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INTEGRATED INFORMATION SUPPORT SYSTEM (IISS) VOLUME 8

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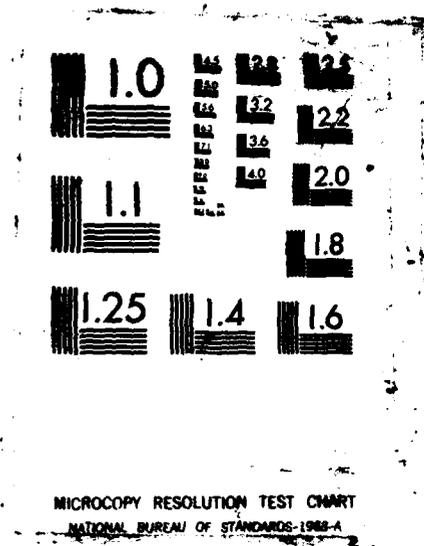
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**AFWAL-TR-86-4006
Volume VIII
Part 1**

AD-A182 536



**INTEGRATED INFORMATION
SUPPORT SYSTEM (IISS)
Volume VIII - User Interface Subsystem
Part 1 - Terminal Operator's Guide**

**General Electric Company
Production Resources Consulting
One River Road
Schenectady, New York 12345**

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November 1985**

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PREPARED FOR:

**MATERIALS LABORATORY
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This report has been reviewed by the Office of Public Affairs (ASD/PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.



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5 Aug 1986

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FOR THE COMMANDER:



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7 Aug 86

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) This manual describes how to operate the terminal when running an IISS application program. The IISS Terminal is an input and output device that uses a keyboard and screen to communicate with the computer. Communication between the user and the computer is achieved through electronic forms displayed on the screen. The application program displays and manipulates the forms through a set of routines called the Form Processor. The Form Processor is linked to the user's terminal via the Virtual Terminal Interface (VTI) and a specific Device Driver (DD). This removes terminal dependency so that applications may be run from a wide variety of terminals. In addition to describing the operation of the IISS terminal, this manual describes the IISS end user environment. Function selection and predefined functions called the User Interface Services (UIS) are described.			
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Vol VIII - User Interface Subsystem
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PREFACE

This operator's manual covers the work performed under Air Force Contract F33615-80-C-5155 (ICAM Project 6201). This contract is sponsored by the Materials Laboratory, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Gerald C. Shumaker, ICAM Program Manager, Manufacturing Technology Division, through Project Manager, Mr. David Judson. The Prime Contractor was Production Resources Consulting of the General Electric Company, Schenectady, New York, under the direction of Mr. Alan Rubenstein. The General Electric Project Manager was Mr. Myron Hurlbut of Industrial Automation Systems Department, Albany, New York.

Certain work aimed at improving Test Bed Technology has been performed by other contracts with Project 6201 performing integrating functions. This work consisted of enhancements to Test Bed software and establishment and operation of Test Bed hardware and communications for developers and other users. Documentation relating to the Test Bed from all of these contractors and projects have been integrated under Project 6201 for publication and treatment as an integrated set of documents. The particular contributors to each document are noted on the Report Documentation Page (DD1473). A listing and description of the entire project documentation system and how they are related is contained in document FTR620100001, Project Overview.

The subcontractors and their contributing activities were as follows:

TASK 4.2

<u>Subcontractors</u>	<u>Role</u>
Boeing Military Aircraft Company (EMAC)	Reviewer.
D. Appleton Company (DAGOM)	Responsible for IDEF support, state-of-the-art literature search.
General Dynamics/ Ft. Worth	Responsible for factory view function and information models.

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1 November 1985

<u>Subcontractors</u>	<u>Role</u>
Illinois Institute of Technology	Responsible for factory view function research (IITRI) and information models of small and medium-size business.
North American Rockwell	Reviewer.
Northrop Corporation	Responsible for factory view function and information models.
Pritsker and Associates	Responsible for IDEF2 support.
SofTech	Responsible for IDEFO support.

TASKS 4.3 - 4.9 (TEST BED)

<u>Subcontractors</u>	<u>Role</u>
Boeing Military Aircraft Company (EMAC)	Responsible for consultation on applications of the technology and on IBM computer technology.
Computer Technology Associates (CTA)	Assisted in the areas of communications systems, system design and integration methodology, and design of the Network Transaction Manager.
Control Data Corporation (CDC)	Responsible for the Common Data Model (CDM) implementation and part of the CDM design (shared with DACOM).
D. Appleton Company (DACOM)	Responsible for the overall CDM Subsystem design integration and test plan, as well as part of the design of the CDM (shared with CDC). DACOM also developed the Integration Methodology and did the schema mappings for the Application Subsystems.

Subcontractors

Role

Digital Equipment Corporation (DEC)

Consulting and support of the performance testing and on DEC software and computer systems operation.

McDonnell Douglas Automation Company (McAuto)

Responsible for the support and enhancements to the Network Transaction Manager Subsystem during 1984/1985 period.

On-Line Software International (OSI)

Responsible for programming the Communications Subsystem on the IBM and for consulting on the IBM.

Rath and Strong Systems Products (RSSP) (In 1985 became McCormack & Dodge)

Responsible for assistance in the implementation and use of the MRP II package (PIOS) that they supplied.

SofTech, Inc.

Responsible for the design and implementation of the Network Transaction Manager (NTM) in 1981/1984 period.

Software Performance Engineering (SPE)

Responsible for directing the work on performance evaluation and analysis.

Structural Dynamics Research Corporation (SDRC)

Responsible for the User Interface and Virtual Terminal Interface Subsystems.

Other prime contractors under other projects who have contributed to Test Bed Technology, their contributing activities and responsible projects are as follows:

<u>Contractors</u>	<u>ICAM Project</u>	<u>Contributing Activities</u>
Boeing Military Aircraft Company (EMAC)	1701, 2201, 2202	Enhancements for IBM node use. Technology Transfer to Integrated Sheet Metal Center (ISMC).

<u>Contractors</u>	<u>ICAM Project</u>	<u>Contributing Activities</u>
Control Data Corporation (CDC)	1502, 1701	IISS enhancements to Common Data Model Processor (GDMP).
D. Appleton Company (DACOM)	1502	IISS enhancements to Integration Methodology.
General Electric	1502	Operation of the Test Bed and communications equipment.
Hughes Aircraft Company (HAC)	1701	Test Bed enhancements.
Structural Dynamics Research Corporation (SDRC)	1502, 1701, 1703	IISS enhancements to User Interface/Virtual Terminal Interface (UI/VTI).
Systran	1502	Test Bed enhancements. Operation of Test Bed.

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SECTION 1

INTRODUCTION

This manual describes how to operate the terminal when running an Integrated Information Support System (IISS) application program. The IISS Terminal is an input and output device that uses a keyboard and screen to communicate with the computer. Communication between the user and the computer is achieved through electronic forms displayed on the screen. The application program displays and manipulates the forms through a set of routines called the Form Processor. The Form Processor is linked to the user's terminal via the Virtual Terminal Interface (VTI) and a specific Device Driver (DD). This removes terminal dependency so that applications may be run from a wide variety of terminals. In addition to describing the operation of the IISS terminal, this manual describes the IISS end user environment. Function selection and some predefined functions called User Interface Services (UIS) are described.

1.1 How To Use This Manual

Expected users of this manual include:

persons running application software

programmers testing or debugging new application software

programmers writing application software using the interactive text edit mode

Programmers may wish to use this document as the basis of the User's Manual for their applications software. Places where application specific information could be incorporated include:

Document any programmable function keys used in the Application Mode section.

Replace the generic function keys with the actual keys on the user's terminal. Include a diagram of the terminal keyboard layout.

In the Scroll/Page mode, document which arrays are scrollable and explain the counter item if one exists on the user's terminal.

SECTION 2

DOCUMENTS

2.1 Reference Documents

- [1] Structural Dynamics Research Corporation, User Interface Services Development Specification, DS 620144100B, 1 November 1985.
- [2] Systran, ICAM Documentation Standards, ICAM Document IDS 150120000C, 15 September 1983.

This manual is one of a set of user manuals that together describe how to operate in the IISS User Interface environment. The complete set consists of the following manuals listed here for reference:

- [1] Structural Dynamics Research Corporation, IISS Form Editor User Manual, UM 6201444400B, 1 November 1985.

Explains how to define and maintain electronic forms. It is intended to be used by programmers writing application programs that use the Form Processor.

- [2] Structural Dynamics Research Corporation, IISS Form Processor User Manual, UM 620144200B, 1 November 1985.

Describes the set of callable execution time routines available to an application program to process electronic forms. It is intended to be used by programmers writing application programs for the IISS environment.

- [3] Structural Dynamics Research Corporation, IISS Terminal Operator Guide, OM 620144000, 1 November 1985.

Explains how to operate the generic IISS terminal when running an IISS application program. The IISS end user environment, function selection and some predefined applications are also described.

- [4] Structural Dynamics Research Corporation, IISS Text Editor User Manual, UM 620144600B, 1 November 1985.

Explains how to use the file editing functions including: inserting, deleting, moving and replacing text.

- [5] Structural Dynamics Research Corporation, IISS Rapid Application Generator User Manual, UM 620144502 , 1 November 1985.

Describes the Application Definition Language and the process used for translating textual definitions of interactive database applications into programs that access selected data base information resident in the Common Data Model. This information is accessible through the IISS Neutral Data Manipulation Language.

- [6] Structural Dynamics Research Corporation, IISS Report Writer User Manual, UM 620144501 , 1 November 1985.

Describes the Report Definition Language and the process of creating a hard copy report of selected data base information resident in the Common Data Model. This information is accessible through the IISS Neutral Data Manipulation Language.

- [7] Structural Dynamics Research Corporation, IISS Virtual Terminal User Manual, UM 620144300B, 1 November 1985.

