



## SIERRA CATALOGING

# AUTOMATIC AUTHORITY PROCESSING OVERVIEW

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With the Automatic Authority Process Product, Sierra can automatically update a heading in a Bibliographic record based on the valid form of the heading in an Authority record. The two things that must occur to "trigger" Automatic Authority Processing are:

- The authority record passes through the transaction file (because it is a new record or has been edited in any way).
- The authority record must contain a 4xx field.

Both conditions must exist to have any processing occur.

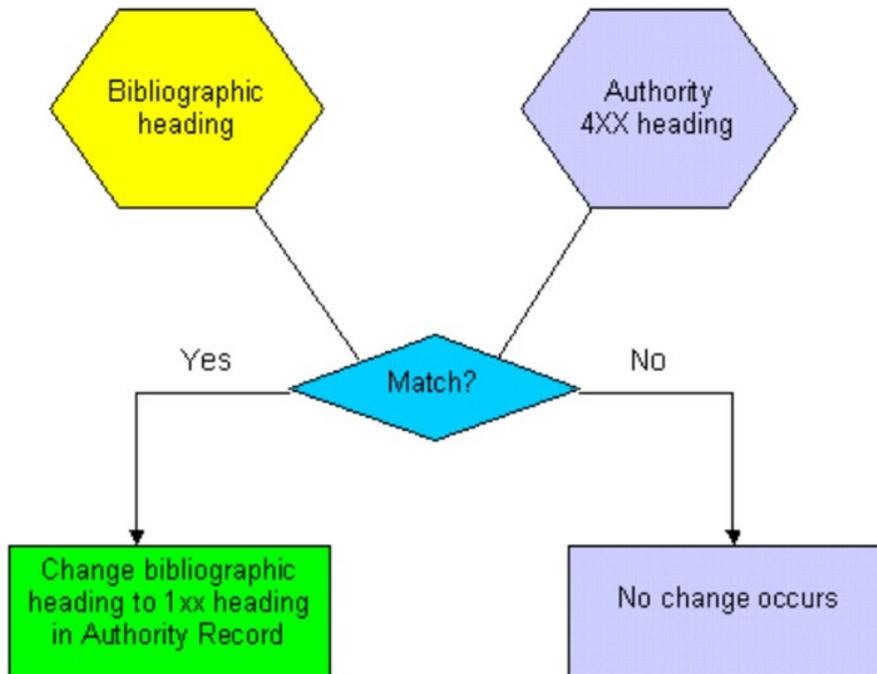
When Sierra indexes an Authority SEE FROM heading (MARC 4XX field), it searches in the index for a matching entry in a Bibliographic record. If such a matching entry is found, it writes the Authority record number to a system file.

The Automatic Authority Processing program (see description of this program below), which runs automatically every night, reads through the abovementioned file, and determines if the form of the Bibliographic field (as stored in the record) matches the form of the Authority SEE FROM heading. If the forms of the fields match, Automatic Authority Processing updates the Bibliographic field, based on the valid form of the index heading (MARC 1XX) from the Authority record. The process is described graphically in the following diagram. (See the description for Automatic Authority Processing below for details of the process).

Automatic Authority Processing Diagram

### Authority Control Processing

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The Headings Reports mode lists the updates made to Bibliographic records in the Bibliographic Updates report. This report lists all Bibliographic fields that were updated based on the valid form of a heading in Authority records. It lists all bibliographic fields that were changed automatically, including what the heading was before the change and what it is after the change. For example:

<b>Updated bibliographic headings</b>	<b>Field:</b> b700 1  aAtwood, Margaret Eleanor, d1939- <b>Indexed as AUTHOR:</b> <i>atwood margaret eleanor 1939</i> <b>Changed to:</b> b700 1  aAtwood, Margaret, d1939- <b>Bibliographic record number:</b> b10387948 <b>Authority record number:</b> a1026789x
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In addition to reporting Bibliographic heading changes, Automatic Authority Processing produces the following Headings Reports:

- NEAR matches -- Indicates a Bibliographic heading whose indexed form matched a SEE FROM heading in an Authority record, but was not updated because the raw forms of the Bibliographic field and 4XX field differed (i.e. the heading in the bibliographic record was nearly identical, but not exactly, as the 4xx field in the authority record). Examples of differences are capitalization, punctuation, spacing, and MARC subfield coding.
- BUSY matches -- Indicates a Bibliographic heading which matched a SEE FROM heading in an Authority record but could not be changed because the Bibliographic record was busied.

