

AD A 071 207

LEVEL

12

**DESIGN CONSIDERATIONS
FOR THE MAN-MACHINE RELATIONS
USER INTERFACE TO TAS**

Technical Report

Prepared by:

Logicon, Inc.
4010 Sorrento Valley Blvd.
P.O. Box 80158
San Diego, CA 92138

Contract No. MDA903-79-C-0261
ARPA Order No. 3705
Contract Effective Date: 15 March 1979
Contract Expiration Date: 15 March 1980

Interim Report for Period 15 March 1979 to 15 July 1979

DDIC
RECEIVED
JUL 18 1979
C

DISTRIBUTION STATEMENT

Approved for public release;
distribution unlimited.

Prepared for:

Defense Advanced Research Projects Agency
Cybernetic Technology Office
1400 Wilson Boulevard
Arlington, VA 22209

DDC FILE COPY

LOGICON

AUTOMATION • COMPUTERS • ELECTRONICS

ARPA-79C0261-01
15 July 1979

79 07 13 002

6 DESIGN CONSIDERATIONS
FOR THE MAN-MACHINE RELATIONS
USER INTERFACE TO TAS

9 Technical Report. 15 Mar-15 Jul 79.

Prepared by:
Logicon, Inc.
4010 Sorrento Valley Boulevard
P. O. Box 80158
San Diego, California 92138

The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing the official policies, either express or implied, of the Defense Advanced Research Projects Agency or the United States Government.

12 133p.

This research was sponsored by the
Defense Advanced Research Projects
Agency under ARPA Order No. 3705
Contract No. MDA903-79-C-0261
Monitored by Dr. Craig Fields

15 ARPA Order-3705

11 15 Jul 1979

406012

gsw

ABSTRACT

Many existing computer systems do not show their expected benefits, although they are functionally complete. This is felt to be caused by insufficient consideration of man-machine relations factors in design of the user interface to the computer system's functionality. Such a deficient design could discourage potential users from employing the computer as they would if the operating environment were more congenial.

→ This effort consists of the analysis and design of a user interface which employs several man-machine relations factors; an existing system will be employed as a testbed for these beliefs - the COINS II Terminal Access System (TAS). This new interface must not interfere with the existing TAS user interface; it must coexist with the original and both must be accessible to TAS users. In addition to the software effort, intelligent terminals (i. e. , microprocessor controlled) will emulate an electronic desk environment for the user. We feel that such modifications will result in greatly increased user acceptance of TAS, while providing a good indication of how such considerations can be applied to other systems and the possible effects of such efforts.

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DDC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist.	Avail and/or special
<input checked="" type="checkbox"/>	<input type="checkbox"/>

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1	INTRODUCTION	1
1.1	Background and Rationale	2
1.1.1	Description of COINS II/TAS	2
1.1.2	Advantages of Using TAS as a Testbed	3
1.2	Objectives and Purposes	4
1.3	Overview of Design Considerations	5
1.3.1	Polite English	5
1.3.2	Positive Feedback to Users	6
1.3.3	Low Pressure Activities	7
1.3.4	Electronic Desk Environment	8
1.3.5	Menus	9
1.3.6	Interface Parameter Customization	9
2	IMPLEMENTATION CONSIDERATIONS	11
2.1	Polite English	11
2.2	Positive Feedback to Users	13
2.3	Low Pressure Activities	14
2.4	Electronic Desk Environment	14
2.5	Menus	15
2.5.1	The Menu Profile	16
2.5.2	MMICI Processing Flow	16
2.6	Interface Parameter Customization	19
3	MENU PAGE DESCRIPTIONS AND USAGE SCENARIOS	21
3.1	Menu Pages in Terms of TAS Functions	24
3.1.1	The Initial Entry Page	24
3.1.2	The Textfile Manipulation Page	25
3.1.3	The Parameter Alteration Page	27
3.1.4	The Rest and Relaxation Page	28
3.1.5	The Utility Function Page	30
3.1.6	The Inter-user Communication Page	31
3.1.7	The Database Access Page	32
3.1.8	The Batch Query Transmission Page	33

TABLE OF CONTENTS (Continued)

<u>Section</u>	<u>Title</u>	<u>Page</u>
3.1.9	The Query Manipulation Page	34
3.1.10	The Pending Query Manipulation Page	35
3.1.11	The Command Entry Page	36
3.2	Usage Scenarios	37
3.2.1	Help on a Page	38
3.2.2	Parameter Inspection and Modification	40
3.2.3	User Textfile Access	46
3.2.4	Activities for Rest and Relaxation.	52
3.2.5	Utility Functions	54
3.2.6	Inter-user Communication	58
3.2.7	DBMS Access	61

APPENDICES

<u>Appendix</u>	<u>Title</u>	<u>Page</u>
APPENDIX A	POLITE ENGLISH TAS DIAGNOSTICS	70
APPENDIX B	SAMPLE JOKES	71
APPENDIX C	COMMAND ARGUMENT DIALOGS	93

SECTION 1

INTRODUCTION

This document describes the design of a new user interface for the Terminal Access System (TAS) of the Community Online Intelligence Network System (COINS). The new interface incorporates Man-Machine Relations (MMR) factors into the TAS user interface environment and is called the MMR/TAS interface. The various considerations which lead to this design are given along with extensive usage scenarios for MMR/TAS.

The balance of this document is organized into sections providing general background information, a technical discussion of design considerations, and scenarios describing MMR/TAS usage. Section 1 continues by providing background information, rationale, objectives, and design considerations for the MMR/TAS effort. Section 2 enters into a technical discussion of design considerations and features of the new interface. The third and final section of this report consists of extensive scenarios on the usage of the MMR/TAS interface. The various manipulations of MMR/TAS are described for the person familiar with the functionality of TAS, followed by explicit usage sequences. Appendix A presents the TAS diagnostic messages, converted to polite English. Appendix B contains a sampling of the jokes which will be used by the command interpreter. Appendix C exemplifies the dialogs which the command/menu interpreter will carry on with the user in order to ascertain the parameters required for the various TAS programs.

1.1 BACKGROUND AND RATIONALE

A great number of existing computer systems in operation today remain underutilized; in many cases, this waste of resources is not due to functional deficiency in a system or its design. In other words, many of today's operational and functionally sound computer systems are not employed fully by their users. This is believed to be due to lack of acceptance of a computer system by the people who must use it. Specifically, users are felt to dislike the environment provided by the computer system, and consequently, avoid employing it when possible. Much of this waste has been attributed to lack of proper care in designing the user interface.

The effort described here attempts to make one existing system more amenable to human users, while serving as a convenient vehicle of ongoing research into man-machine relations. The system chosen for this modification is TAS, an interface to the COINS II Network for computer-naive intelligence analysts. In order to fully understand the situation, background information regarding COINS and TAS is in order.

1.1.1 Description of COINS II/TAS

The Community Online Intelligence Network System is a distributed packet-switching network connecting various database management systems (DBMSs) in the intelligence community. The network, termed COINS II, is of ARPANET technology and accommodates a great variety of 'user', 'server', and 'frontend' hosts (i. e., hosts which utilize others' resources, provide resources for others directly, and interface other computer systems to the network, respectively). The number of each type of host is continually growing. One relatively recent addition to COINS was a user host developed to

provide uniformity of interface to human users of the various servers distributed on the network. This is the Terminal Access System (TAS).

TAS is designed to interface users to the many services of the COINS network. To accomplish this task, it provides functionality for:

- a. Uniform and secured access to the COINS II Network.
- b. Uniform and secured access to COINS II batch applications (i. e., the database systems).
- c. Automated and transparent logon to COINS interactive applications.
- d. Local textfile and query request/reply maintenance mechanisms.
- e. Obtaining status information regarding the TAS and/or network applications.

The software implementing these functions runs on top of the UNIX operating system (a product of Bell Laboratories) for Digital Equipment Corporation (DEC) PDP-11/70 minicomputers. The users communicate with TAS, and hence with the COINS network, via interactive computer terminals; currently these are predominantly Teletype Model 40 CRT/keyboard/printer terminals. User entries to the system consist of commands to TAS and queries directed to specific COINS application hosts.

1. 1. 2 Advantages of Using TAS as a Testbed

Since TAS functions as an intermediary between human users and COINS server hosts, it can provide uniformity of interface for any user accessing any server host. Initially, the software for TAS provided only a command-based type of interface for its users. At this time, work is proceeding to

develop another user interface based on menus and simple dialogs. This is the MMR/TAS interface; it is both completely based upon TAS functionality and totally independent of the original command interface. Thus, only the actual software which communicates with the user is affected by the MMR/TAS project development — all of the underlying functionality is available, with slight modifications to only a few of the many programs comprising TAS.

The excellent internal structure of the TAS software modules greatly simplifies interface modification. Most of the TAS programs perform a single well-defined operation; they can be employed as primitives for building a new user interface. For example, when any TAS program wishes to verify a user's authorization to access a given resource, that program requests that the TAS Access Authorization Process check the user's authorization data and return a yes or no answer. Similarly, other programs may be called to manipulate a user's personal resources (e. g. , textfile management). Thus, a new user interface need only translate what the user enters into calls to the basic functional blocks of TAS. Constructing the mapping is non-trivial and requires a firm understanding of internal TAS structure, but is relatively straightforward. This allows the design of the MMR/TAS interface to concentrate almost exclusively on MMR factors, and to largely ignore TAS internal structures.

1.2 OBJECTIVES AND PURPOSES

Although it is true that users will adapt to a system and learn its quirks, new people have a hard time coming 'up to speed' in most computer environments. If a user interface is oriented more toward the user than the convenience of the programming staff, overall work efficiency should benefit. This is due to the fact that computer applications seem to be

designed and implemented very infrequently compared to the amount of time they spend in a production environment with actual users.

Our goal is to make TAS easy to use for both novice and experienced users. To accomplish this feat, an extremely flexible user interface must be designed. It must not only give novices sufficient direction to allow them to use the system, but also teach them how to do so efficiently so they may eventually provide the direction. At the same time, the user interface must allow the experienced user to provide a great deal of the direction — the opposite state from that for a novice. Furthermore, both must be integrated into a coherent picture so that the transition from novice to experienced user is not painful for the human.

1.3 OVERVIEW OF DESIGN CONSIDERATIONS

We now briefly describe the design resulting from this year of MMR/TAS development. In particular, we focus our attention on the area of the software user interface. The material is broken down into categories much like those in the initial contract proposal: polite English outputs, positive feedback to users, low-pressure activities, the Electronic Desk environment, menu interface, and user customization of the interface. A more detailed discussion of the implementation of these improvements can be found in Section 2.

1.3.1 Polite English

This task is based on the idea that users should not be treated rudely or abruptly by the computer system. If this is not the case (i. e., the computer is abrupt), the machine can easily intimidate the user. Particular care must be taken with new users, who are unsure of the machine and

themselves; the computer should create a good first impression so users will not be afraid of it or dislike it.

In order to accomplish this, TAS diagnostic and error messages will be rephrased by an authority on American etiquette. This task has been done by Ms. Letitia Baldrige, who has recently revised "Amy Vanderbilt's Complete Book of Etiquette". This will ensure that the user will not be subjected to rude, abrupt, vague, or otherwise undesirable messages from TAS. Appendix A presents this work; it lists the original messages as well as their polite counterparts.

1.3.2 Positive Feedback to Users

While using a computer system, a person tends to build and maintain a 'mental model' of what the computer is doing. This action is done quite automatically in an attempt to comprehend the interchanges between themselves and the computer. People usually get anxious when this mental model is violated and the system's behavior does not match their idea of what that behavior should have been. Time is a subtle factor in the mental model. When the user enters a command (or otherwise requests service from the computer) only a certain amount of time may elapse before the user begins to wonder, and perhaps worry, about precisely what is going on.

One way to keep the user's mental model in accord with the actual performance of the system is to provide positive feedback. That is, whenever the user requests an operation that is likely to take a reasonably long time to complete, the system should inform him or her of how long. Alternatively, if the user is waiting for the system to accomplish something before he or she can proceed, the system should keep the user posted on

the progress being made towards satisfying the request. In either case, the system is helping the user to keep that mental model updated. For example, when TAS users submit a query to a DBMS, they have no real idea when the response will be sent back. TAS software cannot control or inquire about the remote system's operating load, but it can inform the user of whether the host is up or down, the number of outstanding queries from TAS to that host, and the turnaround of the last response received from the host. An example of the user waiting in real time is provided by interactive host logon. TAS cannot control the response time of remote interactive applications, but can keep the user informed of progress in accessing the host. The SOLIS system can be rather sluggish at times, causing the user to experience annoying delays in connection establishment and logon. MMR/TAS software will keep the user posted on its progress in accomplishing these tasks.

