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User's Guide for the RPM Database System

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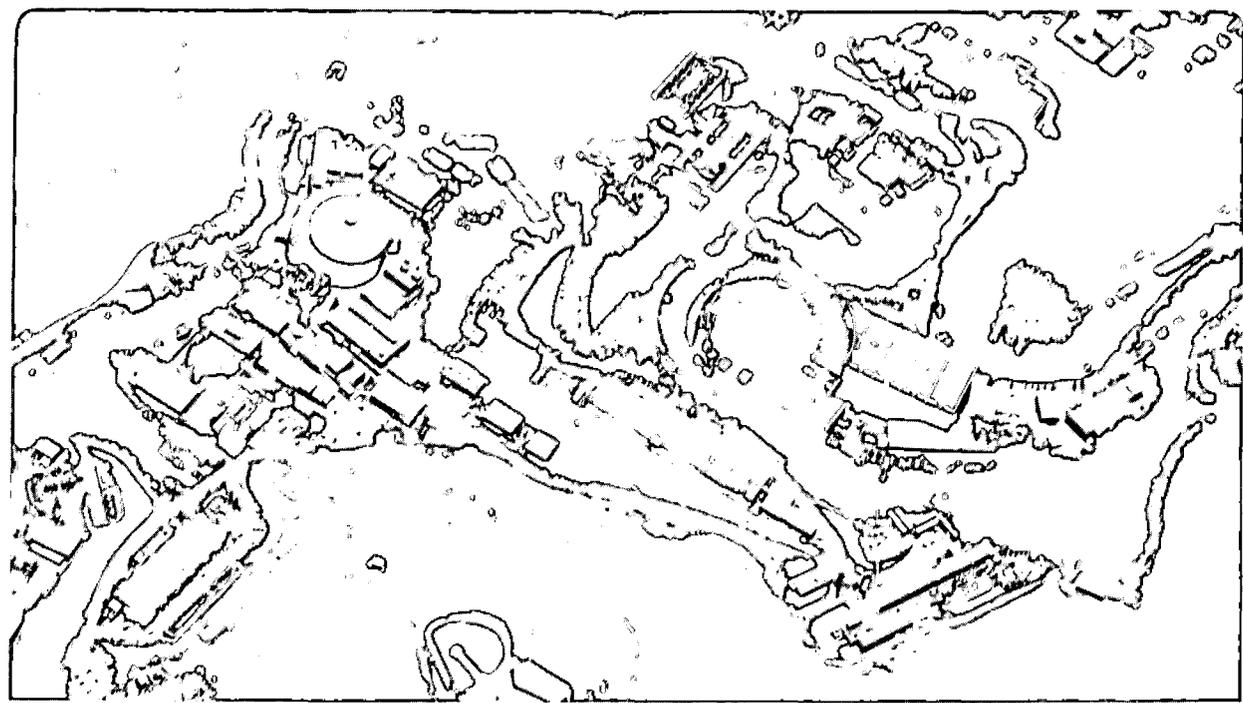
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User's Guide for the RPM Database System

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I. Introduction:

- .1 Purpose
- .2 CMS, SPIRES, the CMS/SPIRES interface
- .3 General information about SPIRES.

I.1 Purpose

The RPM database was implemented at the request of the Administration Division office to track who are assigned numbered copies of the LBL Regulations and Procedures Manuals. Additionally, it is linked to the LBLSTAFF database using the OCTOPUS and SERVICE subfiles so that Administration Division staff need maintain only the RPM manual ID number and the employee ID number, but not employee information such as mailstop, payroll account number, termination date etc. This relieves the staff of tracking mailstop changes and other personal information.

I.2 CMS, SPIRES, the CMS/SPIRES interface

The Stanford Public Information Retrieval System (SPIRES) is a product of Leland Stanford Junior University in Palo Alto, CA. The SPIRES database management system at LBL runs on the UC Berkeley Campus IBM 3090-200 under the VM/CMS operating system. VM SPIRES consists of three components:

- SPIRES itself (database management system)
- CMS (the operating system that manages the computer)
- SPIRES/CMS interface (maps SPIRES activity onto the CMS environment)

Figure 1 indicates how these components relate to one another. Normally, SPIRES users are not and need not be concerned with the subsystems between themselves and SPIRES. The diagram is provided only to demonstrate context.

Most of the icons are self-explanatory. The purpose of the SERIES/1 is to make the user's ASCII terminal appear as an IBM 3270 terminal to the IBM 3090, and to make the IBM 3090 appear to communicate in ASCII to the user.

Section II will describe the commands to move along the path from terminal through the gateways into SPIRES. This generally requires less than 10 seconds and becomes routine.

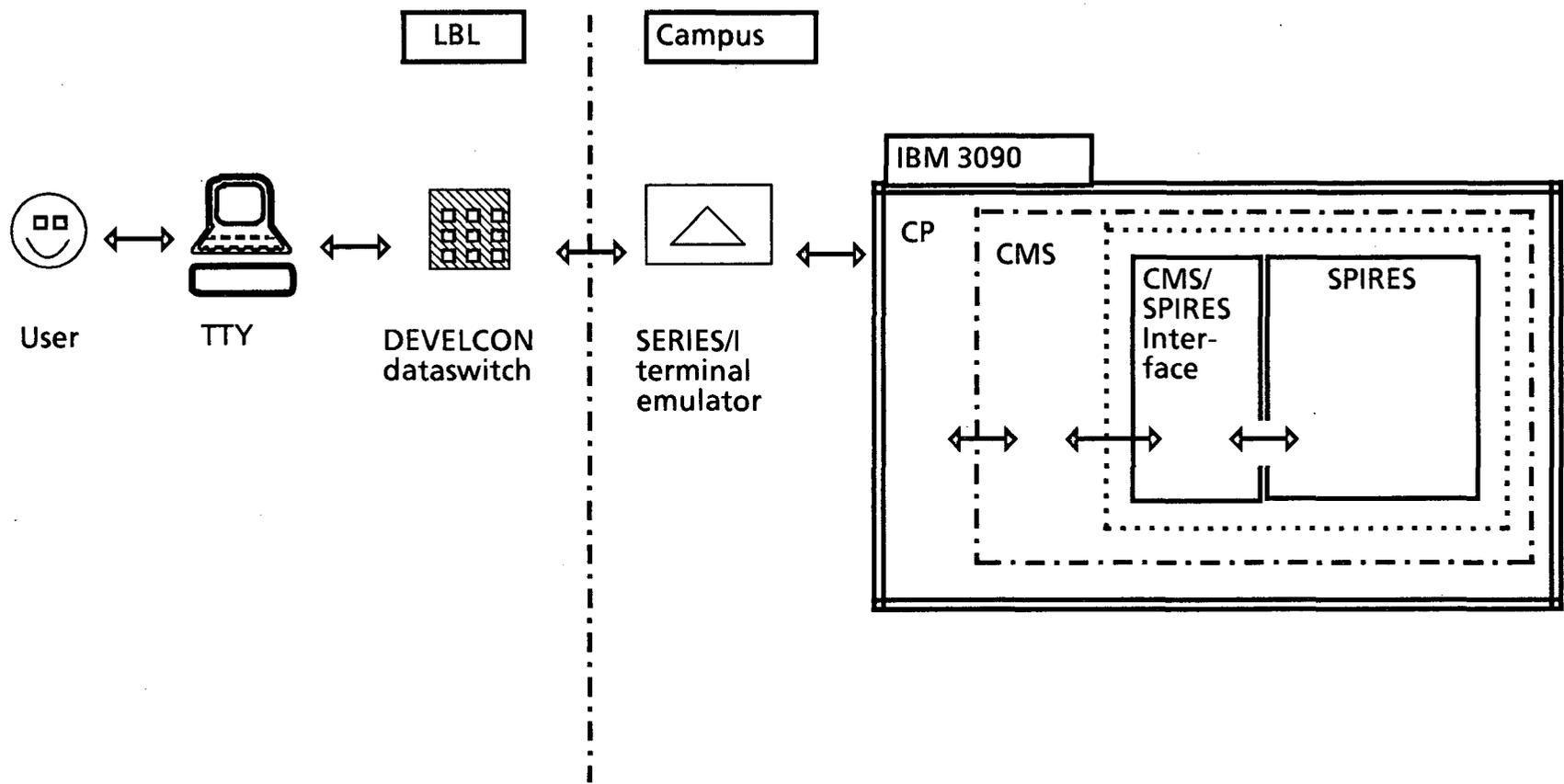


Figure 1. Pathway between user and SPIRES

I.3 General Information about SPIRES.

