Help Desk Management System
User's Manual

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Information Systems Group
Network Operations

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Release Notes

Please direct comments and corrections concerning this documentation to John Scoggin [John Scoggin@Netops@DataCenter (VINES), scoggin@delmarva.com (Internet/UUCP), or 302-451-5200 (voice), or (if all else fails) 500 N. Wakefield Drive, Newark DE 19714 (unreliable transport)]. This documentation was originally written during the summer of 1990 by John Stewart, a summer intern at the University of Delaware. This is the third release of the HDMS manual and it represents a good deal of development effort by John Stewart, Dennis Mabrey, Paul Grepps, and J. R. Blaine Boyles. New additions include:

(1) Data Entry section now alphabetized by Form name
(2) Ten new Forms
(3) Expanded report section including descriptive table
(4) Description of UNIX-to-VINES mail using SMTP

The document was originally written using Word Perfect, then laboriously converted to MS Word for Windows by John Scoggin. Screen images were captured and converted to .TIF format using Inset Systems' outstanding products "Insite" and "Hijaak". Both Word for Windows source and Post Script output of this manual are distributed with the source code of HDMS.

Any errors that are pointed out to me will be corrected on the next version, so if something isn't working the way the manual says it should, please notify me via e-mail.

Thanks are in order to the Internet Engineering Task Force's NOC Trouble Ticket committee - their "Functional Specification Wishlist" DRAFT FYI was helpful in solidifying some of the features of the Problem Management subsystem of HDMS.

Introduction

This document describes the operating procedures to be used in conjunction with the Help Desk Management System (HDMS) as implemented on our Compaq SystemPro running SCO UNIX. HDMS was built using the Accell Integrated Development System. Accell IDS is a product used to develop relational database applications. The advantage of relational database systems over older "flat-file" databases is that once information is entered into the database, the application allows us to access that data in many different ways; this way we can see the data in whatever context/format is most convenient for the task at hand. This document will deal mostly with running the application and "moving around" through the system of menus so that the data can be entered correctly and efficiently. The organization will be such that when you need to enter a particular item into the database, you simply go to the correct section of this manual and follow the directions explicitly. The typesetting used in the document should also be a help to the end user, especially when this manual is used as a "Quick Reference." You will notice that all of the "normal" text (body text) in the manual appears in the font of this sentence (Times Roman, 10 point). `Any text that you will have to type, or any text that is produced on the screen and reprinted in the document will appear in this sentence's font (Courier 10cpi).`

Logging On and Starting

The first thing you need to do is log on to the UNIX system. You should speak to your supervisor about how he/she wants you to log in, though you will most probably be using a method called "telnetting through the LAN." Telnetting is the process of using the telnet protocol to connect and remotely log onto a computer (such as the SystemPro). Once you know how to log in, you should get to the point where the screen reads:

```
System V.3.2 UNIX (delmarva.delmarva.COM)

login:
```

At this point, you should type in the login name that you were given (usually your last name) and press <ENTER>. When the computer prompts you for your password, type in the one that you were given with your login and press <ENTER>. Normally, you would be presented with a UNIX prompt at this point, but in order to make using the SystemPro and HDMS as painless as possible, we have constructed a login menu which will allow you to quickly and easily change your password, read your mail, take a tutorial, enter HDMS, or logoff the system. An example login menu is shown below:

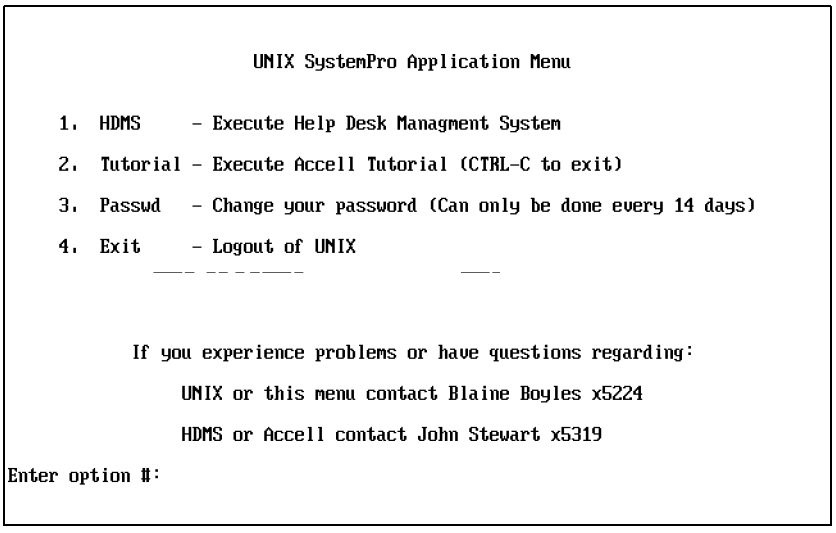

Figure 1

At this menu, you should type the number that corresponds to the action that you wish to take. If this is your first experience with HDMS, we strongly suggest that you take the ACCELL Tutorial at this point (see the section entitled "Taking the Online Tutorial" for instructions). Once you have taken the tutorial and feel comfortable with the ACCELL system, you will probably choose HDMS from your login menu most often. When you choose the HDMS option, you will be taken to HDMS's Main Menu which is shown below:

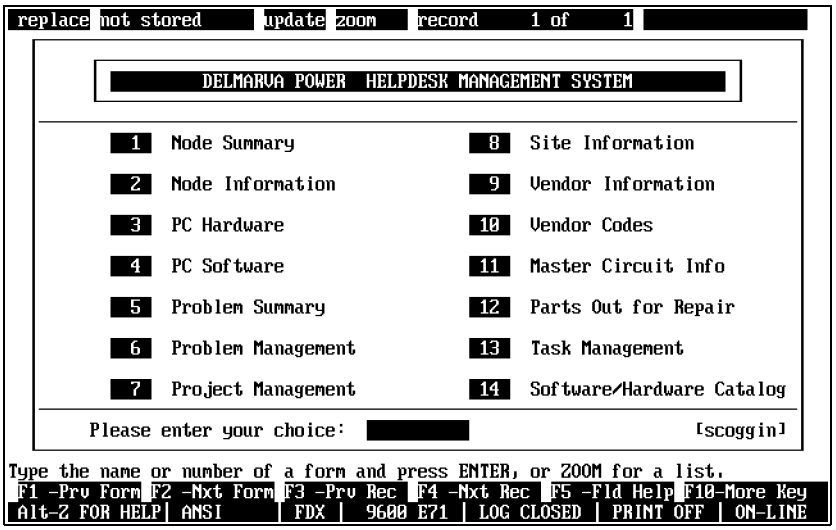

Figure 2.

At this menu you should enter either the name or number that corresponds to the form you want to go to. This menu shows the most commonly-used applications within HDMS. You may press ZOOM for a complete list of available forms.

Database Terms

Before you can start to understand how HDMS works, you must first understand some general ideas about databases and then you must understand the structure of the HDMS menu system. HDMS was built using the Accell Integrated Development System. With the Development System, you can create and customize applications (like HDMS) which are used enter, analyze and manipulate data; this application is called the Database System. The purpose of this manual is to cover the Database System and its operating procedures. The Database System is made up of two parts. The first part is Database Management. This is the part of the database which defines the Tables. Tables are simply collections of fields of certain types (i.e. STRING, NUMERIC, DATE, etc.) which are used to separate the data into logical categories. Each Table will hold one specific type of information. For example, we have a Table to track problems reported, another for PC Software and Hardware, and another for information on vendors. The Tables are like electronic templates in that when data is stored in the database, it is stored in the format defined by the Table. Each one of these sets of data that is stored is called a Record. Many Records can exists for a given Table. The second part of the Database System is the application design section. This is the part of the database which contains the Forms and the Scripts; the purpose of the Forms and Scripts is to customize the application that "sits on top of" the Database Management part. In other words, the Forms are the "front end" to the Tables; this is the actual "thing" you see on the screen when you enter data. The Scripts are the programming language and environment where we create most of the features and functionality.

HDMS Menu System

Now that you know how a general database is set up, you must understand how the HDMS menu system works. Most of the Forms in HDMS are linked to other Forms through Field definitions. These links make input, searching, analyzing, and other common tasks convenient and efficient. For example, if you finish entering a PC and you need to enter the hardware that is installed on that PC, on some systems you would have to write down the Node ID, go to the main menu, choose the Hardware option and then do data entry from there. In HDMS, however, from the PC Information screen where you started, you could simply press a couple of keys and you will be presented with the Hardware Information screen. In addition, the application will help you by filling in as many of the fields on the Hardware Information Form as it can. This makes both the data entry and the data retrieval very convenient and appropriate for the task at hand. However, in some cases you can begin to "nest" quite deeply in menus, sub-menus, sub-sub-menus, and so on. As a result, it is important that you remember where you are in this chain of menus.

Movement and Function Keys

There are several different ways that you can move around the screen in Accell. You can move the cursor forward from field to field using either the <ENTER> key or the <DOWN-ARROW> key; backward from field to field using either CTRL-U (press and hold CTRL then press U) or the <UP-ARROW> key. Within fields, you can move the cursor with the <SPACE BAR>, the <LEFT-ARROW>, <RIGHT-ARROW>, and <BACKSPACE> keys. The <TAB> key is programmed to take the cursor to important fields on the screen for maximum efficiency for input. It would be a good idea to take the tutorial in order to get a feel for the how the system works; the tutorial is described in the next section.

You will find that there are many function and control keys that you will need to use in order to operate HDMS. HDMS gives you the option of using the actual function key on the keyboard (e.g. <F9>), or an associated Escape Sequence (e.g. <ESC>-rc). During certain actions, some of the options are enabled while others keys are disabled. In order to find out which keys are available at a given time, you can look at the bottom line of the screen. This lists six function keys and their action. One of these options is always the MORE key. When you press this key, the next set of six keys (including the MORE key) are listed. Also note that if you are on a PC (which has only ten function keys), in order to access the other ten, you should use the <ALT> key with the function key "ten less than what you want." For example, to access <F11>, you should press and hold <ALT> and then press <F1>. Note that for the Escape Sequences (such as the <ESC>-rc example given above), the way you enter them is to press and release ESC, then press and release r and finally press and release c. Also note that the Escape Sequences are case sensitive. An example of this is the fact that <ESC>-h means Field Help while <ESC>-H means Help Menu. On the following pages you will find a table summarizing each key and its function; at the end of this manual there are two Quick Reference key charts indicating which key corresponds to which function.

