

UNISYS

**ALLY®
Software
Development
Environment**

AMU User's Guide

Copyright © 1987 Unisys Corporation.
Unisys is a trademark of Unisys Corporation.
ALLY is a registered trademark of
Foundation Computer Systems, Inc.
Foundation Computer Systems is
a wholly owned subsidiary of Unisys Corporation.

Priced Item

April 1987
Printed in U.S.A.
UP-12506

NO WARRANTIES OF ANY NATURE ARE EXTENDED BY THE DOCUMENT. Any product and related material disclosed herein are only furnished pursuant and subject to the terms and conditions of a duly executed Program Product License or Agreement to purchase or lease equipment. The only warranties made by Unisys, if any, with respect to the products described in this document are set forth in such License or Agreement. Unisys cannot accept any financial or other responsibility that may be the result of your use of the information in this document or software material, including direct, indirect, special or consequential damages.

You should be very careful to ensure that the use of this information and/or software material complies with the laws, rules, and regulations of the jurisdictions with respect to which it is used.

The information contained herein is subject to change without notice. Revisions may be issued to advise of such changes and/or additions.

Preface

This manual describes the ALLY Application Maintenance Utilities (AMU) and explains how to use them.

An introductory chapter describes:

- the commands to use to access the AMU
- ways to make menu choices
- the anatomy of an AMU form
- data entry techniques
- the AMU help facility

Following the Introduction, each chapter corresponds to a specific part of the AMU:

- Chapter 2 The Main Menu
- Chapter 3 Security Information
- Chapter 4 Printer Information
- Chapter 5 Access Methods
- Chapter 6 Library AFILES
- Chapter 7 Auxiliary Utilities
- Chapter 8 Virtual Memory Buffers

This manual was written for users of applications developed with ALLY. Application developers should refer to the *Utilities User's Guide* for additional information about utilities and AFILE management.

Conventions

We use the following conventions in this manual:

- Single quotes (' ') Identify command names.
- Boldface type (bold)** Highlights text you are to enter. Boldface is also used within command syntax statements.
- Double quotes (" ") Identify text strings within text sections. These strings are typically located in examples or as part of the prompts that ALLY sends to your display.
- Sometimes the exact content of a text string is affected by the traditional rules of punctuation. In these cases, we place the closing quotation mark at the end of the text string. For example, instead of:
- You see the prompt "Macro number:."
- We say:
- You see the prompt "Macro number:"
- Open box (□) Represents the cursor position in display images.
- Angle brackets (<>) Enclose a specific key to be typed. Angle brackets are used in command syntax and key assignment lines. For example:
- <.> the "comma" key on the numeric keypad
 - <Return> the "Return" key
 - <Do> the "Do" key
 - <F18> the "function" key 18
 - <2> the "2" on the numeric keypad

End of Preface

Contents

Chapter 1. Introduction

Logon Procedure	1-2
Commands	1-3
Command Menu	1-3
Function and Keypad Keys	1-5
Menus	1-5
Making Menu Choices	1-6
Returning to the Main Menu	1-11
Forms	1-11
Moving Within a Form	1-13
Entering Information into the Fields of a Form	1-14
Confirming Data	1-15
Using a List of Values	1-16
Leaving a Form	1-18
Help Facility	1-19
Legends	1-19
On-Demand Messages	1-19
Error Messages	1-21
Summary of Commands	1-22

Chapter 2. The AMU Main Menu

Summary of Choices	2-2
--------------------------	-----

Chapter 3. Security Information

Security AFILE Items	3-3
Entering Information About Security Items	3-4
Entering Information about Passwords	3-5
Security for Global Information	3-6
Security for Menus	3-8
Security for Forms/Reports	3-9
Security for Fields in a Form/Report	3-10
Security for ADL	3-12
Security for External Programs	3-13
Security Retries	3-14
Return to Main Menu	3-14

Chapter 4. Printer Information

Global Printer Information	4-1
Entering Information	4-2
Form/Report Printer Files	4-3
Entering Information	4-3

Chapter 5. Access-Method File Names

Fixed Sequential Data Source Definitions	5-1
Entering Information	5-2

Chapter 6. Library AFILE Names

Help AFILE	6-2
Error AFILE	6-3

Chapter 7. Auxiliary Utilities

Terminal Definer Utility	7-1
Entering Information	7-2
Building the Terminal Description File	7-4
Printer Definer Utility	7-4
Entering Information	7-4
Building the Printer Description File	7-5
Data Migrator Utility	7-5
Data Migrator Utility Options	7-7
Entering Information	7-8
Macro Utility	7-8
Compiling a Macro	7-9
Entering Information	7-9
Decompiling a Macro	7-10
Entering Information	7-10

Chapter 8. Number of Virtual Memory Buffers

Entering Information	8-1
----------------------------	-----

Figures

1-1	Main Menu of the Command Menus	1-4
1-2	The Two Menu Levels of the AMU	1-5
1-3	Using Key Word to Make a Menu Choice	1-7
1-4	Using Minimal Match to Make a Menu Choice	1-8
1-5	Using Menu Paths	1-10
1-6	The Parts of a Form	1-12
1-7	AMU Form with Cursor in Confirmation Field	1-15
1-8	Using a List of Values	1-17
1-9	Fields and Records	1-18
2-1	Main Menu: Application Maintenance Utilities	2-1
2-2	Main Menu Choices	2-2
3-1	Security AFILE Items	3-2
3-2	Security Information	3-3
3-3	Security AFILE Item	3-4
3-4	Security for Global Information	3-6
3-5	Security for Menus	3-8
3-6	Security for Forms/Reports	3-9
3-7	Security for Fields in a Form/Report	3-10
3-8	Subform for Field Security	3-11
3-9	Security for ADL	3-12
3-10	Security for External Programs	3-13
3-11	Security Retries	3-14
4-1	Printer Information	4-1
4-2	Global Printer Information	4-2
4-3	Form/Report Printer Files	4-3
5-1	Access-Method File Names	5-1
5-2	Fixed Sequential Data Source Definitions	5-2
6-1	Library AFILE Names	6-1
6-2	Help AFILE	6-2
6-3	Error AFILE	6-3

7-1 Auxiliary Utilities	7-1
7-2 Terminal Definer Utility	7-2
7-3 Printer Definer Utility	7-4
7-4 Sample Text Description of Data from a DSD	7-6
7-5 Data Migrator Utility	7-7
7-6 Running the Macro Utility to Compile a Macro	7-9
7-7 Running the Macro Utility to Decompile a Macro	7-10
8-1 Number of Virtual Memory Buffers	8-1

Tables

1-1 Case Sensitivity	1-14
7-1 Terminal Definer Options	7-3
7-2 Data Migrator Utility Options	7-7

Chapter 1

Introduction

With the ALLY Application Maintenance Utilities (AMU) you can tailor your application AFILE (Application Characteristics File) to the configuration of your computer system.

Specifically, the AMU allows you to:

- change security information and specify the number of times users of the application can retry a password before being given a security violation. The security information you can change controls access to the whole application as well as any protected menus, specific forms/reports, individual fields of forms/reports, ALLY Development Language (ADL) procedures, and external programs.
- change the printers, print output files, and spooling device the application will be using.
- change the names of data source files referenced by your application's fixed sequential Data Source Definitions.
- change the names of library AFILES. This allows you to change the names of existing message AFILES to suit any local conventions.
- run auxiliary utilities. These include utilities to build files that describe the terminal and printer on which your application can run. They also include a utility to compile and decompile a file of executable macros, and a utility to convert the data from your application to a text description file.
- change the number of virtual memory buffers assigned to your application.

Your interface to the AMU consists of menus and forms. The menus allow you to select the utilities you want to use. The forms allow you to provide information specific to a utility. You use menu, form, and text editing commands to move among menus and forms. You also use these commands to add, delete, and modify information.

In addition, the AMU provides three kinds of online information to aid you during your AMU session. These are legends, help messages, and error messages.

All of these components of the AMU are discussed in the following sections.