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- Non-Unique 4XXs -- Lists SEE FROM headings that appear in more than one Authority record (i.e. there are at least two authority records with identical 4xx fields)
- Cross-thesaurus matches -- Indicates a Bibliographic 650 field which matched a SEE FROM heading but was not updated because it did not specify a thesaurus (i.e. the 650 has a blank second indicator)

## Automatic authority processing overview

Using a specified list of authority records (upon indexing the authority record), this program searches the index for bibliographic records in the database that contain fields that match a corresponding 4XX field (SEE FROM heading) in the authority record. When a match is found, the program creates or updates the appropriate field in the bibliographic record.

The correspondences between bibliographic record fields and authority record fields are established with a USMARC AUTHTAGS table (shown at the end of this document), which is hardcoded into the program. For example, the authority record 400 tag (a Personal Name SEE FROM) corresponds to the Bibliographic record's 100 tag (Personal Name heading). An alternate AUTHTAGS file may be specified. Note that the program is designed to ONLY deal with MARC21 record formats.

As an example, suppose an authority record is indexed in the author index and contains the following 100 and 400 fields:

```
100 1 |aChavez, Cesar, |d1927-1993  
400 1 |aChavez, Cesar Estrada
```

and an existing bibliographic record contains the field:

```
100 1 |aChavez, Cesar Estrada
```

The Automatic Authority Processing program seeks out all existing bibliographic records containing 100 (or 700) fields whose normalized form (i.e., as indexed) matches the heading "Chavez, Cesar Estrada" (as in the example above). When such a bibliographic record is found, Automatic Authority Processing updates the bibliographic record's 100 (or 700) field using the heading from the authority record's 100 field (Authorize Access Point), and the heading in the bibliographic record will now be:

```
100 1 |aChavez, Cesar, |d1927-1993
```

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The bibliographic record changes are written to the transaction file, causing the record to be completely re-indexed. For a more detailed discussion of the process that Automatic Authority Processing uses to find and update bibliographic headings, see "How Automatic Authority Processing Works" below.

## HOW AUTOMATIC AUTHORITY PROCESSING WORKS

For each SEE FROM heading (MARC 4XX) in each Authority record in the transaction file, Automatic Authority Processing searches in the appropriate index for a matching index entry belonging to a Bibliographic record. If the 4XX is a 400 field, its author portion (usually subfields a, b, c, d, e, q) must match the complete author portion for the Bibliographic field. If the 4XX is NOT a 400 field (e.g. 430, 450, 451), its index entry can also match the beginning of an index entry for a Bibliographic field (see PARTIAL MATCHES).

If a matching index entry from a Bibliographic field is found for the 4XX field, and the MARC tag for the Bibliographic field corresponds to the 4XX field's MARC tag (see AUTHTAGS TABLE), Automatic Authority Processing compares the raw form of the Bibliographic field as stored in the Bibliographic record to the raw form of the 4XX field (see COMPARING THE BIBLIOGRAPHIC FIELD TO THE 4XX FIELD). For Bibliographic 650 fields, Automatic Authority Processing also verifies that the Bibliographic heading and the Authority record belong to the same thesaurus (see NOTE ON COMPARING THESAURI).

If the raw form of the Bibliographic field precisely matches the raw form of the 4XX field, Automatic Authority Processing replaces the matching portion of the Bibliographic field with the contents of the Authority record's 1XX field (Authorized Access Point), and changes the MARC tag and indicators for the updated Bibliographic field, if necessary (see UPDATING A MATCHING BIBLIOGRAPHIC FIELD).

### NOTE:

- All Bibliographic headings that match the 4XX field are updated.
- All Bibliographic records in the database are included in the potential update set, even if the database is scoped.
- If the Authority record's 1XX field is a subdivision (MARC 180, 181, 182, or 185), Automatic Authority Processing would have to search through the entire subject index for potential matches belonging to a Bibliographic record; thus, Automatic Authority Processing only processes an Authority record if its valid heading is a 100-151 field. (i.e. Authority records for subdivisions (180-185) are not included in Automatic Authority Processing at this time.)
- The program does not compare the Authority record 451 field (Geographic name) to any 'z' subfields in Bibliographic record 6XX fields and does not update any 6XX 'z' subfields.

