

SESSION REPORT

61 M375; B450 TSO/ISPF-BASED IC: "It's A Jungle Out There" 156



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TSO/ISPF - BASED IC: "IT'S A JUNGLE OUT THERE"

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ABSTRACT

A TSO/ISPF - based Information Center allows the non-DP professional in a MVS environment to access mainframe computer power without regard to technical complexities. A user-friendly menu-driven dialog is employed with screens which are English-like and avoid the use of DP acronyms and jargon whenever possible.

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INTRODUCTION

Information Center users are provided with tools and techniques that allow them to focus on business problems and access their data on their terms. The IC is also responsible for training, security and system performance. Capacity management of IC processing is therefore necessary to track and plan resource utilization.

GTEDS INFORMATION CENTER ENVIRONMENT

To meet the four basic needs of IC users -- providing functionality, training, security and performance -- GTEDS Information Center utilizes three primary tools:

- The Information Center Dialog was developed with the ISPF Dialog Management Service under TSO, utilizing CLIST as the command procedure for the application coding.
- ACF2 (Access Control Facility) is utilized for security enhancement.
- SMF (System Management Facility) is the primary capacity management tracking and planning aid.

In building an Information Center, user-friendly is the key word. No user has to come to the IC. They will come only if the IC meets business needs in a timely and non-frustrating manner.

A big step toward "user-friendly" is providing an integrated approach to problem solving: One basic place to go with a single approach to screen design. In this way, once a user learns one function, he can assume that similar functions are performed in a like manner. This leads to less training and user frustration. The GTEDS IC selected ISPF to implement this single, unified, and easy to understand approach.

ISPF Capabilities:

- Display screen panels and messages
- Menus, documentation (help screens), and Dialogs
- Generation of output files for job submission and other processing
- Definition and control of symbolic parameters
- Interface to ISPF/PDF browse and edit facilities
- Control of operational modes during processing.

From the IC user perspective, the most visible functions are the screen panels and online documentation. The GTEDS IC has extensively tailored both of these to meet the needs of the user.

DIALOG AND SCREEN TAILORING

The end-user's fear of computing must be removed and computing must be as easy as possible in the Information Center.

User-Friendly Environment:

An effective method of enabling the non-technical professional to begin using the computer quickly and painlessly is required. Human engineering factors must be considered with emphasis on user-friendliness and a non-threatening environment. ISPF provides the logical linking of multiple screen panels to form an interactive dialog which is sophisticated and has a positive effect upon users. Effective utilization of computers is greatly improved so that minimal effort is needed to use the computer in decision making.

The application panels are designed as fill-in-the-blanks type screens and multiple choice is employed for selection whenever possible. CLIST-driven panels remove the necessity for end-users to understand the technical aspects involved in utilizing the IC application tools. Messages and the help facility are available for all panels and may be invoked for clarification when necessary.

The dialog consists of CLISTS, panels, messages, tables, and file skeletons with a library for each respective component. ISPF library members can be modified in edit mode and compile or preprocessing are not necessary.

Application Accessibility:

The Information Center makes screen content appropriate to the user's level of technical knowledge by controlling the applications selected when the initial CLIST is invoked. Screen tailoring the menu allows ease of use and simplicity for novice TSO users as well as providing more sophisticated tools for the DP professional.

While capabilities of end-users must not be underestimated, proper controls must be in place so that disaster does not occur when users are doing their own computing. Screen tailoring allows for control of data base and application accessibility and; therefore, yields an additional security facet for end-user computing.

ONLINE TRAINING

Online training through HELP and TUTORIAL screens increases user productivity and builds user self-sufficiency.

User Independence:

The end-user quickly becomes comfortable, and enthusiasm is created through the relative ease of use of the TSO/ISPF-based IC. Immediate user access to computer-based training and documentation is provided. Online training provides hands-on experience while learning at one's own pace. The time horizon is kept to a minimum in respect to initial end-user independence. The ISPF dialog is effective as a motivator since he is allowed to learn and work at his own pace.

From the end-user's perception, pressure of time availability with DP professionals is removed. This increases his comfort level and reduces the dependency on the DP technician. The end-user is allowed to work at his own speed and learn those areas that are particularly pertinent and important to him.