Function Key Summary Table

Key Name	Key(s) On Keyboard	Escape Sequence	Action
Previous Form	<F1>	<ESC>-pF	Takes you to the Form you were at before the current one
Next Form	<F2>	<ESC>-nF	Takes you to the Form(s) defined as "next" for the current Form
Previous Record	<F3>	<^>	Takes you to the preious record in the current group
Find	<F3>	<ESC>-fi	Searches the database for records matching the pattern on the screen
Next Record	<F4>	<down arrow>	Takes you to next record in the group
Field Help	<F5>	<ESC>-h	List help for current field
Help Menu	<F6>	<ESC>-H	Displays any available help menu
Clear to Add	<F7>	<ESC>-ca	Clears the current form and allows you to add data
Replace/Insert	<F8> or <INSERT>	<CTRL-e>	Toggles keyboard mode between replace (type over) and insert
Add/Update	<F9>	<ESC>-au	Adds current data on form to database
More Key	<F10>	<ESC>-mo	Displays additional function key definitions
Recall Field	<F11>	<ESC>-rc	Restores original contents of a field
Explain Error	<F12>	<ESC>-ee	Explains an error in more detail (if available)
Clear to Find	<F13>	<ESC>-cf	Clears the form in preparation for a search
Previous Set	<F14> or <PG UP>	<ESC>-ps	Takes you to the previous group of records in the current set
Next Set	<F15> or <PG DN>	<ESC>-ns	Takes you to the next group of records in the current set
First Record	<F16> or <HOME>	<ESC>-fr	Goes to first record of current set
Last Record	<F17> or <END>	<ESC>-lr	Go to last record of current set
Delete Record	<F18>	<ESC>-dr	Delete current record
ZOOM	<CTRL-Z>		Go to the ZOOM form if present
QUIT	<CTRL-C>		Quick exit from HDMS
Next Field	<ENTER>		Go to the next accessible field on the current form
Previous Field	<CTRl-U>		Move to previous field
Next TAB Stop	<TAB>	<CTRL-I>	Go to next field defined as a TAB stop

Taking the Online Tutorial:

As stated before, it would be a good idea to take the tutorial so that you can get a feel for both the menu system and the movement keys. This tutorial is provided to give you a sampling of the functions that are available in a typical application created with Accell. The tutorial database that you will use has nothing to do with HDMS, but the menu systems and Function Keys are identical. To enter the Accell Tutorial, you should log on and choose the User's Tutorial option from your login menu.

Initial Run of the Tutorial

If this is the first time you have entered the Tutorial, you will see the title screen come up and you should then see the question:

```
Do you wish to create a new data dictionary?
```

You should type:

```
y
```

and press <ENTER>. The screen will then read:

```
Creating new dictionary...
```

You will then see Accell's Main Menu. You want to choose the User's Tutorial, so you may either use the arrow keys to highlight that selection, or you may just type 3 and press <ENTER>. The screen should read:

```
Creating Tutorial Datbase -- please wait a moment or two.
```

After a few seconds, it should read:

```
Loading Tutorial Application -- wait a moment more.
```

When this message disappears, you will be in the User's Tutorial. At this time, you should follow the instructions given in the section entitled "Using the Prospect and Order Tracking Application" found in the back of this manual.

Returning to the Tutorial After Logging Off

If you have already taken part of the Tutorial and you enter it again, you will have a Data Dictionary, so you will not be asked if you want to create one. Instead, you will immediately be taken to Accell's Main Menu where you should choose the User's Tutorial. When you enter the Tutorial, your screen should read:

```
Reset the Data Base and start fresh (Y or [N])?
```

If you wish to erase all of the old information and start over from the beginning, you should answer Y and press <ENTER>. If you want to continue where you were before, you should answer N and press <ENTER>. Once again, to take the tutorial, you should refer to the section entitled "Using the Prospect and Order Tracking Application" found in the back of this manual.

Data Entry

The rest of this manual will cover data entry of information specific to HDMS. It will be in an outline format where the bold items in the large typeface on the left margin are main menu items. To the right of the main menu option is a form name which can be entered at the main menu to go directly to that screen. (Note that this screen name is case sensitive.) Indented beneath that item are descriptions of the function of the option as it pertains to the HelpDesk as well as a detailed description of each of the fields on the involved screen(s). (It may seem inconsistent with the rest of this manual to have the main menu options in a larger typeface than other headings, but you will probably find that this section is the one that you will refer to most, and the larger typefaces should make the main menu options very easy to find.)

Associated Circuits (cirsum)

This form is where general information is entered for "sub-circuits" associated with the Master. An example of the screen is shown below:

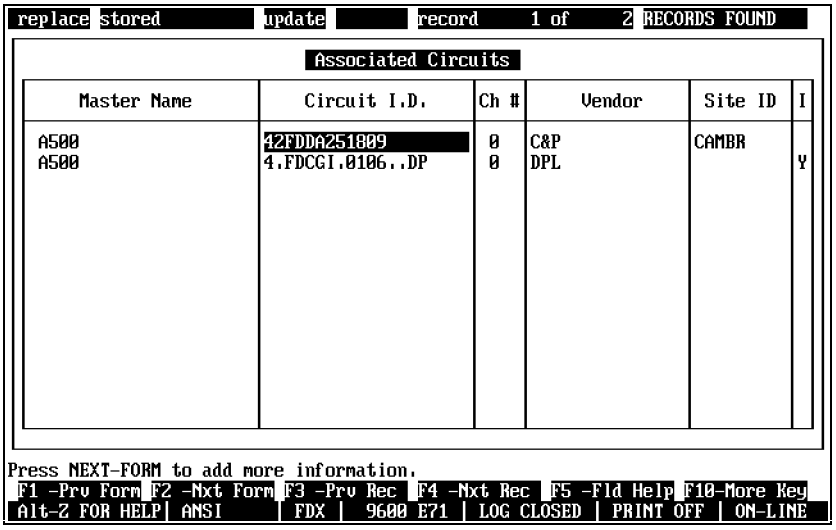

Figure 3.

When you want to enter information, you should press CLEAR-TO-ADD. When you do this, the system will automatically fill in the Master Name and the cursor will be taken to the Circuit I.D. field. You should fill in the fields using the following descriptions:

Master Name:	Automatically filled in by HDMS.
Circuit I.D.:	The circuit identification number.
Channel #:	The channel number of the sub-circuit that identifies it (along with Circuit I.D.) uniquely from other sub-circuits associated with the same Master.
Vendor:	The vendor for the circuit. In the case that the circuit belongs to Delmarva, the vendor should be entered as "US".
Site ID:	The site location of the circuit.

Once all of this information has been entered, you should press ADD/UPDATE and then NEXT-FORM to enter more specific information about the circuits. The reason why all of the information is not entered on one screen is that different information is required depending on the vendor. When you press NEXT-FORM, HDMS "reads" the vendor for the current record and brings up the correct form for that vendor.

Cross Connect Record (crosscon)

This is the screen where you enter information about cross connects between jacks on DSX Panels.

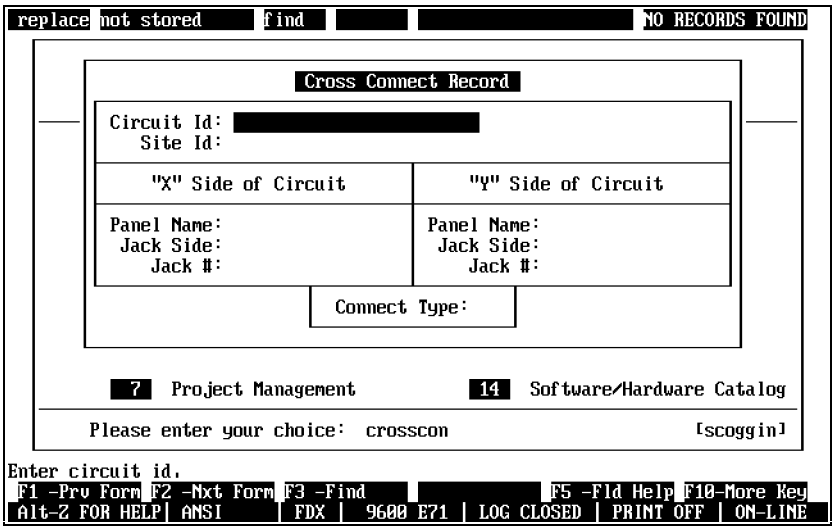

Figure 4.

Circuit Id: Identifies the circuit that the current cross connection is associated with. This must be input here.

Site Id: This is the site id for the panel, side, and jack of both the 'X' and 'Y' side of the cross connection. This is filled in by the DSX jack records automatically.

"X" Side of Circuit:

- Panel Name: The panel name of the "X" side cross connect. You can ZOOM from this field to the jack records from here. Only the available jacks will appear when you ZOOM to the jack records. If you press <F1> from the jack record its panel name, side, and jack number will be pulled into the cross connect record and the site id of the panel you have selected will also be filled in on the cross connect form.
- Jack Side: The jack side of the "X" side's panel.
- Jack #: The jack number of the "X" side's panel.

"Y" Side of Circuit:

- Panel Name: Same as the "X" side of circuit.
- Jack Side: Same as the "X" side of circuit.
- Jack #: Same as the "X" side of circuit.

Connect Type: This can either be an 'X' for crossover or 'S' for straight through.

Notice that the Circuit Id field and both Panel Name fields are tab stops for quick movement on this form.

DP&L Circuits (dpl)

This is the form where additional information is entered for circuits that belong to Delmarva. An example of this form is shown below:

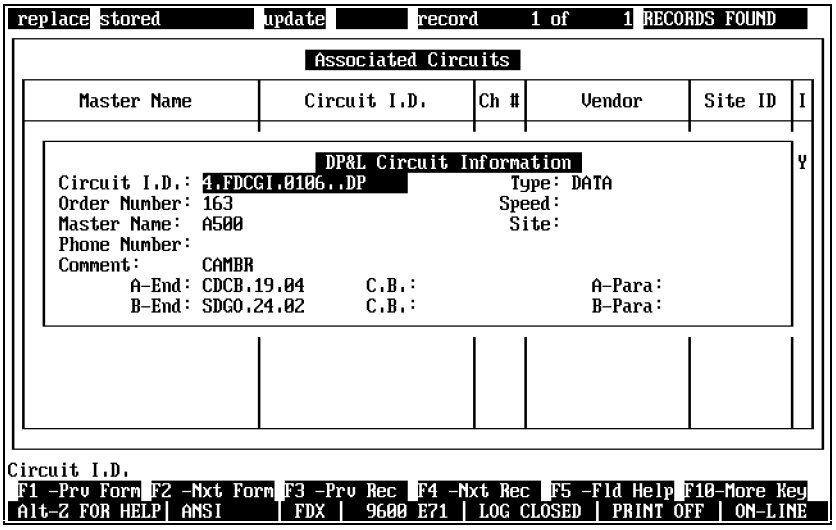

Figure 5.

If you just entered data onto the Circuit Summary form and pressed NEXT-FORM to get here, then you should press CLEAR-TO-ADD and follow these directions for filling in the fields:

Circuit I.D.:	This field is automatically filled in by the system by taking the Circuit I.D. that you typed in at the Circuit Summary form.
Type:	This is the Omnimux Card Type for the circuit (i.e. RS232, 4WTO, etc.).
Order Number:	The order number for the circuit.
Speed:	The speed of the circuit in baud.
Master Name:	This field is automatically filled in by the system by taking the Master Name that was entered on the Master Circuit Information form.
Site:	The site where the circuit is located. This is a ZOOM field.
Phone Number:	The phone number contact for the circuit.
Location:	A detailed description for where the circuit is located.
A-End/C.B.:	The A-line record of the Omnimux 9000 (i.e. CDC.10.1).
A-Para.:	A three digit number which describes the circuit.
B-End/C.B.:	The B-line record of the Omnimux 9000.
B-Para.:	A three digit number which describes the circuit.