1.3.3 Low Pressure Activities

Computer systems have been accused of being all-business environments. Such a working situation can be monotonous and/or boring, and cause a person to wear down (possibly becoming ineffective at his or her job as well as disenchanted with the work). To avoid this, MMR/TAS will include facilities to 'take a break' from the normal working cycle. For this effort, three computer games will be provided for the user to play at any time. Hunt the Wumpus places the user in a convoluted cave possessing one Wumpus and several hazards (e.g., bottomless pits). The object of the game is to kill the Wumpus with the arrows provided before being eaten or succumbing to one of the hazards. Maze is similar, but with different hazards and another objective: escape. Star Trek puts one in a two-dimensional rectangular galaxy as commander of the U.S.S.

Enterprise, a Federation star cruiser. It so happens that this galaxy is littered with Klingons (mortal enemies of the Federation) which must be killed before they destroy the galaxy. Hazards to the player consist of star novas, supernovas, a time limitation, and, of course, the Klingons.

Another feature of the MMR/TAS interface which reduces the all-business appearance of the computer system is joke presentation. The command/menu interpreter will write a joke or witticism on the bottom of each menu or command page it outputs to the user's terminal. This is expected to have beneficial effects on the inexperienced and anxious users of MMR/TAS by injecting levity into the working environment. These users should feel less apprehensive since the computer is no longer a fear-imposing object. The facility may be turned off at any time in case a user wishes the jokes to not appear. Appendix B contains a sample of the jokes which will be presented.

1.3.4 Electronic Desk Environment

Another interesting way to make the user more comfortable in the computer environment is simply to make the computer look familiar. This can be done by many methods, including the path taken in this year's effort: the emulation of a familiar office environment. Specifically, the MMR/TAS project will use an intelligent terminal which emulates an electronic desk (the ED-1, manufactured by the Interactive Television Company (ITC)) to accomplish this goal. Further, two of these terminals will be specially housed (by the Picture Design Group) to further soothe the user.

The ED-1 employs spatial indexing to orient the user in his or her environment in much the way that a person in the normal office environment places things on his desk. There are various rectangular boxes on the display

of the ED-1 which represent stacks of paper, file boxes, etc., placed on the top of a desk. Some of these boxes are special 'trap doors' which allow the user to manipulate other desk tops, providing functionality similar to a file box with various drawers and files in each drawer. Another type of box will provide access to the host computer system - TAS in this case. Once this box is entered, the user will be able to access TAS and all of its functionality.

1.3.5 Menus

It must be possible to access the MMR/TAS interface from terminals other than the ED-1. To accomplish this, this year's MMR/TAS interface is not designed to make use of the ED-1's spatial capabilities; we will produce a menu-driven command interpreter instead. (This program is known as MMICI, an acronym for the Man-Machine Interface Command Interpreter.) This technique has several advantages over employing the ED-1's capabilities besides terminal interchangeability. Foremost in this list is the fact that users will not have to learn a different interface for each TAS terminal they use. MMICI certainly provides inexperienced users with the step-by-step direction they require, and also offers a command-based mode for experienced users. Further, the original TAS command interface (the TASHHELL) is also available through MMICI. Section 3 deals exclusively with the menu pages available, and presents thorough scenarios of MMICI's usage. Appendix C depicts the dialogs which MMICI will employ to ascertain the parameters for TAS commands while the user is in menu mode.

1.3.6 Interface Parameter Customization

The user is given a modicum of control over their interface with the system. Included in this set of functions is the ability to:

- a. Turn the jokes which appear on each menu page on and off.

- b. Switch the menu to (and back from) a more terse mode of operation.
- c. Change their TAS project.
- d. Switch to the original TAS command interpreter (the TASHELL).
- e. Switch to the new MMR/TAS command mode.

We feel that these capabilities are a strong beginning for interface customization on TAS, and are sufficient for this year's effort.

SECTION 2

IMPLEMENTATION CONSIDERATIONS

This section contains a detailed explanation of how this year's MMR considerations will be implemented and incorporated into TAS. The topics deal with polite English, positive feedback for MMR/TAS users, low pressure activities, the electronic desk environment, the Man-Machine Interface Command Interpreter (MMICI) (and the interface it provides), and how the user can customize his or her interface to MMR/TAS.

2.1 POLITE ENGLISH

The text of most TAS error/diagnostic messages is collected into a disk file. One of the TAS generation steps is a pass over this textfile which generates the GEMES and GEDES file for the running TAS. (The GEMES file contains the diagnostic messages (less extraneous delimiters) and the GEDES file contains a data aggregate which describes the format of GEMES.) In other words, most TAS errors are collected into files on the disk which are accessed in a random fashion by the TAS error reporting function. TAS programs call this function (GFERROR) when they wish to report an error to the user or log it on the system console; GFERROR locates the text in GEMES through the 'pointer' in GEDES and outputs the message as requested. In order to alter the error messages of TAS the error text file is changed and the initialization program to build GEDES and GEMES is re-run.

Thus, the MMR/TAS software can simply employ the file of diagnostic text which has been redone by Ms. Baldrige. Since all normal TAS software must coexist with the MMR/TAS software, some internal means of

distinguishing the user's mode must be present. In other words, if the user is running in the MMR mode (i. e., with MMICI as command interpreter), all TAS software must employ polite diagnostics. Alternatively, if the user is running the TASHELL the original diagnostic text is called for.

This can be accomplished in several ways, but we feel the most general and expedient to be a slight modification to GFERROR. Each time GFERROR prepares to read an error from disk, it can check for the presence of a new file in the user's directory. The presence of this file indicates to all TAS software that the user is indeed running MMR/TAS as opposed to normal TAS. In this case, GFERROR can employ the polite error file.

Since all MMR/TAS interactions must go through MMICI, the flag file can be managed best by MMICI. During its initializations, MMICI could create the flag file, and before exiting MMICI would remove it. When the user switches to the TASHELL, MMICI would remove the flag file and fork/execute/wait a copy of the TASHELL. When the TASHELL exits, MMICI will be reawakened to create the flag file anew and resume operation. Because this flag file is always under the control of only MMICI, we call it the MMICI flag file.

Note that this method requires no modification to existing TAS software. Of course, GFERROR must be altered and TAS programs using it reloaded, but that is the full extent of the perturbation on normal TAS programs. None of the actual code in any of them need take any notice of the change. Furthermore, the presence of the MMICI flag file alerts other TAS software that the user expects special treatment.

2.2 POSITIVE FEEDBACK TO USERS

Several areas have been marked for improvement of their positive feedback. These include some indication to users when the system seems slow, when they submit a batch query, and during transparent logon to a remote application.

Only the first may be done without impacting existing TAS software slightly. MMICI can employ a heuristic to estimate the load on the TAS system, and inform the user of this during initialization. Of course, while the algorithm is proceeding, the user would be informed that MMICI is active and attempting to get an estimate of the system's response time.

When a batch query is submitted via a TAS Batch Query Processor (BQP), some estimate of turnaround time must be generated. Although TAS software cannot obtain that estimate from the remote application, it can consult the GHOST table to determine if the host is up, and how long the last response received from the application took to turn around. To accomplish this with minimal impact, each BQP will be modified to check for the MMICI flag file and, if present, call a function which will perform the GHOST access and pass the information on to the user.

Interactive applications can also be sluggish, and pose a different problem. The user is basically waiting for the system to do something at all times. Thus the system must keep the user abreast of developments as they happen in order to keep the user's mental model of the situation current and correct. As described in the proposal for this effort, it is not possible to always inform the user when a remote interactive application is sluggish. This is due to the fact that once the Interactive System Processor (ISP) has logged the user onto the remote host, it enters a transparent mode of

operation. After this point, TAS software has absolutely no idea of what interchanges are happening between the remote application and the TAS user. (We suggest incorporation of the ADAPT subsystem to accomplish such feedback.)

However, the ISP is totally aware of the application while it performs the transparent logon sequence. During this time (before the transparent mode is initiated), the ISP can alert the user of progress being made and delays in service from the remote application. The MMICI flag file will be tested by each ISP (e.g., the SOLIS program) and, if present, the user will be given additional information during logon to the remote host.

2.3 LOW PRESSURE ACTIVITIES

This effort provides the MMR/TAS user with screen jokes and interactive games. Since only the MMR/TAS user will receive these features, they are done exclusively through MMICI. In short, MMICI generates and outputs menu and command pages to the user's terminal; thus it may add a joke to the screen with a minimum of bother. Since MMICI controls the menus given to the user, one of the menus can be reserved for low pressure activities and contain a choice for each available game. No modification to normal TAS software is required.

2.4 ELECTRONIC DESK ENVIRONMENT

The Electronic Desk terminal (ED-1) designed and manufactured by the Interactive Television Company (ITC) provides a novel environment for computer users. The ED-1 makes use of spatial indexing to orient the user in the computer environment. The space is arranged to appear somewhat like a desktop in a conventional office, with stacks of papers, files, etc., on the desk. File cabinets, desk drawers, and the like are

implemented through a sub-desktop feature which permits the user to effectively stack desktops in a hierarchy. Also provided by the ED-1 firmware is a terminal box; entering this type of box places the terminal in control of its host computer system.

MMR/TAS will employ the ED-1 as a normal terminal. As explained in Section 1.3, all MMR/TAS software must be available from any TAS terminal, and thus cannot be dependent on the extra features provided by the ED-1 terminal. However, the user is still free to employ the spatial hierarchy of the ED-1 to the fullest extent possible. For example, experienced users may wish to load their own floppy diskette into the terminal before beginning an interactive session with TAS. They would thus be able to keep a record of the entire session (as per the ED-1's capability to do so), as well as store text independent of the TAS.

We expect future efforts to employ the capabilities of the ED-1 more fully. It should be possible, for example, to move much or all of the menu hierarchy out from MMICI into the terminal. At the same time, the user could rely on TAS software to assist in modification of the menu hierarchy, operating modes, etc., of the terminal. This capability could spawn a TAS user interface which employed only spatial indexing for all of the TAS functionality from requesting services to naming query jobs.

2.5 MENUS

User menus will reside in files on the disk, in the user's login directory. These files are termed profile files since they contain all information necessary for MMICI to construct each user's menus. (Basically, before presenting each menu choice in the profile pages, MMICI will first verify that the user can access the TAS function indicated by that choice. If the user will not be permitted access, the choice is not provided.)

2.5.1 The Menu Profile

MMICI will employ a profile file to obtain a user's menu pages. For the current effort, two profile files will be permitted: one for each of terse and verbose menu modes. These files will be built by a profile building program which simply formats and writes its own internal data structures into the appropriate file. Each of the profiles will contain the maximal set of user operations, so MMICI can perform a finer granularity restriction of the user's choices based on the contents of his or her access authorization files.

2.5.2 MMICI Processing Flow

When MMICI is invoked, it will determine if the user already has a current profile file. If not, it will inform the user (to provide feedback), fork/execute the profile builder, and wait for its exit. Next, MMICI will proceed to ascertain the user's capabilities. This involves inverting and compressing the TAS access authorization data files for the user. MMICI then sets an internal privilege mask which is used in conjunction with the inverted access authorization data.

At this point, MMICI displays the system message of the day, and estimates the current system load. After apprising the user of the situation, MMICI instructs the user that it is ready to begin, and awaits a keypress. Finally, MMICI will create the MMICI flag file, and call its primary function — the routine to manipulate a menu page. On this first call, the page chosen is the zeroth page, which happens to be the initial entry page (by convention).

Thereafter, MMICI is in a large loop to present its current menu page and service user choices. Each iteration of this loop prompts the user and

permits him to enter a choice key character. If validation of the key fails, MMICI outputs a diagnostic and reasserts the main loop. Otherwise, MMICI performs the function.

