ADAMS: AIRLAB Data Management System
USER'S GUIDE

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ADAMS: AIRLAB Data Management System User's Guide

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The AIRLAB Data Management System (ADAMS) is an online environment that supports research at NASA's AIRLAB. ADAMS provides an easy-to-use interactive interface that eases the task of documenting and managing information about experiments and improves communication among project members. Data managed by ADAMS includes information about experiments, data sets produced, software and hardware available in AIRLAB as well as that used in a particular experiment, and an on-line engineer's notebook. The User's Guide provides an overview of the ADAMS system as well as details of the operations available within ADAMS. A tutorial section takes the user step-by-step through a typical ADAMS session.

ADAMS runs under the VAX/VMS operating system and uses the ORACLE database management system and DEC/FMS (the Forms Management System). ADAMS can be run from any VAX connected via DECnet to the ORACLE host VAX. The ADAMS system is designed for simplicity, so interactions within the underlying data management system and communications network are hidden from the user.
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Chapter 1 — Introduction
WHAT IS ADAMS

The AIRLAB Data Management System (ADAMS) is an online environment that supports research at NASA's AIRLAB. ADAMS provides a number of custom functions that ease the task of documenting experiments and improve communication among project members. This User's Guide tells how ADAMS' shared data capability can be used to manage research information and resources. Its organization makes it effective as both a tutorial for the new user and a reference manual for the experienced user.

ADAMS was developed for NASA Langley Research Center under the direction of Linda A. Hunt. The original design and prototype were developed by Foundation Computer Systems Incorporated under subcontract to Research Triangle Institute. The final version was designed by Linda A. Hunt, Linda Lauterbach, John L. Pierce and Randy Buckland and coded by Randy Buckland of the Center for Digital Systems Research at RTI.

ADAMS resides on AIRLAB's Digital Equipment Corporation (DEC) VAX 11/780, known as System 1 (DECnet node name AIR1). It runs under the VAX/VMS operating system and uses the ORACLE database management system. A supporting computer network allows ADAMS to be run from any AIRLAB VAX. The ADAMS system is designed for simplicity, so interactions with the underlying data management system and communications network are hidden from the user. ADAMS runs on standard DEC terminals like the VT-52, VT-100 and VT-200 series, or any terminal that emulates a DEC terminal.
WHO SHOULD READ THE ADAMS USER'S GUIDE

ADAMS was designed as a support tool for AIRLAB research project managers and project members who need to keep track of personnel, software, hardware, experiments and other project-related information. It provides flexibility for documenting project resources and activities and security for restricting access to confidential or proprietary project data. Although ADAMS can be used to document personal activities, its real power lies in the ability to share information with other members of project groups. Any AIRLAB project personnel who need the increased control over a project’s resources and activities which results from effective documentation should examine the ADAMS User's Guide to see how ADAMS can document and support their projects.

The ADAMS User’s Guide provides a complete description of ADAMS functions and a tutorial and case study that show how ADAMS can be used to support research projects at AIRLAB. The new ADAMS user can begin to use ADAMS to support his or her research efforts efficiently by studying the material in the User’s Guide in the order suggested in the next section. Numerous cross-references in the text, a Glossary, an Index and several Appendices provide quick access to information in the Guide for the more experienced user.
HOW TO USE THE ADAMS USER'S GUIDE

The new user should read the User's Guide sequentially. The early chapters present a high-level overview of ADAMS and a tutorial to help the novice build a conceptual model of how ADAMS works. An Appendix lists the meaning of all diagnostic messages along with the action to be taken in response to a message, so the novice can quickly recover from error conditions caused by an incomplete understanding of the system. The following reading order is suggested:

1. Examine the Table Of Contents to get a feeling for the overall structure of the User's Guide. All sections are one or two pages long and are explicitly entitled to make ADAMS topic location easy. Note the Appendices, Glossary and Index, which are useful for looking up additional information and definitions during an ADAMS session.

2. Read the first three chapters of the User's Guide through Interacting With The ADAMS System. These chapters explain what ADAMS does, how the ADAMS interface works and how ADAMS can be used to support research projects at AIrLAB.

3. Read Chapter 4, Tutorial: A Tour Through The ADAMS System. Once you are comfortable with the contents of the Tutorial, logon to VAX/VMS and work through the Tutorial to get a feeling for the ADAMS interface. The Tutorial provides a quick and easy introduction for the novice and illustrates ADAMS' major features. If you don't know how to logon, read the section in Chapter 2 entitled ADAMS And The VAX/VMS Operating System.

4. Now you're ready to study the functions performed by ADAMS in greater detail. Read Chapters 5 and 6, ADAMS Database Operations and ADAMS Maintenance Operations. They explain each function performed by ADAMS in detail and provide sample terminal screens that illustrate ADAMS usage. Note that the contents of Chapter 6 are of interest primarily to project and system managers.

5. Finally, go back through the User's Guide and reread any sections you may not have fully understood. If you still have questions, contact someone at AIrLAB who is already an experienced ADAMS user. Now you are ready to use ADAMS as a research support tool.

The experienced user will use the Table Of Contents, Index and Appendices to locate topics of interest. Pointers to supplementary information are scattered throughout the text to increase the Guide's usefulness as a reference tool. A Quick Reference Card also has been provided for quickly locating mnemonic names and meanings during an ADAMS session.

Online field help provides short descriptions of the data to be entered at a particular screen location. A help menu lists all keypad key functions and provides an overview of ADAMS menu structure.
CONVENTIONS USED IN THE ADAMS USER'S GUIDE

References to other documents and to sections and chapters in the ADAMS User's Guide are in italics. Section titles are presented in bold face; each section begins at the top of a new page and illustrations (if any) are on the right-hand side. Sections are short and self-contained to minimize the amount of flipping back and forth while using the Guide. Each chapter's pages and illustrations are numbered individually with a hyphen separating the chapter number and page or illustration number (e.g., page 2-10 is the tenth page in Chapter 2 of the User's Guide). The chapter title is printed at the bottom of each page.

In terminal screen examples and sample ADAMS terminal sessions, information entered by the user is in bold face. The cursor position is represented by a small square. Special terminal key names are enclosed in angle brackets; for example:

\(<\text{RET}>\) = Return key
\(<\text{BACK}>\) = Back Space key
\(<\text{PF1}>\text{KEYPAD}\) = The gold key also referred to as \(<\text{G}\>
(\text{Programmable function key 1})

Note: The \text{KEYPAD} subscript on the last example indicates the key is part of the numeric keypad at the right-hand side of the terminal keyboard.
ADDITIONAL SOURCES OF INFORMATION

An ADAMS Quick Reference Card has been provided to aid the experienced user during an ADAMS terminal session. Also, ADAMS provides online help which describes field contents and keypad key functions. See the sections on ADAMS menus and display screens in Chapter 2 for a description of the help function. For additional help in solving problems with ADAMS, contact ADAMS maintenance personnel at AIRLAB. If possible, ADAMS trouble reports should be submitted using the software trouble report screen in the ADAMS Software/Hardware Unit submenu (see Chapter 5 for a full description of this submenu).

There are several additional documents that may be of help to the ADAMS user:

- **ADAMS Programmer's Maintenance Manual** — Tells AIRLAB ADAMS maintenance personnel how to fix a problem in the ADAMS system. This manual is not required by the general ADAMS user.

- **ADAMS Quick Reference Card** — Provides lists of screen mnemonics and a diagram of the ADAMS menu system for quick reference during an ADAMS session.

- **ADAMS System Operator's Guide** — Tells AIRLAB ADAMS maintenance personnel how to install and maintain the system database files. This manual is not required by the general ADAMS user.

- **AIRLAB Research Support Capabilities** — An inventory and description of hardware and software resources that support AIRLAB research.

- **AIRLAB User's Guide** — Provides new users with an introduction to AIRLAB's hardware and software. Tells how to get things done and supplies pointers to other documents.
GETTING ONLINE HELP DURING AN ADAMS SESSION

Two kinds of online help are available in ADAMS — Field help and Main Menu help.

Field help gives a status message regarding valid inputs for the field that the cursor is positioned on. Field help is invoked by pressing <PF2>KEYPAD. The message appears in the bottom left-hand corner of the screen.

Main Menu help is divided into two submenus — Menu Tree and Keypad Key.

- **Menu Tree** displays ADAMS (sub)menu relationship (see Appendix B - The ADAMS Tree Structure for a more detailed figure).

- **Keypad Key** defines all keypad and cursor movement functions.

Menu help is invoked on menu and action screens by pressing <PF2>KEYPAD twice. On report screens you need to press <PF2>KEYPAD only once.

All diagnostic messages other than help messages are defined in Appendix A - Status and Error Messages.
Chapter 2 — An Overview Of the ADAMS System
THE PROJECT DATABASE CONCEPT

The ADAMS shared database allows project groups to store shared information documenting project activity. Each person in a group can browse, add, update, and delete personal and shared information in several categories:

- Persons contributing to a project
- Status of experiments performed under a project
- Organizations involved in a project
- AIRLAB hardware and software contributing to a project
- Manuals, technical papers, and other documentation
- Active and archived project data
- Shared and private notebook entries

The ADAMS security validation system protects critical project data from accidental or intentional modification. Access to data depends on the user’s security level and project group membership as determined by the project leaders and system managers.

System managers, project leaders, and project group members access project data through the ADAMS user-friendly interface (Figure 2-1); before data records are accessed by the database manager software, the security validation software checks to make sure the person requesting the data has permission to access it. The validation and data retrieval processes are hidden from the user. All transactions are mediated by the menu-driven ADAMS interface. This makes the database browsing, adding, updating, and deleting functions easy to learn for the beginner and flexible for the expert.
Figure 2-1. The ADAMS System

An Overview of ADAMS, p. 2-3
HOW ADAMS SUPPORTS AIRLAB PROJECT MANAGEMENT

There are three kinds of ADAMS users: the system manager, who is responsible for maintaining the ADAMS system and system-wide data; the project leader, who is responsible for managing one or more groups of personnel working on a project; and group members, who are performing work under a project leader's guidance. The project leader defines groups under a project and associates group member accounts with the groups. A set of group keywords can be established to tag information for later retrieval. The ADAMS project/group security system establishes a data access hierarchy which a project leader can use to segregate project documentation by personnel group functions within a project.

ADAMS project data storage and retrieval capabilities allow project leaders and group members to:

- Keep track of all resources associated with a project, including software, hardware, people, institutions, and data.
- Make online notebook entries that describe experimental work and document project software bugs and fixes.
- Start ADAMS when logging in at the beginning of a terminal session, escape to VAX/VMS to do software development or other research support work under VMS, then return to ADAMS to document the work done.

ADAMS creates a research support environment that captures ongoing work on AIRLAB experiments with a small amount of effort on the part of project members and allows documentation of completed work to be examined throughout the project life cycle. Immediate benefits of using ADAMS include increased control over all phases of an experiment for a project's leader and increased visibility into ongoing work for a project's contract monitor. The improved project documentation that results from using ADAMS eases transitions when personnel change. This makes restarting complex suspended experiments or redoing data analyses easier in the long run since experiment data, analyses, and notebook entries can be easily retrieved.

The cost of using ADAMS is, of course, the effort and discipline involved in using a new system for documenting work. ADAMS replaces the traditional engineer's or experimenter's notebook with an online, keyword-oriented system. Notes can be quickly made as an experiment proceeds and tagged with single or multiple keywords for fast retrieval later in the project. The payoffs discussed in this section make the startup cost of learning to use ADAMS worthwhile.

An Overview of ADAMS, p. 2-4
The ADAMS system has been designed so minimal interaction with the VAX/VMS operating system is necessary. You need to know how to use your terminal, how to access AIRLAB computers, and how to logon and logoff VAX/VMS. The EDT editor can be invoked to edit notebook entries from ADAMS by pressing \texttt{<9>KEYPAD}, but knowledge of EDT is not really needed to use ADAMS productively. New AIRLAB users should refer to the \textit{AIRLAB User's Guide} and the \textit{AIRLAB Research Support Capabilities} document for information on obtaining an account on VAX/VMS and on learning to use the system.

There are a couple of VAX/VMS files that might appear under exceptional circumstances:

- \texttt{netserver.log} Appears on \textit{AIRI} if ADAMS is invoked from another AIRLAB computer and there is a problem. This file can be deleted with the VAX/VMS \texttt{DELETE} command.

- \texttt{username.tmp} Appears under the current file directory if the EDT editor is invoked while making a notebook entry and a system failure occurs. This file can be deleted with the VAX/VMS \texttt{DELETE} command.
THE ADAMS SECURITY SYSTEM

ADAMS provides three security levels for the control of access to project data. User account security levels are identified by a single letter field in the Maintenance Operations/Security/Access Level submenu. These identifiers are listed in parentheses in the following descriptions:

System (S)  
A user whose account has system level privileges can access any data in the ADAMS system and grant access to ADAMS to other users. The only AIRLAB personnel who have system level privileges are the persons responsible for maintaining ADAMS. System level data is typically information that rarely changes or that is critical to the functioning of the entire ADAMS system (e.g., data on personnel or institutions involved in AIRLAB research).

Project (P)  
A user whose account has project level access can deactivate and reactivate projects, define and undefine group keywords, and assign and deassign users to project groups. AIRLAB personnel who have project level privileges are usually project managers or leaders who are responsible for one or more groups of experimenters, programmers, or other personnel working on research experiments. The only data associated specifically with the project level is the project name, which is defined by the system manager when a project is established from the Security submenu (described in Chapter 6).

Group (G)  
A user whose account has group level access can create and access data that is sharable by all members of the group, use group keywords, and create and access personal data. AIRLAB personnel who have group level privileges are usually experimenters, programmers, contract monitors, or other personnel working in one or more groups under a project leader. Group level data is typically information that is of interest to all members of a group working on an experiment. Examples are software trouble reports and their resolution, and information on the location of raw and processed experimental data.

The access level associated with individual database records depends on the security level and group membership of the user who created the record, and on the nature of the data. The types of access that are permitted to specific ADAMS screens are discussed in greater detail in Chapters 5 and 6. Figure 2-2 illustrates the branching structure of the ADAMS security system. Note that the system manager typically works at the system and project levels when creating and

An Overview of ADAMS, p. 2-6
deleting database information, and the project leader works at the group and individual group member levels. Both groups in the illustration have sets of keywords associated with them which can be used by the group members or project leader for tagging database entries for later retrieval. Each user in the security system also has a number of private keywords associated with his account for tagging and retrieving personal research entries in the database.

Figure 2-2. ADAMS Database Security Levels

An Overview of ADAMS, p. 2-7
**MENU SCREEN FORMAT AND COMMANDS**

Menu screens are used to maneuver through the tree-like ADAMS menu system to reach an action screen, where database records can be created or retrieved for browsing, updating or deleting. The structure of a menu screen is illustrated on the opposite page. The options on a menu screen are listed in the middle of the screen. To choose an option, type the option’s number at the keypad or type the number at the regular keyboard followed by <RET>. The system responds by moving to an action screen or to another menu with a new set of options.