Once you have filled in all of the fields for the DP&L circuit, you should press ADD/UPDATE to save the information, and then press PREV-FORM to return to the Circuit Summary screen. You are now done with that circuit and may either add another or return to the main menu.

DSX Jack Summary (dsxjacks)

This screen shows you the allocations of jacks to certain circuits. The form below shows the jacks that were automatically created after creating the panel "DSX BAY #1."

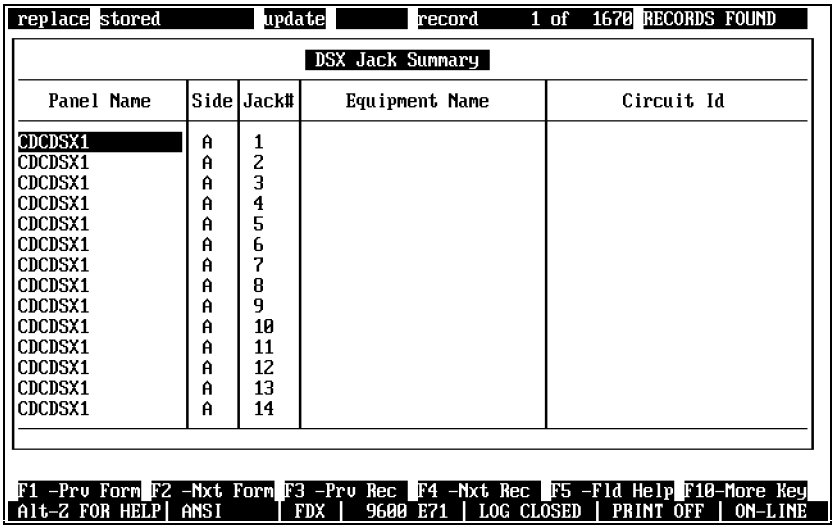

Figure 6.

Panel Name: This is the name of the panel that the jack is located on. Its value is generated by the DSX Panel Record after adding a panel.

Side: This is the side of the panel that the jack is located on. Its value is generated by the DSX Panel Record after adding a panel.

Jack#: This is the number of the jack located on the current panel. Its value is generated by the DSX Panel Record after adding or updating a panel record.

Equipment Name: This is the name of the equipment. It refers to the manufacturer and model of the panel.

Circuit ID: This identifies which circuit the jack is associated with. This is taken from the cross connect records so there is no need to change this value.

DSX Panel Record (dsxpanel)

The DSX Panel Record is used to hold information for a whole panel of circuits. Each panel record has two sides, 'A' and 'B', and an associated number of jacks for each side. An example of the panel record form is shown below:

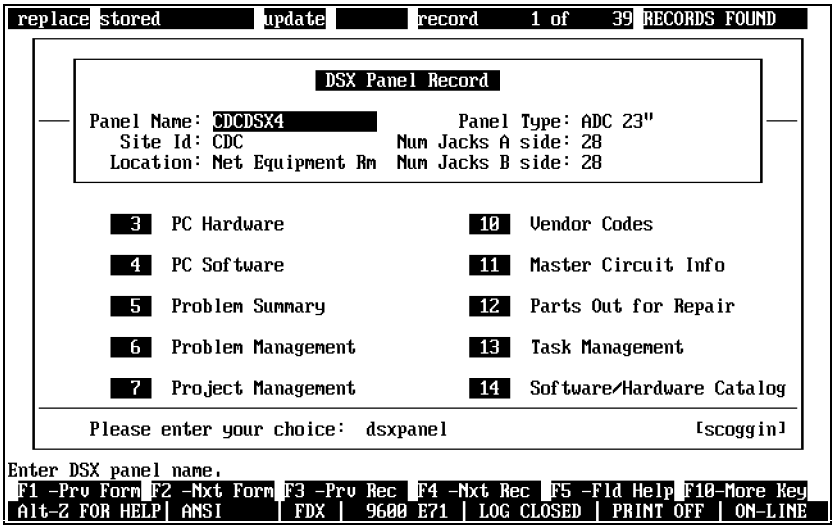

Figure 7.

Panel Name: A name for the panel.

Site ID: This identifies the name of the site where the panel is located. This is a ZOOM field to the site form of the database. If you just enter a name it will automatically check the site table to if the site is valid. If the site is not valid an error message will appear on the FYI line. You will need to press <RETURN> after reading the error message. If you ZOOM to the site form you can pull back the site that is on the current record by pressing <F1>.

Location: The name of the room that the panel is located in.

Panel Type: The type of panel it is.

Num Jacks A side: This is the number of jacks on the 'A' side of the panel. You can have a jack number in the range: 1..99. When you first add to the form the jack records are automatically created to match the numbers of jacks on the current panel. To add jacks at a later date just pull up the panel record that you want to add to and change the number of the jacks for the side and press ADD/UPDATE and this will create more jack records to match the number.

Num Jacks B side: This is the number of jacks on the 'B' side of the panel. This field operates just like the one above.

Make sure you press ADD/UPDATE when you are finished adding or changing the panel information. Note that if you press DELETE-RECORD you will be prompted with a "do you really want to" message. By typing "yes" you will delete all jack records and all cross connections associated with that panel. Typing no will reject the delete operation.

Employee (employee)

This Form is used to hold VINES or SMTP electronic mail addresses (indexed by initials) for HDMS users. This data is used in two ways. First, when a project is marked as completed, mail is sent to the person who requested the project. Second, users may forward information about a problem or assign a problem to other people. An example of the form is shown below:

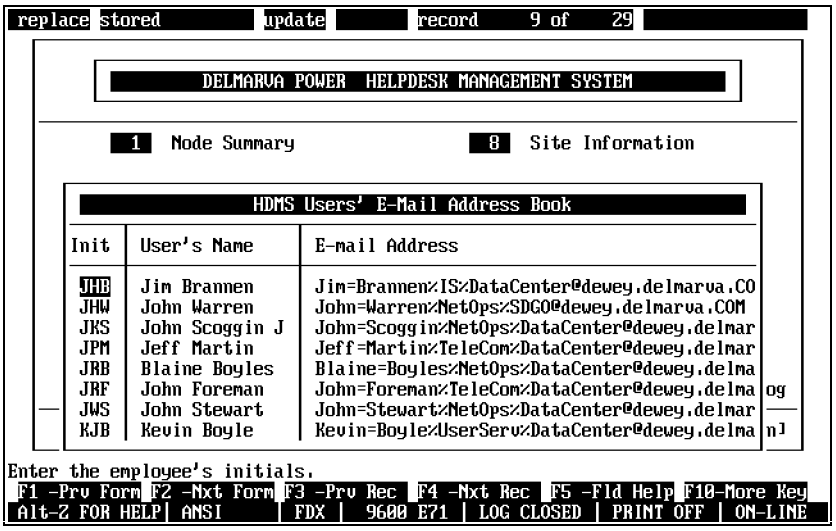

Figure 8.

If you need to add your name (or someone else's) to this list, you would press CLEAR-TO-ADD (as usual) and enter the data. The first two fields should be self explanatory. One note, however, is to make sure that all initials are unique. Also note that the initials "OUT" are reserved, even though they are not listed. The address field can be a little intimidating, but if you take it piece by piece, it should make sense. Let us analyze the following address whose corresponding initials are "JWS":

```
John=Stewart%NetOps%DataCenter@dewey.delmarva.COM
```

(Note that these addresses are NOT case sensitive.) You will notice that everything up to the "@" sign looks exactly like your full VINES StreetTalk address except for the "=" and "%" signs. The part after the "@" sign is the IP (Internet Protocol) addressing scheme for the LAN server that sits on our Intercomputer Network (subnet 1). When you instruct HDMS to send mail to JWS, HDMS will search the database for the VINES address for JWS; it will (of course) find the address listed above. HDMS will then open a "pipeline" to the mail program that is on the SystemPro. HDMS will send the address, subject, and message body to this pipeline and HDMS will be finished. It is now the mail program's job to get the message to its destination. The program takes everything before the "@" as the user name and everything after the "@" sign as the host name. The mail program will send out SMTP (Simple Mail Transfer Protocol) packets onto the network with the destination address "dewey.delmarva.COM". Dewey (a Banyan VINES server) will intercept these packets until the whole message is received. After "stripping" off the "=" and "%" signs, Dewey will access the Distributed STDA (StreetTalk Directory Assistance) database and find the server where this user is located. Once this is known, Dewey will send the mail message to the correct server using the Banyan VINES Mail protocol.

LAN Card (lancard)

The LAN Card Form was created to replace the VM document LANCARD DOCUMENT. The purpose of this document is to keep track of ethernet addresses of the LAN cards in nodes on the LAN. An example of the form is shown below:

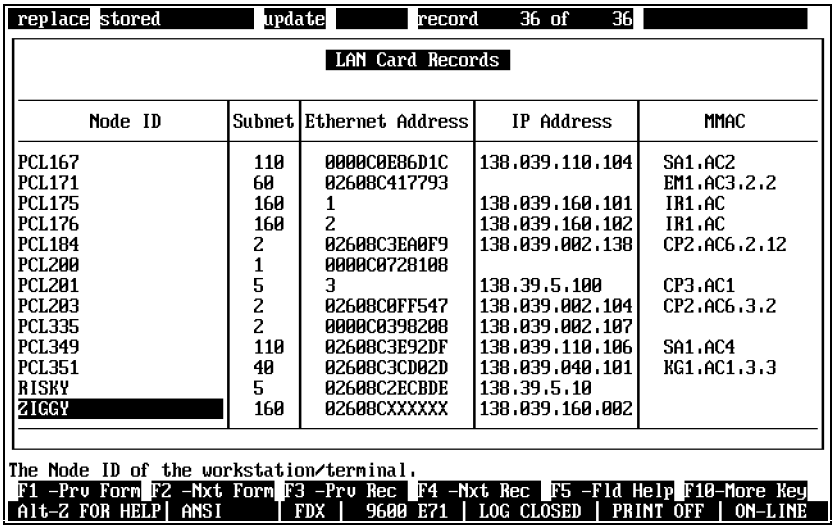

Figure 9.

The fields should be self-explanatory for the most part. One note, however, is that the format of the MMAC ID should be like the following example:

```
CP1.AC1.2.08
```

The first two letters specify the payroll identification for the site. The next two letters mean Access Center (this should be the same for all MMAC's). The next number specifies the card number of the MMAC; note that there is no more than one digit allowed in this field. This will never be a problem, however, because an MMAC can have no more than eight cards. The last field specifies the port number from the card; there are a maximum of two digits allowed here. This, too, will never be a problem because the most ports that a card can have is twenty four. The LAN Card form is "circularly" linked to the Node Information. What this means is that from the LAN Card Form you can press NEXT-FORM and choose Node Information to see information on the current node selected on LAN Card. However, you can also press NEXT-FORM from Node Information and choose LAN Card to see the record (if it exists) about that node.

