

NOTES ON MANAGING CDS/ISIS

This section is designed to give you a few ideas, guidelines and experiences that may help in your management of a CDS/ISIS database. It certainly isn't exhaustive and every user will eventually have his/her own way of doing things. You don't need to follow any advice given here if it doesn't suit you, but it may give a few ideas on how some things can be done.

Setting it Up: Database Name

The maximum of 6 characters is allowable as the name of a database, but names of databases are best when they are only 3 or 4 characters long. As a database is generated the files created are given names based on the database names. Sometimes these files are given prefixes and if the database names is already 6 characters long then characters are removed from the end of the name to make room for the prefix.

Having a database 6 characters long in no way affects the operation of the database but it does create file names that are not readily recognizable as belonging to a particular database. In the management of the memory in your computer you may often be moving or copying files or whole databases from hard-disk to floppy or from one directory to another. Not recognizing which file belongs to a particular database could result in the copy not functioning properly and being booted out of CDS/ISIS.

When creating data entry worksheets this is especially important. CDS/ISIS creates a file for each page of the worksheet and prefixes the name with a letter.

For example: if your database is named CCF and your data worksheet is 3 pages long the each page will result in a file named respectively ACCF.FMT, BCCF.FMT, and CCCF.FMT.

If your database or worksheet name is already 6 characters long then the last letter of the name is removed to make room of the prefix letter.

For example: If your database or worksheet is named WHOBIS then the files created will be AWHOBI.FMT, BWHOBI.FMT, etc.

Setting it Up: Directories for Individual Databases

If you do not specify a directory for parameter 5 in the SYSPAR.PAR file, then all the files for every database will be created in the C:\ISIS directory. Even if you do specify a directory in the SYSPAR.PAR, for example: 5=C:\ISIS\DATA\, all the various database files will still end up in the same directory. This can make it extremely difficult to quickly find a particular file from a particular database. A file from one database may interfere with another database.

Therefore it is good policy to keep each database in its own directory. This is done by using a redirection parameter file. Like the SYSPAR.PAR, which tells CDS/ISIS where to look for certain system files, a redirection parameter file tells CDS/ISIS where to look for the files of a particular database. CDS/ISIS can be redirected to look for database files in a directory, floppy disk or even some files in one directory and some in another.

The redirection parameter file is created using a text editor just like the SYSPAR.PAR. Some popular text editors are Norton Editor, RPED, DOS Edit, PCTools, or the very unpopular EDLIN. The name of the redirection parameter file is the name of your database with the .PAR extension.

For example: if you database is named CCF then CCF.PAR is the name of the redirection parameter file. The redirection parameter file is located in the default directory as specified in the SYSPAR.PAR or in the C:\ISIS directory if no parameter is specified.

In this example the default database directory is C:\ISIS\DATA. From within that directory a subdirectory should be made using the DOS command MD CCF. Still from within the C:\ISIS\DATA directory use your text editor to create the following lines:

```
1=c:\isis\data\ccf\  
2=c:\isis\data\ccf\  
3=c:\isis\data\ccf\  
4=c:\isis\data\ccf\  
5=c:\isis\data\ccf\  
6=c:\isis\data\ccf\  
7=c:\isis\data\ccf\  
8=c:\isis\data\ccf\  
9=c:\isis\data\ccf\  
10=c:\isis\data\ccf\  

```

If you already have created a database called CCF move (copy then delete) all the files for that database from the C:\ISIS\DATA directory to the C:\ISIS\DATA\CCF directory. If you haven't yet created a database called CCF then as you do the appropriate files will be placed in the C:\ISIS\DATA\CCF directory as the database is generated.

If you do this for every database then all the files of a particular database will be in one directory only. It becomes much easier to find or copy files belonging to one database.

Setting it Up: Editing

One extremely useful parameter in the SYSPAR.PAR is Parameter 10: Initial Edit Mode. The default mode of the field editor in CDS/ISIS is replace/typeover.

