



Diagnosing Index Problems

Releases 12.4-14.2

Last update: March 3, 2003

It is not our expectation that this will precisely diagnose every problem, but we do think and hope that it help you understand the system better and report your problems more accurately.

[Note: "EXUnn" are the test/training libraries supplied to North American customers.]

1. Do the indexes work OK for other libraries (including USM01 and/or EXU01) or are those a problem too?

- USM/EXU also fail → This may indicate a problem with the Result set tables or a program problem . Check the pc_server log --as described in section 6.4.3 of the *System Administration Guide*.
- USM/EXU are OK
↓

2. Do you see the problem:

- * In GUI/Web OPAC but **not** "mini-Find" → Go to [10. tab base Problems](#)
- Just in Web OPAC searching → Check the `www_a_lng/find-x-include-n` or `scan-include-n` screens.
- Just in GUI OPAC searching → Check `xxx01/tab/pc_tab_sear.lng`
- Just in Web or GUI OPAC Brief List → Go to [6. Brief List Problems](#)
- Just in GUI Cataloging "mini-Find" → Check `xxx01/pc_tab/catalog/pc_tab_find.lng`
- Just in GUI Cataloging "mini-Scan" → Check `xxx01/pc_tab/catalog/pc_tab_scan.lng`
- Just in other GUI modules "mini-Find" → Check `xxx50/tab/pc_tab_find.lng`
- Just in other GUI modules "mini-Scan" → Check `xxx50/tab/pc_tab_scan.lng`
- Just in GUI mini-Find/mini-Scan Brief List → Go to [6. Brief List Problems](#)
- In all of these (Web OPAC, GUI OPAC, mini-Find/mini-Scan)
↓

3. Does the problem affect all indexes of a particular type {all Browse (ACC), all Direct (IND), or all Word (W-nnn)}?

- Yes → Were the indexes batch-generated?
 - Yes
 - Check log of most recent run for possible failure
 - Consult the "How To Run Index Jobs" document
 - Go to [7. tab11 Analysis](#)
 - Rerun index job
 - No → Go to [8. ue_01 Analysis](#)
- No
↓

4. For the index(es) which fail, are just certain records omitted?

- Are the records outside the base specified in tab_base? (Are they STA DELETED, STA SUPPRESSED, etc.?)
- Just old, batch-loaded records have the problem:
 - Did the batch index job(s) fail or were never run? Check the most recent log(s).
 - Could it be that `xxx01/tab/tab11` was incorrect when the job(s) was (were) run?
 - See the "How To Run Index Jobs" document; rerun the index job(s)
- Just new records have the problem
 - Has tab11 changed so that it is now incorrect?
 - Yes → Correct it.
 - No → Go to [8. ue_01 Analysis](#)
- Both old and new records have the problem
 - This indicates a problem with tab11 or expands. Go to [7. tab11 Analysis](#)

