DESIGN AND IMPLEMENTATION OF A PATIENT TRACKING AND RECALL SYSTEM FOR BRANCH DENTAL CLINIC MONTEREY

by

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March 1992

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Design and Implementation of a Patient Tracking and Recall System for Branch Dental Clinic Monterey

by

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ABSTRACT

This thesis analyzes the information system requirements of Branch Dental Clinic, Monterey, and develops a computer application to automate the clinic's patient tracking and recall process. The application replaces an existing mainframe-based, single-file system with a PC-based, relational database management system that provides greater functionality, enables increased productivity, improves data integrity and accuracy, and includes currently lacking security features and administrative functions.
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I. INTRODUCTION AND PRELIMINARY INVESTIGATION

This thesis designs, documents, and implements a computer application to perform dental patient tracking and recall functions for the Branch Dental Clinic, Monterey (BDCM). Information that was collected during a preliminary investigation of the information system requirements of BDCM is presented in this chapter. Specifically, the relevant background of BDCM and the information system problems that led to the conduct of the thesis are presented, the scope of the project is defined, and three alternative solutions are evaluated.

A. BACKGROUND

BDCM provides regular dental care and emergency dental treatment to all active duty military staff and students stationed both at the Naval Postgraduate School (NPS) and the various NPS tenant commands. Dental appointments are regularly scheduled based on a four-class rating system (1 to 4, in order of increasing priority) indicating the member's need for treatment. Emergency care is provided whenever required.

Interviews with the BDCM Director and staff identified four major information-oriented activities within the clinic: (1) appointment scheduling, (2) inventory management, (3) maintenance of a Dental Information and Retrieval System (DIRS) as prescribed by higher authority, and (4) patient tracking and recalls. With regard to appointment scheduling and inventory management activities, BDCM satisfaction with
current manual methods was found to be high. Moreover, the clinic Director felt strongly that attempts to computerize these two functions, given the relatively low volume of activity, would not increase efficiency or effectiveness. Hence, these two business functions were dropped from further investigation.

The DIRS system operates on a personal computer (PC) and consists of proprietary software provided by the Navy Regional Dental Center (NRDC) for use at all subordinate branch clinics. Since NRDC mandates that branch clinics use DIRS to collect and report detailed data on all dental care provided, further analysis of this activity was unnecessary.

Patient tracking and recall functions at BDCM are partially automated by a mainframe-based, single-user, single-file database management system. It is this system and the requirements of the patient tracking and recall process that the remainder of this thesis addresses.

The mainframe-based database application allows data entry and updating, tracks members' dental health status (class), generates recall notices, prints sorted member rosters, and provides operational readiness summary statistics. When members check their records into the clinic a dentist’s review of their dental records results in a class rating being assigned. A class rating of "1" indicates no need for dental treatment beyond a mandatory annual examination (a T2-exam). A class rating of "2" or "3" indicates a need for additional treatment. A class rating of "4" indicates the member is past due for an annual exam (it is assigned regardless of dental health). Just prior to a member’s T2-exam anniversary, he/she is notified by memorandum to make an
appointment for an annual exam using an automated patient recall system. Computer generated recall letters are routed to student mail center (SMC) mailboxes or staff offices as appropriate.

B. PROBLEM DEFINITION

The existing application for patient recalls was written several years ago for use on the NPS mainframe computer. When the system was installed it provided significant benefits over the previous labor and time intensive manual recall process. However, the system was crude in its interface, limited in functionality, and difficult to use. Moreover, due to turnover of personnel since its installation, none of the current staff are familiar with the history of the system; no documentation can be found; and no system maintenance is available.

Interviews with end-users revealed five general problem areas with the mainframe-based system: poor access and responsiveness, unfriendly user-interface, inadequate data validation checks, absence of documentation, and incomplete functionality. Examples of specific problems highlighted by end-users in each of these general areas are presented below.

Limited mainframe access and poor responsiveness have been longstanding limitations. BDCM access to the mainframe is via communications software and 1200 baud modem from the clinic PC. By today’s standards, this data transfer rate is slow. The system frequently responds slowly during working hours due to both the high number of users and resource-intensive computing tasks. Heavy use of the mainframe
by modem users combined with the limited number of modem receiving lines (16 at the
time of this investigation) results in the frequent inability to access the system as needed.
This necessitates periodic off-hour work by BDCM staff and delays response to telephone
queries from NRDC regarding operational readiness.

Unfriendliness of the user-interface is a significant problem, particularly for new
users. In most instances the user is presented with only a blank screen and a prompt,
which specifies which application module is active (e.g., main, add, edit, delete, print).
A rudimentary help function, when invoked, provides a list of options for the active
module. Hence, unless all commands are memorized, the user must continuously invoke
the help function to navigate and use the system. Data entry itself is facilitated somewhat
by a field list from which the user selects a field to enter or edit, but it remains a
cumbersome process. The user must select a field from the list, enter the data, and
select another field from the list rather than simply automatically moving from one field
to the next. Additionally, during record appending the field listing scrolls up and off the
screen, leaving no hint of the remaining fields that require additional data entry.

The inadequacy of field validation checks in the mainframe application has allowed
a cumulative deterioration in the accuracy and completeness of records in the database.
For example, numbers are improperly allowed in various name fields. Moreover, since
member records are indexed by name rather than Social Security Number (SSN), two
people with the same name are prohibited from being entered properly into the database.
In such instances, the user must deliberately attempt to circumvent or "trick" the system
by, for example, putting in a middle initial for one member but not the other. Related
to this, the system saves a new record whenever data is entered into the name field, regardless of content and regardless of whether the record has any other fields completed. Over time the database has accumulated much erroneous data and many incomplete records. Cleaning the database has been problematic since records cannot be located and edited or deleted unless an exact name match is entered.

The lack of system documentation has forced end-users to learn the system by experimentation. The total functionality of the system is not immediately obvious and can remain undiscovered and unutilized. Moreover, the logic underlying critical processes, such as the triggering of recall notices or updating dental class status remains unspecified. The lack of documentation has also precluded improving the functionality of the system and implementing fixes. For example, necessary follow-up form letters that are not included in the present system must be externally word-processed for each individual. Additionally, hard-coding of the signature name on recall letters has resulted in a long since-transferred Director’s name appearing on the recalls sent to members.

C. SCOPE

The scope of this thesis is limited to the patient tracking and recall process. As noted previously, there are other business functions within the clinic, yet the patient tracking and recall process is the only information-intensive business function left up to local implementation that remains problematic.
D. EVALUATION OF ALTERNATIVE SOLUTIONS

Given that the problems with the existing patient tracking and recall system were deemed significant enough to warrant remediation, three alternative solutions were evaluated. The first alternative involved improving both the hardware and software associated with the mainframe-based system: replacing the modem connection with an on-line terminal, rewriting the software for increased functionality and ease of use, and documenting the system. The second and third alternatives involved designing and implementing a PC-based database management system to replace the existing mainframe application, the difference being whether a multi-user versus a single-user configuration should be developed. Multi-user capability was considered a "nice-to-have" feature that might be useful sometime in the future, yet it was clearly not a requirement for satisfactory performance of patient tracking and recall functions. Should a PC-based solution be selected, NRDC stipulated that it must be a compiled application that would not be subject to potential modification by inexperienced clinic staff.

1. Cost Feasibility

At the outset, NRDC made it clear that no funds were available to support improving the existing patient tracking and recall system. This limitation alone ruled-out upgrading the mainframe-based system—the cost of terminal acquisition and connection was prohibitive. Moreover, additional funds would be required to pay a technical expert to rewrite and document the mainframe software. Similarly, to exploit multi-user capability in a PC-based system would require additional funding to purchase required hardware. Hence, these two alternatives were eliminated from further consideration.
Designing and implementing a single-user, PC-based database management system was attractive from a cost standpoint. The development cost of such a system would be limited to the personal time and effort of the author. Further, appropriate development hardware (an IBM-compatible 80386 computer) and software (Foxpro 2.0 and Foxpro 2.0 Distribution Kit, a dBase-compatible development system with compiler) was already owned by the author. In addition, BDCM would not be required to purchase any additional hardware; their existing computer equipment could be used to evaluate prototypes and to install the final working system. BDCM staff were enthusiastic and committed to assisting with the development process.

2. Technical Feasibility

BDCM owned a Zenith 286 PC and peripherals that were compatible with the foreseeable processor, memory, storage, and video requirements of a new PC-based application. Moreover, Foxpro 2.0 can create applications able to run on any IBM-compatible PC with a minimum of 512K of random access memory (RAM) [Ref. 1]. Preliminary tests of routine database operations (browse, index, sort) with a test database approximately the same size as that of the existing mainframe data file (2000 records with 15 fields per record) using Foxpro 2.0 were successful on the BDCM PC and demonstrated acceptable speed of operations with only 512K of RAM.

Future maintenance of the application would not be provided by the author. Discussion of this issue with both NRDC and BDCM indicated that this was acceptable to them. It was agreed that the application should run on any minimally configured IBM-compatible computer to enable portability and that support for a standard dot-matrix
printer should be provided. Program code and documentation would be included with
the delivered application to support future maintenance. (NRDC and BDCM acknowl-
edged that any future maintenance would require purchase of Foxpro 2.0 and the Foxpro
2.0 Distribution Kit. Intermediate-level dBase or Foxpro programming skills would also
be required.)

3. Schedule Feasibility

Based on the findings of the preliminary investigation, with detailed system
analysis to begin 15 August, 1991, implementation of a fully operational PC-based
system was scheduled for completion by 1 February, 1992. This left two months for
correction of unforeseen problems before departure of the author.
II. REQUIREMENTS ANALYSIS

This chapter discusses the requirements phase of project development. The purpose of this phase of development was twofold: (1) during this phase the specific data requirements (objects) that must be represented in the database were defined and (2) the application or functional requirements which support the database were outlined.

A. DATA REQUIREMENTS

Initially, interviews were conducted with the BDCM Director and the dental staff responsible for hands-on use of the existing database. These interviews provided a general idea of the scope and objectives for an upgraded patient tracking and recall system. Working backwards from the existing application's outputs, preliminary object specifications and views were then developed and presented to the dental staff for feedback. Further discussions led to adjustments of the object specifications that satisfactorily met the clinic's needs.

1. Object Development

Important entities identified in the patient tracking and recall process are represented as the objects MEMBER, ACTIVITY, and CURRICULUM shown in Figure 1 below. Each of the objects possesses a collection of named properties. The properties listed within each diagram that are capitalized and within small boxes are themselves objects. The subscript "MV" denotes that the property is multi-valued.
object represents patients who have "checked-in" with the clinic upon arrival to NPS or an NPS tenant command. As can be seen in Figure 1, the ACTIVITY and CURRICULUM objects are properties of the MEMBER object. They associate each member with the properties of a specific activity and/or curriculum.

![PTARS Object Diagrams](image)

Figure 1. Object Diagrams
The ACTIVITY object represents each of the various commands served by BDCM. Note that the multi-valued MEMBER object is also a property of the ACTIVITY object. That is, a specific ACTIVITY can have multiple members.

The CURRICULUM object represents each of the many different curriculums offered at NPS. The MEMBER object is a multi-valued property of the CURRICULUM object; many students can belong to any given curriculum.

2. Domain Definition

The object diagrams were used to summarize knowledge of the objects and to present it to the users in an unambiguous fashion. Following user validation of the object representations, domain definitions were established. The domain of a property is the set of all possible values a property can have. Each domain definition contains a physical description of the type of data (e.g., numeric versus character) and any value constraints. Each definition also describes the function or purpose of the property. Refer to Appendix A for detailed object specifications, including object and domain definitions.

B. APPLICATION REQUIREMENTS

1. Processes

Building upon the data requirements discussed in the previous section, major processes within the patient tracking and recall process were identified through discussions with BDCM end-users. A level-1 data flow diagram (DFD), shown in Figure
below, was developed as a basis for validating analyst understanding of the processes with end-users.

Figure 2. Level 1 Data Flow Diagram

Entities external to the system are shown in Figure 2 as square boxes and include Service Member, Registrar, Personnel Support Detachment (PSD), Curriculum Officer, and Activity Point of Contact. These entities are sources of data and/or recipients of system outputs (as indicated by the direction of the data flow arrows). The
numbered processes (denoted within the circles) summarize the operations involved in the overall patient tracking and recall process. Processes 1.1, 1.3, and 1.4 comprise the append, edit, and delete operations for the objects, MEMBER, CURRICULUM, and ACTIVITY. Process 1.2 involves the operations associated with generating and printing recall letters. An Operational Readiness report and various sorted rosters are produced in process 1.5. Member dental class is automatically updated to class 4 in process 1.6 for those individuals who have not had an annual examination within 12 months.

Following validation of the information presented by the level-1 DFD, a summary of system update, display, and control mechanisms was developed based on structured interviews with end-users. (See Appendix B.) During this process, information pertaining to each object was obtained that included inputs, outputs, processing notes, volume, and frequency. This information clarified what must be done within each object view.

