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User's Guide for the DOE/GSA ADPE Inventory Database System at LBL

A. Konrad

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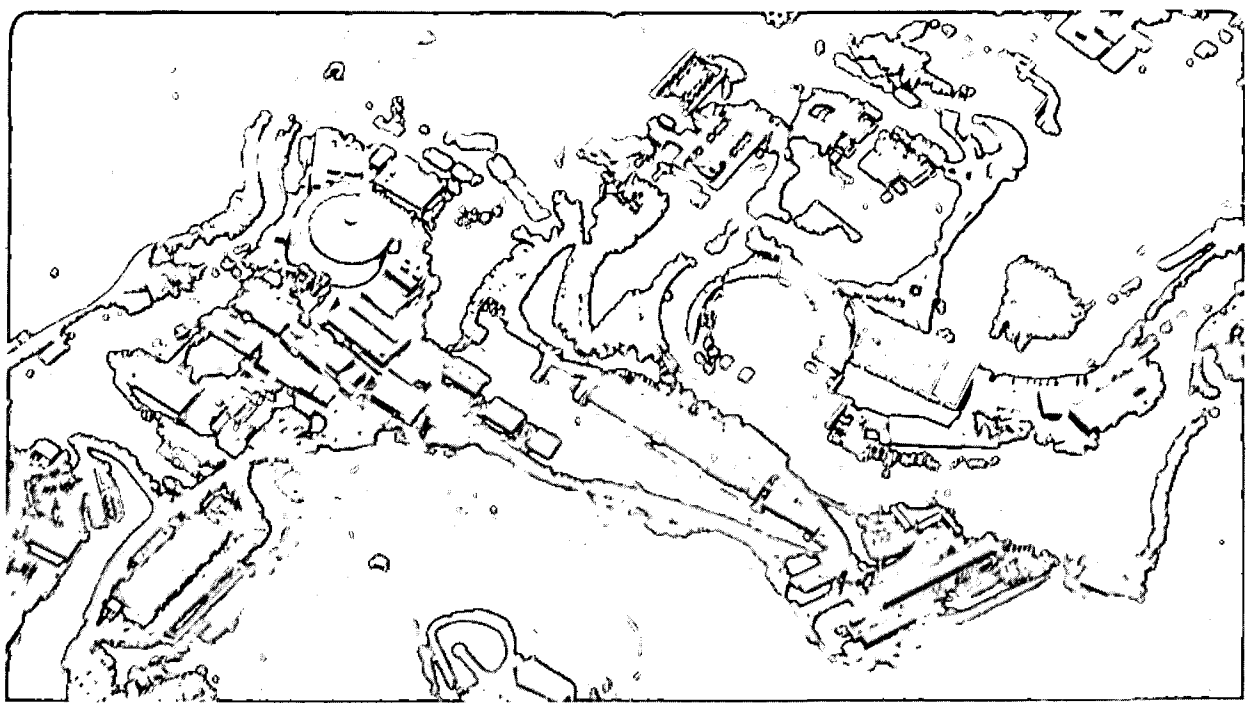

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Prepared for the U.S. Department of Energy under Contract Number DE-AC03-76SF00098.

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User's Guide for the DOE/GSA ADPE Inventory Database System at LBL

Prepared for the U.S. Department of Energy under Contract DE-AC03-76SF00098

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Office of Computing Resources
Computing Division

Version 1.1
21 March 1986

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I. Introduction

.1 Purpose
.2 CMS, SPIRES, the CMS/SPIRES Interface
.3 General Information about SPIRES.

I.1 Purpose

The ADPE Inventory database system was implemented to enable LBL to meet GSA and DOE ADPE inventory reporting requirements and to meet its own ADP management needs. It makes use of the SPIRES database management system, an IBM-compatible PC, YTERM and RELAY software. Extensive use of SPIRES protocols and formats have been made in order to meet stringent GSA data formatting requirements. In so doing, much of the interactive user support has been provided in the user interface so that users need to know very little about technical detail of DOE/GSA reporting requirements and procedures and virtually nothing about SPIRES. This document provides a brief sketch of required tasks and how to accomplish them. It should be used in conjunction with the AUTOMATED DATA PROCESSING EQUIPMENT / DATA SYSTEM SYSTEM REFERENCE MANUAL, by DOE, which contains descriptions of the constraints on the values of each data element. Those constraints are not repeated in this manual and they may change from time to time.

In addition to making the data available for usage beyond GSA/DOE reporting, a variety of other benefits are built into the ADPE inventory system, including automatic accumulation of components into systems and recalculation of total system value, and system-component listings for system administrators.

Data validation is performed on the data, both during original entry and prior to generation of a DOE/GSA ADPE report to assure that staff time expended in record-level detail is minimized. All concurrency management and data integrity management is handled by SPIRES. For example, if a component is added that refers to system X9, SPIRES prohibits removal of system X9 until all its components are removed or moved to other systems. Manufacturer, CPU, component class, and ownership table values cannot be deactivated so long as any systems or component record still references them.

The DOE/GSA report generator does not attempt to modify data that resides on the DOE inventory database at DOE Headquarters in Germantown, MD. Doing so requires tracking both the status of the LBL inventory AND the DOE version of the LBL inventory. If every inventory change at LBL were to be reported, it would also require recalculating the value of the systems affected, possibly initiating a cascading of reporting transactions. Although possible, DOE does not require reporting of intermediate transactions, only the status of the inventory at the moment is reported. Further, LBL staff do not have the resources to become intimately familiar with the DOE computing environment, or unannounced modifications which DOE may make to the LBL data stored on their system. Hence, it is most efficient to delete all SYSTMS data in the DOE database (i.e., on the DOE computer), which automatically deletes the component data, and then add entirely new data which is recently taken from the LBL database. That is, an up-to-date snapshot of the LBL inventory is added in place of the deleted data. LBL's position is that once the validated data is forwarded to DOE, it is no longer LBL's responsibility to maintain it on DOE's system. DOE asserts that the ADPE inventory reporting system is implemented in the spirit of the Paperwork Reduction Act. LBL implementation of meeting ADPE reporting requirements reduces all inventory-related work as much as possible.

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 3081-D32 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 or PC appear as an IBM 3270 terminal to the IBM 3081, and to make the IBM 3081 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.

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

When logging on, the PROFILE EXEC in CMS and the ENTRY COMMANDS record in SPIRES automatically execute to enter into the user interface from which you can select the tasks you wish to accomplish. Some of the selections, called *actions,* allow normal SPIRES commands.

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. Indexes, which are used for searching, are updated only overnight however.