5. Does the search return results?

- **Search gives no results** (no hits for keyword/Find; "Request is beyond last heading in ACCess file" for Browse/Scan) [for the GUI]
 - If you are using a logical base, could it be that there are no records which are in the base? (Do "Options", "Database" and look at the "Base" value to see what base you are using.)
Go to [10. tab_base Problems](#)
 - Is the index code which is specified for this search in *xxx01/tab/pc_tab_sear.lng* included in the *xxx01/tab/tab00.lng* ? It must be.
 - For a **keyword** index (specified as type "W-*nnn*" in *xxx01/tab/tab00.lng* and col. 2 value "W" in tab11) do UTIL F/4 on the Z97 data file. When you are prompted for key type, enter "1"; then, when prompted for "start word position TTTTTTTT", just press ENTER. Do you see data or does it say "END Z97"?
 - You see data (--but we're uncertain whether there's data for this specific code)
 - Compare *pc_tab_sear.lng*, *tab00.lng*, and *tab11* to make sure they all have the same code.
 - Examine the *pc_server* log --as described in section 6.4.3 of the *System Administration Guide*.
 - Go to [7. tab11 Analysis](#)
 - Do util a/17/14 to see if the z97, z98, and z950 Oracle indexes are correct.
 - Contact Ex Libris Support as necessary.
 - It says "END Z97": This indicates that there's no keyword index. Go to [3.](#)
 - For a **direct** index (specified as type "IND" in *xxx01/tab/tab00.lng* and col. 2 value "I" in tab11) do UTIL F/4 on the Z11 data file **OR**
for a **browse** index (specified as type "ACC" in *xxx01/tab/tab00.lng* and col. 2 value "A" in tab11) do UTIL F/4 on the Z01 data file.
When you are prompted for the "CCCCAXXXXXXXXXX" start key enter just the index code (in uppercase) (for example, "010" or "CNO"). Are there any?
 - Yes, there are entries for this index code
 - Examine the *z01_filing_text* (or *z11_filing_text*): Does it begin with the characters you are expecting? Enter a search for **exactly** what you see in the *filing_text*. (This is what the searchable index contains.)
 - Double-check the *pc_tab_sear.lng* and *tab00.lng* to make sure you have the right code.
 - Examine the *pc_server* log --as described in section 6.4.3 of the *System Administration Guide*.
 - Contact Ex Libris Support as necessary.
 - No, there are no entries for this index code
 - Is there an entry for this index code in tab11?
 - No → Add one and regenerate the index.
 - Yes
 - Is it correct? (Go to [7. tab11 Analysis](#))
 - Are there records which contain the specified fields/indicators/subfields?
 - No, create one and see what happens.
 - Yes. This doesn't make sense. Retrace your choices in this index diagnosis document. Check the *pc_server* log --as described in section 6.4.3 of the *System Administration Guide*. Contact Ex Libris Support as necessary.
If the field is a "virtual field", see the section in [7. tab11 Analysis](#) on virtual fields/expands.
 - There are no entries for **any** index code: it says "END Z11" or "END Z01".
→ This indicates there's no direct (or headings) index. Go to [3.](#)

- **Search gives error message:**
 - "Failed to read reply" -- Examine the server log --as described in section 6.4.3 of the *System Administration Guide*.
 - "Error xxx not defined for service in yyyy". This message is caused by the fact that the program (yyyy) is looking at the alephe/error_eng file for yyyy for this particular error number (xxx) and isn't finding it. Check the WebPRB OPAC ("PRB Knowledge base") for the exact message. If not found, contact Ex Libris Support.
 - Other messages: consult the WebPRB OPAC. If not found, contact Ex Libris Support.

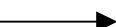
- **Search gives results but they are incorrect:**
 - Results are in the wrong order:
 - For Browse headings display: This has to do with the Z01 (or Z11) filing key. Do UTIL F/4 to look at the filing keys. The filing key is determined by the filing routine specified in the xxx01/tab/tab00.lng. The tab00 column 4 points to a n entry in the xxx01/tab/tab_filing. Make sure that these are correct. (Note: the UTIL F/3 function will show you what filing key is generated by a particular filing routine for a particular input field.)
 - For keyword/Find or Brief title list in Browse → Go to [6A. Brief List Sort Problems](#)
 - Same results are returned no matter what search you do (in *Browse*) and when you look at the Z01 records with util f/4 or sql, they are not in order: you see TTL, then AUT, then PUB, etc.
 - This symptom indicates that the z01_id Oracle index has not been built properly (it may have failed because of space problems); use util a 17/4 and util a 17/2 to try recreating it and correct whatever problems are indicated.
 - Same results are returned no matter what search you do (in *keyword/Find*).

This indicates a problem with the Z05/Z110 result set files (in the vir01 library). Run the UTIL A/10 for vir01 to reinitialize them. (For further information see US WebPRB record# 439.)
 - Results are incomplete. → Go to number [4](#), on page 1.
 - Deleted/suppressed records display → Go to [10. tab_base Problems](#)
 - Problems with Brief List. → Go to [6. Brief List Problems](#).
 - Cross-references are missing → Go to [9. Cross-Reference Problems](#).

6. Brief List Problems

[Note: The Brief List is the list of titles/authors which comes up in response to a keyword/Find or in a Browse/Scan when a particular heading is selected.]

Are the results in the wrong order?

