ASG-SmartTest™ CICS User's Guide

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Contents

Preface

This *ASG-SmartTest CICS User's Guide* describes how to use ASG-SmartTest CICS (herein called SmartTest-CICS). SmartTest-CICS is provided as an enhancement to ASG-SmartTest (herein called SmartTest) and adds functionality by allowing you to define test coverage for a group of programs, helping to ensure that all program routines have been executed in the testing process.

Allen Systems Group, Inc. (ASG) provides professional support to resolve any questions or concerns regarding the installation or use of any ASG product. Telephone technical support is available around the world, 24 hours a day, 7 days a week.

ASG welcomes your comments, as a preferred or prospective customer, on this publication or on any ASG product.

About this Publication

This publication consists of these chapters:

- Chapter 1, "Introduction," provides an overview of SmartTest-CICS, its architecture, and the CICS-specific commands.
- Chapter 2, "Concepts," provides an overview of SmartTest storage protection.
- Chapter 3, "Getting Started," describes the procedures for setting up, initiating, and terminating a SmartTest-CICS test session.
- Chapter 4, "Using CICS Features," describes the procedures and screens used to view and modify command level EIB, files, Temporary Storage, and Data (Transient, DL/I, and DB2) using SmartTest-CICS.
- Chapter 5, "Remote Monitoring Facility," describes the SmartTest-CICS Remote Monitoring Facility (RMF), which provides several alternatives for testing programs that are not initiated at the SmartTest terminal.

Related Publications

The documentation library for ASG-SmartTest consists of these publications (where *nn* represents the product version number):

- *ASG-Center Installation Guide* (CNX0300-*nn*) contains installation and maintenance information for ASG-Center, the common set of libraries shared by the ASG-ESW suite of products.
- *ASG-ESW Enhancement Summary* (ESW1000-*nn*) highlights the new functionality for this release.
- *ASG-SmartTest CICS User's Guide* (STC0200-*nn*) contains specific commands and test session setup information for the CICS environments.
- *ASG-SmartTest for COBOL and Assembler User's Guide* (STA0200-*nn*) contains introductory and usage information for COBOL and Assembler. It also contains test session setup information for the TSO, ISPF, IMS/DB, DB/2, BTS, and Batch environments.
- *ASG-SmartTest IMS User's Guide* (STM0200-*nn*) contains specific commands and test session setup information for the IMS/DC environments.
- *ASG-SmartTest Installation Guide* (STX0300-*nn*) contains information for installing and maintaining ASG-SmartTest.
- *ASG-SmartTest PLI User's Guide* (STL0200-*nn*) contains introductory and usage information about how to use ASG-SmartTest with the PL/I language. It also contains test session setup information for the TSO, ISPF, IMS/DB, DB/2, BTS, and Batch environments.
- *ASG-SmartTest Quick Start for COBOL/ASM* (STA0900-*nn*) summarizes how to use ASG-SmartTest with the COBOL or Assembler language.
- *ASG-SmartTest Quick Start for PL/I* (STL0900-*nn*) summarizes how to use ASG-SmartTest with the PL/I language.
- *ASG-SmartTest Reference Guide* (STX0400-*nn*) contains detailed reference information about CUA pull-downs and pop-ups, ASG-SmartTest command syntax, and pseudo code.
- *ASG-SmartTest Reference Summary* (STX0600-*nn*) summarizes the syntax and usage of ASG-SmartTest commands.
- *ASG-SmartTest TCA User's Guide* (STT0200-*nn*) contains procedures for using the ASG-SmartTest-TCA (Test Coverage Analysis) option.

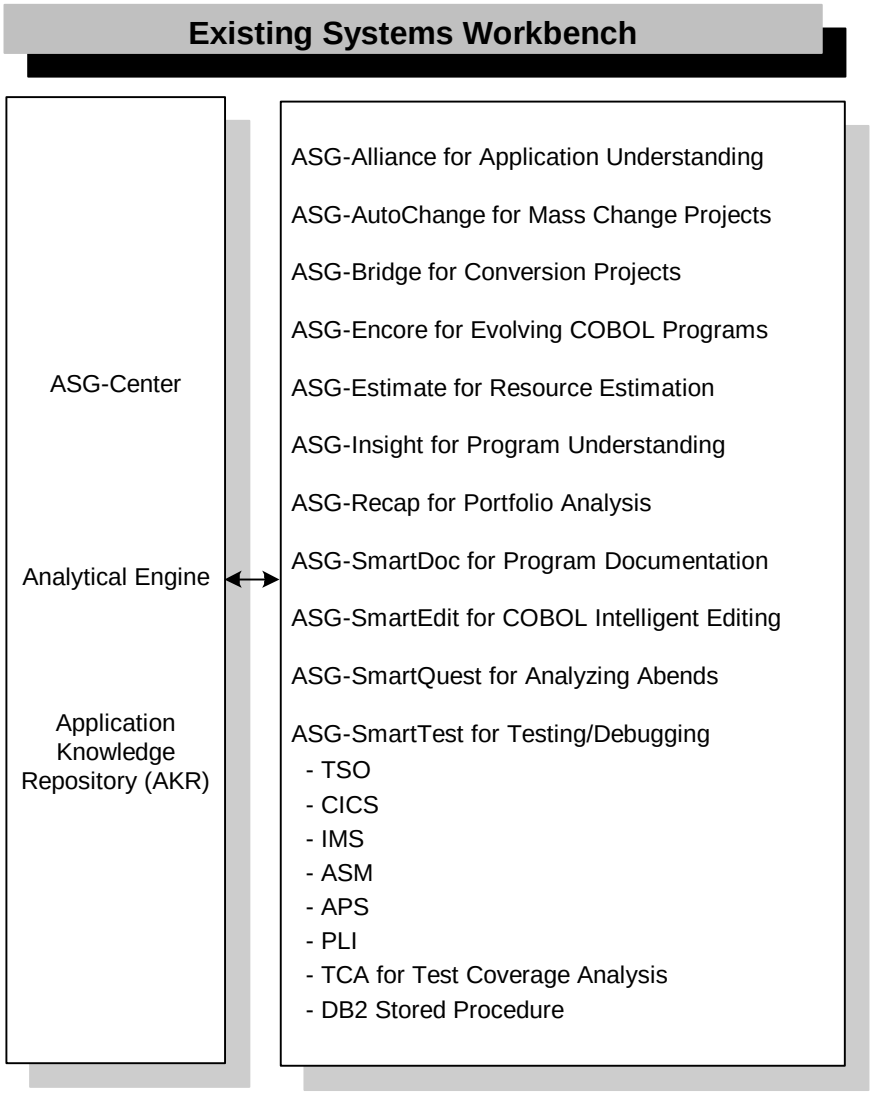
Note:

To obtain a specific version of a publication, contact ASG Customer Support.

ASG-Existing Systems Workbench (ASG-ESW)

ASG-ESW (herein called ESW) is an integrated suite of components designed to assist organizations in enhancing, redeveloping, or re-engineering their existing systems. ESW products use the Application Knowledge Repository (AKR) to store source program analysis information generated by the Analytical Engine. Figure 1 represents the components of ESW.

Figure 1 • ASG Existing Systems Workbench



This table contains the name and description of each ESW component:

ESW Product	Herein Called	Description
ASG-Alliance	Alliance	The application understanding component that is used by IT professionals to conduct an analysis of every application in their environment. Alliance supports the analysis and assessment of the impact of change requests upon an entire application. Alliance allows the programmer/ analyst to accurately perform application analysis tasks in a fraction of the time it would take to perform these tasks without an automated analysis tool. The impact analysis from Alliance provides application management with additional information for use in determining the resources required for application changes.
ASG-AutoChange	AutoChange	The COBOL code change tool that makes conversion teams more productive by enabling quick and safe changes to be made to large quantities of code. AutoChange is an interactive tool that guides the user through the process of making source code changes.
ASG-Bridge	Bridge	The bridging product that enables field expansion for program source code, without being required to simultaneously expand the fields in files or databases. Because programs are converted in smaller groups, or on a one-by-one basis, and do not require file conversion, testing during the conversion process is simpler and more thorough.
ASG-Center	Center	The common platform for all ESW products. Center provides the common Analytical Engine to analyze the source program and store this information in the AKR. This common platform provides a homogeneous environment for all ESW products to work synergistically.

ESW Product	Herein Called	Description
ASG-Encore	Encore	The program re-engineering component for COBOL programs. Encore includes analysis facilities and allows you to extract code based on the most frequently used re-engineering criteria. The code generation facilities allow you to use the results of the extract to generate a standalone program, a callable module, a complement module, and a CICS server. Prior to code generation, you can view and modify the extracted Logic Segment using the COBOL editor.
ASG-Estimate	Estimate	The resource estimation tool that enables the user to define the scope, determine the impact, and estimate the cost of code conversion for COBOL, Assembler, and PL/I programs. Estimate locates selected data items across an application and determines how they are used (moves, arithmetic operations, and compares). Time and cost factors are applied to these counts, generating cost and personnel resource estimates.
ASG-Insight	Insight	The program understanding component for COBOL programs. Insight allows programmers to expose program structure, identify data flow, find program anomalies, and trace logic paths. It also has automated procedures to assist in debugging program abends, changing a computation, and resolving incorrect program output values.
ASG-Recap	Recap	The portfolio analysis component that evaluates COBOL applications. Recap reports provide function point analysis and metrics information, program quality assessments, intra-application and inter-application comparisons and summaries, and historical reporting of function point and metrics information. The portfolio analysis information can also be viewed interactively or exported to a database, spreadsheet, or graphics package.
ASG-SmartDoc	SmartDoc	The program documentation component for COBOL programs. SmartDoc reports contain control and data flow information, an annotated source listing, structure charts, program summary reports, exception reports for program anomalies, and software metrics.

ESW Product	Herein Called	Description
ASG-SmartEdit	SmartEdit	The COBOL editing component that can be activated automatically when the ISPF/PDF Editor is invoked. SmartEdit provides comprehensive searching, inline copybook display, and syntax checking. SmartEdit allows you to include an additional preprocessor (for example, the APS generator) during syntax checking. SmartEdit supports all versions of IBM COBOL, CICS, SQL, and CA-IDMS.
ASG-SmartQuest	SmartQuest	The diagnostic tool for analyzing batch and CICS transaction abends. SmartQuest has been designed to make the maximum use of simple point-and-shoot techniques to enable fast and easy navigation through any data dump.
ASG-SmartTest	SmartTest	The testing/debugging component for COBOL, PL/I, Assembler, and APS programs in the TSO, MVS Batch, CICS (including file services), and IMS environments. SmartTest features include program analysis commands, execution control, intelligent breakpoints, test coverage, pseudo code with COBOL source update, batch connect, disassembled object code support, and full screen memory display.

Invoking ESW Products

The method you use to invoke an ESW product depends on your system setup. If you need assistance to activate a product, see your systems administrator. If your site starts a product directly, use the ISPF selection or CLIST as indicated by your systems administrator. If your site uses the ESW screen to start a product, initiate the ESW screen using the ISPF selection or CLIST as indicated by your systems administrator and then typing in the product command on the command line.

The product names can also vary depending on whether you access a product directly or through ESW. See "ESW Product Integration" on page xi for more information about using ESW.

To initialize ESW products from the main ESW screen, select the appropriate option on the action bar pull-downs or type the product shortcut on the command line.

Product Name (ESW Name)	Shortcut	ESW Pull-down Options
Alliance (Application Understanding)	AL	Understand ▸ Application
AutoChange (Conversion Set)	CC	Change ▸ Conversion Set
Bridge	BR	Change ▸ ASG-Bridge
Encore (Program Re-engineering)	EN	Re-engineer ▸ Program
Estimate	ES	Measure ▸ ASG-Estimate
Insight (Program Understanding)	IN	Understand ▸ Program
Recap (Portfolio Analysis)	RC	Measure ▸ Portfolio
SmartDoc (Program Documentation)	DC	Document ▸ Program
SmartEdit	SE	Change ▸ Program **Or** Change ▸ Program with Options
SmartQuest	SQV	Understand ▸ Abend/Dump
SmartTest (Testing/Debugging)	ST	Test ▸ Module/Transaction

ESW Product Integration

Because ESW is an integrated suite of products, you are able to access individual ESW products directly, or through the main ESW screen. As a result, different fields, values, action bar options, and pull-down options display on a screen or pop-up depending on how you accessed the screen or pop-up.

Certain ESW products also contain functionality that interfaces with other ESW products. Using SmartTest as an example, if Alliance is installed, SmartTest provides a dynamic link to Alliance that can be used to display program analysis information. If Insight is installed and specified during the analyze, the Insight program analysis functions are automatically available for viewing logic/data relationships and execution path. For example, the Scratchpad option is available on the Options pull-down if you have Insight installed.

Access to these integrated products requires only that they be installed and executed in the same libraries.

Example 1

Figure 2 shows the Encore Primary screen that displays when you access Encore directly.

The Encore Primary screen contains these eight action bar menu items: File, View, Extract, Generate, Search, List, Options, and Help.

Figure 2 • Encore Primary Screen

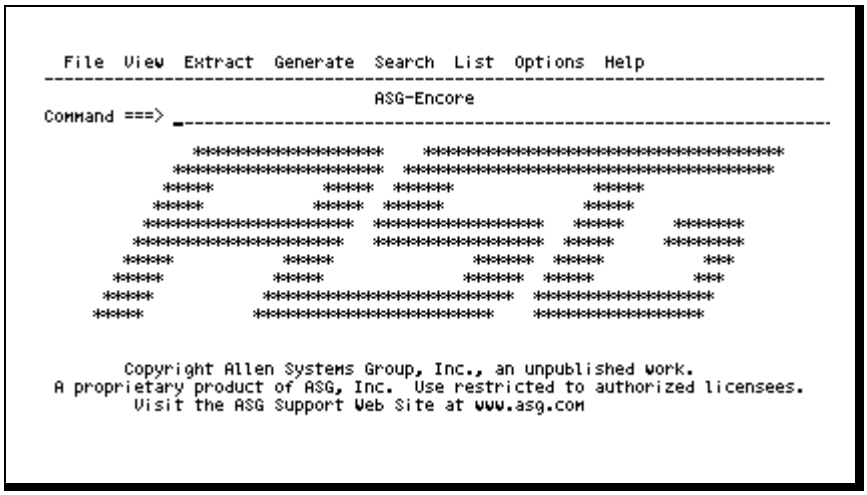
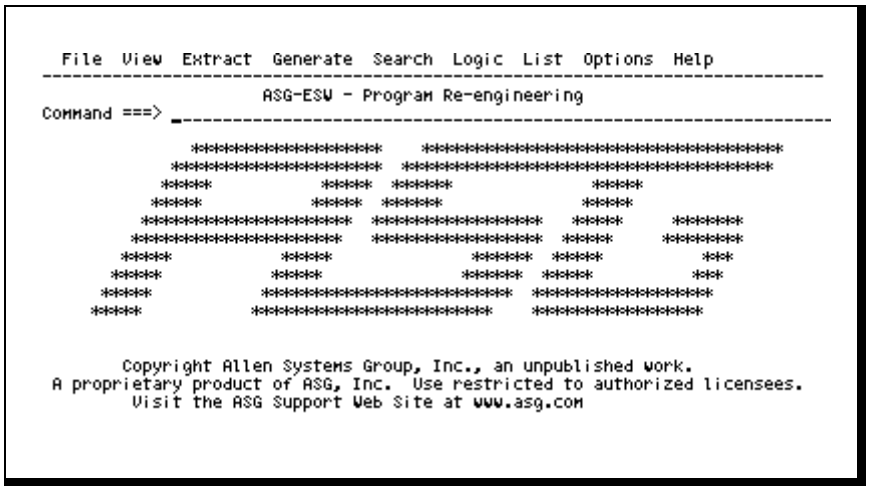


Figure 3 shows the Encore Primary screen that displays when you access Encore through ESW by selecting Re-engineer ▸ Program from the ESW action bar menu. Notice that the Primary screen name changes to ASG-ESW - Program Re-engineering when you enter Encore through ESW. Also, the Logic menu item displays if Insight is installed.

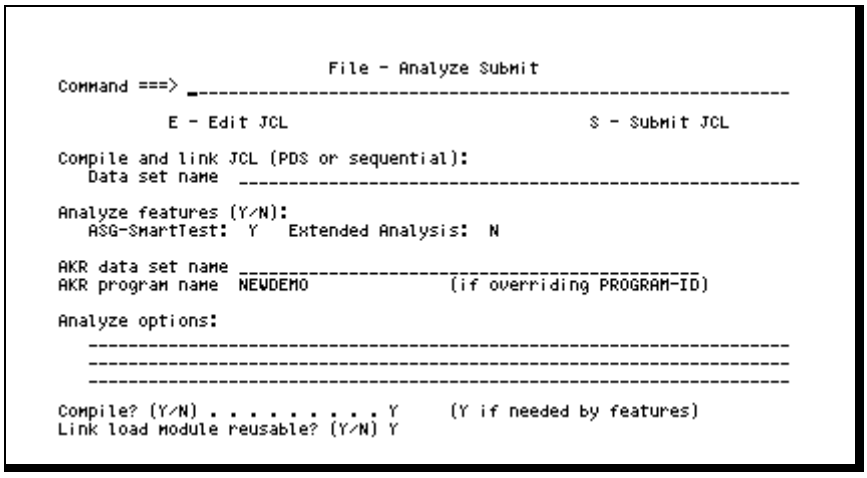
Figure 3 • ESW Encore Primary Screen



Example 2

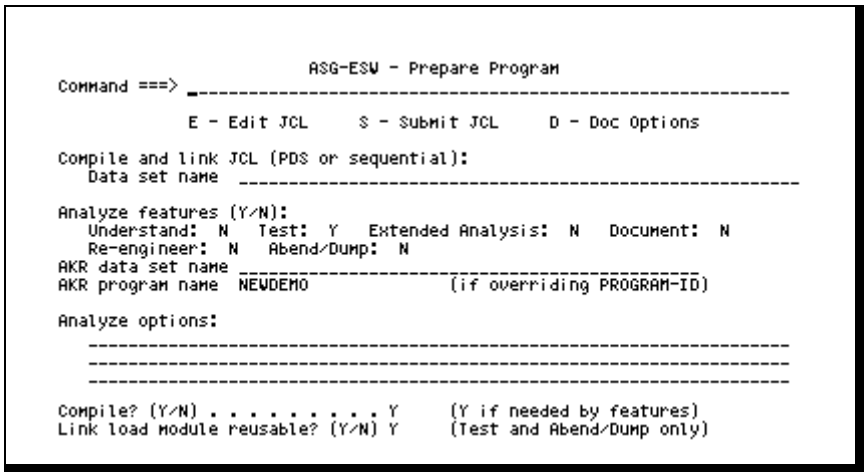
Figure 4 shows the File - Analyze Submit pop-up that displays when you access SmartTest directly. Figure 5 on page xiv shows the File - Analyze Submit pop-up that displays when you access SmartTest through ESW.

Figure 4 • File - Analyze Submit Screen



The actions shown on these screens can also vary. For example, the D - Doc Options action is only available on the File Prepare Program screen (or File - Analyze Submit screen) if SmartDoc is installed on your system. In Figure 4 on page xiii, the Doc Options action is not displayed.

Figure 5 • ASG-ESW - Prepare Program Screen (accessed through ESW)



Notice that the Analyze features field in Figure 5 lists additional ESW products than shown on Figure 4 on page xiii. This field is automatically customized to contain the ESW products you have installed on your system. These are the names of the analyze types:

Analyze Type	Analyze Type (ESW)
ASG-Encore	Re-engineer
ASG-Insight	Understand
ASG-SmartDoc	Document
ASG-SmartQuest	Abend/Dump
ASG-SmartTest	Test
Extended Analysis (ASG-SmartTest with Insight installed)	Extended Analysis

Publication Conventions

ASG uses these conventions in technical publications:

Convention	Represents
ALL CAPITALS	Directory, path, file, dataset, member, database, program, command, and parameter names.
Initial Capitals on Each Word	Window, field, field group, check box, button, panel (or screen), option names, and names of keys. A plus sign (+) is inserted for key combinations (e.g., Alt+Tab).
`lowercase italic monospace`	Information that you provide according to your particular situation. For example, you would replace *`filename`* with the actual name of the file.
`Monospace`	Characters you must type exactly as they are shown. Code, JCL, file listings, or command/statement syntax.
	Also used for denoting brief examples in a paragraph.
Vertical Separator Bar (|) with underline	Options available with the default value underlined (e.g., Y|N).
Underline	Denotes a cursor-selectable field or line.

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Customer ID = *NNNNNNNNN*
Password = *XXXXXXXXXX*

where:

NNNNNNNNNN is your customer ID supplied by ASG Product Distribution.
XXXXXXXXXX is your unique password supplied by ASG Product Distribution.

The *ASG-Intelligent Support Portal User's Guide* provides instructions on how to use the ISP and is located on the ASG Support web page.

Telephone Support

To expedite response time, please have this information ready:

- Product name, version number, and release number
- List of any fixes currently applied
- Any alphanumeric error codes or messages written precisely as displayed
- A description of the specific steps that immediately preceded the problem
- Verify whether you received an ASG Service Pack or cumulative service tape for this product. It may include information to help you resolve questions regarding installation of this ASG product. The Service Pack instructions are in a text file on the distribution media included with the Service Pack. You can access the latest software corrections and Service Packs via the ISP.
- The severity code (ASG Customer Support uses an escalated severity system to prioritize service to our clients. The severity codes and their meanings are listed below.)

Severity Codes and Expected Support Response Times

Severity	Meaning	Expected Support Response Time
1	Production down, critical situation	Within 30 minutes
2	Major component of product disabled	Within 2 hours
3	Problem with the product, but customer has work-around solution	Within 4 hours
4	"How-to" questions and enhancement requests	Within 4 hours

The Americas

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If you do not have access to the web, FAX your suggestions to product management at (239) 263-3692. Please include your name, company, work phone, e-mail ID, and the name of the ASG product you are using. For documentation suggestions include the publication number located on the publication's front cover.

1 Introduction

SmartTest is the testing and debugging component of ESW for COBOL, PL/I, Assembler, and APS programs in the TSO, MVS Batch, CICS (including file services), and IMS environments. SmartTest features include program analysis commands, execution control, intelligent breakpoints, test coverage, pseudo code with COBOL source update, batch connect, disassembled object code support, and full screen memory display. This chapter contains these sections:

SmartTest-CICS Overview

SmartTest-CICS is fully integrated with SmartTest. All basic and extended facilities are available, including: Program View, execution control, breakpoints, monitoring and changing data, reviewing execution history, pseudo code, abend processing, the COBOL Intelligent Search Function, and these Backtrack facility.

Storage Protection is available for monitored programs to protect the CICS regions from storage violations. Storage Protection also gives you the capability to tailor the protection rules to customize your test session.

Programs, files, temporary storage, and transient data destinations can be dynamically swapped to alternate resources. Terminals, tasks, or programs can be tested or excluded from testing. Resource definitions can be added to either the user or global protection tables.

Files, temporary storage, and transient data areas can be accessed for read, add, update, delete, and browse through the CICS File Services features.

The Remote Monitoring Facility (RMF) includes support for remote terminal tasks; non-3270 terminal tasks, such as printer, LU 6.2, and Transient Data tasks; asynchronous tasks started via Interval Control (e.g., EXEC CICS START), and the AUTOINSTALL program.

SmartTest-CICS supports C/370 at the disassembled object level. Disassembled object level test is supported for testing facilities such as breakpoints, breaking on entry to program, stepping through the program, viewing program components in execution sequence, and stopping program execution before an address modification.

Note:

Support for CICS macro level requests issued under CICS/ESA release 3.2 or later is not available in SmartTest-CICS.

SmartTest-CICS Architecture

SmartTest-CICS gives you access to a copy of your program source code (which resides in the AKR) through TSO/ISPF while running the application in a CICS region. Through its technology, SmartTest allows you to control the execution of your test session, examine the online program screen output, and view your program in a single terminal session.

SmartTest-CICS communicates with your terminal through TSO using menus and screens. CICS terminal input is received through TSO and passed to the application program executing in the CICS region. Similarly, screens sent by CICS application programs are displayed through TSO. Using one terminal to switch between SmartTest-CICS and CICS regions provides added flexibility and eliminates the need for multiple terminal sessions.

Note:

It is recommended you contact your CICS system administrator for information regarding any site-specific information, e.g., CICS region names (LOGON APPLIDS) that are specified on the CICS Session Setup screen.

SmartTest-CICS Specific Commands

SmartTest-CICS has these commands that are specific to the CICS environment:

- RUN tranid (See Using the RUN Command for CICS.)
- RUN FORCE and STEP FORCE (See Using the RUN Command for CICS.)
- NEWCOPY module-name (See "Loading a New Copy of a Module" on page 4.)
- SHOW (See "Displaying the Last User Application Screen" on page 4.)
- TOGGLE (See "Switching From TSO to CICS" on page 4.)
- SET STOPEXEC (See "Stopping Program Execution Before Each EXEC CICS or After Each CICS Handle Condition" on page 5.)
- SET STOPHAND (See "Stopping Program Execution Before Each EXEC CICS or After Each CICS Handle Condition" on page 5.)
- DUMP (See "Generating a CICS Transaction Dump" on page 5.)