Explains the program callable interface to the IISS Virtual Terminal. The callable routines, Virtual Terminal commands and the implementation of additional terminals are described. It is intended for application and system programmers working in the IISS environment.

2.2 Terms and Abbreviations

Application Process: (AP), a cohesive unit of software that can be initiated as a unit to perform some function or functions.

Cursor Position: the position of the cursor after any command is issued.

Device Drivers: (DD), software modules written to handle I/O for a specific kind of terminal. The modules map terminal specific commands and data to a neutral format. Device Drivers are part of the UI Virtual Terminal.

Field: two-dimensional space on a terminal screen.

Form: structured view which may be imposed on windows or other forms. A form is composed of fields. These fields may be defined as forms, items, and windows.

Form Processor: (FP), subset of the IISS User Interface that consists of a set of callable execution time routines available to an application program for form processing.

IISS Function Screen: the first screen that is displayed after logon. It allows the user to specify the function he wants to access and the device type and device name on which he is working.

Integrated Information Support System: (IISS), a test computing environment used to investigate, demonstrate and test the concepts of information management and information integration in the context of Aerospace Manufacturing. The IISS addresses the problems of integration of data resident on heterogeneous data bases supported by heterogeneous computers interconnected via a Local Area Network.

Item: non-decomposable area of a form in which hard-coded descriptive text may be placed and the only defined areas where user data may be input/output.

Logical Device: a conceptual device which to an application is indistinguishable from a physical device and is then mapped to part or all of a physical device.

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Message: descriptive text which may be returned in the standard message line on the terminal screen. They are used to warn of errors or provide other user information.

Message Line: a line on the terminal screen that is used to display messages.

Network Transaction Manager: (NTM), IISS subsystem that performs the coordination, communication and housekeeping functions required to integrate the Application Processes and System Services resident on the various hosts into a cohesive system.

Page: instance of forms in windows that are created whenever a form is added to a window.

Paging and Scrolling: a method which allows a form to contain more data than can be displayed with provisions for viewing any portion of the data buffer.

Physical Device: a hardware terminal.

User Interface: (UI), IISS subsystem that controls the user's terminal and interfaces with the rest of the system. The UI consists of two major subsystems: the User Interface Development System (UIDS) and the User Interface Management System (UIMS).

User Interface Management System: (UIMS), the runtime UI. It consists of the Form Processor, Virtual Terminal, Application Interface, the User Interface Services and the Text Editor.

User Interface Services: (UIS), subset of the IISS User Interface that consists of a package of routines that aid users in controlling their environment. It includes message management, change password, and application definition services.

User Interface/Virtual Terminal Interface: (UI/VTI), another name for the User Interface.

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Virtual Terminal: (VT), subset of the IISS User Interface that performs the interfacing between different terminals and the UI. This is done by defining a specific set of terminal features and protocols which must be supported by the UI software which constitutes the virtual terminal definition. Specific terminals are then mapped against the virtual terminal software by specific software modules written for each type of real terminal supported.

Virtual Terminal Interface: (VTI), the callable interface to the VT.

Window: dynamic area of a terminal screen on which predefined forms may be placed at run time.

Window Manager: a facility which allows the following to be manipulated: size and location of windows, the device on which an application is running, the position of a form within a window. It is part of the Form Processor.

SECTION 3

USING THE IISS TERMINAL

To understand the functions required, you need to understand how to communicate with the application software. You do this through forms that are displayed on the screen. You use the keyboard to enter information on the form and to send the completed form to the application software for processing. Information is also returned to you on a form on the screen. This information may include: the next form that you need to fill out, messages about how the process is proceeding, and help in filling out the form. You can use the keyboard functions to display the messages or help on the screen. If the information on the form is stacked in pages, or if it is partly obscured by other processes running simultaneously on the screen, you can use the keyboard to manipulate the display. This allows you to enter or to read information.

Your part in this communication can be summarized as two kinds of tasks that you want to perform.

One task is entering and viewing information on the form. To assist you in this task, the terminal operates in several modes which include: text edit, window manager, and scroll/page. You select the mode you want and the current mode is displayed in the lower right corner of the screen. Each mode contains several specialized functions for the more sophisticated manipulation of the screen. In addition, there are basic, frequently used functions which are called the general functions that are always available, regardless of which mode the keyboard is in.

The other task is instructing the application software to process the information, display the help or messages, or to return to the previous step in the process without processing the form. These control functions are also always available regardless of the keyboard mode.

You perform the general functions using the standard keyboard keys available on most terminals. The control functions and the mode dependent functions use the programmable function keys. They have been given the numbers PF0 through PF20 and also a descriptive name, for example HELP or QUIT. The actual key (or keys) you press to perform the function on a specific terminal is shown in the terminal mapping charts.

All the available functions are described in this section of the manual. The general functions are first, then the control functions and then the mode dependent functions.

3.1 General Function Keys

This section describes the general function keys. The control keys and the mode dependent keys are described next. You use the general functions when you are entering information on a form. They allow you to move the cursor around the form, change your input and refresh the screen.

All the keys described here are standard keyboard keys and are on all terminals unless otherwise noted.

Move Cursor

to beginning of line	CR	Press the RETURN key to move the cursor to the left margin of the current line.
to next input field	TAB	Press the TAB key to move the cursor to the next input field.
to previous input field	ESC TAB	Press the ESC key followed by the TAB key to move the cursor to the previous input field.
to next character	UP	Press the UP ARROW key to move the cursor to the character above.
	DOWN	Press the DOWN ARROW key to move the cursor to the character below.
	LEFT	Press the LEFT ARROW key to move the cursor to the character to the left.
	RIGHT	Press the RIGHT ARROW key to move the cursor to the next character to the right.

Change Input

Overstrike/ Insert Mode	ESC DEL	Press the <ESC> key followed by the key to toggle between the overstrike and insert modes. In overstrike mode, the character in the cursor position is overwritten by any character that you type in. In insert mode, characters you type in are inserted at the cursor position and the existing character set is moved one space to the right.
Delete character	DELETE	Position the cursor on the character you want to delete and press the <DELETE> key.
Delete to end of field	ESC LF	Position the cursor on the first character you want to delete and press the <ESC> key followed by the <LINE FEED> key. This deletes all the characters from the cursor position to the end of the field.
delete all data	CTRL/L	Press the <CTRL> key and L at the same time to clear all input fields.
<u>Refresh screen</u>		
refresh	CTRL/R	Press the <CTRL> key and R at the same time to redisplay the screen. This may be used to eliminate any extraneous characters or messages that have appeared on the screen but are not part of the currently displayed form.

3.2 Control Keys

The control keys are the programmable function keys PFO through PF4. They also have a descriptive name, for example <HELP> or <QUIT>. The actual key (or keys) you press to perform the function is shown in the terminal mapping charts. Take care to distinguish between keyboard and keypad keys.

You use these keys to: send a filled form to the application software for processing, change mode, display help, read your messages, quit the current activity.

- PF0 <ENTER> Sends the current screen back to the application program for processing.
- PF1 <MODE> Press this key to move between the available keyboard modes. The current mode is shown in the lower right corner of the terminal screen.
- PF2 <HELP> To get help for entering an item, position the cursor in the item field and press the <HELP> key. You will get information about the item or an explanation of what you should enter in the item. Help can appear as another form, a single line message in the current form's message line, or as defined by the application program. If the cursor is not positioned in an item field when you press <HELP>, you will get a message that help is not available.
- PF3 <MESSAGE
 QUEUE> Press this key to access your messages. Each message is identified by a message number. If the number of the message currently displayed in the message line is greater than 1, you know you have several messages.
When several applications are running simultaneously on the screen, position the cursor anywhere within the application window and press the <MESSAGE QUEUE> key.
- PF4 <QUIT> Press the <QUIT> key if you do not want to process the information you have entered on the form. This ends data entry without processing the information. The application program determines what happens next.

How to read your message queue

As described above, you press the <MESSAGE QUEUE> key to access messages. The following examples show how to do this.

scroll/page mode

to scroll through arrays which contain more occurrences than are displayed. As each item of the array is visible on the screen, you can enter or simply view the information.

text edit mode

to move, copy, delete and substitute text within form items.

application mode

the functions of the keys are defined by the application software.

system mode

used by programmers to debug new application software. If you are using the terminal to run application software, you do not need to use this mode.

3.3.1 Window Manager Mode

Windows are the areas of the screen where electronic forms are displayed for the user. This section describes the functions that are only available in the window manager mode. This mode allows you to manipulate the windows that are displayed on your screen while you are running either a single application or several applications simultaneously. You can change the size and location of a window or scroll the form that is displayed within the window so that you can see all of the data. Thus the window manager provides the mapping between logical and physical devices. For example, you may run many applications on logical devices which are all located on the same terminal screen (physical device).

First we will consider how the Window Manager operates when you are running only one application on the terminal. A form is presented on the screen. This form is displayed in the initial window of the application which probably fills the physical screen. This form in turn may contain several other windows. These windows are stacked on the form. If the locations of the windows do not overlap, you will not be aware of the stack. However, if one window overlaps another, the one that is higher on the stack will be totally visible and the lower one will be partly overlaid and hidden. The functions of the Window Manager operate only on the selected window. You first select the window you want to manipulate and it is then put on top of the stack so that all of it is displayed. When

you select a different window, the previously selected window ceases to be the selected window.

Each window on a form may contain more windows which in turn may each be used to display a form. Each of these forms also could contain windows. In this way, several stacks of windows may be displayed on the screen simultaneously. The windows on any one form must be displayed within the area allocated to the parent window in which the form is displayed.

Now we will discuss how the Window Manager operates when you are running several applications simultaneously on one terminal. Each application is displayed within an initial window (logical device). When several applications are on the screen, these initial windows are also on a stack in the same way as the windows on a form. The applications are stacked in the order in which you started them up. The latest application to be started is on top and is totally visible.