Logon Procedure

The distributor of your ALLY application has provided an operating-system command file for you to use in logging onto the AMU. Although each operating system calls for slightly different input, the general procedure begins with the cursor on the operating-system prompt line. Then:

Type: The AMU operating-system command filename, followed by **<Return>**

Response: At the bottom of your display will appear the prompt "Enter the name of the AFILE you want to change:"

Comment: Your ALLY distributor has provided you with the name of the AFILE that contains your application. Type that name here.

If the AFILE you name requires a password for access, you will be prompted at the bottom of the display with "Enter the password for this AFILE:".

Once you have correctly typed the password, followed by **<Return>**, the AMU welcome banner appears on the display.

Commands

In the AMU, you use a variety of commands to move the cursor among menus and forms and to add, delete, and modify information. You can invoke these commands in one of two ways:

- Command Menus
- function and keypad keys

Command Menus

First, you can invoke any of these commands from the ALLY Command Menus. When you need to invoke a command, type <Do> and the *Main Menu* of the Command Menus will appear in the lower third of the display, as shown in Figure 1-1. Then make choices on the various menus until you reach the name of the command that you need. Next, type the appropriate menu choice number and the command will be executed. At the same time, the command menu will disappear from the display and the cursor will return to the active area of the form or menu in which you are working.

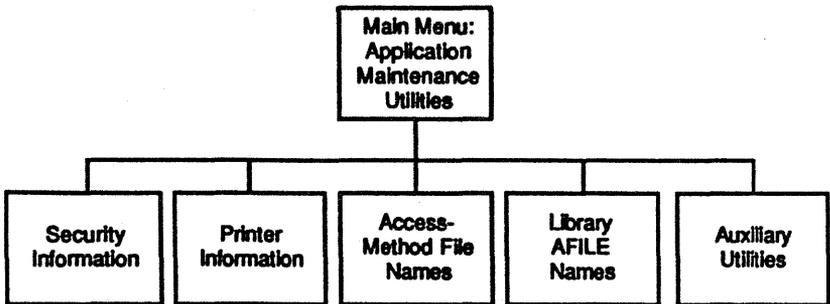
Function and Keypad Keys

The second way to execute many ALLY commands is to type a function key or numerical keypad key. The 'help' command, for example, is one that can be executed in this way. Refer to the *Quick Reference* to see which ALLY commands are pre-assigned to your terminal. You will also find that many text editing commands can be executed from function keys or the numerical keypad.

You will find more information about ALLY commands in the *ALLY Command Reference Manual*.

Menus

The AMU includes two levels of menus. The first level is the main menu, while the second consists of five secondary menus, as shown in Figure 1-2.



F002-0047-01

Figure 1-2. The Two Menu Levels of the AMU

Making Menu Choices

The AMU allows you to make menu choices by number, word, minimal match, or cursor roam. The following table summarizes these ways to make menu choices.

To Make a Menu Choice:	
From Menu	
Cursor Position:	Type:
Prompt line	Number of the choice <Return>
Prompt line	Entire underlined word <Return>
Prompt line	Prefix of at least two letters of underlined word <Return>
Highlighted roam area	<Return>

Pick by Number

The easiest way to make a menu choice is to type the choice number on the prompt line, followed by <Return>.

Pick by Word

Another way to make a menu choice is to type on the prompt line the entire key word, which is indicated on the menu by underscoring. Then type <Return>. Figure 1-3 shows how this would look if you wanted to modify printer information.

Main Menu	
Application Maintenance Utilities	
1) Modify security	5) Choose auxiliary utilities
2) Modify printer information	6) Modify number of virtual memory buffers
3) Modify access method file names	7) Display an introductory help message
4) Modify library AFILE names	8) Edit main menu
Your choice: <u>printer</u>	

F002-0270-01

Figure 1-3. Using Key Word to Make a Menu Choice

Pick by Minimal Match

If you prefer, you can type on the prompt line a prefix consisting of at least the first two letters (or as many as it takes to make your entry unique) of the word underscored in your menu choice. Then type <Return>. Figure 1-4 shows how this would look if you wanted choice 3 of the *Main Menu*.

Main Menu	
Application Maintenance Utilities	
1) Modify security	5) Choose auxiliary utilities
2) Modify printer information	6) Modify number of virtual memory buffers
3) Modify access method file names	7) Display an introductory help message
4) Modify library AFILE names	8) Exit main menu
Your choice: <input type="text" value="ac"/>	

F002-0271-01

Figure 1-4. Using Minimal Match to Make a Menu Choice

Pick by Cursor Roam

You can also make menu choices by moving your cursor to the choice you want. When you invoke a menu in the AMU, the cursor appears on the prompt line. The 'first area' and 'last area' commands move the cursor to the first and last choices on the menu. When the cursor is not on the prompt line, you can move it from choice to choice in the menu by using the 'previous area' and 'next area' commands. The menu choice the cursor is on is highlighted in reverse video. On most terminals, the cursor direction arrows are assigned to these commands.

To make a menu choice using the cursor roam technique, simply move the cursor to the choice you want and type <Return>.

Using Menu Paths

The menu-path technique that you can use to move the cursor among command menus is also available for quick access to the menus and forms of the AMU.

As you learn your way around the AMU, you may want to go directly from the *Main Menu* to a particular form accessed through a secondary menu. To do so, enter the *Main Menu* choice on the prompt line, followed by <Space>, then the number of the choice on the secondary menu.

For example, after you have used the AMU a few times, you will probably remember that to modify security information for your application you need to select choice 1 of the *Main Menu*. You may also remember that to modify security information for forms/reports you need to select choice 4 of the *Security Information* menu.

To move directly to the *Security for Forms/Reports* form from the *Main Menu*, bypassing the *Security Information* menu, type your choice on the *Main Menu* prompt line as follows and as shown in Figure 1-5.

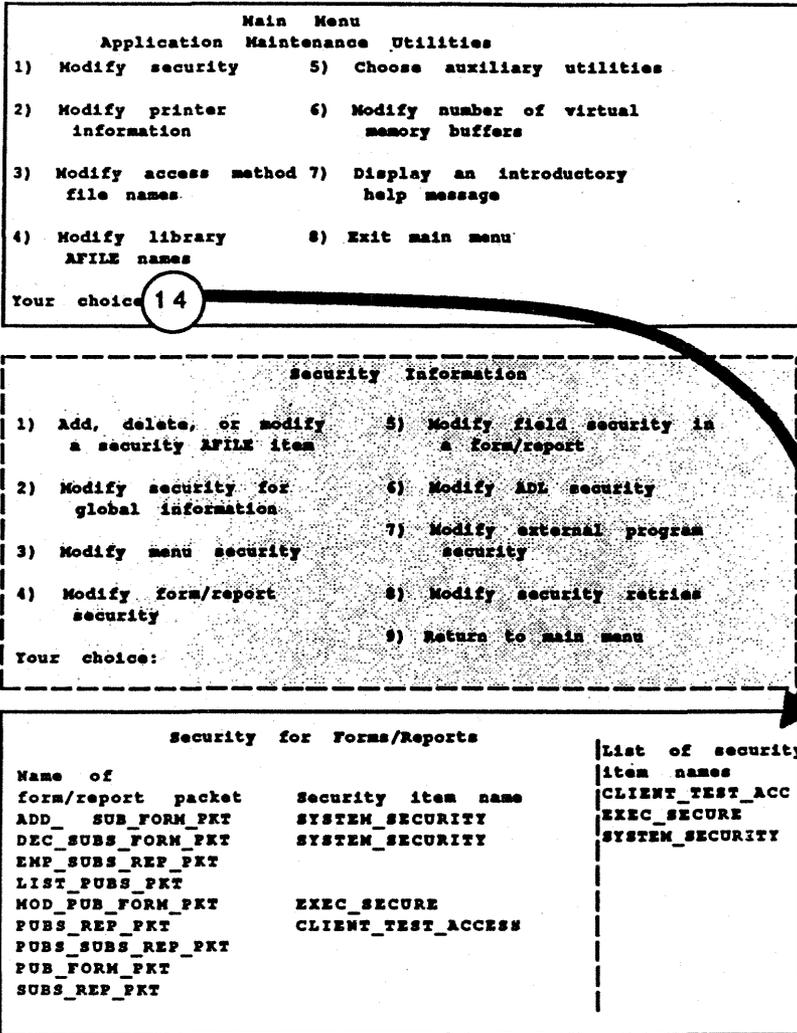
Your choice: **1<Space>4<Return>**

You can achieve the same result by using word, minimal match, or number choice in any combination. For example:

1<Space>form<Return>

or

se<Space>4<Return>



F002-0048-01

Figure 1-5. Using Menu Paths

Returning to the Main Menu

All second-level menus of the AMU offer as their final choice "Return to main menu." When you make this choice, the cursor moves directly to the *Main Menu*.