Every screen except the Logon screen has a mnemonic name. The mnemonic names for action screens begin with B, A, U, or D for Browse, Add, Update, or Delete and end with AS. The mnemonic names for menu screens end in MN. Screen mnemonics are listed alphabetically in *Appendix C*. You can jump to any menu or action screen from a menu by entering the mnemonic name of the destination screen at the prompt. For example, if the destination is the Browse Contributor screen, type **B_CONT** AS <RET> or **B_CONT** AS <Enter> at the prompt. You can type hyphens (-) instead of underscores (_). The system responds by moving directly to the Browse Contributor screen. You cannot jump from an action screen to a menu screen. When you exit the screen you jumped to, ADAMS returns to the menu screen you were at when you executed the jump.

The commands for menus appear in the rectangular box at the bottom half of the screen; they must be entered from the keypad. These commands are:

<table>
<thead>
<tr>
<th>Commands</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Enter&gt; = Do</td>
<td>Executes valid actions for menu screens (See below)</td>
</tr>
<tr>
<td>&lt;PF2&gt; = Help</td>
<td>One line help or help screens</td>
</tr>
<tr>
<td>&lt;0&gt; = Exit Screen</td>
<td>Move back one screen</td>
</tr>
<tr>
<td>&lt;.&gt; = Make Note</td>
<td>Move to notebook entry</td>
</tr>
</tbody>
</table>

The main menu has only <Enter>, <PF2>, and <.> commands. The <Enter> command on menu screens executes mnemonic names to jump directly from a menu to an action screen or another menu.
ADAMS
Title

options

commands

Enter choice: □ ☐ System messages (mnemonic)

An Overview of ADAMS, p. 2-9
ACTION SCREEN FORMAT AND COMMANDS

Action screens are used to create and manipulate database records. Action screens are grouped by the four types of database functions:

- **Browse**  Browse currently existing records
- **Add**     Add a new record into the database
- **Update**  Update currently existing records
- **Delete**  Delete currently existing records

See Chapter 3 — Interacting with the ADAMS System, for detailed explanations regarding these functions.

The structure of an action screen is illustrated on the opposite page. Action screen commands appear in the rectangular box on the bottom half of the screen; they must be entered from the keypad. These commands are:

<table>
<thead>
<tr>
<th>Commands</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Enter&gt; = Do</td>
<td>Executes valid actions for each action screen (See below)</td>
</tr>
<tr>
<td>&lt;PF2&gt; = Help</td>
<td>One line help or help screens</td>
</tr>
<tr>
<td>&lt;0&gt; = Exit Screen</td>
<td>Move back one screen</td>
</tr>
<tr>
<td>&lt;Up&gt; = Prev line</td>
<td>Move to previous line in a scrolling region</td>
</tr>
<tr>
<td>&lt;Down&gt; = Next line</td>
<td>Move to next line in a scrolling page</td>
</tr>
<tr>
<td>&lt;7/8&gt; = Print</td>
<td>Print the record.  7 prints the record.  8 prints from current to last record in the working set.</td>
</tr>
<tr>
<td>&lt;G-0&gt; = Open line</td>
<td>Opens a line beneath the cursor in a scrolling region to insert a line of text</td>
</tr>
<tr>
<td>&lt;PF4&gt; = Kill line</td>
<td>Deletes the line the cursor is on</td>
</tr>
</tbody>
</table>

The action of <Enter>_keypad depends on the current database function:

- **Browse**  Retrieves the record(s) requested
- **Add**     Adds the new record to the system
- **Update**  Retrieves the record(s) to be updated
- **Delete**  Retrieves the record(s) to be deleted

Stores the updated version(s)

Refer to Appendix C — Mnemonics Names, for a list of all action screen mnemonics.

An Overview of ADAMS, p. 2-10
REPORT SCREEN FORMAT AND COMMANDS

Report screens display records that are stored in the database. When you request a record at any action screen, the result is a report screen.

There are three types of report screens:

1) A report screen that displays all information after single or multi-line fields as shown in the first figure on the opposite page.

2) A report screen that has scrolling regions — either one or two rectangular boxes that scroll — and single or multi-line fields, as shown in the second figure on the opposite page. The field name for a scrolling region is located at the top left-hand corner of the rectangular box. When there are two scrolling regions (e.g., Software Trouble Report), the field name will be in reverse video to indicate which box the cursor movement keys are active in. Press the <2>KEYPAD to move the cursor to the previous scrolling region and the <1>KEYPAD to move the cursor to the next scrolling region. Use the arrow keys to scroll text in the current scrolling region.

(continued on page 2-14)
ADAMS
Title

field₁:

field₂:
  
  

fieldₙ:

commands

System Messages (mnemonic)

---

ADAMS
Title

field₁:

field₂:
  
  

fieldₙ-1

scrolling region

fieldₙ

scrolling region

commands

System Messages (mnemonic)

---

An Overview of ADAMS, p. 2-13
3) A report screen that has both scrolling regions and paging regions and single and/or multi-line fields, (e.g., Inhouse Software) or just paging regions along with single or multi-line fields (e.g., Hardware Unit). Paging regions are identified by brackets [ ] that surround the area. The figure on the opposite page includes a paging region. Press the <2>KEYPAD to move the cursor to the previous scrolling or paging region and the <1>KEYPAD to move the cursor to the next scrolling or paging region. Use the arrow keys to page or scroll in the current paging or scrolling region.

Report screen commands appear in the rectangular box on the bottom half of the screen; they must be entered from the keypad. These commands are:

<table>
<thead>
<tr>
<th>Commands</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Enter&gt; = Do</td>
<td>Move back one screen</td>
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<tr>
<td>&lt;PF2&gt; = Help</td>
<td>One line help or help screens</td>
</tr>
<tr>
<td>&lt;0&gt; = Exit Screen</td>
<td>Move back one screen</td>
</tr>
<tr>
<td>&lt;7/8&gt; = Print</td>
<td>Print the record. 7 prints the record. 8 prints from current to last record in the working set.</td>
</tr>
<tr>
<td>&lt;-&gt; = Prev Record</td>
<td>Return to previous report screen</td>
</tr>
<tr>
<td>&lt;Up&gt; = Prev line</td>
<td>Move to previous line in a scrolling region Move to previous page in a paging region</td>
</tr>
<tr>
<td>&lt;Down&gt; = Next line</td>
<td>Move to next line in a scrolling region Move to next page in a paging region</td>
</tr>
<tr>
<td>&lt;&gt;,&gt; = Next Record</td>
<td>Move to next report screen</td>
</tr>
</tbody>
</table>

The following additional commands can be used on report screens.

<table>
<thead>
<tr>
<th>Command</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;PF1&gt; &lt;Up&gt;</td>
<td>Move back in text one scrolling region</td>
</tr>
<tr>
<td>&lt;PF1&gt; &lt;Down&gt;</td>
<td>Move forward in text one scrolling region</td>
</tr>
</tbody>
</table>

An Overview of ADAMS, p. 2-14
ADAMS
Title

field\(_1\):
field\(_2\):
\vdots
field\(_{n-1}\): [paging region]

field\(_n\)  

scrolling region

commands

System Messages (mnemonic)

An Overview of ADAMS, p. 2-15
Chapter 3 — Interacting With the ADAMS System
ENTERING AND LEAVING ADAMS

To log on to ADAMS, type ADAMS <RET> in upper or lower case after the VAX/VMS prompt (See AIRLAB User's Guide and Research Support Capabilities for instructions on using VMS). If you do not have permission to use ADAMS, you will receive the message 'Error accessing ORACLE database'. If you have permission, the ADAMS Logon screen will appear. The logon screen can be used to enter text describing the session's purpose. After optionally entering the purpose, press <RET> or <Enter> KEYPAD. The main menu automatically appears. Now you are ready to begin the ADAMS session.

System messages appear at the bottom left-hand corner of the screen. A typical system message is 'invalid key selection' — which means the key typed is not valid in this context. ADAMS status and error messages are listed alphabetically in Appendix A.

To log off, you can either go to the main menu and select option 4, Logoff, to get to the Logoff screen or you can go directly to the logoff screen by typing LOGOFF <RET> from any menu screen. The Logoff screen can be used to enter any final remarks about your ADAMS session. (After optionally entering final remarks, press <RET> or <Enter> KEYPAD. The screen will clear and the VMS prompt will appear at the bottom of the screen).
USING THE TERMINAL KEYBOARD AND KEYPAD

The entire keyboard is divided into a regular keyboard which looks like a typewriter keyboard and a keypad which contains the numerals and command keys (i.e., \texttt{<PF1 KEYPAD, PF2 KEYPAD, Enter KEYPAD>}). The keypad is at the right-hand side of the keyboard. The regular keyboard is used to enter input at field prompts on action screens. The regular keyboard can also be used to select options on menu screens. \texttt{<RET>} must be pressed to select a menu option from the regular keyboard.

The keypad is used to select options on menu screens. \texttt{<RET>} does not have to be pressed when a keypad key is selected. Commands are also entered from the keypad. For example, the command 'Make Note' is invoked by pressing \texttt{<. KEYPAD>} on the keypad. The figure on the opposite page lists all keypad key functions.
Help Keypad

<table>
<thead>
<tr>
<th>^ Prev Line</th>
<th>V Next Line</th>
<th>&lt; Left</th>
<th>&gt; Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Page</td>
<td>- Page</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Keys

Enter = Enter form  
Return = Next field  
Backspace = Prev field  
Linefeed = Erase field  
Delete = Delete character

<table>
<thead>
<tr>
<th>Gold</th>
<th>Help Field</th>
<th>Overstk</th>
<th>Kill Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Print</td>
<td>8 Print All</td>
<td>9 Enter Edt</td>
<td>Prev Screen</td>
</tr>
<tr>
<td>4 Find Next Search</td>
<td>5</td>
<td>6</td>
<td>Next Screen</td>
</tr>
<tr>
<td>1 Prev Region</td>
<td>2 Next Region</td>
<td>3</td>
<td>Do</td>
</tr>
<tr>
<td>Back Up Menu</td>
<td>Open Line</td>
<td>Note</td>
<td>Make Key- word</td>
</tr>
</tbody>
</table>

Keypad key function names in italics are gold functions. Gold functions are invoked by pressing \(<PF1>_{\text{KEYPAD}}\) (the gold key) before the function key.

Note: Some functions are only valid on certain screens.
HOW TO INPUT DATA ON ADAMS ACTION SCREENS

The previous section discusses use of the regular keyboard and the keypad for ADAMS input. To move through the fields on action screens, press <RET> except when entering a paging or scrolling region. Scrolling regions are indicated by rectangular boxes on screens. The field name for a scrolling region is located at the top left-hand corner of the rectangular box. Paging regions are indicated by left [ and right ] surrounding the paging region. To move to one of these regions, press <1>keypad. Do not press <RET> after typing in the last entry in a paging or scrolling region or the system expects more data and will not write the record.

By default you are in overstrike mode, when typing text in ADAMS. This means you can type over any information you have previously typed. If an error is made when entering information, the left and right arrow keys move the cursor left and right within the field and <BACK> moves the cursor back to the previous field so the error can be corrected. <Delete> deletes the character to the left of the cursor only when the cursor is on the blank space at the end of the line. <Line Feed> deletes the contents of the field that the cursor is on.

By pressing <PF1>keypad <PF3>keypad, you can enter insert mode to enter text midway in a line (all characters to the right of the cursor will move to the right). <Delete> deletes the character to the left of the cursor anywhere in the line. <Line Feed> deletes the contents of the field the cursor is on. Pressing <PF3>keypad takes you from insert mode back to overstrike mode.

The phone field for the categories Contributors and Institutions has the format ( ) -. The cursor jumps over the parentheses and the hyphens when a phone number is being entered.

The operators < (less than), > (greater than), and - (hyphen), can be used to specify ranges of dates on action screens. For example,

- < 01/01/84 all records before January 1, 1984
- > 01/01/84 all records on or after January 1, 1984
- 01/01/84 - 01/01/85 all records from and including January 1, 1984 through January 1, 1985

Since ADAMS does not have auto wrap on action screens, you must press <RET> when you come to the end of the line in a scrolling region to get to the next line.

When entering information in the Group field on action screens, you must enter the names of one or more groups. To view the list of existing groups, press <PF1>keypad <PF2>keypad.
SETTING UP TEMPLATES FOR DATA RECORD RETRIEVAL

The browse, update, and delete functions operate on a working set of database records that are retrieved using a search template containing field values that qualify the search. There are separate action screens for each function type. You can page through the working set once it has been retrieved to selectively examine, update, or delete records.

A template specifies which record(s) will be retrieved. Only records with information matching the information you enter in template fields are retrieved. Enter information in template fields on an action screen, then press <Enter> on the keypad to cause the record(s) to be retrieved. Fields can include:

- numerical idents assigned when record was created by ADAMS
- username of person who created the record
- creation date(s), either explicit or qualified by operators
- other fields specific to the type of record

The result is a set of report screens to browse, update or delete, depending on the context.
THE BROWSE FUNCTION: EXAMINING ENTRIES

Database records in ten subcategories under Database Operations and the three subcategories under Maintenance Operations can be examined with the browse function (See Appendix B — The ADAMS Menu Tree Structure for a description of ADAM’s menu structure). Records cannot be added, updated, or deleted while browsing.

All existing records under a subcategory of Database Operations or Maintenance Operations or a subset of specific records can be retrieved for browsing by setting up a template to qualify the search (see the previous section on how to set up a template). To browse all records, press <Enter> on an empty template. To browse a specific set of records, set up a template and press <Enter>. The system responds 'Reading records'. If no records match the search criteria, the system responds with 'No records found'. If records do exist, a report screen containing the first record will appear and a system message that contains the number of records placed in the working set will be displayed.

Access to individual records depends on your account’s security level and the type of record. For a discussion of security levels, see Chapters 5 and 6.

---

1 Set up the template by entering values in the field(s) that will restrict the database search to the records of interest.
THE ADD FUNCTION: CREATING ENTRIES

The add function creates database records for all Database Operations except Notebook. Notebook entries are created with the command <.> KEYPAD. The add function also creates database records for all Maintenance Operations except Logon and Logoff. Logon records are created when ADAMS is invoked, and Logoff records when ADAMS is exited.

To add a new record, type data at the appropriate field prompts, then enter the information into the system by pressing <Enter> KEYPAD. The system replies 'Writing record'. Remember, there are scrolling and paging regions as well as single and multi-line input fields. To move to scrolling and paging regions, press <1> KEYPAD.

By default you are in overstrike mode when typing text in ADAMS. To enter insert mode, press <PF1> KEYPAD <PF3> KEYPAD (see How to Input Data on ADAMS Action Screens in this chapter for a detailed explanation of each mode).

Access to individual records depends on your account's security level and the type of record. For a discussion of security levels, see Chapters 5 and 6.

Interacting with the ADAMS System, p. 3-7
THE UPDATE FUNCTION: MODIFYING ENTRIES

The update function is valid for all ten Database Operations subcategories and three Maintenance Operations subcategories. Logon and Logoff information can be deleted but not updated.

To update a record(s), one or more records must first be retrieved by setting up a template to qualify the database search. Once the records to be updated have been retrieved, the updated information is typed directly over the existing data if a field is full.

By default you are in overstrike mode when typing text in ADAMS. To enter insert mode, press <PF1> KEYPAD <PF3> KEYPAD (see How to Input Data on ADAMS Action Screens in this chapter for a detailed explanation of each mode).