There are actually three classes of functions which can be requested from a menu choice. These are:

a. TAS Functions

This set of functions translates directly to an operation of the TAS. Each time one of these functions is requested, MMICI uses internal tables to dispatch to a routine which gathers parameters appropriate to the TAS command via dialog with the user. After all parameters have been entered, the routine fork/executes the TAS command and waits for it to exit.

b. Local Functions

This class of functions represents operations which MMICI carries on internally. The most common of these is menu page switching, which is best exemplified by a choice which requests descent into another level of the menu hierarchy. When this happens, MMICI recursively calls the routine to manipulate a menu page, thereby achieving another page load from the profile file, etc.

c. Built In Functions

This set of functions is independent of the menu page presented and thus is always available. Because of their general applicability to all pages, they are set off from other local functions. The operations consist of menu

choices to return to the previous menu page, return to the initial entry page, logoff immediately, and request help for an item on the current page. (The profile can specify that one or more of them be rendered inactive for any page, but this rarely happens. As will be seen in Section 3, the choices are available for all pages with the exception of the initial entry page. In this case, the return to previous or initial page options are suppressed because they are no-operations.) The return operations simply cause the menu page manipulation routine to return to its caller. In the case of a multilevel return, the value returned indicates the action higher level routines must take (e.g., if they should return to their callers).

The routine manipulating a menu page is by far the most logically complex in MMICI. There are a couple of points which need elaboration for its actions to be clear. First, if the user's choice results in another menu level being entered, the routine simply calls itself recursively. When the called level returns, the value returned can indicate that the user requested a multilevel return. If this is the case, the caller returns also, and so on, until the proper number of levels have been popped off the stack. This is indeed how the return to initial page and logout immediately built in functions are implemented. This is also the method used when the user chooses a TAS function which ultimately requests immediate logout (e.g., requesting a logoff during an interactive session will cause this type of action to be taken).

In addition to the value returned from the routine handling a function request, there are several flag bits associated with each choice which can cause

further special action to take place. This is exemplified best by the issuance of a change project request by the user. The menu choice which represents the change project TAS function is marked by a bit which will force a reloading of the internal privilege mask specifying the user's current project. This provision provides a minimum overhead solution to the problem posed by 'on the fly' alteration of the user's current set of TAS access authorizations.

A final clarification is needed regarding the data structures MMICI uses for dispatching. There is a dispatch table for local functions and a dispatch table for TAS functions. Each of these tables contains a set of enable bits and a pointer to the routine which handles the operation. The local function enable bits are generally on, but can be turned off to inhibit the indicated choice. This could occur if, for example, the user's access privileges do not allow access to anything on the menu page referenced. The TAS function enable bits are initialized according to the user's access authorization data (as described previously). These are the bits which are used to decide if a choice will be presented to the user or not. Note that previous discussion implied that the bits were in the menu choices themselves - that was merely a simplification to avoid making the whole matter entirely incomprehensible. The menu choices actually contain an index into one of the function tables, with selection of the proper table being done on the basis of another flag bit within the choice itself. Although this indirection does complicate the explanation, it has little impact on the code itself and provides a central repository for enable information. This permits fast and easy updating of the enable bits when necessary.

2.6 INTERFACE PARAMETER CUSTOMIZATION

The MMICI users will have the capability to alter certain parameters of their interface with MMICI and TAS. This effort describes several customizations.

including toggling of joke presentation, switching between terse and verbose menu modes, opting for the MMICI command mode, or transferring control to the TASHHELL. In addition, the TAS functions for changing the current project context and perusing access authorizations will also be available.

All of these functions, save TAS project and authorization options, will be implemented entirely within MMICI. Jokes are selected while MMICI is building each screen for the user, and can easily be turned off by an internal flag. This flag can be toggled by the user selecting the appropriate menu choice or set by entering the 'joke' or 'nojoke' command to the MMICI command prompt. The user will be able to enter MMICI command mode by selecting the proper menu choice; return to the menu mode will be possible by entering 'menu' at a command prompt. This too will be implemented entirely within MMICI. Access to the TASHHELL will be provided by another menu choice, and MMICI will fork/execute the TASHHELL and wait for it to exit. Once this occurs, MMICI will resume execution where it was before the TASHHELL request was made.

The switch between terse and verbose menu modes will involve setting an internal flag and switching default profile files. In this way, portions of MMICI which must know the menu mode will be apprised of it, while the balance of the program will pay no penalty. For example, the built in functions for moving around in the menu hierarchy are generated by MMICI instead of being part of the actual menu page text. The code to output these choices must be cognizant of the menu mode so the proper format can be followed. On the other hand, the routines which read menu pages from the profile file will remain ignorant of the change; this will be done by simply switching the profile file out from under them. Of course, the pages which are already in core will be marked as 'old', and when next entered will be reread from the new profile file.

SECTION 3

MENU PAGE DESCRIPTIONS AND USAGE SCENARIOS

This section presents the new user interface for MMR/TAS in great detail. We first present the menu and command entry pages disconnected from each other, and then continue into scenarios depicting the actual flow from one page to the next. As each page is first introduced, the TAS functionality which it makes available is discussed; during the scenarios, the TAS functionality is depicted and illuminated via the various paths through the menu hierarchy. Thus, we examine the relation of TAS functions to menu pages from both bottom-up and top-down — from TAS functions to menu choices and from the view of the menu hierarchy. We feel this approach is essential to understanding of the material by people who are unfamiliar with TAS as well as those who are intimately acquainted with TAS.

A few of the general principles regarding the menu page format and semantics are in order before proceeding. First, one may notice that both digits and letters appear as choice keyletters on the menus. Basically, the letters represent functions which do not change across the entire user interface; capital letters were employed to further emphasize this constancy. For example, the choice 'T' will always represent the function 'manipulate textfiles', regardless of which page it appears on. This is not to say that 'T' will appear on all pages — simply that if 'T' is present, it will indeed mean 'manipulate textfiles'.

Secondly, the screen format was designed to read somewhat like a newspaper article: information is given in the order of its importance. Thus, the user can get the gist of the information quickly, and continue reading

only if detail is required. This usage is further strengthened by fixing the start of various types of information. In fact, each screen is comprised of five logical fields:

a. Page Header Field

The first two lines comprise the page header and provide the user general state information. This summary includes which page he or she is on, the current operating mode, whether an external source has impinged on their local environment, and the project context they are constrained by.

b. Menu Instruction Prompt

Next comes a precise instruction prompt, which gives the user an operating guide immediately.

c. Menu Choices

Following the prompt, and properly indented with respect to it, appear a list of choices allowed from that prompt. Note that there may be a variable number of these choices, and that they are identified by the single character which prefaces them.

d. Movement Operations

The built in functions for moving around in the hierarchy come next, with starting point fixed to a particular screen location regardless of the number of variable choices (this allows the user to ignore the built in choices once they have become familiar). Included in this set is a choice for help with any topic on the current page (this will be exemplified in the scenarios).

e. Menu Page Joke

Lastly, a witticism or joke is fixed into an area on the screen's bottom (properly delineated to be visually excluded from the choices). This witticism reduces the all-business appearance of the screen and should sooth inexperienced users.

We summarize these features by showing a 'canonical' menu page; this is not an actual menu page the user would see, but is included here for the sake of clarity. Each of the fields on this page is similar to those which would appear on a real page.

Canonical menu form	Explanatory mode
External world stimulus reporting area.	Default Project
Instruct the user via a prompt ==> <cursor here>	
1	First action choice
2	Second action choice
3	Third action choice
	.
	.
	.
L	Common choice which employs a letter
A	Another common choice
B	Built-in action to move around in the menu
C	Another menu movement
H	Get help for a choice on this page
P	Return to the previous menu page
Short jokes begin here, and continue for at most three lines (to the screen's last line).	

3.1 MENU PAGES IN TERMS OF TAS FUNCTIONS

Those possessing a knowledge of the present TAS user interface have an excellent point of reference from which to view the MMR/TAS interface. Since you are already familiar with the functions of the TAS, you only need to learn how these functions relate to the menu-driven interface provided by MMICI. For example, that the JOBSTAT command reports on the status of a query job is no surprise, but confrontation with a new menu driven (and hierarchical) command access system could make finding JOBSTAT exhausting. To ease the 'interface update lag', we present each menu page of the new interface and list the TAS functions which may be invoked from that page.

There are additional points of commonality between all menu pages: command dialog and help. When a user chooses to invoke a TAS function which takes parameters the menu interpreter enters a command dialog mode. In this state, the user is prompted for all of the parameters needed by the TAS command; these are then packaged up for transmission to the command program. Similarly, if the user chooses the 'H' option, a new instruction prompt specifying that he or she is in the process of selecting an item to receive help with is presented. This follows the idea of precise instruction, and keeps the user abreast of exactly what the system expects.

3.1.1 The Initial Entry Page

This page implements the root of the TAS functional hierarchy tree. Most of the choices on this page are not TAS functions themselves, but instead lead to other pages which further refine the topics in question. Only choices 'G' and 'L' directly map onto a TAS command ('help tas' and 'logout', respectively).

Initial entry page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==>

- 1 Database system access
- 2 Inter-user communication (electronic mail)
- 3 Utility functions, including system information
- 4 Activities for rest and relaxation

- T Manipulate your textfiles
- G General help for using TAS

- H Get help for a choice on this page
- L Logoff from TAS, terminating your session

An allowance is what you pay your children to live with you.

3.1.2 The Textfile Manipulation Page

Textfile manipulation is presented next because such functionality is so much a part of the TAS environment. Although some TAS users may employ textfiles little (or not at all), they are integrated into many TAS subsystems and functions. Consequently, the capability to access various aspects of textfile manipulation (e. g., the editors) is sprinkled liberally throughout the various menu pages. In fact, the 'T' option which is available on many pages has already been discussed in some detail; this is the menu page which is referenced by 'T'.

Text file manipulation page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==>

- 1 Display the contents of a file
- 2 List the names of all your files
- 3 Purge one of your files
- 4 Interactively dispose of old files and jobs

- E Enter the line oriented editor
- S Enter the screen oriented editor

- P Return to the previous menu page
- H Get help for a choice on this page
- I Return to your initial logon page
- L Logoff from TAS, terminating your session

Santa Claus is the only man who shows some interest in an empty stocking.

If one considers the menu page hierarchy as a 'tree' structure of information, the textfile page is a terminal leaf. In other words, a user cannot select options which present new menu pages from this page. All options presented here translate directly into TAS operations and programs. The textual mnemonic for the function should permit an experienced TAS user to identify the command program invoked with little difficulty. Note that 'E' and 'S' represent the normal EDIT and REDIT commands and, like 'T', appear on other pages; this is why they have been granted a capital letter mnemonic. The other functions don't appear elsewhere (at least not in the

same functional context) and are numbered accordingly. The DISPLAY, LIST, PURGE, and INTER commands are familiar, and need no further explanation.

3. 1. 3 The Parameter Alteration Page

The operations on this page are not new to the functions of TAS, but are greatly expanded for the MMR/TAS effort. Familiar TAS functionality is represented by access to the TASHELL command interpreter, AUTH request, and PROJECT command. The other choices provide functions which are new with the MMR/TAS user interface, and deserve a bit of explanation here. Similar in spirit to the TASHELL is the MMR/TAS command entry mode; this option gives the user a command entry page (described in Section 3. 1. 11) similar in function to that of the original TASHELL. Second, the bottom of each menu page has a joke or witticism to reduce the all-business appearance of the computer system. An experienced user may wish to dispense with this feature (possibly to reduce the amount of 'noise' on the screen) and can turn it on and off via a choice here. An analogous function is provided by the terse/verbose menu mode choice, which is illustrated with the presentation of this page.

Parameter alteration page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==>

- 1 Toggle jokes on/off
- 2 Command entry
- 3 Toggle terse/verbose
- 4 Use the TASHELL

- 5 Change current project
- 6 List access authorizations

P[revious page], H[elp], I[nitial page], L[ogoff]

A professor is one who talks in other peoples' sleep.

Note that each of the options on this page is not remembered by the command interpreter across logins. A user must explicitly alter their environment each time they logon to TAS. We feel that this gives the unfamiliar user a sense of controlling the system.