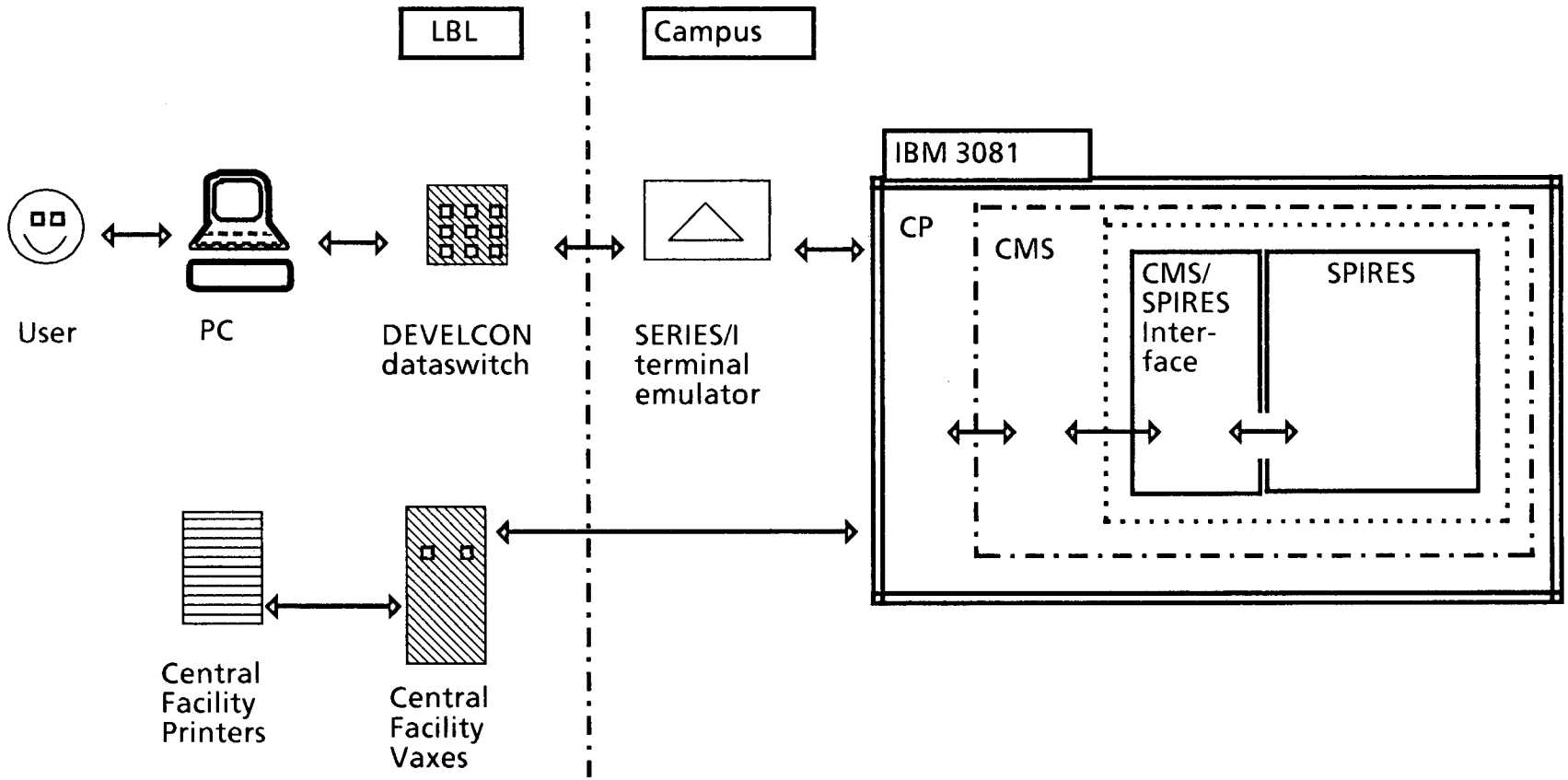

Figure 1. Pathway between user and SPIRES

I.3 YTERM and RELAY

YTERM and RELAY are software packages which run on an IBM PC and also in a mainframe environment to support file transfer between PCs and the mainframe, from Yale University for downloading report files to the PC, and RELAY software for uploading to the DOE computer. [Both packages are installed on OCR ADPE IBM PC and have proper settings to download and upload files. Note that display during uploading to DOE system is skewed, but the file appears to retain integrity.]

II. Getting Started

.1 Logging ON with a "Dumb Terminal"
.2 Logging ON with a PC
.3 Logging OFF

II.1 Logging ON with a "Dumb Terminal"

1. 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 reponse is in **bold**. The user response in modern font. [CR] means "carriage return" or, on the PC, "enter". It is used following every command except those with ESCape, control (CNTL), or a PF key.

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** or **VT100** [CR] (depending on the type of terminal)

7. System will respond with a pseudo-three-dimensional display CFC over the letters VM. Enter another [CR].

8. The screen will clear.
   Enter: **L WILEY1** [CR]. (WILEY1 is the master logon ID for the ADPE database. It is also referred to as the "virtual machine")

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 <u>enter, at this point in the logon procedure,</u> 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
    display a menu of actions from which you may select.

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

II.2 Logging ON with a PC

1. Turn PC, disk drive, and printer on and wait for the PC to complete booting.

2. System responds: "PLEASE ENTER THE NAME OF THE KEYBOARD TABLE"

3. Enter: **UCBCAD**
   System responds by clearing the screen and displaying DISCONN in the lower left corner

(Note: YTERM version 1.2 does not suport downloading. Use the earlier version of YTERM in the directory DOE on the ADPE PC. Change YTERM12 to DOE in the AUTOEXEC.BAT file and then reboot.

4. Make sure the blue TSB box displays either a green or red light.

5. If red light is illuminated, press the blue button and wait for green light.

6. When green light is illuminated, enter carriage return [CR].

   The following dialogue should occur. The system reponse is in **bold**. The user response in modern font. [CR] means "carriage return" or, on the PC, "enter". It is used following every command except those with ESCape, control (CNTL), or a PF key.

7. Request: **ccdb** [CR].

8. System will respond with a bell, and cursor will jump to next line. Enter carriage return [CR].

10. YALE ASCII TERMINAL COMMUNICATIONS SYSTEM V2.1
    Enter terminal type: **YTERM** [CR].

11. System will respond with a pseudo-three-dimensional display CFC over the letters VM. Enter another [CR].

12. The screen will clear.
    Enter: **L WILEY1** [CR]. (WILEY1 is the master logon ID for the ADPE database. It is also referred to as the "virtual machine")

13. 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.

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

    call SPIRES
    display a menu of actions from which you may select.

II.3 To LOGOFF

If you are in the ADPE user interface, simply select action 99. You will be logged off.

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

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

Enter: LOG

III. Organization of the ADPE Reporting System

III.1. Physical and Logical Organization of the Database

The ADPE Inventory database system is comprised of one SPIRES *file*, containing six *subfiles* The SPIRES filename is WILEY1:ADP. The subfiles are:

SYSTEMS
COMPONENT
MFG
CPU TABLE
COMPONENT CLASS
OWNERSHIP

Each "system" is represented by a separate unique record in the SYSTEMS subfile. Each component of each system is represented by a unique record in the COMPONENT subfile. Each subfile is selectable as a database in its own right. ADPE data relating to LBL computer systems is stored in the SYSTEMS and COMPONENT subfiles. The others serve as lookup tables for controlled values authorized by GSA.

The names of some elements are determined by GSA usage. The element SYS.ID in the COMPONENT subfile and the SYSID element in the SYSTEMS subfile refers to the LBL-assigned ID of the system, not the manufacturer serial number of the CPU. Therefore, SYSID is singly-occurring even though a system may have multiple CPUs.

Information about each computing system, component, manufacturer, and other controlled data is stored directly into a SPIRES *record*. Each record in the database is comprised of a collection of elements as described below, e.g., system name, manufacturer, owner, etc.

In this application, there are several different kinds of records, e.g., computing system, components, and several "lookup tables" for controlled values. During data entry, reference to legal values in the lookup tables may be required. This is possible both online and with printed copies of the tables. At present, "components" refers to hardware components only, but could be expanded to include software and maintenance of hardware and software as well. Each of these types of data has, in effect, its own database, called a *subfile*. All the subfiles are in a single logical SPIRES file, comprised of several physical CMS files.

Each record in a SPIRES database has a unique identifier often called *key*. The keys of the records for each subfile are indicated below.

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.

III.2 Use of Lookup Tables

From time to time, DOE/GSA announces new manufacturers and new CPUs that should be added to the appropriate subfiles. You may wish to add them only as needed. However, *the database will reject any new LBL computing system for which the appropriate entries do not exist in the four lookup table subfiles.* For example, if a computer is purchased from a new company, NIFTY COMPUTERS, INC., it cannot be entered into the inventory until NIFTY COMPUTERS, INC. has been entered into the MFG and CPU TABLE subfiles.