Another way to move to the *Main Menu* is to type "up<Return>" or "top<Return>" on the prompt line of the menu where the cursor is located.

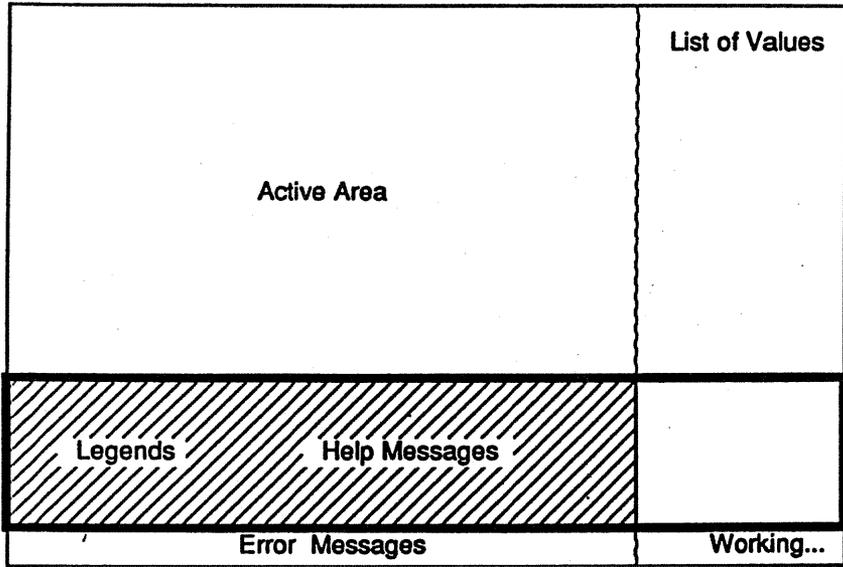
Forms

The forms that you access from the menus of the AMU are designed to give you three kinds of information.

As shown in Figure 1-6, the upper-left side of the display is reserved for the form itself. The lower third, running the entire horizontal length of the display, is reserved for help and error messages provided by the system, and for automatic help messages called legends. It is also used by the Command Menus.

The right third of the display, running the entire vertical length of the display, is reserved for "lists of values." The word "working..." flashes in the lower-right corner of the display whenever the AMU takes longer than a few seconds to execute an action.

Because these areas overlap, information of one type will sometimes temporarily overlay information of another type.



F002-0049-01

Figure 1-6. The Parts of a Form

Moving Within a Form

In all of the forms of the AMU, you can move the cursor from field to field with the 'previous field' and 'next field' commands. On most terminals, these are the up-arrow and down-arrow keys. Other form/report cursor commands that you can use to control the cursor within a form are:

First field	Last display area
Last field	Next display area
Next field	Previous display area
Previous field	Delete current record
First record	Insert record after
Last record	Insert record before
Next record	Insert first record in next group
Previous record	Move to list of values
First display area	Pick from list of values

Refer to the *Quick Reference* to see how to invoke these commands.

Entering Information into the Fields of a Form

Case Sensitivity

An AFILE item name in lowercase or a combination of uppercase and lowercase letters must be entered into a field *exactly* as represented in the AFILE.

Table 1-1. Case Sensitivity

AFILE Item	Form Field	Valid?
order_entries	order_entries	Yes
ORDER_entries	order_entries	No
Order_Entries	Order_entries	No
ORDER_ENTRIES	ORDER-ENTRIES	No

Scrolling

Information that you type into the fields of a form can be longer than the space provided on your display. You can see information that exceeds the length provided by using 'right' and 'left' commands to scroll the text into view.

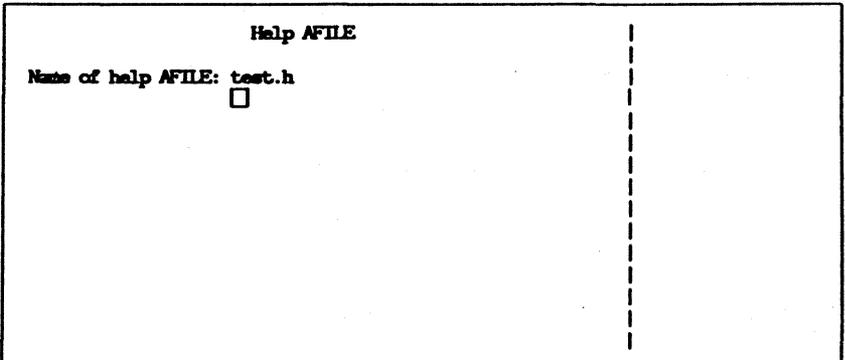
As you will see, not all fields on a form are required each time you use one of the utilities.

Error Messages

If your input to a field is invalid, an error message appears at the bottom of the display. To clear the error message, type <Return>.

Confirming Data

Every form of the AMU has a confirmation field. You will know that the cursor is in a confirmation field when it rests on a line not occupied by an input field. A legend advising you of your option to exit or abort also appears. Figure 1-7 provides an example.



```

                Help AFILE
Name of help AFILE: test.h
                □

```

Figure 1-7. AMU Form with Cursor in Confirmation Field

The cursor moves to the confirmation field after it leaves the last input field for a form. If the information on the display is correct, use the 'exit action' command. However, if the information is not what you want, you can use the 'first field' command to return the cursor to the first field of the form. You can also use the 'abort action' command to return to the previous menu without committing any of your input.

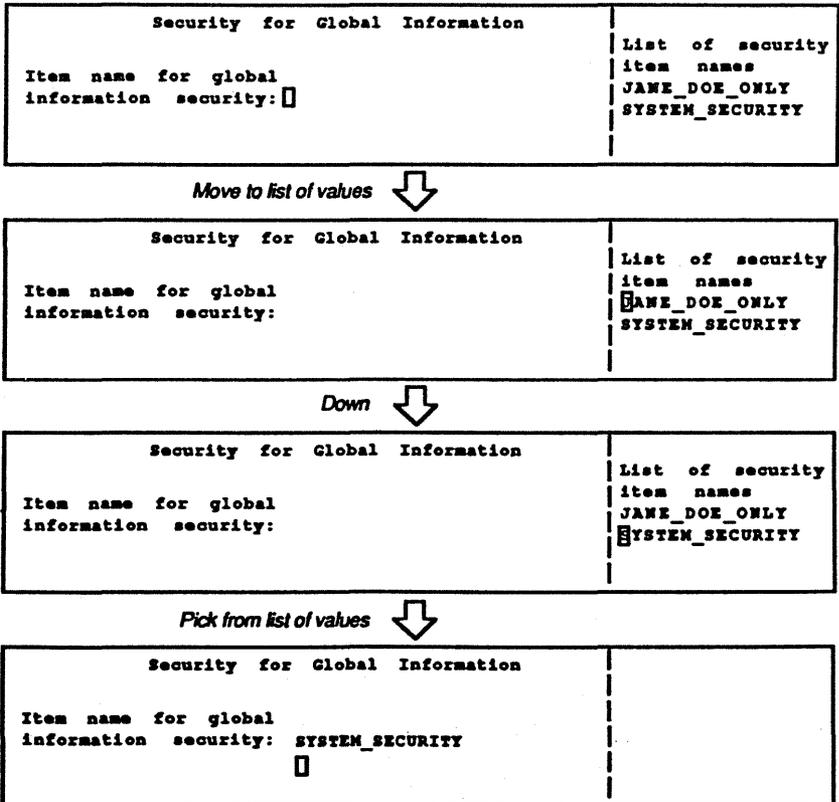
Using a List of Values

Lists of values save typing time and keep you from putting invalid data into the forms of the AMU.