Access to individual records depends on your account's security level and the type of record. For a discussion of security levels, see Chapters 5 and 6.
THE DELETE FUNCTION: DELETING ENTRIES

To delete a specific set of records, set up a template to qualify the search. After the records have been retrieved, press <Enter>KEYPAD to delete the records. The system responds with 'X records to be deleted. Do you want to do this?'. Enter Y <RET> to delete records, and the system responds with 'Deleting records'. Enter N <RET> to terminate the deletion request (i.e., if an error has been made in setting up the search template). The system responds with 'No records deleted'. To delete all of the records in a subcategory, press <Enter>KEYPAD without setting up a template to retrieve the records and then press <Enter>KEYPAD again to delete the records. The system responds with the same system message as given above. This is a safety measure to reduce the chances of accidentally deleting all records in the database.

Access to individual records depends on your account's security level and the type of record. For a discussion of security levels, see Chapters 5 and 6.
Chapter 4 — Tutorial: A Tour Through the ADAMS System
A TUTORIAL:
LOGGING ON AND INVOKING THE ADAMS SYSTEM

To work through this tutorial, enter the information that appears in boldface on the sample screens. Sample screens are presented opposite the pages of text that describe them. Certain repetitive screens are not illustrated in the tutorial. These screens are flagged with a statement in the text. See the AIRLAB User's Guide for more information on using VAX/VMS and terminals. Note: You should work through the tutorial from start to finish in a single terminal session.

Logging on to VMS

1. You begin the logon procedure by communicating with 'the Bridge.' Press <RET>. The operating system will respond with User Name>. In response, enter GO Sn where n is the number of the computer you wish to use (i.e., S1 = AIR1). The bridge will connect you to the specified computer.

2. Now, log on to the VAX/VMS operating system by executing these two steps:
   a. Type your username <RET> after the Username: prompt. After accepting your username, the system displays a password prompt.
   b. Type your password <RET>. Notice that the system does not display the password; this is a security measure. If an improper username or password is entered, the system will respond with the message, 'User authorization failure.' If this message appears, you must begin the logon procedure again. If the operating system recognizes the username and password, the VMS prompt '$' appears. Contact your AIRLAB VAX/VMS system personnel if you can't get your username and password to work.

Logging on to ADAMS

1. Now log on to ADAMS by typing (in either upper or lower case) ADAMS after the VMS prompt. If you can't get into ADAMS, contact the ADAMS system manager to become a validated ADAMS user.

2. The ADAMS Logon screen appears. Type in the Purpose that is in boldface on the example screen on the opposite page. Press <Enter>KEYPAD or <RET> to get to the next screen.

3. The Main Menu appears next. Choose option 1, Database Operations, as shown on the sample screen. A <RET> is needed if you type 1 on the keyboard; no <RET> is needed if you type 1 on the numeric keypad.

4. The next menu screen displayed is Database operations. Choose option 5, Documentation. This screen is not shown.
Unused Page
ADAMS
Add Logon Info

Username: JAS
Machine: 1
Time: 06/14/85:12:30:01
Purpose: To work through the tutorial

PF2 = Help  Enter = Do

(LOGON)

ADAMS
Main Menu

1. Database operations
2. Maintenance operations
3. Enter VMS
4. Logoff

<Enter> = Do  <PF2> = Help  <.> = Make Note

Enter choice: 1  (MAIN_MN)

A Tutorial, p. 4-3
In this section you will add a Documentation record to the ADAMS database.

Adding a Documentation Entry

1. The Documentation menu screen is now on the terminal. Choose option 2, Add.

2. The Add Documentation action screen is next. After completing all indicated fields on the screen, enter the information into the system by pressing <Enter> KEYPAD. The system will respond with the message 'Writing record' and a fresh add screen will appear. Note: You will not be entering information at every field on the Documentation screen.

3. To exit the add screen, press <0> KEYPAD. Now choose option 1 on the Documentation Menu screen. The second occurrence of the Documentation Menu screen is not shown.
ADAMS
Documentation Menu

1. Browse
2. Add
3. Update
4. Delete

I <Enter> = Do <PF2> = Help <0> = Exit Screen <.> = Make Note

Enter choice: 2

ADAMS
Add Documentation

Doc Id: CT-001
Vendor: COMPUTER TIMES
Subject: AI DEMO
Part Num: S
Hw/Sw: T
Title: The Need for AI in Today's World
Remarks:
Keywords: [AI ]

A Tutorial, p. 4-5
A TUTORIAL:
BROWSING THROUGH THE DATABASE

In this section you will examine the Documentation record created in the previous tutorial section by invoking the browse function.

Browsing a Documentation Entry

1. The Documentation Selection action screen is now on the terminal. Enter AI DEMO for Subject to qualify the search. Then press <Enter>KEYPAD to begin the search. The system responds with the message 'Reading records'.

2. The requested documentation report screen is displayed. The system responds with the message '1 record found'.

3. To exit the report screen, press <0>KEYPAD. You are now back to Documentation Selection. Press <0>KEYPAD again to return to the Documentation Menu screen. Now choose option 3, Update, on the Documentation Menu screen. This screen is not shown.
ADAMS
Documentation Selection

Doc Id:
Vendor:
Subject: AI DEMOC
Part Num:
Hw/Sw:
Title:
Remarks:
Keywords:

<E Enter> = Do <PF2> = Help <0> = Exit Screen

(B_DOC_AS)

ADAMS
Browse Documentation

Ident: CT-001
Vendor: COMPUTER TIMES
Subject: AI DEMO
Part Num:
Hw/Sw: S
Title: The Need for AI in Today's World
Remarks:
Keywords: [AI ]

<E Enter> = Do <PF2> = Help <-> = Prev Record
<0> = Exit Screen <7/8> = Print <-> = Next Record

1 record found (B_DOC_AS)

A Tutorial, p. 4-7
In this section you will update the Documentation record created previously by invoking the update function.

Updating a Documentation Entry

1. The Documentation Selection action screen is now on the terminal. First, qualify the search by entering COMPUTER TIMES for Vendor. Then press <Enter> to begin the search. The system responds with the message 'Reading records'. This screen is not shown.

2. The update screen that has been requested is displayed. The system responds with the message '1 record found'.

3. Now input the information that appears in boldface on the second sample screen. After completing the update, enter the updated record into the system by pressing <Enter>. The system responds with the message 'updating record'.

4. To exit this update screen, press <0>. Now choose option 4, delete, on the Documentation Menu screen. This screen is not shown.
In this section you will delete the Documentation record you just updated.

Deleting a Documentation Entry

1. The Documentation Selection action screen is now on the terminal. Enter AI DEMO for the Subject field to qualify the search. Now press <Enter>KEYPAD to begin the search. The system responds with the message 'Reading records'.

2. The report screen that has been requested is displayed. The system responds with the message '1 record found'.

3. To delete this record, press <Enter>KEYPAD. The system responds with '1 record will be deleted. Do you want to do this?'. Enter y to delete the record. The system responds with the message 'Deleting records'.

4. To exit Documentation Selection, press <0>KEYPAD. Now choose the command make note by pressing <.>KEYPAD. This screen is not shown.
ADAMS Documentation Selection

Doc Id: 
Vendor: 
Subject: AI DEMOC
Part Num: 
Hw/Sw: 
Title: 
Remarks: 
Keywords: 

<Enter> = Do <PF2> = Help <0> = Exit Screen

(D_DOC_AS)

ADAMS Delete Documentation

Ident: 1
Vendor: COMPUTER TIMES
Subject: AI DEMO
Part Num: DEMO-732CT
Hw/Sw: S
Title: The Need for AI in Today's World
Remarks: Anywhere, USA
Keywords: [AI ]

<Enter> = Do <PF2> = Help <-> = Prev Record
<0> = Exit Screen <7/8> = Print <,> = Next Record

1 record found (D_DOC_AS)

A Tutorial, p. 4-11
A TUTORIAL:
ENTERING A NOTE IN THE ADAMS NOTEBOOK

Entering a Note

1. The Add Notebook Entry action screen is now on the terminal. The Username, Group, Ident and Date fields are automatically generated by the system. Username is the account you used to log on to VAX/VMS. The default value of Group is PERSONAL but can be changed to any group you're a member of. To delete PERSONAL, press <Linefeed>. To look at groups that can be entered in this field (besides PERSONAL), press <PF1><KEYPAD><PF2><KEYPAD>. Ident is an integer that is automatically generated when a new note is entered. Date is assigned the current date and time.

2. The prompt is on Group. To move to the keyword field, press <RET>. Press <PF1><KEYPAD> (the Gold Key) <Enter><KEYPAD> after entering the keyword, Flight. The PF1 and Enter keys are used only when entering new keywords.

3. To add the note that is on the sample screen, press <1><KEYPAD> to enter the Text field. Now type from the regular keyboard to make your entry.

4. To write the entry, press <Enter><KEYPAD>. The system responds with 'Writing note'. You can write the entry while the cursor is still in the Text field.

5. To exit Add Notebook Entry, press <0><KEYPAD>.
For application section, need to develop a complete example showing process of generating an interpreter:

1. Grammar: extend BEXP to include functions on boolean expressions
2. Rewrite rules: general OR, binary AND
3. Consistency: check rewrite rules, identifying intersections of LHS

(A NOTE AS)
A TUTORIAL:
LEAVING THE ADAMS SYSTEM AND LOGGING OFF

Logging off of ADAMS

1. The Documentation Menu menu screen is now on the terminal. This screen is not shown.

2. Type LOGOFF or the abbreviation LO at the Enter choice prompt.

3. The Logoff Screen appears on the terminal. Note that 'Remarks' is an optional field. Press <RET> to leave the ADAMS system.

4. The ADAMS session is now complete, and you are now back to VMS. A '$' prompt is displayed. Type io to logoff VMS, or ADAMS to execute ADAMS again.

Note: Now that you've worked through the tutorial, you may want to read Appendix D which describes how ADAMS was used to support a software reliability program at AIRLAB.
ADAMS
Add Logoff

Username: JAS
Machine: 1
Time: 06/14/85:13:28:10
Remarks: Tutorial complete

PF2 = Help    Enter = Do

(LOGOFF)
Chapter 5 — ADAMS Database Operations
WHAT ARE THE DATABASE OPERATIONS

The Database Operations menu contains several action screens and the following three submenus.

1. Software/Hardware Units
2. Archives
3. Data

The Database Operations actions screens are:

- **Contributors**
  AIRLAB personnel who use the ADAMS system or contribute to a project in some way.

- **Experiments**
  Research experiments under an AIRLAB project.

- **Institutions**
  Names of organizations or institutions that are conducting experiments at AIRLAB.

- **Software Trouble Report**
  Selected from a submenu under Software/Hardware Units. Descriptions of inhouse or vendor software bugs and fixes to them.

- **Inhouse Software**
  Selected from a submenu under Software/Hardware Units. Software written at AIRLAB to support experiments.

- **Vendor Software**
  Selected from a submenu under Software/Hardware Units. Software purchased from vendors to support AIRLAB experiments.

- **Hardware**
  Selected from a submenu under Software/Hardware Units. Hardware that supports AIRLAB experiments that is either owned by AIRLAB or brought in by other institutions for research projects.

- **Documentation**
  User manuals, guides, etc. All types of documentation for software or hardware, either written at AIRLAB or vendor-supplied.

- **Personal Keywords**
  List of keywords developed by the user for retrieving personal database entries. Group keywords are created and changed by the project leader.

- **Archive Medium**
  Selected from a submenu under Archives. Information about tapes, discs, and other storage media on which project files either are archived or can be archived.

- **Data Archive**
  Selected from a submenu under Archives. Tells what data has been archived by which project members. Users may archive their own data; see the
Software Archive
Selected from a submenu under Archives. Shows when and to which device project support software was archived.

Processed Data
Selected from a submenu under Data. Describes processed experimental data and the analyses that were performed during processing.

Raw Data
Selected from a submenu under Data. Describes unprocessed experimental data.

Technical Papers
Contains bibliographic entries for technical papers of interest to a project's members, including papers published by contributors, papers used as references during an experiment, and papers written as a result of an experiment.

Notebook
Experimenter's or engineer's notebook; personal and shared group notes written during an AIRLAB experiment.


The Database Operations menu structure is illustrated as an inverted tree in Appendix B, which shows the first few levels of the branching system labeled with screen mnemonics. Appendix C provides a list of screen mnemonics and their definitions arranged alphabetically for reference.

The general format and contents of menu, action, and report screens are discussed in Chapter 2. Database record manipulation is discussed in Chapter 3. The manipulation of single line fields, multi-line fields, paging regions, and scrolling regions is discussed in the section *How to Input Data on ADAMS Action Screens* in Chapter 3.
Unused Page
SECURITY LEVELS AND DATABASE MANIPULATION

The access permitted to ADAMS users with system (S), project (P), and group (G) privileges for the various Database Operations screens is described in the table on the opposite page. Each account permission column in the table is divided into Read and Write subcolumns. Read permission means a user can browse an entry in the screen, but not add new entries or change or delete existing entries; Write permission means a user can browse, add, update, or delete entries in the screen.

Four character codes indicate the amount of access permitted to a screen:

- **X** No access is permitted to this category.
- **O** Owner: only the username that created the data in this category may access it.
- **G** Group: in this category, a user may access data created by anyone in the groups the user belongs to.
- **A** All: in this category, a user may access any data on the system.
<table>
<thead>
<tr>
<th>Group</th>
<th>Project</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Read</td>
<td>Write</td>
</tr>
<tr>
<td></td>
<td>Read</td>
<td>Write</td>
</tr>
<tr>
<td></td>
<td>Read</td>
<td>Write</td>
</tr>
<tr>
<td>Contributors</td>
<td>A</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>X</td>
</tr>
<tr>
<td>Experiments</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>Institution</td>
<td>A</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>X</td>
</tr>
<tr>
<td>Software Trouble Report</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>Inhouse Software</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>Vendor Software</td>
<td>A</td>
<td>A</td>
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<tr>
<td></td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Hardware Unit</td>
<td>G</td>
<td>G</td>
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<tr>
<td></td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>Documentation</td>
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<tr>
<td></td>
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<td>A</td>
</tr>
<tr>
<td>Personal Keywords</td>
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<tr>
<td></td>
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<td>O</td>
</tr>
<tr>
<td>Archive Medium</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Data Archive</td>
<td>G</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>O</td>
</tr>
<tr>
<td>Software Archive</td>
<td>G</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>O</td>
</tr>
<tr>
<td>Processed Data</td>
<td>G</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>O</td>
</tr>
<tr>
<td>Raw Data</td>
<td>G</td>
<td>O</td>
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<tr>
<td></td>
<td>G</td>
<td>O</td>
</tr>
<tr>
<td>Technical Papers</td>
<td>A</td>
<td>A</td>
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<tr>
<td></td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Notebook</td>
<td>G</td>
<td>O</td>
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<td></td>
<td>G</td>
<td>O</td>
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</tbody>
</table>
CONTRIBUTOR DATABASE OPERATION

Contributors are AIRLAB personnel who use the ADAMS system to support their work. Only system managers can add, update or delete a contributor database record. Project leaders and group members can browse all contributor records on the system but cannot add, update or delete contributor records.