Further, *NIFTY COMPUTERS, INC. SHOULD not be entered into the* MFG and CPU TABLE subfiles until DOE/GSA has announced the official lookup table codes for the company and its products. When a new code is needed, call Shirley Burnell at DOE/SAN or Al Cox at DOE/HQ (see Appendix F). **If a code is entered into a lookup table prior to DOE approval of that code, and the code is subsequently used in a SYSTEM or COMPONENT record, be sure to set the REPORTABLE flag in the SYSTEM record to NO, with an explanation that we await DOE approval for the code. When approval comes, remember to reset the flag.**

SPIRES has, of course, no means to confirm that values entered into lookup tables are entered correctly. They must be verified by visual inspection.

Lookup tables are displayable and printable by doing Actions 36, 37, 46, 47, 56, 57, 66, and 67.

III.3 Use of NOTES Elements

Both SYSTEMS and COMPONENT records have a multiply-occurring NOTES structure comprised of a free-text field for a note and an automatic date-stamp element. Whenever a transaction occurrs which may require explanation beyond data entered into the other data elements, e.g., a change of ownership, the explanation may be placed in the NOTE element using Actions 13 or 23.

III.4 Action Menu

The menu is self-explanatory and is displayed automatically at logon. It provides for:

Data Entry, including modifications, deletions and visual inspection
Internal Reporting and resource management
Validation of data for reporting to DOE/GSA
Generation DOE/GSA reports
Generation of listings of each system and its components for verification by system administrators

The facilities are performable from the menu with virtually no knowledge of SPIRES. However, a menu action, action 90, allows some SPIRES commands.

IV. System Identification

IV.1 What is a System? What is a Reportable System?

To be eligible for inclusion in the ADPE inventory report, a system must meet several criteria:

1. It must be in active use at the Laboratory. This is indicated in each SYSTEMS subfile record by the **DELETED.SYSTEM** element, a YES/NO flag. If **DELETED.SYSTEM** = NO, then the system is still in active use and is eligible to be reported. If the flag is set to YES, then the system is no longer in active use. This flag is used to indicate systems which have been removed from service or even from the Laboratory in such a way that the record in the database is not removed, thereby maintaining a historical record of the system. The system identifier is unique in the database and since the database record is never removed, the 2-character identifier is never reassigned to another system.

2. It must be owned by DOE. Determining ownership is sometimes difficult, depending upon the funding source and the components. Theoretically, a system record represents *no* hardware. Only the COMPONENT records represent hardware, and various components may be owned by DOE or not. Thus a system may be only partially owned by DOE. For simplification, a system record contains a singly-occurring required structure called **REPORTABLE.STR** that contains two singly-occurring elements, a flag element called **REPORTABLE** which indicates whether the system is to be reported if it meets all other criteria, e.g., the $50,000 reporting threshold, and **REASON**, a free-text element into which the reason for non-reportability may be entered. If the equipment is owned by DOE, the **REPORTABLE** flag should be set to YES. If it is owned by some other agency, then let **REPORTABLE = NO**. A later version of this database system might determine this system-ownership threshold at the component level, if the distinction between systems and components does not vanish entirely first.

   If a code is entered into a lookup table prior to DOE approval of that code, and the code is subsequently used in a SYSTEM or COMPONENT record, be sure to set the REPORTABLE flag in the SYSTEM record to NO, with an explanation that we await DOE approval for the code. When approval comes, remember to reset the flag.

3. The current system value, calculated by DOE/GSA guidelines, must be $50,000 or greater. Value is calculated by summing the values of the components. The values of the components are calculated by DOE/GSA by multiplying the number of *like* components by the price paid for the most recently acquired unit of that make and model. Value of components is *not* calculated by DOE/GSA by summing the values actually paid for each unit.

   However, in this application, for determining reportability, system value is calculated by simply summing the prices actually paid for each unit.

4. A system must have at least one CPU component.

A number of issues arise about what hardware components constitute "a system" for the purpose of GSA/DOE ADPE inventory reporting.

A system must be worth $50,000 to be reportable. Therefore, OCR collects data on systems beginning at $30,000 since additional components may be added, making the system reportable at a date after it was originally entered into the database. The SPIRES software assumes responsibility for determining the value of the total system and whether it will be included in the periodic ADPE inventory report to DOE/GSA.

If two CPUs are "loosely coupled" (e.g., on Hyperchannel or Ethernet), they are considered separate systems. If they are tightly coupled, as in a Vax cluster, they are considered a single system with multiple CPU components. A system that formerly stood independently which is subsequently merged into a cluster requires that the component records be modified to reflect the new **SYS.ID** and that the SYSTEMS record be deactivated.

Whether or not a large number of small computers networked together into an integrated distributed network is a "system" is an open question and it is not useful to pursue such discussions with DOE/GSA. As the distinction between systems and components blurs with advances in technology, it will be incumbent upon DOE/GSA to restate their reporting requirements in a way that such loosely coupled systems become monitorable if that is their objecive. They have not done so as to date.

IV.2 OCR Labels

The key or identifier of computing systems at LBL, so far as DOE or GSA are concerned, is a 2-character code, assigned by LBL, where the first character is a positive integer and the second is a letter, e.g., 4D. This ID is identical to the 2-character key of the systems record in the database.

It is useful to have CPU cabinets labeled with their inventory identification. However, since it was impractical to acquire adhesive labels which were sequenced by both numeric and alphabetic values, a second separate but compelementary coding scheme was implemented. In addition to the unique 2-character DOE/GSA identifier assigned to each computing system, a unique 3-digit numerical code is also assigned to each system. The adhesive labels display this 3-digit numerical code. The 3-digit identifiers are called "OCR Label Numbers" and are assigned whenever a system is entered into the database. Therefore, there is a one-to-one correspondence between the 2-character IDs and the 3-digit OCR label numbers. A system record in the SYSTEMS subfile can be found by knowing either identifer.

V. Procedures for Generating DOE/GSA ADPE Reports

V.1 Reporting Cycle

The recommended report cycle is:

1. Produce and distribute listings of current ADPE inventory for each systems administrator or designated division administrator (see V.2 below).

2. Enter only *certified* data received from system administrators into the ADPE database.

3. At **six-month** (see below) intervals, make a printed listing of each system so that local system administrators can update it (Action 84).

4. Enter modifications from system administrators.

5. Validate the data (Action 70) (see V.4 below).

6. Generate the DOE/GSA report (Action 80).

7. Download the report to a PC (Action 82).

8. Upload the report to the DOE computer (using RELAY) and submit the report (Section V.6 and V.7).

9. Check the error list.

The inventory report is uploaded to the DOE computing system in Germantown, MD. A logon ID, account, and password have been provided.

WARNING: The logon expires if not used every six months. Therefore, it is advisable to make a report every six months, or at least logon to reset the timer.

However, also note that the current DOE constraints cause severe errors if more than one report is made per quarter. Until further notice, forward no more than one file to DOE per quarter. This restriction may be removed in the near future.

NOTE: The "quarter" is not always clearly defined. Occasionally, a quarter may be extended as much as three or four weeks into the following quarter.

V.2 Collecting ADPE Inventory Data

Twice per year, a listing of each system can be printed, using Action 80 (84), to be distributed to appropriate system administrators for updating. Data can be entered upon receipt of the updated listing. It is advisable that the system administrators submit changes and additions on ADPE SYSTEMS and COMPONENT WORKSHEET forms. Further, because the Laboratory may be called upon to account for the whereabouts of equipment and because the report forwarded to DOE is regarded as "certified by the Office of Computing Resources", it is advisable to require that system administrators accompany their worksheets and approved certification lists with the ADPE TRANSMITTAL MEMORANDUM which makes explicit the system administrators' responsibility for assuring that the inventory is complete and correct. Sample forms are included in APPENDIX H. Only systems with components of a combined value of $30,000 or more need to be reported.

