok	text/plain	7373		25.08.1997 16:58:55	0			Apache/1.3.22 (Unix)	
http://www.ncjrs.org/pdffiles1/bja/192826.pdf	ok	applicati...	721828		11.02.2003 20:25:25	0			Apache/1.3.22 (Unix)	
http://www.ncjrs.org/pdffiles/b-gclubs.pdf	ok	applicati...	25040		20.05.1996 21:41:16	0			Apache/1.3.22 (Unix)	
http://www.nature.com/embobj/archive/	ok	text/html	51597			0			Microsoft-IIS/6.0	
http://www.nature.com/cgi-taf/dynapage.taf?file=embor/archive/index....	connection aborted					0				The co
http://www.natefacs.org/JFCSE/jfcse.htm	ok	text/html	5359		05.11.2004 15:42:56	0			ConcentricHost-Ashurb...	
http://www.natefacs.org/JFCSE/jfcse.htm	ok	text/html	5359		05.11.2004 15:42:56	0			ConcentricHost-Ashurb...	
http://www.musiclibraryassoc.org/pub/pu_news.htm	ok	text/html	6150		05.10.2004 01:13:14	0			Apache/1.3.26 (Unix) F...	
http://www.metapress.com/link.asp?id=106794	ok	text/html	121			0			Microsoft-IIS/5.0	
http://www.metapress.com/link.asp?id=104772	ok	text/html	121			0			Microsoft-IIS/5.0	
http://www.metapress.com/link.asp?id=102456	ok	text/html	121			0			Microsoft-IIS/5.0	
http://www.metapress.com/link.asp?id=102447	ok	text/html	121			0			Microsoft-IIS/5.0	
http://www.metapress.com/link.asp?id=100658	ok	text/html	121			0			Microsoft-IIS/5.0	
http://www.lms.ac.uk/jcm/	ok	text/html	3200			0			Apache/1.3.20 (Unix) P...	
http://www.lita.org/ter/	ok	text/html	171			0			Microsoft-IIS/5.0	
http://www.library.wisc.edu/libraries/WomensStudies/biologs/hws/hws01....	ok	text/html	3013		19.10.2004 21:26:56	0			Apache/2.0.48 (Unix) m...	
http://www.lib.niu.edu/ipo/oilistysr.html	ok	text/html	2634		19.02.2002 18:03:01	0			Apache/1.3.3 (Unix) De...	
http://www.lib.niu.edu/ipo/iplistysr.html	ok	text/html	4830		14.11.2004 05:46:46	0			Apache/1.3.3 (Unix) De...	
http://www.lib.niu.edu/ipo/mlistysr.html	ok	text/html	3564		17.02.2004 20:57:06	0			Apache/1.3.3 (Unix) De...	
http://www.lib.niu.edu/ipo/llistysr.html	ok	text/html	3809		17.10.2004 05:20:44	0			Apache/1.3.3 (Unix) De...	

Figure 10.

Exporting the results via File → Export to TAB separated file will include the same information as in the on-screen display; see Figure 11. The tab separated file is much easier to work with, as it will allow the cut-and-paste of the specific bibliographic information from the second Access query and can then be sorted by the Status column. See Section H. below for complete instructions.



The HTML output is less easy to work with, but because it contains hot links, it may be useful for later database clean-up.

### Broken links, ordered by link:

<FTP://WWW.FSA.USDA.GOV/PUBLIC/NEWS/STRATPLN.PDF>

error code: 12015 (login failure), linked from page(s):

<HTTP://CTI1.VOLPE.DOT.GOV/OHIM/HIGHCOV.HTML>

error code: 12007 (no such host), linked from page(s):

<HTTP://GALAXY.HQ.NASA.GOV/INSTITUTES/INSTPLAN.HTML>

error code: 12002 (timeout), linked from page(s):

It is a useful (or at least interesting) part of the HTML report – the “Statistics for Managers” section that includes a summary of the URL’s checked.

### All pages, by result type:

ok	829 URLs	17.87%
object temporarily moved	2454 URLs	52.89%
object permanently moved	401 URLs	8.64%
server error	1 URLs	0.02%
timeout	892 URLs	19.22%
cancelled / timeout	1 URLs	0.02%
not found	10 URLs	0.22%
forbidden request	43 URLs	0.93%
no connection	3 URLs	0.06%
no such host	6 URLs	0.13%
<b>Total</b>	<b>4640 URLs</b>	<b>100.00%</b>

E1 above.

of many URL’s as well. To check a file of URL’s:

Create a text file of the URL's to check; this file should not have any other information in it (which is why the separate Access query is done in E1 above.) The URL's should not have any punctuation around them (which is why the Access query in E1 above is exported as a .txt, fixed width file)

Open Xenu; from the task bar select File → Check URL List (Test)

You will be presented with a window in which you can select the text file of URL's to test.  
Double click on the desired file and Xenu will start automatically and check all the URL's in the file.