Data in the Contributor screen is manipulated using the browse, add, update, and delete functions described in Chapter 3 — Manipulating the ADAMS Database.

A sample Contributor screen is presented in the figure on the opposite page. Contributor screen fields are described in the table below.

CONTRIBUTOR SCREEN FIELDS

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Address:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Phone:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Job Title:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Job Desc:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
</tbody>
</table>
USERNAME: JAS
NAME: John Smith
ADDRESS: Anywhere
U.S.A.

PHONE: (555)-111-0000

JOB TITLE: Computer scientist
JOB DESC.: Conduct research on phase one of AIRLAB
experiment - flight control system prototype

<7/8> = Print  <0> = Exit Screen  <-> = Prev Screen
<PF2> = Help   <Enter> = Do   <,> = Next Screen

ADAMS Database Operations, p. 5-7
EXPERIMENT DATABASE OPERATION

Experiments are the AIRLAB experiments that a group is working on under a project. System managers, project leaders and group members can add new records and browse, update, and delete any experiment records that were created by someone in the group(s) they belong to.

Data in the Experiment screen is manipulated using the browse, add, update and delete functions described in Chapter 3 - Manipulating the ADAMS Database.

A sample Experiment screen is presented in the figure on the opposite page. Experiment screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident:</td>
<td>Automatically generated</td>
<td>Integer record identifier</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must enter group that already exists</td>
</tr>
<tr>
<td>Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Desc:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Username:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Inst:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Keyword:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Sw Name:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Ver:</td>
<td>No</td>
<td>Paging region</td>
</tr>
</tbody>
</table>
**ADAMS**

**Browse Experiment**

<table>
<thead>
<tr>
<th>Ident:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group:</td>
<td>CONTROL</td>
</tr>
<tr>
<td>Name:</td>
<td>SW RELATED HW ERRORS</td>
</tr>
<tr>
<td>Desc:</td>
<td>Investigates flight control software errors which result from hardware malfunctions</td>
</tr>
<tr>
<td>Username:</td>
<td>[JAS]</td>
</tr>
<tr>
<td>Inst:</td>
<td>Contract Research Inc</td>
</tr>
<tr>
<td>Keyword:</td>
<td>SOFTWARE</td>
</tr>
<tr>
<td></td>
<td>HARDWARE</td>
</tr>
<tr>
<td>Sw Name:</td>
<td>[FLIGHT I Ver: 1.0]</td>
</tr>
</tbody>
</table>

<0> = Exit Scr  <7/8> = Print  <-> = Prev Scr  
<Enter> = Do    <PF2> = Help  <,> = Next Scr
INSTITUTION DATABASE OPERATION

Institutions are organizations that are conducting experiments at ARLAB. Only system managers can add, update or delete an institution database record. Project leaders and users can browse all institution records on the system but cannot add, update or delete any institution records.

Data in the Institution screen is manipulated using the browse, add, update and delete functions described in *Chapter 3 - Manipulating the ADAMS Database*.

A sample Institution screen is presented in the figure on the opposite page. Institution screen fields are described in the table below.

### INSTITUTION SCREEN FIELDS

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inst. Id:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Name:</td>
<td>Yes</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Dept:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Address:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Phone:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Purpose:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Keyword:</td>
<td>No</td>
<td>Paging region</td>
</tr>
</tbody>
</table>
ADAMS
Browse Institution

Inst Id: CRI
Name: Contract Research Inc
Dept: Software Development
Address: Anywhere
U.S.A.
Phone: (111)-555-0000
Purpose: To coordinate research on phase one of AIRLAB experiment - flight control software

Keyword: 

<7/8> = Print <,> = Next Screen <-> = Prev Screen
<PF2> = Help <Enter> = Do <0> = Exit Screen

(B_INST_AS)
SOFTWARE/HARDWARE DATABASE OPERATION
SOFTWARE TROUBLE REPORT SCREEN

Software Trouble Report describes software bugs and fixes to them. System managers, project leaders, and group members can add new records and browse, update, and delete any software trouble reports that were created by someone in the group(s) they belong to.

Data in the Software Trouble Report screen is manipulated using the browse, add, update and delete functions described in Chapter 3 - Manipulating the ADAMS Database.

A sample Software Trouble Report screen is presented in the figure on the opposite page. Software Trouble Report screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Version:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Status:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Ident:</td>
<td>Automatically generated</td>
<td>Integer record identifier</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must enter existing groups(s)</td>
</tr>
<tr>
<td>Username:</td>
<td>Automatically generated</td>
<td>Who is making report</td>
</tr>
<tr>
<td>Machine:</td>
<td>Automatically generated</td>
<td>What machine logged on to</td>
</tr>
<tr>
<td>Rpt Date:</td>
<td>Automatically generated</td>
<td>Date reported</td>
</tr>
<tr>
<td>Fix Date:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Rpt Text</td>
<td>Yes</td>
<td>Scrolling region (1st box)</td>
</tr>
<tr>
<td>Fix Text</td>
<td>No</td>
<td>Scrolling region (2nd box)</td>
</tr>
</tbody>
</table>
ADAMS
Browse Software Trouble Report

Name: FLIGHT I
Version: 1.0
Status: FIXED
Ident: 3
Group: AXIS
Username: JAS
Machine: 1
Rpt Date: 06/02/85
Fix Date: 06/03/85

Fatal error in Pilot Interface I screen. Blows up in "dologon" and "dologoff" if user types more than one line of information. Error messages are "error during get" (pascal) and "terminator not seen".

Fixed. Changed to screen.

<Up> = Prev line  <Enter> = Do  <7/8> = Print  <-> = Prev Scr.
<Down> = Next line  <0> = Exit Scr.  <PF2> = Help  <,> = Next Scr.
Inhouse Software describes software written at AIRLAB to support AIRLAB experiments. System managers, project leaders, and group members can add new records and browse, update, and delete any inhouse software record that has been created by someone in the group(s) they belong to.

Data in the Inhouse Software screen is manipulated using the browse, add, update and delete functions described in Chapter 3 - Manipulating the ADAMS Database.

A sample Inhouse Software screen is presented in the figure on the opposite page. Inhouse Software screens fields are described in the table below.

### INHOUSE SOFTWARE REPORT FIELDS

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Version:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Online?</td>
<td>No</td>
<td>Yes or no answer</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must enter existing group(s)</td>
</tr>
<tr>
<td>Date:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Author:</td>
<td>No</td>
<td>Single line input. Person who wrote software.</td>
</tr>
<tr>
<td>Expert:</td>
<td>No</td>
<td>Single line input. Someone who knows a lot about using software.</td>
</tr>
<tr>
<td>Desc:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Add. Info:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Keywords:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Location</td>
<td>No</td>
<td>Scrolling region</td>
</tr>
</tbody>
</table>
ADAMS
Browse Inhouse Software

Name: Flight Interface
Version: 1.2
Author: JAS John A. Smith
Expert: JSD Jane S. Doe
Desc: Provides an easy method for creating an input file to be used with FLIGHT I

Add Info: A user's guide is available
Ask JSD

Keywords: [FLIGHT ]

VAX/VMS operating system

<Up> = Prev Line <Enter> = Do <7/8> = Print <-> = Prev Scr.
<Down> = Next Line <0> = Exit Scr. <PF2> = Help <-> = Next Scr.

(B_IN_SW_AS)

ADAMS Database Operations, p. 5-15
SOFTWARE/HARDWARE DATABASE OPERATION

VENDOR SOFTWARE SCREEN

Vendor Software describes software purchased from non-AIRLAB vendors to support AIRLAB experiments. System managers, project leaders, and group members can add a new record and browse, update, and delete any vendor software record that was created by someone in the group(s) they belong to.

Data in the Vendor Software screen is manipulated using the browse, add, update and delete functions described in Chapter 3 - Manipulating the ADAMS Database.

A sample Vendor Software screen is presented in the figure on the opposite page. Vendor Software screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Vendor:</td>
<td>Yes</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Version:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Date:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Expert:</td>
<td>No</td>
<td>Single line input. Someone who knows a lot about using software.</td>
</tr>
<tr>
<td>Desc:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Add Info:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Keywords:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Location:</td>
<td>No</td>
<td>Scrolling region</td>
</tr>
</tbody>
</table>

ADAMS Database Operations, p. 5-16
ADAMS
Browse Vendor Software

Name: MASS11
Vendor: DEC
Version: 4-B
Date: 06/01/85

Expert: JSD Jane S. Doe
Desc: Word processing package

Add Info: Call by M11

Keywords: [MASS11 ]

AIRS

<Up> = Prev Line <Enter> = Do <7/8> = Print <-> = Prev Scr.
<Down> = Next Line <0> = Exit Scr. <PF2> = Help <,> = Next Scr.

(B_VEND_SW_AS)
SOFTWARE/HARDWARE UNIT DATABASE OPERATION

HARDWARE UNIT SCREEN

Hardware Units describes hardware that supports AIRLAB experiments. The hardware may be owned by AIRLAB or brought in by other companies for research projects. Any ADAMS user may add a Hardware Unit record to the database, and browse, update, or delete records created by anyone in the groups he belongs to.

Data in the Hardware Unit screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Hardware Unit screen is presented in the figure on the opposite page. Hardware Unit screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inven No:</td>
<td>Yes</td>
<td>Single line input. Integers only.</td>
</tr>
<tr>
<td>Machine:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Room:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Building:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must enter existing group(s)</td>
</tr>
<tr>
<td>Hw Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Serial No:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Manufact.:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Model No:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Status:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Cost:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Comments:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Keywords:</td>
<td>No</td>
<td>Paging region</td>
</tr>
</tbody>
</table>

ADAMS Database Operations, p. 5-18
ADAMS
Browse Hardware Unit

<table>
<thead>
<tr>
<th>Inventory No:</th>
<th>71850</th>
<th>Hw Name:</th>
<th>VAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine:</td>
<td>1</td>
<td>Serial No:</td>
<td>A543210ZB9</td>
</tr>
<tr>
<td>Room/Building:</td>
<td>123/1220</td>
<td>Manfact.:</td>
<td>DEC</td>
</tr>
<tr>
<td>Group:</td>
<td>AXIS</td>
<td>Model No:</td>
<td>11/780</td>
</tr>
<tr>
<td>Status:</td>
<td>Installed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost:</td>
<td>$40000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Keywords: [VAX]

<7/8> = Print  <0>  = Exit  Scr  <->  = Prev  Scr  <Up>  = Prev  Entry
<PF2> = Help   <Enter> = Do     <,> = Next  Scr  <Down> = Next  Entry

(B_HW_AS)
DOCUMENTATION DATABASE OPERATION

Documentation consists of all user manuals, guides, and other media used during an AIRLAB project. This includes inhouse and vendor-supplied documentation. System managers, project leaders, and group members can add a new record and browse, update, and delete any documentation record that was created by any ADAMS user.

Data in the Documentation screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Documentation screen is presented in the figure on the opposite page. Documentation screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doc Id:</td>
<td>Yes</td>
<td>Formatted input. 2 characters - 3 numerals.</td>
</tr>
<tr>
<td>Vendor:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Subject:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Part Num:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Hw/Sw:</td>
<td>No</td>
<td>Single line input Valid inputs - H or S</td>
</tr>
<tr>
<td>Title:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Remarks:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Keywords:</td>
<td>Yes</td>
<td>Paging region</td>
</tr>
</tbody>
</table>

ADAMS Database Operations, p. 5-20
ADAMS
Browse Documentation

Doc Id: AA-111
Vendor: DEC
Subject: VAX/VMS
Part Num: AA-Z502A-TE
Hw/Sw: S
Title: VAX/VMS Run-Time Library Routines Reference Manual

Remarks: Maynard, MA

Keywords: [VAX
SOFTWARE]

<Enter> = Do  <PF2> = Help  <-> = Prev Record
<0> = Exit Screen  <7/8> = Print  <,> = Next Record

ADAMS Database Operations, p. 5-21
PERSONAL KEYWORDS DATABASE OPERATION

Personal Keywords are identifiers defined by the individual ADAMS user to tag and later retrieve database records. All ADAMS users can access only those personal keywords they've defined. Group keywords are defined by the project leader and can be used by anyone in the group.

Data in the Personal Keywords screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Personal Keywords screen is presented in the figure on the opposite page. Personal Keywords screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Keyword:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
</tbody>
</table>
# ADAMS

Browse Personal Keyword

<table>
<thead>
<tr>
<th>Username</th>
<th>Keyword</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAS</td>
<td>MASS11</td>
</tr>
<tr>
<td>JAS</td>
<td>SOFTWARE</td>
</tr>
<tr>
<td>JAS</td>
<td>FLIGHT</td>
</tr>
</tbody>
</table>

<Enter> = Do  <PF2> = Help  <Up> = Prev Record
<0> = Exit Screen  <7/8> = Print  <Down> = Next Record

(B_PERS_KEY_AS)
ARCHIVE DATABASE OPERATION

ARCHIVE MEDIUM SCREEN

The Archive Medium screen contains information about tapes, disks, and so on which are available at AIRLAB for archiving files. All ADAMS users can add a new record and browse, update, and delete any existing archive medium record.

Data in the Archive Medium screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Archive Medium screen is presented in the figure on the opposite page. Archive Medium screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archive ID:</td>
<td>Yes</td>
<td>Storage identifier. Single line input.</td>
</tr>
<tr>
<td>Archive Type:</td>
<td>Yes</td>
<td>Type of storage medium. Single-line input.</td>
</tr>
<tr>
<td>Room/Building:</td>
<td>Yes</td>
<td>Building/Room (integers). Single line input.</td>
</tr>
<tr>
<td>Comments:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
</tbody>
</table>
ADAMS
Browse Archive Medium

Archive ID: T123A
Archive Type: 1600 BPI TAPE
Room/Building: 123/1220
Comments: Software Failure Data

<Enter> = Do  <PF2> = Help  <-> = Prev Record
<0> = Exit Screen  <7/8> = Print  <>,> = Next Record

(B_ARC_MED_AS)
The Data Archive screen tells what data has been archived by which AIRLAB contributors. Users may archive their own data (see the AIRLAB User Guide for more information). ADAMS users may browse any Data Archive records created by members of their group and add new records to the database, but can only delete and update records they've personally created.

Data in the Data Archive screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Data Archive screen is presented in the figure on the opposite page. Data Archive screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Username:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must be existing group(s)</td>
</tr>
<tr>
<td>Table?:</td>
<td>Yes</td>
<td>Yes if Oracle table, no otherwise</td>
</tr>
<tr>
<td>Data Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Archive ID:</td>
<td>Yes</td>
<td>Storage identifier. Single line input</td>
</tr>
<tr>
<td>Archive Type:</td>
<td>Yes</td>
<td>Type of storage medium. Single line input</td>
</tr>
<tr>
<td>Comments:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Keywords:</td>
<td>No</td>
<td>Paging region</td>
</tr>
</tbody>
</table>

ADAMS Database Operations, p. 5-26
ADAMS
Browse Data Archive

<table>
<thead>
<tr>
<th>Date:</th>
<th>06/01/85:17:05:03</th>
<th>Keywords:</th>
<th>[FLIGHT]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username:</td>
<td>JSD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group:</td>
<td>AXIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table:</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Name:</td>
<td>SOFTWARE FAILURE DATA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archive ID:</td>
<td>T123A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archive Type:</td>
<td>1600 BPI TAPE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>There is an estimated 20 megabytes of software failure time for experiment A of Flight I.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<Enter> = Do  <PF2> = Help  <-> = Prev Record
<0> = Exit Screen  <7/8> = Print  <,> = Next Record

(B.DATA_AR_AS)
The Software Data Archive screen tells what AIRLAB software has been archived and on which devices. ADAMS users may browse any Software Archive records created by members of their group and add new records to the database, but can only delete and update records they’ve personally created.