When editing complex display formats it is easy to typeover a character without knowing it or even if you know it you might not remember what the original character was underneath. Using insert mode alleviates this problem as it will not destroy a character but push it over, and push over all the characters past it as well so it becomes very obvious when a key is pressed. You can press the INS key on the keyboard to engage insert mode but every time you move to another field or view a format then return for more editing the mode reverses to replace. To have insert mode as the default, and save yourself some grief, add the following line to the SYSPAR.PAR:

```
10=i
```

Setting it Up: Importing

When importing records from another database you use the Data Interchange Services - Import Parameters worksheet from the Master File Services program.

One of the Input Option parameters is: Load/Merge/Update (L/M/U). If you choose the Load option all the records in your database will be replaced by the new imported records. You will be requested for confirmation by the prompt: *Master files exists and will be cleared, ok (Y/N)?* However, someone not well versed in CDS/ISIS may not have the impression of impending doom that answering Y to this prompt will cause and he could proceed to destroy your database. It seems very unwise to have the Load option as the default for this parameter, but there it is.

We strongly suggest modifying the worksheet to make M (for Merge) the default value. Better to delete unwanted records accidentally imported than lose your whole database.

To modify the default value in the import parameters worksheet, select the Create/Edit System Worksheets option (N) from the System Utility Services program (U from the main menu). From the System Worksheets Editing Options menu choose E - Edit Worksheet. You will then be prompted for the worksheet name. The name of the import worksheet (English version) is: AEYISO.FMT

You can modify the import worksheet just like you do a data entry worksheet. Move down to the Load/Merge/Update option, press M to modify and [return] until you get to default value. Delete the L and type M. Exit and save worksheet.

Creating a Copy of a Database (under a new name)

There may be several reasons why you would want an exact copy of a database with a new name. Some of these reasons may include the following:

1. If you import records from someone else's database you can edit the records and delete duplicate entries before putting them in your main database. You import into the duplicate, edit, re-export and then import into the main database.
2. You can test reformatting FSTs or sorting formats for exported records by importing a sample into the duplicate database and seeing what happens. If corrections need to be made the duplicate database can be re-initialized again and again as needed. This protects your main database during the experimentation process.
3. You may have one large database from which printed or electronic format updates are issued. If these subsets from the main database are to be sorted and indexed with reference to the MFN then the MFN should be in order otherwise the record could be hard to find. Exporting the subset in sorted order to an empty duplicate database will give new MFNs to the record in the sorted order. When the duplicate database is inverted these records are indexed with references to the new MFN.
4. You may use the duplicate database to test new worksheets, display and print formats or modifications to the database without adversely affecting your main database.
5. Any other reason!

There are several ways you can create a duplicate of a database. The most direct is using the Database Definition Services and defining a new database. This, of course, has to have a new name. (Remember to first make a new subdirectory for the database and a redirection parameter file.) Then you proceed to make a new FDT, new PFT, new FST, and new data entry worksheets that are exactly the same as your original. This can be time consuming.

Unfortunately you just can't copy all the original files to the new directory and give them a new name. Because each database contains a record of all the files defined for it within the FDT, just renaming all the files will not work. However, renaming all the files and manually editing the FDT using a text editor or selectively renaming certain files and then manually copying and deleting others using the Database Definition Services will work.

The simplest way to make an exact copy of one database to another with a different name is to copy all the files to the new directory, rename the files to the new database name, and then edit the FDT. The associated files (worksheets, print and display formats, and FSTs) defined for the database are found on the first three lines of the Field Definition Table. Renaming the database does not alter the contents of the FDT so it has to be done manually. Here are the steps involved in copying a database named CCF to a new one called CCF2:

```
From the DOS Prompt:  
Type: CD\ISIS\DATA  ¿  
Type: MD CCF2  ¿  
Type: CD CCF  ¿  
Type: COPY *.* C:\ISIS\DATA\CCF2  ¿  
Type: CD..  ¿  
Type: CD\CCF2  ¿  
Type: REN CCF.* CCF2.*  ¿
```

Type: **REN ?CCF.* ?CCF2.* ;**

Now you must call up your favorite text editor (Norton Editor, PCTools, DOS Editor, or the one which comes on the AIM distribution disk: RPED.)