Information for each Regulations and Procedures Manual (RPM) is stored directly into a SPIRES *record*. A record represents a single numbered copy of the manual. Each record in a SPIRES database has a unique identifier often called *key*. In the RPM database, the key is called RPM-ID (ID). Further explanation of keys used in the RPM system is found in Section IV.1

For each record, a particular element may be required or optional, singly or multiply occurring, have controlled allowable values, be limited to a particular type of value, and be indexed for ease in searching, etc.

If you are not in SPIRES, the CMS prompt is: **R;**

If you have EXITed SPIRES and you wish to re-enter, enter the command:

SPIRES

The normal SPIRES prompts are as follows:

- ? for UPPER case only
- > for upper and lower case
- +? UPPER case in Global For
- +> upper and lower case in Global For

All the modifications made to the database during the day (adds, updates, and removes) take effect immediately and are reflected the very next time the record is displayed or searched in an index.

For most SPIRES commands, only the first three characters need be entered. For example, the FIND command requires only FIN <index> <value>. In this document, commands will be fully spelled out, with the first three letters capitalized; e.g., FIND, SHOW ACTIVE, indicating that only the capitalized characters need be entered.

The term *file* as used in "RPM file" or "LBLSTAFF file", is distinct from *physical* CMS files and refers to SPIRES files, which are "logical" files that are physically stored in CMS files. The "active file" is also a SPIRES concept, and usually refers to the CMS file ACTIVE FILE A, Any CMS filename can be used as the SPIRES active file and can be specified by the user with the

SET ACTIVE <filename> <filetype> <filemode>

command., e.g.,

SET ACTIVE ACTIVE FILE A

II. Getting Started.

- .1 Logging ON
- .2 Logging OFF

II.1 Logging ON.

See APPENDIX B or C for special instructions if using a PC with YTERM or KERMIT.

1. Turn terminal on and make sure the blue TSB box displays either a green or red light.
2. If red light is illuminated, press the blue button and wait for green light.
3. When green light is illuminated, enter carriage return [CR].

The following dialogue should occur. The system response is in **bold**. The user response is in modern font.

4. **Request:** ccdb [CR].
5. System will respond with a bell, and cursor will jump to next line. Enter carriage return [CR].
6. **YALE ASCII TERMINAL COMMUNICATIONS SYSTEM V2.1**
enter terminal type: adm3a [CR]. (or appropriate terminal type)
7. System will respond with a pseudo-three-dimensional display CFO over the letters VM. Enter another [CR].
8. The screen will clear. Enter:
L KOEHN [CR].
9. **ENTER PASSWORD:**
enter your password. It is not a good idea to write your password in this set of instructions. If you write it down, do so elsewhere.

Note: If your previous session ended "abnormally", e.g., by simply pushing the blue button on the TSB box to obtain a red light, you will have to enter, at this point in the logon procedure, the command: IPL CMS and then a [CR]. This should always be done when a paragraph beginning with the word "RECONNECTED..." appears.

10. Enter yet another [CR]. This causes your PROFILE EXEC to execute. The system will then perform the following tasks automatically:

```
call SPIRES
SELEct RPM
SET FORMAT RPM
SET LENGTH 80
SET UPLOW (for upper and lower case)
```

Note: Henceforth in this document, commands are assumed to be followed by a [CR], except for ESC-sequences and CNTL-sequences.

II.2 To LOGOFF

If you have one of the SPIRES prompts (-?, +?, ->, +>), enter: EXIT

The system will respond: **Leaving SPIRES.**

Enter: LOG

III. Organization of the database.

The RPM database system is comprised of two *files* as shown in Figure 2.

The first file is KOEHN:RPM, which consists of eleven record-types, of which the first, the goal record record-type is accessed as a subfile. The others serve only as indices. Note that the file name, KOEHN:RPM is similar to the subfile name, RPM. Except as noted in this document, RPM will always refer to the subfile.

The other file, TPHHH:LBLSTAFF contains all of the general employee information such as name, payroll account number, mailstop, building, room, extensions, and termination dates. This file serves as a centralized data source for several "satellite" applications similar to RPM. The SERVICE and OCTOPUS subfiles are part of the LBLSTAFF subfile owned by the TPHHH virtual machine. The LBLSTAFF file is maintained by the Telephone Services Department in the Administration Division. SERVICE and OCTOPUS are merely different subfile accesses to the same goal record record-type; SERVICE is configured to provide rapid name searching, OCTOPUS is configured to make data available to other subfiles in other files easily.

Each subfile is selectable as a database in its own right. The solid lines with two-way arrows in figure 2 indicate that data is shared between the two subfiles. The dotted line between RPM and SERVICES indicates that SERVICE is also used interactively for ID number verification. However, except for key elements, *data is never redundantly stored, but stored only in one database and then accessed by the others. This has the advantage that, when data is updated, it need only be updated in one place, yet this has the effect of updating all the user's data simultaneously.* Not only does this conserve staff effort, it assures consistency from database to database, from mailing list to mailing list.

It is not mandatory that an individual be represented in the LBLSTAFF database to be included in the RPM database. The RPM subfile provides for optional elements to store generalized information about off-site persons ("ALIENS") who may be responsible for RPM manuals.

Each record in each subfile is comprised of *elements*. The elements and their attributes will be described below. Each RPM may be affiliated with either zero or one owners ("HOLDER-ID").

Certain data validation is provided. For example, an error is reported if an attempt is made to add too many HOLDER-ID's to an RPM record. No error message will be provided if a HOLDER-ID does not match a key in the LBLSTAFF database. RPM records should always be displayed in full format (i.e., with personal information such as name and mailstop) after the HOLDER-ID is entered to verify that the HOLDER-ID is correct. Automatic validation of HOLDER-ID may be provided if requested.

The RPM database contains several virtual elements. These are indicated in the listings of elements for each subfile (Please see IV.1).

Virtual elements are elements which do not exist but appear to exist. That is, they are not stored and they cannot be edited. They *can* be displayed, records *can* be sequenced according to their values, and indexes *can* be built based on their values.

Generally, they are derived from elements in other subfiles or other databases, or system information.

By default, only the real elements are displayed in SPIRES. To be able to see the virtual elements, a SET ELEM command must be issued in SPIRES. When the RPM subfile is SElected, a message appears indicating that the command SETELEM (no blanks) will automatically force all the virtual elements to appear. This will override any format (e.g., formailing labels) that is SET however. To return to the output format, enter CLEAR ELEM [cr]. The command SHOW ELEM will indicate which virtual elements are to be displayed by notating "- SET" after the element name. If you clear away the virtual elements with CLR ELEM, you can reset them easily by the command SETELEM. Notice that SETELEM has no space between the words, but CLR ELEM does.