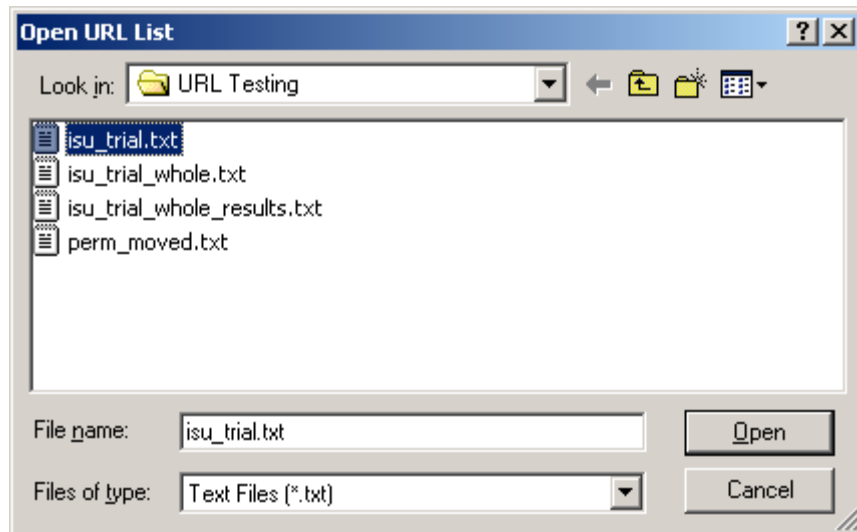


Figure 12.

## H. Combining the Access query results with the Xenu report results

The Access query in E2 above (URL's with MFHD ID, Bib ID, and short title) + Xenu's output (Status column) = working spreadsheet for correcting/updating URL's in cataloging records.

Open the spreadsheet created by the Access query from E2 above and insert a column after the "URL" column. (Figure 13)

Open the Xenu tab delimited output file in Excel (from E1 above); note that it is delimited (not fixed width) and the delimiter character is the Tab. (Figure 14)

Note: The first line of the report is the name of the input file itself. Delete this line so as to avoid any confusion in the future.

Copy and paste the "Status" column from the Xenu output file into the spreadsheet file; this results in the combined file. (Figure 15)

Sample output from Access query #2 - URL's with MFHD ID, Bib ID, and short title

URL	MFHD ID	Bib ID	Short Title
<a href="http://www.hbcnetbase.com/">http://www.hbcnetbase.com/</a>	1138774	1072168	CRC handbook of chemistry and physics
<a href="http://www.historycoop.org/ehindex.html">http://www.historycoop.org/ehindex.html</a>	1170587	810863	Environmental history.
<a href="http://www.historycooperative.org/ahrindex.html">http://www.historycooperative.org/ahrindex.html</a>	1170633	740616	American historical review.
<a href="http://www.historycooperative.org/cpindex.html">http://www.historycooperative.org/cpindex.html</a>	1170637	1102547	Common-place the interactive journal of early
<a href="http://www.historycooperative.org/wmindex.html">http://www.historycooperative.org/wmindex.html</a>	1170656	680500	William and Mary quarterly.
<a href="http://www.hppmusicindex.com/">http://www.hppmusicindex.com/</a>	1136122	1069814	Music index online
<a href="http://www.icaqd.org/directory/dirsrch.html">http://www.icaqd.org/directory/dirsrch.html</a>	874047	759664	Membership directory.
<a href="http://www.idealibrary.com/links/toc/ndsh">http://www.idealibrary.com/links/toc/ndsh</a>	498559	494664	Nuclear data sheets.
<a href="http://www.ijbnpa.org/articles/browse.asp">http://www.ijbnpa.org/articles/browse.asp</a>	1176093	1107699	International journal of behavioral nutrition and
<a href="http://www.impan.gov.pl/PUBL/publ/publ_aa/main/">http://www.impan.gov.pl/PUBL/publ/publ_aa/main/</a>	1178375	136028	Acta arithmetica.
<a href="http://www.ingentaselect.com/rpsv/cw/aibs/00063568/contp1-1.htm">http://www.ingentaselect.com/rpsv/cw/aibs/00063568/contp1-1.htm</a>	1139024	762496	BioScience.

Figure 13.

Sample output from Xenu URL checking - exported into Excel as a Tab separated file

URL	Status
http://www.hbcnetbase.com/	ok
http://www.historycoop.org/ehindex.html	cancelled / timeout
http://www.historycooperative.org/ahrindex.html	ok
http://www.historycooperative.org/cpindex.html	ok
http://www.historycooperative.org/wmindex.html	ok
http://www.hppmusicindex.com/	object temporarily moved
http://www.icahdq.org/directory/dirsrch.html	not found
http://www.idealibrary.com/links/toc/ndsh	ok
http://www.ijbnpa.org/articles/browse.asp	ok
http://www.impan.gov.pl/PUBL/publ/publ_aa/main/	not found
http://www.ingentaselect.com/rpsv/cw/aibs/00063568/contp1-1.htm	object temporarily moved

Figure 14.