Logical Connection (logcon)

Logical Connections are devices that are used to connect two or more PC's to one or more peripherals. One of the most common uses of a Logical Connection is to attach several PC's to the same laser printer. Logical connections themselves are entered as nodes. When a PC is attached to a Logical Connection, you should go to the Node Information Form, pull up the PC's configuration record, and add the Logical Connection ID to the Record. The purpose of the Logical Connection Form is to allow you to look at one or more Logical Connections and see which PC's are linked together. An example of a search for "LC001" performed on the Logical Connection Form is shown below:

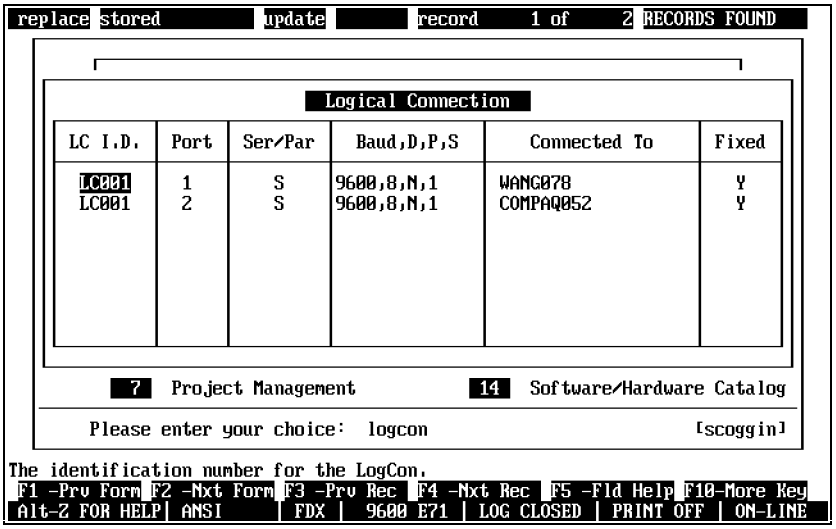

Figure 10.

Master Circuit (mastcir)

Entering circuit information is something that has changed significantly since the first release of this manual. Currently, the general procedure for entering a circuit is as follows (specifics will be discussed when the individual forms are introduced):

(1) Go into the Master Circuit form and enter the Master Circuit information.
(2) After adding the Master Circuit, go to the Circuit Summary form and enter general information for each Circuit associated with that Master.
(3) From the Circuit Summary form, go to the DP&L Circuit Information form or the Non-DP&L Circuit Information form (depending on the vendor) and enter more specific information about each circuit.

This section deals with the Master Circuit form, and the following sections deal with the Circuit Summary, DP&L and Non-DP&L forms. An example of the Master Circuit Information screen is shown below:

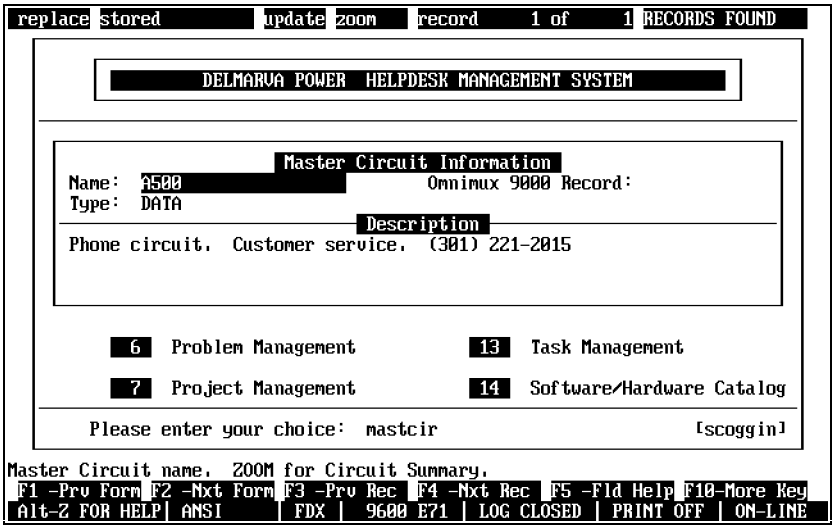

Figure 11.

This form should be used to enter the Master Circuits by using the following instructions:

Name:	The name of the Master Circuit (e.g. LINE9).
Omnimux 9000 Record:	The model number of the Omnimux 9000.
Type:	The type of circuit that the circuit is (e.g. 4 Wire, 2 Wire, Trunk).
Description:	These three lines are provided for any special descriptions that you wish to add to the circuit.

Once you have all of this information entered, you should press ADD/UPDATE. If you have associated circuits to enter, you should press ZOOM while at the Name field and you will be taken to the Associate Circuits Form. It is important that you press ZOOM and not NEXT-FORM because as of this writing, NEXT-FORM will produce an error message. If you do get this error, however, no harm is done.

Next Number (nextnum)

This is a very delicate part of the database that should never need to be used. This section is in the manual so that the user can understand how things like automatic numbering of PC's and problems is implemented. The Next Number Form is often used internally by HDMS, but is rarely used directly by the user. The Form contains just two fields. The first field is the field name and the second field is the next number. Below is the result of a general search performed on the Next Number Form:

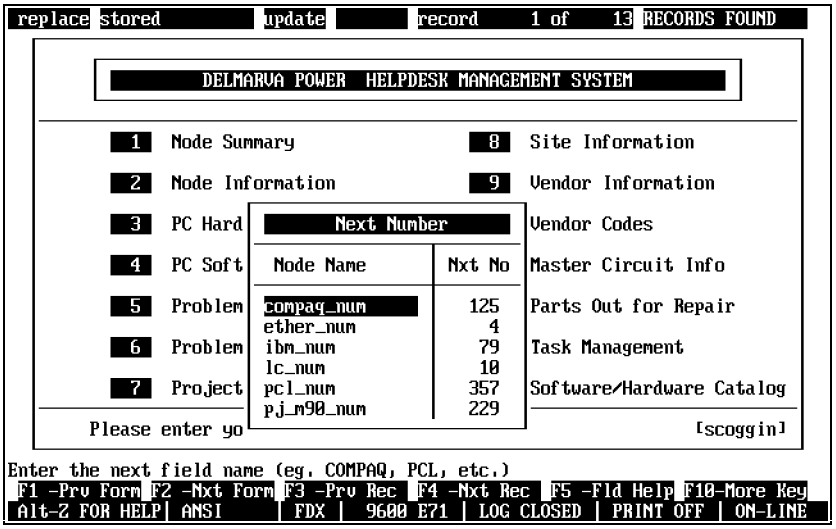

Figure 12.

The first field listed, compaq_num, is used when automatically assigning an ID number to a Compaq. When a user presses CLEAR-TO-ADD on the Node Information Form and types in COMPAQ, HDMS will access the Next Number database and search for compaq_num. When the field is found, HDMS takes the current value in the next number field and annexes it to the Node ID field on the Node Information Form. In this case, after the user enters COMPAQ, HDMS will almost automatically change it to COMPAQ124. Immediately after HDMS changes the field on the Node Information Form, it goes back into the Next Number database and increments the next number field by one. This is the same process for assigning ID's to IBM's, PCL's, problems, projects, etc...

Node Information (node)

This is the screen that you would use to enter a node. An example of the screen is shown below:

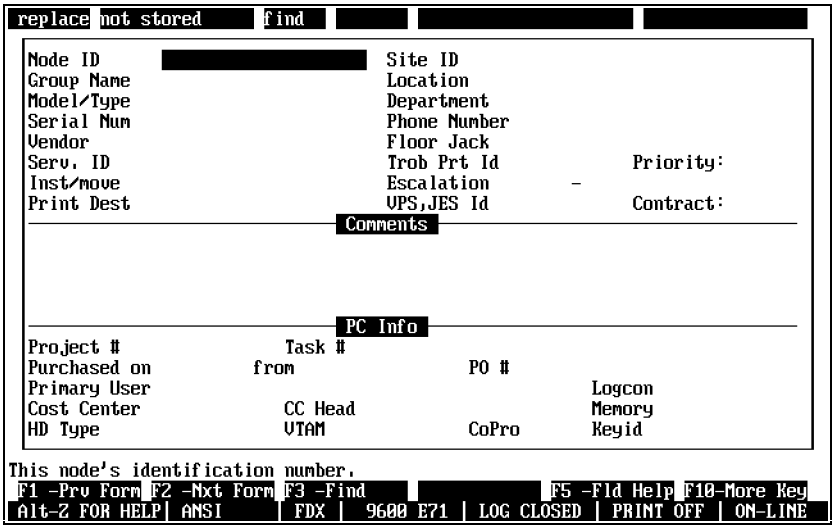

Figure 13.

To start entering the data, you should press CLEAR-TO-ADD. Note that data is not written to the database (and therefore not saved) until you press ADD/UPDATE. You are now ready to enter data in the following fields:

Node ID: A name for the node being entered. If it is a PC, you would type in the name of the manufacturer and press <RETURN>. When you press <RETURN>, HDMS will automatically assign the next available ID number to the end of the name (as long as it is a PCL, COMPAQ, IBM, TOSHIBA, or LC). This field does not have to be unique.

Site ID: The site where the node is located. Notice that this field is a ZOOM field because you can see ZOOM in the top portion of the screen. The ZOOM feature is an example of the linkage feature between screens that HDMS has. If you press ZOOM here, a screen called "Site Information" will be brought up and it will allow you to search for valid choices. For example, if you enter UNIV in the Site ID field and press FIND, Accell will find the information for that site and put it on the screen. If you now press PREV-FORM, you will be brought back to the previous screen and the Site ID will be filled in with the word UNIV.

Group Name: This field is similar to Major Node and is the general class that this node would fall into (e.g. PC).

Location: The location of the node at the given Site. This should specify the floor and area that the node is in.

Model/Type: The model or type of node (e.g. System 316SX).

Department: The department that the node belongs to.

Serial Num: The serial number of the node. This field is known as the key field for this form; as a result, the field is mandatory (the system will not allow you to enter a Node without it), and it must be unique.

Phone Number: Phone number of where node is located.

Vendor: This field is also a ZOOM field. If you press ZOOM here, you will be taken to a Vendor Information screen where you can search for information on a specific vendor the same way that the Site ID field is used above.