The RPM system provides a variety of indexes to pertinent information. Some of the indexes index and allow searching for data that does not exist in the RPM system, yet the appropriate RPM records are retrieved.. For example, employee payroll account numbers are not stored in RPM records, yet the command

FIND PAN = 9191

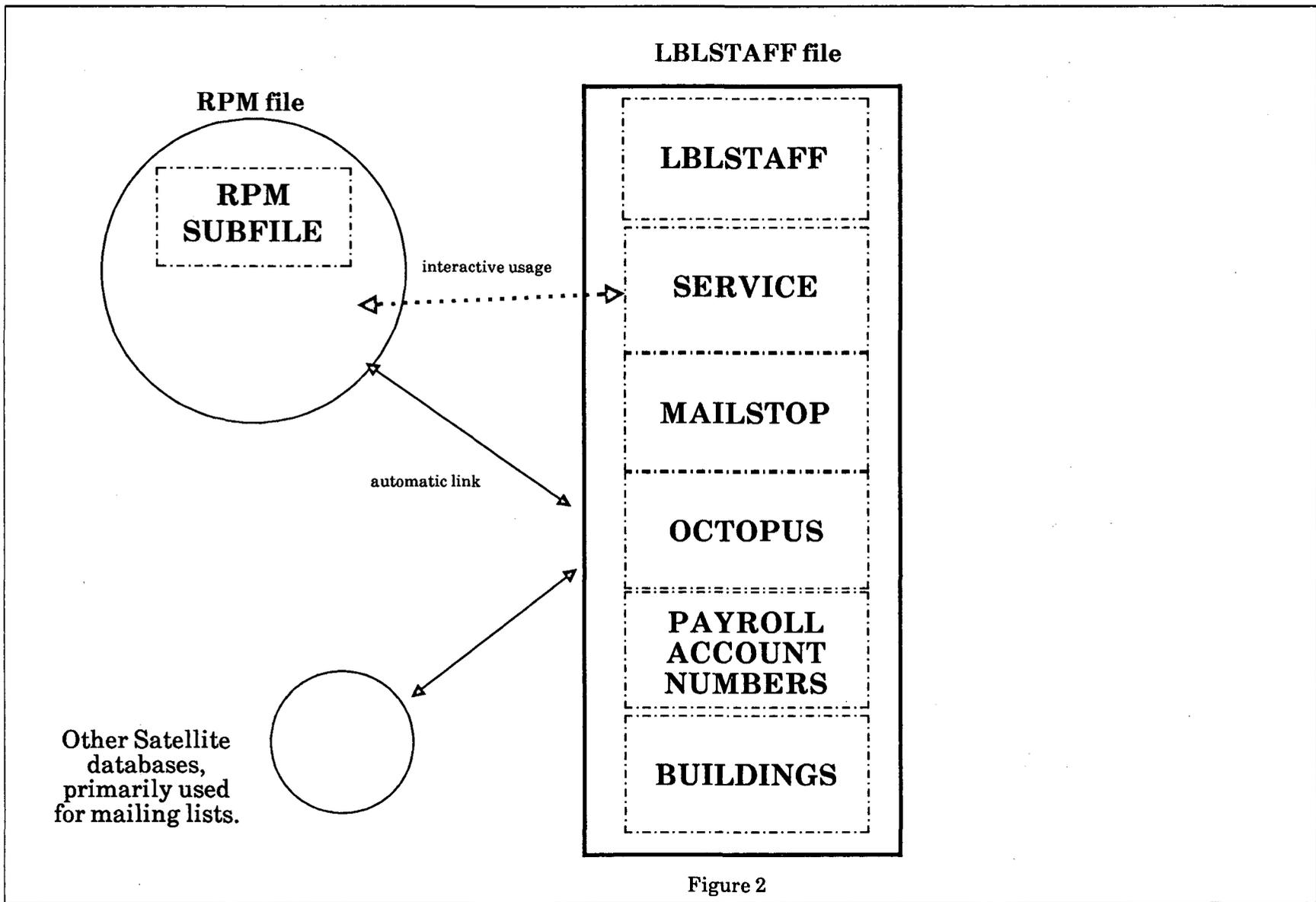
is legal and will return the appropriate result. This is accomplished by a technique called *indirect indexing* whereby the search value from the FIND command is performed on the appropriate index in the indirect subfile (in this case, the PAN index in LBLSTAFF). The result is not reported to the user, but instead is compared against the records in the direct subfile (i.e., RPM). Only those records in the indirect result that are also records in the direct subfile are returned as the search result. For example the search above might find 10 records in the LBLSTAFF database, but only two of those belong to employees whose employee ID's are also HOLDER-ID in the RPM subfile. Thus, the search result of "2 MANUALS" would be returned.

Occasionally you may wish to use some other format than the default SPIRES format. Customized formats have been provided, as described below. The command SHOW FORMats will list these and also indicate if either one is currently in effect by notating "- SET" after the format name.

Remember:

RULE: If any virtual element is SET, then the format will not take effect. That is, presence of a virtual element overrides a format. Thus, in order to use a format, you should enter the command CLR ELEM beforehand.

The same restriction applies to generating tables with the SET FORMAT \$REPORT formats. Virtual elements must be cleared by CLR ELEM before the table will take effect.



IV. Using the RPM Subfile

- 1 Description of elements in the RPM subfile
- 2 Displaying records
- 3 Searching in SPIRES; Searching the RPM subfile
- 4 Updating records
- 5 Adding new records
- 6 Removing records
- 7 Changing the key of a record

The purpose of the RPM subfile is to maintain current descriptive information about each RPM manual and to whom it is assigned.

Each RPM is represented in the database by a collection of elements as described below, e.g., RPM-ID, HOLDER-ID, etc. The only employee data required is the Holder-ID, unless the individual or organization is not affiliated with LBL, in which case their address information is stored in the RPM record.

Each record has a unique identifier often called *key*. In the RPM subfile, the key of the record is identical to the identification number of the manual, and is called RPM-ID. This code is assigned by by whoever enters the new RPM record into the database or whenever a new manual is issued.

For each record, a particular element may be required or optional, singly or multiply occurring, have controlled allowable values, be limited to a particular type of value, or be indexed for ease in searching, etc. The element listing below describes the characteristics of each element.

IV.1 Description of elements in the RPM subfile

<u>Element Name</u>	<u>Required/Opt</u>	<u>Length</u>	<u>Occurrences</u>	<u>Data Type</u>	<u>Indexed</u>
RPM-ID (ID) (key of the record)	Required	Max 3 right justified, front-filled with 0's	Single	Character	Immed.
HOLDER-ID (HOLDER) (HOLDERID, EMPID, LBLID)	Required	Max 7†	Single	Character	Indexed
Alien.Structure	Optional	Variable	Single	Structure	
ANAME	Optional	Variable	Single	Name	Immed.
JOB.TITLE (JT)	Optional	Variable	Single	String	
ORGANIZATION (ORG)	Optional	Variable	Single	String	Immed.
ADDRESS (ADD)	Optional	Variable	Multiple	String	
CITY	Optional	Variable	Single	String	Immed.
STATE	Optional	Variable	Single	String	Immed.
ZIP	Optional	Variable	Single	String	Immed.
NOTE.STR	Optional	Variable	Multiple	Structure	
NOTE	Optional	Variable	Single	Character	
NOTE-DATE	Automatic	Fixed	Single	Date	
NAME		0	1	Virtual	Indirect
OFFICE-NAME		0	1	Virtual	Indirect
PAN	0	1	Virtual	Indirect	
VPAN		0	1	Virtual	
TDATE		0	1	Virtual	
MAILSTOP, (MS)		0	1	Virtual	Indirect
BLDG	0	1	Virtual	Indirect	
ROOM		0	1	Virtual	Indirect
EXT		0	1	Virtual	Indirect

Elements which are indexed are searchable using the FINd command, described below

† If an LBL employee or guest, must match their LBL ID, prefixed with E for employees or GU for guests, for total of 7 characters. When an RPM is missing, enter OPEN as the HOLDER-ID value. When RPM book and number are available, enter IDLE as the HOLDER-ID value.