All of the following information on managing windows refers both to the initial window (logical device) of an application and to windows that occur within an application.

3.3.1.1 Window Manager Keys

This section briefly lists the keys. A detailed description with examples of how to use them follows. The terminal mapping charts show you exactly how the keys on your terminal relate to the programmable function keys.

PF5	⟨SCROLL UP⟩	scrolls up the form which is displayed in the window.
PF6	⟨SCROLL DOWN⟩	scrolls down the form which is displayed in the window.
PF7	⟨SCROLL LEFT⟩	scrolls to the left the form which is displayed in the window.
PF8	⟨SCROLL RIGHT⟩	scrolls to the right the form which is displayed in the window.
PF9	⟨SIZE⟩	makes the selected window larger or smaller.
PF10	⟨LOCATION⟩	moves the selected window to a new location on the screen.

- PF11 <SELECT> selects a window as the selected window so that you can change the size and location and scroll information. This also puts the window on the top of the stack and you can view it completely.
- PF12 <RESTORE> returns the selected window to its previous position on the stack.
- PF13 <FUNCTION> displays the IISS Function Screen so you can request a different function.
- PF14 <APPLICATION> selects the initial window (logical device) of the application.
- PF15 <HOME VIEW> returns a form that you have previously scrolled to its original position in the window.

3.3.1.2 Window Manager Information Form

The Window Manager Form displays information about the state of the windows on the terminal screen. It allows you to perform the following functions.

- review windows the information displayed includes: the device on which the application is displayed, the order in which applications are stacked on the screen, and the location, size and viewport offset of the windows.
- change device the device name, as used and recognized by the NTM, of each application that is running on the terminal is displayed on the form. You can change this name and move the initial window (logical device) of any application to any other device that is hardwired to the system.
- change window size the size of all windows is displayed on the form. You can change the size of any window. This includes giving dimension to a window with 0,0 size that has been hidden and so restore its visibility.

- change location the location of the top left row and column of the window relative to the upper left corner of the parent window is displayed. You can change these values and so change the relative position of the window.
- change priority the order in which the windows are stacked on the screen is displayed on the form as the priority number of the window. Thus the last application to be initiated has a priority number of 1 and is on top of the stack of initial windows and is totally visible. You can change this number to give any application top priority. This has the same effect as selecting a window interactively using the <SELECT> key.
- change viewport offset the offset between the form in the window and the window expressed in rows and columns is displayed on the form. You can change these numbers to move the position of the form in the window.

3.3.1.3 How to Use the Window Manager

This section gives a detailed description with examples of how to use the Window Manager keys. To get into the Window Manager Mode, continue to press the <MODE> key until "Window Mgr" appears in the lower right-hand corner of the screen as shown in Figure 3-1.

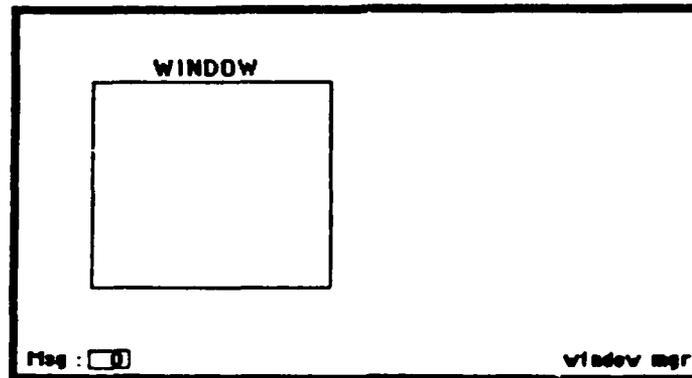


Figure 3-1 The Window Manager Mode

Selecting a window

⟨SELECT⟩ key

The Window Manager functions only operate on the selected window. To select a window, position the cursor in the window and press the ⟨SELECT⟩ key. Selecting another window without pressing the ⟨RESTORE⟩ key, puts the previously selected window on top of the stack.

⟨RESTORE⟩ key

When you press the ⟨RESTORE⟩ key, the selected window is restored to its previous position in the stack instead of to the top.

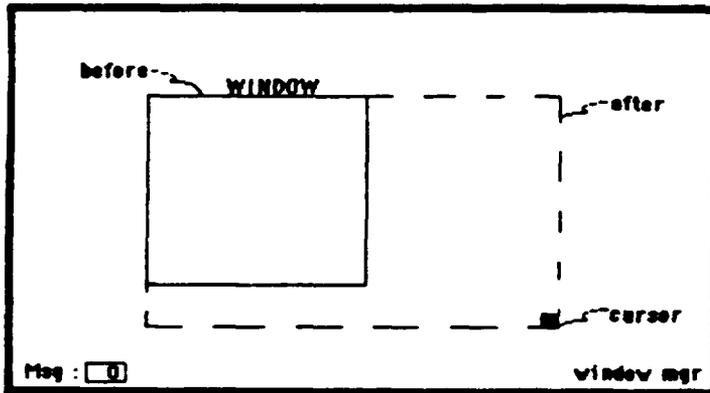
⟨APPLICATION⟩ key

When you want to display more than one application simultaneously on your screen, you may want to access the initial window (logical device) of an application that you have already initiated so that you can manipulate it and make room to display another application. To select the initial window of an application, position the cursor anywhere within the application display and press the ⟨APPLICATION⟩ key.

Changing the window size

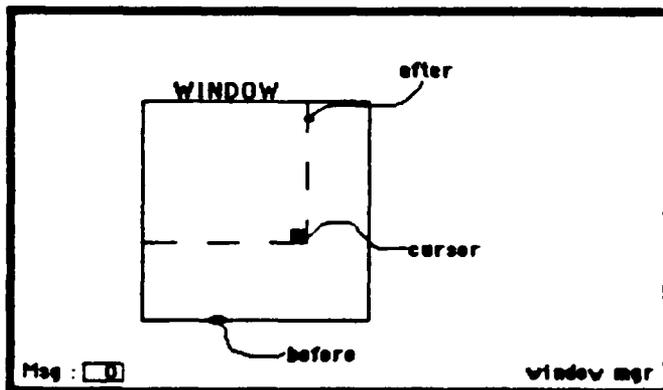
⟨SIZE⟩

Before you can change the size of a window, you must select it. If it is one of a stack of windows, it is put on top so that you can see all of the window. Position the cursor where you want the lower right-hand corner of the window to be and press the ⟨SIZE⟩ key. If you position the cursor above or to the left of the window, you will reduce the size of the window to zero and hide it completely. Remember that the size of a window can not be increased beyond the space on the screen that is occupied by its parent window.



Position the cursor where you want the lower right corner to be and press the ⟨SIZE⟩ key.

Figure 3-2 Increasing the window size



Position the cursor where you want the lower right corner to be and press the ⟨SIZE⟩ key.

Figure 3-3 Decreasing the Window Size

Hiding the window

Hiding the window removes it from the screen. In the case of simultaneous applications, the application represented by the window is still active but not displayed. This means that if information is being outputted to the screen while the window is hidden, you will not be aware of it.

NOTE: Because a hidden window has no dimension, you cannot select it. Thus, if you want to make it larger so you can see it, you must do so while it is still the selected window. This means, before you select another window or before you restore the hidden window to its previous position on the stack. The only way you can restore visibility to a hidden window that is no longer the selected window is by using the Window Manager Form.

To hide a window, position the cursor somewhere to the left of the window or above the window and press the <SIZE> key. This reduces the size to zero.

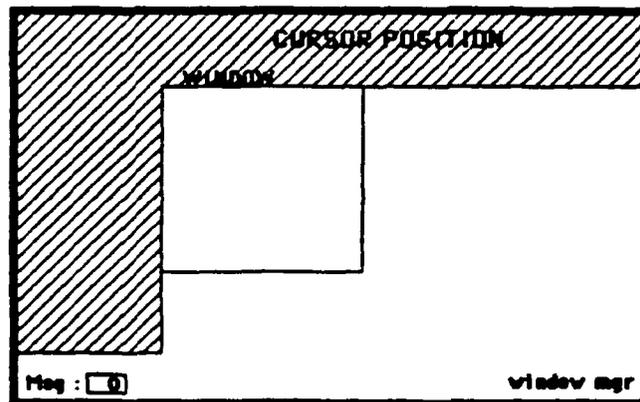


Figure 3-4 Hiding a Window

Scrolling the data entry form within the window

- <SCROLL UP>
- <SCROLL DOWN>
- <SCROLL LEFT>
- <SCROLL RIGHT>
- <HOME VIEW>

The data are displayed on a surface that you view through the window. You can only see what is directly behind the window. If the display is larger than the window, parts of the data are not visible. Using the scroll keys, you can move the display surface around to position the different parts of it behind the window.

You do this as shown in Figure 3-5. First you position the cursor on the data and press one of the `<SCROLL>` direction keys. That position on the data is then moved to the edge of the window in the direction indicated by the key. You can move the data up, down, left and right. After you press the key, the cursor remains in the same position relative to the window. If you want to repeatedly scroll the data up in blocks of five lines, put the cursor on the fifth line and press the `<SCROLL UP>` key every time you want a block of five lines to scroll up. When you come to the end of the available blocks, the data will only scroll sufficiently to display the last block. Press the `<HOME VIEW>` key to return the data to its original position.