Data from the normal OCR ADP approval process is retained and organized by OCR staff in such a manner so as to facilitate detection of new ADPE acquisitions which should be reported. This information is used only for monitoring *certified* reports submitted by systems administrators. This data is not entered into the ADPE database.

V.3 When to Enter a System into the Inventory

Systems are entered into the inventory only after they are delivered and accepted so as to avoid reporting a system for which title is never accepted. This also has the advantage that the LBL property number will probably have been assigned by the time the ADPE Inventory Worksheet is completed. A file of OCR ADPE approval forms is kept and scanned occasionally as the prompt to contact the owner or system administrator to confirm that the system has been delivered and is reportable.

Data for new systems is entered into the database from ADPE Inventory worksheets which have been completed and submitted by the Requestor/Owner. A mechanism must be implemented to assure that owners of reportable systems receive, complete, and return ADPE Inventory Worksheets. Unique DOE/GSA system IDs are assigned by SPIRES.

The OCR Label should be assigned at the time the system is entered into the database. The number assigned should be the next number for which a complete set of three labels is available and has not been assigned to another system. All three labels may be applied to system cabinetry. The appropriate number of labels is affixed to the CPU cabinetry or cluster device by OCR personnel with the assistance of the system administrator.

V.4 Validation of the Database and Generating a Report for DOE/GSA

The constraints on data values reported to DOE are strict. The complications caused by forwarding to DOE an inventory report that contains violations of these strict rules can be enormous and extremely time-consuming to remedy. Therefore, the ADPE inventory database system provides extensive data validation during data entry and also prior to report generation while, at the same time, leaving the user as much flexibility as to *when* data is supplied to the database relative to the time a record is first created. That is, most elements are optional until just prior to report generation. But when data values are entered, their conformance to DOE/GSA rules is thoroughly checked.

The results of data validation, Action 70, are written to a file that can be displayed online and printed. If data validation is successful, the user will be informed. If not, the user will be informed and instruction for displaying and printing the error list are provided.

Data validation prior to report generation, Action 70, performs the following tasks:

1. Assures that the database has been processed (update records merged into permanent records and indexes updated.

2. Detects systems records with missing required values in the SYSTEMS record.

3. Detects systems which are no longer active but still reference component records.

4. Detects active systems with no reportable CPU (component class 01) in the COMPONENT record.

5. Detects active systems with no components whatsoever.

6. Detects component records with missing required values.

V.5 Structure of the DOE/GSA Report

Each new LBL DOE/GSA ADPE report resides in a single file copied to the 191-A disk on the WILEY1 virtual machine. The name of the file is displayed at the conclusion of the process which generates the report. The report has three sections, in which *order* is important:

1. DELETION records for all systems on the previous report.
2. ADD records for *all* reportable SYSTEMS records.
3. ADD records for *all* reportable COMPONENT records for *only* reportable systems.

If DOE failed to accept a system record on a previous report, then the deletion of that system on the current report will cause an error. This error may be ignored.

If a user has circumvented the interface to manipulate the GSA flag on any systems records, or actually deleted a record which contained a GSA = YES flag, then no deletion record will be generated. If ADD records are then submitted for that system, errors may result. Call the ADPE System Administrator for assistance.

Prior to downloading the report, it may be useful to compare it with the list of systems included on the previous report to assure that each system added previously is represented by a DELETE record on the current report. Although such problems are unlikely if the interface is not circumvented, it is possible that LBL data is manipulated by DOE on the DOE computer system.

V.6 Procedure for Logging Onto PC Using YTERM

Please see section II.2.

(Note: YTERM version 1.2 does not suport downloading. Use the earlier version of YTERM in the directory DOE on the ADPE PC. Change YTERM12 to DOE in the AUTOEXEC.BAT file and then reboot.

V.7 Procedure for Logging Onto DOE Computer System, Uploading Data

To proceed, the ADPE inventory must have been successfully downloaded from the campus IBM 3081 to a PC using YTERM or similar package. Once accomplished, the file can be uploaded as follows:

1. Make sure that the PC containing the ADPE data file has RELAY software installed. [OCR ADPE IBM PC has both RELAY and YTERM installed. This RELAY has all the proper settings to work on the DOE system. Note: If during uploading, the characters are echoed in a skewed fashion, notify the OCR ADPE Inventory database administrator.] Appendix J in theADPE/DS System Reference Manual (and also Appendix J of this document) explain the PC-RELAY setup.

2. Enter: **CD \RELAY** [cr]

3. Copy the file from the DOE directory to the RELAY directory by doing:

   Copy \DOE\ADPE.RPT RELAY\ADPE.RPT [cr]

4. Enter: **RELAY** [cr]

5. Confirm that the Hayes Modem is properly connected and the DEV-HAYES switch is set to HAYES.

6. Then press: **F1** (function key "1", with no carriage return). The screen will clear and the following events should occur:

7. The PC will dial TYMNET, you will hear the dialing. It will log on to TYMNET, automatically enter its destination (GSEPT01) and the password. It will then connect to the DOE computer.

8. The DOE computer will then prompt for a login ID. Enter: **U8957AK** [cr]

9. The DOE computer will then prompt for a password. Enter the password. The password may be obtained from the OCR ADPE Inventory Database Administrator (Appendix F).

   NOTE: If the account has not been used in the past 6 months, the logon will not be successful. In this case, send a printed copy of the inventory with a letter explaining that the account was closed by DOE to both the DOE/SAN contact and the DOE/HQ contact. They will reopen the account.

10. The DOE computer may then ask if you wish to read news messages. Following that, an additional carriage return may be prompted to obtain the TSO prompt:

READY

11. Once logged on with a READY prompt, a variety of tasks may be performed:

    A. You may look at a listing of the present inventory. this is useful to confirm that your new file to be uploaded contains a DELETE record for each system on the old inventory.

    B. You may list your TSO data sets.

    C. You may upload your new file.

12. To look at a listing of the present inventory or list your TSO data sets, enter

    EX ADPON [cr]

    A menu will be displayed. To see the present inventory, enter the menu item #3 ("submit a report") and answer the subsequent questions. LBL's ADPE unit number is 1701.

    To list your TSO data sets, enter 96, or as indicated on the menu.

13. To upload a file you must have a TSO READY prompt, which is outside of the ADPON menu. If you are in the menu, enter code 98 to return to TSO. Once you have the READY prompt, press the **F3** key on the PC. The upload proceure will begin. It is quite slow, about 45 minutes. It is advisible to monitor it. If transmission errors occur as the data is echoed back to the PC, call a Calculon contact after the upload is complete to ask that the check the file.

14. After the Calculon contact has checked the file, they can be asked to submit the file as an update to the ADPE inventory. The following day, you may log on to produce and print a listing of your inventory, or look at your catalog of TSO data sets to see if there is an error file.

If you are asked to specify a printer. Enter: **RMT22** . This is the code for the SACNET printer at DOE/SAN.

26. To logoff, enter: **ALT-L** (That is, hold the **ALT** key, and while holding, press the **L** key.)

27. To exit RELAY on the PC, press: **ESC** ,
    then press the **ALT** key and, *while holding,* press the **F2** key
    then press **ESC** .

28. Turn off the PC and call Shirley Burnell at DOE/SAN (See Appendix F) to notify her that a printout will be coming over night and request that it be forwarded to OCR at LBL.

29. When the error list arrives, examine it. If any errors occurred, notify the OCR ADPE Inventory database administrator immediately.