Prototypes of forms, reports, recall letters, and menus were developed using Foxpro "power tools" (i.e., the Screen Builder and the Report Writer). These early prototypes clarified the expectations of end-users regarding the format of the user-interface and the display of information.

2. Operational and Administrative Requirements

System operational and administrative requirements were identified through discussions with BDCM staff. Operational requirements for the system are listed below:

- Single-user, PC-based application, operable on an "as needed" basis by the BDCM Administrative Petty Officer and/or the BDCM Receptionist
- Portable/re-installable to different, compatible PC
- Extensive "Help" available on-line
- Database backup/restore utilities
- System date and time change utilities
- System-access password protection; password change capability
- Database packing capability

Although it was agreed that program maintenance would not be possible with the compiled application, Foxpro 2.0 program code would be given to BDCM. Hence, should maintenance become critical at some point, modification of the application would be possible with the purchase of Foxpro 2.0 and the Foxpro 2.0 Distribution Kit. A User's Manual (see Appendix C) would be supplied to provide structured guidance for system use, data security and integrity, database backups and restorations, and system optimization.

3. Environmental Requirements

In an efficient system much of the member, activity, and curriculum data should be provided from a master database, shared with the Registrar and PSD. However, this is currently not possible since the data structure and hardware are not compatible. Until such time as the various NPS support entities/ADP-systems can communicate directly, it is incumbent upon the BDCM staff to take the initiative to obtain updated, hard-copy rosters from these two data sources as they become available.
III. SYSTEM DESIGN

In this chapter the two components of system design, logical database design and application design, are discussed. The objective of the design phase was to produce both the logical and physical details of the database and its application. Designing the logical database involved developing a "blueprint" of the database structure. From this blueprint a physical database was designed and the application was developed.

A. LOGICAL DATABASE DESIGN

1. Object to Relation Transformations

The design of the logical database was based on the relational database model [Ref. 2]. The objects MEMBER, ACTIVITY, and CURRICULUM, were transformed into a relational diagram. Figure 3, the relational diagram, shows the three relations that resulted: (1) the compound MEMBER object was transformed into the three relations MEMBER, ACTIVITY, and CURRICULUM; (2) the compound ACTIVITY object was transformed into the two relations MEMBER and ACTIVITY; and (3) the compound CURRICULUM object was transformed into the two relations MEMBER and CURRICULUM.
2. Relation Descriptions

Each of the three relations are reflections of the original objects with appropriate foreign keys included. Key data are denoted in Figure 3 by underlining. Foreign keys are denoted with the underlined superscript, $^f$. Summary descriptions of each of the relations are presented below. (Refer to Appendix D for detailed relation definitions.)

**MEMBER**
- Number of attributes: 15
- Key attributes: Social-Security-Number (SSN)
- Foreign keys: Unit-Identification-Code (UIC), Curriculum-Number

Figure 3. Relational Diagram
B. APPLICATION DESIGN

The application is the interface between the user and the database. It contains various control mechanisms to prevent direct access to the database and to maintain the integrity of the database. A menu hierarchy was used to aid and control user interaction with the system. The menu-driven approach was employed because it enables inexperienced end-users to access and use the full functionality of a system faster than with a command-driven system. The menu hierarchy depicted in Figure 4 was derived from user requirements. The Append, Edit/View, and Delete/View sub-menus apply to a selected object database. All user-selectable operations flowed from Main Menu selections. Figure 5 shows the final look of the Main Menu and depicts the generic structure of all menus. Figure 6 provides a view of the form for editing/viewing an existing member record. Although specific fields differ across the various forms in the application, the same form "template" is used throughout the application. Appendix C,
the User's Manual, presents comprehensive graphics of application menus, reports, forms, recall letters, and screens.

Figure 4. Menu Hierarchy
Figure 5. Main Menu Screen

After establishing the menu hierarchy and obtaining user approval of report, form, recall letter, and screen prototypes, an integrated prototype of the application was developed. That is, a working model of the system was created but with incomplete
functionality [Ref. 3, 4]. End-user evaluations of the prototype’s characteristics and operation were used to iteratively revise the model. This prototype was then expanded in functionality to become the final system. This approach was facilitated by Foxpro’s project management capability for unifying and coordinating the separate elements of the application. Added advantage was obtained from the use of this approach in that end-users became intimately involved in the development process and actively influenced the look and functioning of the final system. Thus, by the time of implementation their expectations were satisfied and they were well-versed in the application’s functioning.

Care was taken to establish consistency of function across modules with regard to form and menu design, messages, escape procedures, navigation keys, function-key use, and availability of on-line help. Moreover, as indicated in the object specifications (App...,d...), the range and format of data for most of the fields was carefully controlled.
IV. SYSTEM IMPLEMENTATION

System implementation was the final step of the development process. The primary objective was to build the fully functional physical application that satisfied the end-user. The physical database was constructed using a DBMS-specific methodology, Foxpro 2.0. It is compatible with the widely-used dBase DBMS language and has numerous language extensions. Moreover, as noted previously, the product provides a very efficient, windowed development environment that facilitates coding, compiling, running, and debugging from within an integrated interface.

During implementation, the prototype was expanded to include all modules fully integrated into an application with complete functionality. Appendix C, the User's Manual, provides documentation which details the final application's features and operations. Documented program code, procedure and token listings, and a token cross-reference listing are included in Appendix E.

Installation required converting the mainframe database and adding several data elements. Hence, the installation and transition to the new system took several days to complete. Primary user training was accomplished during the development process.
V. SUMMARY AND RECOMMENDATIONS

A. SUMMARY

The mainframe-based patient tracking and recall system was due for replacement. It was out-dated in its user interface, was unreliable to access, lacked adequate field validation checks, and required additional capabilities. The PTARS system designed and implemented during the course of this thesis addressed all of these deficiencies and included users actively in the development process. The system is user-friendly and includes all necessary functions internally to provide security, data integrity, and an intuitive operation.

B. RECOMMENDATIONS

During the development process much thought was given to anticipating the needs of end-users. On-line, context-sensitive help was provided for all operations and fields; and confirmations, messages, and prompts were built into all operations that affected the content of the database. Nevertheless, it is still incumbent upon the user to make choices and take actions to protect the data and maintain the quality of unrestricted character fields.

Data security will be only as good as the user’s attention to it. The password must be protected, the system must not be left running unattended, and regular backups to floppy disk must be made and stored to safety. All of these activities are ultimately left
up to the discretion of the user. Proper training and careful reading of the User’s Manual should enhance end-user adherence to recommended practice.

Finally, NRDC currently provides PC hardware and software support to branch clinics. Upon request, a PC technical expert will troubleshoot problems with BDCM computer resources. The necessity of PCs in the branch clinics is acknowledged and some standard software is provided for an integrated dental information system. Yet, clinics are not provided the resources to protect their systems. For example, no user training is conducted regarding routine machine or data maintenance or security. This could develop into a significant problem in the event of a large data loss. NRDC should consider providing all branch clinics with reasonably efficient backup software, disk maintenance and data recovery software utilities, and the training to use them effectively.
LIST OF REFERENCES


## APPENDIX A: OBJECT SPECIFICATIONS

### Object Definitions

#### MEMBER OBJECT

<table>
<thead>
<tr>
<th>Descriptive name</th>
<th>Domain name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Security Number</td>
<td>SSN</td>
</tr>
<tr>
<td>Last Name</td>
<td>Last_name</td>
</tr>
<tr>
<td>First Name</td>
<td>First_name</td>
</tr>
<tr>
<td>Middle Initial</td>
<td>MI</td>
</tr>
<tr>
<td>Rank or Rate</td>
<td>Rank_rate</td>
</tr>
<tr>
<td>Service Branch</td>
<td>Branch</td>
</tr>
<tr>
<td>Last T2 Exam</td>
<td>Last_T2</td>
</tr>
<tr>
<td>Class Rating</td>
<td>Class</td>
</tr>
<tr>
<td>Pano X-ray Status</td>
<td>Pano</td>
</tr>
<tr>
<td>SMC or Department Code</td>
<td>SMC</td>
</tr>
<tr>
<td>Recall Letter 1 Date</td>
<td>Recall_1</td>
</tr>
<tr>
<td>Recall Letter 2 Date</td>
<td>Recall_2</td>
</tr>
<tr>
<td>Recall Letter 3 Date</td>
<td>Recall_3</td>
</tr>
<tr>
<td>Recall Letter 4 Date</td>
<td>Recall_4</td>
</tr>
</tbody>
</table>

ACTIVITY; ACTIVITY object
CURRICULUM; CURRICULUM object

#### ACTIVITY OBJECT

<table>
<thead>
<tr>
<th>Descriptive name</th>
<th>Domain name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Identification Code</td>
<td>UIC</td>
</tr>
<tr>
<td>Unit Acronym</td>
<td>Acronym</td>
</tr>
<tr>
<td>Activity Name</td>
<td>Act_name</td>
</tr>
<tr>
<td>Point-of-Contact</td>
<td>POC</td>
</tr>
</tbody>
</table>

MEMBER; MEMBER object; MV

#### CURRICULUM OBJECT

<table>
<thead>
<tr>
<th>Descriptive name</th>
<th>Domain name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum Number</td>
<td>Curr_num</td>
</tr>
<tr>
<td>Curriculum Name</td>
<td>Curr_name</td>
</tr>
<tr>
<td>Department Code</td>
<td>Dept_code</td>
</tr>
<tr>
<td>Phone Number</td>
<td>Phone_no</td>
</tr>
</tbody>
</table>

MEMBER; MEMBER object; MV

25
Domain Definitions

Acronym:
  Character (11)
  Abbreviated activity name

Act_name:
  Character (47)
  Official abbreviated name of an NPS tenant command served by BDCM

Branch:
  Character (4)
  Abbreviation for member's service branch

Class:
  Numeric (1), range 1-4
  Class rating assigned by dentist to each member

Curr_name:
  Character (46)
  NPS curriculum name

Curr_num:
  Character (3)
  Unique NPS curriculum number code

Dept_code:
  Character (2)
  Curriculum office NPS department code

First_name:
  Character (15)
  Member's first name

Last_name:
  Character (23)
  Member's last name

Last_T2:
  Date (8); Mask MM/DD/YY, where MM is month, DD is day, YY is year
  Last T2 exam date

MI:
  Character (1)
  Member's middle initial

Pano:
  Character (3)
  Member's pano x-ray status
Rank_rate:
Character (5)
Member's rank rate

Recall 1:
Date (8); Mask MM/DD/YY, where MM is month, DD is day, YY is year
Recall letter 1 date

Recall 2:
Date (8); Mask MM/DD/YY, where MM is month, DD is day, YY is year
Recall letter 2 date

Recall 3:
Date (8); Mask MM/DD/YY, where MM is month, DD is day, YY is year
Recall letter 3 date

Recall 4:
Date (8); Mask MM/DD/YY, where MM is month, DD is day, YY is year
Recall letter 4 date

SMC:
Character (4)
Member's student mail center number or staff department mail code

SSN:
Character (11); Mask NNN-NN-NNNN, where N are any digits
Unique member Social Security Number

UIC:
Character (6)
Unique Unit Identification Code of NPS tenant command
APPENDIX B: UPDATE, DISPLAY, AND CONTROL MECHANISMS

I. Update Mechanisms
A. Append/Edit MEMBER data
   1. Inputs
      • Initial member data received at physical check-in of member records to BDCM
      • Member change data received on roster from PSD
      • Member change data received on roster from Registrar
      • MEMBER object instance from database
      • ACTIVITY object instance from database
      • CURRICULUM object instance from database
      • System-date and time
   2. Outputs
      • New or modified MEMBER object instance in database
      • Confirmation message on screen
   3. Processing notes
      • This function used for both new and current members
      • All initial member data manually entered after review of member's dental record
      • Student SMC number may not be available initially
   4. Volume
      • 225 Jun; 75 Feb/Jul; 250 Mar/Sep/Dec
      • Seven per week on average after quarter start
      • 275 edits per week on average
   5. Frequency
      • Six times per year for large batch; otherwise daily
B. Delete MEMBER data
   1. Inputs
      • Member takes physical custody of dental records upon detachment
      • MEMBER objects in database
   2. Outputs
      • Confirmation notice on screen
   3. Processing notes
      • Backups of MEMBER data should be made prior to processing a batch of deletions
   4. Volume
      • 250 at end of each academic quarter
      • Seven per week on average after quarter end
   5. Frequency
      • Four times per year for large batch; otherwise daily
C. Append/Edit ACTIVITY data
   1. Inputs
      • Activity data change from Personnel Support Detachment (PSD)
      • ACTIVITY object instance from database
   2. Outputs
      • New or modified ACTIVITY object instance in database
      • Confirmation message on screen
   3. Processing notes
• This function will be seldom used since it will be triggered by the addition or modification of a generally stable client organization
• This function used for both new and current activities
4. Volume
• Variable, approximately one instance every two years on the average
5. Frequency
• Variable, approximately once every two years
D. Delete ACTIVITY data
1. Inputs
• Activity data change from Personnel Support Detachment (PSD)
• ACTIVITY object instance from database
2. Outputs
• Confirmation notice on screen
3. Processing notes
• This function will be seldom used since it will be triggered by the elimination of a generally stable client organization
• Backup of ACTIVITY data should be made prior to deletion
4. Volume
• Variable, approximately one instance every four years on the average
5. Frequency
• Variable, approximately once every four years
E. Append/Edit CURRICULUM data
1. Inputs
• Curriculum data change from Registrar
• CURRICULUM object instance from database
2. Outputs
• New or modified CURRICULUM object instance
• Confirmation message on screen
3. Processing notes
• This function will be seldom used since it will be triggered by the addition or modification of generally stable curriculums
• This function used for both new and current curriculums
4. Volume
• Variable, approximately two instances per year on the average
5. Frequency
• Variable, approximately twice per year prior to new student class
F. Delete CURRICULUM data
1. Inputs
• Curriculum data change from Registrar
• CURRICULUM object instance from database
2. Outputs
• Confirmation message on screen
3. Processing notes
• This function will be seldom used since it will be triggered by the elimination of a generally stable curriculum
• Backup of curriculum data should be made prior to deletion
4. Volume
• Variable, approximately one instance every five years on the average
5. Frequency
• Variable, approximately once every five years
II. Display Mechanisms