Graphically, the hierarchical nature of a typical RPM record appears:

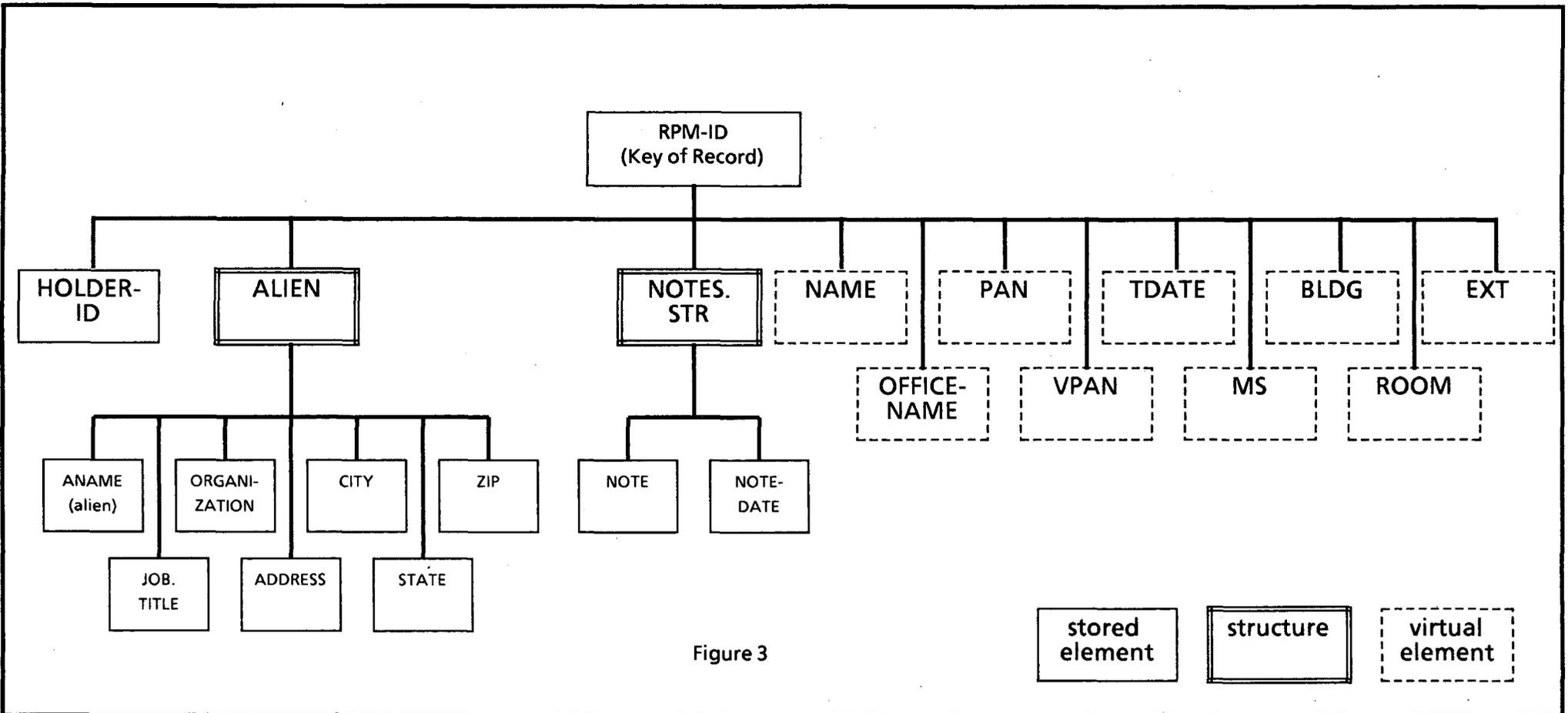


Figure 3

IV.2 Displaying Records.

A complete description of all the ways to display records in SPIRES is described in the document Searching and Updating listed in Appendix G.

To use the RPM subfile, you must SElect it with the command:

SElect RPM

This is done automatically when you logon. If you select some other subfile, then you must again SElect RPM to display RPM records.

If you know the RPM-ID for a record you wish to see, you may use the DISplay command to view it directly:

DISplay <RPM-ID>

or, by using the FINd command, and TYPE:

**FINd <RPM-ID>
TYPE**

If you do not know the RPM-ID for a record which you wish to see, then you must search for it based upon some criteria you do know. Use the SHOW INdExes and FINd commands to search for records in this way (Section IV.3) Then, to look at the records which are the result of a FINd command, enter the command TYPE. All of the records in the search result will then be displayed.

If you search on a non-indexed element (See Sect IV.3) i.e., using Global For, then use the DISplay <all/first/last/n/ext> command.

To put the results in your active file so that they may be printed or viewed, prefix the TYPE or DISplay commands with IN ACT CLR:

**IN ACT CLR DIS <RPM-ID>
IN ACT CLR TYPE**

Global for may be used to display groups of records. For example,

**SET FORMAT RPM
FOR ADDS or FOR UPDATES
DISplay ALL or IN ACT CLR DISplay ALL**

will display all the records added or updated that day.

IV.3 Searching in SPIRES; Searching the RPM Subfile

You may search for RPM records based on any element or combination of elements. However, some elements are used as the basis of searching much more often than others. Those elements are *indexed* in the same way as selected keywords are indexed in the back of a book. Rather than searching sequentially through a book to find a particular topic, you find the topic in the index. Associated with its entry is an *address*, usually a page number. SPIRES indexes work in much the same way. Indexed elements are listed along with their "addresses". However, you never have to worry about the addresses. You simply enter a **FINd** command, and SPIRES fetches the addresses and then allows you to display, re-sequence, or update the records as desired.

To see a list of the elements in the subfile, enter the command **SHoW ELEMEnts**.

To see a list of indexes, enter the command **SHoW INDExes**.

As indicated in the element list above, those elements which are indexed are: **MANUAL (RPM-ID), ANAME, HOLDERID, NAME, PAN, MS (mailstop), BLDG, ROOM, EXT, ORG, CITY, STATE, and ZIP.**

To search for RPM manuals based on any of these elements, use the **FINd** command, as follows:

FINd <index name> <relational operator> <value>

For example, to find all the manuals assigned to D. Shirley, enter:

FINd NAME = D SHIRLEY

Then use the **TYPe** command to see the result (Section IV.2).

If you do not include the relational operator in your search, SPIRES assumes an "equals" operator:

FINd NAME SHIRLEY

Indexes are now updated immediately when a record containing indexed elements is updated. It is not necessary to wait for overnight processing for the indexes to reflect record updates. The **FINd** command will find a record immediately after an **UPDate** command is issued.

A complete description of all the searching capabilities in SPIRES is described in the document Searching and Updating listed in Appendix G.

IV.4 Updating Records.

A complete description of updating records in SPIRES is described in the document Searching and Updating listed in Appendix G. This brief summary provides an overview. See Appendix E for \$PROMPT format subcommands.