In addition, SmartTest-CICS supports C/370. (See "CICS C/370 Support" on page 5.)

Using the RUN Command for CICS

The RUN command has two operands, *tranid* and FORCE. The RUN command initiates a CICS transaction from the SmartTest-CICS primary command input area. Specify the CICS transaction ID as *tranid*, along with any required operands for the tranid as they would be entered in native CICS.

Note:

Support for an EXEC CICS SEND request that contains the LAST operand is not available. SmartTest-CICS stops monitoring a transaction that contains this type of request.

When a Pseudo Conversational transaction is pending on the CICS screen, the RUN *tranid* command is not supported because the tranid and any RUN primary command operand is input to the pending transaction, and unpredictable results may occur.

To end the pseudo conversational transaction and begin a new task

1. Toggle to the CICS screen to display the Pseudo Conversation screen and exit the transaction.
2. Enter a new transaction or toggle to TSO.

If you receive a storage violation message, type `RUN FORCE` or `STEP FORCE` to complete a memory update. These commands force the update to the memory area.

A storage violation should be examined carefully before you use the RUN FORCE command to override it. This command is intended to temporarily override a storage violation message for non-standard coding practices. Care should be taken to ensure that CICS storage is not corrupted by use of this command. SmartTest-CICS has many other features, such as SET ASM, WHERE, and LOCATE (both 24-bit and 31-bit formats), to help you diagnose storage violations.

Note:

You must have proper authorization to use the RUN FORCE command. Contact your system administrator to obtain authorization.

See the online help or the *ASG-SmartTest Reference Guide* for more information about how to respond to a storage violation message.

If you receive an invalid FREEMAIN error when the INVREQ condition has been handled or ignored, type `RUN FORCE` or `STEP FORCE` to continue testing.

Loading a New Copy of a Module

To access the latest copy of a load module to be tested, follow this step:

- Select Test ▸ CICS Newcopy or use the NEWCOPY *`module-name`* command.

The NEWCOPY command loads a new copy of the specified PPT module into CICS. The name of the module to be refreshed is specified as the *`module-name`* operand. For convenience and accuracy in testing, use of the SmartTest-CICS NEWCOPY command is recommended in place of the CICS NEWCOPY command.

In MRO environments, ensure that the entry in the CURRENT SYSID field of the Remote Connections screen indicates the correct region.

Displaying the Last User Application Screen

To display the last user application screen displayed, follow this step:

- Select View ▸ CICS Show or use the SHOW command. This command is only available during an active test session.

Switching From TSO to CICS

To switch from the SmartTest-CICS TSO environment to the connected CICS environment, follow this step:

- Select View ▸ Toggle or use the TOGGLE command.

After you toggle the test session to CICS successfully, you can initiate any transaction whether or not it is to be monitored by SmartTest-CICS.

Stopping Program Execution Before Each EXEC CICS or After Each CICS Handle Condition

The STOPEXEC operand of the SET primary command can be used to stop execution before each EXEC CICS request. Use the STOPHAND operand of the SET primary command to stop execution after a CICS Handle Condition, Handle AID, Handle Abend Label, or for PL/I ON conditions. When a Handle condition is encountered, the Status Box message indicates which Condition or AID was entered. Programs do not need to be analyzed for these features.

Note:

For more information about SET STOPEXEC and SET STOPHAND, see the *ASG-SmartTest Reference Guide*.

Generating a CICS Transaction Dump

To generate a CICS transaction dump for the current suspended transaction, follow this step:

- Select Test ▸ Dump or use the DUMP primary command. The dump is written to the current CICS dump dataset with an abend code of VIAD.

CICS C/370 Support

SmartTest-CICS supports C/370 at the disassembled object level. Disassembled object level test is supported for testing facilities such as breakpoints, breaking on entry to program, stepping through the program, viewing program components in execution sequence, and stopping program execution before an address modification.

Most of the C/370 application code is placed into $PRIVATE (unnamed) CSECTs. To view the C/370 logic in Program View, review the linkage editor map and determine which $PRIVATE CSECT contains the program you want to view. SmartTest-CICS generates a name for each $PRIVATE CSECT found, for example:

`$PRIV`*nnn*

where *nnn* is a number from 001 to 999. Normally, the first $PRIVATE in the linkage editor map represents the main C/370 program. Specifying YES in the Break at Start of Test field on the CICS Session Setup screen and adding the entry of module. $PRIV* on the Session Tailoring screen assists in controlling execution and obtaining program information during the testing of C/370 programs.

To stop program execution before each EXEC CICS request, follow this step:

- Type `SET STOPEXEC`.

When executing the IBM-supplied C/370 transaction, DORD, SmartTest-CICS breaks at start of test session on the module DFH$DREN and the CSECT is named $PRIV001. To view $PRIV001 (main C/370 program) in Program View, issue the SET ASMVIEW ON primary command. If the main C/370 program calls a C/370 subroutine, its code is associated with another $PRIV*nnn* CSECT name depending on where it resides in the load module.

2 Concepts

This chapter discusses concepts of the SmartTest-CICS product and contains these sections:

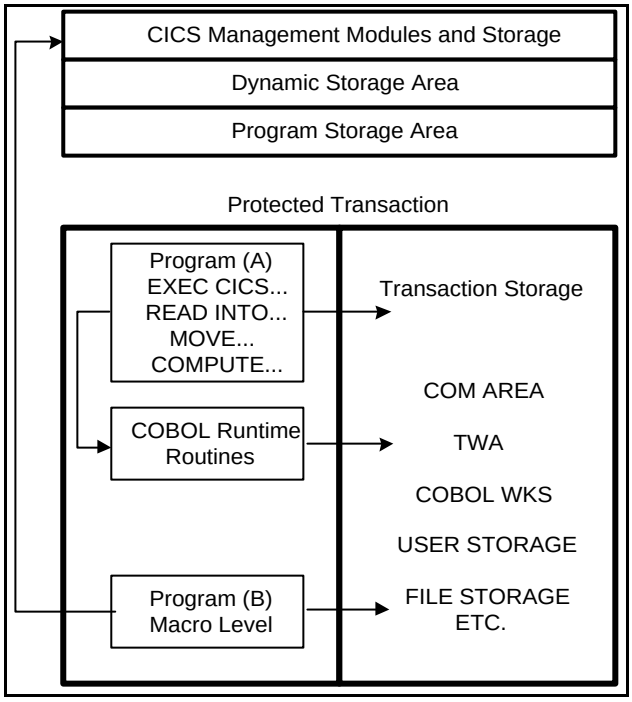
SmartTest-CICS Storage Protection

SmartTest-CICS enhances the performance of CICS storage protection. This section provides an overview of SmartTest-CICS storage protection. The discussion includes sections describing the methods SmartTest-CICS uses to determine storage ownership and to detect and report storage violations.

Without SmartTest-CICS, a transaction can corrupt the storage of other programs or CICS management modules and storage, which can result in a system crash. SmartTest-CICS can determine storage ownership and prevent protected tasks or programs from corrupting storage areas that do not belong to them.

Figure 6 illustrates the scope of SmartTest-CICS storage protection.

Figure 6 • SmartTest-CICS Storage Protection



The CICS storage recovery feature only detects corruption of CICS Storage Accounting Areas (SAAs). However, SmartTest-CICS provides recovery capabilities for many other storage areas. These are some examples of these storage areas:

- File I/O data areas
- Program storage
- DL/I buffers
- Terminal I/O data areas
- Most CICS tables (i.e., PPT, PCT, FCT)
- CICS Nucleus (except LPA- or SVA-resident)
- OS GETMAIN areas

Protection Status

The terms MONITOR, PROTECT, and ALLOW are used in SmartTest-CICS when discussing protection status.

- MONITOR applies to facilities, tasks, and programs.

  Specifying MONITOR for CICS facilities, tasks, and programs gives you the ability to set breakpoints and STEP through the code during a test session.

  SmartTest-CICS uses the Task and Program tables to determine which entries should be monitored. These tables are displayed and updated from the User or Global Task Specification screen. See "Monitoring Tasks" on page 38 and "Monitoring Programs" on page 40.

  Program names entered on the Test Session Tailoring screen are added to the User Program Specification screens for monitoring. If a transaction ID is specified to be monitored on the Task Specification screen, SmartTest-CICS monitors every program associated with that transaction ID. It is recommended that monitoring be requested at the program level unless it is desirable to monitor everything associated with the transaction ID (task).

- PROTECT and ALLOW apply to storage areas.

  Specifying PROTECT for an area of storage causes SmartTest-CICS to interrupt the program being tested when an attempt is made to modify the specified storage area. PROTECT is specified on the Storage Specification screen. See "Protecting Storage Locations" on page 44.

- Specifying ALLOW for an area of storage excludes the area from SmartTest-CICS storage protection rules. That is, an attempt by the program being tested to modify the specified area is allowed to take place. ALLOW is specified on the Storage Specification screen. See "Protecting Storage Locations" on page 44.

  PROTECT and ALLOW may be specified for an entire storage area or any portion of it. To specify a portion of a storage area, use the Offset and Length fields on the Storage Specification screen. See "Protecting Storage Locations" on page 44.

  A program being tested can modify itself as long as the program meets the CICS convention of being only quasi re-entrant, not fully re-entrant. However, an Assembler program can be tested for full re-entrance by specifying YES in the Protect field on the Storage Specification screen. In this case, if the program attempts to modify itself, a storage violation error occurs.

  A program being tested can modify certain storage areas. Two of these areas include storage chained off the TCA, and shared storage GETMAINed by a tested program. Storage chained off the TCT can also be modified, as well as common storage areas such as the CWA.

Storage Ownership

SmartTest-CICS uses many factors to determine storage ownership, including type of program (command or macro level; application or system), type of storage (user, file, terminal, etc.), whether storage is on the Task's Storage Chain, and usage of individual fields in some Control blocks. Based on normal CICS conventions, SmartTest-CICS determines the validity of a storage change.

These are examples of areas protected by SmartTest:

- Storage accounting areas
- LIFO storage
- EXEC interface block (optional - determined at installation)
- Other programs' storage
- CICS Nucleus code
- CICS tables
- All other areas not automatically or explicitly allowed

These are examples of areas automatically allowed (not protected) by SmartTest:

- COBOL Working Storage
- Common Work Area (CWA)
- Common Storage Area (DFHCOMMAREA Area)
- Transaction Work Area (TWA)
- Terminal User Area (TUA)

Storage Violations

If SmartTest-CICS determines that an area about to be altered is owned by the transaction, the storage alteration takes place. If the area is not owned by the transaction, SmartTest-CICS recognizes the alteration as a potential storage violation. For information about determining storage ownership, see Storage Ownership.

When SmartTest-CICS detects a potential storage violation, the message `STORAGE VIOLATION ADDR=`*`HHHHHHHH`* is issued, where *HHHHHHHH* is the absolute address of the area to be modified.

If it is determined that the storage modification is permissible, you can make an entry on the Storage Specification screen to allow the area. See "Protecting Storage Locations" on page 44.

Without SmartTest-CICS, if the addressed storage had been outside the CICS region/partition (e.g., low storage), a 0C4 Abend/Protection Exception would have occurred. Before CICS/ESA, if the addressed storage had been within the CICS region/partition, but not owned by the transaction, any modification would have corrupted the previous contents, which could result in serious consequences for the CICS system and all users. In any case, if the program is being monitored with SmartTest-CICS, the storage violation is detected before execution.

The detection of a potential storage violation by SmartTest-CICS may only mean that the offending program is attempting to modify an area that is not transaction storage. It is important to realize that modifying storage that is not unique to the terminal transaction implies a possible loss of re-entrance, especially if the code performing the modification can be interrupted by CICS tasks of higher priority. This is especially true of common areas such as the CSA and CWA, which may be modified by many tasks system-wide, and caution should be exercised in using the CSA as a save area (SmartTest-CICS protects the CSA by default).

Without SmartTest-CICS, therefore, the CICS system is always at risk from transactions that might inadvertently alter storage belonging to other transactions, with potentially catastrophic consequences.

Monitoring

SmartTest-CICS uses the monitoring capabilities feature available in SmartTest with additional features to monitor terminals, tasks, or programs in the CICS environment. Monitoring can be managed at the user level (allowing any number of transactions for the current SmartTest-CICS test session to be monitored) or at the global level (allowing any number of transactions for any number of users to be monitored). This section describes the monitoring rules SmartTest uses to determine the monitor/exclude status of facilities, tasks, and programs. The discussion also describes the global monitoring feature and lists the monitor support available for non-standard applications.

Note:

For more information about monitoring see the *ASG-SmartTest PLI User's Guide* or the *ASG-SmartTest for COBOL and Assembler User's Guide*.

Monitoring Rules

SmartTest-CICS provides monitoring services at the program level, although monitoring rules also may be specified at other levels. The monitoring rules are specified on these screens, which update the corresponding tables:

Screen	Table
Facility Specification screen	Facility table
Task Specification screen	Task table
Test Session Tailoring screen	Program table

The names of facilities to be monitored may be entered in a field on the Facility Specification screen. (It is seldom necessary to make entries directly to the Facility table. This table is automatically updated from the CICS Session Setup screen and the Remote Test Setup screen.) The name of a task or program can be entered in a field on the Task Specification or the Test Session Tailoring screen, respectively. Use the Monitor field on the Task Specification screen and the Monitor Act field on the Test Session Tailoring screen to specify the monitoring status. YES monitors the task or program and NO excludes the task or program from monitoring.

The hierarchy SmartTest-CICS uses to determine monitoring rules is facility, then task, then program. See "Monitoring Rules Hierarchy" on page 13 for more information. For each program that begins execution in CICS, SmartTest-CICS determines the program's task and facility, then checks each Monitoring Rules table to determine whether the program should be monitored or excluded.

SmartTest-CICS provides both User and Global Task and Program tables. User tables are searched before Global tables. However, a generic or specific NO in either table always take precedence. For further details on the User and Global Protection tables, see the TABLES operand of the LIST command in the *ASG-SmartTest Reference Guide*. The SmartTest user's terminal ID and any remote facilities entered on the Remote Test Setup screen are automatically added to the User Protection tables.

Monitoring Rules Hierarchy

Because SmartTest-CICS provides monitoring at the program level, each program's protection status is determined using this hierarchy:

- SmartTest-CICS first checks the Facility table. If the facility is not in the Facility table, the program is not monitored.

  Note:

  The SmartTest terminal (facility) ID is automatically added to the Facility table during connection to CICS.

- If the facility is in the Facility table, SmartTest-CICS checks the Task table for entries.
  - If the transaction ID is in the Task tables as excluded (NO in MONITOR field), the program is not monitored.
    - If the task is specifically included in the Task tables (YES in MONITOR field), SmartTest-CICS checks the Program tables.
    - If the program is specifically excluded in the User or Global Program tables (NO in MONITOR field), the program is not monitored.
    - If the program is specifically included in the User or Global Program tables (YES in MONITOR field), the program is monitored.
    - If the program is not in the Program tables at all, the program is monitored.
- If the task is not in the Task tables at all (task not specified by user), SmartTest-CICS checks the Program tables.
  - If the program is specifically excluded in the User or Global Program tables (NO in MONITOR field), the program is not monitored.
  - If the program is specifically included in the User or Global Program tables (YES in MONITOR field), the program is monitored.
  - If the program is not on the Program tables at all, the program is not monitored.

Global Monitoring

SmartTest-CICS provides a global monitoring capability that allows any number of transactions for any number of users to be monitored. Global monitoring provides storage protection, provides resource swapping, and intercepts ABENDs and other CICS processing problems (e.g., excessive resource usage).

Global monitoring is activated by entering the terminals, transactions, and programs to be monitored in the global facility, task, and program tables.

When CICS detects a problem in a transaction that is not associated with a TSO debugging session, it produces an Error Intercept Summary screen. See Error Intercept Summary. A copy of this summary is sent to the CSSL, a transient data destination specified during installation. When this screen is produced, the user has the option to dump the transaction to the dump dataset or cancel the transaction without a dump. If the summary information is insufficient to solve the problem, a SmartTest-CICS debugging session should be entered and the transaction rerun.

Since there is additional overhead associated with monitoring a transaction, it is recommended that global monitoring be used in a practical mode rather than simply turning it on for all transactions for all users. For example, if you know a particular program is causing a storage violation, then turn on global monitoring for all terminals, but only for the particular program causing the problem. If you know that a particular user is causing a problem and you don't know what program, you can protect all programs and only the particular user/terminal that is causing the problem.

Processing Considerations

These are the global monitoring processing considerations:

- Overusing this feature causes excessive CPU usage.
- Programs that perform non-standard CICS operations and that have not been described in the Global Storage Protection table causes storage violation warnings.
- Monitoring non-standard CICS third-party software may cause invalid branch situations.
- The resource limits in the Environment table (VIACEM*xx*) may need to be increased to prevent error conditions (e.g., excessive number of CICS requests) during testing.

Note:

Global monitoring currently does not support non-terminal transactions.

Error Intercept Summary

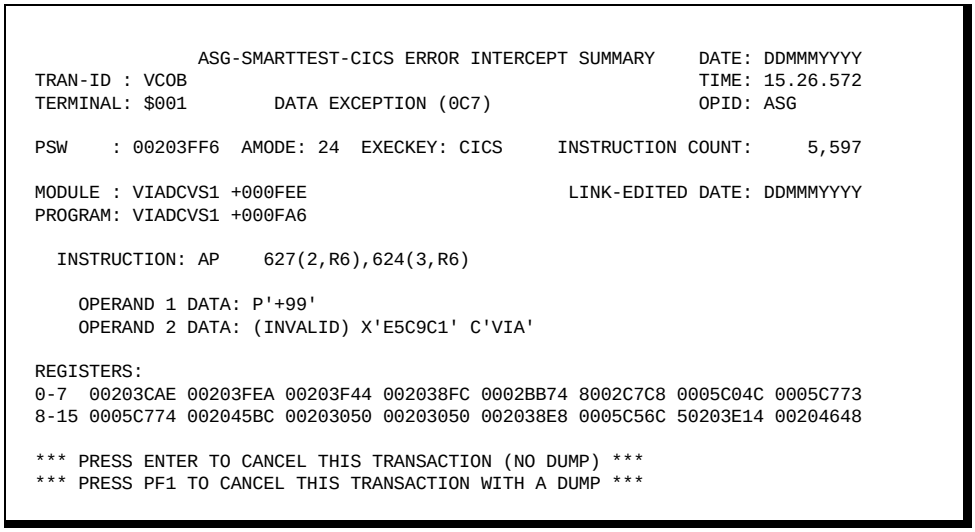
If SmartTest-CICS is monitoring transactions that are running on non-SmartTest-CICS connected terminals, it is not able to begin an interactive session. If an error condition is intercepted on the non-SmartTest-CICS terminal, a summary screen is written to the terminal, if possible, or to the print destination specified in the installed environment table (the default is CSSL).

Error Intercept Summary Screen Description

The ASG-SmartTest CICS Error Intercept Summary screen, shown in Figure 7 on page 15, displays when an error is intercepted for a facility that is not connected to an interactive session.

To end the test without generating a CICS transaction dump, press Enter or Clear. To end the test and generate a CICS transaction dump, press PF1.

Figure 7 • SmartTest-CICS Error Intercept Summary Screen



```
              ASG-SMARTTEST-CICS ERROR INTERCEPT SUMMARY    DATE: DDMMMYYYY
TRAN-ID : VCOB                                              TIME: 15.26.572
TERMINAL: $001        DATA EXCEPTION (0C7)                  OPID: ASG

PSW    : 00203FF6  AMODE: 24  EXECKEY: CICS     INSTRUCTION COUNT:     5,597

MODULE : VIADCVS1 +000FEE                        LINK-EDITED DATE: DDMMMYYYY
PROGRAM: VIADCVS1 +000FA6

  INSTRUCTION: AP    627(2,R6),624(3,R6)

    OPERAND 1 DATA: P'+99'
    OPERAND 2 DATA: (INVALID) X'E5C9C1' C'VIA'

REGISTERS:
0-7  00203CAE 00203FEA 00203F44 002038FC 0002BB74 8002C7C8 0005C04C 0005C773
8-15 0005C774 002045BC 00203050 00203050 002038E8 0005C56C 50203E14 00204648

*** PRESS ENTER TO CANCEL THIS TRANSACTION (NO DUMP) ***
*** PRESS PF1 TO CANCEL THIS TRANSACTION WITH A DUMP ***
```

Fields

Field	Description
TRAN-ID	Specifies the transaction ID that was active at the time of the error.
DATE	Specifies the date of the error.
TIME	Specifies the time of the error.
TERMINAL	Specifies the terminal ID that was running the transaction.
status message (DATA EXCEPTION (0C7))	Specifies the type of error that occurred.
OPID	Specifies the operator ID.
PSW	Specifies the Program-Status Word. The address of the next instruction to be executed or the address of the abending instruction.
AMODE	Specifies the addressing mode.
EXECKEY	Specifies the application Program-Status Word (PSW) key.

Field	Description
INSTRUCTION COUNT	Indicates a count of the number of instructions monitored up to the time of the error.
MODULE	Specifies the PPT module in which the error occurred, followed by the offset of the instructions in error relative to the beginning of the load module load point.
PROGRAM	Specifies the program/CSECT PPT name in which the error occurred, followed by the offset of the instruction in error relative to the beginning of the program.
LINK-EDITED DATE	Specifies the date that the PPT module was link-edited.
INSTRUCTION	Specifies the disassembled machine instruction that caused the error.
OPERAND (1 or 2) DATA	Identifies operands 1 and 2 of the machine instruction identified in the INSTRUCTION field. These are the syntax and phrases that can be associated with the operand data field and can also provide insight into the current error situation:
P'data'	Specifies the packed data value shown.
X'data'	Specifies the data value shown in hexadecimal format.
C'data'	Specifies the data value shown in character format.
(R*nn*) *hhhhhhhh*	Identifies the registers (*nn*) for the operand and the contents of the register (*hhhhhhhh*).

WILL BRANCH	Indicates that the associated operand is used in a machine branch instruction. Optionally, one of these text messages describes the destination of the branch, for example:
	`WITHIN PROGRAM`
	`OUT OF PROGRAM`
	`TO PGM` *pppppppp*`+`*hhhhhh*
	`TO LOW CORE`
	where *pppppppp* is the program name and *hhhhhh* is the offset. The branch address is less than 32768.

R*nn* GOING NEGATIVE	Indicates that a register value (which is used in the machine instruction BCT or BCTR) is, or has become, negative.

Field	Description
FETCH PROTECTED	Indicates that the memory address referenced by the operand may not be displayed because it is Fetch Protected.
STORE PROTECTED (A=*hhhhhh*)	Indicates that the memory address referenced by the operand may not be modified because the address is Store Protected.
STORAGE VIOLATION	Indicates that the memory address referenced by the operand is not permitted to be updated by SmartTest-CICS due to its storage protection rules.
(INVALID)	Indicates that the operand data is an invalid packed decimal format for machine instruction.
REGISTERS	Specifies the contents of the general registers.
*** PRESS ENTER TO CANCEL THIS TRANSACTION (NO DUMP)	Ends the test without generating a CICS transaction dump.
*** PRESS PF1 TO CANCEL THIS TRANSACTION WITH A DUMP	Ends the test and generate a CICS transaction dump.

Monitor Support for Non-Standard Applications

MVS Loaded Modules

SmartTest-CICS automatically monitors MVS loaded modules that are branched to from a monitored CICS program. If the MVS loaded module contains multiple CSECTS or you wish to use symbolics while testing it, you must add the dataset that contains the load module to the DFHRPL DD (in the CICS region start-up JCL).

Branching to CICS/ESA Resident Modules

Resident modules are fully supported when accessed through the CICS API. SmartTest-CICS also monitors an Assembler program that branches into a resident CICS module. However, if SmartTest-CICS is running under CICS/ESA and the resident CICS module that is branched to has been relocated in memory (e.g., via CEMT SET PR (*pgmname*) NEW), then you must stop and restart SmartTest-CICS to retest the resident module.

MVS Calling Conventions

SmartTest-CICS supports non-standard MVS linkage conventions as long as the calling and the called modules are monitored. If the called module is not to be monitored, the calling module must issue a BALR (or BASSM) R14, R15 type instruction and the called module must return using the R14 return value. If these rules are not followed, SmartTest-CICS stops monitoring.

Performance Techniques

To improve performance with long-running transactions

1. Consider putting the TSO SmartTest modules in the MLPA/PLPA.

   Note:
   See the *ASG-Center Installation Guide* for a list of MLPA/LPA candidates.

2. Monitor only the PPT modules that are to be tested, rather than all modules for the transaction. (Do not enter the TRAN-ID on the setup or task protection screens unless you really want to monitor everything running under that TRAN-ID.)