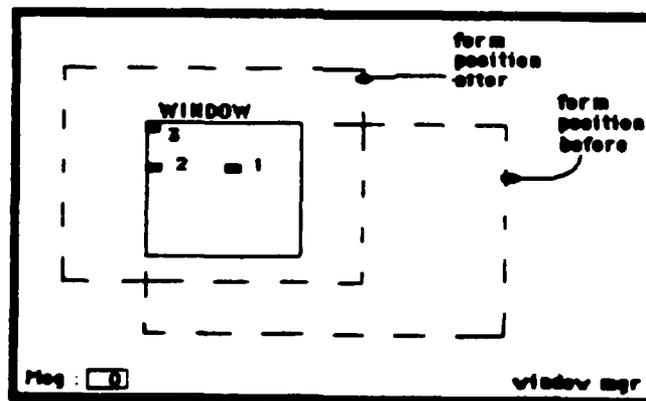
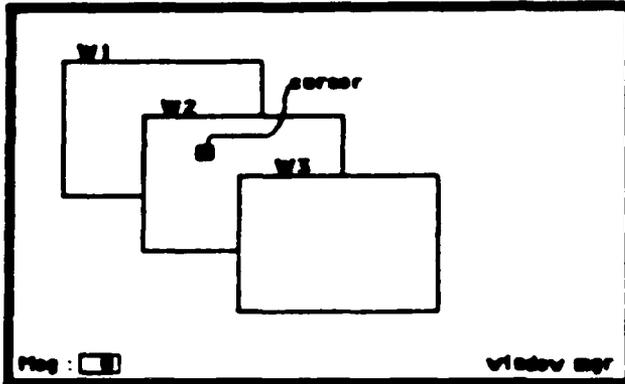


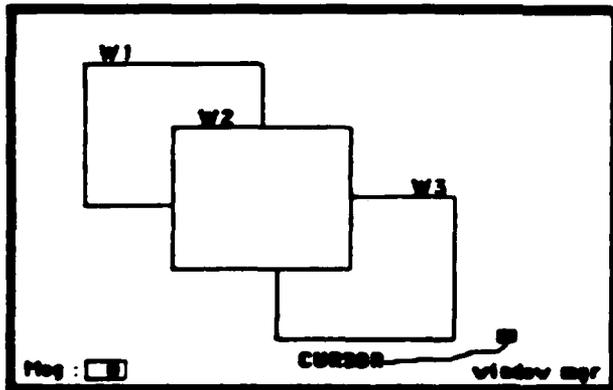
Figure 3-5 Scrolling the Display in the Window

First, select the window. To move the data as shown above, put the cursor on position 1 and press the `<SCROLL LEFT>` key. The data surface moves from position 1 to position 2. Note that the cursor does not move. Move the cursor to position 2, press the `<SCROLL UP>` key and the data surface moves from position 2 to 3. The following example illustrates changing the size of a window that is somewhere within the stack.



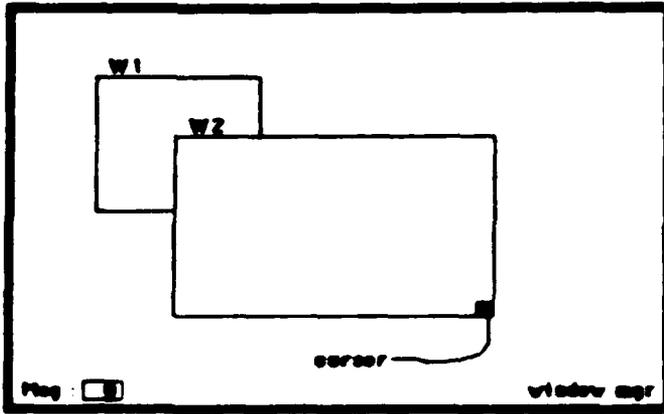
Position the cursor
within the window and
press the `.SELECT.`
key.

Figure 3-6 Selecting a Window



Position the cursor
where you want the
lower right corner of
the window to be and
press the `.SIZE.` key.

Figure 3-7 Enlarging a Window



Leave the cursor in the same position and press the .RESTORE key.

Figure 3-8 Returning a Window to its Position in the Stack

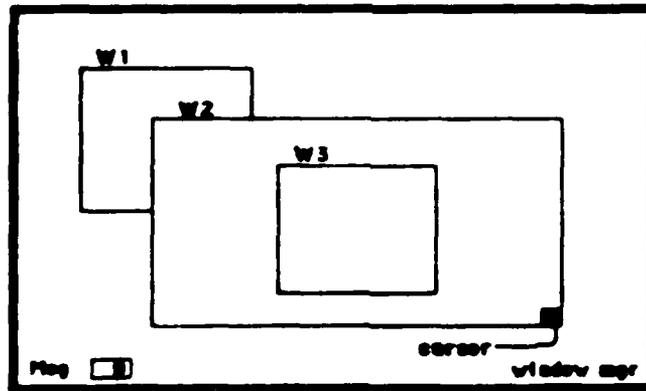


Figure 3-9 The Un-selected Window

Changing the window location

.LOCATION.

Before you can move a window, you must select it. To move the selected window, position the cursor where you want the upper left-hand corner of the window to be and press the **.LOCATION.** key. If the window no longer fits on the screen, the part that overlaps is lost. Moving the window back onto the screen restores the lost portion.

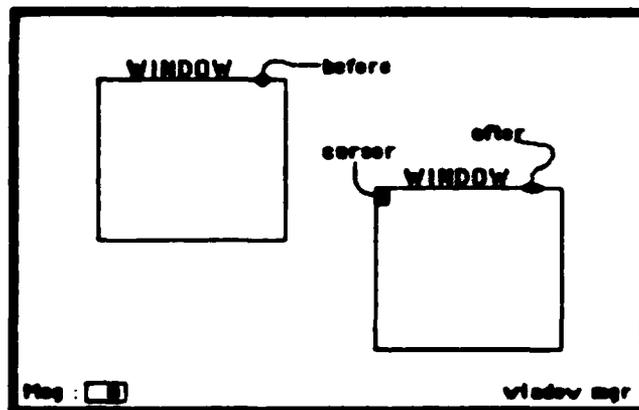


Figure 3-10 Changing a Window Location

Initiating An Application

.FUNCTION. key

If you are running one IISS application and want to initiate another to run simultaneously, press the **.FUNCTION.** key to access the IISS Function Screen and enter the application name in the Function item as shown in Figure 3-13.

Using the Window Manager Form for Window Management

Some operations that can be performed on windows cannot be done using the function keys. To make a hidden window visible when it is no longer the selected window, or change the device on which an application is being displayed, the window manager form must be used. In addition, all the functions which can be performed using the function keys can also be performed using this form.

To access the Window Manager Form, press the **FUNCTION** key to access the IISS Function Screen and enter **WINDOW** in the function item. The following information form is displayed as shown in Figure 3-11

Window Manager											
Application	Device			Window Name	Location		Display Size		Viewport Offset		
	Type	Name	Pri		Row	Col	W	H	Row	Col	

Msg: application

Figure 3-11 The Window Manager Screen

The following is a description of all the items on this form.

application	The name of the application using the window. You cannot change this name.
device type	The type of the device driver which the application is running. This device driver is a special application which allows the application to communicate with your terminal. Thus this name must be a the application name recognized by the NTH you are using.
device name	The name of the port for the physical device that the application is running on. It must agree with the device type named. If you change this value, the application is moved to the device at the new port that you name. Remember, you may need to change the value in the device type field.
priority	The number that describes the level of the application initial window when several windows are stacked on the screen.
window name	The name automatically given to the window at run time. You cannot change this name.
location row/col	The physical location on the screen of the upper left corner of the window relative to the upper left corner of the containing window.
display size width/depth	The physical size of the window on the screen expressed in terms of width and depth.
viewport offset row/col	The offset between the form in the window and the window expressed in rows and columns. If the offset is 0 0 then the upper left corner of the form is in the upper left corner of the window.

The following example illustrates a possible use of the window management screen.

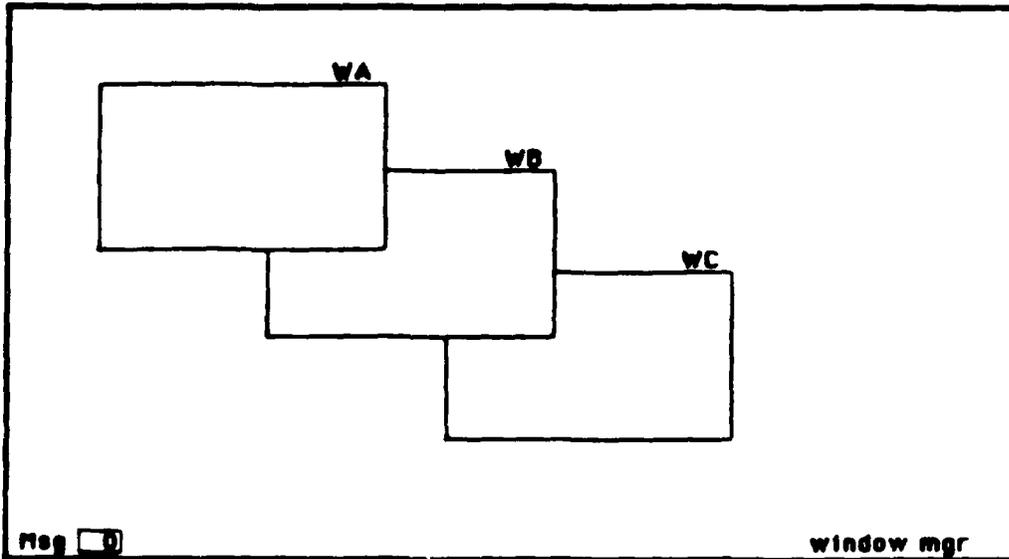


Figure 3-12 Initial Screen of the Window Manager Example

There is another window on this device that is hidden. You must use the Window Manager Form to make the window visible. Press the **FUNCTION** key to display the IISS Function Screen.