Timely Assistance:

With the aid of the online help and tutorials, the IC user has the ability to seek clarification on specific functions when needed. The information is on hand when needed and is relevant at the appropriate time. Non-pertinent information is not learned for a future situation that may never appear.

Retained User Competency:

If the IC is not accessed for a while, the end-user can readily assist himself in refreshing his knowledge. By depressing a program function key for the help mechanism, information is displayed which explains the last screen accessed. This allows the end-user to meet his needs himself as simply as possible initially and provides the mechanism to learn more features as his knowledge increases.

PRIMARY MENUS

The end-user who uses only the IC has the IC Primary Menu as the first screen displayed when he logs on. It is displayed automatically from a command procedure which is invoked within the user's TSO logon.

Users who have a need to perform non-IC functions in TSO, execute the IC control CLIST which initiates ISPF.

For both user types, the CLIST interrogates the user I.D. and determines the primary menu to display by specifying the appropriate panel command.

The IC Primary Menu is formatted as follows:

```
-----GTEDS HEADQUARTERS IM INFORMATION CENTER PRIMARY MENU-----  
SELECT OPTION====  
0 SPF PARMS - SPECIFY TERMINAL CHARACTERISTICS      USERID -#LR4342  
1 BROWSE    - DISPLAY SOURCE DATA OR OUTPUT        TIME    -14:20  
2 EDIT      - CREATE OR CHANGE SOURCE DATA        TERMINAL-3278  
3 UTILITIES - PERFORM UTILITY FUNCTIONS           PF KEYS -24  
4 TSO       - EXECUTE SELECTED TSO COMMANDS  
A ASI-ST    - EXECUTE ONLINE ASI-ST COMMANDS  
AB ADABAS   - EXECUTE ADABAS/NATURAL  
D DSP       - ROUTE PRINT TO IC PRINTER  
G GDDM      - EXECUTE GDDM GRAPHICS  
I ISMDS     - EXECUTE INTERACTIVE SCREEN MGT DISPLAY SCREEN  
M MESSAGES  - BROWSE SYSTEM MESSAGES AND DOCUMENTATION  
N IC NEWS   - BROWSE IC NEWS.  UPDATED 8/21/83  
R RAMIS     - EXECUTE RAMIS  
S SAS       - EXECUTE SAS/SASGRAPH  
T TUTORIAL  - TUTORIAL ON HOW TO USE IC  
U USER IDEAS - SUGGESTIONS YOU MAY HAVE FOR IC  
X EXIT      - TERMINATE IC SESSION  
  
PRESS END KEY OR ENTER X TO TERMINATE IC SESSION
```

PRIMARY MENU:

- The user identification, which denotes group affiliation, is initialized and stored in the user's profile by the IC staff. With the use of symbolic parameters, this user group affiliation is forced as the third level qualifier for access to user data bases.

"NORMAL" ISPF OPTIONS

SFF PARMS:

Terminal characteristics and program function keys are defined for the end-users when access is established by the IC staff. All IC users are initialized with the same characteristics. If a user has a problem when using a program function key, an IC consultant can readily assist him via a telephone call and explain which PF key should be used to gain the desired results. Sophisticated users can change or create new function keys using this option.

BROWSE, EDIT and UTILITY Functions:

ISPF/PDF Edit and Browse programs are invoked from the dialog function by specifying a data set name. The Edit function is used to build data sets for RAMIS and ASI-ST ad hoc reporting requests. The end-user also utilizes the Edit function as a means to build input data and file descriptions. A few users perform word processing in Edit mode, but this practice is discouraged.

SELECTED TSO COMMANDS:

TSO use is abbreviated through table control. In the IC control CLIST, a table with permissible TSO commands is allocated according to the specific type of user. The majority of IC users have no need to execute CLISTS from the IC nor does a need exist to be able to jump between screens. End-users are allowed to select the following TSO commands from a provided menu:

- LISTA - LIST CURRENTLY ALLOCATED DATASETS
- LISTB - LIST BROADCAST MESSAGES
- LISTC - LIST CATALOG ENTRIES
- MO - COMPLETE LISTB MSG NUMBER TO RECEIVE MESSAGE
- USER - DISPLAY ALL USERS CURRENTLY LOGGED ON TSO
- SEND - SEND A MESSAGE TO ANOTHER TSO USER
- STATUS - GET STATUS OF A JOB
- CANCEL - CANCEL A JOB SUBMITTED UNDER YOUR TSO ID
- TIME - GET CURRENT TIME AND DATE
- PRINTOFF - PRINTOFF A DATASET TO A SYSTEM PRINTER
- HELP - HELP ON ABOVE FUNCTIONS
- WEEKEND - WEEKEND SCHEDULE FOR DATA CENTER

NOTE: If a user has a need for other commands, this can be accommodated. These users have the same panel displayed, but are able to perform the needed TSO commands such as CLIST execution.

Access to User-Friendly Software Tools:

Panels are provided for each of the mainframe software offerings supported by the IC. With the use of the menu-driven dialog, the user provides the appropriate option selection and data set name by filling-in-the-blanks. The IC provides the CLISTS necessary to execute the request by interrogating the panel response. The following software packages are currently supported with individual selection panels, help, and tutorials:

- ASI-ST EDITOR - Tests ASI-ST requests for syntax online. ASI-ST requests are easy to modify and debugging time is reduced.
- ADABAS/NATURAL - A relational DBMS which requires a minimal amount of training. NATURAL provides screen map generation, ad hoc query, and report generation.
- RAMIS II - A database system, easy to learn and use, for storing, creating, and retrieving data. Both online and batch processing are available. ISPF file skeletons are produced for batch execution.
- SAS/SASGRAPH - Statistical Analysis System to analyze data for reporting and graphic presentation.
- ISMDS - Interactive Screen Management Display System is used in conjunction with RAMIS to provide multiple, concurrent users with formatted screens for data entry into and retrieval from RAMIS databases.
- GDDM - Graphic Data Display Management for rapidly producing ad hoc high quality graphics.

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Specific Inquiry Functions Provided:

Online Tutorial:

- If the IC user seeks clarification on specific functions, option "T" in the primary menu provides access to IC tutorials. This is provided for all selections identified in the primary menu. Panels are arranged in a hierarchy. Entering from option "T" provides the top panel in the hierarchy. Sophisticated paging indexing is provided to permit the user to pinpoint specific information or browse more general subject matter.

Online Help:

- The IC user is able to expand or refresh knowledge by accessing help with the designated program function key to provide an explanation of the screen last accessed. The help command provides entry within the hierarchy at the point where the provided information is pertinent to the specific question or situation.

IC News:

- Option "N" in the primary menu provides a summary of available IC tools and upcoming classes. For a new user or one who has not accessed the IC screens recently, the PF keys are used to scroll through the information. The news is updated as needed or periodically and, the date of update is stored on the primary menu. The user has the ability to view a complete list of all current and historical news.

Messages:

- Option "M" allows the user to browse system messages and general data center documentation on available manuals and computer assisted training.

The TSO/ISPF-based IC provides the necessary DP familiarization and instruction so that DP is not a mystery, and it avoids the tendency to build a wall between non-DP professionals and DP professionals. Utilization of TSO/ISPF in the IC coupled with an understanding of the user's requirements, permits the IC consultants to create and adjust the environment interactively to satisfy the end-user's needs.

SECURITY IN TSO/ISPF ENVIRONMENT

The Information Center has the responsibility to the end-users to insure data security and provide audit controls.

IC Commitment:

- Effective creation and execution of IC administration to insure data security, data integrity, and minimal data redundancies across the entire user community.
- Coordinate IC data base development with existing applications and across departments within GFEDS so as to delineate the access for manipulation of data.
- Provide users with a cross-reference and interface to data in corporate subject data bases.

In order to satisfy the security requirements of users, mechanisms have been designed and implemented at various levels.

IC Security Access Control:

- An Information Center user who is also a new TSO user is required to complete a sign-up sheet which is processed by both the IC staff and the Systems Support Unit. The Systems Support Unit assigns the TSO user I.D. It is then the responsibility of the IC staff to allow the user access to the Information Center. This is accomplished by determining which IC applications the user has authority to use and appropriately placing the user I.D. in the IC control CLIST. The user group affiliation must also be established in the user's ISPF profile. This user group affiliation is also used for security.