VI. Functions Accomplished by Actions

This Section applies to all subfiles listed in Section III.1. It does not apply to the Service Subfile. For online assistance in using actions to accomplish any of the following, enter a question mark (?) after invoking that action.

VI.1 Displaying Records

Menu actions 11, 21, 31, 41, 51, and 61 are provide for displays of records.

VI.2 Adding Records.

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 occuring element. Just enter a [CR] to proceed to the next element. During data entry, the command

/w prompt$f

will redisplay the $PROMPT subcommands.

The REQUIRED elements **DELSYS** and **REPORTABLE** must be given values at the time the record is entered.

It is advisable to confirm that the appropriate MFG and CPU codes exist in their respective lookup tables before entering system or component records for a new system. If they do not exist in the database, consult the printed DOE listing of lookup tables. If the desired codes exist, enter them into the appropriate subfiles, then enter the system and components. Enter a question mark (?) for assistance. If the desired codes are not in the published table, call for assistance.

VI.3 Modifying Records

You will be prompted element by element. If an element has an existing value, it will be displayed, and you will be given an opportunity to change it. You are also given the opportunity to add new occurrences of elements and structures. Please see Appendix C for $PROMPT Subcommands. Enter a question mark (?) for assistance.

VI.4 Removing Records

System records can be "deactivated". They cannot be removed from the database without consultation from the OCR ADPE database administrator.

VI.5 Changing the Key of a Record

Do not change the key of any record without consultation.

VI.6 Displaying Tables

Actions 36, 46, 56, and 66 display the lookup tables. Action 83 produces a table of all the systems and their SYSID and OCR label numbers.

VI.7 Validating Data

Actions in the 70's perform data validation. This may be performed whenever desired. It is mandatory if a report is about to be made. Prior to report generation, the database must be processed. This happens automatically overnight, or may be performed manually.

VI.8 Producing Reports.

Actions in the 80's produce reports for system managers to certify their inventory, the data file to be forwarded to DOE, and other reports.

VII. Description of Elements in the SYSTEMS Subfile

Element Name	Required/Opt*	Length	Occurrences	Data Type	Indexed
SYSID (key of the record) [1]	REQUIRED	2 bytes	single	see below	Indexed†
Delete.Flag.Str	REQUIRED	0	single	Structure	
Deleted.System (DELSYS)	REQUIRED	1	single	yes/no	
Deleted Flag Date (DFD)	REQUIRED	4	single	date	
GSA.CURRENT [3] (GSA)	REQUIRED	1	single	yes/no	
Reportable.Str	REQUIRED	0	single	Structure	
REPORTABLE	REQUIRED	1	single	yes/no	
Reason	Optional	Variable	single	text	
pointer (no see/no upd)	Optional	Fixed	Multiple	LCTR	
System.Desig (SD)	Optional	Variable	Single	text Lookup/verify [4]	indexed
LBL.MNEM (LBL)	Optional	Variable	Single	text	indexed
DIVISION (DIV)	Optional	Variable	Single	text	indexed
Project (PROJ, DEPT)	Optional	Variable	Single	text	indexed
Sys.Mgr (MGR)	Optional	Variable	Single	Pers. Name	
PHONE (Ext)	Optional	Variable	Multiple	text	
ACQUISITION.YEAR (AY) [2]	Optional	2 (4)	Single	integer controlled range	
ACQUISITION.MON (AM)	Optional	2 (4)	Single	integer controlled range	
EXPIRATION.FY (EXP) (no see)	Optional	2 (4)	Single	integer controlled range	
UPGRADE.FY (UPG) (no see)	Optional	2	Single	text	
EXPIRATION.EXT (EXPX) (no see)	Optional (automatic)	2	Single	text	
OCR.LABEL (OCR)	Optional	3	Single	integer	indexed
FUNCTION (no see)	Optional	Variable	Single	controlled values	
NOTE.STR	Optional	Variable	Multiple	Structure	
NOTE	Optional	Variable	Single	Character	
NOTE.DATE	Automatic	Fixed	Single	Date	
SYS.DATE.UPDATED (SUD, SUPD)	Required	Fixed 4	Single	Date	
SYSTEM.LOCATION (LOC)	Optional	Variable	Single	character	indexed
SERIAL.NO (SER)	Optional	Variable	Single	character	

LICENSE.STR	Optional	0	Multiple	Structure	
LIC.VENDOR (LVEN)	Optional	Variable	single	character	indexed
SOFTWARE.PRODUCT (SP)	Optional	Variable	single	character	indexed
PART.NUM (PART)	Optional	Variable	single	character	
DATE.EFFECTIVE (DLE)	Optional	Fixed	single	date	
COMMNETS (LCOM)	Optional	Variable	single	character	
SYSTEM.DESC (SDESC)	optional	redefined	single	virtual	
SUBLCTR	optional	redefined	single	phantom structure	

† Implemented beginning with the 1985 version of SPIRES.

* Note that elements listed as OPTIONAL in the database may be REQUIRED by DOE/GSA. They are made optional in the database so that records do not need to be entered completely at the time the record is created. The validation action (Action 70) assures that all required values are present or prohibits generation of a DOE/GSA report. Also, some systems are not or may never be reported to GSA/DOE and thus do not require values for some data elements.

1 SYSID must be an integer followed by a letter. The interface recommends which SYSID is to be assigned to the next new system. No special characters are allowed. This is distinct from the OCR Label number, however there is a one-to-one correspondence between them. The SYSID is reported to DOE/GSA, the OCR Label No. is used for local inventory control.

The names of some elements are determined by GSA usage. The element SYS.ID in the COMPONENT subfile and the SYSID element in the SYSTEMS subfile refers to the LBL-assigned ID of the system, not the manufacturer serial number of the CPU. Therefore SYSID is singly-occurring even though a system may have multiple CPUs.

2 The date of acquisition of the system will probably be the same as the date of acquisition of the CPU, but not necessarily so. A system may change CPUs during its life. Therefore, no link is established in the database between a system and the date a CPU is acquired. In fact, the acquisition of components is not presently tracked.

3 The GSA value should never be modified by the user, only by the interface.

4 The SYSTEM DESIGNATION element must have the full MFG code followed by the full system code concatenated. In some cases this may appear as if the manufacturer code is duplicated if the MFG code is also part of the system code. For example, a SYSTEM DESIGNATION may appear as:

HPCHP4300

Where the first thre characters, HPC, are the manufacturer code, and the HP is the beginning of the system code, although both sets of letters stand for Hewlett-Packard.

There is a further constraint: The CPU must be manufacturered by the manufacturer of the system. That is an ACME system is not allowed to have a CPU manufacturered by DEC. Report the CPU as ACME.