Data in the Software Archive screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Software Archive screen is presented in the figure on the opposite page. Software Archive screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Username:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must enter existing group(s)</td>
</tr>
<tr>
<td>Sw Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Sw Version:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Archive Id:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Archive Type:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Comments:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
</tbody>
</table>
ADAMS
Browse Software Archive

Date: 06/01/85:17:05:03
Username: JAS
Group: AXIS

Sw Name: Flight Interface
Sw Version: 1.0
Archive ID: T123B
Archive Type: 1600 BPI Tape

Comments:

<Enter> = Do  <PF2> = Help  <-> = Prev Record
<0> = Exit Screen  <7/8> = Print  <>, = Next Record

(B_SW_ARC_AS)
DATA DATABASE OPERATION

PROCESSED DATA SCREEN

The Processed Data screen provides information about processed AIRLAB experimental data and the analyses applied to the data. ADAMS users may read any Processed Data records created by members of their group and add new records to the database, but can only delete and update records they've personally created.

Data in the Processed Data screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Processed Data screen is presented in the figure on the opposite page. Processed Data screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Format:</td>
<td>No</td>
<td>Physical structure of data.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single line input</td>
</tr>
<tr>
<td>Location:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Username:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Time:</td>
<td>Automatically Generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must be existing group(s)</td>
</tr>
<tr>
<td>Rec Count:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Table?</td>
<td>Yes</td>
<td>Yes if Oracle table, no otherwise.</td>
</tr>
<tr>
<td>Archived?</td>
<td>Yes</td>
<td>Yes or no response</td>
</tr>
<tr>
<td>Desc:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Analysis:</td>
<td>No</td>
<td>Analysis performed on data.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single line input</td>
</tr>
<tr>
<td>Keywords:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Software:</td>
<td>Yes</td>
<td>Scrolling region.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tab between name and version.</td>
</tr>
</tbody>
</table>
ADAMS
Browse Processed Data

Data Name: SOFTWARE ERROR RATES  Username: JSD
Location: RATES.FOR  Group: AXIS
Rec Count: 5M  Table? N  Archived? N
Desc: Matrix contains error rates
Rows indicate modules, Columns are Fault IDs
Analysis: Run Flight Interface

Keywords:
[SOFTWARE
ERROR RATES]

1::DISKSSHEMP:[JSD.EXP]RATES.FOR  1.5

<Up> = Prev line  <Enter> = Do  <7/8> = Print  <-> = Prev Scr.
<Down> = Next line  <0> = Exit Scr.  <PF2> = Help  <-> = Next Scr.

ADAMS Database Operations, p. 5-31
The Raw Data screen provides information about unprocessed AIRLAB experimental data. ADAMS users may read any Raw Data records created by members of their group and add new records to the database, but can only delete and update records they've personally created.

Data in the Raw Data screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — *Manipulating The ADAMS Database*.

A sample Raw Data screen is presented in the figure on the opposite page. Raw Data screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Format:</td>
<td>No</td>
<td>Physical structure of data. Single line input.</td>
</tr>
<tr>
<td>Location:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Username:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Time:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Must be existing group(s)</td>
</tr>
<tr>
<td>Rec Count:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Table?</td>
<td>Yes</td>
<td>Yes if Oracle table, no otherwise.</td>
</tr>
<tr>
<td>Archived?</td>
<td>Yes</td>
<td>Yes or no response</td>
</tr>
<tr>
<td>Desc:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Keywords:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Software:</td>
<td>Yes</td>
<td>Scrolling region. Tab between name and version.</td>
</tr>
</tbody>
</table>
ADAMS
Browse Raw Data

Data Name: SOFTWARE FAILURE DATA  Username: JSD
Format: I*4 Stream  Time: 06/01/85:15:10:11
Location: 123/1220  Group: AXIS

Rec Count: 5M  Table? N  Archived? N
Desc: Actual failure times for sw related hw errors

Keywords:

SOFTWARE FAILURE DATA

1::DISK$SHEMP:[JSD.EXP]TESTER.FOR  1.5

<Up> = Prev line <Enter> = Do  <7/8> = Print <-> = Prev Scr.
<Down> = Next line <0> = Exit Scr. <PF2> = Help <-> = Next Scr.

(B_R_DATA_AS)
TECHNICAL PAPER DATABASE OPERATION

Technical Paper describes literature references used by AIRLAB project members during an experiment and publications generated during the course of an experiment. All ADAMS users can browse, add, update and delete any Technical Paper record on the system.

Data in the Technical Paper screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Technical Paper screen is presented in the figure on the opposite page. Technical Paper screen fields are described in the table below.

Note: papers entered on this screen may include papers written by ADAMS users during an AIRLAB experiment as well as papers written by authors outside AIRLAB. To enter an ADAMS user in the Author field, type the author's username and press <RET>. ADAMS will fill in the rest of the field with the author's full name. To enter an author who is not an ADAMS user, press <TAB> to get past the username subsection of the Author paging region and enter the author's full name.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Archive Loc.:</td>
<td>No</td>
<td>Where journal etc. is stored. Single line input.</td>
</tr>
<tr>
<td>Publ. Citation:</td>
<td>No</td>
<td>Name of journal etc. Single line input.</td>
</tr>
<tr>
<td>Length:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Author:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Institution:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Keyword:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Abstract:</td>
<td>No</td>
<td>Scrolling region</td>
</tr>
</tbody>
</table>
This paper describes the results of a series of reliability testing experiments using flight management software. The experiment investigates the frequency with which software errors result from hardware malfunctions in the pilot interface.
NOTEBOOK DATABASE OPERATION

Notebook is an online experimenter's or engineer's notebook that contains personal and project notes written during an AIRLAB experiment. ADAMS users may browse any Notebook records created by members of their group and add new records to the database, but can only delete and update records they've personally created.

Data in the Notebook screen is manipulated using the browse, add, update and delete functions described in *Chapter 3 — Manipulating The ADAMS Database*. You can enter the Add Notebook action screen from VMS by typing `note` at the prompt. After entering the note, exit the Add Notebook screen to return to VMS.

A sample Notebook screen is presented in the figure on the opposite page. Notebook screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Group:</td>
<td>Automatically generated</td>
<td>Set to PERSONAL; can be redefined. Single line input.</td>
</tr>
<tr>
<td>Ident:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Date:</td>
<td>Automatically generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Keyword:</td>
<td>No</td>
<td>Paging region</td>
</tr>
<tr>
<td>Text</td>
<td>No</td>
<td>Scrolling region</td>
</tr>
</tbody>
</table>

ADAMS Database Operations, p. 5-36
For application section, need to develop a complete example showing process of generating an interpreter:

1. Grammar: extend BEXP to include functions on boolean expressions
2. Rewrite rules: general OR, binary AND
3. Consistency: check rewrite rules, identifying intersections of LHS
Chapter 6 — ADAMS Maintenance Operations
WHAT ARE THE MAINTENANCE OPERATIONS

The Maintenance Operations menu contains several actions screens and the following 4 submenus.

1. Security Database
2. Relations Database
3. Logon/off Information
4. Configuration Management

The Maintenance Operations action screens are:

Access Level

Selected from a submenu under Security Database. Usernames and their ADAMS security levels (S, P, or G).

Project Access

Selected from a submenu under Security Database. Usernames and the projects they are permitted to access.

Keyword

Selected from a submenu under Relations Database. Group keywords associated with project groups.

User

Selected from a submenu under Relations Database. Usernames and the project groups they are associated with.

Project

Selected from a submenu under Relations Database. Projects and their member groups.

Logon

Selected from a submenu under Logon/off Information. Information entered when users first logon to the ADAMS system.

Logoff

Selected from a submenu under Logon/off Information. Information entered when users logoff from the ADAMS system.

Software Configuration

Selected from a submenu under Configuration Management. Software installed or removed from AIRLAB's computer system.

Hardware Configuration

Selected from a submenu under Configuration Management. Hardware installed or removed from AIRLAB's computer system.

Note: Users with group level permission can access only Logon/off Information under Maintenance Operations.

The Maintenance Operations menu structure is illustrated as an inverted tree in Appendix B, which shows the first few levels of the branching system labeled with screen mnemonics. Each ADAMS screen has a mnemonic associated with it.

ADAMS Maintenance Operations, p. 6-1
Appendix C provides a list of screen mnemonics and their definitions arranged alphabetically for reference.

The general format and contents of menu, action, and report screens are discussed in Chapter 2. Database record manipulation is discussed in Chapter 3. The manipulation of single line fields, multi-line fields, paging regions and scrolling regions is discussed in the section How to Input Data on ADAMS Action Screens in Chapter 3.
The access permitted to ADAMS users with system (S), project (P), and group (G) privileges for the various Maintenance Operation screens is described in the table on the opposite page. Each account permission column in the table is divided into Read and Write subcolumns. Read permission means a user can browse an entry in the screen, but not add new entries or change or delete existing entries. Write permission means a user can browse, add, update, and delete entries stored in the system.

Four character codes indicate the amount of access permitted to a screen:

- **X** No access is permitted to this category.
- **O** Owner: only the username that created the data in this category may access it.
- **G** Group: in this category, a user may access data created by anyone in the groups the user belongs to.
- **A** All: in this category, a user may access any data on the system.
MAINTENANCE OPERATIONS SCREEN ACCESS

<table>
<thead>
<tr>
<th>Access Level</th>
<th>Group Read</th>
<th>Group Write</th>
<th>Project Read</th>
<th>Project Write</th>
<th>System Read</th>
<th>System Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>X</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>X</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>
SECURITY MAINTENANCE OPERATION
ACCESS LEVEL SCREEN

The Access Level screen associates ADAMS usernames with access permission level codes (S, P, or G). Only system managers can read and write any access level records.

Data in the Access Level screen is manipulated using the browse, add, update and delete functions described in *Chapter 3 — Manipulating The ADAMS Database*. A sample Access Level screen is presented in the figure on the opposite page. Access Level screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Access:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
</tbody>
</table>
## ADAMS

### Browse User Access Level

<table>
<thead>
<tr>
<th>Username</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAS</td>
<td>P</td>
</tr>
<tr>
<td>JAT</td>
<td>S</td>
</tr>
<tr>
<td>JSD</td>
<td>P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Enter&gt;</td>
<td>Do</td>
</tr>
<tr>
<td>&lt;PF2&gt;</td>
<td>Help</td>
</tr>
<tr>
<td>&lt;Up&gt;</td>
<td>Prev Record</td>
</tr>
<tr>
<td>&lt;0&gt;</td>
<td>Exit Screen</td>
</tr>
<tr>
<td>&lt;7/8&gt;</td>
<td>Print</td>
</tr>
<tr>
<td>&lt;Down&gt;</td>
<td>Next Record</td>
</tr>
</tbody>
</table>

(SEC_B_ACC_LVL_AS)
The Project Access screen associates ADAMS usernames with ADAMS projects. Only system managers can read and write any project access record.

Data in the Project Access screen is manipulated using the browse, add, update and delete functions described in *Chapter 3 — Manipulating The ADAMS Database*.

A sample Project Access screen is presented in the figure on the opposite page. Project Access screen fields are described in the table below.

**PROJECT ACCESS SCREEN FIELDS**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>Yes</td>
<td>Enter existing project, then user. Single line input.</td>
</tr>
<tr>
<td>Username:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
</tbody>
</table>
ADAMS
Browse Project Access

<table>
<thead>
<tr>
<th>Project</th>
<th>Username</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW RELATED HW ERRORS</td>
<td>JAS</td>
</tr>
<tr>
<td>SW RELATED HW ERRORS</td>
<td>JSD</td>
</tr>
</tbody>
</table>

<Enter> = Do  <PF2> = Help  <Up> = Prev Record
<0> = Exit Screen  <7/8> = Print  <Down> = Next Record

(SEC_B_PRJ_ACC_LVL)
The Keyword screen associates keywords with individual project groups. Information in this category cannot be accessed by users with group permission (G). Project leaders (P) can create or delete keywords for groups under their projects. System managers (S) can access any keyword on the system.

Data in the Keyword screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Keyword screen is presented in the figure on the opposite page. Keyword screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Enter existing group</td>
</tr>
<tr>
<td>Keyword:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Comments:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
</tbody>
</table>
ADAMS
Browse Keyword/Group Relation

Group: CONTROL
Keyword: SOFTWARE
Comments: Flight Interface Version 1.0 has been archived

<0> = Exit Scr  <7/8> = Print  <-,> = Prev Scr
<Enter> = Do    <PF2> = Help  <,> = Next Scr

(REL_B_KEY_AS)

ADAMS Maintenance Operations, p. 6-11
RELATIONS MAINTENANCE OPERATION

USER SCREEN

The User screen associates ADAMS usernames with individual project groups. Information in this category cannot be accessed by users with group permission (G). Project leaders (P) can associate usernames with groups under their projects; system managers (S) can access any username/group relation on the system.

Data in the User screen is manipulated using the browse, add, update and delete functions described in *Chapter 3 — Manipulating The ADAMS Database*.

A sample User screen is presented in the figure on the opposite page. User screen fields are described in the table below.

<table>
<thead>
<tr>
<th>USER SCREEN FIELDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Name</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Group:</td>
</tr>
<tr>
<td>Username:</td>
</tr>
</tbody>
</table>
ADAMS
Browse User/Group Relation

<table>
<thead>
<tr>
<th>Group</th>
<th>Username</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXIS CONTROL</td>
<td>JAS</td>
</tr>
<tr>
<td>CONTROL</td>
<td>JAS</td>
</tr>
<tr>
<td></td>
<td>JSD</td>
</tr>
</tbody>
</table>

<Enter> = Do
<PF2> = Help
<Up> = Prev Record
<0> = Exit Screen
<7/8> = Print
<Down> = Next Record

(REL_B_USER_AS)
RELATIONS MAINTENANCE OPERATION

PROJECT SCREEN

The Project screen associates ADAMS projects with individual groups. Information in this category cannot be accessed by users with group permission (G). Project leaders (P) can define groups and associate them with their projects and delete their groups; system managers (S) can access any group/project relation on the system.

Data in the Project screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Project screen is presented in the figure on the opposite page. Project screen fields are described in the table below.