ACF2:

The capability to link a dataset to a designated group of TSO users or to an individual TSO ID is provided with ACF2. Auxiliary data security support is gained by restricting IC control data sets to read and execute only. A read for any other purpose, such as to copy, is strictly prohibited. This insures that the IC dialog is not proliferated by the more technically-aware users, and that data cannot be accessed by unauthorized users. OS passwords which are print-suppressed may also still be used in conjunction with ACF2 to increase the comfort level of end-users.

A user is able to change his own TSO user I.D. password when desired and is required to do so every forty-five (45) days.

ACF2 uses SMF (System Management Facility) recording facilities to provide audit trails, event loggings, proper audit controls and accountability of actions for confidential and critical data. This includes the logging of unauthorized attempts to access data sets.

DATA MANAGEMENT:

The IC staff is responsible for providing data needed for ad hoc reporting and queries through extract programs which only capture the data needed. Associated fields in a record, file, or segment that are extraneous to the user's purpose are then unavailable. File backup copies for recovery and archiving are provided automatically with ASM2 (Automated Space Management System).

CAPACITY MANAGEMENT OF END-USER PROCESSING

The IC philosophy encourages users to utilize the Information Center without regard to resource requirements although high-level languages are resource-intensive. The difficulty of planning for end-user processing has long been recognized.

Resource Planning:

A hardware resource plan for the Information Center with ongoing monitoring of IC software utilization and user-written systems development needs minimizes the possibility of under-predicting resource requirements and the resultant poor performance. Accurate planning provides for expansion of computer capacity as necessary to avoid user frustration.

Tracking:

Effective tracking allows the IC to maintain control so as to identify and therefore avoid practices which use excessive resources. Proper monitoring allows the end-user to be aware of costs and charges for specific activities. The IC should be able to make this information available to the end-user.

Solution - SMF:

To improve the overall quality of the TSO/ISPF-based IC services while minimizing and optimizing expenditures, SMF (System Management Facilities) is employed. This data is used to produce reports for billing users, analyzing the workload, and profiling system resource usage.

SAS (Statistical Analysis System) is used for analysis and reporting of number of sessions, elapsed time and CPU usage by user, by product code, by department, and total IC.

METHODOLOGY:

Elapsed Session Time

In order to capture exact session time while utilizing the IC, a non-VSAM data set is renamed at the beginning and ending of the IC TSO/ISPF session producing a SMF record type 18 (rename). This activity is performed in the initial CLIST that controls the IC processing within ISPF. This is necessary so that exact results are captured for only the IC since the user may have the capability to use the IC, TSO, SPF or other applications running in a TSO environment.

The SMF data set is read and a sort/merge program is used to capture and sort on record ID 18. The ordered SMF records provide information by TSO user I.D. for elapsed session time. The difference between field (SMF18TIME) in start and end records is calculated to obtain elapsed session time for each TSO user I.D.

NOTE: As a matter of clarification, the data in SMF record 5 (ASCBEJST) could be used in the case where users are always only using IC services.

CPU Time:

The SMF data management record type 05 is used to provide data for CPU time under TCB's (Task Control Block). This data is extracted and sorted by TSO user I.D. for both online sessions and jobs submitted through TSO. This data is used for profiling system resource usage. The SMF data set is read and a sort/merge program is used to capture and sort on record ID 05. The field ACTJTIME in the ordered SMF records provides information by TSO user I.D. for CPU time.

CPU times are captured and extracted for TSO sessions and jobs submitted through TSO. The IC TSO/ISPF environment is controlled by an IC driven CLIST; however, data cannot be captured or extracted for the particular execution of a CLIST with SMF. The IC processing CPU times within ISPF cannot be exactly captured since the user may have the capability to use the IC, TSO, SPF or other applications running in a TSO environment.

CONCLUSION

A TSO/ISPF-based Information Center provides the mechanism for assisting in the following areas:

- Software Tools in a User-Friendly Environment
- Online Training
- Online Assistance
- Capacity Management
- Data Security and Management
- User Communication Program
- Upward Technical Capability.

The difficulties encountered in the management and growth of user-driven computing are reduced with the TSO/ISPF Information Center environment. The end-user is able to focus on his business problems and become easily involved as the development resource.