A. Query on MEMBER
   1. Output description
      - Form showing all data for a member to screen
   2. Source data
      - MEMBER object
      - Member SSN or name keyed by user
   3. Processing notes
      - Used by Administrative Petty Officer or Receptionist
   4. Volume
      - Five per week
   5. Frequency
      - Daily

B. Recall letter 1
   1. Output description
      - Memorandum mailed to member
      - New or modified MEMBER object instance in database
   2. Source data
      - MEMBER object
      - System-date
   3. Processing notes
      - This process is initiated from a menu by the user. It creates recall letter one for all members whose last T2 exam was more than 10 months prior to the system-date and for whom recall letter one was not previously produced
      - This process inserts system-date as Recall-Ltr1-Date when conditions above exist
   4. Volume
      - 160 monthly
   5. Frequency
      - End of every month

C. Recall letter 2
   1. Output description
      - Memorandum mailed to member
      - New or modified MEMBER object instance in database
   2. Source data
      - MEMBER object
      - System-date
   3. Processing notes
      - This process is initiated from a menu by the user. It creates recall letter two for all members whose last T2 exam was more than 11 months prior to the system-date, for whom recall letter one was produced, and for whom recall letter two was not previously produced
      - This process inserts system-date as Recall-Ltr2-Date when conditions above exist
   4. Volume
      - 100 monthly
   5. Frequency
      - End of every month

D. Recall letter 3
   1. Output description
      - Letter mailed to member
      - New or modified MEMBER object instance in database
2. Source data
   • MEMBER object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user. It produces recall letter three for all members whose last T2 exam was more than 12 months prior to the system-date, for whom recall letter two was produced, and for whom recall letter three was not previously produced
   • This process inserts system-date as Recall-Ltr2-Date when conditions above exist
4. Volume
   • 30 monthly
5. Frequency
   • End of every month

E. Recall letter 4
1. Output description
   • Letter mailed to Curriculum Officer for student members and Activity POC for all other members
   • New or modified MEMBER object instance in database
2. Source data
   • MEMBER object
   • ACTIVITY object
   • CURRICULUM object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user. It produces recall letter four for all members whose last T2 exam was more than 13 months prior to the system-date, for whom recall letter three was produced, and for whom recall letter four was not previously produced
   • This process inserts system-date as Recall-Ltr4-Date when conditions above exist
   • Student members uniquely belong to UIC 31405
4. Volume
   • 3 monthly
5. Frequency
   • End of every month

F. Operational Readiness Report
1. Output description
   • Screen display of summary count and percent of patient load for all members by class
   • Screen display of summary count and percent of all patients in Panoramic x-ray status categories
2. Source data
   • MEMBER object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user. It creates a summary report of the number and percentage of all members in each of the four different dental classes. The report can be optionally printed.
4. Volume
   • 1 monthly
5. Frequency
   • End of every month
G. Member Roster
1. Output description
   • Printed roster of all members sorted alphabetically or by SSN
2. Source data
   • MEMBER object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user.
4. Volume
   • 1 monthly
5. Frequency
   • End of every month

H. Member Roster by Class
1. Output description
   • Printed roster of members sorted alphabetically or by SSN; available for all or for specified class
2. Source data
   • MEMBER object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user.
4. Volume
   • 1 monthly
5. Frequency
   • End of every month

I. Member Roster by UIC
1. Output description
   • Printed roster of all members sorted alphabetically or by SSN
2. Source data
   • MEMBER object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user.
4. Volume
   • 1 monthly
5. Frequency
   • End of every month

J. Member Roster by Pano X-ray status
1. Output description
   • Printed roster of members sorted alphabetically or by SSN; available for all members or for specified Pano status
2. Source data
   • MEMBER object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user.
4. Volume
   • 1 monthly
5. Frequency
K. Activities Listing
1. Output description
   • Printed roster of Activities sorted by UIC
2. Source data
   • ACTIVITY object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user.
4. Volume
   • 1 monthly
5. Frequency
   • End of every month

L. Curriculums Listing
1. Output description
   • Printed roster of Curriculums sorted by curriculum number
2. Source data
   • CURRICULUM object
   • System-date
3. Processing notes
   • This process is initiated from a menu by the user.
4. Volume
   • 1 monthly
5. Frequency
   • End of every month

III. Control Mechanisms
A. Access to the system is protected by a password known only by the Administrative Petty Officer and the Receptionist
B. The system is limited to use by one person at a time.
C. Monthly validations of various member data are accomplished using rosters obtained from PSD and the Registrar
NPS DENTAL CLINIC
PATIENT TRACKING
& RECALL SYSTEM

Timothy P. Steele
LCDR, MSC, USN
Naval Postgraduate School
Welcome to the Naval Postgraduate School Dental Clinic (NPSDC) Patient Tracking and Recall System (PTARS). This database application was developed to provide an in-house, PC-based capability for NPSDC to maintain the patient data necessary to track and recall patients for annual exams and to produce operational readiness statistics. The system provides fast, dependable access to member records and automates the recall process.

PTARS was designed based on extensive interviews with the NPSDC staff to identify clinic requirements. Prototypes of the system were iteratively developed and demonstrated to ensure that clinic end-users were fully satisfied with the final system specifications. A primary design objective was to develop an application that was very user-friendly. Hence, you will be able to use the system productively with only a minimum amount of familiarization time. Please take a few minutes now to review this User's Manual.

Features overview

PTARS employs four database files that are directly accessible to user modification: MEMBERS.DBF, ACTIVITY.DBF, CURRICUL.DBF, and DIRECTOR.DBF. MEMBERS.DBF contains the information pertinent to each patient. The files ACTIVITY.DBF and CURRICUL.DBF are used for locating patients and for printing recall letter addresses. ACTIVITY.DBF contains information specific to each UIC served by NPSDC and CURRICUL.DBF contains information specific to each NPS student curriculum. DIRECTOR.DBF contains the name of the current NPSDC Director for placement into the signature line of recall letters.

The application provides a series of simple menus and sub-menus from which to choose its various options. You will be able to view, append, update, and delete Member, Activity, Curriculum, and Director data using screen forms with built-in error-checking routines for each action or data entry. You will also be able to print special reports, sorted database listings, and recall letters. Additional features include but are not limited to:

- Password controlled access to PTARS; changeable password
- Automatic updating of member treatment class status
• Context-sensitive help
• System information display
• Continuous date and time display
• Automatic determination of appropriate recall letters to print
• Backup database(s) to hard disk or floppy disk; restore backup(s)
• Format floppy disk from within application
• List files on hard disk or floppy disk
• Automatic reminders for database backup (if more than one month since last backup) and database pack (if more than 10% of records marked for deletion)

Typographical conventions

The following typographical conventions are used in this manual:

**Input** Anything that you type is in the Courier typeface, for example, a:\setup <Enter>

**Keys** Keys to be pressed are represented like this: <Esc> <Enter> <F1> (C)

Press both keys simultaneously when a "+" symbol is present, as in: <Alt+F1>

**Direction** Cursor movement keys are indicated as: <PgUp> <PgDn> <Arrows>
**Getting started**

This chapter contains all the information you need to install and run PTARS. It also discusses the various settings that you can change.

It contains the following sections:

- System requirements
- Installation
- Starting PTARS
- Creating a batch file

**System requirements**

PTARS requires the following hardware and software:

- An IBM compatible computer with at least 512K of random access memory (RAM) (640K of RAM strongly recommended)
- One floppy disk and one hard disk drive (with at least 3 megabytes of space available)
- Version 2.0 or later of DOS
- A CONFIG.SYS file in your root directory with a Files=25 (or greater) statement
- An EGA or VGA video adapter
- An Epson E/F/I/RX/LQ compatible or IBM Proprinter compatible dot-matrix printer

Additional requirements:

- To take advantage of Expanded memory support, you need an expanded memory card that is hardware and software compatible with the Lotus-Intel-Microsoft standard 4.0 or later (LIM 4.0 EMS). If you have an Intel 80386 or 80486 processor you can also use extended memory and a software expanded memory emulator program. PTARS can use 64K...
of expanded memory as additional general purpose memory and any remaining expanded memory to speed up file I/O.

- If expanded memory is not available but the computer has extended memory, PTARS can be configured during installation to use 512K of the available extended memory for a disk cache to speed up file I/O.

- Double-copy paper to automatically make copies of recall letters. Since a copy of Recall 3 is identified as an enclosure to Recall 4, a copy of Recall 3 should be available before routing Recall 4. An alternative to double-copy paper would be making a copy of all Recall 3 letters after printing; then filing them in the event a Recall 4 was necessary for the same individual(s).

Installation

Installation overview
You have been provided with four numbered floppy disks. Disks 1 to 3 contain the files necessary to install and run PTARS. Disk 4 contains the initial database files that were current at the time of program delivery (i.e., MEMBERS.DBF, ACTIVITY.DBF, CURRICUL.DBF, and DIRECTOR.DBF). There are two steps to installing PTARS:

- Make a backup and install the program. Before you do anything else, copy the original disks and store them in a safe place. Then, use your copies of the original disks and run the Setup program to install PTARS on your hard disk.

- Choose the default printer. Before you print for the first time, you should select the default printer emulation from the Utilities Menu.

Installing PTARS
Refer to your computer’s documentation (or ask your local computer guru) to determine whether your computer has expanded memory, disk caching hardware or software, and/or extended memory. You will be queried during the installation process regarding your computer’s configuration. Note that you need at least 3 megabytes of available hard disk space before you begin.

One cautionary note before beginning your installation. PTARS was designed to run using only one computer at a time. Although in the future it may be tempting to install PTARS on a second computer, avoid installing PTARS on more than one computer. Because the separate installations can not communicate, there is no built-in, guaranteed way for the separate databases to maintain the same up-to-date data. Although you could
theoretically transfer data using floppy disks, almost assuredly over time some data would exist in one machine but not the other, and vice-versa.

The steps for installing PTARS are as follows:

1. Insert the PTARS disk #1 in drive A.

2. At the DOS prompt, type \setup. The Setup program will start.

3. When prompted by Setup, specify the disk where you want to install PTARS (e.g., c). Setup creates the subdirectory "\PTARS" on the hard disk specified and copies the program files and initial database files to it. Setup prompts you to insert each disk when necessary.

4. After copying, assembling, and un-compressing all the files from the installation disks, Setup queries whether your computer has expanded memory and/or a disk cache. Respond y or n, as appropriate. If you respond negatively, Setup queries whether you have extended memory. Again, respond as appropriate. This process determines how PTARS is configured for start-up.

5. When the installation is complete, Setup presents a screen with installation notes. Read the notes. Setup then queries whether you want to start PTARS. If you respond affirmatively, PTARS loads immediately.

6. Before printing from PTARS for the first time, select the default printer from the Utilities Menu. Refer to your printer's documentation to determine which emulation (Epson E/F/J/RX/LQ or IBM Proprinter) your printer uses. The default printer emulation is initially Epson.

7. Align the paper in your printer. Test the margin adjustments of your paper by printing the Operational Readiness Report from the Reports Menu. The top of your paper should be set in your printer so that one blank line exists at the top of the printed report. Likewise, the paper should be set so that one blank space exists to the left of the header statement "FOR OFFICIAL USE ONLY". If your paper is adjusted in the printer to satisfy these conditions, all printing from PTARS will be formatted properly.

Re-installing PTARS
There are two instances when you may want to re-install PTARS: 1) when there is some problem with any of the program files or 2) the computer has been modified with regard to expanded memory, a disk cache, or extended memory.