3.1.4 The Rest and Relaxation Page

Another new addition to the MMR/TAS interface is the ability to access a few low pressure activities for rest and relaxation. This year of effort provides three such activities, all of which are computer games. Hunt the wumpus places the user in a convoluted cave possessing one wumpus and several hazards (e.g., bottomless pits). The object of the game is

to kill the wumpus with the arrows provided before being eaten or succumbing to one of the hazards. Maze is similar, but with different hazards and another objective: escape. Star Trek puts one in a two-dimensional rectangular galaxy as commander of the U.S.S. Enterprise, a Federation star cruiser. It so happens that this galaxy is littered with Klingons (mortal enemies of the Federation) which must be killed before they destroy the galaxy. Hazards to the player consist of star novas, supernovas, a time limitation, and, of course, the Klingons. The menu page will appear as follows.

```
Rest and relaxation page          Verbose menu mode
You have new messages and query responses.  Default Project
```

Please select a choice (by key character) ==>

- 1 Play a game of hunt the wumpus
- 2 Play a game of maze
- 3 Play a game of star trek

- P Return to the previous menu page
- H Get help for a choice on this page
- I Return to your initial logon page
- L Logoff from TAS, terminating your session

"Why do you want to be buried at sea?"

"My wife always says she is going to walk on my grave."

3.1.5 The Utility Function Page

Various TAS utilities are accessible from this page. These consist of system status, restrictions, records, and directories; the commands are all familiar: STATUS, DATEIS, AUTH, COUNT, DIR, and ECHO. In addition, the textfile manipulation page is accessible from here. Note that the AUTH command is usable from both this page and the parameter alteration page; such multiple paths to a facility which is not terribly common have not been awarded alphabetic mnemonics.

```
Utility function page          Verbose menu mode
You have new messages and query responses.  Default Project

Please select a choice (by key character) ==>

1  Get system status information
2  Get the current date and time
3  List your access authorization information
4  Prepare a total count of your TAS usage history
5  Peruse a list of TAS users
6  Echo some data to your terminal for a self-test

T  Manipulate your textfiles

P  Return to the previous menu page
H  Get help for a choice on this page
I  Return to your initial logon page
L  Logoff from TAS, terminating your session

Divorce has become so common that my wife and I are staying married
just to be different.
```


3.1.6 The Inter-user Communication Page

TAS users may send electronic mail to each other (within the confines of the mandatory security policy). To accomplish this, TAS uses two complete subsystems called MSG and SNDMSG. As might be expected, SNDMSG is for sending messages and MSG is for receiving them. Since both programs may make use of the user's textfiles, the communication page also contains a reference to the textfile manipulation page.

```
Inter-user communication page      Verbose menu mode
You have new messages and query responses.  Default Project
```

Please select a choice (by key character) ==>

- 1 Read messages you currently have
- 2 Send a message to one or more TAS users

T Manipulate your textfiles

- P Return to the previous menu page
- H Get help for a choice on this page
- I Return to your initial logon page
- L Logoff from TAS, terminating your session

Liquor may be slow poison, but who's in a hurry?

3.1.7 The Database Access Page

At this point in our discussion all of the miscellaneous functions and capabilities of TAS have been dealt with. This provides a good background to move on into the heart of TAS operation: database access. The COINS network has several remote database management systems (DBMSs) which are accessible from TAS. Because this number is growing, the DBMS access facilities of the menu hierarchy are organized into a complete subtree, with various hooks into the previously described pages. The top level of this subtree is accessible directly from the initial entry page, and provides a necessary subdivision of the available functions.

The database access page splits interactive and batch query transmission as well as query disposition. SOLIS is the only interactive host currently accessible and may be called immediately (i. e., without going through another page); as other interactive hosts appear, a new page will be required to select between them. Other (batch) hosts are reached by first selecting the choice indicating that one wants to send a batch query. For all other cases of query and/or response manipulation, another level of menu refinement is necessary, and the user is referred to the query manipulation page. The TAS INTER (jobs) command is made available directly, while the textfile manipulation page choice is provided to allow use of INTER (files) and other operations.

DBMS access page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==>

- 1 Conduct an interactive session with Solis
- 2 Access your existing queries
- 3 Send a new batch query
- 4 Interactively dispose of old jobs

- T Manipulate your textfiles

- P Return to the previous menu page
- H Get help for a choice on this page
- I Return to your initial logon page
- L Logoff from TAS, terminating your session

An egg is something that is never beaten when it is bad.

3. 1. 8 The Batch Query Transmission Page

Accessible from the DBMS manipulation page, this menu page permits the user to send queries to the COINS batch hosts. Once the user selects the choice for the desired host he or she is placed in the TAS batch query processor (BQP) for that host. By convention, the BQPs have command names which are identical to the name of the remote application, and thus represent the RYETIP, ISSPIC, DIAOLS, IPAC, PACAF, and ADCOM commands. Textfile manipulations are not provided directly from this page, but indirectly since the BQPs are editors.

Batch query transmission page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==>

- 1 Send a query to Ryetip
- 2 Send a query to Isspic
- 3 Send a query to Diaols
- 4 Send a query to Ipac
- 5 Send a query to Pacaf
- 6 Send a query to Adcom

- P Return to the previous menu page
- H Get help for a choice on this page
- I Return to your initial logon page
- L Logoff from TAS, terminating your session

Some people have tact and others tell the truth.

3.1.9. The Query Manipulation Page

One reaches here from the DBMS access page in order to manipulate queries and replies. This page directly provides access to TAS functions to handle queries which have already been answered by remote DBMSs, with a subpage for taking care of queries which remain pending. The rationale behind this organization of the hierarchy is simply to segregate operations on finished queries (i.e., those which have been answered) from those on unfinished queries. TAS mechanisms to accomplish this page's functions include the PURGE, HOLD, SAVE, CLOSE, and INTER commands. The operation is facilitated by allowing the user to not only peruse his or her queries and/or replies (via SHOW and DISPLAY), but

also providing access to textfile manipulations. This permits a user to quickly and easily find out precisely what items are present and deserving of some action.

Query manipulation page	Verbose menu mode
You have new messages and query responses. Default Project	
1	Display a query
2	Display the answer to a query
3	Purge a query which has been answered
4	Hold a query you have displayed to prevent its deletion
5	Save an existing query (or reply) in a text file
6	Verify the jobs to be purged at the session's close
7	Interactively dispose of old queries
8	Manipulate queries which are still pending
T	Manipulate your textfiles
P	Return to the previous menu page
H	Get help for a choice on this page
I	Return to your initial logon page
L	Logoff from TAS, terminating your session

In polite society, whispering is not aloud.

3.1.10 The Pending Query Manipulation Page

In order to peruse, dispose of, and otherwise manipulate pending queries the user first enters this menu page from the query manipulation page.

The TAS functions directly accessible from this page are DISPLAY, SHOW, JOBSTAT, RESEND, TRACE, CANCEL, and INTER.

Pending query manipulation page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==>

- 1 Display a query
- 2 Display the answer to a query
- 3 Get status of one of your jobs (by jobid)
- 4 Resend a query that has been lost
- 5 Trace a query that should be back already, but isn't
- 6 Cancel a query you have sent, but has not been answered yet
- 7 Interactively dispose of old queries

- P Return to the previous menu page
H Get help for a choice on this page
I Return to your initial login page
L Logoff from TAS, terminating your session

"I can see good in all things. "

"Can you see good in a fog? "

3. 1. 11 The Command Entry Page

When the user changes to command entry mode (via the parameter alteration page) a command prompt page will be presented. This page, as you can see, is a variation on the standard menu page as far as header and witticisms go. However, in place of the menu choices and prompts, the user is given a simple command prompt. Normal TAS command names and syntax, as per the original TASHHELL, must be entered at the prompt; these are passed verbatim to the named command.

You have new messages and query responses. Command entry mode
Default Project

Command Please ==>

The best way to communicate with a fish is by dropping him a line.

3.2 USAGE SCENARIOS

We are now prepared to present scenarios of the usage of the hierarchical menu interface. This subsection will contain examples of how an MMR/TAS user would perform various functions on the system. Not all of these functions will involve TAS programs, but those which do will be complete to the point of calling the program. In other words, not only will the example present the menus a user will employ to access some functionality, but it will also depict the command argument dialog if one were applicable. The actual output of TAS commands is not presented.

In all cases, the initial page of a scenario will be the initial entry page. This, we feel, will make the organization of the data a bit clearer and

indicate how a user would access the desired facility immediately after logon. To avoid extreme repetition of pages any page which has user input on it is not drawn without that input. I.e., the pages are presented as if they were photographed between the time the user typed the choice character and the command interpreter noticed and moved to the next screen.

3.2.1 Help on a Page

This scenario indicates what the user will see when he or she requests help for a choice on the page. The actual help text will only be given when the topic requested is not a TAS function. Items which fit this category are previous page, toggle some internal mode, switch to a new menu page, etc.

Initial entry page	Verbose menu mode
You have new messages and query responses.	Default Project

Please select a choice (by key character) ==> H

- 1 Database system access
- 2 Inter-user communication (electronic mail)
- 3 Utility functions, including system information
- 4 Activities for rest and relaxation
- 5 Parameter inspection and/or modification

T Manipulate your textfiles
G General help for using TAS

H Get help for a choice on this page
L Logoff from TAS, terminating your session

I bought my wife a complete mink outfit.
That's right - two traps and a rifle.

Initial entry page Page help mode
You have new messages and query responses. Default Project

Please select the topic you desire help with (by keyletter) ==> 5

- 1 Database system access
- 2 Inter-user communication (electronic mail)
- 3 Utility functions, including system information
- 4 Activities for rest and relaxation
- 5 Parameter inspection and/or modification

- T Manipulate your textfiles
- G General help for using TAS

- H Get help for a choice on this page
- L Logoff from TAS, terminating your session

I bought my wife a complete mink outfit.
That's right - two traps and a rifle.

This choice will route you to a menu page where you will be able to change your operational parameters. For example, you can turn the jokes at the page bottom off or on, switch to command entry mode, or change your TAS project.

(Please type <newline> to return to the menu.)

Initial entry page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==>

- 1 Database system access
- 2 Inter-user communication (electronic mail)
- 3 Utility functions, including system information
- 4 Activities for rest and relaxation
- 5 Parameter inspection and/or modification

- T Manipulate your textfiles
- G General help for using TAS

- H Get help for a choice on this page
- L Logoff from TAS, terminating your session

But I did well in Las Vegas.
Drove there in a \$4000 car and came back in a \$20000 bus.

3.2.2 Parameter Inspection and Modification

Several of MMICI's operating modes are in direct control of the user. These are set and/or inspected via the parameter/profile inspection/modification page, which is accessible from the initial entry page. We exhibit the actions of this page by first using command entry mode for one command, returning to menu mode, turning jokes off, setting the terse menu mode, and restoring joke output.

Initial entry page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==> 5

- 1 Database system access
- 2 Inter-user communication (electronic mail)
- 3 Utility functions, including system information
- 4 Activities for rest and relaxation
- 5 Parameter inspection and/or modification

- T Manipulate your textfiles
- G General help for using TAS

- H Get help for a choice on this page
- L Logoff from TAS, terminating your session

A golfer can walk ten miles carrying his heavy golf clubs, but at home junior has to bring him the ashtray.

Parameter alteration page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==> 2

- 1 Toggle joke presentation (i. e., if on, turn off and vice versa)
- 2 Enter command entry mode
- 3 Toggle the menu mode between terse and verbose
- 4 Use the original TAS command interpreter (TASHELL)
- 5 Change your current working project
- 6 List your access authorization information

- P Return to the previous menu page
- H Get help for a choice on this page

- I Return to your initial logon page
- L Logoff from TAS, terminating your session

Some men think women's hats are funny.
Others have to pay for them.

You have new messages and query responses. Command entry mode
Default Project

Command Please ==> purge 23

My husband is absolutely no good at fixing things, so everything
in our house works.

•
•
•

You have new messages and query responses. Command entry mode
Default Project

Command Please ==> menu

"What kind of a husband do you think I should look for?"
"Better leave the husbands alone and look for a single man."

Parameter alteration page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==> 1

- 1 Toggle joke presentation (i. e., if on, turn off and vice versa)
- 2 Enter command entry mode
- 3 Toggle the menu mode between terse and verbose
- 4 Use the original TAS command interpreter (TASHELL)
- 5 Change your current working project
- 6 List your access authorization information

P Return to the previous menu page
H Get help for a choice on this page

- I Return to your initial logon page
- L Logoff from TAS, terminating your session

"Does your husband carry life insurance?"

"No, he carries fire insurance. He knows where he's going."