- Yes  Go to [6A. Brief List Sort Problems](#)
- No. Is the problem
 - ▼
 - Just with the Web OPAC Brief List.
 - Check the *xxx01/tab/www_tab_short.lng*. If the problem is with the Location/call-number or other virtual fields, check the WEB-BRIEF entries in *tab_expand* and the *edit_field* entry for the *edit_field* ID you've specified in *www_tab_short.eng* column 8.
 - Just with the GUI OPAC Brief List.
 - Check the *xxx01/tab/pc_tab_short.lng*. If the problem is with the Location/call-number or other virtual field, check the GUI-BRIEF entries in *tab_expand*.
 - With both the Web OPAC and GUI OPAC Brief List.

Which of these best describes your problem:

 - Some columns in the Brief list display OK but others are blank or incorrect; when you click on an entry it displays the doc record OK; you can call up all records by system number OK.
 - Check *www_tab_short.lng*, *pc_tab_short.lng*, and *tab_expand* as described above.
 - Some rows in the Brief List are entirely blank (there may or may not be some rows which display OK); in the GUI when you click on one of the blank records you get "Record does not exist"; you can call up lower-numbered records by system number but you can't call up higher-numbered records
 - This indicates a problem with the Oracle index for the z00 table (*z00_id*). Drop the *z00_id* (util a 17 – 4) and (re)create it (util a 17 – 2). [Note: that duplicate z00 entries may have been created while the *z00_id* was absent or incorrect. In this case the index create will fail. Please contact Ex Libris Support.]
 - Just in GUI mini-Find/mini-Scan Brief list. {The Brief List columns which you see in response to a Find (or the selection of a Scan heading which has multiple documents) are specified in the *xxx01/tab/pc_tab_col.lng*, SHORT-LIST entries. The *data* which is displayed comes from the Short Doc (Z13).}
 - If all the columns are blank, this may indicate that the SHORT-LIST entries are missing from *pc_tab_col.lng* or that the *p_manage_07* to generate the Z13 has not been run since the bib records were batch loaded.
 - If just certain columns are blank or incorrect, check your *xxx01/tab/tab22*. This controls what fields are included in the Z13 Short Doc. (Note: If you make a change, you need to re-run *p_manage_07* in order for it to take effect.)
 - If just new records are missing, go to [8. ue_01 Analysis](#)
 - If just new records have incorrect data, then perhaps the *tab22* has changed. Correct it and re-run *p_manage_07*.
 - If there is data in the columns but when you do "Full" it takes you to a different record, this indicates that the database may have been reloaded (as it might be in the Implementation phase) without re-running the *p_manage_07*.
 - Just in the Brief list you see when you bring up a record in Cataloging and do a "Search field headings of other library" (for an authority library), select a heading having multiple records associated with it, and click on "Expand": Same as the preceding except it's the *xxx10* Z13.

6A. Brief List Sort Problems

Is the problem

- Just with the Web OPAC Brief List?
 - Check the *xxx01/tab/www_tab_short.lng*. The primary and secondary sort fields are specified in column 4. The numbers refer to entries in *tab_sort*. Make sure that the sort number specified is correct for this field.
- Just with the GUI OPAC Brief List?
 - The sort options which appear when you click on “Sort” are specified in the *xxx01/tab/pc_tab_sear.lng* “SO” entries; make sure that the *tab_sort* sort numbers they point to are correct for this field.
- With both the Web OPAC and the GUI OPAC. Do some sorts always work?
 - Yes, some sorts always work. For example, all Date sorts are correct or all Title sorts are correct. If this is the case, then check the *www_tab_short.lng*, *pc_tab_sear.lng*, and *tab_sort* as described above. If no problem is found, then check the Z101s for records not sorting properly as described below.
 - No, no sorts always work. Using UTIL F/4, check the sort key fields for particular documents in the Z101 (sort index) of the *xxx01* library. The *xxx01/tab/tab_sort* determines what sort keys are created for each field.
 - Are Z101 records present? Every non-deleted bib record should have Z101s
 - Are the entries correct: do they have a good value in the *Z101_text* and a *z101_sort_key* which corresponds to the number of the sort in *tab_sort*?
 - If not, it may be that *tab_sort* has changed and that new or recently updated records aren’t sorting properly. To test this:
 - Locate a document number which has good Z101 entries
 - Send the document to server
 - Do any of the Z101 entries disappear or become incorrect? This indicates the *tab_sort* entry is missing or incorrect: the values are in the wrong columns. (If they seem to be in the right columns, make sure that a *rep_change* hasn’t changed the column positions; compare your *xxx01 tab_sort* to the *EXU01* or *USM01 tab_sort*.)
 - Correct *tab_sort*, send some records to the server online, verify that the Z101s produced are now correct, and then rerun *p_manage_27* to regenerate the Z101.
 -