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- If a matching index entry is found which corresponds to another 4XX field, Automatic Authority Processing will NOT update any matching Bibliographic field for the 4XX field; instead it writes the 4XX field to the Headings Reports in the Non-unique 4XXs report.

## COMPARING THE BIBLIOGRAPHIC FIELD TO THE 4XX FIELD

When comparing the raw form of the bibliographic field to the raw form of the 4xx field, automatic authority processing uses the contents of the 4xx field from the first occurrence of subfield 'a' to the end of the field, or to the first occurrence of a subfield 'i', 'u', 'w', or '0-9'. The matching algorithm is sensitive to case, subfield delimiters and punctuation (except ending punctuation in the bibliographic field).

Name matches

If the bibliographic field is a name entry (a non-6xx field which does not contain a subfield 't'), automatic authority processing compares the name portion of the bibliographic field to the name portion of the 4xx field. The name portion consists of the subfields that are indexed in the author index. For example:

- ENTRY: alawrence david herbert 1885 1930
- BIBLIOGRAPHIC NUM: b1079772
- NEW FORM: a100 1|aLawrence, D. H.|q(David Herbert),|d1885-1930,|eauthor
- OLD FORM: a100 1|aLawrence, David Herbert,|d1885-1930,|eauthor
- AUTH 4XX: b400 1|aLawrence, David HerberT,|d1885-1930
- AUTH NUM: a1003088

This display is broken down line-by-line below:

- Entry — the entry in the index which matched the 400 field in the authority record.
- Bibliographic num — the record number of the bibliographic record which will be updated.
- New form — the modified 100 field which automatic authority processing will write to the bibliographic record. This field is created by combining the "correct" subfields from the authority record's 100 field with the subfields that are unique to the specific bibliographic record. In this case, the authority record's 100 field is:
  - 1001 |alawrence, d. H.|q(david herbert),|d1885-1930
- Note that the new form includes the subfields 'a', 'q', and 'd' from the authority record and the 'e' subfield from the original bibliographic record.
- Old form — the original 100 field from the bibliographic record
- Auth 4xx — the 4xx field in the authority record which matched the bibliographic record's 100 field.

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- Auth num — the record number of the authority record.

Note that all the subfields for a name (or title) portion must be contiguous in the bibliographic field. For example, take the following bibliographic field, which is an example of an incorrectly cataloged field:

```
a1001 |aLawrencE, David HerberT,|eauthor,|d1885-1930
```

The indexed form of this field is "aLawrence David Herbert 1885 1930", which matches the indexed form of the 4xx in the example above. However, since the subfield 'd' in the bibliographic field is separated from the rest of the name portion by the subfield 'e', the bibliographic field fails to match the raw form of the 4xx field, and automatic authority processing will not update the bibliographic field.

## Name-title matches

If the bibliographic field is a name-title entry (a non-6xx which contains a subfield 't'), automatic authority processing compares the name portions of the bibliographic field and the 4xx, and also compares the title portions (the subfields which were indexed in the title index). In this type of match, the name portion, title portion, or both name and title portions, of the bibliographic field can be updated. The following is an example in which both the name and title portions of a bibliographic field are replaced:

- ENTRY: aLawrence David Herbert 1885 1930
- BIBLIOGRAPHIC NUM: b121364
- NEW FORM: a100 1|aLawrence, D. H. |q(David Herbert),|d1885-1930.|tCambridge edition of the letters and works of D.H. Lawrence |f1979
- OLD FORM: a100 1|alawrence, David Herbert,|d1885-1930.|tcambridge edition of the letters and works of D.H. Lawrence|f1979
- AUTH 4XX: b400 1|aLawrence, David Herbert,|d1885-1930
- AUTH NUM: a113987

If the bibliographic field is a name entry that matches the name portion of a name-title 4xx field, and a 240 field in the bibliographic record matches the title portion of the 4xx, automatic authority processing can replace the 240 field (see updating the 240 field in a 1xx-240 pair).