3. Review the contents of the Global Task and Program Protection tables, and migrate as many entries as possible to the individual user task and program protection tables.

4. If a single module contains multiple CSECTs, consider excluding some of the CSECTs.

5. Turn off Storage Protection, Execution Tracking, and Counts. This provides significant performance improvement.

6. Minimize the number of breakpoints set to only those required.

3 Getting Started

This chapter describes the procedures for setting up, initiating, and terminating a SmartTest-CICS test session, and contains these sections:

Terminology

These are brief definitions that introduce SmartTest-CICS terminology.

Term	Definition
Help - PF1	Help for SmartTest-CICS is available in many forms. When you receive a short message in the upper left of your screen, press PF1 to display a more informative long message. From any panel, press PF1 to present help information related to that panel (the CICS Session Setup and Remote Test Setup screens have very detailed help available through PF1). You can also get help by using the Help pull-down or the HELP command.
Analyze	Programs are prepared for testing when they are compiled. The Analyze process stores the source code and information about data relationships in the AKR. The method of compiling/analyzing programs at your site was determined when ESW was installed. **Note:** For detailed information about analyzing programs, see the *ASG-SmartTest for COBOL and Assembler User's Guide* or the *ASG-SmartTest PLI User's Guide*.
Monitor	When a program is monitored, SmartTest-CICS validates every instruction in the program before it is allowed to execute. Program execution is halted if CICS rules are violated, or if you have requested a break in processing. Monitoring occurs only if the load module is specified, explicitly or implicitly, by PPT name, in the Global or User Protection tables. SmartTest-CICS can begin monitoring on any program in a transaction, if that program is invoked through CICS services such as LINK or XCTL. If a program is branched to directly (such as COBOL II dynamically CALLed programs), you must monitor the program that issues the direct branch.
Break	Break halts execution. You can break on the first monitored program in a transaction (on the CICS Session Setup screen, set Break at Start to YES). You can break every time a load module or subprogram is invoked (on the Session Tailoring screen, set Break Entry to YES). The BREAK command (used as a primary and a line command) causes processing to stop at other specified occurrences, such as data items being updated or CICS commands being issued.

Term	Definition
Connect	Connecting is the act of establishing communication with a CICS region, after specifying its name or an alias in the CICS Logon Region APPLID field of the CICS Session Setup screen. IBM uses the term connection to describe a resource definition that allows one CICS region to share work with another CICS region. This capability can generically be referred to as Multi-Region Operation (MRO), which usually has at least one Terminal Owning Region (TOR) and any number of Application Owning Regions (AORs) or other specialized regions. Ideally, SmartTest-CICS is installed so that you may connect to the TOR, and use the Remote Connections screen (option 3 on the CICS Session Setup screen) to facilitate testing in related AORs.
Active or Current SYSID	When you are not in an active test session, SmartTest-CICS obtains resources from the region pointed to by the Current SYSID. (Affected requests include memory displays, Global Protection table updates, File displays, and NEWCOPY commands.) If you are working in an MRO environment, be sure that the current SYSID is set properly. The current SYSID is set on the Remote Connections screen (option 3 on the CICS Session Setup screen), displays on the Remote Test Setup screen as Current SYSID, and displays on the CICS Session Setup screen as Active SYSID.
NEWCOPY	The SmartTest-CICS NEWCOPY primary command issues a CICS NEWCOPY in the region pointed to by the current SYSID. This command also refreshes the internal SmartTest-CICS control block that describes the load module. For convenience and to assure better test results, it is highly recommended that you use the SmartTest NEWCOPY command instead of the usual CICS NEWCOPY.
Remote (RMF) Test	To test a program that is not initiated by a user-keyed transaction at the SmartTest terminal, use the Remote Test Setup screen (option 4 on the CICS Session Setup screen). Use this screen for LU6.2, DPL, Asynchronous, Transient Data tasks, and tasks running at other 3270 terminals.
CANCEL	To abandon the test session before completing the execution of your program, issue the CANCEL command. This command causes CICS to abend the transaction and to perform the related cleanup.

Note:

For purposes of this chapter, assume that SmartTest is active, the program has already been compiled/linked and analyzed, and a load module exists in a CICS load library. For detailed information about these procedures, see the *ASG-SmartTest for COBOL and Assembler User's Guide* or the *ASG-SmartTest PLI User's Guide*.

Accessing the Test Environment

To access the testing environment

1 Select File ▸ Setup test environment and press Enter. The File - Setup Test Environment pop-up displays.

Note:

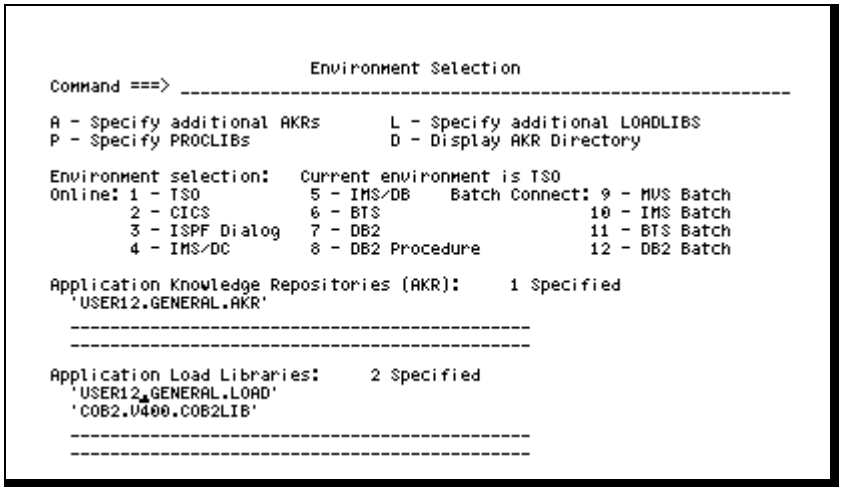
You can also select Test ▸ Setup Wizards to save time in setting up common types of test environments. These wizards are self-explanatory and walk you through the process of setting up the appropriate environment.

2 Check the Current Environment field.

a If CICS is the current environment, select Setup current environment and press Enter to display the CICS Session Setup screen (or use the SETUP command).

b If CICS is not the current environment, choose Select execution environment and press Enter. The Environment Selection pop-up, shown in Figure 8, displays. You can also use the ENV command to access this pop-up.

Figure 8 • Environment Selection Pop-up



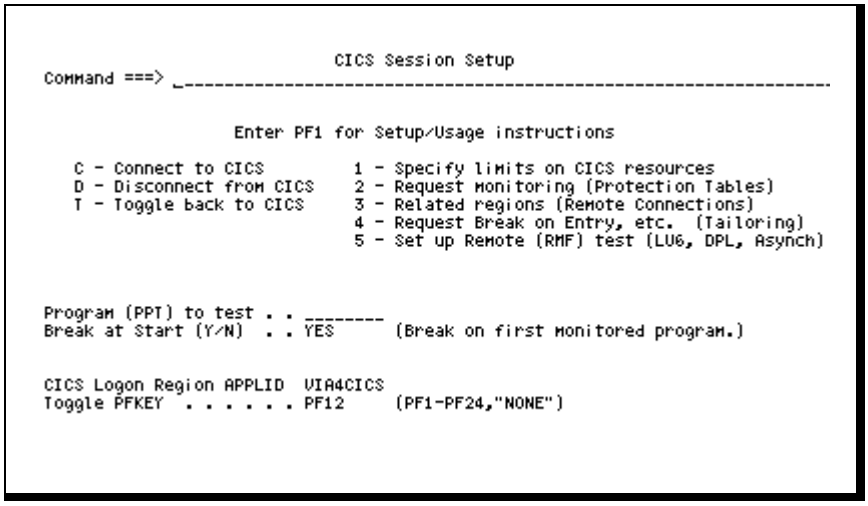
3 On the Environment Selection pop-up:

a Specify the AKR dataset name(s) in the Application Knowledge Repository (AKR) field.

b Select CICS and press Enter. The CICS Session Setup screen, shown in Figure 9, displays.

The Application Load Libraries entry is not needed for viewing and testing CICS programs. However, the application load libraries are required when using the LIST MODULES primary command. For more information, see the *ASG-SmartTest Reference Guide*.

Figure 9 • CICS Session Setup Screen



Options

Option	Description
Press PF1 for Setup/Usage instructions	Displays help information for CICS testing.
C	Establishes a connection to the specified CICS session, and displays the initial CICS screen you are accustomed to seeing.
D	Disconnects the TSO to CICS connection.
T	Toggles to the CICS screen (after the CICS connection has been established), which allows CICS transactions to be entered. The TOGGLE command is also provided to toggle to CICS from any SmartTest screen.

Option	Description
1 - Specify limits on CICS resources	Displays the Transaction Limits and Options screen to establish user options that control CICS test sessions. See "Option 1 - Specifying Limits on CICS Resources" on page 27.
2 - Request monitoring, Break on Entry, etc. (Session Tailoring)	Displays the Test Session Tailoring screen to turn SmartTest features ON or OFF for a set of modules or programs. See "Option 2 - Requesting Monitoring and Break on Entry (Session Tailoring)" on page 31.
3 - Related regions (Remote Connections)	Displays the MRO/ISC connections for the CICS region. If SmartTest is installed in more than one region, the regions in which SmartTest can provide monitoring capabilities are displayed and may be activated. See "Option 3 - Monitoring in Related Regions" on page 50.
4 - Set up Remote test (LU6, DPL, Asynch, etc.)	Displays the Remote Test Setup screen to request monitoring for programs that are not initiated at the SmartTest user's terminal. See "Option 4 - Setting Up Remote (RMF) Test (LU62, DPL, Asynch)" on page 52.

Note:

The numbered options are used to specify test parameters after the CICS connection has been established.

Fields

Field	Description
Program (PPT) to test	Specifies the CICS Program Protection Table (PPT) name for a module that is to be monitored under SmartTest. If an entry is made, the value is automatically added to the User Program Specification screen with a YES monitor status. If this field is left blank, it is assumed that the Protection rules have already been established for the next transaction test. Removing the value from this field does not remove the entry from the Program table.
Break at Start (Y/N)	Specifies a breakpoint is desired at the start of the first monitored program of each transaction executed. The default value is YES. **Note:** For complete information about monitoring rules, see "Monitoring Rules" on page 12.

Field	Description
CICS Logon Region APPLID	Specifies the name of the VTAM APPLID associated with the CICS system to be connected, or an alias for the CICS system that was established in the installation process. **Note:** You may need to contact your SmartTest-CICS system administrator to determine the Logon APPLID that is appropriate to your testing requirements.
Toggle PFKEY	Specifies a PF key value used to toggle from CICS back to SmartTest running under ISPF. You should chose a key that is not normally used by the transactions to be executed from the terminal. The default key is PF12. You can specify NONE to indicate that no PF key will be used for toggling back to the ISPF screen. If this field is left blank, you must type `TOGGLE` on a blank CICS screen to return to ISPF.

Connecting to the CICS Region

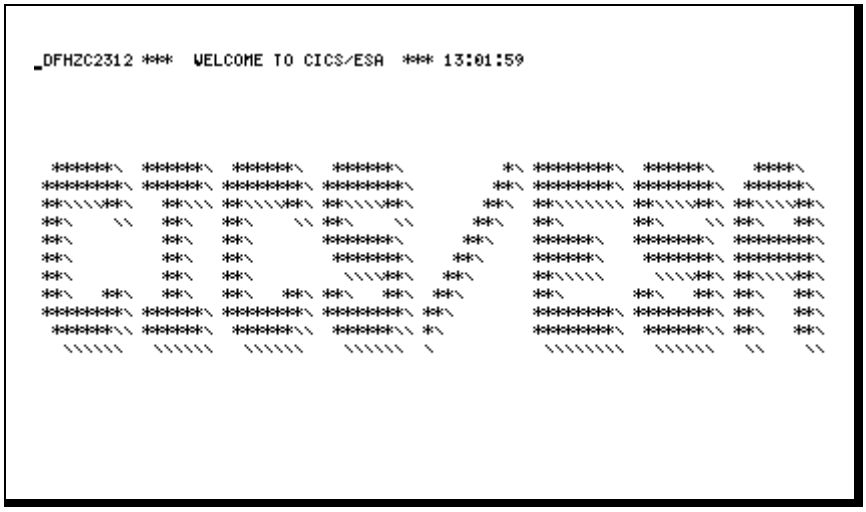
If your site has modified the default CICS sign-on procedure provided by IBM, the connect sequence may differ from the procedure illustrated here. Check with your SmartTest-CICS system administrator to determine the sign-on process appropriate for your installation.

To connect to the CICS region

1. Specify the appropriate CICS Logon Region APPLID on the CICS Session Setup screen.

2 Type `C` on the command line and press Enter to gain access to the CICS region. You should be presented with your normal CICS entry screen, such as the screen shown in Figure 10.

Figure 10 • CICS Sign-on Screen Sample



3 Specify your CICS sign-on information, if necessary. (You may clear the initial screen and type in your usual sign-on transid.)

4 Wait for SmartTest-CICS initialization to complete. Do not attempt to process any CICS transactions until you see the message `ASG2733I SmartTest-CICS is active`.

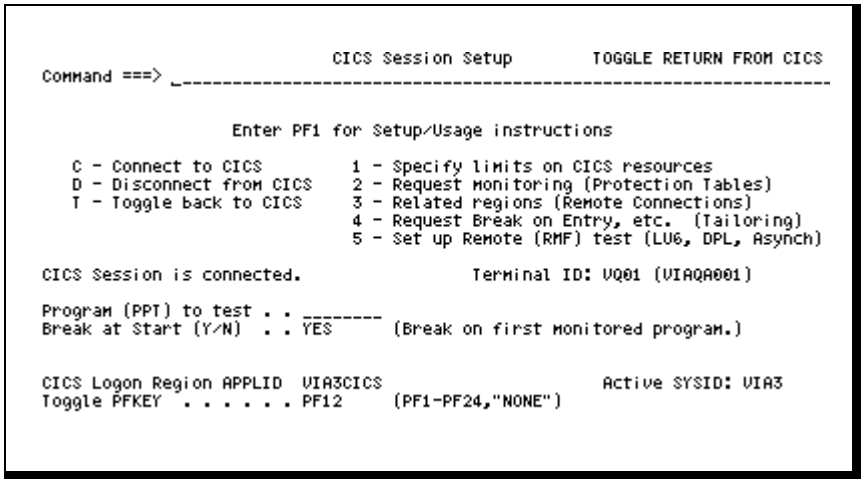
Note:

If you do not see this message, contact your SmartTest-CICS installer.

5 After the CICS connection has been verified, return to the CICS Session Setup screen to specify transaction limits, processing options, and User and Global Protection rules for the test session.

To return to the CICS Session Setup screen from your CICS region, press the assigned toggle key (PF12 is the default). This screen should now display the CICS connection information, as shown in Figure 11.

Figure 11 • CICS Session Setup Screen After Toggling from CICS



The Active SYSID field is the CICS SYSTEM ID of the region from which SmartTest-CICS is currently acquiring resources. Within a test session, the SYSID value indicates the CICS region running the transaction. Outside of a test session, this value reflects the CICS region specified in the Current SYSID field on the Remote Connections screen. You must be connected to the CICS region to modify the Remote Connections screen.

Specifying Test Parameters

After you have connected to the CICS region and have returned to the CICS Session Setup screen, select from the numbered screen options to specify test parameters.

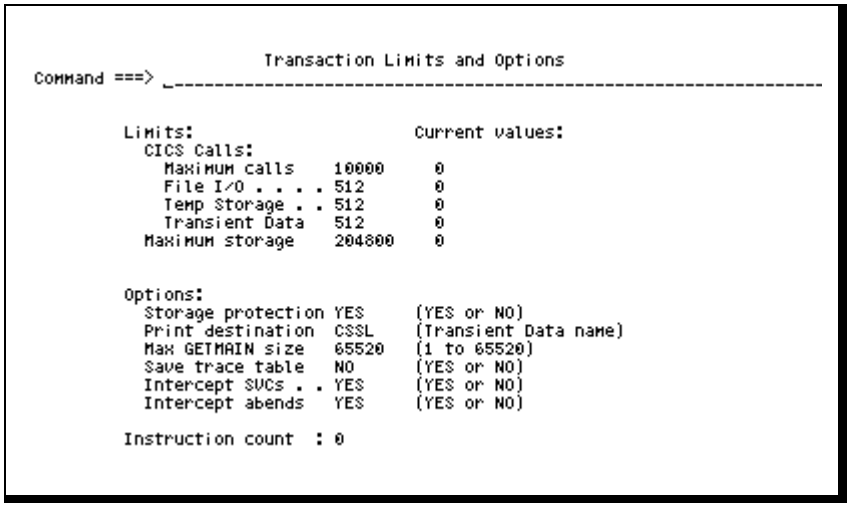
Option 1 - Specifying Limits on CICS Resources

If you wish to be alerted when your application makes excessive use of CICS resources, or if you need to enable or disable a primary SmartTest-CICS testing capability, use the Transaction Limits and Options screen. This screen enables you to set transaction limits and processing options. The limits and options entered affect only the current user's test transactions. When specified limits are reached during a test session, a message displays in the status box (e.g., File I/O Exceeds MAX). These limits are intended to call attention to high resource utilization. If you first increase the limits using this screen, you can continue the test by using the STEP or RUN command.

To to set transaction limits and processing options

1 Select Specify limits on CICS resources on the CICS Session Setup screen and press Enter. The Transaction Limits and Options screen, shown in Figure 12, displays. You can also display the Transaction Limits and Options screen using the LIST LIMITS command.

Figure 12 • Transaction Limits and Options Screen



2 When all necessary information is specified on this screen, press PF3 / PF15 to return to the CICS Session Setup screen.

Fields

Field	Description
Limits: CICS Calls	
Maximum calls	Specifies the number of CICS command or macro level calls that may be issued by a monitored transaction. If this limit is exceeded, the test stops with a warning message of `POSSIBLE CICS CALL LOOP` in the status box. The execution may be continued with the RUN or STEP commands. The maximum value that can be specified is 999,999. The default is 10,000. Type `0` (zero) to specify no limit.
File I/O	Specifies the number of CICS command or macro level file requests that may be issued. If this limit is exceeded, the test stops with a warning message in the status box. The maximum value that can be specified is 999,999. The default is 512. Type `0` (zero) to specify no limit.

Field	Description
Temp Storage	Specifies the number of command or macro level temporary storage requests that may be issued. If this limit is exceeded, the test stops with a warning message in the status box. The default is 512. Type `0` (zero) to specify no limit.
Transient Data	Specifies the number of command or macro level transient data storage requests which may be issued. If this limit is exceeded, the test stops with a warning message in the status box. The default is 512. Type `0` (zero) to specify no limit.
Maximum storage	Specifies the total storage amount that can be accumulated for the transaction. The default is 204,800. The maximum is 99,999,999. The value excludes Program storage, but includes all TCA chained storage. If this limit is exceeded, the test stops and a warning message displays in the status box. Type `0` (zero) to specify no limit.
Current values	Specifies that when a test session has been interrupted by SmartTest, monitored counts of command level and macro level requests are shown to the right in the corresponding fields.
Options	
Storage protection	Specifies whether or not SmartTest is to protect the CICS environment while monitoring transactions from this terminal. It is highly recommended that this value be left at the default setting of YES to catch possible storage violations during the test session. You must have proper authorization to be able to change this field to NO. **Note:** This option provides short term flexibility for monitoring non-standard CICS routines that modify areas outside of the transaction environment. All non-standard storage modifications should be identified on the Storage Protection screen, and then this value should be reset to YES.
Print destination	Specifies the name of a Transient Data Destination where SmartTest-CICS messages are to be routed. The default is CSSL, the CICS Statistics Destination.

Field	Description
Max GETMAIN size	Specifies the largest storage size that can be acquired for a single CICS GETMAIN request before SmartTest stops the transaction with the status message `GETMAIN EXCEEDS MAX, OR ZERO`. This parameter does not apply to Command Level FLENGTH requests. The maximum value you can specify is 65,520. The default is 65,520.
Save trace table	Causes a copy of the CICS Trace table to be made each time the test session is stopped. This copied Trace table is included with the SmartTest transaction dump, if available (see additional information about the DUMP command in topic "Generating a CICS Transaction Dump" on page 5). If the CICS Trace table is not normally required for debugging under SmartTest, then it is recommended that this option be set to NO due to the size of the table. If the Trace table contained 500 entries, a copy of that table would require 16K of user storage. The default is NO.
Intercept SVCs	Causes all MVS SVCs that have not been authorized by the CICS systems programmer at installation time to be intercepted by SmartTest. ILLEGAL SVC displays in the status box for all unauthorized MVS SVCs. The default is YES. **Note:** IBM discourages the use of MVS SVCs in CICS because the entire region waits until they are complete. IBM also discourages the use of several COBOL compile-time options (i.e., TRACE, FLOW, DEBUG) in CICS because they issue SVCs. See the COBOL restrictions in the relevant *CICS Application Programmers Reference Manual*.
Instruction count	Provides the number of machine instructions that have been monitored by SmartTest. This number is 0 before and after a test, and for any transaction abend intercepted for which no monitoring had occurred.

Option 2 - Requesting Monitoring and Break on Entry (Session Tailoring)

The Test Session Tailoring screen is used to turn SmartTest features ON or OFF for a set of modules and/or programs. Session tailoring reduces the execution time for a test and provides options at the subprogram level. A sample input line is provided on the first data line displayed, to indicate where information for a program is to be entered. The I (Insert), R (Repeat), and D (Delete) line commands can be used when editing the list of programs. Block forms of these commands cannot be used.

These are the primary uses of the Test Session Tailoring screen:

- Control when SmartTest-CICS breaks (i.e., halts execution) at the invocation of programs invoked after the first load module/program.
- Specify tasks and programs to be monitored (and any alternate resources to be used during a test). When you specify monitoring or resources, the settings affect only the current SmartTest-CICS session. When monitoring and resources are specified at the global level, all SmartTest-CICS users are affected. When specifying protection rules at the Global level, you can also protect or allow specified storage areas and monitor additional facilities.

Note:

Global-level protection rules are managed from the Global Protection Menu, which can be accessed using the LIST TABLES command.

Tailoring a Test Session

To tailor a test session by setting program breakpoints

1 From the CICS Session Setup screen, select the Request Monitoring, Break on Entry, etc. (Session Tailoring) option and press Enter. The Test Session Tailoring screen, shown in Figure 13, displays. You can also display the Test Session Tailoring screen using the LIST TAILOR command.

Figure 13 • Test Session Tailoring Screen

```
                          Test Session Tailoring                    SIMPE101
Command ===> _____________________________________________ Scroll ===> CSR

                       Monitor Track Count Break Break Break Pseudo Single
     Module.Program id   Act    Act   Act   Act  Entry  Rtn   Act    Step
     -----------------   ---    ---   ---   ---  -----  ---   ---    -----
**** ************************** TOP OF DATA ********************************
'''' VIAPCICS.VIAPCIC2           YES   YES   YES   YES   NO    YES    YES
'''' VIAPCICS.VIAPCIC1           YES   NO    YES   YES   NO    YES    YES
**** ************************* BOTTOM OF DATA ******************************
```

2 Make sure you are monitoring the load modules/programs listed.

3 To set a breakpoint at the beginning of subsequent load modules/program(s), type YES in the Break Entry column next to the programs at which SmartTest should stop.

4 Make sure NO remains in the Break Entry column next to subsequent load modules/programs to prevent stopping at those programs.

5 Press PF3/PF15 to return to the CICS Session Setup screen.

To update the Program Protection table

1 From the Test Session Tailoring screen, type YES or NO in the Monitor Act column.

2 Press PF3 to save and exit.

To add a program to the program protection table

1 From the Test Session Tailoring screen, type I (or R) in the line command area to insert a line.

2 Type the name of the program you want to add and press Enter.

3 Modify the values in each column, as necessary.

4 Press PF3 to save and exit.

Line Commands

The line command area can be used to enter these line commands:

D*nnn*	Deletes *nnn* lines on this screen. If *nnn* is left blank, one line is deleted.
I*nnn*	Inserts *nnn* blank lines on this screen. If *nnn* is left blank, one line is inserted.
R*nnn*	Repeats the line *nnn* times. If *nnn* is left blank, the line is repeated one time.

Fields

Field	Description

Module.Program id	Specifies the load module and program names. These names can be entered in a generic manner using wildcards to reduce the number of entries. For example, the VIAS*.* entry on the preceding screen indicates all modules that begin with VIAS followed by any other characters, will not have the COBOL verbs, Assembler instructions, or PL/I verbs counted during this test session. However, the VIASUB.* module will have the COBOL verbs, Assembler instructions, or PL/I verbs counted. The list of module.programs is processed from top to bottom. If two entries on the list conflict, the higher qualified line takes precedence.
	