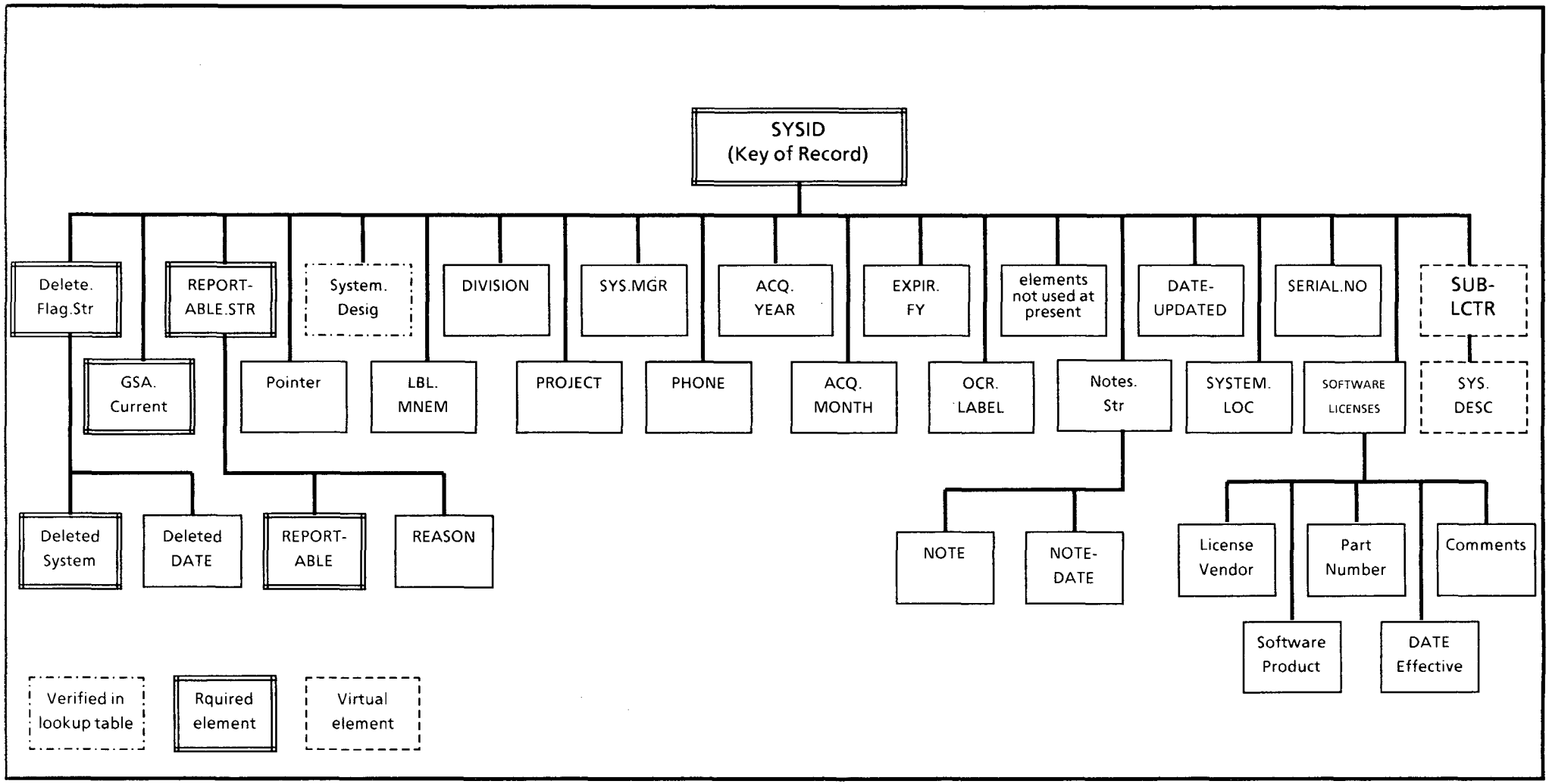
SYSID
(Key of Record)
Delete. Flag.Str
REPORT-ABLE.STR
System. Desig
DIVISION
SYS.MGR
ACQ. YEAR
EXPIR. FY
elements not used at present
DATE-UPDATED
SERIAL.NO
SUB-LCTR
GSA. Current
Pointer
LBL. MNEM
PROJECT
PHONE
ACQ. MONTH
OCR. LABEL
Notes. Str
SYSTEM. LOC
SOFTWARE LICENSES
SYS. DESC
Deleted System
Deleted DATE
REPORT-ABLE
REASON
NOTE
NOTE-DATE
License Vendor
Part Number
Comments
Software Product
DATE Effective
Verified in lookup table
Rquired element
Virtual element

Figure 2

VIII. Description of Elements in the COMPONENT Subfile[1]

Element Name	Required/Opt*	Length	Occurrences	Data Type	Indexed
COMPONENT.ID (key of the record assigned by SPIRES)	REQUIRED	4 bytes (check digit)	single	slot	Indexed†
SYS.ID	Optional	2	single	text lookup/verify	indexed
COMPONENT.CLASS (CC)	Optional	2	single	code lookup/verify	indexed
COMPONENT.MFG [6]	Optional	3	single	code lookup/verify	indexed
COMPONENT.TYPE	Optional	max 5	single	text[3]	
COMPONENT.MODEL	Optional	max 3	single	text[4]	
DESCRIPTION (CDESC)	Optional	variable	single	text	indexed
OWNERSHIP (OWN)	Optional	1	single	code[2] lookup/verify	
Quantity[5] (Q, QUAN)	Optional	4	single	integer	
Purchase.Price (PUR)	Optional	4	single	dollar	
Monthly.Rental (RENT)	Optional	4	single	dollar	
Final.Payment.Date (FPD)	Optional	4	single	date	
Property.No	Optional	4	single	text	
Function (no see/no upd)	Optional	4	single	code	
Notes.Str	REQUIRED	0	single	Structure	
Note	REQUIRED	1	single	text	
Note.Date	REQUIRED	4	single	date	
Comp.Date.Upd (CDU, CUPD)	Optional	4	single	date	
System	virtual	0	1	virtual	
LBLSYS	virtual	0	1	virtual	
COMP.CLASS	virtual	0	1	virtual	
OWN.DESC	virtual	0	1	virtual	
MFG.DESC	virtual	0	1	virtual	

† Implemented beginning with the 1985 version of SPIRES.

* Note that elements listed as OPTIONAL in the database may be REQUIRED by DOE/GSA. They are made optional in the database so that records do not need to be entered completely at the time the record is created. The validation action (Action 70) assures that all required values are present or prohibits generation of a DOE/GSA report. Also, some systems are not or may never be reported to GSA/DOE and thus do not require values for some data elements.

1 The date of acquisition of the system will probably be the same as the date of acquisition of the CPU, but not necessarily so. A system may change CPUs during its life. Therefore, no link is established in the database between a system and the date a CPU is acquired. In fact, the acquisition of components is not presently tracked.

2 DOE/GSA entries must have one of the values 1, 2, 3, 4, or 5.

3 First character must not be blank or 0.

4 Model is optional to DOE/GSA. MFG and TYPE are required.

5 The value of zero (0) may be stored in a record, however it is unacceptable for a GSA report and will be detected and reported by Action 70, validation.

6 The CPU must be manufacturered by the manufacturer of the system. That is an ACME system is not allowed to have a CPU manufacturered by DEC. Report the CPU as ACME.