Parameter alteration page Verbose menu mode
You have new messages and query responses. Default Project

Please select a choice (by key character) ==> 3

- 1 Toggle joke presentation (i. e., if on, turn off and vice versa)
- 2 Enter command entry mode
- 3 Toggle the menu mode between terse and verbose
- 4 Use the original TAS command interpreter (TASHELL)

- 5 Change your current working project
- 6 List your access authorization information

- P Return to the previous menu page
- H Get help for a choice on this page
- I Return to your initial logon page
- L Logoff from TAS, terminating your session

Parameter alteration page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 1

- 1 Toggle jokes on/off
- 2 Command entry

- 3 Toggle terse/verbose
- 4 Use the TASHELL

- 5 Change current project
- 6 List access authorizations

P[revious page], H[elp], I[nitial page], L[ogoff]

Parameter alteration page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> P

- 1 Toggle jokes on/off
- 2 Command entry
- 3 Toggle terse/verbose
- 4 Use the TASHELL

- 5 Change current project
- 6 List access authorizations

P[revious page], H[elp], I[nitial page], L[ogoff]

You can't kiss a girl unexpectedly - only sooner than she thought you would.


```
Initial entry page           Terse menu mode
You have new messages and query responses.  Default Project
```

```
Please choose one ==>
```

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
- G General TAS help

```
H[elp], L[ogoff]
```

```
"Do you have a criminal lawyer in town?"
"Well, we think so but can't prove it."
```

3.2.3 User Textfile Access

Each TAS user may store arbitrary information in his or her text files. The textfile facility is integrated into several TAS functional areas, as seen above, including the mail facility, query and response generation and disposition, and editing in general. Because of the large number of TAS functions employing textfiles in their common usage, a separate page has been created for them. The user may get to this page from several points in the hierarchy, each of which is logically above this page.

We illustrate, in the following scenario, the paths a user would take to obtain a catalog of his or her textfiles, enter the TAS line-oriented text

editor to modify an existing file or create a new file, and finally, how a file may be purged from the system.

```
Initial entry page                               Terse menu mode
You have new messages and query responses.      Default Project
```

Please choose one ==> T

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
- G General TAS help

H[elp], L[ogoff]

In all the years I'm married I never stopped being romantic.
If my husband ever finds out, I'm dead.

```
Text file manipulation page                       Terse menu mode
You have new messages and query responses.      Default Project
```

Please choose one ==> 2

- 1 Display a file
- 2 List your files
- 3 Purge a file
- 4 Interactive disposition

- E Line oriented editor

S Screen oriented editor

P[revious page], H[elp], I[nitial page], L[ogoff]

Modern music is the kind that is played so fast you can't tell what classical composer it was stolen from.

List command dialog Command dialog mode
You have new messages and query responses. Default Project

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Unpaginated output for the printer

Please specify the sorting option to apply ==> 1

- 1 Sort by name
- 2 Sort by modification date
- 3 Sort by access date
- 4 Sort by time with newest first
- 5 Sort by time with oldest first

•
•
•

Text file manipulation page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> E

- 1 Display a file
- 2 List your files

- 3 Purge a file
- 4 Interactive disposition

- E Line oriented editor
- S Screen oriented editor

P[revious page], H[elp], I[nitial page], L[ogoff]

"My rich uncle owns a newspaper."
"So what? A newspaper is only 15 cents."

Editor command dialog	Command dialog mode
You have new messages and query responses.	Default Project
Do you want to begin editing with a file (y/n) ? y	
Is this your file, as opposed to another user's file (y/n) ? n	
Please give the SNI (user id) of the file's owner ==> cial2092	
Please type the filename ==> mytextfile	
Thank you.	

•
•
•

Text file manipulation page	Terse menu mode
You have new messages and query responses.	Default Project
Please choose one ==> 3	
1	Display a file
2	List your files

S Screen oriented editor

P[revious page], H[elp], I[nitial page], L[ogoff]

The most expensive vehicle to operate, by mile, is the shopping cart.

Initial entry page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==>

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

T Textfile access
G General TAS help

H[elp], L[ogoff]

An eccentric cabbie is a whackey hackie.

3.2.4 Activities for Rest and Relaxation

Towards the goal of providing low pressure, non-business activities for the user, the MMR/TAS user interface permits access to three computer games. In order to get to these games, the user chooses the games option on the initial entry page, and then chooses the game he or she wishes to play from the rest and relaxation page, as the next example indicates.

```
Initial entry page                               Terse menu mode
You have new messages and query responses.      Default Project

Please choose one ==> 4

1 Database access
2 Inter-user communication
3 Utilities
4 R and R activities
5 Parameter modification

T Textfile access
G General TAS help

H[elp], L[ogoff]

An allowance is what you pay your children to live with you.
```

```
Rest and relaxation page                         Terse menu mode
You have new messages and query responses.      Default Project

Please choose one ==> 1

1 Hunt the wumpus
2 Maze
```

3 Star trek

P[revious page], H[elp], I[nitial page], L[ogoff]

Santa Claus is the only man who shows some interest in an empty stocking.

Rest and relaxation page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> I

- 1 Hunt the wumpus
- 2 Maze
- 3 Star trek

P[revious page], H[elp], I[nitial page], L[ogoff]

A professor is one who talks in other peoples' sleep.

Initial entry page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==>

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
- G General TAS help

H[elp], L[ogoff]

"Why do you want to be buried at sea?"
"My wife always says she is going to walk on my grave."

3.2.5 Utility Functions

Several TAS-level utility functions are made available to the user via the utility function page. These consist of various programs to obtain information on TAS system status, usage, authorization data, users, etc. We illustrate how the user would invoke two of these utilities: date/time inquiry and a listing of his or her TAS usage history.

Initial entry page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==>

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
- G General TAS help

H[elp], L[ogoff]

"Why do you want to be buried at sea?"

"My wife always says she is going to walk on my grave."

3.2.5 Utility Functions

Several TAS-level utility functions are made available to the user via the utility function page. These consist of various programs to obtain information on TAS system status, usage, authorization data, users, etc. We illustrate how the user would invoke two of these utilities: date/time inquiry and a listing of his or her TAS usage history.

Initial entry page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 3

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
- G General TAS help

H[elp], L[ogoff]

Divorce has become so common that my wife and I are staying married just to be different.

Utility function page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 2

- 1 System status
- 2 Date and time
- 3 List access authorizations
- 4 Count your TAS usage
- 5 Peruse user directory
- 5 Echo to your terminal

- T Textfile access

P[revious page], H[elp], I[nitial page], L[ogoff]

Liquor may be slow poison, but who's in a hurry?



Utility function page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 4

- 1 System status
- 2 Date and time
- 3 List access authorizations
- 4 Count your TAS usage
- 5 Peruse user directory
- 6 Echo to your terminal

- T Textfile access

P[revious page], H[elp], I[nitial page], L[ogoff]

An egg is something that is never beaten when it is bad.

Initial entry page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==>

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
- G General TAS help

H[elp], L[ogoff]

In polite society, whispering is not aloud.

3.2.6 Inter-user Communication

TAS includes the capability for users to send electronic mail to each other. This feature is implemented as two complete subsystems, one for mail sending and the other for mail reception, reading, etc. To use this facility, the MMR/TAS user need only choose the inter-user communication page from the initial entry page, and select the option appropriate - i.e., sending or receiving.

P[revious page], H[elp], I[nitial page], L[ogoff]

The best way to communicate with a fish is by dropping him a line.



Inter-user communication page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> I

- 1 Read your messages
- 2 Send message(s)

- T Textfile access

P[revious page], H[elp], I[nitial page], L[ogoff]

I bought my wife a complete mink outfit.
That's right - two traps and a rifle.

Initial entry page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 1

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
- G General TAS help

H[elp], L[ogoff]

A golfer can walk ten miles carrying his heavy golf clubs, but at home junior has to bring him the ashtray.

Entry of batch queries is made by passing through the DBMS access page to the batch query transmission page. From there, one need only call the proper TAS BQP for the destination application and use the BQP as usual.

DBMS access page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 3

- 1 Solis session
- 2 Existing queries

- 3 Send a batch query
- 4 Interactive job disposition

- T Textfile access

P[revious page], H[elp], I[nitial page], L[ogoff]

Some men think women's hats are funny.
Others have to pay for them.

Batch query transmission page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 1

- 1 Ryetip
- 2 Isspic
- 3 Diaols
- 4 Ipac
- 5 Pacaf
- 6 Adcom

P[revious page], H[elp], I[nitial page], L[ogoff]

My husband is absolutely no good at fixing things, so everything in
our house works.

Rytip command dialog Command dialog mode
You have new messages and query responses. Default Project

Do you want to begin editing with a file (y/n) ? y

Is this your file, as opposed to another user's file (y/n) ? y

Please type the filename ==> querytemplate
Thank you.

Do you want to transmit the query immediately (y/n) ? n

•
•
•

Batch query transmission page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> P

- 1 Rytip
- 2 Isspik
- 3 Diaols
- 4 Ipac
- 5 Pacaf
- 6 Adcom

P[revious page], H[elp], I[nitial page], L[ogoff]

"What kind of a husband do you think I should look for?"

"Better leave the husbands alone and look for a single man."

After a query is submitted, and the reply received from the remote application, the user may take whatever action he or she deems appropriate. These options are accessed via the choice indicating existing query access on the DBMS access page. TAS provides quite a few functions manipulating queries which have already been answered by the remote DBMS, including provision to save the response in a textfile, purging the response, marking the response to prevent TAS from automatically deleting it, and, of course, looking at the response. Another set of manipulations is available for queries that have been sent to a remote host but have not returned in reasonable time; these are termed pending jobs. These manipulations include provision to trace the query's progress, cancel the query, or resend it. Logically, pending queries are a subset of existing queries. The menu hierarchy indicates this relationship by placing the page for pending query manipulation as a subpage of the existing query manipulation page.

```
DBMS access page           Terse menu mode
You have new messages and query responses.  Default Project'
```

```
Please choose one ==> 2
```

- 1 Solis session
- 2 Existing queries
- 3 Send a batch query
- 4 Interactive job disposition

- T Textfile access

```
P[revious page], H[elp], I[nitial page], L[ogoff]
```

```
"Does your husband carry life insurance?"
```

```
"No, he carries fire insurance. He knows where he's going."
```

Query manipulation page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 3

- 1 Query display
- 2 Response display
- 3 Purge a query
- 4 Hold a query
- 5 Save into a text file
- 6 Verify jobs to be purged
- 7 Interactive disposition
- 8 Pending query manipulations

T Textfile access

P[revious page], H[elp], I[nitial page], L[ogoff]

You can't kiss a girl unexpectedly - only sooner than she thought
you would.

Purge command dialog Command dialog mode
You have new messages and query responses. Default Project

Please specify the object or objects to PURGE ==> 2

- 1 All jobs
- 2 All held jobs
- 3 A single job specified by jobid
- 4 A file specified by filename

•
•
•

Query manipulation page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 8

- 1 Query display
- 2 Response display
- 3 Purge a query
- 4 Hold a query
- 5 Save into a text file
- 6 Verify jobs to be purged
- 7 Interactive disposition
- 8 Pending query manipulations

T Textfile access

P[revious page], H[elp], I[nitial page], L[ogoff]

"Do you have a criminal lawyer in town?"

"Well, we think so but can't prove it."

Pending query manipulation page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 6

- 1 Query display
- 2 Response display
- 3 Job status (by jobid)
- 4 Resend a query
- 5 Trace a query
- 6 Cancel a query
- 7 Interactive disposition

P[revious page], H[elp], I[nitial page], L[ogoff]

In all the years I'm married I never stopped being romantic.
If my husband ever finds out, I'm dead.

Cancel command dialog Command dialog mode
You have new messages and query responses. Default Project

Please specify the class of jobs to CANCEL ==> 1

- 1 All jobs
- 2 A single job specified by jobid
- 3 A single job specified by short jobid

•
•
•

Pending query manipulation page Terse menu mode
You have new messages and query responses. Default Project

Please choose one ==> 1

- 1 Query display
- 2 Response display
- 3 Job status (by jobid)
- 4 Resend a query
- 5 Trace a query
- 6 Cancel a query
- 7 Interactive disposition

P[revious page], H[elp], I[nitial page], L[ogoff]

Modern music is the kind that is played so fast you can't tell what classical composer it was stolen from.

Initial entry page

Terse menu mode

You have new messages and query responses. Default Project

Please choose one ==>

- 1 Database access
- 2 Inter-user communication
- 3 Utilities
- 4 R and R activities
- 5 Parameter modification

- T Textfile access
G General TAS help

H[elp], L[ogoff]

"My rich uncle owns a newspaper."