### PROJECT SCREEN FIELDS

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Group:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
</tbody>
</table>
# ADAMS
Browse Project/Group Relation

<table>
<thead>
<tr>
<th>Project</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW RELATED HW ERRORS</td>
<td>AXIS</td>
</tr>
<tr>
<td>SW RELATED HW ERRORS</td>
<td>CONTROL</td>
</tr>
</tbody>
</table>

<Enter> = Do          <PF2> = Help          <Up> = Prev Record
<0> = Exit Screen    <7/8> = Print         <Down> = Next Record

(REL_B_PROJECT_AS)
LOGON/OFF INFORMATION MAINTENANCE OPERATION
LOGON SCREEN

The Logon screen contains information identifying the start of each ADAMS session, and an optional Purpose field describing the reason for the session. All ADAMS users can access any Logon record in the database.

Data in the Logon screen is manipulated using the browse, add, update and delete functions described in *Chapter 3 — Manipulating The ADAMS Database*.

A sample Logon screen is presented in the figure on the opposite page. Logon screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username:</td>
<td>Automatically Generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Machine:</td>
<td>Automatically Generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Time:</td>
<td>Automatically Generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Purpose:</td>
<td>No</td>
<td>Single line field</td>
</tr>
</tbody>
</table>
ADAMS
Browse Logon Info

Username: JAS
Machine: 1
Time: 06/14/85:12:30:01
Purpose: To add notes on AIRLAB experiments

<7/8> = Print  <0> = Exit Screen  <-> = Prev Screen
<PF2> = Help  <Enter> = Do  <>,> = Next Screen

(B_LOGON_AS)
The Logoff screen contains information identifying the end of each ADAMS session, and an optional Remarks field for comments on the session just ended. Any ADAMS user can access any Logoff record in the database.

Data in the Logoff screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating The ADAMS Database.

A sample Logoff screen is presented in the figure on the opposite page. Logoff screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username:</td>
<td>Automatically Generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Machine:</td>
<td>Automatically Generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Time:</td>
<td>Automatically Generated</td>
<td>Single line field</td>
</tr>
<tr>
<td>Remarks:</td>
<td>No</td>
<td>Single line field</td>
</tr>
</tbody>
</table>
Username: JAS
Machine: 1
Time: 06/14/85:13:28:10
Remarks: Phase one complete

<B_LOGOFF_AS>
Software Configuration provides information regarding the installation or removal of software on AIRLAB's computer system. Any user can browse any Software Configuration record. Project leaders and system managers can add, update and delete all records in this subcategory of Maintenance Operations.

Data in the Software Configuration screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — *Manipulating the ADAMS Database*.

A sample Software Configuration screen is presented in the figure on the opposite page. Software Configuration screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sw Name:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Sw Ver:</td>
<td>Yes</td>
<td>Single line input</td>
</tr>
<tr>
<td>Date Submitted:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Submitted By:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Date Performed:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Performed By:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Removed From:</td>
<td>Automatically generated</td>
<td>Set to 0; can be redefined. Single line input; numeric values only.</td>
</tr>
<tr>
<td>Installed In:</td>
<td>Automatically generated</td>
<td>Set to 0; can be redefined. Single line input; numeric values only.</td>
</tr>
<tr>
<td>Comments:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Statement of Work:</td>
<td>No</td>
<td>Scrolling region</td>
</tr>
</tbody>
</table>
ADAMS
Browse Software Configuration

Sw Name: Flight Interface
Sw Ver: 1.2
Date Submitted: 03/15/85
Date Performed: 03/29/85
Removed From: 0

Submitted By: JSD
Performed By: JAT
Installed In: 1

Comments: Up and running

Flight Interface has been installed on air1.

<Enter> = Do  <7/8> = Print  <-> = Prev Screen
<0> = Exit Screen  <PF2> = Help  <,> = Next Screen

(B_SW_CON_AS)
Hardware configuration provides information regarding the installation or removal of hardware on AIRLAB's computer system. All users can browse any Hardware Configuration record. Project leaders and system managers can add, update and delete any record in this subcategory of Maintenance Operations.

Data in the Software Configuration screen is manipulated using the browse, add, update and delete functions described in Chapter 3 — Manipulating the ADAMS Database.

A sample Hardware Configuration screen is presented in the figure on the opposite page. Hardware Configuration screen fields are described in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Mandatory?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory No:</td>
<td>Yes</td>
<td>Single line input; numeric values only.</td>
</tr>
<tr>
<td>Date Submitted:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Submitted By:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Date Performed:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Performed By:</td>
<td>No</td>
<td>Single line input</td>
</tr>
<tr>
<td>Removed From:</td>
<td>Automatically generated</td>
<td>Set to 0; can be redefined. Single line input; numeric values only.</td>
</tr>
<tr>
<td>Installed In:</td>
<td>Automatically generated</td>
<td>Set to 0; can be redefined. Single line input; numeric values only.</td>
</tr>
<tr>
<td>Comments:</td>
<td>No</td>
<td>Multi-line input</td>
</tr>
<tr>
<td>Statement of Work:</td>
<td>No</td>
<td>Scrolling region</td>
</tr>
</tbody>
</table>
ADAMS
Browse Hardware Configuration

Inventory No: 71850
Date Submitted: 05/21/85
Date Performed: 06/19/85
Submitted By: JSD
Performed By: JAT

Removed From: 0
Installed In: 3
Comments: Disk

No problems with installation.

<Enter> = Do  <7/8> = Print  <-> = Prev Screen
<0> = Exit Screen  <PF2> = Help  <,> = Next Screen

(B_HW_CON_AS)

ADAMS Maintenance Operations, p. 6-23
Appendix A — Status and Error Messages
STATUS AND ERROR MESSAGES

The following list of status and error messages is sorted alphabetically except the first message in the list which may begin with several different field names.

• xxxxx field must have a value

  Meaning: This field of a scrolling/paging region must have a value.
  Action: Enter an appropriate value for the region.

• Duplicate key value in table

  Meaning: You entered a key value (e.g., username or data name) that already exists in the data table.
  Action: Enter a new value and try again.

• Error opening file username.tmp.

  Meaning: You do not have write access to the current VAX/VMS file directory and cannot perform this function.
  Action: Restart ADAMS under a different directory that you have write access to.

• Error opening menu file xxxxx

  Meaning: This is an ADAMS internal error.
  Action: The list of valid menus could not be found because the ADAMS logical names are not properly set up. See the system manager to correct this problem.

• Error trying to enter EDT

  Meaning: There was an error while creating a subprocess to run EDT.
  Action: You do not have write access to the current VAX/VMS file directory. Change directories and try again.
• Invalid character "x" in field

  Meaning: You entered an invalid character in this field.
  Action: Examine input for error and reenter.

• Invalid function key

  Meaning: The key typed is not valid in this context.
  Action: Select a different function.

• Invalid group name, try again

  Meaning: The group name entered is not assigned to you.
  Action: Enter a group you belong to; use <PF2> KEVPAD on Group field to list groups.

• Invalid keyword, hit Gold-Enter to make it a key

  Meaning: You entered a personal keyword that does not exist.
  Action: <PF1> KEVPAD <Enter> KEVPAD will add it to your personal keyword list.

• Invalid keyword, try again

  Meaning: You entered a keyword that does not exist for this group.
  Action: Enter an existing keyword; use <PF2> KEVPAD on keyword field to list keywords.

• Keyword exists, try again

  Meaning: You tried to add a keyword that already exists.
  Action: Enter a new keyword; use <PF2> on keyword field to list keywords.
- No xxxxx values left

  **Meaning:** You tried to delete an entry from a scrolling/paging region that did not exist.

  **Action:** Select a different ADAMS function.

- No groups found

  **Meaning:** You do not belong to any valid groups.

  **Action:** Ask your project leader or system manager to add your username to the appropriate groups.

- No keywords found

  **Meaning:** There are no keywords for the group you have chosen.

  **Action:** The project leader will define group keywords as needed.

- No more records

  **Meaning:** There are no more records left in the list.

  **Action:** Use another search template to retrieve more records.

- No next form

  **Meaning:** You are at the last record retrieved and tried to advance.

  **Action:** If the record desired is not in the set retrieved, change the search template and try again.

- No next page in form

  **Meaning:** You tried to go to the next field at the end of the screen.

  **Action:** Back up to the correct field with the appropriate cursor movement command.

* Status and Error Messages, p. A-3*
• No next xxxx page

  Meaning: You tried to go the the next page of a scrolling/paging region and there is not one.
  Action: If information is missing, add it to the database record.

• No previous form

  Meaning: You are at the first record retrieved and tried to back up.
  Action: If the record desired is not in the set retrieved, change the search template and try again.

• No previous xxxx page

  Meaning: You tried to go to the previous page of a scrolling/paging region and there is not one.
  Action: If information is missing, add it to the database record.

• No previous page in form

  Meaning: You tried to go to the previous field from the first field in a screen.
  Action: Advance to the correct field with the appropriate cursor movement command.

• No records found

  Meaning: There are no records matching the current selection criteria.
  Action: Enter a different search template and try again.

• String not found

  Meaning: You searched for a non-existent string in a scrolling text region.
  Action: Enter a string that is in the text region.
• That project does not exist, try again

  Meaning: You entered a project name that does not exist.
  Action: Enter an existing project. Contact the ADAMS system manager for project names.

• This action invalid for this group

  Meaning: You tried to enter a keyword for a group with the \texttt{<PF1>\textsc{keypad} <ENTER>\textsc{keypad}} sequence.
  Action: Only project leaders can add group keywords.

• You cannot modify that group, try again

  Meaning: You entered a group name that you do not have modify access to.
  Action: Enter a group name you can modify; use \texttt{<PF2>\textsc{keypad}} on the Group field to list groups.

• You cannot modify that project, try again

  Meaning: You entered a project that you do not have modify access to.
  Action: Enter a project you can modify. Contact the ADAMS system manager for project names.

• You do not have access to that function

  Meaning: You tried to access a security protected function and do not have the proper level of security clearance.
  Action: Contact your project leader or system manager to determine your security clearance level.
Appendix B — The ADAMS Menu Tree Structure
THE ADAMS MENU TREE STRUCTURE

The ADAMS menu system is structured like a tree's branching root system, with the main menu at the trunk's base and the individual report screens at the tips of the roots. The structure is illustrated in this Appendix, which shows the first few levels of the branching system labeled with screen mnemonics.

THE ADAMS Menu Tree Structure, p. B-1
Appendix C — Screen Mnemonic Names
# SCREEN MNEMONIC NAMES

This Appendix provides a list of screen mnemonics and their definitions arranged alphabetically for quick reference.

<table>
<thead>
<tr>
<th>mnemonic</th>
<th>definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_ARC_MED_AS</td>
<td>Add Archive Medium</td>
</tr>
<tr>
<td>A_ARC_MN</td>
<td>Add Archive</td>
</tr>
<tr>
<td>A_CON_AS</td>
<td>Add Contributor</td>
</tr>
<tr>
<td>A_DATA_AR_AS</td>
<td>Add Data Archive</td>
</tr>
<tr>
<td>A_DATA_MN</td>
<td>Add Data</td>
</tr>
<tr>
<td>A_DOC_AS</td>
<td>Add Documentation</td>
</tr>
<tr>
<td>A_EXP_AS</td>
<td>Add Experiments</td>
</tr>
<tr>
<td>A_HW_AS</td>
<td>Add Hardware</td>
</tr>
<tr>
<td>A_HW_CON_AS</td>
<td>Add Hardware Configuration</td>
</tr>
<tr>
<td>A_INST_AS</td>
<td>Add Institution</td>
</tr>
<tr>
<td>A_IN_SW_AS</td>
<td>Add Inhouse Software</td>
</tr>
<tr>
<td>A_NOTE_AS</td>
<td>Add Notebook</td>
</tr>
<tr>
<td>A_P_DATA_AS</td>
<td>Add Processed Data</td>
</tr>
<tr>
<td>A_PERS_KEY_AS</td>
<td>Add Personal Keyword</td>
</tr>
<tr>
<td>A_R_DATA_AS</td>
<td>Add Raw Data</td>
</tr>
<tr>
<td>A_SW_ARC_AS</td>
<td>Add Software Archive</td>
</tr>
<tr>
<td>A_SW_CON_AS</td>
<td>Add Software Configuration</td>
</tr>
<tr>
<td>A_SW_HW_MN</td>
<td>Add Software/Hardware</td>
</tr>
<tr>
<td>A_SW_TR_AS</td>
<td>Add Software Trouble Report</td>
</tr>
<tr>
<td>A_TECH_P_AS</td>
<td>Add Technical Paper</td>
</tr>
<tr>
<td>A_VEND_SW_AS</td>
<td>Add Vendor Software</td>
</tr>
<tr>
<td>ARC_MN</td>
<td>Archive Menu</td>
</tr>
<tr>
<td>B_ARC_MED_AS</td>
<td>Browse Archive Medium</td>
</tr>
<tr>
<td>B_ARC_MN</td>
<td>Browse Archive</td>
</tr>
<tr>
<td>B_DATA_AR_AS</td>
<td>Browse Data Archive</td>
</tr>
<tr>
<td>B_DATA_MN</td>
<td>Browse Data</td>
</tr>
<tr>
<td>B_DOC_AS</td>
<td>Browse Documentation</td>
</tr>
<tr>
<td>B_EXP_AS</td>
<td>Browse Experiments</td>
</tr>
<tr>
<td>B_HW_AS</td>
<td>Browse Hardware</td>
</tr>
<tr>
<td>B_HW_CON_AS</td>
<td>Browse Hardware Configuration</td>
</tr>
<tr>
<td>B_INST_AS</td>
<td>Browse Institution</td>
</tr>
<tr>
<td>B_IN_SW_AS</td>
<td>Browse Inhouse Software</td>
</tr>
<tr>
<td>B_LOGOFF_MN</td>
<td>Browse Logoff</td>
</tr>
<tr>
<td>B_LOGON_AS</td>
<td>Browse Logon</td>
</tr>
<tr>
<td>B_NOTE_AS</td>
<td>Browse Notebook</td>
</tr>
<tr>
<td>B_P_DATA_AS</td>
<td>Browse Processed Data</td>
</tr>
<tr>
<td>B_PERS_KEY_AS</td>
<td>Browse Personal Keyword</td>
</tr>
<tr>
<td>B_R_DATA_AS</td>
<td>Browse Raw Data</td>
</tr>
<tr>
<td>B_SW_ARC_AS</td>
<td>Browse Software Archive</td>
</tr>
</tbody>
</table>