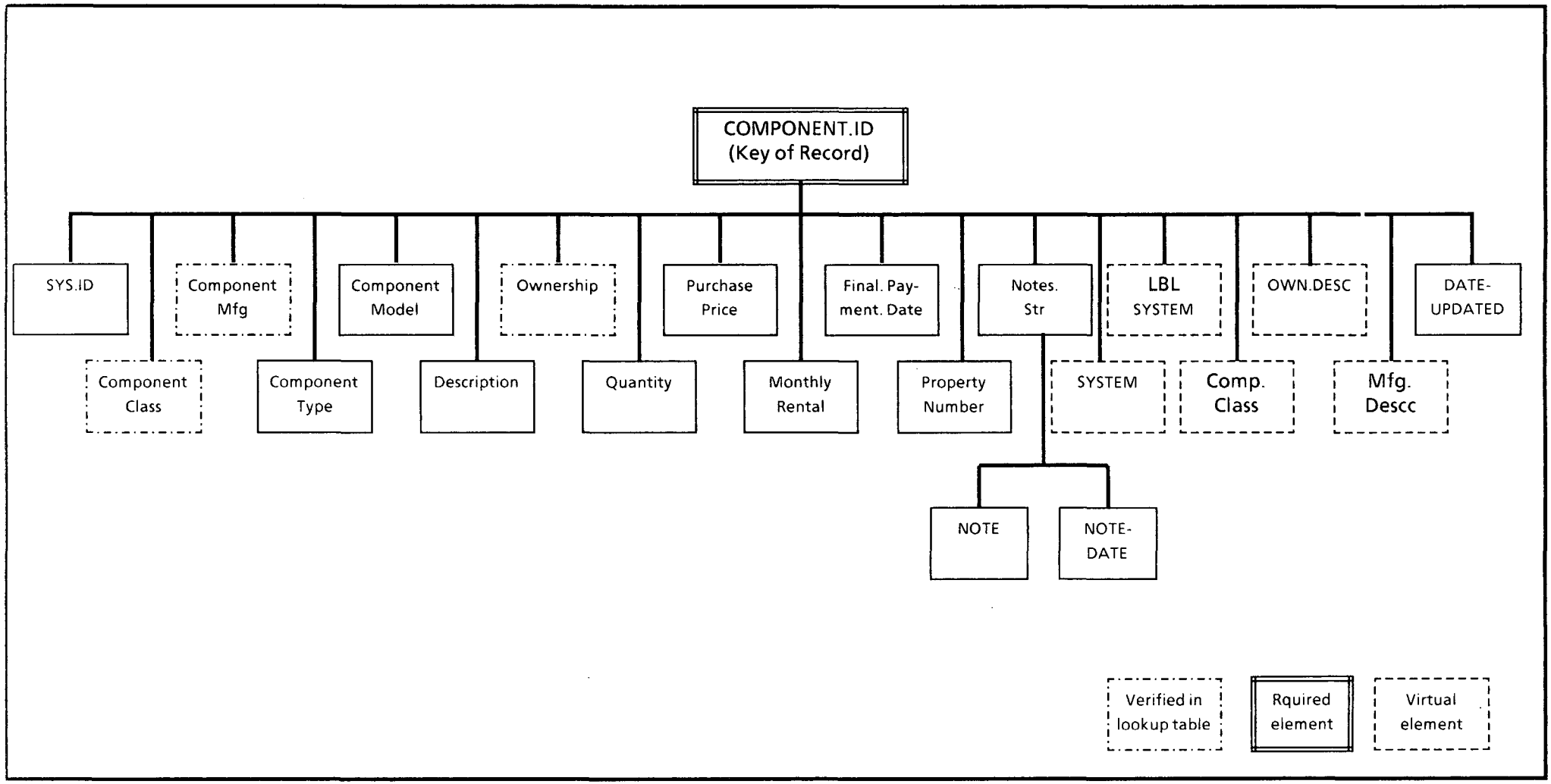
COMPONENT.ID
(Key of Record)
SYS.ID
Component Mfg
Component Model
Ownership
Purchase Price
Final. Pay-ment. Date
Notes. Str
LBL SYSTEM
OWN.DESC
DATE-UPDATED
Component Class
Component Type
Description
Quantity
Monthly Rental
Property Number
SYSTEM
Comp. Class
Mfg. Descc
NOTE
NOTE-DATE
Verified in lookup table
Rquired element
Virtual element

Figure 3

IX. Description of Elements in the MFG (Manufacturer) Subfile

Element Name	Required/Opt	Length	Occurrences	Data Type	Indexed
Manufacturer.ID (MFG.ID) (key of the record	REQUIRED	3 bytes	single	text	Indexed†
Manufacturer	Optional	variable	single	text	Indexed
MFG.DATE.UPDATED	Optional	Fixed 4	Single	Date	
pointer (no see/no upd)	Optional	Fixed	Multiple	hex	

† Implemented beginning with the 1985 version of SPIRES.

X. Description of Elements in the CPU Table Subfile

Element Name	Required/Opt	Length	Occurrences	Data Type	Indexed
CPUID (key of the record	REQUIRED	max 10	single	text	Indexed†
Component.Desc	Optional	variable	single	text	
CL.DATE.UPDATED	Optional	Fixed 4	Single	Date	
pointer (no see/no upd)	Optional	Fixed	Multiple	hex	
SUBLCTR	Optional	0	1	virtual	

†Implemented beginning with the 1985 version of SPIRES.

XI. Description of Elements in the Component Class Subfile

Element Name	Required/Opt	Length	Occurrences	Data Type	Indexed
Component.Class (key of the record	REQUIRED	2 bytes	single	text	Indexed†
Component.Desc	Optional		variable	single	text
CL.DATE.UPDATED	Optional	Fixed 4	Single	Date	
pointer (no see/no upd)	Optional	Fixed	Multiple	hex	

†Implemented beginning with the 1985 version of SPIRES.

XII. Description of Elements in the Ownership Subfile

Element Name	Required/Opt	Length	Occurrences	Data Type	Indexed
Ownership.Code (key of the record	REQUIRED	1 byte	single	text	Indexed†
Ownership.Desc	Optional	variable	single	text	
Own.DATE.UPDATED	Optional	Fixed 4	Single	Date	
pointer (no see/no upd)	Optional	Fixed	Multiple	hex	

† Implemented beginning with the 1985 version of SPIRES.

XIII. Using the SERVICE Subfile

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

XIII.1 Description of Elements in the SERIVCE 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 extentions 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

It can be used for directory assistance as a personnel locator for ADP system staff by executing Action 90, then entering:

SELECT SERVICE

XIII.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
LAWRE
LAW
E LAWRENCE
E LAWREN
E LAW
E O LAWRENCE
E O LAW
O 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.

XIII.3 Updating, Adding, Deleting Records

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

XIV. Printing; the LPR and LPRCC Commands

Staff may occasionally wish to print files other than standard reports. Menu Action 90 is available to issue a CMS or SPIRES command. Such files may include one 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 G or on the CRT or both. There are two EXECs that will send files to the Talaris laser 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 reserves column 1 for carriage control characters, with data beginning in column 2. For files generated by these utilities, **LPRCC** should be used. SPIRES documentation also employs a more elaborate carriage control.