## Partial matches

If the 4xx field is a 410, 411, 430, 450 or 451 field, a partial match can occur if:

- The beginning of the indexed form of the bibliographic field matches the entire indexed form of the 4xx, and

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- The remainder of the bib's indexed form begins with a subfield delimiter
- For example, take the following 4xx and bibliographic entries in the subject index:
- AUTHORITY RECORD: A113988 "Tire tubes"
- BIBLIOGRAPHIC RECORD: B121364 "Tire tubes river rafting"

Assume the authority 4xx entry above is from a 450 field, and the bibliographic entry is from the following field:

```
D650 0|aTire tubes,|xRiver rafting
```

Since the beginning of the index entry for the bibliographic field matches the entire index entry for the 4xx field ("tire tubes"), and the remainder of the bib's index entry ("river rafting") is from another subfield, automatic authority processing considers the bibliographic field a potential match for the 4xx field.

In a partial match, automatic authority processing only replaces the matching portion of the bibliographic field. The example bibliographic 650 field above would be updated as follows:

**NOTE:** In the example above, the 008/11 value of the authority record is 'a', which matches the second indicator of the 650 field; see note on comparing thesauri.

If the 4xx is a 400 field, automatic authority processing does not check for partial matches.

## Near matches

If the raw forms of the Bibliographic field and the 4XX field do not match because of one of the following reasons:

- case
- punctuation
- subfield delimiters
- diacritics
- presence of non-filing indicators in Authority record tags 130, 440, 630, 730, or 830 and the fields would match if the non-filing characters were removed

then Automatic Authority Processing does not update the Bibliographic field; instead it writes the Bibliographic field and the 4XX field to the Near matches report.

The following are examples of near matches:

Case differs:

- ENTRY: alillo don de

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- BIBLIOGRAPHIC NUM: b116235
- OLD FORM: a1001 |aLillo, Don de
- AUTH 4XX: b4001 |aLillo, Don De
- AUTH NUM: a113978

## Punctuation differs:

- ENTRY: dmongomery co md
- BIBLIOGRAPHIC NUM: b119512
- OLD FORM: b651 0|aMontgomery Co. (Md.)
- AUTH 4XX: b451 |aMontgomery Co., Md.
- AUTH NUM: a113794

## Subfield delimiters differ:

- ENTRY: aroosevelt theodore mrs
- BIBLIOGRAPHIC NUM: b120623
- OLD FORM: a1001 |aRoosevelt, Theodore,|bMrs.,|d1861-1948
- AUTH 4XX: b4001 |aRoosevelt, Theodore,|cMrs.,|d1861-1948
- AUTH NUM: a113979

## Diacritics in title portion of an Author/Title field:

- ENTRY: apettersson allan 1911 1980 doda pa torget
- BIBLIOGRAPHIC NUM: b2121907
- OLD FORM: a4001 |aPettersson, Allan,|d1911-1980.|tD{232}oda p{234}a torget
- AUTH 4XX: a4001 |aPettersson, Allan,|d1911-1980.|tDoda pa torget
- AUTH NUM: a1192156

## Non-filing indicators in selected Authority record fields:

- ENTRY: tjossey bass social and behavioral sciences series
- BIBLIOGRAPHIC NUM: b1164331
- OLD FORM: t440 4 The Jossey Bass social and behavioral sciences series
- AUTH 4XX: t430 0 Jossey-Bass social and behavioral sciences series
- AUTH NUM: a1192156

**NOTE:** In this example, the hyphen in "Jossey-Bass" in the Authority record is not considered a match for the space in "Jossey Bass" in the Bib.

## NOTE ON COMPARING THESAURI

If the Bibliographic field is a subject entry (MARC 650), Automatic Authority Processing verifies that the Bibliographic field and Authority record belong to the same subject headings system (i.e.,

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thesaurus). In a 650 field, the thesaurus is specified by the value of the second indicator; in an Authority record, the thesaurus is specified by byte 11 in the 008 field.

The correspondence between the 008/11 byte in the 4XX's Authority record and the second indicator in the Bibliographic 650 field is as follows:

**Correspondence between 008/11 byte and 650 second indicator**

<b>SUBJECT HEADING SYSTEM /THESAURUS</b>	<b>AUTHORITY 008/11 BYTE</b>	<b>BIBLIOGRAPHIC 650 SECOND INDICATOR</b>
<i>Library of Congress Subject headings</i>	<i>a</i>	<i>0</i>
<i>LC Subject Headings for Children's Literature</i>	<i>b</i>	<i>1</i>
<i>Medical Subject Headings</i>	<i>c</i>	<i>2</i>
<i>National Agricultural Library Subject Authority File</i>	<i>d</i>	<i>3</i>
<i>Canadian Subject Headings</i>	<i>k</i>	<i>5</i>
<i>Repertoire des vedettes-matiere</i>	<i>v</i>	<i>6</i>
<i>Local authority records*</i>	<i>n</i>	<i>4</i>