Screen Mnemonic Names, p. C-1
B-SW_CON_AS  Browse Software Configuration
B_SW_HW_MN  Browse Software/Hardware
B_SW_TR_AS  Browse Software Trouble Report
B_TECH_P_AS  Browse Technical Paper
B_VEND_SW_AS  Browse Vendor Software
CON_MN  Configuration Management Menu
CONT_MN  Contributors Menu
D_ARC_MED_AS  Delete Archive Medium
D_ARC_MN  Delete Archive
D_CON_AS  Delete Contributor
D_DATA_AR_AS  Delete Data Archive
D_DATA_MN  Delete Data
DATABASE_MN  Database Operations Menu
D_DOC_AS  Delete Documentation
D_EXP_AS  Delete Experiments
D_HW_AS  Delete Hardware
D_HW_CON_AS  Delete Hardware Configuration
D_INST_AS  Delete Institution
D_IN_SW_AS  Delete Inhouse Software
D_LOGOFF_MN  Delete Logoff
D_LOGON_MN  Delete Logon
D_NOTE_AS  Delete Notebook
D_P_DATA_AS  Delete Processed Data
D_PERS_KEY_AS  Delete Personal Keyword
D_R_DATA_AS  Delete Raw Data
D_SW_ARC_AS  Delete Software Archive
D_SW_CON_AS  Delete Software Configuration
D_SW_HW_MN  Delete Software/Hardware
D_SW_TR_AS  Delete Software Trouble Report
D_TECH_P_AS  Delete Technical Paper
D_VEND_SW_AS  Delete Vendor Software
DATA_MN  Data Menu
DOC_MN  Documentation Menu
EXP_MN  Experiments Menu
INST_MN  Institutions Menu
LOG_MN  Logon/off Menu
LOGOFF_MN  Logoff Menu
LOGON_MN  Logon Menu
MAINT_MN  Maintenance Menu
NOTE_MN  Notebook Menu
PERS_KEY_MN  Personal Keyword Menu
REL_A_KEY_AS  Relation Add Keyword
REL_A_PROJECT_AS  Relation Add Project
REL_A_USER_AS  Relation Add User
REL_B_KEY_AS  Relation Browse Keyword
REL_B_PROJECT-AS  Relation Browse Project
REL_B_USER-AS  Relation Browse User
REL_D_KEY_AS  Relation Delete Keyword
REL_D_PROJECT-AS  Relation Delete Project
REL_D_USER-AS  Relation Delete User
REL_KEY_MN  Relation Keyword Menu
REL_PROJECT_MN  Relation Project Menu
REL_U_KEY_AS  Relation Update Keyword
REL_U_PROJECT-AS  Relation Update Project
REL_USER_MN  Relation User Menu
REL_U_USER-AS  Relation Update User
RELATE_MN  Relations Menu
SEC_A_ACC_LVL_AS  Security Add Access Level
SEC_A_ACC_LVL_MN  Security Access Level
SEC_A_PRJ_ACC_AS  Security Add Project Access
SEC_B_ACC_LVL_AS  Security Browse Access Level
SEC_B_PRJ_ACC_AS  Security Browse Project Access
SEC_D_ACC_LVL_AS  Security Delete Access Level
SEC_D_PRJ_ACC_AS  Security Delete Project Access
SEC_PRJ_ACC_MN  Security Project Access
SEC_U_ACC_LVL_AS  Security Update Access Level
SEC_U_PRJ_ACC_AS  Security Update Project Access
SECURE_MN  Security Menu
SW_HW_MN  Software/Hardware Menu
TECH_P_MN  Technical Paper Menu
U_ARC_MED_AS  Update Archive Medium
U_ARC_MN  Update Archive
U_CON_AS  Update Contributor
U_DATA_AR_AS  Update Data Archive
U_DATA_MN  Update Data
U_DOC_AS  Update Documentation
U_EXP_AS  Update Experiments
U_HW_AS  Update Hardware
U_HW_CON_AS  Update Hardware Configuration
U_INST_AS  Update Institution
U_IN_SW_AS  Update Inhouse Software
U_NOTE_AS  Update Notebook
U_P_DATA_AS  Update Processed Data
U_PERS_KEY_AS  Update Personal Keyword
U_R_DATA_AS  Update Raw Data
U_SW_ARC_AS  Update Software Archive
U_SW_CON_AS  Update Software Configuration
U_SW_HW_MN  Update Software/Hardware

Screen Mnemonic Names, p. C-3
U_SW_TR_AS  Update Software Trouble Report
U_TECH_P_AS  Update Technical Paper
U_VEND_SW_AS  Update Vendor Software

Screen Mnemonic Names, p. C-4
Appendix D — An ADAMS Usage Example
APPENDIX D
AN ADAMS USAGE EXAMPLE

Purpose/Background

The following example illustrates the use of ADAMS to record and retrieve information about experimental research being conducted by the Research Triangle Institute using AIRLAB as a part of a NASA-LaRC sponsored program in software reliability. The goal of this program, which is being pursued by the Fault Tolerant Systems Branch of NASA - LaRC under the technical direction of G.E. Migneault, is to find a means of credibly performing reliability evaluations of flight control software. The program entails the funding of academic studies, data gathering experiments, and includes the conduct of in-house software reliability analyses.

The example contained in this Appendix depicts an organization of project data chosen by the project members. This organization permits rapid retrieval of information related to the different software reliability experiments presently being conducted. AIRLAB users who are working on other projects may prefer a different organization, that is, one which is tailored to suit their needs.

Using ADAMS

Defining the Software Reliability Research Project

Defining the Software Reliability Research project using ADAMS involved establishing a framework which organizes the research activities and specifying a set of project keywords fundamental to retrieving key information associated with the project. We first chose to decompose the project into groups which correspond to the distinct software reliability experiments being conducted as the most suitable framework for organizing information about the multiple experimental activities. Second, to facilitate communication between project members working within a group and between groups with similar goals, we established group memberships and defined a standard set of keywords. The project groups, group members, and group keywords are described in the following sections.

Project Groups

The software reliability research project currently has four experimental efforts for which AIRLAB is a critical resource. These are:

1. Automated repetitive run testing of the Launch Interceptor Condition Software to collect data on 100 replications
(2) Fault Interaction Experiments using the N-VERSION CONTROLLER on Systems 1,2,4,5,6,7,8 and 9.

(3) Reliability Testing of the Pitch Axis Control Software on System 4.


Each of these activities has been established by the Project Leader as a group under the Software Reliability Research project in the ADAMS Relations database using the Add Project Action Screen. This data base entry is shown in Figure 1.
ADAMS
Browse Project/Group Relation

<table>
<thead>
<tr>
<th>Project</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFTWARE RELIABILITY RESEARCH</td>
<td>AUTOSIM</td>
</tr>
<tr>
<td>SOFTWARE RELIABILITY RESEARCH</td>
<td>INTEXP</td>
</tr>
<tr>
<td>SOFTWARE RELIABILITY RESEARCH</td>
<td>PITCH AXIS</td>
</tr>
<tr>
<td>SOFTWARE RELIABILITY RESEARCH</td>
<td>VIKING</td>
</tr>
</tbody>
</table>

<Enter> = Do                                      
<PF2> = Help                                     
<Up> = Prev Record                               
<0> = Exit Screen                                
<7/8> = Print                                    
<Down> = Next Record                             

(REL_B_PROJECT_A3)

Figure 1. Software Reliability Research Project Groups

An ADAMS Usage Example, p. D-3
**Group Members**

Different members of the RTI staff are associated with one or more of the group activities within the Software Reliability Research project. To identify which staff members are associated with each group, the Add User Action Screen was used by the project leader to specify group members in the ADAMS Relations database. Figure 2 shows the data in the first scrolling region of the Group Relation database entry.

**Group Keywords**

To make information about the software reliability project easily accessible to all project members, we decided to define a set of standard project keywords which are applicable to each group activity in the project and which are used in the same manner by each group member. Our choice of keywords reflects the type of information being communicated. The consistent use of these keywords must be enforced if the project is to benefit from their use. The use of multiple keywords when entering activity information provides multiple paths to database entries containing more than one type of information.

The following list describes the keywords which have presently been defined by the Project Leader in the Relations database using the Add Keyword Action Screen.

- **DESCRIPTION** - index for descriptions of the research activities being conducted (An example is the first entry for an experiment as shown in Figure 3. This entry describes the experimental goals and contains the Description keyword).

- **DIRECTORIES** - index for all directories associated with the research activity

- **PROBLEMS** - index for all entries which are related to problems encountered during the conduct of the research.

- **REPORTS** - index for all system and technical reports associated with the research

- **TOOLS** - index for all hardware and software tool tools associated with the conduct of the research

- **STATUS** - index for both personal and project notes which contain information about the status of the research

- **PROB\{n\}** - index for the nth problem in the series of implementations of software problems being studied as a part of the continuing experiments in software reliability
**ADAMS**

Browse User/Group Relation

<table>
<thead>
<tr>
<th>Group</th>
<th>Username</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOSIM</td>
<td>GEM</td>
</tr>
<tr>
<td>AUTOSIM</td>
<td>JRD</td>
</tr>
<tr>
<td>AUTOSIM</td>
<td>RCB</td>
</tr>
<tr>
<td>AUTOSIM</td>
<td>SEM</td>
</tr>
<tr>
<td>INTEXP</td>
<td>GEM</td>
</tr>
<tr>
<td>INTEXP</td>
<td>JRD</td>
</tr>
<tr>
<td>INTEXP</td>
<td>RCB</td>
</tr>
<tr>
<td>INTEXP</td>
<td>SEM</td>
</tr>
<tr>
<td>PITCH AXIS</td>
<td>GEM</td>
</tr>
<tr>
<td>PITCH AXIS</td>
<td>HO</td>
</tr>
<tr>
<td>PITCH AXIS</td>
<td>JRD</td>
</tr>
</tbody>
</table>

<Enter> = Do  <PF2> = Help  <Up> = Prev Record
<0> = Exit Screen  <7/8> = Print  <Down> = Next Record

17 records found.  (REL_B_USER_AS)

Figure 2. Project Group Members

*RAW DATA* - index for the raw data associated with the research

*PROCESSED DATA* - index for the processed data associated with the research

Note that the chosen Software Reliability Project keywords intersect the different types of information requested when making an ADAMS entry. This intersection was intentionally chosen to provide cross-indexing between ADAMS experiment

An ADAMS Usage Example, p. D-5
The purpose of the experiment is to gather failure data from 100 replications of repetitive run testing of the three implementations of the LIC software.

Username: [GEM
JLP]
Inst: [NASA-LARC
RTI]
Keyword: [DESCRIPTION
PROB1]
Sw Name: [AUTOSIM Ver: 1.5]

1 record found.

Figure 3. An Experiment Entry with a "Description" Keyword entries, software entries, and data entries.

Documenting the Research Activities

The Software Reliability Research activities conducted as a part of the project are documented in several ADAMS database entries. The following sections describe a sample of entries related to the AUTOSIM group under the Software Reliability Research project.
Experiment Entry

Figure 3 shows an experiment activity example. It was entered using the Add Experiment Action Screen of the ADAMS Database Menu. This entry describes the AUTOSIM experiment. Other entries which contain information about the experiment were made using the Add Notebook Screen with AUTOSIM as the group field entry.

ADAMS
Browse Notebook Entry

| Username: | JRD |
| Keywords: | [RAW DATA STATUS] |
| Group:     | AUTOSIM |
| Ident:     | 3 |
| Date:      | 07/12/85:15:51:14 |

The data collection effort has been halted for two reasons:
1. The results of the investigation of the non-observation of fault 7 are pending.
2. System 3 has been experiencing system disk problems which result in loss of data due to the method of restarting AUTOSIM.

Figure 4. A Project Notebook Entry
Notebook Entry

In collecting the 100 replications of data for the AUTOSIM experiment, the system disk on System 3 experienced several failures during the second and third weeks of June. In addition to the experiment entry shown in Figure 4 which indicated a stopped status, a personal note was made to record the problems with the system. This personal notebook entry is depicted in Figure 5.

**ADAMS**

Browse Notebook Entry

Username: JRD

<table>
<thead>
<tr>
<th>Group</th>
<th>Personal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident</td>
<td>1</td>
</tr>
<tr>
<td>Date</td>
<td>06/24/85:14:18:24</td>
</tr>
</tbody>
</table>

Keywords: [AUTOSIM

PROBLEMS]

AUTOSIM is currently running on 3::DISK$LARRY: [SIMTEST.3.SIM.PROB1]. SYSTEM 3 has been unreliable as there are problems with I/O on the system disk. SEM has currently stopped running AUTOSIM during the day. GEM has been notified.

1 record found.

(B_NOTE_AS)

Figure 5. A Related Personal Notebook Entry

An ADAMS Usage Example, p. D-8
Experimental Software Entry

A software tool was developed by RTI to fully automate the repetitive run testing of the Launch Interceptor Condition Software. The tool, known as AUTOSIM, was described using the Add In-House Software Action Screen entry for the Database Operations. The experiment software entry is shown in Figure 6.

![ADAMS Browse Inhouse Software](image)

**Figure 6. An Experimental Software Entry**
A technical report was written to document the AUTOSIM tool and to fulfill the contract reporting requirements. The corresponding documentation entry is shown in Figure 7. Technical papers associated with the experiment were documented using the Add Technical Paper Action Screen.
Data Entries

There are three types of data entries which can be made using ADAMS. These entries contain information about raw data, processed data, and archived data. In making these entries, we used AUTOSIM Group Keywords to establish links between the data entries.

Figure 8 contains an example of a RAW DATA entry which describes failure data that was generated during repetitive run testing of the LIC problem prior to installation of AUTOSIM. It was recorded as a part of the AUTOSIM project since the data was compared to that recorded during the AUTOSIM testing of the LIC software as part of the validation of the AUTOSIM tool.

This raw data was subsequently been archived and the archive information was recorded using the Add Archive Action Screen of ADAMS.

The raw data was also processed and the actual failure rates retained in a tabular form for later analysis. The location of the processed data was recorded using the Add Processed Data Action Screen.

Figures 8, 9, and 10 show the Raw Data, Archived Data, and Process Data entries for the manual repetitive run replications respectively.
ADAMS
Browse Raw Data

Data Name: SIM.DAT
Username: JRD
Format: SEE NASA CR-172553
Time: 06/25/85:15:15:46
Location: 3::DISK$LARRY:[SIMTEST.3.SIM.PROB1]
Group: AUTOSIM

Rec Count: 692
Table? N
Archived? Y

Desc: Contains LIC failure data prior to AUTOSIM. Archive name = LIC1. Failure time tables in 3::DISK$LARRY:[JRD.DATA].

Keywords: [AUTOSIM
          [PROB1

AUTOSIM  1.5

<Up>  = Prev line  <Enter> = Do  <7/8> = Print  <-> = Prev Scr.
<Down> = Next line  <0> = Exit Scr.  <PF2> = Help  <>, = Next Scr.

1 record found.

Figure 8. A Raw Data Entry
Figure 9. An Archived Data Entry
ADAMS
Browse Data Archive

Date: 06/26/85:17:40:31
Username: JRD
Group: AUTOSIM

Table: N
Data Name: LIC1
Archive ID: AUTOSIM.LIC1
Archive Type: 1600 BPI Tape

Comments: The data archived is a result of the installation of AUTOSIM - It contains the LIC data from the manual runs executed prior to AUTOSIM installation 2/06/85.

<Enter> = Do <PF2> = Help <-> = Prev Record
<0> = Exit Screen <7/8> = Print <,> = Next Record

1 record found. (B_DATA_AR_A5)

Figure 9. An Archived Data Entry

An ADAMS Usage Example, p. D-14
Glossary
GLOSSARY OF ADAMS TERMS

Access Level: Associates ADAMS usernames with access permission level codes (S, P, or G). The Access Level screen is discussed in Chapter 6.

account: Sometimes called a VAX/VMS username or user logon. You must have a valid AIRLAB account on VAX/VMS to use ADAMS. ADAMS and VAX/VMS are discussed in Chapter 2.

action screen: Used to browse, add, update and delete database records. Action screens are discussed in Chapter 2.