When you open the file CCF2.FDT the first three lines will read:

```
W : CCF
F : CCF
S : CCF
```

You must change them to the new database name and save the file:

```
W : CCF2
F : CCF2
S : CCF2
```

Remember, before you start CDS/ISIS and select the new database, you must have created a redirection parameter file (CCF2.PAR) to tell CDS/ISIS where to look for the database files if you keep your databases in separate directories. You can follow the steps outlined previously or simply copy the original redirection parameter to the new one and edit it: in this example COPY CCF.PAR CCF2.PAR ↵, then edit the CCF2.PAR file and change all the CCFs to CCF2s.

The one thing you have to be very careful about is if you have more than one named set of worksheet files, or multiple FSTs or display formats. It is important that if a file name is less than 6 characters (the maximum allowable by CDS/ISIS) then there should be a corresponding number of blank spaces before the next to make it 6. In other words, the second FMT, PFT or FST must start exactly seven spaces after the colon, the third name starting on the 13th space after the colon, etc. If not, then when the database is started, CDS/ISIS will not be able to find the files.

If going into an FDT is not something you want to do, in case you are afraid of messing it up, then there is a second method which is longer and slightly more complicated but perhaps less likely to cause problems in the long run.

We will use the same example to copy a database called CCF to a new one called CCF2. It helps enormously if you have a DOS shell of some sort (such as PCTools, XTree, QDos, or DOSShell). A DOS shell allows you to select one or more files from a directory and copy, move, or rename them to another directory or drive.

It also helps to have an empty directory on the hard-disk for the transfer or manipulation of files before sending them to the destination directory. Our temporary directory (as with many other people's) is called C:\TEMP and if you installed CDS/ISIS by setting it up into separate directories you may have a C:\ISIS\TEMP directory on your hard-disk. (The purpose of the TEMP directory is to place files you don't want to keep permanently. Sometimes files are created by programs for internal processing only and can be deleted later. For example, CDS/ISIS creates sort and link files used in generating an Inverted File. Once the Inverted File is created the sort and link files are no longer of any use.)

After you have created a directory and redirection parameter file for your new database, change to the TEMP directory and erase all the files in it, or if you need to keep some, move them to another directory. Now copy all the files from the directory where the CCF files are to the TEMP directory.

```
From the DOS prompt:
Type: CD\ISIS\DATA\CCF ↵
Type: COPY *.* C:\TEMP ↵
Type: CD\TEMP ↵
```

Now we have to delete the default worksheet, display and print format, and FST from the temp directory. Make sure you are in the TEMP directory!

```
Type: DEL CCF.PFT ;  
Type: DEL CCF.FST ;  
Type: DEL ?CCF.FMT ;
```

Rename the files that are left to the new database name and move them to the directory for the new database.

```
Type: REN CCF.* CCF2.* ;  
Type: COPY *.* C:\ISIS\DATA\CCF2 ;  
Type: DEL *.* ;
```

We change to the directory of the new database and copy the remaining files from the directory of the old database.

```
Type: CD\ISIS\DATA\CCF2 ;  
Type: COPY C:\ISIS\DATA\CCF\*.PFT ;  
Type: COPY C:\ISIS\DATA\CCF\*.FST ;  
Type: COPY C:\ISIS\DATA\CCF\*.FMT ;
```

Hint: after performing the first copy command, press <F3> and the same command will reappear. Press <END> and backspace 3 times to erase the extension and type the new extension. This will save you all of 4 or 5 seconds.

Start up CDS/ISIS and change to the new database. A message will appear that the default format is missing. Pay no attention and press enter to continue. Go to the Data Base Definition Services (D on the main menu) and Modify Data Base Definition (U from the Data Base Definition Services menu) and the List Data Base Parameter Files (K from the menu).