OM 620144000
1 November 1985

I I S S T E S T B E D V E R S I O N 2 . 0			
DATE:	<input type="text" value="07/20/85"/>	TIME:	<input type="text" value="11:59:01"/>
USER ID:	<input type="text" value="MORRIS"/>	ROLE:	<input type="text" value="MGR"/>
FUNCTION:	<input type="text"/>	DEVICE TYPE:	<input type="text"/>
		DEVICE NAME:	<input type="text"/>
Msg: <input type="text" value="0"/>		application	

Figure 3-13 The IISS Function Screen

Enter WINDOW in the function field and press the <ENTER> key.

Window Manager

Application	Device			Window Name	Location		Display Size		Viewport Offset	
	Type	Name	Pri		Row	Col	W	H	Row	Col
A	SDVT100ZZZ	PORT 1	1	SCREEN	1	1	25	10	0	0
				V2	1	1	80	23	0	0
				V3	1	1	25	10	0	0
B	SDVT100ZZZ	PORT 1	2	SCREEN	6	16	25	10	0	0
				V2	1	1	80	23	0	0
				V3	1	1	30	30	0	0
C	SDVT100ZZZ	PORT 1	3	SCREEN	11	31	25	10	0	0
				SCREEN	1	1	80	23	0	0
D	SDVT100ZZZ	PORT 1	4	SCREEN	13	36	0	0	0	0
				SCREEN	1	1	80	23	0	0

Msg: application

Figure 3-14 The Complete Window Status

This form shows the status of all the windows that are being displayed on the device that you are using.

The initial window of application D is hidden because its size is 0,0. Also window D has priority level of 4 so it is overlaid by the other windows on the stack.

Window Manager

USER CHANGES

Application	Device			Window Name	Location		Display Size		Viewport Offset	
	Type	Name	Pri		Row	Col	W	H	Row	Col
A	SDVT100222	PORT 1	2	SCREEN	1	1	25	10	0	0
			3	V2	1	1	80	23	0	0
B	SDVT100222	PORT 1	3	V2	1	16	25	10	0	0
			4	V3	1	1	80	23	0	0
C	SDVT100222	PORT 1	4	V3	1	1	30	30	0	0
			1	SCREEN	11	31	20	20	0	0
D	SDVT100222	PORT 1	1	SCREEN	1	1	25	10	0	0
			1	SCREEN	13	36	80	23	0	0
				SCREEN	1	1	25	10	0	0
					1	1	80	23	0	0

Msg: application

Figure 3-15 Changing the Window Priority

Enter a display size for window D and raise its priority number to 1. Then press the <ENTER> key to implement the changes.

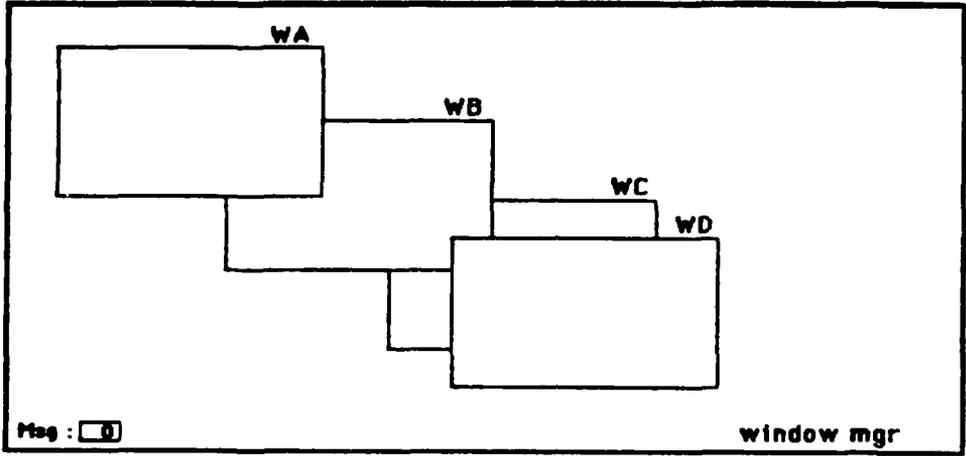


Figure 3-16 The Display of Windows after the Priority Change

Window Manager

Application	Device			Window Name	Location		Display Size		Viewport Offset	
	Type	Name	Pri		Row	Col	W	D	Row	Col
D D A A B B B C C	SDVT100ZZZ	PORT 1	1	SCREEN	13	36	0	0	0	0
	SDVT100ZZZ	PORT 1	2	SCREEN	1	1	80	23	0	0
	SDVT100ZZZ	PORT 1	2	SCREEN	1	1	25	10	0	0
	SDVT100ZZZ	PORT 1	2	V2	1	1	80	23	0	0
	SDVT100ZZZ	PORT 1	3	V2	1	1	25	10	0	0
	SDVT100ZZZ	PORT 1	3	SCREEN	6	16	25	10	0	0
	SDVT100ZZZ	PORT 1	3	V2	1	1	80	23	0	0
	SDVT100ZZZ	PORT 1	3	V3	1	1	30	30	0	0
	SDVT100ZZZ	PORT 1	4	V3	1	1	20	20	0	0
	SDVT100ZZZ	PORT 1	4	SCREEN	11	31	23	10	0	0
	SDVT100ZZZ	PORT 1	4	SCREEN	1	1	80	23	0	0

Msg: application

Figure 3-17 The Window Manager Screen after the Priority Changes

To move application D to another terminal, change the device name to the new device and enter the appropriate device type. When you again display the applications running on your terminal, the window for application D is no longer displayed. The application should be displayed on the new device named.

Window Manager

Application	Device			Window Name	Location		Display Size		Viewport Offset	
	Type	Name	Pri		Row	Col	W	H	Row	Col
D D A A B B B B C C	SDVT100222	PORT 2		SCREEN	13	26	0	0	0	0
	SDVT100222	PORT 1	1	SCREEN	1	1	25	10	0	0
	SDVT100222	PORT 1	2	V2	1	1	25	10	0	0
	SDVT100222	PORT 1	2	SCREEN	6	16	25	10	0	0
	SDVT100222	PORT 1	3	V2	1	1	25	10	0	0
	SDVT100222	PORT 1	3	V2	1	1	25	10	0	0
	SDVT100222	PORT 1	3	V2	1	1	25	10	0	0
	SDVT100222	PORT 1	3	SCREEN	11	31	25	10	0	0

Msg: application

Figure 3-18 The Window Manager Screen after Moving an Application

The windows are ordered on the Window Manager Form in the order of the priority number of the window. To return to the original application, press the <ENTER> key. The IISS Function Screen is displayed first and then the application screen.

3.3.2 Scroll/Page Mode

When a form contains more information than can be viewed in the window at one time, this mode provides special functions which allow you to view any part of the data. You can only page or scroll a field that has been defined as a scrolling array. A scroll will advance/backup, by one element, the elements of an array that are displayed. A page will advance/backup a block of elements usually the same size as the display window.

3.3.2.1 Scroll/Page Keys

This section lists the keys. The terminal mapping charts in Appendix B, show you exactly which key (or key sequence) you must press to perform the function on your specific terminal.

PF5 <SCROLL UP>
PF6 <SCROLL DOWN>
PF7 <SCROLL LEFT>
PF8 <SCROLL RIGHT>
PF9 <PAGE UP>
PF10 <PAGE DOWN>
PF11 <PAGE LEFT>
PF12 <PAGE RIGHT>

3.3.2.2 How to Use the Scroll/Page Mode

This section gives a detailed description with examples of how to use the functions that are only available in the Scroll/Page mode. To get into the Scroll/Page Mode, continue to press the <MODE> key until "Scrl/Page" appears in the lower right-hand corner of the screen. Then position the cursor within an element of the information that you want to move. This may be one item if you are scrolling an array of items or the background of a form if you are scrolling an array of forms. Press the appropriate key to get the size and direction of movement you want. The data is moved within the display window. The following examples show the Text Editor application used to edit a file.

Scroll Up

The <SCROLL UP> key moves the displayed portion of the buffer up by one line. The top displayed line is pushed into the nondisplayed portion of the buffer and the line in the buffer which follows the current last displayed line is displayed.

The following two examples show how your screen appears before and after pressing the `<SCROLL UP>` key.

```
+-----+
|Line 1|
|Line 2|
|Line 3|
|Line 4|
|Line 5|
|Line 6|
|Line 7|
|Line 8|
|Line 9|
|Line 10<SCROLL UP>|
| >>|
|Msg:| scrll/page|
+-----+
```

```
+-----+
|Line 2|
|Line 3|
|Line 4|
|Line 5|
|Line 6|
|Line 7|
|Line 8|
|Line 9|
|Line 10|
|Line 11_|
| >>|
|Msg:| scrll/page|
+-----+
```

If the next line in the buffer is the bottom of file mark, the function is aborted and a message warning of the condition is issued.

Scroll Down

The `<SCROLL DOWN>` key moves the displayed portion of the buffer down one line. The bottom displayed line is pushed into the nondisplayed portion of the buffer and the line in the buffer which precedes the current top displayed line is displayed.

The following two examples show how your screen appears before and after pressing the `<SCROLL DOWN>` key.

```
+-----+  
|Line 2  
|Line 3  
|Line 4  
|Line 5  
|Line 6  
|Line 7  
|Line 8  
|Line 9  
|Line 10  
|Line 11<SCROLL DOWN>  
| >>  
|Msg:                                     scrll/page|  
+-----+
```

```
+-----+  
|Line 1  
|Line 2  
|Line 3  
|Line 4  
|Line 5  
|Line 6  
|Line 7  
|Line 8  
|Line 9  
|Line 10_  
| >>  
|Msg:                                     scrll/page|  
+-----+
```

If the current display is at the top line of the file, the function is aborted and a warning message is issued.

Page Up

The <PAGE UP> key is used to move the displayed portion of the buffer up by the display size (one page). For a VT100 terminal, the text displayed on lines 1 through 21 of the screen is pushed up into the nondisplayed portion of the buffer and line 22 becomes line 1. This line is then followed by the next 21 lines from the buffer or the remaining lines if there are less than 21. If you are already at the bottom of the file, the function is aborted and a warning message is issued.