	For PL/I programs, Program id must be the PL/I compiler generated name. You can use an asterisk (*) as a wildcard character at the end of the module id or program id, but not in a leading position. For example, if load module ABC calls the PL/I program XYZ and you want to break at the start of XYZ, you can use:
	
	`ABC.****XYZ1`
	
	or
	
	`ABC.****X*`
	
	The trailing asterisk is the wildcard character. In the same example, you could not use this entry to break at the start of XYZ, because the leading asterisk represents a meaningful character, not a wildcard:
	
	`ABC.*XYZ1`

Monitor Act	Indicates whether the program is monitored during testing. The default is YES.
Track Act	Indicates whether statement tracking is to be active for the specified program. NO excludes statement tracking for the program. This reduces system resource requirements for a test session. The default is NO.

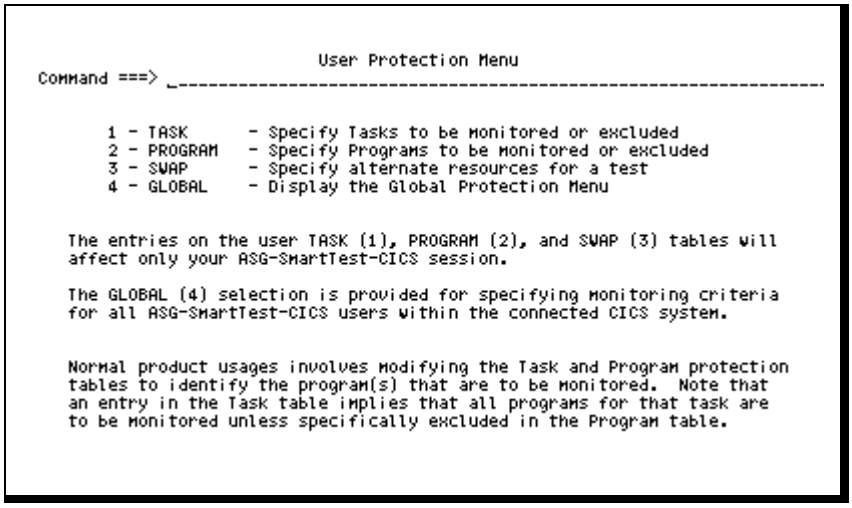
Field	Description
Count Act	Indicates whether COBOL verbs, Assembler instructions, or PL/I verbs executed during a test session are to be counted for the program. The Statement Counts screen displays the execution count and a histogram indicating the relative count for each executable PROCEDURE DIVISION statement or assembler source statement. The default is NO. **Note:** This option should be set to YES only if COUNTS is used during the test.
Breaks Act	Indicates whether breakpoints are active or inactive for the specified program. YES specifies that a program interrupt occurs when a BREAK command is encountered. NO specifies that BREAK commands are ignored during the test session. The default is YES. If the Pseudo Act field is set to NO, breakpoints are ignored regardless of the entry in the Breaks active field.
Break Entry	Indicates whether an interrupt occurs upon entry into the specified program. YES causes program execution to stop at the first PROCEDURE DIVISION statement, or at offset zero if the program is not COBOL, or is not in the Application Knowledge Repository (AKR) and the ASMVIEW mode is enabled. The default is NO.
Break Rtn	Indicates whether an interrupt occurs when a CALLed program returns control to the calling program. YES causes program execution to stop when a GOBACK or STOP RUN statement is encountered in the CALLed program. Note that this field is available only for analyzed COBOL programs. The default is NO.
Pseudo Act	Indicates whether pseudo code is active or inactive for the specified program. YES specifies that pseudo code will be executed during the test session. NO specifies that all pseudo code including BREAKs are ignored during the test session. The default is YES.
Single Step	Indicates whether statement/offset stepping is allowed in the specified program(s). If SINGLE STEP YES was specified for Program A and NO for Program B, and a CALL to Program B is encountered while stepping through Program A, the next instruction stopped on (stepped to) would be the instruction following the CALL in Program A, even though Program B had been executed. The default is YES.

User-level Monitoring and Resource Swapping

To display the User Protection Menu

1 Select List ▸ CICS features ▸ Tables or type `LIST TABLES`. The User Protection Menu shown in Figure 14, displays.

Figure 14 • User Protection Menu



2 Select one of the available options to display the desired specification screen or the Global Protection Menu.

Options

Field	Description
1 - TASK	Displays the Task Specification screen used to specify transaction IDs to be monitored, or to be excluded from monitoring. If a task is selected for monitoring, all programs within that task are monitored unless specifically excluded on the Test Session Tailoring screen. (See "Monitoring Tasks" on page 38.)
2 - PROGRAM	Displays the Program Specification screen used to view or edit programs to be monitored or excluded from monitoring. This screen is read-only for User Table entries. Use the Test Session Tailoring screen to set the program monitoring status for these entries. If the entries are Global Table entries, you can edit the CICS PPT program names listed on this screen. Enter NO in the Monitor field to exclude a program. If all programs within one task are to be monitored or excluded from monitoring, then that task can be entered on the Task Specification screen (rather than entering all individual programs on the Test Session Tailoring screen). See "Monitoring Programs" on page 40.
3 - SWAP	Displays the Swap Specification screen used to specify programs, files, temporary storage IDs, and transient data destinations that are to be redirected to alternate destinations by SmartTest during the test session. See "Redirecting Programs, Files, Temporary Storage Areas, and Transient Data Destinations" on page 41.
4 - GLOBAL	Displays the Global Protection Menu used to specify Global level monitoring, storage protection, and any alternate resources to be used during testing, if CICS is the current environment and the CICS connection has been established. See Global-level Monitoring, Storage Protection, and Resource Swapping.

Global-level Monitoring, Storage Protection, and Resource Swapping

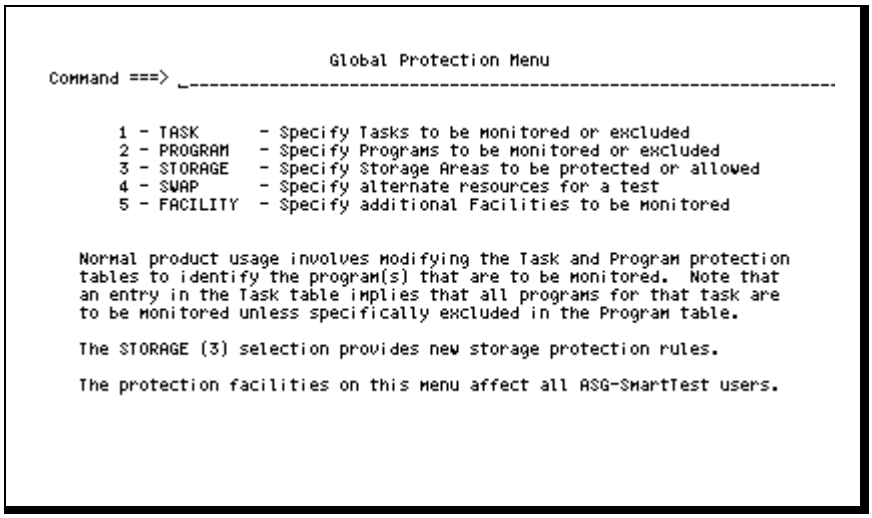
Note:

These procedures assume that the CICS environment was selected on the Environment Selection pop-up, that the connection to CICS has been established, and that your user ID is authorized to manually update the Global tables.

To display the Global Protection Menu

1 From the User Protection Menu, select Global and press Enter. The Global Protection Menu, shown in Figure 15, displays.

Figure 15 • Global Protection Menu



2 Select one of the options to display the desired specification screen.

Field	Description
1 - TASK	Displays the Global Task Specification screen used to specify transaction IDs to be monitored, or to be excluded from monitoring. If a task is selected for monitoring, all programs within that task are monitored unless specifically excluded on the User or Global Program Specification screen. Monitoring at the Task (Transid) level is not recommended unless you must do it to identify programs or cope with non-CICS methods of transferring program control. See "Monitoring Tasks" on page 38.
2 - PROGRAM	Displays the Global Program Specification screen used to specify programs to be monitored, or to be excluded from monitoring. If all programs within one task are to be monitored or excluded from monitoring, then that task may be entered on the Task Specification screen (rather than entering all individual programs on the Program Specification screen). See "Monitoring Programs" on page 40.
3 - STORAGE	Displays the Storage Specification screen used to specify whole or partial storage areas to be protected or allowed during the test session. See "Protecting Storage Locations" on page 44.

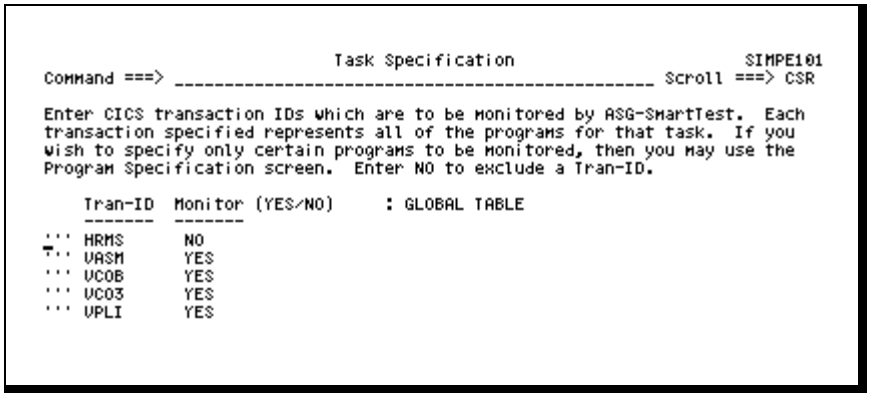
Field	Description
4 - SWAP	Displays the Global Swap Specification screen used to specify programs, files, temporary storage IDs, and transient data destinations that are to be redirected to alternate destinations by SmartTest during the test session. See "Redirecting Programs, Files, Temporary Storage Areas, and Transient Data Destinations" on page 41.
5 - FACILITY	Displays the Facility Specification screen used to specify additional facilities (i.e., terminals, printers) that are not associated with the SmartTest-CICS session, but which require SmartTest-CICS monitoring. See "Monitoring Additional Facilities" on page 48.

Monitoring Tasks

To specify tasks (transaction IDs) to be monitored or excluded from monitoring

1 Select TASK on the Global Protection Menu to display the Task Specification screen shown in Figure 16. (The text next to the Monitor field indicates whether you are updating the User or Global Task table.)

Figure 16 • Task Specification Screen



USER TABLE indicates that entries on this screen update the User table saved in the ISPF user profile. GLOBAL TABLE indicates that entries on this screen update the Global tables for all SmartTest-CICS users.

2 Type the appropriate information in the fields. To make changes to the information entered, use the D or I line commands.

3 Press PF3/PF15 to return to the User Protection Menu screen.

Fields

Field	Description
Tran-ID	Specifies the four-character transaction ID to be monitored or excluded from monitoring. ALL monitors all transactions that run at a facility that you specified in the Facility table using the Facility Specification screen. See "Monitoring Additional Facilities" on page 48.
Monitor	Determines whether to monitor the task or to exclude the task from monitoring. The default is YES (monitor the task). **Note:** If you specify MONITOR=YES, all programs in the task are monitored, except those specifically excluded on the Program Specification screen. See "Monitoring Programs" on page 40. If you specify MONITOR=NO, no programs in the task are monitored unless they are specified as YES on the Program Specification screen. If no entry is made, programs in a task are monitored only when entered on the Program Specification screen as MONITOR=YES.

Usage Notes

If you are unable to monitor your test session or get unpredictable results, check the User and Global tables for generic and specific exclusions. Some programs (usually third-party vendor applications) have specific monitoring requirements. If the monitoring requirement is not specified correctly in the User and Global Protection tables, the test session is adversely affected. (SmartTest-CICS is installed with known exclusion requirements in the Global Program Protection table.)

To monitor all but one or two programs in a given task, it is generally easier to enter the task ID on the Task Specification screen with a YES in the Monitor field, and then enter the program(s) to be excluded from monitoring on the Program Specification screen with a NO in the Monitor field.

When only a small subset of programs are to be monitored, it is generally easier to define those names on the Program Specification screen, without making an entry on the Task Specification screen.

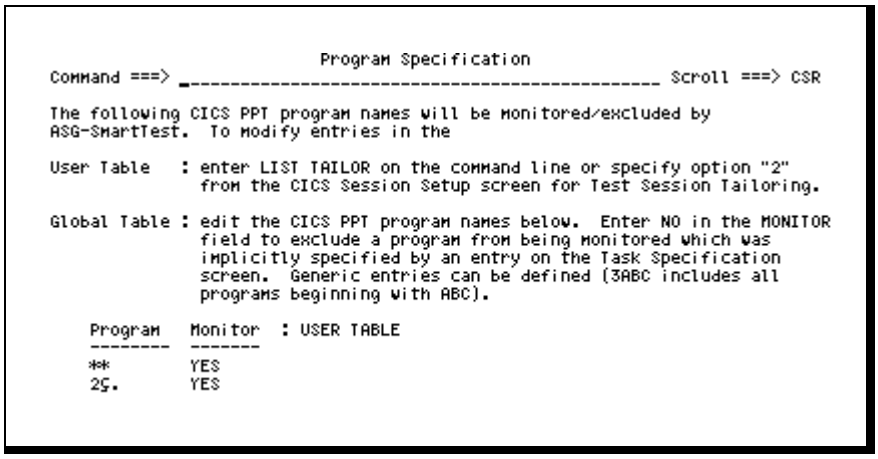
Monitoring Programs

To view the program monitoring status

1 Connect to a CICS region.

2 From the User or Global Protection Menu, select PROGRAM to display the Program Specification screen, shown in Figure 17.

Figure 17 • Program Specification Screen



The text next to the Monitor field indicates whether you are updating the User or Global table. USER TABLE indicates that entries on this screen reflect the User table saved in the ISPF user profile. GLOBAL TABLE indicates that entries on this screen reflect the Global tables for all SmartTest-CICS users.

Note:

The Program Specification screen is read-only for User Table entries. Use the Test Session Tailoring screen to update program monitoring.

3 Press PF3 to return to the Protection Menu.

Fields

Field	Description
Program	Displays the load module (i.e., the name by which CICS loads the program) on the Program Specification screen.
Monitor	Indicates whether the program is being monitored.

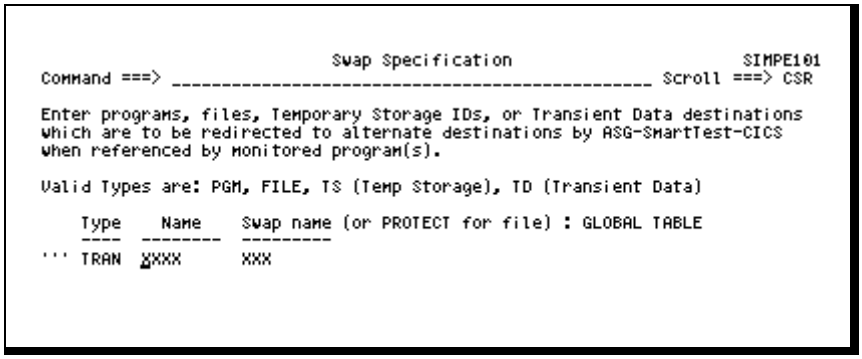
Redirecting Programs, Files, Temporary Storage Areas, and Transient Data Destinations

To redirect programs, files, temporary storage areas, or transient data destinations to alternate resources when referenced by a program being monitored, display the User or Global Swap Specification screen. The swap specification facility can be used to substitute test resources for production resources during a test session without impacting other users and production resources.

To update Global Swap specification

1 From the User Protection Menu or Global Protection Menu, select SWAP and press Enter. The Swap Specification screen, shown in Figure 18, displays. (The text next to the Swap name field indicates whether you are updating the User or Global table.)

Figure 18 • Swap Specification Screen



USER TABLE indicates that entries on this screen update the User table saved in the ISPF user profile. GLOBAL TABLE indicates that entries on this screen update the Global tables for all SmartTest-CICS users.

2 Type the appropriate information in the fields. To make additions or deletions, use the D or I line commands.

3 Press PF3 / PF15 to return to the Protection Menu.

Line Commands

The line command area can be used to enter these line commands:

D	Deletes the item.
I*nn*	Inserts *nn* blank lines to enter *nn* new tasks. If *nn* is left blank, one line is inserted.

Fields

Field	Description
Type	Enter a valid type to be swapped.
PGM	Specifies the PPT program name. If you enter PGM, you must also enter valid program names in the Name and Swap name fields. When a program being monitored issues a DELETE, LINK, LOAD, SETXIT, or XCTL command to the program specified in the Name field, the program specified in the Swap name field is accessed instead. If the SWAPNAME has not been defined in the CICS PPT, SmartTest-CICS dynamically adds a temporary PPT name at execution time. The dynamic PPT definition feature is active only if the product installation option SWAPADD is specified as YES. **Note:** If the PGM name represents a BMS MAPSET name, SmartTest-CICS compares 7 characters. Possible conflicts may occur if the program name is the same as the BMS MAPSET names.
FILE	Specifies the file name. If you type `FILE`, you must also enter valid file or database names in the Name and Swap name fields, or type `PROTECT` in the Swap name field to restrict the file status to read only. Using PROTECT in the Swap name field prevents the program being monitored from actually modifying the data in the CICS file, by suppressing all monitored CICS output requests to the specified file. TOTAL database files may also be swapped by preceding the valid database name in the Name field with a $ (dollar sign), and entering the alternate file name in the Swap name field.
TS	Specifies Temporary Storage. If you type `TS`, you must also enter valid temporary storage names in the Name and Swap name fields. Generic temporary storage names are supported. Generic names for temporary storage entries on this screen pertain to all eight characters of the name, not just the beginning characters. A generic name must be entered in the Name field in this format: *nxxxxxxx* where *n* specifies the length of the string that follows (and must be a number from 1 through 7), and *xxxxxxx* is a string of 1 to *n* characters. The first occurrence of the specified character string anywhere in the name is swapped.
TD	Specifies transient data. If you type `TD`, you must also enter valid transient data destinations in the Name and Swap name fields.

Field	Description
Name	Indicates the resource specified in the Type field. If you type TS in the Type field, you can enter a generic temporary storage ID in the Name field. See the TS field description for more information.
Swap name	Indicates the resource to be substituted for the name specified in the Name field. If you type FILE in the Type field, then you can type PROTECT in the Swap name field to protect the data in the file from being modified. See the FILE field description for more information. **Note:** Valid name is the resource that is defined to CICS, with this exception: in non-PPT programs, when SWAPADD is in effect, security issues may need to be addressed.

Usage Notes

Example 1. In this example, when a program being monitored attempts to access PRODPGM1, TESTPGM1 is accessed instead:

```
TYPE      NAME      SWAP NAME
PGM       PRODPGM1  TESTPGM1
```

Example 2. These are examples of File Type swapping and protecting:

```
TYPE      NAME          SWAP NAME
FILE      PRODFILE      TESTFILE
FILE      PRODFILE      PROTECT
FILE      $PROD         TEST
```

Example 3. In this example, when a program being monitored attempts to access PRODTSID, TESTTSID is accessed instead:

```
TYPE      NAME       SWAP NAME
TS        PRODTSID   TESTTSID
```

Example 4. If these are the fields you specified:

```
TYPE      NAME      SWAP NAME
TS        4PROD     TEST
```

then:

```
PROD123 is swapped with TEST123
123PROD is swapped with 123TEST
PRODPROD is swapped with TESTPROD
VIAPROD1 is swapped with VIATEST1
PROC123 remains PROC123
```

Example 5. In this example, when a program being monitored attempts to access PRTD, TSTD is accessed instead:

```
TYPE      NAME      SWAP NAME
TD        PRTD      TSTD
```

Protecting Storage Locations

Use the Storage Specification screen to specify whole or partial storage areas to be protected or allowed during the test session. SmartTest-CICS interrupts any monitored program that attempts to modify a storage area listed on this screen as protected. Storage protection can only be specified from the Global Protection Menu.

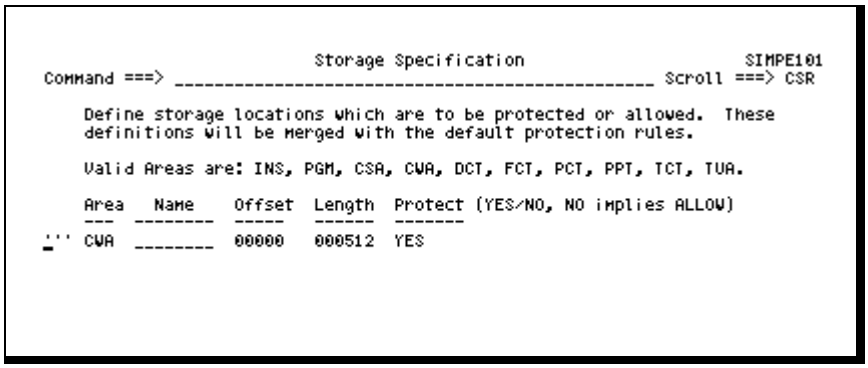
Note:

To modify the Global tables, you must be connected to a CICS region.

To specify storage parameters

1 From the Global Protection Menu, select STORAGE and press Enter. The Storage Specification screen, shown in Figure 19, displays.

Figure 19 • Storage Specification Screen



2 Type the appropriate information in the fields. To make changes to the information entered, use the D or I line commands.

3 Press PF3/PF15 to return to the Protection Menu.

Line Commands

The line command area can be used to enter these line commands:

D	Deletes the program.
I*nn*	Inserts *nn* blank lines to enter *nn* new programs. If *nn* is left blank, one line is inserted.

Fields

Field	Description
Area	Specifies a valid area name to be protected or allowed. These are the valid area names:
INS	Specifies the instructions area. If you type NO in the Protect field, the instructions referred to by the Name, Offset, and Length fields are allowed to modify any CICS storage area. The INS feature may also be used to override an INVALID BRANCH condition for valid branch locations. This feature is only valid for Assembler instructions BALR 14,15 and BASSM 14,15. The Offset field must specify the exact offset from the beginning of the load module.

Field	Description
PGM	Specifies the PPT program name area. If you type NO in the Protect field, any program being monitored can modify the program specified in the Name field. If YES is entered in the Protect field, any attempt to modify the specified program causes SmartTest-CICS to interrupt the test session. If you type PGM, you must also enter a valid PPT program name in the Name field.
CSA	Specifies the Common System Area.
CWA	Specifies the Common Work Area. If the CWA is not to be modified during the test session, specify YES in the Protect field.
DCT	Specifies the Destination Control table. If you type DCT, enter the destination ID in the Name field.
FCT	Specifies the File Control table. If you type FCT, enter the file or database parameter name in the Name field.
PCT	Specifies the Program Control table. If you type PCT, enter the transaction ID name in the Name field.
PPT	Specifies the Processing Program table. If you type PPT, enter the program name in the Name field.
TCT	Specifies the Terminal Control table. If you type TCT, enter the terminal ID in the Name field.
TUA	Specifies the Terminal User Storage Area. If you type TUA, enter a valid terminal ID in the Name field.
Name	Specifies the appropriate name for the area specified in the Area field. This field is required for all areas except CSA and CWA. **Note:** When you use INS with PROTECT NO, the specified instructions are allowed to modify any CICS storage area. Use PGM to monitor Assembler programs for full re-entrance by specifying PROTECT YES for the NAMEd program. Do not attempt this for COBOLII programs that are not re-entrant. The Name field is required for all areas except CSA and CWA.

Field	Description
Offset	Specifies the hexadecimal displacement from the beginning of the specified area to protect or allow only a portion of the area. This field is optional and the default is 0 (zero). **Note:** For the INS area name, the OFFSET specified must be relative to the beginning of the PPT load module.
Length	Protects or allows only a portion of the specified area. Type the decimal length of the partial area that begins at the location specified in the Offset field. Typing 999999 specifies the entire Area. The default is the total length of the specified area. If this field is left blank, then the area that will be protected or allowed begins at the location specified in the Offset field and end at the end of the area specified in the Name field. (See the Area field description for more information.) This optional field is used to protect or allow only a portion of the specified area. Type the decimal length from the beginning of the specified area. The default is 0 (zero). **Note:** For the INS area name, the OFFSET specified must be relative to the beginning of the PPT load module. Changing the Area or Name field may cause an incorrect length. To avoid this, type the actual length of the new area or type 999999 to indicate the maximum length of the new area.

Field	Description
Protect	Prevents the area from being modified, or excludes the area from storage protection rules. The default is YES. A YES value attempts to modify the specified area by the program being monitored causes SmartTest-CICS to interrupt the program. An Assembler program can be monitored for full re-entrance by specifying YES in this field, PGM in the Area field, and the program name in the Name field. This cannot be done for COBOLII programs that are not re-entrant. If you enter NO, SmartTest-CICS excludes the area from storage protection rules. Any attempt by the program being monitored to modify the specified area is allowed to take place. The entire area specified will be protected or allowed, unless appropriate valid entries are also made in the Offset and Length fields. The Offset and Length fields are optional; if left blank, the default is the entire storage area.