An option screen will appear that looks like:

```
Files defined for Data Base: CCF2  
  
Worksheet Descriptions  
  1.CCF  
  
Display Formats  
  2.CCF  
  
Field Select Tables  
  3.CCF  
  
M/D/C + file number to Modify/Delete/Copy
```

Note: the files listed are from the original CCF database. There may be other files if more than one worksheet, display and print format or FST was defined for the database.

Now we create default parameter files for the new database by copying the old ones then deleting them.

```
Type: C1 ;  
At the Copy to? prompt:  
Type: CCF2 ;
```

The data entry worksheet will appear. Exit and Save the new worksheet. Then proceed to copy and save the CCF display format and CCF field select table to ones called CCF2. Then you can delete the files named CCF.

You have just made a copy of the CCF database called CCF2. If you have a complex database with several worksheets, display formats, and FSTs, and a long field definition table then this procedure may save you lots of time, then again it may not and provide you with lots of frustration as well.

Inverted File & FSTs

1. Though every field in a database can be indexed it may not always be appropriate to do so. With a very large database terms which are indexed and in the Inverted File can be searched with lightning speed. If you spend a lot of time performing searches this becomes one of the great advantages of CDS/ISIS and you may be tempted to think that the more fields indexed the better.

One of the drawbacks to this is that it takes time to create an Inverted File and to update records as they are modified. Databases are always in flux. New fields are added, subtracted or modified; modes of data entry change from coded to non-coded entries, AACR2 to Non-AACR2 entries, and vice versa. Needs change and the database changes with it, it must.

When enough records get modified it becomes faster to do a Full Inverted File Generation rather than updating the individual files. Even on a 386/SX it can take 7-10 seconds to update a record if the FST is complex enough. For 500 records to be updated that is just over an hour. A Full Inverted File Generation may take 35-40 minutes.

Reducing the size of the FST can significantly reduce the time it takes to generate an Inverted File or update records. Recently after deleting about 30% of the fields to be indexed, the time for a Full Inverted File Generation went from 35 minutes to 10 minutes (about 70% faster).

But you may well ask, What about the searching the fields not indexed anymore? As you know any field in CDS/ISIS can be searched using a free-text search method. Because the free-text search looks for a matching string of characters in a field instead of consulting an indexed list, it is much slower. The question is, how much slower. It is slow enough to be a bother or in the longer run faster to wait for an inversion.

In recent test we found that a string of text can be searched in any field at a rate of about 800 records in 30 seconds (on a 386/SX). This is pretty fast and found it well worth the effort to 'slim down' the FST as much as possible.

Also, keeping the Terms Dictionary down to the least number of relevant terms makes for easier selection when search and editing.

2. You may have noticed that an indexed misspelling will appear in the Terms Dictionary misspelled. That should come as no surprise. Mistakes also appear in the indexes of commercial databases such as MEDLINE and POPLINE. The surprise is when you edit the original record and correct the mistake. After updating the record you may have expected the misspelled entry to be replaced with the correct spelling. What you will find is both the correct and the incorrect entries, though if you try to search the incorrect one it will find no matching record.

Getting rid of the incorrect terms serves several purposes, not least of which is helping cover up your mistakes. In the supplement to the CDS/ISIS manual Susan Ornager says the only way to delete these terms from the dictionary list (once they have been corrected and the record updated) is to do a Full Inverted File Generation. This is not true. Or rather, this will work but it is not the only way, and it is certainly the longest way.

There is a two step method involved in correcting the Terms Dictionary. The first step is to backup the Inverted File; the second is to immediately reload the backup.

You backup the Inverted File by selecting **B** - Inverted File Backup from the Inverted File Services menu. As the file is being backed up it deletes terms which have no postings, i.e. modified terms that are no longer associated with a record. The terms which are deleted are displayed so you

can see exactly what's happening. The deletions, however, are only in the backup file and the Inverted File is not changed.

By selecting **C** - Load Inverted File immediately after the backup is produced, the corrected backup file will replace the incorrect Inverted File, thus producing a new Terms Dictionary that is error free (until new records and new mistakes are added).