6B. Mini-Find/Mini-Scan Sort

The results of the mini-Find and mini-Scan in the GUI Items, Circ, and Serials are in order by system number. There is not any way (at least as of 14.2) to specify a sort.

7. tab11 Analysis

- a. The *xxx01/tab/pc_tab_sear.lng* shows what index code is associated with each of the index labels you see in the GUI OPAC Find and Browse. If there are no *xxx01/tab/tab11* entries for this index code or if the entries are incorrect, then there won't be any index records for this index code.
- b. The *xxx01/tab/tab11* controls what fields are included in what indexes.
- Find the lines in *tab11* which contain the index code from *pc_tab_sear.lng* (see a., above).
 - The fourth and fifth positions in column 3 (the field code) are the first and second indicator values. Blank means that the only valid value for this indicator is blank; if you want all values to be accepted, put "##" (for example, 100##).
 - Column 6 (for Words) or column 7 (for ACC Headings or Direct) lists the subfields which are to be included (or, if preceded by a minus-sign, excluded). Are they correct?
 - Column 6 for ACC Headings or Direct has the index code. Make sure that it starts right in the first position of the column and there's no space in front of it.
 - (for ACC Headings) Does column 9 contain a non-filing indicator value when this field doesn't have any non-filing indicator?
 - (for Words) If the field is being sent to more than one index (in columns 10-19), is the second, third, etc., code in the right column. If the codes are just 3 characters, they need to be separated from each other by two spaces.
- c. Is the field which you are indexing a "virtual field"?
- If it's being sent to a Words index, is the expand which generates the field included in the WORD section of *xxx01/tab/tab_expand*? It must be.
 - If it's being sent to an ACC Headings index, is the expand which generates the field included in the ACC section of *xxx01/tab/tab_expand*? It must be.
 - If it's being sent to a Direct ("I"-type) index, is the expand which generates the field included in the INDEX section of *xxx01/tab/tab_expand*? It must be.
 - If the field is the PST or LOC field, please consult the document, "How To Use Location Expands".
 - If the field looks like this: "a020" or "AT100", does the *tab_expand_extract*, *tab_expand_join*, or *tab_expand_split* which is supposed to generate the field contain the proper entries?

8. ue_01 Analysis

When you successfully save an *xxx01* record on the server, the Direct indexes (specified as type "IND" in *xxx01/tab/tab00.lng* and col. 2 value "I" in *tab11*) are updated immediately. And a record is written to the Z07 table of the *xxx01* library. The *xxx01 ue_01* procedure reads this record and updates the Z01/Z02 ACC Headings, the Z95/97/98 Words, the Z13 Short doc, the Z101 Sort index, and (re-updates) the Z11 Direct index.

Is it just one or two particular indexes whose new records can't be searched while others can? This is probably not a *ue_01* problem. Go to [7. tab11 Analysis](#) for this index.

Do UTIL C/1 in the *xxx01* library. Is the *ue_01* process running?

- No. Do you see, also in UTIL C/1, any (batch) process which might have stopped the *ue_01*? Also, check the *xxx01/scratch* file to see if there's a stop *e_01* file placed there by the job. Is there any?
 - Yes, wait for the job to finish.
 - No, start *ue_01* and see if the records are indexed.

- Yes, *ue_01* is running.