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Getting started 5
The re-install process is exactly the same as the initial installation with two exceptions. Setup attempts to determine if PTARS has been installed previously. If Setup detects that this is a re-installation you will be presented with a listing of existing database files in the "\PTARS" subdirectory and a re-installation note on screen. You can elect to continue or quit the re-installation at this time. If you elect to continue, you will be queried regarding which, if any, of the initial database files you may want to re-install. Note that if you have been using PTARS for any period of time you will probably elect not to re-install any of the initial database files. This is because they will be out of date. Use the "Restore backup(s)" option in the Backup Utilities Menu to restore your most recent data from floppy disk, if necessary.

Starting PTARS

If necessary, change to the "\PTARS" subdirectory on the drive where you installed PTARS (e.g., at the DOS prompt, type cd\ptars). Then type ptars and press <Enter>. A logo screen will appear and pause briefly. (You can eliminate the pause by pressing any key during the logo display.) Following the pause, the PTARS Access Screen appears and you are requested to enter the password. The initial password to use is "zyxabc". You will be given up to three attempts to enter the correct password. After a third failure, PTARS shuts down.

After correctly entering the password, you will be queried whether the system date and time are correct. If you respond negatively, you are prompted to enter the correct date and/or time according to the format displayed.

Updating member CLASS

When the system date and time are correct, PTARS updates each member's dental CLASS rating. CLASS ratings of "1", "2", or "3" are assigned to members by an examining dentist. A CLASS rating of "4" indicates simply that the member is due for his/her mandatory annual dental examination. PTARS scans each record in the MEMBERS.DBF database file and checks to see if the LAST_T2 date is more than 12 months prior to the current system date. If so, it replaces the existing CLASS rating with "4". After updating member CLASS, PTARS displays the Main Menu.

Security

It is strongly recommended that the default password be changed after installing the PTARS program. Your data is extremely important. Inadvertent or deliberate tampering with your data by an unauthorized person can only be prevented by taking security precautions (and taking them seriously). In addition to keeping a secure password, it is very important that you do not leave PTARS running unattended. The temptation to do
so, however, will be great. Making regular backups of your data to floppy disk and putting them in a safe place is probably the best way to ensure against loss of data due to any cause.

Creating a start-up batch file
A DOS batch file can be created that will enable you to start PTARS at any time regardless of what directory you may currently be in, without having to type additional DOS commands. Use a text editor (or a word processor mode that does not insert hidden formatting codes) to create a batch file like the example below. The example batch file assumes that you have installed PTARS to the C drive.

```plaintext
C:
  CD\PTARS
  PTARS
```

When the batch file is complete, name it "PTARS.BAT" and place it in your root directory or any directory that is in your DOS path. Henceforth, simply type PTARS to load the PTARS program from any location. See any DOS reference for terminology assistance.
Getting around

This chapter contains the information you need to navigate the menus, forms, and fields of PTARS. It covers:

- Navigation/Action keys
- Function keys
- Using on-line Help
- Menu overview
- Main menu
- Exiting PTARS

Navigation/Action keys

Each PTARS screen shows the available commands or options. The following keys let you move around a screen, between or within fields, or perform various generic actions:

<table>
<thead>
<tr>
<th>Press</th>
<th>To:</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Arrows&gt;</td>
<td>move up or down one line; move left or right one character or screen</td>
</tr>
<tr>
<td>&lt;PgUp&gt;/&lt;PgDn&gt;</td>
<td>display previous or next screen of a multiple records screen</td>
</tr>
<tr>
<td>&lt;Home&gt;</td>
<td>move to the start of a multiple records screen or input field</td>
</tr>
<tr>
<td>&lt;End&gt;</td>
<td>move to the end of a multiple records screen or input field</td>
</tr>
<tr>
<td>&lt;Backspace&gt;</td>
<td>delete character to left; move back one input field</td>
</tr>
<tr>
<td>&lt;Return&gt;</td>
<td>accept an entry; move to next field</td>
</tr>
<tr>
<td>&lt;Insert&gt;</td>
<td>toggle insert/typeover mode</td>
</tr>
<tr>
<td>&lt;Del&gt;</td>
<td>delete a character or record</td>
</tr>
<tr>
<td>&lt;Esc&gt;</td>
<td>cancel the current task</td>
</tr>
</tbody>
</table>

Function keys

Function keys <F1> through <F4> are assigned specific actions as described below. Pressing <Alt+F1> (pressing both keys simultaneously) at any time presents a popup reminder list of the functions available. Functions are activated by pressing the assigned
function key or selecting the function from the popup list. Functions are available at all
times, regardless of the current activity. The functions available are:

**Help <F1>**  
Context-sensitive help window. See the next section, "Using on-line Help".

**Calendar <F2>**  
Pops-up a monthly Calendar display. It shows the current month in row and column form with the current day highlighted. You can move forward or backward in months by pressing <PgUp> or <PgDn>, and in years by pressing <Ctrl-PgUp> or <Ctrl-PgDn>, respectively. To get back to the current date, press (T). As with almost all operations in PTARS, press <Esc> to exit.

**Poptris <F3>**  
A Tetris-like diversion. The object is to fill the rectangular field with the falling objects from the bottom up without leaving any open spaces. Use the numeric keypad arrows to position falling objects within the field. Pressing the number 5 key causes the shape of the falling object to change. It can be pressed repeatedly to cycle the shape of the falling object. Pressing the ↓ arrow key causes the falling object to land immediately, hence, speeding up the activity. Additional commands/functions are displayed on-screen. Poptris code has been included by permission of Gerald F. Garcia.

**About PTARS <F4>**  
A window containing system environment information. It includes information on the operating system, computer hardware, RAM, and disk space.

---

**Using on-line Help**

On-line Help is available at all times by pressing <F1>. Help is "context-sensitive" since the Help Topic details initially displayed apply to the current PTARS screen. When the $ symbol is present in the topic box, you can scroll down or up through the Help window to view additional text using the ↓ or ↑ arrow keys.

As shown in Figure 1, the Help window consists of two panels—one lists Help Topics and the other displays details about each Topic. At the bottom of the Topics list all fields in the various databases are identified with a "—" prefix and are defined. Commands available in Help are described below:

- **Topics**  
  This provides a list of Topics available in the Help system. To select a Topic you can: 1) use the arrow keys to scroll through the Topics.
to find the one you want or 2) type a letter or series of letters to select the first Topic beginning with those letter(s). To see details about a Topic, select the Topic and press <Return>.

<Next> This selects Help details for the next Topic in the help file list.

<Previous> This selects Help details for the prior Topic in the help file list.

<Look Up> Enables you to find the closest Topic match to a word that you highlight within Help details. When you highlight a word in the Help text, the <Look up> function becomes available. You highlight a word by placing the cursor at the first letter in a word using the ← and → arrow keys. Then press <shift+→> to highlight the word.

See Also This lists Help Topics that may be of interest related to the current Topic.

<Esc> Exits Help.

Figure 1. Help window appearing over Main Menu.

Menus overview

PTARS is a "menu-driven" system. All operations are activated by selecting options from full-screen menus, from sub-menus located at the bottom of the screen, or from pop-up menus. An option can be selected on all menus by pressing the highlighted (and capitalized) letter associated with the option. On full-screen menus the number of the menu option will also activate the option. On popup menus you can also scroll to the
desired option and press <Enter> to activate the option. Figure 2 below provides a graphical view of the major menu operations within PTARS.

![PTARS Menu Hierarchy](image)

*Figure 2. PTARS menu hierarchy.*

**Main Menu**

After updating member CLASS, PTARS displays the Main Menu, as shown in Figure 3 on the next page. Each screen in PTARS continuously displays the system date and time in the upper right corner.

**Selecting a database**

In the upper left corner of the Main Menu the four databases of interest are identified. The active database is highlighted and blinking. By default, Members is the initially active database. The Main Menu options "Append", "Edit/view", and "Delete/view" apply only to the active database. A different database can be made active by choosing the option, "Select database", and then selecting the desired database from the popup selection list.

Exiting PTARS is discussed in the following sub-section. The remaining Main Menu options are covered in detail in subsequent chapters.
Exiting PTARS

It is very important that you exit (quit) PTARS using the Main Menu "Quit" option. If you reboot the computer with <ctrl+Alt+Del> or shut the power off without first quitting properly, any databases which are in use at the time are vulnerable to damage. Hence, it is essential that you exit only by using the Main Menu "Quit" option.

When quitting, several things happen before the system shuts down. First, PTARS checks to see if it has been more than one month since MEMBERS.DBF has been backed-up to a floppy disk. If so, a reminder message pops-up on screen and you are given the option to perform a backup. If you choose to perform a backup, PTARS switches to the Backup Utilities Menu where you can perform your backup operations and quit when you are finished.

Next, PTARS checks to see if more than 10% of the records in MEMBERS.DBF have been marked for deletion. If so, a message pops-up and you are queried whether you want to "pack" the database. See Chapter 6 for details on packing the database.

Finally, before shutting down, PTARS queries whether you want to back-up the databases to the hard disk. This allows you to save a second copy of your session’s work on the hard disk. See Chapter 6 for further coverage of backing-up.
This chapter contains the information necessary for updating the databases by appending, editing, or deleting records. Several example screens will be shown to preview the look of PTARS when working with its various modes.

Appending Records

Select the "Append" option from the Main Menu to append records. Appending records involves adding new records to a database. New records can be appended to MEMBERS.DBF, ACTIVITY.DBF, and CURRICUL.DBF. Unlike the foregoing three databases, DIRECTOR.DBF contains only one record. This record contains the name of the current clinic director and must always be present. Hence, it can only be edited.

As discussed in Chapter 2, PTARS starts by default with MEMBERS.DBF as the active database. You can select a different database from the Main Menu option "Select Database". To append records, press \( \text{A} \) from the Main Menu. A blank form will appear, ready to receive new data. You can abort from appending by pressing \( \text{E} \) and the record will not be saved.

When appending a record almost all fields require an entry. If a field is left blank and \( \text{Enter} \) is pressed, either a warning will appear stating that an entry is required or a popup list of valid field entries will appear. When a popup list appears, scroll to the desired field entry and press \( \text{Enter} \) to insert the entry into the form. Figure 4 shows the Append data entry form for Members.

If the member is an NPS student (i.e., UIC = "31405"), a field for Curriculum Number and SMC (Student Mail Center number) will appear following UIC. Alternatively, if the member is a non-student, a field for Activity Department Code will appear. Enter data into these fields as appropriate.

As a reminder, if you have any doubts regarding the contents of a certain field, be sure to utilize the Help function. Each field in all the databases is described in the Topics section of Help. Field names are prefixed with the ";" symbol and are located at the bottom of the scrollable Help Topics list.
After completing the data entry for a new record or after aborting an append, a sub-menu will appear at the bottom of the screen with several options:

<Return>: add-another  (E)dit  (F)inished  <Del>

Pressing <Return> brings up a blank form for appending another new record. Pressing (E)dit allows editing of the currently displayed record. Selecting (F)inished appends the record (if completely entered and not marked for deletion) and returns you to the Main Menu. Pressing <Del> toggles between deleting and saving the current record. For example, assume you discover an error in a record that you have just entered and you want to delete it so that you can get the correct info later and re-enter it. Press <Del> to delete it. This allows you to then press <Enter> to keep entering new records without saving the erroneous one. When a record is "Deleted" a status indicator at the top of the screen says "*Deleted*". In the next section, forms for editing each of the databases will be displayed. The forms look very similar to the forms for appending data.

**Editing/viewing records**

The "Edit/view" option of the Main Menu allows you to edit records in the active database. Editing is performed with one record displayed at a time. This option also provides a means to view all the data in a record of the active database on a single screen.

As can be seen in Figure 5, the Edit/view form for Members is very similar to the Append form for Members. The difference is that the sub-menu of options available is more extensive and that additional information is shown on the form. In the lower
portion of the Edit Members form the dates of recall letters previously printed to the Member are displayed. This information can not be edited from the Edit/view screen but is for viewing only. Editing of recall dates will be discussed in Chapter 4.

![Image of Edit Members form]

Figure 5. Edit/view form for Members.

The actions of each of the Edit/view sub-menu commands are as follows:

- **(E)dit** (E)dit returns the cursor to the record displayed for further changes; the sub-menu options are not available. Entry of data in edit mode is the same as when appending a new record. Pressing <Esc> when in edit mode aborts the edit and the original data is displayed.

- **(F)ind** When editing Members, (F)ind enables you to select a specific record by specifying a member’s SSN or name. (Part of a name or even a single letter can be used. PTARS will seek the first instance of whatever you type. Specifying the person’s full name provides an exact match.) Since a name is not necessarily unique, the first occurrence of a match is shown on the screen. Specify a UIC when editing an Activity and a Curriculum Number when editing a Curriculum.

- **(G)oto** (G)oto enables you to go to a specific record number in the database. Record numbers are listed in the top left of the edit screen.