3. Though only one FST is used to place index terms in the Inverted File, you can create other FSTs which may be used for sorting records while printing and exporting or for reformatting records either imported from or exported to other databases.

Reformatting means that the information from a field within a record from a database can be placed, when imported or exported, in a different field in the other database.

An example is exporting records from a CDS/ISIS database based on USMARC format to one which is CCF based. The Title Field in USMARC is Tag 245, in CCF it is Tag 200. A reformatting FST can take the title information from the USMARC database and give it the tag for the CCF database:

```
ID | IT | Data Extraction Format
=====
200  0  v245
```

This formula will extract the information from Tag 245 and place it in Tag 200 when it is being exported or imported.

However, it should be noted that when reformatting repeatable fields the percentage sign % which denotes the beginning of a repeatable field is not exported or imported and must be inserted with a repeatable literal in the data extraction format.

An example is the Author Field. In USMARC the field for ISBN is Tag 20, in CCF it is Tag 100. The field in both formats is repeatable so if there is more than one occurrence of the field a repeatable character % will need to be placed between them, as in the following example:

```
ID | IT | Data Extraction Format
=====
100  0  v20+|%|
```

You can also insert information into exported or imported records as defaults for fields that may not exist in one or the other databases. If your database has a mandatory field for Physical Medium (Tag 50 in CCF) and the database you are importing records from does not have such a field you can create a default value in the reformatting FST:

```
ID | IT | Data Extraction Format
=====
50  0  "010"n50
```

This will insert the CCF code 010 (for paper) as a null value when no other value for Tag 50 exists. It can save you lots of time by having this data automatically inserted into all the records as opposed to manually modifying each imported record by adding 010 in the field.

4. Computers sort numbers reading from left to right so in some cases (like with classification numbers) you may have to do a bit of manipulation to have the sort properly. The following numbers W 1, W 2, W 11, and W109 would normally sort as W 1, W 109, W 11, W 2.

By padding the digits with zeros, we can get the numbers to sort properly: W 001, W 002, W 011, W 109.

Editing & Data Entry

Control Characters: Be careful about using CDS/ISIS control characters in fields while entering data into worksheets. These characters include: ^ < > / % among others.

If one of these characters is in a field where Index Technique 0 or 1 is used the character becomes part of the search term. It will appear in the Terms Dictionary but when you select it and try to execute the search an error message will appear. If you want to bracket a word try and use square brackets [...], an example: if you want to index a name in its fuller form (name, initials and expansion of initials) or name and role as one term enter:

Wells, H.G. [Herbert George]
Manutius, Aldus [ed.]

When you use Index Technique 4, which indexes each word in a field individually punctuation, including the control characters, is ignored. The above example would produce the terms:

ALDUS
ED
H
HERBERT
G
GEORGE
MANUTIUS
WELLS

If you use Index Techniques 2 or 3 only the characters placed between the angle brackets <...> or the slash /.../ are entered in the terms dictionary so you only have to worry about what's in between the signs.

The percentage sign "%" can cause havoc with your display formats if it is used in a field where it does not denote repeatability. You may spend hours going over your display format looking for something wrong, but it is in your data entry. If records are imported from another database you may have to edit the records to make sure that the percentage sign "%" is changed to the word "per cent" or an abbreviation when it is not being used to separate occurrences of a repeatable field.

Editing Shortcuts: Remember that you can use the Cut (<F3> & <F4>), Paste (<F5>) and Delete to End of Field (<F6>) keys in places other than a data entry worksheet, such as working on display formats, FSTs and the FDT. It can even be used to cut and paste between more than database.

Multiple Occurrences of a Subfield: A subfield may be entered more than once within the same occurrence of a repeatable field, though it isn't really supposed to be done and there are some warnings. This is useful for entry of very complex entries, such as corporate bodies.