Floor Jack:	The floor jack number where the terminal/computer is plugged in.
Serv. ID:	The service ID given to us by the manufacturer that is unique to that machine.
Trob Prt Id:	Trouble printer ID. This is a ZOOM field. When you press ZOOM here, you are given a list of printers to choose from. Highlight the desired printer and press PREV-FORM, and you will be taken back to the previous screen with the corresponding field filled in.
Priority:	The initial priority level that the node has for repair.
Inst/move:	The date of installation or move. The installation field is automatically filled in by the system as the current date. If you press <ENTER> from the installation date field, your cursor moves to a field that looks like it has no heading, but this is the move date field.
Escalation:	This is somewhat like the priority field in that it sets how long the node will have to wait to be serviced. The default for this field is 0 which means 3 days 0 hours. If you do not need to change this default, leave the field blank. If you do need to change the default, you can use the ZOOM key.
Print Dest:	The four character abbreviation for the system printer.
VPS, JES Id:	The JES LINE number of the VPS unit. You may enter U to allow HDMS to automatically assign the next VPS number.
Contract:	The contract that the vendor provides for the node. Valid choices are NONE, T&M (time and materials), 40HR (8-5 Monday-Friday), 7DAY (7 days a week), TAC (Technical Assistance Center), SWAP (board/unit swap), and ONSS (ON-Site Swap).
Comments:	These four lines are provided for any additional comments that need to be made for the node.

If you entered anything other than a PC, you should press ADD/UPDATE and then you are finished and can either add the next node or return to the main menu and quit. If you did enter a PC, follow these additional instructions.

PC Node Entry

If you entered a PC, you should finish the screen you are on by filling in the PC Information part of the screen following these instructions:

Project #:	At input, this field should be left blank, it will be filled in later by the Project System.
Task #:	At input, this field should be left blank, it will be filled in later by the Project System.
Purchased on:	The date of purchase.
from:	The company the PC was purchased from.
PO #:	The purchase order number.
Primary User:	Self explanatory. This is a ZOOM field that is linked to the Corporate Directory form. For instructions on how to use this form, refer to the Phone Directory section.
Logcon:	The ID number of the Logical Connection the node is attached to. The default for this field is NONE. HDMS will not allow you to enter the ID number of a Logical Connection that it does not know about, you must first enter the Logical Connection as a node.
Cost Center:	The cost center number.
CC Head:	The cost center head.
Memory:	The amount of memory installed in the computer in kilobytes or megabytes (abbreviate as K or Meg, respectively).
HD Type:	If the PC has a hard disk drive, enter the type (from the CMOS memory).

VTAM: If the PC has a 3270 card, enter the VTAM ID.
CoPro: Enter YES if the PC has a math co-processor installed.
Keyid: The ID number of the security key for the PC.

If you need to correct any of the fields, you may move the cursor down by pressing <ENTER> or <DOWN-ARROW> or up by pressing <CTRL-U> or <UP-ARROW>. Once everything is correct, press ADD/UPDATE and the information you entered will be stored in the database. An example of a completed screen is shown below:

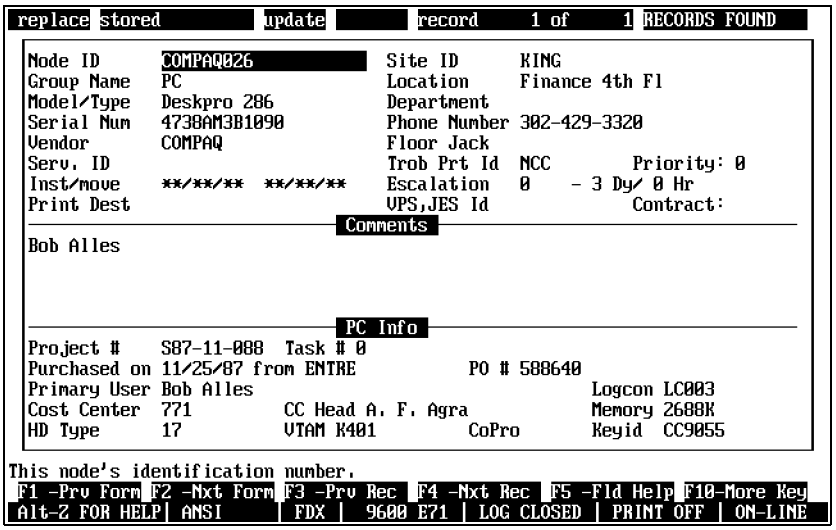

Figure 14.

Once this information is entered and saved, you should press NEXT-FORM. When you press NEXT-FORM, you will be given a short menu and your screen will look like this:

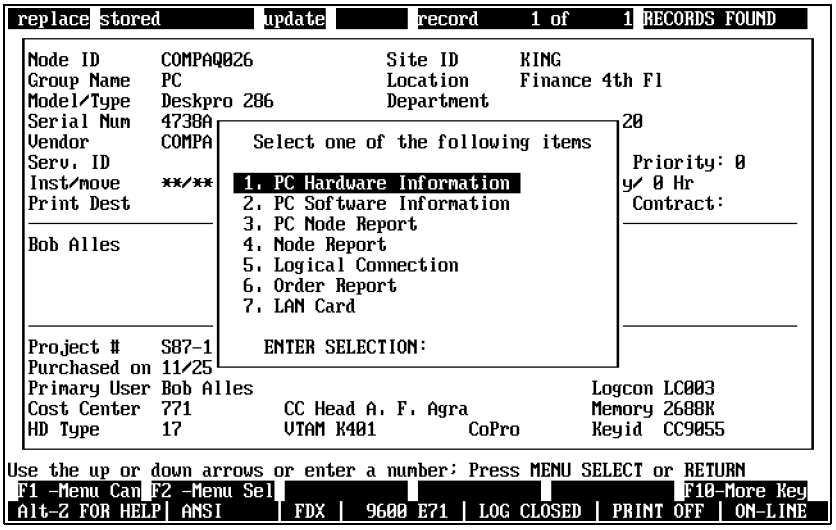

Figure 15.

You should choose the PC Hardware option. When the screen comes up, you will see a table similar to the one shown below:

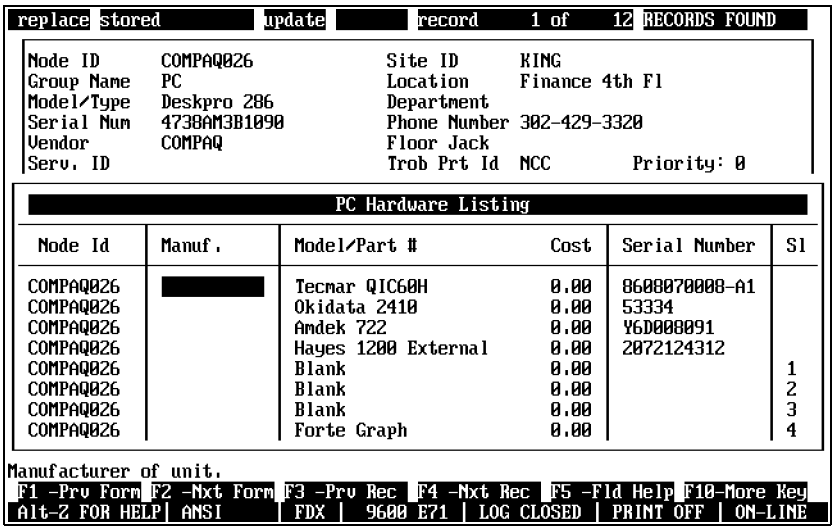

Figure 16.

If there are no hardware records, the system puts you in Add mode and inserts the PC ID under Node ID. For each piece of hardware that you want to add to the node, you should press CLEAR-TO-ADD and fill in each of the fields according to these instructions:

Node ID:	Automatically filled in by system.
Manuf.:	The company that makes the product (e.g HP).
Model/Part #:	The model or part number (e.g. LaserJet III).
Serial #:	The serial number for the piece of hardware.
Sl	The slot number (if any) that the piece of hardware uses.

After each line is done, you should press ADD/UPDATE, then CLEAR-TO-ADD and add another piece of hardware until all hardware has been entered. Once this screen is done for each piece of hardware in the PC, you should press ADD/UPDATE to save the information and then press PREVIOUS-FORM to return to the Node Information screen. At this screen press NEXT-FORM and choose the PC Software option. When the screen comes up, you will see a table similar to the hardware one you saw above. For each piece of software you put on the PC, you should press CLEAR-TO-ADD and fill in the fields using the following instructions:

Node ID:	Automatically filled in by the system.
Software:	The name of the software product (e.g. Lotus 1-2-3). In order for you to add a piece of software to a PC, that piece of software must be in the Software Catalog first. Because the package must be in the database, if you press ZOOM, you will get a list of allowable values for the field.
Version:	The numerical release of the product (e.g. 2.2).
Serial #:	The serial number of the product.

After each line is done, you should press ADD/UPDATE, then CLEAR-TO-ADD and add another piece of software until all of the software has been entered. Once this is done, you should press ADD/UPDATE to save the information, then PREV-FORM to return to the Node Information screen. At this point, you are finished with the node and may either return to the main menu or go ahead and enter another node.

Node Summary (nodes)

This option is used when you want to look at a list of nodes already entered, and you want to see several of them on the same screen rather than just one per screen. This screen should not be used to enter information. An example of this screen is shown below:

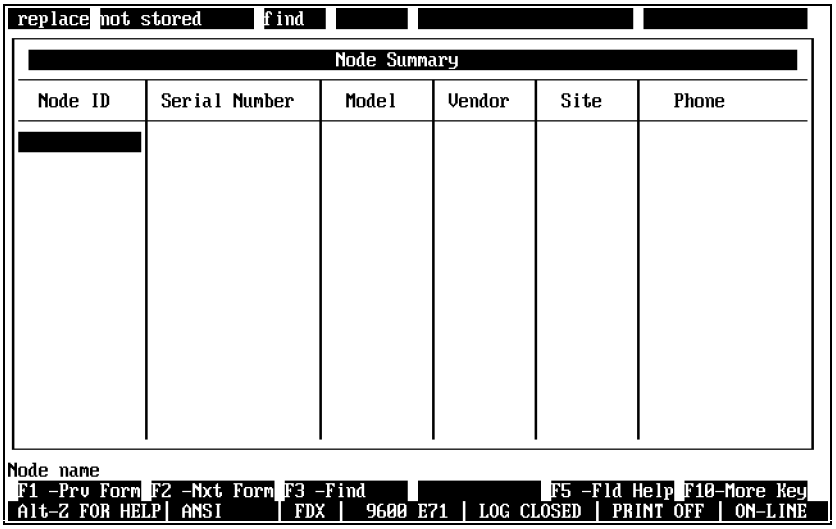

Figure 17.