- **(N)ext** (N)ext-record brings up the next record. (By default, records are sorted by SSN. When a record is "found" by name, the database is sorted by last-name + first-name.)
(P)rev (P)rev-record brings up the prior record. Records are stored as noted above.

<Return> <Return> brings you back to the Main Menu.

Figures 6 and 7 display the Edit/view forms for the Activity and Curriculum databases, respectively. The Append forms for these databases look the same with the exception of the sub-menus.

![Figure 6. Edit/view form for Activity.](image)

![Figure 7. Edit/view form for Curriculum.](image)

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Figure 8 shows the Edit/view form for Director. As discussed, Director can not be appended to or deleted. Hence, you are automatically in edit mode when you select this form. This is because there is only one clinic Director record and it must always contain a signature name.

![Figure 8. Edit/view form for Director.](image)

### Deleting/viewing records

Select the "Delete/view" option from the Main Menu to delete record(s) or to view multiple records on one screen. When a record is marked for deletion, an "*" appears to the left of the record. Figure 9 shows the Delete/view screen for Members. The Delete/view screens for Activities and for Curriculums operate in the same fashion as for Members. The only difference is the fields displayed on screen. When the "== >" appears in the upper right of the screen on the field column header line, additional fields exist for viewing. Pressing the right arrow key will pan the screen right to view the additional fields. Press the left arrow key to pan back to the left.

When a record is "Deleted" on the Delete/view screen, the record is not actually physically removed from the database; it is simply "marked" for deletion. This means that the record can still be recovered if you decide later that you want to "undelete" it. See the discussion of the <del> action below for its operation. To permanently (physically) remove record(s) from a database, the database must be "packed". Chapter 6, "Utilities", provides further discussion of packing the database.
The actions of each of the Delete/view sub-menu commands are as follows:

**{F}ind**  Performs the same action as with the Edit/view form.

**{G}oto**  Performs the same action as with the Edit/view form.

**{M}ode**  {M}ode pops-up a selection of display modes for EGA and VGA video adapters: EGA, 25 or 43 lines; VGA, 25 or 50 lines. More lines on a screen are useful when deleting many members in a single session.

**<Arrows>**  **<Arrows>** refers to the direction keys for moving sideways to view panels of fields or up and down to place the cursor on different records.

**<PgDn>**  **<PgDn>** takes you to the next screen of consecutive records.

**<PgUp>**  **<PgUp>** takes you to the prior screen of consecutive records.

**<Del>**  **<Del>** toggles a deletion marker for a record. To mark a record for deletion, move the cursor to the record and press **<Del>.** When a record is marked for deletion an "*" appears to the left of the record. To unmark a deletion, make sure the cursor is on the correct marked record and press **<Del>** again.

**<Return>**  **<Return>** brings you back to the Main Menu.
Recalls

Recalls are the primary reason for the existence of PTARS. Each of the Service Branches require that members receive an annual dental examination (a "T2" exam), regardless of any prior need for dental treatment. Hence, members require notification prior to expiration of the 12 month period since their last exam (T2 or otherwise). PTARS automates the recall (notification) process by printing initial recall letters (Recall 1) and, if necessary, up to three follow-up letters (Recall 2 to Recall 4) to members.

The following topics are covered in this chapter:

- Printing recalls
- Printing recall lists
- Viewing/editing recall dates

The Recalls Menu is accessed by selecting the "Recalls" option from the Main Menu. As shown in Figure 10, three options are available from the Recalls Menu. Each of these options will be discussed in detail in this chapter.

![Figure 10. Recalls Menu.](image)
Printing recalls

Select "Print recalls" from the Recalls Menu to immediately start printing recall letters. Note that PTARS always backs-up the current MEMBERS.DBF to the hard disk prior to beginning its print routine. Also, note that prior to printing something, PTARS always presents a "Check the printer" notification. (See Figure 11.) You are also given the option to abort the print job. It is particularly important to heed this notification prior to printing recalls since the printing volume can be over 200 pages during this process and the print job can last over 45 minutes. Moreover, as discussed below, recall dates are inserted into the Members database. Any disruption of this process is problematic.

![Figure 11. "Check the printer" notification.](image)

It is important that recalls be printed at approximately the same time every month (e.g., the last day of the month or the first day of the month). This will provide consistency in the intervals that members receive follow-up letters, should they be necessary.

When you print recalls, all recall letters are printed and recall letter dates are inserted into MEMBERS.DBF. (Note: The current MEMBERS.DBF is backed-up to the hard disk before printing.) "Print Recalls" also creates a file for each recall letter category which lists members for whom a recall letter is printed (Recall1.lst to Recall4.lst). The previous recall list files are saved with a .BAK extension should they need to be examined from DOS. The logic of recall printing is described following the important section below.
IMPORTANT - The recall letter printing module automatically inserts a new recall letter date into the Members database when a recall letter is printed. It also creates files (RECALL1.LST to RECALL4.LST) containing SSNs and names of members for whom a recall letter was printed. If a printer malfunction occurs or the print job is aborted for some reason, it will be necessary to compare the file listings of the most recent recall letters against the physically printed letters. Members who are on the file listing, but for whom there is no useable printed recall letter, must have the new recall letter date deleted before the program can print a replacement recall letter. This is because the printing module checks the existing recall dates to determine if an appropriate recall letter has already been printed.

If for some reason none or relatively few usable recall letters are printed (e.g., the printer was not turned on or there was an early paper jam), you may want to consider restoring the hard disk backup that was created just prior to printing the recalls and starting over. None of the new recall dates will exist on the backup and you can fix the printer and start fresh. See "Restoring backup(s)" in chapter 6. The logic of the recall process is described below:

**Recall 1**  Recall 1 is triggered after at least 10 full months + 1 day have transpired since the member’s last T2 exam. Prints a memo to the member and records the print date as Recall 1 date.

**Recall 2**  Recall 2 is triggered after at least 11 full months + 1 day have transpired since the member’s last T2 exam, provided that Recall 1 date is in the database and that at least 25 days have transpired since Recall 1. Prints a memo to the member and records the print date as Recall 2 date.

**Recall 3**  Recall 3 is triggered after at least 12 full months + 1 day have transpired since the member’s last T2 exam, provided that Recall 2 date is in the database and that at least 25 days have transpired since Recall 2. Prints a letter to the member and records the print date as Recall 3 date.

**Recall 4**  Recall 4 is triggered after at least 13 full months + 1 day have transpired since the member’s last T2 exam, provided that Recall 3 date is in the database and that at least 25 days have transpired since Recall 3. Prints the letter to the member’s superior (i.e., Curriculum Officer for students or to Activity POC for non-students) and records the print date as Recall 4 date.

Example recall letters 1 through 4 are shown in Figures 11 through 14 on the following three pages. Note that the text of Recall 4 indicates that Recall 3 is included as an enclosure. Thus, when routing Recall 4 letters a copy of Recall 3 should be attached. Copies of recall letters can be made by printing from double-copy paper, or alternatively, Xerox copies of just letters 3 and 4 can be made before routing them. The volume of these two letters is historically very low.
MEMORANDUM (First Reminder)
From: Director, Branch Dental Clinic, Monterey
To: ENS Dandelion Wine, USN, 023-12-3122, NPS STUDENT (SNC 1002)
Subj: ANNUAL DENTAL EXAMINATION
Ref: (a) SECNAVINST 6600.1C
   (b) AR 40-35
   (c) AF MAN 30-130
   (d) COMDTINST M6000.1B

1. References (a) through (d) require that all personnel receive an annual
dental examination. Your record indicates that you will be due for an examina-
tion next month.

2. Please schedule an appointment with the Dental Clinic in person or by call-
ing 646-2477/2478 at your earliest convenience.

3. If you have had a dental exam within the past 90 days, please contact the
dental clinic so that we may update your record. If you have already made an
appointment, please disregard this notice.

R. C. TERHUNE

Figure 11. Example Recall 1 memorandum.

MEMORANDUM (Second Reminder)
From: Director, Branch Dental Clinic, Monterey
To: LCDR Robert O. Bloch, USN, 076-35-3746, NPS STUDENT (SNC 1230)
Subj: ANNUAL DENTAL EXAMINATION
Ref: (a) SECNAVINST 6600.1C
   (b) AR 40-35
   (c) AF MAN 30-130
   (d) COMDTINST M6000.1B

1. References (a) through (d) require that all personnel receive an annual
dental examination. Your record indicates that you will be due for an examina-
tion this month.

2. Please schedule an appointment with the Dental Clinic in person or by call-
ing 646-2477/2478 within 10 days of receiving this notice.

3. If you have had a dental exam within the past 90 days, please contact the
dental clinic so that we may update your record. If you have already made an
appointment, please disregard this notice.

R. C. TERHUNE

Figure 12. Example Recall 2 memorandum.

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1 December 1991

From: Director, Branch Dental Clinic, Monterey
To: LT Antoine R. Andrews, USN, 012-12-1212, NOCLB

Subj: ANNUAL DENTAL EXAMINATION DELINQUENCY NOTIFICATION

Ref: (a) SECNAVINST 6600.1C
    (b) AR 40-35
    (c) AF MAN 30-130
    (d) COMDTINST M6000.1B

1. References (a) through (d) require that all active duty military personnel receive a comprehensive dental examination at least once each 12 months.

2. A review of your dental record indicates that your last dental examination was conducted in November, 1990.

3. This facility attempts to assist each member by sending out computerized reminders when their annual examination is due. This was done in your case on 1 October, 1991 and 2 November, 1991 and you failed to respond.

4. It is my responsibility to ensure adherence to the provisions of the references. I am therefore informing you that your annual dental examination must be accomplished prior to 1 January, 1992. Failure to comply will result in further action.

5. You may schedule an examination in person or by calling extension 2477/2478. If you have already made an appointment, please call to confirm it.

R. C. TERHUNE

Figure 13. Example Recall 3 letter.
From: Director, Branch Dental Clinic, Monterey
To: Curriculum Officer, Operations Analysis (Code 30)

Subj: MAJOR Larry B. Herman, USAF, 256-98-6582

Endt: (1) Copy of my ltr dtd 1 November, 1991

Ref: (a) SECNAVINST 6600.1C
(b) AR 40-35
(c) AF MAN 30-130
(d) COMDTINST M6000.1B

1. Per references (a) through (d), all active duty military personnel are required to have an annual dental examination. The Branch Dental Clinic, Naval Postgraduate School, contacts individuals requiring examination by sending them a recall notice via the mail. Dental records of personnel that do not respond and exceed the one year limit are marked accordingly and then another recall notice is sent.

2. MAJOR Herman was sent both recall notices and after failing to respond was sent enclosure (1). He/She once again has failed to respond and I must now assume that he/she does not intend to comply with the references.

3. It is requested that MAJOR Herman be appropriately counseled and directed to call extension 2477/2478 to schedule his/her annual dental examination. If you have any questions please feel free to call me at any time.

R. C. TERHUNE

Figure 14. Example Recall 4 letter.
Printing recall lists

Select "pRint most recent recall list" from the Recalls Menu. This option lists (to the printer only) the most recent recall letter information. (The same information is listed to the screen during the printing of the recall letters.) Use this option in the event of a printer malfunction when printing recall letters to compare physical letters against what the program "thinks" it printed. Popup options are presented to select which listing to print. Figure 15 depicts an example listing of Recall 3.

<table>
<thead>
<tr>
<th>Listing of most recent Recall 3 letters. Created 01/23/92 at 12:00.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSN</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>012-12-1212</td>
</tr>
<tr>
<td>089-64-3585</td>
</tr>
<tr>
<td>123-92-9292</td>
</tr>
<tr>
<td>133-21-3838</td>
</tr>
<tr>
<td>145-89-4509</td>
</tr>
<tr>
<td>149-34-9321</td>
</tr>
<tr>
<td>234-58-9234</td>
</tr>
<tr>
<td>282-38-2881</td>
</tr>
<tr>
<td>283-82-3843</td>
</tr>
<tr>
<td>336-29-3121</td>
</tr>
<tr>
<td>342-34-5245</td>
</tr>
<tr>
<td>345-21-6587</td>
</tr>
<tr>
<td>345-92-0394</td>
</tr>
<tr>
<td>383-63-8383</td>
</tr>
<tr>
<td>408-45-9084</td>
</tr>
<tr>
<td>427-84-8320</td>
</tr>
<tr>
<td>489-43-8438</td>
</tr>
<tr>
<td>494-59-3493</td>
</tr>
</tbody>
</table>

Figure 15. Example listing of Recall 3.