"So what? A newspaper is only 15 cents."

APPENDIX A
POLITE ENGLISH TAS DIAGNOSTICS

To be supplied at a later date.

APPENDIX B
SAMPLE JOKES

- * My uncle lives to be 100, and he owes it to mushrooms. He never ate them.
- * My wife is now 60. I'll split two for one and get two 30's.
- * She must be 28 years old. I counted the rings under her eyes.
- * What this country needs is a power mower that can be operated from an air-conditioned room.
- * They have an up-to-date air-conditioner in this restaurant. The waiter waves the menu in front of your face.
- * He always drives with all the windows closed in the hottest weather to make believe his car is air-conditioned.
- * As soon as I gave my girl an air-conditioner she gave me the breeze.
- * There are only two ways to avoid alimony: either stay single or stay married.
- * He who loves and runs away may still be the one who has to pay!
- * One man's junk is another man's rare antique.
- * She was so old every time she went to an antique show someone tried to buy her.
- * Antiques are things one generation buys, the next generation gets rid of, and the following generation buys again.
- * An antique isn't always as old as it's cracked up to be.
- * His new apartment has so many windows that he now gets cross-pollution.

- * I called my landlord and said my apartment had terrible acoustics, and he wrote back and said that he caught them all long before I moved in.
- * The walls in our apartment are so thin, I once asked my wife a question and got four different answers.
- * I was 5F during the last war. That's a single man with children.
- * All the time I was in the army my wife sent me nagging letters. I couldn't even enjoy the war in peace.
- * She had a heart like the U.S. Army – open for all men between the ages of 18 and 35.
- * We had five famous generals: General Motors, General Electric, General Foods, General Mills, and General Nuisance.
- * A modern artist is one who throws paint on a canvas, wipes it off with a cloth and sells the cloth.
- * It's easy to recognize a modern painting. It's the one you can't recognize.
- * When some girls pose for an artist, the first thing he draws is the studio curtain.
- * She just loves finger-painting. She painted one of them blue, the other red, another ...
- * Rembrandt painted 700 pictures and Americans have all 7,000 of them.
- * Modern art is when you buy a picture to cover a hole in the wall – and then decide the hole looks much better.
- * These new planes are so fast, you have to set the controls for landing before taking off.
- * I have a fear of heights. Whenever I fly I ask the pilot to stay on the runway as long as possible.
- * The runways are so long now, it took us longer to take off from the airport than it did to fly to Chicago.

- * This jet age can be defined as breakfast in London, lunch in New York, dinner in San Francisco, and baggage in Buenos Aires.
- * When I was born everybody was so happy. Even the doctor said, "I think it's a baby!"
- * If the baby doesn't go to sleep, lay him on the edge of the bed and he will drop off.
- * We keep our baby on the phonograph because it has an automatic changer.
- * Your babysitter just called. She wants to know where you keep the fire extinguisher.
- * Babysitters tell me a good way to keep a child quiet is to let him suck on a bottle of glue.
- * Show me a man who does what he wants, and I'll show you a bachelor.
- * There are four ways for a bachelor to remain happy: North, South, East and West.
- * Never believe a fellow who says he is single unless he can show you his pay envelope on Monday.
- * To a bachelor a wedding ring is just a tourniquet. It stops circulation.
- * They turned me down for a travel loan. I only wanted enough money for a one-way ticket to Europe.
- * The man who writes the bank's advertising is not the man who makes the loans.
- * A banker may write a bad poem and get away with it; but just let a poet try to write a bad check.
- * My brother ran the Chase National Bank for years. Now the bank runs a national chase for him.
- * She was built like the First National Bank — everything deposited in the right places.
- * A joint checking account is never overdrawn by the wife. It is just under-deposited by her husband.

- * The way hair styles are today, you can't tell from the back if it is a man who needs a haircut or a woman who just had one.
- * Just a shave, please, I haven't got the time to listen to a haircut!
- * Please, bartender, put two cherries in my Manhattan. My doctor told me I should eat more fruit.
- * What a bartender! When I asked him for something tall, cold and full of gin, he called his wife out!
- * Some bartenders expect a 25-cent tip when they give you a \$1 check for a 30-cent bottle of beer.
- * I always get the same seat at the ball park – between the hot dog vendor and his best customer.
- * Women are like baseball umpires. They make quick decisions, never reverse them, and they don't think you're safe when you're out.
- * I found myself on the Sahara Desert in a bathing suit. There wasn't any water, but what a beach!
- * The only thing that will make a pretty girl scream while taking a bath is to discover that there are three hands washing her back.
- * There is a new soap on the market. It doesn't clean, it doesn't lather, it doesn't bubble. Just company in the tub.
- * Do you exercise after a morning bath? "Yes, I usually step on the soap as I get out."
- * The less there is to a woman's bathing suit, the more it costs.
- * Bathing suits today are really something – if you can call nothing something.
- * A bathing beauty these days wears nothing to speak of, but plenty to talk about.
- * The beach is a place where women reveal their figures and conceal their ages.

- * A beauty is a girl who has a lovely profile all the way down.
- * Beauty is what a woman has when she looks the same after washing her face.
- * If you want to be a stand-out beauty, mingle with ugly people.
- * "Was that your wife who let me in?" "Who else? Would I hire a maid that homely?"
- * "Next to a beautiful girl, what do you consider the most interesting thing in the world?" "When I'm next to a beautiful girl I don't give a damn about statistics."
- * Bills are something that some people have trouble meeting but most people have trouble dodging.
- * Some people pay their bills when due, some when overdue, and some never do.
- * My folks can never forget my birthday. I was born between the second payment on the radio and the sixth on the car.
- * When a man has a birthday he takes a day off, but when a woman has a birthday she takes a year off.
- * A well-adjusted woman is one who not only knows what she wants for her birthday, but even knows what she's going to exchange it for.
- * There was a little tugboat that committed suicide when it discovered that its mother was a tramp and its father was a ferry.
- * "Oh, steward, I've got a complaint. A sailor peeked into my cabin." "Well, what do you expect in second class, the captain?"
- * The only book that really tells you where you can go on vacation is your checkbook.
- * To keep your library intact, buy three copies of each book - one to show, one to loan and one to read.
- * Interest your children in bowling. Get them off the streets and into the alleys.
- * Bowling is a sport that should be right down your alley.

- * Marriage is a lot like boxing. Sometimes the preliminaries are better than the main event.
- * It's not a sin to play bridge, but it's a crime the way some people play it!
- * About the only time the average husband and wife get enjoyment out of holding hands is when they are playing bridge.
- * Bridge is a friendly game invented by two married couples who disliked each other.
- * Did you hear about the bride who was so ugly everybody kissed the bridesmaid?
- * The only time you can see a blushing bride nowadays is when the groom doesn't show up.
- * The new interstate buses are bigger than most of the towns they pass through.
- * I was really insulted today. A bus driver asked me to move to the rear of the bus and the bus was empty.
- * A sale is a place where a woman will ruin a \$35 dress to get a house dress for \$2.95.
- * A filing cabinet is a place where you can lose anything systematically.
- * When the office staff is having a picnic it may just mean that the boss is on vacation.
- * The worst thing about retirement is having to drink coffee on your own time.
- * California is a place where, when you drive less than 50 miles an hour they consider you double-parked.
- * California is the only place where you can have all four seasons in one day.
- * Driving while drunk is almost as dangerous today as walking while sober.

- * It's not a cheaper car that people want - it's an expensive car that costs less.
- * My new car has something that will last a lifetime - monthly payments.
- * I fed some lemon to a cat and got a sour puss.
- * A cat is an animal that never cries over spilled milk.
- * My wife acts very funny with a checkbook. Once she starts one, she can't put it down until it's finished.
- * Chickens are the only animals you can eat before they are born and after they are dead.
- * He keeps his chickens in a turning cement mixer. Now they are laying scrambled eggs.
- * My kid shows signs of becoming an executive. Already he takes two hours for lunch.
- * Children should be seen and not had.
- * You can tell a child is growing up when he stops asking where he came from and starts refusing to tell where he is going.
- * Children have become so expensive that only the poor can afford them.
- * "Darling, eat your spinach. It will put color in your cheeks."
"But, mom, who wants green cheeks?"
- * Santa Claus is the only man who shows some interest in an empty stocking.
- * Last year I explained to the children that there is no Santa Claus, and this year I'll try to explain it to my wife.
- * Christmas brings the big question of where to pay how much for how many of which kind of what to give to whom.
- * Christmas is the time of the year of anticipation, preparation, recreation, relation, protraction, and recuperation.

- * A preacher is a man who can keep women quiet for an hour.
- * Now they want to split Massachusetts in half - High Mass and Low Mass.
- * Churches, where souls are lifted, are empty. But beauty parlors faces are lifted, are packed.
- * They got this act for many reasons. He's famous, he's handsome and he works cheap.
- * What is a clock? A small mechanical device to wake up people who have no children.
- * The best part of the day is over when the alarm clock rings in the morning.
- * Every year women pay more and more for less and less clothes.
- * "That's a nice suit you are wearing. I wonder if the style will ever come back."
- * "She has all her clothes pressed. She is on the list of the ten best-pressed girls."
- * In America we drink our coffee out of cups. In China they drink their tea out of doors.
- * I would use her sugar and cream but wouldn't touch her coffee.
- * Coffee is something your parents need in the morning before you can make any noise.
- * We have not yet determined if a coffee-break is for stimulation, relaxation, or just plain loafing.
- * A college girl may be poor in history, but great on dates.
- * A Co-ed College is a college where the girls go in for facts and the boys go in for figures.
- * Some girls in my class are filled out better than their notebooks.

- * Did you hear about the comedian who told the same jokes three nights running? He wouldn't dare tell them standing still.
- * Columbus discovered America for only one reason: He wanted to give Europe a place to borrow money from.
- * American cooking is the art of taking food out of containers and putting it on the plates.
- * A cookbook is a book with a lot of stirring chapters.
- * It's not bad manners to speak with your mouth full when you're praising your wife's cooking.
- * The man who would rather play golf than eat should marry the woman who would rather play bridge than cook.
- * Crime doesn't pay but at least you're your own boss.
- * He was arrested for picking his way through the crowd - a pocket at a time.
- * A jail is the only place where they won't raise your rent.
- * Usually the fellow who shouts the loudest for justice is the one who wants it in his favor.
- * "Not guilty of bigamy. You may go home."
"Thank you, Judge. Which one?"
- * It was so cold the farmer milked for twenty minutes before he found out he was only shaking hands with himself.
- * How come black cows eat green grass and give white milk?
- * "What is cowhide chiefly used for?" "Too keep the cow together."
- * Credit cards are what people use after they discover that money can't buy everything.
- * I'm so used to buying with credit cards that when I bought something for cash I signed all the dollar bills.

- * Credit cards help you live within your income and beyond your means.
- * A credit card is what you use to buy today what you can't afford tomorrow while you're still paying for it yesterday.
- * Dancing is very tough for me. I've got two left feet and it's hard to find a girl with two right ones.
- * A wallflower is a girl who comes home wearing the same lipstick she started out with.
- * A striptease dancer is a girl who has everything and shows it.
- * A rhumba is a dance where the front of you goes along nice and smooth like a Cadillac, and the back of you makes like a jeep.
- * The dance floor was so crowded we had to do the rhumba up and down instead of sideways.
- * To brighten up your boyfriend's evening, sit with him in the dark.
- * Many a girl goes out on a moonlight date and comes home in a fog.
- * "How about coming up to my apartment and putting your shock-proof watch to a test?"
- * I have to have dates with good girls. I can't afford the other kind.
- * A blind date is when you expect a vision and she turns out to be a sight.
- * Everyone wants to go to Heaven, but nobody wants to die.
- * He was condemned to be hanged, but he saved his life by dying in prison.
- * What became of the fellow who was killed yesterday?"
"Oh, he's dead."
- * "What do you get when you lean a corpse against a doorbell?"
"A dead ringer."