The following two examples show how your terminal screen appears before and after pressing the <PAGE UP> key.

```
+-----+  
|Line 1  
|Line 2  
|Line 3  
|Line 4  
|Line 5  
|Line 6  
|Line 7  
|Line 8  
|Line 9  
|Line 10<PAGE UP>  
|  >>  
|Msg:                                     scrll/page|  
+-----+
```

```
+-----+  
|Line 10  
|Line 11  
|Line 12  
|Line 13  
|Line 14  
|Line 15  
|Line 16  
|Line 17  
|Line 18  
|Line 19  
|  >>  
|Msg:                                     scrll/page|  
+-----+
```

Page Down

The <PAGE DOWN> key is used to move the displayed portion of the buffer down by the display size (one page). For a VT100 terminal, the text displayed on lines 2 through 22 of the screen is pushed down into the nondisplayed portion of the buffer and line 1 becomes the last displayed line. The lines displayed above this line are the preceding 21 lines of the nondisplayed portion of buffer or the remaining lines if there are less than 21. If you are already at the top of the file, the function is aborted and a warning message is issued.

The following two examples show how your terminal screen appears before and after pressing the <PAGE DOWN> key.

```
+-----+
|Line 10
|Line 11
|Line 12
|Line 13
|Line 14
|Line 15
|Line 16
|Line 17
|Line 18
|Line 19 <PAGE DOWN>
| >>
|Msg:                                     scrll/page|
+-----+
```

```
+-----+
|Line 1
|Line 2
|Line 3
|Line 4
|Line 5
|Line 6
|Line 7
|Line 8
|Line 9
|Line 10
| >>
|Msg:                                     scrll/page|
+-----+
```

3.3.3 Text Edit Mode

This section describes the functions that are only available in the Text Edit mode. These special functions move, copy, delete and substitute text among item fields on a form. The general functions for moving the cursor, changing input, and refreshing the screen are always available regardless of mode and are described in a previous section of this manual. They can be used together with the item editing functions of this mode.

3.3.3.1 Text Edit Mode Keys

This section briefly lists the keys. A detailed description with examples of how to use them follows. The terminal mapping charts in Appendix B show you exactly which key

(or key sequence) you must press to perform the function on your specific terminal.

- | | | |
|------|---------------|---|
| PF5 | SEARCH | makes a forward or backward search for first occurrence of string you enter |
| PF6 | SEARCH NEXT | continues a search for next occurrence of previously defined string |
| PF7 | REPLACE | replaces first occurrence of search string with string you enter |
| PF8 | REPLACE NEXT | replaces next occurrence of search string with previously defined new string |
| PF9 | INSERT LINE | inserts blank line in text |
| PF10 | DELETE LINE | deletes all or remainder of a line of text |
| PF11 | PASTE | pastes in previously deleted text maintaining format |
| PF12 | FILL | fills with previously deleted text reformatting according to current fill margins. |
| PF13 | MIDLINE BREAK | breaks a line of text and moves it to the next line |
| PF14 | DELETE ITEM | removes all the text from an item |
| PF15 | RESTORE | replaces the original text in an item that you have edited |
| PF16 | REPEAT | specifies a number of times to perform the action of the next Text Edit mode function key you press |
| PF17 | FILL MARGINS | sets up margins to be used when the fill function is performed |

3.3.3.2 How to Use the Text Edit Mode

This section gives a detailed description with examples of how to use the Text Edit mode keys. To get into the Text Edit mode, continue to press the <MODE> key until "Text Edit" appears in the lower right-hand corner of the screen.

Inserting a blank line in an item

⟨INSERT LINE⟩

Position the cursor somewhere on the line that you want to follow the blank line and press the ⟨INSERT LINE⟩ key. The line containing the cursor and all following lines in the item are moved down one line leaving a line of blanks above it. The last line is removed from the item. If you positioned the cursor at the beginning of the line and pressed the ⟨MIDLINE BREAK⟩ key, you get the same result.

Deleting an entire item

⟨DELETE ITEM⟩

Position the cursor somewhere in the item that you want to delete and press the ⟨DELETE ITEM⟩ key. Blanks replace the deleted lines in the item field. The deleted lines replace the contents of the cut and paste buffer.

Moving text between items

⟨DELETE⟩ ⟨DELETE ITEM⟩
⟨PASTE⟩ ⟨FILL⟩

A sequence of delete lines or one delete entire item function replaces the contents of the cut and paste buffer. The lines can then be inserted into an item field using the paste or fill function.

Using the paste key to insert text

⟨PASTE⟩

This key restores the deleted lines or item in the exact format they were in when deleted. This means that if the lines in the receiving item are shorter than the text, they will be truncated. If they are longer, they are padded on the right with blanks. If there are more lines in the cut and paste buffer than lines in the receiving item, the extra lines are ignored.

Using the fill key to insert text

(FILL)

This key reformats the deleted text as it replaces it. Each line of the receiving item is filled with as many whole words as possible. If a word is too wide to fit on a line of the receiving item field, it is wrapped. If the replacement text does not completely fill the receiving item field, it is padded on the right with blanks. If there is too much replacement text to fit into the receiving item, the extra words are ignored.

You can set the fill margins for the receiving item as explained in "Setting the fill margins".

The next two examples demonstrate the fill function. The first example shows how the form appears before deleting item 1 and executing the fill function in item 2. The second example shows how the text is reformatted when the lines of the receiving item are longer than the deleted lines. Note that the fill margins were not set for this example.

```
+-----+
|  item_1  |  item_2  | | | |
| |Line 1 of the item | |          | |
| |Line 2 of the item | |          | |
| |Line 3 of the item | |          | |
| |Line 4 of the item | |          | |
| |Line 5 of the item | |          | |
| |Line 6 of the item | |          | |
| |Line 7 of the item | |          | |
|-----|-----|
|Msg:                                           |text edit|
+-----+-----+
```


Search string: can be a maximum of 40 characters and if it contains any blanks, it must be enclosed in double quotes. The string need only be long enough to make it unique. However, if you want to replace the search string, in a search and replace operation, make sure that you enter the complete string that you want to cut. If left blank, the previously defined string will be used.

Direction: enter a + to make a forward search
enter a - to make a backward search
If left blank, the previously defined direction will be used.

Fill in the values and press the <ENTER> key to make the search. The cursor moves to the first occurrence of the string you entered in the direction you indicated. If the string is not found in the item, a message is displayed and the cursor position is unchanged.

If you have previously defined a search string and direction, you can press the <SEARCH NEXT> key to search for the next occurrence of the string.

Replacing text within an item

<REPLACE>
<REPLACE NEXT>

If you want to replace a string of text, first press the <SEARCH> key and enter the complete string that you want to cut. When the cursor is positioned on the string, press the <REPLACE> key. The following form is displayed:

```
+-----+
| Replacement String: _____ Direction: _ |
|                                             |
|                                             |
|                                             |
|                                             |
| Msg: _0                                     |
|                                             |
|                                             |
|                                             |
+-----+
                    text edit|
```

The replacement string can be a maximum of 40 characters and if it contains blanks, it must be enclosed in double quotes.

You can press the <REPLACE NEXT> key to replace the next occurrence of the previously defined search string with the previously defined replacement string.

Setting the fill margins of an item

<MARGINS>

Press the <MARGINS> key and the following form is displayed:

```
+-----+
|Fill Margins: - Left:  ___  Right:  ___|
|                                         |
|                                         |
|                                         |
|                                         |
|Msg:  _0                               text edit|
+-----+
```

The margins you define must be possible values. That is, the left margin must be equal to or greater than 1, and the right margin must be greater than the left margin. Also, the right margin must be no greater than the display width. Press the <ENTER> key to define the margins. The left and right margins will be used whenever you use the <FILL> key. If the margins do not satisfy the above constraints, an error message will be displayed when you try to use the <FILL> key.

To remove the margins and return to the default of filling the entire width of the field, leave the left margin blank or set to 0.

Repeating a function key

⟨REPEAT⟩

Functions keys that can be repeated include: ⟨INSERT LINE⟩, ⟨DELETE LINE⟩, ⟨PASTE⟩, ⟨FILL⟩, ⟨MIDLINE BREAK⟩, ⟨SEARCH⟩, ⟨SEARCH NEXT⟩, ⟨REPLACE⟩, and ⟨REPLACE NEXT⟩. Repeating ⟨DELETE ITEM⟩, ⟨RESTORE⟩, or ⟨FILL MARGINS⟩ has the same effect as doing the function only once.

To use the repeat function, press the ⟨REPEAT⟩ key and the following form is displayed:

```
+-----+
| Repeat Count: ____ |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|                   |
|Msg: _0                text edit|
+-----+
```

You enter the number of repeats that you want to make and press the ⟨ENTER⟩ key. The next function key you press will automatically repeat the number of times you specified.

3.3.4 Application Mode

In this mode, the function keys PF5-PF20 operate as defined by the application software. The method of programming the keys is documented in the IISS Form Processor User Manual. The application user manuals must document these function keys.

3.3.5 System Mode

This mode is used by programmers to debug new application software. If you are using the terminal to run application software, you do not need to use this mode.

This mode gives programmers access to debug mode which can be toggled off and on by pressing the PF5 ⟨DEBUG⟩ function key. When debug mode is on, system status and error messages are displayed on the message line.

SECTION 4

WORKING IN THE IISS ENVIRONMENT

This section explains how to access the IISS environment, how to define application software to the system, and how to run an application. The system allows both system supplied applications and user-written applications to be run.

4.1 Accessing the IISS Environment

This section includes an explanation of the following forms:

- * LOGON
- * CHOOSE FUNCTION
- * HELP

FUNCTION contains the name of the function you wish to execute. It may be a User Interface Service or a "user-written" application.