Viewing/editing recall dates

The "View/edit recall dates" option of the Recalls Menu provides a means for viewing recall letter dates for multiple records and for accessing individual records for recall letter date editing. This facility should be used in conjunction with the previously discussed recall listings in the event of a printer malfunction when printing recall letters. The sub-menu options of the View Recalls screen shown in Figure '6 are the same as the like-named options discussed in Chapter 3 for the Delete/view screen. Since recall dates are a subset of the fields in the Members database, records can not be deleted using View Recalls.
As discussed previously, the purpose of editing recall letter dates is to enable PTARS to print a replacement recall letter. If a recall letter date is present for a given recall letter, the program will only be able to print the next letter when the eligibility date for the next recall letter arrives. To reprint a letter, the recall letter date must be deleted and there must not be a subsequent recall letter date present. If this sounds confusing, reread the previous coverage of "Printing Recalls".

To edit a member's recall dates, press {E}. The current row of the display will be highlighted and placed into edit mode. Use normal editing and movement keys to edit the date(s). Note that edited dates are checked for chronological consistency as well as general date validity (i.e., can not be later than the current date, must have a prior recall, can not be missing a recall between recalls, values must be chronologically correct for existent recalls).
Reports

This chapter discusses the various reports available in PTARS and provides several example figures to preview the look of the reports. The Reports Menu, shown in Figure 17, is accessed from the Main Menu by pressing \{P\}. The Operational Readiness Report is available to both the screen and the printer. The other reports (rosters) are sent to the printer only.

![PTARS REPORTS MENU](image)

*Figure 17. Reports Menu.*

Operational readiness

The Operational Readiness Report provides counts and percentages of members in each of the dental CLASS categories. The report is initially displayed to the screen and you are given the option of printing it. Operational Readiness is defined as the percentage of all members served by the clinic who are classified as CLASS 1 or 2. As can be seen in Figure 18, the Operational Readiness percentage is a simple summation of the CLASS 1 and CLASS 2 percentages.
Also included in the report are counts and percentages of members whose Pano X-rays are in a given status. Three Pano status categories exist and are designated by standard color designations:

- **GRN (Green)**: Pano *is accepted and on-file*
- **RED**: Pano *has been duplicated and forwarded*
- **YLW (Yellow)**: Pano *is not on-file and has not been duplicated and forwarded*

### Rosters

The remaining reports available from the Reports Menu are basically rosters sorted on various fields of interest. After selecting any of the Members reports a popup will offer a selection of whether to list members by SSN or alphabetically. If printing Members by dental CLASS, a popup will allow selection of a specific CLASS or all members. If printing Members by Pano status, a popup will allow selection of a specific status or all members. Figure 19 provides an example roster of Members listed by SSN that could be printed by selecting option 2, "Members (all)", from the Reports Menu.

Selections 6 and 7 from the Reports Menu print complete rosters of the Activities and the Curriculums contained in their respective PTARS databases.
Periodic comparison of Member rosters against data from both PSD and the Registrar will help keep member data up-to-date. Current listings of the Curriculums at NPS should also be obtained from the Registrar so that the Curriculum database can be kept up-to-date.

<table>
<thead>
<tr>
<th>SSN</th>
<th>NAME</th>
<th>RANK</th>
<th>SERVICE</th>
<th>BRANCH</th>
<th>UIC</th>
<th>SMC/ EXAM</th>
<th>LAST T2</th>
<th>CLASS</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>000-00-0002</td>
<td>Merman, Ethel</td>
<td>LT USN</td>
<td>63134</td>
<td>1000</td>
<td>03/21/89</td>
<td>4 GRN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>001-00-0003</td>
<td>Miserables, Les</td>
<td>LT USN</td>
<td>45210</td>
<td>03/21/91</td>
<td>1 GRN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>012-12-1212</td>
<td>Andrews, Antoine R.</td>
<td>LT USN</td>
<td>35728</td>
<td>07/14/90</td>
<td>4 GRN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>012-93-8475</td>
<td>Adams, John Q.</td>
<td>ENS USN</td>
<td>31405</td>
<td>1280</td>
<td>07/12/89</td>
<td>4 YLW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>022-20-0000</td>
<td>Marcos, Emilda</td>
<td>CAPT USA</td>
<td>TRAC</td>
<td>09/12/91</td>
<td>1 RED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>023-12-3122</td>
<td>Wine, Dandelion</td>
<td>ENS USN</td>
<td>31405</td>
<td>1002</td>
<td>07/30/90</td>
<td>4 GRN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>039-39-2828</td>
<td>Lincoln, Mark</td>
<td>ENS USN</td>
<td>31405</td>
<td>1010</td>
<td>11/17/90</td>
<td>4 GRN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>076-33-3744</td>
<td>Bloch, Robert O.</td>
<td>Lcdr USN</td>
<td>31405</td>
<td>1230</td>
<td>01/05/90</td>
<td>4 YLW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>083-82-7827</td>
<td>Mathews, Mark N.</td>
<td>Ltg USN</td>
<td>35728</td>
<td>04/12/91</td>
<td>1 YLW</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>089-64-3385</td>
<td>Morrison, Larry R.</td>
<td>Ltjg USN</td>
<td>31405</td>
<td>1343</td>
<td>02/17/89</td>
<td>4 RED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102-20-0000</td>
<td>Mastroiani, Marcello O.</td>
<td>Lt USN</td>
<td>31405</td>
<td>2030</td>
<td>09/12/91</td>
<td>1 GRN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109-28-3746</td>
<td>Laverne, Shirley</td>
<td>D72 USN</td>
<td>35728</td>
<td>07/30/91</td>
<td>4 GRN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123-45-6789</td>
<td>Doherty, Janet I.</td>
<td>Lt USN</td>
<td>31405</td>
<td>1001</td>
<td>11/21/90</td>
<td>4 GRN</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 19.** Members (all) roster sorted by SSN.
This Chapter explains the various utilities included with PTARS that support proper maintenance of the databases. The Utilities Menu is accessed by pressing \( u \) from the Main Menu and is shown in Figure 20.

It contains the following sections:

- Backup utilities
- Changing the password
- Packing the database(s)
- Changing the date or time
- Selecting the default printer

![Utilities Menu](image)

*Figure 20. Utilities Menu.*

**Backup utilities**

The backup utilities are a collection of utilities related to backing-up and restoring the four database files MEMBERS.DBF, ACTIVITY.DBF, CURRICUL.DBF, and
DIRECTOR.DBF. The Backup Utilities Menu, shown in Figure 21, is accessed from the Utilities Menu by pressing (B). Each of the menu selections will be discussed in the sub-sections below.

**Figure 21.** Backup Utilities Menu.

**Backing-up database(s)**
When you first select Backup, a popup will appear allowing you to select whether you want to back-up to the hard disk or the floppy disk in drive A. Next, another popup appears to let you select which database file(s) (i.e., MEMBERS.DBF, ACTIVITY.DBF, CURRICUL.DBF, DIRECTOR.DBF, or all) to back-up. Once your selection is made, Backup copies the selected file(s) to the destination drive. Backing-up to a floppy keeps a reserve copy of the data that can be restored in case something happens to the computer, hard disk, or the data. Backing-up to the hard disk is convenient for short-term backups, but is not sufficient for best reliability. Note that the PTARS program presents the option to back-up the databases to the hard disk prior to quitting a session.

Your data *should* be backed up to a floppy disk weekly and immediately following input or editing sessions involving many records. It is a good idea to keep two or three backup floppies in rotation—writing over the oldest backup each time. *Always* label your backups to floppy disk with the file names and their creation dates. This will help you to identify your backups later if you need to restore them. Hint: use a pencil to label your backups; you can use several floppy disks over and over again by erasing and writing the new information.

Remember, there is only one way to ensure the safety of your data: rigorous adherence to a regular program of backing-up.
Listing files
A popup menu allows selecting the hard disk PTARS subdirectory or floppy disk A: for listing files. Either just database files can be displayed or all files can be displayed. When database files are displayed the following information is included: file name, number of records, last update, file size, total bytes in database files, and bytes remaining on the drive. When all files are displayed, file names are listed and total bytes used in the files and bytes remaining on the drive are presented.

This utility is useful for identifying files that might already exist on a diskette that will be used for backups.

Formatting a floppy disk
Formats a 360Kbyte or a 1.2Mbyte floppy disk (5 1/4") placed in drive A. A popup presents three options:

- **360K --> 360K**: Formats from a 360K capacity drive to a 360K floppy
- **1.2M --> 360K**: Formats from a 1.2M capacity drive to a 360K floppy
- **1.2M --> 1.2M**: Formats from a 1.2M capacity drive to a 1.2M floppy

The first number indicates the actual drive-type. For example, your machine may only be capable of formatting 360K floppy disks, as in the first option. The second number indicates the floppy disk formatted capacity. A new floppy disk must be formatted so that the Disk Operating System (DOS) can read and write data to it.

Restoring backup(s)
When you select "Restore backup(s)", a popup enables selectively replacing database file(s) with backups from the hard disk or a floppy disk.

At the end of every session with PTARS you are presented with the option to backup the databases to the hard disk. If you choose to do so, four backup database files, MEM_BU.DBF, ACT_BU.DBF, CUR_BU.DBF, and DIR_BU.DBF are created in the PTARS subdirectory of your hard drive. These files can be restored (either singly or together) to MEMBERS.DBF, ACTIVITY.DBF, CURRICUL.DBF, and DIRECTOR.DBF, respectively. The restored backups overwrite the current database file(s).

Note that backing-up to the hard drive does not protect your data from hard drive or computer failure since the backups reside on the same machine as the original data. The feature is useful, however, if your original data becomes corrupted for some reason but your backups are still OK. In addition, it may be useful in the event you have experienced a printer malfunction (e.g., your printer ribbon gave up the ghost) and you have many unusable recall letters. Rather than editing recall dates and printing again,
it may be advantageous to restore the backup of MEMBERS.DBF (which PTARS always makes before printing recalls) and start over.

A final method of restoring any database is to manually copy the file using DOS commands. This method should never be necessary since the capability is built into PTARS. If for some reason you should need to manually restore a *.DBF file, be sure that any like-named compound index file (*.CDX) is erased (e.g., from the DOS prompt: del c:\ptars\members.cdx) This is because a unique index file is created and updated by PTARS for each database. If the index file does not "belong" to the specific version of a database, PTARS will not perform properly and will give an error notification.

Changing the password

You can change the current password to a new password (it must have 6 characters). Make sure that you remember the new password. If you ever forget your new password, copy the file NPS_MISC.DBF from disk 3 of your backup copies of the installation disks to the sub-directory \PTARS (e.g., copy a:\nps_misc.dbf c:\ptars). The original password is "zyxabc". This default password should be changed immediately after you install PTARS. (If you can read it here, so can someone else.) Note that the password is encrypted in the file NPS_MISC.DBF and cannot be deciphered if it is forgotten.

Figure 22 shows the screen for changing the password. As you type your new password, a dot will appear for each character typed. As shown in the figure, to verify that you typed what you thought you typed, PTARS prompts for a second entry of your new password. If the two entries do not match, the password change will be aborted.
For effective security it is a good idea to periodically change your password. If an unauthorized individual inadvertently (or even deliberately) changes or damages your data, it could be a catastrophe. Regarding security, just think about having to re-enter over 1900 records!

**Packing the database(s)**

Packing the database(s) permanently deletes records "marked" for deletion from one or all of the three primary databases: MEMBERS.DBF, ACTIVITY.DBF, and CURRICUL.DBF. It also physically sorts the databases. MEMBERS.DBF is sorted in ascending order by SSN; ACTIVITY.DBF is sorted in ascending order by UIC; and CURRICUL.DBF is sorted in ascending order by curriculum number. Packing improves the performance of PTARS by reducing the physical size of the database(s) and reorders the records by the primary key. Note that the effects of packing are not "undoable". An informational prompt will appear upon quitting a session when 10% or more of the MEMBER.DBF records are marked for deletion. You should heed the prompt and pack the database (unless you have some good reason not to).

**Changing the date or time**

After selecting the "Change date or time" option a popup for selecting which to change (date or time) appears. After your selection is made you are prompted to enter the date or time using the example format shown on the screen. The system date or time can also be changed when starting the PTARS program. As part of the opening screen routine the user is prompted to verify the system date and time. If the system date or time displayed is incorrect, enter the correct date or time using the example format shown on the screen.

**Selecting the default printer**

You should select the default printer before printing anything from PTARS for the first time. After choosing this option from the Utilities Menu, PTARS pops-up two common printer emulations for dot matrix printers: (1) Epson E/F/J/RX/LQ emulation and (2) IBM Proprinter emulation. The emulation you select becomes the default for all subsequent sessions. The Epson emulation is supported by the majority of 9 pin dot matrix printers and PTARS uses it as the initial default. The default printer identifier is stored in a field in the NPS_MISC.DBF file.
Optimizing PTARS

This appendix identifies several ways that you can optimize the performance of PTARS if you have certain hardware or software capabilities. It contains the following sections:

- Disk defrag/compress
- Memory
- Config.sys
- Pack the database(s)

Disk defrag/compress

The performance of PTARS can be significantly improved if a disk defragment/compression procedure is performed on your hard drive periodically. Over time the database files will become fragmented as records are appended, edited and deleted. This slows down disk reads and writes since each file is no longer one contiguous piece; files can become many pieces scattered all over the disk. Defragment/compression utilities are available commercially.