(Cut and paste the "Status" column from the Xenu output to the Access report with MFHD and Bib Ids)

URL	Status	MFHD ID	Bib ID	Short Title
http://www.hbcnetbase.com/	ok	1138774	1072168	CRC handbook of chemistry and physics
http://www.historycoop.org/ehindex.html	cancelled / timeout	1170587	810863	Environmental history.
http://www.historycooperative.org/ahrindex.html	ok	1170633	740616	American historical review.
http://www.historycooperative.org/cpindex.html	ok	1170637	1102547	Common-place the interactive journal of early
http://www.historycooperative.org/wmindex.html	ok	1170656	680500	William and Mary quarterly.
http://www.hppmusicindex.com/	object temporarily moved	1136122	1069814	Music index online
http://www.icahdq.org/directory/dirsrch.html	not found	874047	759664	Membership directory.
http://www.idealibrary.com/links/toc/ndsh	ok	498559	494664	Nuclear data sheets.
http://www.ijbnpa.org/articles/browse.asp	ok	1176093	1107699	International journal of behavioral nutrition and
http://www.impan.gov.pl/PUBL/publ/publ_aa/main/	not found	1178375	136028	Acta arithmetica.
http://www.ingentaselect.com/rpsv/cw/aibs/00063568/contp1-1.htm	object temporarily moved	1139024	762496	BioScience.

Figure 15.

## I. "Redirected" URL's

There is one particular case in which the HTML output is extremely useful: if a link is reported as "redirected," (either temporarily or permanently), Xenu can report the new address to which the previous link points.

Thus, when Xenu reports "object temporarily moved" or "object permanently moved", the HTML version of the report will display:

```
http://anthro.AnnualReviews.org/  
redirected to:  
http://arjournals.annualreviews.org/loi/anthro  
status code: 302 (object temporarily moved)
```

To configure Xenu to report the redirected links:

In the Options → Preferences menu:

"Maximum level" = 1

Leave "Treat redirections as errors" UNchecked

Check "Redirected URLs"

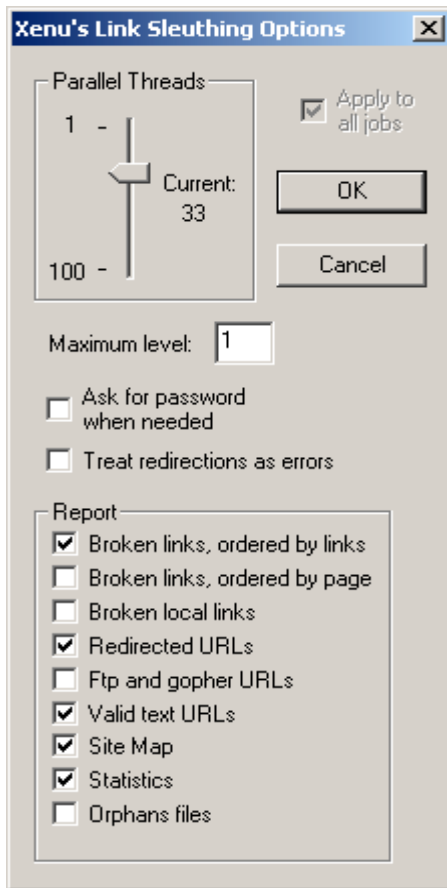


Figure 16.

## **J. Some other things to consider and how can broken links be corrected?**

URL's can be searched directly in Voyager's Cataloging client as Keyword / Free Text searches; you can use just the last parts (which are the most distinctive). This is handy for finding the URL's in Xenu's HTML-based "Redirected" URL's report. But, any other project to update multiple Bib and MFHD records will benefit from the combined report described in H. above.

The workflow to correct the Bib and/or MFHD records will depend on the individual library's resources to devote to this type of project.

Some possibilities include: sort the final, combined spreadsheet of URL's, record ID's, and status reports by the Status column. Discard any that are "ok" and review the remaining ones. It may be that some links were simply not working at the moment the Xenu test was run – should you retest them at some later time before deciding to update the Bib/MFHD record?

Are "redirected" URL's that link to the correct page considered broken and need to be fixed?

## **K. Questions, Hints and Tips, Reports of Success and Workflow Strategies**

As your library works with Xenu and proceeds with URL checking/clean-up project, please send your questions, hints and tips, suggestions for workflow strategies, or examples of your successes/problems to [techserv-ig@carli.illinois.edu](mailto:techserv-ig@carli.illinois.edu). Your CARLI colleagues will benefit from your experiences, just as you will benefit from theirs.