To update an RPM record, enter the following commands:

1. Use the FINd and TYPE commands to determine the key of the record you wish to modify.
2. **SET FORMAT \$PROMPT -NORETURN** [cr]
3. **MERGE <RPM-ID>** You will be prompted for a new HOLDER-ID and ALIEN structure. If you wish not to change a value, simply enter a [cr]. Otherwise, the text that you enter will become the new value.
4. **DISplay <entry number>** to verify that the record is correct.

Finally, it is always a good idea to retain your source documents after you complete any updating. In seven years of running SPIRES at LBL, no data has ever been lost, but users have forgotten why they changed some records.

After the update is finished, the current version of the record will be displayed by SPIRES. Indexes are updated immediately.

If assignee is an LBL employee or guest, HOLDER-ID must match their LBL ID, prefixed with E for employees or GU for guests, for total of 7 characters. When an RPM is missing, enter OPEN as the HOLDER-ID value. When RPM book and number are available, enter IDLE as the HOLDER-ID value.

NOTE: The key of a record (RPM-ID) cannot be modified by editing its value. To change the key of a record, please see Section IV.7.

Here's a sample session showing how to add a record (system responses in **bold**):

```
sel rpm (not necessary if RPM is already SElected)
set format $prompt
-?
MERGE 522
:RPM-ID 522
:HOLDER-ID = E999999
:HOLDER-ID:
E888888 [CR]
  Struc: :ALIEN
:ANAME
:[CR]
  Struc: NOTE.STR(1)
: NOTE
 [CR]
: NOTE-DATE
[CR]
-?Set Format RPM
-?dis 522 (or: /dis $key)
```

```
RPM-ID = 522;
HOLDER-ID = E888888;
NAME = SMITH, SUE;
PAN = 9991
MAILSTOP = 50A-4444;
BLDG = 50A;
```

ROOM = 4230;
EXT = 5555;

IV.5 Adding a new record.

A complete description of adding records in SPIRES is described in the document Searching and Updating listed in Appendix G. Below, a very brief summary and sample session provides an adequate overview. See Appendix E for \$PROMPT format subcommands.

SET FORMAT \$PROMPT -NORETURN

ADD

You will be prompted for the value of each element. If an *optional* element should be left blank, enter a carriage return [CR]. Also note that you will be prompted twice for each multiply occurring element. Just enter a [CR] to proceed to the next element. Please see Appendix E for the subcommands used in the \$PROMPT format.

To add several records, simply reissue the ADD command after each previous record is ADDED and DISplayed.

After ADDing a new record, always DISplay <key> to examine it for correctness. If a record was entered with a HOLDER-ID that does not match an ID in the LBLSTAFF subfile, then no employee information will appear when the record is displayed. The SERVICE subfile of the LBLSTAFF file can be searched using the employee's name (current or former) to find their HOLDER-ID

If assignee is an LBL employee or guest, HOLDER-ID must match their LBL ID, prefixed with E for employees or GU for guests, for total of 7 characters. When an RPM is missing, enter OPEN as the HOLDER-ID value. When RPM book and number are available, enter IDLE as the HOLDER-ID value.

Here's a sample session showing how to add a record (system responses in bold):

```
sel rpm (not necessary if RPM is already SElected)
```

```
set format $prompt
```

```
-?
```

```
ADD
```

```
:RPM-ID
```

```
522 [CR]
```

```
:HOLDER-ID
```

```
E999999 [CR]
```

```
Struc: :ALIEN
```

```
:ANAME
```

```
:[CR]
```

```
Struc: NOTE.STR(1)
```

```
: NOTE
```

```
[CR]
```

```
: NOTE-DATE
```

```
[CR]
```

```
-?Set Format RPM
```

```
-?dis 522 (or: /dis $key)
```

```
RPM-ID = 522;
```

```
HOLDER-ID = E999999;
```

```
NAME = JONES, ROBERT;
```

```
PAN = 9999
```

```
MAILSTOP = 50A-4444;
```

```
BLDG = 50A;
```

ROOM = 4234;
EXT = 4444;
TERMINATION-DATE = JULY 12, 1986;

IV.6 Removing Records.

A complete description of REMoving records in SPIRES is described in the document Searching and Updating listed in Appendix G. Below, a very brief summary and sample session provides an overview.

To REMove a record from the RPM subfile, enter the command:

REM <RPM-ID>

For example, to REMove record 522, enter:

REM 522 [cr]

Note: If you wish to restore a record that was erroneously removed, please call for assistance.

IV.7 Changing the Key of a Record.

The key of a record (RPM) **cannot** be modified by editing its value and then issuing an UPDate command. To change the key of a record, enter the following commands:

1. **CLEAR FORMAT**
2. **TRAnswer <old RPM-ID> CLR**
3. **X ACTIVE FILE**
4. edit the RPM-ID and other elements as needed using the XEDIT editor. (APPENDIX I describes use of the editor).
5. **FILE** on the command line at the bottom of the screen.
6. **ADD**
7. **REMOve <key of the old RPM record>** (as described in Sect. IV.6 above)

Please ask for human help if you encounter any difficulties (Appendix H).

V. Using the SERVICE subfile

- .1 Description of elements in the SERVICE subfile
- .2 Searching in the SERVICE subfile
- .3 Updating, adding, deleting records

V.1 Description of elements in the SERVICE subfile.

The SERVICE subfile is a subset of the LBLSTAFF database. SERVICE is used primarily by the telephone operators and mailroom personnel for online realtime retrieval of employee telephone extensions and mailstops. The data is maintained by the Telephone Services Department. The SERVICE subfile default format appears:

EMPLOYEE-NAME	BUILDING	EXTENTIONS	DATE LAST CHANGED
MAILSTOP	PAYROLL ACCOUNT NUMBER		DIVISION

V.2 Searching in the SERVICE subfile

To use the SERVICE subfile, enter

SElect SERVICE

Normal SPIRES searching commands are unnecessary in the SERVICE subfile when searching for employee names. When the subfile is SElected, the system responds with the prompt:

ENTER SEARCH STRING:

Simply enter a surname alone, the first part of a surname, or all or part of the given name and all or part of a surname.

E.g., to find Ernest O. Lawrence, any of the following search strings are valid:

LAWRENCE	E LAW
LAWRE	E O LAWRENCE
LAW	E O LAW
E LAWRENCE	O LAWREN
E LAWREN	ERN O LAW
ERNEST O LAWRENCE	

To exit the prompting routing, enter an asterisk:

ENTER SEARCH STRING: *

When in the SERVICE subfile and exited from the automatic searching facility ("ENTER SEARCH STRING"), you may use normal SPIRES search commands such as SHOW ELEMENTS, SHOW INDEXES, FIND, TYPE, and DISPLAY.

To turn the automatic prompting back on for name searching, SElect SERVICE.

V.3. Updating, adding, deleting records.

Updating, adding and deleting records in the SERVICE subfile is prohibited.

VI. Generating Reports.

Occasionally you may wish to use some other format than the default SPIRES format. Customized formats have been provided, as described in section. The command **SHOW FORMats** will list these and also indicate if either one is currently in effect by notating " - SET" after the format name.

RULE: If any virtual element is **SET**, then the format will not take effect. That is, presence of a virtual element overrides a format. Thus, in order to use a format, you should enter the command **CLR ELEM** beforehand. The same restriction applies to generating tables with the **SET Format \$REPORT** formats. Virtual elements must be cleared by **CLR ELEM** before the report will take effect. The report-generating **EXECs** listed below perform this automatically.

To enable staff to produce these reports easily, a SPIRES protocol is provided to produce and print pre-defined reports.