ADAMS: The AIRLAB Data Management System is an online environment that supports research at AIRLAB.

Add function: Creates new ADAMS database records and adds them to the database. The Add function is discussed in Chapter 3.

AIR1: The DECnet node name of AIRLAB's Digital Equipment Corporation (DEC) VAX 11/780. Also called System 1.

archive: Information that is not actively being used in an AIRLAB project. Archived information is usually stored on offline media (e.g., magnetic tapes).

Archive Medium: Tapes, disks, etc. which are available at AIRLAB for archiving files. The Archive Medium screen is described in Chapter 5.

arrow key: One of the four arrow keys on the terminal keyboard (up, down, left, right). The right and left arrow keys move the cursor right or left respectively on an action screen. The up and down arrow keys move the cursor in the scrolling and paging region on report screens.

auto wrap: A feature provided in some computer systems that automatically wraps information being typed at a terminal onto the next line of text when the end of the terminal screen is reached. ADAMS does not support auto wrap.

Browse function: Examines database records in a working set. Each report screen displayed represents a single database record. The Browse function is discussed in Chapter 3.
**bug:** An error in the construction of a computer program (i.e., software) that results in a malfunction. Bugs in AIRLAB software are reported with the Software Trouble Report screen.

**case (upper/lower):** Upper case letters (i.e., capital letters) are generated by pressing the <SHIFT> key while typing at the terminal keyboard. Some ADAMS data fields are all upper-case (e.g., keywords). Lower-case characters entered in these fields are automatically converted to upper-case.

**command:** An instruction to a program like ADAMS or the VAX/VMS operating system to perform a function. Many ADAMS commands are executed by pressing a terminal keypad key.

**Contributor:** AIRLAB researchers who use ADAMS to support their work. The Contributor screen is discussed in Chapter 5.

**cursor:** A special character displayed on a terminal screen that indicates where text is currently being entered or the active field for ADAMS commands. The cursor is sometimes displayed as a small box, and sometimes as an underscore character. The cursor may or may not blink, depending on the terminal's set up.

**data access:** The process of retrieving, deleting, or modifying existing data records in the ADAMS database. Permission to access a given data record depends on the username's security level and the type of data. ADAMS security is discussed in Chapters 2, 5, and 6.

**Data Archive:** Tells what data has been archived by which AIRLAB contributors. The Data Archive screen is discussed in Chapter 5.

**data retrieval:** The process of reading records from the ADAMS database and making them part of the active working set. Once data records are retrieved, they can be altered using the Update function or removed from the database using the Delete function.

**database:** A collection of information stored on the computer's disks. The ADAMS database can only be accessed through the ADAMS user interface. Access to individual data records is restricted by user, project, and group using the ADAMS security system (see Chapter 2).

**database function:** Add, Update, Delete, and Browse are the only valid operations that can be performed on ADAMS database records. These functions are described in Chapter 3.
Database Operation: A set of submenus under the ADAMS main menu for manipulating database records. Database Operation screens are described in Chapter 5 (see also Maintenance Operation).

database record: An individual report screen or data item stored in the ADAMS database. One or more database records are retrieved from the database and made part of the working set by setting up a template to qualify the search (see also template).

DEC: Digital Equipment Corporation, manufacturers of ARLAB's VAX 11/780 computer and the VAX/VMS operating system.

default value: Certain fields on ADAMS action screens are automatically assigned a standard (i.e., default) value that the user can override by typing another acceptable value in the field.

Delete function: Removes existing ADAMS data records from the database. The Delete function is discussed in Chapter 3.

device: Hardware associated with a computer system that performs one or more specialized functions (e.g., disk drives for storing data).

diagnostic message: Information generated by a computer system like ADAMS that describes action taken in response to a command or warns of error conditions.

directory: A special location under the VAX/VMS operating system where files are stored. File directories may have subdirectories under them; this is useful for separating data files by project or experiment.

Documentation: User manuals, guides, and other media used during an ARLAB project. The Documentation screen is discussed in Chapter 5.

editor: An interactive computer program for creating and modifying text files. EDT is the most commonly used VAX/VMS editor.

EDT: See editor.

error condition: A fault in a computer system caused by bad data, incorrect user input, or internal errors that prevents the system from operating correctly (see also bug, fix, and diagnostic message).

error message: See diagnostic message.

Glossary of ADAMS Terms, p. G-3
Experiment: AIRLAB experiments that a group is working on under a project. The Experiment screen is discussed in Chapter 5.

field help: An ADAMS status message that describes the contents of a field on an action screen. The help command is described in Chapter 2.

field name: The label associated with an ADAMS action screen field. Action screens and their fields are described in Chapters 5 and 6.

field value: The data value associated with an ADAMS action or report screen field. A field value is usually displayed to the right of the field name, but this depends on the nature of the field (single line, multi-line, scrolling region, or paging region).

file: Information stored on a disk (see also database).

fix: Changes made to a computer system to repair a bug (see also bug).

function: See Add function, Delete function, Update function, or Browse function.

Gold key: The <PF1> key in the top row of the numeric keypad. Many keypad keys perform more than one function; alternate functions are selected by pressing the Gold key first.

group keyword: An identifier group members can use to tag database records for later retrieval by members of their group. Group keywords are discussed in Chapter 6 (see also Keyword and Personal Keywords).

group level: Security level that allows a user to create and access common group data, use group keywords, and create and access personal data. Group level security is discussed in Chapter 2 (see also project level, system level).

group member: A username that has been assigned to a group by a project leader or system manager.

hardware: The physical components of a computer system, including devices (as opposed to the programs that run on the system: see also software).

Hardware Configuration: Selected from a submenu under Configuration Management. Hardware installed or removed from AIRLAB's computer system.

Hardware Unit: Hardware that supports AIRLAB experiments. The Hardware Unit screen is discussed in Chapter 5.
ident: A numeric identifier field associated with certain types of ADAMS database records. An ident field value is automatically assigned to a newly created data record.

Inhouse Software: Software written at AIRLAB to support experiments. The Inhouse Software screen is discussed in Chapter 5.

insert mode: Used to insert information in the middle of an action screen field's value. Insert mode is discussed in Chapter 3 (see also overwrite mode).

Institution: Organizations that are conducting experiments at AIRLAB. The Institution screen is discussed in Chapter 5.

interaction: The process of performing work at a computer terminal by typing commands at the keyboard and observing the system's response on the terminal screen (see also invoke).

interface: The part of a computer system that a user directly interacts with, including terminal screen displays, diagnostic messages, and all keyboard and keypad commands.

invoke: To call up a computer program or operating system function by typing a command at the terminal keyboard (see also interaction).

key value: An ADAMS action screen field value that is used to select data records for retrieval (e.g., username or data name).

keyboard: In the ADAMS User's Guide, usually refers to the main part of the terminal keyboard (as opposed to the numeric keypad).

keypad: The set of numeric keys, programmable function keys (PF), <Enter>, and punctuation keys to the right of the main part of the terminal keyboard.

Keyword: The Keyword screen is discussed in Chapter 6. It associates keywords with individual project groups (see also group keyword and Personal Keywords).

Logoff: Used as a verb to describe the process of terminating an interactive session on AIRLAB's computers. The Logoff screen is described in Chapter 6. It contains information identifying the end of each ADAMS session.

Logon: Used as a verb to describe the process of accessing AIRLAB's computers and the ADAMS system. Occasionally used as a synonym for username (see also username). The Logon screen is described in Chapter 6. It contains
information identifying the start of each ADAMS session.

**main menu:** The set of ADAMS options that first appears after the initial Logon screen. The ADAMS menu structure is diagrammed in *Appendix B* (see also *menu, menu screen, and menu tree*).

**Maintenance Operation:** A set of submenus under the ADAMS main menu for manipulating database records related primarily to ADAMS maintenance and security functions. Maintenance Operation screens are described in *Chapter 6* (see also *Database Operation*).

**mandatory:** Describes an action screen field that must be filled out when creating a template for data record retrieval or entering a new data record (see also *optional*). Failure to supply a value for a mandatory action screen field will generate an error message.

**menu:** A list of ADAMS command options displayed on the terminal screen. An individual option is selected by typing its menu index (displayed next to the option name on the screen). ADAMS menu structure is diagrammed in *Appendix B*.

**menu-driven:** Describes a user interface (like ADAMS) that provides menus and submenus for user interaction (see also *menu*).

**menu screen:** An ADAMS screen that displays a menu of options (see also *action screen* and *report screen*).

**menu tree:** Certain menu options display secondary menus when they’re selected. The overall branching structure of the ADAMS menu system resembles an inverted tree, with the main menu at the root. ADAMS menu structure is diagrammed in *Appendix B*.

**mnemonic:** A short descriptive name associated with ADAMS menu and action screens. ADAMS screen mnemonics are listed alphabetically in *Appendix C* and on the *ADAMS Quick Reference Card*.

**modify permission:** A username that can delete or update an existing ADAMS database record has modify permission for that record. (see also *read permission* and *write permission*).

**multi-line field:** An ADAMS action or report screen field that has a single value that fits across multiple lines (see also *single line field, scrolling region, and paging region*).
Notebook: Online experimenter's or engineer's notebook that contains personal and project notes written during an experiment. The Notebook screen is discussed in Chapter 5. Notes can also be created from any menu by pressing $<.>_{KEYPAD}$ command to move to the Notebook screen, or outside the ADAMS system with the note command under VAX/VMS. See Chapter 2 for a discussion of ADAMS commands.

online: A computer program, database, or data file that is directly accessible to the computer user is said to be online (as contrasted with archived).

operating system: A set of programs that allow a number of users to share a computer's hardware and software resources (see also VAX/VMS).

operator: One or more special characters used to specify data record creation date limits for qualifying database retrieval. Search templates are discussed in Chapter 3. This term is also used to refer to a person who's responsible for monitoring a running computer system, mounting user tapes, etc.

optional: Describes an optional action screen field that can be filled out to qualify data record retrieval or entered on a new data record (see also mandatory).

ORACLE: A database management system at AIRLAB. The ADAMS system uses ORACLE to maintain its database file, but the ORACLE transactions are hidden from the user.

overstrike mode: Used to type over information already entered in an action screen field. Overstrike mode is discussed in Chapter 3 (see also insert mode).

page: A single terminal screen or portion of a terminal screen used for displaying data. Used as a verb, this term refers to the action of bringing up the next region of data for display on the screen.

paging region: An ADAMS action or report screen field that contains one or two values surrounded by brackets. To enter a paging region, press $<1>_{KEYPAD}$; to page through the region, use the arrow keys. (See also single line field, multi-line field, and scrolling region.)

password: A secret key used to access a VAX/VMS username.

permission: See read permission, modify permission, and write permission.

Personal Keywords: Identifiers defined by the individual ADAMS user to tag and later retrieve database records. The Personal Keywords screen is discussed
privilege: Refers to the level of access a username has been granted to a subset of the ADAMS database. ADAMS security is discussed in Chapters 2, 5, and 6 (see also data access, security validation, and group/project/system level).

Processed Data: A data set resulting from the processing of raw data (e.g., statistical analysis, data reduction). The Processed Data screen is discussed in Chapter 5.

Project: Associates ADAMS projects with individual groups. The Project screen is discussed in Chapter 6.


project leader: An ADAMS user who is responsible for one or more experiments under an AIRLAB project (see also system manager and group member).

project level: Security level that allows a user to deactivate and reactivate projects, define and undefine group keywords, and assign and deassign users to project groups. Project level security is discussed in Chapter 2 (see also group level, system level).

prompt: A message printed on the terminal screen requesting user input (see also cursor and field name).

qualified search: A limited retrieval of records from the ADAMS database based on a search template. Search templates are discussed in Chapter 3 (see also operator and template).

Raw Data: Provides information about unprocessed AIRLAB experimental data. The Raw Data screen is discussed in Chapter 5.

read permission: A username that can retrieve an existing ADAMS database record for browsing has read permission for that record (see also modify permission and write permission).

record: See database record.

regular keyboard: See keyboard and keypad.

report screen: An ADAMS screen that displays a retrieved data record from the database (see also action screen and menu screen).
reverse video: A way of highlighting text on a DEC computer terminal screen by displaying it in a different color background.

screen: See action screen, menu screen, or report screen.

scrolling region: An ADAMS action or report screen field that contains one or more lines of text surrounded by a box (see also single line field, multi-line field, and paging region).

security level: See group level, project level, or system level.

security validation: The process that the ADAMS system goes through in checking to see if a user has permission to access a data record. ADAMS security is discussed in Chapters 2, 5, and 6 (see also data access and group/project/system level).

session: A complete period of VAX/VMS and/or ADAMS work from logon to logoff.

shared database: A set of data that can be manipulated by several users simultaneously. The ADAMS database is discussed in Chapter 2.

single line field: An ADAMS action or report screen field that fits on a single line (see also multi-line field, scrolling region, and paging region).

software: The programs that run on a computer system (as opposed to the physical components that make up the system (see also hardware).

Software Archive: Tells what AIRLAB software has been archived and on which devices. The Software Archive screen is discussed in Chapter 5.

Software Configuration: Selected from a submenu under Configuration Management. Software installed or removed from AIRLAB's computer system.

Software Trouble Report: For reporting and viewing software bugs and fixes to them. The Software Trouble Report screen is discussed in Chapter 5.

status message: See diagnostic message.

storage media: Tapes, disks, or other devices used for storing data. See also Archive and Archive Medium.

string: A data field that contains upper and/or lower case characters, numbers, and special characters (as opposed to purely numeric data). An address or
name would be an example of a string.

submenu: A menu that appears as a result of choosing an option on another menu (see also menu and menu tree).

System 1: Refers to AIRLAB's DEC VAX 11/780 computer (see also AIRI).

system level: Security level that allows a user to access any data in the ADAMS system and grant access to ADAMS to other users. System level security is discussed in Chapter 2 (see also group level, project level).

system manager: An ADAMS user who is responsible for maintaining the ADAMS system, creating new projects, and validating new ADAMS users (see also project leader and group member).

table (ORACLE): Entries in an ORACLE database that satisfy a specific relation. See the ORACLE documentation for further information.

Technical Paper: Describes literature references used and generated during an AIRLAB experiment. The Technical Paper screen is discussed in Chapter 5.

template: An action screen whose fields are used to qualify a data record retrieval. Templates are discussed in Chapter 3 (see also operator and qualified search).

tree: See menu tree.

Update function: Modifies fields in existing ADAMS data records and replaces them in the database. The Update function is discussed in Chapter 3.

User: A user is someone who uses a computer to support his/her research. The User screen is discussed in Chapter 6; it associates ADAMS usernames with individual project groups.

user interface: See interface.

username: An account name used to get access to AIRLAB's VAX/VMS operating system (see also account, Logon, and Logoff).

validation: See security validation.

VAX/VMS: The operating system (see also operating system) for AIRLAB's DEC VAX 11/780 computer.
**Vendor Software:** Software purchased from non-AIRLAB vendors to support experiments. The Vendor Software screen is discussed in Chapter 5.

**working set:** The ADAMS database records retrieved as a result of a qualified or unqualified search (see also qualified search, operator, and template).

**write permission:** A username that can create a new ADAMS database record and add it to the database has write permission for that kind of record (see also modify permission and read permission).
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