Non-DP&L Circuits (nondplcir)

This is the form where additional information is entered for circuits that do not belong to Delmarva. An example of this form is shown below:

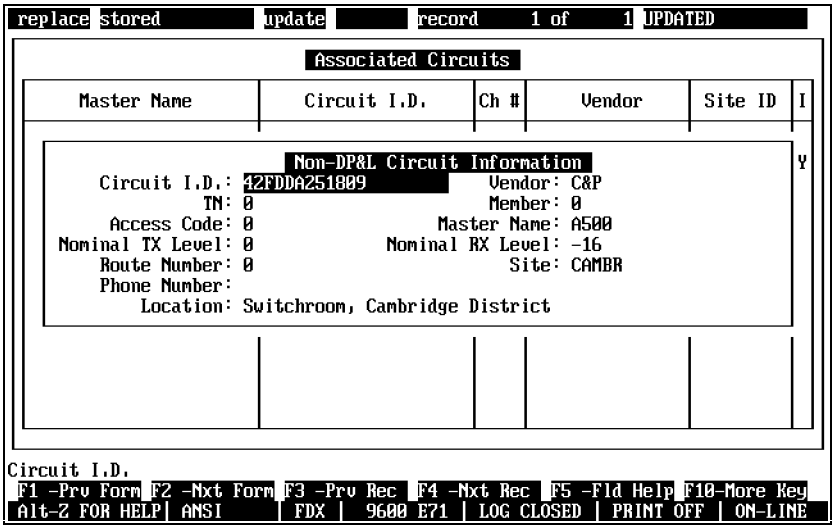

Figure 18.

If you just entered data onto the Circuit Summay form and pressed NEXT-FORM to get here, then you should press CLEAR-TO-ADD and follow these directions for filling in the fields:

Circuit I.D.:	This field is automatically filled in by the system by taking the Circuit I.D. that you typed in at the Circuit Summary form.
Vendor:	The vendor of the circuit.
TN:	Terminal number (Northern Telecom PBX's).
Member Nbr:	The member sequence number for a trunk group.
Master Name:	This field is automatically filled in by the system by taking the Master Name that was entered on the Master Circuit Information form.
Nominal TX:	The nominal transmit level in dBm0.
Nominal RX:	The nominal receive level in dBm0.
Route Number:	The route number for the circuit (Northern Telecom PBXs).
Site:	The site where the circuit is located.
Phone Number:	The phone number contact for the circuit.
Location:	A detailed description for where the circuit is located.

Parts Out for Repair (partsout)

When you enter this option from the main menu, you will be taken to the Parts Out for Repair screen. In order to enter information, you should press CLEAR-TO-ADD. An example of the screen after pressing CLEAR-TO-ADD is shown below:

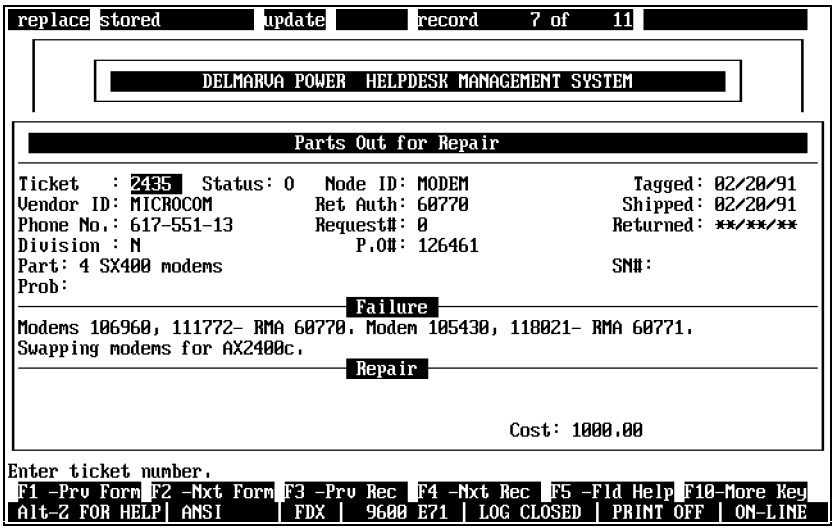

Figure 19.

and then use the following field descriptions:

Ticket:	The ticket number for the item out for repair.
Status:	The system automatically sets this to O (for Open).
Node ID:	The Node ID for the item out for repair.
Tagged:	This is automatically filled in with today's date.
Vendor ID:	This field is automatically filled in after a search has been done on the Node ID.
Ret Auth:	The return authorization number given to us by the receiving company.
Shipped:	The date that the item was shipped.
Phone No:	An inaccessible field automatically filled in after search on Node ID.
Request#:	The request number of the item going out for repair.
Returned:	The date the item was returned to us. Initially this field should be left as the default **/**/**.
Division:	Either N (Northern) or S (Southern).
P.O#:	The P.O. number.
Part:	The name of the part that failed, be specific. For example, "Seagate 300 Meg Internal Hard Drive from a PCL".
SN#:	The serial number of the item out for repair.
Prob:	The problem code for the item out for repair. This is a ZOOM field.
Failure:	These two lines are provided for a description of the failure, be specific. For example, "During boot, drive made loud noise and won't boot. Nothing unusual before."

When each field is filled in properly, you may press ADD/UPDATE and either go on to the next item out for repair or return to the main menu.

PC Hardware (pchard)

You will not enter data directly to this screen, however, you have used it before when entering hardware for a PC (NEXT-FORM from Node Information). This form can conveniently be used for searching a specific PC to see what hardware it has, or for seeing which PC's have a certain piece of hardware.

PC Software (pcsoft)

This screen is like the PC Hardware screen in that you do not enter data directly into it, but instead you enter data in it by way of the Node Information form. Also like PC Hardware, this form can be very useful when doing searches.

Phone Directory (phone)

This form is different than other forms in HDMS because it involves an aspect completely separate from Accell. This aspect is the transfer of the data from VM. The way this is done is by using FTP (file transfer protocol) to put the corporate phone directory into a file. Once that file is created, it is passed as input to a program which puts it in a format that HDMS can read. An example of the form is shown below:

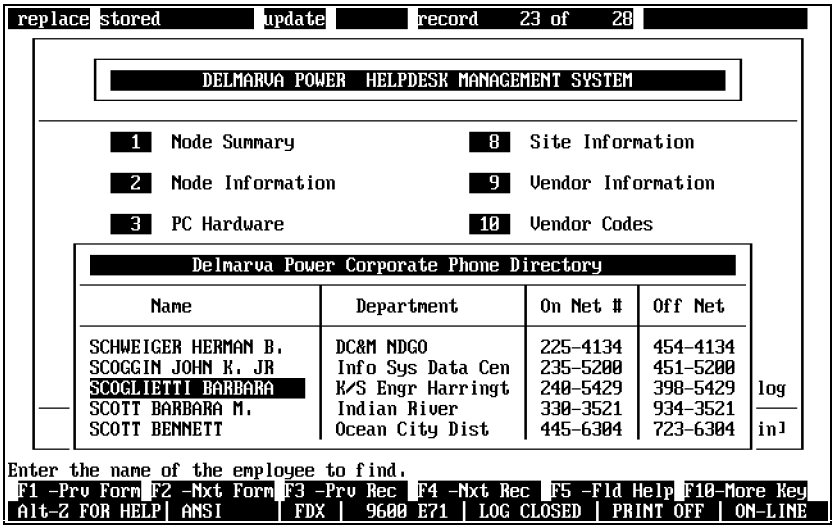

Figure 20.

As shown in the screen above, the form contains the employee's name, his/her department and phone number (both on and off the Delmarva Electronic Switched Network). When you use this form, you may search by any of the fields. For example, you may search by a name pattern such as "ANDREWS" and HDMS will find all people whose last name starts with ANDREWS. You may also search by department (the search shown above is for all employees in the "Info Sys Data Cen" department). On forms that are linked to this (e.g. Node Information via the Primary User field), you may find a name, and when you press PREVIOUS-FORM, the current name and phone number will be copied to the form that you ZOOMed from.

Problem Management (problem)

This form is the primary means for entering problems into the HDMS Problem Management System. To enter information into this screen, press CLEAR-TO-ADD and use the following instructions to input the data into the appropriate fields. An example of the screen after the CLEAR-TO-ADD is shown below:

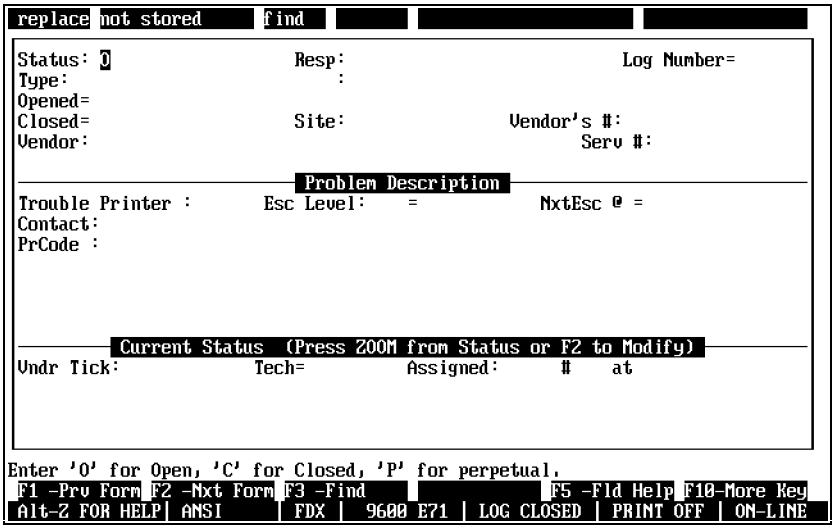

Figure 21.

Status: This is an inaccessible field that the system sets to Open.

Responsible: This field holds a code, either N for Northern Network Operations, S for Southern Network Operations, V for Vendor or U for User Services, and specifies who is responsible for repairing the node.

Log Number: This is an inaccessible field that the system sets to the next available number in the sequence of problem ID numbers.

Type: This is a one character wide field that specifies whether the problem deals with a node or a circuit. If the problem deals with a node (the default), leave the "N", if the problem deals with a circuit, change the field to a "C". Note that when this field changes, the heading for the next field (one to the right) changes to spell out fully "Node" or "Circuit."

Node/Circuit: If the problem is for a Node (Type is N), this field is the ID for the node that needs fixing. Also for a Node, when you type this in and press <ENTER>, the system fills in the Model/Type field (located directly beneath the Node field) and the Site field. If the problem is for a Circuit (Type is C), this field is the Master Circuit Name. If the problem is for a circuit, you may press ZOOM to go to the Master Circuit form.

Opened: An inaccessible field that the system sets to the current date.

Model/Type: This is an inaccessible field which is filled in by the system. The database automatically searches for the Node I.D. in the database and returns this information.

Serial Number: If the problem is for a node, this field is the serial number of the Node. If the problem is for a circuit, this is the specific Circuit I.D. for the down circuit. (Note that you may ZOOM to the Circuit Summary form and the system will automatically pull up all circuits associated with the Master Circuit in the Node/Circuit field.) If this is a project code, then the node is a PC which actually does not exist yet, but is used to plan for the needs of the project. This field is accessible, but rarely needs to be changed.