DEVICE TYPE The type of the device driver on which you want the function to run. This device driver is a special application which allows the application to communicate with your terminal. An example of a valid type is SDPRINTZZZ. This item is optional and defaults to the type you are using.

DEVICE NAME The name of the port for the physical device that the application is running on. It must agree with the device type named. If you change this value, the application is moved to the device at the new port that you name. You may need to change the value in the device type item. This item is optional and defaults to the device name you are using.

The function that you choose can be any IISS application or it may be an application developed to aid in application development. These applications are called the User Interface Services (UIS) and are described in Section 5.0.

When entering a function, it is only necessary to enter enough characters to uniquely identify the function.

For Example, if the functions that are available to you are:

APPL1
APPL22
AP3
DEFINE
EXIT
PASSWORD

- (1) you need only specify P if you choose PASSWORD
- (2) you need only specify E if you choose EXIT
- (3) you need only specify D if you choose DEFINE
- (4) you must specify AP3 if you choose AP3
- (5) you must specify APPL2 if you choose APPL22
- (6) you must specify APPL1 if you choose APPL1

This is the form you see if you choose the function
SDDEFINEAP.

APPLICATION identifies the application. You must enter it. If the application you enter already exists, the current definition information is presented on the next form that is displayed. If the application name you enter has not been defined previously, the next form allows you to enter the definition information.

After you enter the application name, press the <ENTER> key to transmit implement the changes.

5.2.1 DEFINE NEW APPLICATION

```
+-----+
|                                     |
|           DEFINE AN APPLICATION     |
|                                     |
|      APPLICATION: _____         |
|                                     |
| DESCRIPTION: _____  HOST: _____  CLUSTER: _____ |
| COMMAND: _____                 |
| _____                           |
| _____                           |
| _____                           |
| _____                           |
| _____                           |
| _____                           |
| _____                           |
|                                     |
| Msg: 0                               application |
+-----+
```

This is the form you see if you enter an application that had not previously been defined on the DEFINE AN APPLICATION form. Use it to enter information about new "user-written" applications.

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APPLICATION identifies the application. You entered it previously. If you change APPLICATION you will see a new form - the DEFINE NEW APPLICATION form if the APPLICATION is new or the UPDATE APPLICATION DEFINITION form with the APPLICATION's data if the APPLICATION was defined previously.

DESCRIPTION describes the application. It is used by the application help function. You can enter it.

HOST identifies the computer that hosts the application. You can enter it.

CLUSTER contains the name of the IISS application cluster that contains the application. You can enter it.

COMMAND contains a message that the NTM sends to the application upon startup. You can enter it.

When you are satisfied that you have correctly entered the application definition, press the <ENTER> key to implement the changes. The following message appears in the message line:

YOUR APPLICATION HAS BEEN DEFINED

You may then exit by pressing the <QUIT> key or change the application name and press <ENTER> to define another application.

5.2.2 UPDATE/DELETE APPLICATION DEFINITION

```
+-----+
|                                     |
|               DEFINE AN APPLICATION |
|                                     |
|      APPLICATION: _____        |
|                                     |
| UPDATE:  _                          |
| DELETE:  _                          |
|                                     |
| DESCRIPTION: _____  HOST: _____  CLUSTER: _____ |
| COMMAND: _____                  |
| _____                            |
| _____                            |
| _____                            |
| _____                            |
| _____                            |
| _____                            |
|                                     |
| Msg: 0                               application |
+-----+
```

This is the form you see when you entered an application that had already been defined on the DEFINE AN APPLICATION form. Use it to change the application definition information about the existing "user-written" application.

APPLICATION identifies the application. You entered it previously. If you change APPLICATION you will see a new form - the DEFINE NEW APPLICATION form if the APPLICATION is new or the UPDATE APPLICATION DEFINITION form with the APPLICATION's data if the APPLICATION was defined previously.

UPDATE and **DELETE** are functions. You can choose one of these by placing a non-blank character in the space following your choice.

DESCRIPTION describes the application. It is used by the application help function. You can enter it.

HOST	identifies the computer that hosts the application. You can change it.
CLUSTER	contains the name of the IISS application cluster in which the application resides. You can change it.
COMMAND	contains a message that the NTM sends to the application upon startup. You can change it.

When you are satisfied with your updates to the application definition, press the <ENTER> key to implement the changes.

You may then exit by pressing the <QUIT> key or change the application name and press <ENTER> to define another application.

5.3 MESSAGE MANAGEMENT APPLICATION

Message Management (MM) is a predefined application of the IISS. It is used by programmers who are writing application software to run on the IISS. MM creates message code files to be used in conjunction with the Form Processor routine "PMSGC", (put message line code). In the VAX environment, the files that are updated are located in the directory assigned to the logical IISSMLIB and have the format MSGXXX.MSG where XXX is the message base number.

This section describes how to CREATE and UPDATE these message code files and how to generate the include members. The topics covered include:

- * ERROR MESSAGE DEFINITION FORM
- * DEFINING NEW ERROR MESSAGES
- * UPDATE/DELETE ERROR MESSAGE
- * MM functions
- * MM keys
- * Generating include Members

5.3.3 UPDATE/DELETE ERROR MESSAGES

```
+-----+
|                                     |
|               ERROR MESSAGE        |
|               DEFINITION SCREEN    |
|               -----              |
|                                     |
| Message Base Number: 70300        |
|                                     |
| NUMBER   NAME      DESCRIPTION    |
|-----|-----|-----|
| 70300    FPMSG     FORM PROCESSOR  |
| 70301    INVPA     INVALID PAGE    |
| 70302    FNOTFND   FORM NOT FOUND  |
| 70303    FISOPEN   FORM IS ALREADY |
| 70304    ALCERR    MEMORY ALLOCATI |
| 70305    OPNERR    OPEN ERROR-UNAB |
| 70306    DALCERR   FIELD ALLOCATIO |
| 70307    AALCERR   ARRAY ALLOCATIO |
| 70308    UNKTYPE   UNKNOWN TYPE    |
| 70309    IALCERR   ITEM ALLOCATIO  |
|                                     |
| Msg: 0                                     application |
+-----+
```

This is an example of the form you see when you entered a base message number for which messages had already been defined.

MESSAGE BASE NUMBER contains the first three (3) numbers of your message file. You entered it previously. If you change this number, you are requesting access of a different set of messages. You will see the ERROR MESSAGE DEFINITION SCREEN if the number has no messages associated with it, or the UPDATE/DELETE MESSAGES form if the number has messages defined. Any number from XXX00 to XXX99 is valid.

NUMBER is the message number. You can not change this number.

NAME is the name used in the application software to identify the message and is a maximum of 8 printable characters. Change it to update the message or blank it out to delete the message.

DESCRIPTION is the message which you want to be displayed in the message line when the application is running. It can be a maximum of 60 characters. Change it to update the message.

When you are satisfied with the information you have entered, press the (ENTER) key to transmit the form. The message "changes saved" is displayed in the message line of your terminal screen.

5.3.4 Message Management Functions

Message Management is an IISS application and as such uses the function keys PF5 through PF20 for special functions as described in section 3.3 Keyboard Modes. Also, Message Management uses the control keys PFO through PF4 as described in the section 3.2 Control Keys. The functions that are available in application mode when you are running Message Management are described in this section. These functions allow you to move to the next page, back-up to the previous page, go all the way to the end of the file and back up to the beginning. You can make changes in the message name and description, but you can not change the message number because these are related to the base number you entered.

5.3.5 Message Management Keys

This section lists the keys. The terminal mapping charts (Appendix B) show you exactly which key (or keys) on your terminal you need to press to perform the function.

PF5 (PAGE FORWARD)	Displays the next screen of the current message file.
PF6 (PAGE BACK)	Displays the previous screen of the current message file.
PF7 (BEGINNING)	Displays the first screen of the current message file.

PF8 (END) Displays the last screen of the current message file.

5.3.6 Generating Include Members

Every time that you create a new message file or update an existing file, you must perform this routine and recompile all application programs that use the generated include files. The following sample series describes the system prompts and user responses that comprise the routine. The prompts and responses are in bold type, comments are also included in regular type.

System Prompt	Your Response
Your system prompt	Log on to the system
Your system prompt	invoke INCGEN
Available languages: 0 - C 1 - COBOL 2 - PL/I 3 - FORTRAN	
Enter Language:	1
	For this example we will use (COBOL)
OUTPUT FILE:	TEST.DAT
	This name can be any name that is valid for your system.
INPUT FILE:	MSG900.MSG
	It may be necessary to qualify this file name, depending on your system.
INPUT FILE:	(END OF FILE)
	You can send more than one input file to the same output file, so you are prompted again for an input file. (END OF FILE) (normally Control/Z) will get you out after you have all the entered all the input files you have.

You have just generated an include file in the language you specified in your directory. If you want to view this file, you display it as follows:

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\$ TAPE TEST.DAT

```
01 INVPOS    PIC X(5) VALUE "85000".  
01 IMPSEQ    PIC X(5) VALUE "85001".  
01 SYNERR    PIC X(5) VALUE "85002".  
01 NVALCOM   PIC X(5) VALUE "85003".  
01 DUPFLD   PIC X(5) VALUE "85004".  
[EOB]
```

This is your output (include) file in COBOL.

Note: MM creates a new version of the msgxxx.msg file everytime you create a new message file and every time that you update an existing file. It is important to go to your directory and purge your message files so you don't have several versions of the same file.

APPENDIX A

EXPLANATION OF ERROR AND STATUS MESSAGES

Messages appear on the last line of each form. The content may vary from application to application. An explanation of messages sent by the UI follows, sorted by form. The form name appears in the upper left-hand corner of each page.

Errors and messages displayed while accessing IISS are described first. Errors and messages displayed while using the UI or the predefined functions are documented next.