In the AMU, a list of values includes all valid entries for the related field. Whenever a list of values appears on the display, you can make an entry into the field in one of two ways:

- Type an entry, using the list of values as a reminder of the values that are valid for the field.
- Use the 'move to list of values' command to move the cursor to the top of the list of values. Next, use the 'next record' command to move the cursor to the value you want to enter into the field. (If the list of values is longer than the space allocated for it on the display, the list will scroll upward, one "page" at a time, with each use of the 'next area' command.) Then, use the 'pick from list of values' command. The value you have selected will be entered to the appropriate field and the cursor will return to the active area of the form in which you are working.

In the form represented in Figure 1-8, the cursor is in the field for "Item name for global information security" and the list of values represents all valid security item names.



F002-0050-02

Figure 1-8. Using a List of Values

Parts of a list of values may be temporarily covered up when the system displays a help message. When you remove the help message from the display (by typing <Return>), the list of values appears again in its entirety.

Leaving a Form

You can leave a form in one of two ways:

- 1) Exit action
- 2) Abort action

These two ways of leaving a form commit (save) information differently. The amount of information committed depends upon the position of the cursor in a record.

A record consists of a group of logically related fields. In Figure 1-9, for instance, each name of a security AFILE item represents a field, and each password represents a field. A record here consists of a name and the password assigned to it.

Security AFILE Item	
Name of security AFILE item	Password
CLIENT_TEST_ACCESS	OpnN
EXEC_SECURE	PDQ436H
SYSTEM_SECURITY	PASSWORD

Figure 1-9. Fields and Records

If you use the 'abort action' command before the cursor leaves the last field of a record, none of your entries to the fields of that record are committed. However, changes you make to any records that you leave by typing <Return> or by inserting a new record, will be committed, even if you later use the 'abort action' command.

On the other hand, when you use the 'exit action' command, all of the data you enter to the form is committed, no matter where the cursor is located in a record.

Help Facility

The AMU provides two different sources of help as you work:

- Automatic help messages, called legends
- On-demand help messages

Legends

Some help messages appear automatically when you move the cursor to the fields of forms. These automatic help messages are called legends, and they disappear when the cursor leaves the field or form to which they are relevant.

Legends provide information you will find useful for filling out forms. They will also remind you of the exit and abort options available.

On-Demand Messages

On-demand help messages provide additional information about fields and forms. In addition, most messages tell you something about the kind of entry a field will accept and default values that may be assigned to the field.

You can access the help facility for the AMU by using the 'help' command. If the cursor is in a form when you invoke the 'help' command, the help message displayed will apply to that form and all of its fields.

If the cursor is in a menu when you invoke 'help', the message that appears at the bottom of the display will be relevant to the menu and all of its choices.

If the cursor is in a help message when you invoke 'help', the message that appears describes the help facility and how to make menu choices.

How to Use On-Demand Help Messages

When a help message initially appears on the display, you will see only its first eight lines. These lines summarize information about the field, the form, the menu, or the entire AMU. They also contain the following note:

```
+-----+
|To return to the applica- |
|  tion, type <Return>.   |
|To see the rest of this  |
|  message, use 'down page'.|
|For more help, use 'help'. |
+-----+
```

Some additional commands you can use to move around within a help message are these:

- Use the 'explode window' command to see a full 24 lines of the help message.
- Use the 'up page' command to move toward the beginning of the message.
- Use the cursor movement commands to move up and down within the text of the help message.
- Use the 'find' command to search for a particular menu choice or field name in the message.

To Exit From a Help Message

You can exit from a help message in two ways.

- Type <Return> to move the cursor back to the application. This deactivates the help message. To see the help message again, follow the procedure outlined above.
- Use the 'toggle task' command to return the cursor to the application. This keeps the help message available, no matter where in the application you are. To return to the help message, use the 'toggle task' command again.

Error Messages

Many error messages are also built into the AMU. These appear automatically in the bottom two lines of your display whenever you type invalid or incomplete information. For example, if you use the 'next field' command when the cursor is in the last field of a form, you will get the following message:

```
You tried to move to the next or last field of the report.  
The cursor is already in the last enterable field of the report.
```

The text of error messages is usually two lines long. On a third line, which is not visible when the message first appears on the display, is an error number. If you are asked for this number by your system manager or ALLY distributor, type the 'down' command to reveal the number.

To clear an error message from the display, type <Return>.

Summary of Commands

To:	From Cursor Position:	Type:
Choose menu option	Prompt line	Number of choice <Return>
	Prompt line	First two letters of underlined word in the menu choice <Return>
	Highlighted roam area	<Return>
Get help	Menu choice or form field	<Help>
Exit from a help or error message	The message	<Return>
Move cursor among fields	A form field	Field, record, & display area commands
Move cursor into list of values (LOV)	Form field	'move to list of values' command
Copy value from LOV to form field	LOV	'pick from list of values' command
Abort action	Any place	'abort action' command
Exit form with update	A form field	'exit action' command

End of Chapter 1

Chapter 2

The AMU Main Menu

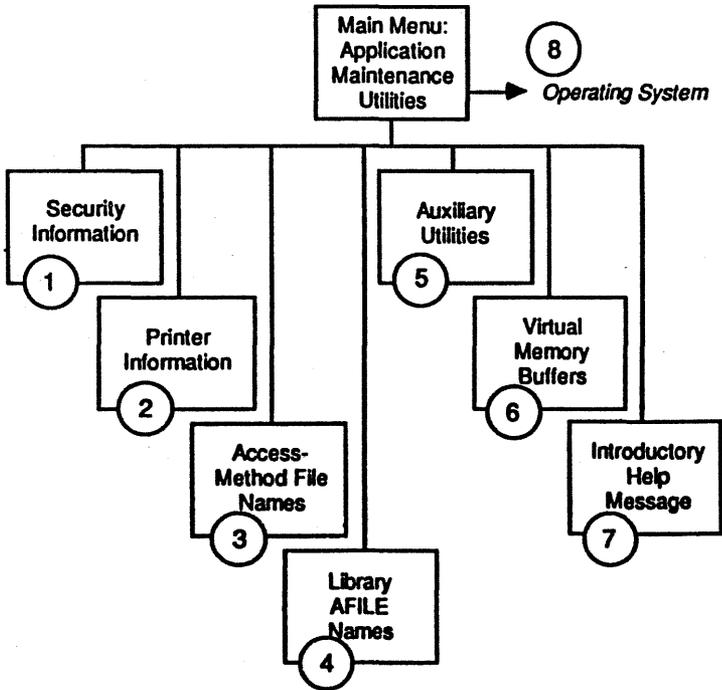
When you type <Return> to leave the Application Maintenance Utilities welcome banner, the *Main Menu* for the AMU appears on the display, as in Figure 2-1.

Main Menu Application Maintenance Utilities	
1) Modify security	5) Choose auxiliary utilities
2) Modify printer information	6) Modify number of virtual memory buffers
3) Modify access method file names	7) Display an introductory help message
4) Modify library AFILF names	8) Exit main menu
Your choice:	

Figure 2-1. Main Menu: Application Maintenance Utilities

Summary of Choices

Figure 2-2 shows the choices available from the *Main Menu* of the Application Maintenance Utilities.



F002-0273-01

Figure 2-2. Main Menu Choices

The first five choices give you access to secondary menus.

Choice 6 of the *Main Menu* invokes a form on which you can modify the number of virtual memory buffers assigned to your application.

Choice 7 invokes a help message that describes the Application Maintenance Utilities, tells you how to make menu choices, and describes the help facility.

Choice 8 takes you out of the Application Maintenance Utilities and returns control to the operating system.