Closed:	An inaccessible date that the system sets to **/**/** 00:00. This field should not be changed until the problem is finished.
Site:	The site location of the node.
Vendor's #:	This is the vendor's Site Code. For example, Memorex has a code for each site that is requested when calling in a new problem.
Vendor:	The name and phone number of the vendor.
Trouble Printer:	The printer where the trouble report is to be sent to. This is a ZOOM field.
Escalation Level:	The time period before the priority level is increased, and the Network Operations Supervisor notified. This defaults to 3 days 0 hours, so if you do not need to change it, leave it blank. If you do need to change it, use the ZOOM feature.
Escalation Time:	This field is used by the system and should be left blank.
Contact:	The name, phone number and location of the primary user of the node.
PrCode:	The problem code. This is a ZOOM field which will allow you to choose from a list of common problem descriptions.
Comments:	These four lines are left for any free form comments that the problem needs.

Once you have all of the above information entered, you should press ADD/UPDATE to save your information. If you do not have any other information about the problem (like the action that should be taken, any action already done, etc.), you may either add the next problem or return to the main menu.

Problem Resolution

If you do have information about the problem's resolution, press NEXT-FORM. At this time, you will be presented with a menu with three choices. You should choose the Problem Resolution option. When you do this, the Current Status section of the screen is replaced with the Problem History screen. This screen allows us to track all of the actions that are taken for a specific problem. If you need to enter information into these fields, you should use these following descriptions:

Vendor Ticket:	Quite often when we call a vendor, they give us a reference number so that if we call them again, they have information to reference on their end.
Technician:	The name of the person who took the first action.
Assigned:	This is an optional field. Initials of a technician may be entered here. If this field is non-blank, the problem is e-mailed to the assigned technician. The date/time and assigning userID is logged.
Comments:	These three lines are used to describe what the action was. An example would be "Called Dell, transfered to Hardware Support, Tom said he would check on problem and call back Monday."

Once you have all of this information entered, you should press ADD/UPDATE to save the information, and then press NEXT-FORM to return to the Problem Management screen. You should press ADD/UPDATE one more time, and then you may either CLEAR-TO-ADD and enter another problem, or you may quit and return to the main menu.

Problem Summary (problems)

This is a multi-occurence form (like Node Summary) that can be used to display several problems at once.

Project Management (project)

The project management section of HDMS tracks the nodes that a certain project uses in fulfilling its tasks. If you select this option from the main menu, you will be brought to what is called a "multi-occurrence form." An example of this screen is shown below:

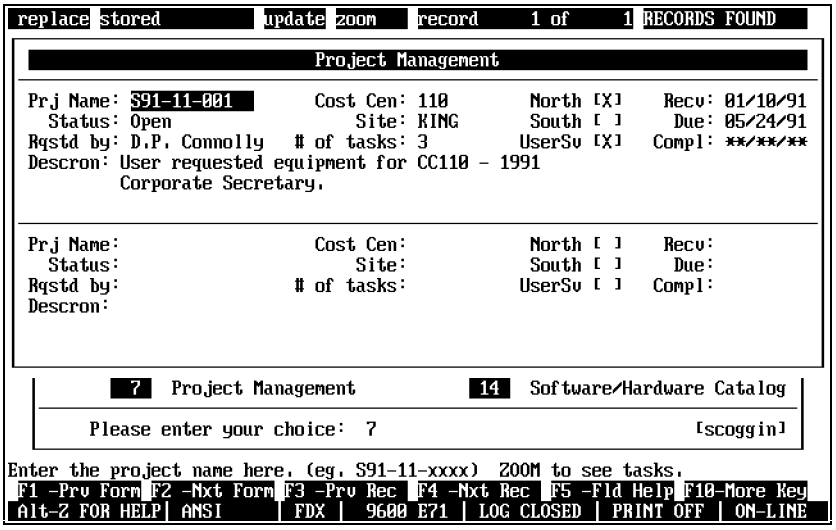

Figure 22.

Multi-occurrence means that the screen can display several different records at the same time. The Node Summary and Problem Summary screens are other examples of multi-occurrence screens. Unlike the Node and Problem Summaries, the Project Management multi-occurrence form is used for input. To enter a project into this screen, start off (as always) by pressing CLEAR-TO-ADD and filling in the fields using the following explanations:

Prj Name:	The numerical project name (e.g. S91-99-999).
Cost Cen:	The Cost Center for the department that the project is "owned" by.
Due Date:	The date that the project is due. This field can be entered at initial input.
Status:	Either Open or Closed.
Site:	The site where the project will take place.
Start Date:	The date the project is approved.
Rqstd by:	The person requesting the project.
# tasks:	Inaccessible field stating the number of tasks that the project will fulfill.
Complete Date:	The date when the project is actually completed. This should not be filled in until the project has actually been completed.
Descron:	A description of the project.

Once all of this information is entered, you may press NEXT-FORM and you are given a menu with two choices. If you choose the Project Task option, you will be taken to a screen that looks like this:

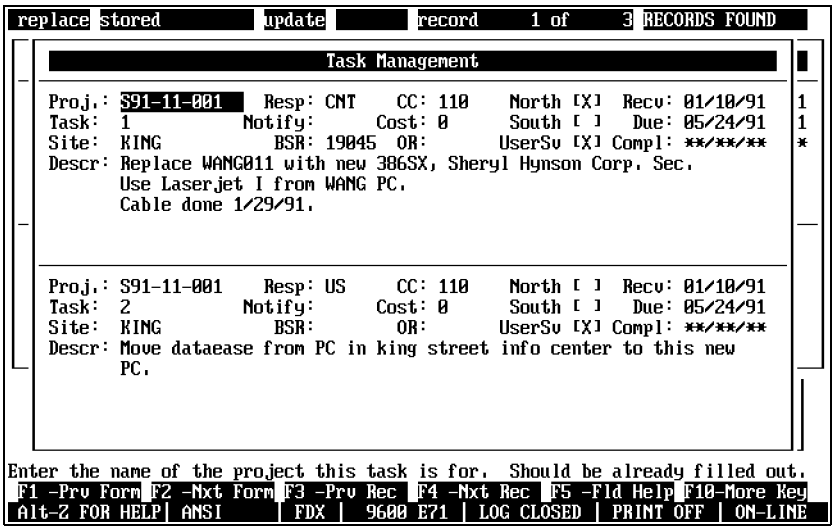

Figure 23.

This information allows you to track several tasks for each project. The fields which identify the project will be automatically filled in with the correct information from the previous screen. For each task that you want to add to the project, you would press CLEAR-TO-ADD and fill in the fields using the following instructions:

Prj Name:	Automatically filled in.
Resp:	The person responsible for the task. You may press ZOOM for a list.
Due Date:	Automatically filled in.
Task:	Automatically filled in with the next number consecutive task number.
Notify:	The person to whom mail should be sent when the task is completed. You may press ZOOM for a list.
Start:	Automatically filled in.
Site:	The site where the task will take place.
BSR:	Building Services service Requisition number.
Complete:	The task complete date. When this field is entered, electronic mail will be sent to the person entered in the Resp. field above.
Descr:	Description of the task.

You should now press ADD/UPDATE to save your information. If you enter a Task for a Project which has requested to PC's, you may press NEXT-FORM to go to the Node Information screen. When this screen comes up, the Project #, Task #, and Ser/Cir fields will automatically be filled in. Note that the Ser/Cir field is filled in, not with a serial number, but with a Project Number plus an additional digit referencing the Task Number. You should now follow the instructions given earlier for entering a PC in the Node Information screen; this would include all requested Hardware and Software. Under the old system that the HelpDesk ran, this information would have to be entered twice; once under Project Management and once under Node Information after the PC had arrived from the vendor. Under the new system, the information is entered once, but until the PC arrives from the vendor, the Project Number if there, not the Serial Number. This gives us the advantage of tracking the requests, but at the same time, the only additional input required is for the serial numbers of the PC and its Hardware and Software. After you are finished with the Node Information, PC Hardware, and PC Software screens and have saved all of the information, you should press PREVIOUS-FORM until you return to the Task Management screen. At this time, you may either press CLEAR-TO-ADD to add another task for the project, or return to the Project Management screen by pressing PREVIOUS-FORM.

Site Information (site)

This screen is provided as a ZOOM screen from several other screens to help in finding information about a site.

Send Problem

This Form is used to send information about a problem to another user via electronic mail. This form is reached by pressing NEXT-FORM from the Problem Resolution Form. An example of a completed form is shown below:

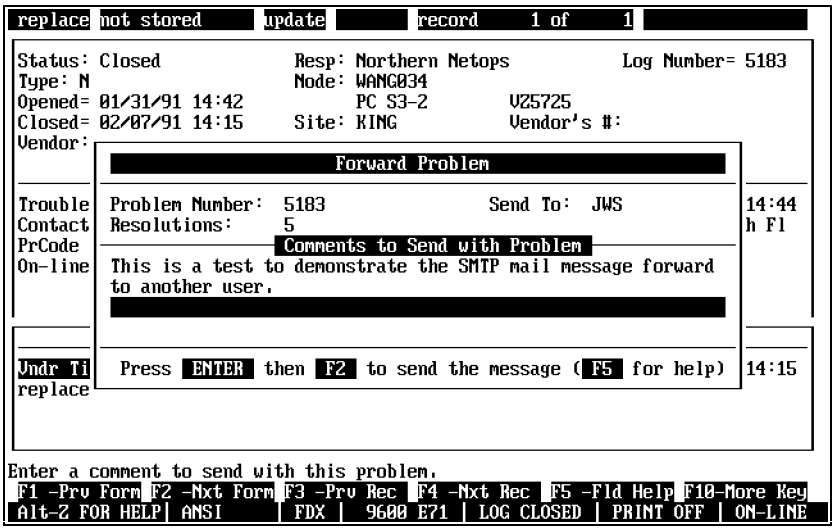

Figure 24.

The Problem Number and Resolutions fields are filled in by the system. The Send To field must be filled in by the user. This field is usually the initials of the person to whom you want to send the problem. If you need to forward a "major" problem, you may simply enter "OUT" (meaning *outage*) as the initials and the problem will be sent to the applicable people; at this writing, the applicable people are Richard Derby, Duane Taylor, and Bruce Yearsley. If you enter initials other than "OUT", the electronic mail address for the person with these initials is gotten from the Employee Table in the database. The four comment lines are present so that you may add any necessary explanations. Before you send the problem, make sure you press <ENTER> on the last comment line you entered, otherwise that line will not be included in the mail message. Once you are ready to send, press NEXT-FORM. If a valid address was found for the initials you entered, the message will be sent; otherwise, you will be informed that no address can be found.