Monitoring Additional Facilities

Use the Facility Specification screen to specify additional facilities (i.e., terminals, printers, transient data destinations) that are not associated with the SmartTest-CICS session, but that require SmartTest-CICS monitoring. Your CICS terminal is automatically added to the Facility table when you connect to CICS; therefore, you do not need to display this screen to add it. Facility table entries for facilities other than the SmartTest user's terminal are usually controlled from the Remote Test Setup screen, accessed by Option 4 on the CICS Session Setup screen. Facility monitoring can only be specified from the Global Protection Menu.

Note:

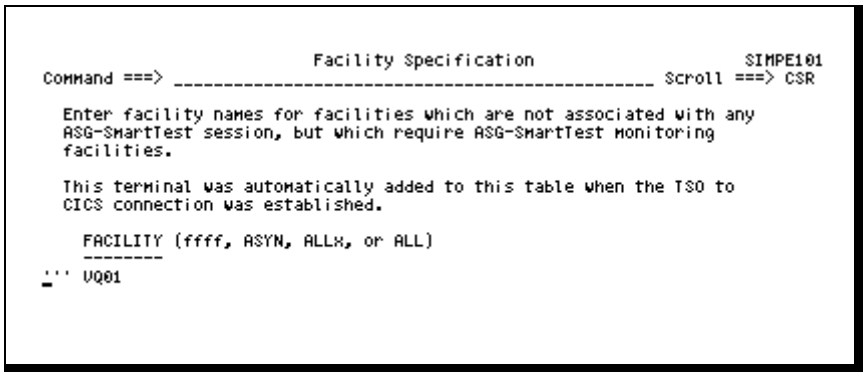
To access and modify the Global tables, you must be connected to a CICS region.

Terminals other than those dynamically added for the SmartTest-CICS interactive session may be entered with the intention of catching errors in transactions running at any specified terminal(s). If an error is intercepted for a facility that is not connected to an interactive session, a Summary Display is generated for the error.

To set up facility monitoring

1 On the Global Protection Menu, select FACILITY and press Enter. The Facility Specification screen, shown in Figure 20, displays.

Figure 20 • Facility Specification Screen



2 Type the terminal ID or transient data destination to be monitored. The valid entries are any four-character terminal ID, ASYN, and ALL.

3 Press PF3 to save and return to the Global Protection Menu.

Line Commands

The line command area can be used to enter these line commands:

D	Deletes the facility.
I*nn*	Inserts *nn* blank lines to enter *nn* new facilities. If *nn* is left blank, one line is inserted.

Fields

Field	Description
FACILITY	Specifies the four-character terminal ID or transient data destination to be monitored. Facilities are always presented in alphabetical order and are resorted whenever the screen is refreshed. These are the valid entries in the FACILITY field: **ffff.** Type the four-character terminal ID or transient data destination to be monitored. **ASYN.** Monitors asynchronous tasks. This entry is added automatically when selecting RMF asynchronous testing features on the CICS Session Setup screen. **ALL.** Causes SmartTest-CICS to build a control block for any terminal that loops onto the CICS region in which this Global table (VIACTBLS file) resides. Use this entry in conjunction with Global Program or Task table entries to set up global monitoring. **Note:** This capacity is described in Option 3 - Monitoring in Related Regions and should only be used with the authority of your CICS systems programmer.

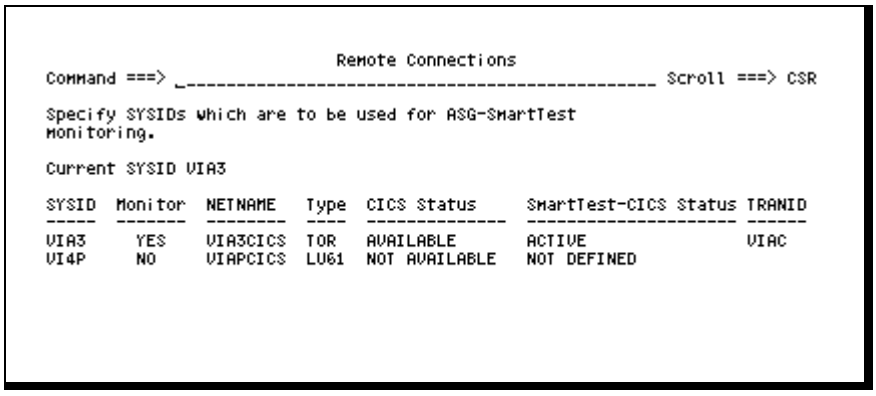
Option 3 - Monitoring in Related Regions

The Remote Connections screen is primarily used by MRO users to select the CICS system IDs where SmartTest-CICS is available for testing. When SmartTest-CICS is installed with this feature enabled, it is not necessary to use CREATE to connect to specified AORs.

To review and set up CICS system IDs

1 From the CICS Session Setup screen, select Turn on Monitoring in related regions and press Enter. The Remote Connections screen, shown in Figure 21, displays.

Figure 21 • Remote Connections Screen



2 In the Current SYSID field, specify the current SYSID that will be accessed for CICS requests when the user is not in an active test. This entry can be made only for a region that displays a SmartTest-CICS status of ACTIVE.

SmartTest-CICS displays an entry for each connection defined in the CICS region to which you have connected. You may activate SmartTest-CICS in any CICS region that displays a SmartTest-CICS status of DEFINED.

3 Press PF3/PF15 to return to the CICS Session Setup screen.

Fields

Field	Description
Current SYSID	Indicates which CICS region will be accessed for CICS requests when the user is not in an active test. During a test, all CICS requests are made against the CICS which corresponds to the active or suspended transaction. **Note:** When you are not in an active test, any NEWCOPY, LIST MEMORY, LIST FILEs, and other similar requests are satisfied from the region indicated by the current SYSID.
SYSID	Specifies the 4-byte system ID for a given CICS region as established by the installation.

Field	Description
Monitor	Specifies whether SmartTest is able to monitor transactions defined by CICS to run in the remote region in which SmartTest is defined. The default value is NO.
NETNAME	Specifies the VTAM APPLID for the connection.
Type	Specifies the Terminal Owning Region (TOR), LU 6.1, or APPC. TOR is the connected CICS region. The TOR SYSID is always be the first SYSID displayed on the screen. If the user is not operating in an MRO (Multi-Region Operation) environment, the TOR SYSID is the only line displayed on this screen. LU 6.1 and APPC are the types of communication links used between the TOR and the associated SYSID. LU 6.1 represents IRC connections, and APPC represents LU 6.2./ISC connections.
CICS Status	Specifies the CICS status for the associated SYSID. CICS status may be AVAILABLE, NOT AVAILABLE, OUT OF SERVICE, RELEASED, or ACQUIRED. RELEASED and ACQUIRED are for APPC types. **Note:** The CICS status is controlled with CEMT commands outside of SmartTest.
SmartTest-CICS Status	Specifies the status, which can be ACTIVE, DEFINED, or NOT DEFINED. If ACTIVE, SmartTest-CICS is defined in the region and MONITOR=YES has been specified. If DEFINED, SmartTest-CICS is defined in the region, but either the region is not available or the user has specified MONITOR=NO.
TRANID	Specifies the SmartTest internal transaction ID as specified at installation time. This field is for diagnostics only and has significance only to the SmartTest installer.

Option 4 - Setting Up Remote (RMF) Test (LU62, DPL, Asynch)

The SmartTest-CICS Remote Monitoring Facility (RMF) provides several alternatives for testing programs that are not initiated at the SmartTest terminal. The Remote Test Setup screen is used to test LU6.2 sessions, Dynamic Program Links (DPLs) from other regions, asynchronous transactions, Transient Data destinations, and programs running on other 3270 terminals or printers.

To access the Remote Test Setup screen

1 Connect to the region.

2 Select Option 4 on the CICS Session Setup screen, or type `REMOTE` on the command line, and press Enter. The Remote Test Setup screen, shown in Figure 22, displays.

Figure 22 • Remote Test Setup Screen

```
                          Remote Test Setup
Command ===> ____________________________________________________________

   Toggle or Run FROM THIS SCREEN to enable your request.  PF1 for help.


  Remote Facility:   CICS Userid  ____        Trace/TON to CSSL is:
                       Connection  ____
                Other 3270 terminal  ____
                  LU6.2/IRC terminal  ____
               Transient Data Destid  ____

  Asynch Transaction:    Transid  ____
                           Reqid  ________

                Associated Data:  ____________________   (START data, etc.)

  Queue qualifying transactions:  N                      (Y/N)

                    Current Sysid:  CET1
       Monitor all active systems:  N
```

Note:

This testing option is covered in detail in "Remote Monitoring Facility" on page 101.

Initiating a CICS Test Transaction

After you are connected to the CICS region, use this procedure to initiate the transaction. The examples in this section use the SmartTest VCOB demonstration transaction. It is assumed that the SmartTest-CICS demonstration transactions have not been removed from the Global Task table, and that the demonstration programs have been analyzed into an AKR specified on the Environment Selection screen.

To initiate your test transaction

1 Type `RUN VCOB` on the CICS Session Setup screen or toggle to CICS and type `VCOB` on the CICS system screen. After VCOB displays on the screen, there is a short delay until the Program View screen displays.

2 Use Program View to control execution, insert breakpoints, and so forth.

Note:

Self-documented tutorial programs are provided for both COBOL and Assembler. The transactions VCOB and VASM initiate these programs, respectively. The comments that appear in the program source (as in the *** READ THIS *** block on the Program View screen) guide the user through SmartTest-CICS features.

3 Press PF4/PF16 or type RUN in the primary command input area and press Enter to execute the program.

4 Type the various menu selections, as documented in the tutorial comments. For example, to produce a data exception example, type 2 in the input field on the menu and press Enter. Figure 23 shows an actual 0C7 abend that you might encounter in your application code.

Figure 23 • Data Exception (0C7) Example

```
File  View  Test  Search  List  Options  Help
--------------------------------------------------------------------------------
                              Program View
Command ===> ____________________________________________ Scroll ===> CSR

000546      MOVE SPACES TO S0C7-DATA.
>>>>>>      ADD  +1 TO DATA-PACKED-DEC.                              FALLTHRU
''''''  +-------------------------------------------------------------------+
''''''  | 10 DATA-PACKED-DEC                PIC S9(5)V99 C3     ADDR 000700E8 |
''''''  |      VALUE > ____________________ <  * INVALID NUMERIC *          |
''''''  +-------------------------------------------------------------------+
000548 *-------------------------------------------------------------*
000549 *                                                             *
000550 * THIS EXAMPLE SHOWS A S0C7 ABEND (DATA EXCEPTIONS).  THE DATA  *
000551 * VALUES INVOLVED IN THE ABENDS ARE AUTOMATICALLY DISPLAYED     *
000552 * BY ASG-SMARTTEST.                                           *
000553 *                                                             *
000554 * THERE ARE SEVERAL WAYS TO FIX THIS S0C7:                    *
000555 *     1) OVERTYPE THE VALUE OF 'DATA-PACKED-DEC' IN THE ZOOMDATA*
+-------------------------------------------------------------------------+
|STATUS: DATA EXCEPTION (0C7)             PROGRAM: VIACCOB   DATE: DDMMMYYYY |
|  STMT: 000547  OFF: 000D48  AMODE: 24     MODULE: VIACCII   TIME: HH:MM:SS  |
|SOURCE: ADD  +1 TO DATA-PACKED-DEC.                                        |
+-------------------------------------------------------------------------+
```

Note:

After you have initiated a CICS test session, see the *ASG-SmartTest PLI User's Guide* or the *ASG-SmartTest for COBOL and Assembler User's Guide* for information regarding SmartTest features, such as: automatically setting breakpoints with impact datasets, controlling program execution, monitoring and changing data or program logic during a test session, handling abend conditions, using the COBOL intelligent search, and obtaining test information and statistics.

Ending a CICS Test Session

To end the test session and disconnect the TSO and CICS sessions

1 Type CANCEL on the Program View screen to end the current test session, or run the test to completion (until a blank CICS screen displays).

a If you cancel the test session, use the SETUP command to return to the CICS Session Setup screen.

b If you complete the transaction, use the toggle key to return to the CICS Session Setup screen.

Note:

The SmartTest CANCEL command terminates the transaction by requesting that CICS abend the transaction with a ???? code. This ensures that all normal CICS cleanup and rollbacks occur when the transaction is not allowed to complete.

2 Type D in the command input area and press Enter to disconnect from CICS. A message indicating that the CICS session has ended displays in the upper right corner of the CICS Session Setup screen, as shown in Figure 24.

Figure 24 • SmartTest-CICS Session End Screen

```
                          CICS Session Setup            CICS SESSION ENDED
Command ===> _____________________________________________________________________

                    Enter PF1 for Setup/Usage instructions

   C - Connect to CICS          1 - Specify limits on CICS resources
   D - Disconnect from CICS     2 - Request monitoring (Protection Tables)
   T - Toggle back to CICS      3 - Related regions (Remote Connections)
                                4 - Request Break on Entry, etc.  (Tailoring)
                                5 - Set up Remote (RMF) test (LU6, DPL, Asynch)


Program (PPT) to test . . ________
Break at Start (Y/N)  . . YES       (Break on first monitored program.)


CICS Logon Region APPLID  VIA3CICS
Toggle PFKEY  . . . . . . PF12      (PF1-PF24,"NONE")
```

Note:

Typing CSSF LOGOFF on the CICS screen also disconnects SmartTest from the CICS region. Do not =X or PF3 out of a CICS test session.

4 Using CICS Features

This chapter describes how to view and modify command level EIB, Files, Temporary Storage, and Data (Transient, DL/I, and DB2) using SmartTest-CICS, and contains these sections:

Introduction

The options described in this chapter are available from the List pull-down. These procedures rely on the CUA method of accessing screens and processing commands. As you gain experience, you may find the command syntax more convenient than the CUA method. See the *ASG-SmartTest Reference Guide* for more information about using commands.

To access CICS information view and modification features

1 Select List ▸ CICS features. The List - CICS Features pop-up displays.

2 Select the desired option from these choices:

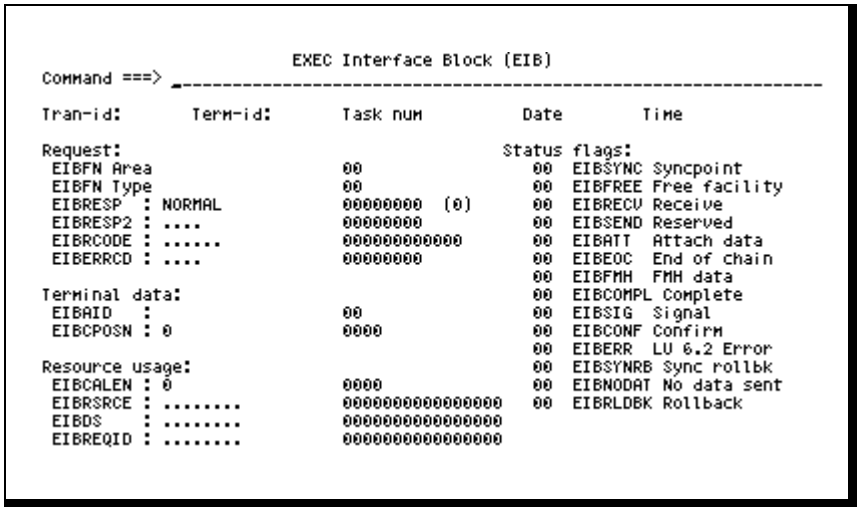
Option	Description
EIB	Displays the EXEC Interface Block (EIB) screen used to review and update command level EIB. See "Viewing and Modifying Command Level EIB" on page 59.
Files	Displays the CICS File Services screen used to access screens to view and modify files, storage, and data. See "Viewing and Modifying Files, Temporary Storage, and Data" on page 60.
Limits	Displays the Transaction Limits and Options screen. See "Option 1 - Specifying Limits on CICS Resources" on page 27.
Tables	Displays the various user or global protection screens. See "User-level Monitoring and Resource Swapping" on page 35 and "Global-level Monitoring, Storage Protection, and Resource Swapping" on page 36.

Viewing and Modifying Command Level EIB

To review and modify command level EIB

1 From the List - CICS Features pop-up, type `1` in the command area and press Enter. The EXEC Interface Block (EIB) screen, shown in Figure 25, displays.

Figure 25 • EXEC Interface Block (EIB) Screen



2 To modify the EIB, type the appropriate information in these fields:

Field	Description
Tran-id	Specifies the current EIB Transaction ID.
Term-id	Specifies the current EIB Terminal ID.
Task num	Specifies the current EIB Task Number.
Date	Specifies the EIB Julian date.
Time	Specifies the EIB time.
Request	Displays the EIB field names and values for EIB request-related fields.

Field	Description
Terminal data	Displays the EIB field names and values for EIB terminal related fields.
Resource usage	Displays the EIB field names and values for EIB resource fields.
Status flags	Displays the EIB field value and names for each EIB status flag.

3 Press PF3/PF15 to return to the List - CICS Features pop-up.

Usage Notes

Most of the EIB field values are shown in character and in hexadecimal format. For EIBFN, EIBRESP, and EIBAID, field values are shown with character descriptions and the EIB Status Flags are shown in only hexadecimal.

You can change the hexadecimal data using hex or pseudo-hex input.

Viewing and Modifying Files, Temporary Storage, and Data

Use the CICS File Services screen to view and modify files, temporary storage, transient data, DL/I data, and DB2 data during testing, to select a resource type, and to specify a dataset to be accessed (optional).

Note:

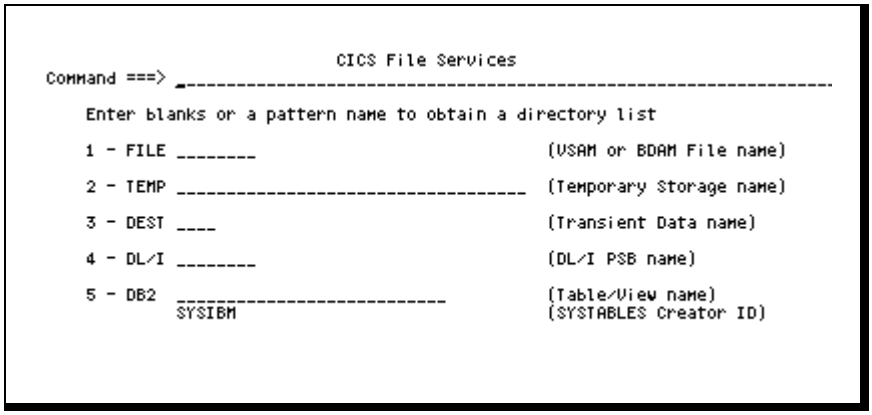
The CICS File Services screen is available only when you are connected to CICS.

To view and modify file, storage, and data

1 Select List ▸ CICS features and press Enter. The List - CICS Features pop-up displays.

2 Select Files and press Enter. The CICS File Services screen, shown in Figure 26, displays. You can also display the CICS File Services screen using the LIST FILES command while in the CICS environment.

Figure 26 • CICS File Services Screen



3 Complete these fields:

a In the name field of the desired option, enter a partial name, using one or more wildcards (* for zero or more characters, ? or + for one character) to display a directory list. If the field is left blank, the entire directory displays.

b Type the name in the field following the appropriate option to begin processing a specific File, temporary storage area, transient data DL/I PSB, or DB2 table/view.

c Type the number of the desired option in the primary command input area and press Enter.

4 Press PF3/PF15 to exit.

Options

Option	Description
1 - FILE	Initiates file processing. (See "Initiating File Processing Options" on page 63.)
2 - TEMP	Initiates temporary storage processing. (See "Initiating Temporary Storage Processing Options" on page 72.)
3 - DEST	Initiates transient data processing. (See "Initiating Transient Data Processing Options" on page 79.)

Option	Description
4 - DL/1	Initiates DL/I processing. (See "Initiating DL/I Data Processing Options" on page 86.)
5 - DB2	Initiates DB2 processing. (See "Initiating DB2 Processing Options" on page 94.)

Files

Listing and Selecting File (FCT) Names

Note:

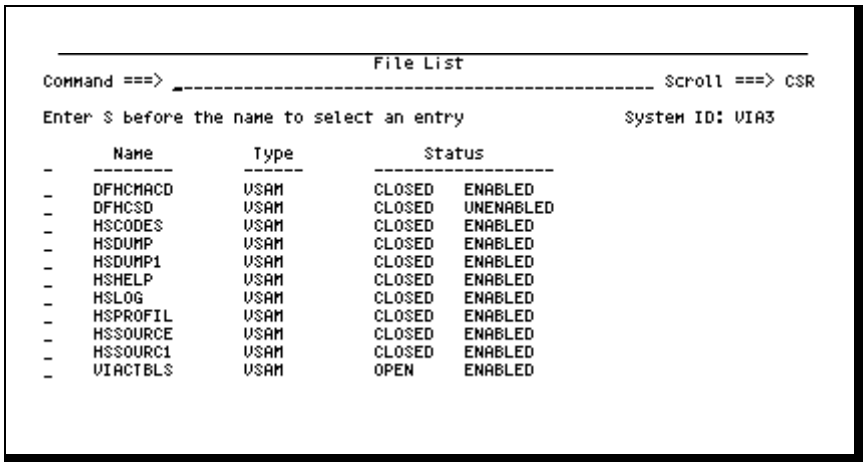
The File List screen displays only when the TS Name specified on the CICS File Services screen is omitted or is specified with an * (asterisk). The File List screen is bypassed when a full File Control table name is entered in the FCT name entry on the CICS File Services screen.

To select a file and specify processing options

1. On the CICS File Services screen, leave the FCT name blank or enter a partial FCT name with wildcard characters.

2. Type `1` in the primary command input area and press Enter. The File List screen, shown in Figure 27, displays with a list of the FCT names (in the currently connected CICS) that match the pattern requested. If the FCT name is left blank, all files are listed.

Figure 27 • File List Screen



3 Type S next to the entry you want to select and press Enter to display the File Request screen.

4 Press PF3/PF15 to return to the CICS File Services screen

Line Command

S. Selects a file for processing. Type S to the left of the Name field to display the File Request screen. Use this screen to specify processing options for the selected file.

Fields

Field	Description
System ID	Specifies the system ID where the resources are being acquired. For non-MRO installations, the SYSID always represents the connected CICS region. If you are running under MRO and you are in an active test session, the SYSID reflects the region that is currently active for the test. If you are running under MRO and you are not in an active test session, the SYSID is equal to the value specified in the Current SYSID field on the Remote Connections screen.
Name	Specifies the FCT name.
Type	Specifies the access method of the file. This field contains VSAM, BDAM, or REMOTE. REMOTE indicates the file does not reside on the currently connected CICS system.
Status	Specifies the current status of the file. This field contains two parts. The first part of the field indicates whether the file is OPEN or CLOSED. The second part indicates whether the file is ENABLED, DISABLED, or UNENABLED. No status information displays for REMOTE files.

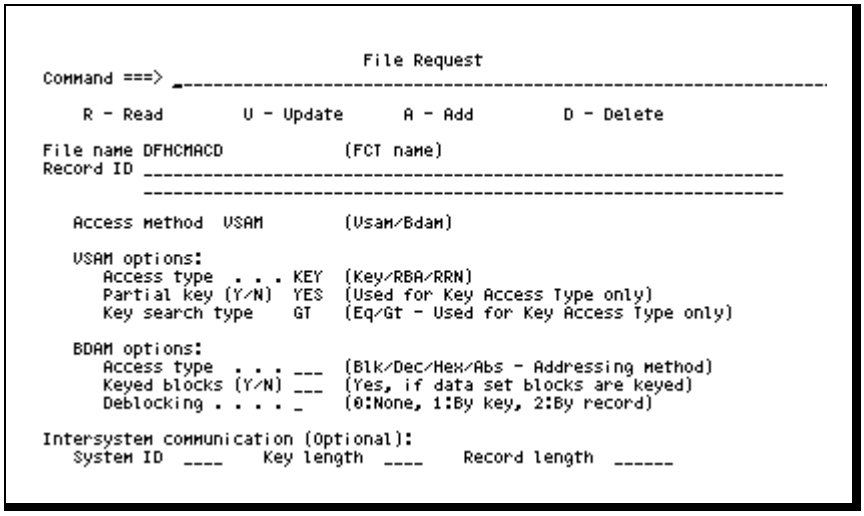
Initiating File Processing Options

Use the File Request screen to specify processing options for a selected file and display the File Display screen. The File Request screen provides read, update, add, and delete request capability for the FCT name specified on the CICS File Services screen or selected from the File List screen. Data entry fields are provided to allow entry of specific key and other file access information required for the File Services desired.

To specify processing options and access a file

1 On the CICS File Services screen, specify the full FCT name in the File name field, type `1` in primary command input area, and press Enter. The File Request screen, shown in Figure 28, displays. You can also display this screen from the File List screen by typing `S` to select the desired file and pressing Enter.

Figure 28 • File Request Screen



2 Type the appropriate field information and type the letter of the desired processing option in the primary command area. Press Enter to display the File Display screen. See "Viewing, Modifying, Adding, and Deleting FCT Records" on page 67.