Before generating labels, it may be useful to validate the data in the database by producing some of the reports below, such as **ALLLIST**, **DOIT** or **NAMELIST**.

This will print a copy of the report at the Central Computing Facility on the first floor of Bldg 50B.

To make a set of adhesive labels:

SEL RPM [cr] (if it is not already **SElected**)
MAKLABEL [cr] (note the spelling. this will make one set of labels)

Reports available:

<u>Command</u>	<u>Purpose</u>
ALLLIST	Makes a listing of all RPM's sequenced by RPM-ID.
DOIT	Makes a listing like ALLLIST but with different format.
ALIENLST	Makes a listing of RPM's assigned to non-LBL employees or guests.
NAMELIST	Makes a listing of all RPM's sequenced by name. (Includes only LBL employees and guests, no aliens, no departments, no IDLE or OPEN . This should be used to detect RPM records with bad employee or guest IDs. Such records will appear at the top of this list with no name.)
PANLIST	Makes a listing of all RPMs sequenced by PAN .
DOADDS	Makes a table of all the records added that day.
DOUPDS	Makes a table of all the records updated that day.
OPENIDLE	Makes a listing of those RPMs that are unassigned (OPEN or IDLE).
DOLABEL1	Makes adhesive mailing labels for all RPM holders sequenced by mailstop.
DOLABEL2	Makes adhesive mailing labels for RPM's assigned to aliens, sequenced by zip code.

Adhesive labels are printed at the computer center on the first floor of Bldg 50B.

Other specialized procedures may be customized as needed.

VII Printing; the LPR, LPRCC, and LABEL commands

As mentioned in Section II, nearly any CMS file that the user has created can be printed using the LPR and LPRCC commands.

Staff may occasionally wish to print files other than standard reports. These may include a file created using the Xedit editor, or created by SPIRES as the result of a FIND or DISPLAY command. (SPIRES usually places search result displays and other output in the CMS file named ACTIVE FILE A or on the CRT or both.) Therefore, it will often be useful to be able to print files directly. There are two EXECs that will send files to the TALERIS printers on the first floor of Bldg. 50B in the Central Computing Facility machine room area. These EXECs are:

LPR and LPRCC

The syntax of these commands is:

LPR <filename> <filetype> <filemode>

LPRCC <filename> <filetype> <filemode>

For example, to print the CMS file, ACTIVE FILE A, enter the command:

LPR ACTIVE FILE A

The distinction between the two is that LPRCC interprets any characters in the first column of the file (at the left margin) as carriage control (hence the CC; LPR is an acronym for line printer). Generally, users will not insert carriage control characters in a file, and so LPR is the appropriate command to use. However, the SPIRES facility FORMAT \$REPORT automatically reserve column 1 for carriage control characters, with data beginning in column 2. For files generated by these utilities, LPRCC should be used.

A file probably includes carriage control if most of the text begins in column two and column one contains characters such as: 1, 0, and +. For example, it may look something like:

```
1
MARY HAD A LITTLE LAMB
ITS FLEECE WAS WHITE AS SNOW
+
  WHITE AS SNOW
0
AND EVERY WHERE THAT MARY WENT
THE LAMB WAS SURE TO GO.
```

The LABEL command is used to print an existing file in label format. label format is:

Column one blank except for a "1" on the first line.
No more than 40 characters per line.
No more than eight lines per label.

It is advisable to check the label printer prior to sending a file to the label printer.
So send a file do:

LABEL filename filetype filemode

E.g.,

LABEL RPM LABELS A

assuming that the file RPM LABELS A contains your label output.

Both label and laser printers are on the first floor of 50B in the User Area.

APPENDIX A
DIP-SWITCH SETTINGS FOR ADM-3A TERMINALS
FOR USE ON SERIES/I 3270 EMULATOR

INTERNAL					
	ON	OFF		ON	OFF
none			7	X	
6	X		6		X
5		X	5	X	
4	X		4		X
3		X	3		X
2		X	2		X
1		X	1		X

EXTERNAL		
	ON	OFF
Bit 8-0	X	
Parity	X	
STOP	X	
Data 7	X	
Parity		X
LC	X	
Auto NL	X	
RS232	X	
HDX		X
All speeds but 9600		X
9600	X	

APPENDIX B

Logging ON using an IBM PC and YTERM.

1. Turn PC, disk drive, and printer on and wait for the PC to complete booting.
2. Enter the command: **CD \YTERM**

CONFIRM THAT YOU ARE USING THE CAMPUS VERSION OF YTERM AND NOT THE LBL ADMINISTRATION DIVISION VERSION.

3. Enter the command: **X 7**
4. Enter the command: **T 9600 K**
System responds: "PLEASE ENTER THE NAME OF THE KEYBOARD TABLE"
5. Enter: **UCBCAD**
System responds by clearing the screen and displaying DISCONN in the lower left corner
6. Make sure the blue TSB box displays either a green or red light.
7. If red light is illuminated, press the blue button and wait for green light.
8. When green light is illuminated, enter carriage return [CR].

The following dialogue should occur. The system response is in **bold**. The user response in modern font.

9. Request: **ccdb** [CR].
10. System will respond with a bell, and cursor and will jump to next line. Enter carriage return [CR].
11. **YALE ASCII TERMINAL COMMUNICATIONS SYSTEM V2.1**
enter terminal type: **YTERM** [CR].
12. System will respond with a pseudo-three-dimensional display CFO over the letters VM. Enter another [CR].
13. The screen will clear. Enter:
L [name of your virtual machine] [CR].
14. **ENTER PASSWORD:**
enter your password. It is not a good idea to write your password in this set of instructions. If you write it down, do so elsewhere.

Note: If your previous session ended "abnormally", e.g., by simply pushing the blue button on the TSB box to obtain a red light, you will have to enter, at this point in the logon procedure, the command: **IPL CMS** and then a [CR]. This should always be done when a paragraph beginning with the word "**RECONNECTED...**" appears.

15. Enter yet another [CR]. This causes your PROFILE EXEC to execute. The system will then perform the following tasks automatically. See Step 10 in Section II.1 of your Users Guide.

APPENDIX C

Using the UC 227.14 KERMIT with UCBCMSA

The UC 227.14 version of KERMIT can be used with IBM PC/XT's and must be used for IBM PC AT's that wish to do uploading and downloading of files. YTERM does not work with AT's.

To initiate a KERMIT session on the PC:

1. Change directory to this version of KERMIT. Distinguish it from other versions of KERMIT you might have on your PC. If it is in a directory called UCKERMIT, do: `cd \UCKERMIT [CR]`.
2. Enter: `MSKERMIT [CR]`.
3. Enter: `DO CMS [CR]`.
4. Enter: `STAT` and confirm that `PARITY` is set to `EVEN` and `BAUD RATE` is `9600`. If not, do: `SET PARITY EVEN` and/or `SET BAUD RATE 9600` as needed.
5. Enter: `C [CR]`.
6. Make sure the blue TSB box displays either a green or red light.
7. If red light is illuminated, press the blue button and wait for green light.
8. When green light is illuminated, enter carriage return [CR].
9. Request: `ccdb [CR]`.
10. System will respond with a bell, and cursor and will jump to next line. Enter carriage return [CR].
11. `YALE ASCII TERMINAL COMMUNICATIONS SYSTEM V2.1`
enter terminal type: `KERMIT [CR]`.
12. System will respond with a pseudo-three-dimensional display CFC over the letters VM. Enter another [CR].
13. The screen will clear. Enter:
`L [name of your virtual machine] [CR]`.
14. `ENTER PASSWORD:`
enter your password. It is not a good idea to write your password in this set of instructions. If you write it down, do so elsewhere.