End of Chapter 2

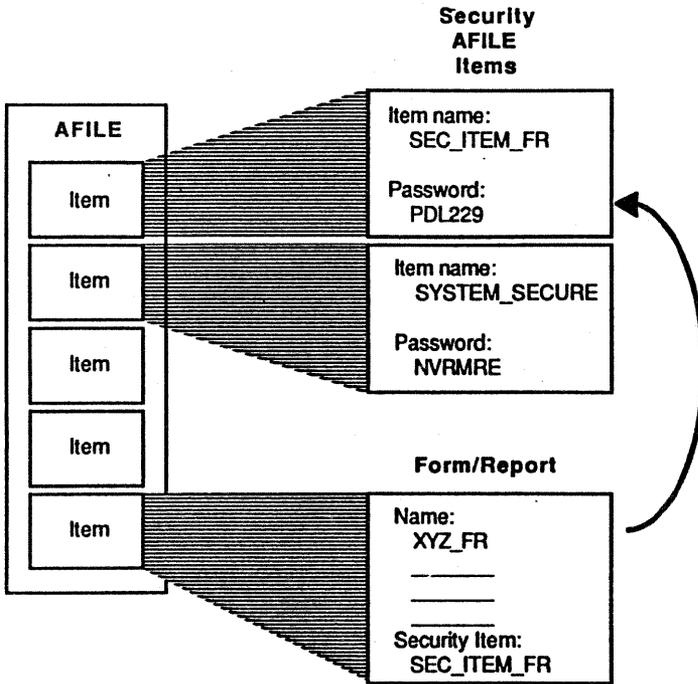
Chapter 3

Security Information

The AMU allows you to control the security of your application at several levels.

Your ALLY application is stored in an AFILE—short for Application Characteristics File. The AFILE is made up of many AFILE items, each of which describes a different characteristic of the application.

Among those characteristics are specific security items, each with its own name. Each security item can have one password and can be assigned to one or more other AFILE items in the application. Figure 3-1 illustrates this structure.



F002-0054-01

Figure 3-1. Security AFfile Items

Common reasons for modifying security information for an application are to:

- create new security items
- change passwords for security items
- assign passwords to security items
- assign security items to any of the parts of your application

- specify the number of times users can try to enter security information

When you pick choice 1 from the *Main Menu*, the display will show the menu for modifying security information, as in Figure 3-2.

Security Information	
1) Add, delete, or modify a security AFILE item	5) Modify field security in a form/report
2) Modify security for global information	6) Modify ADL security
3) Modify menu security	7) Modify external program security
4) Modify form/report security	8) Modify security retries
	9) Return to main menu
Your choice:	

Figure 3-2. Security Information

The choices available from this menu are discussed below.

Security AFILE Items

When you pick choice 1 from the *Security Information* menu, you invoke the form for adding, deleting, and modifying security AFILE items, as shown in Figure 3-3.

Security AFILE Item	
Name of security AFILE item	Password
CLIENT_TEST_ACCESS	Open
EXEC_SECURE	FDQ43GH
SYSTEM_SECURITY	PASSWORD

Figure 3-3. Security AFILE Item

The names we have entered under the columns for "Name of security AFILE item" and "Password" are examples and will not match the actual items that appear on the display the first time you access this form.

When this form appears on the display, the cursor is in the first field, under the column heading "Name of security AFILE item."

Entering Information About Security Items

Add Security Item

Move the cursor to any field and use the 'insert record before' or the 'insert record after' command. Then type a security AFILE item name and password in the appropriate fields. You may add as many new records to this form as you need.

If no security items have been defined when you access this form, the cursor will be in the confirmation field. To insert security AFILE items, use the 'insert first record in next group' command.

Delete Security Item

Use the 'delete record' command to remove a security item. If you mistakenly use the 'delete line' or 'delete character' command, you will receive an error message telling you that you have left blank a field that requires a valid item name.

NOTE: Do not try to delete a security item while it is still assigned to another menu, form/report, or AFILE item. If you do, you will get an error message.

Modify Security Item

Use text editing commands to modify any security item name.

Entering Information about Passwords

A password can be added, deleted, or modified for any item that is defined in the left column of the *Security AFILE Item* form. However, you cannot create a password for a security item that does not exist.

You may assign the same password to more than one security item. You may also leave some security items without a password. This means that no password checking will be done for the AFILE item that is connected to this security item.

Security for Global Information

Choice 2 of the *Security Information* menu allows you to assign a security AFILE item to the global information of your ALLY application.

The password that you assign to the security item for global information will be the password required for logging onto the AFILE with the AMU. To limit runtime access to the ALLY application, you will need to assign a security AFILE item and password to the main menu of the application or to any other application entry point. In other words, global security protects the application from AMU modification, while menu, form/report, and other levels of security protect it from unauthorized use.

To make it possible to logon to the AFILE without specifying a password, be sure that the field for "Item name for global information security" is blank.

The form for modifying security for this global information looks like Figure 3-4.

Security for Global Information	
Item name for global information security: SYSTEM_SECURITY	List of security item names CLIENT_TEST_ACCESS EXEC_SECURE SYSTEM_SECURITY

Figure 3-4. Security for Global Information

NOTE: If the security AFILE item you want to assign to global security does not exist, take these steps to create it:

- 1) Leave this form with the 'abort action' command.
- 2) Select choice 1 of the *Security Information* menu to invoke the form entitled *Security AFILE Item*.
- 3) Add the new security AFILE item, along with a password for the item. If no items exist when you access the form, use the 'insert first record in next group' command.
- 4) Exit from the form.
- 5) Select choice 2 of the *Security Information* menu to invoke the form entitled *Security for Global Information*.
- 6) Assign the new security AFILE item.

Use the 'move to list of values' command to move the cursor into the list of security items. Then use the 'next record' and 'previous record' commands, and the other form/report cursor movement commands to move the cursor to the item that you need. Then, use the 'pick from list of values' command to copy the security item to the field.

If you prefer, you can simply type into the field the name of the security AFILE item you want to assign to global information.

Security for Menus

Choice 3 of the *Security Information* menu allows you to assign security items to the menus of your ALLY application.

When the form appears on the display, it will look much like Figure 3-5.

Security for Menus	
Name of menu	Security item name
MAIN_MENU	CLIENT_TEST_ACCESS
SUBS_REP_MENU	EXEC_SECURE
	SYSTEM_SECURITY

Figure 3-5. Security for Menus

The left column of this form lists the menus of your application. The distributor of your application has created and named the menus that appear in this list and the AMU does not allow you to change these names.

The "List of security item names" includes all valid security items that can be assigned to the various menus.

For each menu to which you want security assigned, type the name of a valid security AFILE item. Or, use the 'move to list of values' and 'pick from list of values' commands to select an item from the list.

Security for Forms/Reports

Choice 4 of the *Security Information* menu allows you to assign security AFILE items to any form/report packet of your ALLY application.

A form/report packet consists of a form/report plus a set of characteristics that govern invocation and use of that form/report. For example, an application might have a form/report referenced by two different packets. The first packet might cause the initial mode of the form/report to be "insert" while the second packet might cause the initial mode to be "query by example."

When the form for modifying form/report security appears on the display it will look much like Figure 3-6.

Security for Forms/Reports		
Name of form/report packet	Security item name	List of security item names
ADD_SUB_FORM_PKT	SYSTEM_SECURITY	CLIENT_TEST_ACCESS
SUBS_FORM_PKT	SYSTEM_SECURITY	EXEC_SECURE
EMP_SUBS_REP_PKT		SYSTEM_SECURITY
LIST_SUBS_PKT		
MOD_FUB_FORM_PKT	EXEC_SECURE	
FUBS_REP_PKT	CLIENT_TEST_ACCESS	
FUBS_SUBS_REP_PKT		
FUB_FORM_PKT		
SUBS_REP_PKT	CLIENT_TEST_ACCESS	

Figure 3-6. Security for Forms/Reports

When the form appears on the display, the cursor is in the first record under the column heading "Security item name." Add a security item for each form/report packet that you want secured. Do this either by typing in a security item name or by copying one from the list of values.

Remember, you may leave form/report packets unsecured if you wish.

Security for Fields in a Form/Report

Choice 5 of the *Security Information* menu allows you to assign a security AFILE item to any field of any form/report. While it is unlikely that you will need such extensive security, you may find it useful to assign security to at least some fields of some forms/reports.

When you pick choice 5, a form appears, as in Figure 3-7, allowing you to name a form/report whose fields you want secured.