For example: in a CCF based database the field for Corporate Body is Tag 310; with subfield A for main body, and subfield B for sub-body; and the field is repeatable. If you follow the rules, your data entry would appear as:

Example 1: ^aMalawi^bMinistry of Agriculture, Liwonde Agricultural Development
Division, Primary Health Care Unit%^aUnited States^bAgency for
International Development, Health, Population and Nutrition Section

then using Technique 1 to extract whole subfields as searchable terms Example 1 would produce the following:

AGENCY FOR INTERNATIONAL DEVEL
MALAWI
MINISTRY OF AGRICULTURE, LIWON
UNITED STATES

Remember: terms are truncated at 30 characters

In the next example will break the rules slightly and place each of the sub bodies in their own subfield:

Example 2: ^aMalawi^bMinistry of Agriculture^bLiwonde Agricultural Development
 Division^bPrimary Health Care Unit%aUnited States^bAgency for
 International Development^bHealth, Population and Nutrition Section

The benefit of this over entering all the sub-bodies in a single subfield is that each of the individual sub-bodies can be indexed separately. Using the same technique but having each sub-body assigned to subfield B in the same occurrence of the field, Example 2 would produce the following terms:

AGENCY FOR INTERNATIONAL DEVEL
HEALTH, POPULATION AND NUTRITI
LIWONDE AGRICULTURAL DEVELOPME
MALAWI
MINISTRY OF AGRICULTURE
PRIMARY HEALTH CARE UNIT
UNITED STATES

This gives you more and better terms to select from. Of course, if you were using another index technique like, 4 (which would extract each word) or 2 and 3 (which index only character strings enclosed between brackets), then you may not want or need to use the multiple subfield.

One drawback is the display and print formats will not always recognize more than one of the same subfields within a field's occurrence. This happens when you try to do anything fancy with the format like putting special punctuation between the subfields. If you use the MHL mode and display the whole field all the subfields will appear separated by a comma. So you may have to choose between how you want your records to appear or how you want to be able to search them most efficiently. Searchability should be the most important consideration.

If we take the display format: mhl,(v310/#) both of our two examples would appear:

Malawi, Ministry of Agriculture, Liwonde Agricultural Development Division, Primary
Health Care Unit

United States, United States Agency for International Development, Health,
Population and Nutrition Section

However, if we wanted different punctuation between main body and sub-body we would have to use a different display format such as: mhl,(v310^a,|. |v310^b/) would produce the following for each example:

Example 1: Malawi. Ministry of Agriculture, Liwonde Agricultural Development Division,
 Primary Health Care Unit

United States. United States Agency for International Development, Health,
Population and Nutrition Section

Example 2: Malawi. Ministry of Agriculture

United States. United States Agency for International Development

Master File Backup

One thing about Master File Backup - it can never be done too often. Backup your master file at the end of every session. It only takes a minute or two. Even if it's only 5 or 10 records, it can represent a whole day's work and that is worth protecting.

Keep at least two copies of the backup - one on the hard-disk (in a separate directory from the database) and the other on a floppy. If your backup file is small enough to fit on one diskette it is faster to backup first to the hard-disk and then copy the backup file to the diskette than to backup directly to the diskette. However, if the backup file size is larger than the capacity of the diskette then you must backup directly to the diskette and have as many *formatted* diskettes as needed ready to insert when prompted.

Check to make sure there are no bad sectors on the diskette or have the bad sectors marked with a utility like Norton Disk Doctor. If you backup to a corrupted disk and try to restore the file it may ruin your whole database.

If you are extra careful you may want to keep a copy of not only the latest backup but the one previous to that, just in case. . . .

Printing

When CDS/ISIS downloads (prints to a file) it formats records in DOS Text. This means that tabs and indents become spaces and a hard return is placed at the end of every line. If you plan on importing downloaded text into a word-processor (such as WordPerfect, Word for Windows, Wordstar, MultiMate, etc.) for further editing or incorporation into another document, then it may be better to do as little formatting in CDS/ISIS as possible and let your word-processor do it.