ACCESS ERRORS AND MESSAGES

LOGON Messages

INVALID USER ID, PASSWORD, ROLE COMBINATION

You have either entered a PASSWORD that is not valid for the USER ID you have entered or a ROLE that is not associated with the USER ID you have entered. Try again. If you still have problems contact your data base administrator to be sure that your user and role entries exist in the data base.

CHOOSE FUNCTION Messages

DATA BASE ERROR

The UI is unable to call the data base. Re-enter the form by pressing the <ENTER> key. If the problem persists contact your system manager or data base administrator.

FUNCTION MUST BE UNIQUELY IDENTIFIED

You have not entered enough characters to uniquely identify a function. Re-enter FUNCTION and press the <ENTER> key.

FUNCTION MUST BE VALID FOR ROLE

The ROLE you are using is not authorized to execute the FUNCTION you have entered. Re-enter ROLE or FUNCTION and press

the `<ENTER>` key.

ROLE MUST BE VALID FOR USER ID

Your USER ID is not authorized to use the ROLE you have entered. Re-enter ROLE and press the `<ENTER>` key.

YOUR ROLE HAS BEEN CHANGED

You changed roles when you transmitted your last form.

FUNCTION HELP Messages

DATA BASE ERROR

The UI is unable to call the data base. Re-enter the form by pressing the `<ENTER>` key. If the problem persists, contact your system manager or data base administrator.

PRESS SEND KEY FOR MORE AVAILABLE FUNCTIONS

The list of functions available to you is continued on another screen. Press the `<ENTER>` key to continue viewing available functions.

UIS ERRORS AND MESSAGES

CHANGE PASSWORD Messages

DATA BASE ERROR

The UIS is unable to call the data base. Re-enter the form by pressing the `<ENTER>` key. If the problem persists contact your system manager or data base administrator.

ENTER NEW PASSWORD

NEW PASSWORD is blank. To change your password you must enter it and press the `<ENTER>` key.

ENTER OLD PASSWORD

OLD PASSWORD is blank. To change your password you must enter it and press the `<ENTER>` key.

OLD PASSWORD MUST BE VALID FOR YOUR USER ID

You have entered an OLD PASSWORD which is not the logon password for your USER ID. Re-enter OLD PASSWORD and press the `ENTER` key.

VERIFICATION MUST MATCH NEW PASSWORD

VERIFICATION is not the same as NEW PASSWORD. Re-enter one of these and press the `ENTER` key.

YOUR PASSWORD HAS BEEN CHANGED

You have successfully changed your logon password.

DEFINE AN APPLICATION Messages

APPLICATION MUST BE ENTERED

Enter an application and press the `ENTER` key.

DATA BASE ERROR

The UIS is unable to call the data base. Re-enter the form by pressing the `ENTER` key. If the problem persists, contact your system manager or data base administrator.

YOUR APPLICATION HAS BEEN DEFINED

The definition of your application has been stored in the data base.

UPDATE APPLICATION DEFINITION Messages

DATA BASE ERROR

The UIS is unable to call the data base. Re-enter the form by pressing the `ENTER` key. If the problem persists, contact your system manager or data base administrator.

SELECT UPDATE OR DELETE BUT NOT BOTH

You have a non-blank character in both update and delete. Remove one of these and press the `ENTER` key.

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YOUR APPLICATION DEFINITION HAS BEEN DELETED

The definition of your application has been removed from the data base.

YOUR APPLICATION DEFINITION HAS BEEN UPDATED

The definition of your application has been updated in the data base.

APPENDIX B
TERMINAL MAPPING CHARTS

Key Mappings for the Keyboard Modes

key	Window Manager	Text Edit	Scroll/Page
PF0	<ENTER>	<ENTER>	<ENTER>
PF1	<MODE>	<MODE>	<MODE>
PF2	<HELP>	<HELP>	<HELP>
PF3	<MESSAGE QUEUE>	<MESSAGE QUEUE>	<MESSAGE QUEUE>
PF4	<QUIT>	<QUIT>	<QUIT>
PF5	<SCROLL UP>	<SEARCH>	<SCROLL UP>
PF6	<SCROLL DOWN>	<SEARCH NEXT>	<SCROLL DOWN>
PF7	<SCROLL LEFT>	<REPLACE>	<SCROLL LEFT>
PF8	<SCROLL RIGHT>	<REPLACE NEXT>	<SCROLL RIGHT>
PF9	<SIZE>	<INSERT LINE>	<PAGE UP>
PF10	<LOCATION>	<DELETE LINE>	<PAGE DOWN>
PF11	<SELECT>	<PASTE>	<PAGE LEFT>
PF12	<RESTORE>	<FILL>	<PAGE RIGHT>
PF13	<FUNCTION>	<MIDLINE BREAK>	
PF14	<APPLICATION>	<DELETE ITEM>	
PF15	<HOME VIEW>	<RESTORE>	
PF16		<REPEAT>	
PF17		<FILL MARGINS>	
PF18			
PF19			
PF20			

Terminal Mapping for the ADM3A

NOTE: You need to distinguish between O (alphabetic) and 0 (zero).
The two options show keys which perform an identical function. You can use whichever key is convenient to you.

Key	ADM3A key	
	option 1	option 2
PF0	⟨ESC⟩ ⟨CR⟩	
PF1	⟨ESC⟩ 1	
PF2	⟨ESC⟩ 2	
PF3	⟨ESC⟩ 3	
PF4	⟨ESC⟩ 4	
PF5	⟨ESC⟩ 5	
PF6	⟨ESC⟩ 6	
PF7	⟨ESC⟩ 7	
PF8	⟨ESC⟩ 8	
PF9	⟨ESC⟩ 9	
PF10	⟨ESC⟩ 0	
PF11	⟨ESC⟩ Q	⟨ESC⟩ q
PF12	⟨ESC⟩ W	⟨ESC⟩ w
PF13	⟨ESC⟩ E	⟨ESC⟩ e
PF14	⟨ESC⟩ R	⟨ESC⟩ r
PF15	⟨ESC⟩ T	⟨ESC⟩ t
PF16	⟨ESC⟩ Y	⟨ESC⟩ y
PF17	⟨ESC⟩ U	⟨ESC⟩ u
PF18	⟨ESC⟩ I	⟨ESC⟩ i
PF19	⟨ESC⟩ O	⟨ESC⟩ o
PF20	⟨ESC⟩ P	⟨ESC⟩ p

Terminal Mapping for the VIP

NOTE: You need to distinguish between O (alphabetic) and 0 (zero).
Keys separated by a / are pressed simultaneously.
The two options show keys which perform an identical function. You can use whichever key is convenient to you.

Key	VIP key	
	option 1	option 2
PF0	⟨XMIT⟩	⟨ESC⟩⟨CR⟩
PF1	⟨F1⟩	
PF2	⟨F2⟩	
PF3	⟨F3⟩	
PF4	⟨F4⟩	
PF5	⟨F5⟩	
PF6	⟨F6⟩	
PF7	⟨F7⟩	
PF8	⟨SHIFT⟩/⟨F1⟩	
PF9	⟨SHIFT⟩/⟨F2⟩	
PF10	⟨SHIFT⟩/⟨F3⟩	
PF11	⟨SHIFT⟩/⟨F4⟩	⟨ESC⟩ Q
PF12	⟨SHIFT⟩/⟨F5⟩	⟨ESC⟩ W
PF13	⟨SHIFT⟩/⟨F6⟩	⟨ESC⟩ E
PF14	⟨SHIFT⟩/⟨F7⟩	⟨ESC⟩ R
PF15		⟨ESC⟩ T
PF16		⟨ESC⟩ Y
PF17		⟨ESC⟩ U
PF18		⟨ESC⟩ I
PF19		⟨ESC⟩ O
PF20		⟨ESC⟩ P

Terminal Mapping VT100

NOTE: You need to distinguish between O (alphabetic) and 0 (zero).
Numbers in carrots refer to keypad keys. For example, 7 represents the keyboard key, <7> represents a keypad key. The two options show keys which perform an identical function. You can use whichever key is convenient to you.

KEY	VT100 key	
	option 1	option 2
PF0	<ENTER>	<ESC><CR>
PF1	<PF1>	<ESC>1
PF2	<PF2>	<ESC>2
PF3	<PF3>	<ESC>3
PF4	<PF4>	<ESC>4
PF5	<7>	<ESC>5
PF6	<8>	<ESC>6
PF7	<9>	<ESC>7
PF8	<->	<ESC>8
PF9	<4>	<ESC>9
PF10	<5>	<ESC>0
PF11	<6>	<ESC>q
PF12	<,>	<ESC>w
PF13	<1>	<ESC>e
PF14	<2>	<ESC>r
PF15	<3>	<ESC>t
PF16	<0>	<ESC>y
PF17	<.>	<ESC>u
PF18		<ESC>i
PF19		<ESC>o
PF20		<ESC>p

Terminal Mapping for the IBM 3270

The two options show keys which perform an identical function. You can use whichever key is convenient to you.

Key	IBM 3270 key	
	option 1	option 2
PF0	<ENTER>	
PF1	<PF1>	
PF2	<PF2>	
PF3	<PF3>	
PF4	<PF5>	
PF5	<PF5>	
PF6	<PF6>	
PF7	<PF7>	
PF8	<PF8>	
PF9	<PF9>	
PF10	<PF10>	
PF11	<PF11>	<PAI><PF1>
PF12	<PF12>	<PAI><PF2>
PF13	<PF13>	<PAI><PF3>
PF14	<PF14>	<PAI><PF4>
PF15	<PF15>	<PAI><PF5>
PF16	<PF16>	<PAI><PF6>
PF17	<PF17>	<PAI><PF7>
PF18	<PF18>	<PAI><PF8>
PF19	<PF19>	<PAI><PF9>
PF20	<PF20>	<PAI><PF10>

DATE
LIMED
-88