- * I always prefer a woman dentist. It's the only time I get to open my mouth to a woman.
- * "Now be a good boy and say 'Ah' so I can get my finger out of your mouth!"
- * If you can't find it in the dictionary, the atlas, or the encyclopedia, don't be discouraged. Ask for it at the drug store.
- * "Where can happiness always be found?"
"In the dictionary."
- * People who don't count their calories usually have the figure to prove it.
- * My wife's idea of a seven-course dinner is a roll of bologna and a six-pack.
- * "Does your wife know you're bringing me home for dinner?"
"Does she? We argued about it all morning."
- * I just discovered something that cooks, cleans, washes the dishes and scrubs the floor - it's called a wife.
- * They laughed when I discovered a new kind of dynamite, but when I dropped it, they exploded.
- * Then I discovered that when I put an electric toaster in my mattress, I can pop right out of bed each morning.
- * The chief cause of all divorces is matrimony.
- * They got a divorce because of religious differences. She worshipped money and he didn't have a dime.
- * Divorce has become so common that my wife and I are staying married just to be different.
- * The best way to get a doctor to make a housecall is to marry him.
- * Doctors have made great medical progress in the past generation. What used to be an itch is now an allergy.

- * Most doctors pour drugs of which they know little, to cure diseases of which they know less, into human beings of which they know nothing.
- * A doctor is the only man who can tell a woman to take off all her clothes and then send her husband a bill for it.
- * I once bought a lap dog but I had to get rid of him. Every time I sat on his lap he bit me.
- * A dog is known as a man's best friend, because it gives no advice, never tries to borrow money and has no in-laws.
- * We have a fine watch dog. Last week he watched the garage burn down, then he watched somebody steal our lawn mower, then he watched...
- * A dreamer is a person who goes through life having a wonderful time spending money he hasn't got.
- * No wife minds her husband being a dreamer as long as he isn't a snorer.
- * Nothing makes a woman look better than three cocktails inside a man.
- * Did you hear about the fellow who ...
 - ... drank eight cokes and burped 7-up?
 - ... spilled some beer on the stove. Now he has foam on the range?
 - ... put his wine on the top of the house to keep up his spirits?
 - ... saved all his money he would have spent on beer and spent it on beer?
 - ... took a ladder to the party because he heard the drinks were on the house?
- * "And this tonic will not only cure any ailment, but when you read the wrapper on the bottle, you'll have more new diseases."
- * A pharmacist is a man in a white coat who stands behind a soda fountain selling two-dollar watches.

- * Then there is the hungry man who starved to death trying to get the cellophane wrapper off a drugstore sandwich.
- * This laxative is so strong, when you buy it the druggist always gives you your change in dimes.
- * A miracle drug is any drug you can get the kids to take without any screaming.
- * My ear is ringing. Pardon me while I answer it.
- * My child has sensitive ears. He screams every time I pull them.
- * Her ears are so big she looks like a taxicab with both doors open.
- * Did you ever notice that a hard-boiled egg is yellow inside?
- * In this place they always serve scrambled eggs so you never know how many you are getting.
- * An egg is something that is never beaten when it is bad.
- * He must use an electric shaver. He has a face only a motor could love.
- * He bought her an electric typewriter. Now if he only could find a chair to match ...
- * He uses an electric toothbrush. Now he has to see an electrician twice a year.
- * She's got a memory like an elephant and a shape to match.
- * Elephants are modest. They always bathe with their trunks.
- * Right away I knew it was an elephant. I could smell the peanuts on his breath.
- * "Mom, where do elephants come from - and don't give me the gag about the stork again."
- * Nothing is so embarrassing as watching your boss do something you told him couldn't be done.

- * Embarrassment of embarrassments: two eyes meeting through a keyhole.
- * He hasn't an enemy in the world, but all his friends hate him.
- * He reminds me of London — always in a fog.
- * She may be English, but the look in her eyes is international.
- * When Eskimos meet they rub noses. Americans rub fenders.
- * No man is justified for spitting in another man's face, unless his mustache is on fire.
- * Social tact is making your company feel at home, even though you wish they were.
- * When he took his eye examination, the doctor called off the letters on the chart and he answered true or false.
- * The man who knows everything under the sun usually has shadows under his eyes.
- * I know carrots are good for the eyes, but I nearly go blind every time I stick them in.
- * Because a girl closes her eyes when she is being kissed is no sign she is not wide awake.
- * A green light in a woman's eye is no signal for a man to go ahead.
- * "How did you get that black eye?" "Her husband heard me cough in the closet."
- * Be it ever so homely, there's no face like hers.
- * Some girls have dishpan hands. She has a dishpan face.
- * There's beauty in her face if you can read between the lines.
- * In the morning, without make-up, her face looks like the preview of a horror show.

- * A girl's face may be her fortune, but the other parts draw interest.
- * It is better for a woman to be two-faced than double-chinned.
- * A lot of women don't care who wears the pants in the family, as long as there is money in the pockets.
- * Any of your friends can become an enemy, but a relative is one from the start.
- * They are a perfect pair. She's a hypochondriac and he's a pill.
- * A farm is a hunk of land on which, if you get up early enough mornings and work late enough nights, you'll make a fortune — if you strike oil.
- * It's pretty hard on a farm. You go to sleep with the chickens, get up with the roosters, work like a horse, eat like a pig, and they treat you like a dog.
- * My father told me everything about the birds and the bees. He doesn't know anything about girls!
- * Father's Day is the day to remember the forgotten man.
- * Father's Day is the day when father goes broke giving his family money so they can surprise him with gifts he doesn't need.
- * We've been married ten years and we've had only one quarrel. It started on our wedding day and hasn't ended yet!
- * The best way to make a fire by rubbing two sticks together is to make sure one of them is a match.
- * We have a new fire department now. If your house catches fire, you can have the ashes rare, medium or well-done.
- * The only opportunity a fish has to take a shower is to jump up when it rains.
- * The best way to communicate with a fish is by dropping him a line.

- * A thoughtful wife is one who has the pork chops ready when her husband comes home from a fishing trip.
- * "If there are two flies in the kitchen, which one is the cowboy?"
"The one on the range."
- * Appetizers are those little things you keep eating until you lose your appetite.
- * If you wonder what your wife does with all the grocery money, stand sideways and look in the mirror.
- * To make a fortune today you have to come up with something that is low-priced, habit-forming, and tax deductible.
- * Real friends are those who, when you've made a fool of yourself, don't feel that you have done a permanent job.
- * There are two kinds of friends: those who are around when you need them, and those who are around when they need you.
- * I'm giving my wife a divorce — a gift that will last forever.
- * A man can never tell about a girl until he is alone with her, and after that he shouldn't.
- * It is true that opposites attract. A poor girl is always looking for a rich husband.
- * Washington is a city where half the people wait to be discovered and the other half are afraid they will be.
- * Everyone should have at least two friends: one to talk to and one to talk about.
- * When he said his right ear was warmer than his left ear I knew that his toupee was on crooked.
- * Pardon me, but I don't think your and my leg have been introduced.
- * When a married man looks happy, we wonder why.
- * My friend just found happiness in the dictionary. It's under booze.

- * A woman is really unhappy when she has a secret nobody wants to know.
- * "Sonny, did you do your good deed today?" "Sure did. First I went to see my aunt and she was happy and when I left she was happy again."
- * The best way to get a good headache is to have too many drinks the night before.
- * Her heart belongs to me, but the rest of her goes out with other guys.
- * A little honey is good for your health – unless your wife finds out.
- * A hobby is something you go goofy over to keep from going nuts over things in general.
- * A hobby is getting exhausted on your own time.
- * Attending to your hobby is the little rest you get while your wife thinks up something for you to do.
- * The best thing about a hobby is that it gives you something to do while your worrying.
- * A holiday is a day a man stops doing what his boss wants and starts doing what his wife wants.
- * A celebrity is one who works all his life in order to be well-known and then goes through back streets wearing dark glasses to avoid being recognized.
- * There are two types of people: Those who own swimming pools and those who can't keep their heads above water.
- * The man who invented slow motion movies got his idea while watching a Scotchman reach for a check in a restaurant.
- * He just got a good offer from Hollywood. He's the only person who can play Frankenstein without make-up.

- * I would have liked to take my wife along on our honeymoon, but she had to go to work the next day.
- * She married so late in life that Medicare paid for the honeymoon.
- * "Doctor, this is the third operating table you ruined this month. You must learn not to cut so deeply!"
- * What a hotel! The elevator boys have two uniforms — one for going up and one for going down.
- * We live a quiet home life. I don't speak to her and she doesn't speak to me.
- * Home is where you can say anything you like, because nobody pays any attention to you anyway.
- * My husband is absolutely no good at fixing things, so everything in our house works.
- * Many a poor husband was once a rich bachelor.
- * A smart husband is one who thinks twice before saying nothing.
- * A faithful husband is one whose alimony check is always on time.
- * Her husband came in handy around the house until one day he came in unexpected.
- * Life insurance is something that keeps a poor man poor all his life so he can die rich.
- * In every insurance policy the big print giveth and the small print taketh away.
- * Old jokes never die, they just sound that way.
- * If you can't laugh at the jokes of this age, laugh at the age of these jokes.
- * The oldest joke I know is, when Eve asked Adam: "Do you love me?" and he replied: "Who else?"

- * Always laugh heartily about your boss's jokes. He may be giving you a loyalty test.
- * A kiss that speaks volumes is seldom a first edition.
- * Kissing a pretty girl is like opening a bottle of olives. After the first one the rest come easy.
- * If ignorance is bliss, why aren't more people happy?
- * Everybody knows more than somebody, but nobody knows more than everybody.
- * Any man who knows all the answers has most likely misunderstood the question.
- * Today's children know where babies come from. It's the birds and bees they don't know anything about.
- * Kissing may be the language of love but money still does the talking.
- * The longest word in the English language is the one following the phrase: And now a word from our sponsor!
- * English is a funny language. A fat chance and a slim chance are the same thing.
- * He who laughs last is probably the one who intended to tell the story himself a little later.
- * She laughed when I sat down to play. How was I to know that she was ticklish?
- * She's got a very unusual figure. Her seams are straight but her legs are crooked.
- * Stockings are things that run while a woman is walking.
- * The nicest thing about dictating a letter is that you can use words you don't know how to spell.
- * A marriage license costs only three dollars down and your income for life.

- * Many a woman marries a man for life and then finds out he doesn't have any.
- * She gave me the best years of her life. Now come the worst years.
- * She was having the time of her life until her husband found out.
- * A girdle is a device that holds a girl in when she's going out.
- * A girdle doesn't change a woman's weight. It only moves it to a more interesting location.
- * A woman has reached middle-age when her girdle pinches her and her husband doesn't.
- * I love her for what she is — rich.
- * Love is like photographic film. It has to be developed in the dark.
- * A wise man is one who is smarter than he thinks he is.
- * Some men need two women in their life. A secretary to take things down, and a wife to pick things up.
- * Behind every famous man is a woman who says there is a woman behind every famous man.
- * My ambition is to marry a rich girl who is too proud to let her husband work.
- * My marriage is a continuous process of getting used to things I hadn't expected.
- * In all the years I'm married I never stopped being romantic. If my wife ever finds out, I'm dead.
- * All marriages are happy. It's the living together afterwards that causes all the trouble.
- * Memory is what tells a man his wedding anniversary was yesterday.

- * If you have half a mind to get married, do it. That is all it takes.
- * A smart woman always asks her husband's opinion after she has made up her mind.
- * The skirts are getting shorter and the neckline lower. I'd like to be there when they meet.
- * My car has had stereo for a long time. My wife in front and my mother-in-law in the back.
- * A moth is an animal that spends the summer in fur coats and the winter in bathing suits.
- * I watched a love-scene at a drive-in movie for a whole hour before I realized I was facing the wrong way.
- * A neighbor is a person who listens to your conversation through a wall.
- * A New Year's resolution is something that goes in one year and out the other.
- * "Is that your nose or are you eating a banana?"
- * He is the only guy who wears sunglasses to protect his eyes from the glare of his nose.
- * A nudist never has to hold out his hand to see if it is raining.
- * An opera is a place where a guy gets stabbed in the back and, instead of bleeding, he sings.
- * A monolog is a conversation between a woman who has just had an operation and one who hasn't.
- * A man can always tell what kind of time he's had at a party by the look on his wife's face.
- * There are now three classes of people: the haves, the have-nots, and the charge-its.