Note: If your previous session ended "abnormally", e.g., by simply pushing the blue button on the TSB box to obtain a red light, you will have to enter, at this point in the logon procedure, the command: `IPL CMS` and then a [CR]. This should always be done when a paragraph beginning with the word "RECONNECTED..." appears.

15. Enter yet another [CR]. This causes your PROFILE EXEC to execute. The system will then automatically enter SPIRES.

See Step 10 of section II.1 of your User's Guide.

To terminate a KERMIT session on the PC:

1. If you have one of the SPIRES prompts (-?, +?, ->, +>), enter: EXIT
2. The system will respond: Leaving SPIRES.
3. Enter: **LOG** [CR]. The TSB light will change from green to red.
4. Enter: **<control> -]** (i.e., depress the CONTROL key, and while holding, depress the right-square bracket key).
5. Enter: **C**
6. Enter: **QUIT** [CR].

To download a file while logged on to UCBCMSA using KERMIT:

1. Enter: **KERMIT** [CR].
2. Enter: **SEND** fn ft fm [CR], e.g., SEND ACTIVE FILE A [CR].
3. Enter: **<control> -]** (i.e., depress the CONTROL key, and while holding, depress the right-square bracket key).
4. Enter: **C**
5. Enter: **RECEIVE** [CR]. The file will then be received at the PC. When it is finished,
6. Enter: **<control> -]** (i.e., depress the CONTROL key, and while holding, depress the right-square bracket key).
7. Enter: **CONNECT** [CR].
8. Enter: **<control> - G**
9. Enter: **QUIT** [CR]. You will now be in CMS/SPIRES with the normal prompt.

APPENDIX D

TERMINAL CONTROL

The SERIES/1 terminal controller commands are summarized in the document "Key Definitions for IBM 3277 Terminal Emulation", section, "ADM-3A Key Definitions for IBM 3277 Terminal Emulation" available from the Electronics Shop in 50B-2259 (see Allan Konrad). Other ASCII terminals such as the VT100 may be used as well. Each has its own key definitions which are summarized in the same document.

Occasionally, the system will not accept characters typed on the keyboard, but rather sound the "bell". To clear this keyboard lock, depress the CONTROL key and, while depressed, enter the letter sequence: RTXQV. This is notated

CNTL-RTXQV

When the system is displaying output on the CRT screen, it will stop after 22 or 23 lines, depending on the kind of terminal. The message **MORE** will be displayed at the lower right. At this point, one has four options:

1. Do nothing. After 50 seconds, the bell will sound. After an additional 10 seconds, the system will clear the screen and display the next page.
2. Enter **CNTL-Z**. This causes the next 23 lines to be displayed immediately.
3. Enter a [CR]. This causes the message in the lower right portion of the screen to change from **MORE** to **HOLDING**. The timer holds, and the screen will not change. Another [CR] causes the message in the lower right to return to **MORE** and the timer is reset.
4. Enter **HT** [CR], then **CNTL-Z**. The **HT** halts typing, preventing the rest of the lines from being displayed. The **CNTL-Z** then clears the screen.

Several helpful CMS terminal commands are available:

The pound sign (#) acts as a LINEND character (line end).

The double-quote (") acts as an ESCAPE character

The (@) acts as a CHARDEL (character delete) character.

The (ø) acts as a LINEDEL character (line delete)

The (#) and the (") have been disabled as CMS control characters since they conflict with often-used SPIRES characters.

Series/1 - ADM3A terminal control commands (The complete list can be found in "ADM-3A Key Definitions for IBM 3277 Terminal Emulation" available from the Computer Center Library.):

CNTL-N	go to next line
CNTL-H (or left-arrow key)	move cursor to the left
CNTL-L (or right-arrow key)	move cursor to the right
CNTL-K (or up-arrow key)	move cursor up
CNTL-J (or down-arrow key)	move cursor down
CNTL-D	deletes a character (On PCs, use Delete key)
CNTL-E	deletes to the end of a line
ESC-spacebar	enter or leave <i>character</i> insert mode (on PCs, use Insert key)

These sequences work in the editor as well as outside the editor.

Program Function (PF) keys

In some utilities, such as FLIST and Xedit, PF keys are assigned specific functions. When using an ADM-3A terminal, the PF keys are implemented as a sequence of two keys: the **ESC** key followed by some other key. For PF1 through PF9, use **ESC-1** through **ESC-9**. **ESC-:** (colon) is equivalent to **EXC-11**, and deletes to the end of line in the FLIST facility. **ESC-3** usually means "quit". **ESC-1** usually calls a CMS help screen. Often a menu of valid PF keys will be displayed in utilities where they are recognized.

APPENDIX E

SPIRES FORMAT \$PROMPT Subcommands

The following commands are recognized by SPIRES when adding new records (or modifying existing records) using SET FORMAT \$PROMPT (formerly SET INPUT FORMAT):

[CR] (carriage return)	Continue to next prompt
//	Puts in a null-length value if legal, otherwise you are reprompted for a legal value.
/N	Skip to the next element of the current structure for input.
/S	Skip to the next structure for input (first element of next structure).
/ <value>	Retains leading blanks (blanks in front of the value).
<value> //	Continue value on next line (for long values, e.g., paragraphs).
/E	End input for the current structure, and retain input thus far.
/X	Abort input, and do not retain any input.
/R	Removes an occurrence of an existing element value.
/X	Removes an occurrence of an existing structure.

Example of //: to enter a null value in a structure without exiting the structure, for example in the ALIEN structure:

```
STRUCTURE ALIEN
  ANAME: //
  JOB.TITLE president
  (other elements)
```

This prevents the other elements in the ALIEN structure from being skipped merely because there was no value entered for ANAME.

The full set of subcommands can be found in the SPIRES manual Searching and Updating.

APPENDIX F

Looking at your CMS files

The CMS FLIST facility provides a listing of your permanent files and several capabilities to browse, edit, copy, rename, and delete them. To use the FLIST facility, enter the command **FLIST** and your files will be displayed, with the cursor at the top of the list. You may move the cursor up and down to select any file. You may use the **ESC** commands on the menu at the bottom to perform various operations, e.g., **ESC-4** or an **X** will invoke the editor on the selected file, an **EXC-2** will allow you to browse the file, and **ESC-8** will allow you to see the next screenful of files on your list if you have more files than can be listed on one screen, and **ESC-3** will exit FLIST. All the terminal control keys work in FLIST.

There are other file listing facilities besides FLIST. FLIST currently provides the most functionality. For assistance with FLIST, please see Appendix H for human help.

APPENDIX G

Documentation

A complete set of SPIRES documentation is available by entering **PERFORM PUBLISH**. Those items most likely to be of interest are:

1. A Guide to Searching -- A SPIRES Primer.
2. Searching and Updating.
3. Sequential Record Processing: Global FOR Reference Manual.
4. SPIRES Keyterm Index -- An index of all SPIRES terms.

A complete set of CMS documentation is available from the Computer Center library. The following are most likely to be of interest to users of the AWARDS database system.:

1. System Product Editor User's Guide (SC24-5220-1)
2. System Product Editor Command and Macro Reference (SC24-5221-1)

The RTSG Electronics Shop in Bldg. 50B-2259 has copies of the following documents:

1. ADM-3A Key Definitions for IBM 3277 Terminal Emulation
2. VT100 Key Definitions for IBM 3277 Terminal Emulation

APPENDIX H
Human Help

For assistance, call:

Allan Konrad

x 5458

APPENDIX I

Using Xedit

The following describes use of Xedit with an ADM-3A terminal. For other terminals, please see Appendix D.