3 To exit the File Request screen, press PF3/PF15.

Options

Option	Description
R - Read	Reads a record from the specified file and displays the File Display screen.
U - Update	Reads a record from the specified file, display the File Display screen, and prepares the record for modification.
A - Add	Displays a blank record in the File Display screen and prepares the record for input and addition to the specified file.
D - Delete	Deletes the record from the specified file.

Fields

Field	Description
File Name	Specifies the (FCT) name of the file for which File Services are desired. The name entered on the CICS File Services screen or the name selected from the File List screen displays here when the File Request screen is initially displayed. This field may be changed to request an FCT name different from the name previously specified.

Record ID	Specifies a free-format record identifier in the key format that is required by the access method and other attributes of the file specified. The Record ID may be entered in either character or pseudo-hex format.
	
	The character format provides for the filename whose keys are entirely character format. Character keys may be entered in three different formats: entered directly without quotes, surrounded by single or double quotes, or may be surrounded by single or double quotes and preceded by a C. These are examples of character keys:
	
	`ABC`
	`'ABC'`
	`"ABC"`
	`C'ABC'`
	`C"ABC"`
	
	The pseudo-hex format provides for the file names whose keys are in non-character format. Pseudo-hex keys consist of an X followed by hex and/or pseudo-hex characters (characters followed by spaces) surrounded by either double or single quotes. These are examples of pseudo-hex keys:
	
	`X'A B C'`
	`X"A B C"`
	`X'C1C2C3'`
	`X'A B C3'`
	`X'000000'`
	
	A blank entry in the Record ID field has the same effect as entering a pseudo-hex Record ID of:
	
	`X'000000 ... 00'`

Access Method	Specifies the access method of the FILE NAME specified. The valid methods are VSAM or BDAM.

Field	Description
VSAM options:	
Access type	Indicates the type of Record ID that has been entered. The valid types are KEY, RBA (Relative Byte Address), or RRN (Relative Record Number).
Partial key (Y/N)	Indicates whether the Record ID entered is a full or partial key for an ACCESS TYPE of KEY. VSAM provides a special option for KEYed (KSDS) files that allow the user to access records without specifying a full key.
Key search type	Indicates how to handle the condition where a record with the Record ID specified (full or partial) does not exist on the file name specified for an ACCESS TYPE of KEY. Type EQ to search only for an exact match or GT to search for the next greater key on the file.
BDAM options:	
Access type	Specifies the block addressing method defined for the BDAM dataset. These are the valid values: BLK Relative block address. DEC Relative track and record (zoned decimal *TTTTTTRR* format). HEX Relative track and record (hexadecimal *TTR* format). ABS Actual (absolute) address (*MBBCCHHR* format).
Keyed blocks (Y/N)	Indicates whether the BDAM dataset has been defined to contain recorded keys.
Deblocking	Indicates how to process blocked BDAM records. These are the valid values. 0 Access the file at the block level. 1 Access the individual records by record key. 2 Access the individual records by relative record number.
Intersystems communication (optional):	
System ID	Specifies the System ID of the remote CICS region where the file name specified is to be accessed.

Field	Description
Key length	Specifies the key length for a file that does not reside on the currently connected CICS.
Record length	Specifies the record length for a file that does not reside on the currently connected CICS.

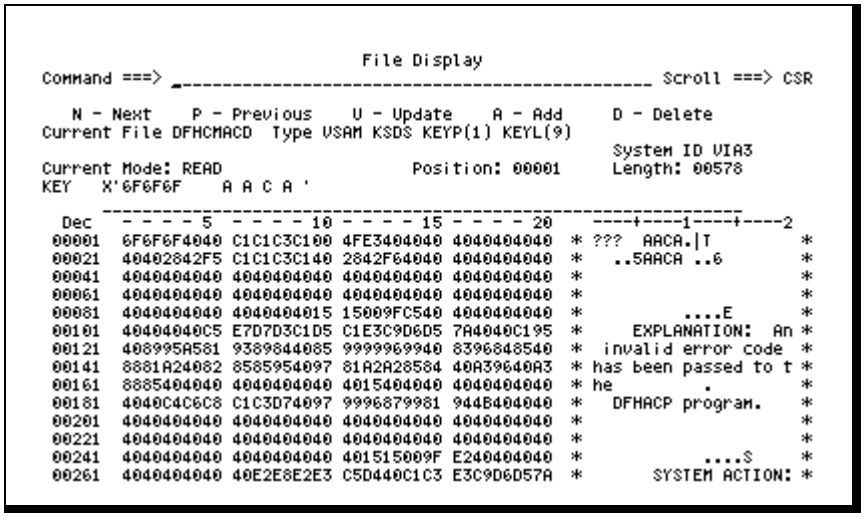
Viewing, Modifying, Adding, and Deleting FCT Records

The File Display screen displays after you specify read, update, or add on the File Request screen. Use this screen to browse or modify a selected file and to add or delete records.

To read records from a selected file

1 On the File Request screen, type R in the primary command input area and press Enter. The File Display screen, shown in Figure 29, displays.

Figure 29 • File Display Screen



2 Type the appropriate field information and type the letter of the desired option in the primary command area.

3 Press PF3/PF15 to exit the File Display screen.

Options

Option	Description
N - Next	Reads the next higher sequential record on the file and initiates a browse forward mode. After typing N once, press Enter to browse the next higher sequential record on the file.
P - Previous	Reads the next lower sequential record on the file and initiates a browse backward mode. After typing P once, press Enter to browse the next lower sequential record on the file.
U - Update	Updates the record currently displayed on the File Display screen.
A - Add	Adds a new record to the file and uses the record currently displayed on the File Display screen as a template to create a new record.
D - Delete	Deletes the record currently displayed on the File Display screen.

Fields

Field	Description
Current File	Specifies the (FCT) name of the file whose data is currently displayed on the File Display screen.
Type	Provides a description of the file whose data is currently displayed on the File Display screen. This information, depending on file type, may be displayed: For VSAM: KSDS — Keyed Sequence Data Set ESDS — Entry Sequence Data Set RRDS — Relative Record Data Set KEYP(*n*) — Key Position (for KSDS only) KEYL(*n*) — Key length (for KSDS only)

Field	Description	
	For BDAM:	
	BLK	Relative Block Address Dataset
	DEC	Decimal Relative Track and Record Dataset
	HEX	Hexadecimal Relative Track and Record Dataset
	ABS	Absolute (DASD) Address Dataset
	KEYED	Dataset contains recorded keys
	NON-KEYED	Dataset does not contain recorded keys
	DEBLK(KEY)	Dataset being deblocked by record key
	DEBLK(REC)	Dataset being deblocked by record number
System ID	Specifies the system ID of the CICS region where the file whose data is currently displayed on the File Display screen resides.	
Current Mode	Specifies the type of File Services activity that is currently being processed. These are the descriptions of the possible current modes:	
READ	Specifies the current record is available for viewing only.	
READ NEXT	Specifies the current record is available for viewing only. The next sequential record on the file may be read and displayed by pressing Enter.	
READ PREVIOUS	Specifies the current record is available for viewing only. The previous sequential record on the file may be read and displayed by pressing Enter.	
UPDATE	Specifies the current record is available for viewing and changing. Upon completion of all data and/or length changes, the record may be updated by pressing Enter. When the record has been updated on the file, an `Update Complete` message displays and the record is redisplayed for viewing.	
ADD	Specifies the current record is available for viewing and data changes. Upon completion of all data and/or record length changes, the record may be added to the file by pressing Enter. When the record has been added to the file, an `Add Complete` message displays and the record is redisplayed for viewing.	
DELETE	Specifies the current record is deleted when you press Enter. When the record has been deleted from the file, a `Delete Complete` message displays and the next sequential record on the file is read and displayed.	

Field	Description
Position	Specifies the current or requested position of the data on the File Display screen. To change the beginning position of the display, type the desired starting location.
Length	Specifies the current or request record length of the current record. The record length may be changed while using the A option to Add a new record to the file or while using the U option for variable length records.
data display area	Specifies the data display area consists of six columns of data. The first column contains the location in the record of the data on the line. The second through fifth columns contain the contents of the record at the specified location in hexadecimal format. The sixth column, bordered by asterisks (*), contains the contents of the record in display (EBCDIC) format. Data may be changed in the data display (hexadecimal or display) area while in UPDATE mode or ADD mode. Display data (column six) is changed by typing over the character values with new character values. Hexadecimal data (second through fifth columns) is changed by typing over the hexadecimal values with new valid hexadecimal values or with pseudo-hex data. Pseudo-hex input may include pairs of valid hexadecimal characters and/or alphanumeric characters. Each alphanumeric character is followed by a space. When alphanumeric data is entered, the hexadecimal equivalent is generated. For example, entering the pseudo-hex string '`C A T`' generates the hexadecimal '`C3C1E3`'.

Usage Notes

The data is (by default) shown with a starting location, record length, and line location in the decimal format. Also, each line contains twenty (four groups of five) characters and the line locations are calculated relative to 1. To display information in hexadecimal format with line locations calculated relative to 0 (zero), type `SET HEX ON`.

When performing updates, adds, and deletes, confirmation messages are displayed to allow you to review the changes prior to the actual file update. To confirm the changes, press Enter when the confirmation messages appear. To reverse the changes, issue the END command.

Temporary Storage

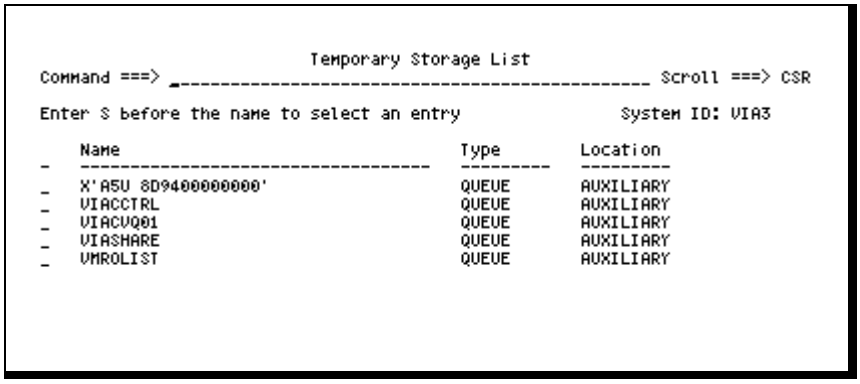
Listing and Selecting Temporary Storage Names

The Temporary Storage List screen is a directory of Temporary Storage names. This screen displays only when the TS Name specified on the CICS File Services screen is omitted or is specified with an * (asterisk).

To list and select Temporary Storage areas

1 On the CICS File Services screen, leave the Temporary Storage name field blank or enter a pattern with wildcard characters and press Enter. The Temporary Storage List screen, shown in Figure 30, displays.

Figure 30 • Temporary Storage List Screen



2 Type 2 in the primary command input area and press Enter to display the File List screen. A list of temporary storage names (in the currently connected CICS) that match the pattern requested displays. If the FCT name is left blank, all files are listed.

3 Type S in the line command area and press Enter to display the Temporary Storage Request pop-up on which you can select an area for processing.

4 Press PF3/PF15 to exit the Temporary Storage List screen.

Line Command

S. Selects a temporary storage area for processing.

Fields

Field	Description
System ID	Specifies the system ID where the resources are being acquired. For non-MRO installations, the SYSID always represents the connected CICS region. If you are running under MRO and you are in an active test session, the SYSID reflects the region that is currently active for the test. If you are running under MRO and you are not in an active test session, the SYSID is equal to the value specified in the Current SYSID field on the Remote Connections screen.
Name	Specifies the Temporary Storage name. This field can be displayed in character or pseudo-hex format. Pseudo-hex format is used if the Temporary Storage name contains non-display characters.
Type	Specifies the Temporary Storage type. This column contains either QUEUE or NON-QUEUE for CICS 4.1 and below. NON-QUEUE means the QUEUE was created by a CICS system PUT rather than a WRITEQ. Attempts to read NON-QUEUE designated queues return an INVALID REQUEST message, just as an EXEC CICS READQ would. For CICS/TS, there is no NON-QUEUE designation. Instead, all queues' names beginning with the CICS-reserved prefixes of **, $$, FA-FF, and DF are designated as type SYS. CEBR queues created by the COBOL II FDUMP option are designated COB2.
Location	Specifies the storage location of the Temporary Storage queue, either MAIN or AUXILIARY. For CICS/TS, the entry in the Location field is followed by the name of the transaction that created the TS QUEUE.

Initiating Temporary Storage Processing Options

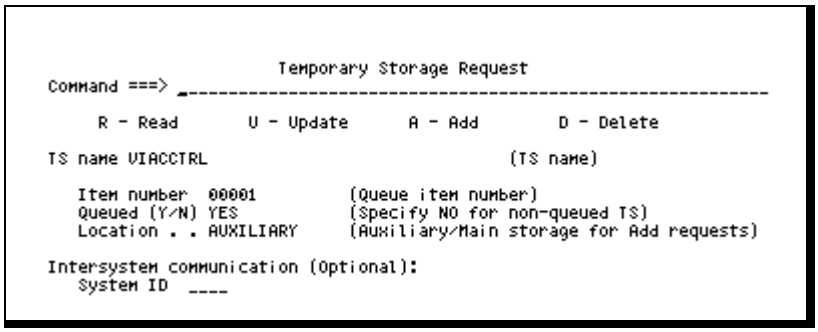
The Temporary Storage Request pop-up provides read, update, add, and delete request capability for a specified Temporary Storage name. Other data entry fields are provided to allow entry of specific key and access information required for the service desired.

To specify processing options and access a temporary storage area

1 On the CICS File Services screen, specify the full temporary storage name in the name field.

2 Type 2 in the primary command area and press Enter. The Temporary Storage Request pop-up, shown in Figure 31, displays. You can also display this screen from the Temporary Storage List screen by typing S to select the desired temporary storage area and pressing Enter.

Figure 31 • Temporary Storage Request Pop-up



3 Type the appropriate field information and type the letter of the desired processing option in the primary command area and press Enter to display the Temporary Storage List screen.

4 Press PF3/PF15 to exit the Temporary Storage Request screen.

Options

Option	Description
R	Reads a record from the TS NAME specified and displays the record contents on the Temporary Storage List screen.
U	Reads a record from the TS NAME specified, displays the record contents on the Temporary Storage List screen, and prepares the record for data and/or length changes.
A	Displays a blank record on the Temporary Storage List screen and prepares the blank record for data and/or length changes and additions to the Temporary Storage specified.
D	Deletes the record from the specified Temporary Storage area.

Fields

Field	Description
TS name	Specifies the Temporary Storage name for which File Services are desired. The name entered in the TS (Temporary Storage) name field of the CICS File Services screen or the name selected from the Temporary Storage List screen displays in this field when the Temporary Storage Request screen is initially displayed. You can change this field to request a Temporary Storage name that is different from the name previously specified. This name can be entered in character or pseudo-hex format. Pseudo-hex may be used at any time, but is normally only used for Temporary Storage names that contain non-display characters.
Item number	Specifies the relative queue record number for the request. This field is for QUEUED Temporary Storage only.
Queued (Y/N)	Indicates whether the Temporary Storage name entered is a queue.
Location	Specifies the location of Temporary Storage. Type `MAIN` if ADD requests are to create new Temporary Storage in main storage or `AUXILIARY` if added Temporary Storage is auxiliary storage.
Intersystem Communication (Optional)	Specifies the system ID. The system ID of the CICS region where the Temporary Storage name specified is to be accessed.

Usage Notes

Queued and Non-queued Temporary Storage is completely accessible on the local (connected) CICS. However, only Queued Temporary Storage may be accessed on remote CICS regions.

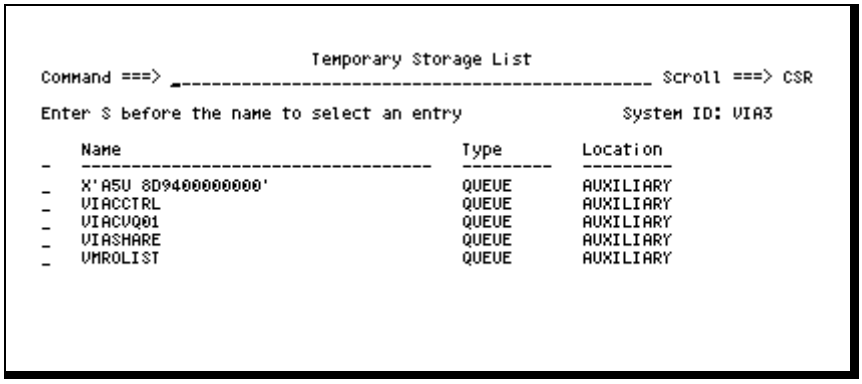
Browsing, Modifying, Adding, and Deleting Temporary Storage Records

The Temporary Storage List screen displays after a read, update, or add request is made on the Temporary Storage Request pop-up.

To browse, modify, add, and delete records in the selected area

1 On the Temporary Storage Request pop-up, type R in the primary command input area and press Enter. The Temporary Storage List screen, shown in Figure 32, displays.

Figure 32 • Temporary Storage List Screen



2 Type the appropriate field information and type the letter of the desired option in the primary command area.

3 Press PF3/PF15 to exit.

Options

Option	Description
N - Next	Reads the next higher sequential Temporary Storage record and initiates a browse forward mode. After typing N once, press Enter to browse the next higher sequential record (if any).
P - Previous	Reads the next lower sequential record at the temporary storage location and initiates a browse backward mode. After typing P once, press Enter to browse the next lower sequential record (if any).
U - Update	Updates the record currently displayed on the Temporary Storage List screen.

Option	Description
A - Add	Adds a new record to the Temporary Storage and uses the record currently displayed on the Temporary Storage List screen as a template to create a new record.
D - Delete	Deletes the currently displayed Temporary Storage area.

Fields

Field	Description
Current TS	Specifies the Temporary Storage name whose data is currently displayed on the Temporary Storage List screen.

Type	Provides a description of the Temporary Storage whose data is currently displayed on the Temporary Storage List screen. This information, depending on TS type, may be displayed:
	
	`QUEUE  Queued Temporary Storage`
	`NON-QUEUE  Non-queued Temporary Storage`

System ID	Specifies the system ID of the CICS region where the Temporary Storage whose data is currently displayed on the Temporary Storage List screen resides.
Current Mode	Specifies the type of CICS File Services activity that is currently being processed. These are the descriptions of the possible current modes:
READ	Specifies the current record is available for viewing only.
READ NEXT	Specifies the current record is available for viewing only. The next sequential record on Temporary Storage may be read and displayed by pressing Enter.
READ PREVIOUS	Specifies the current record is available for viewing only. The previous sequential record on Temporary Storage may be read and displayed by pressing Enter.
UPDATE	Specifies the current record is available for viewing and changing. Upon completion of all data and/or length changes, the record may be updated by pressing Enter. When the record has been updated an `Update Complete` message displays and the record is redisplayed for viewing.

Field	Description
ADD	Specifies the current record is available for viewing and data changes. Upon completion of all data and/or record length changes, the record may be added to Temporary Storage by pressing Enter. When the record has been added to Temporary Storage, an `Add Complete` message displays and the record is redisplayed for viewing.
DELETE	Specifies the current Temporary Storage (non-queue only) is deleted when you press Enter. When the Temporary Storage has been deleted, a `Delete Complete` message displays and the Temporary Storage Request screen displays.
Location	Specifies the current or requested position of the data on the Temporary Storage List screen. To change the beginning position of the display, enter the desired starting location.
Length	Specifies the current or requested record length of the record displayed on the Temporary Storage List screen. The record length may be changed during ADD and UPDATE processing of variable length records.
ITEM	Specifies the key (if applicable) for the current Temporary Storage record currently displayed or the requested key of a different record. For queued Temporary Storage, the key is the relative entry number of a record in a Temporary Storage Queue. For non-queued Temporary Storage, the Item field is not applicable.
data display area	Specifies the data display area consists of six columns of data. The first column contains the location in the record of the data on the line. The second through fifth columns contain the contents of the record at the specified location in hexadecimal format. The sixth column, bordered by asterisks (*), contains the contents of the record in display (EBCDIC) format. Data may be changed in the data display (hexadecimal or display) area while in UPDATE mode or ADD mode. Display data (column six) is changed by typing over the character values with new character values. Hexadecimal data (second through fifth columns) is changed by typing over the hexadecimal values with new valid hexadecimal values or with pseudo-hex data. Pseudo-hex input may include pairs of valid hexadecimal characters and/or alphanumeric characters. Each alphanumeric character is followed by a space. When alphanumeric data is entered, the hexadecimal equivalent is generated. For example, entering the pseudo-hex string '`C A T`' generates the hexadecimal '`C3C1E3`'.

Usage Notes

The data is (by default) shown with a starting location, record length, and line location in the decimal format. Also, each line contains twenty (four groups of five) characters and the line locations are calculated relative to 1.

To display information in hexadecimal format with line locations calculated relative to 0 (zero), type `SET HEX ON`. When performing updates, adds, and deletes, confirmation messages are displayed to allow you to review the changes prior to the actual Temporary Storage file update. Press Enter to confirm the update. To reverse the changes, type `END`.

Transient Data

Listing and Selecting DCT Names

The Transient Data List screen is a directory of Destination Control Table (DCT) names. This screen displays only when the TD Name specified on the CICS File Services screen is omitted or is specified with an * (asterisk).

To select an available transient data area for processing

1. On the CICS File Services screen, leave the transient dataname blank or enter a partial transient data area name with wildcard characters.

2. Type `3` in the primary command input area and press Enter. The Transient Data List screen, shown in Figure 33, displays with a list of the transient data area names (in the currently connected CICS) that match the pattern requested. If the transient dataname is left blank, all files are listed.

Figure 33 • Transient Data List Screen

```
                          Transient Data List
Command ===> _____________________________________________ Scroll ===> CSR

Enter S before the name to select an entry              System ID: VIA3

     Name     Indirect     Type          Status
_    ----      ----       ------        ------------------
_    CADL       CSSL
_    CAIL       CSSL
_    CCPI       CSSL
_    CCSE       CCSO
_    CCSO                  EXTRA         OPEN     ENABLED
_    CDBC       CSSL
_    CDUL       CSSL
_    CESE                  EXTRA         OPEN     ENABLED
_    CESO                  EXTRA         OPEN     ENABLED
_    CMIG       CSSL
_    CPLD       CPLI
_    CPLI                  EXTRA         OPEN     ENABLED
_    CRDI       CSSL
_    CSCC       CSSL
_    CSCS       CSSL
_    CSDL       CSSL
_    CSFL       CSSL
```

3 Type S to the left of a DCT name and press Enter to display the Transient Data Request pop-up.

4 Press PF3/PF15 to exit the Transient Data List screen.

Line Command

S. Selects a Transient Data queue for processing.

Fields

Field	Description
System ID	Specifies the system ID where the resources are being acquired. For non-MRO installations, the SYSID always represents the connected CICS region. If you are running under MRO and you are in an active test session, the SYSID reflects the region that is currently active for the test. If you are running under MRO and you are not in an active test session, the SYSID is equal to the value specified in the Current SYSID field on the Remote Connections screen.
Name	Specifies the DCT name or alias.
Indirect	Specifies the DCT name for which the name in the preceding column is an alias.
Type	Specifies the type of Transient Data queue. This field contains INTRA (intra-partitional), EXTRA (extra-partitional), or REMOTE. REMOTE indicates that the DCT does not reside in the currently connected CICS. This field is blank for INDIRECT (alias) DCTs.
Status	Specifies the current status of the file. The Status field contains two parts. The first part of the field indicates whether the file is OPEN or CLOSED. The second part indicates whether the file is ENABLED, DISABLED, or UNENABLED. No status information displays for REMOTE Transient Data queue (DCT).

Initiating Transient Data Processing Options

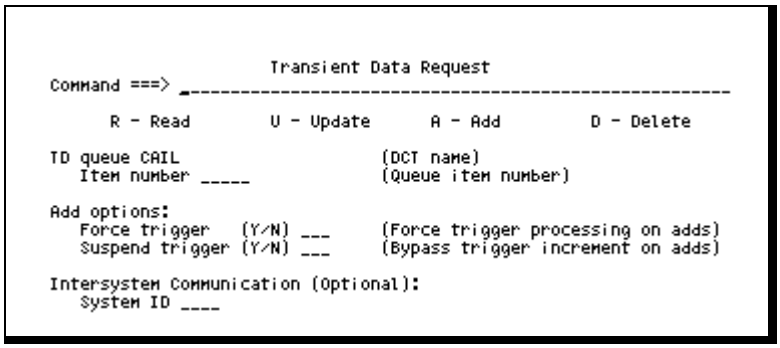
The Transient Data Request pop-up provides read, update, add, and delete request capability for a specified Transient dataname. Other data entry fields are provided to allow entry of specific key and access information required for the service desired.

To specify processing options and access the selected area

1 On the CICS File Services screen, type the full name in the Transient Data List name field.

2 Type 4 in the primary command input area and press Enter. The Transient Data Request pop-up, shown in Figure 34, displays. You can also display this screen from the Transient Data List screen by typing S to select the transient data area and pressing Enter.