Memory

PTARS will take advantage of all types of computer memory. If your computer is configured correctly, PTARS' performance will be enhanced. Note that if you change your computer's memory configuration or add a disk cache program, you must re-install PTARS so that it operates optimally.

Personal Computers (PC)s can contain three types of memory: conventional, expanded and extended.

Conventional Memory

All PCs can contain conventional memory (up to 640K). This is the memory that programs typically load into and run in. PTARS requires that you have at least 512K of conventional memory with at least 420K of it free after memory resident programs have been loaded. A minimum of 640K is strongly recommended.
**Expanded Memory**

The 8086 family of microprocessors have a physical address space of 1024K, or 1MB. The first 640K is the conventional memory space discussed above. The remaining 384K is reserved for use by read-only memory (RAM) and hardware device controllers. Also, within this area of memory, a 64K block can be reserved for use by an expanded memory manager which conforms to the Lotus/Intel/Microsoft interface specification (a LIM EMS Memory Manager).

The Expanded Memory Manager (EMM) administers expanded memory as a system resource that can be used by several applications at the same time and services EMS function calls. EMS memory is bank-switched memory that can be larger than the CPU's address space that is mapped into conventional memory via the EMS page frame.

On machines with expanded memory that is LIM 4.0 EMS compatible, PTARS uses the first 64K of expanded memory as "general purpose" memory and any remaining expanded memory to speed file I/O and to cache PTARS code segments.

To check how much EMS is currently being used by PTARS, look in the "About PTARS" box (by pressing <F4> or <Alt+F1>).

If you run on an 80386 or 80486 you're in luck! There are many inexpensive programs that use extended memory to emulate EMS, such as QEMM from Quarterdeck and 386MAX from Qualitas. MS-DOS 5.0 includes EMM386. On a 386 always use QEMM, 386Max, or other expanded memory managers. You'll be glad you did!

If you use a non-80386 processor you have several options. First, you could invest in an EMS board. These pieces of hardware, which usually work with both 8086/88 and 80286 processors, include substantial amounts of memory together with driver programs which provide the software interface to the board.

**Extended Memory**

Extended memory is memory that lies above the 1MB address range. It can be used directly by some operating systems (OS/2 and UNIX), but standard DOS cannot address it without the use of an Extended Memory Specification (XMS) driver, an interface that allows access to memory beyond 640K. Applications using this address space must be running in protected mode.

Extended memory cannot be used directly by PTARS until it is made to act like EMS. How you make extended memory act like expanded memory is dependent on your system, but typically you install a memory manager -- software that provides an EMS style (LIM 4.0) interface to extended memory. Once the extended memory is emulating EMS memory, PTARS will sense that it is there and make good use of it.
Config.sys

The system configuration file, CONFIG.SYS, contains certain commands that are checked and executed when you start up your computer. These commands change your computer's default configuration.

CONFIG.SYS is not a PTARS file. It's a file that DOS uses to establish the working environment. Because PTARS interacts with this environment, you must be sure that certain settings are properly established. Two CONFIG.SYS statements are of immediate importance to PTARS:

BUFFERS  The BUFFERS statement contains the number of disk buffers that DOS sets aside in memory when your computer is started. A disk buffer is a block of memory (typically 512 bytes) that DOS uses to hold data when reading and writing from disk. For best performance with PTARS, the CONFIG.SYS file should contain a BUFFERS statement with a number between 20 and 40 (e.g., BUFFERS=30).

FILES   The FILES statement sets the number of files that DOS can open and access at one time. This number is directly related to the number of files that PTARS will be able to open. The FILES statement in CONFIG.SYS should always be at least 25 (e.g., FILES=25).

See your DOS manual for complete details on the CONFIG.SYS file and the various statements it can contain.

Pack the database(s)

Packing the databases is covered in Chapter 6.
File definitions

The files listed below (with their definitions) are installed by Setup into the "PTARS" hard disk subdirectory. These files are essential to the operation of PTARS. Three of the files, FOXPRO.ESL, FOXPRO.ESO, and PTAR.EXE are in compressed form on the installation disks and will not work if copied directly from the floppy disk to your hard drive. All of the other files installed by PTARS are in normal form on the installation disks.

**PTARS files**
- CONFIG.FP: resource pointer file
- FOXPRO.ESL: database routines library
- FOXPRO.ESO: database routines library
- CACHE.COM: extended memory (512K req'd) disk cache utility
- NPS_MISC.DBF: contains encrypted password, default printer, backup date
- NPS_USER.DBF: contains configuration information
- NPS_USER.FPT: memo file for configuration information
- PTAR.EXE: PTARS executable program
- PTARS.COM: PTARS loader program

**NPSDC database files**
- ACTIVITY.DBF: contains UIC information
- CURRICUL.DBF: contains student Curriculum information
- DIRECTOR.DBF: contains current Director signature name
- MEMBERS.DBF: contains Member information

The following files are created during the operation of PTARS and may or may not be present at any given time:

- ACTIVITY.CDX: compound index file for ACTIVITY.DBF
- CURRICUL.CDX: compound index file for CURRICUL.DBF
- MEMBERS.CDX: compound index file for MEMBERS.DBF
- ACT_BU.DBF: hard disk backup of ACTIVITY.DBF
- CUR_BU.DBF: hard disk backup of CURRICUL.DBF
- DIR_BU.DBF: hard disk backup of DIRECTOR.DBF
- MEM_BU.DBF: hard disk backup of MEMBERS.DBF
<table>
<thead>
<tr>
<th>File Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECALL1.LST</td>
<td>most recent listing of members receiving recall 1 letter</td>
</tr>
<tr>
<td>RECALL2.LST</td>
<td>most recent listing of members receiving recall 2 letter</td>
</tr>
<tr>
<td>RECALL3.LST</td>
<td>most recent listing of members receiving recall 3 letter</td>
</tr>
<tr>
<td>RECALL4.LST</td>
<td>most recent listing of members receiving recall 4 letter</td>
</tr>
<tr>
<td>RECALL1.BAK</td>
<td>previous listing of members receiving recall 1 letter</td>
</tr>
<tr>
<td>RECALL2.BAK</td>
<td>previous listing of members receiving recall 2 letter</td>
</tr>
<tr>
<td>RECALL3.BAK</td>
<td>previous listing of members receiving recall 3 letter</td>
</tr>
<tr>
<td>RECALL4.BAK</td>
<td>previous listing of members receiving recall 4 letter</td>
</tr>
<tr>
<td>RELATE1.VUE</td>
<td>PTARS environment file</td>
</tr>
<tr>
<td>RELATE2.VUE</td>
<td>PTARS environment file</td>
</tr>
</tbody>
</table>
### Database specifications

#### Members.dbf

<table>
<thead>
<tr>
<th>Field-name</th>
<th>Type</th>
<th>Length</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSN</td>
<td>Character</td>
<td>11</td>
<td>Social Security Number -- unique, mandatory, key field</td>
</tr>
<tr>
<td>LAST_NAME</td>
<td>Character</td>
<td>23</td>
<td>Last Name -- mandatory</td>
</tr>
<tr>
<td>FIRST_NAME</td>
<td>Character</td>
<td>15</td>
<td>First Name -- mandatory</td>
</tr>
<tr>
<td>MI</td>
<td>Character</td>
<td>1</td>
<td>Middle Initial -- if available</td>
</tr>
<tr>
<td>RANK_RATE</td>
<td>Character</td>
<td>5</td>
<td>Rank or Rate -- mandatory</td>
</tr>
<tr>
<td>BRANCH</td>
<td>Character</td>
<td>4</td>
<td>Service Branch -- mandatory, popup list</td>
</tr>
<tr>
<td>LAST_T2</td>
<td>Date</td>
<td>8</td>
<td>Last-T2-Exam date -- mandatory</td>
</tr>
<tr>
<td>CLASS</td>
<td>Numeric</td>
<td>1</td>
<td>Dental Class -- mandatory, range (1 - 4), PTARS updated</td>
</tr>
<tr>
<td>PANO</td>
<td>Character</td>
<td>3</td>
<td>Panoramic X-ray status -- mandatory, popup list</td>
</tr>
<tr>
<td>UIC</td>
<td>Character</td>
<td>5</td>
<td>Unit Identification Code -- mandatory, popup list, linked with ACTIVITY.DBF (used in &quot;To:&quot; line of recall letters to students)</td>
</tr>
<tr>
<td>Curr_num</td>
<td>Character</td>
<td>3</td>
<td>Curriculum Number -- mandatory for UIC 31405, popup list, linked with CURRICUL.DBF</td>
</tr>
<tr>
<td>SMC/CODE</td>
<td>Character</td>
<td>4</td>
<td>Student Mail Center number/Department Code -- if available</td>
</tr>
<tr>
<td>RECALL_1</td>
<td>Date</td>
<td>8</td>
<td>Recall 1 letter date -- PTARS created, editable</td>
</tr>
<tr>
<td>RECALL_2</td>
<td>Date</td>
<td>8</td>
<td>Recall 2 letter date -- PTARS created, editable</td>
</tr>
<tr>
<td>RECALL_3</td>
<td>Date</td>
<td>8</td>
<td>Recall 3 letter date -- PTARS created, editable</td>
</tr>
<tr>
<td>RECALL_4</td>
<td>Date</td>
<td>8</td>
<td>Recall 4 letter date -- PTARS created, editable</td>
</tr>
</tbody>
</table>

#### Activity.dbf

<table>
<thead>
<tr>
<th>Field-name</th>
<th>Type</th>
<th>Length</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>UIC</td>
<td>Character</td>
<td>5</td>
<td>Unit Identification Code -- unique, mandatory, key field</td>
</tr>
<tr>
<td>ACRONYM</td>
<td>Character</td>
<td>11</td>
<td>Acronym for UIC -- mandatory (used in &quot;To:&quot; line of recall letters 1 - 3)</td>
</tr>
<tr>
<td>ACT_NAME</td>
<td>Character</td>
<td>47</td>
<td>UIC Name -- mandatory (used in &quot;To:&quot; line of recall 4 letter)</td>
</tr>
<tr>
<td>POC</td>
<td>Character</td>
<td>20</td>
<td>UIC Point of Contact -- mandatory (used in &quot;To:&quot; line of recall 4 letter)</td>
</tr>
</tbody>
</table>

#### Curricul.dbf

<table>
<thead>
<tr>
<th>Field-name</th>
<th>Type</th>
<th>Length</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURR_NUM</td>
<td>Character</td>
<td>3</td>
<td>Curriculum Number -- unique, mandatory, key field</td>
</tr>
<tr>
<td>CURR_NAME</td>
<td>Character</td>
<td>46</td>
<td>Curriculum Name -- mandatory (used in &quot;To:&quot; line of recall 4 letter applicable to students)</td>
</tr>
<tr>
<td>DEPT_CODE</td>
<td>Character</td>
<td>2</td>
<td>Department Code of Curriculum -- mandatory (used in &quot;To:&quot; line of recall 4 letter applicable to students)</td>
</tr>
<tr>
<td>PHONE_NO</td>
<td>Character</td>
<td>4</td>
<td>Curriculum Office Phone Number -- mandatory</td>
</tr>
</tbody>
</table>

#### Director.dbf

<table>
<thead>
<tr>
<th>Field-name</th>
<th>Type</th>
<th>Length</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTOR</td>
<td>Character</td>
<td>20</td>
<td>Director signature -- mandatory (format as per signature line of recall letters)</td>
</tr>
</tbody>
</table>
APPENDIX D: RELATION DEFINITIONS

**MEMBER**

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSN</td>
<td>Character</td>
<td>11</td>
</tr>
<tr>
<td>Last-name</td>
<td>Character</td>
<td>23</td>
</tr>
<tr>
<td>First-name</td>
<td>Character</td>
<td>15</td>
</tr>
<tr>
<td>MI</td>
<td>Character</td>
<td>1</td>
</tr>
<tr>
<td>Rank_rate</td>
<td>Character</td>
<td>5</td>
</tr>
<tr>
<td>Branch</td>
<td>Character</td>
<td>4</td>
</tr>
<tr>
<td>Last_T2</td>
<td>Date</td>
<td>8</td>
</tr>
<tr>
<td>Class</td>
<td>Numeric</td>
<td>1</td>
</tr>
<tr>
<td>Pano</td>
<td>Character</td>
<td>3</td>
</tr>
<tr>
<td>UIC</td>
<td>Character</td>
<td>5</td>
</tr>
<tr>
<td>Curr-num</td>
<td>Character</td>
<td>3</td>
</tr>
<tr>
<td>SMC/Code</td>
<td>Character</td>
<td>4</td>
</tr>
<tr>
<td>Recall_1</td>
<td>Date</td>
<td>8</td>
</tr>
<tr>
<td>Recall_2</td>
<td>Date</td>
<td>8</td>
</tr>
<tr>
<td>Recall_3</td>
<td>Date</td>
<td>8</td>
</tr>
<tr>
<td>Recall_4</td>
<td>Date</td>
<td>8</td>
</tr>
</tbody>
</table>