We usually insert special character codes before fields that will be replaced by formatting commands using the search/replace command in the word-processor. An example:

```
****RECORD NO : 'MFN(4),mhl'****DATE : "v440.4,"****DATE : "V716.4,"****TITLE : "v
200^A,"****AUTHOR PER : "V300+| ; |,"****CORP AUTHOR : "V310+| ; |,"****MEETING : "
V320^a", "v320^b", ("d320,v320^j" : ",v320^i" : ",v320^g,")"d320,"****NOTES : "V5
00+| / |,"****IMPRINT : "V400^A," : "V400^B,"****COLLATION : "V460,"****DOCUMENT NO
. : "V120,"****SERIES : "V480^A,| No. |V480^C,| (|V480^b|)| if v60<>'120' then md
| ****IN : "d700,v710+| ; |,"****"v711+| ; |,v712," -- "V700," -- "V715^A" : ",V7
15^B," -- "v490^a,": "v490^b, else fi if v60:'120' then mhl"****IN : "v740,": ("v7
16.4")", "v490^a,": "v490^b else fi ****ABSTRACT : "V600 mhu ****DESCRIPTORS : "
V620+| / |,| / |V625, | / |V630,"****CLASSIFICATION : "V610^A," : "V610^B,mhl,"**
*SOURCE OF RECORD : "V20 mhl,"****LOCATION : "V998
```

Notice there is no space between one field and the next; they are separated only by the asterisks. After the records have been downloaded and imported into the word-processor, the hard returns are deleted making one large block of text. The **** is then replaced with 3 hard returns to separate the block into individual records. The *** is replaced with a single hard return to create paragraphs within the record. Once this is done then any other formatting, such as changing margins or page size is much easier. You can create other strings for special formatting commands like **j** for an indent or **t** for a tab, etc. As long as the string is pretty sure to be unique and not part of the field values of the records.

Notes on Publication of a Printed Bibliography

A prototype of the AIM database was created in Malawi and a printed bibliography was produced from the records of the Malawi Health Information [MHI] database. Reasons for wanting a printed version can be many. In the case of Malawi, many useful documents had not been included in the database because before the Ministry of Health Library & Documentation Centre existed the materials remained the private preserve of a select few or buried in file cabinets and offices. Extracting materials by asking individuals to give up their documents for the benefit of the other

information seekers is an exacting and never ending occupation. When health administrators and researchers see, through the dissemination of the database and the hard-copy publication, how their efforts are promoted and enhanced by the spread of knowledge they may be more willing to submit publications for inclusion. Since publication of the printed bibliography there has been a great response as evidenced by the increasing number of reports and papers submitted voluntarily by health personnel because they want to see their name included in the next edition.

The processes involved in publishing the bibliography include:

- The compilation of all bibliographic information into the computerized database (CDS/ISIS). This database will be used in the future to contain additional records and revisions. Instead of producing future printed editions of this database, it is felt that once the public is made aware of it, selected records which meet user required needs could be downloaded onto diskette in ISO 2709 format for CDS/ISIS users or in ASCII text format for editing or printing by a word-processor.
- Records of Malawi health information from the years 1980-1991, with some earlier records included, were downloaded in ASCII text format for editing on WordPerfect 5.1 word processor.
- The records for this publication were sorted by subject (using the National Library of Medicine [NLM] Classification Scheme). For the purposes of sorting and indexing, abstracts from periodicals and monographs have also been classified, although the abstract can be physically found under the classification of the parent item (journal or monograph) which the record came.
- An index was created from terms and keywords from the entry, title, descriptor, and abstract fields only. On the computerized database many other fields are available for searching as well as free text searching in any field. The indexed numbers refer only to the records in this publication. The Identifier number refers to the Master File Number of the record in the main database. The descriptors used are controlled terms from the NLM Medical Subject Headings [MeSH] only and therefore use American spellings for indexed terms; where English spellings appear in title or abstract they are retained.
- The records and index were imported into desk-top publishing software (Aldus PageMaker 3.01) for enhancement and design to create the camera-ready copy (on a Panasonic KX-P4450i laser printer) used for commercial printing.

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