Figure 34 • Transient Data Request Pop-up



3 Type the letter of the desired option and press Enter to display the Transient Data Display screen. See "Browsing, Modifying, Adding, and Deleting Transient Data Areas" on page 82.

4 Press PF3/PF15 to exit.

Options

Option	Description
R - Read	Reads a record from the TD QUEUE specified and displays the record contents on the Transient Data Display screen.
U - Update	Reads a record from the TD QUEUE specified, displays the record contents on the Transient Data Display screen, and prepares the record for data changes.
A - Add	Displays a blank record on the Transient Data Display screen and prepares the blank record for data changes and additions to the TD QUEUE specified.
D - Delete	Deletes the record from the specified Transient Data queue.

Fields

Field	Description
TD queue	Specifies the Transient Data queue name (DCT) for which File Services are desired. The name entered on the CICS File Services screen or the name selected from the Transient Data List screen displays here when the Transient Data Request pop-up is initially displayed. This field may be changed to request an FCT name different from the name previously specified.
Item number	Specifies the relative queue record number for the request (QUEUED Transient Data only).
Add options	Specifies the type of trigger processing. These are the valid types: • Force trigger (Y/N). YES causes an Automatic Task Initiation (ATI) on each added transaction. NO indicates that normal trigger processing takes place (unless SUSPEND = YES). • Suspend trigger (Y/N). YES bypasses ATI transaction processing, if applicable, whenever a queue entry is added with File Services. NO indicates normal trigger processing (unless TRIGGER = YES). The default value is NO.
Intersystem communication (Optional)	Specifies the system ID of the CICS region where the specified transient dataname is to be accessed.

Usage Notes

Full Transient Data processing capability exists for the local (currently connected) CICS. Non-destructive browses and updates, as well as adds and deletes, can be performed. In addition, the triggering of ATI transactions on intra-partition Transient Data may be controlled on the local CICS.

Processing of Transient Data in remote CICS regions is somewhat restricted. Any read, browse, or update activity on remote Transient Data items results in destruction of the data item. Also, the ATI triggering features are unavailable for remote Transient Data.

Browsing, Modifying, Adding, and Deleting Transient Data Areas

The Transient Data Display screen displays after read, update, or add is specified on the Transient Data Request pop-up.

To browse, modify, add, and delete records in the selected area

1 On the Transient Data Request pop-up, type R in the primary command input area and press Enter. The Transient Data Display screen, shown in Figure 35, displays.

Figure 35 • Transient Data Display Screen

```
                        Transient Data Display
Command ===> ____________________________________________ Scroll ===> CSR

     N - Next    P - Previous    U - Update    A - Add     D - Delete
Current TD LUT1      Type QUEUE
                                                 System ID VIAT
Current Mode: READ                  Location 00001     Length 00080
ITEM    . 00001
  DEC   - - - - 5  - - - - 10 - - - - 15 - - - - 20    ----+----1----+----
 00001  C2C9D3D3C9 D5C77ED56B E2C9C7D5E3 C1C27EE840  * BILLING=N,SIGNTAB=Y  *
 00021  4040404040 4040404040 4040404040 4040404040  *                       *
 00041  4040404040 4040404040 4040404040 4040404040  *                       *
 00061  4040404040 4040404040 4040404040 4040404040  *                      *
```

2 Type the appropriate field information, type the letter of the desired processing option in the primary command input area, and press Enter.

3 Press PF3/PF15 to exit.

Options

Option	Description
N - Next	Reads the next higher sequential TD QUEUE entry and initiates a browse forward mode. After typing N once, press Enter to browse the next higher sequential entry.
P - Previous	Reads the next lower sequential TD QUEUE entry and initiates a browse backward mode. After typing P once, press Enter to browse the next lower sequential entry.
U - Update	Updates the record currently displayed on the Transient Data Display screen.
A - Add	Adds a new entry to the Transient Data queue and uses the record currently displayed on the Transient Data Display screen to create a new entry.
D - Delete	Deletes the entry currently displayed on the Transient Data Display screen.

Fields

Field	Description
Current TD	Specifies the Transient Data queue whose data is currently displayed on the Transient Data Display screen.
Type	Provides a description of the Transient Data queue whose data is currently displayed on the Transient Data Display screen.
System ID	Specifies the system ID of the CICS region where the transient data queue whose data is currently displayed on the Transient Data Display screen resides.
Current Mode	Specifies the Current Mode Type of File Services activity that is currently being processed. These are the descriptions of the possible current modes:
READ	Indicates that the current record is available for viewing only.
READ NEXT	Indicates that the current record is available for viewing only. The next sequential record on the Transient Data queue may be read and displayed by pressing Enter.
READ PREVIOUS	Indicates that the current record is available for viewing only. The previous sequential record on the Transient Data queue may be read and displayed by pressing Enter.
UPDATE	Indicates that the current record is available for viewing and changing. Upon completion of all data and/or length changes, the record may be updated by pressing Enter. When the record has been updated, an `Update Complete` message displays and the record is redisplayed for viewing.
ADD	Indicates that the current record is available for viewing and data changes. Upon completion of all data and/or record length changes, the record may be added to the Transient Data queue by pressing Enter. When the record has been added an `Add Complete` message displays and the record is redisplayed for viewing.
DELETE	Indicates that the current record is deleted when you press Enter. When the record has been deleted from the transient data queue, a message displays and the next sequential record is read and displayed.
Location	Specifies the current or requested position of the data on the Transient Data Display screen. To change the beginning position of the display, enter the desired starting location.

Field	Description
Length	Specifies the current or requested record length of the record currently displayed on the Transient Data Display screen. The record length may be changed during ADD and UPDATE processing of variable length records.
Item	Specifies the key (if applicable) for the Transient Data record currently displayed on the Transient Data Display screen or the requested key of a different record to be displayed. For queued Transient Data, the key is the relative entry number of a record in a Transient Data Queue. **Note:** For non-queued Transient Data, the Item field is not applicable.
data display area	Specifies the data display area consists of six columns of data. The first column contains the location in the record of the data on the line. The second through fifth columns contain the contents of the record at the specified location in hexadecimal format. The sixth column, bordered by asterisks (*), contains the contents of the record in display (EBCDIC) format.

Usage Notes

The data is (by default) shown with a starting location, record length, and line location in the decimal format. Also, each line contains twenty (four groups of five) characters and the line locations are calculated relative to 1. To display information in hexadecimal format with the line locations calculated relative to 0 (zero), issue the SET HEX ON primary command.

When performing updates, adds, and deletes, confirmation messages are displayed to allow you to review the changes prior to the actual Transient Data file update. To confirm the changes, press Enter when the confirmation messages appear. To reverse the changes, type `END`.

DL/I Data

Listing and Selecting DL/I PSBs

The DL/I PSB List pop-up is bypassed when you enter a full PSB (Program Specification Block) name in the DL/I field on the CICS File Services screen.

To list and select a PSB for processing

1. On the CICS File Services screen, leave the PSB name blank or enter a pattern with wildcard characters.

2. Type 4 in the primary command input area on the File List screen and press Enter. The DL/I PSB List pop-up, shown in Figure 36, displays with a list of PSB names that match the pattern requested. If you leave the PSB field blank or enter an asterisk (*), all PSBs are listed.

Figure 36 • DL/I PSB List Pop-up

```
                          DL/I PSB List
Command ===> _____________________________________________ Scroll ===> CSR

Enter S before the name to select an entry              System ID: VIAV

      Name
-   --------
_   DFHSAM24
_   DFHSAM25
```

3. To select a PSB for processing, type S to the left of the entry and press Enter to display the DL/I Data Request screen. See "Initiating DL/I Data Processing Options" on page 86.

4. Press PF3/PF15 to exit.

Line Command

S. Select the PSB for processing.

Field

Name. The PSB name associated with the DL/I data to be processed.

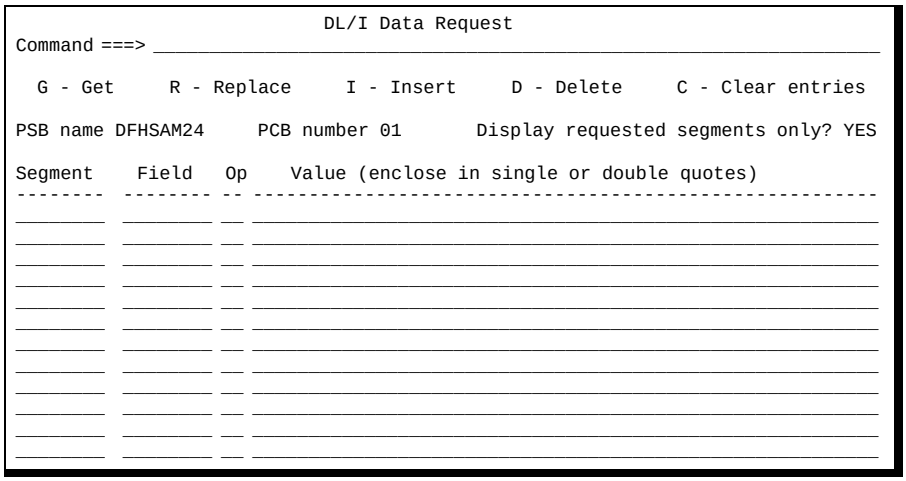
Initiating DL/I Data Processing Options

The DL/I Data Request screen provides get, replace, insert, and delete request capability for the PSB name specified on the CICS File Services screen. Data entry fields are provided to allow entry of PSB name, PCB number (or DBDNAME), and an option to display only requested segments. It also provides segment qualification information required for the File Services desired.

To specify processing options and access the PSB

1. On the CICS File Services screen, specify the full PSB name in the PSB name field, type 4 in the primary command input area, and press Enter. The DL/I Data Request screen, shown in Figure 37, displays. You can also display this screen from the DL/I PSB List screen by typing S to select the desired file and pressing Enter.

Figure 37 • DL/I Data Request Screen



2. Type the appropriate field information and type the letter of the desired processing option in the primary command input area.

3. Press PF3/PF15 to exit.

Options

Option	Description
G - Get	Reads a segment from the DL/I PSB/PCB specified and displays the segment contents on the DL/I Data Display screen.
R - Replace	Reads a segment from the DL/I PSB/PCB specified, displays the segment contents on the DL/I Data Display screen, and prepares the segment for data changes.

Option	Description
I - Insert	Displays a blank segment on the File Display screen and prepares the blank segment for data and/or length changes and additions to the PSB/PCB specified. If segment qualification information is provided, an attempt is made to read a segment to be used as a model for the insert.
D - Delete	Deletes a segment from the DL/I PSB/PCB specified.
C - Clear entries	Removes all segment qualification information from the input area.

Fields

Field	Description
PSB name	Specifies the PSB name associated with the DL/I data to be processed.
PCB/DBD	Specifies the relative database PCB number associated with the DL/I data to be processed or the DBD name associated with the data.
Display requested segments only	Indicates that only the segments that meet the specified SSA qualifications entered in the segment qualification information fields display for Get Next requests. Type `NO` to display all segment types.
Segment Qualification Information Fields	Indicates that up to 15 segment qualification entries may be made in these input fields to identify the first segment to be displayed.
Segment	Specifies the segment name. This is a required field. The Field, Op, and Value fields qualify this field entry.
Field	Specifies the name of the field that qualifies the segment search.

Field	Description
Op	Specifies a relational operator used to compare the qualifying field with the first value in the Value field. These are the valid entries: = or EQ — Equal > or GT — Greater than < or LT — Less than >=, => or GE — Greater than or equal <=, =< or LE — Less than or equal ¬=, =¬ or NE — Not equal
Value	Indicates a value to be compared with the contents of the Field using the relational operator specified in the Op field. Entries in the Value field are recognized as character by default. The length of the Value entered must exactly match the length of the corresponding field. Leading and trailing blanks must be included by surrounding the Value in quotes or parentheses. To enter a hex value, precede the hex data by X and a single quote (X') and follow it with a single quote ('). A compound SSA can be created using & (and) and | (or) to concatenate arguments in the Value field.

Note:

See "Compound SSAs" on page 92 for more information about compound SSAs.

Browsing, Replacing, Inserting, and Deleting DL/I Data

To browse, replace, insert, or delete the DL/I segment

1 Type G (Get), R (Replace), I (Insert), or D (Delete) in the command input area on the DL/I Data Request screen and press Enter. The DL/I Data Display screen, shown in Figure 38, displays.

Figure 38 • DL/I Data Display Screen

```
                          DL/I Data Display
Command ===> _____________________________________________ Scroll ===> CSR

  N - Get Next   P - Get Next Parent   R - Replace   I - Insert   D - Delete

Current Mode: GET UNIQUE                                  System ID: VIAV
    PSB: DFHSAM24       Type: PCB(01)
Segment: PARTROOT      Level: 01              Position: 00001  Length: 00050

Key:  'VIAWPV VALLIERE  '
      ____________________________________________________________________
  Dec   - - - - 5  - - - - 10 - - - - 15 - - - - 20    ----+----1----+----2
 00001  E5C9C1E6D7 E540E5C1D3 D3C9C5D9C5 4040404040  * VIAWPV VALLIERE      *
 00021  C4D6C7E240 40C3C1E3E2 4040404040 4040404040  * DOGS  CATS           *
 00041  E3C8C9E240 C9E240E2D6                        * THIS IS SO           *
```

2 Type the appropriate field information and type the letter of the desired option in the primary command input area.

3 Press PF3/PF15 to exit.

Options

Option	Description
N - Get Next	Obtains the next higher sequential segment on the database and initiates browse forward mode. After typing N once, press Enter to browse the next higher sequential segment on the database. If you typed YES in the Display requested segments only field on the DL/I Data Request pop-up, typing N gets the next sequential segment that matches the entered segment qualification.
P - Get Next Parent	Obtains the next higher sequential segment on the database that is associated with the current parent segment, establishes the displayed segment as the parent segment, and initiates browse forward mode. After typing P once, press Enter to browse the next higher sequential segment on the database (for the current parent only).
R - Replace	Replaces the current segment with data changes.
I - Insert	Inserts a new segment in the database and use the current segment as a model for creating the new segment.
D - Delete	Deletes the current segment.

Fields

Field	Description
Current Mode	Specifies the type of DL/I Services activity that is currently being processed.
System ID	Specifies the system ID of the CICS region.
PSB	Specifies the PSB name associated with the database being processed.
Type	Provides a brief description of the parameters entered on the DL/I Request screen. The PCB number, the DBD name and the Display Only option may display when the DL/I Display screen displays.
Segment	Specifies the segment name of the segment currently being displayed. This field entry can be changed to request a different segment.

Field	Description
Level	Specifies the hierarchical level of the segment currently being displayed.
Position	Specifies the current or requested position of the data on the DL/I Display screen. To change the beginning position of the display, enter the desired starting location.
Length	Specifies the current segment length of the current segment. The segment length may be changed during INSERT and REPLACE processing.
Key	Specifies the key of the segment currently being displayed. This field displays only 128 bytes. If the key of the current segment is longer than 128 bytes, only 128 bytes displays and the Key field is display only. If the key of the current segment is less than 129 bytes, you can display another segment by entering its key in this field.
data display area	Specifies the data display area consists of six columns of data. The first column contains the location in the segment of the data on the line. The second through the fifth columns contain the contents of the segment at the specified location in hexadecimal format. The sixth column, bordered by asterisks (*), contains the contents of the segment in display (EBCDIC) format. Note that the data display area may be shown with decimal or hexadecimal displacements, etc. Type `SET HEX ON` to display hexadecimal information or `SET HEX OFF` to display decimal information.

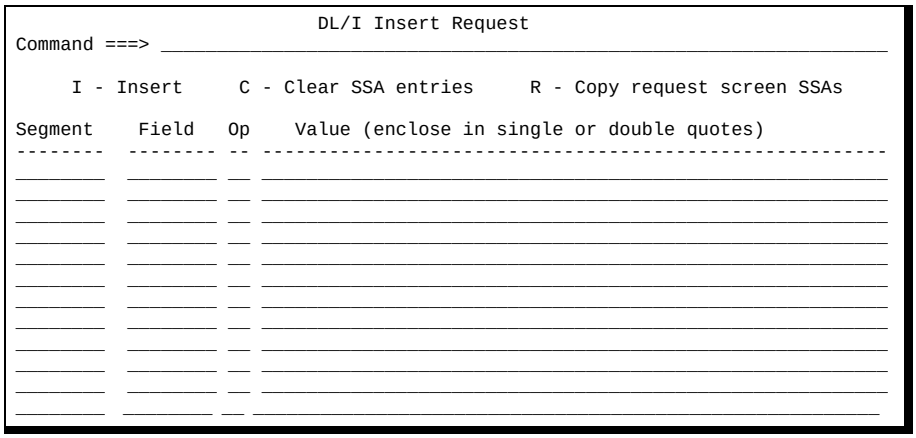
Entering DL/I SSA Information

The DL/I Insert Request screen allows entry of segment search argument (SSA) information to fully qualify a segment being inserted into the DL/I database. You can make a maximum of 15 SSA information entries in the input fields to identify the segment being inserted. You can also create compound SSAs. All segment hierarchy levels must be provided to correctly complete the segment insert.

To qualify and insert a segment or segments

1 On the DL/I Data Request screen, type `I` in the primary command input area and press Enter. The DL/I Insert Request screen, shown in Figure 39, displays.

Figure 39 • DL/I Insert Request Screen



2 Type the appropriate information in the fields and enter the letter of the desired option in the primary command input area. Press Enter to process the command.

3 Press PF3/PF15 to exit.

Options

Option	Description
I - Insert	Inserts the segment using the specified SSA information.
C - Clear SSA entries	Clears all previously entered SSA information.
R - Copy request screen SSAs	Copies all entries from the Segment, Field, Op, and Value fields on the DL/I Data Request screen to the Segment, Field, Op, and Value fields of the DL/I Insert Request screen.

Fields

Field	Description
Segment	Specifies the segment name.
Field	Specifies the name of the field that qualifies the segment search.

Field	Description
Op	Specifies a relational operator used to compare the qualifying field with the first value in the Value field. These are the valid entries = or EQ Equal > or GT Greater than < or LT Less than >=, => or GE Greater than or equal <=, =< or LE Less than or equal ¬=, =¬ or NE Not equal
Value	Specifies a value or field to be compared with the contents of the Field using the relational operator specified in the Op field. Entries in the Value field are recognized as character by default. The length of the Value entered must exactly match the length of the corresponding field. Leading and trailing blanks must be included by surrounding the Value in quotes or parentheses. See the example on page 93 for a sample of this format. To create a compound SSA by using & (and) and | (or) to concatenate arguments in the Value field. Instructions for creating a compound SSA are described in Compound SSAs.

Compound SSAs

A compound SSA can be created using & (and) and | (or) to concatenate arguments in the Value field on the DL/I Insert Request and DL/I Data Request screens. These DL/I SSA rules apply.

- The & or | must immediately follow the first value.
- Components of the compound SSA are not separated by blanks.
- Field names must be exactly 8 characters long and may include trailing blanks.
- Relational operators must be exactly 2 bytes long and may include one trailing blank.
- The length of the value portion of an SSA must exactly match the length of the corresponding field.

This is an example of a value field entry with multiple arguments with both hex and character data:

```
Segment     Field   Op    Value
--------  -------- -- ------------------------------------------------------
SEGMENT1    FIELD1   >  ('35&FIELD2  > X'F0')
```

This example finds segments in which the value of the contents of FIELD1 is greater than 35 and the value of the contents of FIELD2 is greater than the hex value 'F0'.

DB2 Tables and Views

To list and select all of the tables and views

1. On the CICS File Services screen, type * (asterisk) or a partial table or view name with wildcard characters in the DB2 Table/View name field.

2. Type 5 in the command input area and press Enter. The DB2 Table/View List screen, shown in Figure 40, displays.

Figure 40 • Table/View List Screen

```
                          Table/View List
Command ===> _____________________________________________ Scroll ===> CSR

Table/View:                                                      Sysid VIAV

  TABLE/VIEW NAME    CREATOR  CARDS/ROWS  TYPE
  ------------------ -------- ----------- -----
_ VACT               AZVI210           -1 VIEW
_ ACT                AZVI210          +18 TABLE
_ VDEPMG1            AZVI210           -1 VIEW
_ VDEPT              AZVI210           -1 VIEW
_ DEPT               AZVI210           +9 TABLE
_ VEMPLP             AZVI210           -1 VIEW
_ VPHONE             AZVI210           -1 VIEW
_ VASTRDE2           AZVI210           -1 VIEW
_ VEMP               AZVI210           -1 VIEW
_ EMP                AZVI210          +32 TABLE
_ EEPA               AZVI210           -1 TABLE
_ EPROJACT           AZVI210           -1 TABLE
_ EACT               AZVI210           -1 TABLE
_ EPROJ              AZVI210           -1 TABLE
_ EEMP               AZVI210           -1 TABLE
_ EDEPT              AZVI210           -1 TABLE
_ VSTAFAC2           AZVI210           -1 VIEW
```

3. To select a DB2 Table/View for editing, use the S line command and press Enter to display the DB2 Request screen. See "Initiating DB2 Processing Options" on page 94.

4. Press PF3/PF15 to exit.

Line Command

S: Type S in the line command area to access the table or view.

Fields

Field	Description
TABLE/VIEW NAME	Specifies the name of the table or view.
CREATOR	Identifies the SYSTABLES creator of the table or view.
CARDS/ROWS	Indicates the total number of rows in the table/view. A value of -1 indicates that there are no rows to be selected.
TYPE	Specifies the type of table. TABLE indicates that the TABLE/VIEW NAME represents an entire table. VIEW indicates that the TABLE/VIEW NAME represents a table segment. ALIAS indicates an alias name of an existing table or view.

Initiating DB2 Processing Options

To access row and column information for the specified table/view, use the DB2 Request screen. This information is used by the DB2 Display and Execute SQL features.

To display row and column data

1. On the CICS File Services screen, specify the full table/view name in the DB2 Table/View name field.

2. Type S in the command input area and press Enter. The DB2 Request screen, shown in Figure 41, displays. You can also display this screen from the DB2 Request screen by typing S to select the desired table and pressing Enter.

Figure 41 • DB2 Request Screen

```
                              DB2 Request
Command ===> _____________________________________________ Scroll ===> CSR

             1 - Select column data   2 - Build a statement

Statement:     1:Select  2:Update  3:Insert  4:Delete

Table/View: AZVI210.VDEPMG1                                    Sysid VIAV
Creator ID: SYSDB2

  Columns                        Where Conditions (trailing 'AND' assumed)

_ DEPTNO                         ____________________________________________
_ DEPTNAME                       ____________________________________________
_ MGRNO                          ____________________________________________
_ FIRSTNME                       ____________________________________________
_ MIDINIT                        ____________________________________________
_ LASTNAME                       ____________________________________________
_ ADMRDEPT                       ____________________________________________
```

3. Type the appropriate field information and type the letter of the desired processing option in the primary command area.

4 Type S to the left of the columns to be viewed and press Enter.

5 Press PF3/PF15 to exit.

Options

Option	Description
1 - Select column data	Displays the row and column data as selected at the bottom of this screen. If no columns are selected, all columns are shown.
2 - Build a statement	Displays the Execute SQL Statement screen. The Execute SQL Statement screen displays with a model of the SQL statement to be executed and includes any selected columns. The generated statement may be executed immediately or edited prior to execution.

Line Command

S. Selects columns to be viewed.

Fields

Field	Description
Statement	Specifies the type of statement. When you type 2 in the primary command input area, type 1, 2, 3, or 4 to produce an SQL Select, Update, Insert, or Delete statement respectively on the Execute SQL Statement screen.
Table/View	Specifies the table or table segment (view) that is being accessed.
Creator ID	Specifies the DB2 SYSTABLES catalog prefix name.
Sysid	Specifies the 4-byte system ID for the current CICS region.

Field	Description
Columns	Specifies the column names of the table or table segment (view).
Where Conditions	Specifies the search criteria used to qualify selected rows for the selected column. With these exceptions, the syntax for Where conditions is exactly as it would be for a standard SQL request: • The column name is assumed for the first part of a compound condition. • The AND operator is assumed for the end of each Where Condition line. These are the operators that are supported: = Equal < Less than > Greater than ¬= or <> Not equal ¬< or >= Greater than or equal ¬> or <= Less than or equal

Example

For the column DEPTNO:

```
= '100' OR DEPTNO >= '200'
= '100' AND (LASTNAME = 'SMITH' OR LASTNAME = 'JONES')
```

Note:

Values are case sensitive.