**ACTIVITY**

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>UIC</td>
<td>Character</td>
<td>5</td>
</tr>
<tr>
<td>Acronym</td>
<td>Character</td>
<td>11</td>
</tr>
<tr>
<td>Act-name</td>
<td>Character</td>
<td>47</td>
</tr>
<tr>
<td>POC</td>
<td>Character</td>
<td>20</td>
</tr>
</tbody>
</table>

**CURRICULUM**

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curr-num</td>
<td>Character</td>
<td>3</td>
</tr>
<tr>
<td>Curr-name</td>
<td>Character</td>
<td>46</td>
</tr>
<tr>
<td>Dept_code</td>
<td>Character</td>
<td>2</td>
</tr>
<tr>
<td>Phone_no</td>
<td>Character</td>
<td>4</td>
</tr>
<tr>
<td>LINK</td>
<td>MPS_PROC.PRG</td>
<td>1528N 1531+ 1538 1596+</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>I</td>
<td>MPS_INIT.PRG</td>
<td>169 171</td>
</tr>
<tr>
<td>I</td>
<td>MPS_INIT.PRG</td>
<td>170V 171+ 172</td>
</tr>
</tbody>
</table>

System: MPSDC PATIENT TRACKING & RECALL SYSTEM
Author: LCDR Timothy P. Stener, MCG, USA
01/28/92 09:41:11

Macro Summary

There were no macros defined in FasDoc

Macros Not Defined in FasDoc

<table>
<thead>
<tr>
<th>DBFILE</th>
<th>DBFILE</th>
<th>DBFILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBFNAME</td>
<td>DBFNAME</td>
<td>DBFNAME</td>
</tr>
<tr>
<td>DBINDBER</td>
<td>DBINDBER</td>
<td>DBINDBER</td>
</tr>
<tr>
<td>DBFNAME</td>
<td>DBFNAME</td>
<td>DBFNAME</td>
</tr>
<tr>
<td>DBFILE</td>
<td>DBFILE</td>
<td>DBFILE</td>
</tr>
<tr>
<td>SPACE_FIL</td>
<td>SPACE_FIL</td>
<td>SPACE_FIL</td>
</tr>
<tr>
<td>DBFNAME</td>
<td>DBFNAME</td>
<td>DBFNAME</td>
</tr>
</tbody>
</table>

System: MPSDC PATIENT TRACKING & RECALL SYSTEM
Author: LCDR Timothy P. Stener, MCG, USA
01/28/92 09:41:11

Array Summary

FasDoc found no arrows in this system

<p>| XREF.DOC 7 of 7 |</p>
<table>
<thead>
<tr>
<th>Procedure</th>
<th>File</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>main</td>
<td>MPSDC.JPG</td>
<td>This page contains a computer program written in MPSDC.</td>
</tr>
</tbody>
</table>

; Procedure file: C:PTAMS\NPS, INTR.PRG
;
10. ; Price & Facts: DELAY
11. ; Set by: NPSSEC.PRG
12. ; Calls: DELAY (procedure in NPS, INTR.PRG)
13. ; PASSSTR (procedure in NPS, PRG).
14. ; Uses: NPS, RISC.DBF
15. ;
16. ; Documented 01/28/94 at 09:00
17. ; FastDoc version 2.10
18. ;
19. ; Program: NPS, INTR.PRG (Introductory screen, password test.
20. ; date/time check module)
21. ; PRIVATE col, col, color, counter, counter, password.
22. ; col, line, choice, returnkey, color, colset, memo, s.
23. ; line = "Center the Intro heading"
24. ; col = "NPS SECURITY TRACKING AND RECALL SYSTEM (PTAMS)"
25. ; col = "&gt; (MENU)"></
26. ; color = color
27. ; SD WHILE counter < 7
28. ; DO CASE
29. ; CASE counter = 0
30. ; CASE counter = 1
31. ; CASE counter = 2
32. ; CASE counter = 3
33. ; CASE counter = 4
34. ; CASE counter = 5
35. ; CASE counter = 6
36. ; CASE counter = 7
37. ; CASE counter = 8
38. ; CASE counter = 9
39. ; CASE counter = 10
40. ; CASE counter = 11
41. ; ENDCASE
42. ;
43. ; 6 15 SAY " "
44. ; 6 15 SAY " "
45. ; 6 15 SAY " "
46. ; 6 15 SAY " "
47. ; 6 15 SAY " "
48. ; 6 15 SAY " "
49. ; 6 15 SAY " "
50. ; 6 15 SAY " "
51. ; 6 15 SAY " "
52. ; 6 15 SAY " "
53. ; 6 15 SAY " "
54. ; 6 15 SAY " "
55. ; 6 15 SAY " "
56. ; ENDDO
57. ; 17 . SAY " "
58. ; 18.33 SAY " "
59. ; 18.33 SAY " "
60. ; CASE " "
61. ; ENDCASE
62. ; CLEAR
63. ; 3. CASE " "
64. ; 3. CASE " "
65. ; 3. CASE " "
66. ; 3. CASE " "
67. ; 3. CASE " "
68. ; 3. CASE " "
69. ; 3. CASE " "
70. ; IF NOT FILE ("NPS, RISC.DBF")
71. ; 77 CALL
72. ; WAIT "Password file not found. Program quitting...
73. ; WINDOW TIMEOUT
74. ; SET COLOR TO 6+V/H
75. ; CLEAR
76. ; "CLOSE NPS"
77. ; END
78. ; ENDIF
79. ; "Using NPS, RISC.DBF"
80. ; USE nps, risc.dbf
81. ; BEGIN: coll, col, color, counter, password.
82. ; coll, line, choice, returnkey, color, colset, memo, s.
83. ; line = "Center the Intro heading"
84. ; col = "NPS SECURITY TRACKING AND RECALL SYSTEM (PTAMS)"
85. ; COLOR GR/H
86. ; COLOR GR/H
87. ; PASSWORD routine
88. ; DO WHILE 1.
I
PROCEDURE EDIT

PRIVATE

409

IF NOT LASTPAGE then = .T.

410

OK KEY LABEL #1 80 UNITS with "Edit"

411

RETURN = .T.

412

RECALL (NH)

413

B-"Reset..."

414

SAY EDIT RECNAME"DATES"

415

NAME = "SUBSTR(NAMESTR, 11, 1, 15)"

416

SAY "RECALLREC, COLOR 0,1,0"

417

SAY "RECALLREC, COLOR 0,1,0"

418

SAY "RECALLREC, COLOR 0,1,0"

419

SAY "RECALLREC, COLOR 0,1,0"

420

SAY "Reset the record.".

421

SAY "Initialize source with field contents."

422

STORE recall, 1 TO recall, 1.

423

STORE recall, 2 TO recall, 2.

424

STORE recall, 3 TO recall, 3.

425

STORE recall, 4 TO recall, 4.

426

SAY "Reset, EDIT. Press Esc to abort." SPACE (5) COLOR 0,$

427

COLOR 0,$

428

SAY "Reset data to date data.

429

SET CURSOR ON

430

SAY "RECALLREC, PICTURE "D" VALB(VALB(val(recall, 1)))"

431

ERROR "Invalid or inconsistent data.".

432

SAY "RECALLREC, PICTURE "D" VALB(VALB(val(recall, 2)))"

433

ERROR "Invalid or inconsistent data.".

434

SAY "RECALLREC, PICTURE "D" VALB(VALB(val(recall, 3)))"

435

ERROR "Invalid or inconsistent data.".

436

READ

437

SAY "Replace data with new

438

IF NOT EOF then = .T.

439

ELSE Record edit aborted." WINDOW TIMEOUT

440

READ

441

READ

442

READ

443

ENDIF

444

RETURN

445

ENDIF

446

Procedure: VAR.REC

447

Called by: EDIT

448

END

449

PROCEDURE VAR.REC

450

PARAMETERS read

451

DE CASE

452

CASE "EDITRECALL" AND (.1 .1 .1) OR (.1 .1 .1)

453

RETURN .T.

454

RETURN .T.

455

RETURN .T.

456

RETURN .T.

457

RETURN .T.

458

RETURN .T.

459

RETURN .T.

460

RETURN .T.

461

RETURN .T.

462

RETURN .T.
If not last page

DEFIRE POPUP popup FROM 0.9 TO 12.27 TITLE "Select":

MESSAGE "Scroll or press highlighted letter to select Class":

265 CALL G ETKEY (procedure in NPS_PROC.PRG)
266 th: N PS. PAC K. PR G
267 th: show
268 th:******************************************************
270 PROCEDURE change-password
271 PARAMETERS origpwd, newpwd
272 8.12:3 SAY "COLOR 6/N"
273 8.16:3 CLEAR TO 24.79
274 8.17:4 SAY "Feeding the database permanently removes records."
275 "Enter new selection " COLOR 8/N"
276 8.17.27 SAY "permanently", COLOR 8/N
277 8.19.4 SAY "and improves the performance of the database. It is:
278 is not undoable. " COLOR 8/N
279 SET CURSOR ON
280 8.21.10 SAY "Do you want to paste the database now?" COLOR 8/N
281 DO gett y WITH choice. " TN " return
282 IF choice () = "Y"
283 RETURN
284 ELSE
285 DO main, pack WITH origpwd, newpwd
286 RETURN
287 th:******************************************************
288 th: Procedure: NPS.CPRG
289 th:*********************************************************
291 th: Called by: NPS. UTIL.PRG
292 th:*********************************************************
293 th: Calls: HLP (procedure in NPS_PROC.PRG)
294 th:*********************************************************
296 th:*********************************************************
297 PROCEDURE main, pack
298 th: Change password
299 PRIVATE hlp.namem, hlp.err, coldep, colsay, nname, C
300 th: Using NPS. MAIN. DBF
301 SELECT T
302 DTEAN
303 8.0.40 SAY DATE () "COLOR 8/N"
304 8.0.40 SAY "$" "COLOR 8/N"
305 "Enter the form number."
306 submenu - "PASS WORD CH ANGE UTILITY"
307 COL + 680 (LedNumber) / 2
308 8.1.9 TO 11.79 DEX COLOR 6/N
309 8.1.0 SAY "COLOR 6/N"
310 8.1.42 SAY "COLOR 6/N"
311 8.2.COL SAY submenu COLOR 6/N
312 8.1.50 SAY "COLOR 6/N"
313 SET COLOR TO 6/N, N/N
314 submenu = SPACE (4)
315 ON KEY LABEL #1 do hi () WITH "Pass"
316 8.5.9 SAY "$", " (F1) for help"
317 8.0.8 SAY "$", "COLOR 6/N"
318 8.4.3 SAY "$", "(F1) for functions"
319 8.4.5 SAY "$", " (Alt) for help"
320 8.7.3 SAY "$", " (Esc) to abort"
321 8.7.3 SAY "$", " (Esc) COLOR 6/N"
322 8.5.34 SAY "$", "Enter new password."
323 8.5.55 SAY "$", "COLOR 6/N"
324 coldep = 4
325 colsay = 4
326 error = 4
327 SET CURSOR ON
328 FOR t = 1 TO 4
329 submenu = SPACE (4)
330 8.5 coldep = 1 SET main: 
331 8.1.9 (UPPER (name)) = "ACCSPDF:IN/IMAGINARY"
332 "ERROR: (Only some characters allowed. Continue entry ...)
333 COLOR 6/N
334 RETURN
335 IF LASTKEY () = 27
336 SET CURSOR OFF
337 WAIT "Password change aborted." WINDOW TIMEOUT 1
338 SET CURSOR ON
339 EXIT
340 ENDIF
341 8.7.34 SAY "$", "Verify new password."
342 submenu = submenu - error
ture = t
343 CLEAN GETS
344 ENDIF
345 IF error = 4 OR int (ERROR (0) (6) = 0)
346 RETURN
347 GOTO 328
348 7) Choose
349 8.7.34 SAY "$", "Verify new password."
350 8.7.34 SAY "$", "COLOR 6/N"
351 error = 4
352 FOR t = 1 TO 6
NPS_UTIL.PRG 2 of 2
i. Procedure file C:\T10\BPAC\NPS\PACK.PRG

ii. Price & Facts: PACK

iii. Procedure file C:\T10\BPAC\NPS\PACK.PRG

iv. Procedure file C:\T10\BPAC\NPS\PACK.PRG

v. Procedure file C:\T10\BPAC\NPS\PACK.PRG

vi. Procedure file C:\T10\BPAC\NPS\PACK.PRG

vii. Procedure file C:\T10\BPAC\NPS\PACK.PRG

viii. Procedure file C:\T10\BPAC\NPS\PACK.PRG

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x. Procedure file C:\T10\BPAC\NPS\PACK.PRG

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xxx. Procedure file C:\T10\BPAC\NPS\PACK.PRG

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