- * Sometimes I feel like resigning from the human race – if I only knew where to send my resignation.
- * Here is a fellow who's knock-kneed, cross-eyed, overweight and stupid – and those are his good points.
- * This is a wedding picture of my parents. The little fellow in between is me.
- * On vacation, people drive thousands of miles to have their picture taken in front of their cars.
- * Anybody who says he understands international affairs these days is two weeks behind the news.
- * The polls are places where you stand in line for a chance to decide who will spend your money.
- * Have you noticed that it now takes six cents for you to say your two-cents worth on a penny post card?
- * Being poor has one distinct advantage. It doesn't take much to improve your situation.
- * Show me a psychiatrist and I'll show you a couch coach.
- * Just because a man asks you to lie down on a couch doesn't mean he's a psychiatrist.
- * The longest word in the English language is the one following the phrase: "And now, just a word from our announcer about a fine product."
- * This is a combination restaurant and filling station. You can get food here and gas.
- * How do you know this is a real Mexican restaurant?"
"You're not supposed to drink their water."
- * A school is a place where children go to catch cold from other children.
- * Fall is the time of the year when summer's suntan turns to winter's frostbite.

APPENDIX C

COMMAND ARGUMENT DIALOGS

When a menu user requests a TAS function which requires arguments, MMICI enters a command argument dialog. This consists of asking a series of questions directing the user in the options available for each TAS command. This appendix depicts one such dialog for each command which the MMR/TAS user may invoke. The examples presented are not exhaustive, since each TAS command may have several mutually exclusive options in its argument sequence. Specifically, the syntax for each command may be thought of as a tree structure, and taking one of the paths through the tree can preclude other paths.

The syntax of each command is presented to avoid confusion. In the presentation of syntax, the following metacharacters and constructions are used.

- a. item .

This type of item refers to other items. In the language of BNF, these items are non-terminal symbols.

- b. ITEM

An item which appears fully capitalized is a literal string.

- c. [item]

An item enclosed in square braces is optional. Well nested braces are permitted, and indicate that items in the inner groups may be present only if all outer groups are present.

- d. item1 | item2 | ... | itemn

Items separated by a vertical bar are exclusively or-ed. In other words, exactly one of the items must appear.

- e. (item1 | item [item3])

Parentheses are used to indicate grouping. In this example, one may choose between item1 or the sequence of item2 possibly followed by item3. Parentheses may be well nested.

Most of the non-terminals are self explanatory to the person familiar with TAS. Those unfamiliar with the TAS environment may find a short glossary of non-terminals useful.

- a. sni

Each TAS user is known to the system by their Structured Network Identifier, or SNI. This corresponds to a username on other systems.

- b. station, tty

TAS terminals are all known by a unique station number, indicated by the symbol 'station'. TAS runs on the UNIX operating system, which identifies terminals by a 'tty' letter.

- c. jobid, shortjobidrange

Each TAS query job is known by a unique system job-identification, as well as a user-oriented short form identifier. A range of jobs may be specified by using the short form.

d. `hostname, host`

These tokens refer to COINS II network applications or their host computers.

e. `file`

Each TAS user may store personal textfiles; they are generically referenced by 'file'.

f. `-pl`

This symbol in the syntax for a command indicates that the command will perform pagination of its output.

In several cases, commands have identical syntax. In each of these groups, each command will have an example presented and all after the first will contain a note that their syntax is identical to the first command. Commands appear alphabetically for ease in reference.

Command: ADCOM

Syntax: ADCOM [[sni] file [x]]

Dialog:

Adcom command dialog Command dialog mode
You have new messages and query responses. Default Project

Do you want to begin editing with a file (y/n) ? y

Is this your file, as opposed to another user's file (y/n) ? y

Please type the filename ==> querytemplate
Thank you.

Do you want to transmit the file immediately (y/n) ? n

Command: AUTH

Syntax: AUTH [-pl] [station] [hostname]

Dialog:

Auth command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please select a paging option ==> 3

- 1 paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please turn on the terminal's <Print-On-Line> key.

Please select the data you wish displayed ==> 2

- 1 Display all data
- 2 Data for a given TAS station
- 3 Data for a given hostname
- 4 Data for a given host from a given TAS station

Please enter the TAS station number ==> 12

Thank you.

Command: CANCEL

Syntax: CANCEL (jobid | ALL | shortjobidrange)

Dialog:

Cancel command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please specify the class of jobs to CANCEL ==> 2

- 1 All jobs
- 2 A single job specified by jobid
- 3 A range of jobs specified by short jobid

Please enter the jobid of the job to cancel ==> 12345
Thank you.

Command: CLOSE

Syntax: CLOSE [-pl] [jobid | SORT (i | j | t | r)]

Dialog:

Close command dialog Command dialog mode
You have new messages and query responses. Default Project

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please specify the set of jobs you wish to see ==> 4

- 1 All jobs
- 2 A job specified by jobid
- 3 All jobs, sorted by short jobids
- 4 All jobs, sorted by jobids
- 5 All jobs, sorted by time (oldest first)
- 6 All jobs, sorted by time (newest first)

Command: COUNT

Syntax: COUNT [-pl] [own-sni | (tty | station) | agency]
[(START | dtg) (END | dtg)]

(The user's own sni is assumed by COUNT if no other parameters are stated.)

Dialog:

```
Count command dialog          Command dialog mode
You have new messages and query responses.  Default Project
```

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please specify the selection criteria for the data ==> 4

- 1 All data
- 2 Data for a given station number
- 3 Data for a given Unix terminal
- 4 Data for a given agency

Please enter the agency's name ==> cia
Thank you.

Please specify a time range ==> 1

- 1 START to END, all time on record
- 2 START to a given finishing time
- 3 A given starting time to the END
- 4 A given start time to a given end time

Command: DATEIS

Dialog:

(This command accepts no arguments, thus no dialog with the user is required.)

Command: DIAOLS

Syntax: DIAOLS [[sni] file [x]]

(This command's syntax is identical to that of the ADCOM command.)

Dialog:

 Diaols command dialog Command dialog mode
You have new messages and query responses. Default Project

Do you want to begin editing with a file (y/n) ? n

Command: DIR

Syntax: DIR [-pl] [SORT (NAME | SNI)] [(NAME | SNI | ORG | PHONE) string]

Dialog:

```
          Dir command dialog           Command dialog mode
You have new messages and query responses. Default Project
```

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please specify a sorting option ==> 1

- 1 Sort by name
- 2 Sort by sni
- 3 Unsorted

Please specify how you want the search limited ==> 5

- 1 Apply key string to user names
- 2 Apply key string to organization names
- 3 Apply key string to sni's
- 4 Apply key string to phone numbers
- 5 Full search, no limiting key string

Command: DISPLAY

Syntax: DISPLAY [-pl] jobid

Dialog:

Display command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please enter the jobid of the job you want to see ==> 2478
Thank you.

Command: ECHO

Dialog:

(This command accepts no arguments, thus no dialog with the user is required.)

Command: EDIT

Syntax: EDIT [[sni] file]

Dialog:

Editor command dialog Command dialog mode
You have new messages and query responses. Default Project

Do you want to begin editing with a file (y/n) ? y

Is this your file, as opposed to another user's file (y/n) ? n

Please give the SNI (user id) of the file's owner : cial2092

Please type the filename ==> hertextfile
Thank you.

Command: HELP

(This command is superceded by the menu choice which permits help for any topic on a page.)

Command: HOLD

Syntax: HOLD (ALL | jobid)

Dialog:

Hold command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please enter the jobid of the job you wish held, or only <newline> to hold all jobs ==>

Thank you.

Command: INTER

Syntax: INTER [-pl] (JOBS | FILES)

(Note that only the pagination option need be asked, since the menu choice always determines whether files or jobs will be interactively disposed of.)

Dialog:

Inter command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Command: IPAC

Syntax: IPAC [[sni] file [x]]

(This command's syntax is identical to that of the ADCOM command.)

Dialog:

Ipac command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Do you want to begin editing with a file (y/n) ? y

Is this your file, as opposed to another user's file (y/n) ? y

Please type the filename ==> ipacstandard
Thank you.

Do you want to transmit the file immediately (y/n) ? n

Command: ISSPIC

Syntax: ISSPIC [[sni] file [x]]

(This command's syntax is identical to that of the ADCOM command.)

Dialog:

Isspic command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Do you want to begin editing with a file (y/n) ? n

Command: JOBSTAT

Syntax: JOBSTAT [-pl] [jobid | SORT (i | j | t | r)]

(This command's syntax is identical to that of the CLOSE command.)

Dialog:

Jobstat command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please specify the set of jobs you wish to see ==> 4

- 1 All jobs
- 2 A single job specified by jobid
- 3 All jobs, sorted by short jobids
- 4 All jobs, sorted by jobids
- 5 All jobs, sorted by time (oldest first)
- 6 All jobs, sorted by time (newest first)

Command: LIST

Syntax: LIST [-pl] [sni] [SORT (n | c | d | a | m)]

Dialog:

List command dialog Command dialog mode
You have new messages and query responses. Default Project

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please enter an sni to list another user's files, or <newline> alone to list your own textfiles ==>

Thank you.

Please specify the sorting option to apply ==> 1

- 1 Sort by name
- 2 Sort by modification date
- 3 Sort by access date
- 4 Sort by time with newest first
- 5 Sort by time with oldest first

Command: LOGOFF

Dialog:

(This command accepts no arguments, thus no dialog with the user is required.)

Command: MSG

Dialog:

(This command accepts no arguments, thus no dialog with the user is required.)

Command: PACAF

Syntax: PACAF [[sni] file [x]]

(This command's syntax is identical to that of the ADCOM command.)

Dialog:

Pacaf command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Do you want to begin editing with a file (y/n) ? y

Is this your file, as opposed to another user's file (y/n) ? y

Please type the filename ==> periodicquery
Thank you.

Do you want to transmit the file immediately (y/n) ? y

Command: PROJECT

Syntax: PROJECT [newproj]

Dialog:

Project command dialog Command dialog mode
You have new messages and query responses. Default Project

Specify the name of the project you wish to work on, or just type
<newline> for the default project ==>

Command: REDIT

Syntax: REDIT [[sni] file]

(This command's syntax is identical to that of the EDIT command.)

Dialog:

Editor command dialog

Command dialog mode

You have new messages and query responses. Default Project

Do you want to begin editing with a file (y/n) ? y

Is this your file, as opposed to another user's file (y/n) ? y

Please type the filename ==> lilblackbook

Thank you.

Command: RESEND

Syntax: RESEND (jobid | shortjobidrange | ALL) [hostname]
[PENDING]

Dialog:

Resend command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please specify the set of jobs to RESEND ==> 2

- 1 All jobs
- 2 A single job specified by jobid
- 3 A range of jobs specified by short jobid

Please enter the jobid ==> 43

Command: RESUME

Dialog:

(This command accepts no arguments, thus no dialog with the user is required.)

Command: RYETIP

Syntax: RYETIP [[sni] file [x]]

(This command's syntax is identical to that of the ADCOM command.)

Dialog:

Rytip command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Do you want to begin editing with a file (y/n) ? y

Is this your file, as opposed to another user's file (y/n) ? y

Please type the filename ==> chevyastrye
Thank you.

Do you want to transmit the file immediately (y/n) ? y

Command: SAVE

Syntax: SAVE (QUERY | RESPONSE) jobid file

Dialog:

Save command dialog Command dialog mode
You have new messages and query responses. Default Project

Please specify what you wish to save ==> 1

- 1 A query file
- 2 A response file

Please enter the jobid ==> 35
Thank you.

And the name of the text file you wish it saved in ==> newtemplate
Thank you.

Command: SHOW

Syntax: SHOW [-pl] (jobid | [sni] file)

(Note that the menu interpreter is cognizant of whether the user is trying to look at a file or a job.)

Dialog:

 Show command dialog Command dialog mode
You have new messages and query responses. Default Project

Please select a paging option ==>

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please enter the jobid of the job you wish to see ==> 1987
Thank you.

Command: SNDMSG

Dialog:

(This command accepts no arguments, thus no dialog with the user is required.)

Command: STATUS

Syntax: STATUS [-pl] [hostname]

Dialog:

Status command dialog	Command dialog mode
You have new messages and query responses.	Default Project

Please select a paging option ==> 2

- 1 Paginated output to the terminal
- 2 Unpaginated output to the terminal
- 3 Paginated output for the printer

Please enter the hostname you want status for, or type only <newline>
for status on all hosts ==>

Thank you.

Command: TRACE

Syntax: TRACE (jobid | shortjobidrange | ALL)

Dialog:

Trace command dialog Command dialog mode
You have new messages and query responses. Default Project

Please specify which job or jobs you want traced ==> 1

- 1 All jobs
- 2 A single job specified by jobid
- 3 A range of jobs specified by short jobid