Examine the current *ue_01* log ("run_e_01") in the *xxx01/scratch* directory:

- Do you see the record(s) which you have recently sent to the server and can't find in the index?
 - Yes → Do you see error messages?
 - Yes, Check for the messages in the WebPRB OPAC ("PRB Knowledge base"). If not found, contact Ex Libris Support.
 - No, Go to [7. tab11 Analysis](#) for this index
 - No → Examine the *xxx01* Z07 table using UTIL F/4. Do you see the records which you have recently sent to the server?
 - Yes, Are there a lot of records ahead of your record(s) in the file? {*ue_01* takes about 1 second to process each record. You can do an SQL query "select count (*) from z07;" to see how many records there are.} Probably some batch process has placed a large number of update requests in the Z07 table. Wait for the requests to be processed.
 - No. (Has *ue_01* been left running while the system was stopped for backup and restarted? That can cause problems.)
 - Try stopping *ue_01* (UTIL E/2) and restarting it (UTIL E/1).
 - If your PC has been connected to the server (telnet) through a shutdown/restart, close your session and reconnect to the server. Restart the PC server.
 - Or try starting a different PC server and see if you get the same result.

9. Cross-Reference Problems

The cross-references which appear in the Headings indexes are built either by the ue_08 cross-referencing daemon or (starting in 14.2) by the p_manage_102/p_manage_103/p_manage_104 series of jobs. The p_manage_102, etc., are much faster –although they require that the library be locked whereas ue_08 does not. [As of this writing there are not yet any Web Services submission screens for the p_manage_102, etc.]

The ue_08 is option 8 in the UTIL E menu. It is described in detail in section UTIL E/8 of the *Database Management Guide*.

Are just some cross-references missing or are all cross-references missing?

- All cross-references are missing
 - ▼
Have you run ue_08?
 - No
 - You need to do so. But before doing so, make sure that the xxx01 (BIB) Z01 Headings index and the xxx10 (AUTHORITY) Z01 have been built and are correct.
 - Not sure
 - Do UTIL F/4 for the xxx01 Z01 data file. Specify AUT or SUB as the first three characters of the key. What do you see for the “aut_library” value?
 - All of them have “NEW” as the value. This means the ue_08 has not been run. Run it with option “C”.
 - Most all of them have “CHECK” as the value. (Only newly-added ones have “NEW”.)
 - ↓
 - Yes
 - What do you see for the aut_doc_number?
 - All the aut_doc_numbers are 000000000. This indicates that the ue_08 did not produce the cross-references it should have.
 - Check the run_e_08 log in the xxx01/scratch directory for error messages.
 - Make sure that the xxx01/tab_aut and tab_20 are set up properly. (Consult the document, “Bib-Authority Connections”.)
 - Some aut_doc_numbers are not 000000000. You should see cross-references for these in the OPAC. Look up the authority record referred to and search on some of its 4xx fields.
- Just cross-references for old, batch-loaded records are missing
 - Have you run the ue_08 with option “N” {Re-check all headings (as if they were new)}? This indicates that you haven’t.
- Just cross-references for new records are missing
 - Is the ue_08 running in the xxx01 library? (Do UTIL C/1 to see.) Examine the current or the most recent run_e_08 log in the xxx01/scratch directory. Does it show that headings are being processed? (If so, search for them.) If there are error messages, search for them in the WebPRB Knowledge Base.

10. tab_base Problems

Searches in the Web OPAC and the GUI SEARCH function can use bases; the “mini-Find” (the binoculars Find function in the Cataloging, Items, Circulation, Acquisitions, and Serials modules) can not use bases.

If a search works in the mini-Find, but does not work in the OPAC, then it may be that the base which the OPAC is using is defective (./alephe/tab/tab_base.eng) (util y/3).

In one case, the tab_base.eng entry had "all documents" instead of "alldocuments". (This meant that only documents containing the words “all” and “documents” were retrieved.) “alldocuments” is a special operator: “all documents” is **not** the same.

If deleted or suppressed records are displaying when they shouldn't, this also indicates a problem with the tab_base entry. It should look like this:

```
EXU01PUB      ExLibris University EXU01      EXU01 alldocuments
not (wst=suppressed or wst=deleted or wst=circ-created)
```

The tab_base entry must be a single logical line. If you have copied-and-pasted the entry from somewhere else, what you pasted in may be two separate lines. To see: As you move your cursor down does it jump over the second line? It should. If it doesn't, use the "vi" command SHIFT + J to join them.