Send Problem View (sendprob)

This Form is present so that you may view which problems have been sent to which users. This Form is reached by entering "sendprob" at HDMS's main menu. An example of the Form is shown below:

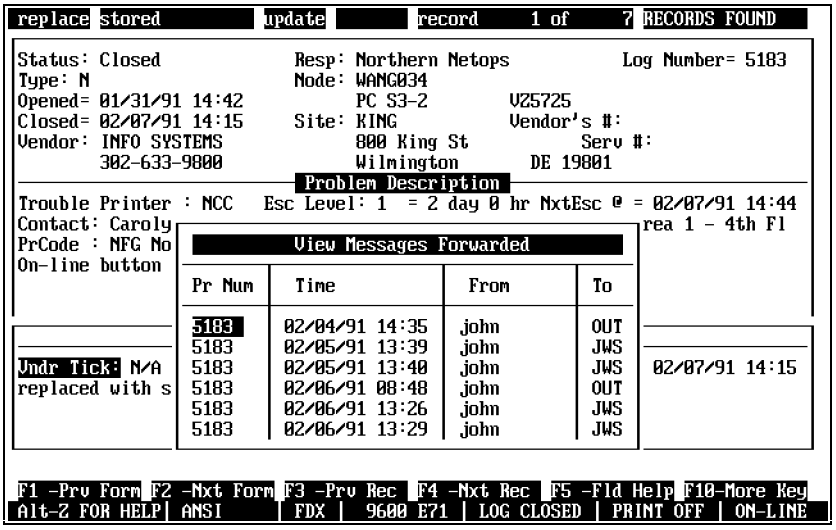

Figure 25.

In the above example, a search was done for the initials "JWS." You may, of course, search by any of the four fields. From this Form you may press NEXT-FORM and you will be taken to the Problem Management screen where the applicable problem will be pulled up.

Software Catalog (part)

This is provided as a ZOOM link from the Software field of the PC Software Multi-Occurrence form. You may use it to find information on any piece of software that is already in the database. The information contained in the Software Catalog is used by PC Software. Any piece of software that you wish to put on a PC must be entered here first. They way to search the database is to enter a pattern to search for in any of the fields of the Table (e.g. LOTUS 123 in Software Name). Then press FIND, and information on the piece(s) of software that match that software are pulled up. An example of this exact search (including the path of menus used) is shown below:

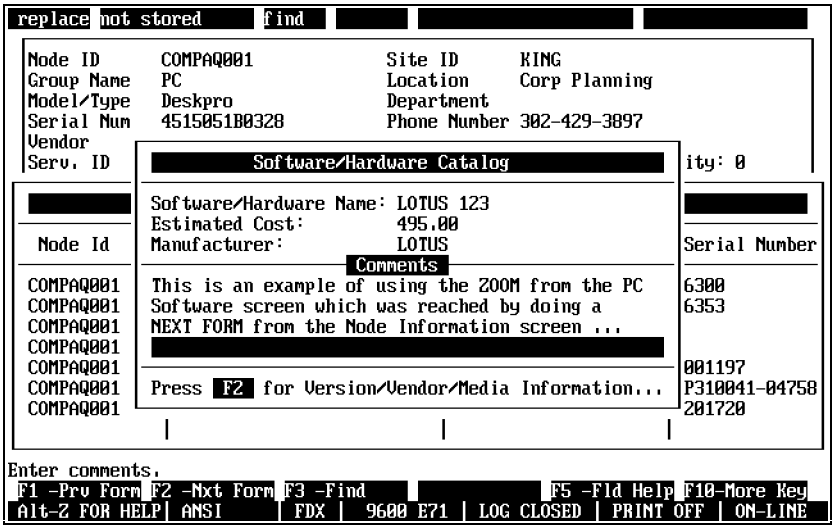

Figure 26.

Software Summary (parts)

This is a multi-occurrence form for looking at several records at once for software products.

Vendor Codes (vcode)

This screen is provided as a ZOOM screen from several other screens to help in finding a site-specific repair code for a vendor.

Vendor Information (vendor)

This screen is provided as a ZOOM screen from several other screens to help in finding information on a vendor.

Problem Escalation and Logs

HDMS uses an automatic problem escalation philosophy. The priority of a problem when initially entered into HDMS is determined by the Priority field in the Node Information record. There is also a standard escalation time established for each node.

When a problem is entered, the priority is carried over from the Node Information record, and an escalation time/date is calculated. When the escalation time/date is reached, the priority is incremented by 1 and a new escalation time/date is calculated. If the escalation time in the node information field is zero, the priority is unaffected. The maximum priority is 9. New escalation time parameters may be added, or existing codes modified, by entering the Node Information form and ZOOMing on the *Escalation* field.

Another task monitors the addition of new problems. New problems are logged on a printer defined in the Node Information record. The correspondence between printer destination codes and Unix device names is maintained in a table, and may be modified by entering the Node Information form and ZOOMing on the *Trob Ptr ID* field.

Problems which reach their escalation time/date are also logged automatically on the *NOS* (Network Operations Supervisor) printer. For a description of the started tasks which perform the escalation and logging functions, see the **HDMS Installation Guide**.

Reading Mail

In the first release of this manual, instructions were given on how to read mail that was sent to you on your SystemPro account. At the time, this was necessary because if your name was ever in the Resp. field on the Task Management Form, when the project was complete, you would receive notification through mail. However, in this release of HDMS, this is no longer necessary. This is due to some development done to the database, and significant development outside of the database. The development done outside of the database was the implementation of UNIX-to-VINES mail using SMTP (Simple Mail Transfer Protocol). Basically what this does is allow mail to be sent from one machine with a certain operating system (e.g. UNIX like delmarva) to a machine with a different operating system (e.g. LAN server Dewey running VINES). Therefore, notification of task completion will now be sent to you on the LAN. However, for completeness, we will keep the instructions on how to read your mail in case you get mail from a source other than HDMS. (Something interesting to note is that the SystemPro is on a network called UseNet. UseNet itself is "hooked" into the NSFNet (National Science Foundation) which was formerly called the ARPANet (Defense Advanced Research Projects Agency) or Internet. All of these terms refer to a huge international network of commercial, education, military and government computers through which you can send mail, remotely log in, transfer files, etc. Because the SystemPro is part of UseNet, which is on the NSFNet, we can exchange mail with anyone who has a computer on virtually any major network.)

If you receive mail on the SystemPro, you will have to use the UNIX message handler to read it. When you log onto the system, you will be told if you have any mail waiting to be read. If you do have mail, you should go ahead and read it before entering HDMS. To access your mail you should choose the mail option in your login menu. When you choose this option, you will be given a list of messages that you have not read yet. An example of this list is shown below:

```
SCO System V Mail (version 3.2)  Type ? for help.
"/usr/spool/mail/your-login":2 messages 2 new
 N 2  sender2    Thu Jun 28 15:56        9/243             Subject2
>N 1  sender1    Wed Jun 27 08:23        10/260            Subject1
&
```

The first line identifies the application being run. The second line indicates the system file where your mail has been waiting. The remaining lines identify each message. The N character means that the message has not been read. The > symbol points to the next message not read (the current message). The number uniquely identifies each message. The next field identifies the sender; the next four fields are day, month, date, and time fields; the next two numbers separated by the / symbol are unimportant; the last field is the subject of the message which is present only if the sender explicitly assigned a subject. Finally, the & symbol is the prompt where you type commands to read, save, and delete messages. The easiest way to read your messages is to press <ENTER> at the & prompt, which will display the current message. You may continue to press <ENTER> until all of your messages are read. If you press <ENTER> after the last message has been read, you will receive the message:

```
Can't go beyond last message.
```

After all of your messages have been read, you may type either "q" or "quit" at the & prompt. This will store your messages in the system (marked as read) and take you back to your login menu.

Running Reports

Many times it is necessary to have a printed report of some of the data contained in the database. Reports are Forms that compile and order data into a predefined format. This manual does not give specific instructions on running each report because once you get to the Form to request the report, you simply choose which report you want. Instead, this manual will describe what reports are available and explain the general method for requesting one. Any reports that are run by you are configured to print at your local printer; this is implemented by referencing a UNIX "environmental variable" (called SPOOLER) which is set when you log in to the SystemPro. The following table lists what reports are available (the Report Name column), the form you should press NEXT-FORM at to reach the report (the Previous Form column), and a general description of what the report contains (the Description column).

Report Table

Report Name	Previous Form	Description
Cross Connections	Cross Connect Record	Lists all cross-connections for the selected T-1 circuit ID.
DSX Report	DSX Panel Record	Lists all DSX jack allocations for the current selected panel record(s)
Help Desk Calls	Help Desk Calls	Lists a selected number of dates, who was on the Help Desk, the total number of calls and other data from an AEC call sequencer
LAN Card	LAN Card	Lists a selected number of nodes, MAC address, IP address, and MMAC ID. Can be sorted by Site or IP address.
Logical Connection	Logical Connection	Lists the selected Logical Connection devices, their S/N, site, department, phone nbr, comments and all attached nodes.
Master Circuit	Master Circuit	Lists selected circuits, type, description and associated sub-circuits.
Order Report	Node Information	For selected nodes, list all associated hardware and software, vendor, version, price and project number.
Parts	Software/Hardware Catalog	For selected parts, lists all versions, vendors, media, part number, and price information.
Parts Out for Repair	Parts Out for Repair	Lists selected parts, repair tag ticket number, corresponding node ID, serial number, and ship date.
PC Hardware	PC Hardware	For selected records, lists node, vendor, model number, serial number, and slot.
PC Node	Node Information	Lists selected nodes, project number, user, memory, hard drive type, escalation level, purchase date, vendor, PO #, cost center and dept. head, comments, and all corresponding hardware and software.
PC Software	PC Software	Lists corresponding node, title, version, serial number, vendor, PO #, and purchase date.
Problem	Problem Management	For selected problems, lists open/close dates, node, contact, problem, trouble printer, description, and all resolutions.
Project Report	Project Management	Lists slected projects, descriptions, due/start dates, sites, and each associated task.
Site	Site Information	Lists selected sites, address, and comments.
Task Report	Task management	Same as Project Report for selected tasks.
Vendor	Vendor Information	Lists the selected vendor's addresses and telephone numbers.
Vendor Code	Vendor Codes	Lists the site-specific repair codes for the selected vendors.

To request a report, you should be at the Previous Screen listed in the above table. At this screen you would perform the search that you desire. For example, if you want to get a report on all Compaqs, you

would press CLEAR-TO-FIND, then enter COMPAQ* in the Node ID field, and finally press FIND. (The * after COMPAQ means to find all nodes that start with the letters COMPAQ; this is just like DOS.) Once the search has been completed, you would press NEXT-FORM and choose the Report option. After entering this option, you will be taken to a screen which will give you a few options about what type of report you wish to generate. After you have chosen the report type that you want, the report will be printed and you may continue with other work.

Vendor Performance Monitoring

A quick look at vendor performance may be obtained by running the *vg* program from the Unix prompt. *vg* retrieves the past 13 months of problem history for a given vendor, and calculates a Mean Time To Repair (MTTR) for that vendor, based upon a 5-day work week. Holidays are taken into account by examining the holiday table in HDMS. Problems with resolution times above 7 days are considered "perpetual", and not used in calculating the MTTR. These "perpetual" problems are captured in a counter. The parameters are as follows:

```
vg [-print] "vendor -name"
```

Wild cards are NOT permitted in the vendor-name field. The `-print` option permits output the printer designated in your SPOOLER environment variable.