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.
```

XV. Possible Future Enhancements

1. Fix display during RELAY upload.
2. Expand to handle software, hardware and software maintenance, accounting.
3. A later version of this database system might determine this system-ownership threshold at the component level, if the distinction between systems and components does not vanish entirely first.
4. Change method for calculating value of a system.
5. A "tighter" way to do point-of-receipt data collection is needed, perhaps tied into receiving?
6. Track dates when components are acquired, at least CPUs.
7. Find Key.
8. Implement PRISM.

APPENDIX A

TERMINAL Settings for VT100 for use on UCBCMSA Series/1

SETUP-B: 0101 1011 0000 1100

No scroll
Autorepeat
dark background
block cursor

Bell on
key click off
ANSI
XON

--
wrap off
newline off
interlace off

parity odd
parity off
7 bits
60 hz

APPENDIX B

TERMINAL CONTROL

The SERIES/1 terminal controller commands for the IBM PC are summarized in the document "Using the YTERM Package at UC Berkeley", available from the Computing Services Library on the second floor of Evans Hall on Campus.

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 (large +-key by keypad). 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 (large +-key by keypad). The **HT** halts typing, preventing the rest of the lines from being displayed. The (large +-key by keypad) then clears the screen.

Several helpful CMS terminal commands are available:

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

<u>Series/1 - IBM PC/YTERM control characters (complete list found in "Using the YTERM Package at UC Berkeley")</u>

CNTL-N	go to next line
keypad left-arrow key	move cursor to the left
keypad right-arrow key	move cursor to the right
keypad up-arrow key	move cursor up
keypad down-arrow key	move cursor down
CNTL-D	deletes a character
CNTL-E	deletes a line
INSERT-key	enter or leave *character* insert mode

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 your IBM PC as a terminal, the PF keys are on the far left-hand side, marked F1 through F10. F11 and F12 are sometimes needed and available by pressing the **NUMLOCK** key for PF11 and **SCROLL LOCK** for PF12. PF11 deletes to the end of line in the FLIST facility. PF3 usually means "quit". PF1 usually calls a CMS help screen. Often a menu of valid PF keys will be displayed in utilities where they are recognized.

At login, your PF5 key is set up to send messages to a disconnected virtual machine at SLACVM called QSPIRES that enable you to have limited use of the HEP database. To use it, enter PF5 and a SPIRES command, such as FIND or DISPLAY. Global For commands are not allowed.

APPENDIX C

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
/W	Execute a CMS command or EXEC, e.g., /w MFG displays the MFG list

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

STRUCTURE TELEPHONE

U.S.AREA.CODE: **//**
JOB.TITLE **President**
(other elements)

This prevents the other elements in the TELEPHONE structure from being skipped merely because there was no value entered for U.S.AREA.CODE.

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

APPENDIX D

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 **PF** commands on the menu at the bottom to perform various operations, e.g., **PF4** or an **X** will invoke the editor on the selected file, an **PF2** will allow you to browse the file, and **PF8** 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 **PF3** 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 F for human help.

APPENDIX E

Documentation

About the DOE/GSA ADPE inventory systems:

AUTOMATED DATA PROCESSING EQUIPMENT / DATA SYSTEM SYSTEM REFERENCE MANUAL

AUTOMATED DATA PROCESSING EQUIPMENT / DATA SYSTEM SYSTEM TRAINING CONFERENCE, JUNE 1984.

Occasionally, memoranda and new versions of CPU and MFG lookup tables will be distributed.

A complete set of SPIRES documentation is available by issuing the command DOCSPI and following instructions. The most important to use initially 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 Computing Services Library on the 2nd floor of Evans Hall on campus can provide documentation about YTERM, including"Using YTERM at U.C. Berkeley".

APPENDIX F

Human Help

For assistance, call:

Allan Konrad OCR ADPE Inventory Database Administrator	x 5458
Richard Sanders, Calculon, Washington D.C.	FTS 233-5046
Susan Wang, Calculon, Washington D.C.	FTS 233-2733
Stacy Evans, Calculon, Washington D.C.	FTS 233-5953
Shirley Burnell, DOE/SAN	(415) 273-7744
Al Cox, Project Manager Office of ADP Management DOE/HQ	FTS 233-3307
DOE Computer Hotline	(301) 353-2500 or FTS 233-2500
RELAY technical support	203-798-3900
DOE RELAY expert (Cindy Potter)	FTS 233-3363
RELAY general number	800-847-3529

APPENDIX G

Using Xedit

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

(**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. The default for the TRAINING system is to be in upper and lower case both in the editor and in SPIRES. If you have problems with case, call for human help (Appendix F).)

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, refering to your "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 **DELETE, INSERT** and **CNTL-E** keys (see Appendix B)

Use the "cursor" keys to move the cursor around on the screen. On an IBM PC terminal, depress the "arrow keys" on the numerical keypad.

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.

To save your editing, enter the command **FILE** on the command line. To discard your changes and return the file to its original state, enter the command **QUIT** or **QQ**.

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 *un*known 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 *un*known 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 virtually an 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 E for a list of documents which describe how to use the editor. If you need assistance, please see Appendix F for human help.

APPENDIX H
Forms

1. ADP Inventory Worksheet, SYSTEMS
2. ADP Inventory Worksheet, COMPONENT
3. Transmittal Memorandum and Certification of ADPE Inventory

APPENDIX I

Information for OCR ADPE Database Administrator

The menu facility is written in SPIRES protocol language, without the use of PRISM. The dynamic variable FLAG is initialized at 0 and set to 1 if validation (Action 70) detects an error which cause prohibits generating a DOE/GSA report. The GSA = YES flag and the DELSYS flag are merged into system records via output formats only when the dynamic variable PROTOMODE is set to YES and the WITH UPDATE prefix is prepended to the display command, as in the interface.

Numbers and letters cannot be sequenced properly because hex counting (base 16) begins with numbers then letters, 0-9, A-F, whereas internal hex values assigned to characters sort all letters before numbers, A-Z, a-z, 0-9.

Because of the PRIV-TAG on the pointer elements, DEQueing is priviliged except in the Maintenance version of each subfile (separate subfile access).

The dynamic variable FLAG has a single purpose: to signal if an error has been detected in data validation which should prevent a valid report from being generated. FLAG only indicates whether a validation action detected an error. The variable 70VALDATEX indicates whether 70VALDATE has successfully concluded and also whether any records have been added to the deferred queue, and whether therefore action 81GSA may be executed to make a report. The database must be processed (DEFQ empty) before Action 81, GSA/DOE report is permitted.

Priv-tags are implemented for those output formats which also do input with PUTELEM under WITH UPDATE control: ADPSYSRPT and GSADELETE. Formats will prevent merging if the PROTOMODE flag is not set to YES.

Note that after Action 81 runs, all system reords will be in the DEFQ (because of new GSA values). Therefore, if 81 fails and is run again, the user will be told to Validate the file (Action 70). Action 70 must be preceded by processing the database. If Action 81 fails, the GSA flags should be restored by DEQueing system records by the OCR ADPE Database Administrator.

If Action 81 aborts in the middle, it may occur after GSA = NO values have been merged into the SYSTEMS records. If it is necessary to restore the GSA flags, ATTACH 1 of WILEY1:ADP, for DEFQ, DEQ ALL. The former QUALIFY and REPORT files may also have been saved, so that you know which records were reported to DOE.

The value of a system, i.e., combined values of all its components (*not* calculated according to GSA but sum of actual values), is not stored in the SYSTEMS record or anywhere else, but recomputed each time the system record is displayed or reported.

APPENDIX J

October 29, 1985

ADP Inventory Division Representatives

Contact and Extension	Mailstop	Location	Unit Represented
Russ Montello 5585	65-100	65-100	Administration
Ken Bregger 5011/5067	4-230	4-223	AFRD
Jeff Hirsch 5711	90-3147	90-3145	Applied Science
R.P. Singh 6411	46A-1123	46A-1123	Biomedical
Rebecca Hernandez 5690	50C-101	50C-101	CAM
Gary Smith 4326	3-130	Calvin Lab Room 302	Chemical Biodynamics
Irene Partyka 4242	50B-2239	50B-1232	Computation Services
Harvard Holmes 5742	50B-3238	50B-3238A	CSR
Karl Olson 6129	50E	50E-109	Earth Sciences
Michelle Gachis 6727	50A-5104	50A-5117	Engineering Division
Robert Harvey 4764	50A-5104	50A-5104	FM&TS
Sandy Stewart 5721	62-203	62-213	MMRD
Chuck McParland 4887/6956	50-246	50-246	Nuclear Science
Stu Loken 6531	50-137	50-137	Physics

Coordinator

Allan Konrad 5458	50B-2258	50B-2258C	Computing

APPENDIX L

RELAY Updates

The current version of RELAY is version 2.4. Future updates will not be made to RELAY, but a product called RELAY GOLD. If the DOE ever requires our use of RELAY GOLD, the product will have to be purchased.

To obtain updates, use RELAY to call the RELAY, Inc. server. There is a RELAY system on the directory menu in RELAY. Select it and press F1. The password is **Danbury** (note capital D).

At the conclusion of the download, a message will instruct you to read a letter on what to do next. Read it and note the filename to be used in the LOAD command below. If necessary, see Appendix F for the RELAY technical support number.

After receiving new files:

1. Establish path to DOS BASICA: PATH \DOS

2. BASICA

3. LOAD "file named in letter file indicated at conclusion of download"

4. RUN

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