Security for Fields	
Form/report name:	List of
	form/reports
	ADD_SUB_FORM
	SUBS_FORM
	LIST_PUBS
	MOD_PUB_FORM
	PUBS_REP
	PUBS_SUBS_REP
	PUB_FORM
	SUBS_REP

Figure 3-7. Security for Fields in a Form/Report

Type the name of the first form/report that contains fields you want secured. As usual, you can either type the name into the field or copy it from the list of values by using the 'move to list of values' and 'pick from list of values' commands.

When you have specified a form/report name, type <Return> and another form appears on the display, listing all fields of the specified form/report, as in Figure 3-8.

Security for Fields		
Form/report name: ADD_SUB_FORM		
Name of form/report field	Security item name	List of security item names
CC_NAME	CLIENT_TEST_ACCESS	CLIENT_TEST_ACCESS
CC_NUMBER		EXEC_SECURE
DOCLIN1		SYSTEM_SECURITY
DOCLIN2	SYSTEM_SECURITY	
DOCLIN3		
EMP_CC	SYSTEM_SECURITY	
EMP_LOC		

Figure 3-8. Subform for Field Security

For any of the fields listed, specify a security AFILE item from the list on the right side of the display.

Once you have assigned security to all form fields that you want secured, use the 'exit action' command to return to the *Security Information* menu.

If you want to secure fields on other forms, select choice 5 and repeat the process described above.

Security for ADL

Choice 6 of the *Security Information* menu allows you to assign a security AFILE item to any ADL (ALLY Development Language) procedures that are part of your application. When you assign a password to an ADL procedure, an application user will have to type the password each time the procedure executes.

When you pick choice 6, a form, much like that in Figure 3-9, appears on the display.

Security for ADL		List of security item names
ADL item name	Security item name	
CHECK_EMPNAME_ADL		CLIENT_TEST_ACCESS
DATE_VAL_1_ADL		EXEC_SECURE
DATE_VAL_2_ADL		SYSTEM_SECURITY
DATE_VAL_3_ADL		
DATE_VAL_4_ADL		
DOCLIN1_ADL		
DOCLIN2_ADL		
DOCLIN3_ADL		
FREQ_2_VAL_ADL		
FREQ_3_VAL_ADL		
FREQ_VAL_ADL		

Figure 3-9. Security for ADL

Names of ADL procedures that are part of your ALLY application will be present. You cannot modify this list.

For each ADL item, you can assign a security item name from the list of values.

As usual, you can leave an ADL procedure unsecured simply by not specifying a security item for it.

Security for External Programs

Choice 7 of the *Security Information* menu allows you to assign a security AFILE item to any external program that is part of your ALLY application.

External programs include any programming code that the developer of your ALLY application has built into the application.

The form, as it appears on the display, will look something like Figure 3-10.

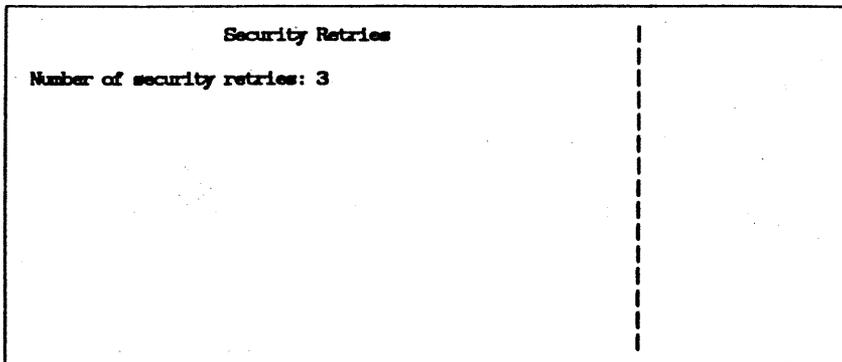
Security for External Programs		
Item name for external program	Security item name	List of security item names
BROADCAST		CLIENT_TEST_ACCESS
HILLARY_UC		EXEC_SECURE
		SYSTEM_SECURITY

Figure 3-10. Security for External Programs

Add security to any of these items by assigning a security AFILE item from the list in the right column of the display.

Security Retries

Choice 8 of the *Security Information* menu invokes a form that allows you to specify the number of times (after the first time) that you want users to be allowed to try to access the secured parts of the application. See Figure 3-11.



The screenshot shows a window titled "Security Retries". Inside the window, the text "Number of security retries: 3" is displayed. A vertical dashed line is positioned to the right of the text, likely indicating a cursor or a field boundary.

Figure 3-11. Security Retries

Type any number in the range of 0 to 65535. Then use the 'exit action' command to return to the *Security Information* menu.

Return to Main Menu

Choice 9 of the *Security Information* menu returns you to the *Main Menu* of the AMU.

End of Chapter 3

Chapter 4

Printer Information

Choice 2 of the *Main Menu* for the Application Maintenance Utilities allows you to name different printer description files, print output files, and spooling devices for your application. It is also the means by which you can assign the forms/reports of the application to different print output files. See Figure 4-1.

<p style="text-align: center;">Printer Information</p> <ol style="list-style-type: none">1) Modify global printer information2) Modify form/report printer file3) Return to main menu <p>Your choice:</p>

Figure 4-1. Printer Information

Global Printer Information

Pick choice 1 of the *Printer Information* menu to access the form for specifying information about the printer files and spooling device you want to assign to the application as a whole. As shown in Figure 4-2, the form for specifying global printer information has three fields that you must fill in.

If you specify a spooling device but no output file, whatever you want printed goes directly to the printer assigned. If you specify an output file but no spooling device, what you want printed goes only to the file and each successive print command overlays that file with the newly printed information. In either case, you must specify a printer description file.

Global Printer Information	
Name of output file:	printfile
Printer description file:	DEFAULT
Printer spooling device:	spool_file

Figure 4-2. Global Printer Information

Entering Information

- 1) Name of output file: Type the name of the file to which you want print output sent.
- 2) Printer description file: Type the name of the file that contains the character mapping information for your printer.
- 3) Printer spooling device: Type the name of the device or routine your operating system uses to buffer or queue the print requests you make.

NOTE: For all fields of this form, be sure that the names you enter are accurate and compatible with your operating system. ALLY does not validate this information for you.

Form/Report Printer Files

Choice 2 of the *Printer Information* menu invokes a form on which you can assign different forms/reports to different print output files. A sample of this form appears in Figure 4-3.

Form/Report Printer Files	
Name of form/report packet	Name of printer file
ADD_SUB_FORM_PKT	
SUBS_FORM_PKT	
EMP_SUBS_REP_PKT	
LIST_SUBS_PKT	
MOD_FUL_FORM_PKT	
FUESS_REP_PKT	
FUESS_SUBS_REP_PKT	
FUEL_FORM_PKT	
SUBS_REP_PKT	

Figure 4-3. Form/Report Printer Files

NOTE: If you do not specify a print output filename for any of the forms/reports of your ALLY application, the printer description filename you specified on the *Global Printer Information* form will serve as the default.

In the left column of this form is a list of all of the form/report packets that are part of your ALLY application. Since you cannot change form/report packet names, the cursor will not enter these fields.

Entering Information

- **Name of printer file:** Type the name of the print output file for each form/report that you want assigned to a printer file. Any form/report packet that is not assigned its own printer file is automatically assigned to the global printer file.

End of Chapter 4

Chapter 5

Access-Method File Names

Choice 3 of the *Main Menu* invokes the menu shown in Figure 5-1.

Access-Method File Names

- 1) **Modify fixed sequential Data Source Definition**
- 2) **Return to main menu**

Your choice:

Figure 5-1. Access-Method File Names

You will need to access this menu only if fixed sequential files provide the data for your ALLY application.

Fixed Sequential Data Source Definitions

Choice 1 invokes a two-column form, as shown in Figure 5-2.

Fixed Sequential Data Source Definition	
Data Source Definition	Name of fixed file
COST_CENTER	ccs
EMP	emps
PUBS	pubs
SUBS	subs

Figure 5-2. Fixed Sequential Data Source Definitions

The first field in each record displayed on this form is one that you cannot alter.

Entering Information

- **Name of fixed file:** Type the name of the data file that is referenced by the fixed sequential Data Source Definition that appears in the left column. Then type <Return> to go on to the next, or use the 'exit action' command to save your changes and leave this display.