(Note: If you are using the Xedit editor and SPIRES, be aware that it is helpful to be in the same case mode in the editor as in SPIRES. That is, it is possible to be in SPIRES in upper-and-lower case, while in Xedit in upper only, or vice-versa. If you have problems with case, call for human help (Appendix H).)

Files in the VM/CMS system have three-part names:

filename filetype filemode

usually abbreviated

fn ft fm

The filemode is generally assumed to be A, referring to you "A-disk", 191. This 191 A disk is your private disk.

To edit a file, issue the command

X fn ft

For example, to edit the CMS file ACTIVE FILE A, enter

X ACTIVE FILE A

The document will then appear ready to edit. Case is not significant on this command. You could also enter:

x active file a

If the file ACTIVE FILE did not exist on your A disk, the editor would create a new empty file, with only a top-of-file and a bottom-of-file marker.

Once in the editor, you can:

Use the CNTL-D and CNTL-E keys (see Appendix D)

Use the "cursor" keys to move the cursor around on the screen. On an ADM3A terminal, depress the CONTROL key, and while holding it, press either H, J, K, or L depending on which direction you wish to move the cursor. After you release CONTROL, whatever characters you type will replace the text in your file, if any.

Use the prefix field on the left side of the screen (the five columns of equal signs) to copy, delete or move whole lines or groups of lines.

Often-used Prefix-field Commands.

D (delete)

To delete one line, place a **d** anywhere in the prefix field to the left of the line you wish to delete. Then hit [CR]. E.g.,

```
==== This is line one
==d== This is line two
==== This is line three
```

results in:

```
==== This is line one
==== This is line three
```

To delete a known number of contiguous lines, enter **d** and the number of lines to be deleted.

```
==== This is line one
==d2= This is line two
==== This is line three
==== This is line four
```

results in:

```
==== This is line one
==== This is line four
```

To delete an *unknown* number of contiguous lines, that is, a "block" of lines enter **dd** on the first line to be deleted and on the last line to be deleted. E.g.,

```
==== This is line one
==dd= This is line two
==== This is line three
dd== This is line four
==== This is line five
```

results in:

```
==== This is line one
==== This is line five
```

I (insert)

To insert a new blank line that can be edited, place an **i** in the prefix field on the line which you want the new line to follow. E.g,

```
==== This is line one
==i== This is line two
==== This is line three
==== This is line four
```

results in:

```
==== This is line one
==== This is line two
====
==== This is line three
==== This is line four
```

The new blank line can now be edited by moving the cursor to anywhere to the right of the prefix field and the first blank column following it.

To insert a specified number of new blank lines that can be edited, place an **i** and the number of blank lines needed in the prefix field on the line which you want the new line to follow. E.g,

```
==== This is line one
==i3= This is line two
==== This is line three
==== This is line four
```

results in:

```
==== This is line one
==== This is line two
====
====
====
==== This is line three
==== This is line four
```

It is also possible to insert lines by entering the command **i** on the command line at the bottom of the screen. This will clear the screen below the column-counter line. You can then enter text and use **CNTL-N** to go to the next line. When you hit a **[CR]**, your text will be shifted up above the column-counter line and the lower part of the screen will be available for more input. Two consecutive **[CR]**'s will return you to normal edit mode.

C (copy)

To copy one line, place a **c** anywhere in the prefix field to the left of the line you wish to copy and a **p** on the line before which the newly created line should be placed. E.g,

```
==== This is line one
==c== This is line two
====p This is line three
```

results in:

```
==== This is line one
==== This is line two
==== This is line two
==== This is line three
```

the **p** stands for *prior* and instructs the system to put the new copy of the line prior to the line with the **p**. You can use the **f** instead, which means *following*:

```
==== This is line one
==c== This is line two
==== This is line three
===f= This is line four
```

results in:

```
==== This is line one
==== This is line two
==== This is line three
==== This is line four
==== This is line two
```

To copy a known number of contiguous lines, enter **c** and the number of lines to be copied on the first line to be copied, and an **f** or a **p** to mark where the copied lines should be placed:

```
==== This is line one
==c2= This is line two
==== This is line three
===f= This is line four
```

results in:

```
==== This is line one
==== This is line two
==== This is line three
==== This is line four
==== This is line two
==== This is line three
```

To copy a *unknown* number of contiguous lines, that is, a "block" of lines, enter **cc** on the first line to be copied and on the last line to be copied, and an **f** or a **p** to mark where the copies should be placed:

```
==p== This is line one
==cc= This is line two
===== This is line three
cc=== This is line four
===== This is line five
```

results in:

```
===== This is line two
===== This is line three
===== This is line four
===== This is line one
===== This is line two
===== This is line three
===== This is line four
===== This is line five
```

M (move)

the move command, **m**, works similarly to copy:

```
===== This is line one
==m== This is line two
====f This is line three
```

results in:

```
===== This is line one
===== This is line three
===== This is line two
```

and,

```
=p=== This is line one
==mm= This is line two
===== This is line three
===mm This is line four
```

results in:

```
===== This is line two
===== This is line three
===== This is line four
===== This is line one
```

Most terminals can only display about 22 lines of text. Therefore, if the file you are editing is longer than 22 lines, not all of them can be displayed simultaneously.

Think of your file as if it were a very tall building. The building is a strange building however, because its floors are numbered from top to bottom rather than from bottom to top! So the first floor is at the top of the building.

Our building has a rather unique elevator. Unquestionably the oddest thing of all is that the elevator doesn't move, the building does! The elevator is fixed, but the building moves up and down, into and out of the ground.

But that's not all! First, its doors are always open, so you can always see out as the building moves up and down in front of you. Furthermore, your elevator is 21 stories high! Stranger yet is that half-way up this tall elevator is a platform on which you stand. Thus, you can see the floor that is level with yourself, the 10 floors lower, and the 10 floors higher.

This peculiar building is like your file and your terminal is like its elevator which provides you with a view of some portion of the building. Imagine standing in the fixed elevator as the building moves up and down in front of you. This is exactly the phenomenon you experience using the editor.

When you first enter the editor, it automatically gives you a view of the top 10 lines of your file. This is like standing in your elevator at the top of the building, with a view of the 10 floors beneath you and 10 stories of thin air above you.

If you wish to look at lower floors of the building, what would you do? You would command the building to shift up (which is equivalent to the elevator going down). This is exactly what you do in the editor. The following is a brief summary of the commands that you can use to move around in your file. They are entered on the command line at the bottom of your screen when you're in the editor.

+5 shifts the file up 5 lines so that your view is the next 5 lines down. The "+" is optional. Just a 5 or any number is acceptable.

To adjust your view in the opposite direction, i.e., towards the top of the file, use a minus sign preceding the number of lines you want to shift, e.g., **-20** will display the portion of the file 20 lines above your current position.

The command **top** will go to the top of the file. The command **bot** will go to the bottom of the file.

When a number is preceded with a colon, the editor will go directly to that absolute line number. E.g., **:104** would display lines 93 through 115, with line 104 exactly in the middle of the screen.

To locate a string of characters, enter a slash (/) and the character string to be searched for. It will locate the first instance of that string. If you want to search for later occurrences, continue entering equal signs (=) until you find the occurrence you desire.

Finally, the insert command, **i**, discussed above, is entered from the command line and allows you to insert a virtually infinite number of new lines at that point in the file.

It would not be useful to give every detail of the editor here. See Appendix G for a list of documents which describe how to use the editor. If you need assistance, please see Appendix H for human help.

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