\*(Local Authority record comparing can be turned on with Release 2005 or later. Enable this matching in Database Maintenance Options #34 Automatic Authority Control for local subject headings)

## UPDATING A MATCHING BIBLIOGRAPHIC FIELD

If a Bibliographic field matches the 4XX field in one of the ways described above, Automatic Authority Processing replaces the matching portion with the contents of the Authority record's 1XX field (Authorized Access Point).

**NOTE:** If a Bibliographic field matches the 4XX field but cannot be updated because the Bibliographic record is busy, Automatic Authority Processing writes the Bibliographic field and Authority record number to the headings report file for inclusion in the Busy matches report.

### Marc Tags

When updating a Bibliographic field, Automatic Authority Processing changes the MARC tag of the Bibliographic field, if necessary. For example, if a Bibliographic 100 field matches an Authority 400

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field, and the valid form is a 130 field, Automatic Authority Processing converts the MARC tag for the Bibliographic field to a 130 MARC tag.

Also, Bibliographic 4xx fields are converted to 8XX fields. If the library answers YES to the following question posed before the implementation of this product:

When the system converts a Bibliographic 440 field to an 830 field, the library has the option to add a MARC 4901^ field to the Bibliographic record (the ^ denotes a blank indicator). Does the library want to add a 490^1 field?

Automatic Authority Processing will then convert a 440 field to an 8XX field and insert a '4901' field into the Bibliographic record, with the field group tag specified by the library (usually "s") (see INSERTING A '4901' FIELD INTO A BIBLIOGRAPHIC RECORD).

## INDICATORS

Automatic Authority Processing updates the indicators for the new Bibliographic field, based on the value of the third element of the AUTHTAGS line which corresponds to the original MARC tag for the Bibliographic field (see AUTHTAGS TABLE).

Also, if the new Bibliographic tag is an X30, the non-filing indicator is set to blank, and the first indicator (non-filing characters) is copied from the second indicator in the Authority 130 field.

If the original Bibliographic field was a 440 field, and the Bibliographic field was changed to an 800, 810, or 811 field, the first indicator is copied from the first indicator in the Authority 1XX field, and the second indicator is set to blank.

## ENDING PUNCTUATION

Automatic Authority Processing updates the ending punctuation in the replaced portion of the Bibliographic field as follows:

### BIBLIOGRAPHIC 100, 110, 111, 700, 710, 711 FIELDS

The ending punctuation from the Bibliographic record field is retained if the whole Bibliographic field is replaced:

- ENTRY: amilstead glenn 1945 1988
- BIBLIOGRAPHIC NUM: b121364
- NEW FORM: b700 0 |ADIVINE, |D1945-1988.
- OLD FORM: b700 1 |AMILSTEAD, GLENN, |D1945-1988.
- AUTH 4XX: b400 1 |AMILSTEAD, GLENN, |D1945-1988
- AUTH NUM: a113986

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The ending punctuation from the Bibliographic record field is retained if the next subfield is in the set "e,u-z,0-9":

- ENTRY: amilstead glenn 1945 1988
- BIBLIOGRAPHIC NUM: b121364
- NEW FORM: b700 0 |ADIVINE,|D1945-1988 ,|eactor
- OLD FORM: b700 1 |AMILSTEAD, GLENN,|D1945-1988 ,|eactor
- AUTH 4XX: b400 1 |AMILSTEAD, GLENN,|D1945-1988
- AUTH NUM: a113986

A period is added to the end of a Bibliographic record subfield which occurs before a '4' subfield if the subfield in question does not end with the characters ')' or '?':

- ENTRY: afestspiele bayreuth germany
- BIBLIOGRAPHIC NUM: b2102486
- NEW FORM: b711 2 |aBayreuther Festspiele. |4prf
- OLD FORM: b711 2 |aFestspiele (Bayreuth, Germany) |4prf
- AUTH 4XX: b411 20|aFestspiele (Bayreuth, Germany)
- AUTH NUM: a1167524