Keep in mind that ALLY does not verify that the filenames you provide are valid for your operating system.

End of Chapter 5

Chapter 6

Library AFILE Names

The legends and help messages for your ALLY application can be stored in an AFILE separate from the application itself. The error messages for your application can also be stored in a separate, or *library* AFILE.

Choice 4 of the *Main Menu* allows you to change the names of the AFILES that contain the help and error messages for your application. Some of the reasons you might want to change these names are as follows:

- to allow for foreign-language help and error messages
- to reflect changes in filenaming conventions on your system or to reflect changes your system administrator makes in the ALLY installation

When you pick choice 4 of the *Main Menu*, the menu entitled *Library AFILE Names* appears, as shown in Figure 6-1.

Library AFILE Names

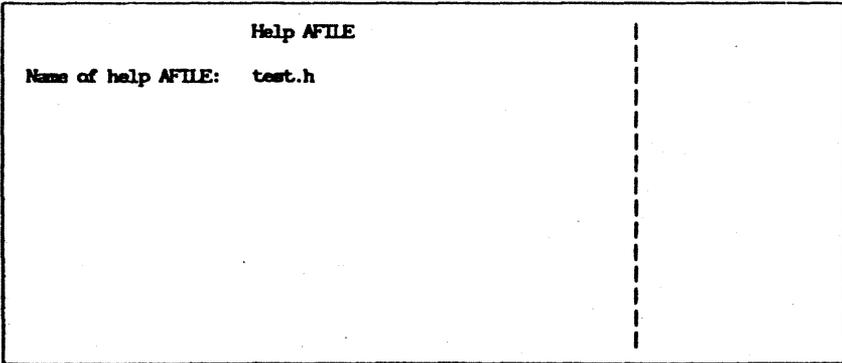
- 1) **Modify name of help AFILE**
- 2) **Modify name of error AFILE**
- 3) **Return to main menu**

Your choice:

Figure 6-1. Library AFILE Names

Help AFILE

Choice 1 of the *Library AFILE Names* menu invokes the form on which you can change the name of your help AFILE, as shown in Figure 6-2.



The screenshot shows a rectangular window titled "Help AFILE". Inside the window, there is a label "Name of help AFILE:" followed by the text "test.h". A vertical dashed line is positioned to the right of the text, likely indicating the end of the input field.

Figure 6-2. Help AFILE

Use text editing commands to change the name of the help AFILE.

Chapter 7

Auxiliary Utilities

Choice 5 of the *Main Menu* gives you access to ALLY's auxiliary utilities. These include utilities for building printer and terminal description files, a utility for converting data that is stored in your application to text form, and a utility for compiling and decompiling ALLY macro files. The menu in Figure 7-1 displays the six choices available.

Auxiliary Utilities	
1) Run the Terminal Definer	5) Decompile an ALLY Macro
2) Run the Printer Definer	6) Move to previous menu
3) Run the Data Migrator	
4) Compile an ALLY Macro	

Your choice:

Figure 7-1. Auxiliary Utilities

Terminal Definer Utility

Choice 1 of the *Auxiliary Utilities* menu invokes the form shown in Figure 7-2.

Terminal Definer Utility	
Name of format file:	
Description file to build:	
Name of terminal:	
Name of key definition file:	
Name of termdef file:	
Edit conflict checking:	

Figure 7-2. Terminal Definer Utility

Entering Information

- 1) **Name of format file:** This is the Format File that is part of your ALLY software. Your system manager or ALLY distributor can provide this information.
- 2) **Description file to build:** Specify a name for the file that will contain a terminal's character mapping information. This name must be compatible with the naming conventions of your operating system.
- 3) **Name of terminal:** Type the ALLY mnemonic from the termdef file that identifies the terminal for which you are building this description file. Your system manager or ALLY distributor can provide this information.
- 4) **Name of key-definition file:** Type the name of the file that specifies the key-to-command assignments for the terminal named above. Your system manager or ALLY distributor can provide this information.
- 5) **Name of termdef file:** Type the name of the file that lists your terminal's capabilities. Your system manager or ALLY distributor can provide this information.

- 6) **Edit conflict checking:** Type <Return> to accept the default level of checking for conflicts in commands assigned to keys in the key-definition file. By default, the command assignment for every key is compared to the assignment for each key in the global sections.

Type "Y<Return>" to display the subform that lists the levels of conflict checking. Type "X" in the field of a level that you want to select. Table 7-1 describes these levels.

Table 7-1. Terminal Definer Options

Option	Action
Every set of global keys	Compare each key in the key-definition file for conflicts with the keys assigned in the two global keys sections
Other sets of keys	Compare every key in the key-definition file with every other key in that file for a conflict in assignment
Other keys in the same set	Compare each key in the key-definition file with other keys in the same section for a conflict in assignment
Do no conflict checking	Compare no keys in the key-definition file for conflicts in assignment

Building the Terminal Description File

When you exit from the confirmation field of this form, the cursor will move to the lower-left corner of the display while ALLY builds the terminal description file from the components you have listed. When the file has been built, the cursor will return to the *Auxiliary Utilities* menu.

Printer Definer Utility

Choice 2 of the *Auxiliary Utilities* menu invokes the form shown in Figure 7-3.

Printer Definer Utility

Name of format file:

Description file to build:

Name of printer:

Name of printdef file:

Figure 7-3. Printer Definer Utility

Entering Information

- 1) Name of format file: This is the Format File that is part of your ALLY software. Your system manager or ALLY distributor can provide this information.
- 2) Description file to build: Specify a name for the encoded file you want ALLY to build. This name must be compatible with the naming conventions of your operating system.

- 3) Name of printer: Type the ALLY mnemonic from the printdef file that identifies the printer for which you are building this description file. Your system manager or ALLY distributor can provide this information.
- 4) Name of printdef file: Type the name of the file that lists the capabilities of the printer for which you are building the description file. Your system manager or ALLY distributor can provide this information.

Building the Printer Description File

When you exit from the confirmation field of this form, the cursor will move to the lower-left corner of the form while ALLY builds the printer description file from the components you have listed. When the file has been built, the cursor returns to the *Auxiliary Utilities* menu.

Data Migrator Utility

Choice 3 of the *Auxiliary Utilities* menu invokes the form you use to run the Data Migrator.

The Data Migrator performs these operations:

- | | |
|--------------|--|
| Text writing | Translates the data that is stored in your application into a text description file |
| Text reading | Produces or appends the data from a text description file to the data that is stored in your application |

Figure 7-4 shows an example of the text file that is produced by the Data Migrator in its text writing operation. The parts of a Data Migrator description are labeled and explained in the paragraphs that follow the example.

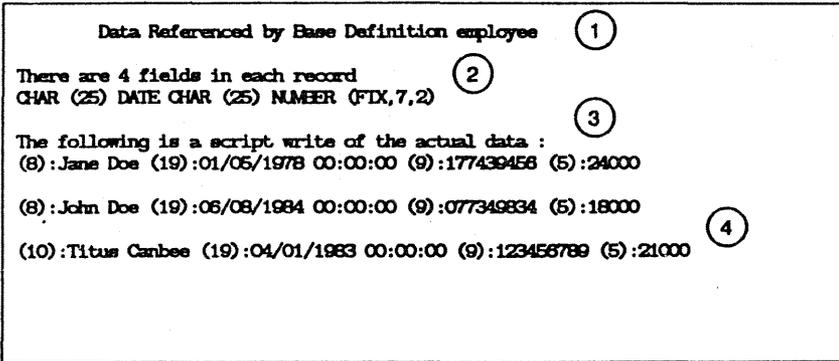


Figure 7-4. Sample Text Description of Data from a DSD

The Data Migrator description contains:

- 1) A header indicating the source of the data (the Base DSD name).
- 2) The number of fields in a record and the attributes of each field.
- 3) A number within parentheses that precedes each field value and tells the Data Migrator the number of characters to read at a time.
- 4) The text description of the actual data.

In the text reading operation, the Data Migrator can process a text file and produce a dataset, file, or table in the database. The Data Migrator does not examine any of the access-method-dependent file or field AFILE items. Therefore, it cannot provide status on the existence or compatibility of an output data file.