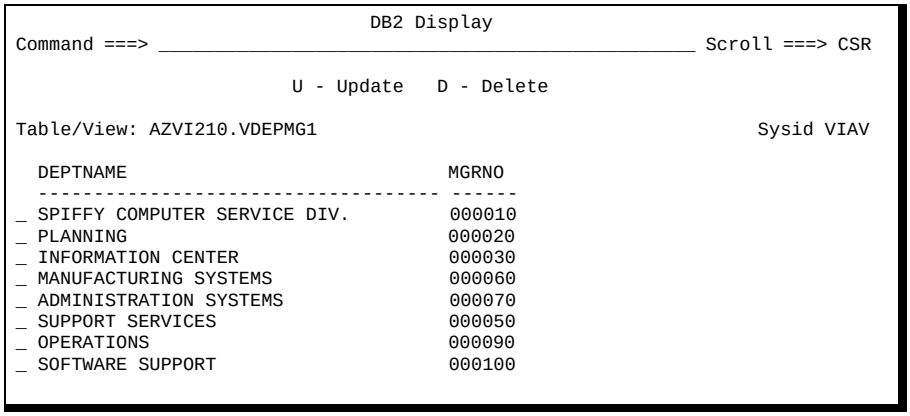
Displaying DB2 Data

Use the DB2 Displays screen to display the rows and columns of data for a specified table or view. The number of rows and columns displayed is limited by any column selection criteria and Where conditions.

To display and modify a DB2 table or view

1 On the DB2 Request or Execute SQL Statement screen, type `1` in the primary command input area and press Enter. The DB2 Display screen, shown in Figure 42, displays.

Figure 42 • DB2 Display Screen



```
                              DB2 Display
Command ===> ____________________________________________________ Scroll ===> CSR

                         U - Update   D - Delete

Table/View: AZVI210.VDEPMG1                                          Sysid VIAV

  DEPTNAME                            MGRNO
  ----------------------------------- ------
_ SPIFFY COMPUTER SERVICE DIV.        000010
_ PLANNING                            000020
_ INFORMATION CENTER                  000030
_ MANUFACTURING SYSTEMS               000060
_ ADMINISTRATION SYSTEMS              000070
_ SUPPORT SERVICES                    000050
_ OPERATIONS                          000090
_ SOFTWARE SUPPORT                    000100
```

2 Type the letter of the desired option, then type `S` next to the row and column to be edited.

3 Press PF3/PF15 to exit.

Line Command

Line Command	Description
S	Selects rows to be updated or deleted.
data display area	Specifies that the table displays here in columns and rows. The Column names (e.g., DEPTNAME, MGRNO) appear at the top of each column. Numeric fields are right justified, and character fields are left justified. Scrolling right and left is done with the Right and Left commands, which are sensitive to the data type. Numeric type fields (non-character) always show entirely on the screen. If there is not enough room to show an entire numeric field, you can scroll right or left to view it. Character data that exceeds the current screen is continued on the next or prior screen and a continuation symbol (< or >) is displayed to indicate that some of the data contents for the given column are on an adjacent screen.

Options

Option	Description
U - Update	Updates selected rows. Rows that have been selected (by placing an S in the line command area) are highlighted for editing. Press Enter to accept changes.
D - Delete	Deletes selected rows.

Fields

Field	Description
Table/View	Specifies the table or table segment (view) that is being accessed.
Sysid	Specifies the 4-byte system ID for the CICS region that is currently being communicated with.

Entering and Modifying SQL Statements

To input SQL statements

1 On the DB2 Request screen, type 2 in the command input area and press Enter. The Execute SQL Statement screen, shown in Figure 43, displays.

Figure 43 • Execute SQL Statement Screen

```
                        Execute SQL Statement
Command ===> _____________________________________________ Scroll ===> CSR

                              1 - Execute
Table/View: AZVI210.VDEPMG1                                    Sysid VIAV
******************************** TOP OF SQL ********************************

DELETE FROM AZVI210.VDEPMG1
Where search_condition
```

2 Input the SQL information in the SQL input area.

3 Type 1 in the primary command input area to execute the SQL statements entered.

4 Press PF3/PF15 to exit.

Option

1 - Execute: Execute SQL statements entered in the SQL input area.

Fields

Field	Description
Table/View	Specifies the name of the table or view that is being accessed.
Sysid	Specifies the 4-byte system ID for the CICS region that is currently being communicated with.
SQL input area	Specifies the Execute SQL input area is first displayed with a basic model of the SQL statement that was chosen on the DB2 Request screen. Any selected column names are carried forward to this area. This SQL statement may be modified as required before typing 1 in the command area. If the SQL statement is a Select statement, then the DB2 Display screen is shown upon execution. All other requests are executed and a completion message follows.

5 Remote Monitoring Facility

This chapter describes the SmartTest-CICS Remote Monitoring Facility and contains these sections:

Introduction to Option 4 - Remote (RMF) Testing

The SmartTest-CICS Remote Monitoring Facility (RMF) provides several alternatives for testing programs that are not initiated at the SmartTest terminal. As with any SmartTest-CICS test, monitoring occurs only if the CICS facility name and the load module to be tested are represented in the Protection (Monitoring) tables. See "Option 2 - Requesting Monitoring and Break on Entry (Session Tailoring)" on page 31 and "Option 3 - Monitoring in Related Regions" on page 50.

From the Remote Test Setup screen, you can identify the facility you want to test in either of the two sections on the screen. The Remote Facility ID to Test or the Asynch Transaction to Test screens. (There are several options offered in each section, so that you may choose a facility ID that distinguishes your test from other tests of the same transaction or program.) You may test LU6.2 sessions, Dynamic Program Links (DPLs) from other regions, Asynchronous transactions, Transient Data destinations, and programs running on other 3270 terminals or printers.

Once you make the appropriate entry on this screen (with the Current SYSID set properly), toggling to CICS or issuing the RUN command completes the test setup. The act of toggling to CICS (or using the RUN command and waiting on a blank CICS screen) prepares SmartTest-CICS to watch the facility you have specified. If you decide not to do the test, toggle back to TSO and delete any entries you made on the Remote Test Setup screen (to remove the SmartTest-CICS Remote Test request from the CICS region).

Note:

In CICS Multi-region Operation (MRO), the CICS transaction definition often points to another CICS region. For example, CICSTOR1 might have a transaction definition for VCOB that specifies a remote system of AOR2. You sign on to TOR1 and type `VCOB` on the screen. TOR1 automatically routes VCOB to AOR2.

If you wish to test a transaction that is defined this way to CICS (and is not Asynchronous), it is not necessary to use RMF. To set up a test for such a transaction, see "Option 3 - Monitoring in Related Regions" on page 50.

Remote Monitoring Conventions

All Remote Monitoring Facility tests have these common characteristics:

- The best results are achieved when the remote facility ID is unique to the individual test session. A remote facility may be tested by only one SmartTest user at a time. (This does not mean that only one user can do remote testing. It does mean that a particular remote facility can be tested by only one user at a time.)
- The program(s) and the facility must be specified to the correct CICS region. Global table entries (this includes all facility entries) are made only in the region to which the Current SYSID is pointing. It is possible to change the Current SYSID to that of any CICS region that shows SmartTest active on the Remote Connections screen. User Protection table entries are automatically propagated to any region that is activated on the Remote Connections screen.
- There must not be any transaction or test session running at the SmartTest terminal at the time the remote test is being attempted. Any related transaction initiated from the SmartTest terminal must be run to completion, and the SmartTest-CICS session must be waiting on a blank or non-conversational CICS screen.
- When a remote test is run to completion, the message `ASG2751I The Remote Monitor Facility (RMF) transaction has completed` displays on the SmartTest terminal. If the test is cancelled, the remote facility indicates an abend. This is normal.
- The entries on the Remote Test Setup screen should be deleted after the test is complete to avoid problems with subsequent test sessions.

Testing with RMF (Remote Monitoring Facility)

Specifying Remote Test Parameters

Detailed information is provided in "Option 4 - Setting Up Remote (RMF) Test (LU62, DPL, Asynch)" on page 52.

To specify test parameters before using RMF

1. Type the program(s) or transaction ID on the Test Session Tailoring screen to add them to the Protection table (following the procedure for a non-remote test). Any load module name entered in the Program (PPT) to test field on the CICS Session Setup screen is automatically added to the User Program Protection table. To make an entry to the User Program Protection table, select Option 2 on the CICS Session Setup screen or type `LIST TAILOR` to display the Test Session Tailoring screen.

2. Make sure the current active SYSID points to the region where your program actually runs. To change the current SYSID, select Option 3 on the CICS Session Setup screen or use the MRO command. (You may also change the current SYSID on the Remote Test Setup screen. See step 2 on page 108.)

3. To request Break on Entry for programs other than the first one in the transaction, use Session Tailoring. Select Option 2 on the CICS Session Setup screen or use the LIST TAILORING command.

Setting Up the Remote Test

There are many methods of submitting work in and into a CICS region. Because of this, SmartTest-CICS provides a method of uniquely identifying the facility that is associated with the program to be tested. The facility is identified through an entry on the Remote Test Setup screen.

Remote Facility Test

In terminal-oriented RMF testing, you specify a unique facility. When a monitored program runs on the specified facility, SmartTest-CICS initiates a test session. (The current SYSID should point to the region where the program actually runs before you make entries on the Remote Test Setup screen.)

Note:

Remote test setup requests can only be activated from this screen by issuing a RUN or Toggle command to go to CICS. If you toggle back to TSO or Cancel your request, you must return to this screen to reactivate your request.

Global Monitoring

SmartTest-CICS supports testing multiple regions in an MRO environment. Testing remote transactions on multiple target systems requires that the CICS regions are running on the same MVS image.

The region can participate in global remote monitoring only if these conditions are met:

- The Global RMF table has been allocated and enabled.
- The CICS system initialization parameter, RMFScope, is set to ALL in VIACEMT1 or you started global monitoring using the VIAD Start transaction.

Note:

The VIAD transaction lets you enable and disable global remote monitoring and turn RMFScope on and off. Type `VIAD START` to start global monitoring.

To set up a global remote monitoring test

1 On the CICS Session Setup screen, select Option 4 - Set up Remote (RMF) Test (LU6, DPL, Asynch) and press Enter. The Remote Test Setup screen, shown in Figure 44, displays. You can also display the Remote Test Setup screen by typing `REMOTE` on the command line and pressing Enter.

Figure 44 • Remote Test Setup Screen

```
                          Remote Test Setup
Command ===> ____________________________________________________________

  Toggle or Run FROM THIS SCREEN to enable your request.  PF1 for help.


 Remote Facility:   CICS Userid  ____        Trace/TON to CSSL is:
                    Connection   ____
             Other 3270 terminal ____
              LU6.2/IRC terminal ____
           Transient Data Destid ____

 Asynch Transaction:    Transid  ____
                         Reqid  ________

              Associated Data:  ____________________   (START data, etc.)

 Queue qualifying transactions:  N                     (Y/N)

                 Current Sysid:  CET1
    Monitor all active systems:  N
```

2 Type the facility ID under Remote Facility ID to Test or Asynchronous Transaction to Test. If you are not certain which facility ID to use, see "Determining the RMF Facility ID" on page 109.

3 Verify that Queue qualifying transaction field is set to No. You cannot specify Yes for both this field and the Monitor all active systems field.

4 Type Y in the Monitor all active systems field on the Remote Test Setup screen. This field resets to NO when you exit SmartTest.

The Monitor all active systems field displays only when these conditions are met:

- The Global RMF table has been allocated and enabled.
- The RMFScope parameter in VIACEMT1 is set to ALL.
- Monitor field is set to Yes on the Remote Connections screen.

5 Toggle to CICS or type RUN.

6 After testing, delete the entries on the Remote Test Setup screen. Make sure the Transid field is reset to NO.

Fields

Field	Description
Remote Facility ID to Test	Fill in only one of these fields.
CICS Userid	Specifies the last 4 non-blank characters of the User ID associated with the transaction instead of an actual facility name. For example, if the CICS default user ID is CICSUSER, and no user ID has been transmitted along with the transaction, type USER in this field. (Often, this is the only way you can provide a unique name.) **Note:** Typically, OS/2 gateways can be configured to propagate a unique user ID with each transaction submitted from a particular machine. This is the ideal method to ensure that a SmartTest user is able to specify a unique facility for the test.
Connection	Specifies the Connection ID associated with the transaction. The Connection ID is the name by which the region where the program runs knows the region originating the request.
Other 3270 terminal	Specifies the ID of 3270 terminal or printer where the program to be tested is initiated. The device must be active to CICS when this entry is made.

Field	Description
LU6.2/IRC terminal	Specifies the ID to be used for your test, if available. For LU6.2, the IDs are usually -9XX (or -AXX in CICS 4.1 and above). For LU6.1, the IDs are three character IDs, with the first two characters defined in the CICS session definition. For Remote Facility IDs (CICS User ID, Connection, 3270, or LU6.2/IRC): • Specify the facility and the task (transid) or program. • Toggle to CICS or type `RUN`. • Wait on a blank CICS screen while you initiate the transaction in another session or on another device. (Under SmartTest-CICS, you can monitor the activity on one side of a Remote test; e.g., for a DPL test, you can monitor the program that issues the LINK request or the program that is linked to.)
Transient Data Destid	Specifies the Transient Data DestID. To test a Transient Data DestID that is heavily used in your system, consider setting up a test DCT in CICS. Set up the test DCT to duplicate the original DCT; change only the DestID. Use the Swap Specification (Protection table) screen to swap from the original DestID to the new test DestID. Then type the test DestID in this field. (The swap feature can only be utilized if the program issuing the Transient Data WRITEQ is monitored.) For Transient Data DestIDs, start the transaction that runs the program that writes to the Transient Data queue ID. The originating transaction may be entered on any terminal (as long as it is run to completion). The Transient Data transaction is not started until the DCT trigger level is reached.
Asynchronous Transaction to Test	
Transid	Specifies the transid of the STARTed task. Try to specify an associated REQID or data to make your request unique. The next asynchronous task that matches your selection criteria is presented at your SmartTest terminal. ASG recommends that you initiate the START from another terminal. This transid only sets up the artificial association between the STARTed task and the SmartTest terminal. The transid or load module must also be in the Protection tables. This field defaults to NO and should be reset to NO when you have finished testing.

Field	Description
Reqid	Specifies the Reqid (request ID) associated with the asynchronous transaction. Entering this ID helps to differentiate among asynchronous transactions by the same name in the region. In CICS 4.1 and above, it is possible to associate a User ID with an asynchronous transaction. Enter the entire User ID in this field (not the last 4 characters as in Remote Facility testing).
Associated Data	Specifies the character data associated with the transaction. For LU 6.2 and asynchronous tests, you can monitor only when certain character data is associated with the transaction. Use this when you have many EXEC CICS STARTs for the same transid, or many transactions coming in on the same LU 6.2 connection. You can specify any 16 characters from the associated data. For a DPL test, you can specify the name of the called program.
Queue qualifying transactions	Defaults to N (No). If you type `Y`, SmartTest attempts to present qualifying transactions to your SmartTest terminal in the order that CICS dispatches them. Cancelling a queued test (instead of running it to completion) cancels all the transactions queued behind it. ASG recommends you use this feature carefully. It is only meant to be used when you cannot uniquely identify the asynchronous or LU 6.2 task with Reqid or data. **Note:** This option should be used very carefully, only if you cannot uniquely identify your asynchronous transaction, and should be turned off as soon as the desired test is completed. If more than one user requests queuing for the same transaction ID, the first user ID encountered in the internal SmartTest-CICS table is selected.
Current Sysid	Displays to remind you in which region your facility entries will be made. If necessary, type over the SYSID displayed to specify the region in which your test runs. If that SYSID is not active in this test session, the Remote Connections screen is automatically displayed.
Write to CSSL	Indicates whether the SmartTest-CICS trace facility is ON or OFF. To reset this field to OFF (after the event being traced is complete), type `TOF` (TRACE OFF) in the CICS Userid field.
Monitor all active Regions	Enables remote testing of transactions in multiple CICS regions. The default value is No.

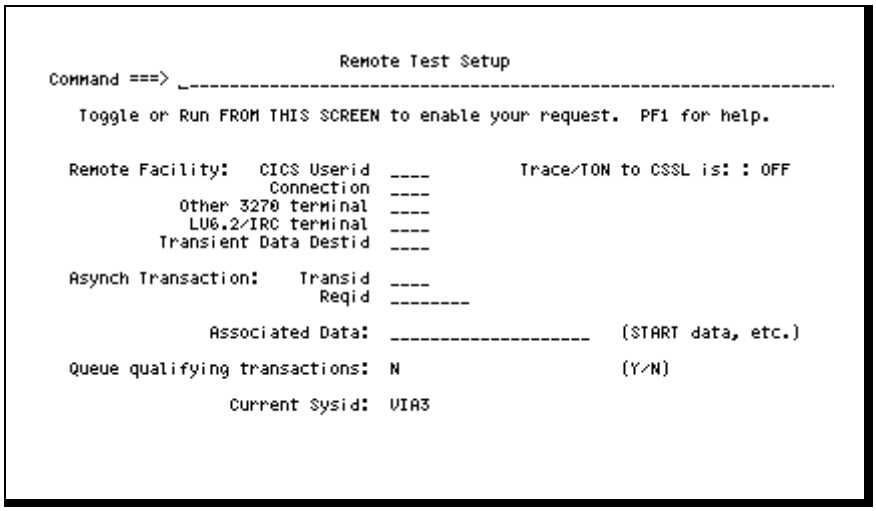
Asynchronous Transaction Test

To SmartTest-CICS, an asynchronous (background) transaction is one that is initiated by an EXEC CICS START TRAN(*xxxx*) statement, with or without associated data or a request ID. In asynchronous RMF testing, SmartTest-CICS allows you to monitor any occurrence of a specified asynchronous transid, or to qualify the transid with associated data, user ID, or request ID (to differentiate one asynchronous event from another). If the EXEC CICS START statement specifies a terminal ID, and the terminal ID does not refer to the SmartTest terminal, the test should be set up as a Remote Facility Test.

To set up an asynchronous transaction test

1 On the CICS Session Setup screen, select Option 4 - Set up Remote (RMF) Test (LU6, DPL, Asynch) and press Enter. The Remote Test Setup screen, shown in Figure 45, displays. You can also display the Remote Test Setup screen by typing `REMOTE` on the command line and pressing Enter.

Figure 45 • Remote Test Setup Screen



2 Check the Current SYSID field at the bottom of the screen. Make sure the SYSID points to the region where your program actually runs. Type over the entry displayed, if necessary, to point to the correct region for your test.

3 Type the facility ID under Remote Facility ID to Test or Asynchronous Transaction to Test. If you are not certain which facility ID to use, see "Determining the RMF Facility ID" on page 109.

4 Toggle to CICS or type `RUN`.

5 After testing, delete the entries on the Remote Test Setup screen. Make sure the Transid field is reset to NO.

Determining the RMF Facility ID

To ensure the best SmartTest-CICS test results, you must specify a Remote Facility ID that distinguishes your test from other tests of the same transaction. The SmartTest-CICS trace facility provides a method of determining the best Facility ID to use for a remote test setup.

To use the trace facility

1. Turn on the trace in the region where your transaction or program will run.
2. Run the transaction natively (not under SmartTest).
3. Turn off the trace and review the output.

To use the RMF trace facility

1. Perform these actions on the Remote Test Setup screen:
   a. Change the Current SYSID to the region where your program or transaction runs.
   b. In the CICS Userid field, type `TON` (TRACE ON). TON does not remain on the screen.
2. Using another session or device, initiate the activity that invokes the program(s) to be tested. When you are certain that the event is complete return to the Remote Test Setup screen.
3. In the CICS Userid field, type `TOF` (TRACE OFF).

Note:

While TRACE ON is in effect, entries are logged for ANY transaction that is not monitored. Be sure to reset this field to TRACE OFF as soon as possible.

4 Ask your SmartTest-CICS installer which DestID was specified for SmartTest print requests and how to view its contents. Use your installer's recommended method to look at the DestID. By default, the DestID is CSSL, which is usually viewed by looking at the MSGUSER DD for the active CICS job as shown in Figure 46.

Figure 46 • Trace Output - Viewing CSSL DESTID

```
---------- Job: VIAQCICS
COMMAND ===>
Class W Msgclass X Queue EXEC SYS

SEL   -DDNAME- STEPNAME PROCSTEP
...   JESMSGLG JES2.... ........
...   JESJCL   JES2.... ........
...   JESYSMSG JES2.... ........
...   SYSPRINT STEP1... STEP01..
...   SYSPRINT GENINPT. ........
...   SYSPRINT CICSCNTL ........
...   SYSPRINT DTCNTL.. ........
...   DFHCXRF  CICS.... ........
...   LOGUSR   CICS.... ........
...   MSGUSR   CICS.... ........
...   PLIMSG   CICS.... ........
```

5 Select MSGUSR and go to the bottom of the entries.

6 Execute a FIND PREVIOUS for the transaction in which you are interested.

Note:

If you are running a DPL test, do the FIND for the CICS transaction ID CSMI, CPMI, or CVMI. CICS runs the linked program under one of these transids, depending on the type of connection on which you submitted the main transaction.

Additional examples of trace output are provided in "SmartTest-CICS Trace Output Examples" on page 111.

Note:

The SmartTest-CICS trace records all non-monitored events that occur in the region pointed to by the Current SYSID. Turn off the trace as soon as the event you want to trace is complete.

To use a CICS auxtrace to determine the correct setup

1 Turn on the trace, being careful to activate relevant trace points, such as AP, IS, and TC 1-2.

2 Initialize the event you are interested in tracing.

3 Turn off the trace and print it.

4 Check the records associated with transaction initialization. See Figure 47 for an example of trace records for a DPL test across an IRC connection. Note that the CICS trace may include ATTACH SIGN ON entries, where the CICS user ID might change. The user ID associated with this DPL test is D51.

Figure 47 • CICS Auxtrace Output

```
MN 0201 MNMN  ENTRY - FUNCTION(TRANSACTION INITIALISATION) ...
                      TRANSACTION ID(CSMI) TERMINAL ID(F$1) USERID(STC)
 AP FC5C SNAT  ENTRY - FUNCTION(ATTACH SIGN ON) ... USERID(D51) ... (IRC)
 AP FC60 SNSN  ENTRY - FUNCTION(OPTIMIZED SIGN ON) ..... USERID(D51)
```

SmartTest-CICS Trace Output Examples

Example 1

In this example, TON (TRACE ON) was entered with the Current SYSID pointing to CICSAOR1. A DPL request was submitted in CICSAOR2 for a link to program VIACCOB2 that runs in CICSAOR1. The SmartTest trace entry in the CSSL (MSGUSR) log for CICSAOR1 would be similar to this example:

```
ASG2960I    FACILITY(-990)  NOT FOUND. SMARTTEST WILL NOT MONITOR THIS TASK
            EIBTRNID(CSMI)
              USERID(AOR2USER)USER)
            TERMCODE(X'COOO')
                 FCI(X'O1)
          STARTCODE(TD)
     CONNECTION(VI86)APPC,INSERVICE,VIA6CICS)*
```

This trace entry tells you this information:

- The DPL request ran on facility -990 (this time).
- The CICS user ID associated with the transaction, as it ran in CICSAOR1, was AOR2USER. You could use the character string USER in the CICS Userid field on the Remote Test Setup screen.
- The CSMI transaction came in on connection AOR2, which is an APPC connection, whose VTAM APPLID is CICSAOR2.

Note:

The TERMCODE, FCI, and STARTCODE are primarily ASG Customer Support debugging purposes. The STARTCODE is the usual CICS startcode.

From this trace entry, you have three choices for identifying this remote test to SmartTest-CICS:

1. LU6.2/IRC terminal -990
2. CICS Userid USER
3. Connection AOR2

In addition, you could put the name of the DPL'd program, VIACCOB2, in the Associated Data field. This would distinguish your test request from others coming in on -990 or AORZ or with the user ID USER.

Example 2

An LU6.2 conversation, initiated in CICSAOR2, to invoke a transaction named ROUT in CICSAOR1 would result in the trace entry similar to this:

```
ASG2960I    FACILITY(-AAJ)  DID NOT MEET SELECTION CRITERIA FOR SMARTTEST
            EIBTRNID(ROUT)
              USERID(CICSUSER)USER)
            TERMCODE(X'COOO')
                 FCI(X'O1)
           STARTCODE(TD)
       CONNECTION(T132)APPC,INSERVICE,VIA2CICS)*
```

The available information is similar to the DPL test; but, in this case the actual transid displays in EIBTRNID.

The associated data is the LUC terminal I/O that came across the AOR2 connection with the transid ROUT. You could put 16 in the Associated Data field on your Remote Test Setup screen to restrict testing to only those ROUT transactions that came in with a 16.

Example 3

An unmonitored asynchronous transaction running in CICSAOR1, when the trace is on, would result in a trace entry similar to this:

```
ASG2960I   FACILITY(asyn)  NOT FOUND. SMARTTEST WILL NOT MONITOR THIS TASK.
           EIBTRNID(VC03)
              USERID(blank)
            TERMCODE(X'COOO0')
                 FCI(X'O4)
           STARTCODE(SD)
     DWIICOB3 ASYNCHRONOUSLY STARTED
```

This trace entry conveys this information:

- No user ID was associated with the initialization of asynchronous transaction VCO3.
- The startcode SD indicates that there was data associated with the start request. (It would be an S if there was no data.)

To set up a unique asynchronous test

1. Determine the data associated with the particular invocation of NCO3 you are interested in.
2. Type any 16 characters of that data in the Data field on the Remote Test Setup screen.

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