If the name portion of a name-title Bibliographic field is changed and the original name portion in the Bibliographic record field did not end with a period or a dash ('-'), an ending period is added:

- ENTRY: alawrence david herbert 1885 1930
- BIBLIOGRAPHIC NUM: b121364
- NEW FORM: a100 1 |aLawrence, D. H. |q(David Herbert),|d1885-1930.  
|tEssays. |kSelections
- OLD FORM: a100 1 |aDavison, Lawrence H. |q(Lawrence Herbert),|d1885-1930, tEssays. |kSelections
- AUTH 4XX: a100 1 |aLawrence, D. H. |q(David Herbert),|d1885-1930
- AUTH NUM: a113987

## Bibliographic 6XX Fields

When replacing a portion of a Bibliographic 6XX field that is followed by a subfield "v-z", Automatic Authority Processing uses the ending punctuation from the Authority's 1XX field:

- ENTRY: aamsterdam ethnic relations
- BIBLIOGRAPHIC NUM: b116851
- NEW FORM: d651 0 |aAmsterdam (Netherlands) |xEthnic relations.
- OLD FORM: d651 0 |aAmsterdam. |xEthnic relations.

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- AUTH 4XX: a100 1 |aLawrence, D. H. |q(David Herbert), |d1885-1930
- AUTH NUM: a113986

In the example above, the Authority record has an 008/11 value of 'a', which corresponds to the '0' in the second indicator of the 651 field.

When replacing a portion of a Bibliographic 6XX field that is followed by a numeric subfield delimiter (e.g., '5'), the ending punctuation for the portion is retained from the Bibliographic field.

## Inserting a '4901 ' Field into a Bibliographic Record

If Automatic Authority Processing runs and a Bibliographic 440 field is updated, Automatic Authority Processing also inserts a '4901 ' (blank second indicator) field in the Bibliographic record. Any subfield delimiters "|n" and "|p" from the 440 field are replaced with spaces.

In following example, in the original bibliographic record, the series statement was tagged 440. If the "authorized" form of the series statement changes from what is in the 440 field, the new authorized form will be in an 830, and the 440 will be changed to a 490 as shown below:

- ENTRY: tjournal of polymer science polymer symposium
- BIBLIOGRAPHIC NUM: b117997
- NEW FORM: s830 0 |aJournal of polymer science. |pPolymer symposia
- NEW 490: s490 1 |aJournal of polymer science. Polymer symposium
- OLD FORM: s440 0 |aJournal of polymer science. |pPolymer symposium
- AUTH 4XX: u430 0 |aJournal of polymer science. |pPolymer symposium
- AUTH NUM: a113986

## AUTHTAGS Table

This table lists the Authority 4XX fields that are processed by Automatic Authority Processing, and the corresponding Bibliographic MARC fields to be considered as matches for each 4XX field. If an Authority 4XX tag does not appear in this table, Automatic Authority Processing will not process the heading.

The format of a line in the AUTHTAGS table is:

||||

Individual elements are:

- MARC tag for a Bibliographic field to be replaced. Can include indicator values. A Bibliographic MARC tag should only appear once in this table.

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- 4XX tag in an Authority record which corresponds to the Bibliographic MARC tag. Must be between 400-451, inclusive. Can be empty if element equals 240.
- Index or indexes in which the Bibliographic field must appear. This element may be empty.
- Specifies how the indicator values from the Authority record's 1XX are mapped to an updated Bibliographic field. The possible mappings are:
  1. move 1XX indicator 1 to Bibliographic indicator 1
  2. move 1XX indicator 2 to Bibliographic indicator 2
  3. move 1XX indicator 2 to Bibliographic indicator 1
  4. move 1XX indicator 1 to Bibliographic indicator 2More than one action may appear in this field, e.g., 130|430||34|

The following is the default AUTHTAGS table used by Automatic Authority Processing. This default table is built into the Automatic Authority Processing program. Alternate tables are possible.

AUTHTAGS table used for Automatic Authority Control

```
100|400||1|
110|410||1|
111|411||1|
130|430||34|
240|||
400|400||
410|410||
411|411||
440|430||
600|400||1|
610|410||1|
611|411||1|
630|430||3|
650|450||
651|451||
655|455||
700|400||1|
710|410||1|
711|411||1|
730|430||3|
800|400||1|
810|410||1|
811|411||1|
830|430||2|
840|430||
```

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