For a fixed sequential data file, this output file has the name that is specified in the access-method-dependent structures of the Base DSD. If the file already exists and is fixed sequential in the same record format, the new records are appended. If the file exists but is not fixed sequential, or the record format differs, the resultant output file may be corrupted.

Data Migrator Utility Options

The two Data Migrator options are described in Table 7-2.

Table 7-2. Data Migrator Utility Options

Option	Action
Read the text file	Creates or inserts data from a text file into a dataset, file, or table in an access method
Write the text file	Creates a text file from a data file referenced by an AFILE's Base DSD

As shown in Figure 7-5, the Data Migrator utility requires five items of information.

ALLY Data Migrator Utility

Name of format file:

Name of AFILE containing the Data Source Definition:

Password for AFILE:

Name of Data Source Definition:

Name of output data file:

Figure 7-5. Data Migrator Utility

Entering Information

- 1) Name of format file: This is the format file that is part of your ALLY software. Your system manager or ALLY distributor can provide this information.
- 2) Name of AFILE containing Data Source Definition: Type the name of the AFILE that contains the Data Source Definition whose data you want translated to a text file.
- 3) Password for AFILE: Type the password needed to logon to the AFILE. If no password has been assigned for logon to the AFILE, type <Return>.
- 4) Name of Data Source Definition: Type the name of the Data Source Definition whose data you want migrated to a text file.
- 5) Name of output data file: Specify a name for the file that will contain the text description of the data. After exiting from this field, the cursor will move to a subform that displays the options for the Data Migrator. Type "X<Return>" in the field of the option you select.

When you exit from this form, the cursor will move to the lower-left corner of the form while the Data Migrator runs. To return to the *Auxiliary Utilities* menu without running the Data Migrator, use the 'abort action' command.

Macro Utility

If you have ALLY on multiple environments, you can use the Macro Utility to move macro files among the environments.

Compiling a Macro

Choice 4 of the *Auxiliary Utilities* menu invokes the form shown in Figure 7-6.

ALLY Macro Utility—Compile a Macro

Name of format file:

Name of input file:

Name of output file:

Figure 7-6. Running the Macro Utility to Compile a Macro

Entering Information

- 1) Name of format file: This is the Format File that is part of your ALLY software. Your system manager or ALLY distributor can provide this information.
- 2) Name of input file: Type a name for the file built by the Macro Utility that contains the ASCII text version of an ALLY macro file.
- 3) Name of output file: Specify a name for the file that will contain the executable macro(s).

When you exit from the confirmation field of this form, the cursor will move to the lower-left corner of the display while the Macro Utility runs. When the macro file has been compiled, the cursor returns to the *Auxiliary Utilities* menu.

Decompiling a Macro

Choice 5 of the *Auxiliary Utilities* menu invokes the form shown in Figure 7-7.

ALLY Macro Utility—Decompile a Macro

Name of format file:

Name of input file:

Name of output file:

Figure 7-7. Running the Macro Utility to Decompile a Macro

Entering Information

- 1) Name of format file: This is the Format File that is part of your ALLY software. Your system manager or ALLY distributor can provide this information.
- 2) Name of input file: Type the name of a file that contains the executable version of an ALLY macro.
- 3) Name of output file: Specify a name for the file that will contain the ASCII text version of the macro.

When you exit from the confirmation field of this form, the cursor will move to the lower-left corner of the form while the Macro Utility runs. When the macro has been decompiled, the cursor will return to the *Auxiliary Utilities* menu.

End of Chapter 7

Chapter 8

Number of Virtual Memory Buffers

Choice 6 of the *Main Menu* accesses the form shown in Figure 8-1.

Your system manager or ALLY distributor can provide information about virtual memory buffers and your operating system.

Number of VM buffers	
Number of virtual memory buffers: 300	

Figure 8-1. Number of Virtual Memory Buffers

Two virtual memory buffers are the equivalent of 1k (1024 bytes) of memory. In general, the more virtual memory buffers you assign, the less often data will have to be written to and read from disks.

Entering Information

- Number of virtual memory buffers: Type a number between 1 and 65535.

End of Chapter 8

Index

- Access-method file names 5-1
- Add security item 3-4
- ADL 3-12
- ALLY
 - application error messages 6-1
 - application help messages 6-1
 - Command Menus 1-3
 - Development Language 3-12
- Angle brackets p-2
- Automatic help messages 1-19
- Auxiliary utilities 7-1

- Boldface p-2
- Buffers, virtual memory 2-2, 8-1

- Case sensitivity 1-14
- Clearing an error message 1-21
- Command Menus 1-3
- Commands 1-3
- Commit 1-18
- Conflict checking, level of 7-3
- Conventions p-2
- Cursor box p-2
- Cursor movement commands 1-20

- Data Migrator options 7-7
 - read text file 7-7
 - write text file 7-7
- Data Migrator utility 7-1, 7-5
- Decompile a macro 7-10
- Delete security item 3-5
- Directory pathnames, changes in 6-1
- Do no conflict checking 7-3
- Double quotes p-2

- Eliminating password for AFILE logon 3-6
- Error AFILE 6-1
- Error messages 1-2, 1-21, 6-1
 - foreign language 6-1
- Error number 1-21
- Every set of global keys 7-3

- Exiting from a form 1-18
- Exiting from a help message 1-21
- Explode window 1-20
- External programs, security for 3-13

- Find 1-21
- Foreign-language help
 - and error messages 6-1
- Form/report packet names 4-3
- Form/report packets 3-9
- Forms 1-2

- Global information, security for 3-6
- Global printing information 4-1

- Help AFILE 6-1
- Help command 1-5
- Help facility 1-20
- Help messages 1-2, 6-1
 - foreign language 6-1

- Key-definition file 7-2

- Last field of a record 1-19
- Legends 1-2, 1-19
- Level of conflict checking 7-3
- Library AFILE Names 6-1
- Lists of values 1-16
- Logging onto an AFILE 3-6

- Macro utility 7-1, 7-8
- Macro, decompiling 7-10
- Main menu 1-5, 2-1
- Menu paths 1-4, 1-9
- Menus 1-2
 - help facility choice 2-3
 - main 2-1
 - secondary 2-2
 - security for 3-8
- Modify
 - ADL security 3-12
 - AFILE items 3-3

- field security 3-10
- form/report security 3-9
- security items 3-5

- On-demand help messages 1-19
- Open box p-2
- Options,
 - Data Migrator 7-7
 - do no conflict checking,
 - Terminal Definer 7-3
 - every set of global keys,
 - Terminal Definer 7-3
 - other keys in same set,
 - Terminal Definer 7-3
 - other sets of keys,
 - Terminal Definer 7-3
 - read text file, Data Migrator 7-7
 - write text file, Data Migrator 7-7
- Other keys in the same set 7-3
- Other sets of keys 7-3

- Passwords 3-2
- Pathnames, changes in 6-1
- Print output files 4-1
- Printdef file 7-5
- Printer Definer utility 7-1
- Printer description files 4-1

- Read text file 7-7
- Retries 3-14
- Running the Macro Utility,
 - Compile 7-9
 - Decompile 7-10

- Secondary menus 1-5
- Security 3-1
 - add security item 3-4
 - assign security items 3-2
 - assigning passwords 3-2
 - delete security items 3-5
 - external programs 3-13
 - global information 3-6
 - items 3-2
 - menus 3-8
 - modify
 - ADL security 3-12
 - field security 3-10
 - form/report security 3-9
 - security items 3-5
 - security AFILE items 3-3
 - retries 3-14
- Single quotes p-2
- Spooling devices 4-1

- Termdef file 7-2
- Terminal Definer,
 - do no conflict checking 7-3
 - every set of global keys 7-3
 - other keys in same set 7-3
 - other sets of keys 7-3
- Terminal Definer utility 7-1
- Text editing commands 1-5
- Toggle task 1-21

- Up page 1-20
- Utilities,
 - auxiliary 7-1
 - Data Migrator 7-1
 - Macro 7-1
 - Printer Definer 7-1
 - Terminal Definer 7-1

- Virtual memory buffers 2-2, 8-1

- Write text file 7-7